

MEASUREMENT REPORT
FCC PART 15.407 802.11ax/be (OFDMA)**Applicant Name:**

Samsung Electronics Co., Ltd.
129, Samsung-ro,
Yeongtong-gu, Suwon-si
Gyeonggi-do, 16677, Korea

Date of Testing:

09/03/2024 – 11/06/2024

Test Report Issue Date:

11/15/2024

Test Site/Location:

Element Lab., Columbia, MD, USA
Element Lab., Morgan Hill, CA, USA

Test Report Serial No.:

1M2408260066-18.A3L

FCC ID:**A3LSMS936B****APPLICANT:****Samsung Electronics Co., Ltd.****Application Type:**

Certification

Model:

SM-S936B/DS

Additional Model(s):

SM-S936B

EUT Type:

Portable Handset

Frequency Range:

5180 – 5885MHz

Modulation Type:

OFDMA

FCC Equipment Class:

Unlicensed National Information Infrastructure TX (NII)

FCC Rule Part(s):

Part 15 Subpart E (15.407)

Test Procedure(s):

ANSI C63.10-2013, KDB 648474 D03 v01r04

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10-2013. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.



RJ Ortanez
Executive Vice President



FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 1 of 146

T A B L E O F C O N T E N T S

1.0	INTRODUCTION	5
1.1	Scope.....	5
1.2	Element Test Location.....	5
1.3	Test Facility / Accreditations.....	5
2.0	PRODUCT INFORMATION	6
2.1	Equipment Description	6
2.2	Device Capabilities.....	6
2.3	Antenna Description.....	9
2.4	Test Configuration.....	9
2.5	Software and Firmware	9
2.6	EMI Suppression Device(s) / Modifications.....	9
3.0	DESCRIPTION OF TESTS	10
3.1	Evaluation Procedure	10
3.2	Radiated Emissions.....	10
3.3	Environmental Conditions.....	10
4.0	ANTENNA REQUIREMENTS	11
5.0	MEASUREMENT UNCERTAINTY	12
6.0	TEST EQUIPMENT CALIBRATION DATA.....	13
7.0	TEST RESULTS	15
7.1	Summary.....	15
7.2	26dB Bandwidth Measurement.....	17
7.2.1	MIMO Antenna-1 26dB Bandwidth Measurements	20
7.2.2	MIMO Antenna-2 26dB Bandwidth Measurements	26
7.3	6dB Bandwidth Measurement	32
7.3.1	MIMO Antenna-1 6dB Bandwidth Measurements	35
7.3.2	MIMO Antenna-2 6dB Bandwidth Measurements	45
7.4	UNII Output Power Measurement.....	55
7.5	Maximum Power Spectral Density.....	64
7.5.1	MIMO Antenna-1 Power Spectral Density Measurements	69
7.5.2	MIMO Antenna-2 Power Spectral Density Measurements	84
7.6	Radiated Emission Measurements	100
7.6.1	MIMO Radiated Spurious Emission Measurements (26 Tones).....	106
7.6.2	MIMO Radiated Spurious Emission Measurements (242 Tones).....	114
7.6.3	MIMO Radiated Band Edge Measurements (20MHz BW – Partial Tone – 106T).....	122
7.6.4	MIMO Radiated Band Edge Measurements (20MHz BW – Partial Tone – 106+26T).....	125
7.6.5	MIMO Radiated Band Edge Measurements (20MHz BW – Full Tone – 242T).....	128
7.6.6	MIMO Radiated Band Edge Measurements (40MHz BW – Full Tone – 484T).....	131
7.6.7	MIMO Radiated Band Edge Measurements (80MHz BW – Partial Tones – 484+242T).....	134
7.6.8	MIMO Radiated Band Edge Measurements (80MHz BW – Full Tone – 996T).....	137
7.6.9	MIMO Radiated Band Edge Measurements (160MHz BW – Partial Tones – 996+484T).....	140

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 2 of 146

7.6.10 MIMO Radiated Band Edge Measurements (160MHz BW – Full Tone – 2x996T)	143
8.0 CONCLUSION.....	146

MEASUREMENT REPORT		Approved by: Technical Manager
FCC ID: A3LSMS936B Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset

MEASUREMENT REPORT

Channel Bandwidth [MHz]	UNII Band	Tx Frequency [MHz]	Antenna-1		Antenna-2		MIMO	
			Max. Power [mW]	Max. Power [dBm]	Max. Power [mW]	Max. Power [dBm]	Max. Power [mW]	Max. Power [dBm]
20	1	5180 - 5240	34.99	15.44	38.55	15.86	76.68	18.85
	2A	5260 - 5320	38.02	15.80	37.58	15.75	79.16	18.99
	2C	5500 - 5720	35.48	15.50	36.39	15.61	75.60	18.79
	3	5745 - 5825	35.24	15.47	34.99	15.44	72.36	18.59
	4	5845 - 5885	11.46	10.59	16.03	12.05	57.55	17.60
40	1	5190 - 5230	33.88	15.30	36.90	15.67	71.64	18.55
	2A	5270 - 5310	34.12	15.33	35.81	15.54	68.97	18.39
	2C	5510 - 5710	35.16	15.46	34.59	15.39	62.41	17.95
	3	5755 - 5795	33.11	15.20	33.73	15.28	62.41	17.95
	4	5835 - 5875	11.48	10.60	14.89	11.73	48.58	16.86
80	1	5210	25.18	14.01	28.31	14.52	56.96	17.56
	2A	5290	27.80	14.44	26.85	14.29	53.03	17.25
	2C	5530 - 5690	27.54	14.40	26.30	14.20	73.92	18.69
	3	5775	27.10	14.33	28.31	14.52	77.01	18.87
	4	5855	11.48	10.60	14.89	11.73	48.58	16.86
160	1/2A	5250	20.89	13.20	21.88	13.40	47.49	16.77
	2C	5570	20.28	13.07	21.09	13.24	45.50	16.58
	3/4	5815	7.01	8.46	9.02	9.55	34.11	15.33

EUT Overview

Note: The UNII Band 4 max power values shown in the above table are e.i.r.p values.

FCC ID: A3LSMS936B	MEASUREMENT REPORT				Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset			



1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

1.2 Element Test Location

Measurements were conducted at the Element laboratory(ies) indicated in Section 1.3 below. All measurement facilities are compliant with the test site requirements specified in ANSI C63.4-2014 and KDB 414788 D01 v01r01.

1.3 Test Facility / Accreditations

Measurements were performed at Element lab located in Columbia, MD 21046, U.S.A.

- Element Washington DC LLC is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- Element Washington DC LLC TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).
- Element Washington DC LLC facility is a registered (2451B) test laboratory with the site description on file with ISED.
- Element Washington DC LLC is a Recognized U.S. Certification Assessment Body (CAB # US0110) for ISED Canada as designated by NIST under the U.S. and Canada Mutual Recognition Agreements (MRAs).

Measurements were performed at Element located in Morgan Hill, CA 95037, U.S.A.

- Element is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.02 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- Element facility is a registered (22831) test laboratory with the site description on file with ISED.

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 5 of 146

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSMS936B**. The test data contained in this report pertains only to the emissions due to the EUT's UNII transmitter.

Test Device Serial No.: 2054M, 2284M, 1150M, 1292M, 1182M, 1250M, 2066M, 1295M, 1259M, 1258M

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, Multi-band 5G NR (FR1), 802.11b/g/n/ax/be WLAN, 802.11a/n/ac/ax/be UNII (5GHz and 6GHz), Bluetooth (1x, EDR, LE), NFC, UWB, Wireless Power Transfer

Band 1		Band 2A		Band 2C		Band 3		Band 3/4	
Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
36	5180	52	5260	100	5500	149	5745	169	5845
:	:	:	:	:	:	:	:	:	:
40	5200	56	5280	120	5600	157	5785	173	5865
:	:	:	:	:	:	:	:	:	:
48	5240	64	5320	144	5720	165	5825	177	5885

Table 2-1. 802.11ax/be (20MHz) Frequency / Channel Operations

Band 1		Band 2A		Band 2C		Band 3		Band 3/4	
Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
38	5190	54	5270	102	5510	151	5755	167	5835
:	:	:	:	:	:	:	:	:	:
46	5230	62	5310	118	5590	159	5795	175	5875
				142	5710				

Table 2-2. 802.11ax/be (40MHz BW) Frequency / Channel Operations

Band 1		Band 2A		Band 2C		Band 3		Band 3/4	
Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
42	5210	58	5290	106	5530	155	5775	167	5835
				:	:				
				122	5610				
				:	:				
				138	5690				

Table 2-3. 802.11ax/be (80MHz BW) Frequency / Channel Operations

Band 1/2A		Band 2C		Band 3/4	
Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
50	5250	114	5570	163	5815

Table 2-4. 802.11ax/be (160MHz BW) Frequency / Channel Operations

FCC ID: A3LSMS936B	MEASUREMENT REPORT				Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset			

Notes:

1. 5GHz NII operation is possible in 20MHz, 40MHz, 80MHz, and 160MHz channel bandwidths. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = peak per the guidance of Section B)2)b) of ANSI C63.10-2013. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

Band	Bandwidth	Tone Type	Tone Size	ANT1			ANT2			MIMO (1+2)		
				Duty Cycle [%]	Pulse Width	Period	Radiated DCCF [dB]	Duty Cycle [%]	Pulse Width	Period	Radiated DCCF [dB]	Duty Cycle [%]
5GHz	20MHz	RU	26T	99.59	4.596	4.615	N/A	99.59	4.574	4.593	N/A	98.90
			52T	99.57	4.585	4.605	N/A	99.59	4.564	4.583	N/A	98.81
			106T	99.24	2.490	2.509	N/A	99.24	2.487	2.506	N/A	98.41
			242T	98.45	1.141	1.159	N/A	98.33	1.119	1.138	N/A	98.25
	40MHz	RU	52+26T	99.49	3.501	3.519	N/A	99.49	3.499	3.517	N/A	98.90
			106+26T	99.12	2.029	2.047	N/A	99.07	2.027	2.046	N/A	98.16
		MRU	26T	99.63	4.594	4.611	N/A	99.59	4.572	4.591	N/A	99.11
			52T	99.61	4.565	4.583	N/A	99.61	4.563	4.581	N/A	98.00
	80MHz	RU	106T	99.32	2.490	2.507	N/A	99.32	2.486	2.503	N/A	98.41
			242T	98.51	1.122	1.139	N/A	98.50	1.119	1.136	N/A	98.17
			484T	98.47	1.097	1.114	N/A	98.38	1.094	1.112	N/A	98.16
			52+26T	99.52	3.501	3.518	N/A	99.52	3.498	3.515	N/A	98.98
		MRU	106+26T	99.17	2.029	2.046	N/A	99.17	2.026	2.043	N/A	98.91
			26T	99.63	4.575	4.592	N/A	99.63	4.573	4.590	N/A	98.98
			52T	99.63	4.564	4.581	N/A	99.63	4.563	4.580	N/A	98.90
			106T	99.28	2.488	2.506	N/A	99.28	2.486	2.504	N/A	98.16
	160MHz	RU	242T	98.42	1.120	1.138	N/A	98.42	1.119	1.137	N/A	98.24
			484T	98.38	1.095	1.113	N/A	98.38	1.094	1.112	N/A	98.14
			996T	98.39	1.038	1.055	N/A	98.29	1.036	1.054	N/A	98.24
			52+26T	99.52	3.500	3.517	N/A	99.52	3.498	3.515	N/A	98.90
		MRU	106+26T	99.17	2.028	2.045	N/A	99.17	2.026	2.043	N/A	97.80
			484+242T	98.82	1.423	1.440	N/A	98.75	1.421	1.439	N/A	99.01
			26T	99.63	4.575	4.592	N/A	99.61	4.573	4.591	N/A	99.07
			52T	99.65	4.565	4.581	N/A	99.65	4.564	4.580	N/A	99.00
		RU	106T	99.28	2.488	2.506	N/A	99.32	2.487	2.504	N/A	98.56
			242T	98.42	1.120	1.138	N/A	98.42	1.119	1.137	N/A	98.33
			484T	98.38	1.095	1.113	N/A	98.38	1.094	1.112	N/A	98.32
			996T	98.39	1.038	1.055	N/A	98.29	1.036	1.054	N/A	98.24
		MRU	2x996T	98.29	1.034	1.052	N/A	98.29	1.032	1.050	N/A	98.13
			52+26T	99.52	3.499	3.516	N/A	99.49	3.498	3.516	N/A	99.01
			106+26T	99.17	2.027	2.044	N/A	99.12	2.026	2.044	N/A	98.90
			484+242T	98.82	1.423	1.440	N/A	98.75	1.421	1.439	N/A	98.70
		RU	996+484T	98.78	1.376	1.393	N/A	98.71	1.374	1.392	N/A	98.70
			966+484+242T	99.69	5.449	5.466	N/A	99.71	5.450	5.466	N/A	99.75

Table 2-5. Measured Duty Cycles

FCC ID: A3LSMS936B	MEASUREMENT REPORT					Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset				

2. The device employs MIMO technology. Below are the possible configurations.

WiFi Configurations			SISO			SDM			CDD		
			ANT1	ANT2	ANT1	ANT2	ANT1	ANT2	ANT1	ANT2	ANT1
5GHz	11ax		✓	✓	✓	✓	✓	✓	✓	✓	
	11be		✓	✓	✓	✓	✓	✓	✓	✓	

Table 2-6. Frequency / Channel Operations

✓ = Support; ✗ = NOT Support

SISO = Single Input Single Output

SDM = Spatial Diversity Multiplexing – MIMO function

CDD = Cyclic Delay Diversity – 2Tx Function

3. The device supports the following data rates (shown in Mbps):

MCS Index	Spatial Stream	OFDMA (802.11ax)																				
		2ST			52T			106T			242T			484T			996T			2x996T		
		0.8µs GI	1.6µs GI	3.2µs GI	0.8µs GI	1.6µs GI	3.2µs GI	0.8µs GI	1.6µs GI	3.2µs GI	0.8µs GI	1.6µs GI	3.2µs GI	0.8µs GI	1.6µs GI	3.2µs GI	0.8µs GI	1.6µs GI	3.2µs GI	0.8µs GI	1.6µs GI	3.2µs GI
0	1	0.9	0.8	0.8	1.8	1.7	1.5	3.8	3.5	3.2	8.6	8.1	7.3	17.2	16.3	14.6	36	34	30.6	72.1	68.1	61.3
1	1	1.8	1.7	1.5	3.5	3.3	3	7.5	7.1	6.4	17.2	16.3	14.6	34.4	32.5	29.3	72.1	68.1	61.3	144.1	136.1	122.5
2	1	2.6	2.5	2.3	5.3	5	4.5	11.3	10.6	9.6	25.8	24.4	21.9	51.6	48.8	43.9	108.1	102.1	91.9	216.2	204.2	183.8
3	1	3.5	3.3	3	7.1	6.7	6	15	14.2	12.8	34.4	32.5	29.3	68.8	65	58.5	144.1	136.1	122.5	288.2	272.2	245
4	1	5.3	5	4.5	10.6	10	9	22.5	21.3	19.1	51.6	48.8	43.9	103.2	97.5	87.8	216.2	204.2	183.8	432.4	408.3	367.5
5	1	7.1	6.7	6	14.1	13.3	12	30	28.3	25.5	68.8	65	58.5	137.6	130	117	288.2	272.2	245	576.5	544.4	490
6	1	7.9	7.5	6.8	15.9	15	13.5	33.8	31.9	28.7	77.4	73.1	65.8	154.9	146.3	131.6	324.3	306.3	275.6	648.5	612.5	551.3
7	1	8.8	8.3	7.5	17.6	16.7	15	37.5	35.4	31.9	86	81.3	73.1	172.1	162.5	146.3	360.3	340.3	306.3	720.6	680.6	612.5
8	1	10.6	10	9	21.2	20	18	45	42.5	38.3	103.2	97.5	87.8	206.5	195	175.5	432.4	408.3	367.5	864.7	816.7	735
9	1	11.8	11.1	10	23.5	22.2	20	50	47.2	42.5	114.7	108.3	97.5	229.4	216.7	195	480.4	453.7	408.3	960.8	907.4	816.7
10	1	13.2	12.5	11.3	26.5	25	22.5	56.3	53.1	47.8	129	121.9	109.7	258.1	243.8	219.4	540.4	510.4	459.4	1080.9	1020.8	918.8
11	1	14.7	13.9	12.5	29.4	27.8	25	62.5	59	53.1	143.4	135.4	121.9	286.8	270.8	243.8	600.5	567.1	510.4	1201	1134.3	1020.8
0	2	1.8	1.7	1.5	3.5	3.3	3	7.5	7.1	6.4	17.2	16.3	14.6	34.4	32.5	29.3	72.1	68.1	61.3	144.1	136.1	122.5
1	2	3.5	3.3	3	7.1	6.7	6	15	14.2	12.8	34.4	32.5	29.3	68.8	65	58.5	144.1	136.1	122.5	288.2	272.2	245
2	2	5.3	5	4.5	10.6	10	9	22.5	21.3	19.1	51.6	48.8	43.9	103.2	97.5	87.8	216.2	204.2	183.8	432.4	408.3	367.5
3	2	7.1	6.7	6	14.1	13.3	12	30	28.3	25.5	68.8	65	58.5	137.6	130	117	288.2	272.2	245	576.5	544.4	490
4	2	10.6	10	9	21.2	20	18	45	42.5	38.3	103.2	97.5	87.8	206.5	195	175.5	432.4	408.3	367.5	864.7	816.7	735
5	2	14.1	13.3	12	28.2	26.7	24	60	56.7	51	137.6	130	117	275.3	260	234	576.5	544.4	490	1152.9	1088.9	980
6	2	15.9	15	13.5	31.8	30	27	67.5	63.8	57.4	154.9	146.3	131.6	309.7	292.5	263.3	648.5	612.5	551.3	1297.1	1225	1102.5
7	2	17.6	16.7	15	35.3	33.3	30	75	70.8	63.8	172.1	162.5	146.3	344.1	325	292.5	720.6	680.6	612.5	1441.2	1361.1	1225
8	2	21.2	20	18	42.4	40	36	90	85	76.5	206.5	195	175.5	412.9	390	351	864.7	816.7	735	1729.4	1633.3	1470
9	2	23.5	22.2	20	47.1	44.4	40	100	94.4	85	229.4	216.7	195	458.8	433.3	390	960.8	907.4	816.7	1921.6	1814.8	1633.3
10	2	26.5	25	22.5	52.9	50	45	112.5	106.3	95.6	258.1	243.8	219.4	516.2	487.5	438.8	1080.9	1020.8	918.8	2161.8	2041.7	1837.5
11	2	29.4	27.8	25	58.8	55.6	50	125	118.1	106.3	286.8	270.8	243.8	573.5	541.7	487.5	1201	1134.3	1020.8	2402	2268.5	20417

Table 2-7. Supported Data Rates

FCC ID: A3LSMS936B	MEASUREMENT REPORT				Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset			Page 8 of 146

2.3 Antenna Description

The following antenna gains were used for the testing.

Frequency [GHz]	Antenna 1 Gain (dBi)	Antenna 2 Gain (dBi)	Directional Gain (dBi)
5.20	-5.00	-6.85	-2.87
5.22	-5.19	-6.00	-2.58
5.25	-5.02	-5.68	-2.33
5.28	-3.27	-5.41	-1.26
5.30	-4.58	-4.70	-1.63
5.5	-4.40	-5.36	-1.86
5.6	-4.82	-5.13	-1.95
5.7	-3.86	-5.50	-1.63
5.785	-3.52	-4.80	-1.13
5.8	-4.11	-5.06	-1.56
5.805	-4.59	-3.98	-1.27
5.85	-4.61	-4.30	-1.44
5.885	-4.88	-3.65	-1.23

Table 2--8. Antenna Peak Gain by Frequency

Frequency [GHz]	Antenna 1 Gain (dBi)	Antenna 2 Gain (dBi)	Directional Gain (dBi)
5.15-5.25	-5.02	-5.68	-2.33
5.25-5.35	-3.27	-5.41	-1.26
5.47-5.725	-3.86	-5.50	-1.63
5.725-5.85	-3.52	-4.80	-1.13
5.85-5.895	-4.88	-3.65	-1.23

Table 2--9. Antenna Peak Gain by Band

2.4 Test Configuration

ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing. See 5GHz OFDM Report for AC line conducted emissions test setups, 7.6 for radiated emissions test setups, and 7.2, 7.3, 7.4, and 7.5 for antenna port conducted emissions test setups.

This device supports wireless charging capability and, thus, is subject to the test requirements of KDB 648474 D03 v01r04. Additional radiated spurious emission measurements were performed with the EUT lying flat on an authorized wireless charging pad (WCP) Model: NQ-WC-06 while operating under normal conditions in a simulated call or data transmission configuration. The worst case radiated emissions data is shown in this report.

2.5 Software and Firmware

The test was conducted with software/firmware version S936BXXU0AXHJ installed on the EUT.

2.6 EMI Suppression Device(s) / Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

FCC ID: A3LSMS936B	MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset		Page 9 of 146

3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedures described in the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10-2013) was used in the measurement of the EUT.

Deviation from measurement procedure..........**None**

3.2 Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. An 80cm tall test table made of Styrodur is placed on top of the turn table. For measurements above 1GHz, an additional Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33 depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up was placed on top of the 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, mode of operation, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions.

All radiated measurements are performed in a chamber that meets the site requirements per ANSI C63.4-2014. Additionally, radiated emissions below 30MHz are also validated on an Open Area Test Site to assert correlation with the chamber measurements per the requirements of KDB 414788 D01 v01r01.

3.3 Environmental Conditions

The temperature is controlled within range of 15°C to 35°C. The relative humidity is controlled within range of 10% to 75%. The atmospheric pressure is monitored within the range 86-106kPa (860-1060mbar).

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 10 of 146

4.0 ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

- The antennas of the EUT are **permanently attached**.
- There are no provisions for connection to an external antenna.

Conclusion:

The EUT complies with the requirement of §15.203.

MEASUREMENT REPORT		Approved by: Technical Manager
FCC ID: A3LSMS936B Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset

5.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty (\pm dB)
Conducted Bench Top Measurements	1.13
Line Conducted Disturbance	3.09
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

Table 5-1. Measurement Uncertainty Budget – MD

Contribution	Expanded Uncertainty (\pm dB)
Conducted Bench Top Measurements	1.65
Line Conducted Disturbance	2.71
Radiated Disturbance (<30MHz)	4.06
Radiated Disturbance (30MHz - 1GHz)	4.30
Radiated Disturbance (1 - 18GHz)	4.78
Radiated Disturbance (>18GHz)	4.79

Table 5-2. Measurement Uncertainty Budget – CA

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 12 of 146

6.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	WL25-1	Conducted Cable Set (25GHz)	4/2/2024	Annual	4/2/2025	WL25-1
-	WL25-2	Conducted Cable Set (25GHz)	4/2/2024	Annual	4/2/2025	WL25-2
-	WL40-1	Conducted Cable Set (40GHz)	4/2/2024	Annual	4/2/2025	WL40-1
-	AP1-002	EMC Cable and Switch System	4/2/2024	Annual	4/2/2025	AP1-002
-	ETS-001	EMC Cable and Switch System	4/2/2024	Annual	4/2/2025	ETS-001
-	ETS-002	EMC Cable and Switch System	4/2/2024	Annual	4/2/2025	ETS-002
-	MD 1M 18-40	EMC Cable and Switch System	4/2/2024	Annual	4/2/2025	MD 1M 18-40
Anritsu	MA24408A	Microwave Peak Power Sensor	5/21/2024	Annual	5/21/2025	11675
Anritsu	MA24408A	Microwave Peak Power Sensor	4/10/2024	Annual	4/10/2025	12798
ETS-Lindgren	3116C	Horn Antenna (18-40GHz)	2/27/2023	Biennial	2/27/2025	218893
Rohde & Schwarz	TC-TA18	Vivaldi Antenna	2/23/2023	Biennial	2/23/2025	26040036
Rohde & Schwarz	FSW26	Signal and Spectrum Analyzer (26.5GHz)	3/8/2024	Annual	3/8/2025	103187
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	9/25/2023	Annual	9/25/2024	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	9/11/2023	Annual	9/11/2024	100348
Rohde & Schwarz	ESW44	EMI Test Receiver (44GHz)	4/5/2024	Annual	4/5/2025	101716
Pasternak	NMLC-2	EMI Test Receiver (2Hz to 44GHz)	4/2/2024	Annual	4/2/2025	NMLC-2
Rohde & Schwarz	ENV216	Two-Line V-Network	1/31/2023	Biennial	1/31/2025	101379
Keysight Technologies	N9030A	PXA Signal Analyzer (44GHz)	4/9/2024	Annual	4/9/2025	MY52350166
Keysight Technologies	N9020A	MXA Signal Analyzer	4/11/2024	Annual	4/11/2025	MY54500644
Keysight Technologies	N9030A	PXA Signal Analyzer	2/29/2024	Annual	3/1/2025	MY55410501
Keysight Technologies	N9030B	PXA Signal Analyzer, Multi-touch	9/19/2024	Annual	9/19/2025	MY57141001
Sunol	JB6	JB6 Antenna	3/2/2023	Biennial	3/2/2025	A082816
Sunol	JB5	Bi-Log Antenna (20M-5GHz)	9/11/2024	Biennial	9/11/2026	A051107
Rohde & Schwarz	SMW200A	Vector Signal Generator	4/4/2024	Annual	4/4/2025	109456

Table 6-1. Test Equipment Calibration Table – MD

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
ETS-Lindgren	3117	Double Ridged Guide Antenna (1-18 GHz)	4/9/2024	Annual	4/9/2025	00218555
Rohde & Schwarz	TS-PR18	Pre-Amplifier (1GHz - 18GHz)	5/29/2024	Annual	11/29/2024	102132
Rohde & Schwarz	TS-PR18	Pre-Amplifier (1GHz - 18GHz)	8/14/2024	Annual	8/15/2025	101648
Rohde & Schwarz	FSV40	Signal Analyzer (10Hz-40GHz)	5/29/2024	Annual	5/29/2025	101619
Rohde & Schwarz	ESW44	EMI Test Receiver	5/1/2024	Annual	5/1/2025	101867
Rohde & Schwarz	FSW67	Signal and Spectrum Analyzer (2Hz-67GHz)	7/5/2024	Annual	7/5/2025	101366
Rohde & Schwarz	TS-PR8	Pre-Amplifier (30MHz - 8GHz)	7/3/2024	Annual	7/3/2025	102356
Schwarzbeck	VULB 9162	Bilog Antenna (30MHz - 6GHz)	4/29/2024	Annual	4/29/2025	00304

Table 6-2. Test Equipment Calibration Table – CA

Note:

FCC ID: A3LSMS936B	MEASUREMENT REPORT				Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset			



For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.

FCC ID: A3LSMS936B		MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset		Page 14 of 146

7.0 TEST RESULTS

7.1 Summary

Company Name: Samsung Electronics Co., Ltd.
 FCC ID: A3LSMS936B
 FCC Classification: Unlicensed National Information Infrastructure (NII)

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference	Test Lab Location
N/A	RSS-Gen [6.7]	26dB Bandwidth	N/A	CONDUCTED	PASS	Section 7.2	MD
15.407(e)	RSS-Gen [6.7]	6dB Bandwidth	>500kHz (5725-5850MHz and 5850 – 5895MHz)		PASS	Section 7.3	MD
15.407 (a)(1)(iv), (a)(2), (a)(3)	RSS-247 [6.2]	Maximum Conducted Output Power	Maximum conducted powers must meet the limits detailed in 15.407 (a) (RSS-247 [6.2])		PASS	Section 7.4	MD
15.407 (a)(1)(iv), (a)(2), (a)(3)	RSS-247 [6.2]	Maximum Power Spectral Density	Maximum power spectral density must meet the limits detailed in 15.407 (a) (RSS-247 [6.2])		PASS	Section 7.5	MD
15.407(h)	RSS-247 [6.3]	Dynamic Frequency Selection	See DFS Test Report		PASS	See DFS Test Report	MD
15.407(b)(1), (b)(2), (b)(3), (b)(4)	RSS-247 [6.2]	Undesirable Emissions	Undesirable emissions must meet the limits detailed in 15.407(b) (RSS-247 [6.2])	RADIATED	PASS	Section 7.6	CA
15.205, 15.407(b)(1), (b)(4), (b)(5), (b)(6)	RSS-Gen [8.9]	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209 (RSS-Gen [8.9])		PASS	Section 7.6, 7.7	CA

Table 7-1. Summary of Test Results

Notes:

- 1) All channels, modes, and modulations/data rates were investigated among all UNII bands. The test results shown in the following sections represent the worst-case emissions.
- 2) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables and attenuators.
- 4) For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is Element "UNII Automation," Version 4.7.
- 5) For radiated band edge, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is Element "Chamber Automation," Version 1.5.0.
- 6) 802.11ax/be OFDMA testing was performed for all signal tone configurations as specified by the 802.11ax standard. Worst case results are determined and reported per the guidance provided at the October 2018 TCB Workshop.
- 7) Only one RU index could be selected at a time, so no contiguous or non-contiguous RUs were considered for testing.

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 15 of 146

8) Data was leveraged from model SM-S938U for the certification of SM-S938B/DS. See Table 7-2 for spot-check results.

FCC Rules	Test Item	Test Case	Units	Limit	Reference Model: SM-S936U	Variant Model: SM-S936B	Deviation (dB)	Max Deviation (dB)	Pass/Fail
2.1046, 15.407(a)(8)	Conducted Output Power	Mid Channel Each UNII Band - 802.11be 242T	dBm	N/A	18.85	18.77	-0.08	1	PASS
15.209, 15.407(b)(1), 15.407(b)(2), 15.407(b)(3), 15.407(b)(4)	Radiated Spurious Emissions	802.11ax MIMO 26 Tone Ch.36 - 7252 MHz - Average	dBm	53.98	44.02	46.57	2.55	3	PASS
15.209	Radiated Band Edge Emissions	802.11ax MIMO 996 Tone Ch.106 - Average	dBm	53.98	51.86	49.52	-2.34	3	PASS

Table 7-2. Summary of Spot-checks

20 MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]						
					RU Index														
					61														
					ANT1	ANT2	MIMO												
1	5200	40	242T	15.88	15.63	18.77	23.98	-5.21	-2.33	16.44	30.0	-13.56							
2A	5280	56	242T	15.74	15.69	18.73	23.98	-5.25	-1.26	17.47	30.0	-12.53							
2C	5600	120	242T	15.34	15.67	18.52	23.98	-5.46	-1.63	16.89	30.0	-13.11							
3	5785	157	242T	15.42	15.63	18.54	30	-11.46	-1.13	17.41	36.0	-18.59							
4	5865	173	242T	15.17	15.44	18.32	-	-	-1.23	17.09	30.0	-12.91							

Table 7-3. Conducted Output Power Measurements (Spot-check)

Mode	Antenna	UNII Band	Channel	Test Channel Freq. [MHz]	RU Index	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]
802.11ax RU242T	MIMO	1	36	7275	61	10360.00	Peak	H	-	-	9.23	0.00	46.57	53.98	-7.41

Table 7-4. Radiated Measurements MIMO (Spot-check)

Worst Case Mode:

802.11ax

Worst Case Transfer Rate:

MCS0

RU Index:

67

Distance of Measurements:

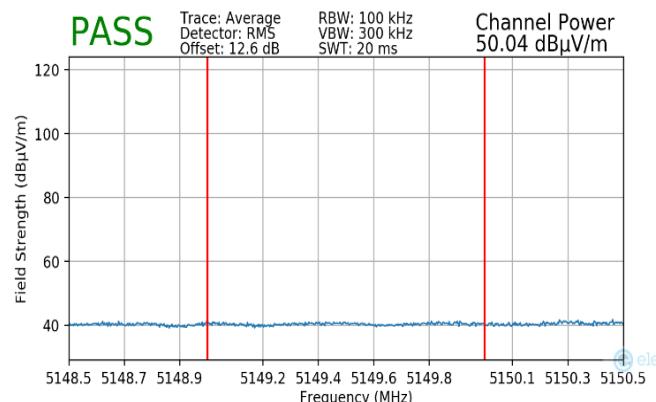
3 Meters

Operating Frequency:

5530MHz

Channel:

106



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

- Each spot check test on the EUT was performed using the same procedure and setting that were used to perform the test on the corresponding reference device.
- All test cases were performed to verify the variant EUT is still in compliance with the spot checked results to the reference device and was performed using the guidance of ANSI C63.10-2013.

FCC ID: A3LSMS936B	MEASUREMENT REPORT					Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset				Page 16 of 146

7.2 26dB Bandwidth Measurement

Test Overview and Limit

The bandwidth at 26dB 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 at the appropriate frequencies. The spectrum analyzer's bandwidth measurement function is configured to measure the 26dB bandwidth.

The 26dB bandwidth is used to determine the conducted power limits.

Test Procedure Used

ANSI C63.10-2013 – Section 12.4

Test Settings

1. The signal analyzers' automatic bandwidth measurement capability was used to perform the 26dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 26. 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 = approximately 1% of the emission bandwidth
3. VBW \geq 3 x RBW
4. Detector = Peak
5. Trace mode = max hold

Test Setup

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



Figure 7-1. Test Instrument & Measurement Setup

Test Notes

1. The 26dB Bandwidth measurement for each channel was measured with the RU index showing the highest conducted power.
2. All cases were investigated; a subset of the plots is included to represent relevant settings and measurements.

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 17 of 146

MIMO 26dB Bandwidth Measurements

	Frequency [MHz]	802.11 MODE	Channel	Antenna-1 26dB Bandwidth [MHz]	Antenna-2 26dB Bandwidth [MHz]
Band 1	5180	be (20MHz)	36	18.59	18.27
	5200	be (20MHz)	40	18.33	18.36
	5240	be (20MHz)	48	18.61	18.46
	5190	be (40MHz)	38	24.24	23.60
	5230	be (40MHz)	46	24.37	23.73
	5210	be (80MHz)	42	32.69	33.90
Band 1/2A	5250	be (160MHz)	50	31.24	31.40
Band 2A	5260	be (20MHz)	52	18.70	18.46
	5280	be (20MHz)	56	18.54	18.27
	5320	be (20MHz)	64	18.31	18.03
	5270	be (40MHz)	54	23.54	25.17
	5310	be (40MHz)	62	23.56	23.05
	5290	be (80MHz)	58	32.17	33.61
Band 2C	5500	be (20MHz)	100	18.20	17.99
	5600	be (20MHz)	120	18.29	18.39
	5720	be (20MHz)	144	17.78	17.86
	5510	be (40MHz)	102	23.89	24.35
	5590	be (40MHz)	118	22.81	24.41
	5710	be (40MHz)	142	23.77	23.84
	5530	be (80MHz)	106	31.28	33.50
	5610	be (80MHz)	122	31.64	32.75
	5690	be (80MHz)	138	33.58	33.35
	5570	be (160MHz)	114	34.59	36.69

Table 7-5. Bands 1, 2A, 2C Conducted 26dB Bandwidth Measurements MIMO (26 Tones)

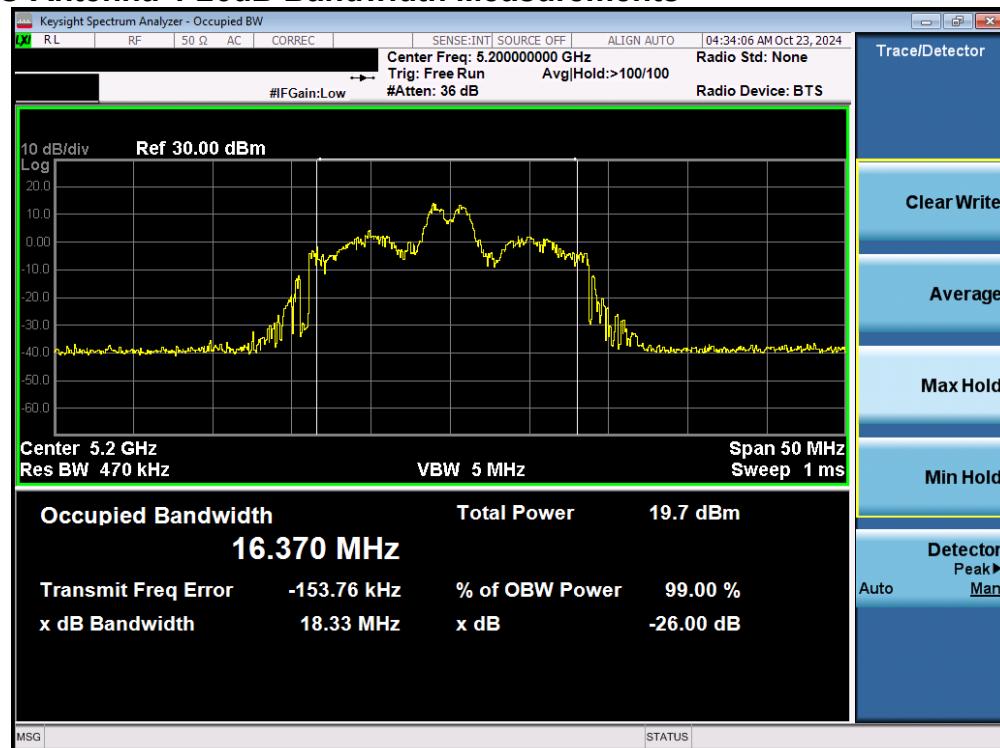
FCC ID: A3LSMS936B	MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset		Page 18 of 146

	Frequency [MHz]	802.11 MODE	Channel	Antenna-1 26dB Bandwidth [MHz]	Antenna-2 26dB Bandwidth [MHz]
Band 1	5180	be (20MHz)	36	21.43	21.28
	5200	be (20MHz)	40	21.56	21.52
	5240	be (20MHz)	48	21.44	21.17
	5190	be (40MHz)	38	41.75	42.75
	5230	be (40MHz)	46	42.71	41.58
	5210	be (80MHz)	42	91.07	87.96
Band 1/2A	5250	be (160MHz)	50	297.31	312.56
Band 2A	5260	be (20MHz)	52	21.64	21.20
	5280	be (20MHz)	56	21.44	21.37
	5320	be (20MHz)	64	21.50	21.32
	5270	be (40MHz)	54	41.74	42.25
	5310	be (40MHz)	62	41.72	42.22
	5290	be (80MHz)	58	91.84	88.64
Band 2C	5500	be (20MHz)	100	21.70	21.28
	5600	be (20MHz)	120	21.39	21.64
	5720	be (20MHz)	144	21.55	21.20
	5510	be (40MHz)	102	42.24	41.88
	5590	be (40MHz)	118	42.50	41.73
	5710	be (40MHz)	142	42.56	41.42
	5530	be (80MHz)	106	90.34	90.96
	5610	be (80MHz)	122	90.26	88.91
	5690	be (80MHz)	138	88.81	88.24
	5570	be (160MHz)	114	313.21	305.88

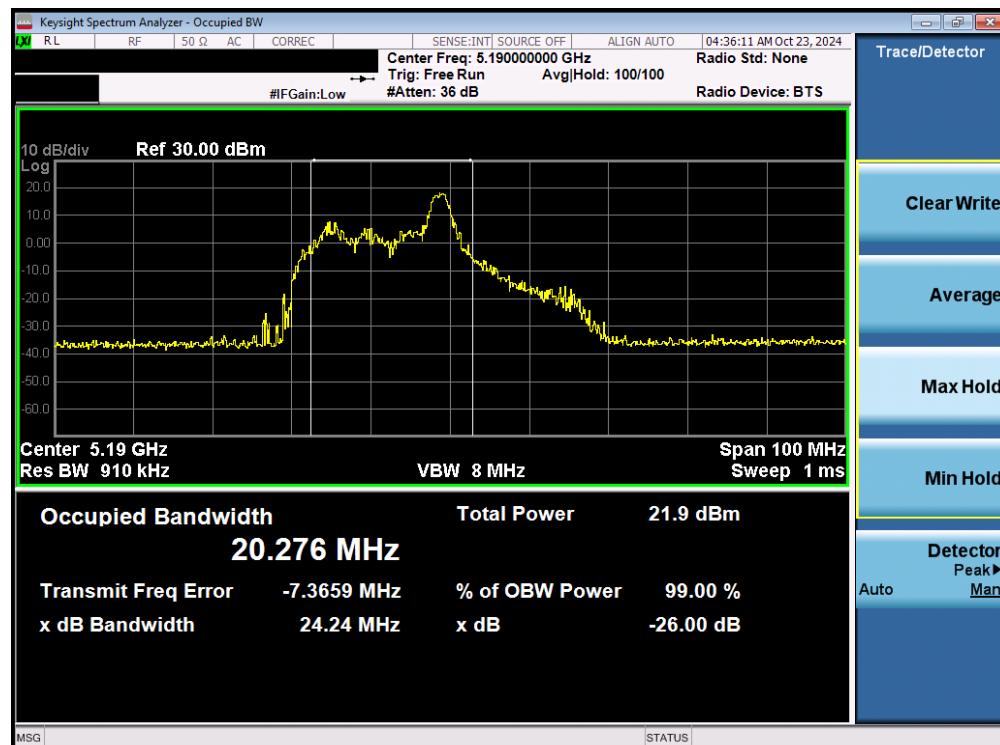
Table 7-6. Bands 1, 2A, 2C Conducted 26dB Bandwidth Measurements MIMO (Full Tones)

FCC ID: A3LSMS936B	MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset		Page 19 of 146

7.2.1 MIMO Antenna-1 26dB Bandwidth Measurements

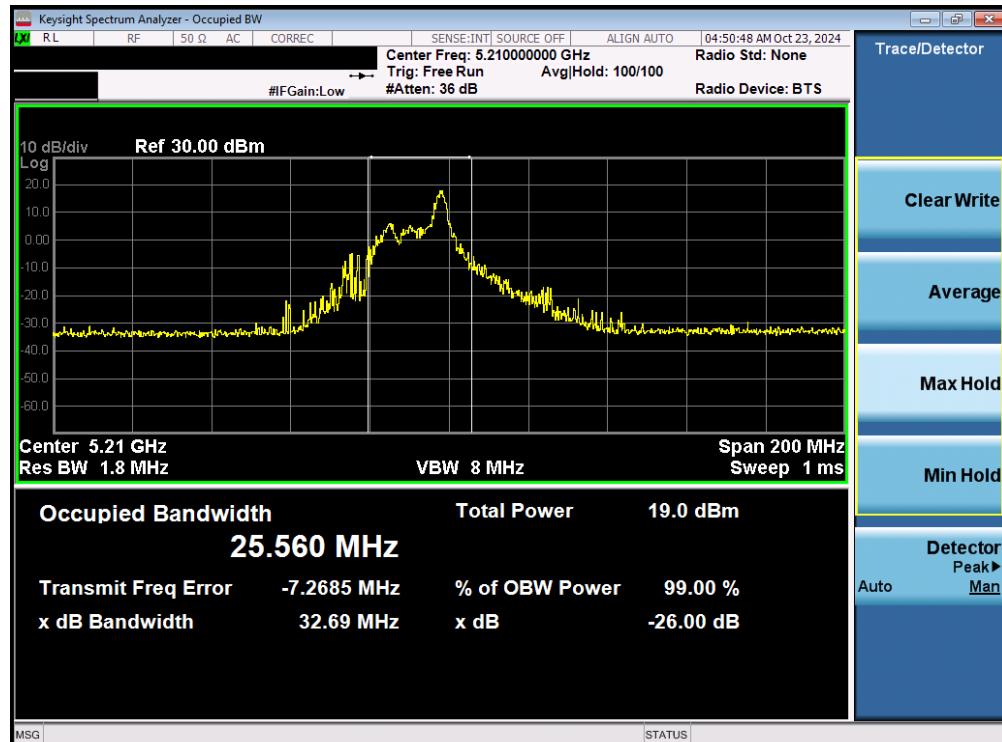


Plot 7-2. 26dB Bandwidth Plot MIMO ANT1 (20MHz 802.11ax/be (26 Tones) (UNII Band 1) – Ch. 40)

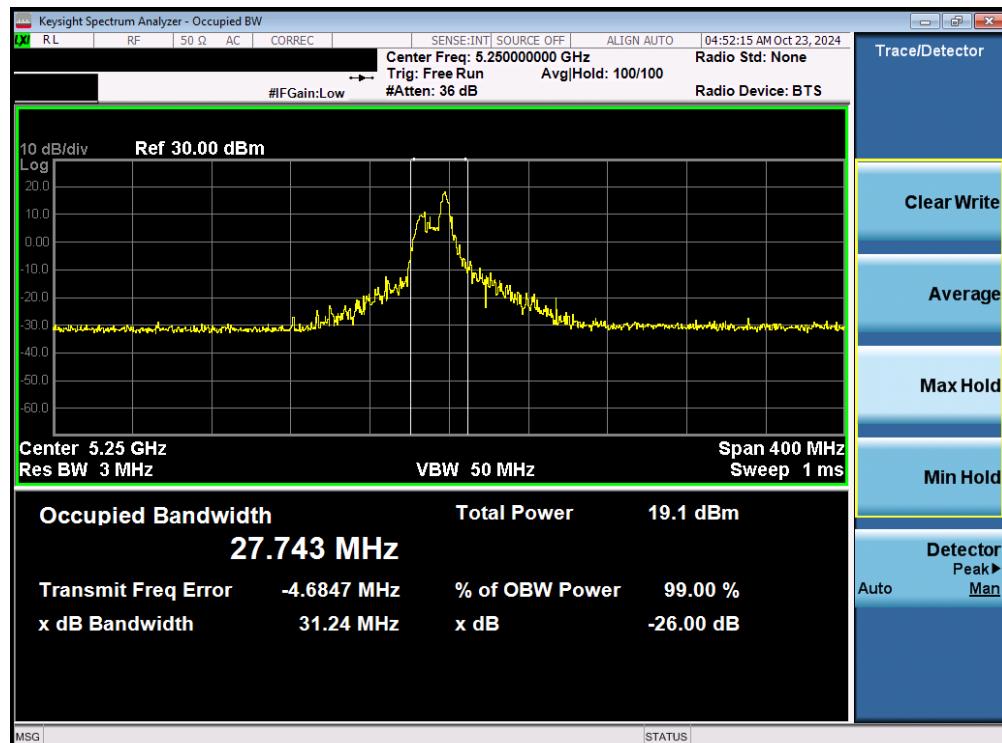


Plot 7-3. 26dB Bandwidth Plot MIMO ANT1 (40MHz 802.11ax/be (26 Tones) (UNII Band 1) – Ch. 38)

FCC ID: A3LSMS936B	MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset		Page 20 of 146

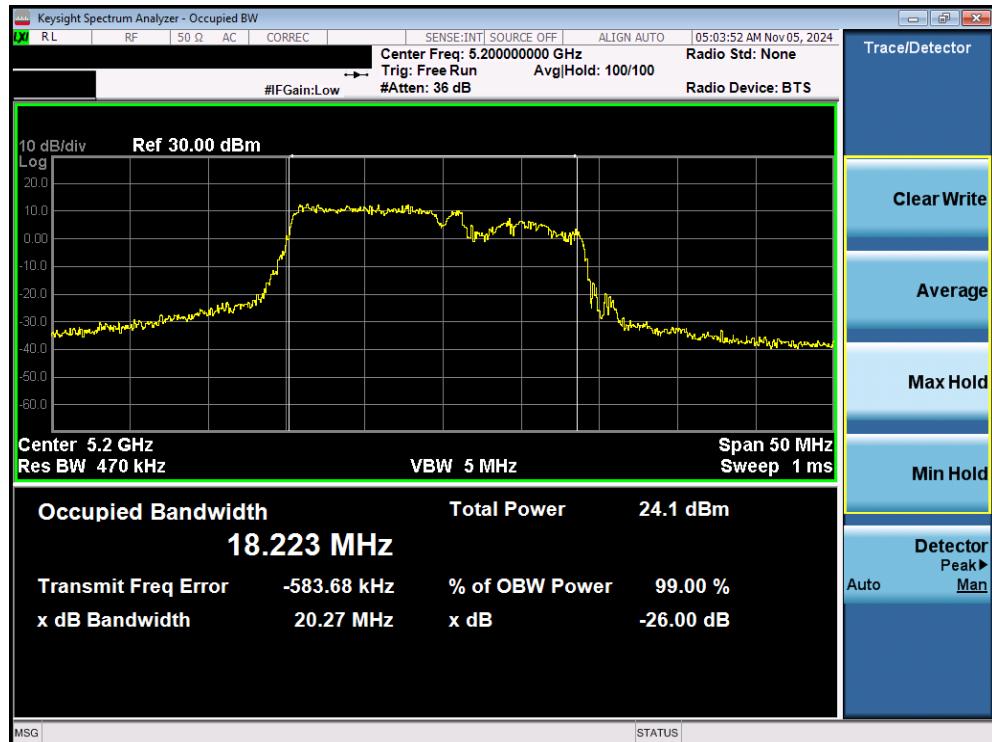


Plot 7-4. 26dB Bandwidth Plot MIMO ANT1 (80MHz 802.11ax/be (26 Tones)) (UNII Band 1) – Ch. 42)

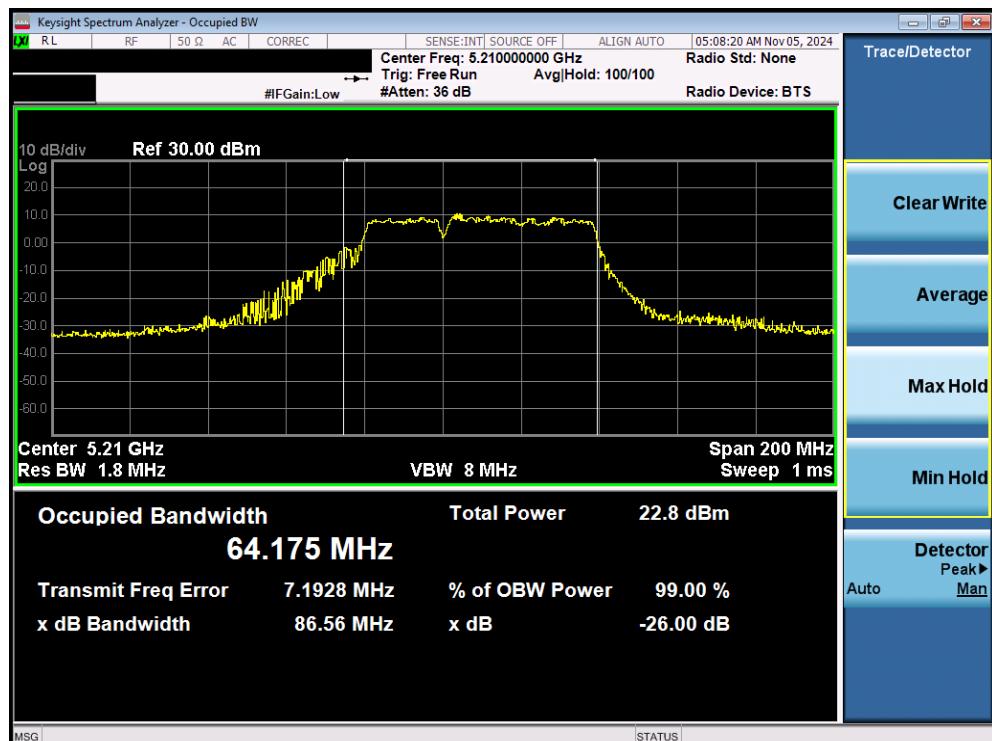


Plot 7-5. 26dB Bandwidth Plot MIMO ANT1 (160MHz 802.11ax/be (26 Tones)) (UNII Band 1/2A) – Ch. 50)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 21 of 146

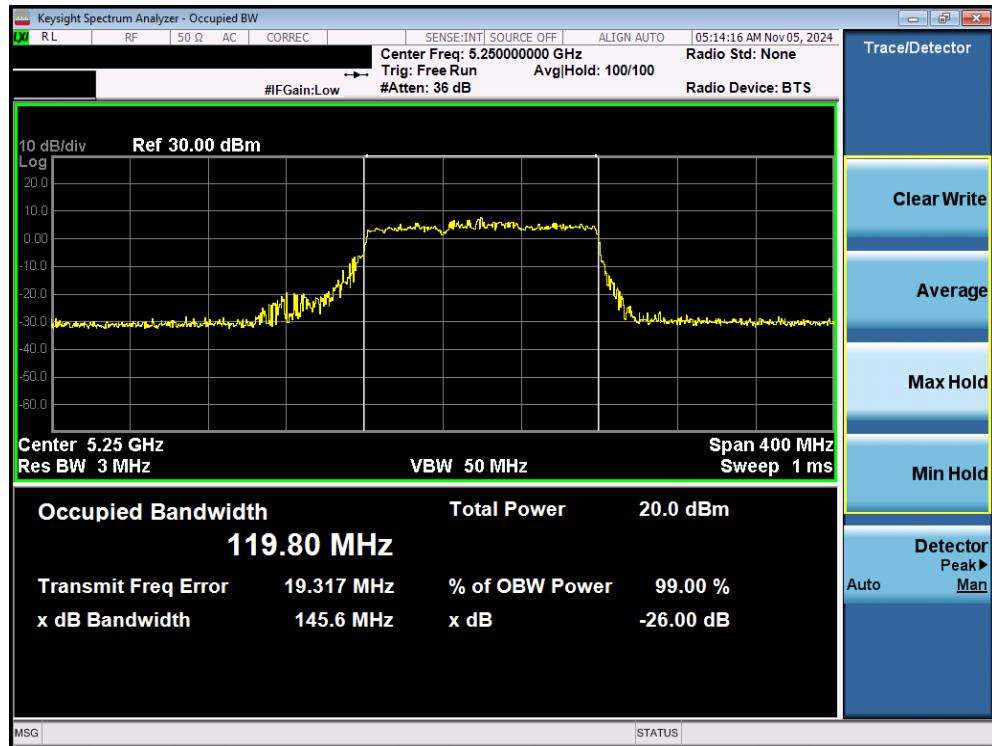


Plot 7-6. 26dB Bandwidth Plot MIMO ANT1 (20MHz 802.11be (106+26 Tones) (UNII Band 1) – Ch. 40)

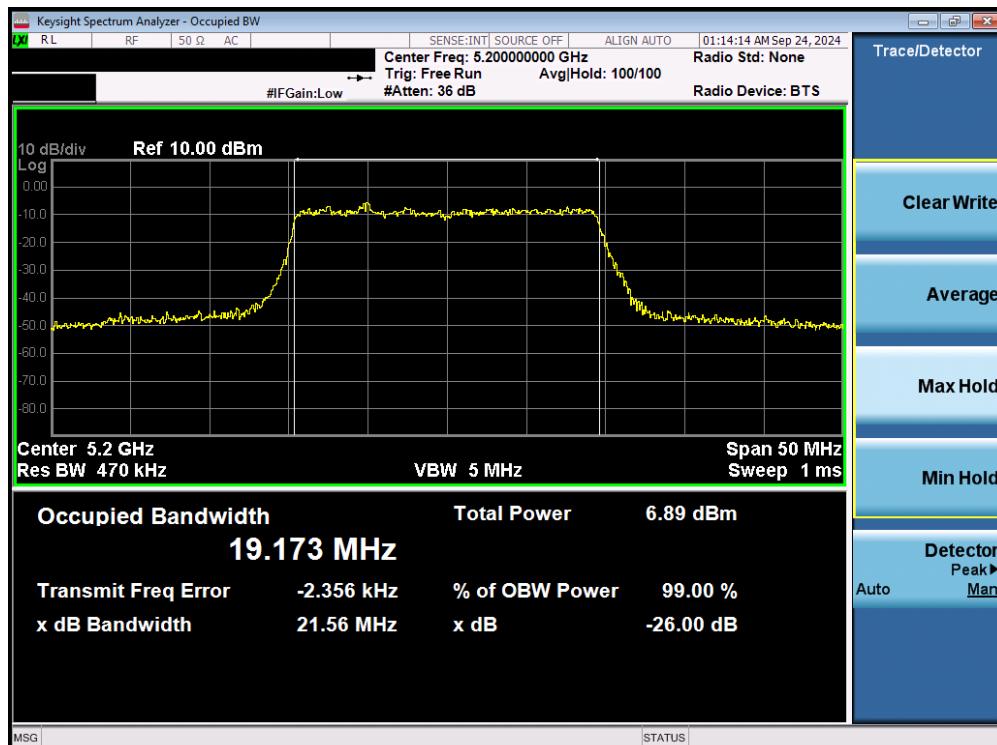


Plot 7-7. 26dB Bandwidth Plot MIMO ANT1 (80MHz 802.11be (484+242 Tones) (UNII Band 1) – Ch. 42)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 22 of 146

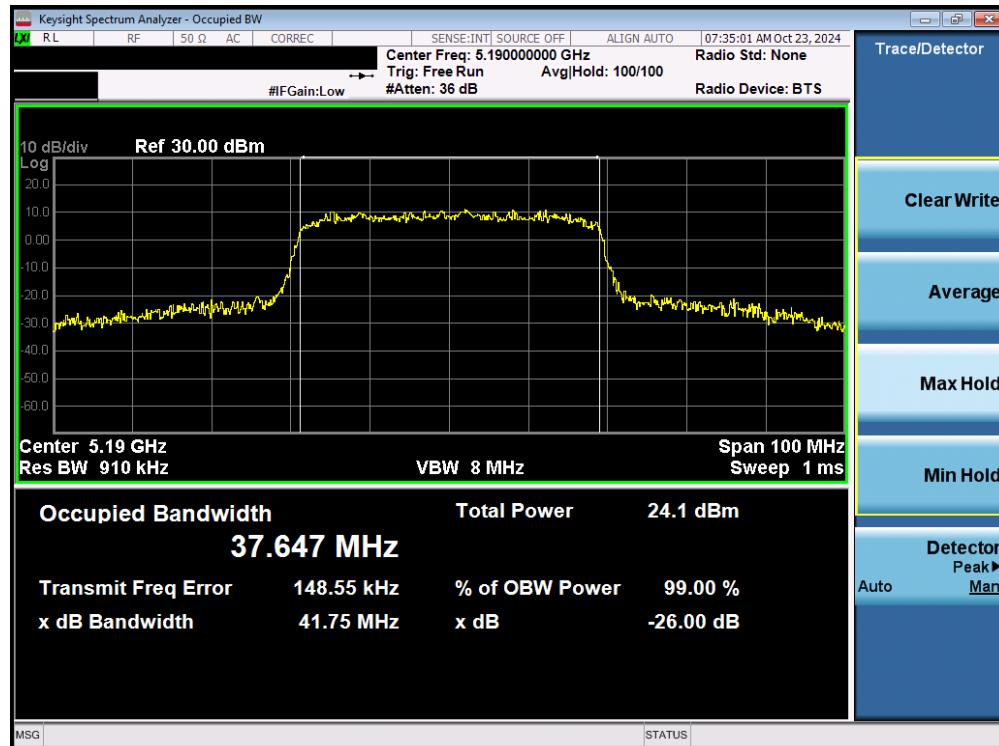


Plot 7-8. 26dB Bandwidth Plot MIMO ANT1 (160MHz 802.11be (996+484 Tones) (UNII Band 1/2A) – Ch. 50)

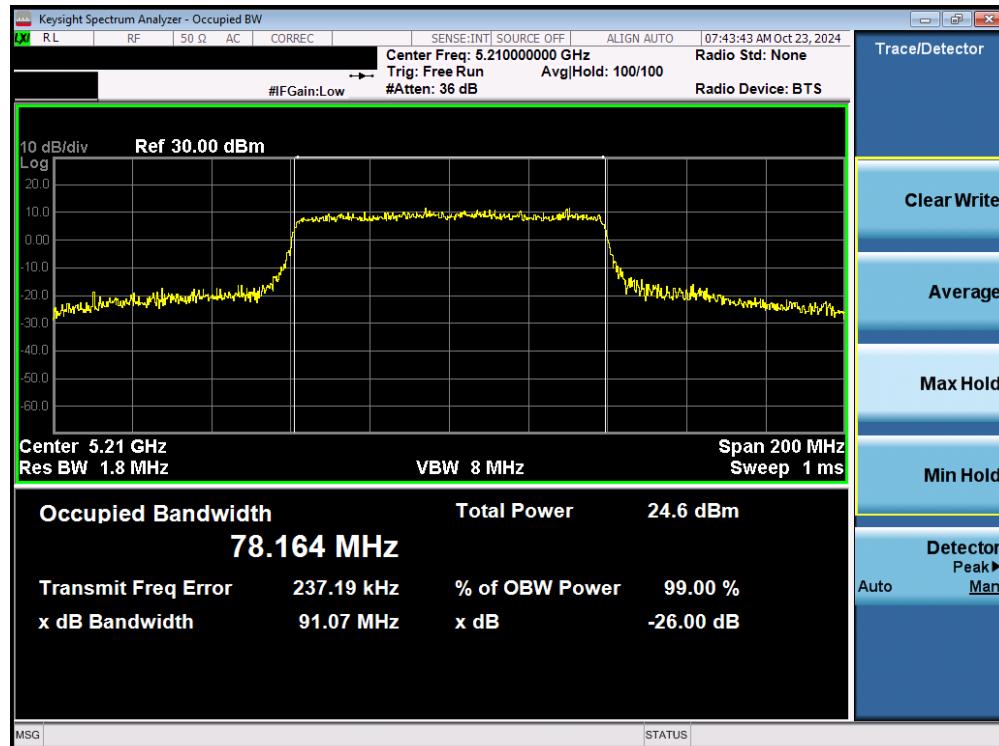


Plot 7-9. 26dB Bandwidth Plot MIMO ANT1 (20MHz 802.11ax/be (Full Tones) (UNII Band 1) – Ch. 40)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 23 of 146

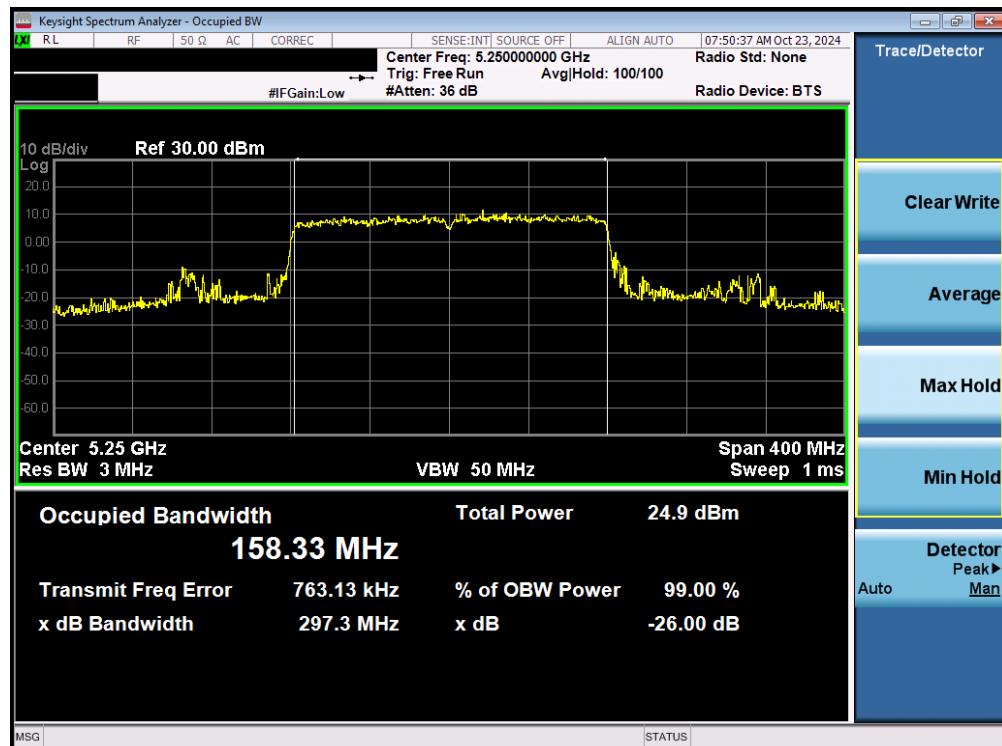


Plot 7-10. 26dB Bandwidth Plot MIMO ANT1 (40MHz 802.11ax/be (Full Tones) (UNII Band 1) – Ch. 38)



Plot 7-11. 26dB Bandwidth Plot MIMO ANT1 (80MHz 802.11ax/be (Full Tones) (UNII Band 1) – Ch. 42)

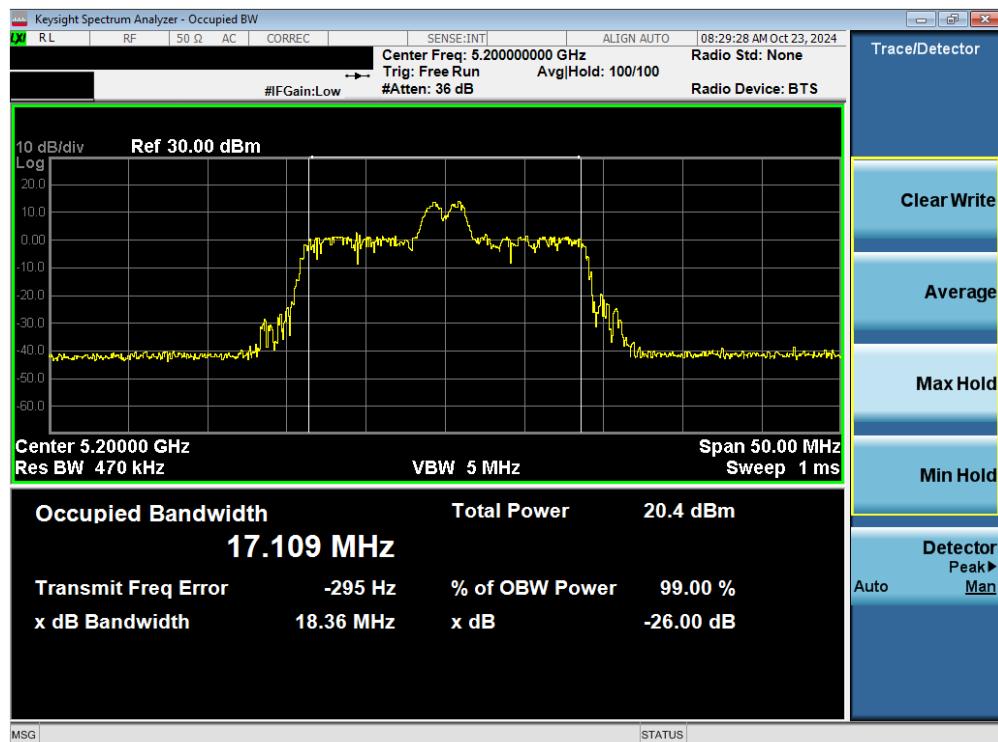
FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 24 of 146



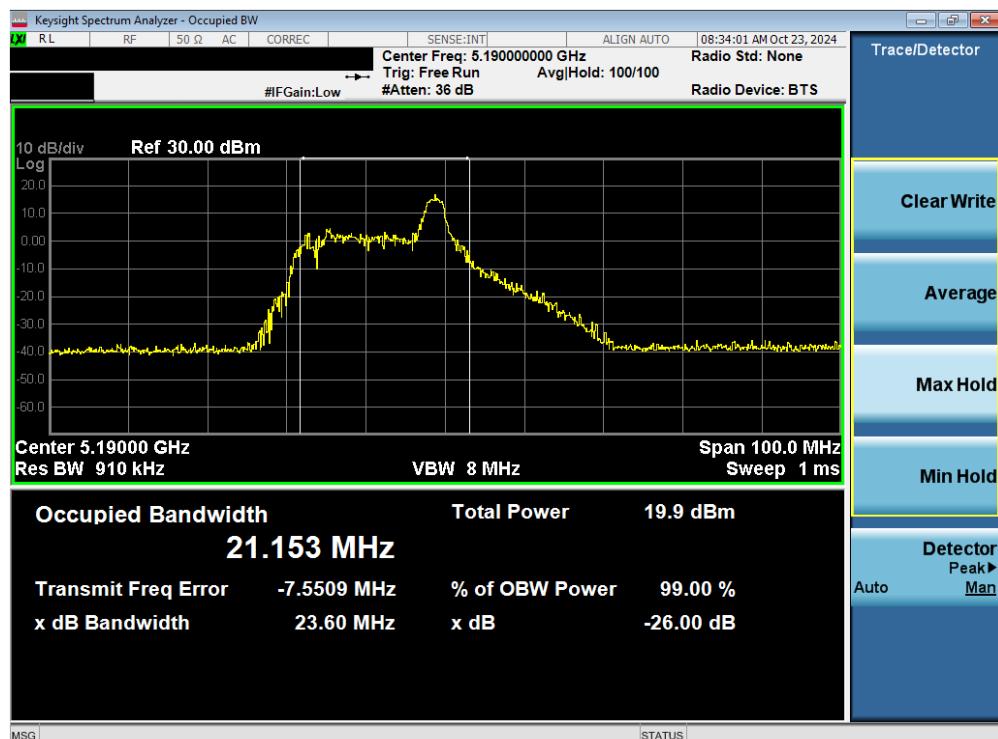
Plot 7-12. 26dB Bandwidth Plot MIMO ANT1 (160MHz 802.11ax/be (Full Tones) (UNII Band 1/2A) – Ch. 50)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 25 of 146

7.2.2 MIMO Antenna-2 26dB Bandwidth Measurements



Plot 7-13. 26dB Bandwidth Plot MIMO ANT2 (20MHz 802.11ax/be (26 Tones) (UNII Band 1) – Ch. 40)

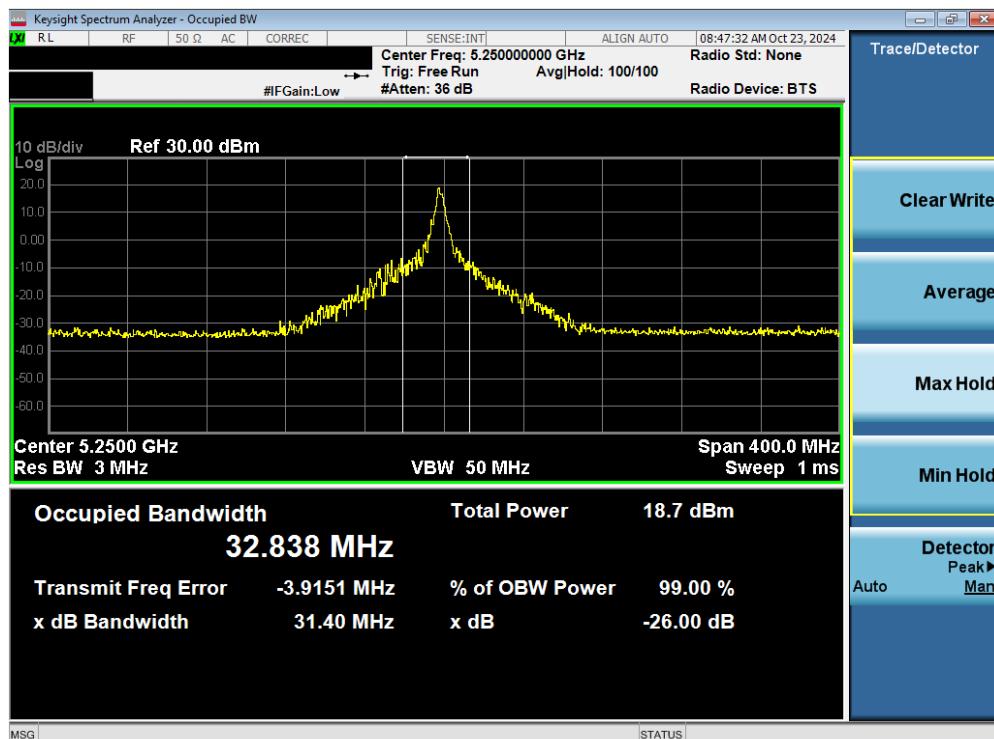


Plot 7-14. 26dB Bandwidth Plot MIMO ANT2 (40MHz 802.11ax/be (26 Tones) (UNII Band 1) – Ch. 38)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 26 of 146



Plot 7-15. 26dB Bandwidth Plot MIMO ANT2 (80MHz 802.11ax/be (26 Tones) (UNII Band 1) – Ch. 42)

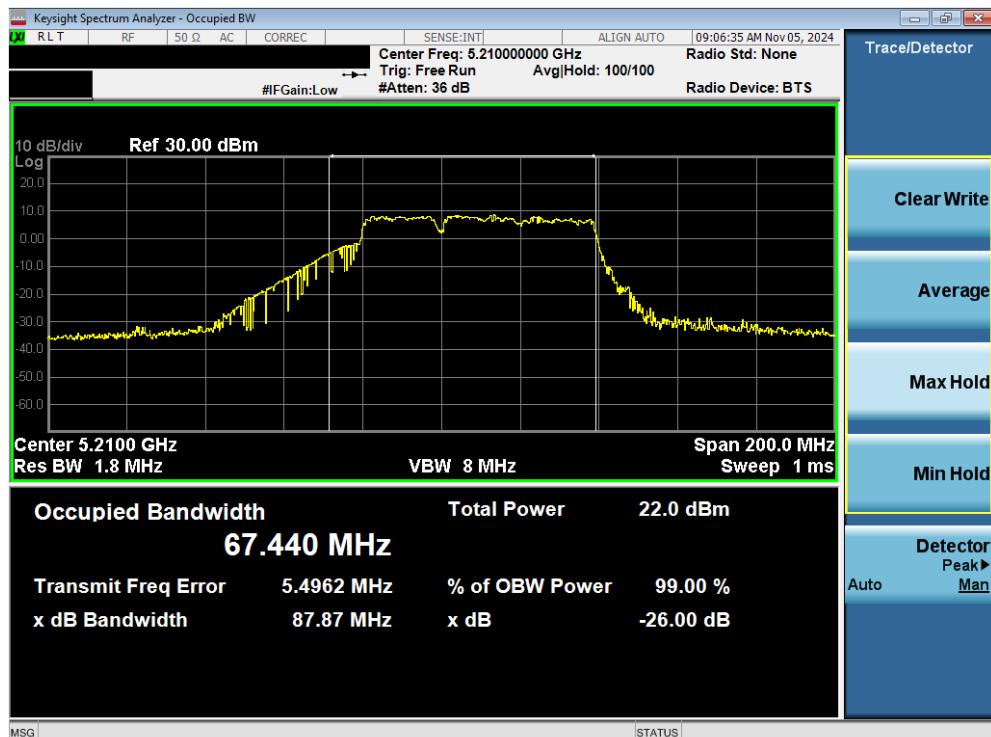


Plot 7-16. 26dB Bandwidth Plot MIMO ANT2 (160MHz 802.11ax/be (26 Tones) (UNII Band 1/2A) – Ch. 50)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 27 of 146

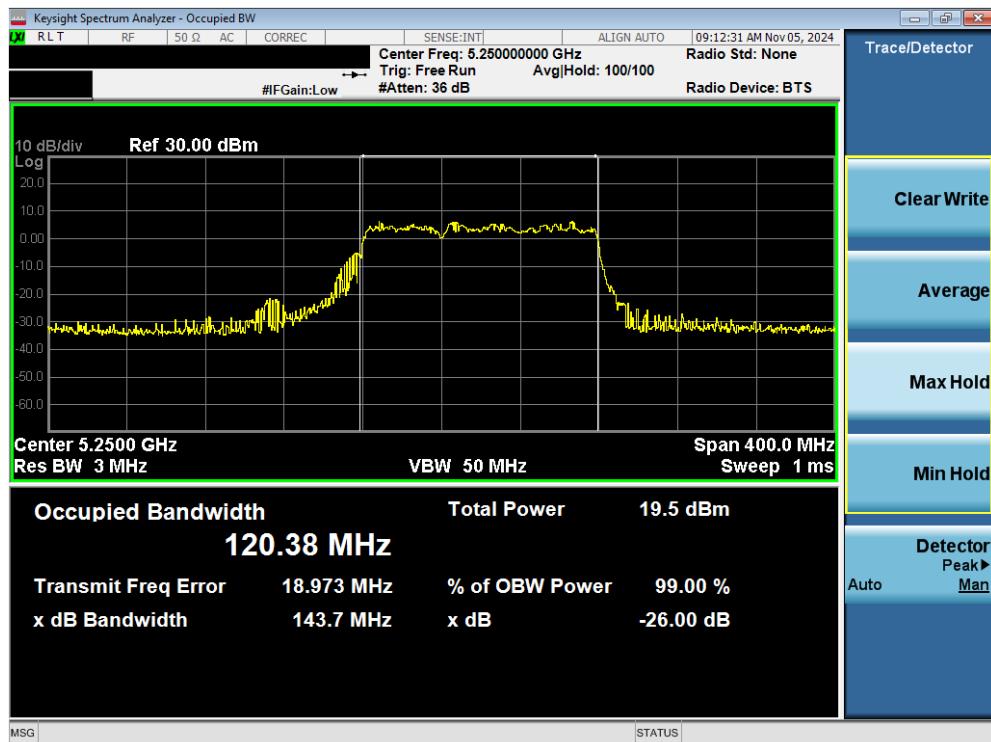


Plot 7-17. 26dB Bandwidth Plot MIMO ANT2 (20MHz 802.11be (106+26 Tones)) (UNII Band 1) – Ch. 40)

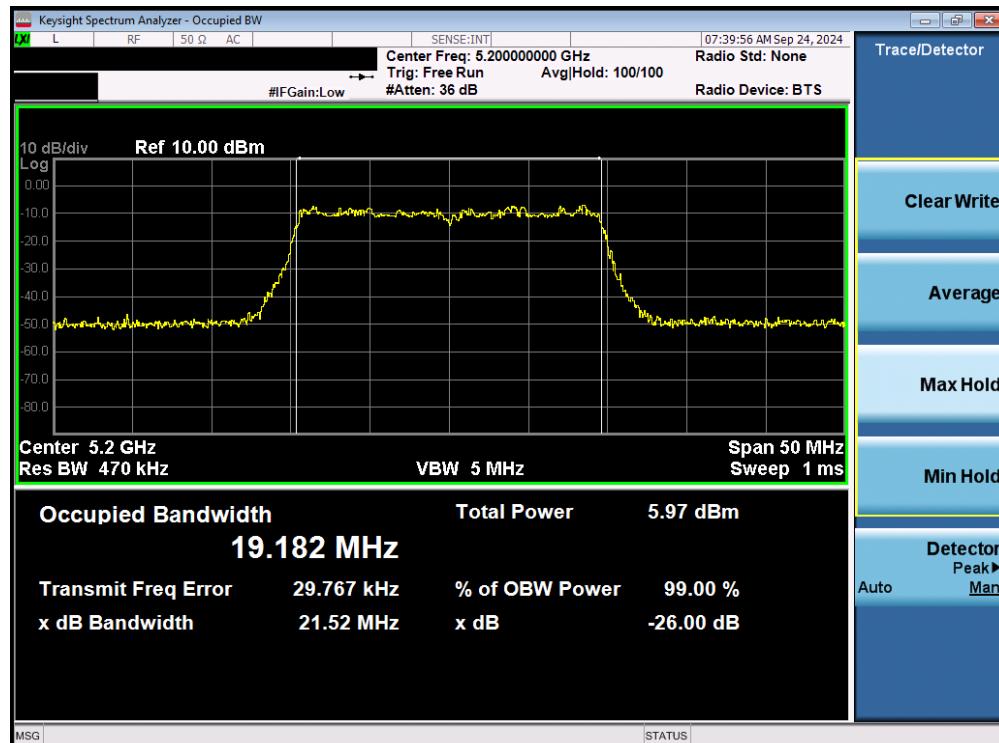


Plot 7-18. 26dB Bandwidth Plot MIMO ANT2 (80MHz 802.11be (484+242 Tones)) (UNII Band 1) – Ch. 42)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 28 of 146

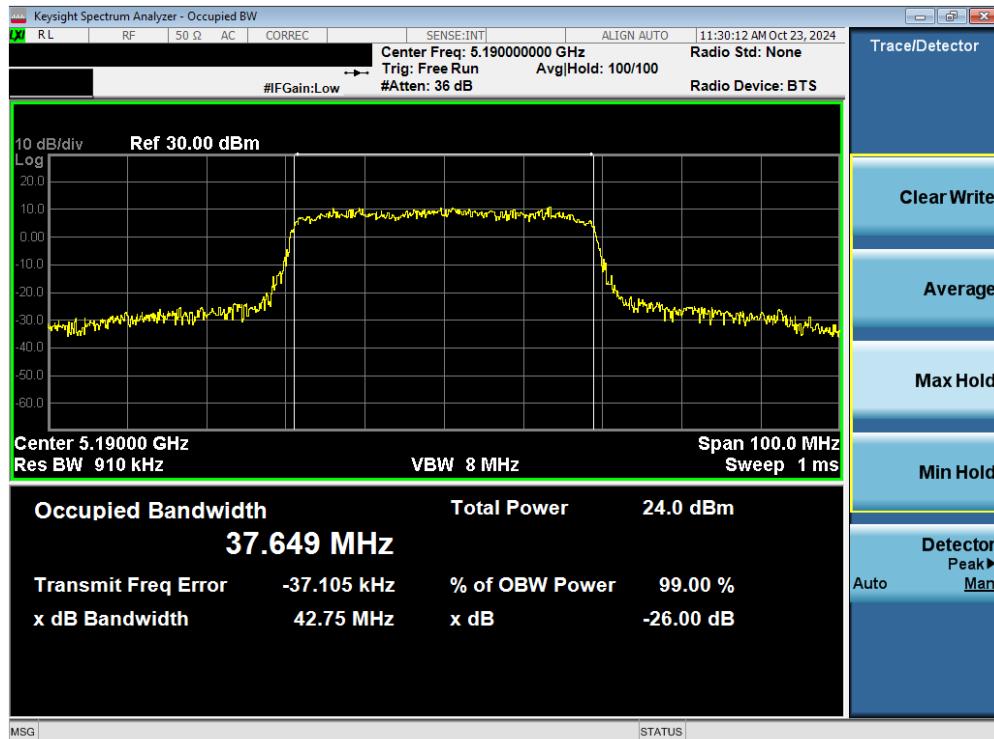


Plot 7-19. 26dB Bandwidth Plot MIMO ANT2 (160MHz 802.11be (996+484 Tones) (UNII Band 1/2A) – Ch. 50)

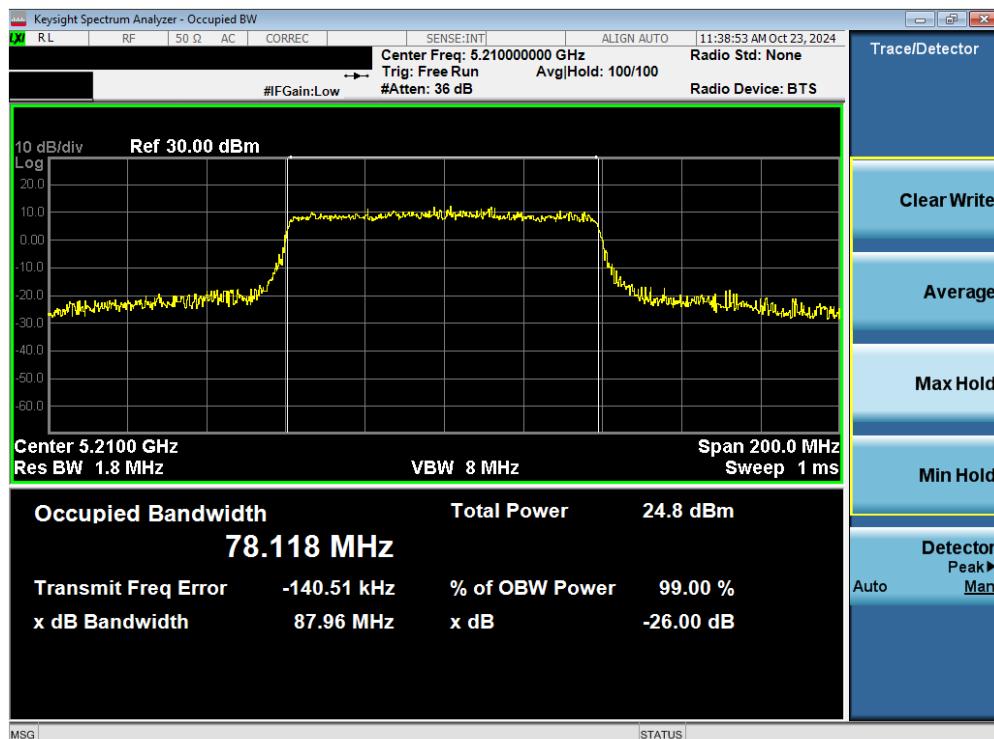


Plot 7-20. 26dB Bandwidth Plot MIMO ANT2 (20MHz 802.11ax/be (Full Tones) (UNII Band 1) – Ch. 40)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 29 of 146

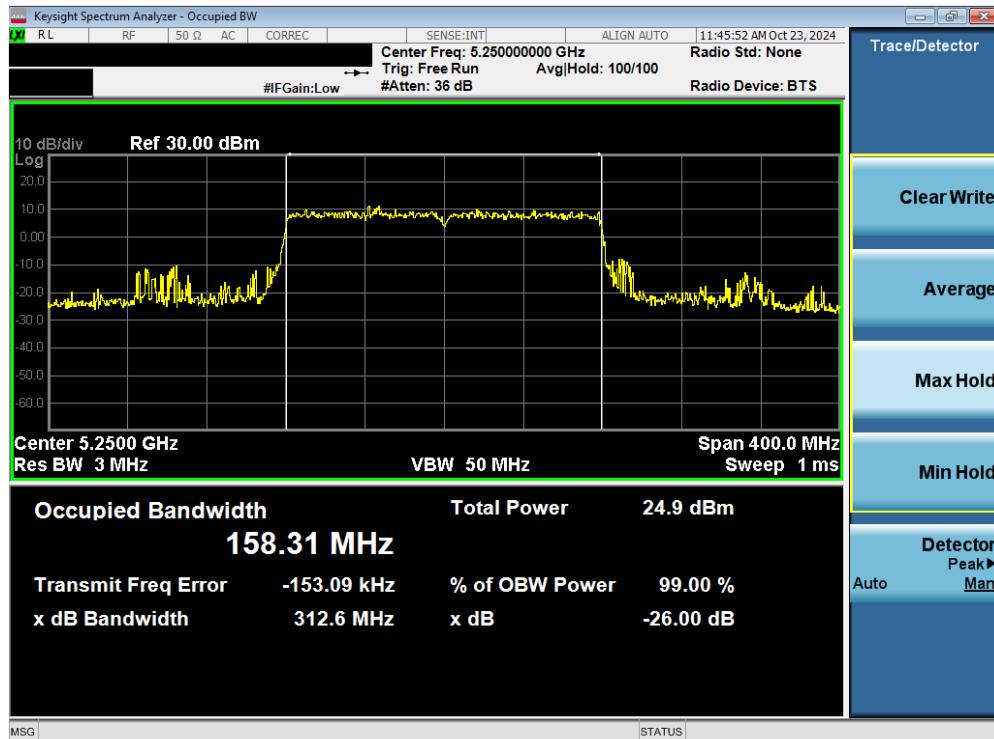


Plot 7-21. 26dB Bandwidth Plot MIMO ANT2 (40MHz 802.11ax/be (Full Tones) (UNII Band 1) – Ch. 38)



Plot 7-22. 26dB Bandwidth Plot MIMO ANT2 (80MHz 802.11ax/be (Full Tones) (UNII Band 1) – Ch. 42)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 30 of 146



Plot 7-23. 26dB Bandwidth Plot MIMO ANT2 (160MHz 802.11ax/be (Full Tones) (UNII Band 1/2A) – Ch. 50)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 31 of 146

7.3 6dB Bandwidth Measurement

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 at the appropriate frequencies. The spectrum analyzer's bandwidth measurement function is configured to measure the 6dB bandwidth.

In the 5.725 – 5.850GHz and 5.850-5.895GHz bands, the 6dB bandwidth must be ≥ 500 kHz.

Test Procedure Used

ANSI C63.10-2013 – Section 6.9.2

Test Settings

1. 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 $\geq 3 \times$ 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

1. The 6dB Bandwidth measurement for each channel was measured with the RU index showing the highest conducted power.
2. All cases were investigated; a subset of the plots is included to represent relevant settings and measurements

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 32 of 146

MIMO 6dB Bandwidth Measurements

	Frequency [MHz]	802.11 MODE	Channel	Antenna-1 6dB Bandwidth [MHz]	Antenna-2 6dB Bandwidth [MHz]
Band 3	5745	be (20MHz)	149	2.72	2.68
	5785	be (20MHz)	157	8.89	2.70
	5825	be (20MHz)	165	10.06	2.69
	5755	be (40MHz)	151	2.26	2.26
	5795	be (40MHz)	159	2.15	2.22
	5775	be (80MHz)	155	2.27	2.27

Table 7-7. Band 3 Conducted 6dB Bandwidth Measurements MIMO (26 Tones)

	Frequency [MHz]	802.11 MODE	Channel	Antenna-1 6dB Bandwidth [MHz]	Antenna-2 6dB Bandwidth [MHz]
Band 3/4	5845	be (20MHz)	169	10.03	2.70
Band 4	5865	be (20MHz)	173	15.07	2.14
	5885	be (20MHz)	177	10.09	2.71
Band 3/4	5835	be (40MHz)	167	2.28	2.22
Band 4	5875	be (40MHz)	175	2.18	2.28
Band 3/4	5855	be (80MHz)	171	2.29	2.27
Band 4	5815	be (160MHz)	163	16.79	2.69

Table 7-8. Bands 3/4 Conducted 6dB Bandwidth Measurements MIMO (26 Tones)

	Frequency [MHz]	802.11 MODE	Channel	Antenna-1 6dB Bandwidth [MHz]	Antenna-2 6dB Bandwidth [MHz]
Band 3	5745	be (20MHz)	149	18.96	18.96
	5785	be (20MHz)	157	19.00	19.01
	5825	be (20MHz)	165	18.95	19.06
	5755	be (40MHz)	151	35.59	36.28
	5795	be (40MHz)	159	34.21	35.21
	5775	be (80MHz)	155	77.78	78.01

Table 7-9. Band 3 Conducted 6dB Bandwidth Measurements MIMO (Full Tones)

FCC ID: A3LSMS936B	MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 33 of 146	

	Frequency [MHz]	802.11 MODE	Channel	Antenna-1 6dB Bandwidth [MHz]	Antenna-2 6dB Bandwidth [MHz]
Band 3/4	5845	be (20MHz)	169	18.90	19.01
Band 4	5865	be (20MHz)	173	18.83	18.98
	5885	be (20MHz)	177	18.79	19.01
Band 3/4	5835	be (40MHz)	167	35.22	36.71
Band 4	5875	be (40MHz)	175	36.84	36.29
Band 3/4	5855	be (80MHz)	171	76.49	77.97
	5815	be (160MHz)	163	157.98	158.18

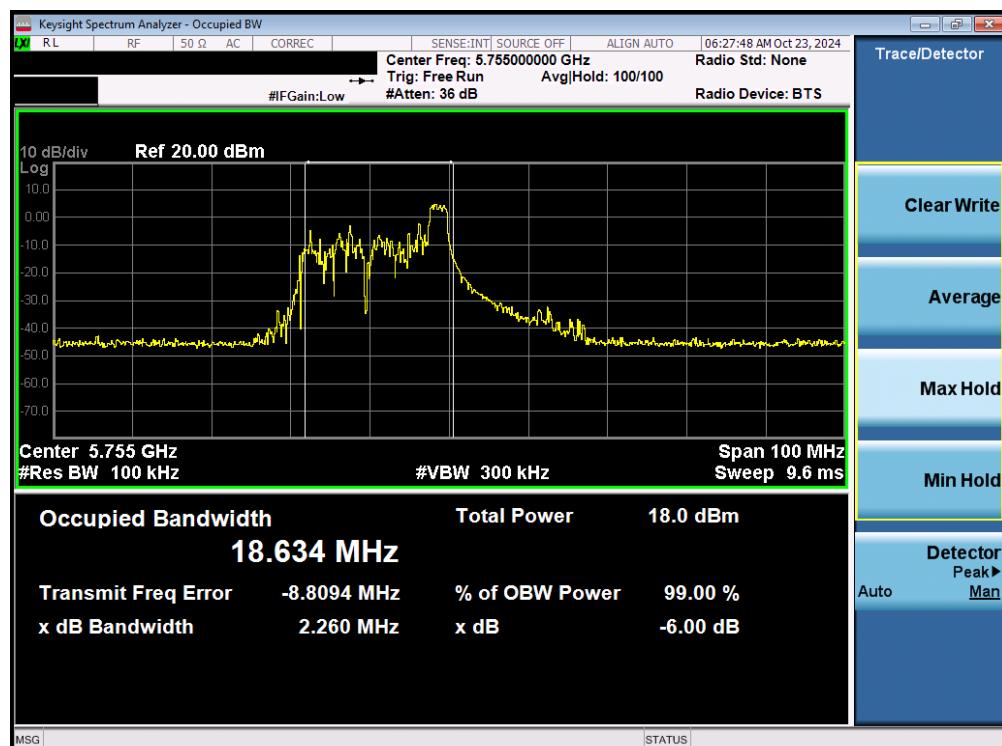
Table 7-10. Bands 3/4 Conducted 6dB Bandwidth Measurements MIMO (Full Tones)

FCC ID: A3LSMS936B	MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset		Page 34 of 146

7.3.1 MIMO Antenna-1 6dB Bandwidth Measurements

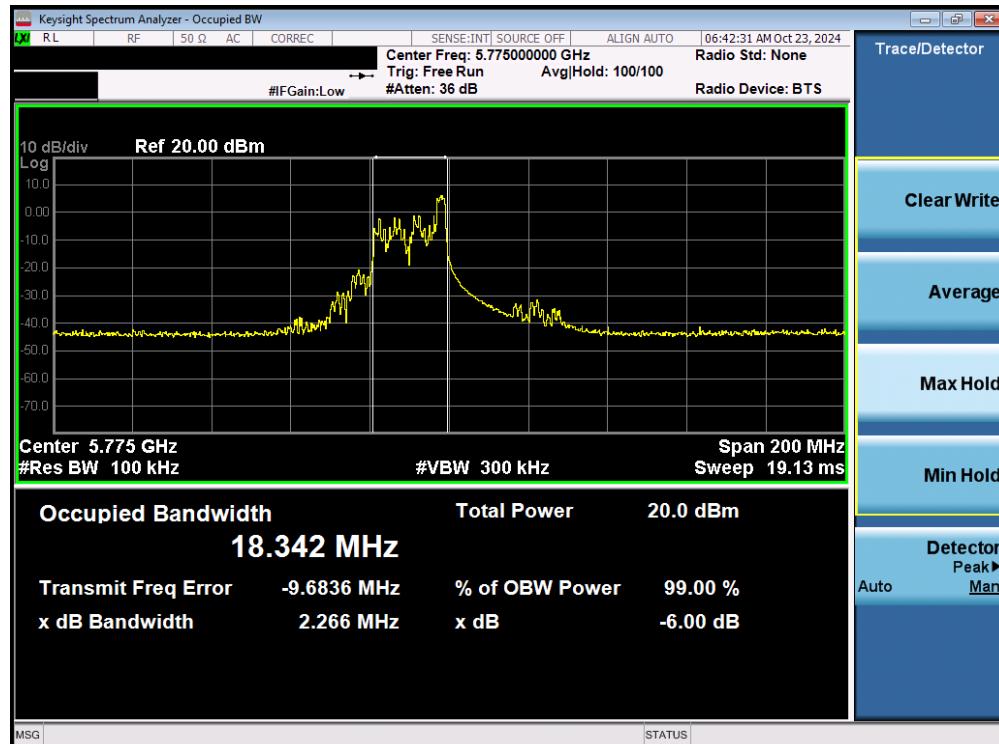


Plot 7-24. 6dB Bandwidth Plot MIMO ANT1 (20MHz 802.11ax/be (26 Tones) (UNII Band 3) – Ch. 157)

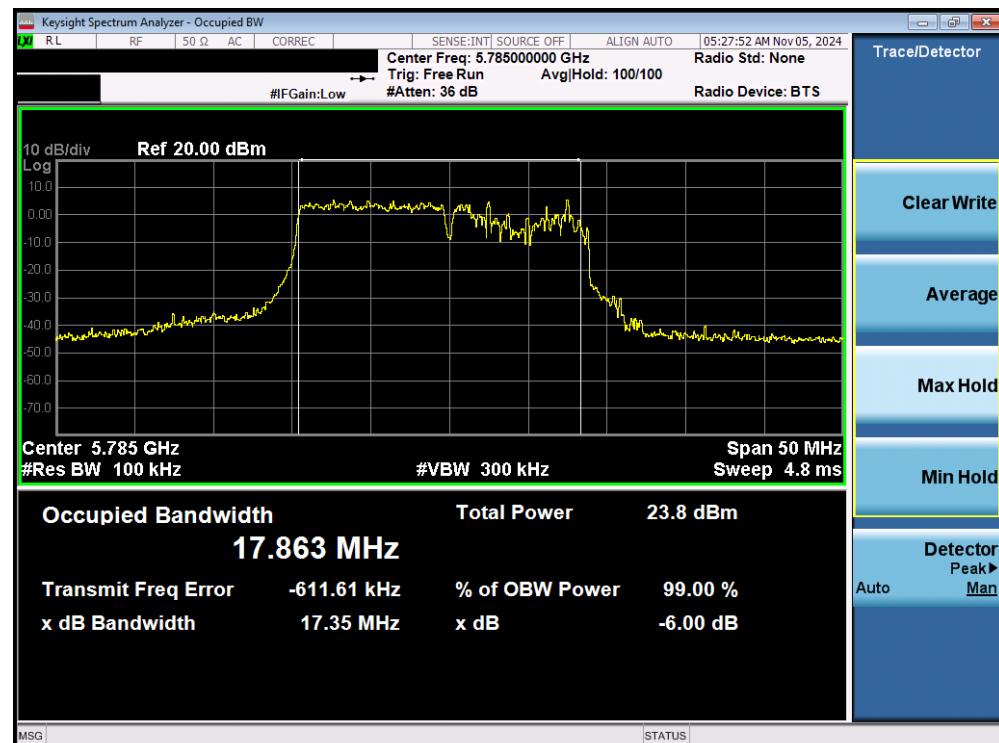


Plot 7-25. 6dB Bandwidth Plot MIMO ANT1 (40MHz 802.11ax/be (26 Tones) (UNII Band 3) – Ch. 151)

FCC ID: A3LSMS936B	MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset		Page 35 of 146



Plot 7-26. 6dB Bandwidth Plot MIMO ANT1 (80MHz 802.11ax/be (26 Tones)) (UNII Band 3) – Ch. 155)



Plot 7-27. 6dB Bandwidth Plot MIMO ANT1 (20MHz 802.11be (106+26 Tones)) (UNII Band 3) – Ch. 157)

FCC ID: A3LSMS936B	MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset		Page 36 of 146



Plot 7-28. 6dB Bandwidth Plot MIMO ANT1 (80MHz 802.11be (484+242 Tones) (UNII Band 3) – Ch. 155)

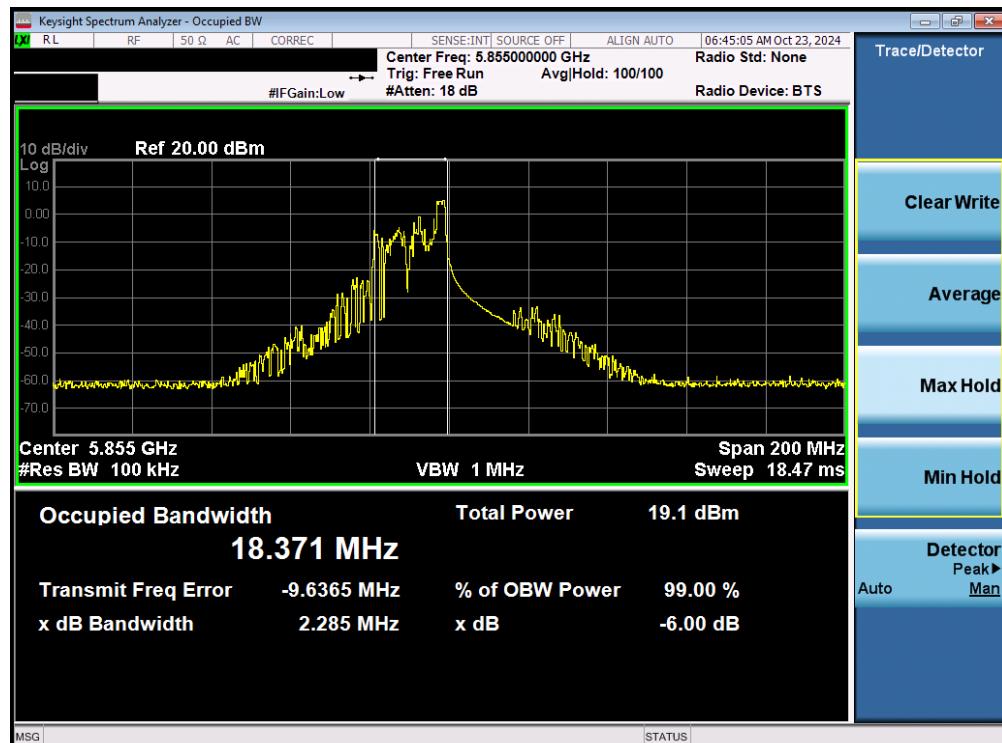


Plot 7-29. 6dB Bandwidth Plot MIMO ANT1 (20MHz 802.11ax/be (26 Tones) (UNII Band 4) – Ch. 173)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 37 of 146

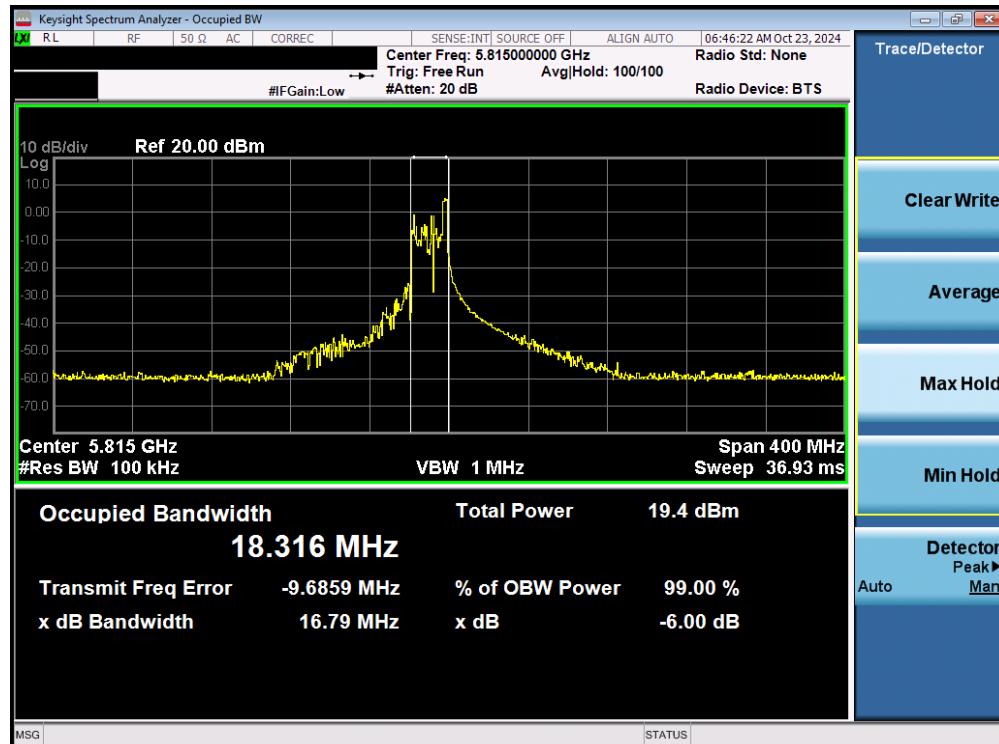


Plot 7-30. 6dB Bandwidth Plot MIMO ANT1 (40MHz 802.11ax/be (26 Tones) (UNII Band 3/4) – Ch. 167)

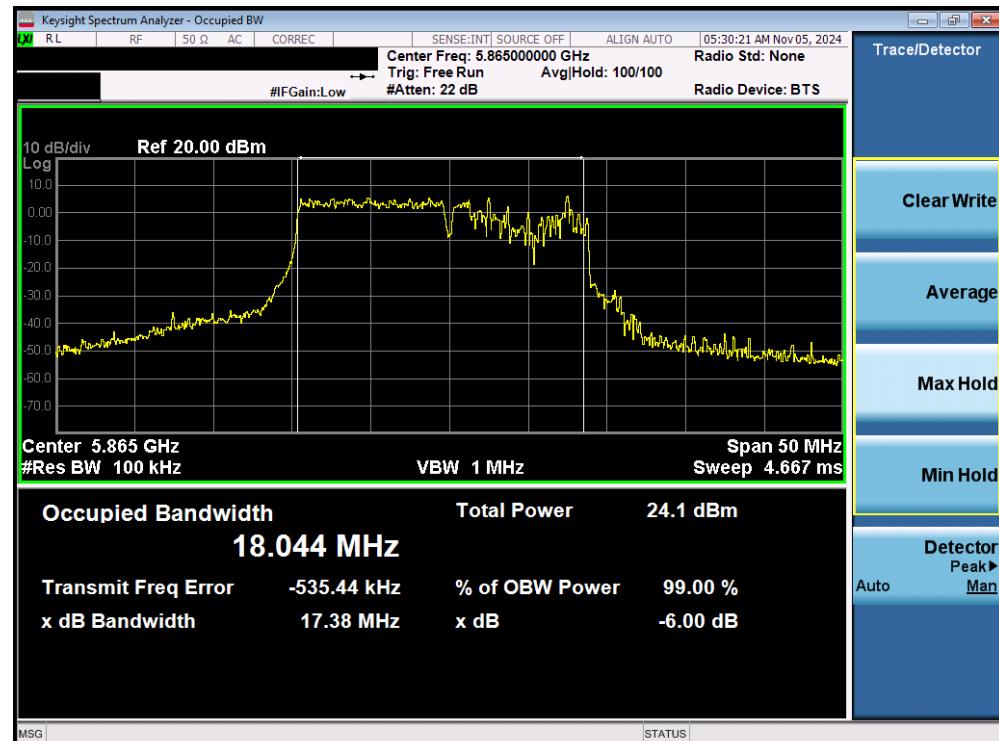


Plot 7-31. 6dB Bandwidth Plot MIMO ANT1 (80MHz 802.11ax/be (26 Tones) (UNII Band 3/4) – Ch. 171)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 38 of 146

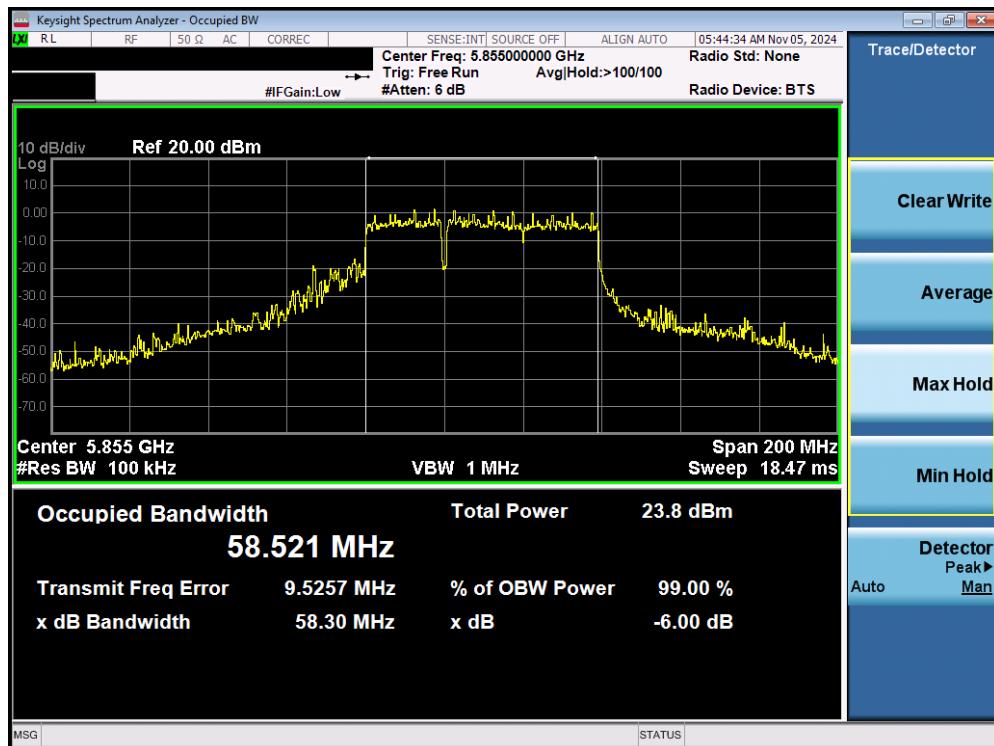


Plot 7-32. 6dB Bandwidth Plot MIMO ANT1 (160MHz 802.11ax/be (26 Tones)) (UNII Band 3/4) – Ch. 163)

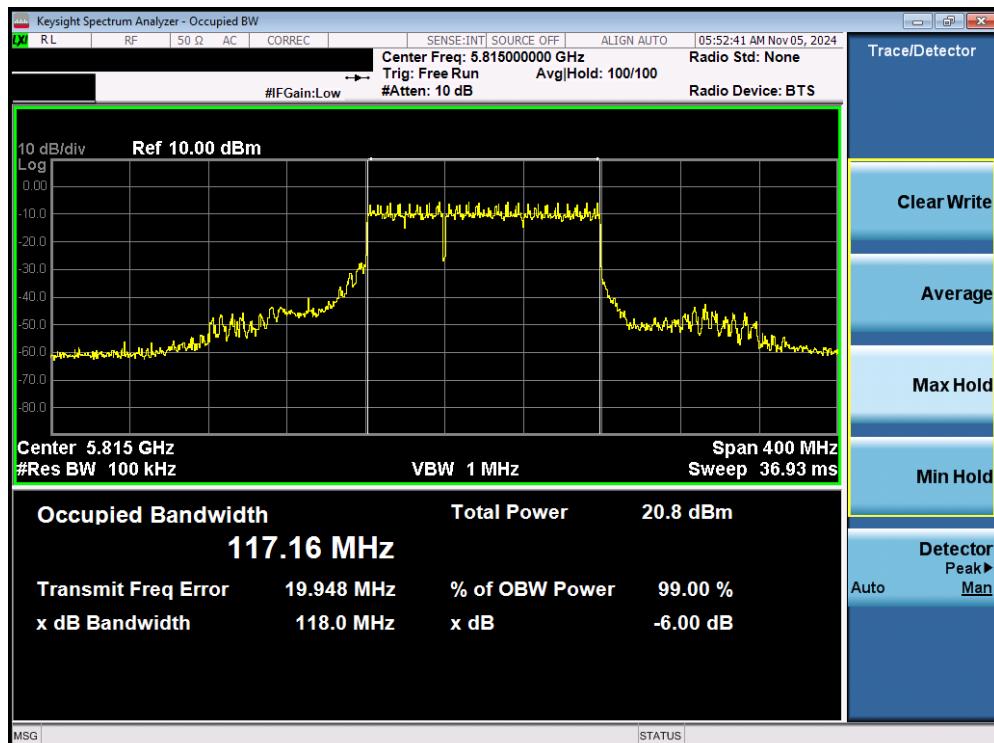


Plot 7-33. 6dB Bandwidth Plot MIMO ANT1 (20MHz 802.11be (106+26 Tones)) (UNII Band 4) – Ch. 173)

FCC ID: A3LSMS936B	MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 39 of 146	

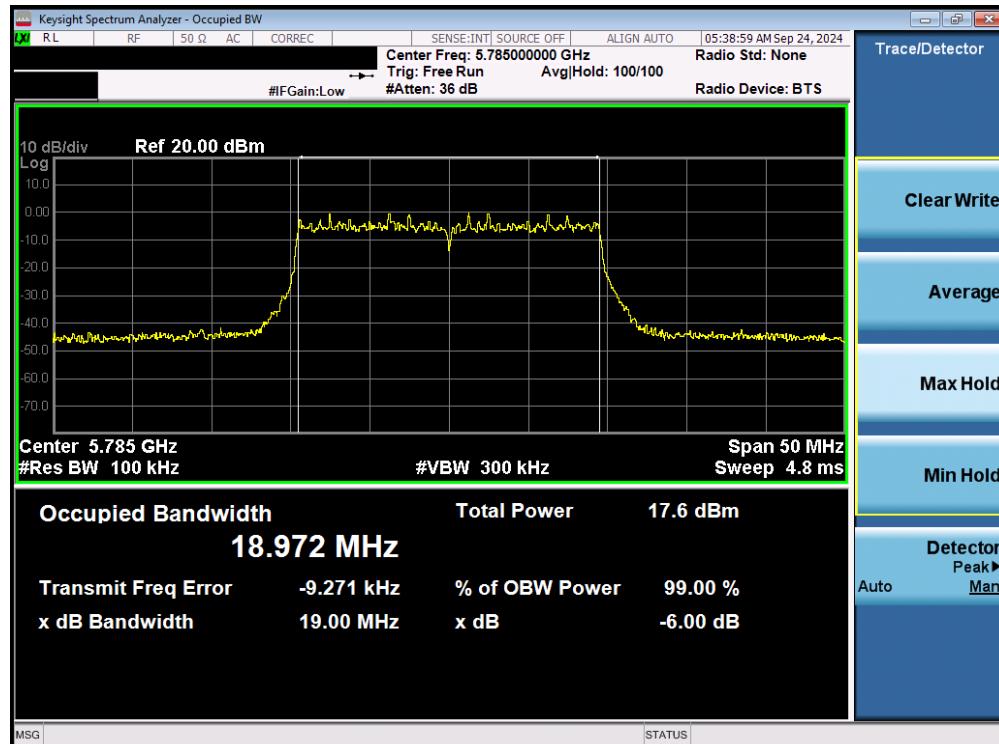


Plot 7-34. 6dB Bandwidth Plot MIMO ANT1 (80MHz 802.11be (484+242 Tones)) (UNII Band 3/4) – Ch. 171)



Plot 7-35. 6dB Bandwidth Plot MIMO ANT1 (160MHz 802.11be (996+484 Tones)) (UNII Band 3/4) – Ch. 163)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 40 of 146

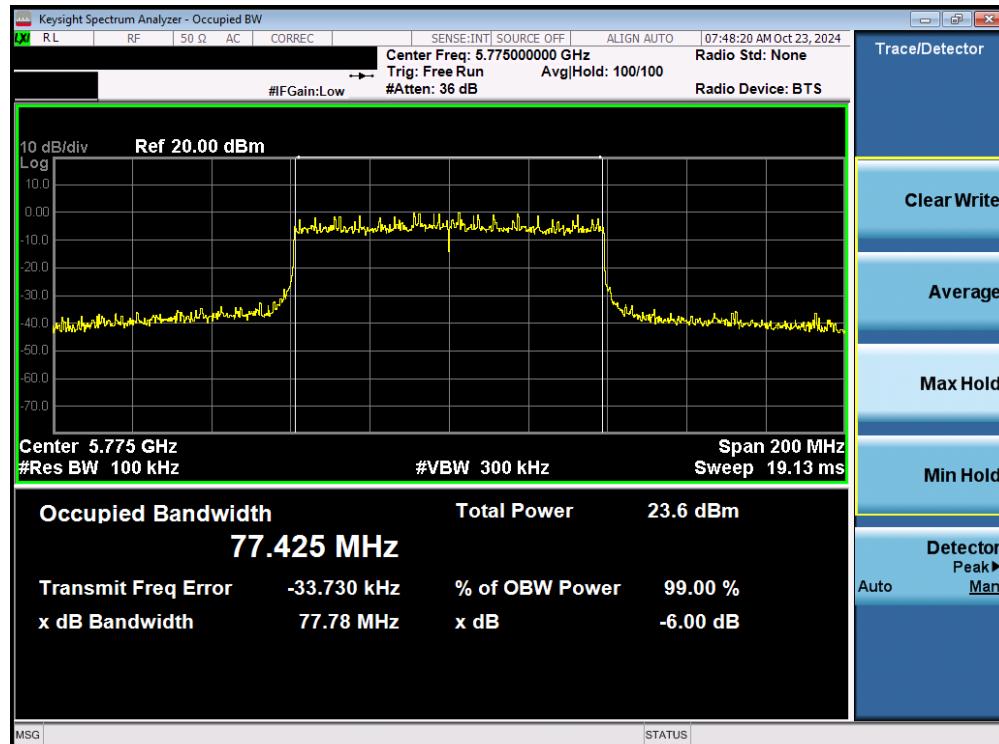


Plot 7-36. 6dB Bandwidth Plot MIMO ANT1 (20MHz 802.11ax/be (Full Tones)) (UNII Band 3) – Ch. 157)

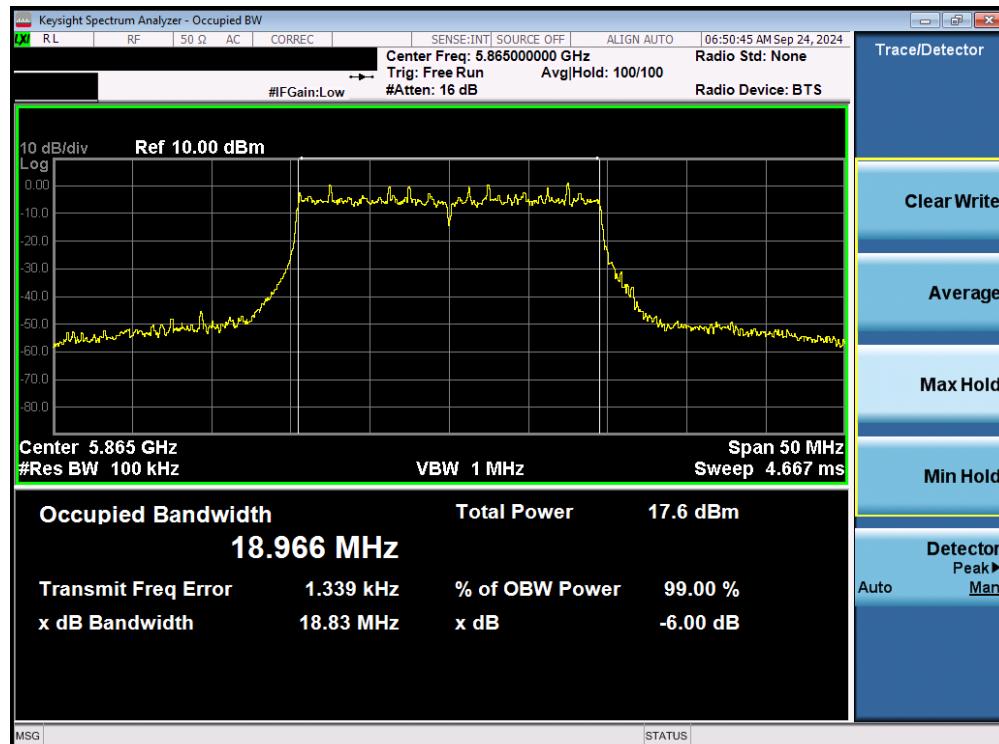


Plot 7-37. 6dB Bandwidth Plot MIMO ANT1 (40MHz 802.11ax/be (Full Tones)) (UNII Band 3) – Ch. 151)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 41 of 146

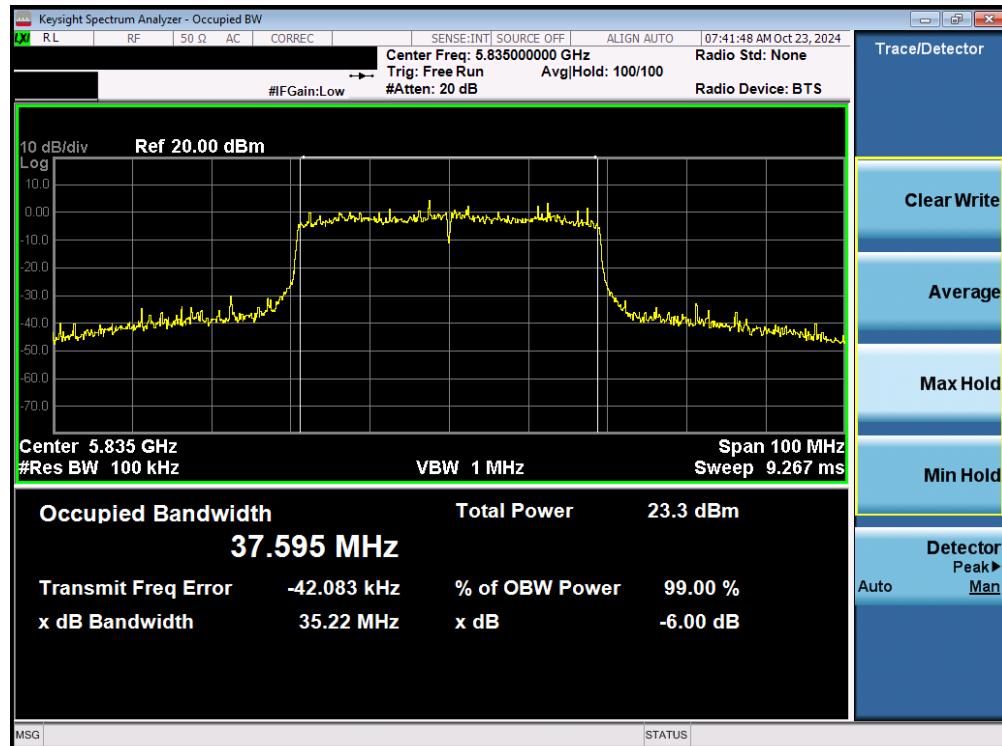


Plot 7-38. 6dB Bandwidth Plot MIMO ANT1 (80MHz 802.11ax/be (Full Tones)) (UNII Band 3) – Ch. 155

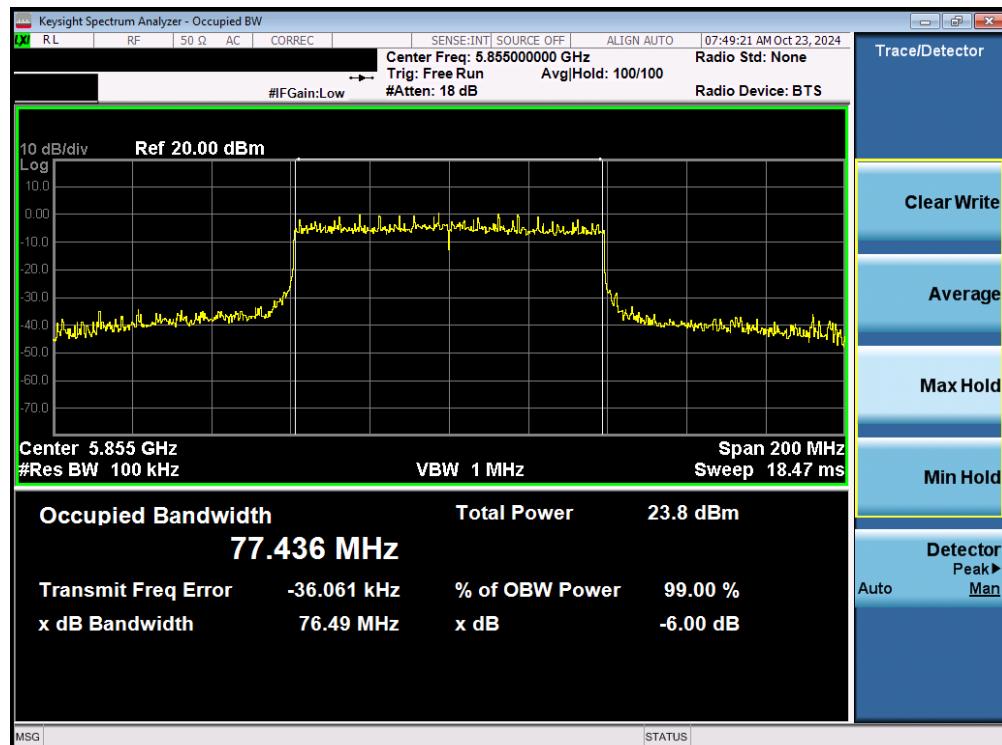


Plot 7-39. 6dB Bandwidth Plot MIMO ANT1 (20MHz 802.11ax/be (Full Tones)) (UNII Band 4) – Ch. 173

FCC ID: A3LSMS936B	MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 42 of 146	

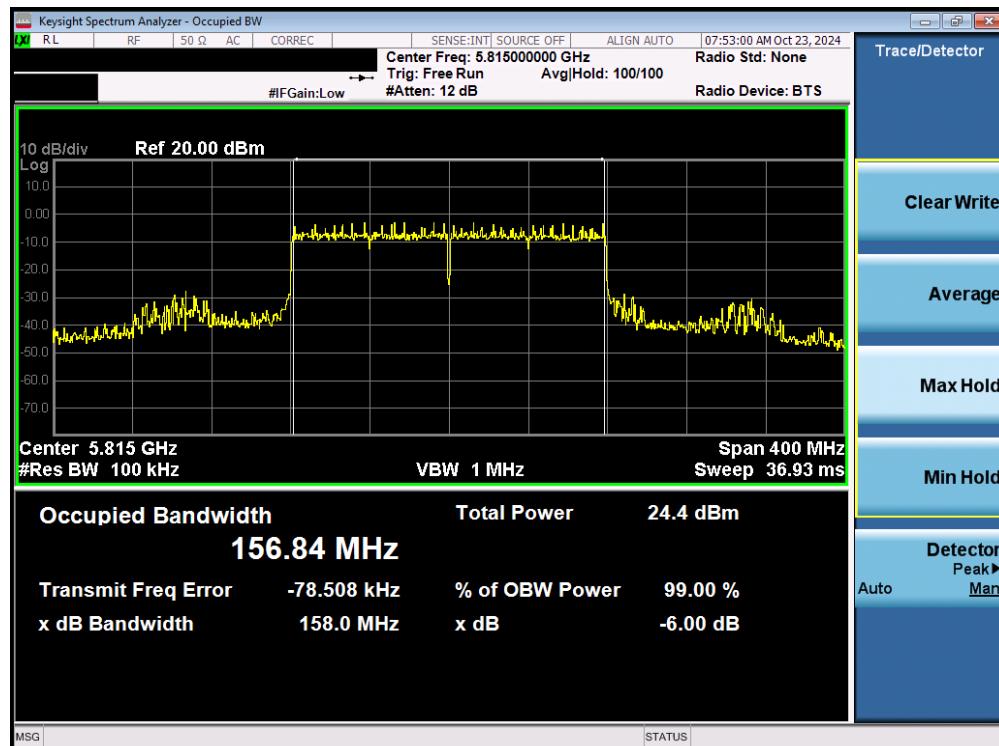


Plot 7-40. 6dB Bandwidth Plot MIMO ANT1 (40MHz 802.11ax/be (Full Tones) (UNII Band 3/4) – Ch. 167)



Plot 7-41. 6dB Bandwidth Plot MIMO ANT1 (80MHz 802.11ax/be (Full Tones) (UNII Band 3/4) – Ch. 171)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 43 of 146



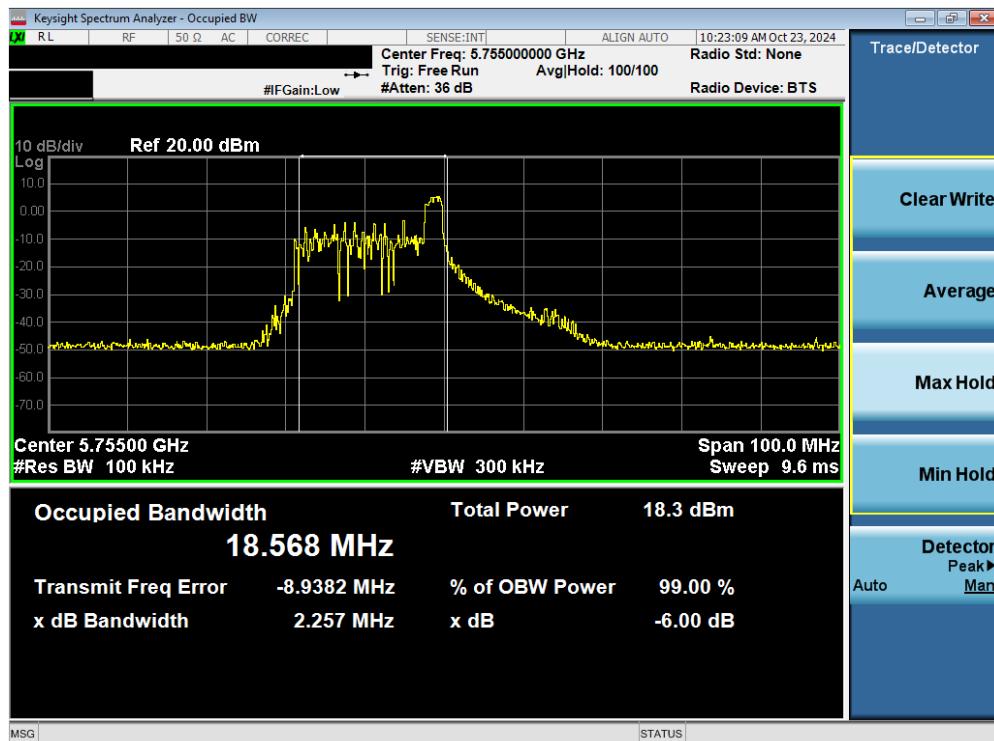
Plot 7-42. 6dB Bandwidth Plot MIMO ANT1 (160MHz 802.11ax/be (Full Tones)) (UNII Band 3/4) – Ch. 163

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 44 of 146

7.3.2 MIMO Antenna-2 6dB Bandwidth Measurements

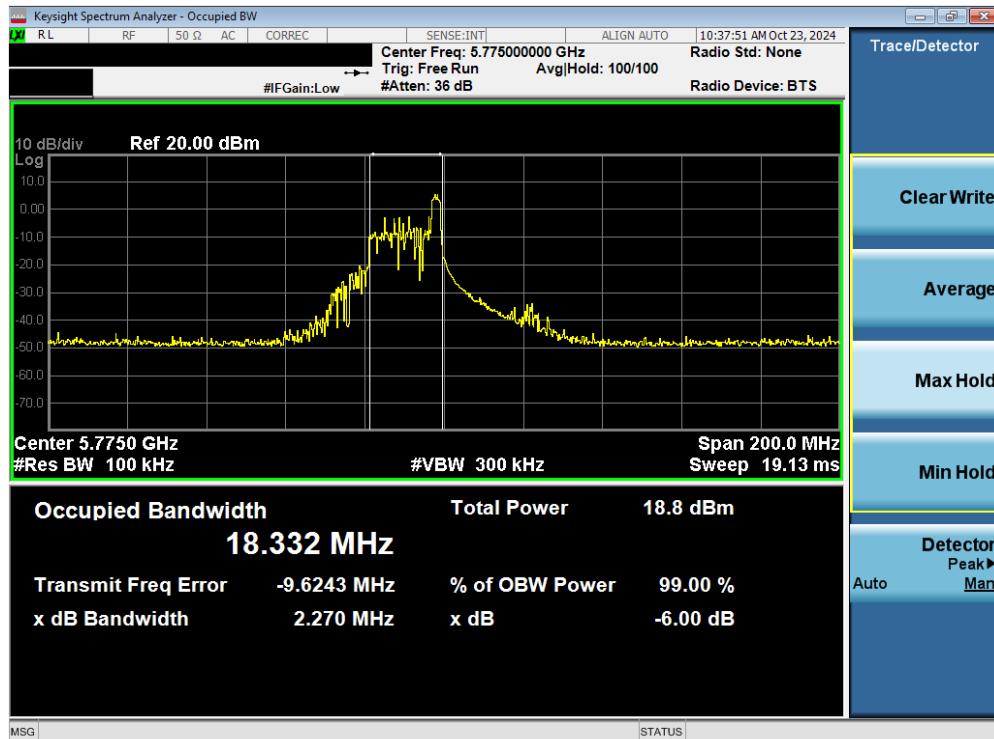


Plot 7-43. 6dB Bandwidth Plot MIMO ANT2 (20MHz 802.11ax/be (26 Tones) (UNII Band 3) – Ch. 157)

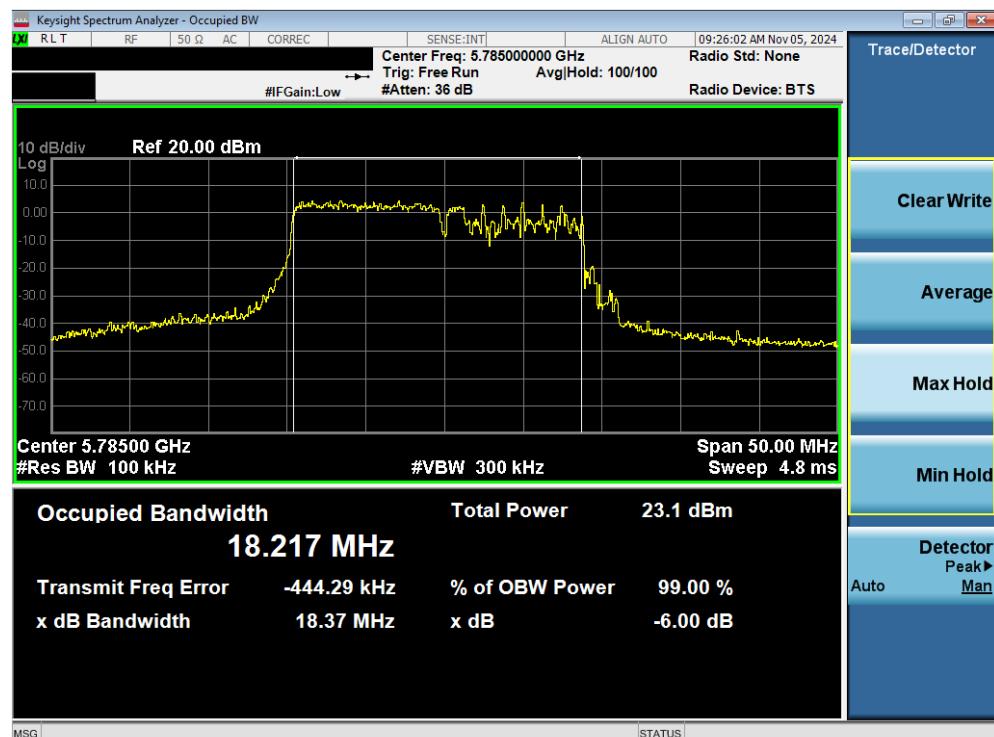


Plot 7-44. 6dB Bandwidth Plot MIMO ANT2 (40MHz 802.11ax/be (26 Tones) (UNII Band 3) – Ch. 151)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 45 of 146



Plot 7-45. 6dB Bandwidth Plot MIMO ANT2 (80MHz 802.11ax/be (26 Tones)) (UNII Band 3) – Ch. 155)

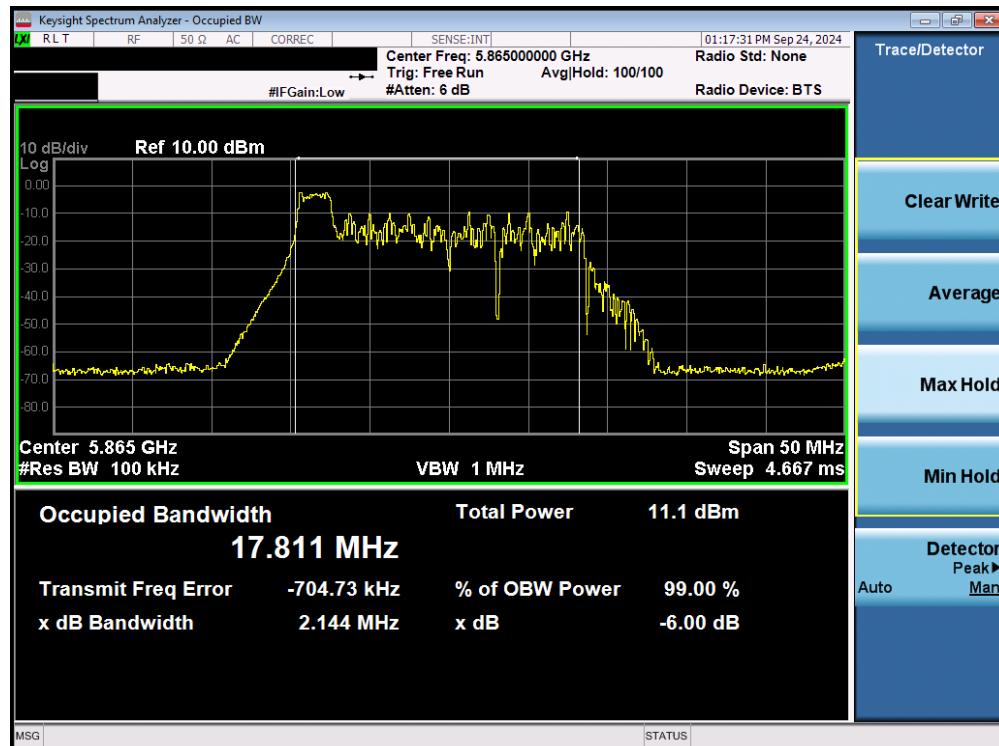


Plot 7-46. 6dB Bandwidth Plot MIMO ANT2 (20MHz 802.11be (106+26 Tones)) (UNII Band 3) – Ch. 157)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 46 of 146

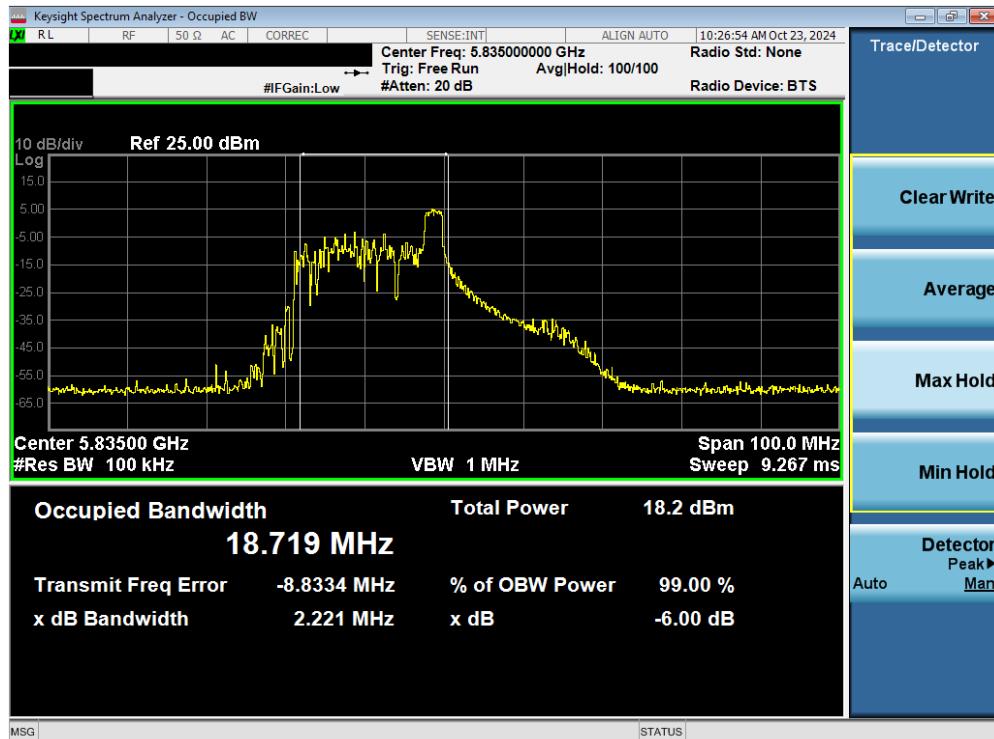


Plot 7-47. 6dB Bandwidth Plot MIMO ANT2 (80MHz 802.11be (484+242 Tones) (UNII Band 3) – Ch. 155)

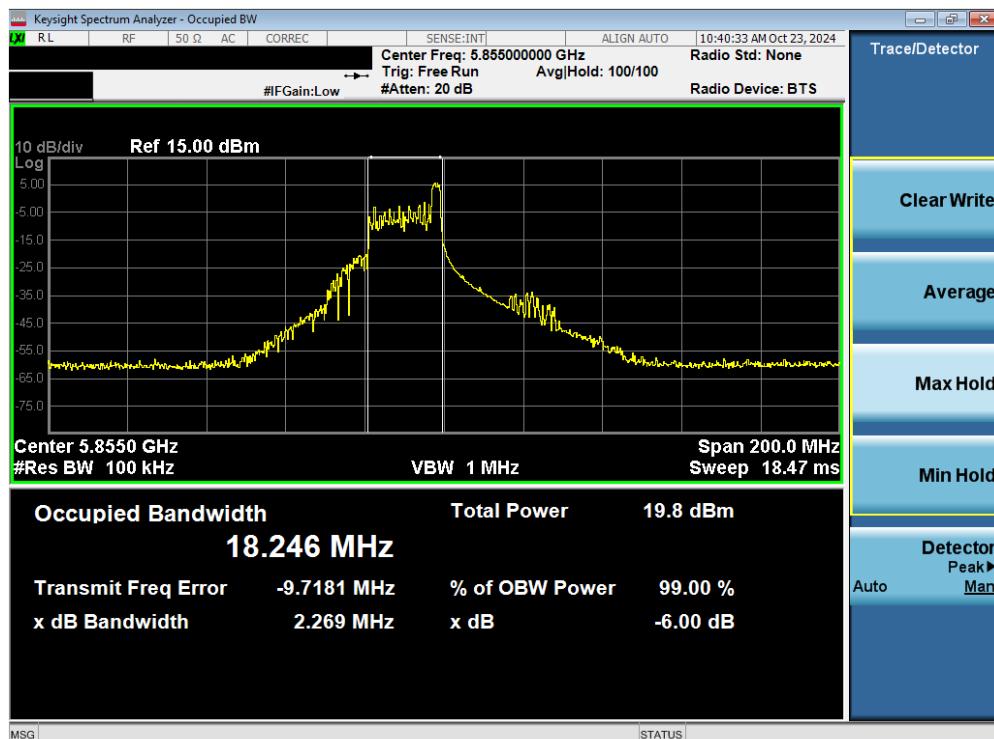


Plot 7-48. 6dB Bandwidth Plot MIMO ANT2 (20MHz 802.11ax/be (26 Tones) (UNII Band 4) – Ch. 173)

FCC ID: A3LSMS936B	MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset		Page 47 of 146

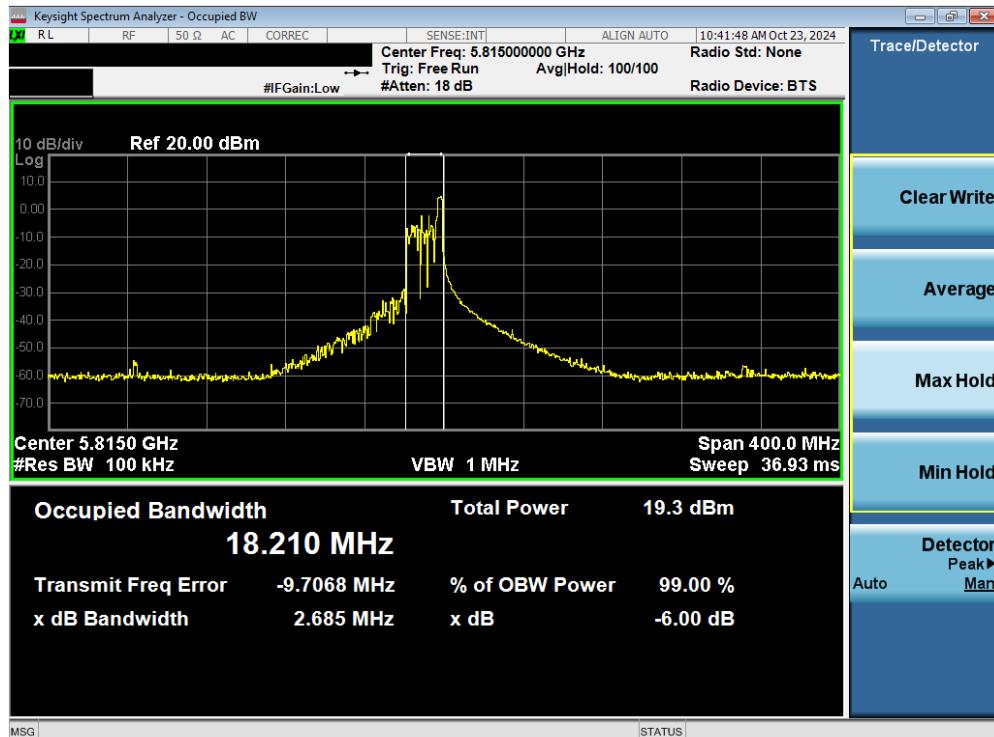


Plot 7-49. 6dB Bandwidth Plot MIMO ANT2 (40MHz 802.11ax/be (26 Tones) (UNII Band 3/4) – Ch. 167)

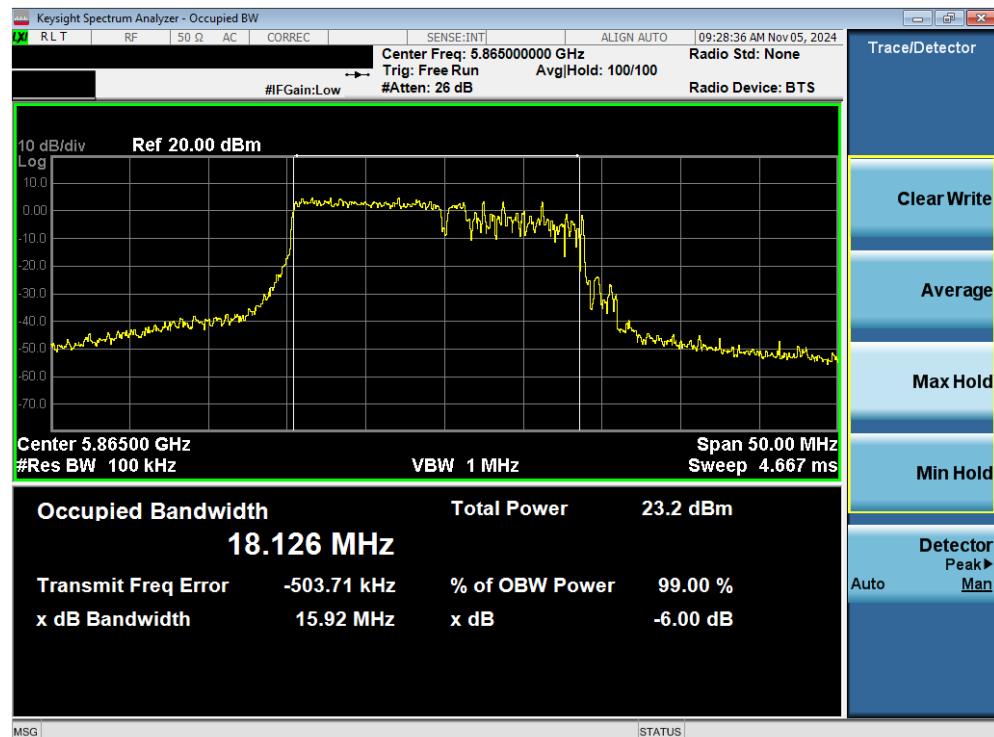


Plot 7-50. 6dB Bandwidth Plot MIMO ANT2 (80MHz 802.11ax/be (26 Tones) (UNII Band 3/4) – Ch. 171)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 48 of 146



Plot 7-51. 6dB Bandwidth Plot MIMO ANT2 (160MHz 802.11ax/be (26 Tones)) (UNII Band 3/4) – Ch. 163)



Plot 7-52. 6dB Bandwidth Plot MIMO ANT2 (20MHz 802.11be (106+26 Tones)) (UNII Band 4) – Ch. 173)

FCC ID: A3LSMS936B	MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset		Page 49 of 146

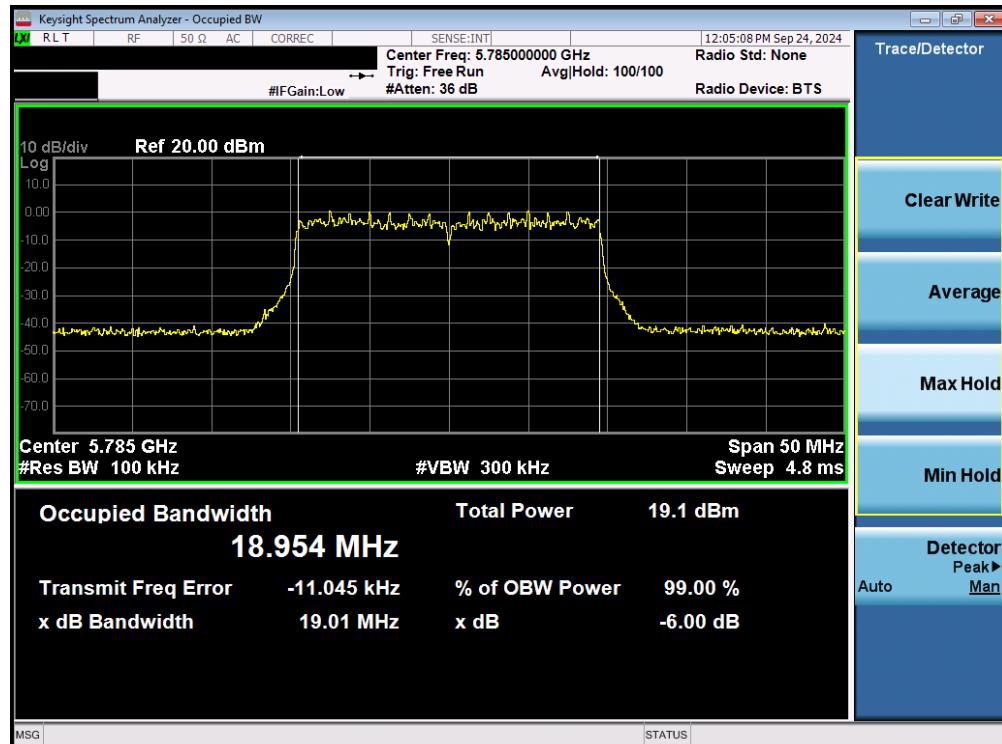


Plot 7-53. 6dB Bandwidth Plot MIMO ANT2 (80MHz 802.11be (484+242 Tones)) (UNII Band 3/4) – Ch. 171)

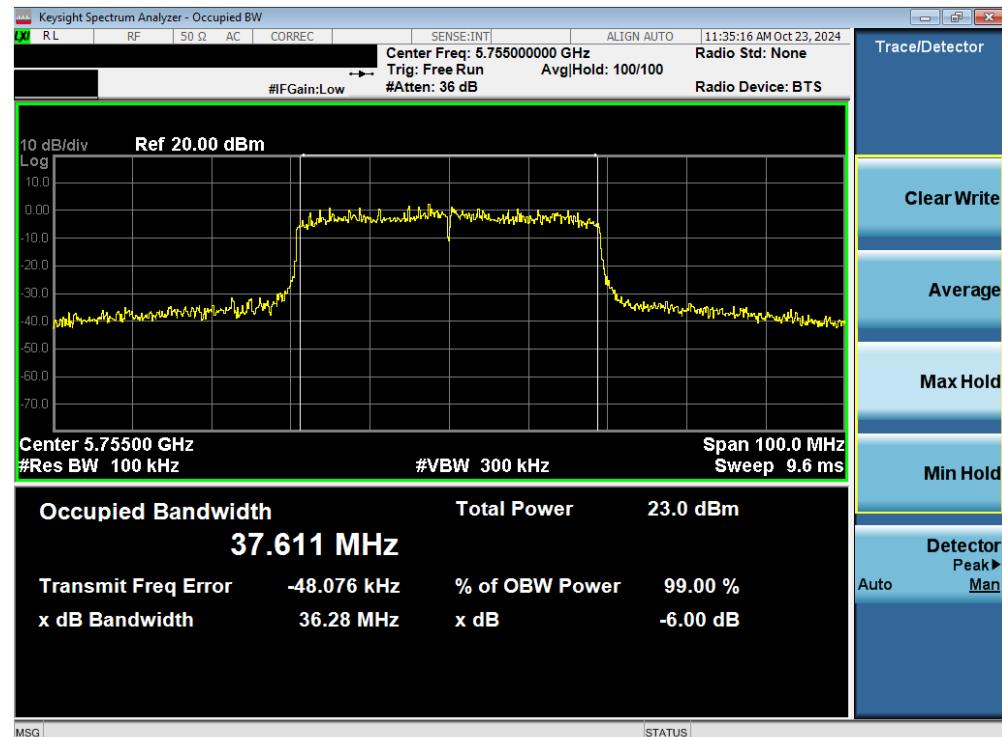


Plot 7-54. 6dB Bandwidth Plot MIMO ANT2 (160MHz 802.11be (996+484 Tones)) (UNII Band 3/4) – Ch. 163)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 50 of 146

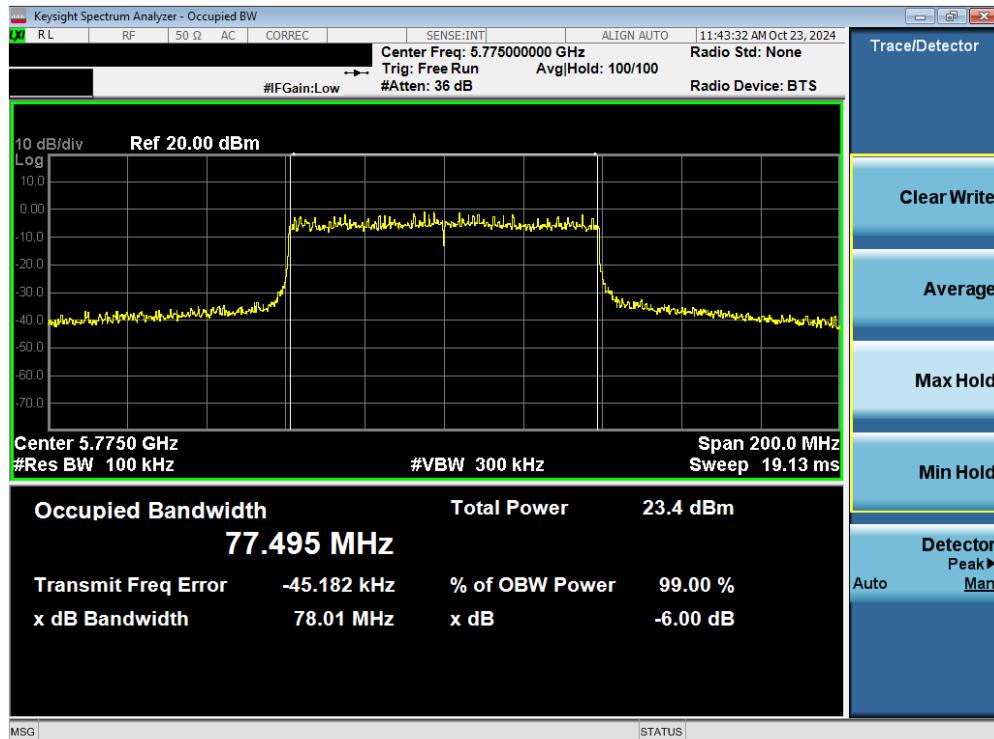


Plot 7-55. 6dB Bandwidth Plot MIMO ANT2 (20MHz 802.11ax/be (Full Tones)) (UNII Band 3) – Ch. 157

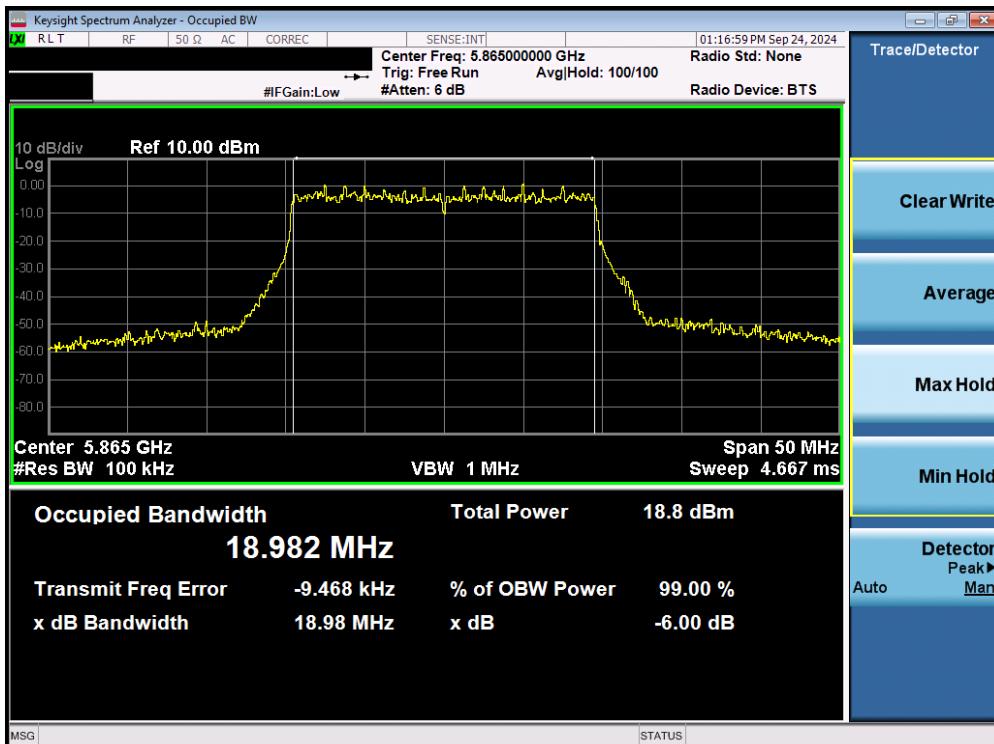


Plot 7-56. 6dB Bandwidth Plot MIMO ANT2 (40MHz 802.11ax/be (Full Tones)) (UNII Band 3) – Ch. 151

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 51 of 146

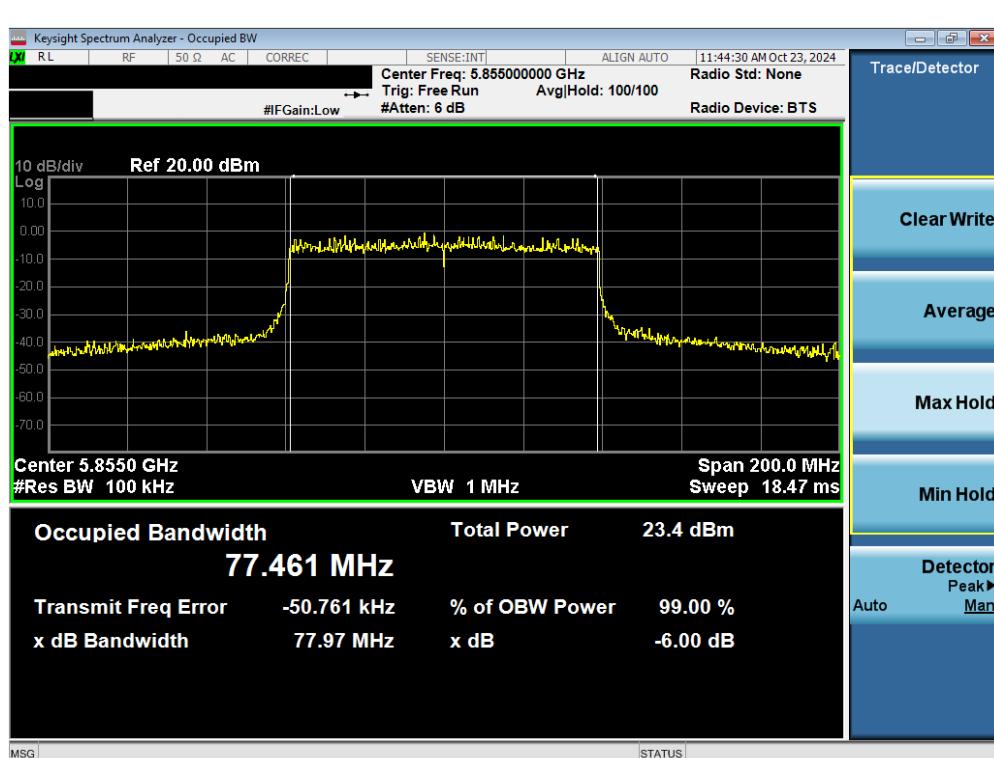
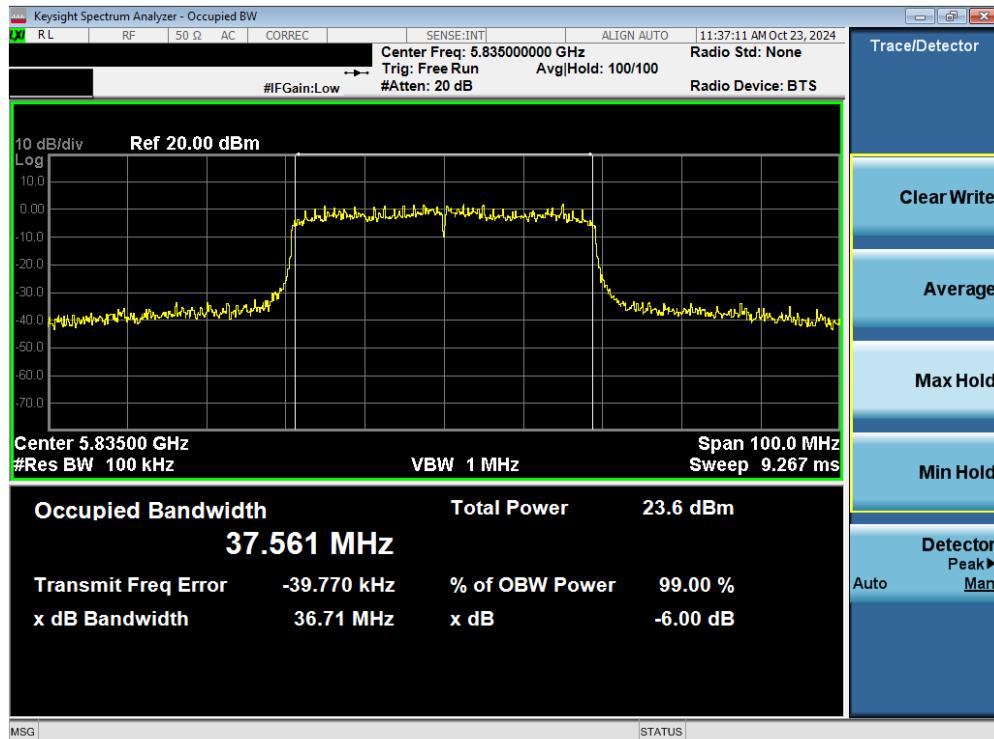


Plot 7-57. 6dB Bandwidth Plot MIMO ANT2 (80MHz 802.11ax/be (Full Tones) (UNII Band 3) – Ch. 155)

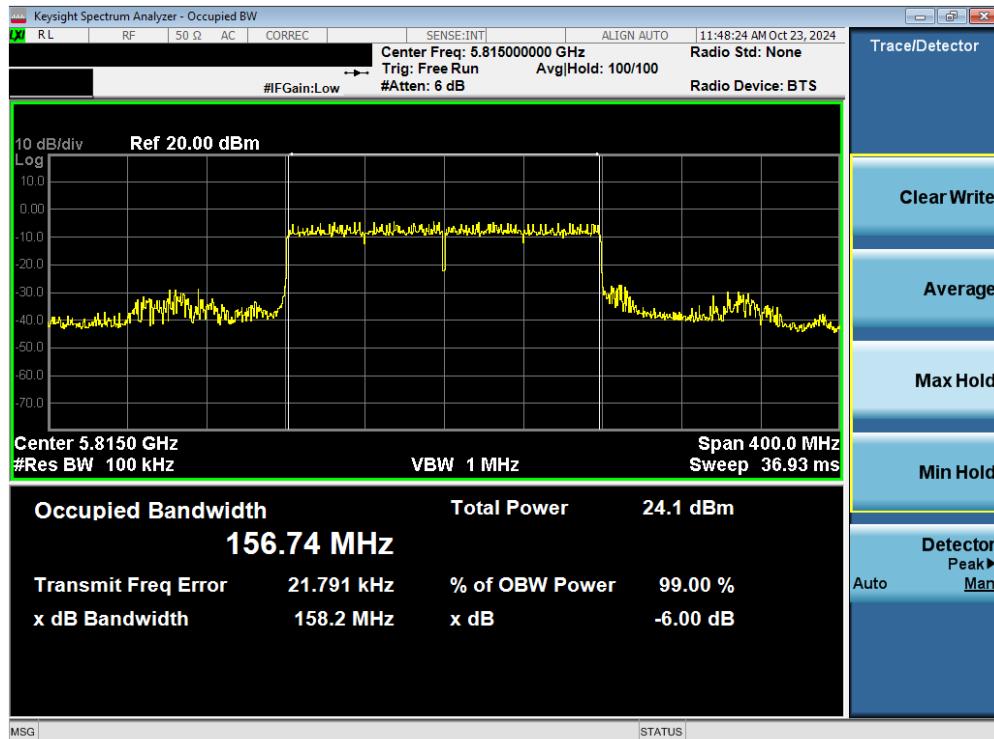


Plot 7-58. 6dB Bandwidth Plot MIMO ANT2 (20MHz 802.11ax/be (Full Tones) (UNII Band 4) – Ch. 173)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 52 of 146



FCC ID: A3LSMS936B	MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset		Page 53 of 146



Plot 7-61. 6dB Bandwidth Plot MIMO ANT2 (160MHz 802.11ax/be (Full Tones) (UNII Band 3/4) – Ch. 163)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 54 of 146

7.4 UNII Output Power Measurement

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 at the appropriate frequencies.

The output power limits are specified in the table below.

UNII Band	Frequency Range	Maximum Conducted Power Limit	Maximum e.i.r.p
		FCC	FCC
UNII 1	5.15 – 5.25GHz	23.98dBm (250mW)	N/A
UNII 2A	5.25 – 5.35GHz		
UNII 2C	5.47 – 5.725GHz	The lesser of 23.98dBm (250mW) or 11dBm + 10log ₁₀ B	N/A
UNII 3	5.725 – 5.850GHz	30dBm (1W)	N/A
UNII 4	5.850 – 5.895GHz	N/A	30dBm (1W)

Test Procedure Used

ANSI C63.10-2013 – Section 12.3.3.2 Method PM-G

ANSI C63.10-2013 – Section 14.2 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

None.

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 55 of 146

SISO ANT1 Conducted Output Power Measurements (26 Tones)

20MHz BW	Band	Freq [MHz]	Channel	Tones	Avg Conducted Power (dBm)			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]						
					RU Index														
					0	4	8												
1	5180	36	26T	10.36	10.29	13.33	23.98	-10.65	-5.02	8.31	30.0	-21.69							
		5200	40	26T	10.07	10.33	13.32	23.98	-10.66	-5.02	8.30	30.0	-21.70						
		5240	48	26T	10.16	10.50	13.35	23.98	-10.63	-5.02	8.33	30.0	-21.67						
2A	5260	52	26T	10.18	10.35	13.38	23.98	-10.60	-3.27	10.11	30.0	-19.89							
		5280	56	26T	10.20	10.35	13.39	23.98	-10.59	-3.27	10.12	30.0	-19.88						
		5320	64	26T	10.08	10.20	13.16	23.98	-10.82	-3.27	9.89	30.0	-20.11						
2C	5500	100	26T	10.10	10.15	13.52	23.98	-10.46	-3.86	9.66	30.0	-20.34							
		5600	120	26T	10.22	10.08	13.11	23.98	-10.87	-3.86	9.25	30.0	-20.75						
		5720	144	26T	10.43	10.07	13.40	23.98	-10.58	-3.86	9.54	30.0	-20.46						
3	5745	149	26T	10.63	10.22	13.65	30	-16.35	-3.52	10.13	36.0	-25.87							
		5785	157	26T	10.44	10.00	13.40	30	-16.60	-3.52	9.88	36.0	-26.12						
		5825	165	26T	10.58	10.15	13.48	30	-16.52	-3.52	9.96	36.0	-26.04						
4	5845	169	26T	10.61	10.12	13.46	-	-	-4.88	8.58	30.0	-21.42							
		5865	173	26T	10.50	10.02	13.34	-	-	-4.88	8.46	30.0	-21.54						
		5885	177	26T	10.40	10.48	13.32	-	-	-4.88	8.44	30.0	-21.56						

Table 7-11. SISO ANT1 20MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

SISO ANT1 Conducted Output Power Measurements (52 Tones)

20MHz BW	Band	Freq [MHz]	Channel	Tones	Avg Conducted Power (dBm)			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]						
					RU Index														
					37	38	40												
1	5180	36	52T	12.07	12.38	12.35	23.98	-11.60	-5.02	7.36	30.0	-22.64							
		5200	40	52T	12.05	12.40	12.36	23.98	-11.58	-5.02	7.38	30.0	-22.62						
		5240	48	52T	12.09	12.37	12.30	23.98	-11.61	-5.02	7.35	30.0	-22.65						
2A	5260	52	52T	12.09	12.75	12.26	23.98	-11.23	-3.27	9.48	30.0	-20.52							
		5280	56	52T	12.16	12.42	12.27	23.98	-11.56	-3.27	9.15	30.0	-20.85						
		5320	64	52T	12.01	12.24	12.04	23.98	-11.74	-3.27	8.97	30.0	-21.03						
2C	5500	100	52T	12.11	12.24	12.36	23.98	-11.62	-3.86	8.50	30.0	-21.50							
		5600	120	52T	12.01	12.27	12.40	23.98	-11.58	-3.86	8.54	30.0	-21.46						
		5720	144	52T	12.47	12.20	12.40	23.98	-11.51	-3.86	8.61	30.0	-21.39						
3	5745	149	52T	12.09	12.35	12.05	30	-17.65	-3.52	8.83	36.0	-27.17							
		5785	157	52T	12.42	12.17	12.43	30	-17.57	-3.52	8.91	36.0	-27.09						
		5825	165	52T	12.46	12.23	12.33	30	-17.54	-3.52	8.94	36.0	-27.06						
4	5845	169	52T	12.46	12.24	12.36	-	-	-4.88	7.58	30.0	-22.42							
		5865	173	52T	12.36	12.13	12.28	-	-	-4.88	7.48	30.0	-22.52						
		5885	177	52T	12.42	12.18	12.35	-	-	-4.88	7.54	30.0	-22.46						

Table 7-12. SISO ANT1 20MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

20MHz BW	Band	Freq [MHz]	Channel	Tones	Avg Conducted Power (dBm)			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]						
					RU Index														
					53	54	55												
1	5180	36	106T	15.05	15.16	23.98	-8.82	-5.02	10.14	30.0	-19.86								
		5200	40	106T	15.02	15.20	23.98	-8.78	-5.02	10.18	30.0	-19.82							
		5240	48	106T	15.44	15.03	23.98	-8.54	-5.02	10.42	30.0	-19.58							
2A	5260	52	106T	15.00	15.80	23.98	-8.18	-3.27	12.53	30.0	-17.47								
		5280	56	106T	15.06	15.19	23.98	-8.79	-3.27	11.92	30.0	-18.08							
		5320	64	106T	15.37	15.42	23.98	-8.56	-3.27	12.15	30.0	-17.85							
2C	5500	100	106T	15.33	15.25	23.98	-8.65	-3.86	11.47	30.0	-18.53								
		5600	120	106T	15.50	15.43	23.98	-8.48	-3.86	11.64	30.0	-18.36							
		5720	144	106T	15.45	15.30	23.98	-8.53	-3.86	11.59	30.0	-18.41							
3	5745	149	106T	15.39	15.35	30	-14.61	-3.52	11.87	36.0	-24.13								
		5785	157	106T	15.02	15.03	30	-14.97	-3.52	11.51	36.0	-24.49							
		5825	165	106T	15.19	15.11	30	-14.81	-3.52	11.67	36.0	-24.33							
4	5845	169	106T	15.30	15.32	-	-	-4.88	10.44	30.0	-19.56								
		5865	173	106T	15.35	15.23	-	-	-4.88	10.47	30.0	-19.53							
		5885	177	106T	15.01	15.47	-	-	-4.88	10.59	30.0	-19.41							

Table 7-13. SISO ANT1 20MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

FCC ID: A3LSMS936B	MEASUREMENT REPORT						Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset				Page 56 of 146	V 11.1 08/28/2023

SISO ANT1 Conducted Output Power Measurements (242 Tones)

20MHz BW	Band	Freq [MHz]	Channel	Tones	Avg Conducted	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					RU Index						
					61						
1	5180	36	242T	15.37	23.98	-8.61	-5.02	10.35	30.0	-19.65	
	5200	40	242T	15.42	23.98	-8.56	-5.02	10.40	30.0	-19.60	
	5240	48	242T	15.30	23.98	-8.68	-5.02	10.28	30.0	-19.72	
2A	5260	52	242T	15.47	23.98	-8.51	-3.27	12.20	30.0	-17.80	
	5280	56	242T	15.44	23.98	-8.54	-3.27	12.17	30.0	-17.83	
	5320	64	242T	15.16	23.98	-8.82	-3.27	11.89	30.0	-18.11	
2C	5500	100	242T	15.09	23.98	-8.89	-3.86	11.23	30.0	-18.77	
	5600	120	242T	15.26	23.98	-8.72	-3.86	11.40	30.0	-18.60	
	5720	144	242T	15.20	23.98	-8.78	-3.86	11.34	30.0	-18.66	
3	5745	149	242T	15.18	30	-14.82	-3.52	11.66	36.0	-24.34	
	5785	157	242T	15.36	30	-14.64	-3.52	11.84	36.0	-24.16	
	5825	165	242T	15.47	30	-14.53	-3.52	11.95	36.0	-24.05	
4	5845	169	242T	15.04	-	-	-4.88	10.16	30.0	-19.84	
	5865	173	242T	15.09	-	-	-4.88	10.21	30.0	-19.79	
	5885	177	242T	15.37	-	-	-4.88	10.49	30.0	-19.51	

Table 7-14. SISO ANT1 20MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

SISO ANT1 Conducted Output Power Measurements (484 Tones)

40MHz BW	Band	Freq [MHz]	Channel	Tones	Avg Conducted	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					RU Index						
					65						
1	5190	38	484T	15.30	23.98	-8.68	-5.02	10.28	30.0	-19.72	
	5230	46	484T	15.24	23.98	-8.74	-5.02	10.22	30.0	-19.78	
	5270	54	484T	15.33	23.98	-8.65	-3.27	12.06	30.0	-17.94	
2A	5310	62	484T	15.17	23.98	-8.81	-3.27	11.90	30.0	-18.10	
	5510	102	484T	15.07	23.98	-8.91	-3.86	11.21	30.0	-18.79	
	5590	118	484T	15.28	23.98	-8.7	-3.86	11.42	30.0	-18.58	
2C	5710	142	484T	15.46	23.98	-8.52	-3.86	11.60	30.0	-18.40	
	5755	151	484T	15.12	30	-14.88	-3.52	11.60	36.0	-24.40	
	5795	159	484T	15.20	30	-14.8	-3.52	11.68	36.0	-24.32	
3	5835	167	484T	15.42	-	-	-4.88	10.54	30.0	-19.46	
	5875	175	484T	15.48	-	-	-4.88	10.60	30.0	-19.40	

Table 7-15. SISO ANT1 40MHz BW (UNII) Maximum Conducted Output Power (484 Tones)

SISO ANT1 Conducted Output Power Measurements (996 Tones)

80MHz BW	Band	Freq [MHz]	Channel	Tones	Avg Conducted	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					RU Index						
					67						
1	5210	42	996T	14.01	23.98	-9.97	-5.02	8.99	30.0	-21.01	
	5290	58	996T	14.44	23.98	-9.54	-3.27	11.17	30.0	-18.83	
	5530	106	996T	14.28	23.98	-9.7	-3.86	10.42	30.0	-19.58	
2A	5610	122	996T	14.40	23.98	-9.58	-3.86	10.54	30.0	-19.46	
	5690	138	996T	14.20	23.98	-9.78	-3.86	10.34	30.0	-19.66	
	5775	155	996T	14.33	30	-15.67	-3.52	10.81	36.0	-25.19	
3	5855	171	996T	14.28	-	-	-4.88	9.40	30.0	-20.60	

Table 7-16. SISO ANT1 80MHz BW (UNII) Maximum Conducted Output Power (996 Tones)

SISO ANT1 Conducted Output Power Measurements (2x996 Tones)

160MHz BW	Band	Freq [MHz]	Channel	Tones	Avg Conducted	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					RU Index						
					68						
1/2A	5250	50	2x996T	13.2	23.98	-10.78	-5.02	8.18	30.0	-21.82	
	5570	114	2x996T	13.07	23.98	-10.91	-3.86	9.21	30.0	-20.79	
	5815	163	2x996T	13.34	-	-	-4.88	8.46	30.0	-21.54	

Table 7-17. SISO ANT1 160MHz BW (UNII) Maximum Conducted Output Power (2x996 Tones)

FCC ID: A3LSMS936B	MEASUREMENT REPORT						Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset				Page 57 of 146	

SISO ANT2 Conducted Output Power Measurements (26 Tones)

20MHz BW	Band	Freq [MHz]	Channel	Tones	Avg Conducted Power (dBm)			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]						
					RU Index														
					0	4	8												
1	1	5180	36	26T	10.01	10.12	13.01	23.98	-10.97	-5.68	7.33	30.0	-22.67						
		5200	40	26T	10.48	10.01	13.44	23.98	-10.54	-5.68	7.76	30.0	-22.24						
		5240	48	26T	10.33	10.23	13.23	23.98	-10.75	-5.68	7.55	30.0	-22.45						
2A	2A	5260	52	26T	10.04	10.09	13.40	23.98	-10.58	-5.41	7.99	30.0	-22.01						
		5280	56	26T	10.38	10.00	13.33	23.98	-10.65	-5.41	7.92	30.0	-22.08						
		5320	64	26T	10.20	10.13	13.06	23.98	-10.92	-5.41	7.65	30.0	-22.35						
2C	2C	5500	100	26T	10.00	10.04	13.15	23.98	-10.83	-5.50	7.65	30.0	-22.35						
		5600	120	26T	10.10	10.38	13.28	23.98	-10.70	-5.50	7.78	30.0	-22.22						
		5720	144	26T	10.07	10.28	13.04	23.98	-10.94	-5.50	7.54	30.0	-22.46						
3	3	5745	149	26T	10.03	10.19	13.06	30	-16.94	-4.80	8.26	36.0	-27.74						
		5785	157	26T	10.27	10.34	13.23	30	-16.77	-4.80	8.43	36.0	-27.57						
		5825	165	26T	10.33	10.57	13.36	30	-16.64	-4.80	8.56	36.0	-27.44						
4	4	5845	169	26T	10.30	10.50	13.34	-	-	-3.65	9.69	30.0	-20.31						
		5865	173	26T	10.37	10.00	13.40	-	-	-3.65	9.75	30.0	-20.25						
		5885	177	26T	10.20	10.40	13.30	-	-	-3.65	9.65	30.0	-20.35						

Table 7-18. SISO ANT2 20MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

SISO ANT2 Conducted Output Power Measurements (52 Tones)

20MHz BW	Band	Freq [MHz]	Channel	Tones	Avg Conducted Power (dBm)			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]						
					RU Index														
					37	38	40												
1	1	5180	36	52T	12.08	12.38	12.02	23.98	-11.60	-5.68	6.70	30.0	-23.30						
		5200	40	52T	12.02	12.20	12.00	23.98	-11.78	-5.68	6.52	30.0	-23.48						
		5240	48	52T	12.25	12.06	12.13	23.98	-11.73	-5.68	6.57	30.0	-23.43						
2A	2A	5260	52	52T	12.02	11.23	11.39	23.98	-11.96	-5.41	6.61	30.0	-23.39						
		5280	56	52T	12.01	12.10	12.30	23.98	-11.68	-5.41	6.89	30.0	-23.11						
		5320	64	52T	12.25	12.00	12.05	23.98	-11.73	-5.41	6.84	30.0	-23.16						
2C	2C	5500	100	52T	12.00	12.30	12.10	23.98	-11.68	-5.50	6.80	30.0	-23.20						
		5600	120	52T	12.27	12.06	12.23	23.98	-11.71	-5.50	6.77	30.0	-23.23						
		5720	144	52T	12.01	12.44	12.10	23.98	-11.54	-5.50	6.94	30.0	-23.06						
3	3	5745	149	52T	12.07	12.39	12.15	30	-17.61	-4.80	7.59	36.0	-28.41						
		5785	157	52T	12.24	12.01	12.24	30	-17.76	-4.80	7.44	36.0	-28.56						
		5825	165	52T	12.37	12.01	12.40	30	-17.6	-4.80	7.60	36.0	-28.40						
4	4	5845	169	52T	12.40	12.18	12.46	-	-	-3.65	8.81	30.0	-21.19						
		5865	173	52T	12.46	12.26	12.53	-	-	-3.65	8.88	30.0	-21.12						
		5885	177	52T	12.25	12.13	12.37	-	-	-3.65	8.72	30.0	-21.28						

Table 7-19. SISO ANT2 20MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

20MHz BW	Band	Freq [MHz]	Channel	Tones	Avg Conducted Power (dBm)		Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]							
					RU Index														
					53	54													
1	1	5180	36	106T	15.80	15.81	23.98	-8.17	-5.68	10.13	30.0	-19.87							
		5200	40	106T	15.86	15.79	23.98	-8.12	-5.68	10.18	30.0	-19.82							
		5240	48	106T	15.02	15.03	23.98	-8.95	-5.68	9.35	30.0	-20.65							
2A	2A	5260	52	106T	15.73	15.72	23.98	-8.25	-5.41	10.32	30.0	-19.68							
		5280	56	106T	15.75	15.72	23.98	-8.23	-5.41	10.34	30.0	-19.66							
		5320	64	106T	15.60	15.60	23.98	-8.38	-5.41	10.19	30.0	-19.81							
2C	2C	5500	100	106T	15.61	15.59	23.98	-8.37	-5.50	10.11	30.0	-19.89							
		5600	120	106T	15.49	15.45	23.98	-8.49	-5.50	9.99	30.0	-20.01							
		5720	144	106T	15.46	15.40	23.98	-8.52	-5.50	9.96	30.0	-20.04							
3	3	5745	149	106T	15.37	15.30	30	-14.63	-4.80	10.57	36.0	-25.43							
		5785	157	106T	15.44	15.42	30	-14.56	-4.80	10.64	36.0	-25.36							
		5825	165	106T	15.40	15.40	30	-14.6	-4.80	10.60	36.0	-25.40							
4	4	5845	169	106T	15.44	15.45	-	-	-3.65	11.80	30.0	-18.20							
		5865	173	106T	15.49	15.43	-	-	-3.65	11.84	30.0	-18.16							
		5885	177	106T	15.70	15.69	-	-	-3.65	12.05	30.0	-17.95							

Table 7-20. SISO ANT2 20MHz BW (UNII) Maximum Conducted Output Power (106 Tones)

FCC ID: A3LSMS936B	MEASUREMENT REPORT						Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset				Page 58 of 146	V 11.1 08/28/2023

SISO ANT2 Conducted Output Power Measurements (242 Tones)

20MHz BW	Band	Freq [MHz]	Channel	Tones	Avg Conducted	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					RU Index						
					61						
1	1	5180	36	242T	15.66	23.98	-8.32	-5.68	9.98	30.0	-20.02
		5200	40	242T	15.65	23.98	-8.33	-5.68	9.97	30.0	-20.03
		5240	48	242T	15.03	23.98	-8.95	-5.68	9.35	30.0	-20.65
2A	2A	5260	52	242T	15.50	23.98	-8.48	-5.41	10.09	30.0	-19.91
		5280	56	242T	15.55	23.98	-8.43	-5.41	10.14	30.0	-19.86
		5320	64	242T	15.48	23.98	-8.5	-5.41	10.07	30.0	-19.93
2C	2C	5500	100	242T	15.37	23.98	-8.61	-5.50	9.87	30.0	-20.13
		5600	120	242T	15.33	23.98	-8.65	-5.50	9.83	30.0	-20.17
		5720	144	242T	15.33	23.98	-8.65	-5.50	9.83	30.0	-20.17
3	3	5745	149	242T	15.20	30	-14.8	-4.80	10.40	36.0	-25.60
		5785	157	242T	15.20	30	-14.8	-4.80	10.40	36.0	-25.60
		5825	165	242T	15.25	30	-14.75	-4.80	10.45	36.0	-25.55
4	4	5845	169	242T	15.28	-	-	-3.65	11.63	30.0	-18.37
		5865	173	242T	15.35	-	-	-3.65	11.70	30.0	-18.30
		5885	177	242T	15.49	-	-	-3.65	11.84	30.0	-18.16

Table 7-21. SISO ANT2 20MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

SISO ANT2 Conducted Output Power Measurements (484 Tones)

40MHz BW	Band	Freq [MHz]	Channel	Tones	Avg Conducted	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					RU Index						
					65						
1	1	5190	38	484T	15.66	23.98	-8.32	-5.68	9.98	30.0	-20.02
		5230	46	484T	15.67	23.98	-8.31	-5.68	9.99	30.0	-20.01
		5270	54	484T	15.53	23.98	-8.45	-5.41	10.12	30.0	-19.88
2A	2A	5310	62	484T	15.54	23.98	-8.44	-5.41	10.13	30.0	-19.87
		5510	102	484T	15.39	23.98	-8.59	-5.50	9.89	30.0	-20.11
		5590	118	484T	15.35	23.98	-8.63	-5.50	9.85	30.0	-20.15
2C	2C	5710	142	484T	15.33	23.98	-8.65	-5.50	9.83	30.0	-20.17
		5755	151	484T	15.18	30	-14.82	-4.80	10.38	36.0	-25.62
		5795	159	484T	15.28	30	-14.72	-4.80	10.48	36.0	-25.52
3	3	5835	167	484T	15.31	-	-	-3.65	11.66	30.0	-18.34
		5875	175	484T	15.38	-	-	-3.65	11.73	30.0	-18.27

Table 7-22. SISO ANT2 40MHz BW (UNII) Maximum Conducted Output Power (484 Tones)

SISO ANT2 Conducted Output Power Measurements (996 Tones)

80MHz BW	Band	Freq [MHz]	Channel	Tones	Avg Conducted	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					RU Index						
					67						
1	1	5210	42	996T	14.52	23.98	-9.46	-5.68	8.84	30.0	-21.16
		5290	58	996T	14.29	23.98	-9.69	-5.41	8.88	30.0	-21.12
		5530	106	996T	14.19	23.98	-9.79	-5.50	8.69	30.0	-21.31
2A	2A	5610	122	996T	14.00	23.98	-9.98	-5.50	8.50	30.0	-21.50
		5690	138	996T	14.20	23.98	-9.78	-5.50	8.70	30.0	-21.30
		5775	155	996T	14.52	30	-15.48	-4.80	9.72	36.0	-26.28
2C	2C	5855	171	996T	14.53	-	-	-3.65	10.88	30.0	-19.12

Table 7-23. SISO ANT2 80MHz BW (UNII) Maximum Conducted Output Power (996 Tones)

160MHz BW	Band	Freq [MHz]	Channel	Tones	Avg Conducted	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					RU Index						
					68						
1/2A	1/2A	5250	50	2x996T	13.4	23.98	-10.58	-5.68	7.72	30.0	-22.28
		5570	114	2x996T	13.24	23.98	-10.74	-5.50	7.74	30.0	-22.26
		5815	163	2x996T	13.20	-	-	-3.65	9.55	30.0	-20.45

Table 7-24. SISO ANT2 160MHz BW (UNII) Maximum Conducted Output Power (2x996 Tones)

FCC ID: A3LSMS936B	MEASUREMENT REPORT						Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset				Page 59 of 146	

MIMO Conducted Output Power Measurements (26 Tones)

20MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)												Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]				
					RU Index 0				RU Index 4				RU Index 8													
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO										
1	5180	36	26T	10.35	10.31	13.54	10.57	10.82	13.61	10.47	10.84	13.78	10.20	10.49	13.98	-10.20	-2.33	11.44	30.0	-18.56						
	5200	40	26T	10.60	10.80	13.71	10.59	10.87	13.74	10.98	10.76	13.88	10.10	10.44	13.98	-10.10	-2.33	11.55	30.0	-18.45						
	5240	48	26T	10.23	10.99	13.64	10.29	10.99	13.66	10.20	10.99	13.62	10.32	10.32	13.98	-10.32	-2.33	11.33	30.0	-18.67						
	5260	52	26T	10.07	10.87	13.50	10.05	10.87	13.49	10.21	10.79	13.52	10.46	10.49	13.98	-10.46	-1.26	12.26	30.0	-17.74						
	5280	56	26T	10.09	10.86	13.38	10.21	10.54	13.49	10.24	10.57	13.44	10.49	10.49	13.98	-10.49	-1.26	12.24	30.0	-17.74						
2A	5320	64	26T	10.12	10.49	13.32	10.16	10.69	13.40	10.43	10.97	13.51	10.48	10.48	13.98	-10.48	-1.26	12.45	30.0	-17.45						
	5350	100	26T	10.26	10.78	13.54	10.11	10.79	13.47	10.66	10.68	13.39	10.44	10.44	13.98	-10.44	-1.63	11.91	30.0	-18.09						
	5600	120	26T	9.89	10.10	13.01	9.77	10.29	13.05	10.15	10.66	13.42	10.56	10.56	13.98	-10.56	-1.63	11.79	30.0	-18.21						
	5720	144	26T	9.76	10.58	13.18	9.76	10.79	13.32	10.32	10.68	13.08	10.66	10.66	13.98	-10.66	-1.63	11.68	30.0	-18.32						
	5745	149	26T	9.43	10.61	13.08	9.69	10.59	13.19	9.62	10.51	13.10	10.30	10.31	13.98	-10.31	-1.13	12.06	36.0	-23.94						
3	5845	157	26T	9.95	10.48	13.41	10.09	10.51	13.32	10.26	10.89	13.54	10.30	10.56	13.98	-10.56	-1.43	12.61	36.0	-23.51						
	5825	165	26T	9.80	10.51	13.18	9.96	10.60	13.30	10.23	10.95	13.62	10.38	10.38	13.98	-10.38	-1.13	12.49	36.0	-23.51						
	5845	169	26T	9.77	10.42	13.12	9.94	10.50	13.24	10.30	10.90	13.62	10.35	10.35	13.98	-10.35	-1.23	12.39	30.0	-17.61						
	5865	173	26T	9.90	10.47	13.20	9.87	10.36	13.13	10.38	10.77	13.59	-	-	13.98	-	-1.23	12.36	30.0	-17.64						
	5885	177	26T	9.67	10.66	13.20	9.27	10.61	13.00	10.72	10.53	13.64	-	-	13.98	-	-1.23	12.40	30.0	-17.60						

Table 7-25. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (26 Tones)

MIMO Conducted Output Power Measurements (52 Tones)

20MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)												Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]				
					RU Index 37				RU Index 39				RU Index 40													
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO										
1	5180	36	52T	12.63	12.90	13.82	12.73	12.90	13.83	12.96	12.96	13.97	12.98	12.98	13.98	8.01	-2.33	13.64	30.0	-16.36						
	5200	40	52T	12.62	12.97	13.89	12.65	12.97	13.89	12.94	12.95	13.95	12.99	12.99	13.98	8.00	-2.33	13.65	30.0	-16.36						
	5240	48	52T	12.71	12.98	13.86	12.47	12.89	13.70	12.70	12.89	13.81	12.98	12.98	13.98	8.12	-2.33	13.52	30.0	-16.48						
	5260	52	52T	12.59	12.99	13.80	12.33	12.89	13.63	12.84	12.93	13.90	12.98	12.98	13.98	8.08	-1.26	14.63	30.0	-15.37						
	5280	56	52T	12.60	12.99	13.81	12.49	12.78	13.65	12.59	12.79	13.97	12.98	12.98	13.98	8.17	-1.26	14.55	30.0	-15.45						
2A	5320	100	52T	12.54	12.88	13.72	12.28	12.54	13.54	12.54	12.54	13.54	12.31	12.31	13.98	8.26	-1.26	14.46	30.0	-15.54						
	5350	120	52T	12.33	12.61	13.48	11.82	12.35	13.10	11.92	12.98	13.49	12.38	12.38	13.98	8.49	-1.63	13.86	30.0	-16.14						
	5720	144	52T	12.11	12.97	13.57	11.72	12.93	13.58	12.01	12.95	13.52	12.38	12.38	13.98	8.41	-1.63	13.94	30.0	-16.06						
	5745	149	52T	11.84	12.89	13.41	11.69	12.73	13.25	12.37	12.80	13.60	12.0	12.40	13.98	14.47	-1.13	14.54	36.0	-21.53						
	5825	165	52T	12.23	12.81	13.54	11.88	12.61	13.27	12.15	12.75	13.57	12.30	12.46	13.98	14.42	-1.13	14.41	36.0	-21.59						
3	5845	169	52T	12.25	12.88	13.59	11.94	12.60	13.29	12.29	12.71	13.52	12.30	12.30	13.98	14.46	-1.23	14.35	30.0	-15.65						
	5865	173	52T	12.28	12.85	13.58	11.99	12.52	13.27	12.30	12.86	13.60	-	-	13.98	-1.23	-1.23	14.37	30.0	-15.63						
	5885	177	52T	12.26	12.94	13.62	12.01	12.65	13.35	12.36	12.99	13.70	-	-	13.98	-1.23	-1.23	14.46	30.0	-15.54						

Table 7-26. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (52 Tones)

20MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)												Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]				
					RU Index 53				RU Index 54				RU Index 54													
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO										
1	5180	36	106T	15.19	15.50	18.36	15.36	15.51	18.56	15.59	18.56	23.98	-5.42	-2.33	16.23	30.0	-13.77									
	5200	40	106T	15.45	15.61	18.54	15.65	15.68	18.68	15.82	18.99	23.98	-5.30	-2.33	16.34	30.0	-13.66									
	5240	48	106T	14.94	15.74	18.37	15.00	15.70	18.37	15.24	18.37	23.98	-5.61	-2.33	16.04	30.0	-13.96									
	5260	52	106T	14.70	15.54	18.15	15.34	15.99	18.69	15.49	18.69	23.98	-5.29	-1.26	17.42	30.0	-12.58									
	5280	56	106T	15.32	15.98	18.67	15.45	15.94	18.71	15.32	18.98	23.98	-5.27	-1.26	17.45	30.0	-12.55									
2A	5320	64	106T	15.19	15.69	18.46	15.12	15.63	18.39	15.39	18.39	23.98	-5.52	-1.26	17.19	30.0	-12.81									
	5500	100	106T	14.81	15.55	18.21	14.51	15.52	18.05	15.21	18.05	23.98	-5.77	-1.63	16.57	30.0	-13.43									
	5600	120	106T	15.13	15.63	18.40	14.85	15.55	18.22	15.39	18.22	23.98	-5.58	-1.63	16.77	30.0	-13.23									
	5745	149	106T	14.66	15.51	18.12	14.55	15.95	18.32	15.32	18.32	23.98	-5.89	-1.63	16.46	30.0	-13.54									
	5745	149	106T	14.08	15.72	18.42	14.86	15.70	18.34</td																	

MIMO Conducted Output Power Measurements (242 Tones)

20MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]					
					RU Index													
					61	ANT1	ANT2	MIMO										
		5180	36	242T	15.42	15.94	18.70	23.98	-5.28	-2.33	16.36	30.0	-13.64					
1	2A	5200	40	242T	15.95	15.72	18.85	23.98	-5.13	-2.33	16.51	30.0	-13.49					
		5240	48	242T	15.34	15.83	18.60	23.98	-5.38	-2.33	16.27	30.0	-13.73					
		5260	52	242T	15.35	15.53	18.45	23.98	-5.53	-1.26	17.19	30.0	-12.81					
2C	2A	5280	56	242T	15.82	15.77	18.81	23.98	-5.17	-1.26	17.54	30.0	-12.46					
		5320	64	242T	15.60	15.46	18.54	23.98	-5.44	-1.26	17.28	30.0	-12.72					
		5500	100	242T	15.56	15.98	18.79	23.98	-5.19	-1.63	17.15	30.0	-12.85					
3	2C	5600	120	242T	15.40	15.56	18.49	23.98	-5.49	-1.63	16.86	30.0	-13.14					
		5720	144	242T	14.68	15.50	18.12	23.98	-5.86	-1.63	16.49	30.0	-13.51					
		5745	149	242T	14.92	15.87	18.43	30	-11.57	-1.13	17.31	36.0	-18.69					
4	3	5785	157	242T	15.33	15.75	18.56	30	-11.44	-1.13	17.43	36.0	-18.57					
		5825	165	242T	15.27	15.77	18.54	30	-11.46	-1.13	17.41	36.0	-18.59					
		5845	169	242T	15.15	15.73	18.46	-	-	-1.23	17.23	30.0	-12.77					
4	4	5865	173	242T	15.30	15.63	18.48	-	-	-1.23	17.25	30.0	-12.75					
		5885	177	242T	15.36	15.72	18.55	-	-	-1.23	17.32	30.0	-12.68					

Table 7-28. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (242 Tones)

MIMO Conducted Output Power Measurements (484 Tones)

40MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					RU Index								
		5190	38	484T	15.84	15.22	18.55	23.98	-5.43	-2.33	16.22	30.0	-13.78
		5230	46	484T	15.52	15.43	18.49	23.98	-5.49	-2.33	16.15	30.0	-13.85
2C	2A	5270	54	484T	15.48	15.27	18.39	23.98	-5.59	-1.26	17.12	30.0	-12.88
		5310	62	484T	15.25	15.03	18.15	23.98	-5.83	-1.26	16.89	30.0	-13.11
		5510	102	484T	14.97	15.57	18.29	23.98	-5.69	-1.63	16.66	30.0	-13.34
3	3	5590	118	484T	14.93	15.15	18.05	23.98	-5.93	-1.63	16.42	30.0	-13.58
		5710	142	484T	14.60	15.54	18.11	23.98	-5.87	-1.63	16.47	30.0	-13.53
		5755	151	484T	14.51	15.29	17.93	30	-12.07	-1.13	16.80	36.0	-19.20
4	4	5795	159	484T	14.69	15.18	17.95	30	-12.05	-1.13	16.83	36.0	-19.17
		5835	167	484T	14.53	15.23	17.90	-	-	-1.23	16.67	30.0	-13.33
		5875	175	484T	14.96	15.21	18.10	-	-	-1.23	16.86	30.0	-13.14

Table 7-29. MIMO 40MHz BW (UNII) Maximum Conducted Output Power (484 Tones)

80MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					RU Index								
		5210	42	996T	14.48	14.61	17.56	23.98	-6.42	-2.33	15.22	30.0	-14.78
		5250	58	996T	14.26	14.21	17.25	23.98	-6.73	-1.26	15.98	30.0	-14.02
2C	2A	5530	106	996T	14.56	14.83	17.71	23.98	-6.27	-1.63	16.08	30.0	-13.92
		5610	122	996T	14.35	14.49	17.43	23.98	-6.55	-1.63	15.80	30.0	-14.20
		5690	138	996T	14.22	14.85	17.56	23.98	-6.42	-1.63	15.93	30.0	-14.07
3	3	5775	155	996T	14.00	14.75	17.40	30	-12.60	-1.13	16.28	36.0	-19.72
		5855	171	996T	14.49	14.79	17.65	-	-	-1.23	16.42	30.0	-13.58

Table 7-30. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (996 Tones)

160MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)			Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					RU Index								
		5250	50	2x996T	13.83	13.68	16.77	23.98	-7.21	-2.33	14.43	30.0	-15.57
		5570	114	2x996T	13.27	13.85	16.58	23.98	-7.40	-1.63	14.95	30.0	-15.05
3/4	2C	5815	163	2x996T	13.42	13.68	16.56	-	-	-1.23	15.33	30.0	-14.67

Table 7-31. MIMO 160MHz BW (UNII) Maximum Conducted Output Power (2x996 Tones)

FCC ID: A3LSMS936B	MEASUREMENT REPORT							Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024				EUT Type: Portable Handset			

MIMO Conducted Output Power Measurements (MRU)

20MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)												Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Dir. Ant. Gain [dBi]	Max. e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]				
					MRU Index																					
					70			72			75			77												
1	5200	40	52+26T	12.19	12.70	15.46	12.06	12.66	15.38	12.26	12.73	15.51	23.98	8.47	-2.33	13.18	30.0	-16.82								
2A	5280	56	52+26T	12.98	12.97	15.99	12.88	12.83	15.87	12.98	12.96	15.98	23.98	7.99	-1.26	14.72	30.0	-15.28								
2C	5600	120	106+26T	14.04	14.04	14.04	13.96	13.96	14.04	14.04	14.04	14.04	23.98	7.29	-0.74	14.53	30.0	-15.04								
3	5785	157	52+26T	14.46	14.78	17.63	14.38	14.80	17.61	14.48	14.80	17.65	30	-12.35	-1.13	16.53	36.0	-19.47								
4	5865	173	52+26T	14.70	14.99	17.86	14.56	14.98	17.79	14.10	14.65	17.39	-	-	-1.23	16.62	30.0	-13.38								

Table 7-32. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (52+26 Tones)

20MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)												Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Dir. Ant. Gain [dBi]	Max. e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]				
					MRU Index																					
					82			83			85			87												
1	5200	40	106+26T	15.25	15.72	18.50	15.43	15.65	18.55	23.98	-5.43	-2.33	16.22	30.0	-13.78											
2A	5280	56	106+26T	15.96	15.99	18.99	15.96	15.97	18.98	23.98	-4.99	-1.26	17.72	30.0	-12.28											
2C	5600	120	106+26T	15.06	15.86	18.49	14.88	15.80	18.37	23.98	-5.49	-1.63	16.86	30.0	-13.14											
3	5785	157	106+26T	15.38	15.78	18.59	15.23	15.72	18.49	30	-11.41	-1.13	17.47	36.0	-18.53											
4	5865	173	106+26T	15.65	15.99	18.83	15.46	15.99	18.74	-	-	-1.23	17.60	30.0	-12.40											

Table 7-33. MIMO 20MHz BW (UNII) Maximum Conducted Output Power (106+26 Tones)

80MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)												Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Dir. Ant. Gain [dBi]	Max. e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]				
					MRU Index																					
					90			93			95			97												
1	5210	42	484+242T	13.54	13.82	16.69	13.50	13.90	16.71	13.42	13.94	16.70	23.98	-7.27	-2.33	14.38	30.0	-15.62								
2A	5290	58	484+242T	14.01	14.29	17.16	14.00	14.22	17.12	13.93	14.20	17.08	23.98	-6.82	-1.26	15.90	30.0	-14.10								
2C	5610	106	484+242T	13.31	13.31	16.01	13.70	13.38	16.01	13.31	14.01	16.09	23.98	-7.25	-0.61	15.01	30.0	-14.04								
3	5690	138	484+242T	15.34	15.99	18.69	15.27	15.99	18.63	15.26	15.98	18.65	23.98	-5.29	-1.63	17.06	30.0	-12.94								
4	5775	155	484+242T	15.67	15.96	18.83	15.89	15.82	18.87	15.55	15.88	18.73	30	-11.13	-1.13	17.74	36.0	-18.26								
	5855	171	484+242T	15.59	15.62	18.62	15.49	15.68	18.60	15.48	15.69	18.60	-	-	-1.23	17.38	30.0	-12.62								

Table 7-34. MIMO 80MHz BW (UNII) Maximum Conducted Output Power (484+242 Tones)

160MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)												Conducted Power Limit [dBm]	Conducted Power Margin [dB]	Dir. Ant. Gain [dBi]	Max. e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]				
					MRU Index																					
					94			95			1095			1105												
1/2A	5250	50	996+484T	10.86	11.32	14.11	10.82	11.30	14.08	10.85	11.31	14.10	23.98	-9.87	-2.33	11.77	30.0	-18.23								
2C	5570	114	996+484T	11.14	12.12	14.67	11.15	12.07	14.64	11.27	12.10	14.72	23.98	-9.26	-1.63	13.08	30.0	-16.92								
3/4	5815	163	996+484T	11.96	11.94	14.96	11.94	11.99	14.98	11.97	11.98	14.99	-	-	-1.23	13.75	30.0	-16.25								

Table 7-35. MIMO 160MHz BW (UNII) Maximum Conducted Output Power (996+484 Tones)

FCC ID: A3LSMS936B	MEASUREMENT REPORT				
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset			Page 62 of 146

**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.

$$\text{Directional gain} = 10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}] \text{ dBi}$$

Sample MIMO Calculation:

At 5180MHz in 802.11ax (20MHz BW) mode, the average conducted output power was measured to be 10.67 dBm for Antenna 1 and 10.86 dBm for Antenna 2.

$$\text{Antenna 1} + \text{Antenna 2} = \text{MIMO}$$

$$(10.67 \text{ dBm} + 10.86 \text{ dBm}) = (11.67 \text{ mW} + 12.19 \text{ mW}) = 23.86 \text{ mW} = 13.78 \text{ dBm}$$

Sample e.i.r.p. Calculation:

At 5180MHz in 802.11n (20MHz BW) mode, the average MIMO conducted power was calculated to be 13.78 dBm with directional gain of -2.33 dB.

$$\text{e.i.r.p. (dBm)} = \text{Conducted Power (dBm)} + \text{Ant gain (dBi)}$$

$$13.78 \text{ dBm} + -2.33 \text{ dB} = 11.45 \text{ dBm}$$

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 63 of 146

7.5 Maximum Power Spectral Density

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 at the appropriate frequencies. Method SA-1, as defined in ANSI C63.10-2013, was used to measure the power spectral density.

The output power density limits are as specified in the tables below.

UNII Band	Frequency Range	Maximum Power Spectral Density	
		FCC	ISED
UNII 1	5.15 – 5.25GHz	11dBm/MHz	10dBm/MHz e.i.r.p
UNII 2A	5.25 – 5.35GHz		
UNII 2C	5.47 – 5.725GHz		11dBm/MHz
UNII 3	5.725 – 5.850GHz		30dBm/500kHz
UNII 4	5.850 – 5.895GHz		14dBm/MHz e.i.r.p

UNII Band	Frequency Range	Maximum Conducted Power Limit	
		FCC	ISED
UNII 1	5.15 – 5.25GHz		
UNII 2A	5.25 – 5.35GHz		
UNII 2C	5.47 – 5.725GHz		11dBm/MHz
UNII 3	5.725 – 5.850GHz		30dBm/500kHz
UNII 4	5.850 – 5.895GHz		14dBm/MHz e.i.r.p

UNII Band	Frequency Range	Maximum Conducted Power Limit	
		FCC	ISED
UNII 1	5.15 – 5.25GHz		10dBm/MHz e.i.r.p
UNII 2A	5.25 – 5.35GHz		
UNII 2C	5.47 – 5.725GHz		11dBm/MHz
UNII 3	5.725 – 5.850GHz		30dBm/500kHz
UNII 4	5.850 – 5.895GHz		14dBm/MHz e.i.r.p

Test Procedure Used

ANSI C63.10-2013 – Section 12.3.2.2 (Method SA-1)

ANSI C63.10-2013 – Section 14.3.2.2 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 $\geq 2 \times (\text{span}/\text{RBW})$

FCC ID: A3LSMS936B	MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset		Page 64 of 146

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

1. The power spectral density for each channel was measured with the RU index showing the highest conducted power.
2. All cases were investigated; a subset of the plots is included to represent relevant settings and measurements.

MEASUREMENT REPORT		Approved by: Technical Manager
FCC ID: A3LSMS936B Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset

Summed MIMO Power Spectral Density Measurements

	Frequency [MHz]	802.11 MODE	Channel	Antenna 1 PSD [dBm]	Antenna 2 PSD [dBm]	MIMO Summed PSD [dBm]	Max Conducted PSD [dBm]	Margin [dB]
Band 1	5180	be (20MHz)	36	6.38	7.12	9.78	11.00	-1.22
	5200	be (20MHz)	40	6.68	7.65	10.20	11.00	-0.80
	5240	be (20MHz)	48	7.15	7.32	10.24	11.00	-0.76
	5190	be (40MHz)	38	7.93	7.86	10.91	11.00	-0.09
	5230	be (40MHz)	46	7.40	7.89	10.66	11.00	-0.34
	5210	be (80MHz)	42	7.13	7.89	10.54	11.00	-0.46
Band 1/2A	5250	be (160MHz)	50	6.78	6.63	9.72	11.00	-1.28
Band 2A	5260	be (20MHz)	52	7.29	6.79	10.06	11.00	-0.94
	5280	be (20MHz)	56	6.68	6.80	9.75	11.00	-1.25
	5320	be (20MHz)	64	6.57	6.75	9.67	11.00	-1.33
	5270	be (40MHz)	54	7.88	6.93	10.44	11.00	-0.56
	5310	be (40MHz)	62	7.62	7.37	10.51	11.00	-0.49
	5290	be (80MHz)	58	6.59	7.23	9.93	11.00	-1.07
Band 2C	5500	be (20MHz)	100	6.43	6.84	9.65	11.00	-1.35
	5600	be (20MHz)	120	6.62	6.75	9.69	11.00	-1.31
	5720	be (20MHz)	144	6.43	6.66	9.55	11.00	-1.45
	5510	be (40MHz)	102	6.58	7.16	9.89	11.00	-1.11
	5590	be (40MHz)	118	6.97	7.13	10.06	11.00	-0.94
	5710	be (40MHz)	142	6.60	7.07	9.85	11.00	-1.15
	5530	be (80MHz)	106	4.62	7.37	9.22	11.00	-1.78
	5610	be (80MHz)	122	3.83	7.09	8.77	11.00	-2.23
	5690	be (80MHz)	138	5.46	6.26	8.89	11.00	-2.11
	5570	be (160MHz)	114	7.10	7.50	10.31	11.00	-0.69

Table 7-36. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements MIMO (26 Tones)

	Frequency [MHz]	802.11 MODE	Channel	Antenna 1 PSD [dBm]	Antenna 2 PSD [dBm]	MIMO Summed PSD [dBm]	Max Conducted PSD [dBm]	Margin [dB]
Band 3	5745	be (20MHz)	149	4.49	4.70	7.60	28.28	-20.68
	5785	be (20MHz)	157	4.76	4.59	7.69	28.28	-20.59
	5825	be (20MHz)	165	5.14	4.86	8.01	28.28	-20.27
	5755	be (40MHz)	151	4.01	4.78	7.42	28.28	-20.86
	5795	be (40MHz)	159	4.26	4.82	7.56	28.28	-20.72
	5775	be (80MHz)	155	4.24	4.68	7.47	28.28	-20.81

Table 7-37. Band 3 MIMO Conducted Power Spectral Density Measurements MIMO (26 Tones)

FCC ID: A3LSMS936B	MEASUREMENT REPORT				Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset			

	Frequency [MHz]	802.11 MODE	Channel	Antenna 1 PSD [dBm]	Antenna 2 PSD [dBm]	Antenna Gain [dBi]	MIMO Summed EIRP PSD [dBm]	Max EIRP PSD [dBm]	Margin [dB]
Band 3/4	5845	be (20MHz)	169	6.66	6.84	-1.44	8.32	14.00	-5.68
Band 4	5865	be (20MHz)	173	6.60	7.16	-1.44	8.45	14.00	-5.55
	5885	be (20MHz)	177	6.53	6.96	-1.44	8.32	14.00	-5.68
Band 3/4	5835	be (40MHz)	167	6.95	7.23	-1.44	8.66	14.00	-5.34
Band 4	5875	be (40MHz)	175	6.74	7.47	-1.44	8.69	14.00	-5.31
Band 3/4	5855	be (80MHz)	171	7.28	7.22	-1.44	8.82	14.00	-5.18
Band 4	5815	be (160MHz)	163	6.30	6.23	-1.44	7.83	14.00	-6.17

Table 7-38. Bands 3/4 MIMO Conducted Power Spectral Density Measurements MIMO (26 Tones)

	Frequency [MHz]	802.11 MODE	Channel	Antenna 1 PSD [dBm]	Antenna 2 PSD [dBm]	MIMO Summed PSD [dBm]	Max Conducted PSD [dBm]	Margin [dB]
Band 1	5180	be (20MHz)	36	3.81	4.39	7.12	11.00	-3.88
	5200	be (20MHz)	40	3.89	4.15	7.03	11.00	-3.97
	5240	be (20MHz)	48	4.05	4.12	7.09	11.00	-3.91
	5190	be (40MHz)	38	0.64	0.50	3.70	11.00	-7.30
	5230	be (40MHz)	46	2.74	2.88	5.94	11.00	-5.06
	5210	be (80MHz)	42	-1.27	-1.22	1.93	11.00	-9.07
Band 1/2A	5250	be (160MHz)	50	-4.49	-4.36	-1.22	11.00	-12.22
Band 2A	5260	be (20MHz)	52	4.35	4.13	7.25	11.00	-3.75
	5280	be (20MHz)	56	4.11	3.92	7.02	11.00	-3.98
	5320	be (20MHz)	64	3.94	3.58	6.77	11.00	-4.23
	5270	be (40MHz)	54	2.48	2.51	5.63	11.00	-5.37
	5310	be (40MHz)	62	2.34	2.42	5.51	11.00	-5.49
	5290	be (80MHz)	58	-1.25	-0.85	2.13	11.00	-8.87
Band 2C	5500	be (20MHz)	100	3.77	3.94	6.87	11.00	-4.13
	5600	be (20MHz)	120	3.13	3.65	6.41	11.00	-4.59
	5720	be (20MHz)	144	3.79	3.67	6.74	11.00	-4.26
	5510	be (40MHz)	102	1.82	2.09	5.08	11.00	-5.92
	5590	be (40MHz)	118	1.70	2.95	5.50	11.00	-5.50
	5710	be (40MHz)	142	1.66	2.46	5.21	11.00	-5.79
	5530	be (80MHz)	106	-1.97	-1.21	1.61	11.00	-9.39
	5610	be (80MHz)	122	-1.97	-1.43	1.49	11.00	-9.51
	5690	be (80MHz)	138	-1.63	-1.28	1.73	11.00	-9.27
	5570	be (160MHz)	114	-5.38	-5.08	-2.02	11.00	-13.02

Table 7-39. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements MIMO (Full Tones)

FCC ID: A3LSMS936B	MEASUREMENT REPORT				Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset			Page 67 of 146

	Frequency [MHz]	802.11 MODE	Channel	Antenna 1 PSD [dBm]	Antenna 2 PSD [dBm]	MIMO Summed PSD [dBm]	Max Conducted PSD [dBm]	Margin [dB]
Band 3	5745	be (20MHz)	149	0.67	0.94	3.81	28.28	-24.47
	5785	be (20MHz)	157	1.16	0.94	4.06	28.28	-24.22
	5825	be (20MHz)	165	0.93	1.13	4.04	28.28	-24.24
	5755	be (40MHz)	151	-0.34	-0.27	2.83	28.28	-25.45
	5795	be (40MHz)	159	-0.56	-0.81	2.45	28.28	-25.83
	5775	be (80MHz)	155	-4.53	-4.00	-1.08	28.28	-29.36

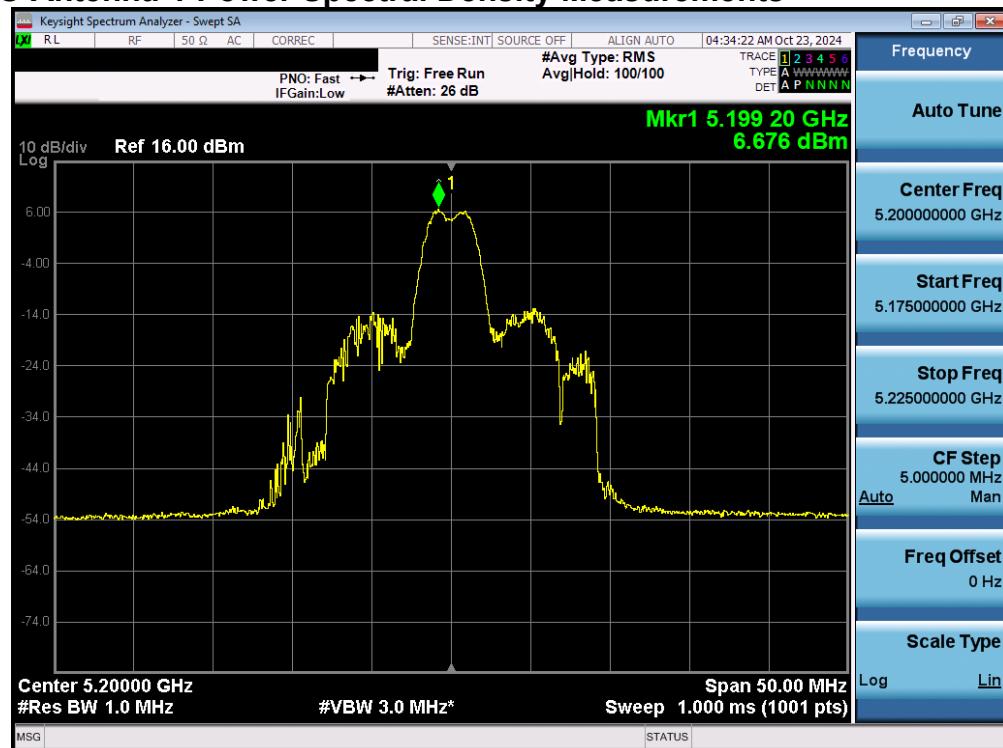
Table 7-40. Band 3 MIMO Conducted Power Spectral Density Measurements MIMO (Full Tones)

	Frequency [MHz]	802.11 MODE	Channel	Antenna 1 PSD [dBm]	Antenna 2 PSD [dBm]	Antenna Gain [dBi]	MIMO Summed EIRP PSD [dBm]	Max EIRP PSD [dBm]	Margin [dB]
Band 3/4	5845	be (20MHz)	169	3.88	3.96	-1.44	5.49	14.00	-8.51
	5865	be (20MHz)	173	3.81	4.06	-1.44	5.50	14.00	-8.50
Band 4	5885	be (20MHz)	177	3.48	4.22	-1.44	5.43	14.00	-8.57
	5835	be (40MHz)	167	2.25	2.46	-1.44	4.04	14.00	-9.96
Band 4	5875	be (40MHz)	175	2.24	2.51	-1.44	4.06	14.00	-9.94
	5855	be (80MHz)	171	-1.30	-1.23	-1.44	0.47	14.00	-13.53
Band 3/4	5815	be (160MHz)	163	-5.10	-4.84	-1.44	-3.20	14.00	-17.20

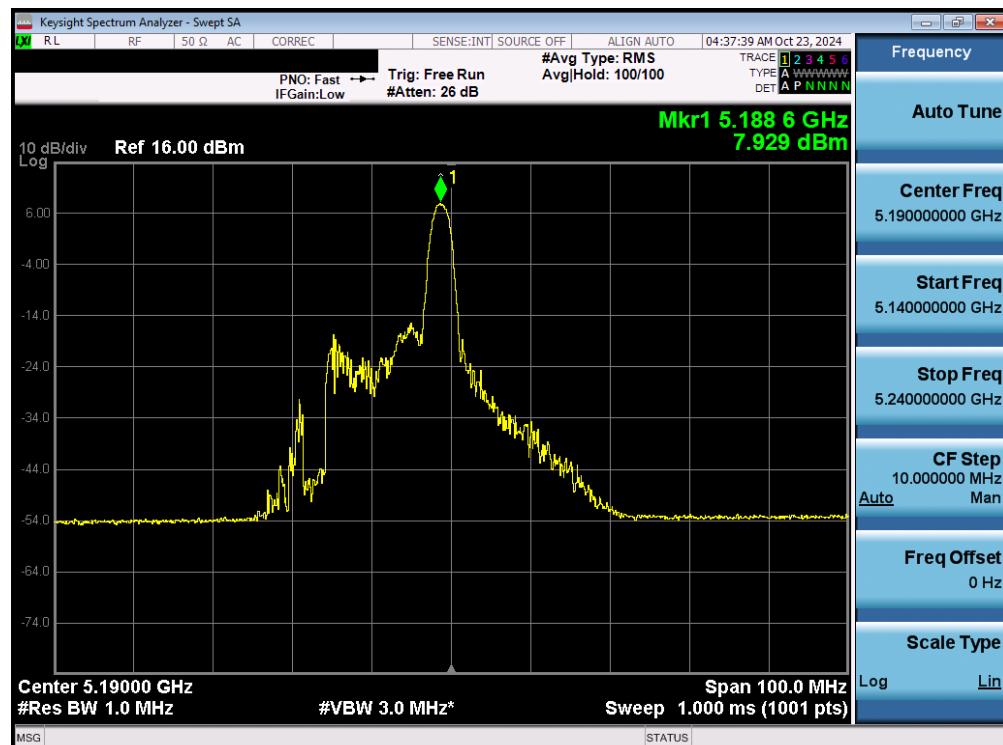
Table 7-41. Bands 3/4 MIMO Conducted Power Spectral Density Measurements MIMO (Full Tones)

FCC ID: A3LSMS936B	MEASUREMENT REPORT				Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset			

7.5.1 MIMO Antenna-1 Power Spectral Density Measurements

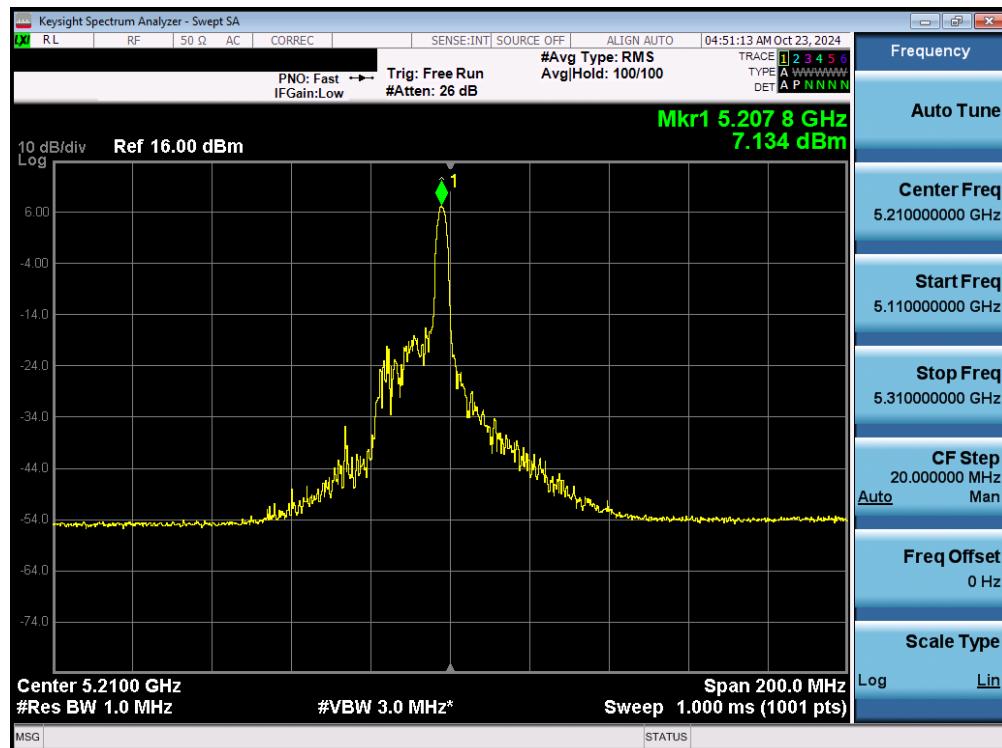


Plot 7-62. Power Spectral Density Plot MIMO ANT1 (20MHz 802.11ax/be (26 Tones) (UNII Band 1) – Ch. 40)

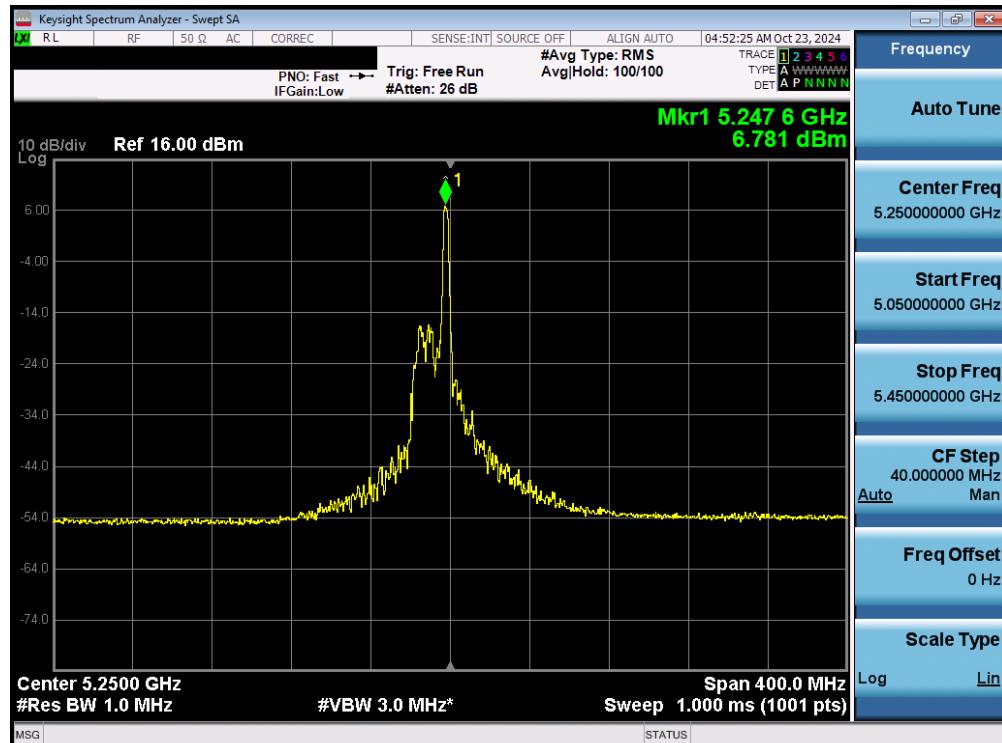


Plot 7-63. Power Spectral Density Plot MIMO ANT1 (40MHz 802.11ax/be (26 Tones) (UNII Band 1) – Ch. 38)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 69 of 146

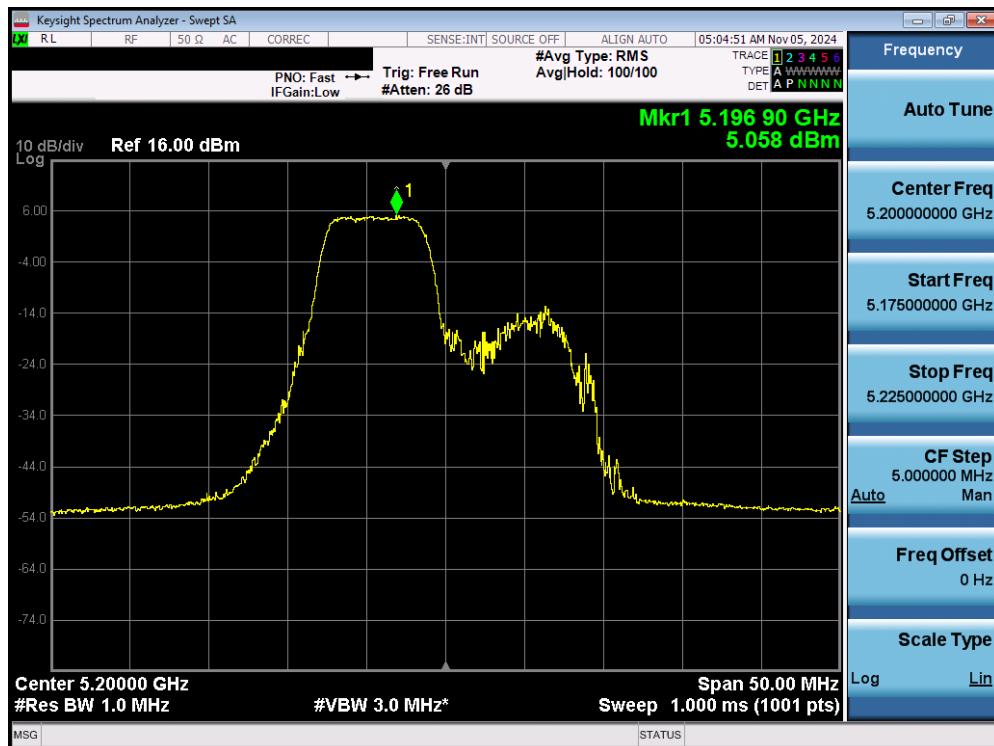


Plot 7-64. Power Spectral Density Plot MIMO ANT1 (80MHz 802.11ax/be (26 Tones) (UNII Band 1) – Ch. 42)



Plot 7-65. Power Spectral Density Plot MIMO ANT1 (160MHz 802.11ax/be (26 Tones) (UNII Band 1/2A) – Ch. 50)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 70 of 146

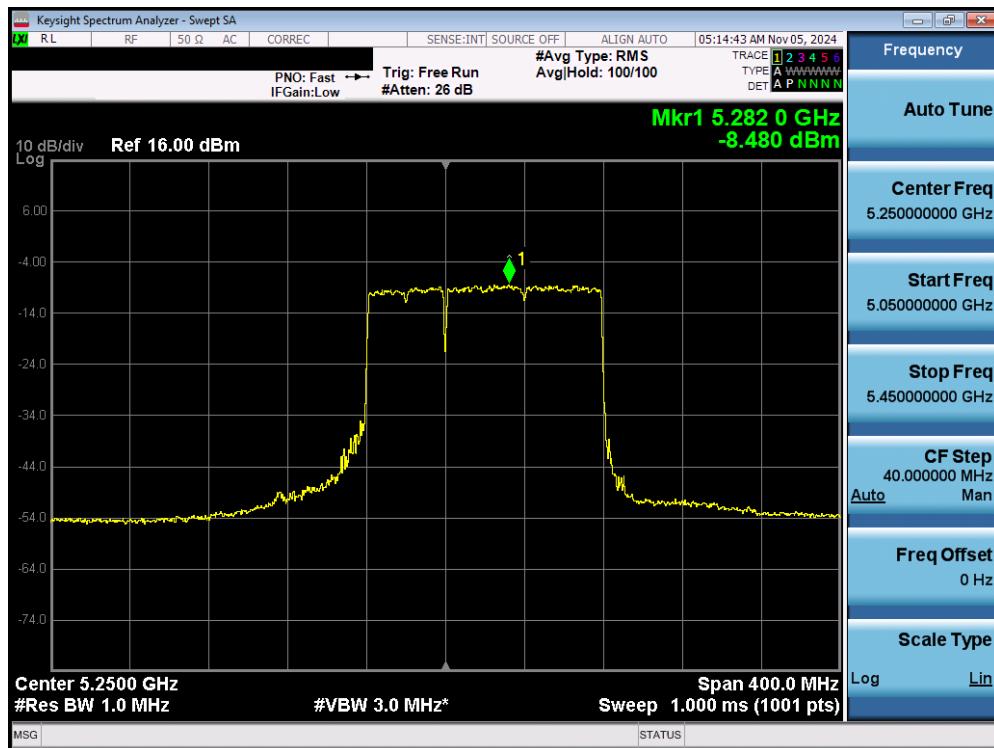


Plot 7-66. Power Spectral Density Plot MIMO ANT1 (20MHz 802.11be (52+26 Tones) (UNII Band 1) – Ch. 40)

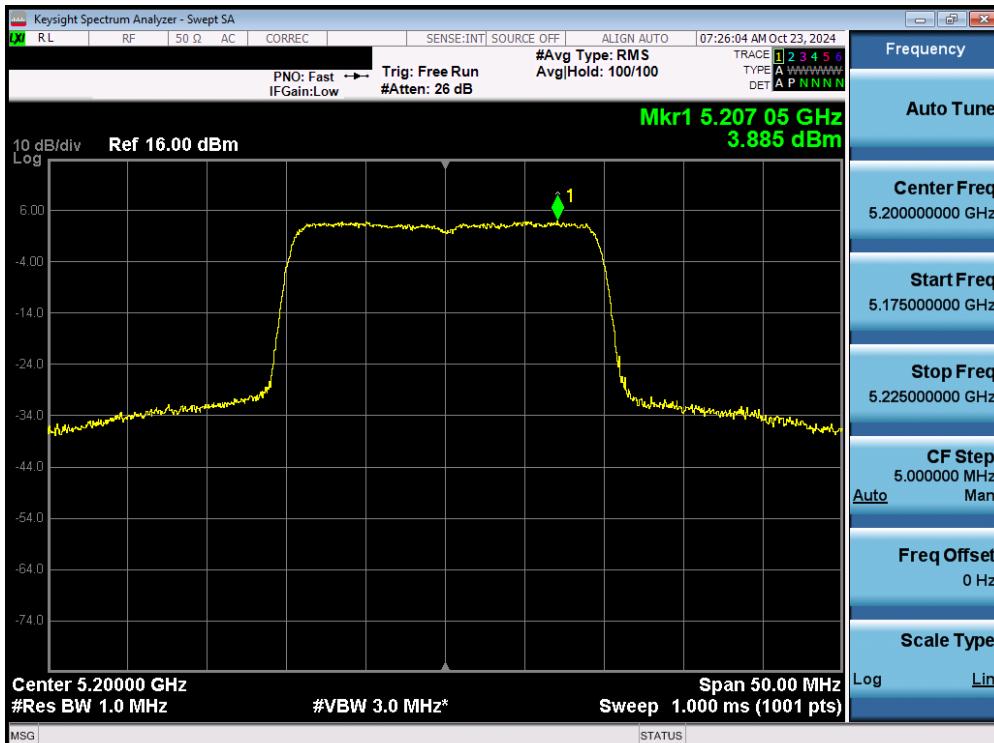


Plot 7-67. Power Spectral Density Plot MIMO ANT1 (80MHz 802.11be (484+242 Tones) (UNII Band 1) – Ch. 42)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 71 of 146

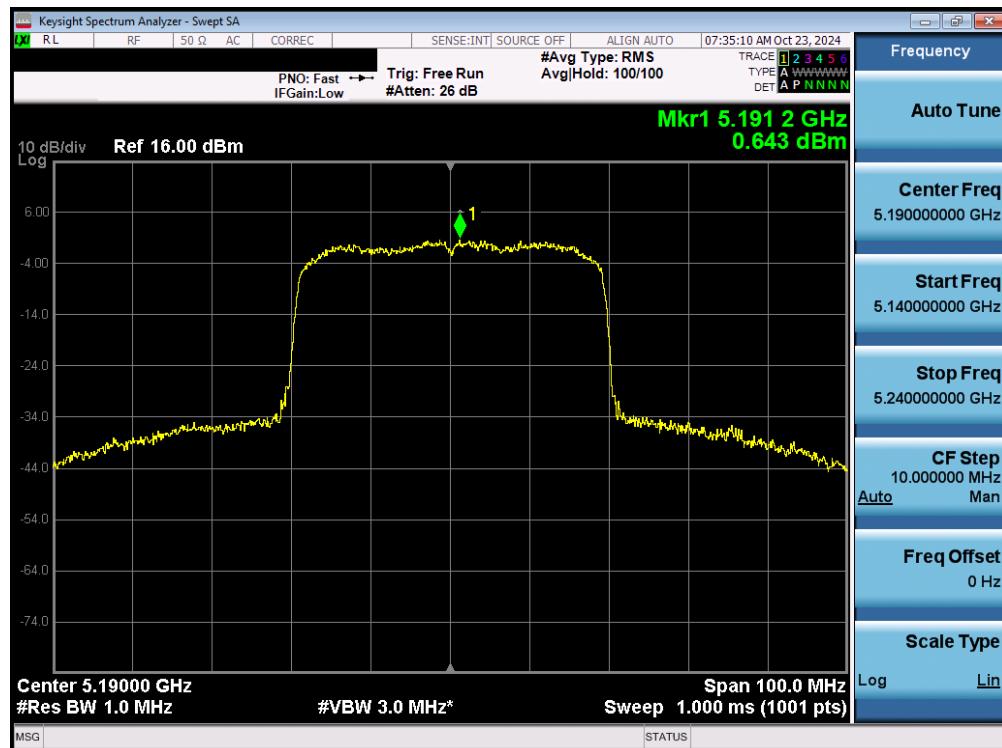


Plot 7-68. Power Spectral Density Plot MIMO ANT1 (160MHz 802.11be (996+484 Tones) (UNII Band 1/2A) – Ch. 50)

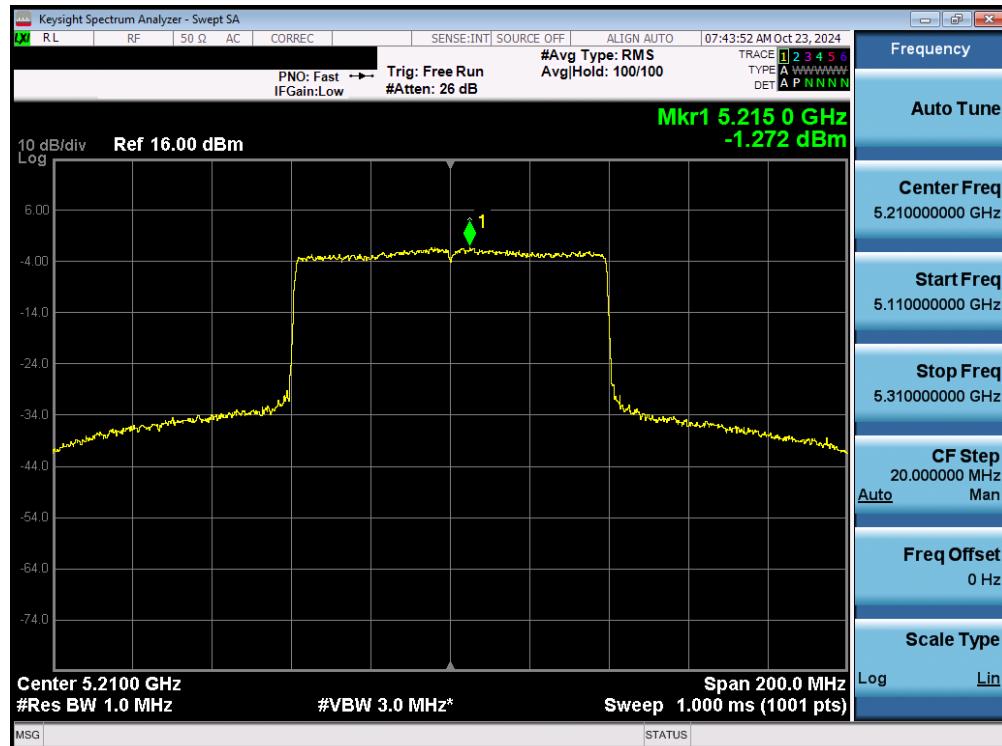


Plot 7-69. Power Spectral Density Plot MIMO ANT1 (20MHz 802.11ax/be (Full Tones) (UNII Band 1) – Ch. 40)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 72 of 146



Plot 7-70. Power Spectral Density Plot MIMO ANT1 (40MHz 802.11ax/be (Full Tones)) (UNII Band 1) – Ch. 38)



Plot 7-71. Power Spectral Density Plot MIMO ANT1 (80MHz 802.11ax/be (Full Tones)) (UNII Band 1) – Ch. 42)

FCC ID: A3LSMS936B	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2408260066-18.A3L	Test Dates: 09/03/2024 – 11/05/2024	EUT Type: Portable Handset	Page 73 of 146