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MEASUREMENT REPORT
FCC PART 15.407 802.11a/ax/be WiFi 6E (OFDMA)

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

Date of Testing:
03/14/2024 – 05/01/2024
Test Report Issue Date:
05/02/2024
Test Site/Location:
Element lab., Columbia, MD, USA
Test Report Serial No.:
1M2401250007-08-R2.A3L

FCC ID:	**A3LNP960XMA**
APPLICANT:	**Samsung Electronics Co., Ltd.**

Application Type:	Certification
Model:	NP960XMA
Additional Model:	NP960XMB, NP964XMA, NP964XMB
EUT Type:	Portable Computing Device
Frequency Range:	5935 – 7115MHz
Modulation Type:	OFDMA
FCC Classification:	15E 6GHz Low Power Dual Client (6CD)
FCC Rule Part(s):	Part 15 Subpart E (15.407)
Test Procedure(s):	ANSI C63.10-2013, KDB 987594 D02 v02r01, KDB 484596 D01 v02r03

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.

This revised Test Report (S/N: 1M2401250007-08-R2.A3L) supersedes and replaces the previously issued test report (S/N: 1M2401250007-08-R1.A3L) on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

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

ACCREDITED
CERT #2041.01

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Channel Bandwidth [MHz]	UNII Band	Tx Frequency [MHz]	MIMO	
			Max. Power [mW]	Max. Power [dBm]
20	5	5935 - 6415	13.57	11.33
	6	6435 - 6515	14.71	11.68
	7	6535 - 6875	12.08	10.82
	8	6895 - 7115	11.22	10.50
40	5	5965 - 6405	16.85	12.27
	6	6445 - 6525	18.40	12.65
	7	6565 - 6845	15.15	11.80
	8	6885 - 7085	12.81	11.07
80	5	5985 - 6385	17.92	12.53
	6	6465	17.44	12.41
	7	6545 - 6865	15.82	11.99
	8	6945 - 7025	13.88	11.43
160	5	6025 - 6345	17.18	12.35
	6	6505	17.68	12.48
	7	6665 - 6825	16.15	12.08
	8	6985	14.54	11.63
320	5	6105 - 6265	16.69	12.22
	6	6425	19.13	12.82
	7	6585 - 6745	16.61	12.20
	8	6905	14.42	11.59

EUT Overview – Low Power Indoor Client – EIRP

Channel Bandwidth [MHz]	UNII Band	Tx Frequency [MHz]	MIMO	
			Max. Power [mW]	Max. Power [dBm]
20	5	5935 - 6415	14.25	11.54
	7	6535 - 6875	13.30	11.24
40	5	5965 - 6405	17.62	12.46
	7	6565 - 6845	16.51	12.18
80	5	5985 - 6385	17.68	12.47
	7	6545 - 6865	15.99	12.04
160	5	6025 - 6345	16.74	12.24
	7	6665 - 6825	15.52	11.91
320	5	6105 - 6265	16.69	12.22
	7	6585 - 6745	16.61	12.20

EUT Overview – Standard Power Client - EIRP

1 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

These measurement tests were conducted at the Element laboratory located at 7185 Oakland Mills Road, Columbia, MD 21046. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

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).

2 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Electronics Co., Ltd. Portable Computing Device FCC: A3LNP960XMA**. The test data contained in this report pertains only to the emissions due to the EUT's UNII transmitter while operating in the 6GHz band.

Test Device Serial No.: 0126X, 1123F, 1137B, 0851W

2.2 Device Capabilities

This device contains the following capabilities:

802.11b/g/n/ax/be WLAN, 802.11a/n/ac/ax/be UNII (5GHz and 6GHz), Bluetooth (1x, EDR, LE)

Band 5		Band 6		Band 7		Band 8	
Ch.	**Frequency (MHz)**	**Ch.**	**Frequency (MHz)**	**Ch.**	**Frequency (MHz)**	**Ch.**	**Frequency (MHz)**
2	5935	97	6435	117	6535	189	6895
:	:	:	:	:	:	:	:
45	6175	105	6475	149	6695	209	6995
:	:	:	:	:	:	:	:
93	6415	113	6515	185	6875	233	7115

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

Band 5		Band 6		Band 7		Band 8	
Ch.	**Frequency (MHz)**	**Ch.**	**Frequency (MHz)**	**Ch.**	**Frequency (MHz)**	**Ch.**	**Frequency (MHz)**
3	5965	99	6445	123	6565	187	6885
:	:	:	:	:	:	:	:
43	6165	107	6485	155	6725	211	7005
:	:	:	:	:	:	:	:
91	6405	115	6525	179	6845	227	7085

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

Band 5		Band 6		Band 7		Band 8	
Ch.	**Frequency (MHz)**	**Ch.**	**Frequency (MHz)**	**Ch.**	**Frequency (MHz)**	**Ch.**	**Frequency (MHz)**
7	5985	103	6465	119	6545	199	6945
:	:			:	:	:	:
39	6145			151	6705	215	7025
:	:			:	:		
87	6385			183	6865		

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

Band 5		Band 6		Band 7		Band 8	
Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
15	6025	111	6505	143	6665	207	6985
:	:			:	:		
47	6185			175	6825		
:	:						
79	6345						

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

Band 5		Band 6		Band 7		Band 8	
Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
31	6105	95	6425	127	6585	191	6905
63	6265			159	6745		

Table 2-5. 802.11be (320MHz BW) Frequency / Channel Operations

Notes:

1. 6GHz NII operation is possible in 20MHz, 40MHz, 80MHz, 160MHz, and 320MHz 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	Duty Cycle [%]
6GHz	20MHz	RU	26T	98.88
			52T	99.06
			106T	99.21
			242T	98.50
		MRU	52+26T	99.44
			106+26T	98.73
	40MHz	RU	26T	99.59
			52T	99.61
			106T	99.28
			242T	98.58
			484T	97.47
	80MHz	RU	26T	99.65
			52T	99.57
			106T	99.28
			242T	98.58
			484T	97.40
			996T	97.43
		MRU	484+242T	97.78
	160MHz	RU	26T	99.57
			52T	99.59
			106T	99.39
			242T	98.58
			484T	97.55
			996T	97.37
			2x996T	99.62
	320MHz	MRU	996+484T	97.64
		RU	26T	99.36
			52T	99.61
			106T	99.17
			242T	98.49
			484T	97.24
			996T	97.42
			2x996T	97.36
			4x996T	97.92
		MRU	3x996T	95.98
			3x996+484T	94.50

Table 2-6. Measured Duty Cycles

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

WiFi Configurations		SISO		CDD		SDM	
		ANT1	ANT2	ANT1	ANT2	ANT1	ANT2
6 GHz	11a	×	×	✓	✓	×	×
	11ax	×	×	✓	✓	✓	✓
	11be	×	×	✓	✓	✓	✓

Table 2-7. 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)																				
		26T			52T			106T			242T			484T			996T			2x996T		
HE		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	2041.7

Table 2-8. Supported Data Rates

4. The device supports either Standard Power (SP) or Low Power Indoor (LPI) operation in the following UNII bands:

UNII Band	Standard Power (SP)	Low Power Indoor (LPI)
UNII 5	✓	✓
UNII 6	×	✓
UNII 7	✓	✓
UNII 8	×	✓

Table 2-9. Power Operation

✓= Support; × = NOT Support

2.3 Antenna Description

This device is only used with its integral antennas as shown in the documentation of this filing. The antenna gains for this device are as shown in the table below:

	Ant1 Peak Gain [dBi]	Ant2 Peak Gain [dBi]	Directional Gain [dBi]
5925 - 6425 MHz	-3.67	-3.58	-0.61
6425 - 6525 MHz	-3.21	-3.02	-0.10
6525 - 6875 MHz	-4.11	-3.40	-0.74
6875 - 7125 MHz	-4.28	-4.31	-1.28

Table 2-10. Antenna Peak Gain

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 Sections 3.2 for AC line conducted emissions test setups, 3.3 for radiated emissions test setups, and 7.2, 7.3, 7.4, 7.5 and 7.6 for antenna port conducted emissions test setups.

This device supports operation under control of either a low-power indoor access point or standard power access point for frequency ranges 5925 – 6425 MHz and 6525 – 6875 MHz. Power for the EUT may vary depending on whether the device is connected to a standard access point (SP Operation) or a low-power indoor access point (LPI Operation). In cases where these targets differ two data sets have been provided to demonstrate compliance. The worst-case emissions data is shown in this report.

2.5 Software and Firmware

The test was conducted with firmware version REV0.1 and software version Windows 11 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.

3 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) and the guidance provided in KDB 987594 D02 v01r01 were used in the measurement of the EUT**.**

Deviation from measurement procedure……..…….....None

3.2 AC Line Conducted Emissions

The line-conducted facility is located inside a 10'x16'x9' shielded enclosure. The shielded enclosure is manufactured by ETS Lindgren RF Enclosures. The shielding effectiveness of the shielded room is in accordance with MIL-Std-285 or NSA 65-5. A 1m x 1.5m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50μH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. The external power line filter is an ETS Lindgren Model LPRX-4X30 (100dB Attenuation, 14kHz-18GHz) and the two EMI/RFI filters are ETS Lindgren Model LRW-2030-S1 (100dB Minimum Insertion Loss, 14kHz – 10GHz). These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. If the EUT is a DC-powered device, power will be derived from the source power supply it normally will be powered from and this supply line(s) will be connected to the second LISN. All interconnecting cables more than 1 meter were shortened to a 1-meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference groundplane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

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 RF output of the LISN was connected to the spectrum analyzer and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The spectrum was scanned from 150kHz to 30MHz with a spectrum analyzer. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 10kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Once the worst-case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions is used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

3.3 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.

3.4 Environmental Conditions

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

4 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.

5 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 (±dB)
Contention Based Protocol Conducted Measurements	0.86
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

6 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
N/A	WL25-1	Conducted Cable Set (25GHz)	11/15/2023	Annual	11/15/2024	WL25-1
N/A	WL25-2	Conducted Cable Set (25GHz)	11/15/2023	Annual	11/15/2024	WL25-2
N/A	WL40-1	Conducted Cable Set (40GHz)	11/15/2023	Annual	11/15/2024	WL40-1
N/A	ETS-001	EMC Cable and Switch Systems	11/15/2023	Annual	11/15/2024	ETS-001
N/A	ETS-002	EMC Cable and Switch Systems	11/15/2023	Annual	11/15/2024	ETS-002
N/A	AP1-002	EMC Cable and Switch Systems	11/15/2023	Annual	11/15/2024	AP1-002
N/A	AP2-001	EMC Cable and Switch Systems	11/15/2023	Annual	11/15/2024	AP2-001
N/A	AP2-001	EMC Cable and Switch Systems	11/15/2023	Annual	11/15/2024	AP2-001
Anritsu	MA2411B	Pulse Power Sensor	11/8/2023	Annual	11/8/2024	1027293
Anritsu	MA2411B	Pulse Power Sensor	6/14/2023	Annual	6/14/2024	1911105
Com-Power	AL-130	9khZ-30MHz Loop Antenna	4/13/2022	Biennial	4/13/2025	121034
Keysight Technologies	N9038A	MXE EMI Reciever	8/30/2023	Annual	8/30/2024	MY51210133
Keysight Technologies	N9038A	PXA Signal Analyzer	2/29/2023	Annual	3/1/2025	MY55410501
Keysight Technologies	N6020A	MXA Signal Analyzer	3/22/2024	Annual	3/22/2025	US46470561
Pasternack	NMLC-2	Line Conducted Emissions Cable (NM)	11/15/2023	Annual	11/15/2024	NMLC-2
Rohde & Schwarz	ESU26	EMI Test Reciever (26.5GHz)	9/25/2023	Annual	9/25/2023	100342
Rohde & Schwarz	ESU40	EMI Test Reciever (40GHz)	9/11/2023	Annual	9/11/2024	100348
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	2/15/2024	Annual	2/15/2025	103200
Rohde & Schwarz	SFUNIT-RX	Shielded Filter Unit	3/15/2023	Annual	3/15/2025	102136
Rohde & Schwarz	SFUNIT-RX	Shielded Filter Unit	3/15/2023	Annual	3/15/2025	102132
Rohde & Schwarz	SFUNIT-RX	Shielded Filter Unit	1/11/2024	Annual	1/11/2025	102151
Sunol Sciences	DRH-118	Horn (Small)	2/21/2024	Biennial	2/21/2026	A050307
Sunol Sciences	JB5	Bi-Log Antenna (30M-5GHz)	8/30/2022	Biennial	8/30/2024	A051107

Table 6-1. Annual Test Equipment Calibration Schedule

Note:

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.

7 TEST RESULTS

7.1 Summary

Company Name: Samsung Electronics Co., Ltd.

FCC ID: A3LNP960XMA

FCC Classification: 15E 6GHz Low Power Dual Client (6CD)

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1046, 15.407(a)(12)	Maximum Conducted Output Power	N/A	CONDUCTED	PASS	Section 7.3
15.407(a)(8)	Maximum Radiated Output Power (LPI)	< 24dBm over the frequency band of operation		PASS	Section 7.3
15.407(a)(7)	Maximum Radiated Output Power (SP)	< 30dBm over the frequency band of operation		PASS	Section 7.3
2.1049, 15.407(a)(11)	Occupied Bandwidth/ 26dB Bandwidth	99% of the occupied bandwidth of any channel must be contained within each of its respective U-NII sub bands. The maximum transmitter channel bandwidth for U-NII devices in the 5.925-7.125 GHz band is 320 megahertz.		PASS	Section 7.2
15.407(a)(8)	Maximum Power Spectral Density (LPI)	< -1dBm/MHz e.i.r.p.		PASS	Section 7.4
15.407(a)(7)	Maximum Power Spectral Density (SP)	< 17dBm/MHz e.i.r.p.		PASS	Section 7.4
15.407(a)(7)	Power Reduction Verification for standard client device	EUT must limit its power to no more than 6 dB below its associated standard power access point's authorized transmit power		PASS	Attestation
15.407(b)(7)	In-Band Emissions	EUT must meet the limits detailed in RSS-248 [4.6.2]		PASS	Section 7.5
15.407(d)(6)	Contention Based Protocol	EUT must detect AWGN signal with 90% (or better) certainty		PASS	Section 7.6
15.407(b)(6)	Undesirable Emissions	< -27dBm/MHz e.i.r.p. outside of the 5.925 – 7.125GHz band	RADIATED	PASS	Section 7.7
15.205, 15.209	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions shall comply with RSS-Gen (8.9) limits		PASS	Section 7.7
15.407(b)(9)	AC Conducted Emissions (150kHz – 30MHz)	< RSS-Gen [8.8] limits	LINE CONDUCTED	PASS	See UNII 6E OFDM Report

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 1.3.1.
6) Per 15.407(a)(7), a device operating under the control of a standard power access point in 5.925-6.425 GHz and 6.525-6.875 GHz bands must not have the maximum power spectral density exceed 17 dBm/MHz e.i.r.p., must limit the maximum e.i.r.p. over the frequency band of operation not exceed 30 dBm, and must limit its power to no more than 6 dB below its associated standard power access point's authorized transmit power. Compliance to this clause is addressed via submission of an attestation following Appendix B of KDB 987594 D01 v01r03.
7) 802.11be OFDMA testing was performed for all signal tone configurations as specified by the 802.11be standard. Worst case results are determined and reported per the guidance provided at the October 2018 TCB Workshop.
8) Data was leveraged from Model NP960XMA for the certification of NP960XMB. See Table 7-2 for spot-check results.

FCC Rules	Test Item	Test Case	Units	Limit	Reference Model: NP960XMA	Variant Model: NP960XMB	Deviation	Max Deviation	Pass/Fail
2.1046, 15.407(a)(8)	Conducted Output Power	20MHz, Ch.45, 802.11a, MIMO	dBm	-	10.17	10.31	0.14	3	PASS
15.209	Radiated Spurious Emissions	20MHz, Ch.149, 802.11a, MIMO	dBµV/m	68.2	47.54	46.10	1.44	3	PASS
15.209	Radiated Band Edge Emissions	20MHz, Ch2, 802.11be, MIMO	dBµV/m	68.2	65.71	67.84	2.13	3	PASS

Table 7-2. Summary of Spot-checks

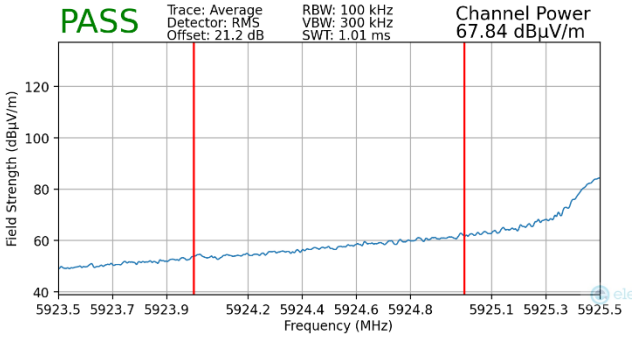
6GHz WIFI (20MHz 802.11a MIMO)						Directional Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
Band	Freq [MHz]	Channel	Avg. Conducted Powers [dBm]						
			ANT1	ANT2	MIMO				
UNII-5	6175	45	7.02	7.57	10.31	-0.61	9.70	24.00	-14.30

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

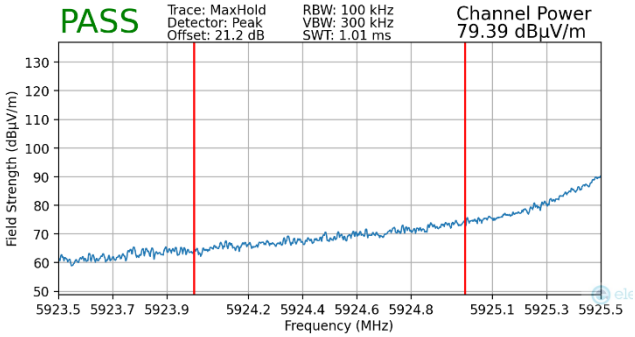
Mode	Antenna	UNII Band	Channel	Test Channel Freq. [MHz]	Restricted	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
802.11a	MIMO	7	149	6695	*	13390.00	Average	H	130	205	-86.22	25.32	0.00	46.10	53.98	-7.88
					*	13390.00	Peak	H	130	205	-75.20	24.56	0.00	56.36	73.98	-17.62

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

Worst Case Mode:	802.11be
Worst Case Transfer Rate:	MCS0
Distance of Measurements:	3 Meters
Operating Frequency:	5935MHz
Channel:	2



Plot 7-1. Radiated Lower Band Edge Plot MIMO (Average – UNII Band 5)



Plot 7-2. Radiated Lower Band Edge Plot MIMO (Peak – UNII Band 5)

9) 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. And the worst-case RSE data is determined by an actual emission and not by noise floor.
10) 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.

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.

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. In this section, the bandwidth data tables (Tables 7-2 and 7-3) include mainly the 26dB bandwidth measurements. For partial tone operation, all values in Table 7-2 are 26dB bandwidth measurements. For full-tone operation in Table 7-3, in case of 320MHz operation, an occupied bandwidth measurement was included in the table to demonstrate compliance. Thus, all measurements in the tables are 26dB bandwidth measurements except for the 320MHz bandwidth cases for full-tone operation which are occupied bandwidth measurements.
2. For 320MHz operation, the EUT is limited to a maximum bandwidth of 160MHz (2x996Tones).

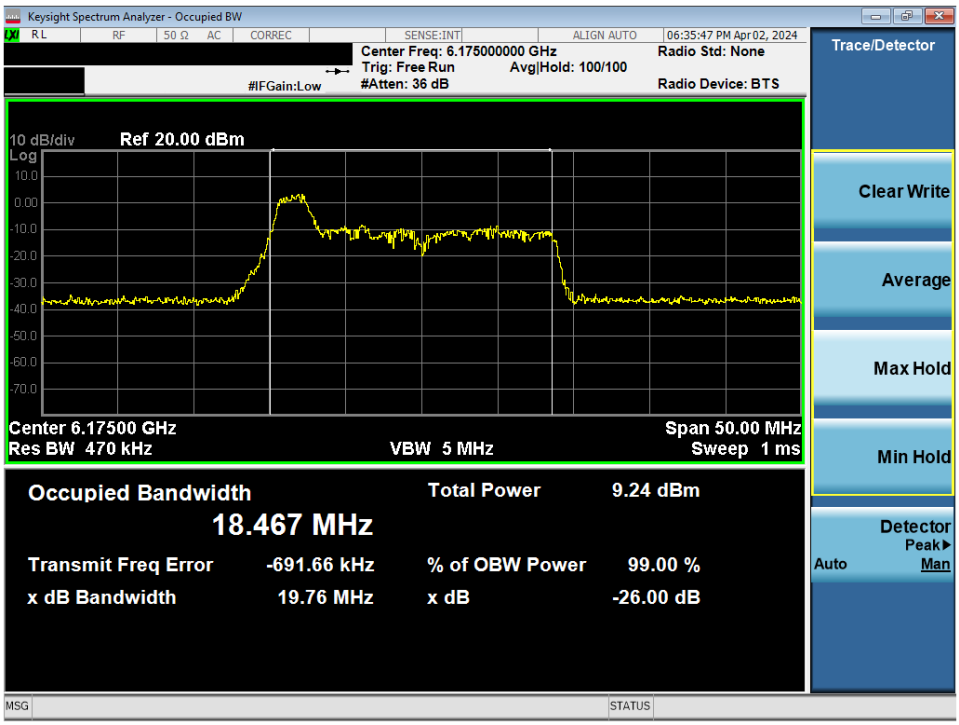
	Frequency [MHz]	Channel	802.11 MODE	Antenna-1 26dB Bandwidth [MHz]	Antenna-2 26dB Bandwidth [MHz]
Band 5	5935	2	be (20MHz)	17.76	18.18
	6175	45	be (20MHz)	19.76	19.94
	6415	93	be (20MHz)	19.75	19.71
	5965	3	be (40MHz)	25.66	25.63
	6165	43	be (40MHz)	22.18	22.55
	6405	91	be (40MHz)	22.93	22.31
	5985	7	be (80MHz)	29.85	30.49
	6145	39	be (80MHz)	44.35	29.93
	6385	87	be (80MHz)	30.54	31.38
	6025	15	be (160MHz)	33.54	36.11
	6185	47	be (160MHz)	34.77	30.88
	6345	79	be (160MHz)	35.03	34.31
	6105	31	be (320MHz)	35.21	33.73
	6265	63	be (320MHz)	26.69	39.01
Band 6	6475	97	be (20MHz)	19.90	19.85
	6475	105	be (20MHz)	20.17	19.93
	6515	113	be (20MHz)	18.05	18.30
	6445	99	be (40MHz)	22.06	22.68
	6485	107	be (40MHz)	25.54	23.05
	6525	115	be (40MHz)	22.22	21.79
	6465	103	be (80MHz)	31.40	31.08
	6505	111	be (160MHz)	37.09	42.46
Band 5/6/7	6425	95	be (320MHz)	41.88	33.29
Band 7	6695	117	be (20MHz)	20.05	19.77
	6695	149	be (20MHz)	19.78	19.74
	6875	185	be (20MHz)	19.99	19.85
	6565	123	be (40MHz)	23.66	22.80
	6685	155	be (40MHz)	22.55	22.31
	6845	179	be (40MHz)	22.81	22.90
	6545	119	be (80MHz)	44.38	30.05
	6705	151	be (80MHz)	31.83	31.10
	6865	183	be (80MHz)	44.75	31.64
	6665	143	be (160MHz)	31.40	26.50
	6825	175	be (160MHz)	38.81	36.45
Band 6/7	6585	127	be (320MHz)	30.41	40.59
Band 7/8	6745	159	be (320MHz)	39.57	38.79
Band 8	7115	189	be (20MHz)	19.87	20.02
	6995	209	be (20MHz)	19.55	20.01
	7115	233	be (20MHz)	18.17	18.28
	6885	187	be (40MHz)	22.26	23.49
	6965	211	be (40MHz)	23.41	22.96
	7085	227	be (40MHz)	24.89	24.26
	6945	199	be (80MHz)	28.64	31.56
	7025	215	be (80MHz)	31.49	32.77
	6985	207	be (160MHz)	34.52	33.13
Band 7/8	6905	191	be (320MHz)	37.99	43.97

Table 7-5. Occupied Bandwidth Measurements – 26T

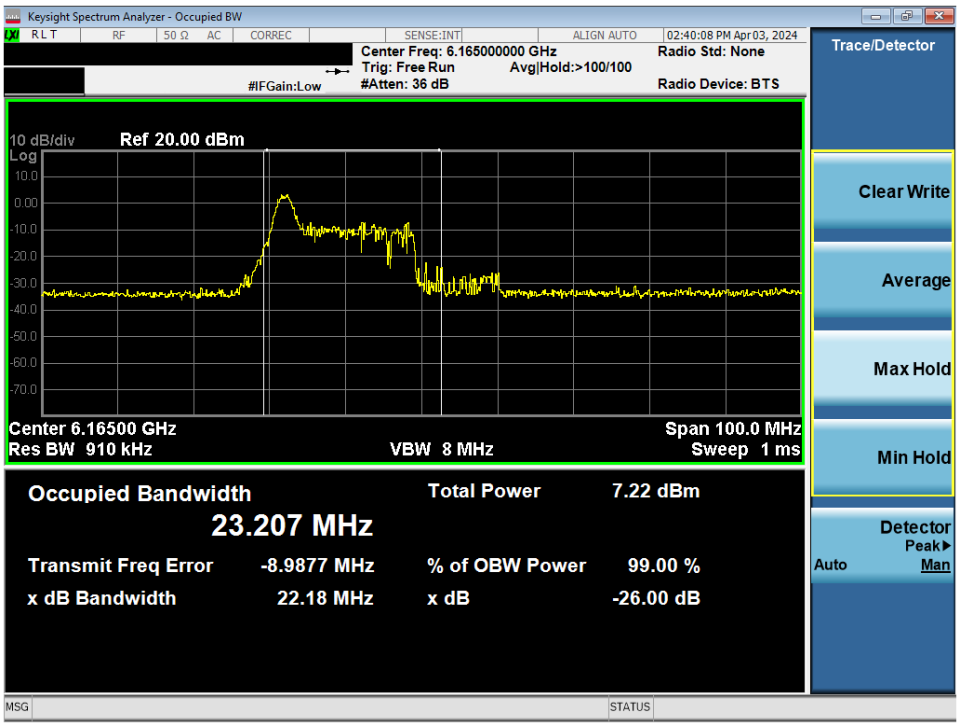
	Frequency [MHz]	Channel	802.11 MODE	Antenna-1 26dB Bandwidth [MHz]	Antenna-2 6dB Bandwidth [MHz]
Band 5	5935	2	be (20MHz)	21.13	21.24
	6175	45	be (20MHz)	21.23	21.36
	6415	93	be (20MHz)	21.05	21.16
	5965	3	be (40MHz)	42.57	42.33
	6165	43	be (40MHz)	42.54	41.98
	6405	91	be (40MHz)	42.84	41.71
	5985	7	be (80MHz)	87.22	122.04
	6145	39	be (80MHz)	86.64	119.56
	6385	87	be (80MHz)	86.84	117.48
	6025	15	be (160MHz)	174.15	174.42
	6185	47	be (160MHz)	176.54	170.32
	6345	79	be (160MHz)	174.92	174.17
	6105	31	be (320MHz)	262.50	265.97
	6265	63	be (320MHz)	259.49	261.45
Band 6	6475	97	be (20MHz)	21.26	21.22
	6475	105	be (20MHz)	21.29	21.22
	6515	113	be (20MHz)	21.34	21.01
	6445	99	be (40MHz)	42.52	41.82
	6485	107	be (40MHz)	41.98	42.27
	6525	115	be (40MHz)	42.33	42.34
	6465	103	be (80MHz)	86.23	122.71
	6505	111	be (160MHz)	174.40	174.39
Band 5/6/7	6425	95	be (320MHz)	261.94	257.52
Band 7	6695	117	be (20MHz)	21.09	21.21
	6695	149	be (20MHz)	21.21	21.30
	6875	185	be (20MHz)	21.43	21.45
	6565	123	be (40MHz)	42.08	42.29
	6685	155	be (40MHz)	42.00	42.07
	6845	179	be (40MHz)	42.29	42.05
	6545	119	be (80MHz)	86.94	120.30
	6705	151	be (80MHz)	87.54	120.10
	6865	183	be (80MHz)	121.52	109.27
	6665	143	be (160MHz)	175.38	174.45
	6825	175	be (160MHz)	174.69	173.60
Band 6/7	6585	127	be (320MHz)	245.79	260.06
Band 7/8	6745	159	be (320MHz)	256.71	247.78
Band 8	7115	189	be (20MHz)	21.19	21.03
	6995	209	be (20MHz)	21.24	20.94
	7115	233	be (20MHz)	21.60	21.55
	6885	187	be (40MHz)	41.95	42.54
	6965	211	be (40MHz)	42.30	42.38
	7085	227	be (40MHz)	42.17	42.08
	6945	199	be (80MHz)	124.17	126.12
	7025	215	be (80MHz)	107.30	122.77
	6985	207	be (160MHz)	175.72	174.40
Band 7/8	6905	191	be (320MHz)	298.06	285.04

Table 7-6. Occupied Bandwidth Measurements – Full Tones

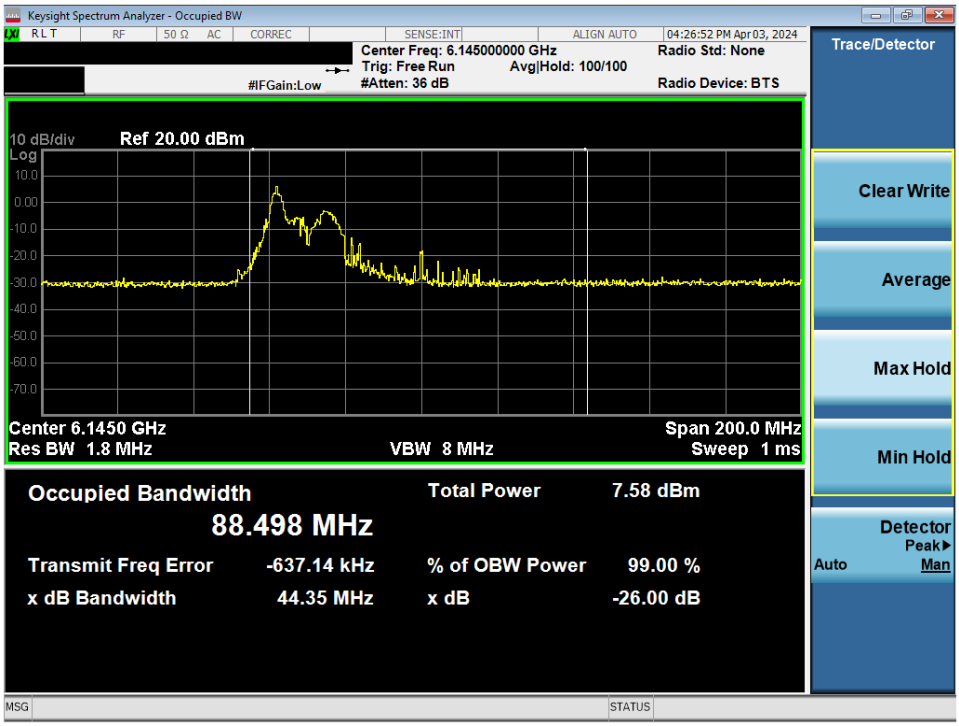
7.2.1 MIMO Antenna-1 Bandwidth Measurements - (Partial Tones)



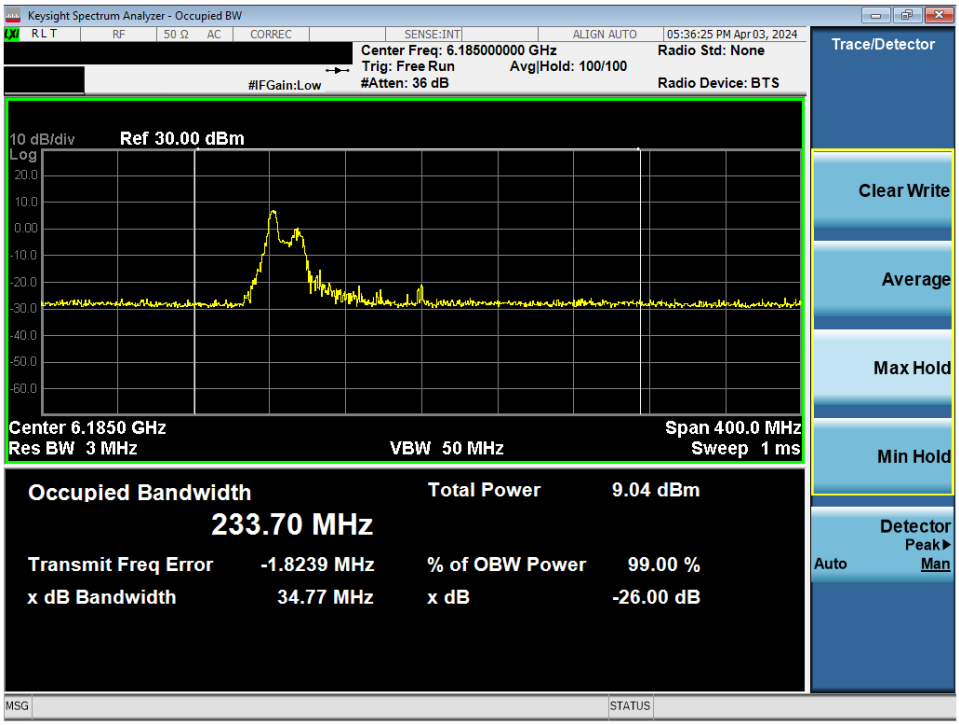
Plot 7-3. Occupied Bandwidth Plot MIMO ANT1 (20MHz BW 802.11be (26 Tones) (UNII Band 5) – Ch. 45)



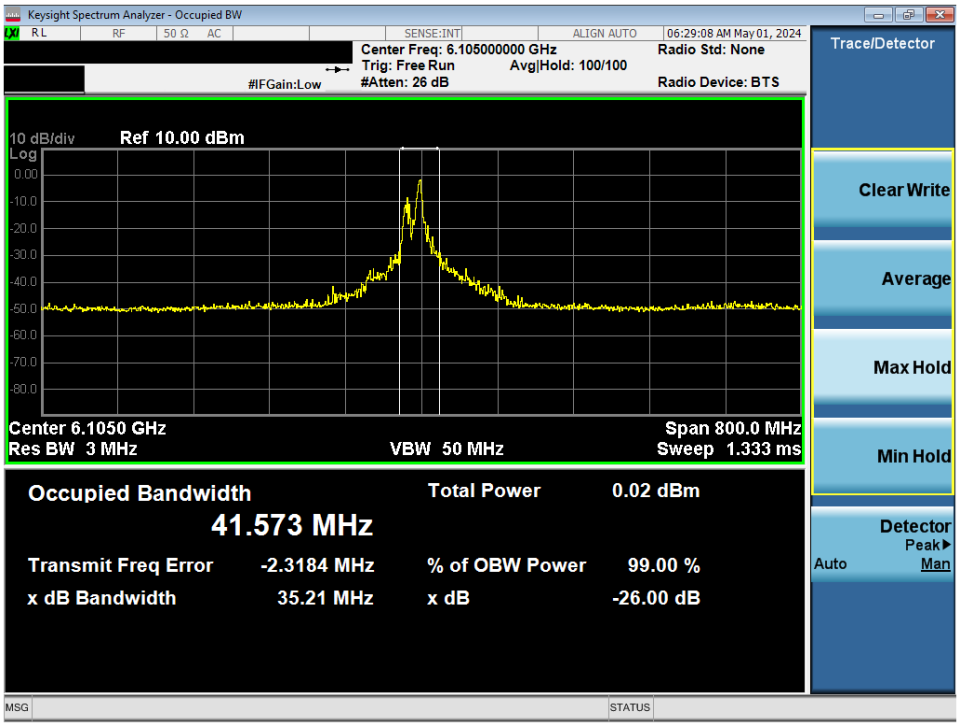
Plot 7-4. Occupied Bandwidth Plot MIMO ANT1 (40MHz BW 802. 11be (26 Tones) (UNII Band 5) – Ch. 43)



Plot 7-5. Occupied Bandwidth Plot MIMO ANT1 (80MHz BW 802. 11be (26 Tones) (UNII Band 5) – Ch. 39)

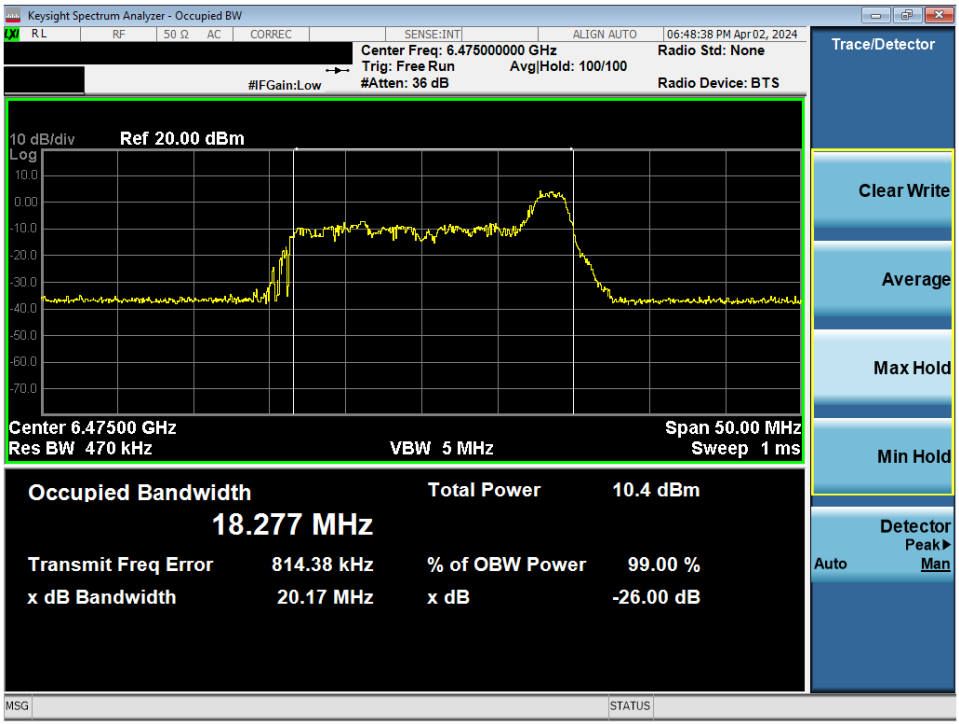


Plot 7-6. Occupied Bandwidth Plot MIMO ANT1 (160MHz BW 802. 11be (26 Tones) (UNII Band 5) – Ch. 47)

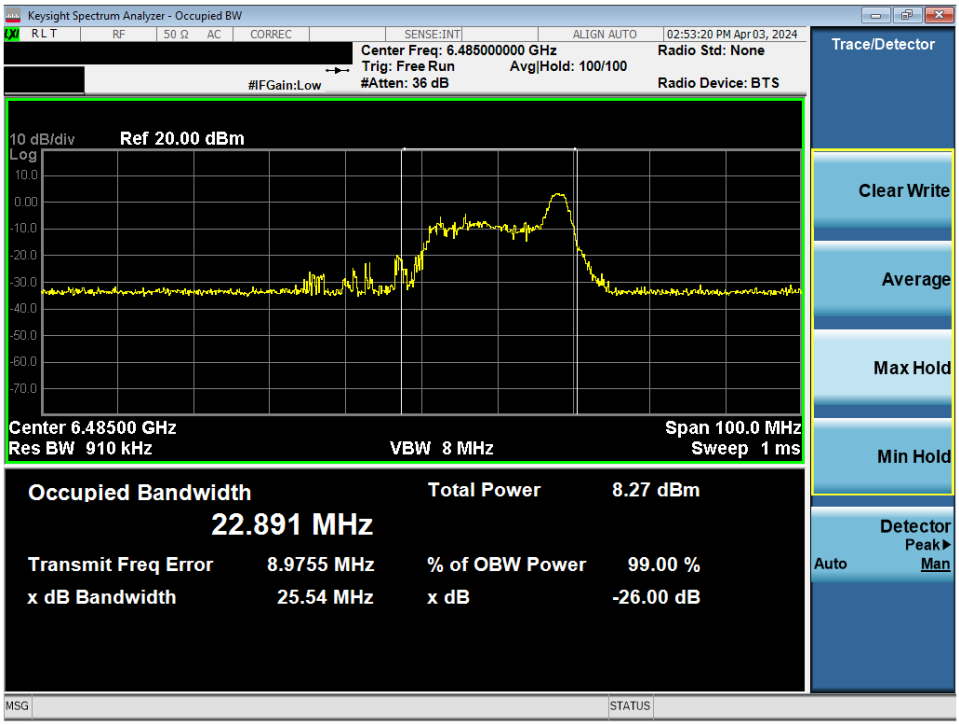


Plot 7-7. Occupied Bandwidth Plot MIMO ANT1 (320MHz BW 802. 11be (26 Tones) (UNII Band 5) – Ch. 31)

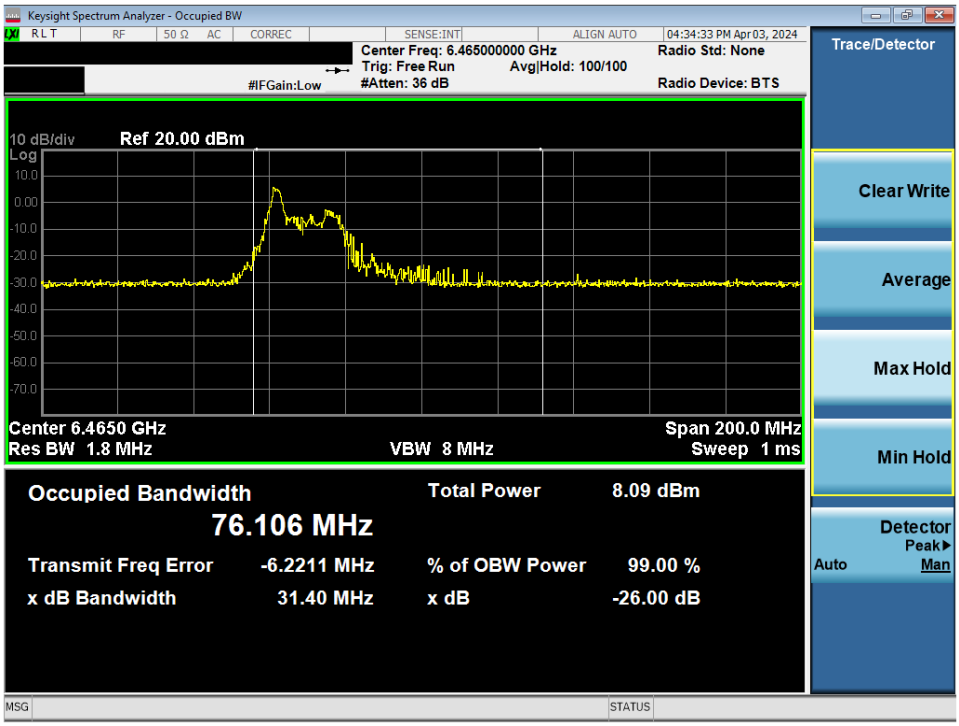
MIMO Antenna-1 Bandwidth Measurements - (Partial Tones)



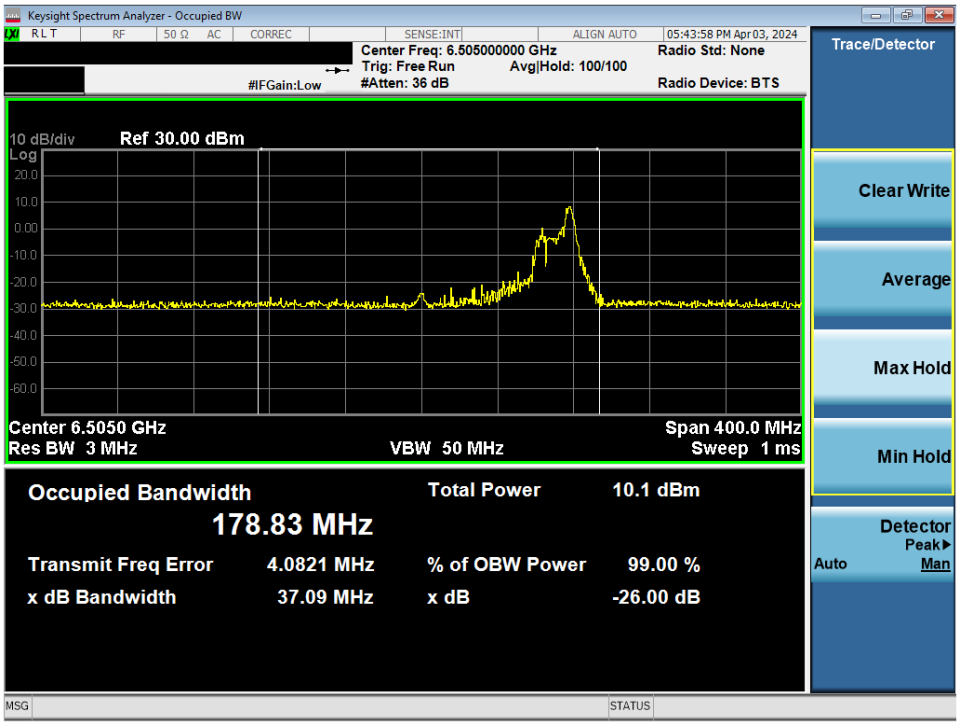
Plot 7-8. Occupied Bandwidth Plot MIMO ANT1 (20MHz BW 802. 11be (26 Tones) (UNII Band 6) – Ch. 105)



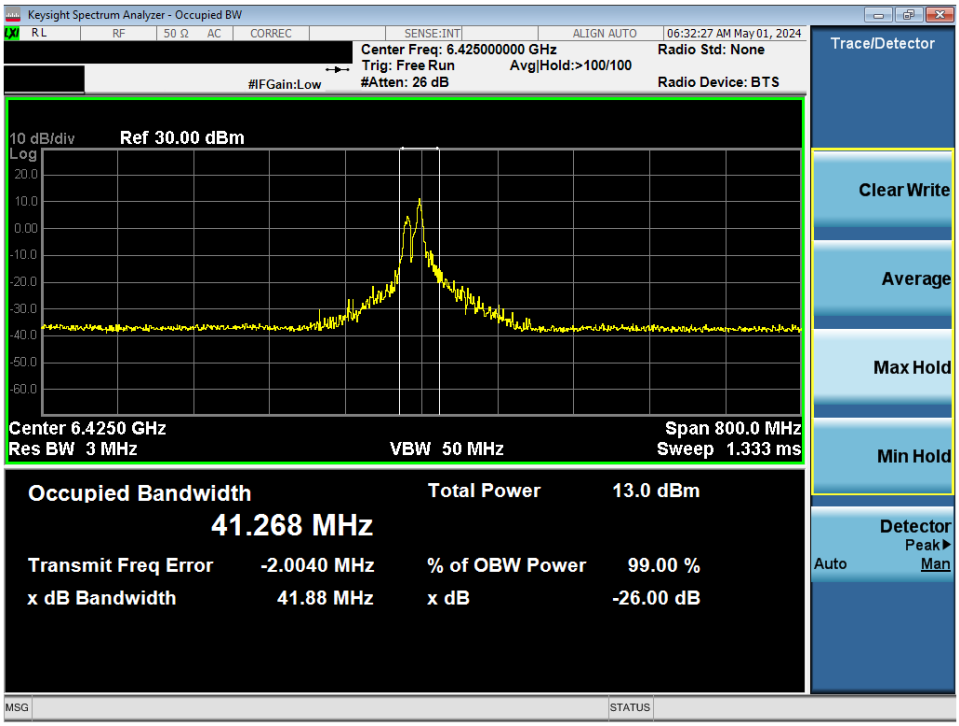
Plot 7-9. Occupied Bandwidth Plot MIMO ANT1 (40MHz BW 802. 11be (26 Tones) (UNII Band 6) – Ch. 107)



Plot 7-10. Occupied Bandwidth Plot MIMO ANT1 (80MHz BW 802. 11be (26 Tones) (UNII Band 6) – Ch. 103)

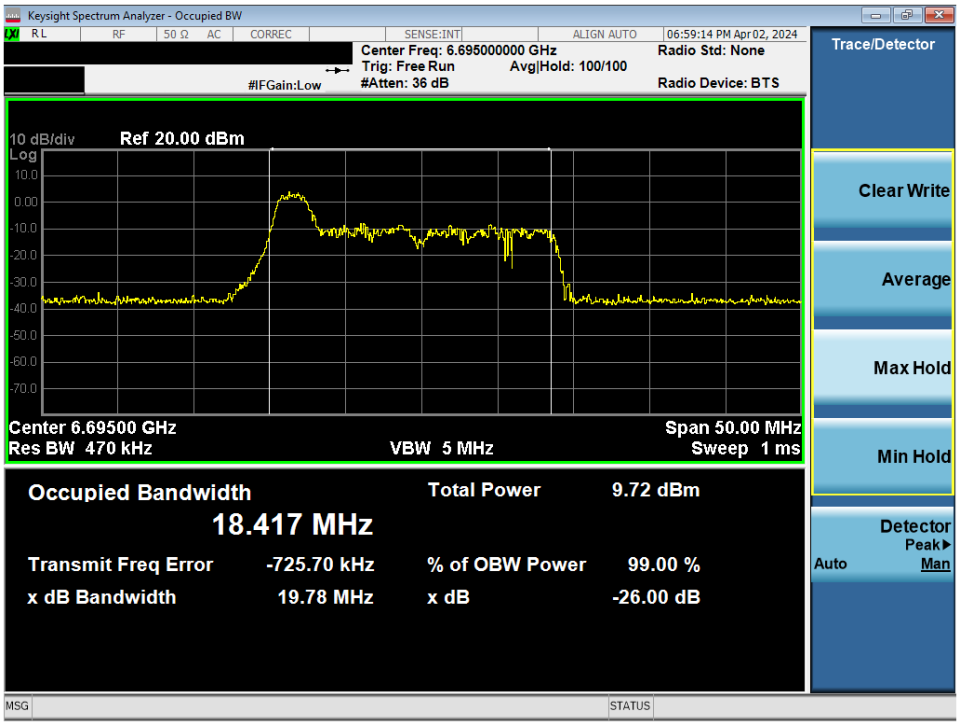


Plot 7-11. Occupied Bandwidth Plot MIMO ANT1 (160MHz BW 802. 11be (26 Tones) (UNII Band 6) – Ch. 111)

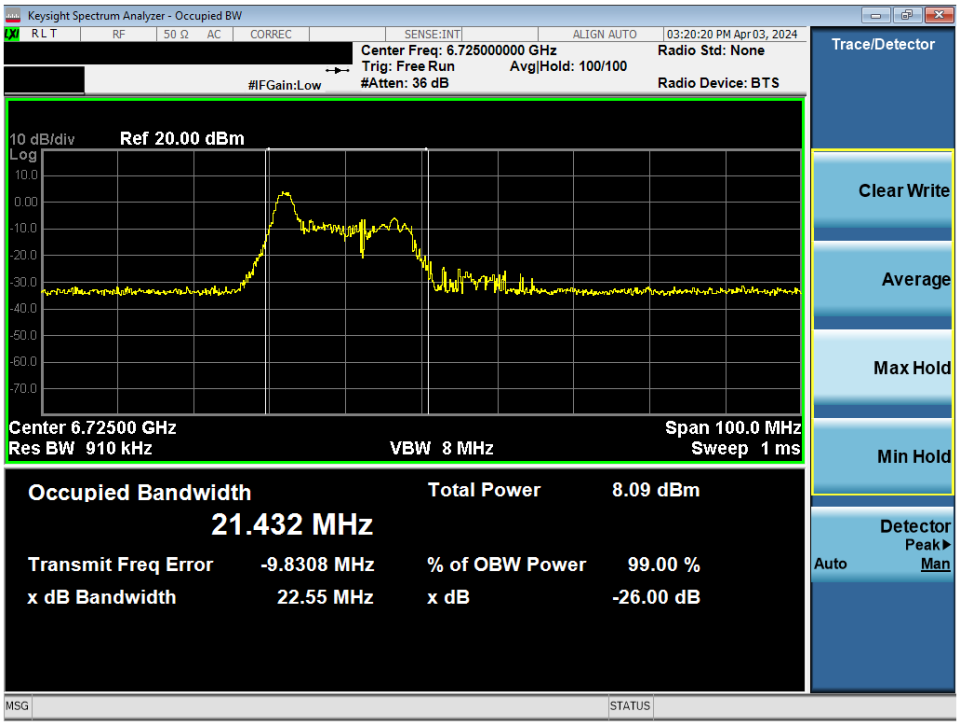


Plot 7-12. Occupied Bandwidth Plot MIMO ANT1 (320MHz BW 802. 11be (26 Tones) (UNII Band 6) – Ch. 95)

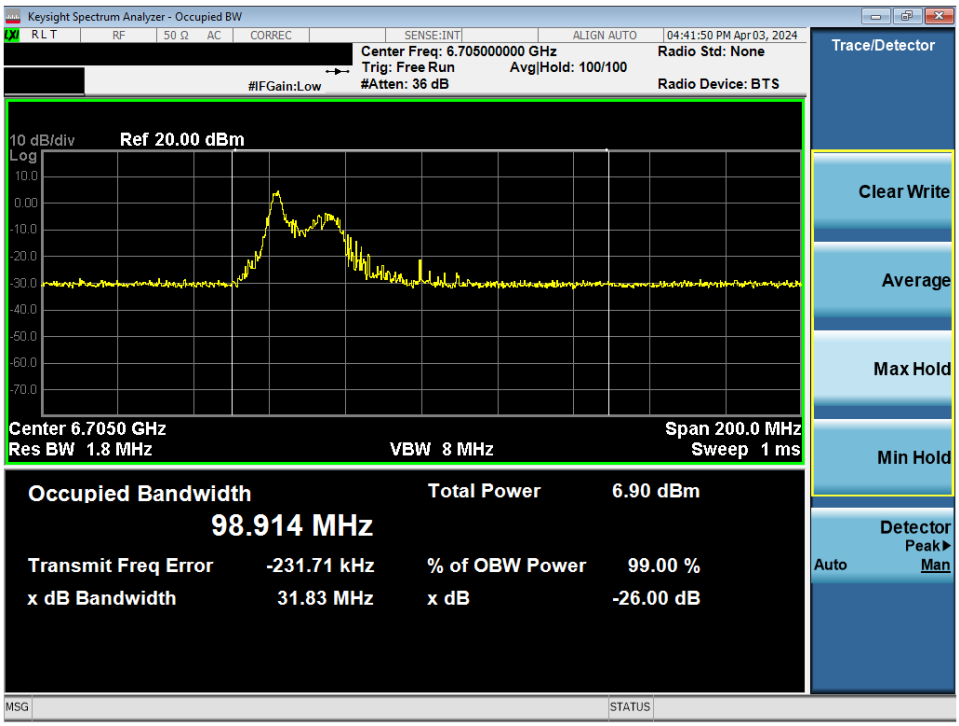
MIMO Antenna-1 Bandwidth Measurements - (Partial Tones)



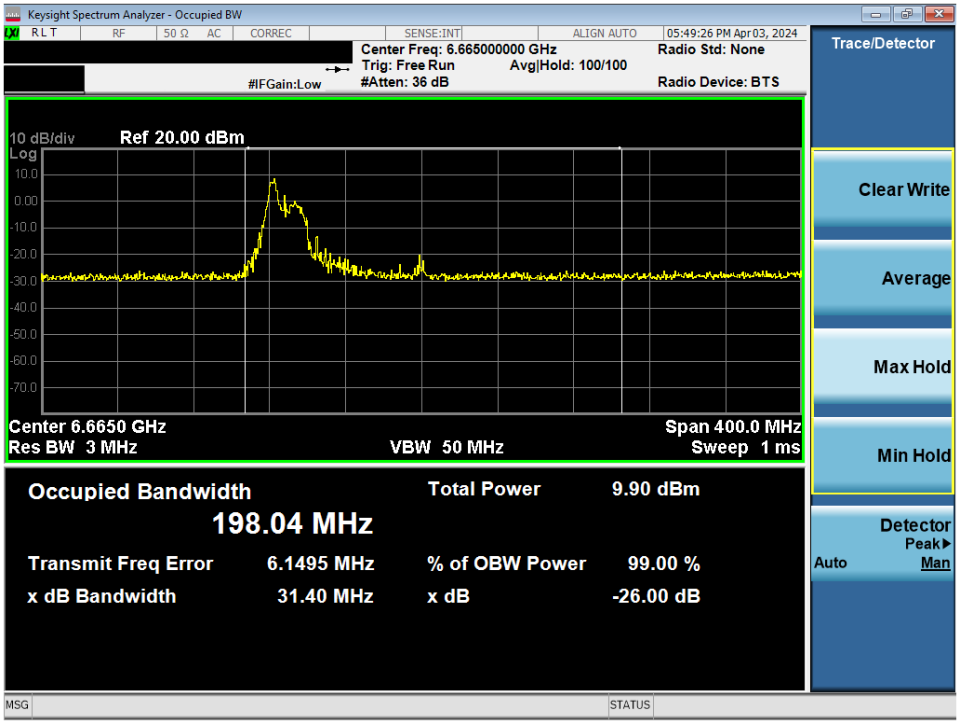
Plot 7-13. Occupied Bandwidth Plot MIMO ANT1 (20MHz BW 802. 11be (26 Tones) (UNII Band 7) – Ch. 149)



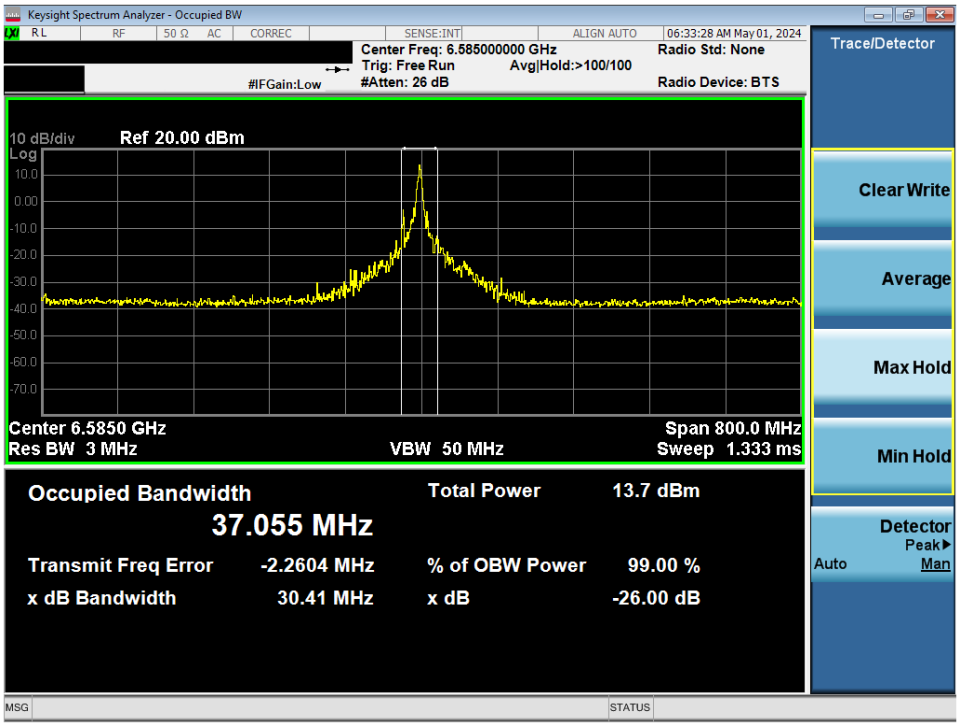
Plot 7-14. Occupied Bandwidth Plot MIMO ANT1 (40MHz BW 802. 11be (26 Tones) (UNII Band 7) – Ch. 155)



Plot 7-15. Occupied Bandwidth Plot MIMO ANT1 (80MHz BW 802. 11be (26 Tones) (UNII Band 7) – Ch. 151)

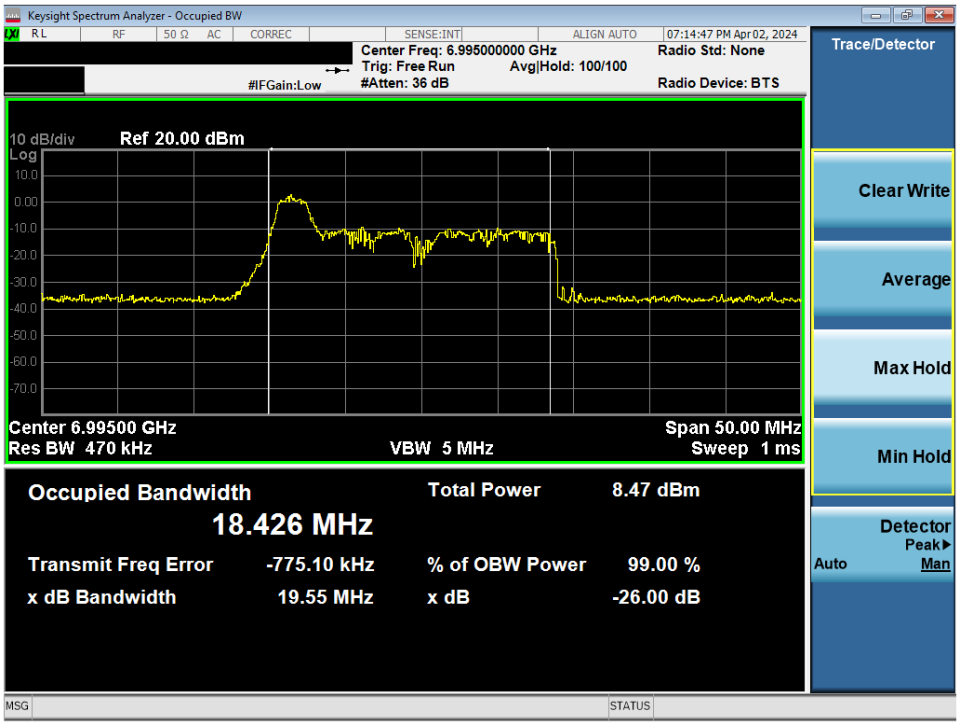


Plot 7-16. Occupied Bandwidth Plot MIMO ANT1 (160MHz BW 802. 11be (26 Tones) (UNII Band 7) – Ch. 143)

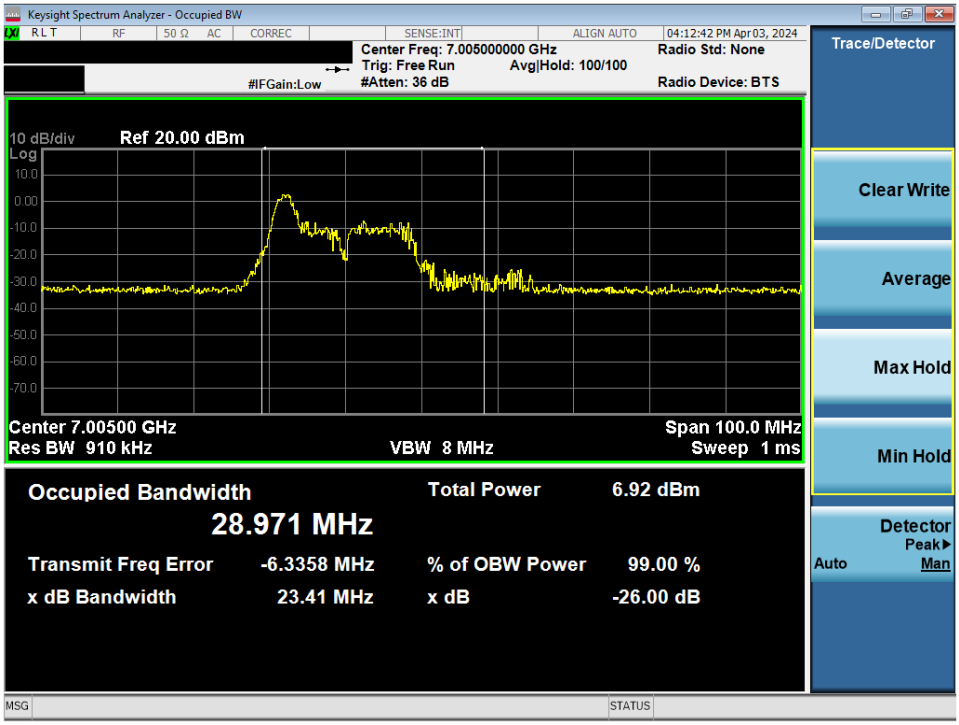


Plot 7-17. Occupied Bandwidth Plot MIMO ANT1 (320MHz BW 802. 11be (26 Tones) (UNII Band 7) – Ch. 127)

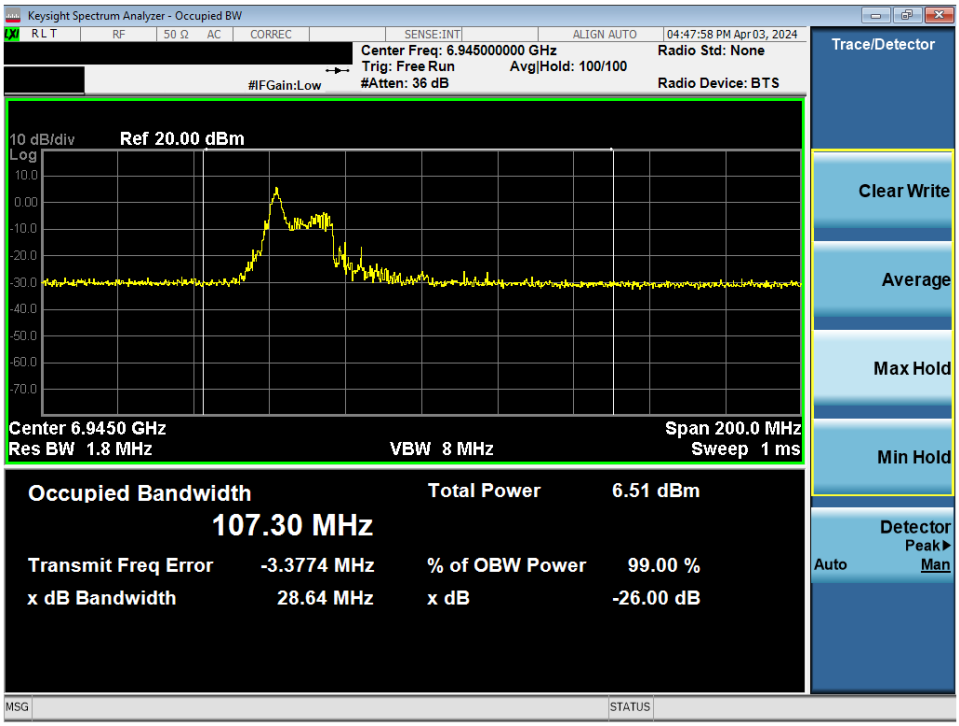
MIMO Antenna-1 Bandwidth Measurements - (Partial Tones)



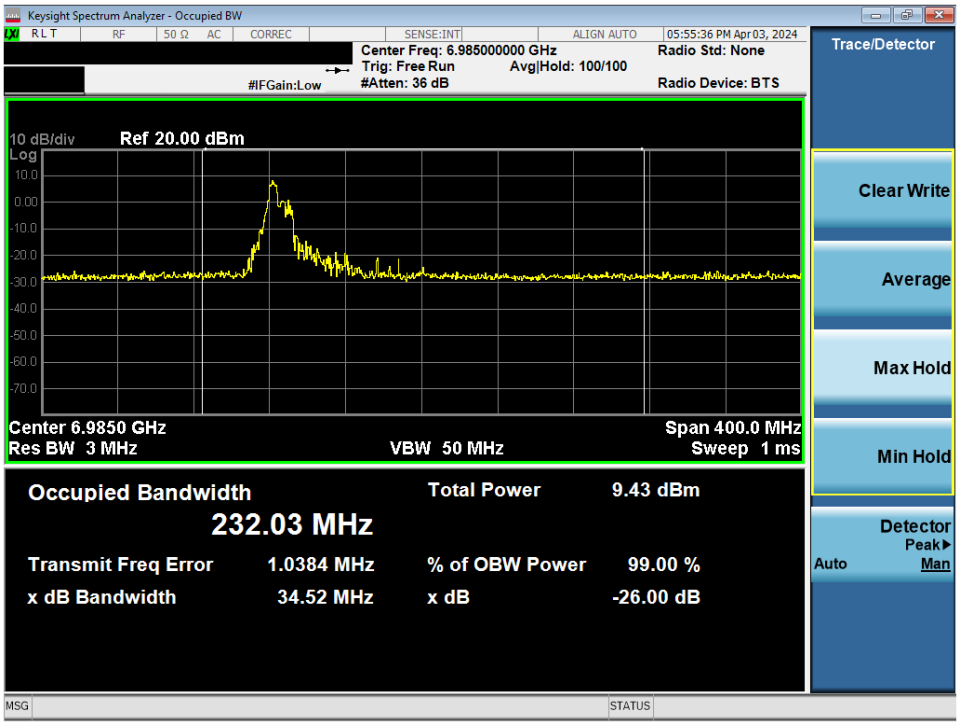
Plot 7-18. Occupied Bandwidth Plot MIMO ANT1 (20MHz BW 802. 11be (26 Tones) (UNII Band 8) – Ch. 209)



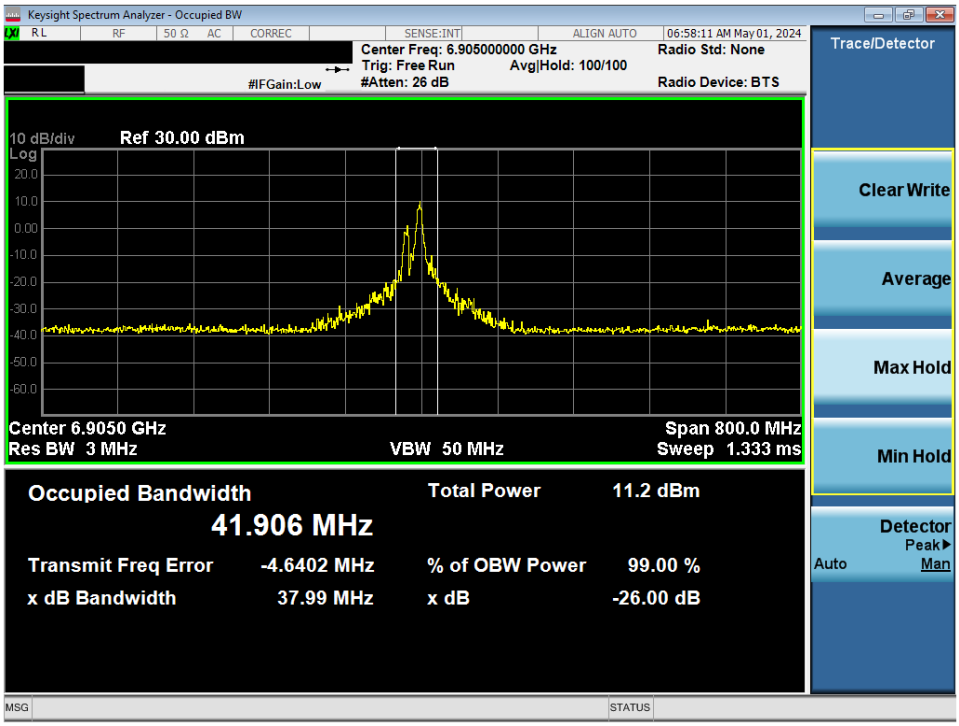
Plot 7-19. Occupied Bandwidth Plot MIMO ANT1 (40MHz BW 802. 11be (26 Tones) (UNII Band 8) – Ch. 211)



Plot 7-20. Occupied Bandwidth Plot MIMO ANT1 (80MHz BW 802. 11be (26 Tones) (UNII Band 8) – Ch. 199)

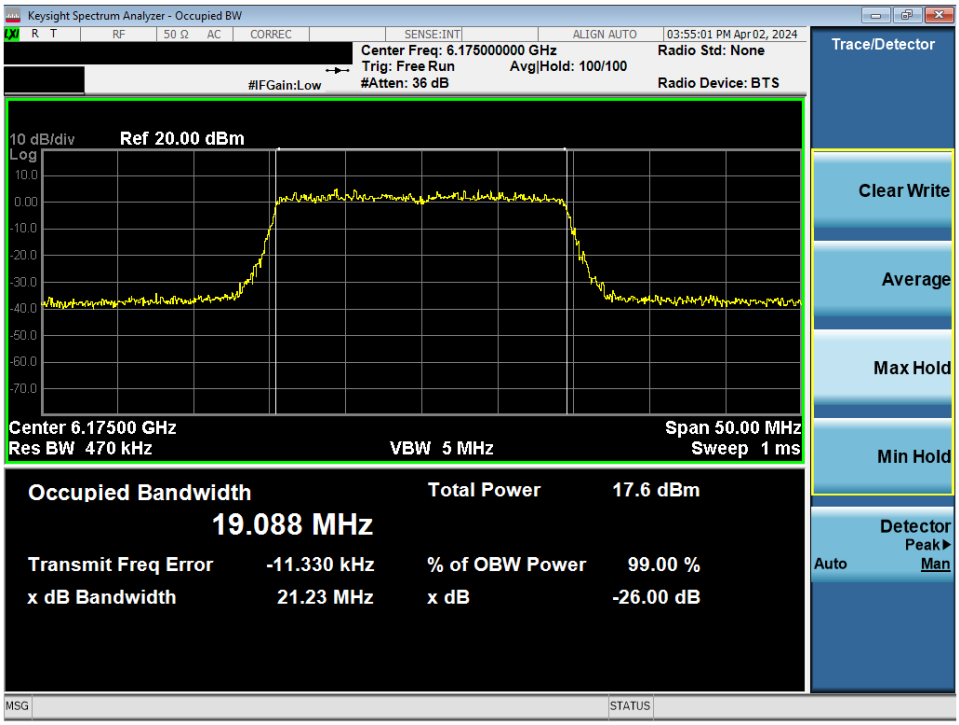


Plot 7-21. Occupied Bandwidth Plot MIMO ANT1 (160MHz BW 802. 11be (26 Tones) (UNII Band 8) – Ch. 207)

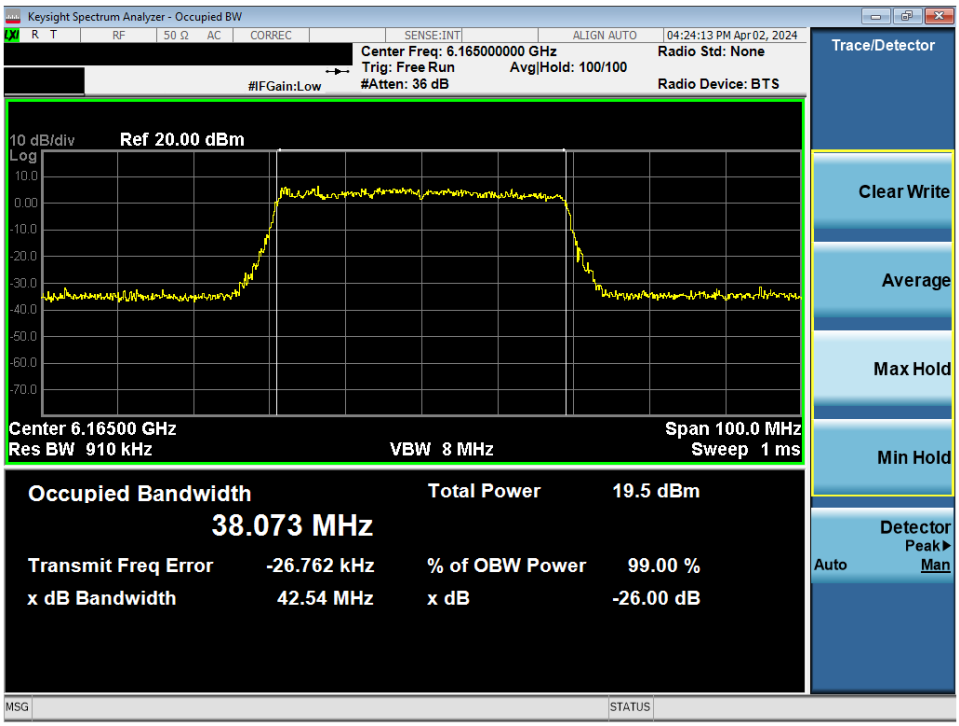


Plot 7-22. Occupied Bandwidth Plot MIMO ANT1 (320MHz BW 802. 11be (26 Tones) (UNII Band 8) – Ch. 191)

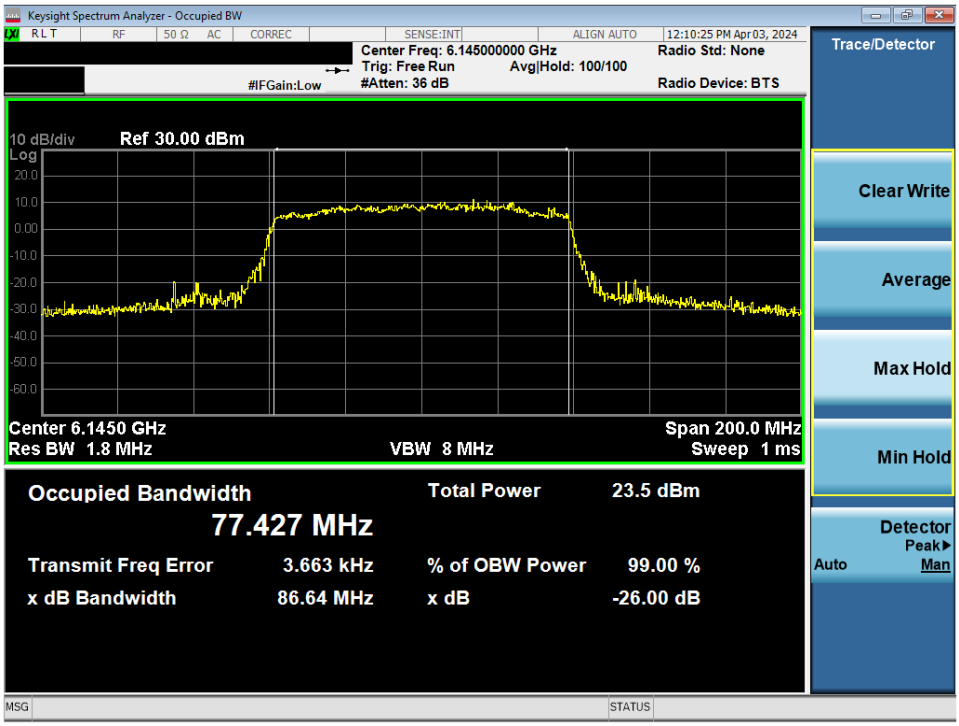
7.2.2 MIMO Antenna-1 Bandwidth Measurements - (Full Tones)



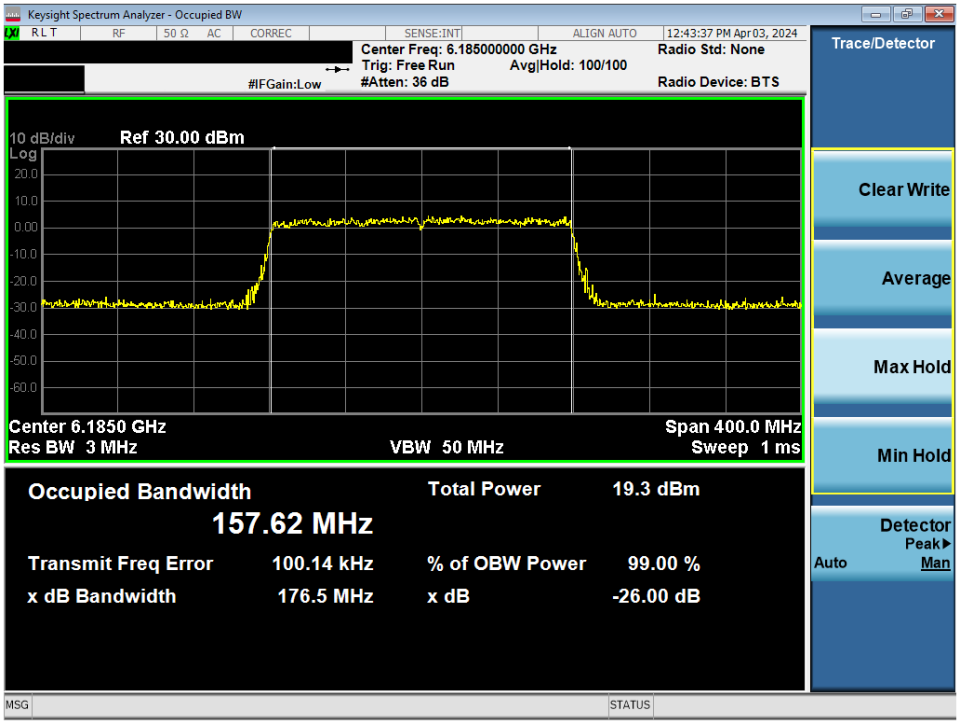
Plot 7-23. Occupied Bandwidth Plot MIMO ANT1 (20MHz BW 802. 11be (Full Tone) (UNII Band 5) – Ch. 45)



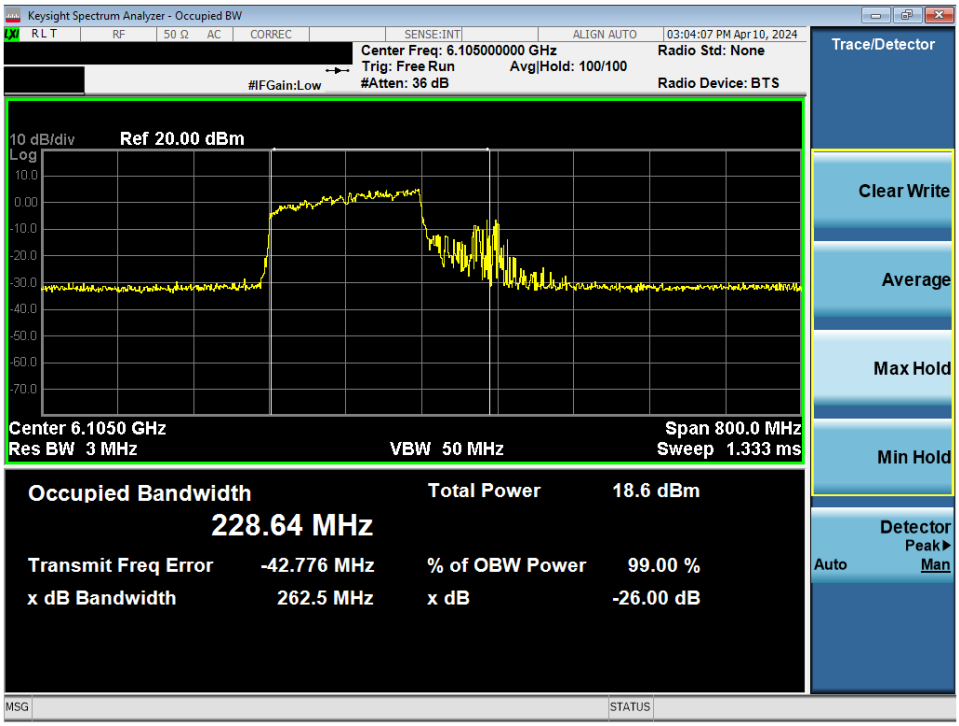
Plot 7-24. Occupied Bandwidth Plot MIMO ANT1 (40MHz BW 802. 11be (Full Tone) (UNII Band 5) – Ch. 43)



Plot 7-25. Occupied Bandwidth Plot MIMO ANT1 (80MHz BW 802. 11be (Full Tone) (UNII Band 5) – Ch. 39)

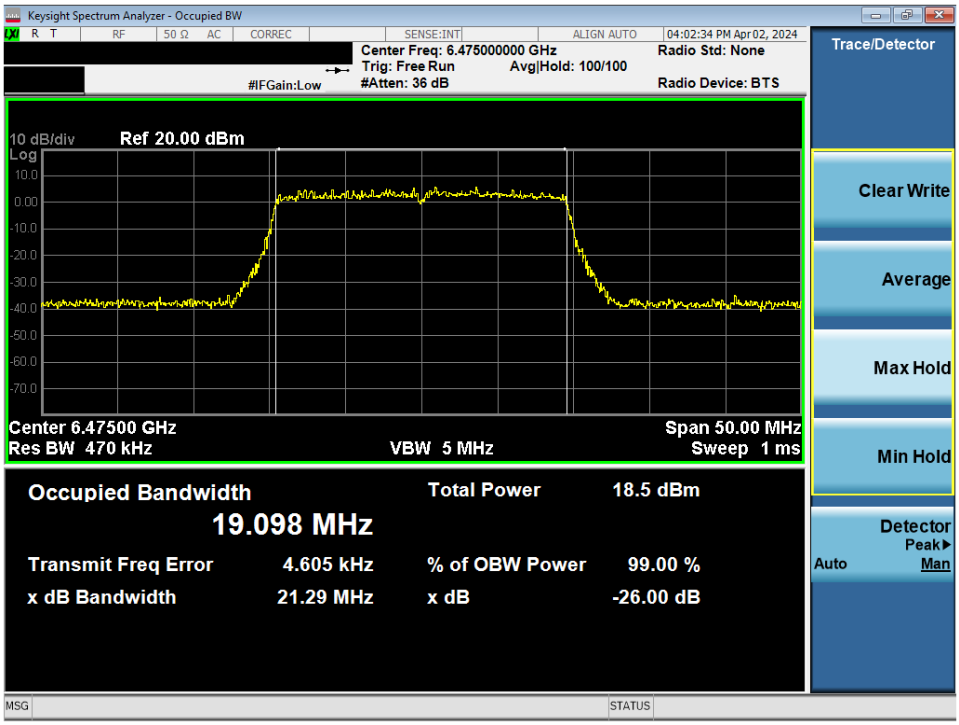


Plot 7-26. Occupied Bandwidth Plot MIMO ANT1 (160MHz BW 802. 11be (Full Tone) (UNII Band 5) – Ch. 47)

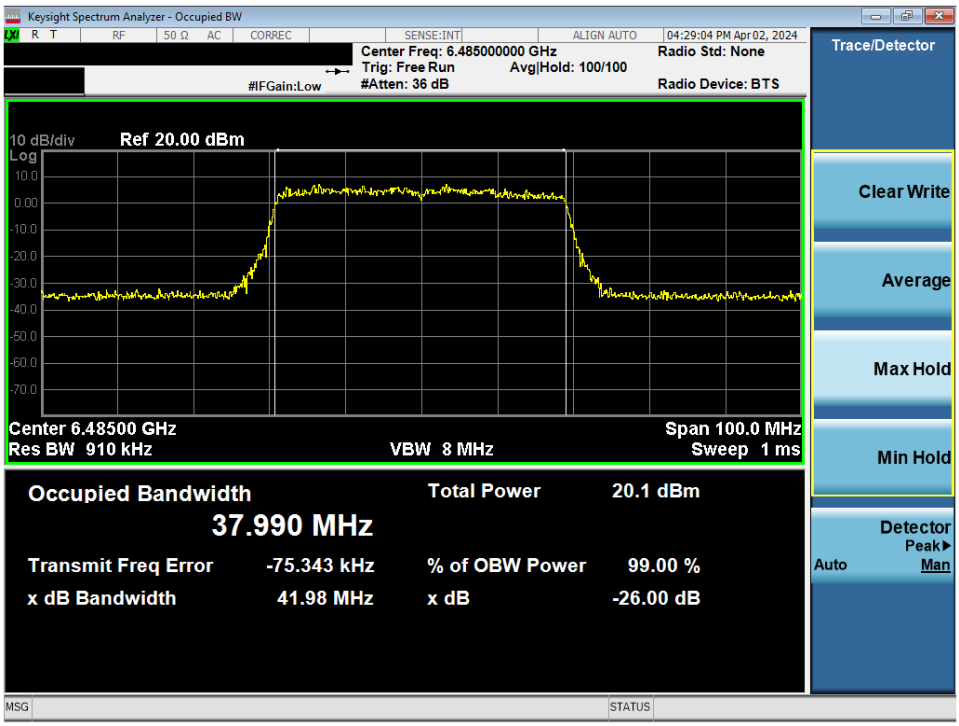


Plot 7-27. Occupied Bandwidth Plot MIMO ANT1 (320MHz BW 802. 11be (Full Tones) (UNII Band 5) – Ch. 31)

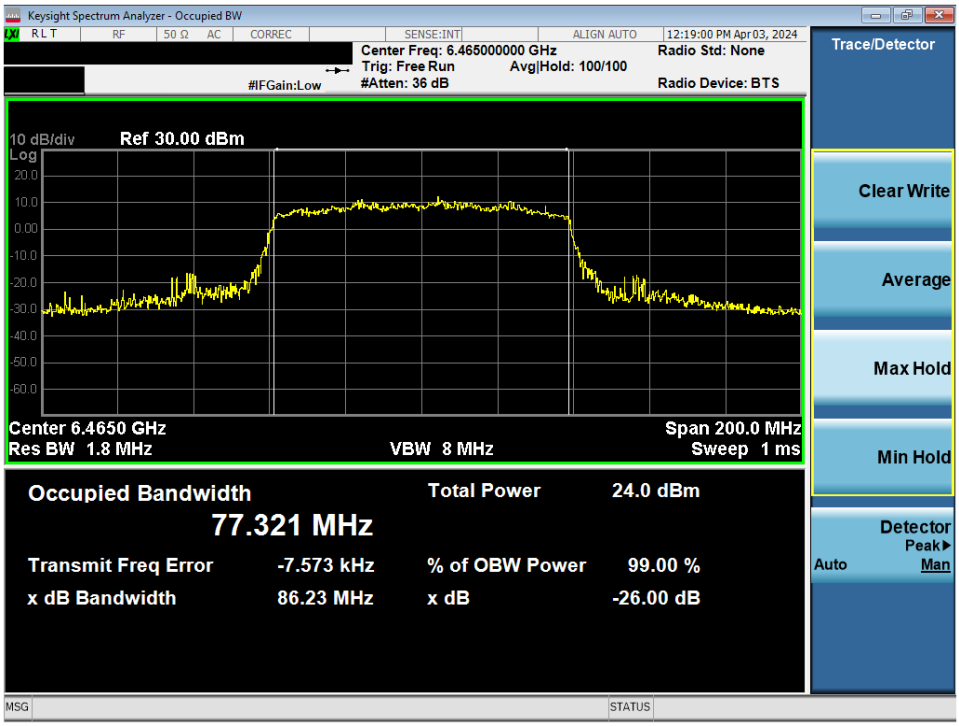
MIMO Antenna-1 Bandwidth Measurements - (Full Tones)



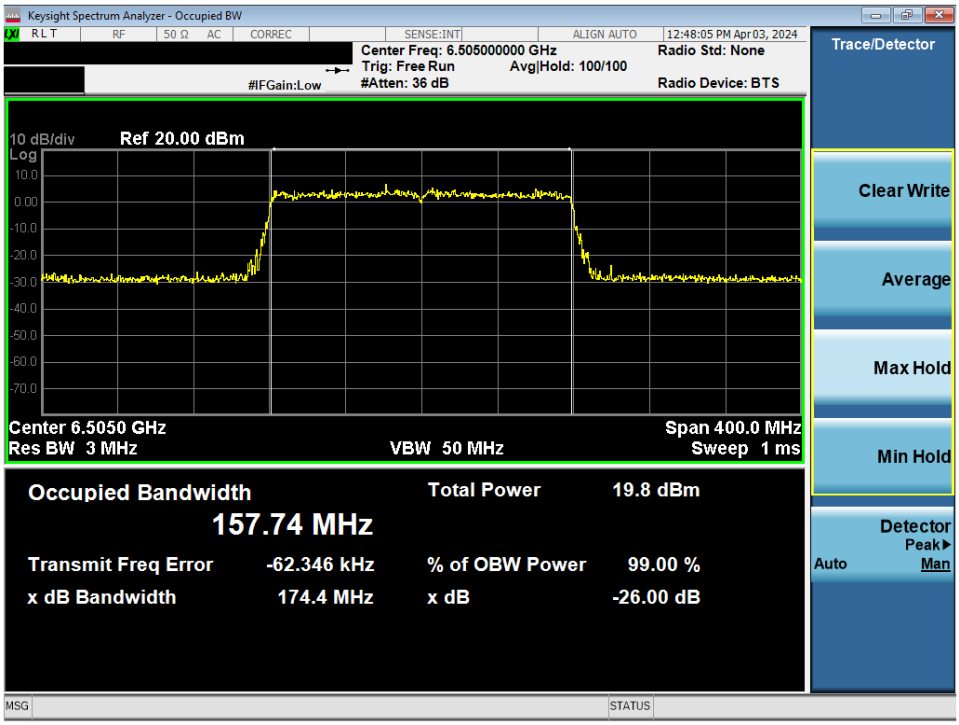
Plot 7-28. Occupied Bandwidth Plot MIMO ANT1 (20MHz BW 802. 11be (Full Tone) (UNII Band 6) – Ch. 105)



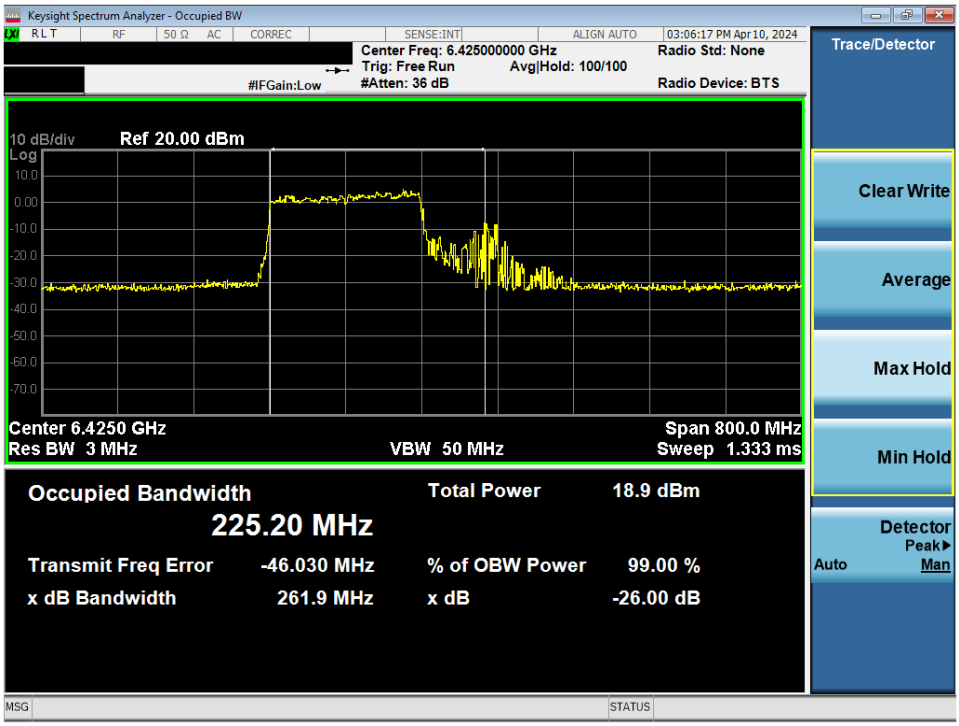
Plot 7-29. Occupied Bandwidth Plot MIMO ANT1 (40MHz BW 802. 11be (Full Tone) (UNII Band 6) – Ch. 107)



Plot 7-30. Occupied Bandwidth Plot MIMO ANT1 (80MHz BW 802. 11be (Full Tone) (UNII Band 6) – Ch. 103)

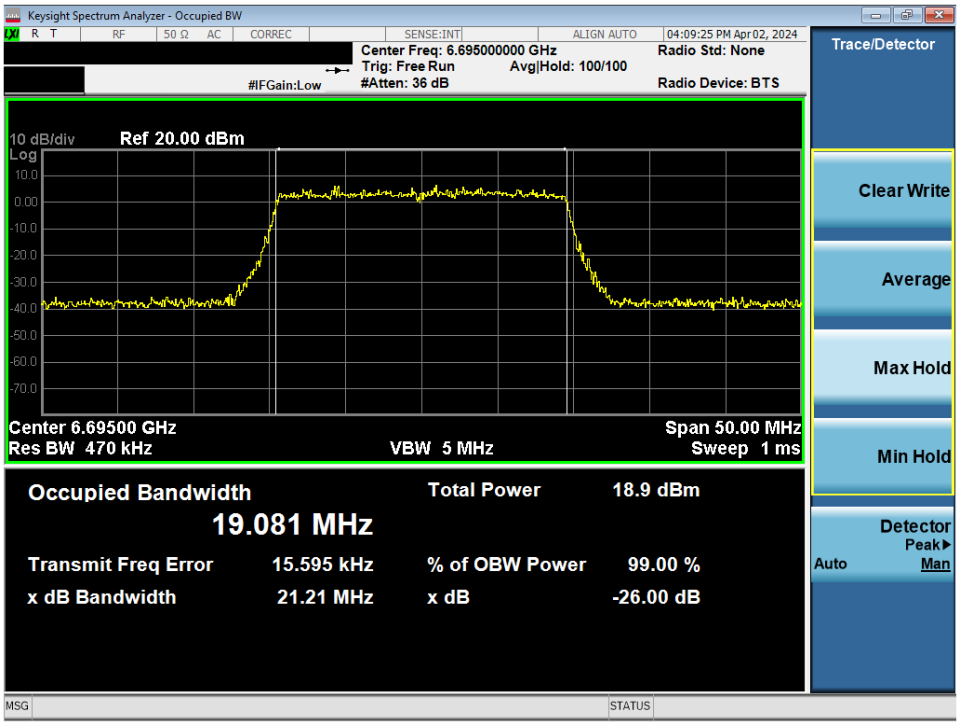


Plot 7-31. Occupied Bandwidth Plot MIMO ANT1 (160MHz BW 802. 11be (Full Tone) (UNII Band 6) – Ch. 111)

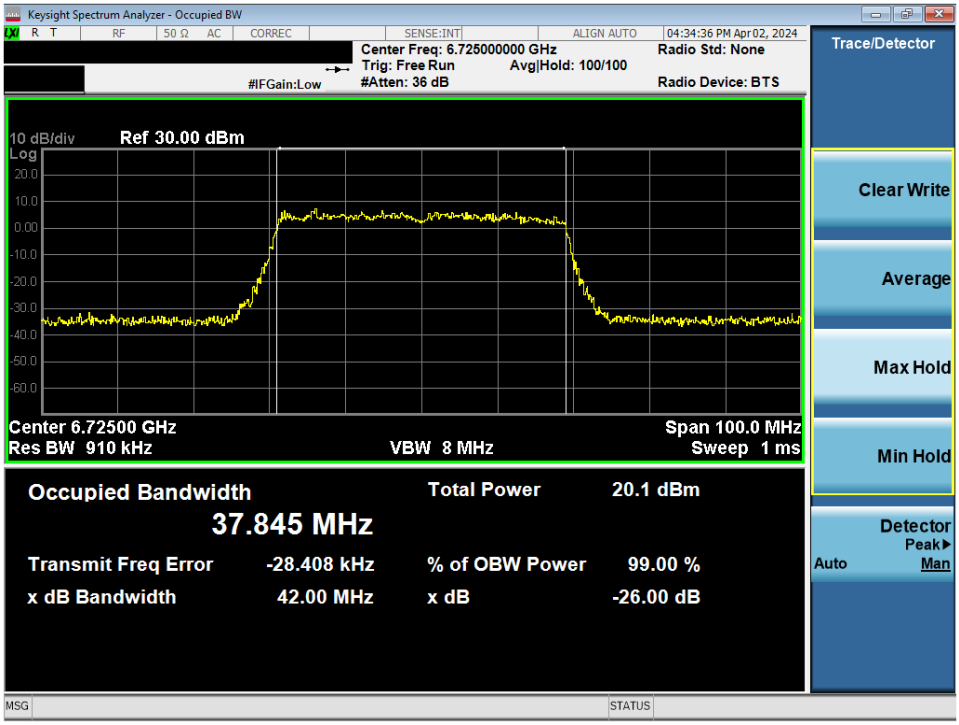


Plot 7-32. Occupied Bandwidth Plot MIMO ANT1 (320MHz BW 802. 11be (Full Tones) (UNII Band 6) – Ch. 95)

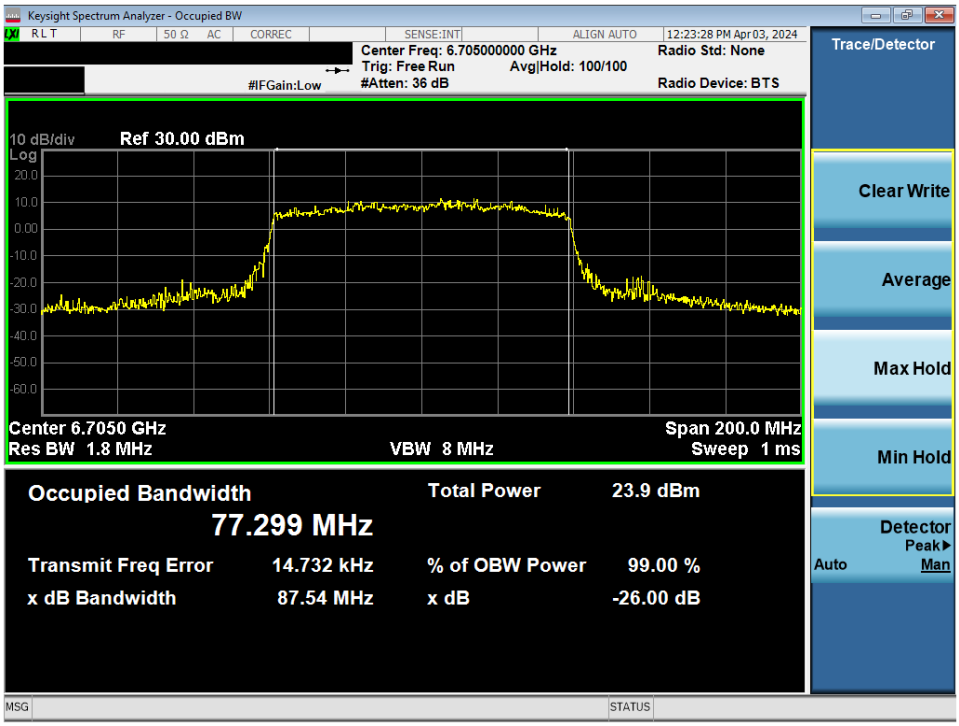
MIMO Antenna-1 Bandwidth Measurements - (Full Tones)



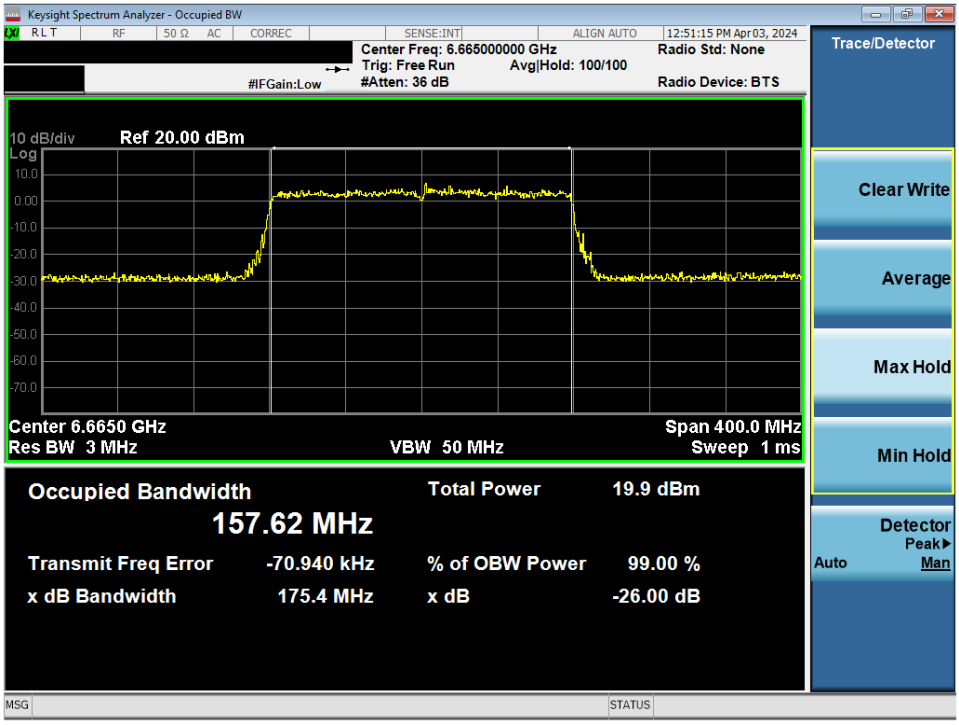
Plot 7-33. Occupied Bandwidth Plot MIMO ANT1 (20MHz BW 802. 11be (Full Tone) (UNII Band 7) – Ch. 149)



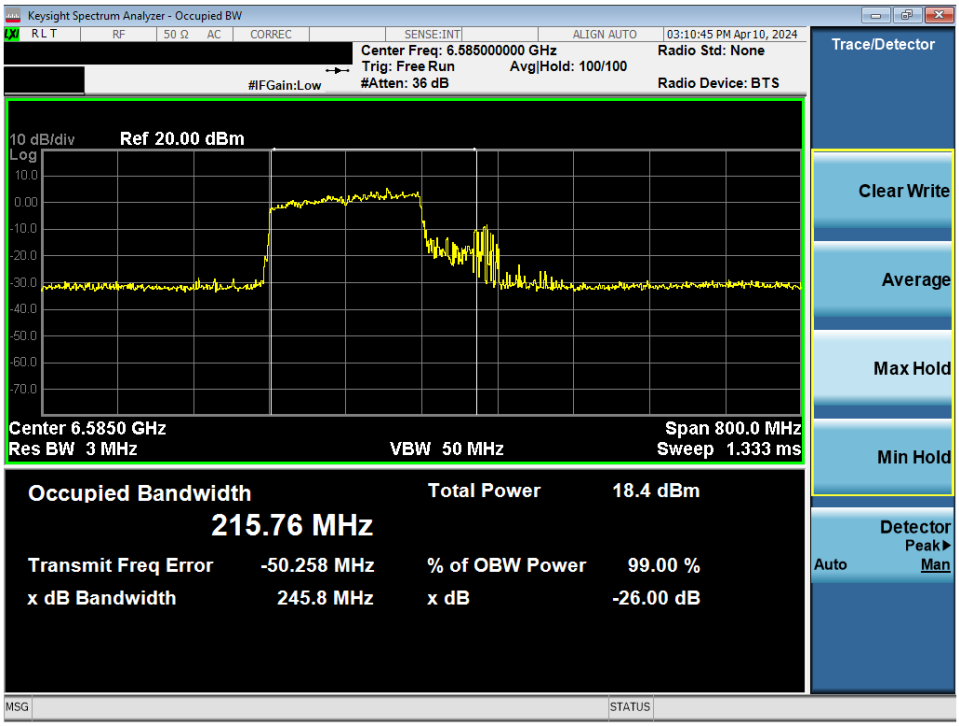
Plot 7-34. Occupied Bandwidth Plot MIMO ANT1 (40MHz BW 802. 11be (Full Tone) (UNII Band 7) – Ch. 155)



Plot 7-35. Occupied Bandwidth Plot MIMO ANT1 (80MHz BW 802. 11be (Full Tone) (UNII Band 7) – Ch. 151)

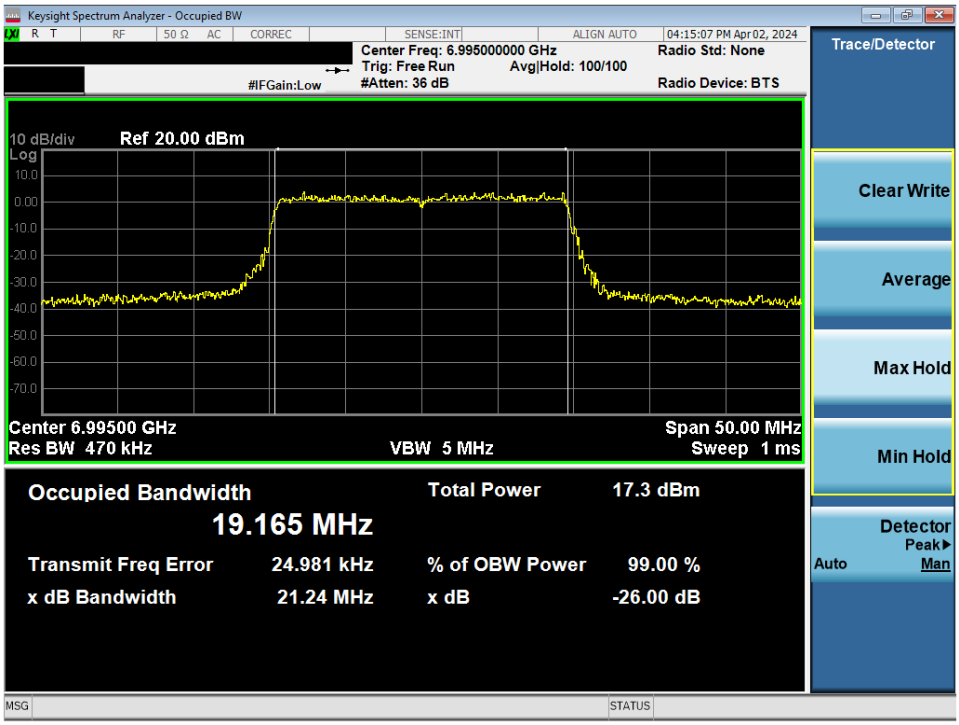


Plot 7-36. Occupied Bandwidth Plot MIMO ANT1 (160MHz BW 802. 11be (Full Tone) (UNII Band 7) – Ch. 143)

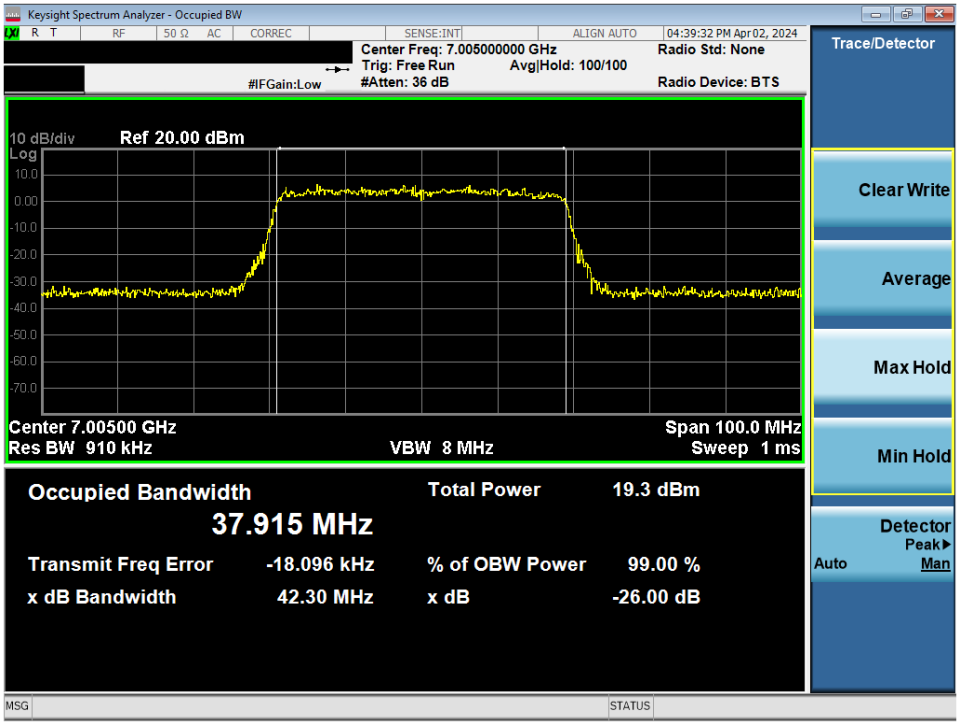


Plot 7-37. Occupied Bandwidth Plot MIMO ANT1 (320MHz BW 802. 11be (Full Tone) (UNII Band 7) – Ch. 127)

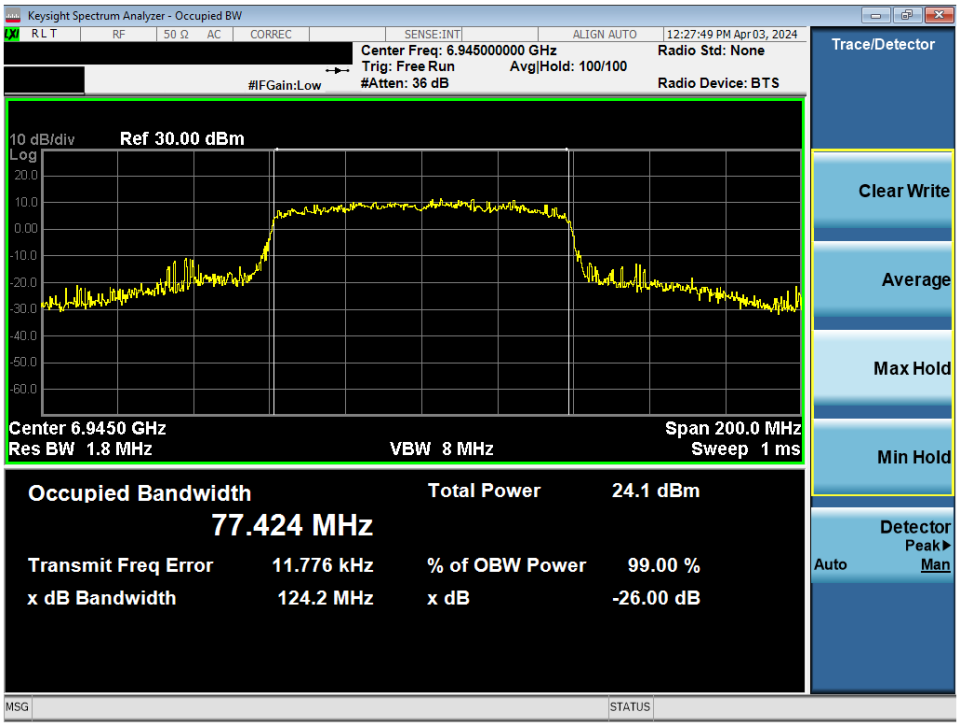
MIMO Antenna-1 Bandwidth Measurements - (Full Tones)



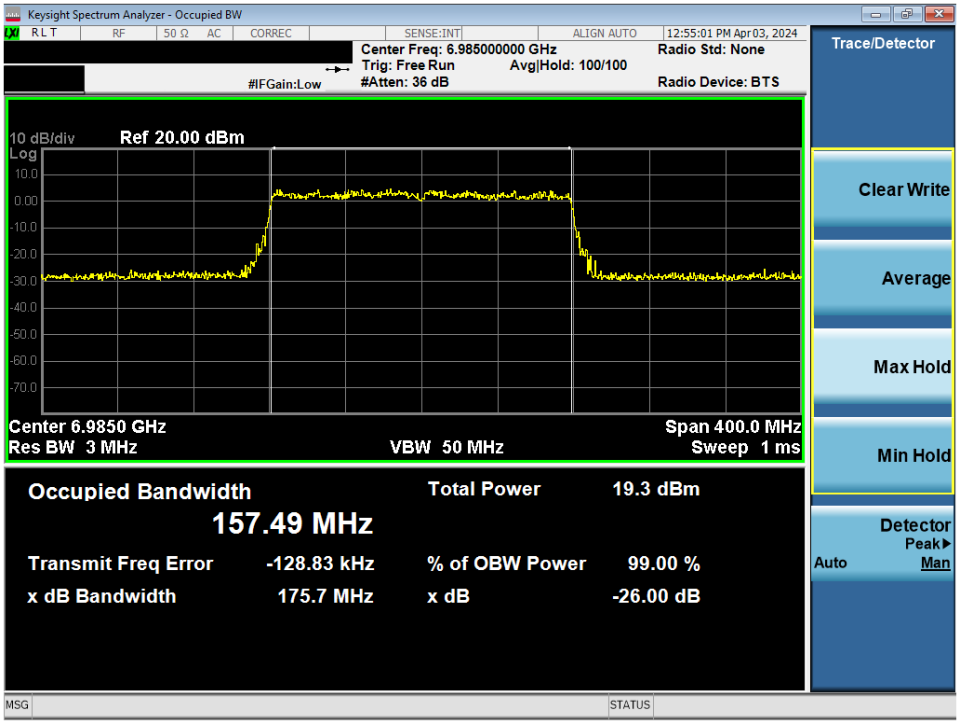
Plot 7-38. Occupied Bandwidth Plot MIMO ANT1 (20MHz BW 802. 11be (Full Tone) (UNII Band 8) – Ch. 209)



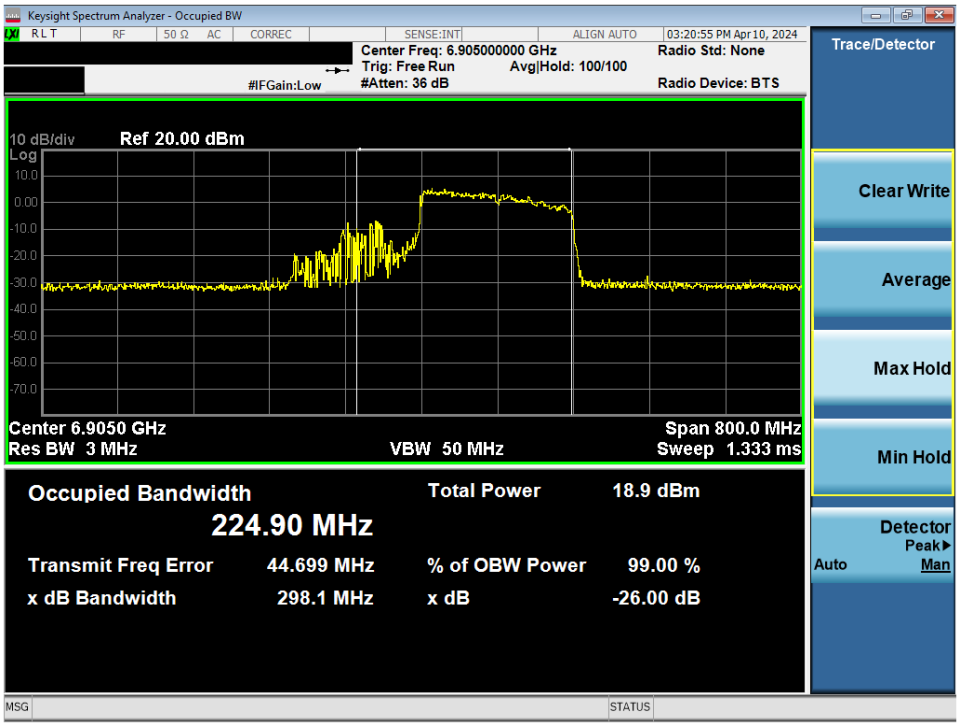
Plot 7-39. Occupied Bandwidth Plot MIMO ANT1 (40MHz BW 802. 11be (Full Tone) (UNII Band 8) – Ch. 211)



Plot 7-40. Occupied Bandwidth Plot MIMO ANT1 (80MHz BW 802. 11be (Full Tone) (UNII Band 8) – Ch. 199)

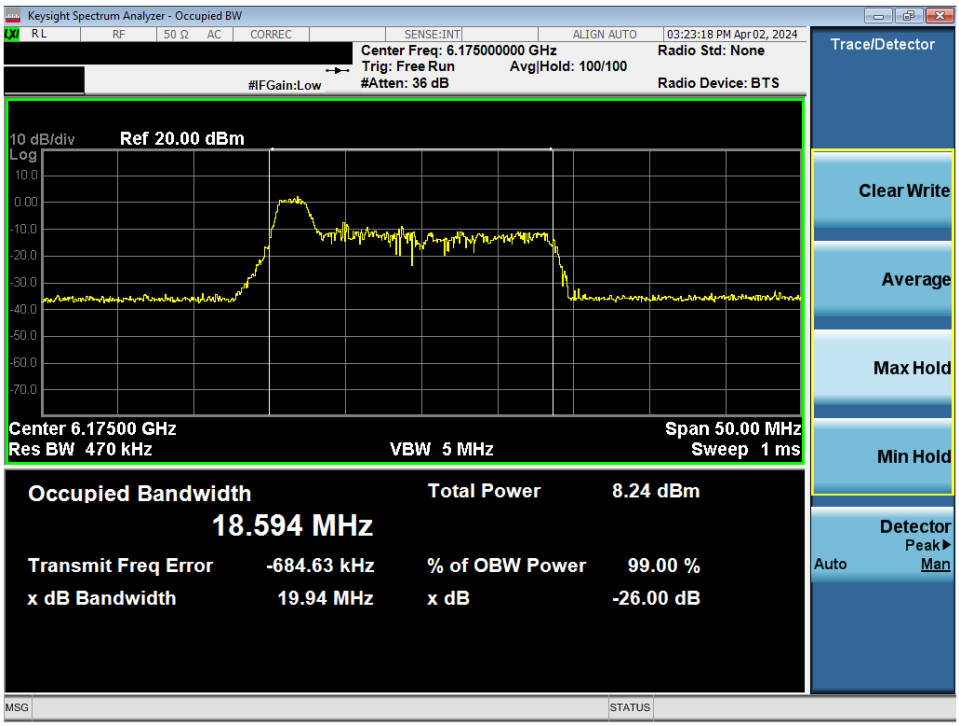


Plot 7-41. Occupied Bandwidth Plot MIMO ANT1 (160MHz BW 802. 11be (Full Tone) (UNII Band 8) – Ch. 207)

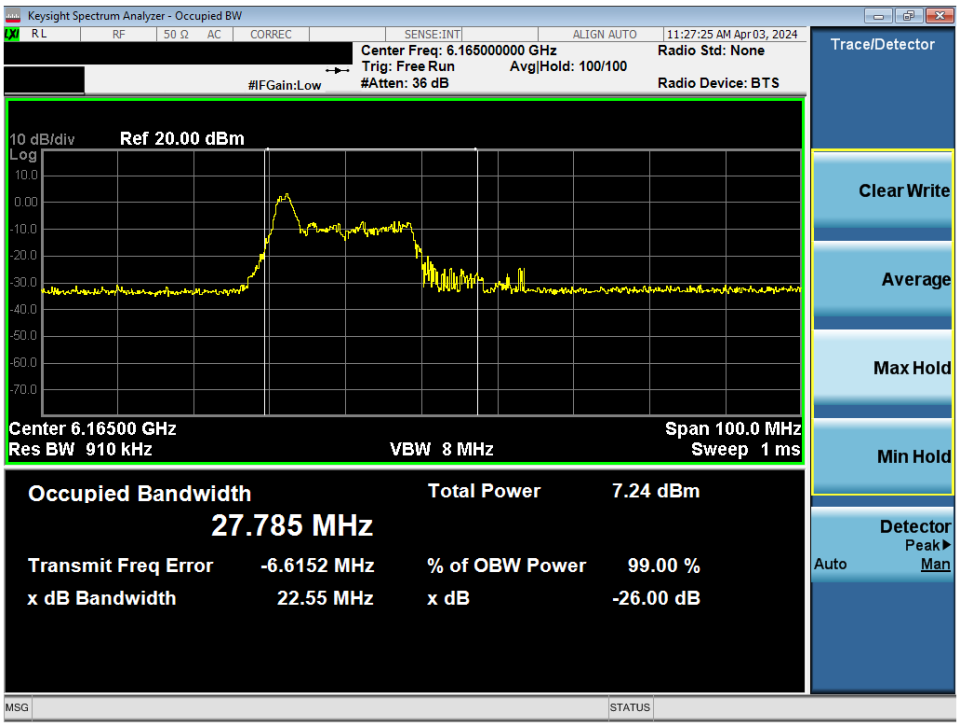


Plot 7-42. Occupied Bandwidth Plot MIMO ANT1 (320MHz BW 802. 11be (Full Tones) (UNII Band 8) – Ch. 191)

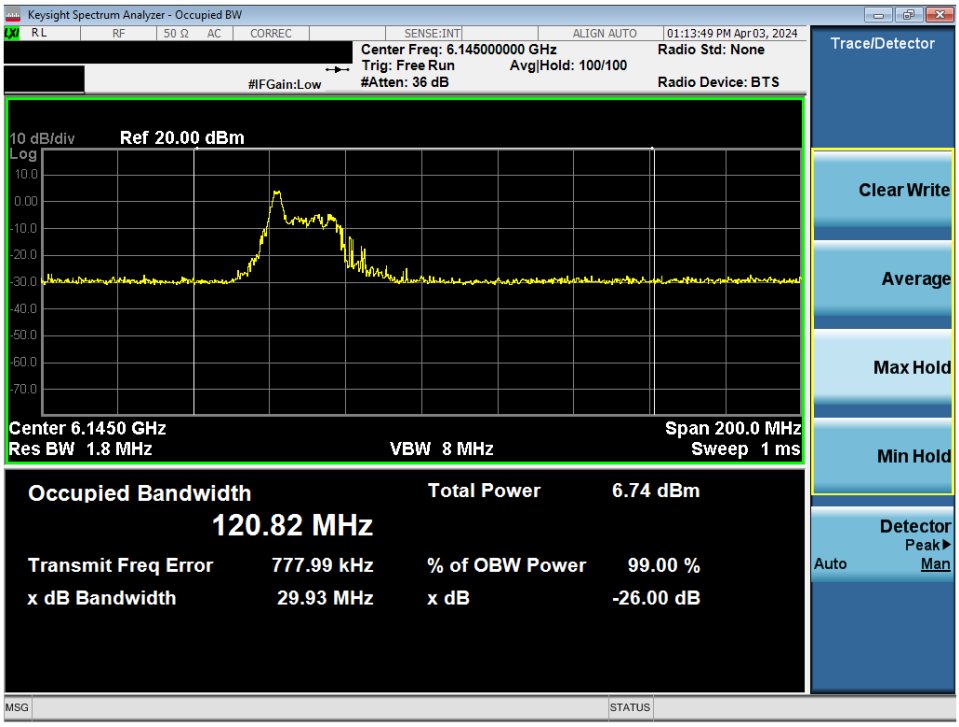
7.2.3 MIMO Antenna-2 Bandwidth Measurements - (Partial Tones)



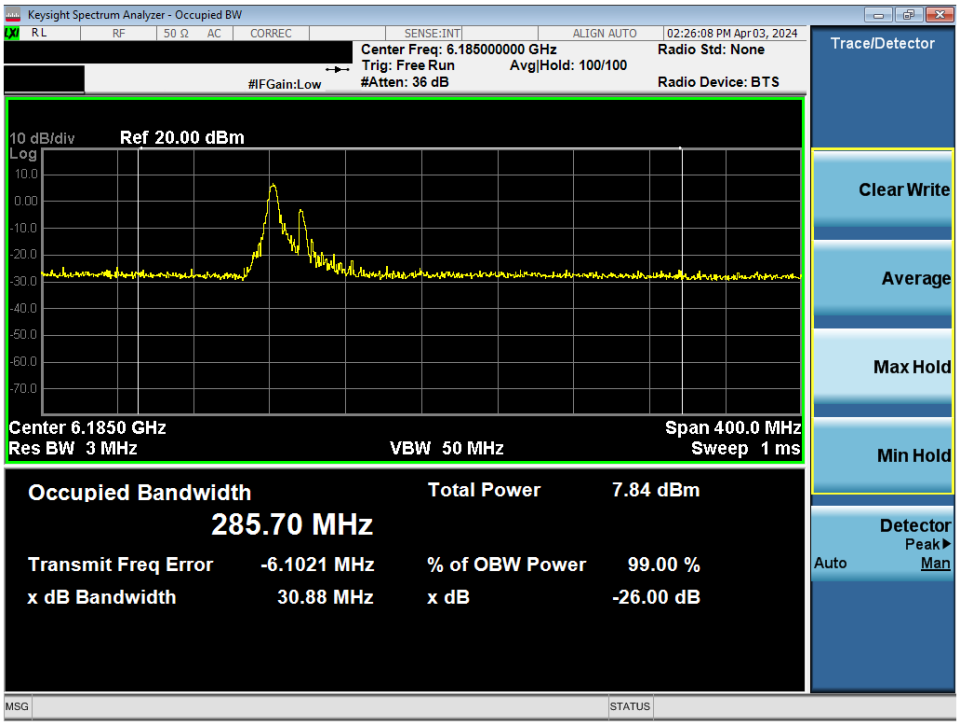
Plot 7-43. Occupied Bandwidth Plot MIMO ANT2 (20MHz BW 802.11be (26 Tones) (UNII Band 5) – Ch. 45)



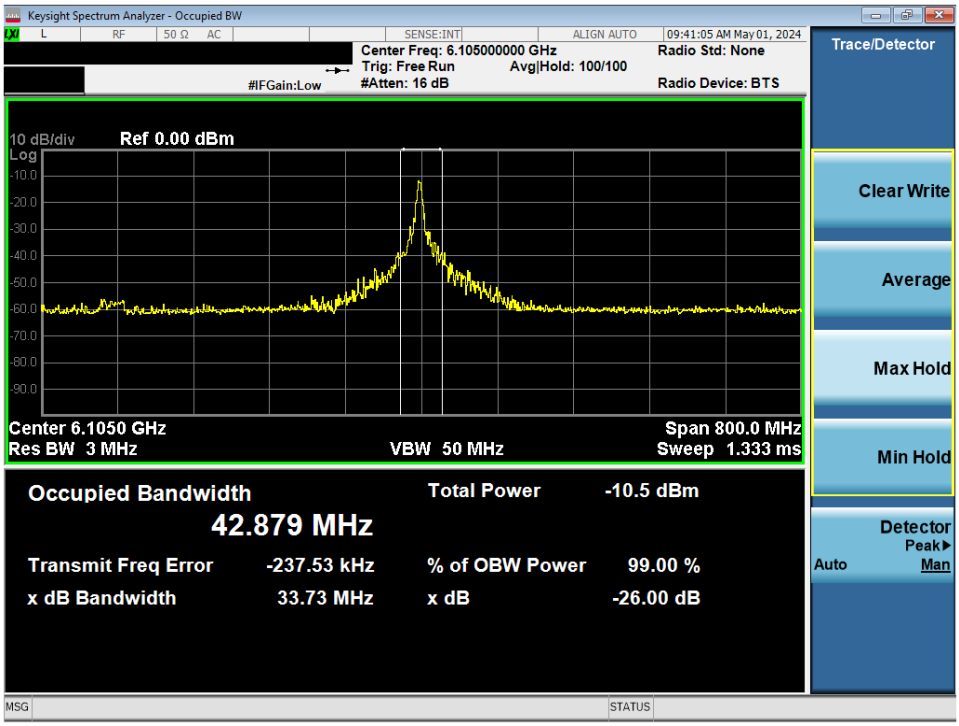
Plot 7-44. Occupied Bandwidth Plot MIMO ANT2 (40MHz BW 802. 11be (26 Tones) (UNII Band 5) – Ch. 43)



Plot 7-45. Occupied Bandwidth Plot MIMO ANT2 (80MHz BW 802. 11be (26 Tones) (UNII Band 5) – Ch. 39)

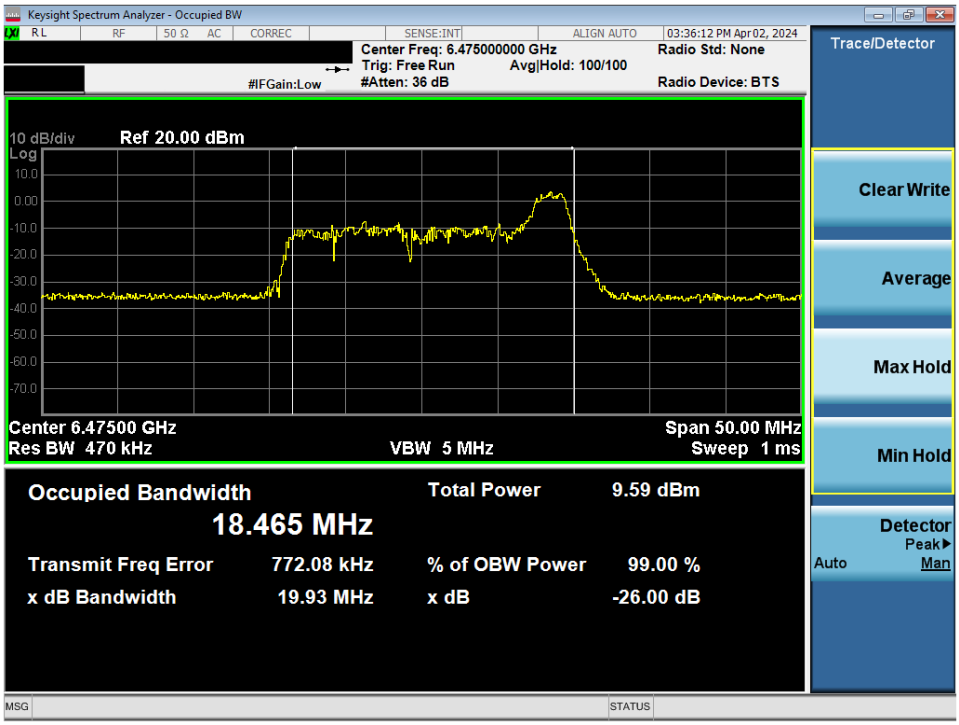


Plot 7-46. Occupied Bandwidth Plot MIMO ANT2 (160MHz BW 802. 11be (26 Tones) (UNII Band 5) – Ch. 47)

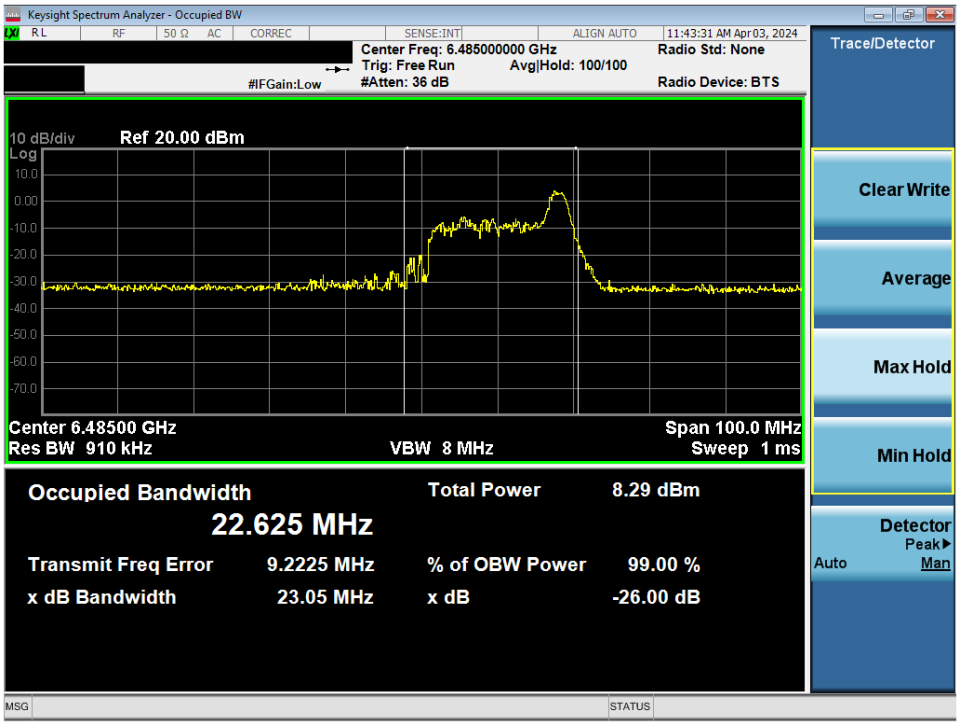


Plot 7-47. Occupied Bandwidth Plot MIMO ANT2 (320MHz BW 802. 11be (26 Tones) (UNII Band 5) – Ch. 31)

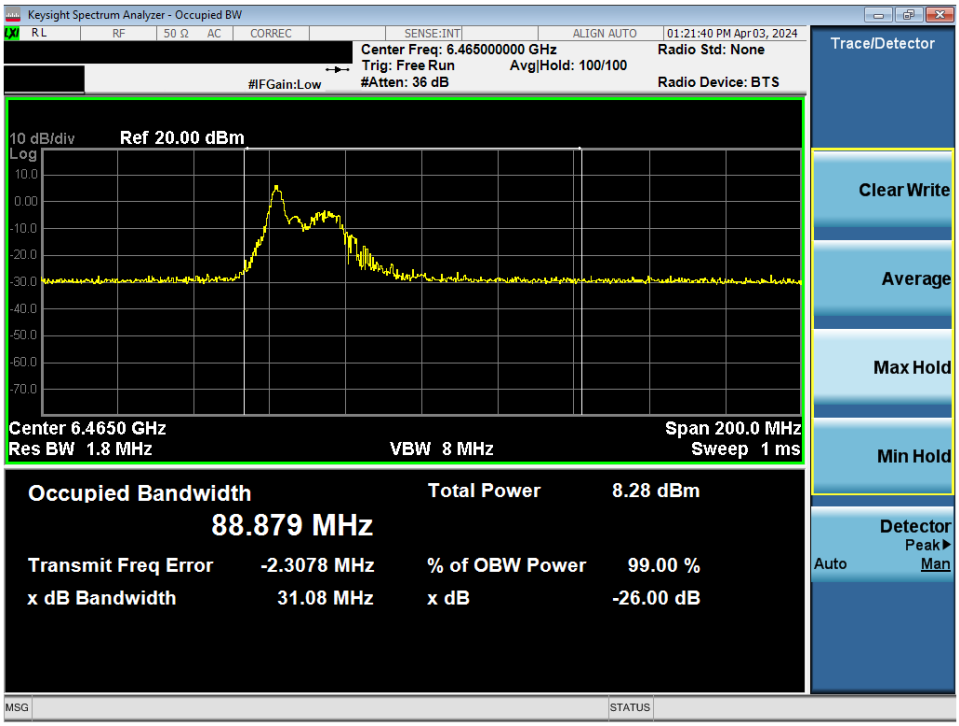
MIMO Antenna-2 Bandwidth Measurements - (Partial Tones)



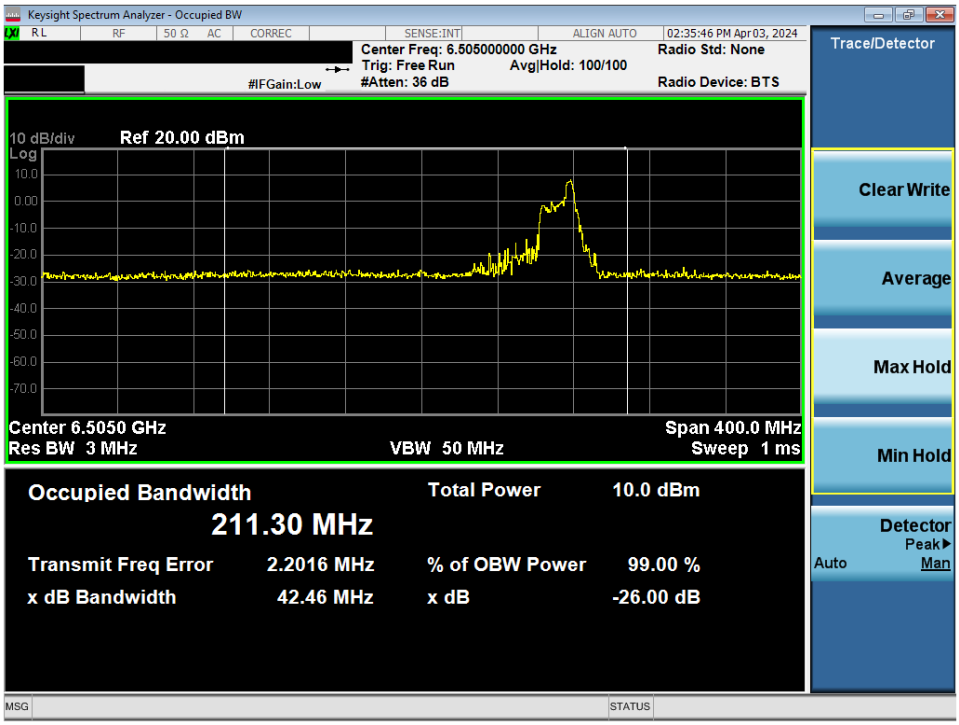
Plot 7-48. Occupied Bandwidth Plot MIMO ANT2 (20MHz BW 802. 11be (26 Tones) (UNII Band 6) – Ch. 105)



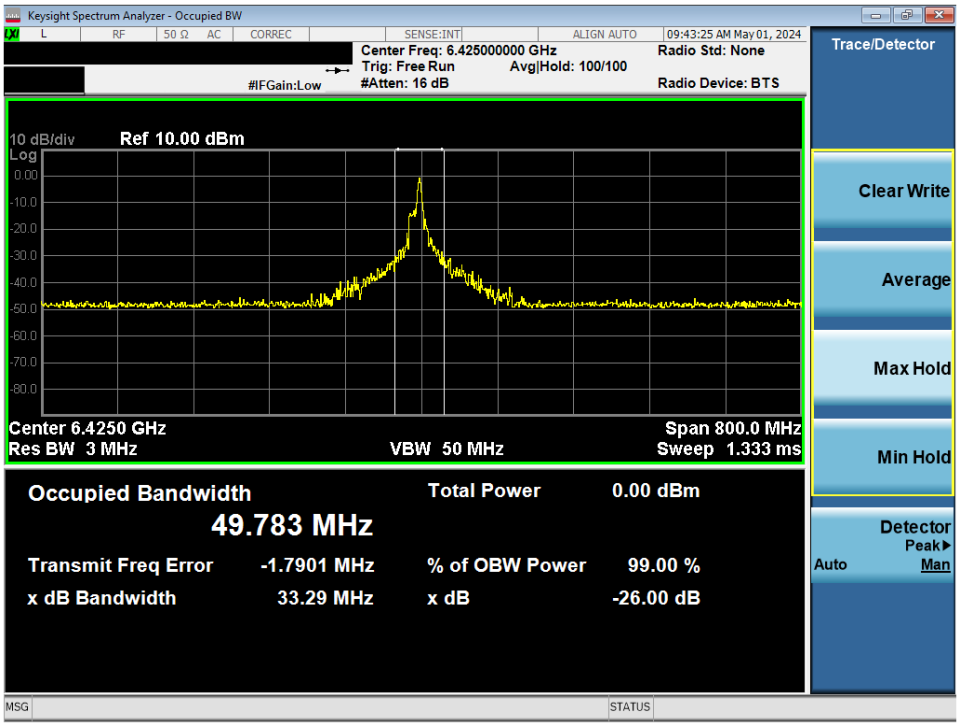
Plot 7-49. Occupied Bandwidth Plot MIMO ANT2 (40MHz BW 802. 11be (26 Tones) (UNII Band 6) – Ch. 107)



Plot 7-50. Occupied Bandwidth Plot MIMO ANT2 (80MHz BW 802. 11be (26 Tones) (UNII Band 6) – Ch. 103)

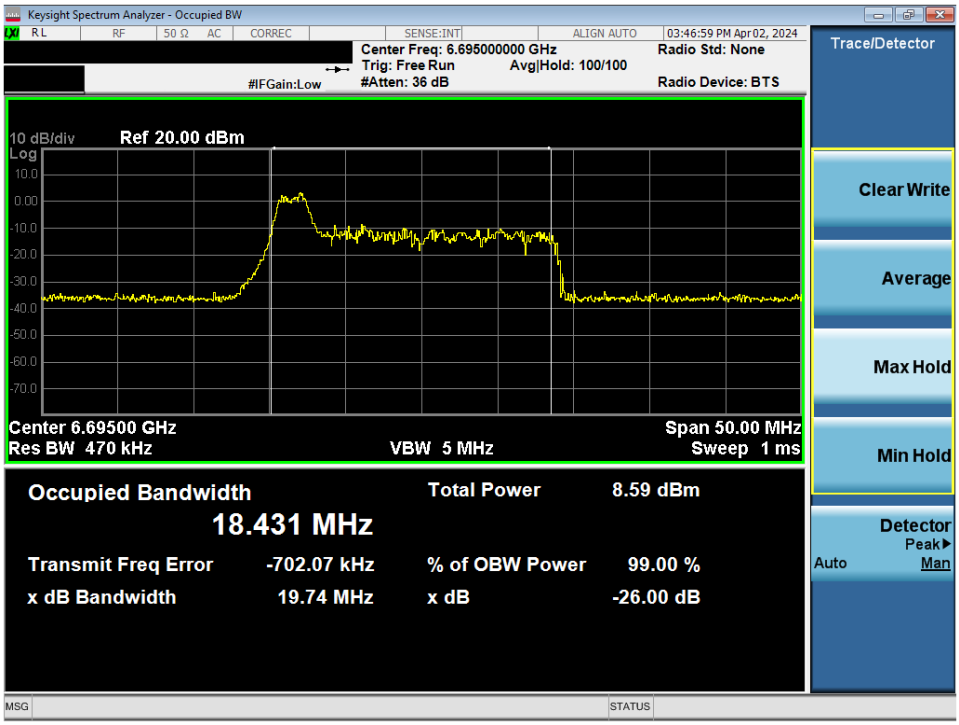


Plot 7-51. Occupied Bandwidth Plot MIMO ANT2 (160MHz BW 802. 11be (26 Tones) (UNII Band 6) – Ch. 111)

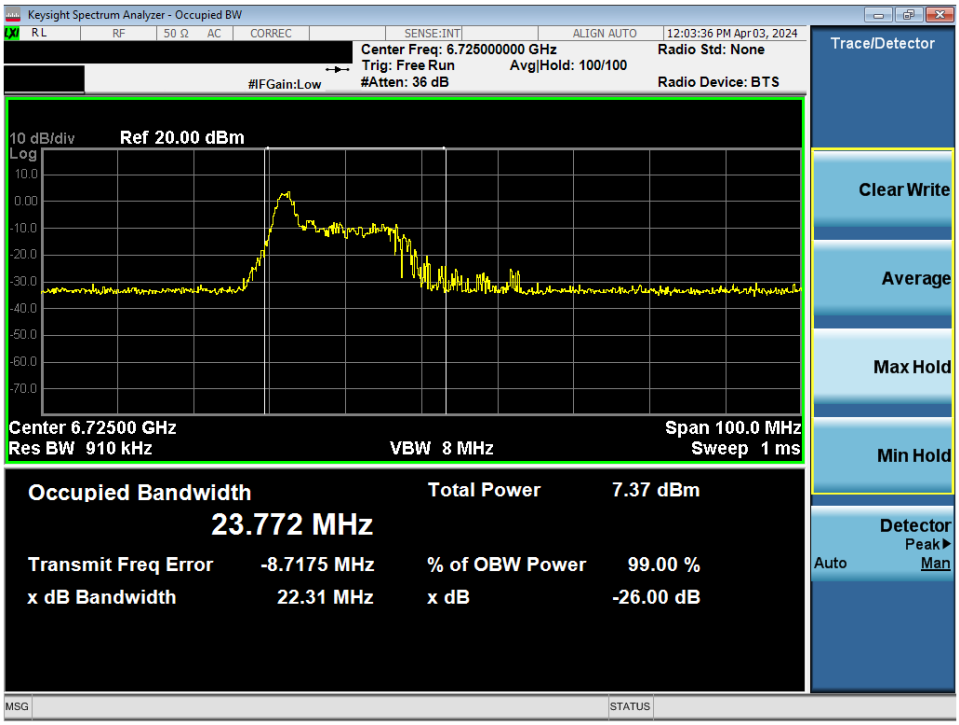


Plot 7-52. Occupied Bandwidth Plot MIMO ANT2 (320MHz BW 802. 11be (26 Tones) (UNII Band 6) – Ch. 95)

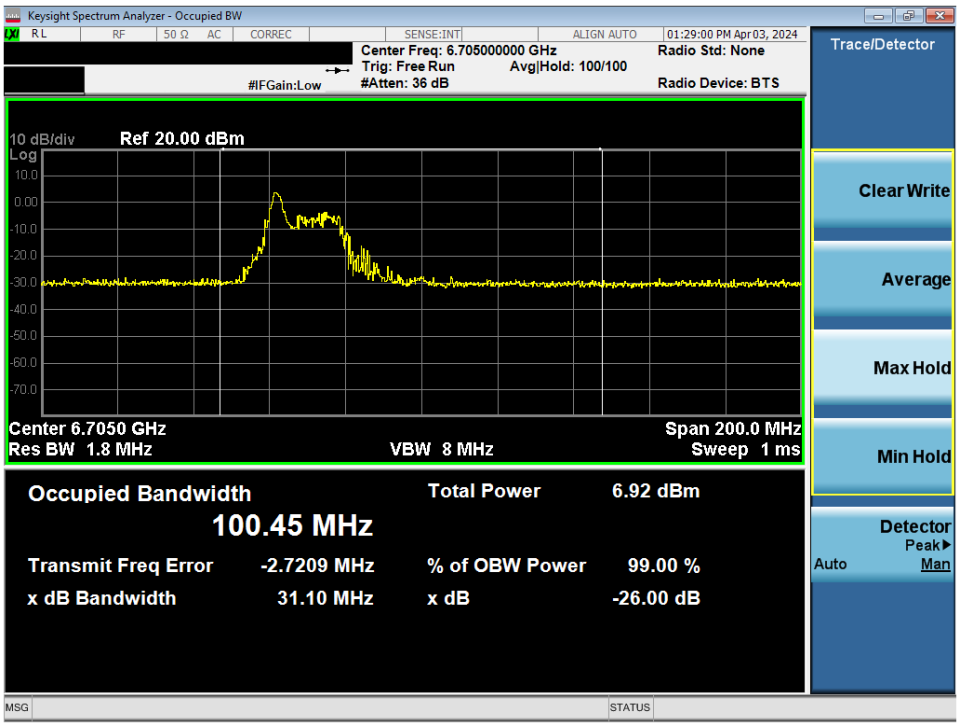
MIMO Antenna-2 Bandwidth Measurements - (Partial Tones)



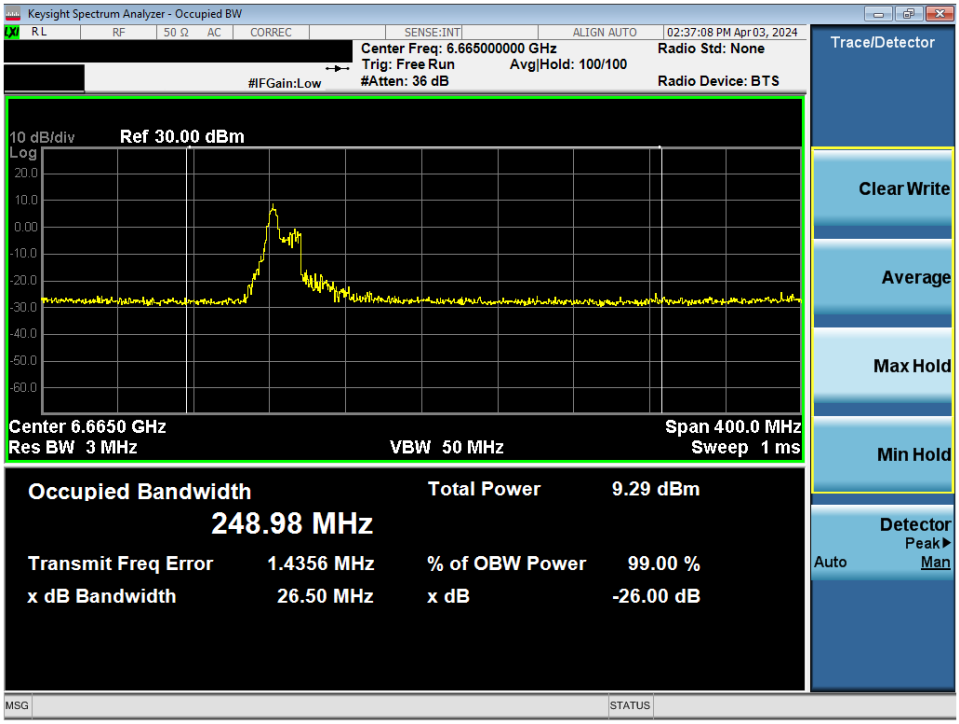
Plot 7-53. Occupied Bandwidth Plot MIMO ANT2 (20MHz BW 802. 11be (26 Tones) (UNII Band 7) – Ch. 149)



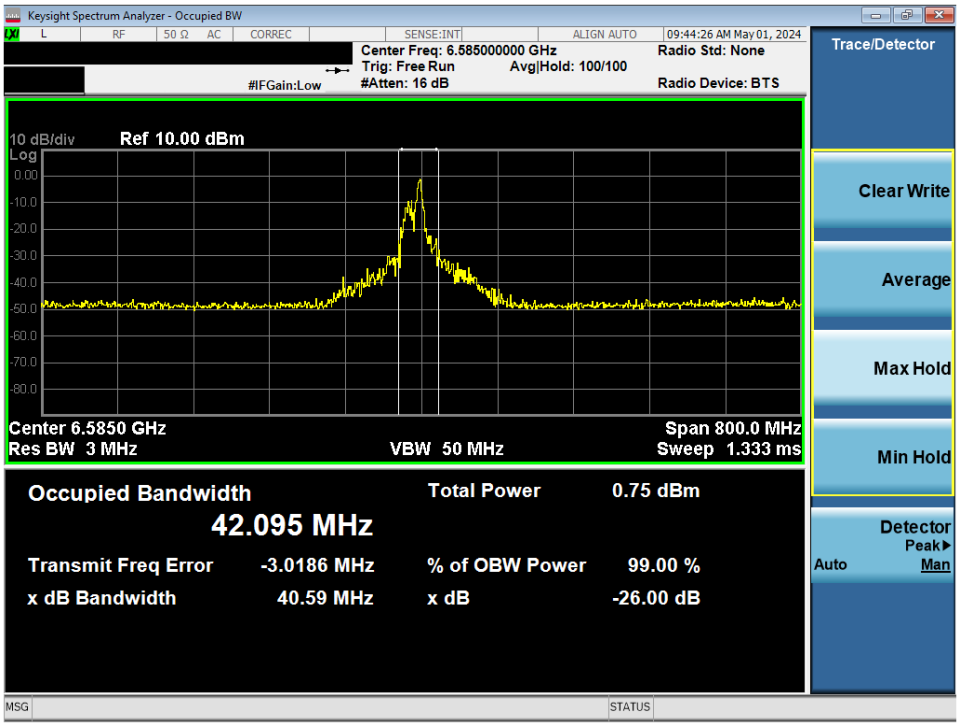
Plot 7-54. Occupied Bandwidth Plot MIMO ANT2 (40MHz BW 802. 11be (26 Tones) (UNII Band 7) – Ch. 155)



Plot 7-55. Occupied Bandwidth Plot MIMO ANT2 (80MHz BW 802. 11be (26 Tones) (UNII Band 7) – Ch. 151)

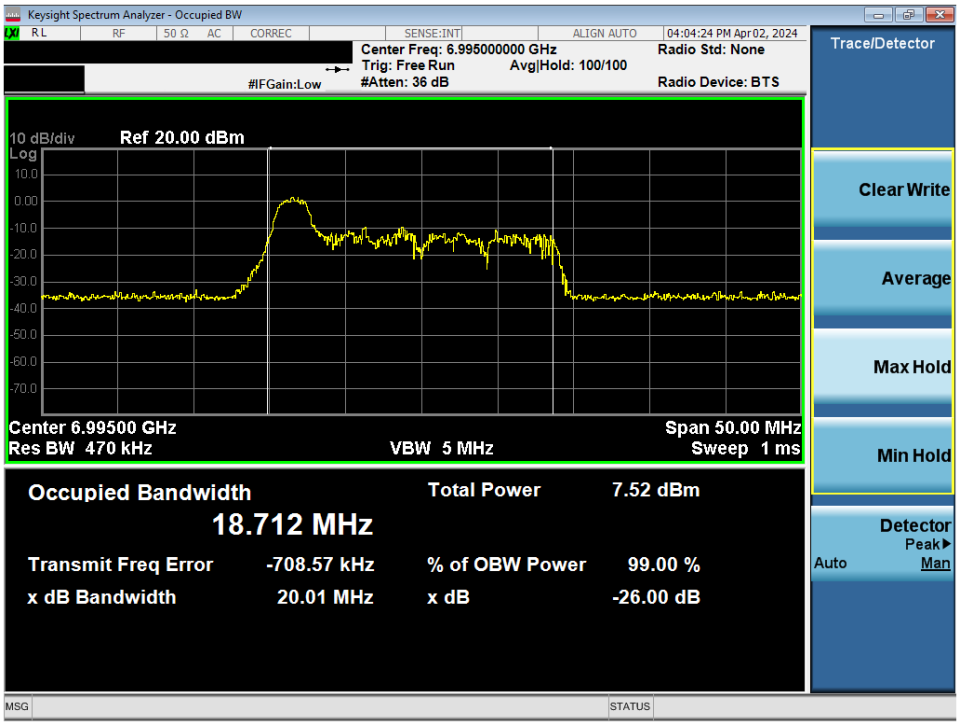


Plot 7-56. Occupied Bandwidth Plot MIMO ANT2 (160MHz BW 802. 11be (26 Tones) (UNII Band 7) – Ch. 143)

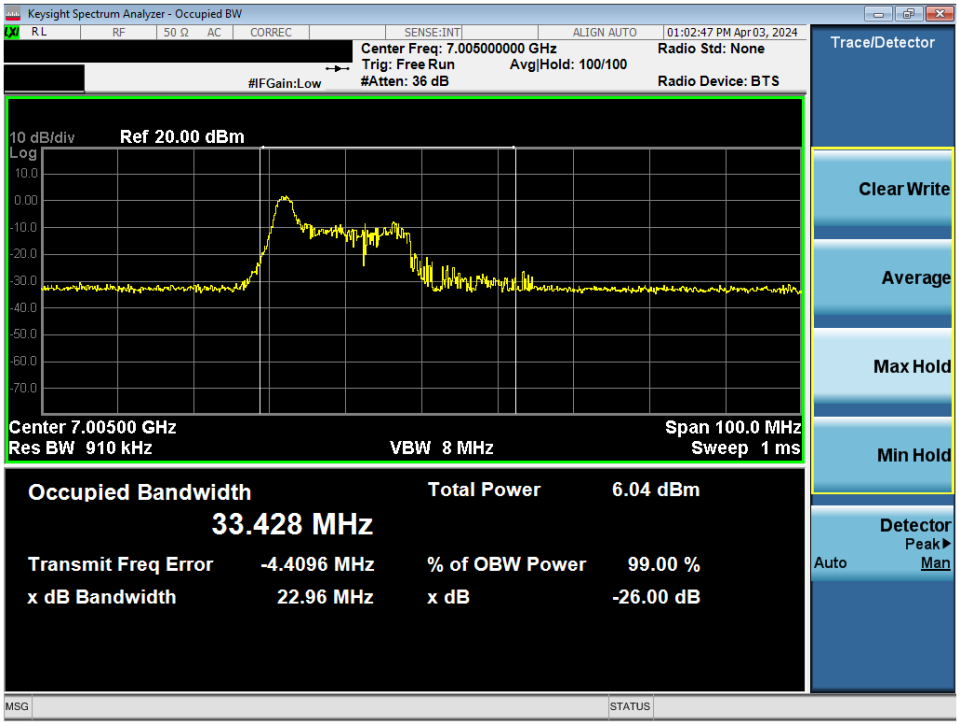


Plot 7-57. Occupied Bandwidth Plot MIMO ANT2 (320MHz BW 802. 11be (26 Tones) (UNII Band 7) – Ch. 127)

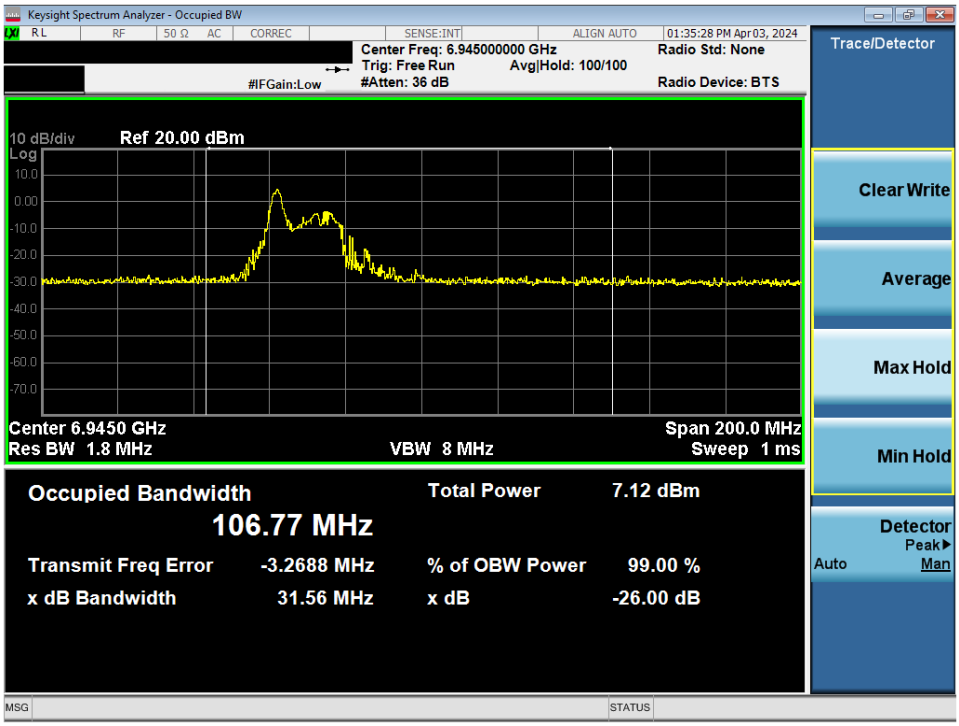
MIMO Antenna-2 Bandwidth Measurements - (Partial Tones)



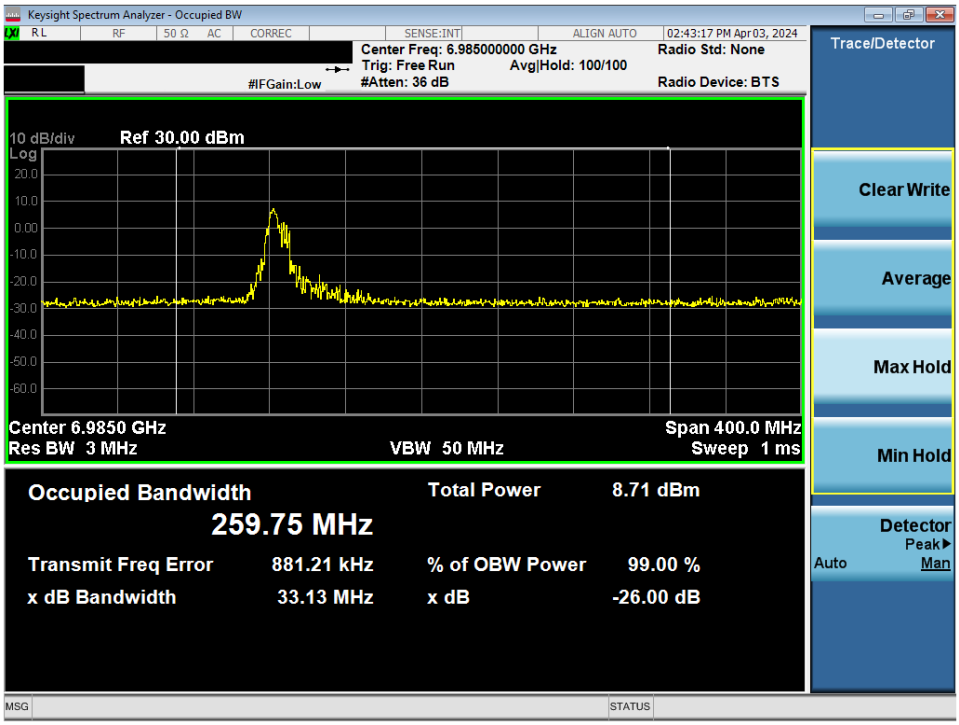
Plot 7-58. Occupied Bandwidth Plot MIMO ANT2 (20MHz BW 802. 11be (26 Tones) (UNII Band 8) – Ch. 209)



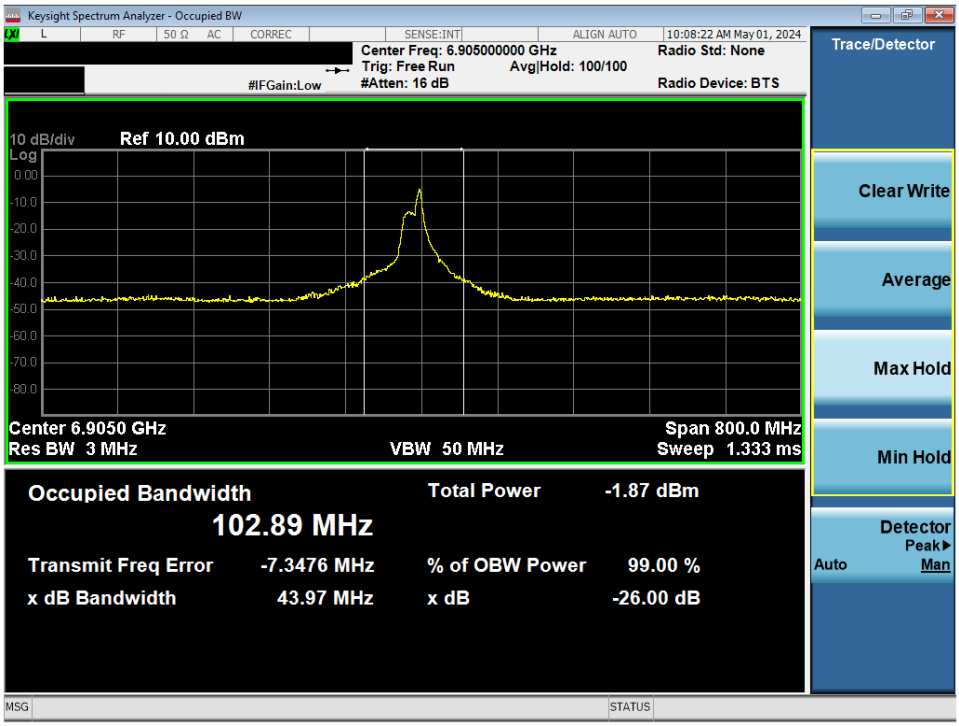
Plot 7-59. Occupied Bandwidth Plot MIMO ANT2 (40MHz BW 802. 11be (26 Tones) (UNII Band 8) – Ch. 211)



Plot 7-60. Occupied Bandwidth Plot MIMO ANT2 (80MHz BW 802. 11be (26 Tones) (UNII Band 8) – Ch. 199)

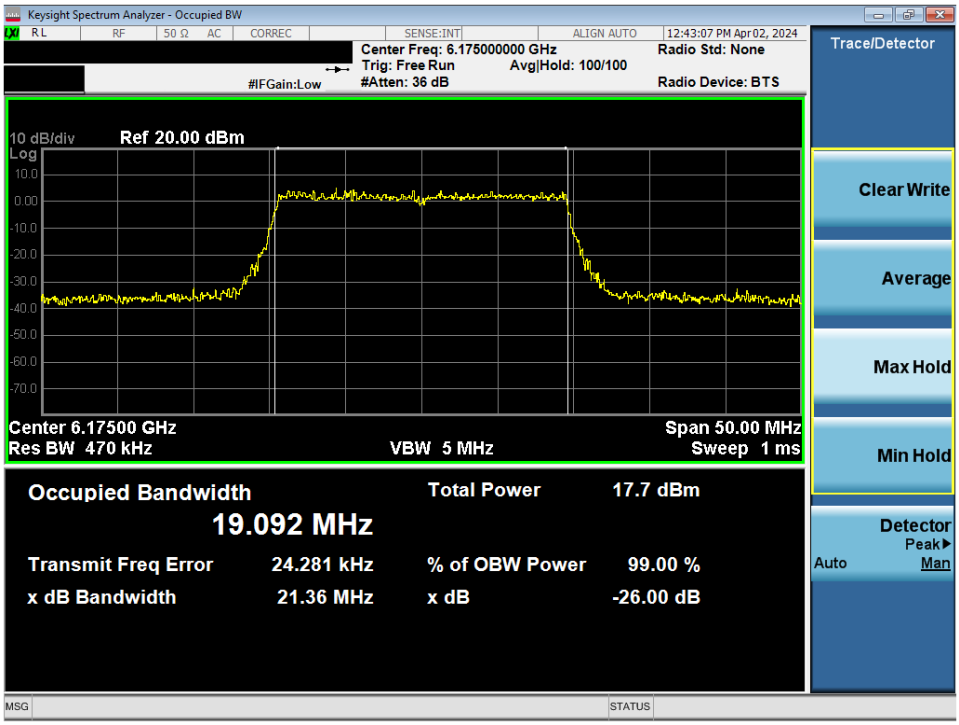


Plot 7-61. Occupied Bandwidth Plot MIMO ANT2 (160MHz BW 802. 11be (26 Tones) (UNII Band 8) – Ch. 207)

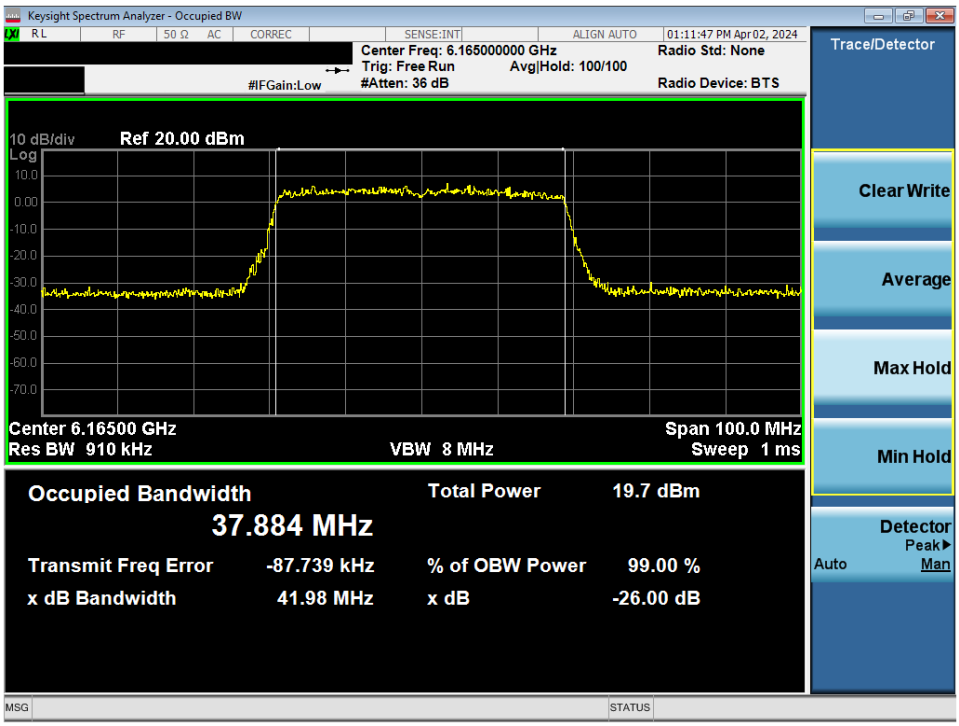


Plot 7-62. Occupied Bandwidth Plot MIMO ANT2 (320MHz BW 802. 11be (26 Tones) (UNII Band 8) – Ch. 191)

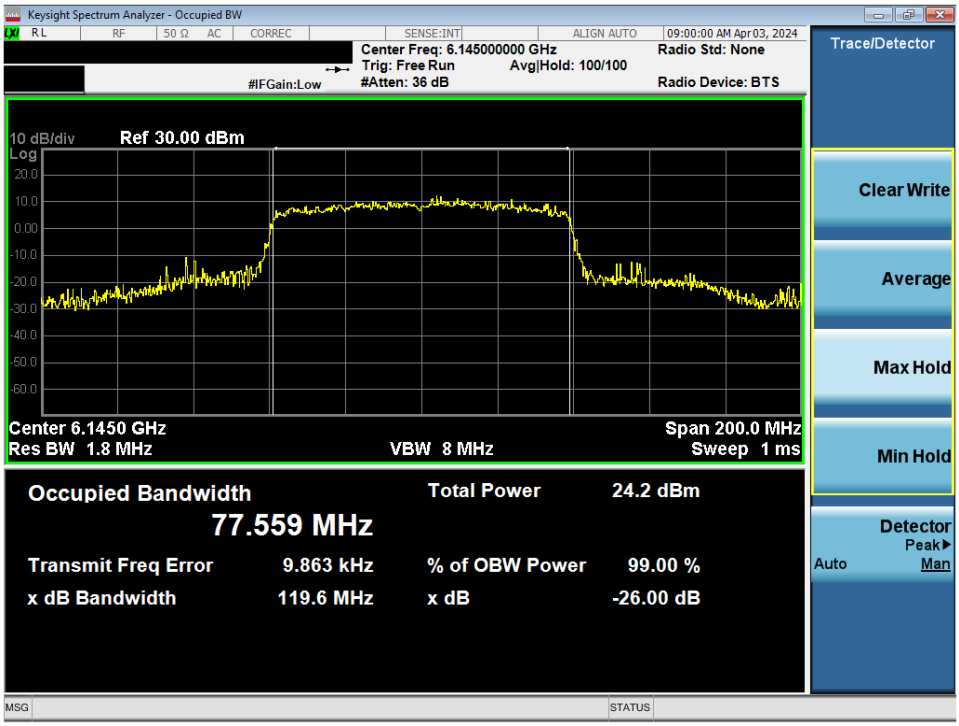
7.2.4 MIMO Antenna-2 Bandwidth Measurements - (Full Tones)



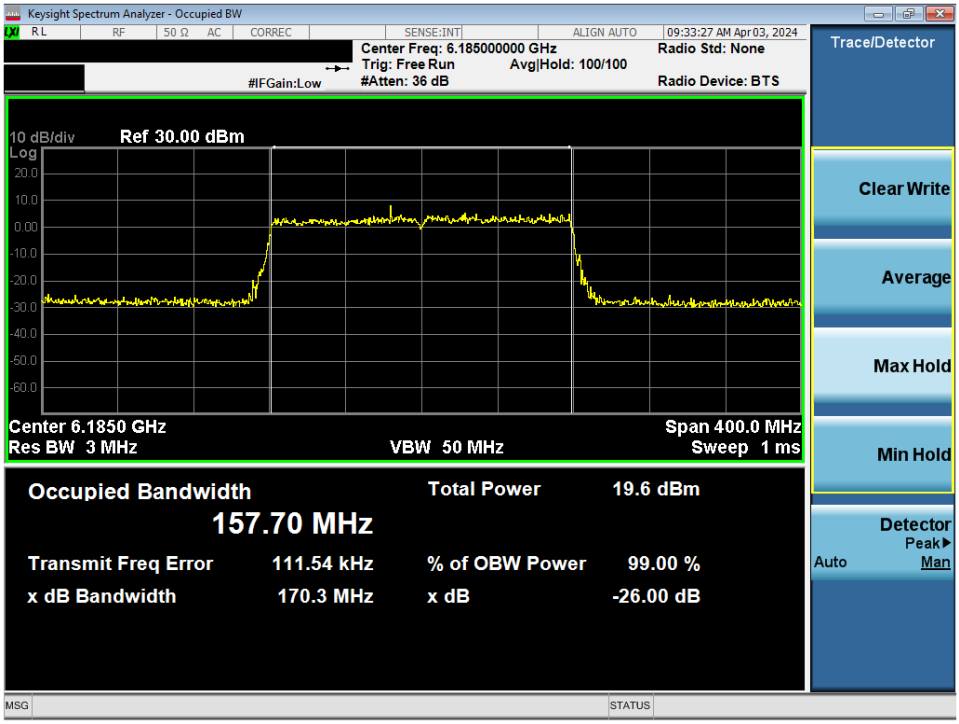
Plot 7-63. Occupied Bandwidth Plot MIMO ANT2 (20MHz BW 802. 11be (Full Tone) (UNII Band 5) – Ch. 45)



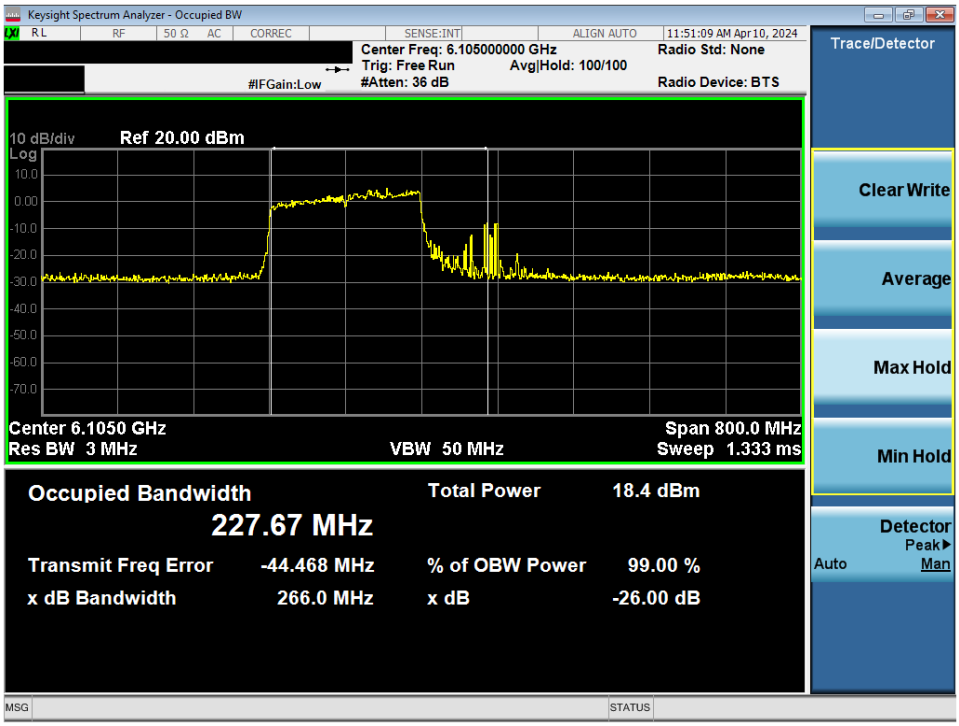
Plot 7-64. Occupied Bandwidth Plot MIMO ANT2 (40MHz BW 802. 11be (Full Tone) (UNII Band 5) – Ch. 43)



Plot 7-65. Occupied Bandwidth Plot MIMO ANT2 (80MHz BW 802. 11be (Full Tone) (UNII Band 5) – Ch. 39)

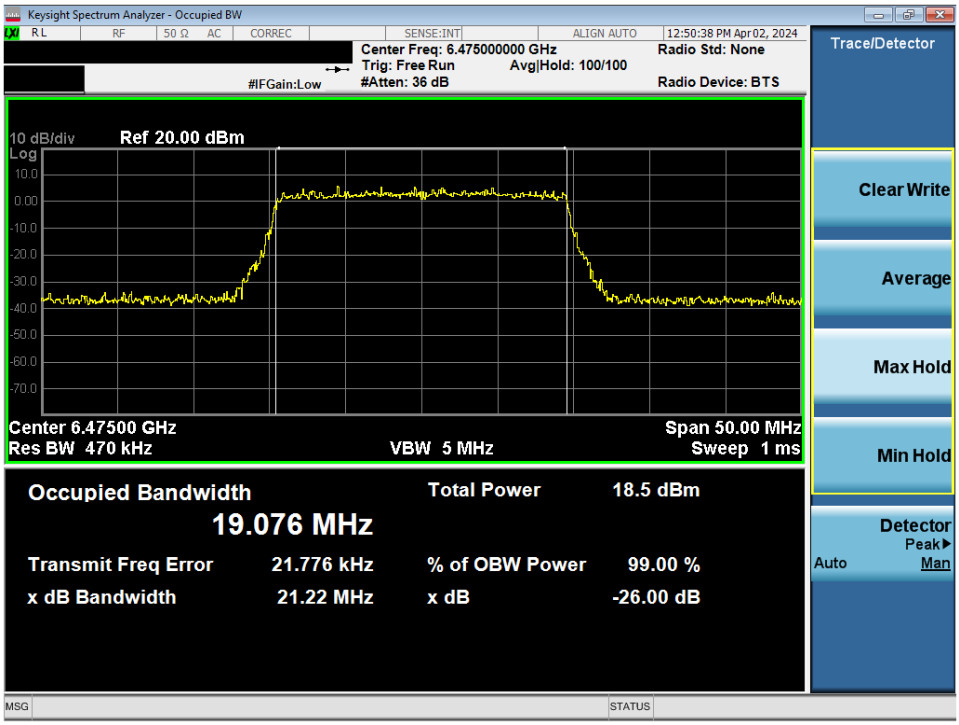


Plot 7-66. Occupied Bandwidth Plot MIMO ANT2 (160MHz BW 802. 11be (Full Tone) (UNII Band 5) – Ch. 47)

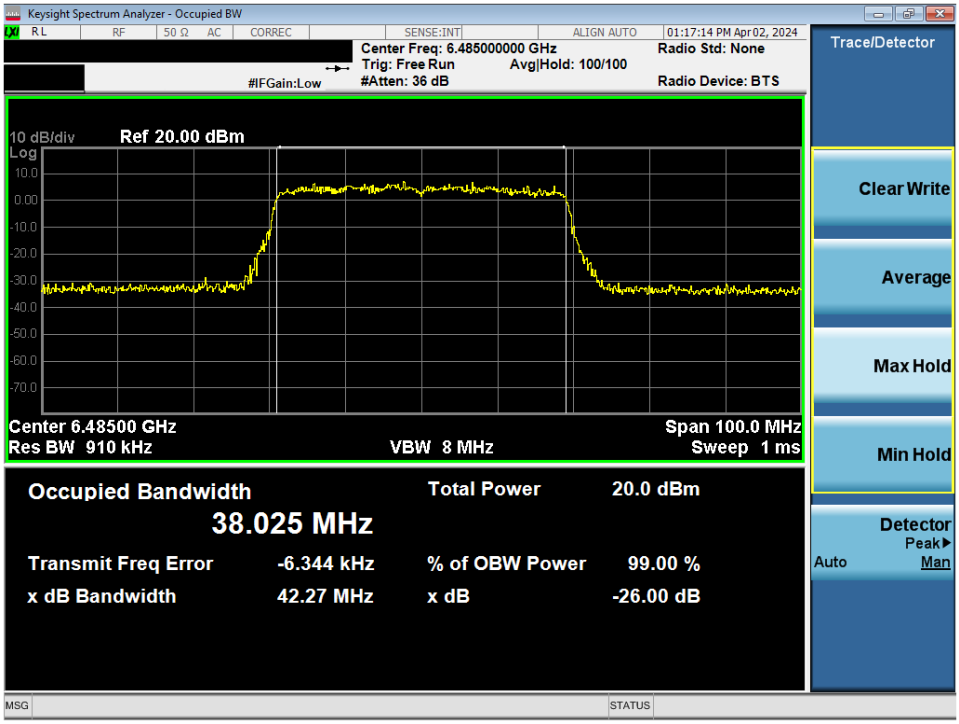


Plot 7-67. Occupied Bandwidth Plot MIMO ANT2 (320MHz BW 802. 11be (Full Tones) (UNII Band 5) – Ch. 31)

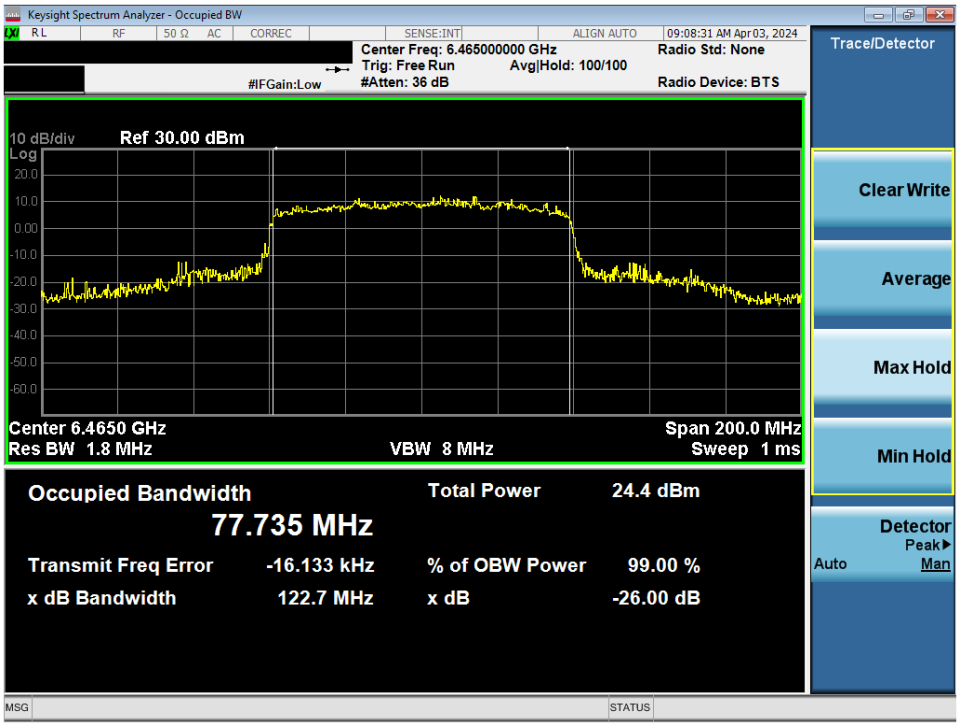
MIMO Antenna-2 Bandwidth Measurements - (Full Tones)



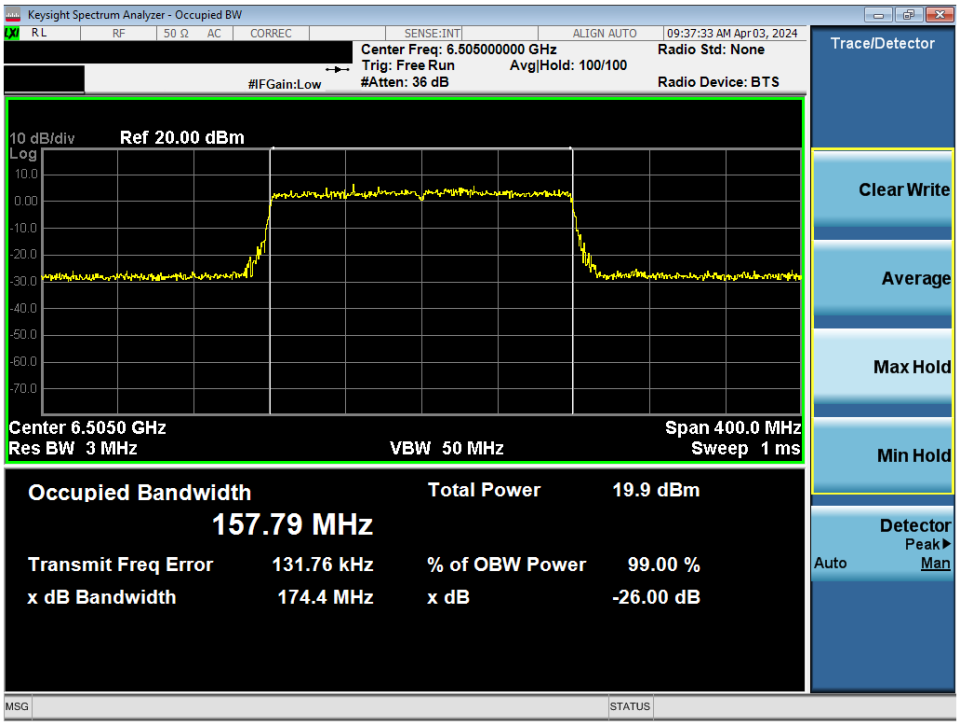
Plot 7-68. Occupied Bandwidth Plot MIMO ANT2 (20MHz BW 802. 11be (Full Tone) (UNII Band 6) – Ch. 105)



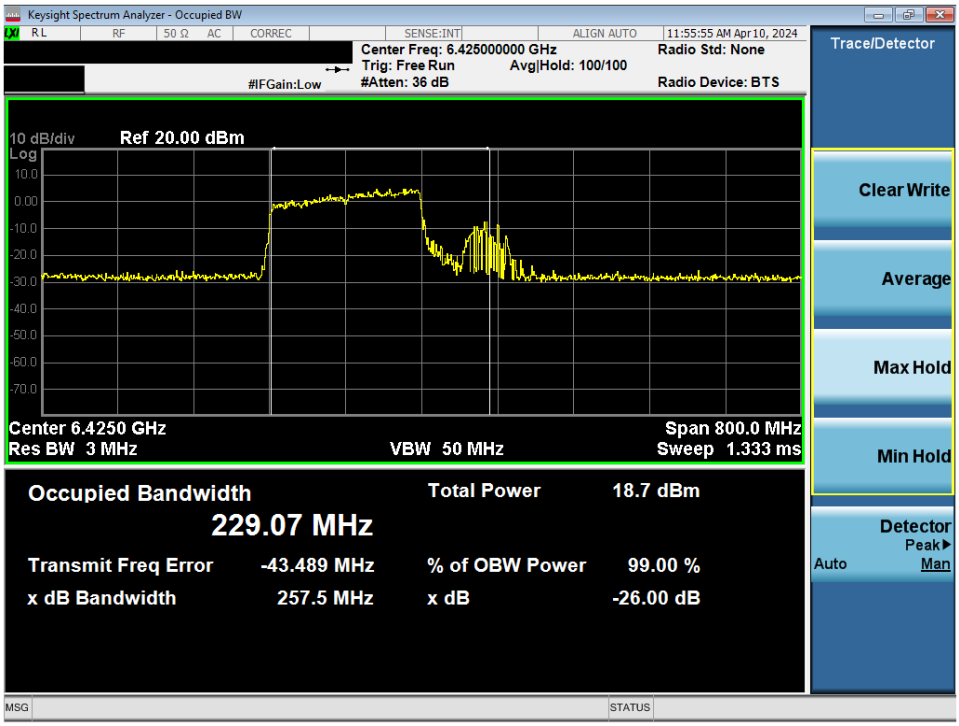
Plot 7-69. Occupied Bandwidth Plot MIMO ANT2 (40MHz BW 802. 11be (Full Tone) (UNII Band 6) – Ch. 107)



Plot 7-70. Occupied Bandwidth Plot MIMO ANT2 (80MHz BW 802. 11be (Full Tone) (UNII Band 6) – Ch. 103)

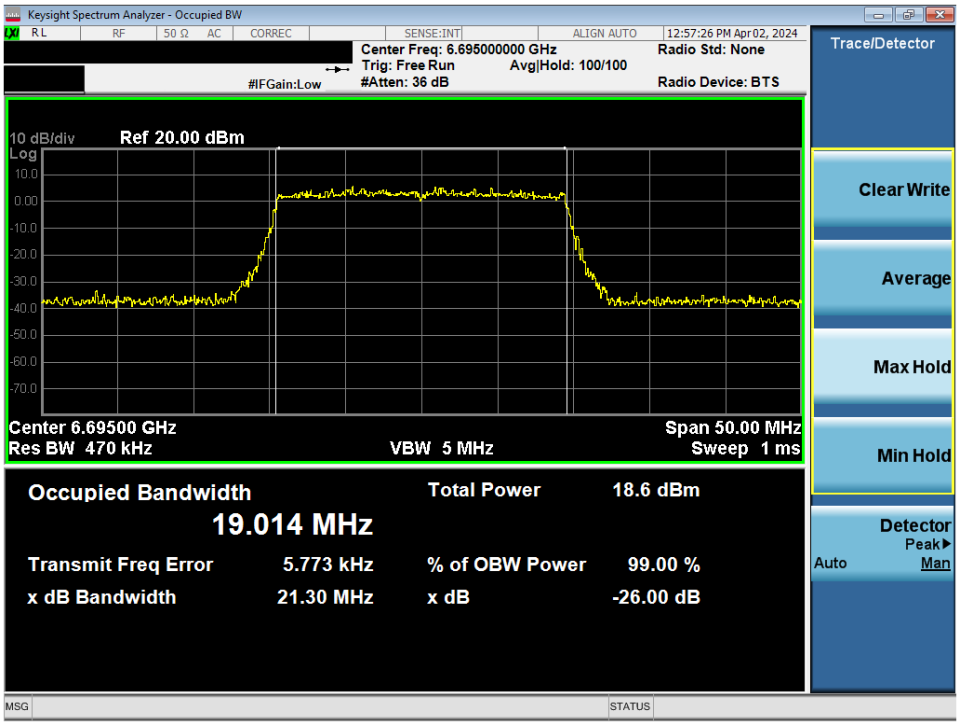


Plot 7-71. Occupied Bandwidth Plot MIMO ANT2 (160MHz BW 802. 11be (Full Tone) (UNII Band 6) – Ch. 111)

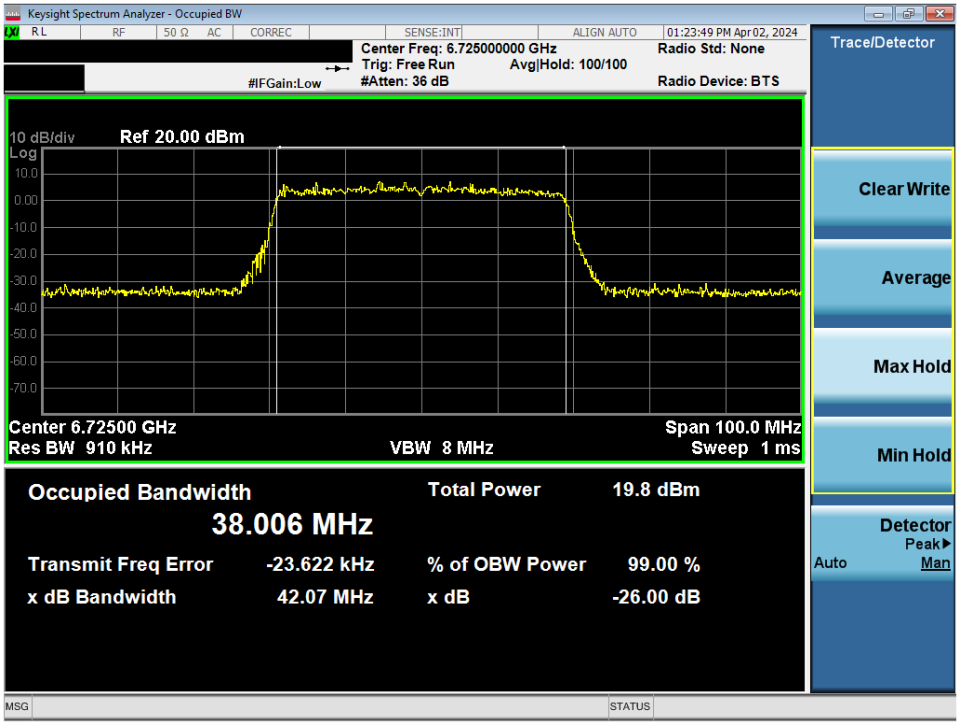


Plot 7-72. Occupied Bandwidth Plot MIMO ANT2 (320MHz BW 802. 11be (Full Tones) (UNII Band 6) – Ch. 95)

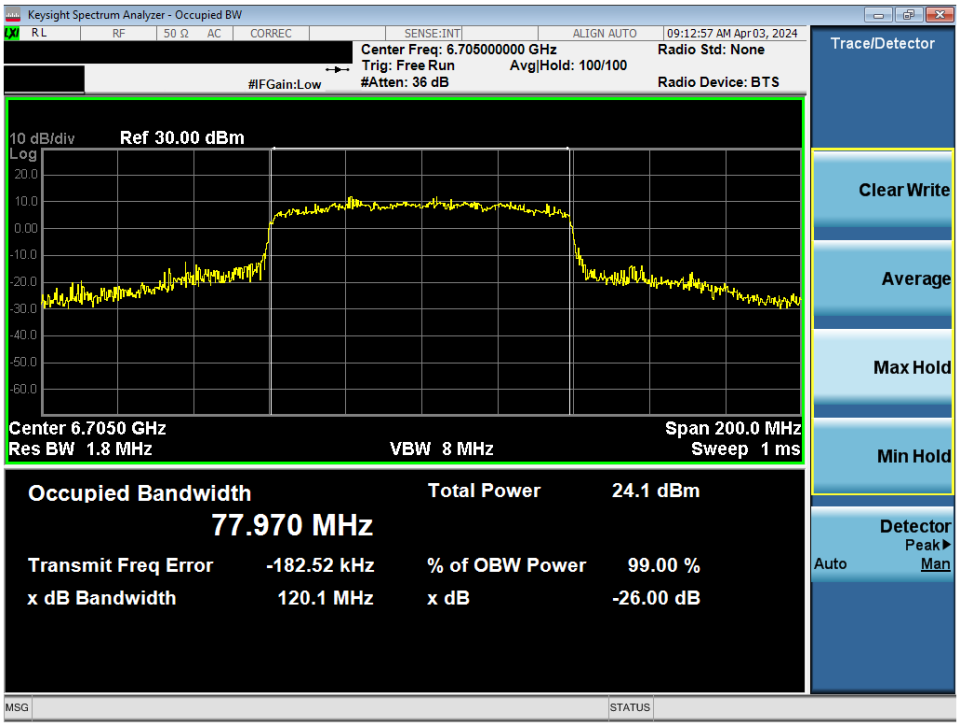
MIMO Antenna-2 Bandwidth Measurements - (Full Tones)



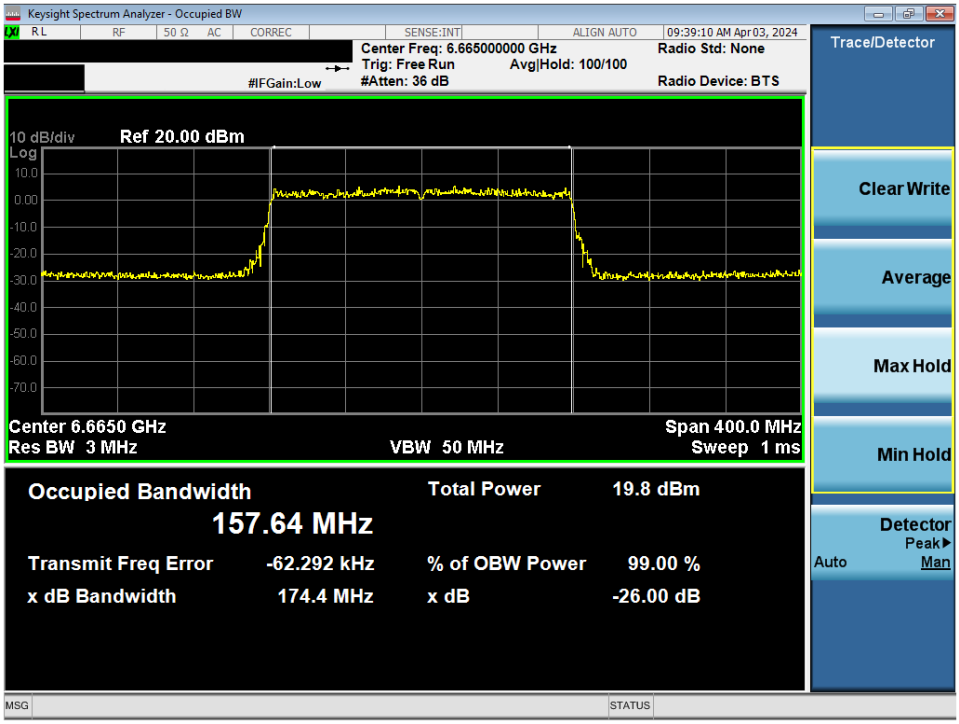
Plot 7-73. Occupied Bandwidth Plot MIMO ANT2 (20MHz BW 802. 11be (Full Tone) (UNII Band 7) – Ch. 149)



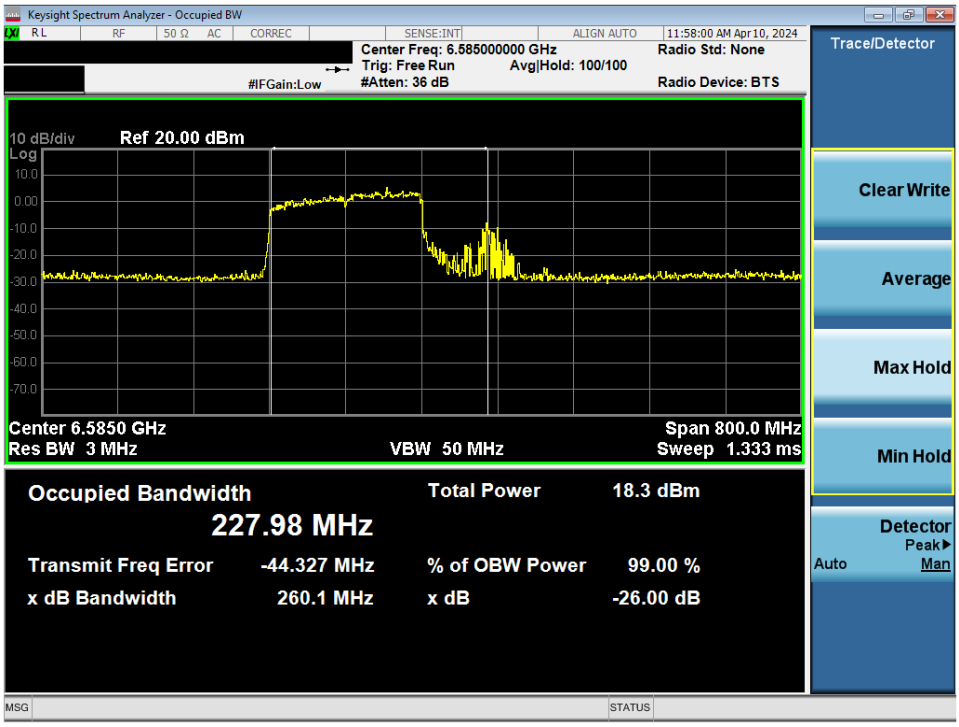
Plot 7-74. Occupied Bandwidth Plot MIMO ANT2 (40MHz BW 802. 11be (Full Tone) (UNII Band 7) – Ch. 155)



Plot 7-75. Occupied Bandwidth Plot MIMO ANT2 (80MHz BW 802. 11be (Full Tone) (UNII Band 7) – Ch. 151)

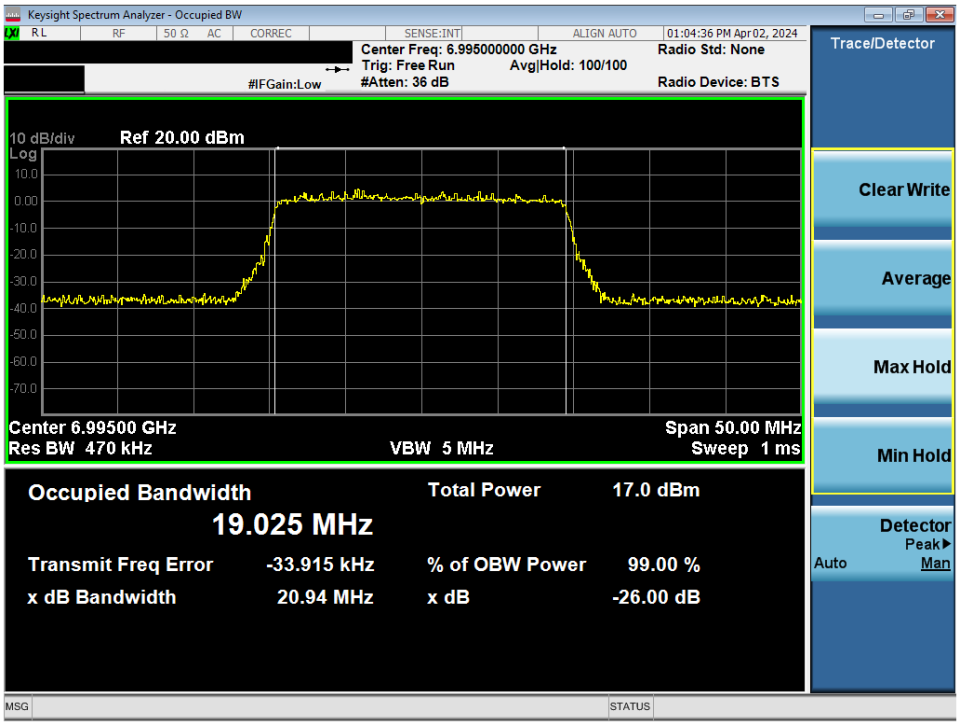


Plot 7-76. Occupied Bandwidth Plot MIMO ANT2 (160MHz BW 802. 11be (Full Tone) (UNII Band 7) – Ch. 143)

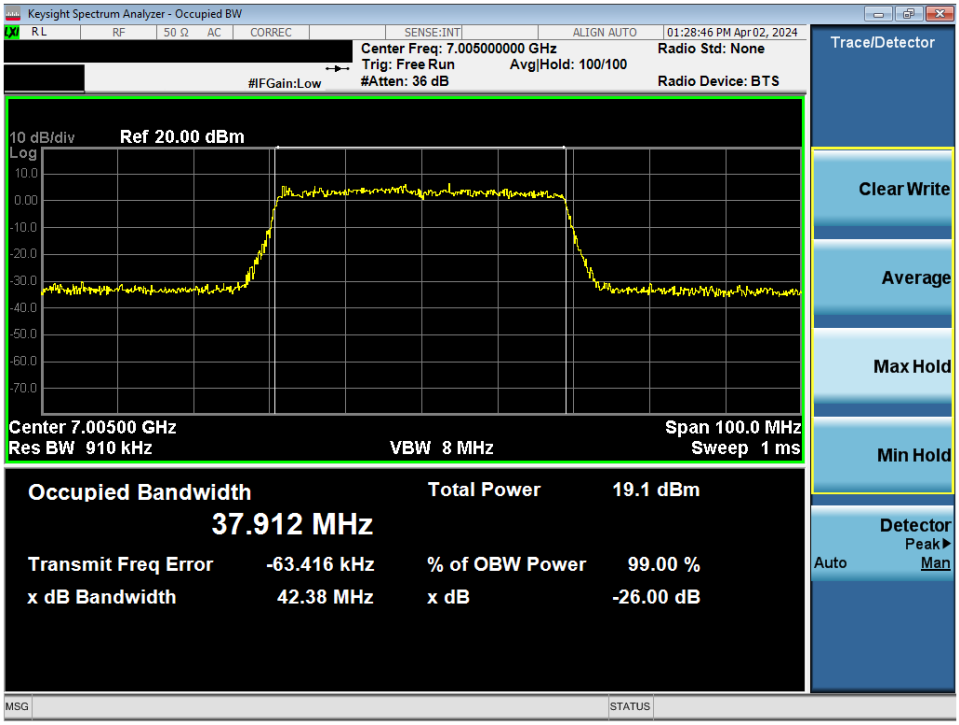


Plot 7-77. Occupied Bandwidth Plot MIMO ANT2 (320MHz BW 802. 11be (Full Tone) (UNII Band 7) – Ch. 127)

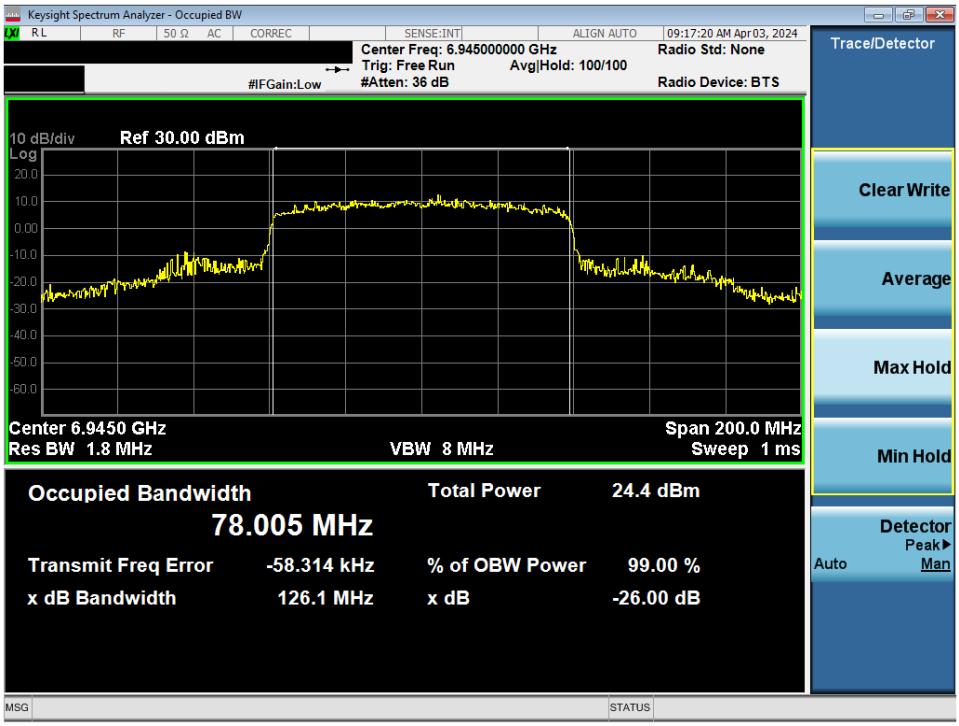
MIMO Antenna-2 Bandwidth Measurements - (Full Tones)



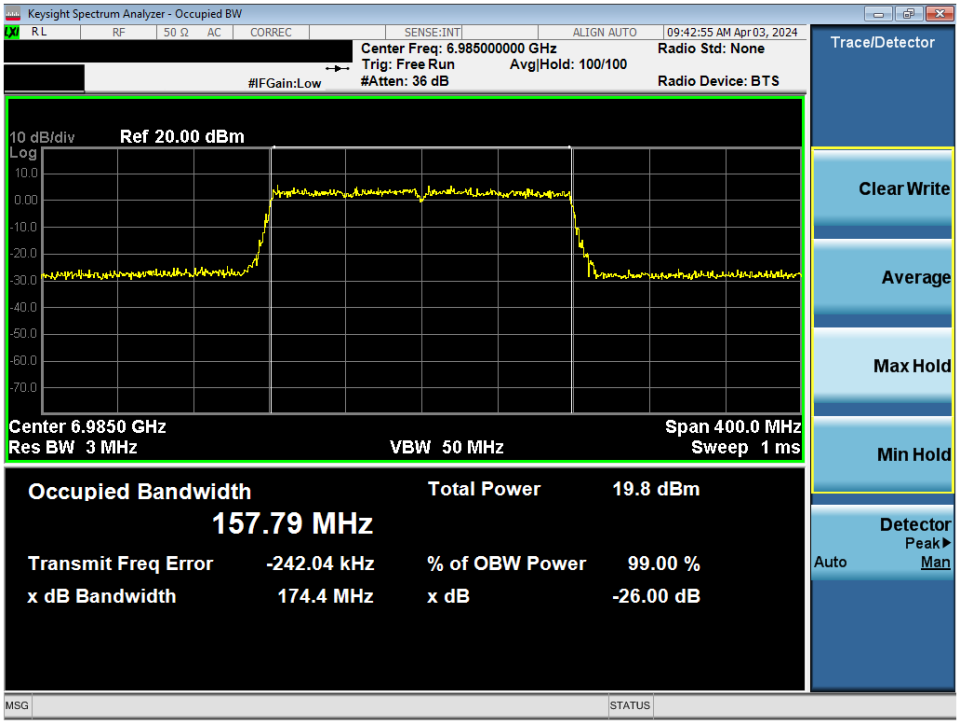
Plot 7-78. Occupied Bandwidth Plot MIMO ANT2 (20MHz BW 802. 11be (Full Tone) (UNII Band 8) – Ch. 209)



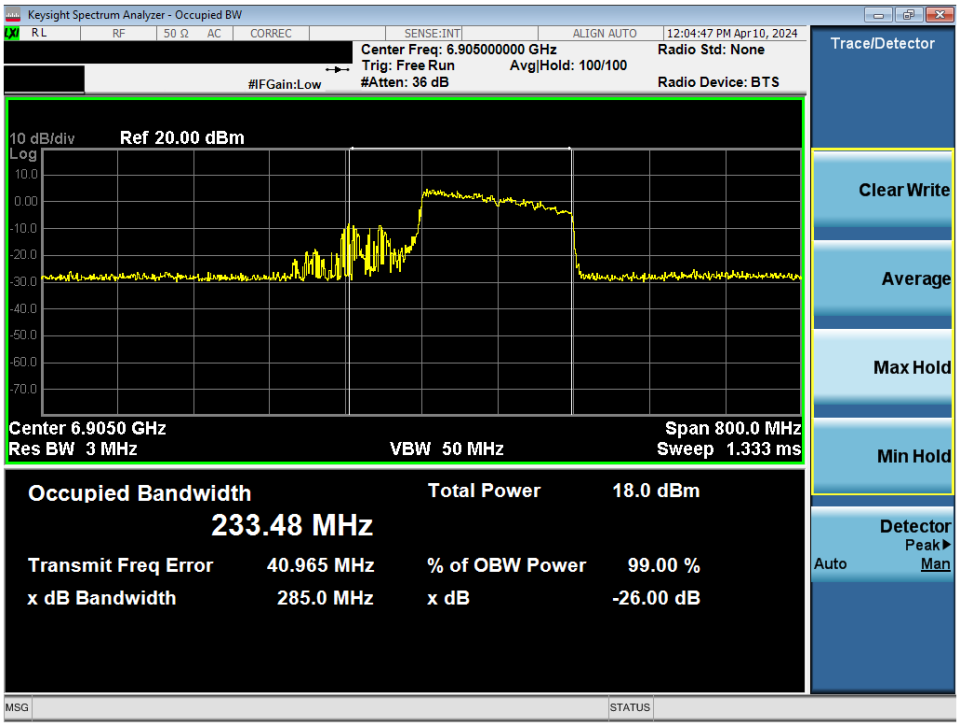
Plot 7-79. Occupied Bandwidth Plot MIMO ANT2 (40MHz BW 802. 11be (Full Tone) (UNII Band 8) – Ch. 211)



Plot 7-80. Occupied Bandwidth Plot MIMO ANT2 (80MHz BW 802. 11be (Full Tone) (UNII Band 8) – Ch. 199)



Plot 7-81. Occupied Bandwidth Plot MIMO ANT2 (160MHz BW 802. 11be (Full Tone) (UNII Band 8) – Ch. 207)



Plot 7-82. Occupied Bandwidth Plot MIMO ANT2 (320MHz BW 802. 11be (Full Tones) (UNII Band 8) – Ch. 191)

7.3 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.

For client devices operating under the control of an indoor access point in the 5.925-7.125 GHz bands, the maximum e.i.r.p. over the frequency band of operation must not exceed 24 dBm. For client devices operating under the control of a standard power access point, the maximum e.i.r.p. over the frequency band of operation must not exceed 30 dBm and the device must limit its power to no more than 6 dB below its associated standard power access point's authorized transmit power.

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 7-2. Test Instrument & Measurement Setup

Test Notes

Compliance for this device while operating under the control of either an indoor low power access point or a standard power access point is demonstrated by applying either the low power indoor access point limit of 24dBm e.i.r.p. or the standard power access point limit of 30dBm e.i.r.p. as shown in the tables.

MIMO Maximum Conducted Output Power Measurements – LPI/SP

	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)									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			4			8						
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
20MHz BW	5	5935	2	26T	-3.70	-3.36	-0.52	-3.35	-3.55	-0.44	-4.4	-3.60	-0.98	-0.61	-1.1	24.0	-25.05
		6175	45	26T	-1.93	-1.75	1.17	-1.97	-1.75	1.15	-1.93	-1.75	1.17	-0.61	0.6	24.0	-23.44
		6415	93	26T	-1.12	-2.23	1.37	-1.12	-2.25	1.36	-1.12	-2.24	1.37	-0.61	0.8	24.0	-23.24
	6	6435	97	26T	-1.33	-2.15	1.29	-1.33	-2.14	1.29	-1.34	-2.13	1.29	-0.10	1.2	24.0	-22.81
		6475	105	26T	-1.57	-2.51	1.00	-1.55	-2.52	1.00	-1.12	-2.04	1.45	-0.10	1.4	24.0	-22.65
		6515	113	26T	-1.46	-2.51	1.06	-1.45	-2.50	1.07	-1.44	-2.52	1.06	-0.10	1.0	24.0	-23.04
	7	6535	117	26T	-1.30	-2.41	1.19	-1.30	-2.41	1.19	-1.29	-2.40	1.20	-0.74	0.5	24.0	-23.54
		6695	149	26T	-1.20	-2.44	1.23	-1.23	-2.47	1.20	-1.24	-2.41	1.22	-0.74	0.5	24.0	-23.50
		6875	185	26T	-1.81	-1.64	1.29	-1.82	-1.66	1.27	-1.83	-1.68	1.26	-0.74	0.5	24.0	-23.45
	8	6895	189	26T	-1.98	-1.89	1.08	-1.99	-1.89	1.07	-2.00	-1.88	1.07	-1.28	-0.2	24.0	-24.21
		6995	209	26T	-2.05	-1.84	1.07	-2.07	-1.87	1.04	-2.09	-1.85	1.04	-1.28	-0.2	24.0	-24.22
		7115	233	26T	-1.95	-1.27	1.41	-1.94	-1.27	1.42	-1.95	-1.26	1.42	-1.28	0.1	24.0	-23.87

	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)									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			39			40						
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
20MHz BW	5	5935	2	52T	-0.88	-0.69	2.23	-1.24	-0.88	1.95	-1.32	-0.55	2.09	-0.61	1.6	24.0	-22.39
		6175	45	52T	2.38	2.28	5.34	2.40	2.30	5.36	2.36	2.25	5.32	-0.61	4.7	24.0	-19.25
		6415	93	52T	2.98	1.72	5.41	2.99	1.72	5.41	2.99	1.72	5.41	-0.61	4.8	24.0	-19.20
	6	6435	97	52T	2.80	2.05	5.45	2.79	2.04	5.44	2.80	2.05	5.45	-0.10	5.3	24.0	-18.65
		6475	105	52T	2.58	1.52	5.09	2.58	1.53	5.10	2.59	1.50	5.09	-0.10	5.0	24.0	-19.01
		6515	113	52T	2.62	1.58	5.14	2.65	1.57	5.15	2.64	1.55	5.14	-0.10	5.0	24.0	-18.95
	7	6535	117	52T	2.72	1.82	5.30	2.73	1.84	5.32	2.75	1.83	5.32	-0.74	4.6	24.0	-19.41
		6695	149	52T	2.51	1.61	5.09	2.53	1.60	5.10	2.53	1.61	5.10	-0.74	4.4	24.0	-19.63
		6875	185	52T	2.38	2.37	5.39	2.39	2.37	5.39	2.40	2.37	5.40	-0.74	4.7	24.0	-19.34
	8	6895	189	52T	2.19	2.16	5.19	2.23	2.17	5.21	2.19	2.16	5.19	-1.28	3.9	24.0	-20.07
		6995	209	52T	2.19	2.19	5.20	2.20	2.20	5.21	2.18	2.17	5.19	-1.28	3.9	24.0	-20.07
		7115	233	52T	1.92	2.84	5.41	1.91	2.88	5.43	1.92	2.87	5.43	-1.28	4.1	24.0	-19.85

	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)									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			54			NA						
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
20MHz BW	5	5935	2	106T	1.93	1.90	4.93	1.41	1.99	4.72				-0.61	4.3	24.0	-19.69
		6175	45	106T	5.12	5.33	8.24	5.10	5.35	8.24				-0.61	7.6	24.0	-16.38
		6415	93	106T	5.67	5.26	8.48	5.68	5.28	8.49				-0.61	7.9	24.0	-16.12
	6	6435	97	106T	5.80	5.06	8.46	5.81	5.08	8.47				-0.10	8.4	24.0	-15.63
		6475	105	106T	5.54	4.44	8.04	5.55	4.41	8.03				-0.10	7.9	24.0	-16.07
		6515	113	106T	5.55	4.44	8.04	5.55	4.43	8.04				-0.10	7.9	24.0	-16.06
	7	6535	117	106T	5.51	4.41	8.01	5.50	4.42	8.00				-0.74	7.3	24.0	-16.73
		6695	149	106T	5.52	4.40	8.01	5.53	4.41	8.02				-0.74	7.3	24.0	-16.72
		6875	185	106T	5.48	4.65	8.10	5.47	4.67	8.10				-0.74	7.4	24.0	-16.64
	8	6895	189	106T	5.37	4.85	8.13	5.35	4.87	8.13				-1.28	6.8	24.0	-17.16
		6995	209	106T	5.03	5.06	8.06	5.01	5.02	8.03				-1.28	6.8	24.0	-17.23
		7115	233	106T	4.88	5.85	8.40	4.89	5.88	8.42				-1.28	7.1	24.0	-16.86

	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)									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			NA			NA						
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
20MHz BW	5	5935	2	242T	5.04	4.33	7.71							-0.61	7.1	24.0	-16.90
		6175	45	242T	7.99	7.48	10.75							-0.61	10.1	24.0	-13.86
		6415	93	242T	7.60	7.44	10.53							-0.61	9.9	24.0	-14.08
	6	6435	97	242T	7.97	7.39	10.70							-0.10	10.6	24.0	-13.40
		6475	105	242T	7.98	7.55	10.78							-0.10	10.7	24.0	-13.32
		6515	113	242T	7.87	7.45	10.68							-0.10	10.6	24.0	-13.43
	7	6535	117	242T	7.77	7.31	10.56							-0.74	9.8	24.0	-14.18
		6695	149	242T	7.69	7.01	10.37							-0.74	9.6	24.0	-14.36
		6875	185	242T	7.89	7.74	10.83							-0.74	10.1	24.0	-13.91
	8	6895	189	242T	7.88	7.81	10.86							-1.28	9.6	24.0	-14.43
		6995	209	242T	7.73	7.79	10.77							-1.28	9.5	24.0	-14.51
		7115	233	242T	7.85	7.70	10.79							-1.28	9.5	24.0	-14.50

	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)									Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					RU Index												
					65			NA			NA						
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
40MHz BW	5	5965	3	484T	9.71	9.46	12.60							-0.61	12.0	24.0	-12.02
		6005	11	484T	9.97	9.09	12.56							-0.61	11.9	24.0	-12.05
		6165	43	484T	9.83	9.53	12.69							-0.61	12.1	24.0	-11.92
		6405	91	484T	9.58	9.34	12.47							-0.61	11.9	24.0	-12.14
	6	6445	99	484T	9.98	9.25	12.64							-0.10	12.5	24.0	-11.46
		6485	107	484T	9.98	9.49	12.75							-0.10	12.6	24.0	-11.35
		6525	115	484T	9.81	9.11	12.48							-0.10	12.4	24.0	-11.62
	7	6565	123	484T	9.64	9.42	12.54							-0.74	11.8	24.0	-12.20
		6725	155	484T	9.77	9.07	12.44							-0.74	11.7	24.0	-12.29
		6845	179	484T	9.84	8.54	12.25							-0.74	11.5	24.0	-12.49
	8	6885	187	484T	9.77	8.78	12.31							-1.28	11.0	24.0	-12.97
		7005	211	484T	9.78	8.87	12.36							-1.28	11.1	24.0	-12.93
		7085	227	484T	9.67	8.92	12.32							-1.28	11.0	24.0	-12.96

	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)									Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					RU Index												
					67			NA			NA						
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
80MHz BW	5	5985	7	996T	9.59	9.11	12.37							-0.61	11.8	24.0	-12.25
		6145	39	996T	9.65	9.52	12.60							-0.61	12.0	24.0	-12.02
		6385	87	996T	9.98	9.92	12.96							-0.61	12.3	24.0	-11.65
	6	6465	103	996T	9.77	9.23	12.52							-0.10	12.4	24.0	-11.59
	7	6545	119	996T	9.40	9.48	12.45							-0.74	11.7	24.0	-12.29
		6705	151	996T	9.98	9.44	12.73							-0.74	12.0	24.0	-12.01
		6865	183	996T	9.99	9.11	12.58							-0.74	11.8	24.0	-12.15
	8	6945	199	996T	9.96	9.07	12.55							-1.28	11.3	24.0	-12.74
		7025	215	996T	9.98	9.40	12.71							-1.28	11.4	24.0	-12.57

	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)									Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					RU Index												
					68			NA			NA						
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
160MHz BW	5	6025	15	2x996T	9.57	9.58	12.59							-0.61	12.0	24.0	-12.03
		6185	47	2x996T	9.29	9.61	12.46							-0.61	11.8	24.0	-12.15
		6345	79	2x996T	9.54	9.98	12.78							-0.61	12.2	24.0	-11.84
	6	6505	111	2x996T	9.36	9.51	12.45							-0.10	12.3	24.0	-11.66
	7	6665	143	2x996T	9.81	9.81	12.82							-0.74	12.1	24.0	-11.92
		6825	175	2x996T	9.75	9.52	12.65							-0.74	11.9	24.0	-12.09
	8	6985	207	2x996T	9.85	9.95	12.91							-1.28	11.6	24.0	-12.37

	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)									Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					RU Index												
					160L			160H									
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
320MHz BW	5	6105	31	2x996T	9.65	9.53	12.60	9.55	9.44	12.51				-0.61	12.0	24.0	-12.01
		6265	63	2x996T	9.78	9.45	12.63	9.46	9.64	12.56				-0.61	12.0	24.0	-11.99
	6	6425	95	2x996T	9.97	9.78	12.89	9.77	9.95	12.87				-0.10	12.8	24.0	-11.22
	7	6585	127	2x996T	9.57	9.49	12.54	9.39	9.20	12.31				-0.74	11.8	24.0	-12.20
		6745	159	2x996T	9.98	9.20	12.62	9.96	9.01	12.52				-0.74	11.9	24.0	-12.12
	8	6905	191	2x996T	9.99	8.78	12.44	9.99	9.05	12.56				-1.28	11.3	24.0	-12.73

Table 7-7. MIMO BW 802.11be (UNII) Maximum Conducted Output Power – Partial and Full Tones

	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)									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			91			92						
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
80MHz BW	5	6145	39	242+484T	9.89	9.81	12.86	9.91	9.79	12.86	9.97	9.81	12.90	-0.61	12.3	24.0	-11.71
	6	6465	103	242+484T	9.90	9.54	12.73	9.76	9.55	12.67	9.94	9.54	12.75	-0.10	12.7	24.0	-11.35
	7	6705	151	242+484T	9.77	9.01	12.42	9.80	9.05	12.45	9.82	9.06	12.47	-0.74	11.7	24.0	-12.27
	8	6945	199	242+484T	9.69	9.52	12.62	9.88	9.61	12.76	9.98	9.61	12.81	-1.28	11.5	24.0	-12.48

	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)									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			1094						
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
160MHz BW	5	6185	47	996+484T	9.02	9.67	12.37	9.04	9.74	12.41	9.00	9.76	12.41	-0.61	11.8	24.0	-12.20
	6	6505	111	996+484T	9.08	9.82	12.48	9.05	9.86	12.48	9.20	9.91	12.58	-0.10	12.5	24.0	-11.52
	7	6665	143	996+484T	9.27	9.50	12.40	9.20	9.48	12.35	9.06	9.55	12.32	-0.74	11.7	24.0	-12.34
		6825	175	996+484T	9.32	9.78	12.57	9.41	9.85	12.65	9.27	9.46	12.38	-0.74	11.9	24.0	-12.09
	8	6985	207	996+484T	9.01	9.72	12.39	9.05	9.82	12.46	9.05	9.97	12.54	-1.28	11.3	24.0	-12.74

	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)									Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					MRU Index												
					105			1106			11106						
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
320MHz BW	5	6105	31	3x996+484T	9.30	9.60	12.46	9.22	9.61	12.43	9.34	9.62	12.49	-0.61	11.9	24.0	-12.12
		6265	63	3x996+484T	9.23	9.67	12.47	9.22	9.65	12.45	9.21	9.61	12.42	-0.61	11.9	24.0	-12.15
	6	6425	95	3x996+484T	9.52	9.96	12.76	9.47	9.97	12.74	9.50	9.96	12.75	-0.10	12.7	24.0	-11.35
	7	6585	127	3x996+484T	9.27	9.57	12.43	9.35	9.57	12.47	9.31	9.65	12.49	-0.74	11.8	24.0	-12.24
		6745	159	3x996+484T	9.93	9.76	12.86	9.87	9.76	12.83	9.98	9.85	12.93	-0.74	12.2	24.0	-11.81
	8	6905	191	3x996+484T	9.75	9.15	12.47	9.78	9.20	12.51	9.76	9.31	12.55	-1.28	11.3	24.0	-12.73

	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)									Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					MRU Index												
					104			1104			11104						
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
320MHz BW	5	6105	31	3x996T	9.30	9.67	12.50	9.29	9.76	12.54	9.35	9.72	12.55	-0.61	11.9	24.0	-12.07
		6265	63	3x996T	9.09	9.73	12.43	9.07	9.75	12.43	9.16	9.69	12.44	-0.61	11.8	24.0	-12.17
	6	6425	95	3x996T	9.26	9.60	12.44	9.15	9.68	12.43	9.29	9.62	12.47	-0.10	12.4	24.0	-11.64
	7	6585	127	3x996T	9.16	9.55	12.37	9.30	9.66	12.49	9.11	9.68	12.41	-0.74	11.8	24.0	-12.24
		6745	159	3x996T	9.72	9.81	12.78	9.92	9.79	12.87	9.50	9.44	12.48	-0.74	12.1	24.0	-11.87
	8	6905	191	3x996T	9.73	9.44	12.60	9.76	9.54	12.66	9.92	9.81	12.88	-1.28	11.6	24.0	-12.41

	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)									Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					MRU Index												
					101			1100			11102						
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
320MHz BW	5	6105	31	2x996+484T	9.54	9.74	12.65	9.47	9.76	12.63	9.46	9.74	12.61	-0.61	12.0	24.0	-11.96
		6265	63	2x996+484T	9.27	9.76	12.53	9.29	9.69	12.50	9.18	9.82	12.52	-0.61	11.9	24.0	-12.08
	6	6425	95	2x996+484T	9.83	9.99	12.92	9.69	9.95	12.83	9.64	9.98	12.82	-0.10	12.8	24.0	-11.18
	7	6585	127	2x996+484T	9.26	9.86	12.58	9.49	9.91	12.72	9.33	9.82	12.59	-0.74	12.0	24.0	-12.02
		6745	159	2x996+484T	9.97	9.83	12.91	9.97	9.89	12.94	9.86	9.66	12.77	-0.74	12.2	24.0	-11.80
	8	6905	191	2x996+484T	9.59	9.02	12.32	9.61	9.16	12.40	9.93	9.41	12.69	-1.28	11.4	24.0	-12.60

	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)									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			71			72						
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
20MHz BW	5	6175	45	52+26T	2.81	2.98	5.91	2.99	2.88	5.95	2.39	2.77	5.59	-0.61	5.3	24.0	-18.67
	6	6475	105	52+26T	2.60	2.99	5.81	2.19	2.97	5.61	2.45	2.79	5.63	-0.10	5.7	24.0	-18.29
	7	6695	149	52+26T	2.21	2.94	5.60	2.31	2.98	5.67	2.44	2.90	5.69	-0.74	4.9	24.0	-19.05
	8	6995	209	52+26T	2.39	2.87	5.65	2.47	2.98	5.74	2.61	2.69	5.66	-1.28	4.5	24.0	-19.54

	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm)									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									
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
20MHz BW	5	6175	45	106+26T	5.66	5.07	8.39	5.29	5.25	8.28				-0.61	7.8	24.0	-16.23
	6	6475	105	106+26T	5.97	5.61	8.80	5.78	5.17	8.50				-0.10	8.7	24.0	-15.30
	7	6695	149	106+26T	5.92	5.52	8.73	5.84	5.01	8.46				-0.74	8.0	24.0	-16.00
	8	6995	209	106+26T	5.47	5.16	8.33	5.96	5.01	8.52				-1.28	7.2	24.0	-16.76

Table 7-8. MIMO BW 802.11be (UNII) Maximum Conducted Output Power – MRU

MIMO Maximum Conducted Output Power Measurements – SP

20MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm) RU Index 0 ANT1	0 ANT2	0 MIMO	4 ANT1	4 ANT2	4 MIMO	8 ANT1	8 ANT2	8 MIMO	Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
	5	5935	2	26T	-3.70	-3.36	-0.52	-3.35	-3.55	-0.44	-4.4	-3.60	-0.98	-0.61	-1.1	24.0	-25.05
		6175	45	26T	8.76	8.71	11.75	8.98	8.31	11.67	8.14	8.36	11.26	-0.61	11.1	24.0	-12.87
		6415	93	26T	8.93	8.98	11.97	8.71	8.54	11.64	8.59	8.77	11.69	-0.61	11.4	24.0	-12.65
	7	6535	117	26T	8.83	8.16	11.52	8.98	8.95	11.98	8.86	8.22	11.56	-0.74	11.2	24.0	-12.76
		6695	149	26T	8.59	8.13	11.38	8.79	8.69	11.75	8.75	8.04	11.42	-0.74	11.0	24.0	-12.99

20MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm) RU Index 37 ANT1	37 ANT2	37 MIMO	39 ANT1	39 ANT2	39 MIMO	40 ANT1	40 ANT2	40 MIMO	Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
	5	5935	2	52T	-0.88	-0.69	2.23	-1.24	-0.88	1.95	-1.32	-0.55	2.09	-0.61	1.6	24.0	-22.39
		6175	45	52T	8.75	8.14	11.47	8.97	8.39	11.70	8.61	8.48	11.56	-0.61	11.1	24.0	-12.91
		6415	93	52T	8.76	8.61	11.70	8.95	8.48	11.73	8.56	8.47	11.53	-0.61	11.1	24.0	-12.88
	7	6535	117	52T	8.89	8.27	11.60	8.57	8.33	11.46	8.92	8.11	11.54	-0.74	10.9	24.0	-13.14
		6695	149	52T	8.93	8.36	11.66	8.65	8.02	11.36	8.84	7.71	11.32	-0.74	10.9	24.0	-13.07

20MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm) RU Index 53 ANT1	53 ANT2	53 MIMO	54 ANT1	54 ANT2	54 MIMO	NA ANT1	NA ANT2	NA MIMO	Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
		5935	2	106T	1.93	1.90	4.93	1.41	1.99	4.72				-0.61	4.3	24.0	-19.69
		6175	45	106T	8.60	7.83	11.24	8.63	8.14	11.40				-0.61	10.8	24.0	-13.21
		6415	93	106T	8.74	8.44	11.60	8.97	8.79	11.89				-0.61	11.3	24.0	-12.72
	7	6535	117	106T	8.61	8.43	11.53	8.96	8.47	11.73				-0.74	11.0	24.0	-13.01
		6695	149	106T	8.64	8.16	11.42	8.96	8.07	11.55				-0.74	10.8	24.0	-13.19

20MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm) RU Index 61 ANT1	61 ANT2	61 MIMO	NA ANT1	NA ANT2	NA MIMO	NA ANT1	NA ANT2	NA MIMO	Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
	5	5935	2	242T	4.88	4.22	7.57							-0.61	7.0	24.0	-17.04
		6175	45	242T	7.97	7.42	10.71							-0.61	10.1	24.0	-13.90
		6415	93	242T	7.54	7.48	10.52							-0.61	9.9	24.0	-14.09
	7	6535	117	242T	7.99	7.65	10.83							-0.74	10.1	24.0	-13.90
		6695	149	242T	7.93	7.58	10.77							-0.74	10.0	24.0	-13.97

Table 7-9. MIMO BW 802.11be (UNII) Maximum Conducted Output Power – Partial and Full Tones

80MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm) MRU Index 90 ANT1	90 ANT2	90 MIMO	91 ANT1	91 ANT2	91 MIMO	92 ANT1	92 ANT2	92 MIMO	Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
	5	6145	39	242+484T	9.89	9.81	12.86	9.91	9.79	12.86	9.97	9.81	12.90	-0.61	12.3	24.0	-11.71
	7	6705	151	242+484T	9.77	9.01	12.42	9.80	9.05	12.45	9.82	9.06	12.47	-0.74	11.7	24.0	-12.27

160MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm) MRU Index 94 ANT1	94 ANT2	94 MIMO	95 ANT1	95 ANT2	95 MIMO	1094 ANT1	1094 ANT2	1094 MIMO	Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
	5	6185	47	996+484T	9.02	9.67	12.37	9.04	9.74	12.41	9.00	9.76	12.41	-0.61	11.8	24.0	-12.20
	7	6665	143	996+484T	9.27	9.50	12.40	9.20	9.48	12.35	9.06	9.55	12.32	-0.74	11.7	24.0	-12.34

320MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm) MRU Index 105 ANT1	105 ANT2	105 MIMO	1106 ANT1	1106 ANT2	1106 MIMO	11106 ANT1	11106 ANT2	11106 MIMO	Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
	5	6105	31	3x996+484T	9.30	9.60	12.46	9.22	9.61	12.43	9.34	9.62	12.49	-0.61	11.9	24.0	-12.12
	7	6585	127	3x996+484T	9.27	9.57	12.43	9.35	9.57	12.47	9.31	9.65	12.49	-0.74	11.8	24.0	-12.24

320MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm) MRU Index 104 ANT1	104 ANT2	104 MIMO	1104 ANT1	1104 ANT2	1104 MIMO	11104 ANT1	11104 ANT2	11104 MIMO	Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
	5	6105	31	3x996T	9.30	9.67	12.50	9.29	9.76	12.54	9.35	9.72	12.55	-0.61	11.9	24.0	-12.07
	7	6585	127	3x996T	9.16	9.55	12.37	9.30	9.66	12.49	9.11	9.68	12.41	-0.74	11.8	24.0	-12.24

320MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm) MRU Index 101 ANT1	101 ANT2	101 MIMO	1100 ANT1	1100 ANT2	1100 MIMO	11102 ANT1	11102 ANT2	11102 MIMO	Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
	5	6105	31	2x996+484T	9.54	9.74	12.65	9.47	9.76	12.63	9.46	9.74	12.61	-0.61	12.0	24.0	-11.96
	7	6585	127	2x996+484T	9.26	9.86	12.58	9.49	9.91	12.72	9.33	9.82	12.59	-0.74	12.0	24.0	-12.02

20MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm) MRU Index 70 ANT1	70 ANT2	70 MIMO	71 ANT1	71 ANT2	71 MIMO	72 ANT1	72 ANT2	72 MIMO	Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
	5	6175	45	52+26T	8.80	8.69	11.76	8.94	8.67	11.82	8.73	8.94	11.85	-0.61	11.2	24.0	-12.77
	7	6695	149	52+26T	8.27	8.93	11.62	8.10	8.64	11.39	8.52	8.93	11.74	-0.74	11.0	24.0	-13.00

20MHz BW	Band	Freq [MHz]	Channel	Tones	Average Conducted Power (dBm) MRU Index 82 ANT1	82 ANT2	82 MIMO	83 ANT1	83 ANT2	83 MIMO	ANT1	ANT2	MIMO	Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
	5	6175	45	106+26T	8.46	8.78	11.63	8.89	8.89	11.90				-0.61	11.3	24.0	-12.71
	7	6695	149	106+26T	8.36	8.83	11.61	8.37	8.82	11.61				-0.74	10.9	24.0	-13.13

Table 7-10. MIMO BW 802.11be (UNII) Maximum Conducted Output Power – MRU

Sample MIMO Calculation:

At 5935MHz in 802.11be (20MHz BW – 26 Tones) mode, the average conducted output power was measured to be -3.70 dBm for Antenna-1 and -3.36 dBm for Antenna-2.

Antenna 1 + Antenna 2 = MIMO

(-3.70 dBm + -3.36 dBm) = (0.427 mW + 0.461 mW) = 0.888 mW = -0.52 dBm

Sample Directional Gain Calculation:

Per ANSI C63.10-2013 Section 14.4.3, the directional gain is calculated using the following formula, where GN is the gain of the nth antenna and NANT, the total number of antennas used.

$$\text{Directional gain} = 10 \log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 / N_{ANT}] \text{ dBi}$$

Sample e.i.r.p. Calculation:

At 5935MHz in 802.11be (20MHz BW – 26 Tones) mode, the average MIMO conducted power was calculated to be -0.52 dBm with directional gain of -0.61 dBi.

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

-0.52 dBm + -0.61 dBi = -1.13 dBm

7.4 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.

In the 5.925-7.125 GHz bands, the maximum power spectral density must not exceed −1 dBm e.i.r.p. in any 1-megahertz band. For client devices, except for fixed client devices as defined in this subpart, operating under the control of a standard power access point in 5.925-6.425 GHz and 6.525-6.875 GHz bands, the maximum power spectral density must not exceed 17 dBm/MHz e.i.r.p.

Test Procedure Used

ANSI C63.10-2013 – Section 12.3.2.2
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 ≥ 2 x (span/RBW)
6. Sweep time = auto
7. Detector = power averaging (RMS)
8. Trigger was set to free run for all modes
9. Trace was averaged over 100 sweeps
10. The peak search function of the spectrum analyzer was used to find the peak of the spectrum.

Test Setup

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

Figure 7-3. Test Instrument & Measurement Setup

Test Notes

None

MIMO Power Spectral Density Measurements

	Frequency [MHz]	Channel	802.11 MODE	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Antenna-1 Gain [dBi]	Antenna-2 Gain [dBi]	Summed MIMO Power Density [dBm]	Directional Gain [dBi]	EIRP [dBm]	Max EIRP [dBm]	Margin [dB]
Band 5	5935	2	be (20MHz)	-3.41	-4.81	-3.67	-3.58	-1.04	-0.61	-1.65	-1	-0.65
	6175	45	be (20MHz)	-3.39	-3.70	-3.67	-3.58	-0.53	-0.61	-1.14	-1	-0.14
	6415	93	be (20MHz)	-3.40	-3.70	-3.67	-3.58	-0.54	-0.61	-1.15	-1	-0.15
	5965	3	be (40MHz)	-3.10	-4.30	-3.67	-3.58	-0.65	-0.61	-1.27	-1	-0.27
	6165	43	be (40MHz)	-4.96	-5.38	-3.67	-3.58	-2.15	-0.61	-2.77	-1	-1.77
	6405	91	be (40MHz)	-2.81	-5.17	-3.67	-3.58	-0.82	-0.61	-1.44	-1	-0.44
	5985	7	be (80MHz)	-6.67	-6.29	-3.67	-3.58	-3.46	-0.61	-4.08	-1	-3.08
	6145	39	be (80MHz)	-6.70	-7.12	-3.67	-3.58	-3.89	-0.61	-4.51	-1	-3.51
	6385	87	be (80MHz)	-6.03	-5.80	-3.67	-3.58	-2.90	-0.61	-3.52	-1	-2.52
	6025	15	be (160MHz)	-3.47	-5.18	-3.67	-3.58	-1.23	-0.61	-1.84	-1	-0.84
	6185	47	be (160MHz)	-4.04	-4.35	-3.67	-3.58	-1.18	-0.61	-1.80	-1	-0.80
	6345	79	be (160MHz)	-3.80	-4.49	-3.67	-3.58	-1.12	-0.61	-1.73	-1	-0.73
	6105	31	be (320MHz)	-4.01	-5.41	-3.67	-3.58	-1.64	-0.61	-2.25	-1	-1.25
	6265	63	be (320MHz)	-3.42	-4.44	-3.67	-3.58	-0.89	-0.61	-1.50	-1	-0.50
Band 6	6475	97	be (20MHz)	-4.48	-4.88	-3.67	-3.58	-1.66	-0.10	-1.77	-1	-0.77
	6475	105	be (20MHz)	-4.90	-4.89	-3.67	-3.58	-1.89	-0.10	-1.99	-1	-0.99
	6515	113	be (20MHz)	-3.91	-4.15	-3.21	-3.02	-1.02	-0.10	-1.12	-1	-0.12
	6445	99	be (40MHz)	-3.57	-4.39	-3.67	-3.58	-0.95	-0.10	-1.06	-1	-0.06
	6485	107	be (40MHz)	-4.07	-4.11	-3.21	-3.02	-1.08	-0.10	-1.18	-1	-0.18
	6525	115	be (40MHz)	-4.60	-4.68	-3.21	-3.02	-1.63	-0.10	-1.73	-1	-0.73
	6465	103	be (80MHz)	-5.26	-5.64	-3.67	-3.58	-2.44	-0.10	-2.54	-1	-1.54
	6505	111	be (160MHz)	-3.85	-4.24	-3.21	-3.02	-1.03	-0.10	-1.13	-1	-0.13
Band 5/6/7	6425	95	ax (320MHz)	-3.95	-4.76	-3.67	-3.58	-1.32	-0.10	-1.43	-1	-0.43
Band 7	6695	117	be (20MHz)	-3.03	-3.84	-4.11	-3.40	-0.41	-0.74	-1.14	-1	-0.14
	6695	149	be (20MHz)	-2.77	-4.05	-4.11	-3.40	-0.36	-0.74	-1.09	-1	-0.09
	6875	185	be (20MHz)	-4.09	-3.78	-4.11	-3.40	-0.92	-0.74	-1.66	-1	-0.66
	6565	123	be (40MHz)	-4.62	-4.71	-3.21	-3.02	-1.66	-0.74	-2.39	-1	-1.39
	6685	155	be (40MHz)	-4.53	-5.34	-4.11	-3.40	-1.91	-0.74	-2.64	-1	-1.64
	6845	179	be (40MHz)	-5.10	-5.21	-4.11	-3.40	-2.14	-0.74	-2.88	-1	-1.88
	6545	119	be (80MHz)	-6.16	-6.32	-3.21	-3.02	-3.23	-0.74	-3.96	-1	-2.96
	6705	151	be (80MHz)	-6.43	-6.23	-4.11	-3.40	-3.32	-0.74	-4.06	-1	-3.06
	6865	183	be (80MHz)	-6.98	-6.59	-4.11	-3.40	-3.77	-0.74	-4.51	-1	-3.51
	6665	143	be (160MHz)	-3.55	-3.77	-4.11	-3.40	-0.65	-0.74	-1.38	-1	-0.38
	6825	175	be (160MHz)	-3.33	-3.76	-4.11	-3.40	-0.53	-0.74	-1.26	-1	-0.26
Band 6/7	6585	127	be (320MHz)	-4.34	-4.51	-4.11	-3.40	-1.41	-0.74	-2.15	-1	-1.15
Band 7/8	6745	159	be (320MHz)	-4.59	-5.29	-4.11	-3.40	-1.92	-0.74	-2.65	-1	-1.65
Band 8	7115	189	be (20MHz)	-4.12	-4.13	-4.28	-4.31	-1.11	-1.28	-2.40	-1	-1.40
	6995	209	be (20MHz)	-4.03	-4.73	-4.28	-4.31	-1.35	-1.28	-2.64	-1	-1.64
	7115	233	be (20MHz)	-4.32	-4.92	-4.28	-4.31	-1.60	-1.28	-2.89	-1	-1.89
	6885	187	be (40MHz)	-4.96	-4.96	-4.28	-4.31	-1.95	-1.28	-3.23	-1	-2.23
	6965	211	be (40MHz)	-5.22	-6.87	-4.28	-4.31	-2.96	-1.28	-4.24	-1	-3.24
	7085	227	be (40MHz)	-4.29	-4.38	-4.28	-4.31	-1.32	-1.28	-2.61	-1	-1.61
	6945	199	be (80MHz)	-6.54	-6.07	-4.28	-4.31	-3.29	-1.28	-4.57	-1	-3.57
	7025	215	be (80MHz)	-6.17	-6.78	-4.28	-4.31	-3.45	-1.28	-4.73	-1	-3.73
	6985	207	be (160MHz)	-3.37	-4.02	-4.28	-4.31	-0.67	-1.28	-1.95	-1	-0.95
Band 7/8	6985	191	be (320MHz)	-4.80	-6.09	-4.28	-4.31	-2.39	-1.28	-3.67	-1	-2.67

Table 7-11. MIMO e.i.r.p. Conducted Power Spectral Density Measurements (26 Tones) – LPI

	Frequency [MHz]	Channel	802.11 MODE	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Antenna-1 Gain [dBi]	Antenna-2 Gain [dBi]	Summed MIMO Power Density [dBm]	Directional Gain [dBi]	EIRP [dBm]	Max EIRP [dBm]	Margin [dB]
Band 5	5935	2	be (20MHz)	5.29	4.55	-3.67	-3.58	7.94	-0.61	7.33	17	-9.67
	6175	45	be (20MHz)	6.00	6.02	-3.67	-3.58	9.02	-0.61	8.41	17	-8.59
	6415	93	be (20MHz)	6.25	6.44	-4.11	-3.40	9.36	-0.61	8.74	17	-8.26
	5965	3	be (40MHz)	7.60	5.94	-3.67	-3.58	9.86	-0.61	9.25	17	-7.75
	6165	43	be (40MHz)	7.34	6.14	-3.67	-3.58	9.79	-0.61	9.18	17	-7.82
	6405	91	be (40MHz)	7.18	6.92	-4.11	-3.40	10.06	-0.61	9.45	17	-7.55
	5985	7	be (80MHz)	6.29	5.48	-3.67	-3.58	8.91	-0.61	8.30	17	-8.70
	6145	39	be (80MHz)	6.45	6.24	-3.67	-3.58	9.35	-0.61	8.74	17	-8.26
	6385	87	be (80MHz)	6.45	6.93	-4.11	-3.40	9.71	-0.61	9.09	17	-7.91
	6025	15	be (160MHz)	6.34	5.17	-3.67	-3.58	8.80	-0.61	8.19	17	-8.81
	6185	47	be (160MHz)	6.50	5.40	-3.67	-3.58	8.99	-0.61	8.38	17	-8.62
	6345	79	be (160MHz)	6.08	5.85	-3.67	-3.58	8.97	-0.61	8.36	17	-8.64
	6105	31	be (320MHz)	6.29	5.85	-3.67	-3.58	9.09	-0.61	8.47	17	-8.53
	6265	63	be (320MHz)	5.82	5.99	-3.67	-3.58	8.92	-0.61	8.30	17	-8.70
Band 7	6695	117	ax (20MHz)	5.51	5.06	-4.11	-3.40	8.30	-0.74	7.57	17	-9.43
	6695	149	ax (20MHz)	5.48	4.97	-4.11	-3.40	8.24	-0.74	7.50	17	-9.50
	6875	185	ax (20MHz)	5.52	4.50	-4.11	-3.40	8.05	-0.74	7.31	17	-9.69
	6565	123	be (40MHz)	7.70	6.84	-4.11	-3.40	10.30	-0.74	9.56	17	-7.44
	6685	155	be (40MHz)	7.20	6.76	-4.11	-3.40	9.99	-0.74	9.25	17	-7.75
	6845	179	be (40MHz)	7.02	6.34	-4.11	-3.40	9.70	-0.74	8.97	17	-8.03
	6545	119	be (80MHz)	6.05	6.56	-4.11	-3.40	9.32	-0.74	8.58	17	-8.42
	6705	151	be (80MHz)	6.41	6.15	-4.11	-3.40	9.30	-0.74	8.56	17	-8.44
	6865	183	be (80MHz)	6.02	6.01	-4.11	-3.40	9.03	-0.74	8.29	17	-8.71
	6665	143	be (160MHz)	7.09	6.43	-4.11	-3.40	9.78	-0.74	9.05	17	-7.95
	6825	175	be (160MHz)	6.36	5.91	-4.11	-3.40	9.15	-0.74	8.41	17	-8.59

Table 7-12. MIMO e.i.r.p. Conducted Power Spectral Density Measurements (26 Tones) – SP

	Frequency [MHz]	Channel	802.11 MODE	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Antenna-1 Gain [dBi]	Antenna-2 Gain [dBi]	Summed MIMO Power Density [dBm]	Directional Gain [dBi]	EIRP [dBm]	Max EIRP [dBm]	Margin [dB]
Band 5	5935	2	be (20MHz)	-2.96	-4.11	-3.67	-3.58	-0.49	-0.61	-1.10	-1	-0.10
	6175	45	be (20MHz)	-3.08	-3.85	-3.67	-3.58	-0.43	-0.61	-1.05	-1	-0.05
	6415	93	be (20MHz)	-3.30	-3.95	-3.67	-3.58	-0.61	-0.61	-1.22	-1	-0.22
	5965	3	be (40MHz)	-9.72	-10.43	-3.67	-3.58	-7.05	-0.61	-7.67	-1	-6.67
	6165	43	be (40MHz)	-5.74	-6.21	-3.67	-3.58	-2.96	-0.61	-3.57	-1	-2.57
	6405	91	be (40MHz)	-5.95	-5.98	-3.67	-3.58	-2.95	-0.61	-3.57	-1	-2.57
	5985	7	be (80MHz)	-3.56	-3.51	-3.67	-3.58	-0.52	-0.61	-1.14	-1	-0.14
	6145	39	be (80MHz)	-3.46	-3.56	-3.67	-3.58	-0.50	-0.61	-1.11	-1	-0.11
	6385	87	be (80MHz)	-3.68	-3.37	-3.67	-3.58	-0.51	-0.61	-1.12	-1	-0.12
	6025	15	be (160MHz)	-9.28	-10.23	-3.67	-3.58	-6.72	-0.61	-7.34	-1	-6.34
	6185	47	be (160MHz)	-9.59	-9.48	-3.67	-3.58	-6.52	-0.61	-7.14	-1	-6.14
	6345	79	be (160MHz)	-9.49	-9.15	-3.67	-3.58	-6.31	-0.61	-6.92	-1	-5.92
	6105	31	be (320MHz)	-8.99	-10.07	-3.67	-3.58	-6.49	-0.61	-7.10	-1	-6.10
	6265	63	be (320MHz)	-9.16	-9.49	-3.67	-3.58	-6.31	-0.61	-6.92	-1	-5.92
Band 6	6475	97	be (20MHz)	-4.78	-6.55	-3.67	-3.58	-2.57	-0.10	-2.67	-1	-1.67
	6475	105	be (20MHz)	-4.89	-6.14	-3.67	-3.58	-2.46	-0.10	-2.56	-1	-1.56
	6515	113	be (20MHz)	-3.89	-4.30	-3.21	-3.02	-1.08	-0.10	-1.18	-1	-0.18
	6445	99	be (40MHz)	-5.27	-6.19	-3.67	-3.58	-2.70	-0.10	-2.80	-1	-1.80
	6485	107	be (40MHz)	-5.27	-6.32	-3.21	-3.02	-2.75	-0.10	-2.85	-1	-1.85
	6525	115	be (40MHz)	-5.68	-6.10	-3.21	-3.02	-2.87	-0.10	-2.98	-1	-1.98
	6465	103	be (80MHz)	-8.17	-9.57	-3.67	-3.58	-5.80	-0.10	-5.91	-1	-4.91
	6505	111	be (160MHz)	-9.20	-9.29	-3.21	-3.02	-6.24	-0.10	-6.34	-1	-5.34
Band 5/6/7	6425	95	be (320MHz)	-9.64	-9.21	-2.36	-3.17	-6.41	-0.10	-6.52	-1	-5.52
Band 7	6695	117	be (20MHz)	-3.72	-3.98	-4.11	-3.40	-0.84	-0.74	-1.57	-1	-0.57
	6695	149	be (20MHz)	-3.54	-4.22	-4.11	-3.40	-0.86	-0.74	-1.59	-1	-0.59
	6875	185	be (20MHz)	-3.09	-4.07	-4.11	-3.40	-0.54	-0.74	-1.28	-1	-0.28
	6565	123	be (40MHz)	-5.64	-6.05	-3.21	-3.02	-2.83	-0.74	-3.56	-1	-2.56
	6685	155	be (40MHz)	-5.51	-6.40	-4.11	-3.40	-2.92	-0.74	-3.66	-1	-2.66
	6845	179	be (40MHz)	-4.94	-6.60	-4.11	-3.40	-2.68	-0.74	-3.42	-1	-2.42
	6545	119	be (80MHz)	-4.12	-3.98	-3.21	-3.02	-1.04	-0.74	-1.78	-1	-0.78
	6705	151	be (80MHz)	-3.42	-4.21	-4.11	-3.40	-0.79	-0.74	-1.52	-1	-0.52
	6865	183	be (80MHz)	-3.32	-3.96	-4.11	-3.40	-0.62	-0.74	-1.36	-1	-0.36
	6665	143	be (160MHz)	-9.26	-9.47	-4.11	-3.40	-6.35	-0.74	-7.09	-1	-6.09
	6825	175	be (160MHz)	-9.01	-9.44	-4.11	-3.40	-6.21	-0.74	-6.95	-1	-5.95
Band 6/7	6585	127	be (320MHz)	-10.04	-9.71	-4.11	-3.40	-6.86	-0.74	-7.60	-1	-6.60
Band 7/8	6745	159	be (320MHz)	-9.63	-11.14	-4.11	-3.40	-7.31	-0.74	-8.05	-1	-7.05
Band 8	7115	189	be (20MHz)	-2.47	-3.21	-4.28	-4.31	0.19	-1.28	-1.10	-1	-0.10
	6995	209	be (20MHz)	-2.77	-3.38	-4.28	-4.31	-0.05	-1.28	-1.34	-1	-0.34
	7115	233	be (20MHz)	-2.76	-3.08	-4.28	-4.31	0.10	-1.28	-1.19	-1	-0.19
	6885	187	be (40MHz)	-4.87	-5.90	-4.28	-4.31	-2.34	-1.28	-3.63	-1	-2.63
	6965	211	be (40MHz)	-5.35	-5.79	-4.28	-4.31	-2.55	-1.28	-3.84	-1	-2.84
	7085	227	be (40MHz)	-5.28	-6.02	-4.28	-4.31	-2.62	-1.28	-3.90	-1	-2.90
	6945	199	be (80MHz)	-3.44	-3.46	-4.28	-4.31	-0.44	-1.28	-1.72	-1	-0.72
	7025	215	be (80MHz)	-3.47	-3.18	-4.28	-4.31	-0.31	-1.28	-1.59	-1	-0.59
	6985	207	be (160MHz)	-9.71	-9.51	-4.06	-4.83	-6.60	-1.28	-7.88	-1	-6.88
Band 7/8	6905	191	be (320MHz)	-8.60	-9.70	-4.06	-4.83	-6.10	-1.28	-7.39	-1	-6.39

Table 7-13. MIMO e.i.r.p. Conducted Power Spectral Density Measurements (Full Tones) – LPI

	Frequency [MHz]	Channel	802.11 MODE	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Antenna-1 Gain [dBi]	Antenna-2 Gain [dBi]	Summed MIMO Power Density [dBm]	Directional Gain [dBi]	EIRP [dBm]	Max EIRP [dBm]	Margin [dB]
Band 5	5935	2	be (20MHz)	-5.75	-7.32	-3.67	-3.58	-3.45	-0.61	-4.07	17	-21.07
	6175	45	be (20MHz)	-2.38	-3.01	-3.67	-3.58	0.33	-0.61	-0.29	17	-17.29
	6415	93	be (20MHz)	-2.92	-3.11	-4.11	-3.40	0.00	-0.61	-0.62	17	-17.62
	5965	3	be (40MHz)	-4.64	-4.98	-3.67	-3.58	-1.79	-0.61	-2.41	17	-19.41
	6165	43	be (40MHz)	-4.86	-5.15	-3.67	-3.58	-1.99	-0.61	-2.61	17	-19.61
	6405	91	be (40MHz)	-4.71	-5.27	-4.11	-3.40	-1.97	-0.61	-2.58	17	-19.58
	5985	7	be (80MHz)	-8.59	-7.83	-3.67	-3.58	-5.18	-0.61	-5.80	17	-22.80
	6145	39	be (80MHz)	-8.28	-7.41	-3.67	-3.58	-4.81	-0.61	-5.43	17	-22.43
	6385	87	be (80MHz)	-8.69	-7.07	-4.11	-3.40	-4.79	-0.61	-5.41	17	-22.41
	6025	15	be (160MHz)	-10.71	-11.35	-3.01	-4.86	-8.01	-0.61	-8.62	17	-25.62
	6185	47	be (160MHz)	-11.15	-11.24	-3.07	-2.78	-8.18	-0.61	-8.80	17	-25.80
	6345	79	be (160MHz)	-11.29	-11.19	-3.59	-3.42	-8.23	-0.61	-8.84	17	-25.84
	6105	31	be (320MHz)	-8.99	-10.07	-3.07	-2.78	-6.49	-0.61	-7.10	17	-24.10
	6265	63	be (320MHz)	-9.16	-9.49	-3.59	-3.42	-6.31	-0.61	-6.92	17	-23.92
Band 7	6695	117	be (20MHz)	-2.66	-3.02	-4.11	-3.40	0.17	-0.74	-0.56	17	-17.56
	6695	149	be (20MHz)	-2.44	-3.13	-4.11	-3.40	0.24	-0.74	-0.50	17	-17.50
	6875	185	be (20MHz)	-2.81	-3.98	-4.11	-3.40	-0.34	-0.74	-1.08	17	-18.08
	6565	123	be (40MHz)	-5.44	-5.15	-4.11	-3.40	-2.28	-0.74	-3.02	17	-20.02
	6685	155	be (40MHz)	-4.37	-4.80	-4.11	-3.40	-1.57	-0.74	-2.31	17	-19.31
	6845	179	be (40MHz)	-4.79	-5.70	-4.11	-3.40	-2.21	-0.74	-2.95	17	-19.95
	6545	119	be (80MHz)	-8.39	-8.30	-4.11	-3.40	-5.33	-0.74	-6.07	17	-23.07
	6705	151	be (80MHz)	-7.14	-7.57	-4.11	-3.40	-4.34	-0.74	-5.08	17	-22.08
	6865	183	be (80MHz)	-7.19	-7.47	-4.11	-3.40	-4.32	-0.74	-5.05	17	-22.05
	6665	143	be (160MHz)	-10.85	-11.43	-3.81	-3.43	-8.12	-0.74	-8.86	17	-25.86
	6825	175	be (160MHz)	-10.64	-11.93	-3.65	-5.95	-8.23	-0.74	-8.97	17	-25.97

Table 7-14. MIMO e.i.r.p. Conducted Power Spectral Density Measurements (Full Tones) – SP

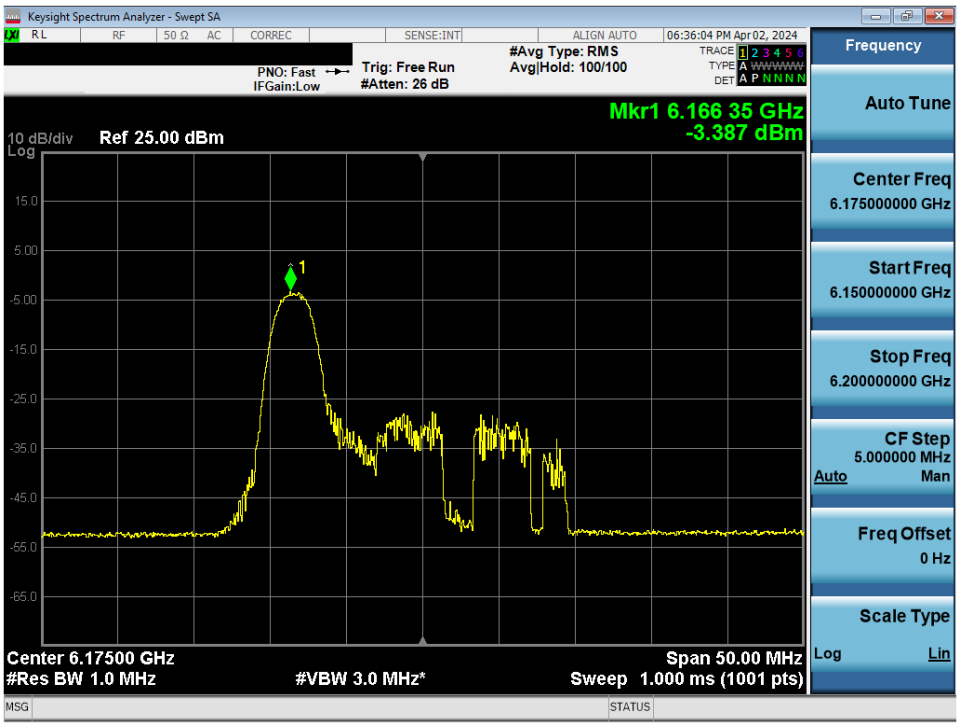
	Frequency [MHz]	Channel	802.11 MODE	Tones	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Antenna-1 Gain [dBi]	Antenna-2 Gain [dBi]	Summed MIMO Power Density [dBm]	Directional Gain [dBi]	EIRP [dBm]	Max EIRP [dBm]	Margin [dB]
Band 5	6175	45	be (20MHz)	52+26T	-4.02	-4.00	-3.67	-3.58	-1.00	-0.61	-1.61	-1	-0.61
	6175	45	be (20MHz)	106+26T	-4.38	-5.05	-3.67	-3.58	-1.69	-0.61	-2.31	-1	-1.31
	6145	39	be (80MHz)	242+484T	-5.05	-5.08	-3.67	-3.58	-2.06	-0.61	-2.67	-1	-1.67
	6185	47	be (160MHz)	996+484T	-9.28	-10.67	-3.67	-3.58	-6.91	-0.61	-7.52	-1	-6.52
	6105	31	be (320MHz)	3x996+484T	-11.47	-12.06	-3.67	-3.58	-8.74	-0.61	-9.35	-1	-8.35
	6105	31	be (320MHz)	3x996T	-10.99	-10.84	-3.67	-3.58	-7.90	-0.61	-8.52	-1	-7.52
	6105	31	be (320MHz)	2x996+484T	-10.30	-11.06	-3.67	-3.58	-7.65	-0.61	-8.27	-1	-7.27
Band 6	6475	105	be (20MHz)	52+26T	-4.62	-3.82	-3.67	-3.58	-1.19	-0.10	-1.29	-1	-0.29
	6475	105	be (20MHz)	106+26T	-4.28	-4.57	-3.67	-3.58	-1.41	-0.10	-1.51	-1	-0.51
	6465	103	be (80MHz)	242+484T	-6.18	-5.79	-3.67	-3.58	-2.97	-0.10	-3.07	-1	-2.07
	6505	111	be (160MHz)	996+484T	-9.32	-10.13	-3.21	-3.02	-6.70	-0.10	-6.80	-1	-5.80
Band 5/6/7	6425	95	be (320MHz)	3x996+484T	-11.11	-12.03	-3.67	-3.58	-8.54	-0.10	-8.64	-1	-7.64
	6425	95	be (320MHz)	3x996T	-10.12	-10.27	-3.67	-3.58	-7.18	-0.10	-7.28	-1	-6.28
	6425	95	be (320MHz)	2x996+484T	-9.82	-9.71	-3.67	-3.58	-6.75	-0.10	-6.85	-1	-5.85
Band 7	6695	149	be (20MHz)	52+26T	-4.30	-3.94	-4.11	-3.40	-1.11	-0.74	-1.84	-1	-0.84
	6875	149	be (20MHz)	106+26T	-4.03	-4.39	-4.11	-3.40	-1.19	-0.74	-1.93	-1	-0.93
	6705	151	be (80MHz)	242+484T	-5.99	-5.94	-4.11	-3.40	-2.95	-0.74	-3.69	-1	-2.69
	6665	143	be (160MHz)	996+484T	-8.65	-10.58	-4.11	-3.40	-6.50	-0.74	-7.24	-1	-6.24
Band 6/7	6585	127	be (320MHz)	3x996+484T	-11.30	-12.79	-4.11	-3.40	-8.97	-0.74	-9.71	-1	-8.71
	6585	127	be (320MHz)	3x996T	-10.41	-11.60	-4.11	-3.40	-7.95	-0.74	-8.69	-1	-7.69
	6585	127	be (320MHz)	2x996+484T	-10.95	-12.04	-4.11	-3.40	-8.45	-0.74	-9.19	-1	-8.19
Band 8	6995	209	be (20MHz)	52+26T	-4.51	-4.13	-4.28	-4.31	-1.31	-1.28	-2.59	-1	-1.59
	6995	209	be (20MHz)	106+26T	-4.30	-5.35	-4.28	-4.31	-1.78	-1.28	-3.07	-1	-2.07
	6945	199	be (80MHz)	242+484T	-6.56	-5.45	-4.28	-4.31	-2.96	-1.28	-4.25	-1	-3.25
	6985	207	be (160MHz)	996+484T	-9.20	-10.43	-4.28	-4.31	-6.76	-1.28	-8.05	-1	-7.05
Band 7/8	6985	191	be (320MHz)	3x996+484T	-11.73	-13.71	-4.28	-4.31	-9.60	-1.28	-10.88	-1	-9.88
	6985	191	be (320MHz)	3x996T	-11.06	-12.87	-4.28	-4.31	-8.86	-1.28	-10.14	-1	-9.14
	6985	191	be (320MHz)	2x996+484T	-10.58	-12.78	-4.28	-4.31	-8.53	-1.28	-9.82	-1	-8.82

Table 7-15. MIMO e.i.r.p. Conducted Power Spectral Density Measurements (MRU) – LPI

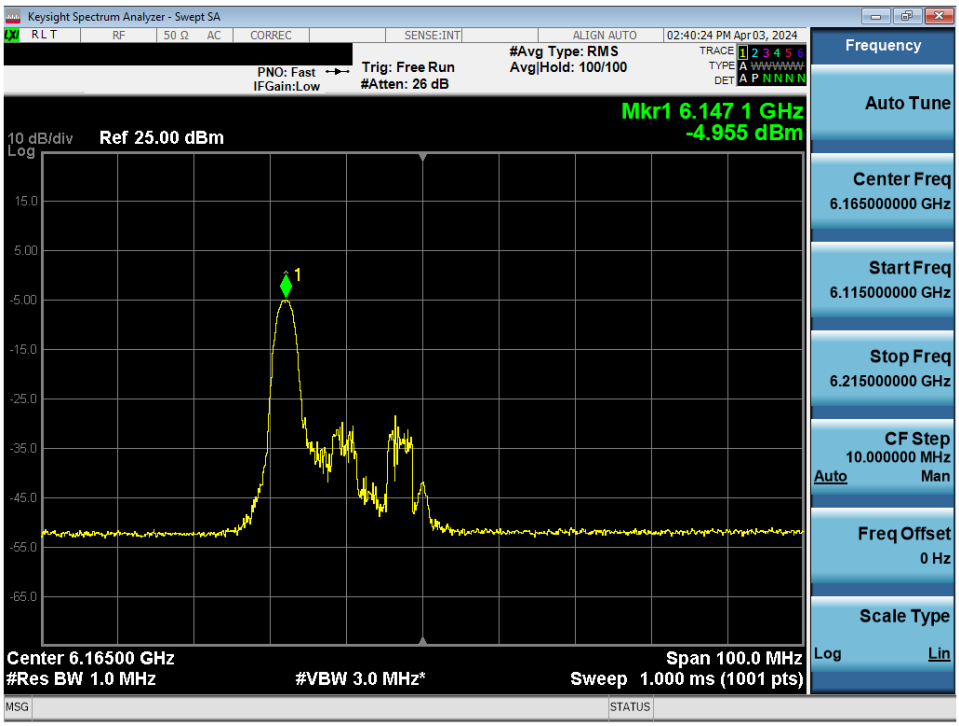
	Frequency [MHz]	Channel	802.11 MODE	Tones	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Antenna-1 Gain [dBi]	Antenna-2 Gain [dBi]	Summed MIMO Power Density [dBm]	Directional Gain [dBi]	EIRP [dBm]	Max EIRP [dBm]	Margin [dB]
Band 5	6175	45	be (20MHz)	52+26T	1.85	-0.12	-3.67	-3.58	3.99	-0.61	3.37	17	-13.63
	6175	45	be (20MHz)	106+26T	-0.17	-2.07	-3.67	-3.58	1.99	-0.61	1.38	17	-15.62
	6145	39	be (80MHz)	242+484T	-5.05	-5.08	-3.67	-3.58	-2.06	-0.61	-2.67	17	-19.67
	6185	47	be (160MHz)	996+484T	-9.28	-10.67	-3.67	-3.58	-6.91	-0.61	-7.52	17	-24.52
	6105	31	be (320MHz)	3x996+484T	-11.47	-12.06	-3.67	-3.58	-8.74	-0.61	-9.35	17	-26.35
	6105	31	be (320MHz)	3x996T	-10.99	-10.84	-3.67	-3.58	-7.90	-0.61	-8.52	17	-25.52
	6105	31	be (320MHz)	2x996+484T	-10.30	-11.06	-3.67	-3.58	-7.65	-0.61	-8.27	17	-25.27
Band 7	6695	149	be (20MHz)	52+26T	1.56	0.43	-4.11	-3.40	4.04	-0.74	3.30	17	-13.70
	6875	149	be (20MHz)	106+26T	-0.78	-1.70	-4.11	-3.40	1.80	-0.74	1.06	17	-15.94
	6705	151	be (80MHz)	242+484T	-5.99	-5.94	-4.11	-3.40	-2.95	-0.74	-3.69	17	-20.69
	6665	143	be (160MHz)	996+484T	-8.65	-10.58	-4.11	-3.40	-6.50	-0.74	-7.24	17	-24.24
	6585	127	be (320MHz)	3x996+484T	-11.30	-12.79	-4.11	-3.40	-8.97	-0.74	-9.71	17	-26.71
	6585	127	be (320MHz)	3x996T	-10.41	-11.60	-4.11	-3.40	-7.95	-0.74	-8.69	17	-25.69
	6585	127	be (320MHz)	2x996+484T	-10.95	-12.04	-4.11	-3.40	-8.45	-0.74	-9.19	17	-26.19

Table 7-16. MIMO e.i.r.p. Conducted Power Spectral Density Measurements (MRU) – SP

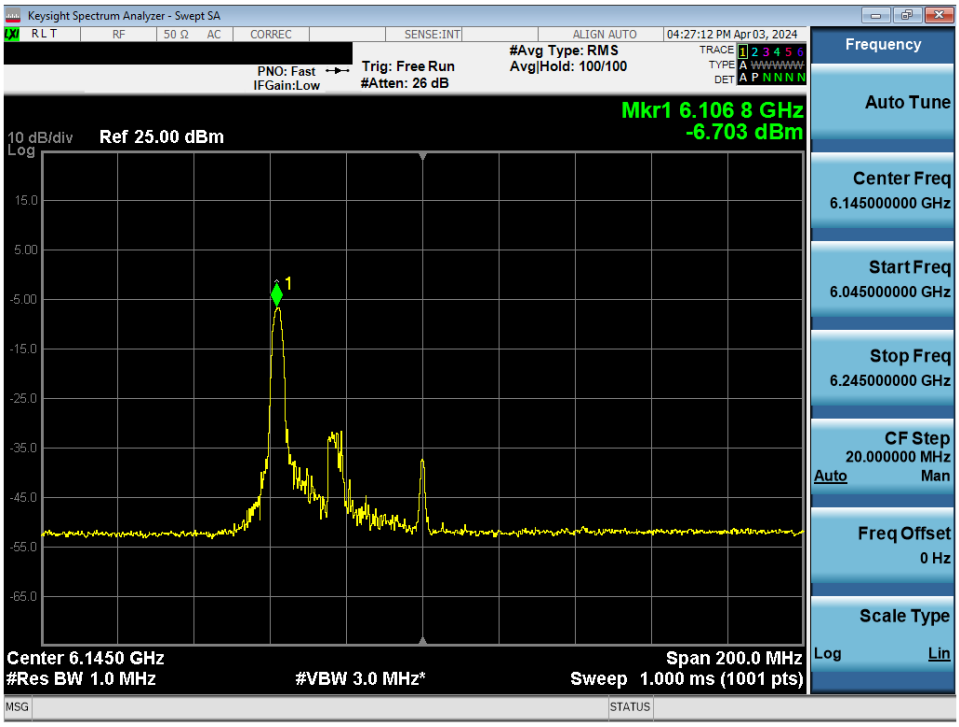
7.4.1 MIMO Antenna-1 Power Spectral Density Measurements



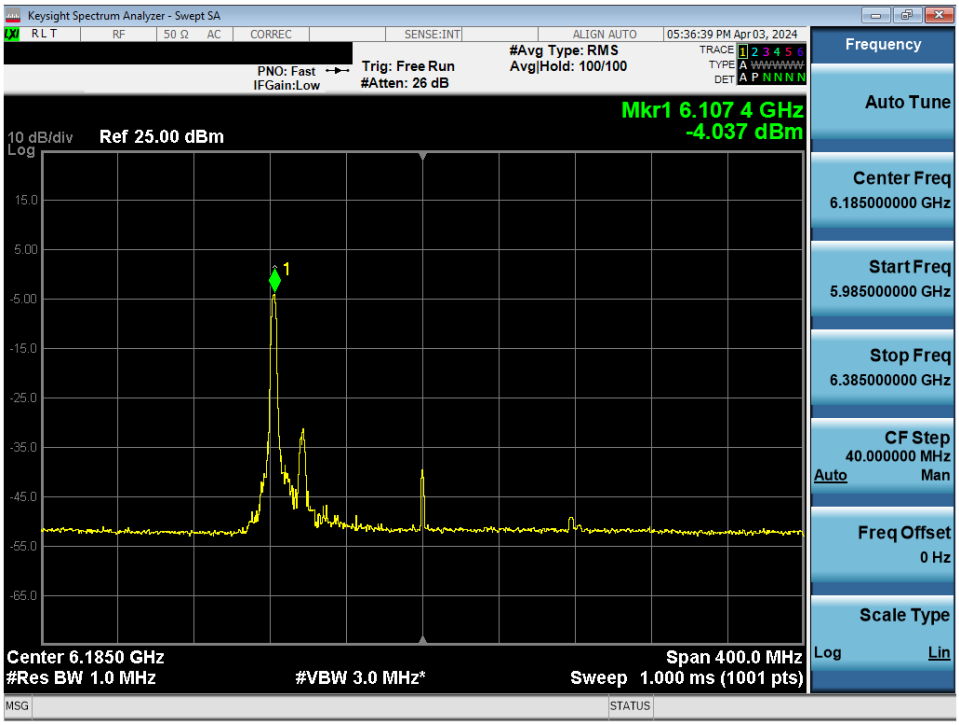
Plot 7-83. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11be (26 Tones) (UNII Band 5) – Ch. 45)



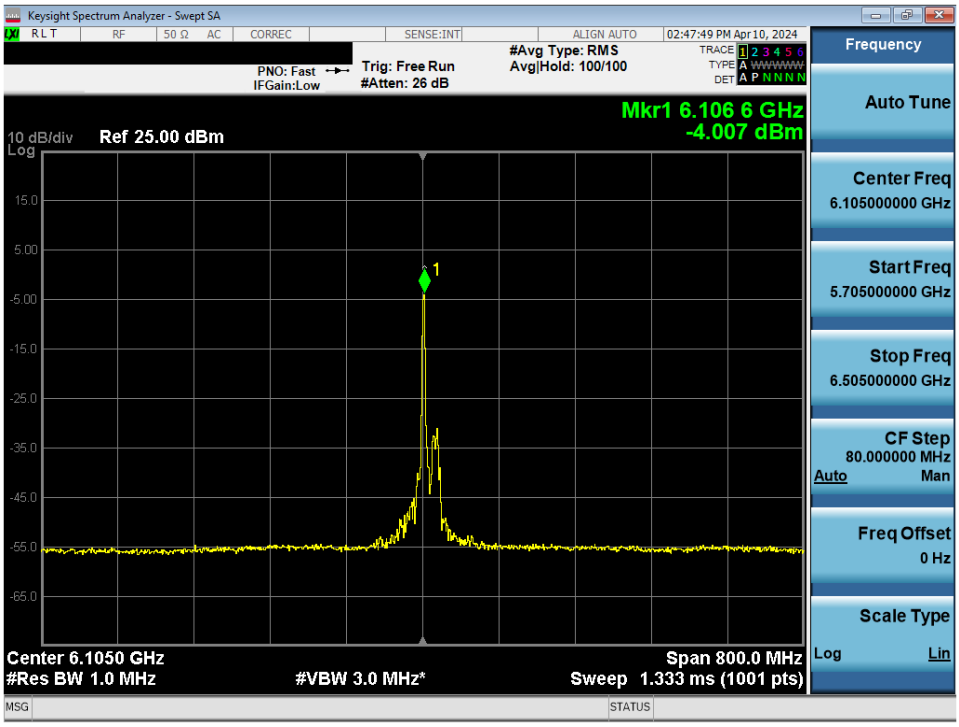
Plot 7-84. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802. 11be (26 Tones) (UNII Band 5) – Ch. 43)



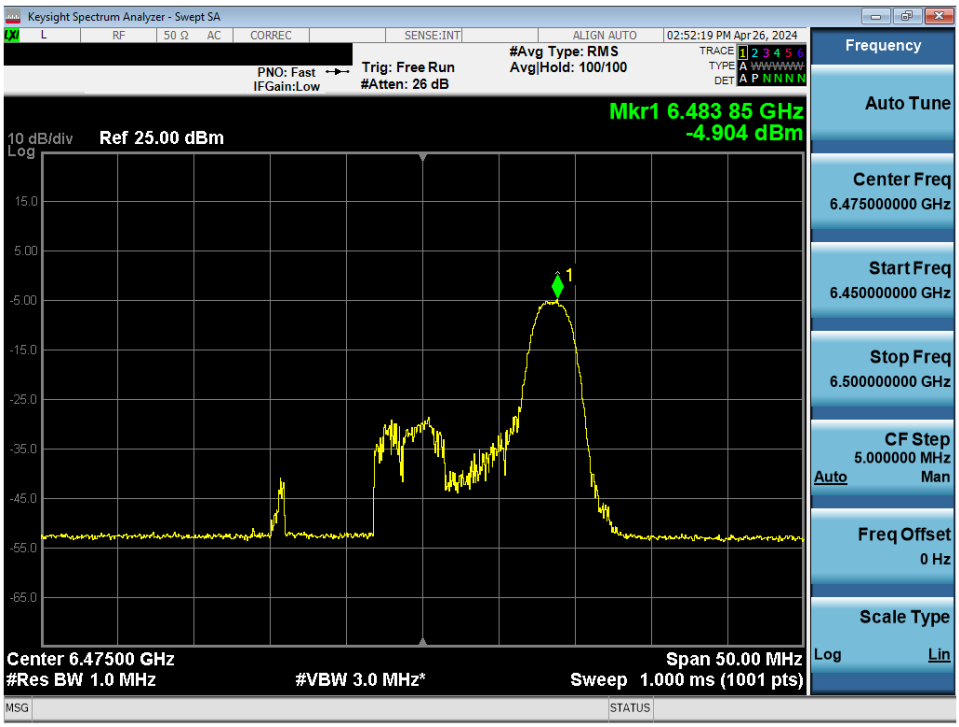
Plot 7-85. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802. 11be (26 Tones) (UNII Band 5) – Ch. 39)



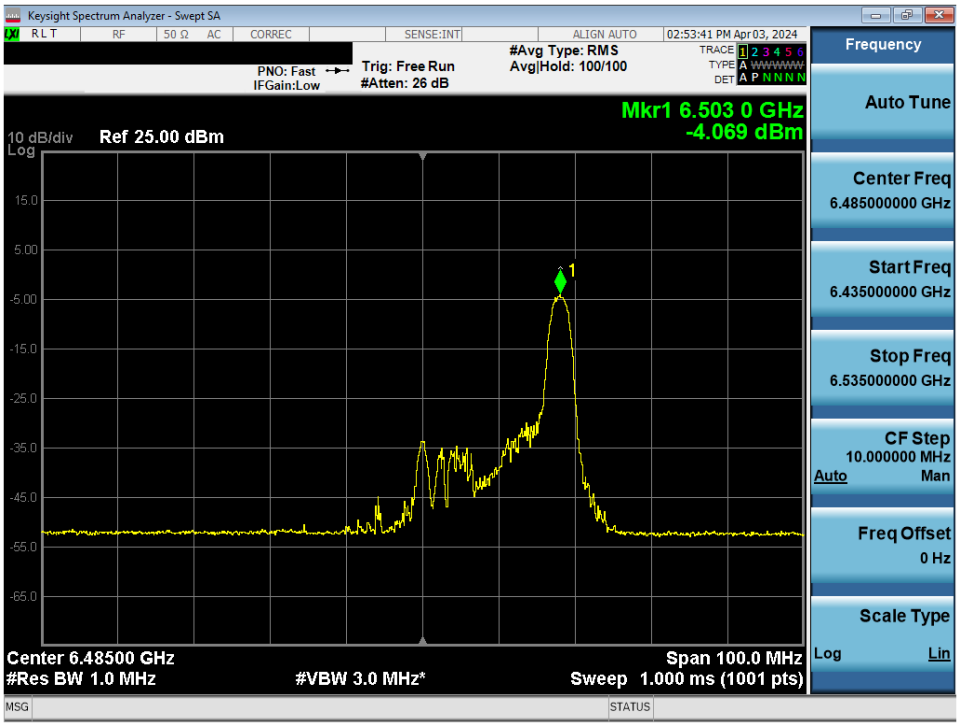
Plot 7-86. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802. 11be (26 Tones) (UNII Band 5) – Ch. 47)



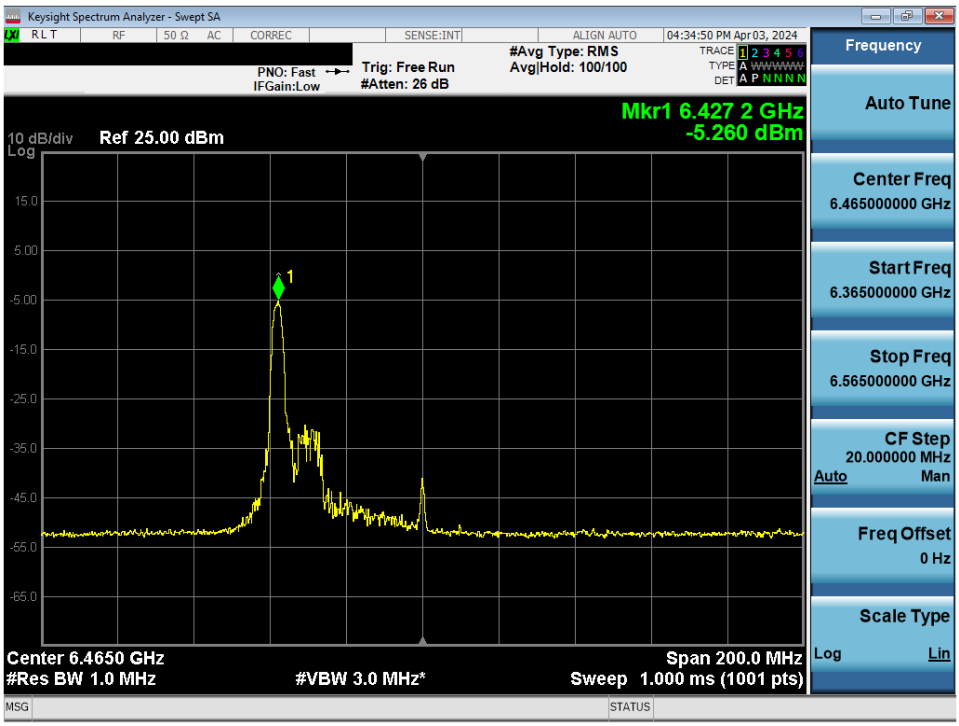
Plot 7-87. Power Spectral Density Plot MIMO ANT1 (320MHz BW 802. 11be (26 Tones) (UNII Band 5) – Ch. 31)



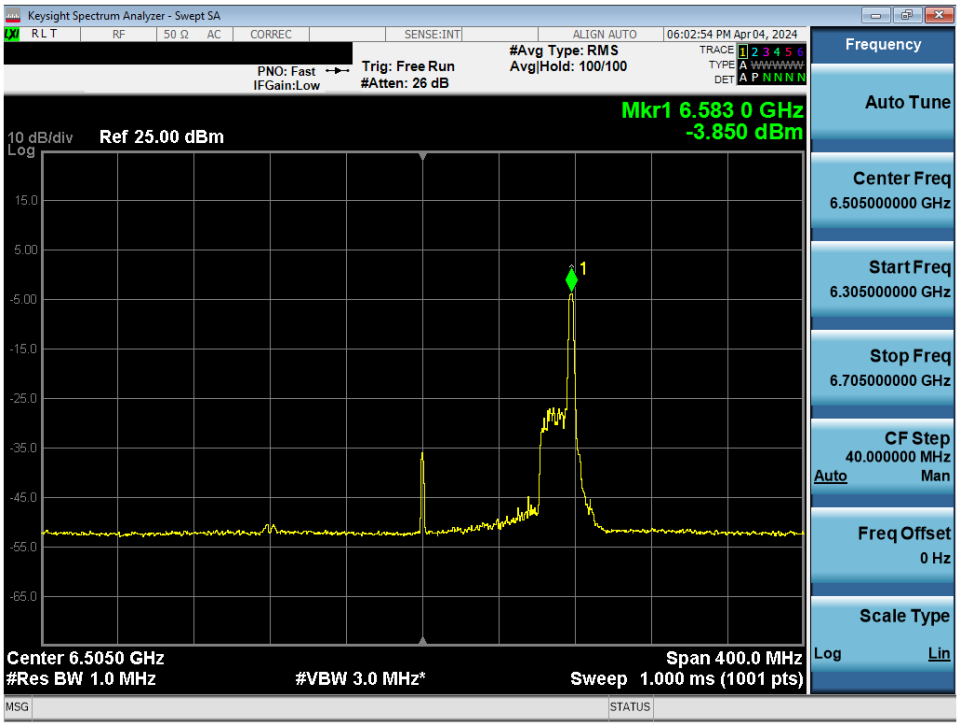
Plot 7-88. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802. 11be (26 Tones) (UNII Band 6) – Ch. 105)



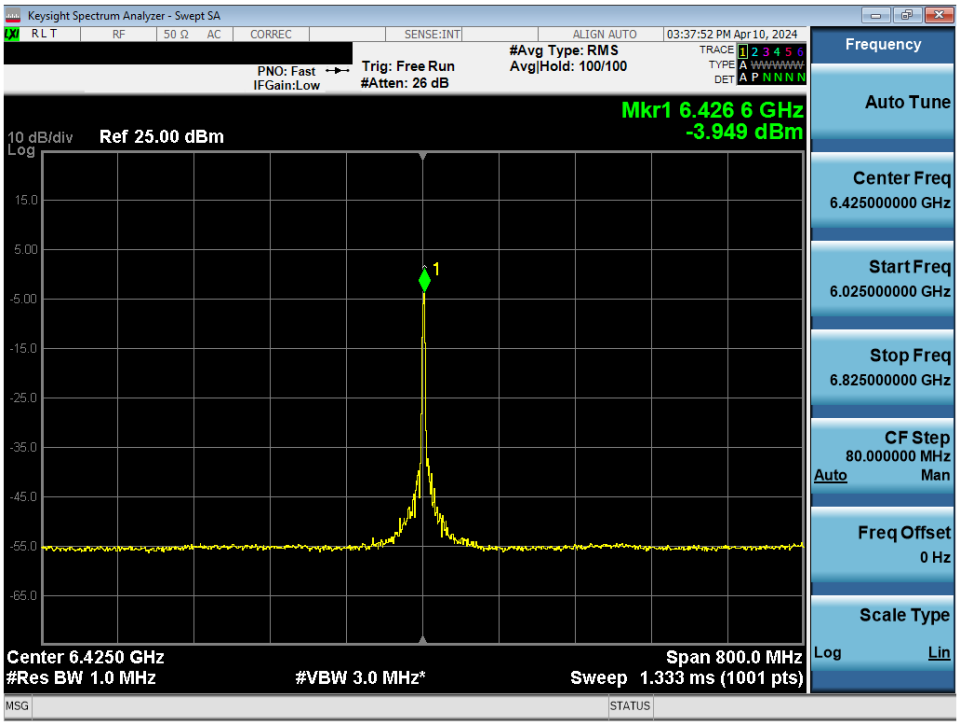
Plot 7-89. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802. 11be (26 Tones) (UNII Band 6) – Ch. 107)



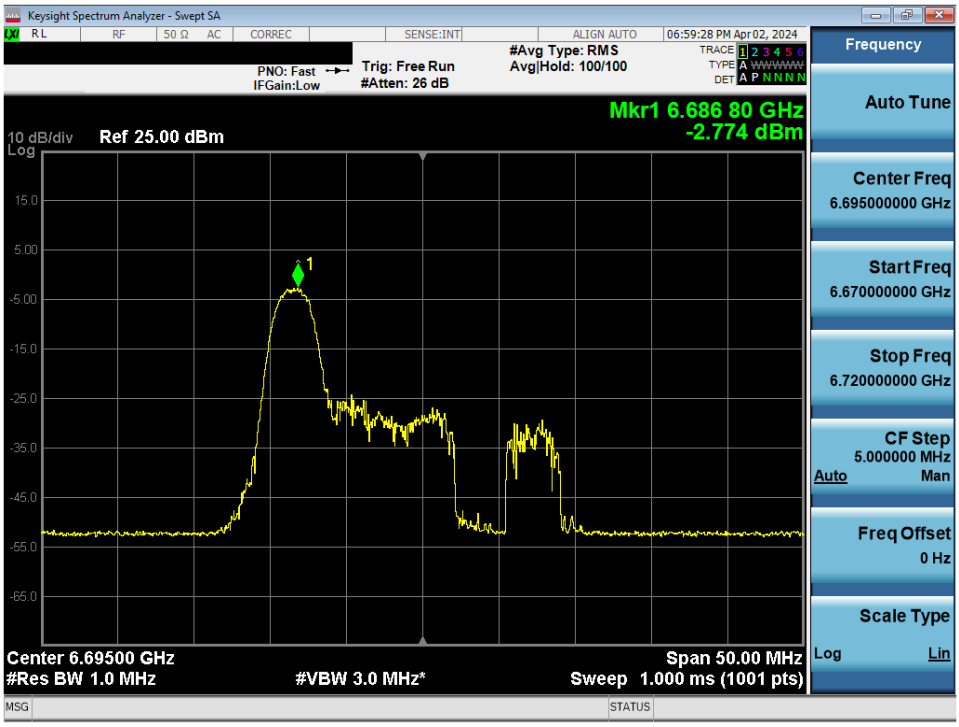
Plot 7-90. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802. 11be (26 Tones) (UNII Band 6) – Ch. 103)



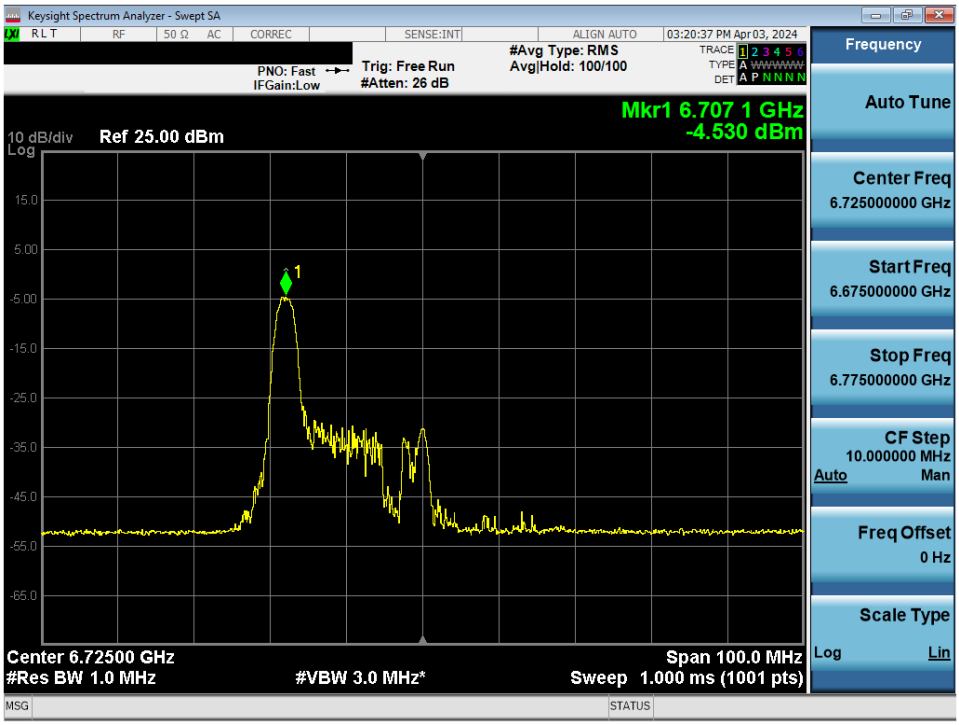
Plot 7-91. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802. 11be (26 Tones) (UNII Band 6) – Ch. 111)



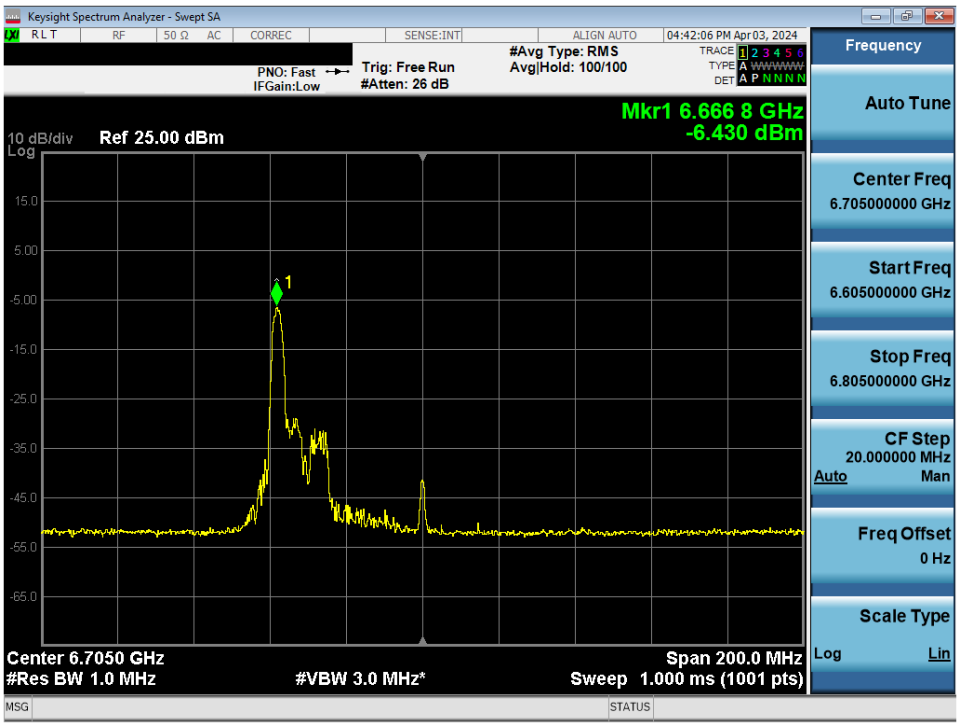
Plot 7-92. Power Spectral Density Plot MIMO ANT1 (320MHz BW 802. 11be (26 Tones) (UNII Band 6) – Ch. 95)



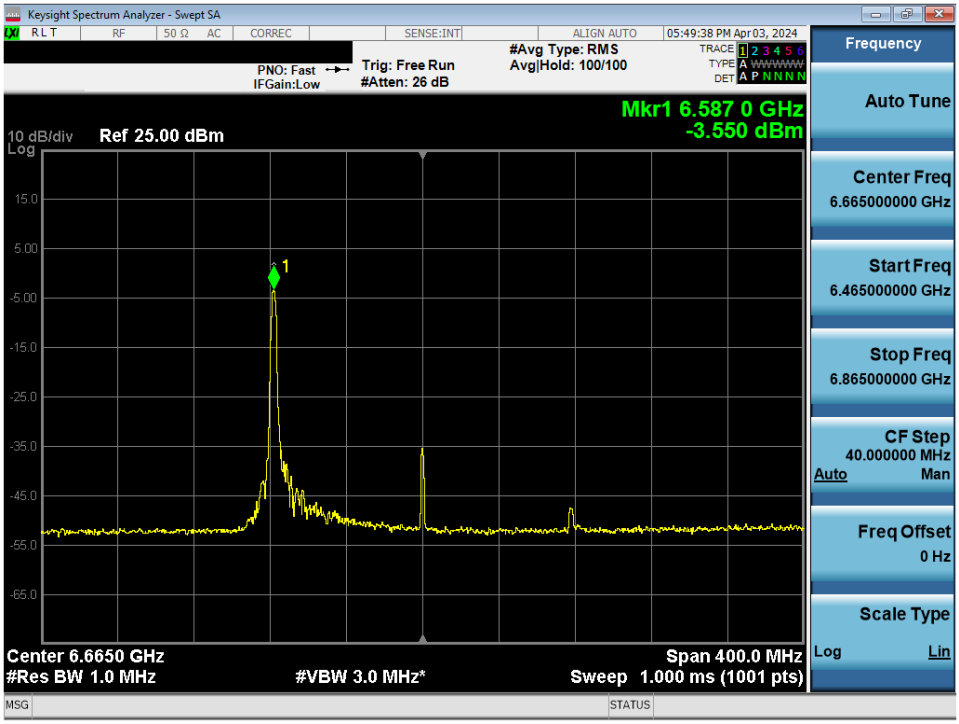
Plot 7-93. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802. 11be (26 Tones) (UNII Band 7) – Ch. 149)



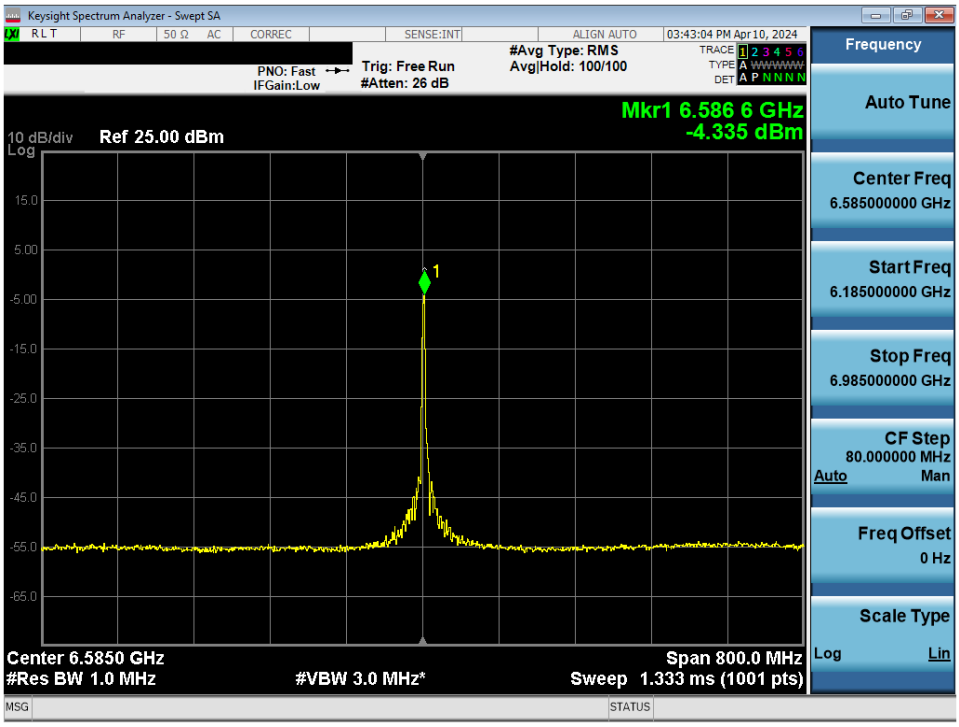
Plot 7-94. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802. 11be (26 Tones) (UNII Band 7) – Ch. 155)



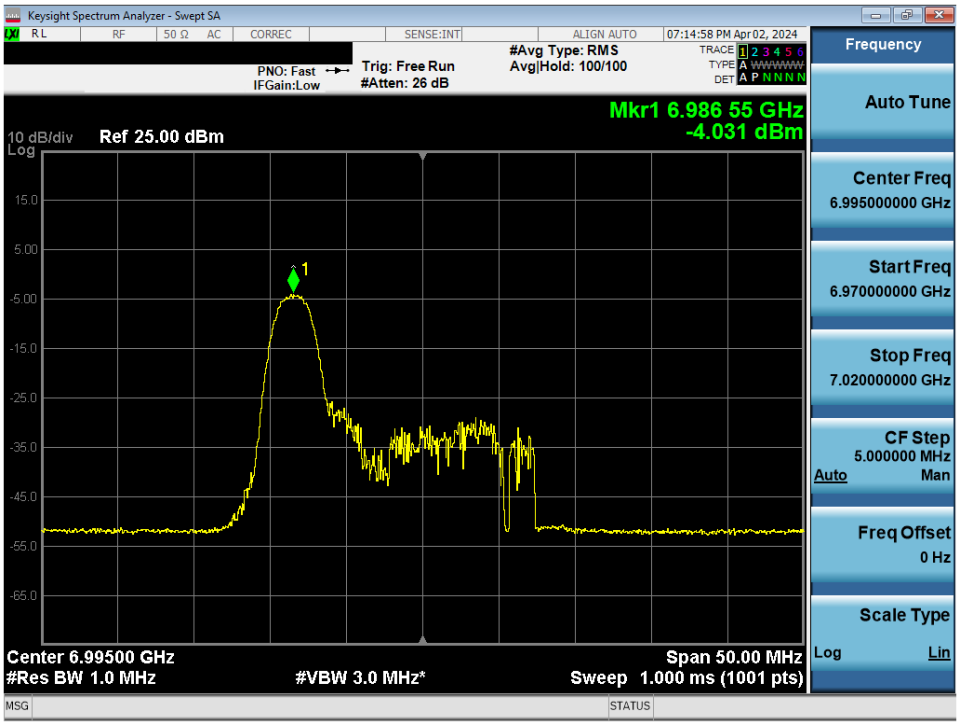
Plot 7-95. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802. 11be (26 Tones) (UNII Band 7) – Ch. 151)



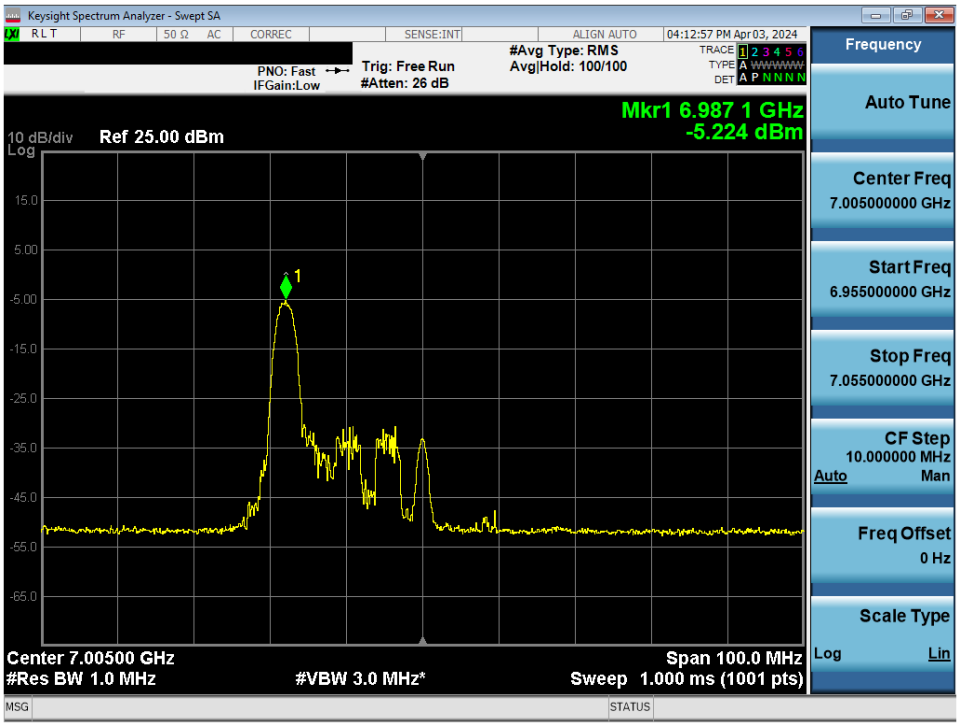
Plot 7-96. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802. 11be (26 Tones) (UNII Band 7) – Ch. 143)



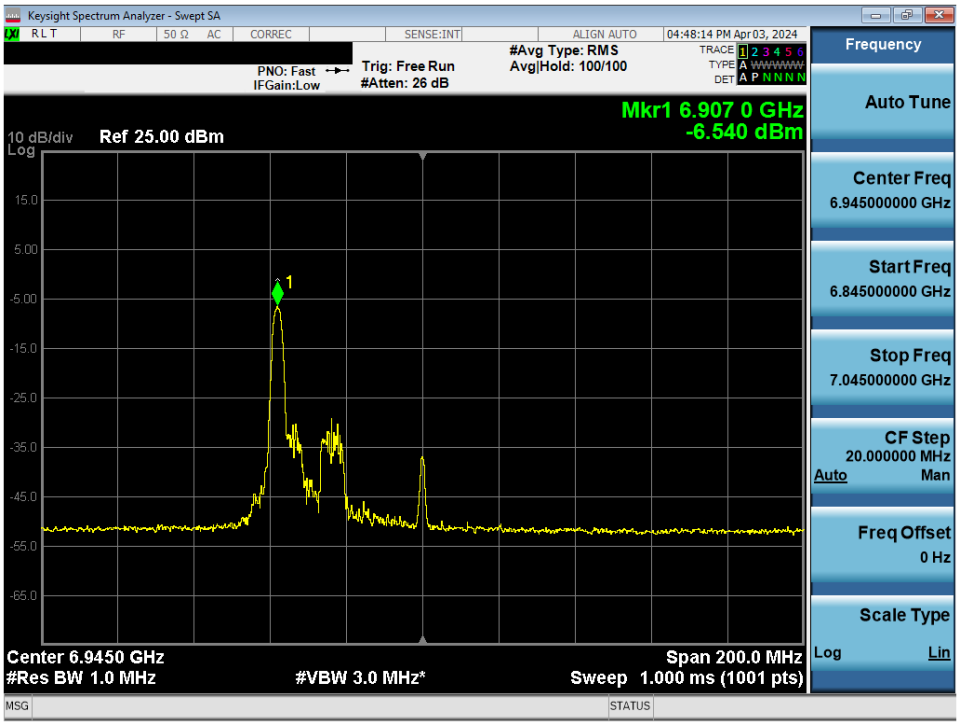
Plot 7-97. Power Spectral Density Plot MIMO ANT1 (320MHz BW 802. 11be (26 Tones) (UNII Band 7) – Ch. 127)



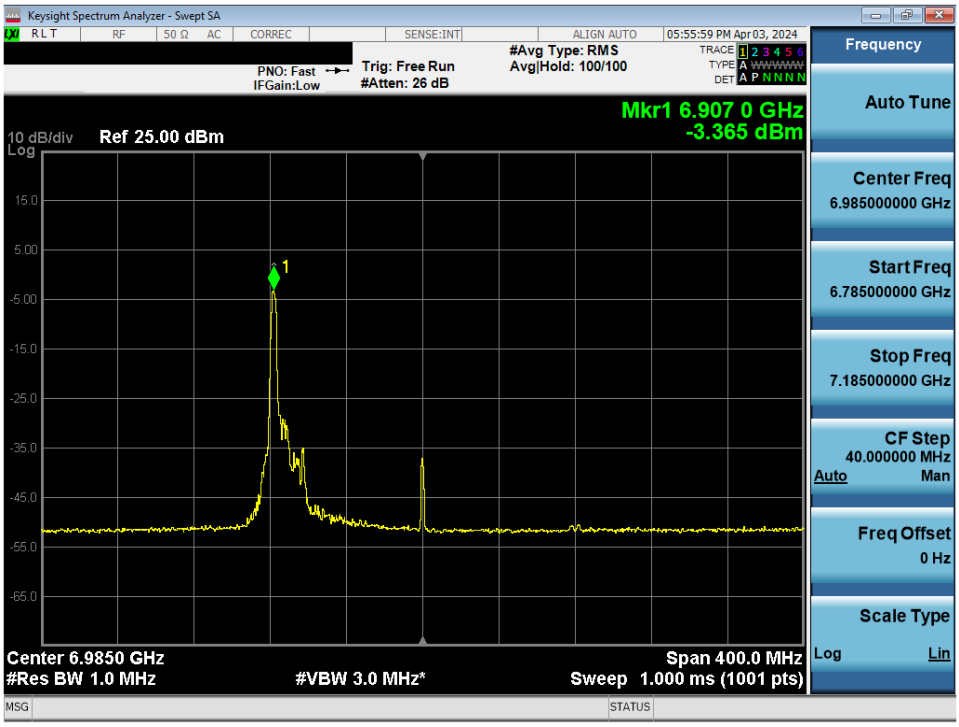
Plot 7-98. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802. 11be (26 Tones) (UNII Band 8) – Ch. 209)



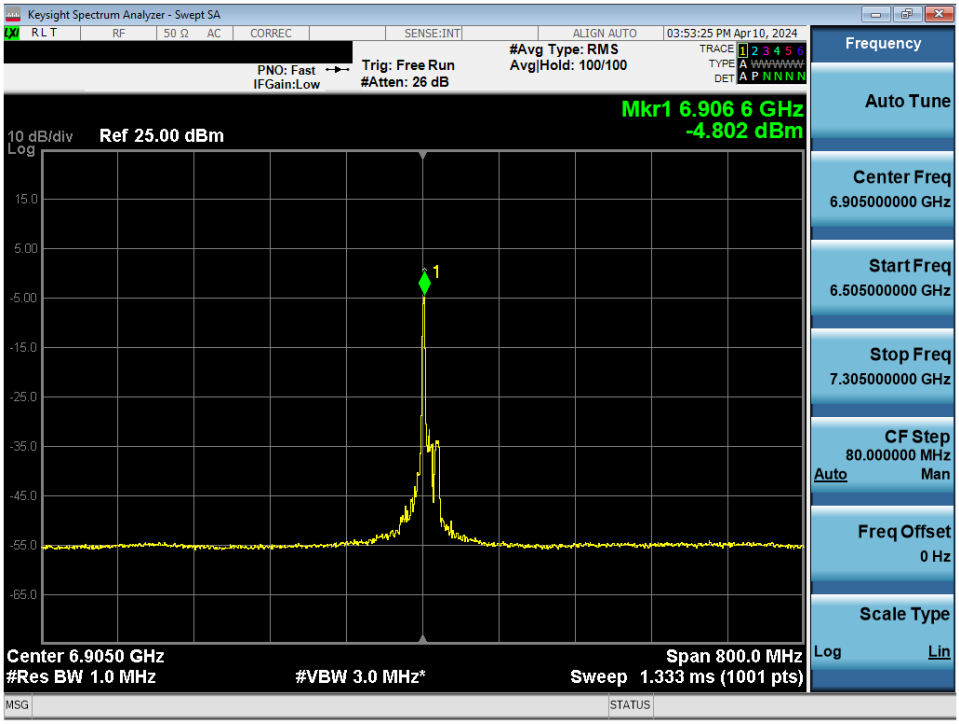
Plot 7-99. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802. 11be (26 Tones) (UNII Band 8) – Ch. 211)



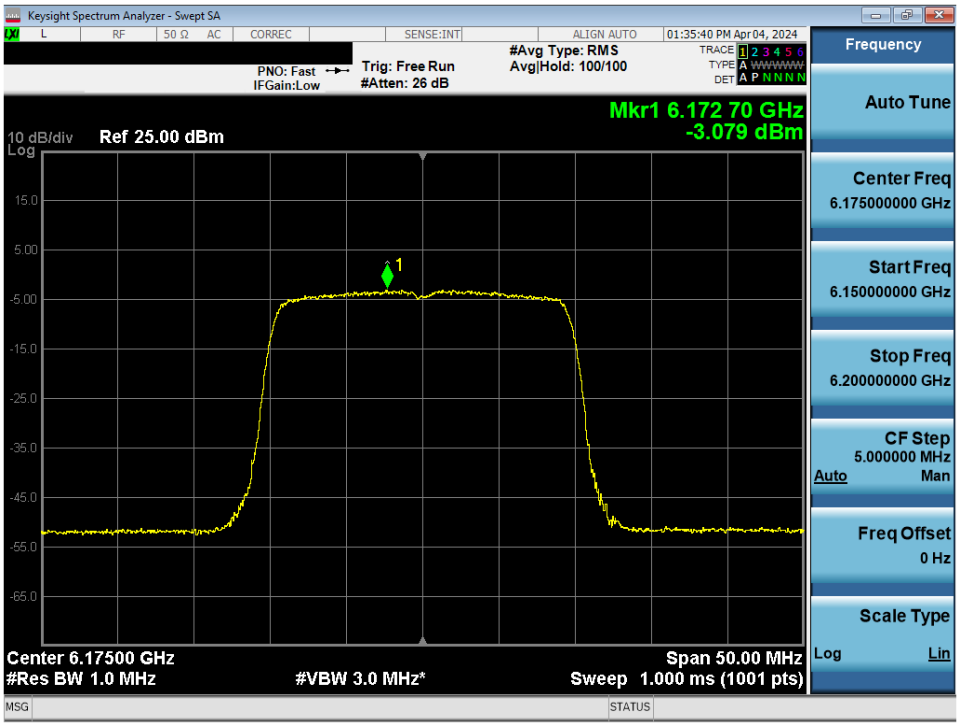
Plot 7-100. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802. 11be (26 Tones) (UNII Band 8) – Ch. 199)



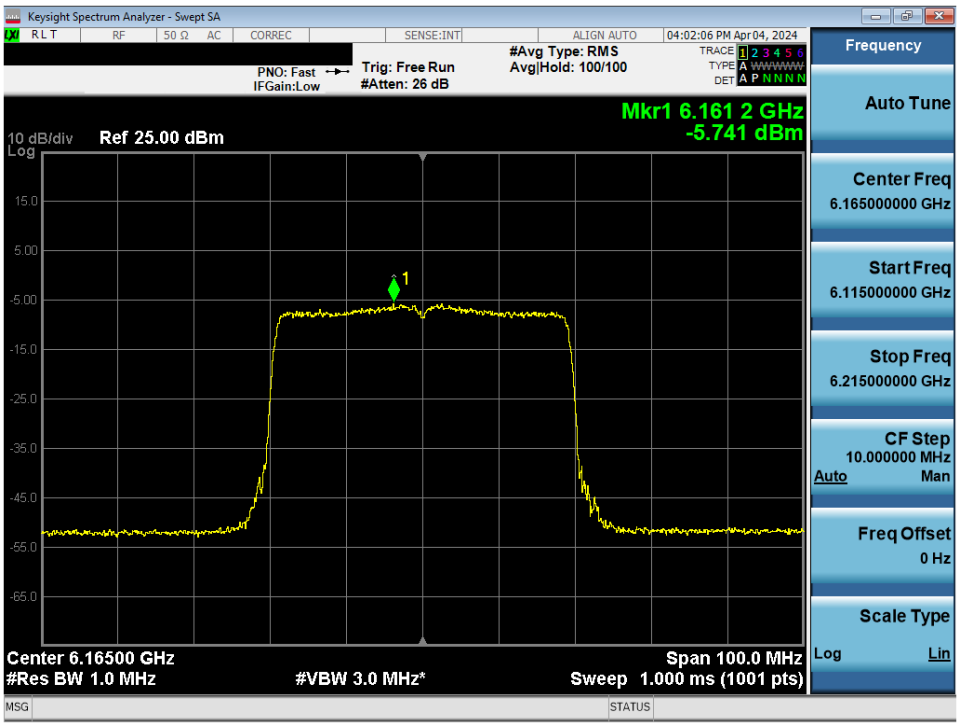
Plot 7-101. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802. 11be (26 Tones) (UNII Band 8) – Ch. 207)



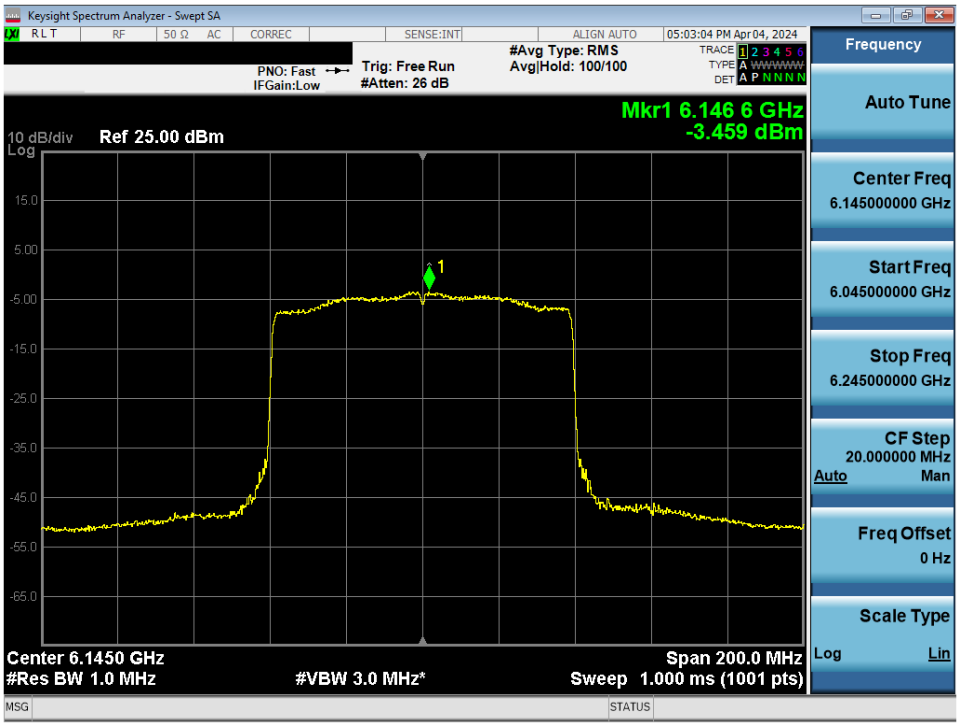
Plot 7-102. Power Spectral Density Plot MIMO ANT1 (320MHz BW 802. 11be (26 Tones) (UNII Band 8) – Ch. 191)



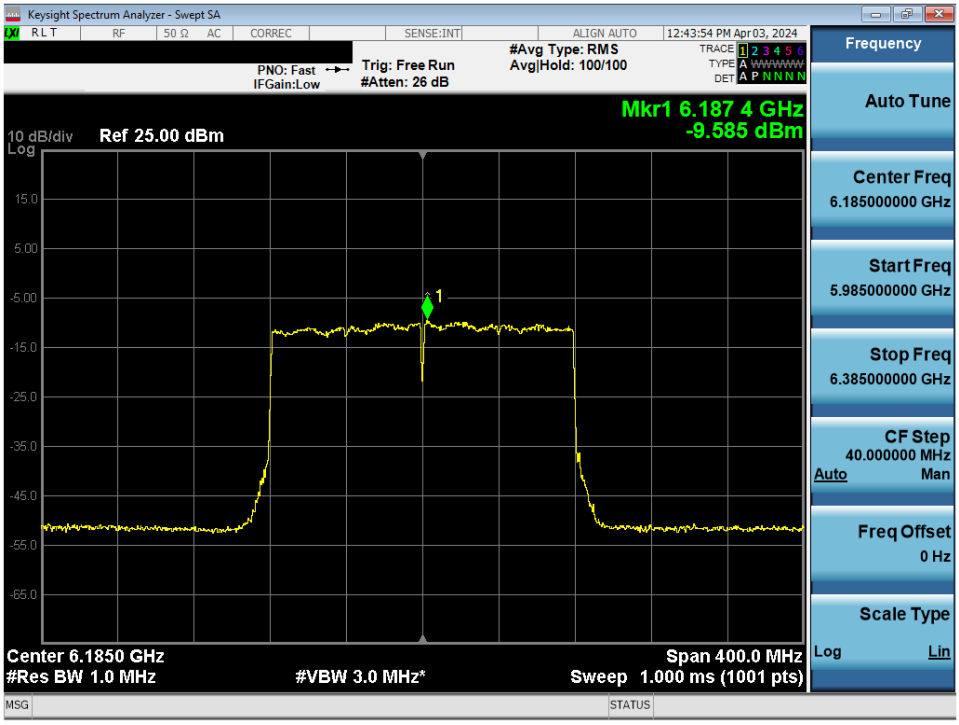
Plot 7-103. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802. 11be (Full Tone) (UNII Band 5) – Ch. 45)



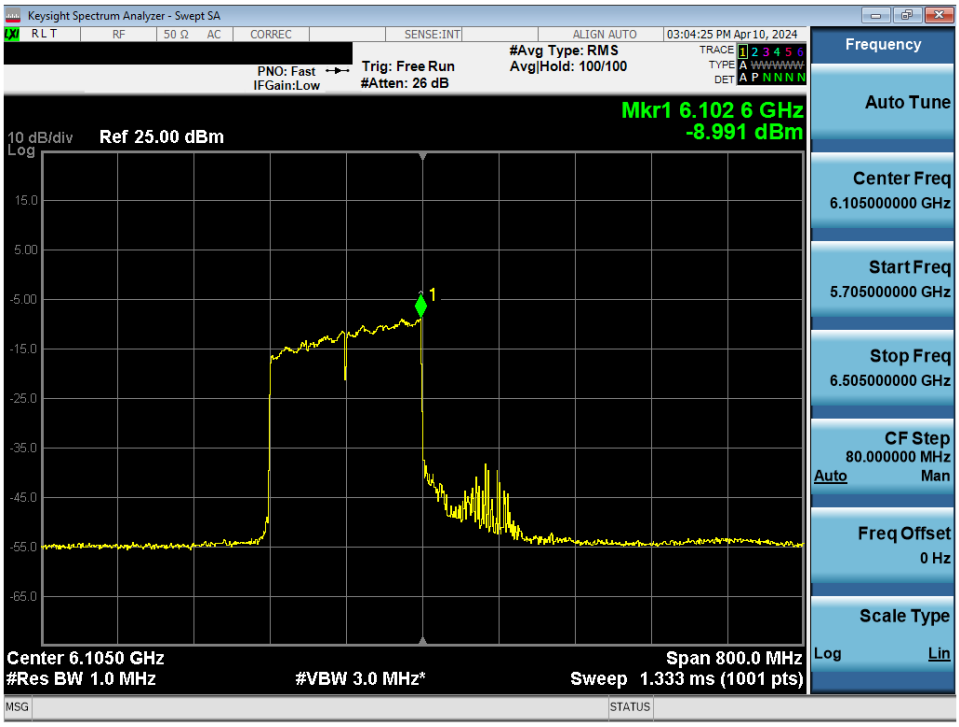
Plot 7-104. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802. 11be (Full Tone) (UNII Band 5) – Ch. 43)



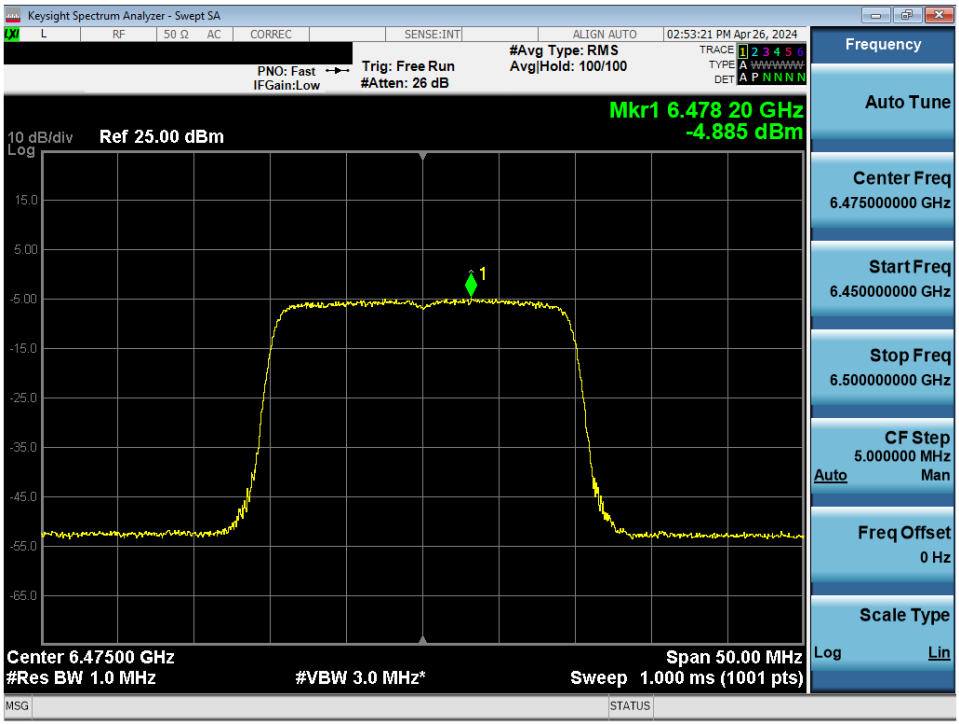
Plot 7-105. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802. 11be (Full Tone) (UNII Band 5) – Ch. 39)



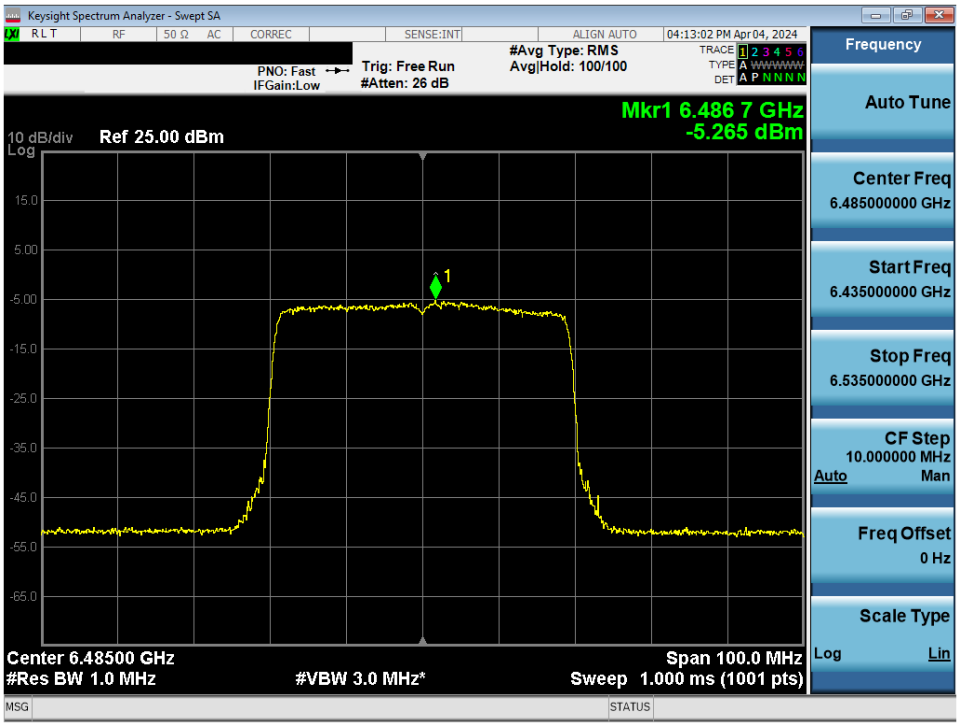
Plot 7-106. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802. 11be (Full Tone) (UNII Band 5) – Ch. 47)



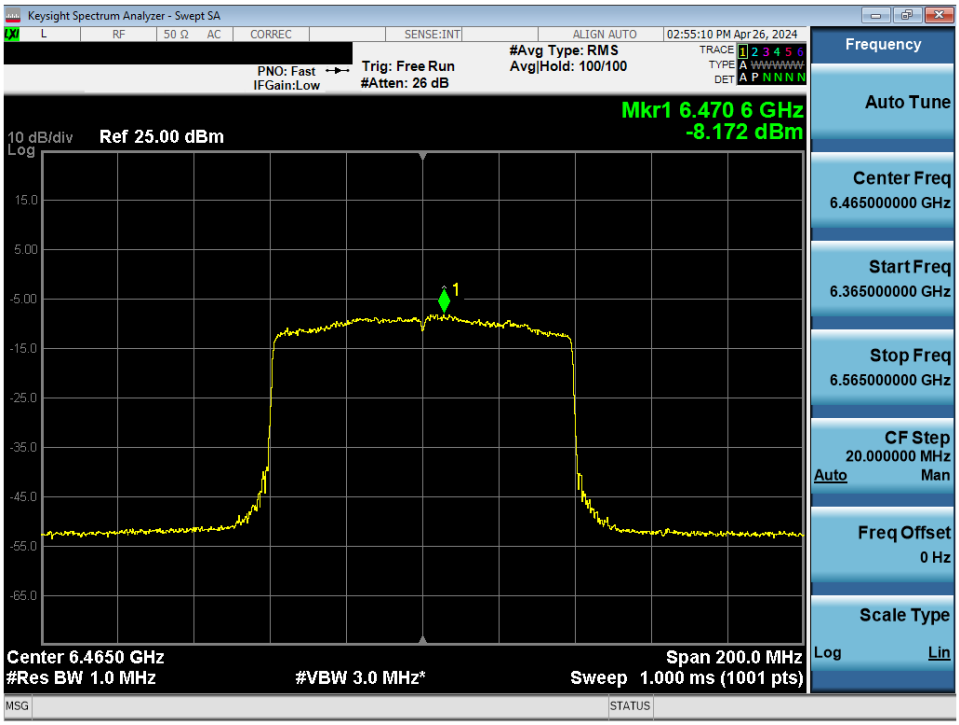
Plot 7-107. Power Spectral Density Plot MIMO ANT1 (320MHz BW 802. 11be (Full Tones) (UNII Band 5) – Ch. 31)



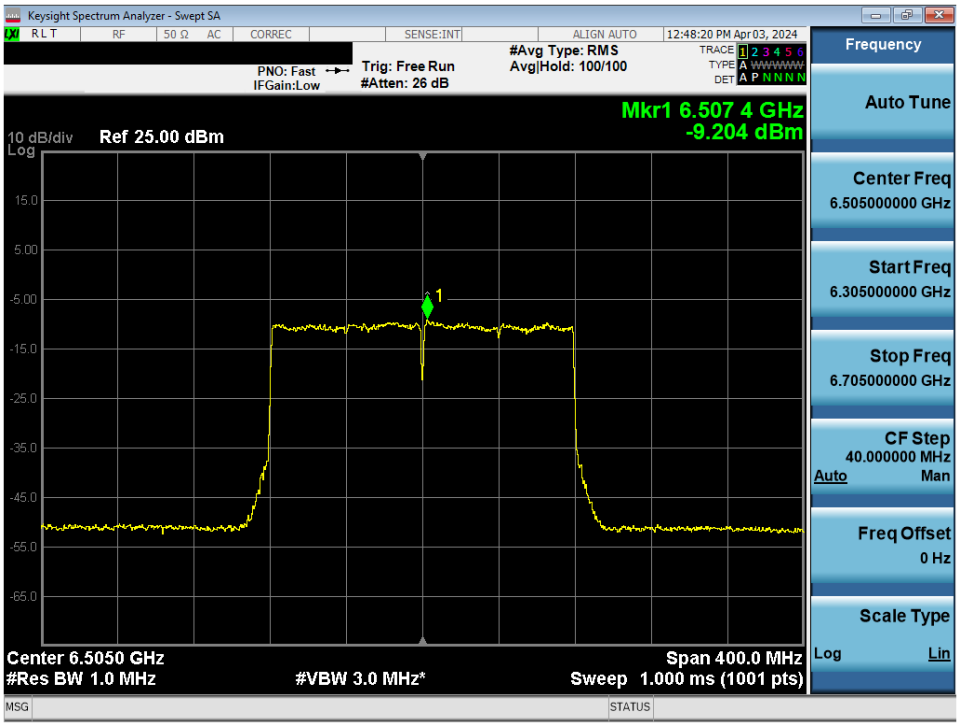
Plot 7-108. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802. 11be (Full Tone) (UNII Band 6) – Ch. 105)



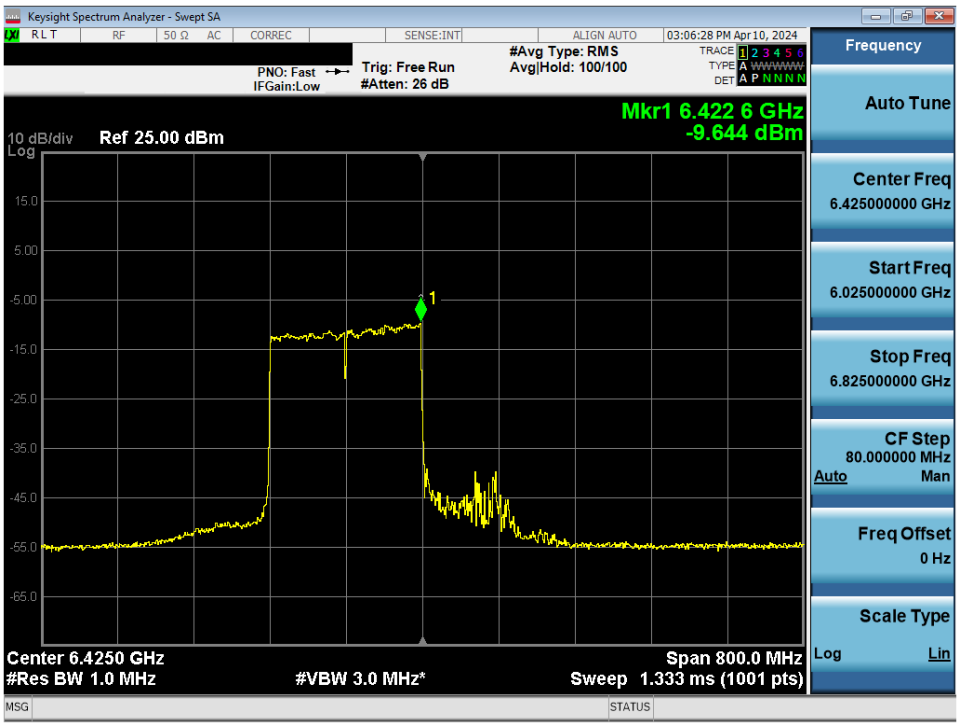
Plot 7-109. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802. 11be (Full Tone) (UNII Band 6) – Ch. 107)



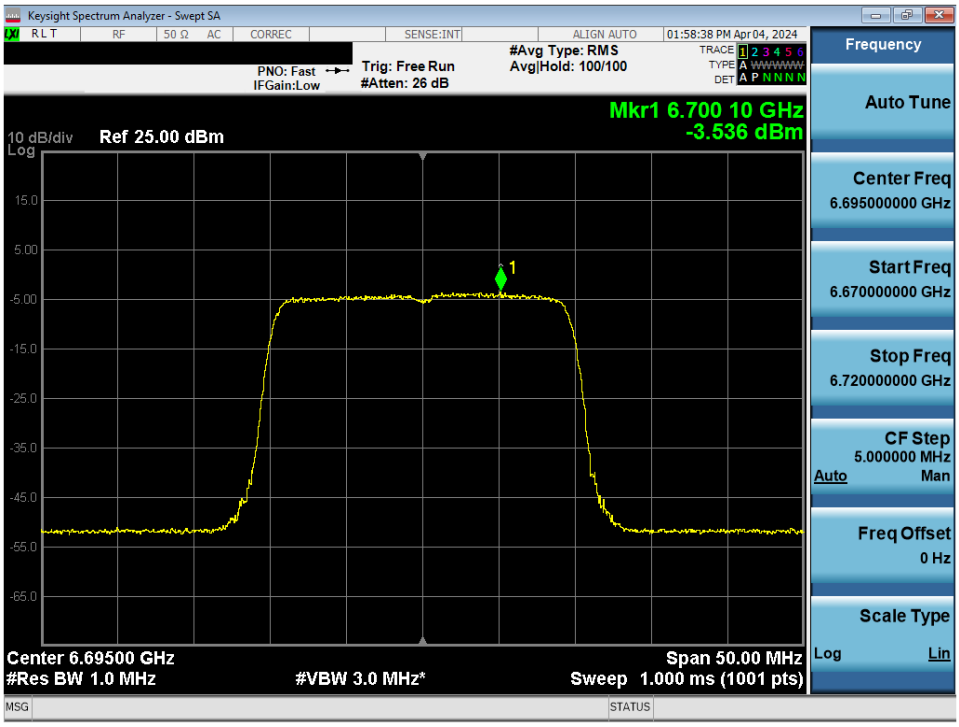
Plot 7-110. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802. 11be (Full Tone) (UNII Band 6) – Ch. 103)



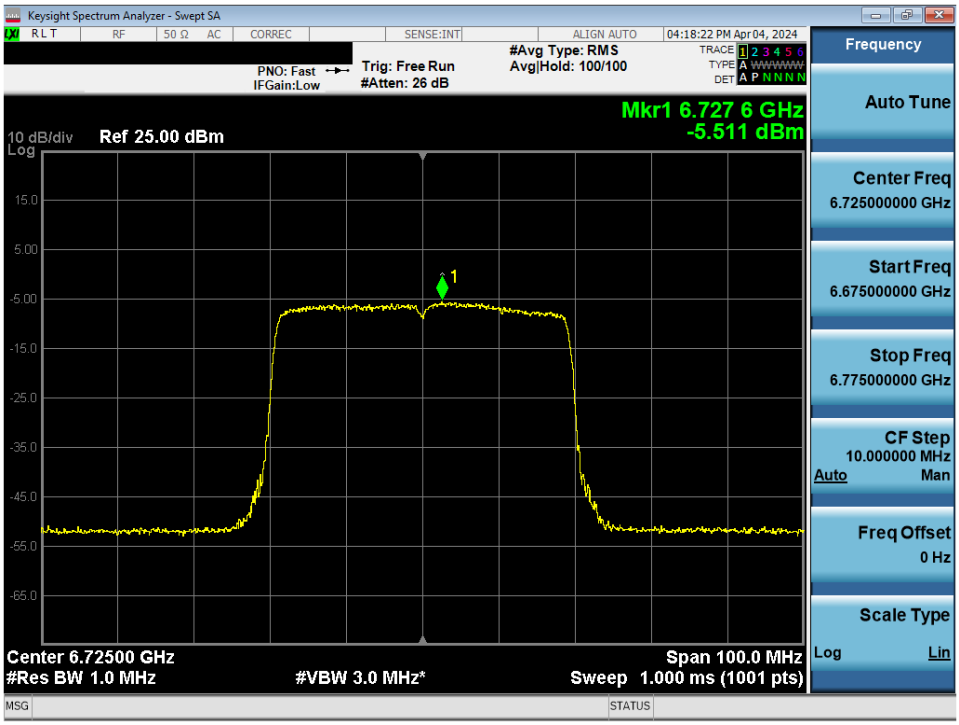
Plot 7-111. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802. 11be (Full Tone) (UNII Band 6) – Ch. 111)



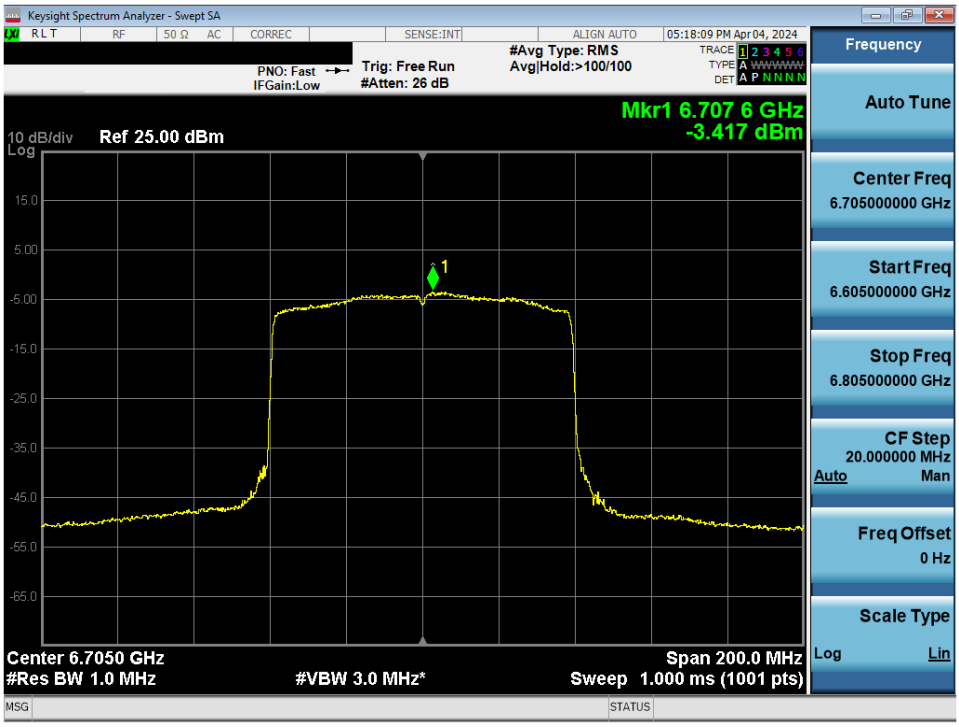
Plot 7-112. Power Spectral Density Plot MIMO ANT1 (320MHz BW 802. 11be (Full Tones) (UNII Band 6) – Ch. 95)



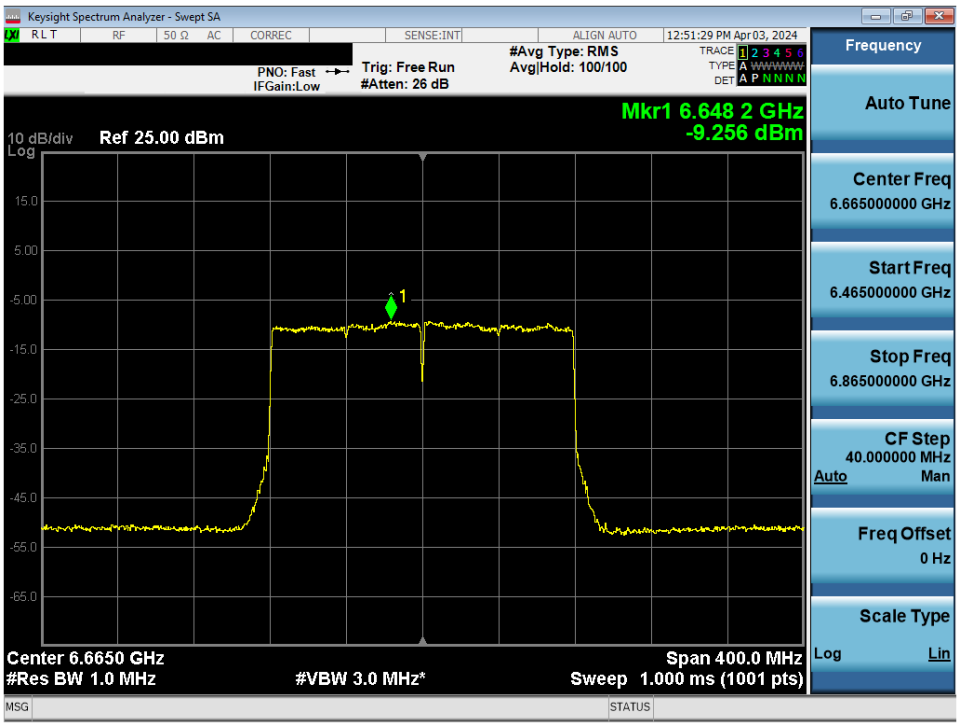
Plot 7-113. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802. 11be (Full Tone) (UNII Band 7) – Ch. 149)



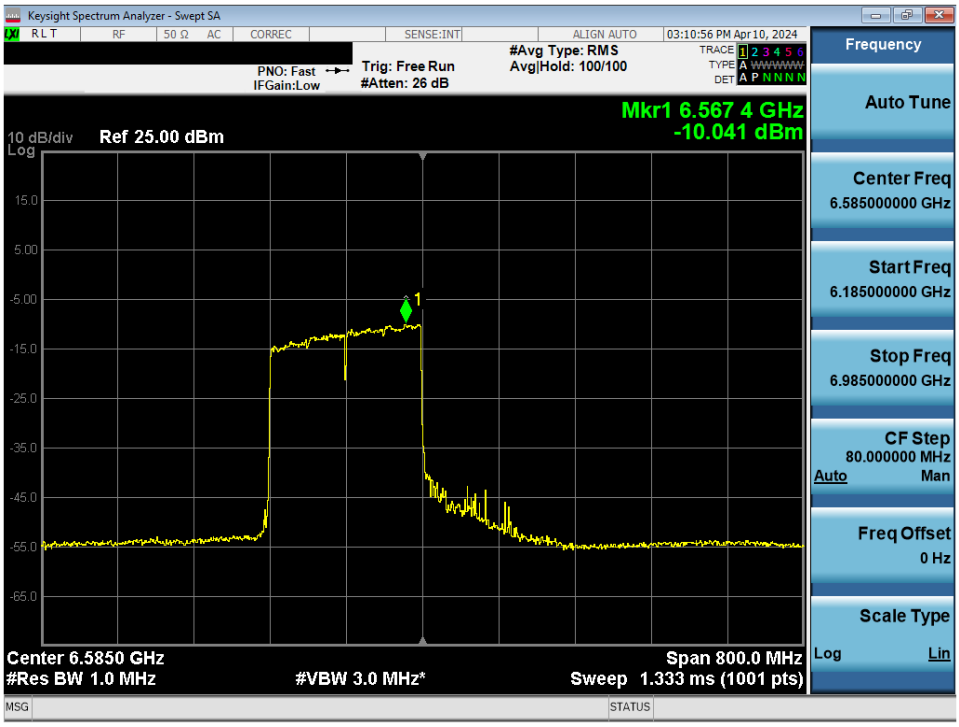
Plot 7-114. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802. 11be (Full Tone) (UNII Band 7) – Ch. 155)



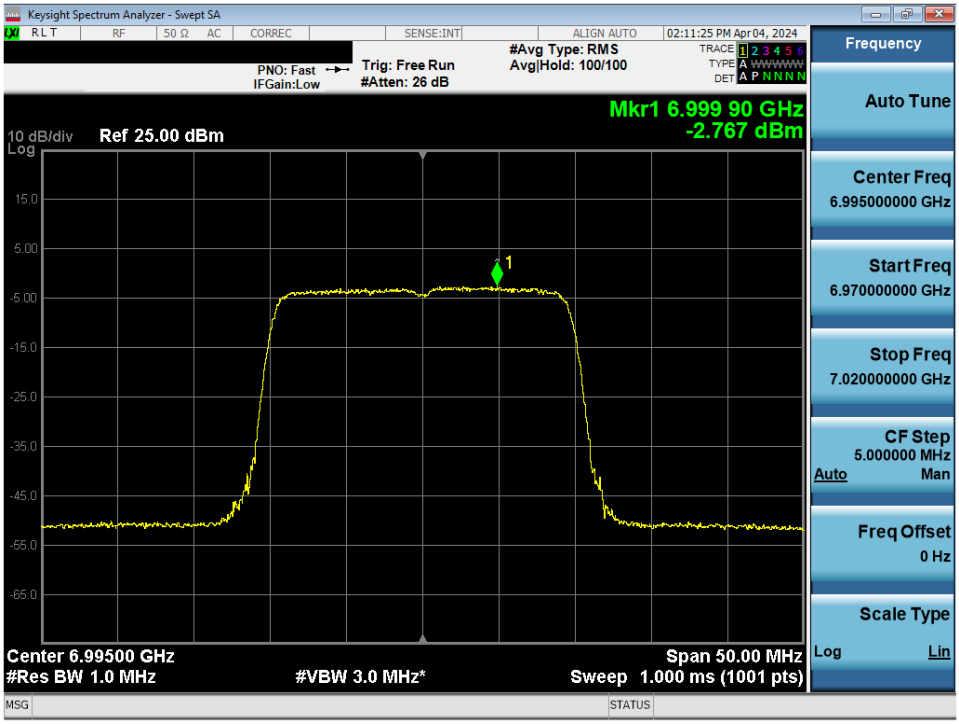
Plot 7-115. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802. 11be (Full Tone) (UNII Band 7) – Ch. 151)



Plot 7-116. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802. 11be (Full Tone) (UNII Band 7) – Ch. 143)



Plot 7-117. Power Spectral Density Plot MIMO ANT1 (320MHz BW 802. 11be (Full Tone) (UNII Band 7) – Ch. 127)



Plot 7-118. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802. 11be (Full Tone) (UNII Band 8) – Ch. 209)