

ELEMENT WASHINGTON DC LLC

7185 Oakland Mills Road, Columbia, MD 21046 USA Tel. 410.290.6652 / Fax 410.381.1520 http://www.element.com

MEASUREMENT REPORT FCC PART 15.407 / ISED RSS-248 802.11a/ax/be WiFi 6E (OFDM)

Applicant Name:

Microsoft Corporation One Microsoft Way Redmond, WA 98052 United States

Date of Testing:

12/14/2023 – 05/20/2024 **Test Report Issue Date:** 05/20/2024 **Test Site/Location:** Element lab., Columbia, MD, USA **Test Report Serial No.:** 1M2312040120-21-R2.C3K

FCC ID:

IC:

C3K2077

APPLICANT:

3048A-2077

Microsoft Corporation

Application Type:	Certification
Model/HVIN:	2077
EUT Type:	Portable Computing Device
Frequency Range:	5935 – 7115MHz
Modulation Type:	OFDM
FCC Classification:	15E 6GHz Low Power Dual Client (6CD)
FCC Rule Part(s):	Part 15 Subpart E (15.407)
ISED Specification:	RSS-248 Issue 2
Test Procedure(s):	ANSI C63.10-2013, KDB 987594 D02 v02r01

Note: This revised Test Report (S/N: 1M2312040120-21-R2.C3K) supersedes and replaces the previously issued test report 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.

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

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

RJ Ortanez Executive Vice President



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Channel Bandwidth [MHz]		Tx Frequency	MI	MO
		[MHz]	Max. Power [mW]	Max. Power [dBm]
	5	5955 - 6415	7.37	8.68
20	6	6435 - 6515	6.25	7.96
20	7	6535 - 6875	7.36	8.67
	8	6895 - 7115	7.03	8.47
	5	5965 - 6405	12.07	10.82
40	6	6445 - 6525	13.23	11.22
40	7	6565 - 6845	13.88	11.42
	8	6885 - 7085	14.83	11.71
	5	5985 - 6385	26.65	14.26
80	6	6465	23.00	13.62
80	7	6545 - 6865	26.03	14.15
	8	6945 - 7025	27.99	14.47
	5	6025 - 6345	53.42	17.28
160	6	6505	44.43	16.48
100	7	6665 - 6825	40.97	16.12
	8	6985	44.98	16.53
	5	6105 - 6265	102.97	20.13
320	6	6425	85.84	19.34
320	7	6585 - 6745	81.38	19.10
	8	6905	83.56	19.22
	milan I	ave Davear In	deer Clier	

EUT Overview – Low Power Indoor Client – EIRP

Channel	Channel		MI	мо
Bandwidth [MHz]	UNII Band	Tx Frequency [MHz]	Max. Power [mW]	Max. Power [dBm]
20	5	5955 - 6415	503.16	27.02
20	7	6535 - 6875	476.43	26.78
40	5	5965 - 6405	555.53	27.45
40	7	6565 - 6845	512.27	27.09
80	5	5985 - 6385	781.10	28.93
80	7	6545 - 6865	758.57	28.80
160	5	6025 - 6345	541.64	27.34
100	7	6665 - 6825	456.56	26.59
320 5		6105 - 6265	788.33	28.97

EUT Overview – Standard Power Client – EIRP

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1.0 INTRODUCTION

1.1 Scope

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

1.2 Element Test Location

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).

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2.0 PRODUCT INFORMATION

2.1 **Equipment Description**

The Equipment Under Test (EUT) is the Microsoft Corporation Portable Computing Device FCC ID: C3K2077. 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.: 7CDR2, B44G2, B44D2, 7CF42, 7CDQ2, 7CDB2, 7CBC2

2.2 Device Capabilities

This device contains the following capabilities:

850/1700/1900 WCDMA/HSPA, Multi-band LTE, Multi-band 5G NR (FR1), 802.11b/g/n/ac/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	11	7	6535	189	6895
:	:	:	:	:		:	:	:
45	6175	105	6475	14	9	6695	209	6995
:	:	:	:	:		:	:	:
93	6415	113	6515	18	5	6875	233	7115

Table 2-1. 802.11a/ax/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. 802.11ax/be (40MHz BW) Frequency / Channel Operations

	Band 5
Ch.	Frequency (MHz)
7	5985
:	:
39	6145
:	:
87	6385

	Band 6
Ch.	Frequency (MHz)
103	6465

Band 7									
Ch.	Frequency (MHz)								
119	6545								
:	:								
151	6705								
:	:								
183	6865								

Ballu o								
Ch.	Frequency (MHz)							
199	6945							
:								
215	7025							

Dand 0

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

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	Band 5		Band 6			Band 7			Band 8
Ch.	Frequency (MHz)	Cł	. Frequency (MHz	:)	Ch.	Frequency (MHz)		Ch.	Frequency (MHz)
15	6025	11	1 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 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:

 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:

		MIMO (1+2)
802.11	Duty Cycle [%]	
	а	99.47
	ax (HE20)	99.68
	be (EHT20)	99.79
	ax (HE40)	99.80
6GHz	be (EHT40)	99.80
00112	ax (HE80)	99.79
	be (EHT80)	99.79
	ax (HE160)	99.75
	be (EHT160)	99.75
	be (EHT320)	99.75

Table 2-6. Measured Duty Cycles

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

WiFi Configurations		SI	SO	CI	DD	SDM		
		ANT1	ANT2	ANT1	ANT2	ANT1	ANT2	
	11a	✓	✓	✓	✓	×	×	
6GHz	11ax	✓	✓	✓	✓	✓	✓	
	11be	✓	✓	✓	✓	✓	✓	
	Table 2-7	Antonno /	Tachnolog	w Configue	rations			

Table 2-7. Anten	na / Technology	Configurations

 \checkmark = Support; **x** = 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):

802.11a	Spatial		OFDM (802.11ax/be)													
20MHz	Stream		20MHz			40MHz			80MHz			160MHz		320MHz		
ZUIVIHZ		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
6	1	8.6	8.1	7.3	17.2	16.3	14.6	36	34	30.6	72.1	68.1	61.3	144.1	136.1	122.5
9	1	17.2	16.3	14.6	34.4	32.5	29.3	72.1	68.1	61.3	144.1	136.1	122.5	288.2	272.2	245
12	1	25.8	24.4	21.9	51.6	48.8	43.9	108.1	102.1	91.9	216.2	204.2	183.8	432.4	408.3	367.5
18	1	34.4	32.5	29.3	68.8	65	58.5	144.1	136.1	122.5	288.2	272.2	245	576.5	544.4	490
24	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	864.7	816.7	735
36	1	68.8	65	58.5	137.6	130	117	288.2	272.2	245	576.5	544.4	490	1152.9	1088.9	980
48	1	77.4	73.1	65.8	154.9	146.3	131.6	324.3	306.3	275.6	648.5	612.5	551.3	1297.1	1225	1102.5
54	1	86	81.3	73.1	172.1	162.5	146.3	360.3	340.3	306.3	720.6	680.6	612.5	1441.2	1361.1	1225
	1	103.2	97.5	87.8	206.5	195	175.5	432.4	408.3	367.5	864.7	816.7	735	1729.4	1633.3	1470
	1	114.7	108.3	97.5	229.4	216.7	195	480.4	453.7	408.3	960.8	907.4	816.7	1921.6	1814.8	1633.3
	1	129	121.9	109.7	258.1	243.8	219.4	540.4	510.4	459.4	1080.9	1020.8	918.8	2161.8	2041.7	1837.5
	1	143.4	135.4	121.9	286.8	270.8	243.8	600.5	567.1	510.4	1201	1134.3	1020.8	2402	2268.5	2041.7
	1	154.9	146.3	131.6	309.7	292.5	263.3	648.5	612.5	551.3	1297.1	1225	1102.5	2594.1	2450	2205
	1	172.1	162.5	146.3	344.1	325	292.5	720.6	680.6	612.5	1441.2	1361.1	1225	2882.4	2722.2	2450
6	2	17.2	16.3	14.6	34.4	32.5	29.3	72.1	68.1	61.3	144.1	136.1	122.5	288.2	272.2	245
9	2	34.4	32.5	29.3	68.8	65	58.5	144.1	136.1	122.5	288.2	272.2	245	576.5	544.4	490
12	2	51.6	48.8	43.9	103.2	97.5	87.8	216.2	204.2	183.8	432.4	408.3	367.5	864.7	816.7	735
18	2	68.8	65	58.5	137.6	130	117	288.2	272.2	245	576.5	544.4	490	1152.9	1088.9	980
24	2	103.2	97.5	87.8	206.5	195	175.5	432.4	408.3	367.5	864.7	816.7	735	1729.4	1633.3	1470
36	2	137.6	130	117	275.3	260	234	576.5	544.4	490	1152.9	1088.9	980	2305.9	2177.8	1960
48	2	154.9	146.3	131.6	309.7	292.5	263.3	648.5	612.5	551.3	1297.1	1225	1102.5	2594.1	2450	2205
54	2	172.1	162.5	146.3	344.1	325	292.5	720.6	680.6	612.5	1441.2	1361.1	1225	2882.4	2722.2	2450
	2	206.5	195	175.5	412.9	390	351	864.7	816.7	735	1729.4	1633.3	1470	3458.8	3266.7	2940
	2	229.4	216.7	195	458.8	433.3	390	960.8	907.4	816.7	1921.6	1814.8	1633.3	3843.1	3629.6	3266.7
	2	258.1	243.8	219.4	516.2	487.5	438.8	1080.9	1020.8	918.8	2161.8	2041.7	1837.5	4323.5	4083.3	3675
	2	286.8	270.8	243.8	573.5	541.7	487.5	1201	1134.3	1020.8	2402	2268.5	2041.7	4803.9	4537	4083.3
	2	309.7	292.5	263.3	619.4	585	526.5	1297.1	1225	1102.5	2594.1	2450	2205	5188.2	4900	4410
	2	344.1	325	292.5	688.2	650	585	1441.2	1361.1	1225	2882.4	2722.2	2450	5764.7	5444.4	4900

Table 2-8. Supported Data Rates

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2.3 Antenna Description

The following antenna gains are used in this device per the "Antenna Gain" document provided by the client. This document is also included in the filing as a public exhibit.

	Ant1 Peak Gain [dBi]	Ant2 Peak Gain [dBi]	Directional Gain [dBi]
5925 – 6425 MHz	4.19	2.59	6.44
6425 – 6525 MHz	3.82	1.36	5.69
6525 – 6875 MHz	3.50	2.33	5.94
6875 – 7125 MHz	2.62	3.93	6.31

 Table 2-9. Antenna Peak Gain

2.4 Test Configuration

The EUT was tested per the guidance of ANSI C63.10-2013 and KDB 987594 D02 v02r01. 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 operates in the 5.925-7.125 GHz band when under control of a low power indoor access point. Additionally, the device may operate in the 5.925-6.875 GHz bands when under control of a standard power access point.

2.5 Software and Firmware

The test was conducted with firmware version 2024.111.46 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.

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3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedures described in the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10-2013) and the guidance provided in KDB 987594 D02 v02r01 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, $50\Omega/50\mu$ H 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.

Line conducted emissions test results are shown in Section 7.8. The EMI Receiver mode of the Agilent MXE was used to perform AC line conducted emissions testing.

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

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4.0 ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

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

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

Conclusion:

The EUT complies with the requirement of §15.203.

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5.0 MEASUREMENT UNCERTAINTY

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

Contribution	Expanded Uncertainty (±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

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6.0 TEST EQUIPMENT CALIBRATION DATA

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

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
N/A	WL25-1	Conducted Cable Set (25GHz)	11/15/2023	Annual	11/15/2024	WL25-1
N/A	WL25-2	WLAN Cable Set (25GHz)	11/15/2023	Annual	11/15/2024	WL25-2
N/A	WL40-1	WLAN Cable Set (40GHz)	11/15/2023	Annual	11/15/2024	WL40-1
N/A	ETS-001	EMC Cable and Switch System	11/15/2023	Annual	11/15/2024	ETS-001
N/A	ETS-002	EMC Cable and Switch System	11/15/2023	Annual	11/15/2024	ETS-002
N/A	AP1-002	EMC Cable and Switch System	11/15/2023	Annual	11/15/2024	AP1-002
N/A	AP2-001	EMC Cable and Switch System	11/15/2023	Annual	11/15/2024	AP2-001
N/A	AP2-002	EMC Cable and Switch System	11/15/2023	Annual	11/15/2024	AP2-002
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	4/13/2024	121034
Keysight Technologies	N9038A	MXE EMI Receiver	8/30/2023	Annual	8/30/2024	MY51210133
Keysight Technologies	N9030A	PXA Signal Analyzer	2/29/2024	Annual	3/1/2025	MY55410501
Keysight Technologies	N9020A	MXA Signal Analyzer	3/15/2023	Annual	3/15/2024	MY54500644
Pasternack	NMLC-2	Line Conducted Emissions Cable (NM)	11/15/2023	Annual	11/15/2024	NMLC-2
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	9/25/2023	Annual	9/25/2024	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	9/11/2023	Annual	9/11/2024	100348
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	2/15/2024	Annual	2/15/2025	103200
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	3/15/2023	Biennial	3/15/2025	102136
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	3/15/2023	Biennial	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.

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7.0 TEST RESULTS

7.1 Summary

Company Name:	Microsoft Corporation
FCC ID:	<u>C3K2077</u>
FCC Classification:	15E 6GHz Low Power Dual Client (6CD)

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1046, 15.407(a)(12)	RSS-Gen [6.12]	Maximum Conducted Output Power	N/A		PASS	Section 7.3
15.407(a)(8)	RSS-Gen [6.7, RSS-248 [4.5.3]	Maximum Radiated Output Power (LPI)	< 24dBm over the frequency band of operation		PASS	Section 7.3
15.407(a)(7)	RSS-Gen [6.7, RSS-248 [4.5.5]	Maximum Radiated Output Power (SP)	< 30dBm over the frequency band of operation		PASS	Section 7.3
2.1049, 15.407(a)(11)	RSS-248 [4.4]	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)	RSS-248 [4.5.3]	Maximum Power Spectral Density (LPI)	< -1dBm/MHz e.i.r.p.	CONDUCTED	PASS	Section 7.4
15.407(a)(7)	RSS-248 [4.5.5]	Maximum Power Spectral Density (SP)	< 17dBm/MHz e.i.r.p.		PASS	Section 7.4
15.407(a)(7)	RSS-248 [4.5.5(c)]	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)	RSS-248 [4.6.2]	In-Band Emissions	EUT must meet the limits detailed in RSS-248 [4.6.2]		PASS	Section 7.5
15.407(d)(6)	RSS-248 [4.7.2]	Contention Based Protocol	EUT must detect AWGN signal with 90% (or better) certainty		PASS	Section 7.6
15.407(b)(6)	RSS-248 [4.6.2]	Undesirable Emissions	< -27dBm/MHz e.i.r.p. outside of the 5.925 – 7.125GHz band		PASS	Section 7.7
15.205, 15.209	RSS-Gen [8.9]	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions shall comply with RSS-Gen (8.9) limits	RADIATED	PASS	Section 7.7
15.407(b)(9)	RSS-Gen [8.8]	AC Conducted Emissions (150kHz – 30MHz)	< RSS-Gen [8.8] limits	LINE CONDUCTED	PASS	Section 7.8

Table 7-1. Summary of Test Results

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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) Per RSS-248 [4.5.5], a device operating under the control of a standard power access point in 5.925 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 does 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 in Dual Client PRV Supplemental Test Report.
- 5) 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 "EST," Version 1.2.1.
- 6) 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 1.6.1.

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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

- 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. All cases were investigated; a subset of the taken plots were included to represent relevant settings and measurements.
- 2. In this section, the bandwidth data table (Table 7-2) includes mainly the 26dB bandwidth measurements. 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 which are occupied bandwidth measurements.

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element

	Frequency [MHz]	Channel	802.11 MODE	Antenna-1 26dB Bandwidth [MHz]	Antenna-2 26dB Bandwidth [MHz]	Antenna-1 Occupied Bandwidth [MHz]	Antenna-2 Occupied Bandwidth [MHz]
	5935	2	а	24.29	23.05	-	-
	6175	45	а	23.67	22.87	-	-
	6415	93	а	23.88	23.66	-	-
	5935	2	be (20MHz)	22.27	22.75	-	-
	6175	45	be (20MHz)	22.90	23.21	-	-
	6415	93	be (20MHz)	22.88	22.92	-	-
	5695	3	be (40MHz)	45.29	44.18	-	-
d 5	6165	43	be (40MHz)	45.96	44.09	-	-
Band 5	6405	91	be (40MHz)	45.93	45.15	-	-
_	5985	7	be (80MHz)	94.52	90.04	-	-
	6145	39	be (80MHz)	92.98	90.32	-	-
	6385 6025	87 15	be (80MHz)	94.94	86.62	-	-
	6185	47	be (160MHz) be (160MHz)	174.60 174.90	172.37 175.77	-	-
	6345	79	be (160MHz)	174.90	175.77	-	-
	6105	31	be (320MHz)	-	-	315.16	- 314.78
	6265	63	be (320MHz)	-	-	313.10	314.78
	6435	97	a a	23.21	22.98	-	-
	6475	105	a	24.08	23.02	-	-
	6515	113	a	23.83	23.34	-	-
	6435	97	be (20MHz)	23.14	23.53	-	-
9	6475	105	be (20MHz)	23.18	23.19	-	-
Band 6	6515	113	be (20MHz)	23.32	23.13	-	-
Ba	6445	99	be (40MHz)	45.48	44.29	-	-
	6485	107	be (40MHz)	45.40	44.29	-	-
	6525	115	be (40MHz)	47.12	44.09	-	-
	6465	103	be (80MHz)	91.08	89.86	-	-
	6505	111	be (160MHz)	174.70	173.17	-	-
Band 5/6/7	6425	95	be (320MHz)	-	-	314.41	314.90
	6535	117	а	23.42	22.90	-	-
	6695	149	а	23.84	22.92	-	-
	6875	185	а	24.21	22.83	-	-
	6535	117	be (20MHz)	23.74	22.53	-	-
	6695	149	be (20MHz)	23.42	22.70	-	-
~	6875 6565	185 123	be (20MHz)	23.05 45.93	23.37 45.39	-	-
Band 7	6725	125	be (40MHz)	45.78	45.82		
8	6885	179	be (40MHz) be (40MHz)	45.78	43.82	-	-
	6545	1/9	be (80MHz)	92.67	90.38	-	-
	6705	115	be (80MHz)	89.96	91.03	-	-
	6865	183	be (80MHz)	92.67	91.17	-	-
	6665	143	be (160MHz)	176.23	173.59	-	-
	6825	175	be (160MHz)	177.22	176.56	-	-
Band 6/7	6585	127	be (320MHz)	-	-	314.50	315.34
Band 7/8	6745	159	be (320MHz)	-	-	315.04	314.80
	6895	189	а	23.35	23.29	-	-
	6995	209	а	24.17	22.66	-	-
	7115	233	а	24.26	22.54	-	-
	6895	189	be (20MHz)	23.53	22.88	-	-
	6995	209	be (20MHz)	22.58	22.64	-	-
00		233	be (20MHz)	22.81	23.01	-	-
8 pu	7115				44.97	-	-
Band 8	6925	187	be (40MHz)	46.07			
Band 8	6925 7005	187 211	be (40MHz)	44.46	44.81	-	-
Band 8	6925 7005 7085	187 211 227	be (40MHz) be (40MHz)	44.46 45.35	44.81 45.76	-	-
Band 8	6925 7005 7085 6945	187 211 227 199	be (40MHz) be (40MHz) be (80MHz)	44.46 45.35 93.68	44.81 45.76 90.98	-	-
Band 8	6925 7005 7085	187 211 227	be (40MHz) be (40MHz)	44.46 45.35	44.81 45.76	-	-

Table 7-2. Bandwidth Test Results

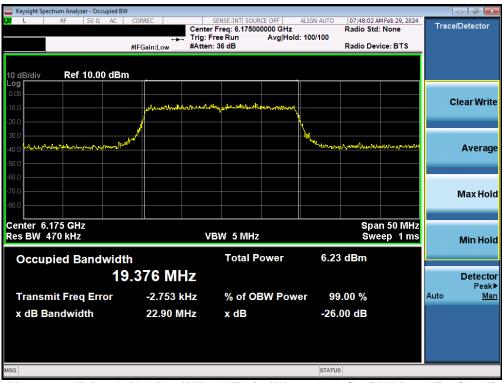
FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT			
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MIMO Antenna-1 26 dB Bandwidth Measurements - (UNII Band 5)



Plot 7-1. 26dB Bandwidth Plot MIMO ANT1 (20MHz 802.11a (UNII Band 5) - Ch. 45)



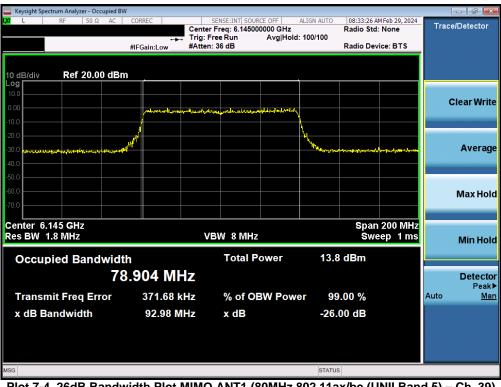
Plot 7-2. 26dB Bandwidth Plot MIMO ANT1 (20MHz 802.11ax/be (UNII Band 5) - Ch. 45)

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Plot 7-3. 26dB Bandwidth Plot MIMO ANT1 (40MHz 802.11ax/be (UNII Band 5) - Ch. 43)



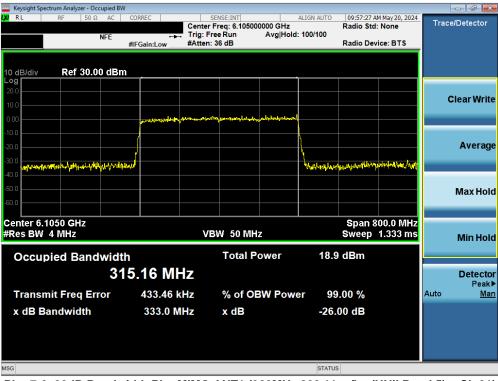
Plot 7-4. 26dB Bandwidth Plot MIMO ANT1 (80MHz 802.11ax/be (UNII Band 5) - Ch. 39)

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Keysight Spectrum Analyzer - Occupied B	W				- ē 🔀
L RF 50 Ω AC	Center Trig: F	SENSE:INT SOURCE OFF Freq: 6.185000000 GHz Free Run Avg Hold I: 36 dB	Radio Sto 1: 100/100	AM Feb 29, 2024 J: None vice: BTS	Trace/Detector
10 dB/div Ref 20.00 dB/ Log 10.0 0.00 -10.0	m	nort marked and the second and the s			Clear Write
-20.0 -30.0 data/hanangina para ang sada -40.0			h Hull-dynamics Maritan al maritan	-lalasijaty-sejostavaj	Average
-60.0					Max Hold
Center 6.185 GHz Res BW 3 MHz Occupied Bandwid		BW 50 MHz Total Power		n 400 MHz eep 1 ms	Min Hold
1	58.11 MHz				Detector Peak▶
Transmit Freq Error x dB Bandwidth	588.64 kHz 174.9 MHz	% of OBW Pow x dB	er 99.00 % -26.00 dB		Auto <u>Man</u>
MSG			STATUS		

Plot 7-5. 26dB Bandwidth Plot MIMO ANT1 (160MHz 802.11ax/be (UNII Band 5) - Ch. 47)

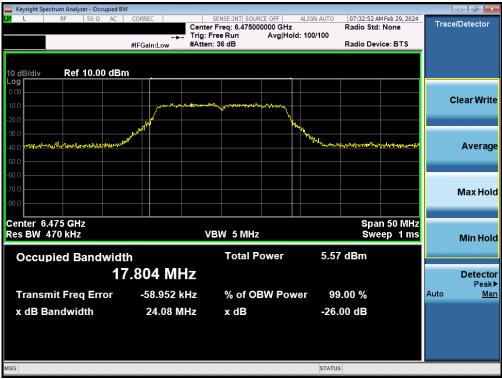


Plot 7-6. 26dB Bandwidth Plot MIMO ANT1 (320MHz 802.11ax/be (UNII Band 5) - Ch.31)

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MIMO Antenna-1 26 dB Bandwidth Measurements - (UNII Band 6)



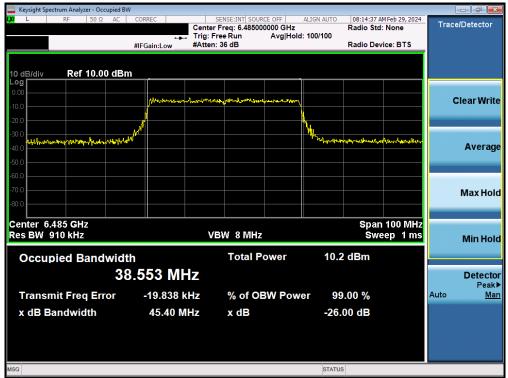
Plot 7-7. 26dB Bandwidth Plot MIMO ANT1 (20MHz 802.11a (UNII Band 6) - Ch. 105)



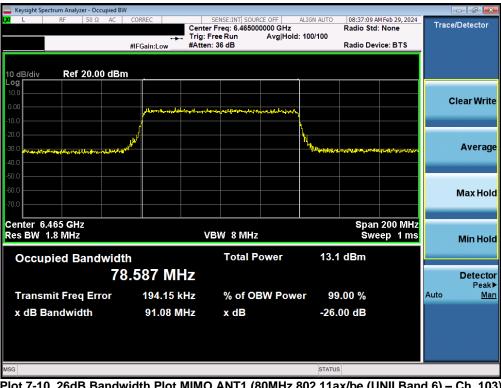
Plot 7-8. 26dB Bandwidth Plot MIMO ANT1 (20MHz 802.11ax/be (UNII Band 6) - Ch. 105)

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Plot 7-9. 26dB Bandwidth Plot MIMO ANT1 (40MHz 802.11ax/be (UNII Band 6) - Ch. 107)



Plot 7-10. 26dB Bandwidth Plot MIMO ANT1 (80MHz 802.11ax/be (UNII Band 6) - Ch. 103)

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Plot 7-11. 26dB Bandwidth Plot MIMO ANT1 (160MHz 802.11ax/be (UNII Band 6) - Ch. 111)

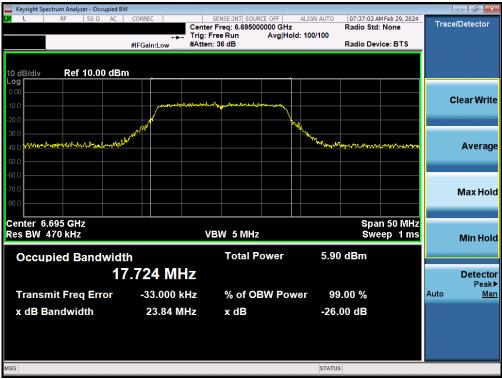


Plot 7-12. 26dB Bandwidth Plot MIMO ANT1 (320MHz 802.11ax/be (UNII Band 5/6/7) – Ch. 95)

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MIMO Antenna-1 26 dB Bandwidth Measurements - (UNII Band 7)



Plot 7-13. 26dB Bandwidth Plot MIMO ANT1 (20MHz 802.11a (UNII Band 7) - Ch. 149)



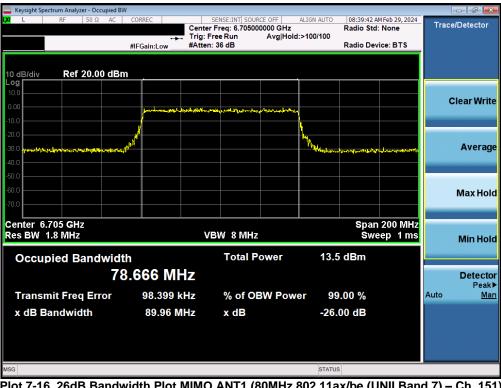
Plot 7-14. 26dB Bandwidth Plot MIMO ANT1 (20MHz 802.11ax/be (UNII Band 7) - Ch. 149)

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT	Approved by: Technical Manager
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Plot 7-15. 26dB Bandwidth Plot MIMO ANT1 (40MHz 802.11ax/be (UNII Band 7) - Ch. 155)



Plot 7-16. 26dB Bandwidth Plot MIMO ANT1 (80MHz 802.11ax/be (UNII Band 7) - Ch. 151)

FCC ID: C3K2077 IC: 3048A-2077	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 25 of 160
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Plot 7-17. 26dB Bandwidth Plot MIMO ANT1 (160MHz 802.11ax/be (UNII Band 7) - Ch. 143)

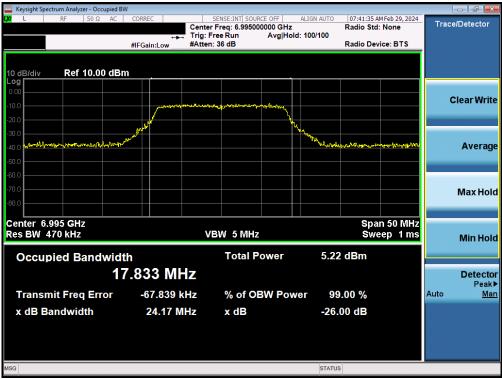


Plot 7-18. 26dB Bandwidth Plot MIMO ANT1 (320MHz 802.11ax/be (UNII Band 6/7) - Ch. 127)

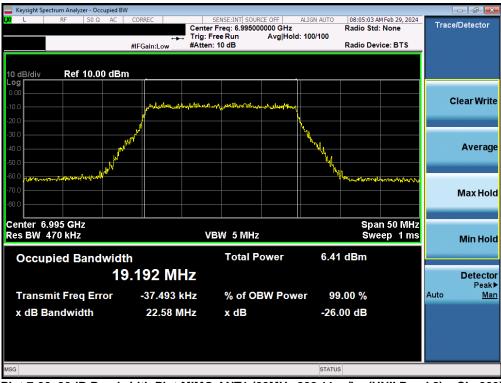
FCC ID: C3K2077 IC: 3048A-2077		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 26 of 160
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MIMO Antenna-1 26 dB Bandwidth Measurements - (UNII Band 8)



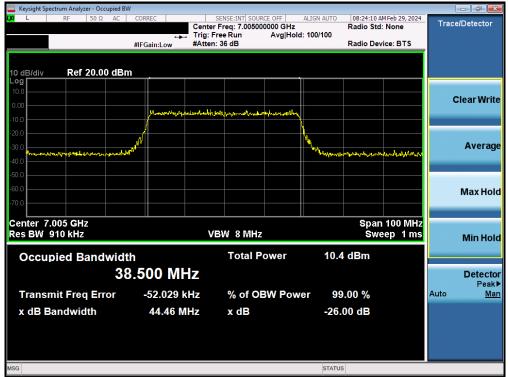
Plot 7-19. 26dB Bandwidth Plot MIMO ANT1 (20MHz 802.11a (UNII Band 8) - Ch. 209)



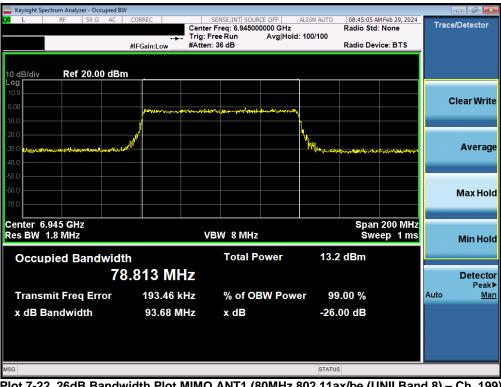
Plot 7-20. 26dB Bandwidth Plot MIMO ANT1 (20MHz 802.11ax/be (UNII Band 8) - Ch. 209)

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT		
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Plot 7-21. 26dB Bandwidth Plot MIMO ANT1 (40MHz 802.11ax/be (UNII Band 8) - Ch. 211)



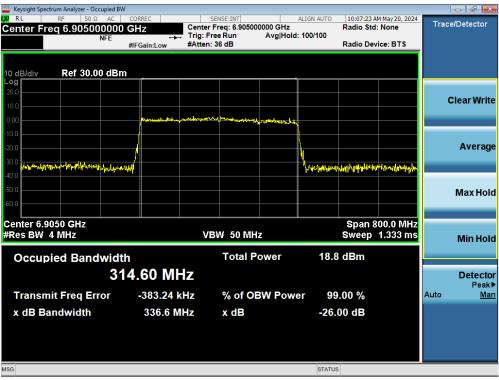
Plot 7-22. 26dB Bandwidth Plot MIMO ANT1 (80MHz 802.11ax/be (UNII Band 8) - Ch. 199)

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT		
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Plot 7-23. 26dB Bandwidth Plot MIMO ANT1 (160MHz 802.11ax/be (UNII Band 8) - Ch. 207)



Plot 7-24. 26dB Bandwidth Plot MIMO ANT1 (320MHz 802.11ax/be (UNII Band 7/8) - Ch. 191)

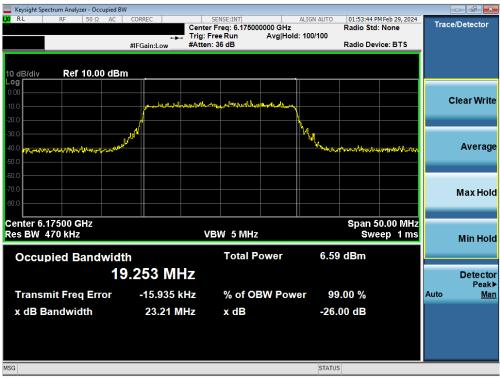
FCC ID: C3K2077 IC: 3048A-2077		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 20 of 100
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MIMO Antenna-2 26 dB Bandwidth Measurements - (UNII Band 5)



Plot 7-25. 26dB Bandwidth Plot MIMO ANT2 (20MHz 802.11a (UNII Band 5) - Ch. 45)



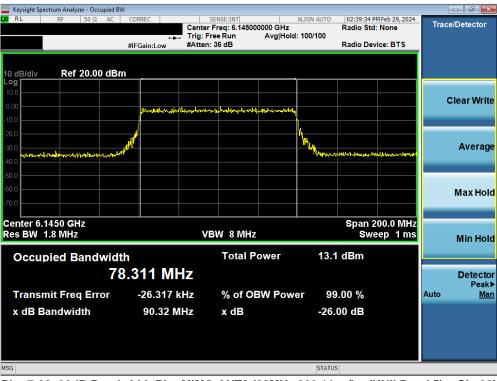
Plot 7-26. 26dB Bandwidth Plot MIMO ANT2 (20MHz 802.11ax/be (UNII Band 5) - Ch. 45)

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT				
Test Report S/N:	Test Dates:	EUT Type:	Page 30 of 169			
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Plot 7-27. 26dB Bandwidth Plot MIMO ANT2 (40MHz 802.11ax/be (UNII Band 5) - Ch. 43)



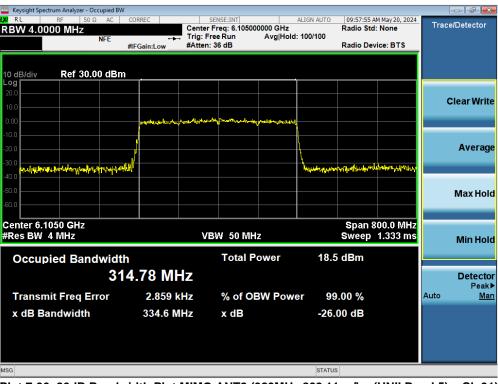
Plot 7-28. 26dB Bandwidth Plot MIMO ANT2 (80MHz 802.11ax/be (UNII Band 5) – Ch. 39)

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT		
Test Report S/N:	Test Dates:	t Dates: EUT Type:		
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Keysight Spectrum Analyzer - Occupied BW						=0	
LX RL RF 50Ω AC	CORREC	SENSE:INT Center Freg: 6.18500	0000 GHz	JTO 03:02:00 P Radio Std	M Feb 29, 2024 : None	Trace/	Detector
		Trig: Free Run #Atten: 36 dB	Avg Hold: 100/10	0 Radio Dev	ion BTS		
	#IFGain:Low	#Atten: 36 dB		Radio Dev	ICE: DI S		
10 dB/div Ref 20.00 dBm							
10.0							
0.00	ود دې د د روال کې و د د د د د د د	manter marketer barry	and the strength of the state of the strength			CI	ear Write
-10.0	-						
-20.0	/						
-30.0 margh the margh the second strate of the second strategy and str			1	heren har generation of the state of the sta	har bran to a land		Average
-40.0							
-50.0							
-60.0							Max Hold
-70.0							
				0			
Center 6.1850 GHz Res BW 3 MHz		VBW 50 MH	7		00.0 MHz ep 1 ms		
							Min Hold
Occupied Bandwidth		Total P	ower 1	l6.6 dBm			
15	7.88 MF	7					Detector
							Peak►
Transmit Freq Error	123.25 k	Hz % of OE	3W Power	99.00 %		Auto	<u>Man</u>
x dB Bandwidth	175.8 M	Hz x dB	-	26.00 dB			
MSG			S	TATUS			

Plot 7-29. 26dB Bandwidth Plot MIMO ANT2 (160MHz 802.11ax/be (UNII Band 5) - Ch. 47)



Plot 7-30. 26dB Bandwidth Plot MIMO ANT2 (320MHz 802.11ax/be (UNII Band 5) - Ch.31)

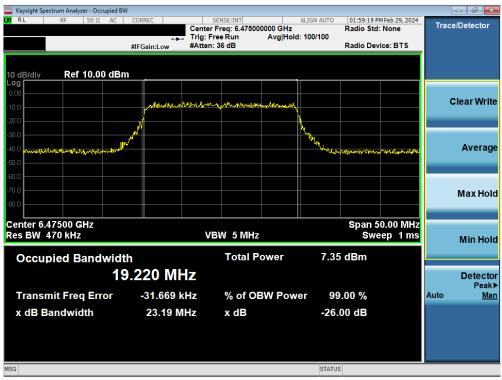
FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT		
Test Report S/N:	Test Dates:	ates: EUT Type:		
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MIMO Antenna-2 26 dB Bandwidth Measurements - (UNII Band 6)



Plot 7-31. 26dB Bandwidth Plot MIMO ANT2 (20MHz 802.11a (UNII Band 6) - Ch. 105)



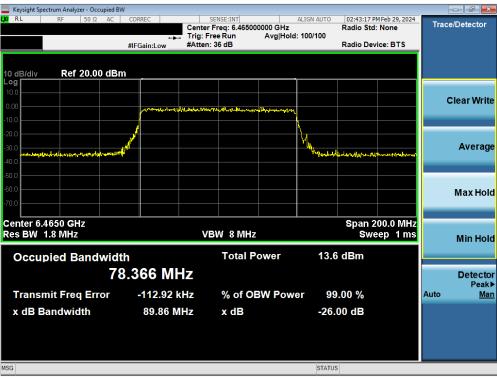
Plot 7-32. 26dB Bandwidth Plot MIMO ANT2 (20MHz 802.11ax/be (UNII Band 6) – Ch. 105)

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT			
Test Report S/N:	Test Dates:	EUT Type:	Page 33 of 169		
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Plot 7-33. 26dB Bandwidth Plot MIMO ANT2 (40MHz 802.11ax/be (UNII Band 6) - Ch. 107)



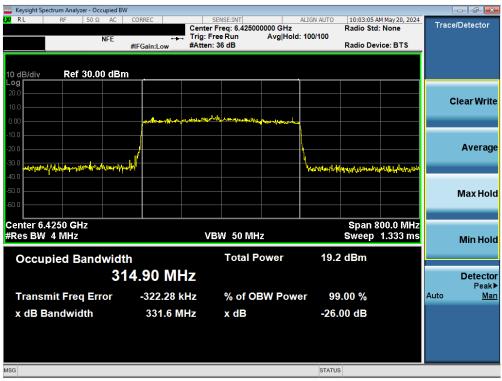
Plot 7-34. 26dB Bandwidth Plot MIMO ANT2 (80MHz 802.11ax/be (UNII Band 6) - Ch. 103)

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT		
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Keysight Spectrum Analyzer - Occupied BW							
LXU RL RF 50Ω AC	CORREC	SENSE:INT Center Freq: 6.5050		AUTO 03:08:30 PI Radio Std:	4 Feb 29, 2024 None	Trace/	Detector
	+ #IFGain:Low	Trig: Free Run #Atten: 36 dB	Avg Hold: 100	/100 Radio Dev	ice: BTS		
,	#IFGaIn:Low	#Atten: 00 db		Radio Dev	ice. D13		
10 dB/div Ref 20.00 dBm							
Log							
10.0						CI	ear Write
0.00	florensolwise	and and a start and a start	anger stall describer of the second			0	
-10.0			<u>h</u>				
-20.0	1		<u>کر ا</u>				
-30.0 Anotalinliptomploamentalitettettet	, <mark>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</mark>		ų	unnunnulmhaanun	Maroundurp		Average
-40.0							
-50.0							
-60.0							Max Hold
-70.0							
Center 6.5050 GHz					00.0 MHz		
Res BW 3 MHz		VBW 50 MH	IZ	Swe	ep 1 ms		Min Hold
Occupied Bandwidth	1	Total F	Power	16.7 dBm			
	7.98 MI						Detector
10	1.30 111	ΠZ					Detector Peak▶
Transmit Freq Error	152.11	kHz % of O	BW Power	99.00 %		Auto	Man
x dB Bandwidth	173.2 N	∬Hz xdB		-26.00 dB			
MSG				STATUS			

Plot 7-35. 26dB Bandwidth Plot MIMO ANT2 (160MHz 802.11ax/be (UNII Band 6) - Ch. 111)



Plot 7-36. 26dB Bandwidth Plot MIMO ANT2 (320MHz 802.11ax/be (UNII Band 5/6/7) - Ch. 95)

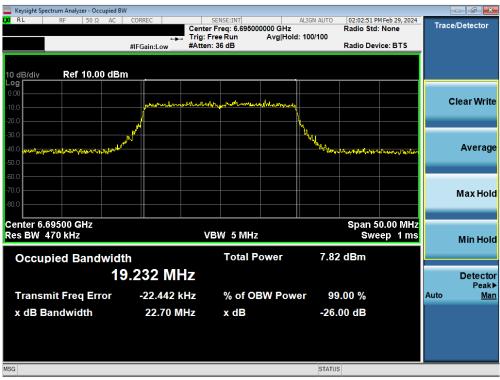
FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT		
Test Report S/N:	Test Dates:	est Dates: EUT Type:		
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MIMO Antenna-2 26 dB Bandwidth Measurements - (UNII Band 7)



Plot 7-37. 26dB Bandwidth Plot MIMO ANT2 (20MHz 802.11a (UNII Band 7) - Ch. 149)



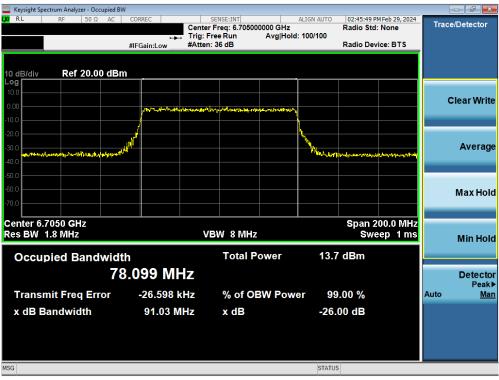
Plot 7-38. 26dB Bandwidth Plot MIMO ANT2 (20MHz 802.11ax/be (UNII Band 7) – Ch. 149)

FCC ID: C3K2077 IC: 3048A-2077	MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-39. 26dB Bandwidth Plot MIMO ANT2 (40MHz 802.11ax/be (UNII Band 7) - Ch. 155)



Plot 7-40. 26dB Bandwidth Plot MIMO ANT2 (80MHz 802.11ax/be (UNII Band 7) - Ch. 151)

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT			
Test Report S/N:	Test Dates:	EUT Type:	Dago 27 of 160		
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www.www.www.com.com.com.com.com.com.com.com.com.com					
LX RL RF 50Ω AC		SENSE:INT Freq: 6.665000000 GHz	ALIGN AUTO 03:10:04 Radio St	PM Feb 29, 2024	Trace/Detector
	🛶 Trig: F		d: 100/100	evice: BTS	
	#IFGain:Low #Atten	1: 36 dB	Radio Di	evice: B I S	
10 dB/div Ref 20.00 dBr	n				
10.0					
0.00	Marculadorputeral polarita	and the second and a			Clear Write
-10.0					
-20.0			<u>\</u>		
-30.0 House and many manual and a second	er ^{tt}		howinternetween	And the pine of the second	Average
-40.0					
-50.0					
-60.0					Max Hold
-70.0					
Center 6.6650 GHz			Snan	400.0 MHz	
Res BW 3 MHz	v	BW 50 MHz		veep 1 ms	Min Hold
			40.4.15		in the later
Occupied Bandwidt		Total Power	16.4 dBm		
1	57.66 MHz				Detector
Transmit Freq Error	-24.114 kHz	% of OBW Pow	ver 99.00 %		Peak▶ Auto Man
x dB Bandwidth	173.6 MHz	x dB	-26.00 dB		
MSG			STATUS		
MBG			STATUS		

Plot 7-41. 26dB Bandwidth Plot MIMO ANT2 (160MHz 802.11ax/be (UNII Band 7) - Ch. 143)



Plot 7-42. 26dB Bandwidth Plot MIMO ANT2 (320MHz 802.11ax/be (UNII Band 6/7) - Ch. 127)

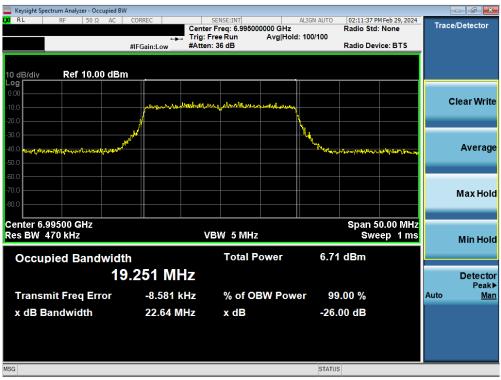
FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT			
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MIMO Antenna-2 26 dB Bandwidth Measurements - (UNII Band 8)



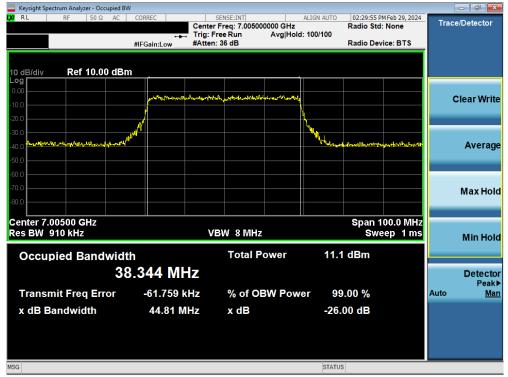
Plot 7-43. 26dB Bandwidth Plot MIMO ANT2 (20MHz 802.11a (UNII Band 8) - Ch. 209)



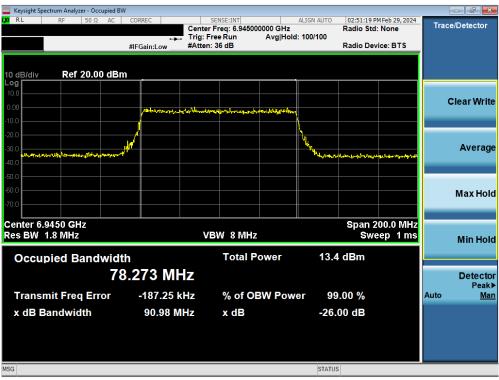
Plot 7-44. 26dB Bandwidth Plot MIMO ANT2 (20MHz 802.11ax/be (UNII Band 8) – Ch. 209)

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT			
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Plot 7-45. 26dB Bandwidth Plot MIMO ANT2 (40MHz 802.11ax/be (UNII Band 8) - Ch. 211)



Plot 7-46. 26dB Bandwidth Plot MIMO ANT2 (80MHz 802.11ax/be (UNII Band 8) - Ch. 199)

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT			
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Keysight Spectrum Analyzer - Occupied I							
LXI RL RF 50Ω AC	CORREC	SENSE:INT Center Freq: 6.98500	ALIGN AUTO	03:13:01 PM Radio Std: 1		Trace/E	etector
	↔ #IFGain:Low	, Trig: Free Run #Atten: 36 dB	Avg Hold: 100/100	Radio Devic	e: BTS		
	#IFGall.LOW			ituaio Derre			
10 dB/div Ref 20.00 dB	m						
Log							
10.0						Cle	ear Write
0.00	probably of the	- CULTURE STRATE ST	- townson down				
-10.0	1						
-20.0			N .				Average
-30.0	N.J.S.		Lefter-	of the state of the second of the second of the state of the second of t	that the second s		Average
-50.0							
-60.0							
-70.0						N	lax Hold
Center 6.9850 GHz Res BW 3 MHz		VBW 50 MH	17		0.0 MHz ep 1 ms		
Res DW SIVIEZ		VEW SUNIF	12	Swee	p ms	1	Min Hold
Occupied Bandwid	lth	Total P	ower 16	.3 dBm			
1	57.72 M	H7					Detector
							Peak▶
Transmit Freq Error	-39.763		BW Power 9	9.00 %		Auto	<u>Man</u>
x dB Bandwidth	175.3 M	/Hz xdB	-20	6.00 dB			
MSG			STAT	US			

Plot 7-47. 26dB Bandwidth Plot MIMO ANT2 (160MHz 802.11ax/be (UNII Band 8) - Ch. 207)



Plot 7-48. 26dB Bandwidth Plot MIMO ANT2 (320MHz 802.11ax/be (UNII Band 7/8) - Ch. 191)

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT			
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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 the tighter low power indoor access point limit of 24dBm e.i.r.p. for both cases.

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MIMO Maximum Conducted Output Power Measurements

	6GHz WIFI (20MHz 802.11a MIMO)					Directional Ant.			
Band	Freq [MHz]	Channel	Avg. C	onducted Powers	: [dBm]	Gain	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
			ANT1	ANT2	MIMO	[dBi]			
	5935	2	-0.74	-0.80	2.24	6.44	8.68	24.00	-15.32
UNII-5	5955	1	-1.25	-1.24	1.77	6.44	8.21	24.00	-15.79
UNII-5	6175	45	-0.80	-0.82	2.20	6.44	8.64	24.00	-15.36
	6415	93	-1.04	-0.96	2.01	6.44	8.45	24.00	-15.55
	6435	97	-0.76	-0.78	2.24	5.69	7.93	24.00	-16.07
UNII-6	6475	105	-0.73	-0.76	2.27	5.69	7.96	24.00	-16.04
	6515	113	-0.66	-0.83	2.27	5.69	7.96	24.00	-16.04
	6535	117	-0.76	-0.75	2.26	5.94	8.20	24.00	-15.80
UNII-7	6675	145	-0.87	-0.13	2.53	5.94	8.47	24.00	-15.53
UNII-7	6695	149	-0.80	-0.16	2.54	5.94	8.48	24.00	-15.52
	6875	185	-0.64	-0.67	2.36	6.31	8.67	24.00	-15.33
	6895	189	-1.19	-1.28	1.78	6.31	8.09	24.00	-15.91
UNII-8	6995	209	-1.11	-1.08	1.92	6.31	8.23	24.00	-15.77
	7115	233	-1.47	-1.01	1.78	6.31	8.09	24.00	-15.91

Table 7-3. MIMO 20MHz BW 802.11a (UNII) Maximum Conducted Output Power - LPI

	6GHz WIFI (20MHz 802.11ax MIMO)								
Band	Freq [MHz]	Channel	Avg. C	onducted Powers	s [dBm]	- Directional Ant. Gain	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
			ANT1	ANT2	MIMO	[dBi]			
	5935	2	-1.33	-1.44	1.63	6.44	8.07	24.00	-15.93
UNII-5	5955	1	-1.38	-1.33	1.66	6.44	8.10	24.00	-15.90
UNII-3	6175	45	-1.34	-1.34	1.67	6.44	8.11	24.00	-15.89
	6415	93	-1.16	-1.06	1.90	6.44	8.34	24.00	-15.66
	6435	97	-0.84	-0.93	2.13	5.69	7.82	24.00	-16.18
UNII-6	6475	105	-0.74	-0.89	2.20	5.69	7.89	24.00	-16.11
	6515	113	-0.71	-0.99	2.16	5.69	7.85	24.00	-16.15
	6535	117	-0.90	-0.88	2.12	5.94	8.06	24.00	-15.94
UNII-7	6675	145	-0.99	-0.07	2.50	5.94	8.44	24.00	-15.56
UNII-7	6695	149	-0.92	-0.01	2.57	5.94	8.51	24.00	-15.49
	6875	185	-0.72	-0.78	2.26	5.94	8.20	24.00	-15.80
	6895	189	-1.25	-1.43	1.67	6.31	7.98	24.00	-16.02
UNII-8	6995	209	-1.28	-1.19	1.78	6.31	8.09	24.00	-15.91
	7115	233	-1.19	-0.64	2.10	6.31	8.41	24.00	-15.59

Table 7-4. MIMO 20MHz BW 802.11ax (UNII) Maximum Conducted Output Power – LPI

	6GHz WIFI (20MHz 802.11be MIMO)								
Band	Freq [MHz]	Channel	Avg. C	onducted Powers	s [dBm]	Directional Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
			ANT1	ANT2	MIMO	[αΒΙ]			
	5935	2	-1.36	-1.43	1.62	6.44	8.06	24.00	-15.94
UNII-5	5955	1	-1.38	-1.34	1.65	6.44	8.09	24.00	-15.91
UNIT-3	6175	45	-1.41	-1.29	1.66	6.44	8.10	24.00	-15.90
	6415	93	-1.18	-1.03	1.91	6.44	8.35	24.00	-15.65
	6435	97	-0.91	-0.90	2.11	5.69	7.80	24.00	-16.20
UNII-6	6475	105	-0.88	-0.74	2.20	5.69	7.89	24.00	-16.11
	6515	113	-0.74	-0.84	2.22	5.69	7.91	24.00	-16.09
	6535	117	-0.94	-0.70	2.19	5.94	8.13	24.00	-15.87
UNII-7	6675	145	-0.99	-0.02	2.53	5.94	8.47	24.00	-15.53
UNIT-7	6695	149	-0.91	-0.02	2.57	5.94	8.51	24.00	-15.49
	6875	185	-0.73	-0.76	2.27	5.94	8.21	24.00	-15.79
	6895	189	-1.26	-1.39	1.69	6.31	8.00	24.00	-16.00
UNII-8	6995	209	-1.28	-1.13	1.81	6.31	8.12	24.00	-15.88
	7115	233	-1.20	-0.53	2.16	6.31	8.47	24.00	-15.53

Table 7-5. MIMO 20MHz BW 802.11be (UNII) Maximum Conducted Output Power – LPI

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT			
Test Report S/N:	Test Dates:	EUT Type:	Dama 40 of 400		
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		6GHz WIF	(20MHz 802.11a	MIMO)		Directional Ant.			
Band	Freq [MHz]	Channel	Avg. C	onducted Powers	: [dBm]	Gain	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
			ANT1	ANT2	MIMO	[dBi]			
	5935	2	2.95	2.77	5.87	6.44	12.31	30.00	-17.69
UNII-5	5955	1	17.34	17.14	20.25	6.44	26.69	30.00	-3.31
UNII-5	6175	45	17.45	17.19	20.33	6.44	26.77	30.00	-3.23
	6415	93	17.55	17.30	20.44	6.44	26.88	30.00	-3.12
	6535	117	17.56	17.25	20.42	5.94	26.36	30.00	-3.64
UNII-7	6675	145	17.79	17.53	20.67	5.94	26.61	30.00	-3.39
	6695	149	17.74	17.51	20.64	5.94	26.58	30.00	-3.42

Table 7-6. MIMO 20MHz BW 802.11a (UNII) Maximum Conducted Output Power - SP

	6GHz WIFI (20MHz 802.11ax MIMO)								
Band	Freq [MHz]	Channel	Avg. C	onducted Powers	s [dBm]	Directional Ant. Gain	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
			ANT1	ANT2	MIMO	[dBi]			
	5935	2	5.98	5.43	8.72	6.44	15.16	30.00	-14.84
UNII-5	5955	1	17.42	17.16	20.30	6.44	26.74	30.00	-3.26
UNII-5	6175	45	17.56	17.38	20.48	6.44	26.92	30.00	-3.08
	6415	93	17.60	17.42	20.52	6.44	26.96	30.00	-3.04
	6535	117	17.72	17.41	20.58	5.94	26.52	30.00	-3.48
UNII-7	6675	145	17.88	17.77	20.84	5.94	26.78	30.00	-3.22
	6695	149	17.76	17.65	20.72	5.94	26.66	30.00	-3.34

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

		6GHz WIFI	(20MHz 802.11b	e MIMO)		Directional Ant.			
Band	Freq [MHz]	eq [MHz] Channel	Avg. Conducted Powers [dBm]			Gain	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
			ANT1	ANT2	MIMO	[dBi]			
	5935	2	5.98	5.54	8.78	6.44	15.22	30.00	-14.78
UNII-5	5955	1	17.41	17.18	20.31	6.44	26.75	30.00	-3.25
UNII-5	6175	45	17.53	17.40	20.48	6.44	26.92	30.00	-3.08
	6415	93	17.64	17.50	20.58	6.44	27.02	30.00	-2.98
	6535	117	17.76	17.43	20.61	5.94	26.55	30.00	-3.45
UNII-7	6675	145	17.34	17.15	20.26	5.94	26.20	30.00	-3.80
	6695	149	17.83	17.64	20.74	5.94	26.68	30.00	-3.32

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

		6GHz WIFI	(40MHz 802.11a)	x MIMO)		Directional Ant.			
Band	Freq [MHz]	Channel	Avg. Conducted Powers [dBm]			Gain	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
			ANT1	ANT2	MIMO	[dBi]			
	5965	3	1.11	1.49	4.31	6.44	10.75	24.00	-13.25
UNII-5	6165	43	1.07	1.49	4.30	6.44	10.74	24.00	-13.26
UNIT-5	6285	67	1.06	1.43	4.26	6.44	10.70	24.00	-13.30
	6405	91	0.72	1.31	4.04	6.44	10.48	24.00	-13.52
	6445	99	2.28	2.70	5.51	5.69	11.20	24.00	-12.80
UNII-6	6485	107	2.01	2.54	5.29	5.69	10.98	24.00	-13.02
	6525	115	2.07	2.15	5.12	5.94	11.06	24.00	-12.94
	6565	123	2.15	2.22	5.20	5.94	11.14	24.00	-12.86
UNII-7	6685	147	2.01	2.82	5.44	5.94	11.38	24.00	-12.62
UNII-7	6725	155	2.01	2.35	5.19	5.94	11.13	24.00	-12.87
	6845	179	2.24	2.48	5.37	5.94	11.31	24.00	-12.69
	6885	187	2.22	2.19	5.22	6.31	11.53	24.00	-12.47
UNII-8	7005	211	2.02	2.72	5.39	6.31	11.70	24.00	-12.30
	7085	227	2.02	2.58	5.32	6.31	11.63	24.00	-12.37

Table 7-9. MIMO 40MHz BW 802.11ax (UNII) Maximum Conducted Output Power - LPI

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT			
Test Report S/N:	Test Dates:	EUT Type:	Dage 14 of 160		
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		6GHz WIFI	(40MHz 802.11b	e MIMO)		Directional Ant.			
Band	Freq [MHz]	Channel	Avg. C	onducted Powers	s [dBm]	Gain	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
			ANT1	ANT2	MIMO	[dBi]			
	5965	3	1.25	1.49	4.38	6.44	10.82	24.00	-13.18
UNII-5	6165	43	1.12	1.48	4.31	6.44	10.75	24.00	-13.25
UNII-3	6285	67	1.01	1.46	4.25	6.44	10.69	24.00	-13.31
	6405	91	0.81	1.28	4.06	6.44	10.50	24.00	-13.50
	6445	99	2.32	2.72	5.53	5.69	11.22	24.00	-12.78
UNII-6	6485	107	2.01	2.49	5.27	5.69	10.96	24.00	-13.04
	6525	115	2.16	2.20	5.19	5.69	10.88	24.00	-13.12
	6565	123	2.06	2.35	5.22	5.94	11.16	24.00	-12.84
UNII-7	6685	147	2.01	2.89	5.48	5.94	11.42	24.00	-12.58
UNII-7	6725	155	2.03	2.46	5.26	5.94	11.20	24.00	-12.80
	6845	179	2.30	2.55	5.44	5.94	11.38	24.00	-12.62
	6885	187	2.26	2.29	5.29	6.31	11.60	24.00	-12.40
UNII-8	7005	211	2.01	2.74	5.40	6.31	11.71	24.00	-12.29
	7085	227	2.05	2.67	5.38	6.31	11.69	24.00	-12.31

Table 7-10. MIMO 40MHz BW 802.11be (UNII) Maximum Conducted Output Power – LPI

		6GHz WIFI	(40MHz 802.11a)	k MIMO)		Directional Ant.			
Band	Freq [MHz]	Channel	Avg. Co	onducted Powers	; [dBm]	Gain	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
			ANT1	ANT2	MIMO	[dBi]			
	5965	3	17.64	17.61	20.64	6.44	27.08	30.00	-2.92
UNII-5	6165	43	18.07	17.85	20.97	6.44	27.41	30.00	-2.59
UNIT-5	6285	67	17.99	17.79	20.90	6.44	27.34	30.00	-2.66
	6405	91	18.17	17.83	21.01	6.44	27.45	30.00	-2.55
	6565	123	18.16	18.12	21.15	5.94	27.09	30.00	-2.91
UNII-7	6685	147	17.80	17.69	20.75	5.94	26.69	30.00	-3.31
	6725	155	17.56	17.87	20.73	5.94	26.67	30.00	-3.33
	6845	179	17.63	17.76	20.70	5.94	26.64	30.00	-3.36

Table 7-11. MIMO 40MHz BW 802.11ax (UNII) Maximum Conducted Output Power - SP

		6GHz WIFI	(40MHz 802.11b	e MIMO)		Directional Ant.					
Band	Freq [MHz]	Channel	Avg. C	onducted Powers	s [dBm]	Gain	Gain [dBm] [dF		e.i.r.p Margin [dB]		
			ANT1	ANT2	MIMO						
	5965	3	17.75	17.66	20.72	6.44	27.16	30.00	-2.84		
UNII-5	6165	43	17.78	17.79	20.79	6.44	27.23	30.00	-2.77		
UNII-5	6285	67	17.83	17.80	20.82	6.44	27.26	30.00	-2.74		
	6405	91	17.97	17.71	20.85	6.44	27.29	30.00	-2.71		
	6565	123	17.96	17.90	20.94	5.94	26.88	30.00	-3.12		
	6685	147	18.16	18.03	21.10	5.94	27.04	30.00	-2.96		
UNII-7	6725	155	17.88	18.28	21.10	5.94	27.04	30.00	-2.96		
	6845	179	17.52	17.62	20.58	5.94	26.52	30.00	-3.48		

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

		6GHz WIFI	(80MHz 802.11a)	x MIMO)		Directional Ant.			
Band	Freq [MHz]	Channel	Avg. Co	onducted Powers	s [dBm]	Gain	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
			ANT1	ANT2	MIMO	- [dBi]			
	5985	7	4.45	4.44	7.46	6.44	13.90	24.00	-10.10
UNII-5	6145	39	4.56	4.78	7.68	6.44	14.12	24.00	-9.88
UNII-5	6305	71	4.36	4.51	7.45	6.44	13.89	24.00	-10.11
	6385	87	4.63	4.99	7.82	6.44	14.26	24.00	-9.74
UNII-6	6465	103	4.57	5.20	7.91	5.69	13.60	24.00	-10.40
	6545	119	5.18	5.21	8.21	5.94	14.15	24.00	-9.85
UNII-7	6705	151	4.88	5.29	8.10	5.94	14.04	24.00	-9.96
UNII-7	6785	167	4.81	5.08	7.96	5.94	13.90	24.00	-10.10
	6865	183	4.86	5.11	8.00	5.94	13.94	24.00	-10.06
UNII-8	6945	199	4.71	4.90	7.82	6.31	14.13	24.00	-9.87
UNII-6	7025	215	5.17	5.09	8.14	6.31	14.45	24.00	-9.55

Table 7-13. MIMO 80MHz BW 802.11ax (UNII) Maximum Conducted Output Power - LPI

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT				
Test Report S/N:	Test Dates:	est Dates: EUT Type:				
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		6GHz WIFI	(80MHz 802.11b	e MIMO)		Directional Ant.			
Band	Freq [MHz]	Channel	Avg. C	onducted Powers	s [dBm]	Gain	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
			ANT1	ANT2	MIMO	[dBi]			
	5985	7	4.48	4.51	7.51	6.44	13.95	24.00	-10.05
UNII-5	6145	39	4.56	4.82	7.70	6.44	14.14	24.00	-9.86
UNII-5	6305	71	4.37	4.59	7.49	6.44	13.93	24.00	-10.07
	6385	87	4.62	4.99	7.82	6.44	14.26	24.00	-9.74
UNII-6	6465	103	4.58	5.23	7.93	5.69	13.62	24.00	-10.38
	6545	119	4.98	5.26	8.13	5.94	14.07	24.00	-9.93
UNII-7	6705	151	4.88	5.37	8.14	5.94	14.08	24.00	-9.92
UNII-7	6785	167	4.78	5.09	7.95	5.94	13.89	24.00	-10.11
	6865	183	4.85	5.11	7.99	5.94	13.93	24.00	-10.07
UNII-8	6945	199	4.71	4.99	7.86	6.31	14.17	24.00	-9.83
UNII-0	7025	215	5.18	5.11	8.16	6.31	14.47	24.00	-9.53

Table 7-14. MIMO 80MHz BW 802.11be (UNII) Maximum Conducted Output Power - LPI

		6GHz WIFI	(80MHz 802.11a)	x MIMO)		Directional Ant.					
Band	Freq [MHz]	[MHz] Channel	Avg. Conducted Powers [dBm]			Gain	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]		
			ANT1	ANT2	MIMO	[dBi]		20.00			
UNII-5	5985	7	19.34	19.10	22.23	6.44	28.67	30.00	-1.33		
	6145	39	19.35	19.50	22.43	6.44	28.87	30.00	-1.13		
UNII-5	6305	71	19.26	19.36	22.32	6.44	28.76	30.00	-1.24		
	6385	87	19.42	19.27	22.35	6.44	28.79	30.00	-1.21		
	6705	151	19.37	19.66	22.53	5.94	28.47	30.00	-1.53		
UNII-7	6785	167	19.43	19.63	22.54	5.94	28.48	30.00	-1.52		
	Table 7.15 MIMO SOMULT DW SO2 11 av (UNII) Maximum Conducted Output Dowor SP										

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

		6GHz WIFI	(80MHz 802.11b	e MIMO)		Directional Ant.				
Band	Freq [MHz]	Channel	Avg. Co	onducted Powers	s (dBm)	Gain	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]	
			ANT1	ANT2	MIMO	[dBi]				
	5985	7	19.26	19.12	22.20	6.44	28.64	30.00	-1.36	
UNII-5	6145	39	19.39	19.58	22.49	6.44	28.93	30.00	-1.07	
UNII-5	6305	71	19.37	19.42	22.40	6.44	28.84	30.00	-1.16	
	6385	87	19.40	19.23	22.33	6.44	28.77	30.00	-1.23	
UNII-7	6705	151	19.33	19.55	22.45	5.94	28.39	30.00	-1.61	
UNII-7	6785	167	19.33	19.56	22.46	5.94	28.40	30.00	-1.60	
	Table	7 4 0 1411		W 000 441	/				D	

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

		6GHz WIFI ((160MHz 802.11a	ax MIMO)		Directional Ant.				
Band	Freq [MHz]	Channel	Avg. C	onducted Powers	s [dBm]	Gain	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]	
			ANT1	ANT2	MIMO	[dBi]				
	6025	15	7.66	7.61	10.65	6.44	17.09	24.00	-6.91	
UNII-5	6185	47	7.56	7.71	10.65	6.44	17.09	24.00	-6.91	
	6345	79	7.80	7.85	10.84	6.44	17.28	24.00	-6.72	
UNII-6	6505	111	7.20	7.61	10.42	5.69	16.11	24.00	-7.89	
UNII-7	6665	143	7.07	7.27	10.18	5.94	16.12	24.00	-7.88	
UNII-7	6825	175	6.81	7.03	9.93	5.94	15.87	24.00	-8.13	
UNII-8	6985	207	7.35	7.07	10.22	6.31	16.53	24.00	-7.47	

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

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 40 at 400
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		6GHz WIFI ((160MHz 802.11b	e MIMO)		Directional Ant.				
Band	Freq [MHz]	Channel	Avg. Co	onducted Powers	[dBm]	Gain	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]	
	6025		ANT1	ANT2	MIMO	[dBi]				
	6025	15	7.42	7.41	10.43	6.44	16.87	24.00	-7.13	
UNII-5	6185	47	7.35	7.53	10.45	6.44	16.89	24.00	-7.11	
	6345	79	7.49	7.42	10.47	6.44	16.91	24.00	-7.09	
UNII-6	6505	111	7.78	7.77	10.79	5.69	16.48	24.00	-7.52	
UNII-7	6665	143	6.66	7.07	9.88	5.94	15.82	24.00	-8.18	
UNII-7	6825	175	6.74	6.74 6.86		5.94	15.75	24.00	-8.25	
UNII-8	6985	207	7.24	6.91	10.09	6.31	16.40	24.00	-7.60	

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

	6GHz WIFI ((160MHz 802.11a	x MIMO)		Directional Ant				
Freq [MHz]	Channel	Avg. C	onducted Powers	s [dBm]	Gain	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]	
		ANT1	ANT2	MIMO	[αΒΙ]				
6025	15	17.95	17.77	20.87	6.44	27.31	30.00	-2.69	
6185	47	17.86	17.69	20.79	6.44	27.23	30.00	-2.77	
6345	79	17.95	17.84	20.90	6.44	27.34	30.00	-2.66	
6665	143	17.75	17.53	20.65	5.94	26.59	30.00	-3.41	
	Freq [MHz] 6025 6185 6345	Freq [MHz] Channel 6025 15 6185 47 6345 79	Freq [MHz] Channel Avg. C 6025 15 17.95 6185 47 17.86 6345 79 17.95	ANT1 ANT2 6025 15 17.95 17.77 6185 47 17.86 17.69 6345 79 17.95 17.84	Avg. Conducted Powers [dBm] Avg. Conducted Powers [dBm] ANT1 ANT2 MIMO 6025 15 17.95 17.77 20.87 6185 47 17.86 17.69 20.79 6345 79 17.95 17.84 20.90	Avg. Conducted Powers [dBm] Directional Ant. Anti Avg. Conducted Powers [dBm] Gain [dBi] 6025 15 17.95 17.77 20.87 6.44 6185 47 17.86 17.69 20.79 6.44 6345 79 17.95 17.84 20.90 6.44	Avg. Conducted Powers [dBm] Directional Ant. Gain [dBi] Max e.i.r.p [dBm] 6025 15 17.95 17.77 20.87 6.44 27.31 6185 47 17.86 17.69 20.79 6.44 27.23 6345 79 17.95 17.84 20.90 6.44 27.34	Avg. Conducted Powers [dBm] Directional Ant. Gain [dBi] Max e.i.r.p [dBm] e.i.r.p Limit [dBm] 6025 15 17.95 17.77 20.87 6.44 27.31 30.00 6185 47 17.86 17.69 20.79 6.44 27.34 30.00 6345 79 17.95 17.84 20.90 6.44 27.34 30.00	

Table 7-19. MIMO 160MHz BW 802.11ax (UNII) Maximum Conducted Output Power – SP

		6GHz WIFI	(160MHz 802.11b	e MIMO)		Directional Ant.				
Band	Freq [MHz]	Channel	Avg. C	onducted Powers	s [dBm]	Gain	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]	
			ANT1	ANT2	MIMO	[dBi]				
	6025	15	17.67	17.61	20.65	6.44	27.09	30.00	-2.91	
UNII-5	6185	47	17.68	17.55	20.62	6.44	27.06	30.00	-2.94	
	6345	79	17.88	17.60	20.75	6.44	27.19	30.00	-2.81	
UNII-7	6665	143	17.54	17.52	20.54	5.94	26.48	30.00	-3.52	

Table 7-20. MIMO 160MHz BW 802.11be (UNII) Maximum Conducted Output Power - SP

		6GHz WIFI	(320MHz 802.11b	e MIMO)		Directional Ant.				
Band	Freq [MHz]	Channel	Avg. Co	onducted Powers	a [dBm]	Gain	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]	
				ANT2	MIMO	[dBi]				
UNII-5	6105	31	10.43	10.91	13.69	6.44	20.13	24.00	-3.87	
UNII-5	6265	63	10.21	10.85	13.55	6.44	19.99	24.00	-4.01	
UNII-6	6425	95	10.41	10.86	13.65	5.69	19.34	24.00	-4.66	
UNII-7	6585	127	9.81	10.46	13.16	5.94	19.10	24.00	-4.90	
UNII-7	6745	159	9.79	9.79 10.14		5.94	18.92	24.00	-5.08	
UNII-8	6905	191	9.59	10.18	12.91	6.31	19.22	24.00	-4.78	
	T - 1, 1 - 7				//	· · · · · · · · · · · · · · · · · · ·			DI	

Table 7-21. MIMO 320MHz BW 802.11be (UNII) Maximum Conducted Output Power - LPI

	6	GHz WIFI (3	320MHz 802.11	be MIMO)		Directional			
Band	Freq [MHz]	Channel	Avg. Co	nducted Power	s [dBm]	Ant. Gain	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
			ANT1	ANT2	MIMO	[dBi]			
UNII-5	6105	31	19.45	19.59	22.53	6.44	28.97	30.00	-1.03

Table 7-22. MIMO 320MHz BW 802.11be (UNII) Maximum Conducted Output Power – SP

							Average Conduc	ted Power (dBm)						
	Band	Freq [MHz]	Channel	Puncture Size			Punctu	re Case			Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margin
	Danu	Freq [winz]	Channer	Functure Size	MRU4			MRU1			[dBi]	[dBm]	[dBm]	[dB]
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
2		5985	7	20MHz	3.53	3.91	6.74	3.70	3.79	6.76	6.44	13.19	24.00	-10.81
ίΩ N	5	6145	39	20MHz	3.61	3.90	6.77	3.77	4.17	6.98	6.44	13.42	24.00	-10.58
Ŧ		6385	87	20MHz	3.55	3.76	6.66	3.90	4.01	6.97	6.44	13.40	24.00	-10.60
Σ	6	6465	103	20MHz	4.38	4.68	7.54	4.29	4.50	7.41	5.69	13.23	24.00	-10.77
8		6545	119	20MHz	4.01	4.47	7.26	4.36	4.13	7.26	5.94	13.20	24.00	-10.80
	7	6705	151	20MHz	4.04	4.59	7.33	4.09	4.65	7.39	5.94	13.34	24.00	-10.66
		6865	183	20MHz	4.58	4.11	7.36	4.39	4.03	7.22	5.94	13.31	24.00	-10.69
		6945	199	20MHz	4.36	4.95	7.67	4.22	4.82	7.54	6.31	13.98	24.00	-10.02
	0	7025	215	20MHz	4.54	4.19	7.38	4.03	4.20	7.13	6.31	13.69	24.00	-10.31

Table 7-23. MIMO 80MHz BW 802.11be (UNII) Maximum Conducted Output Power - Punctured - LPI

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							Average Conduc	ted Power (dBm)					e.i.r.p Limit	a i a a Maraia
	Band	Frea (MHz)	Channel	Puncture Size			Punctu	re Case			Dir. Ant. Gain	Max e.i.r.p		e.i.r.p Margin
>						MRU8		MRU1			[dBi]	[dBm]	[dBm]	[dB]
E E					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
N		6025	15	20MHz	7.04	6.56	9.82	7.02	6.59	9.82	6.44	16.26	24.00	-7.74
4	5	6185	47	20MHz	7.02	6.51	9.78	7.12	6.53	9.84	6.44	16.28	24.00	-7.72
6		6345	79	20MHz	6.94	6.54	9.75	7.02	6.51	9.78	6.44	16.22	24.00	-7.78
16	6	6505	111	20MHz	7.01	6.57	9.81	6.97	6.52	9.76	5.69	15.49	24.00	-8.51
	7	6665	143	20MHz	6.38	6.42	9.41	6.32	6.41	9.38	5.94	15.36	24.00	-8.64
		6825	175	20MHz	6.39	6.42	9.42	6.33	6.40	9.38	5.94	15.36	24.00	-8.64
	8	6985	207	20MHz	6.40	6.40	9.41	6.34	6.44	9.40	6.31	15.72	24.00	-8.28

Table 7-24. MIMO 160MHz BW 802.11be (UNII) Maximum Conducted Output Power – Punctured – LPI

							Average Conduc	ted Power (dBm)						e i r n Margin
	Band	Frea (MHz)	Channel	Puncture Size			Punctu	re Case				Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margin
>						MRU3		MRU1			[dBi]	[dBm]	[dBm]	[dB]
BW					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
₽		6025	15	40MHz	6.90	6.53	9.73	6.91	6.58	9.76	6.44	16.19	24.00	-7.81
\$	5	6185	47	40MHz	7.01	6.54	9.79	7.03	6.52	9.79	6.44	16.23	24.00	-7.77
60N		6345	79	40MHz	6.99	6.53	9.78	7.02	6.53	9.79	6.44	16.23	24.00	-7.77
16	6	6505	111	40MHz	6.98	6.58	9.79	6.92	6.55	9.75	5.69	15.48	24.00	-8.52
	7	6665	143	40MHz	6.48	6.51	9.51	6.47	6.55	9.52	5.94	15.47	24.00	-8.53
	· /	6825	175	40MHz	6.42	6.49	9.47	6.42	6.55	9.50	5.94	15.44	24.00	-8.56
	8	6985	207	40MHz	6.41	6.49	9.46	6.44	6.51	9.49	6.31	15.80	24.00	-8.20

Table 7-25. MIMO 160MHz BW 802.11be (UNII) Maximum Conducted Output Power – Punctured – LPI

							Average Conduc	ted Power (dBm)						
	Band	Freg [MHz]	Channel	Puncture Size			Punctu	re Case			Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margin
3	Danu	Freq [winz]	Channel	Puncture Size		MRU8			MRU1		[dBi]	[dBm]	[dBm]	[dB]
BV					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
F	-	6105	31	40MHz	9.62	9.83	12.74	9.52	9.76	12.65	6.44	19.17	24.00	-4.83
Ξ	5	6265	63	40MHz	9.62	9.85	12.75	9.76	9.81	12.80	6.44	19.23	24.00	-4.77
320N	6	6425	95	40MHz	9.56	9.75	12.67	9.63	9.78	12.72	5.69	18.40	24.00	-5.60
33	7	6585	127	40MHz	9.03	9.52	12.29	9.02	9.52	12.29	5.94	18.24	24.00	-5.76
		6745	159	40MHz	9.05	9.59	12.34	9.02	9.58	12.32	5.94	18.28	24.00	-5.72
	8	6905	191	40MHz	9.02	9.52	12.29	9.15	9.56	12.37	6.31	18.68	24.00	-5.32

Table 7-26. MIMO 320MHz BW 802.11be (UNII) Maximum Conducted Output Power – Punctured – LPI

							Average Conduc	ted Power (dBm)						
	Band	Freg [MHz]	Channel	Puncture Size			Punctu	re Case			Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margin
3	Danu	rieq [winz]	Channel	Functure Size		MRU4			MRU1		[dBi]	[dBm]	[dBm]	[dB]
B					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
ΗZ	F	6105	31	80MHz	9.05	9.16	12.11	9.03	9.24	12.15	6.44	18.58	24.00	-5.42
Σ	5	6265	63	80MHz	9.04	9.34	12.20	9.06	9.47	12.28	6.44	18.72	24.00	-5.28
20	6	6425	95	80MHz	9.09	9.44	12.28	9.15	9.45	12.31	5.69	18.00	24.00	-6.00
32	7	6585	127	80MHz	8.71	8.74	11.74	8.69	8.53	11.62	5.94	17.68	24.00	-6.32
		6745	159	80MHz	8.96	9.46	12.23	8.98	9.48	12.25	5.94	18.19	24.00	-5.81
	8	6905	191	80MHz	8.77	8.51	11.65	8.57	8.54	11.56	6.31	17.96	24.00	-6.04

Table 7-27. MIMO 320MHz BW 802.11be (UNII) Maximum Conducted Output Power – Punctured – LPI

							Average Conduc	ted Power (dBm)						
	Band	Freq [MHz]	Channel	Puncture Size			Punctu	re Case			Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margin
≥ ≥	Dana	i i eq [mi iz]	onanner	i uncture oize		MRU6			MRU7		[dBi]	[dBm]	[dBm]	[dB]
8					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
Ŧ	E	6105	31	120MHz	8.20	8.40	11.31	8.05	8.60	11.34	6.44	17.78	24.00	-6.22
-	5	6265	63	120MHz	8.13	8.48	11.32	8.02	8.46	11.26	6.44	17.76	24.00	-6.24
320N	6	6425	95	120MHz	8.12	8.47	11.31	8.11	8.46	11.30	5.69	17.00	24.00	-7.00
8	7	6585	127	120MHz	7.96	8.33	11.16	7.91	8.31	11.12	5.94	17.10	24.00	-6.90
	· /	6745	159	120MHz	7.83	8.35	11.11	7.82	8.38	11.12	5.94	17.06	24.00	-6.94
	8	6905	191	120MHz	7.83	8.37	11.12	7.85	8.35	11.12	6.31	17.43	24.00	-6.57

Table 7-28. MIMO 320MHz BW 802.11be (UNII) Maximum Conducted Output Power – Punctured – LPI

							Average Conduc	ted Power (dBm)						
2	Band	Frea (MHz)	Channel	Puncture Size			Punctu	re Case			Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margin
AHz BV	Banu	Freq [IVIFI2]	Channel	Puncture Size		MRU4			MRU1		[dBi]	[dBm]	[dBm]	[dB]
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
		5985	7	20MHz	18.72	18.60	21.67	18.90	18.80	21.86	6.44	28.30	30.00	-1.70
6	5	6145	39	20MHz	18.78	18.89	21.85	18.92	19.03	21.99	6.44	28.42	30.00	-1.58
õ		6385	87	20MHz	18.98	18.88	21.94	19.20	19.11	22.17	6.44	28.60	30.00	-1.40
	7	6705	151	20MHz	18.52	18.96	21.76	18.71	19.08	21.91	5.94	27.85	30.00	-2.15

Table 7-29. MIMO 80MHz BW 802.11be (UNII) Maximum Conducted Output Power – Punctured – SP

>							Average Conduc	ted Power (dBm)						
B	Band	Freg [MHz]	Channel	Puncture Size			Punctu	re Case			Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margin
MHz B						MRU8			MRU1		[dBi]	[dBm]	[dBm]	[dB]
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
		6025	15	20MHz	17.09	17.09	20.10	17.28	17.21	20.26	6.44	26.69	30.00	-3.31
99	5	6185	47	20MHz	17.21	17.06	20.15	17.18	17.07	20.14	6.44	26.58	30.00	-3.42
÷.		6345	79	20MHz	17.32	17.03	20.19	17.30	17.08	20.20	6.44	26.64	30.00	-3.36
	7	6665	143	20MHz	17.14	17.03	20.10	17.19	17.10	20.16	5.94	26.10	30.00	-3.90

Table 7-30. MIMO 160MHz BW 802.11be (UNII) Maximum Conducted Output Power – Punctured – SP

MHz BW							Average Conduc	ted Power (dBm)	1					
	Band	Freq [MHz]	Channel	Puncture Size		MRU3	Punctu	re Case	MRU1		Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	[ubi]	lapul	lapud	lan
		6025	15	40MHz	17.17	17.19	20.19	17.16	17.23	20.21	6.44	26.64	30.00	-3.36
60	5	6185	47	40MHz	17.24	17.11	20.19	17.27	17.16	20.23	6.44	26.66	30.00	-3.34
¥.		6345	79	40MHz	17.34	17.04	20.20	17.27	17.20	20.25	6.44	26.68	30.00	-3.32
	7	6665	143	40MHz	17.18	17.03	20.12	17.18	17.15	20.18	5.94	26.12	30.00	-3.88

Table 7-31. MIMO 160MHz BW 802.11be (UNII) Maximum Conducted Output Power – Punctured – SP

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N								Average Conduct	ted Power (dBm))					
Ηv		Band	Frea (MHz)	Channel	Puncture Size			Punctur	e Case			Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margin
2		banu	rieq [winz]	Channel	Functure Size		MRU8			MRU1		[dBi]	[dBm]	[dBm]	[dB]
5	-					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
e		5	6105	31	40MHz	18.77	19.05	21.92	18.72	19.07	21.91	6.44	28.36	30.00	-1.64
								/· · · · · · · · ·		-					

Table 7-32. MIMO 320MHz BW 802.11be (UNII) Maximum Conducted Output Power – Punctured – SP

N							Average Conduc	ted Power (dBm)						
Ξ~	Band	Freg (MHz)	Channel	Puncture Size			Punctu	re Case			Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margin
N N N	Danu	rieq[iiinz]	Channel	Functure Size		MRU4			MRU1		[dBi]	[dBm]	[dBm]	[dB]
22					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
e	5	6105	31	80MHz	18.22	18.65	21.45	18.10	18.48	21.30	6.44	27.89	30.00	-2.11
Tal		7 3 3 1			000	4464				اممئمينا	0	F)	C D

Table 7-33. MIMO 320MHz BW 802.11be	(UNII) Maximum Conducted	Output Power – Punctured – SP

Hz /	Dund	Course (Antiput	Ohamad	D				ted Power (dBm) re Case			Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margin
N N N	Band	Freq [MHz]	Channel	Puncture Size		MRU6	-		MRU7	-	[dBi]	[dBm]	[dBm]	[dB]
					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
e	5	6105	31	120MHz	17.31	17.70	20.52	17.14	17.60	20.39	6.44	26.96	30.00	-3.04

Table 7-34. MIMO 320MHz BW 802.11be (UNII) Maximum Conducted Output Power – Punctured – SP

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Sample MIMO Calculation:

Assuming at 5935MHz in 802.11a (20MHz BW) mode, the average conducted output power was measured to be 2.95 dBm for Antenna-1 and 2.77 dBm for Antenna-2.

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.

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

Sample e.i.r.p. Calculation:

Assuming at 5935MHz in 802.11a (20MHz BW) mode, the average MIMO conducted power was calculated to be 5.87 dBm with directional gain of 6.44 dBi.

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

5.87 dBm + 6.44 dBi = 12.31 dBm

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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 for 802.11a/ax.

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 the 5.925-6.875 GHz band, 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 $\geq 2 \times (\text{span/RBW})$
- 6. Sweep time = auto
- 7. Detector = power averaging (RMS)
- 8. Trigger was set to free run for all modes.
- 9. Trace was averaged over 100 sweeps.
- 10. The peak search function of the spectrum analyzer was used to find the peak of the spectrum.

Test Setup

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



Figure 7-3. Test Instrument & Measurement Setup

Test Notes

All cases were investigated; a subset of the taken plots were included to represent relevant settings and measurements.

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MIMO Power Spectral Density Measurements

	Frequency [MHz]	Channel	802.11 MODE	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm/MHz]	Directional Gain [dBi]	e.i.r.p Density [dBm/MHz]	Max EIRP Density [dBm/MHz]	Margin [dB]
	5935	2	а	-12.01	-11.66	-8.82	6.44	-2.38	-1	-1.38
	6175	45		-11.80	-11.49	-8.63	6.44	-2.19	-1	-1.19
	6415	93	a	-12.32	-12.47	-9.38	6.44	-2.19	-1	-1.19
	5935	2	a be (20MHz)	-12.93	-12.47	-9.95	6.44	-2.95	-1	-2.51
	6175	45	be (20MHz)	-12.99	-12.56	-9.95	6.44	-3.31	-1	-2.31
	6415	93	be (20MHz)	-12.95	-12.57	-9.76	6.44	-3.32	-1	-2.32
	5965	3	be (20MHz)	-13.46	-13.08	-10.26	6.44	-3.82	-1	-2.32
10	6165	43	be (40MHz)	-13.19	-13.08	-10.12	6.44	-3.69	-1	-2.69
Band 5	6405	91	be (40MHz)	-13.82	-13.56	-10.68	6.44	-4.24	-1	-3.24
Bai	5985	7	be (80MHz)	-13.10	-13.02	-10.05	6.44	-3.61	-1	-2.61
	6145	39	be (80MHz)	-12.86	-13.35	-10.09	6.44	-3.65	-1	-2.65
	6385	87	be (80MHz)	-12.90	-13.03	-9.95	6.44	-3.51	-1	-2.51
	6025	15	be (160MHz)	-12.72	-12.17	-9.42	6.44	-2.99	-1	-1.99
	6185	47	be (160MHz)	-12.60	-12.33	-9.45	6.44	-3.02	-1	-2.02
	6345	79	be (160MHz)	-12.49	-12.18	-9.32	6.44	-2.89	-1	-1.89
	6105	31	be (320MHz)	-12.38	-11.94	-9.14	6.44	-2.71	-1	-1.71
	6265	63	be (320MHz)	-12.59	-12.25	-9.41	6.44	-2.97	-1	-1.97
	6435	97	a	-12.22	-11.58	-8.88	5.69	-3.19	-1	-2.19
	6475	105	a	-11.93	-11.37	-8.63	5.69	-2.94	-1	-1.94
	6515	113	a	-11.98	-11.48	-8.71	5.69	-3.02	-1	-2.02
	6435	97	be (20MHz)	-12.94	-12.26	-9.58	5.69	-3.89	-1	-2.89
9	6475	105	be (20MHz)	-12.62	-11.79	-9.18	5.69	-3.49	-1	-2.49
Band 6	6515	113	be (20MHz)	-12.38	-12.07	-9.21	5.69	-3.52	-1	-2.52
Ba	6445	99	be (40MHz)	-12.33	-11.98	-9.14	5.69	-3.45	-1	-2.45
	6485	107	be (40MHz)	-12.57	-11.83	-9.17	5.69	-3.49	-1	-2.49
	6525	115	be (40MHz)	-12.69	-12.37	-9.52	5.69	-3.83	-1	-2.83
	6465	103	be (80MHz)	-13.36	-12.75	-10.03	5.69	-4.34	-1	-3.34
	6505	111	be (160MHz)	-12.14	-12.38	-9.25	5.69	-3.56	-1	-2.56
Band 5/6/7	6425	95	be (320MHz)	-12.66	-11.60	-9.09	5.69	-3.40	-1	-2.40
	6535	117	a	-12.22	-11.62	-8.90	5.94	-2.96	-1	-1.96
	6695	149	а	-11.38	-10.68	-8.01	5.94	-2.06	-1	-1.06
	6875	185	а	-11.85	-11.68	-8.75	5.94	-2.81	-1	-1.81
	6535	117	be (20MHz)	-12.81	-12.28	-9.53	5.94	-3.58	-1	-2.58
	6695	149	be (20MHz)	-12.29	-11.15	-8.67	5.94	-2.73	-1	-1.73
	6875	185	be (20MHz)	-12.46	-12.11	-9.27	5.94	-3.33	-1	-2.33
Band 7	6565	123	be (40MHz)	-12.46	-12.39	-9.41	5.94	-3.47	-1	-2.47
Ban	6725	155	be (40MHz)	-12.46	-12.09	-9.26	5.94	-3.31	-1	-2.31
_	6885	179	be (40MHz)	-12.13	-12.13	-9.12	5.94	-3.17	-1	-2.17
	6545	119	be (80MHz)	-12.90	-13.15	-10.01	5.94	-4.07	-1	-3.07
	6705	151	be (80MHz)	-12.97	-12.71	-9.83	5.94	-3.88	-1	-2.88
	6865	183	be (80MHz)	-13.05	-12.87	-9.95	5.94	-4.00	-1	-3.00
	6665	143	be (160MHz)	-13.53	-12.55	-10.00	5.94	-4.06	-1	-3.06
	6825	175	be (160MHz)	-13.22	-12.51	-9.84	5.94	-3.89	-1	-2.89
Band 6/7	6665	127	be (320MHz)	-13.18	-12.61	-9.88	5.94	-3.93	-1	-2.93
Band 7/8	6745	159	be (320MHz)	-13.12	-12.92	-10.01	6.31	-3.70	-1	-2.70
	6895	189	а	-12.55	-12.21	-9.36	6.31	-3.05	-1	-2.05
	6995	209	а	-12.45	-11.91	-9.16	6.31	-2.85	-1	-1.85
	7115	233	а	-12.75	-11.75	-9.21	6.31	-2.90	-1	-1.90
	6895	189	be (20MHz)	-12.97	-12.88	-9.91	6.31	-3.60	-1	-2.60
	6995	209	be (20MHz)	-12.94	-12.45	-9.67	6.31	-3.36	-1	-2.36
Band 8	7115	233	be (20MHz)	-12.94	-11.75	-9.29	6.31	-2.98	-1	-1.98
Bar	6925	187	be (40MHz)	-12.18	-12.56	-9.36	6.31	-3.05	-1	-2.05
	7005	211	be (40MHz)	-12.49	-12.01	-9.23	6.31	-2.92	-1	-1.92
	7085	227	be (40MHz)	-12.21	-11.93	-9.05	6.31	-2.74	-1	-1.74
	6945	199	be (80MHz)	-12.96	-13.34	-10.14	6.31	-3.83	-1	-2.83
							6.64			2.24
	7025	215	be (80MHz)	-12.30	-12.83	-9.55	6.31	-3.24	-1	-2.24
		215 207	be (80MHz) be (160MHz)	-12.30 -13.31	-12.83 -12.66	-9.55 -9.96	6.31 6.31	-3.24 -3.65	-1 -1	-2.24

Table 7-35. MIMO e.i.r.p. Conducted Power Spectral Density Measurements – LPI

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT		
Test Report S/N:	Test Dates:	EUT Type:	Daga 52 at 160	
1M2312040120-21-R2.C3K	12/14/2023 - 05/20/2024	Portable Computing Device	Page 52 of 169	
© 2024 ELEMENT			\/ 0.0.02/01/2010	



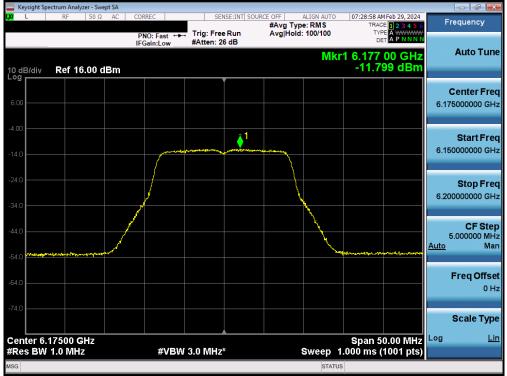
	Frequency [MHz]	Channel	802.11 MODE	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm/MHz]	Directional Gain [dBi]	e.i.r.p Density [dBm/MHz]	Max EIRP Density [dBm/MHz]	Margin [dB]
	5935	2	а	-8.54	-8.17	-5.34	6.44	1.10	17	-15.90
	6175	45	а	6.33	6.47	9.41	6.44	15.85	17	-1.15
	6415	93	а	6.75	6.70	9.73	6.44	16.17	17	-0.83
	5935	2	be (20MHz)	-6.31	-6.22	-3.25	6.44	3.18	17	-13.82
	6175	45	be (20MHz)	5.92	5.61	8.78	6.44	15.22	17	-1.78
	6415	93	be (20MHz)	6.34	6.16	9.26	6.44	15.70	17	-1.30
	5965	3	be (40MHz)	3.06	3.20	6.14	6.44	12.58	17	-4.42
ŝ	6165	43	be (40MHz)	3.13	3.11	6.13	6.44	12.57	17	-4.43
Band 5	6405	91	be (40MHz)	3.22	3.19	6.21	6.44	12.65	17	-4.35
ä	5985	7	be (80MHz)	2.24	1.89	5.08	6.44	11.52	17	-5.48
	6145	39	be (80MHz)	2.12	1.70	4.92	6.44	11.36	17	-5.64
	6385	87	be (80MHz)	2.20	2.02	5.12	6.44	11.55	17	-5.45
	6025	15	be (160MHz)	-2.36	-2.29	0.69	6.44	7.12	17	-9.88
	6185	47	be (160MHz)	-2.81	-2.40	0.41	6.44	6.85	17	-10.15
	6345	79	be (160MHz)	-2.19	-1.96	0.94	6.44	7.38	17	-9.62
	6105	31	be (320MHz)	-2.85	-2.01	0.60	6.44	7.04	17	-9.96
	6265	63	be (320MHz)	-2.84	-2.35	0.43	6.44	6.86	17	-10.14
	6535	117	а	6.60	6.52	9.57	5.94	15.51	17	-1.49
	6695	149	а	6.53	6.91	9.73	5.94	15.68	17	-1.32
	6875	185	а	6.44	6.57	9.51	5.94	15.46	17	-1.54
	6535	117	be (20MHz)	6.03	5.60	8.83	5.94	14.78	17	-2.22
	6695	149	be (20MHz)	6.31	6.35	9.34	5.94	15.28	17	-1.72
~	6875	185	be (20MHz)	6.10	6.33	9.23	5.94	15.17	17	-1.83
Band 7	6565	123	be (40MHz)	3.28	3.11	6.21	5.94	12.15	17	-4.85
ä	6725	155	be (40MHz)	3.44	4.08	6.78	5.94	12.72	17	-4.28
	6885	179	be (40MHz)	2.83	3.06	5.96	5.94	11.90	17	-5.10
	6545	119	be (80MHz)	2.19	1.24	4.75	5.94	10.70	17	-6.30
	6705	151	be (80MHz)	2.56	2.54	5.56	5.94	11.50	17	-5.50
	6865	183	be (80MHz)	2.06	1.84	4.96	5.94	10.90	17	-6.10
	6665	143	be (160MHz)	-2.01	-1.84	1.09	5.94	7.03	17	-9.97
Band 6/7	6665	127	be (320MHz)	-2.92	-2.64	0.23	5.94	6.18	17	-10.82
Band 7/8	6745	159	be (320MHz)	-2.92	-2.27	0.43	6.31	6.74	17	-10.26

Table 7-36. MIMO e.i.r.p. Conducted Power Spectral Density Measurements – SP

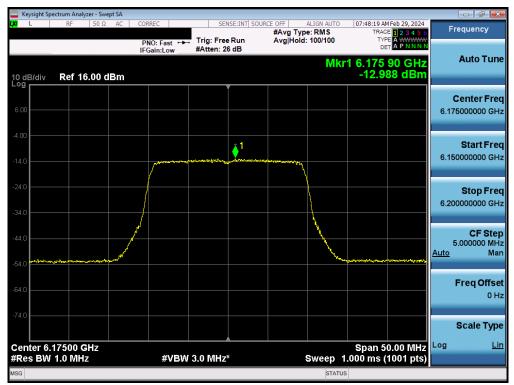
FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT		
Test Report S/N:	Test Dates:	EUT Type:	Daga 52 of 160	
1M2312040120-21-R2.C3K	12/14/2023 - 05/20/2024	Portable Computing Device	Page 53 of 169	
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MIMO Antenna-1 Power Spectral Density Measurements - (UNII Band 5)







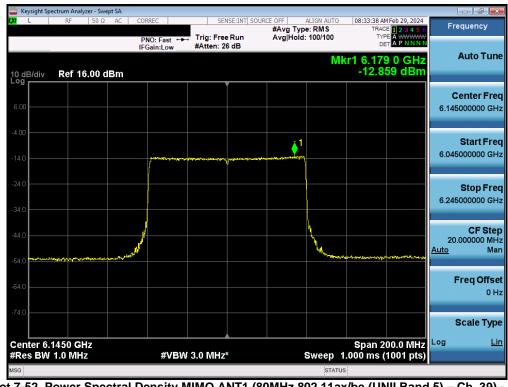
Plot 7-50. Power Spectral Density MIMO ANT1 (20MHz 802.11ax/be (UNII Band 5) - Ch. 45) - LPI

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT			
Test Report S/N:	Test Dates:	EUT Type:	Daga 54 of 100		
1M2312040120-21-R2.C3K	12/14/2023 - 05/20/2024	Portable Computing Device	Page 54 of 169		
© 2024 ELEMENT			V 9.0 02/01/2019		



Keysight Spect	trum Analyzer - Swe									- 6	×
LXU L	RF 50 Ω	AC COR	REC		ISE:INT SOU	#Avg Typ		TRAC	1 Feb 29, 2024 E 1 2 3 4 5 6	Frequency	У
10 dB/div	Ref 16.00 d	IFG	IO: Fast ↔ ain:Low	, Trig: Free #Atten: 2		Avg Hold:		or 1 6.181	E 2 GHz 90 dBm	Auto 1	Гune
										Center 6.165000000	
-4.00				nt are and a	and the second states of the	 				Start 6.115000000	
-24.0										Stop 6.215000000	
-44.0	^^~	W.					h h h h h h h h h h h h h h h h h h h	an transfer of the state of the	og system of the state	CF 10.000000 Auto	
-64.0										Freq O	ffsel 0 Hz
-74.0 Center 6.10	6600 CH-							Enon 1		Scale	Type Lin
#Res BW 1			#VBW	3.0 MHz	*		Sweep 1	span 1 .000 ms (00.0 IVII 12		
MSG							STATU	6			

Plot 7-51. Power Spectral Density MIMO ANT1 (40MHz 802.11ax/be (UNII Band 5) - Ch. 43) - LPI



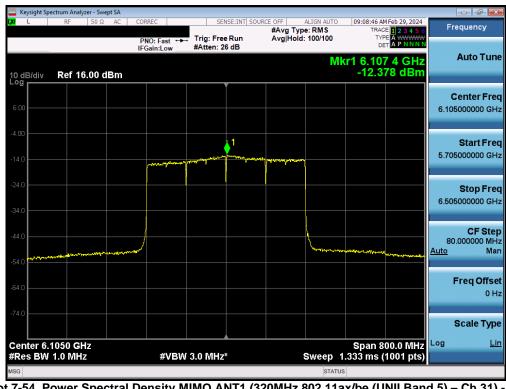
Plot 7-52. Power Spectral Density MIMO ANT1 (80MHz 802.11ax/be (UNII Band 5) - Ch. 39) - LPI

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT		
Test Report S/N:	Test Dates:	EUT Type:	Dage EE of 100	
1M2312040120-21-R2.C3K	12/14/2023 - 05/20/2024	Portable Computing Device	Page 55 of 169	
© 2024 ELEMENT		·	V 9.0 02/01/2019	



🤤 Keysight Spectrum Analyzer - Swei					
LXI L RF 50 Ω	AC CORREC	SENSE:INT SOU	RCE OFF ALIGN AUTO #Avg Type: RMS Avg Hold: 100/100	08:56:03 AM Feb 29, 2024 TRACE 1 2 3 4 5 6 TYPE A WWWWW	Frequency
10 dB/div Ref 16.00 dl	IFGain:Low	#Atten: 26 dB	-	cr1 6.187 8 GHz -12.604 dBm	Auto Tune
6.00					Center Free 6.185000000 GH
-14.0	f ^{tend} terene teneger (Start Fre 5.985000000 GH
-24.0					Stop Fre 6.385000000 GH
-44.0			have been and the second	and an analysis and a start of the start of	CF Ste 40.000000 MH <u>Auto</u> Ma
64.0					Freq Offse 0 ⊦
-74.0 Center 6.1850 GHz #Res BW 1.0 MHz	#\/B)A(3.0 MHz*	Sween	Span 400.0 MHz .000 ms (1001 pts)	Scale Typ
ANGS DW TROTWITZ			STATU		

Plot 7-53. Power Spectral Density MIMO ANT1 (160MHz 802.11ax/be (UNII Band 5) - Ch. 47) - LPI

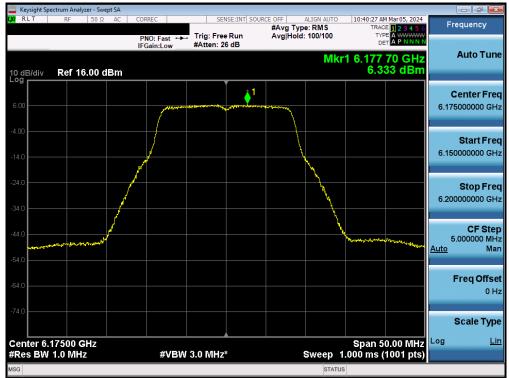


Plot 7-54. Power Spectral Density MIMO ANT1 (320MHz 802.11ax/be (UNII Band 5) - Ch.31) - LPI

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT	
Test Report S/N:	Test Dates:	EUT Type:	Dage 50 of 100
1M2312040120-21-R2.C3K	12/14/2023 - 05/20/2024	Portable Computing Device	Page 56 of 169
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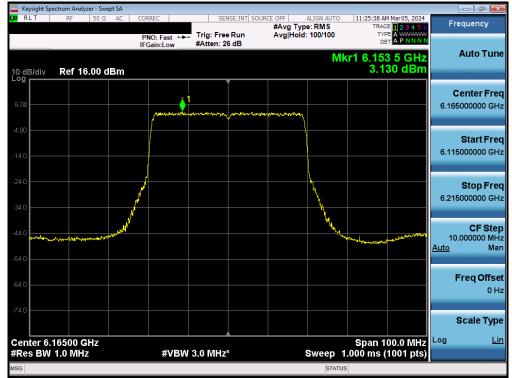
Plot 7-55. Power Spectral Density MIMO ANT1 (20MHz 802.11a (UNII Band 5) - Ch. 45) - SP



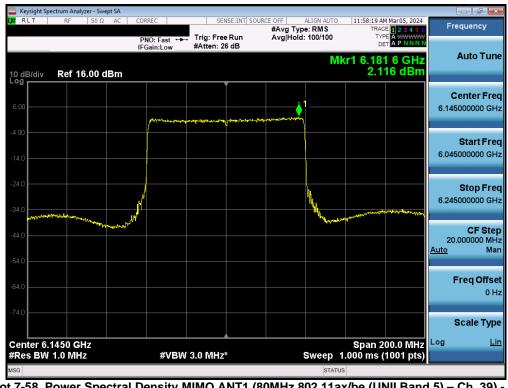
Plot 7-56. Power Spectral Density MIMO ANT1 (20MHz 802.11ax/be (UNII Band 5) - Ch. 45) - SP

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 57 of 100
1M2312040120-21-R2.C3K	12/14/2023 - 05/20/2024	Portable Computing Device	Page 57 of 169
© 2024 ELEMENT	-		V 9.0 02/01/2019





Plot 7-57. Power Spectral Density MIMO ANT1 (40MHz 802.11ax/be (UNII Band 5) - Ch. 43) - SP

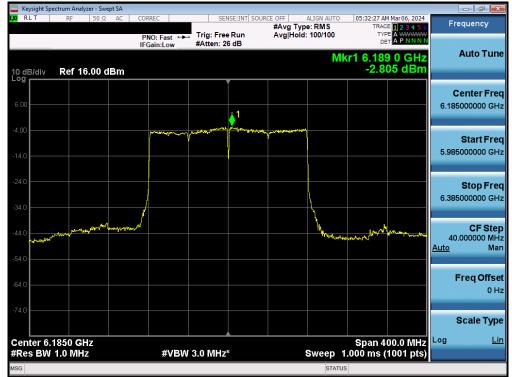


Plot 7-58. Power Spectral Density MIMO ANT1 (80MHz 802.11ax/be (UNII Band 5) - Ch. 39) - SP

FCC ID: C3K2077 IC: 3048A-2077		Approved by: Technical Manager			
Test Report S/N:	Test Dates:	Fest Dates: EUT Type:			
1M2312040120-21-R2.C3K	12/14/2023 - 05/20/2024	Portable Computing Device	Page 58 of 169		
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Plot 7-59. Power Spectral Density MIMO ANT1 (160MHz 802.11ax/be (UNII Band 5) - Ch. 47) - SP

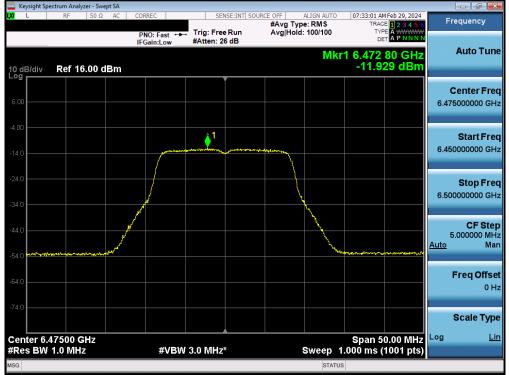


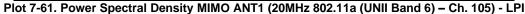
Plot 7-60. Power Spectral Density MIMO ANT1 (320MHz 802.11ax/be (UNII Band 5) - Ch.31) - SP

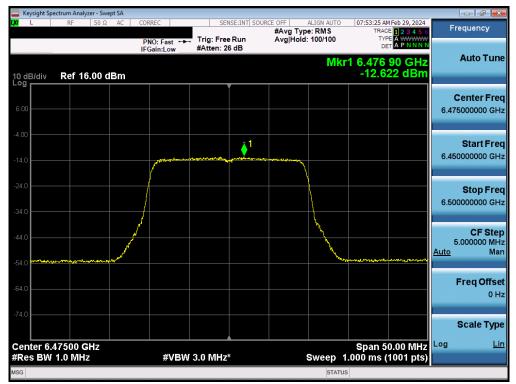
FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT			
Test Report S/N:	Test Dates:	EUT Type:	Dege 50 of 100		
1M2312040120-21-R2.C3K	12/14/2023 - 05/20/2024	Portable Computing Device	Page 59 of 169		
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MIMO Antenna-1 Power Spectral Density Measurements - (UNII Band 6)







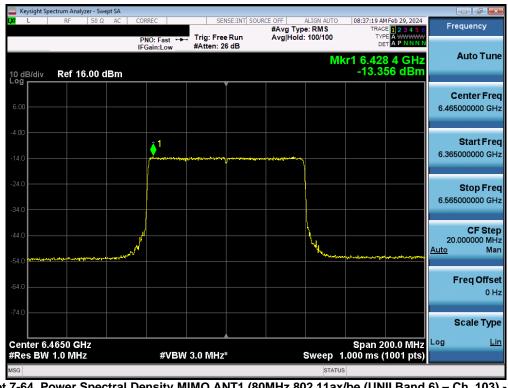
Plot 7-62. Power Spectral Density MIMO ANT1 (20MHz 802.11ax/be (UNII Band 6) - Ch. 105) - LPI

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT			
Test Report S/N:	Test Dates:	Test Dates: EUT Type:			
1M2312040120-21-R2.C3K	12/14/2023 - 05/20/2024	Portable Computing Device	Page 60 of 169		
© 2024 ELEMENT			V 9.0 02/01/2019		



Keysight Spectrum Analyzer - Swept S					
LXI L RF 50 Ω A	AC CORREC	SENSE:INT SOU	JRCE OFF ALIGN AUTO #Avg Type: RMS Avg Hold: 100/100	08:14:47 AM Feb 29, 2024 TRACE 1 2 3 4 5 6 TYPE A WWWWW	Frequency
10 dB/div Ref 16.00 dB	PNO: Fast ↔ IFGain:Low	#Atten: 26 dB		cr1 6.501 1 GHz -12.574 dBm	Auto Tune
6.00					Center Fred 6.485000000 GH;
-4.00			<u>, , , , , , , , , , , , , , , , , , , </u>		Start Fred 6.435000000 GH;
-24.0					Stop Free 6.535000000 GH
-44.0			ka k	aj-rresy/180-19.44/19.47.49.17-198466	CF Step 10.000000 MH <u>Auto</u> Mar
-64.0					Freq Offse 0 H
Center 6.48500 GHz #Res BW 1.0 MHz	#\/B\M	3.0 MHz*	Sween	Span 100.0 MHz I.000 ms (1001 pts)	Scale Type
#RGS DW TO WINZ	#VDVV	570 WI112	STATU		

Plot 7-63. Power Spectral Density MIMO ANT1 (40MHz 802.11ax/be (UNII Band 6) - Ch. 107) - LPI



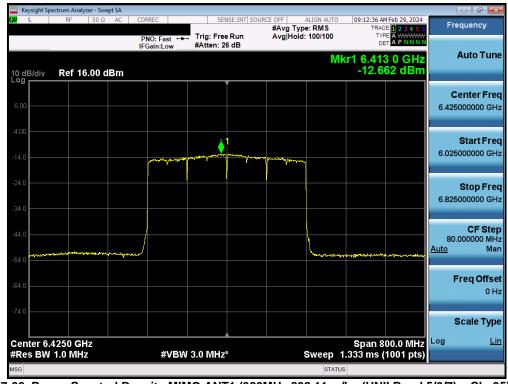
Plot 7-64. Power Spectral Density MIMO ANT1 (80MHz 802.11ax/be (UNII Band 6) - Ch. 103) - LPI

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT			
Test Report S/N:	Test Dates:	EUT Type:	Dage 61 of 160		
1M2312040120-21-R2.C3K	12/14/2023 - 05/20/2024	Portable Computing Device	Page 61 of 169		
© 2024 ELEMENT	·		V 9.0 02/01/2019		



🔤 Keysi	ight Spectr														
L <mark>XI</mark> L		RF	50 Ω	AC	CORRE	C		SENSE:INT	SOURCE	#Avg Ty		TR	AM Feb 29, 2024 ACE 1 2 3 4 5 6	Frequ	lency
10 dB/	/div	Ref 16	.00 d	Bm		:Fast ↔ n:Low		Free Run n: 26 dB		Avg Hol	d: 100/100 M	kr1 6.50	DET A P NNNN DET A P NNNN 140 dBm	Au	ito Tune
6.00															n ter Freq 0000 GHz
-4.00						من <u>محمد معمد</u>			- and a state of the state of t	an aleranda wa	η				t art Freq 0000 GHz
-24.0 -34.0															top Fred 0000 GHz
-44.0	had a start and a start	14 ¹¹ 1-941-934-1	court-ton-gavely		/						h h				CF Step 0000 MH: Mar
-64.0														Fre	e q Offse 0 H:
	er 6.50											Span	400.0 MHz		ale Type <u>Lir</u>
	BW 1.	0 MHz	4			#VB۱	V 3.0 IV	Hz*				1.000 ms	(1001 pts)		
MSG											STATU	S			

Plot 7-65. Power Spectral Density MIMO ANT1 (160MHz 802.11ax/be (UNII Band 6) - Ch. 111) - LPI

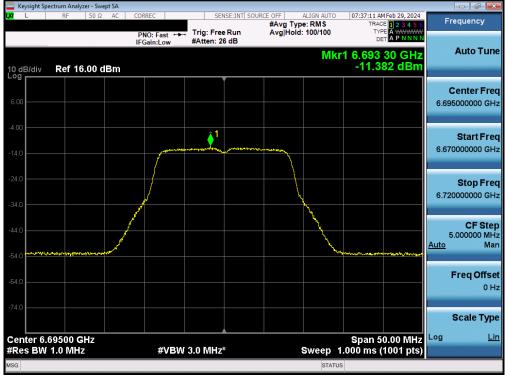


Plot 7-66. Power Spectral Density MIMO ANT1 (320MHz 802.11ax/be (UNII Band 5/6/7) - Ch. 95) - LPI

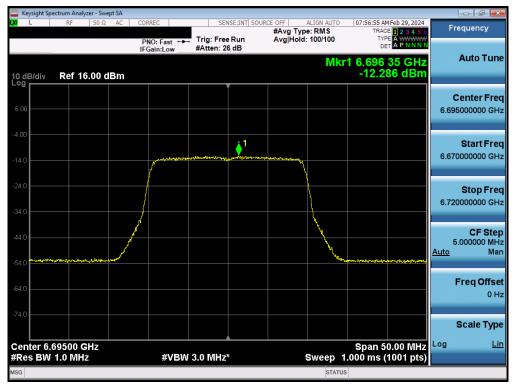
FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT			
Test Report S/N:	Test Dates:	EUT Type:	Dega (2) of 100		
1M2312040120-21-R2.C3K	12/14/2023 - 05/20/2024	Portable Computing Device	Page 62 of 169		
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MIMO Antenna-1 Power Spectral Density Measurements - (UNII Band 7)







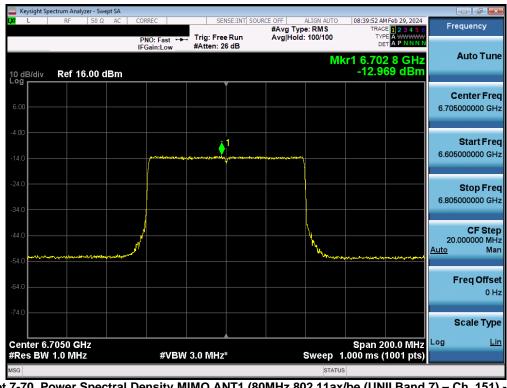
Plot 7-68. Power Spectral Density MIMO ANT1 (20MHz 802.11ax/be (UNII Band 7) - Ch. 149) - LPI

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT			
Test Report S/N:	Test Dates:	Dates: EUT Type:			
1M2312040120-21-R2.C3K	12/14/2023 - 05/20/2024	Portable Computing Device	Page 63 of 169		
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🚾 Keysig		m Analyzer -										
L <mark>XI</mark> L		RF 50	Ω AC	CORREC PNO: Fast	Trig: Fre		#Avg Ty	ALIGN AUTO pe: RMS d: 100/100	TRAC TYP	E 1 2 3 4 5 6 A WWWWW	Frequ	lency
10 dB/c	div R	ef 16.00) dBm	IFGain:Low	#Atten: :	26 dB			kr1 6.70	7 0 GHz 63 dBm	Au	ito Tune
6.00						<u> </u>						nter Fred 0000 GH
-4.00				Î.	ue and the second	John Marine	mannenhan					tart Free 0000 GH
-24.0												top Fre 0000 GH
-44.0	-	يوم ، محالية ال موال						L. L	สราวาารสถางสะก	يوني، ويوني وي		CF Ste 0000 MH Ma
-64.0											Fre	eqOffse 0⊦
-74.0	- 6 725								0.0.0.0.1		Sc Log	ale Typ
	r 6.725 BW 1.0	00 GHz MHz		#V	3W 3.0 MH;	<u>z</u> *		Sweep	Span 1 1.000 ms (20.0 1911 12	LUg	
MSG								STATU	s			

Plot 7-69. Power Spectral Density MIMO ANT1 (40MHz 802.11ax/be (UNII Band 7) - Ch. 155) - LPI



Plot 7-70. Power Spectral Density MIMO ANT1 (80MHz 802.11ax/be (UNII Band 7) - Ch. 151) - LPI

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT			
Test Report S/N:	Test Dates:	ates: EUT Type:			
1M2312040120-21-R2.C3K	12/14/2023 - 05/20/2024	Portable Computing Device	Page 64 of 169		
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🔤 Keysight Spectrum Analyzer -					
LXI RF 50	Ω AC CORREC	SENSE:INT SOU	#Avg Type: RMS	09:04:01 AM Feb 29, 2024 TRACE 1 2 3 4 5 6	Frequency
10 dB/div Ref 16.00	PNO: Fast ↔ IFGain:Low) dBm	, Trig: Free Run #Atten: 26 dB	Avg Hold: 100/100	type A Det A P NNNN (r1 6.673 0 GHz -13.527 dBm	Auto Tune
6.00					Center Freq 6.665000000 GHz
-14.00	لىرىنى وىرىيە مەرىيە مەرىي مەرىيە مەرىيە		n warman		Start Freq 6.465000000 GHz
-24.0					Stop Freq 6.865000000 GHz
-44.0					CF Step 40.000000 MHz <u>Auto</u> Man
-64.0					Freq Offset 0 Hz
Center 6.6650 GHz #Res BW 1.0 MHz	#\/B\A	/ 3.0 MHz*	Sween 1	Span 400.0 MHz .000 ms (1001 pts)	Scale Type
MSG	<i>"</i> vbv		STATUS		

Plot 7-71. Power Spectral Density MIMO ANT1 (160MHz 802.11ax/be (UNII Band 7) - Ch. 143) - LPI

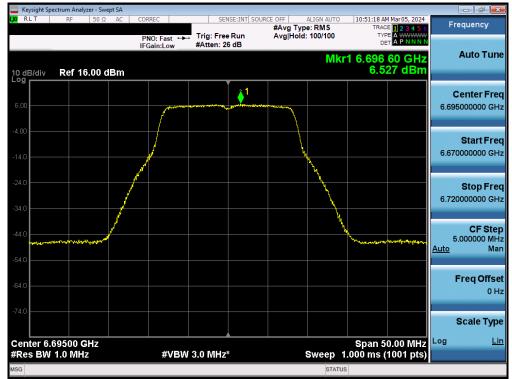


Plot 7-72. Power Spectral Density MIMO ANT1 (320MHz 802.11ax/be (UNII Band 6/7) - Ch. 127) - LPI

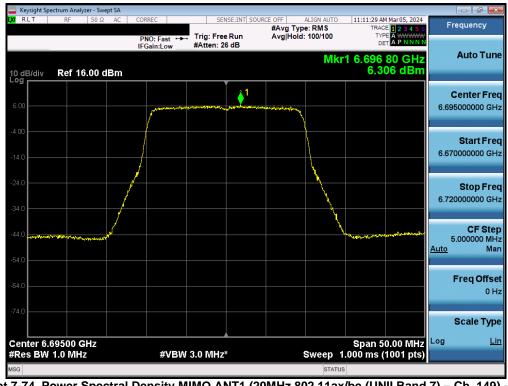
FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT			
Test Report S/N:	Test Dates:	EUT Type:	Dere CE of 100		
1M2312040120-21-R2.C3K	12/14/2023 - 05/20/2024	Portable Computing Device	Page 65 of 169		
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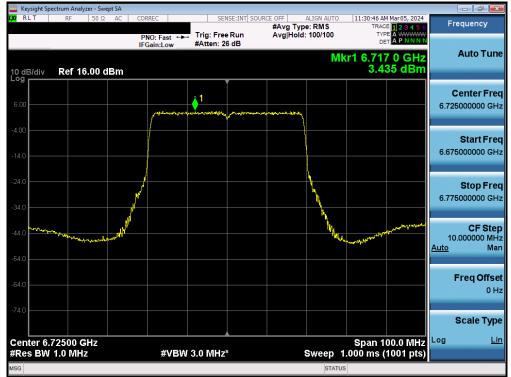
Plot 7-73. Power Spectral Density MIMO ANT1 (20MHz 802.11a (UNII Band 7) – Ch. 149) - SP



Plot 7-74. Power Spectral Density MIMO ANT1 (20MHz 802.11ax/be (UNII Band 7) - Ch. 149) - SP

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT	
Test Report S/N:	Test Dates:	EUT Type:	Dage 66 of 160
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Plot 7-75. Power Spectral Density MIMO ANT1 (40MHz 802.11ax/be (UNII Band 7) - Ch. 155) - SP



Plot 7-76. Power Spectral Density MIMO ANT1 (80MHz 802.11ax/be (UNII Band 7) - Ch. 151) - SP

FCC ID: C3K2077 IC: 3048A-2077	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 67 of 160
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Plot 7-77. Power Spectral Density MIMO ANT1 (160MHz 802.11ax/be (UNII Band 7) - Ch. 143) - SP



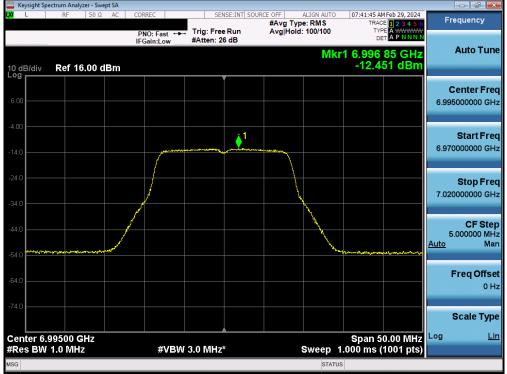
Plot 7-78. Power Spectral Density MIMO ANT1 (320MHz 802.11ax/be (UNII Band 6/7) - Ch. 159) - SP

FCC ID: C3K2077 IC: 3048A-2077	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega C2 of 1C0
1M2312040120-21-R2.C3K	12/14/2023 - 05/20/2024	Portable Computing Device	Page 68 of 169
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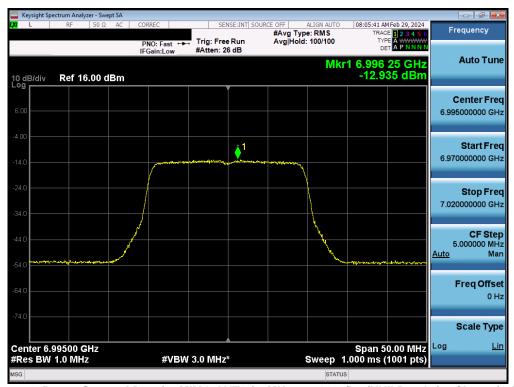
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MIMO Antenna-1 Power Spectral Density Measurements - (UNII Band 8)



Plot 7-79. Power Spectral Density MIMO ANT1 (20MHz 802.11a (UNII Band 8) - Ch. 209) - LPI



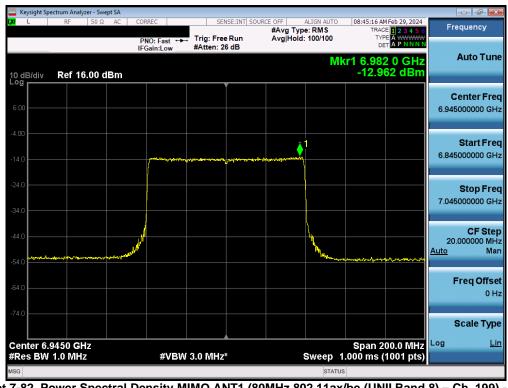
Plot 7-80. Power Spectral Density MIMO ANT1 (20MHz 802.11ax/be (UNII Band 8) - Ch. 209) - LPI

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT	
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Keysight Spectrum Analyzer - Swept SA				
XI L RF 50Ω AC		#Avg Type: RMS	0 08:24:32 AM Feb 29, 2024 TRACE 1 2 3 4 5 6 TYPE A WWWWW	Frequency
10 dB/div Ref 16.00 dBm	PNO: Fast ↔ Trig: Free R IFGain:Low #Atten: 26 c	IB S	/kr1 6.996 4 GHz -12.490 dBm	Auto Tune
6.00				Center Fred 7.005000000 GH:
-4.00	formation and declaration of the	20-10-10-10-00-010-010-010-010-010-010-0		Start Fred 6.955000000 GH;
-34.0				Stop Fred 7.055000000 GH:
-44.0			mlangings-galertyggaletyggnatetygg	CF Stej 10.000000 MH <u>Auto</u> Mar
-64.0				Freq Offse 0 H
Center 7.00500 GHz			Span 100.0 MHz	Scale Type
#Res BW 1.0 MHz	#VBW 3.0 MHz*	Sweep	1.000 ms (1001 pts)	

Plot 7-81. Power Spectral Density MIMO ANT1 (40MHz 802.11ax/be (UNII Band 8) - Ch. 211) - LPI



Plot 7-82. Power Spectral Density MIMO ANT1 (80MHz 802.11ax/be (UNII Band 8) - Ch. 199) - LPI

FCC ID: C3K2077 IC: 3048A-2077	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dago 70 of 100
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🤤 Keysight Spectrum Analyzer - Swept SA				
L RF 50Ω AC		ENSE:INT SOURCE OFF #Avg Typ	De: RMS TRA	AM Feb 29, 2024 ACE 1 2 3 4 5 6 Frequency
10 dB/div Ref 16.00 dBm	PNO: Fast + Trig: Fre IFGain:Low #Atten: :		Mkr1 6.97	77 0 GHz 307 dBm
6.00				Center Fre 6.985000000 GH
-4.00	forthe and for the state of the	1	1	Start Fre 6.785000000 GH
-24.0				Stop Fra 7.185000000 GH
-44.0			Woman and portrained and	CF Ste 40.000000 MH Auto Ma
-64.0				Freq Offs
-74.0 Center 6.9850 GHz	4VPM 2.0 MU		Span 4	400.0 MHz
#Res BW 1.0 MHz	#VBW 3.0 MH:	2	Sweep 1.000 ms	

Plot 7-83. Power Spectral Density MIMO ANT1 (160MHz 802.11ax/be (UNII Band 8) - Ch. 207) - LPI



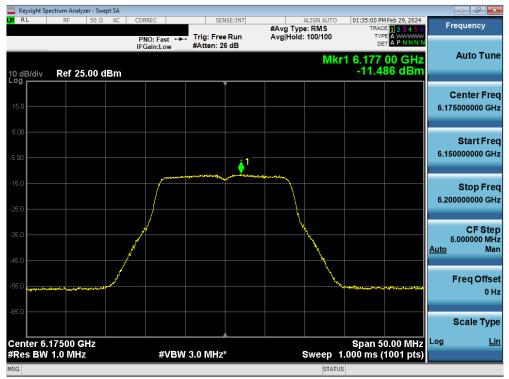
Plot 7-84. Power Spectral Density MIMO ANT1 (320MHz 802.11ax/be (UNII Band 7/8) – Ch. 191) - LPI

FCC ID: C3K2077 IC: 3048A-2077	MEASUREMENT REPORT		Approved by: Technical Manager
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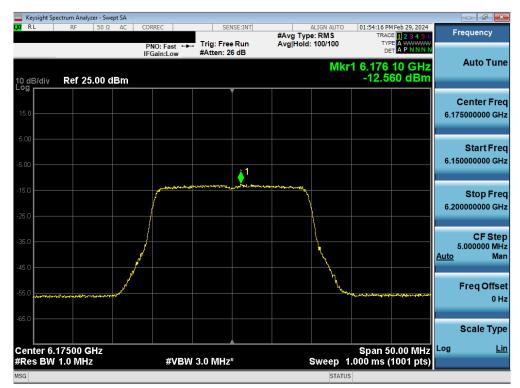
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MIMO Antenna-2 Power Spectral Density Measurements - (UNII Band 5)



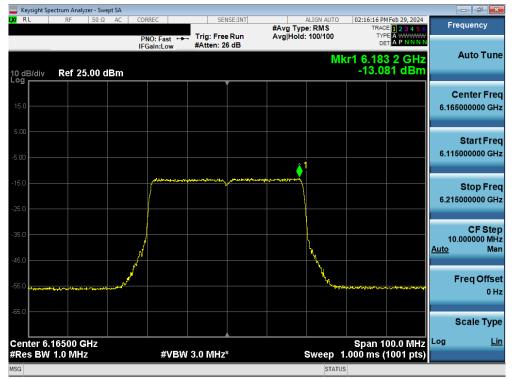




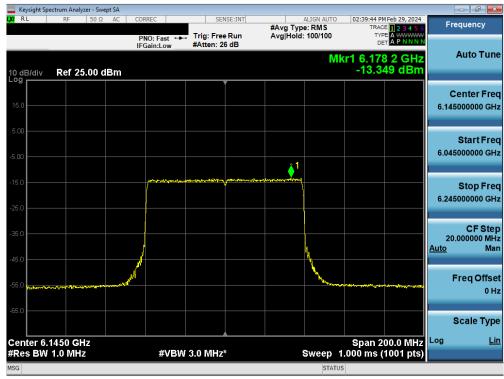
Plot 7-86. Power Spectral Density MIMO ANT2 (20MHz 802.11ax/be (UNII Band 5) – Ch. 45) - LPI

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT	
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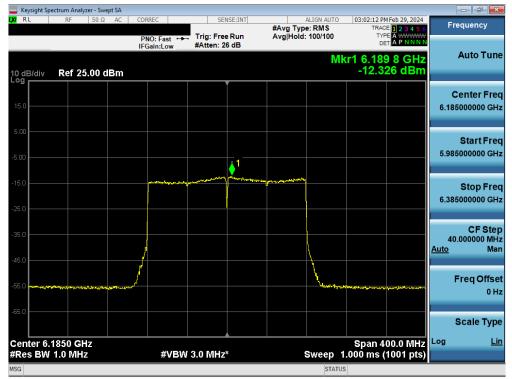
Plot 7-87. Power Spectral Density MIMO ANT2 (40MHz 802.11ax/be (UNII Band 5) - Ch. 43) - LPI



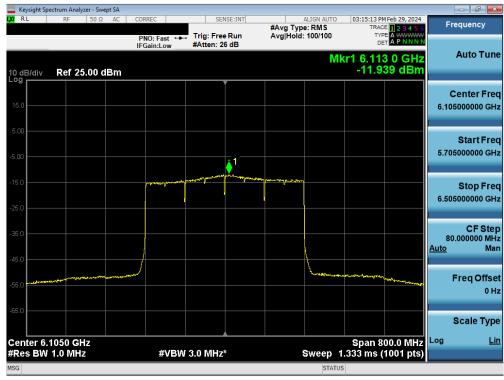
Plot 7-88. Power Spectral Density MIMO ANT2 (80MHz 802.11ax/be (UNII Band 5) - Ch. 39) - LPI

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 72 of 160
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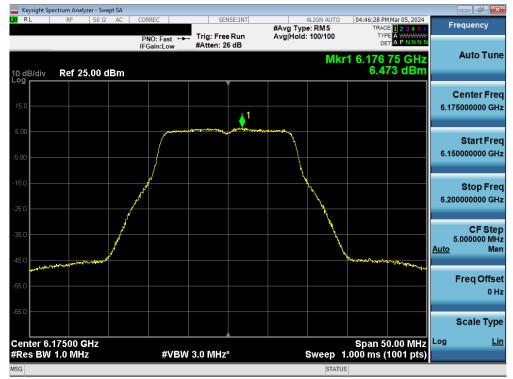
Plot 7-89. Power Spectral Density MIMO ANT2 (160MHz 802.11ax/be (UNII Band 5) - Ch. 47) - LPI

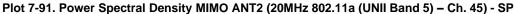


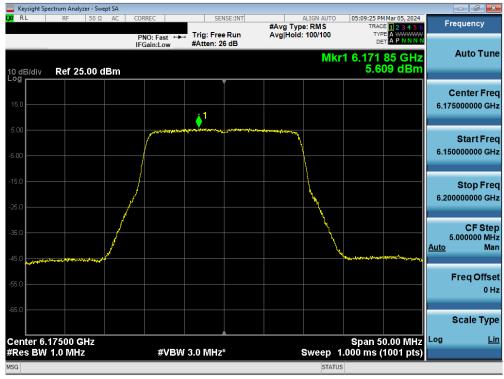
Plot 7-90. Power Spectral Density MIMO ANT2 (320MHz 802.11ax/be (UNII Band 5) - Ch.31) - LPI

FCC ID: C3K2077 IC: 3048A-2077	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 74 of 160
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Plot 7-92. Power Spectral Density MIMO ANT2 (20MHz 802.11ax/be (UNII Band 5) - Ch. 45) - SP

FCC ID: C3K2077 IC: 3048A-2077		MEASUREMENT REPORT	
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