

## **ELEMENT WASHINGTON DC LLC**

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

**Applicant Name:** 

Samsung Electronics Co., Ltd. 129, Samsung-ro, Yeongtong-gu, Suwon-si

Gyeonggi-do, 16677, Korea

Date of Testing:

03/14/2024 - 05/01/2024

**Test Report Issue Date:** 

05/02/2024

Test Site/Location:

Element lab., Columbia, MD, USA

Test Report Serial No.: 1M2401250007-08-R2.A3L

FCC ID: A3LNP960XMA

APPLICANT: Samsung Electronics Co., Ltd.

Application Type: Certification Model: NP960XMA

Additional Model: NP960XMB, NP964XMA, NP964XMB

**EUT Type:** Portable Computing Device

Frequency Range: 5935 – 7115MHz

Modulation Type: OFDMA

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

FCC Rule Part(s): Part 15 Subpart E (15.407)

ANSI C63.10-2013, KDB 987594 D02 v02r01,

KDB 484596 D01 v02r03

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

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

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

RJ Ortanez Executive Vice President





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# **MEASUREMENT REPORT**

Channel		Tx	МІМО		
Bandwidth [MHz]	UNII Band	Frequency [MHz]	Max. Power [mW]	Max. Power [dBm]	
	5	5935 - 6415	13.57	11.33	
20	6	6435 - 6515	14.71	11.68	
20	7	6535 - 6875	12.08	10.82	
	8	6895 - 7115	11.22	10.50	
	5	5965 - 6405	16.85	12.27	
40	6	6445 - 6525	18.40	12.65	
40	7	6565 - 6845	15.15	11.80	
	8	6885 - 7085	12.81	11.07	
	5	5985 - 6385	17.92	12.53	
80	6	6465	17.44	12.41	
80	7	6545 - 6865	15.82	11.99	
	8	6945 - 7025	13.88	11.43	
	5	6025 - 6345	17.18	12.35	
160	6	6505	17.68	12.48	
100	7	6665 - 6825	16.15	12.08	
	8	6985	14.54	11.63	
	5	6105 - 6265	16.69	12.22	
320	6	6425	19.13	12.82	
320	7	6585 - 6745	16.61	12.20	
	8	6905	14.42	11.59	

**EUT Overview – Low Power Indoor Client – EIRP** 

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Channel		Tx	МІМО	
Bandwidth [MHz]	UNII Band	Frequency [MHz]	Max. Power [mW]	Max. Power [dBm]
20	5	5935 - 6415	14.25	11.54
20	7	6535 - 6875	13.30	11.24
40	5	5965 - 6405	17.62	12.46
40	7	6565 - 6845	16.51	12.18
80	5	5985 - 6385	17.68	12.47
80	7	6545 - 6865	15.99	12.04
160	5	6025 - 6345	16.74	12.24
100	7	6665 - 6825	15.52	11.91
320	5	6105 - 6265	16.69	12.22
320	7	6585 - 6745	16.61	12.20

**EUT Overview - Standard Power Client - EIRP** 

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## 1 INTRODUCTION

## 1.1 Scope

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

### 1.2 Element Test Location

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

## 1.3 Test Facility / Accreditations

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

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

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## 2 PRODUCT INFORMATION

## 2.1 Equipment Description

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

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

## 2.2 Device Capabilities

This device contains the following capabilities:

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

Band	5
------	---

Frequency (MHz)
5935
•
6175
•
6415

## Band 6

Ch.	Frequency (MHz)
97	6435
:	:
105	6475
:	•
113	6515

### Band 7

Ch.	Frequency (MHz)
117	6535
• •	:
149	6695
• •	•
185	6875

## Band 8

Ch.	Frequency (MHz)
189	6895
:	:
209	6995
:	:
233	7115

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

### Band 5

Ch.	Frequency (MHz)
3	5965
:	
43	6165
:	:
91	6405

### Band 6

Ch.	Frequency (MHz)
99	6445
:	:
107	6485
:	:
115	6525

## Band 7

Ch.	Frequency (MHz)
123	6565
:	:
155	6725
:	•
179	6845

## Band 8

Ch.	Frequency (MHz)
187	6885
:	:
211	7005
:	•
227	7085

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

## Band 5

Ch.	Frequency (MHz)
7	5985
	•
39	6145
:	÷
87	6385

## Band 6

	24114 0
Ch.	Frequency (MHz)
103	6465

### Band 7

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

## Band 8

Frequency (MHz)
6945
:
7025

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

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## Band 5

Ch.	Frequency (MHz)
15	6025
:	:
47	6185
:	:
79	6345

## Band 6

Ch.	Frequency (MHz)
111	6505

## Band 7

Ch. Frequency (MHz				
143	6665			
:	•			
175	6825			

## Band 8

Ch.	Frequency (MHz)
207	6985

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

_			_	_
п	_		_	_
-	-	п		~

Ch.	Frequency (MHz)
31	6105
63	6265

## Band 6

Ch.	Frequency (MHz)
95	6425

## Band 7

Ch.	Frequency (MHz)	
127	6585	
159	6745	

## Band 8

Ch.	Frequency (MHz)
191	6905

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

## Notes:

1. 6GHz NII operation is possible in 20MHz, 40MHz, 80MHz, 160MHz, and 320MHz channel bandwidths. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = peak per the guidance of Section B)2)b) of ANSI C63.10-2013. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

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Band	Bandwidth	Tone Type	Tone Size	Duty Cycle [%]
			26T	98.88
		DII	52T	99.06
	201411-	RU	106T	99.21
	20MHz		242T	98.50
		MRU	52+26T	99.44
		IVIKU	106+26T	98.73
			26T	99.59
			52T	99.61
	40MHz	RU	106T	99.28
			242T	98.58
			484T	97.47
			26T	99.65
			52T	99.57
		RU	106T	99.28
	80MHz	KU	242T	98.58
			484T	97.40
			996T	97.43
6GHz		MRU	484+242T	97.78
00112			26T	99.57
			52T	99.59
			106T	99.39
	160MHz	RU	242T	98.58
			484T	97.55
			996T	97.37
			2x996T	99.62
		MRU	996+484T	97.64
			26T	99.36
			52T	99.61
			106T	99.17
		RU	242T	98.49
	320MHz	1.0	484T	97.24
	020/11/12		996T	97.42
			2x996T	97.36
			4x996T	97.92
		MRU	3x996T	95.98
			3x996+484T	94.50

Table 2-6. Measured Duty Cycles

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

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

Table 2-7. Frequency / Channel Operations

✓= Support; × = NOT Support

**SISO** = Single Input Single Output

**SDM** = Spatial Diversity Multiplexing – MIMO function

**CDD** = Cyclic Delay Diversity - 2Tx Function

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

MCS	Spatial										OFD	MA (802.1	1ax)									
Index	Stream		26T			52T			106T			242T			484T			996T			2x996T	
HE	1	0.8µs GI	1.6µs GI	3.2µs Gl	0.8μs GI	1.6µs GI	3.2µs GI	0.8µs GI	1.6µs GI	3.2µs GI	0.8µs GI	1.6µs GI	3.2µs GI	0.8µs GI	1.6µs GI	3.2µs GI	0.8µs GI	1.6μs GI	3.2µs GI	0.8µs GI	1.6μs GI	3.2µs GI
0	1	0.9	0.8	0.8	1.8	1.7	1.5	3.8	3.5	3.2	8.6	8.1	7.3	17.2	16.3	14.6	36	34	30.6	72.1	68.1	61.3
1	1	1.8	1.7	1.5	3.5	3.3	3	7.5	7.1	6.4	17.2	16.3	14.6	34.4	32.5	29.3	72.1	68.1	61.3	144.1	136.1	122.5
2	1	2.6	2.5	2.3	5.3	5	4.5	11.3	10.6	9.6	25.8	24.4	21.9	51.6	48.8	43.9	108.1	102.1	91.9	216.2	204.2	183.8
3	1	3.5	3.3	3	7.1	6.7	6	15	14.2	12.8	34.4	32.5	29.3	68.8	65	58.5	144.1	136.1	122.5	288.2	272.2	245
4	1	5.3	5	4.5	10.6	10	9	22.5	21.3	19.1	51.6	48.8	43.9	103.2	97.5	87.8	216.2	204.2	183.8	432.4	408.3	367.5
5	1	7.1	6.7	6	14.1	13.3	12	30	28.3	25.5	68.8	65	58.5	137.6	130	117	288.2	272.2	245	576.5	544.4	490
6	1	7.9	7.5	6.8	15.9	15	13.5	33.8	31.9	28.7	77.4	73.1	65.8	154.9	146.3	131.6	324.3	306.3	275.6	648.5	612.5	551.3
7	1	8.8	8.3	7.5	17.6	16.7	15	37.5	35.4	31.9	86	81.3	73.1	172.1	162.5	146.3	360.3	340.3	306.3	720.6	680.6	612.5
8	1	10.6	10	9	21.2	20	18	45	42.5	38.3	103.2	97.5	87.8	206.5	195	175.5	432.4	408.3	367.5	864.7	816.7	735
9	1	11.8	11.1	10	23.5	22.2	20	50	47.2	42.5	114.7	108.3	97.5	229.4	216.7	195	480.4	453.7	408.3	960.8	907.4	816.7
10	1	13.2	12.5	11.3	26.5	25	22.5	56.3	53.1	47.8	129	121.9	109.7	258.1	243.8	219.4	540.4	510.4	459.4	1080.9	1020.8	918.8
11	1	14.7	13.9	12.5	29.4	27.8	25	62.5	59	53.1	143.4	135.4	121.9	286.8	270.8	243.8	600.5	567.1	510.4	1201	1134.3	1020.8
0	2	1.8	1.7	1.5	3.5	3.3	3	7.5	7.1	6.4	17.2	16.3	14.6	34.4	32.5	29.3	72.1	68.1	61.3	144.1	136.1	122.5
1	2	3.5	3.3	3	7.1	6.7	6	15	14.2	12.8	34.4	32.5	29.3	68.8	65	58.5	144.1	136.1	122.5	288.2	272.2	245
2	2	5.3	5	4.5	10.6	10	9	22.5	21.3	19.1	51.6	48.8	43.9	103.2	97.5	87.8	216.2	204.2	183.8	432.4	408.3	367.5
3	2	7.1	6.7	6	14.1	13.3	12	30	28.3	25.5	68.8	65	58.5	137.6	130	117	288.2	272.2	245	576.5	544.4	490
4	2	10.6	10	9	21.2	20	18	45	42.5	38.3	103.2	97.5	87.8	206.5	195	175.5	432.4	408.3	367.5	864.7	816.7	735
5	2	14.1	13.3	12	28.2	26.7	24	60	56.7	51	137.6	130	117	275.3	260	234	576.5	544.4	490	1152.9	1088.9	980
6	2	15.9	15	13.5	31.8	30	27	67.5	63.8	57.4	154.9	146.3	131.6	309.7	292.5	263.3	648.5	612.5	551.3	1297.1	1225	1102.5
7	2	17.6	16.7	15	35.3	33.3	30	75	70.8	63.8	172.1	162.5	146.3	344.1	325	292.5	720.6	680.6	612.5	1441.2	1361.1	1225
8	2	21.2	20	18	42.4	40	36	90	85	76.5	206.5	195	175.5	412.9	390	351	864.7	816.7	735	1729.4	1633.3	1470
9	2	23.5	22.2	20	47.1	44.4	40	100	94.4	85	229.4	216.7	195	458.8	433.3	390	960.8	907.4	816.7	1921.6	1814.8	1633.3
10	2	26.5	25	22.5	52.9	50	45	112.5	106.3	95.6	258.1	243.8	219.4	516.2	487.5	438.8	1080.9	1020.8	918.8	2161.8	2041.7	1837.5
11	2	29.4	27.8	25	58.8	55.6	50	125	118.1	106.3	286.8	270.8	243.8	573.5	541.7	487.5	1201	1134.3	1020.8	2402	2268.5	2041.7

**Table 2-8. Supported Data Rates** 

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

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

**Table 2-9. Power Operation** 

✓= Support; × = NOT Support

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## **Antenna Description**

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

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

Table 2-10. Antenna Peak Gain

#### 2.4 **Test Configuration**

ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing. See Sections 3.2 for AC line conducted emissions test setups, 3.3 for radiated emissions test setups, and 7.2, 7.3, 7.4, 7.5 and 7.6 for antenna port conducted emissions test setups.

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

#### 2.5 Software and Firmware

The test was conducted with firmware version REV0.1 and software version Windows 11 installed on the EUT.

## 2.6 EMI Suppression Device(s) / Modifications

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

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## 3 DESCRIPTION OF TESTS

### 3.1 Evaluation Procedure

The measurement procedures described in the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10-2013) and the guidance provided in KDB 987594 D02 v01r01 were used in the measurement of the EUT.

Deviation from measurement procedure......None

## 3.2 AC Line Conducted Emissions

The line-conducted facility is located inside a 10'x16'x9' shielded enclosure. The shielded enclosure is manufactured by ETS Lindgren RF Enclosures. The shielding effectiveness of the shielded room is in accordance with MIL-Std-285 or NSA 65-5. A  $1m \times 1.5m$  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.

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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 in order for them to warm up to their normal operating condition. The test set-up was placed on top of the 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, mode of operation, turntable azimuth, and receive antenna height was noted for each frequency found.

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

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

## 3.4 Environmental Conditions

The temperature is controlled within range of 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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## **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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## **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 TEST EQUIPMENT CALIBRATION DATA

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

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

Table 6-1. Annual Test Equipment Calibration Schedule

## Note:

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

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# TEST RESULTS

7.1 Summary

Company Name: Samsung Electronics Co., Ltd.

A3LNP960XMA FCC ID:

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

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

Table 7-1. Summary of Test Results

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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) For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is Element "UNII Automation," Version 4.7.
- 5) For radiated band edge, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is Element "Chamber Automation," Version 1.3.1.
- 6) Per 15.407(a)(7), a device operating under the control of a standard power access point in 5.925-6.425 GHz and 6.525-6.875 GHz bands must not have the maximum power spectral density exceed 17 dBm/MHz e.i.r.p., must limit the maximum e.i.r.p. over the frequency band of operation not exceed 30 dBm, and must limit its power to no more than 6 dB below its associated standard power access point's authorized transmit power. Compliance to this clause is addressed via submission of an attestation following Appendix B of KDB 987594 D01 v01r03.
- 7) 802.11be OFDMA testing was performed for all signal tone configurations as specified by the 802.11be standard. Worst case results are determined and reported per the guidance provided at the October 2018 TCB Workshop.
- 8) Data was leveraged from Model NP960XMA for the certification of NP960XMB. See Table 7-2 for spot-check results.

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

Table 7-2. Summary of Spot-checks

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

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

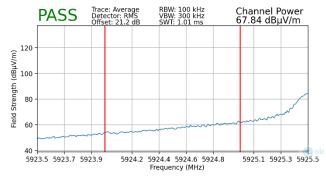
Mode	Antenna	UNII Band	Channel	Test Channel Freq. [MHz]	Restricted	Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
802.11	MIMO	7	149	6695	*	13390.00	Average	Н	130	205	-86.22	25.32	0.00	46.10	53.98	-7.88
802.11	MINIO	/	149	0093	*	13390.00	Peak	Н	130	205	-75.20	24.56	0.00	56.36	73.98	-17.62

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

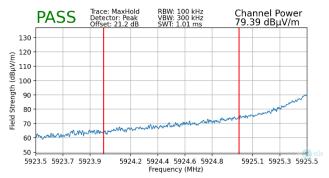
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Worst Case Mode: 802.11be Worst Case Transfer Rate: MCS0 Distance of Measurements: 3 Meters Operating Frequency: 5935MHz Channel: 2



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



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

- 9) Each spot check test on the EUT was performed using the same procedure and setting that were used to perform the test on the corresponding reference device. And the worst-case RSE data is determined by an actual emission and not by noise floor.
- 10) All test cases were performed to verify the variant EUT is still in compliance with the spot-checked results to the reference device and was performed using the guidance of ANSI C63.10-2013.

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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**

- 1. The signal analyzers' automatic bandwidth measurement capability was used to perform the 26dB bandwidth measurement. The "X" dB bandwidth parameter was set to X = 26. The automatic bandwidth measurement function also has the capability of simultaneously measuring the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
- 2. RBW = approximately 1% of the emission bandwidth
- 3.  $VBW \ge 3 \times RBW$
- 4. Detector = Peak
- 5. Trace mode = max hold

### **Test Setup**

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



Figure 7-1. Test Instrument & Measurement Setup

### **Test Notes**

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

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	Frequency [MHz]	Channel	802.11 MODE	Antenna-1 26dB Bandwidth [MHz]	Antenna-2 26dB Bandwidth [MHz]
	5935	2	be (20MHz)	17.76	18.18
	6175	45	be (20MHz)	19.76	19.94
	6415	93	be (20MHz)	19.75	19.71
	5965	3	be (40MHz)	25.66	25.63
	6165	43	be (40MHz)	22.18	22.55
	6405	91	be (40MHz)	22.93	22.31
d 5	5985	7	be (80MHz)	29.85	30.49
Band 5	6145	39	be (80MHz)	44.35	29.93
	6385	87	be (80MHz)	30.54	31.38
	6025	15	be (160MHz)	33.54	36.11
	6185	47	be (160MHz)	34.77	30.88
	6345	79	be (160MHz)	35.03	34.31
	6105	31	be (320MHz)	35.21	33.73
	6265	63	be (320MHz)	26.69	39.01
	6475	97	be (20MHz)	19.90	19.85
	6475	105	be (20MHz)	20.17	19.93
	6515	113	be (20MHz)	18.05	18.30
Band 6	6445	99	be (40MHz)	22.06	22.68
auc	6485	107	be (40MHz)	25.54	23.05
<u>α</u>	6525	115	be (40MHz)	22.22	21.79
	6465	103	be (80MHz)	31.40	31.08
	6505	111	be (160MHz)	37.09	42.46
Band 5/6/7	6425	95	be (320MHz)	41.88	33.29
Dana Sy oy r	6695	117	be (20MHz)	20.05	19.77
	6695	149	be (20MHz)	19.78	19.74
	6875	185	be (20MHz)	19.99	19.85
	6565	123	be (40MHz)	23.66	22.80
_	6685	155	be (40MHz)	22.55	22.31
Band 7	6845	179	be (40MHz)	22.81	22.90
Bal	6545	119	be (80MHz)	44.38	30.05
	6705	151	be (80MHz)	31.83	31.10
	6865	183	be (80MHz)	44.75	31.64
	6665	143	be (160MHz)	31.40	26.50
	6825	175	be (160MHz)	38.81	36.45
Band 6/7	6585	127	be (320MHz)	30.41	40.59
Band 7/8	6745	159	be (320MHz)	39.57	38.79
Duna 1/0	7115	189	be (320MHz)	19.87	20.02
	6995	209	be (20MHz)	19.55	20.02
	7115	233	be (20MHz)	18.17	18.28
8	6885	187	be (20MHz)	22.26	23.49
Band 8	6965	211	be (40MHz)	23.41	22.96
Bar	7085	227	be (40MHz)	24.89	24.26
	6945	199	be (40MHz)	28.64	31.56
	7025	215	be (80MHz)	31.49	32.77
	6985	207	be (160MHz)	34.52	33.13
Band 7/8	6905	191	be (320MHz)	37.99	43.97
-				th Massurama	

Table 7-5. Occupied Bandwidth Measurements – 26T

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	Frequency [MHz]	Channel	802.11 MODE	Antenna-1 26dB Bandwidth [MHz]	Antenna-2 6dB Bandwidth [MHz]
	5935	2	be (20MHz)	21.13	21.24
	6175	45	be (20MHz)	21.23	21.36
	6415	93	be (20MHz)	21.05	21.16
	5965	3	be (40MHz)	42.57	42.33
	6165	43	be (40MHz)	42.54	41.98
	6405	91	be (40MHz)	42.84	41.71
Band 5	5985	7	be (80MHz)	87.22	122.04
Ban	6145	39	be (80MHz)	86.64	119.56
	6385	87	be (80MHz)	86.84	117.48
	6025	15	be (160MHz)	174.15	174.42
	6185	47	be (160MHz)	176.54	170.32
	6345	79	be (160MHz)	174.92	174.17
	6105	31	be (320MHz)	262.50	265.97
	6265	63	be (320MHz)	259.49	261.45
	6475	97	be (20MHz)	21.26	21.22
	6475	105	be (20MHz)	21.29	21.22
	6515	113	be (20MHz)	21.34	21.01
Band 6	6445	99	be (40MHz)	42.52	41.82
Ban	6485	107	be (40MHz)	41.98	42.27
	6525	115	be (40MHz)	42.33	42.34
	6465	103	be (80MHz)	86.23	122.71
	6505	111	be (160MHz)	174.40	174.39
Band 5/6/7	6425	95	be (320MHz)	261.94	257.52
	6695	117	be (20MHz)	21.09	21.21
	6695	149	be (20MHz)	21.21	21.30
	6875	185	be (20MHz)	21.43	21.45
	6565	123	be (40MHz)	42.08	42.29
12	6685	155	be (40MHz)	42.00	42.07
Band 7	6845	179	be (40MHz)	42.29	42.05
8	6545	119	be (80MHz)	86.94	120.30
	6705	151	be (80MHz)	87.54	120.10
	6865	183	be (80MHz)	121.52	109.27
	6665	143	be (160MHz)	175.38	174.45
	6825	175	be (160MHz)	174.69	173.60
Band 6/7	6585	127	be (320MHz)	245.79	260.06
Band 7/8	6745	159	be (320MHz)	256.71	247.78
	7115	189	be (20MHz)	21.19	21.03
	6995	209	be (20MHz)	21.24	20.94
	7115	233	be (20MHz)	21.60	21.55
8	6885	187	be (40MHz)	41.95	42.54
Band 8	6965	211	be (40MHz)	42.30	42.38
	7085	227	be (40MHz)	42.17	42.08
	6945	199	be (80MHz)	124.17	126.12
	7025	215	be (80MHz)	107.30	122.77
	6985	207	be (160MHz)	175.72	174.40
Band 7/8	6905	191	be (320MHz)	298.06   <b>Surements – I</b>	285.04

Table 7-6. Occupied Bandwidth Measurements – Full Tones

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



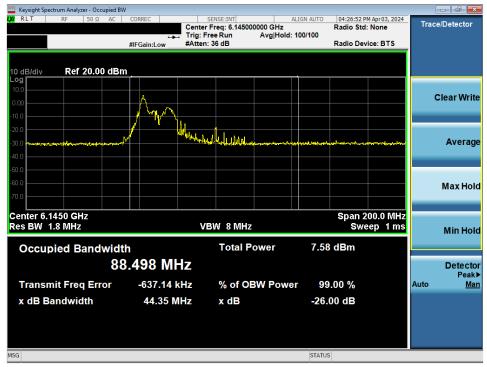
Plot 7-3. Occupied Bandwidth Plot MIMO ANT1 (20MHz BW 802.11be (26 Tones) (UNII Band 5) - Ch. 45)



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

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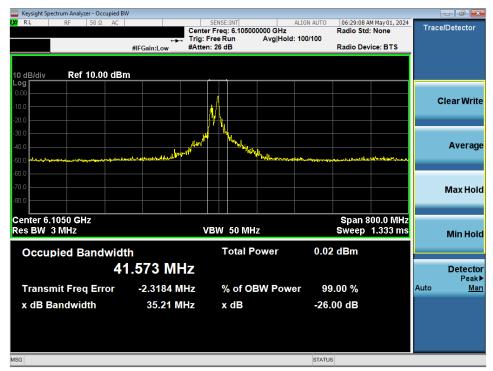
Plot 7-5. Occupied Bandwidth Plot MIMO ANT1 (80MHz BW 802. 11be (26 Tones) (UNII Band 5) - Ch. 39)



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

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

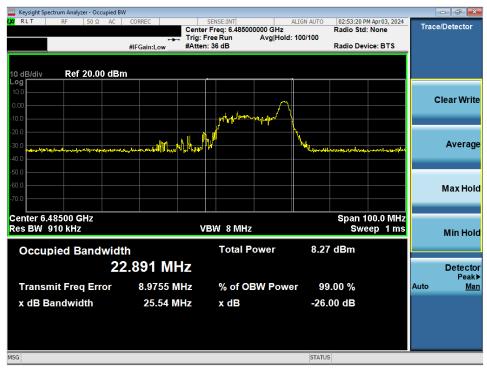
FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager
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# MIMO Antenna-1 Bandwidth Measurements - (Partial Tones)



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



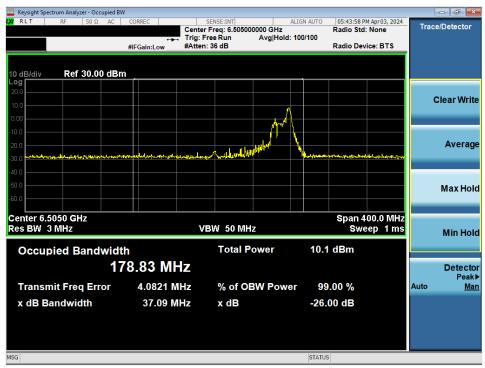
Plot 7-9. Occupied Bandwidth Plot MIMO ANT1 (40MHz BW 802. 11be (26 Tones) (UNII Band 6) - Ch. 107)

FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager
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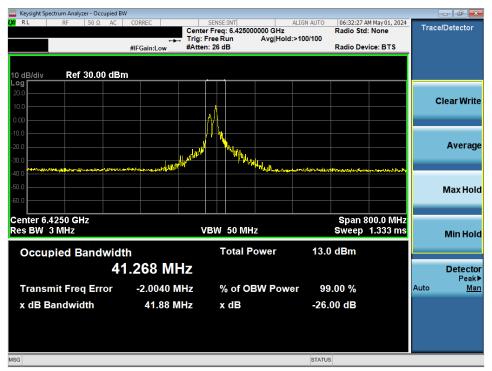
Plot 7-10. Occupied Bandwidth Plot MIMO ANT1 (80MHz BW 802. 11be (26 Tones) (UNII Band 6) - Ch. 103)



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

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

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



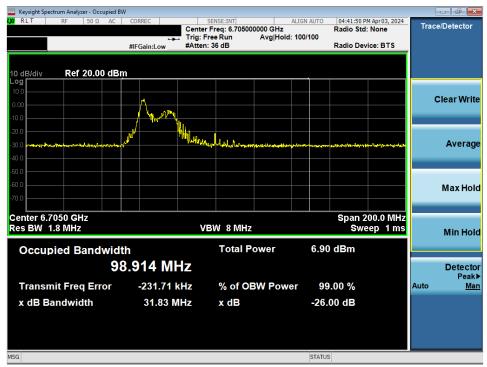
Plot 7-13. Occupied Bandwidth Plot MIMO ANT1 (20MHz BW 802. 11be (26 Tones) (UNII Band 7) - Ch. 149)



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

FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager
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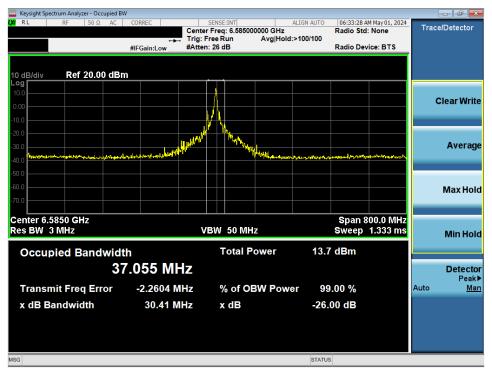
Plot 7-15. Occupied Bandwidth Plot MIMO ANT1 (80MHz BW 802. 11be (26 Tones) (UNII Band 7) - Ch. 151)



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

FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-17. Occupied Bandwidth Plot MIMO ANT1 (320MHz BW 802. 11be (26 Tones) (UNII Band 7) - Ch. 127)

FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager
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# MIMO Antenna-1 Bandwidth Measurements - (Partial Tones)



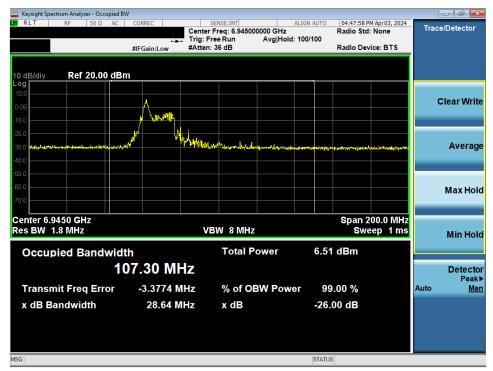
Plot 7-18. Occupied Bandwidth Plot MIMO ANT1 (20MHz BW 802. 11be (26 Tones) (UNII Band 8) - Ch. 209)



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

FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager
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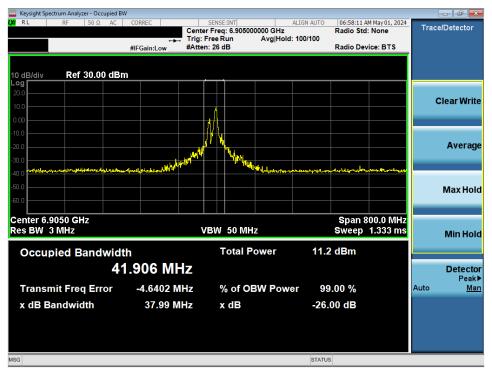
Plot 7-20. Occupied Bandwidth Plot MIMO ANT1 (80MHz BW 802. 11be (26 Tones) (UNII Band 8) - Ch. 199)



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

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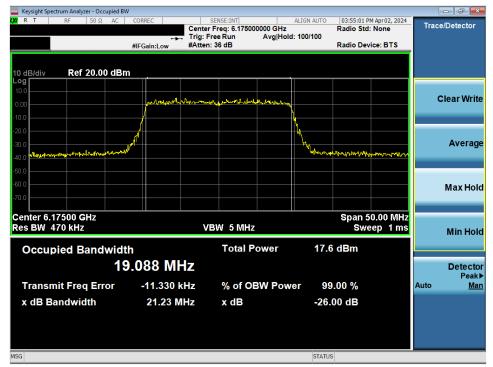


Plot 7-22. Occupied Bandwidth Plot MIMO ANT1 (320MHz BW 802. 11be (26 Tones) (UNII Band 8) - Ch. 191)

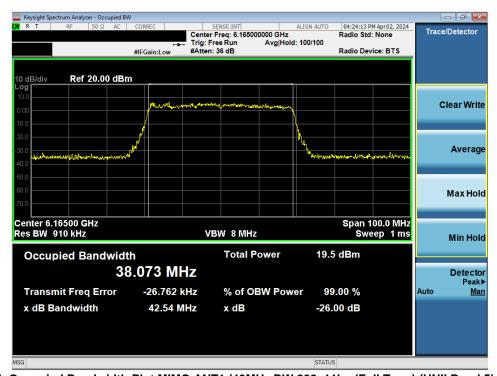
FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager
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# 7.2.2 MIMO Antenna-1 Bandwidth Measurements - (Full Tones)



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



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

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



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

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

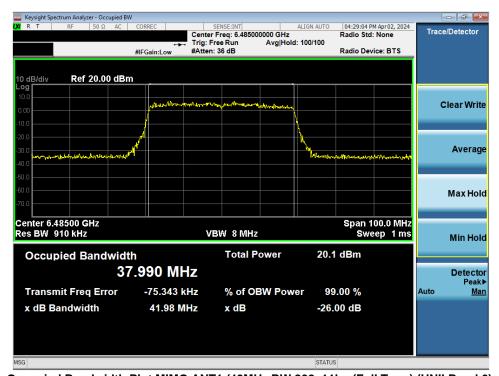
FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager	
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### MIMO Antenna-1 Bandwidth Measurements - (Full Tones)



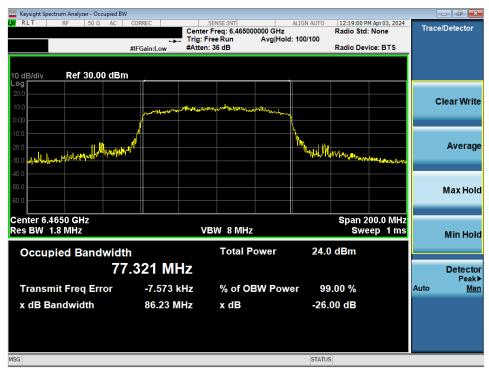
Plot 7-28. Occupied Bandwidth Plot MIMO ANT1 (20MHz BW 802. 11be (Full Tone) (UNII Band 6) - Ch. 105)



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

FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager
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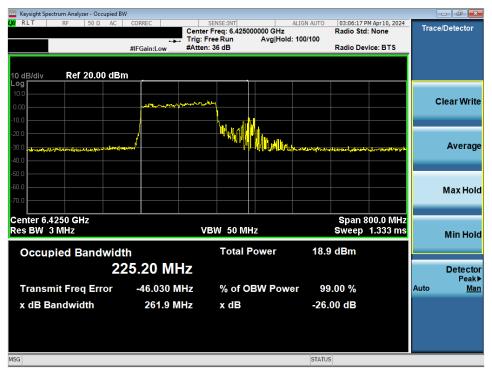
Plot 7-30. Occupied Bandwidth Plot MIMO ANT1 (80MHz BW 802. 11be (Full Tone) (UNII Band 6) - Ch. 103)



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

FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-32. Occupied Bandwidth Plot MIMO ANT1 (320MHz BW 802. 11be (Full Tones) (UNII Band 6) - Ch. 95)

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



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



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

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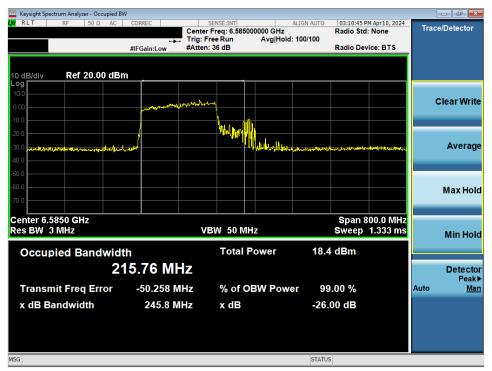
Plot 7-35. Occupied Bandwidth Plot MIMO ANT1 (80MHz BW 802. 11be (Full Tone) (UNII Band 7) - Ch. 151)



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

FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-37. Occupied Bandwidth Plot MIMO ANT1 (320MHz BW 802. 11be (Full Tone) (UNII Band 7) - Ch. 127)

FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager
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## MIMO Antenna-1 Bandwidth Measurements - (Full Tones)



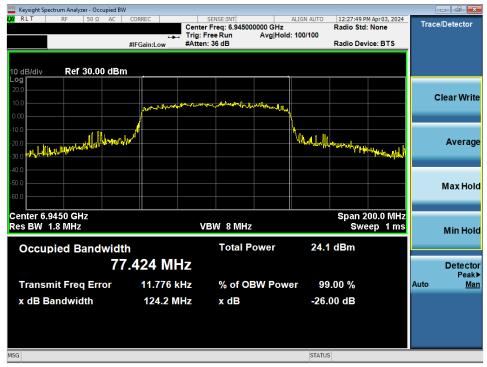
Plot 7-38. Occupied Bandwidth Plot MIMO ANT1 (20MHz BW 802. 11be (Full Tone) (UNII Band 8) - Ch. 209)



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

FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager
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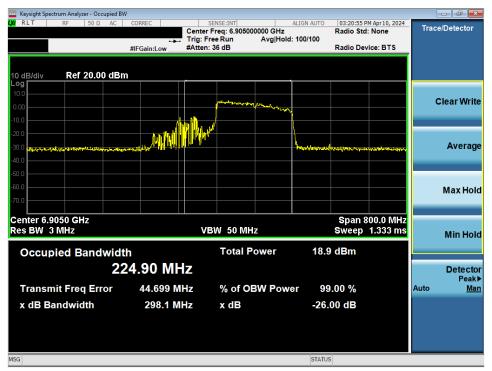
Plot 7-40. Occupied Bandwidth Plot MIMO ANT1 (80MHz BW 802. 11be (Full Tone) (UNII Band 8) - Ch. 199)



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

FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-42. Occupied Bandwidth Plot MIMO ANT1 (320MHz BW 802. 11be (Full Tones) (UNII Band 8) - Ch. 191)

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



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

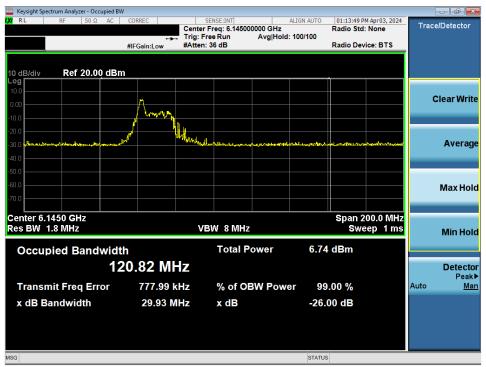


Plot 7-44. Occupied Bandwidth Plot MIMO ANT2 (40MHz BW 802. 11be (26 Tones) (UNII Band 5) - Ch. 43)

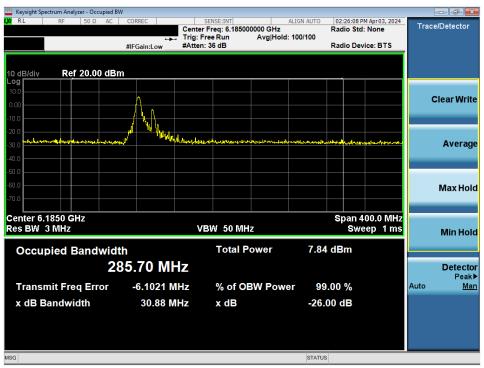
FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager
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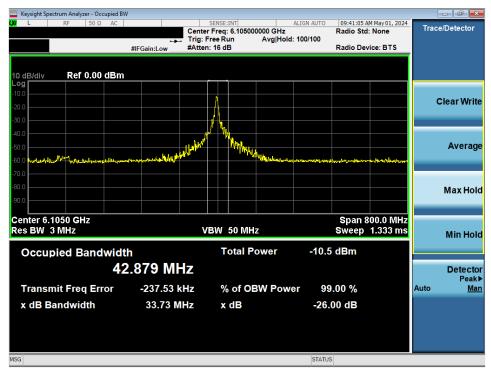
Plot 7-45. Occupied Bandwidth Plot MIMO ANT2 (80MHz BW 802. 11be (26 Tones) (UNII Band 5) - Ch. 39)



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

FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager	
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Plot 7-47. Occupied Bandwidth Plot MIMO ANT2 (320MHz BW 802. 11be (26 Tones) (UNII Band 5) - Ch. 31)

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



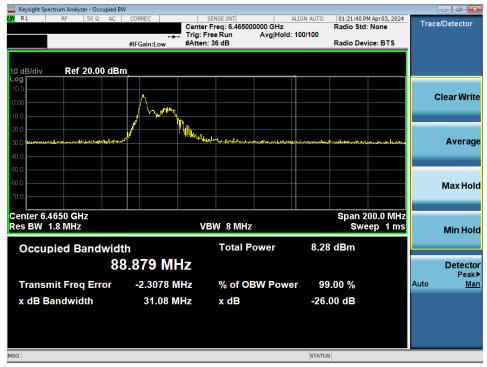
Plot 7-48. Occupied Bandwidth Plot MIMO ANT2 (20MHz BW 802. 11be (26 Tones) (UNII Band 6) - Ch. 105)



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

FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager	
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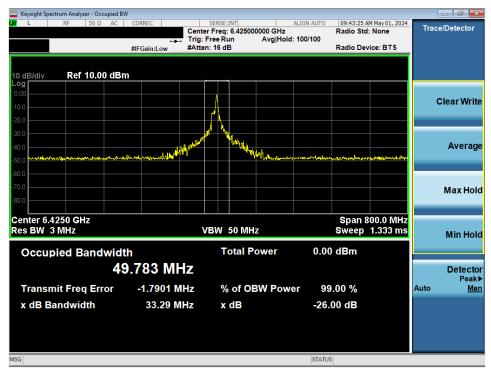
Plot 7-50. Occupied Bandwidth Plot MIMO ANT2 (80MHz BW 802. 11be (26 Tones) (UNII Band 6) - Ch. 103)



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

FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager	
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Plot 7-52. Occupied Bandwidth Plot MIMO ANT2 (320MHz BW 802. 11be (26 Tones) (UNII Band 6) - Ch. 95)

FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager	
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### MIMO Antenna-2 Bandwidth Measurements - (Partial Tones)



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



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

FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager	
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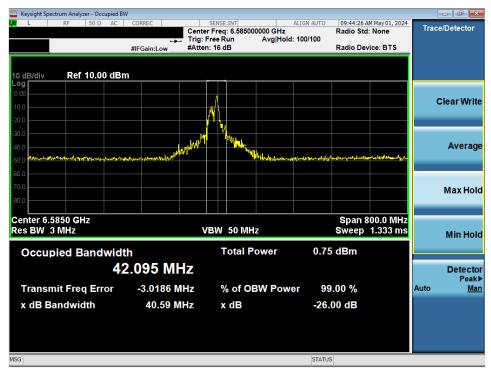
Plot 7-55. Occupied Bandwidth Plot MIMO ANT2 (80MHz BW 802. 11be (26 Tones) (UNII Band 7) - Ch. 151)



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

FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager	
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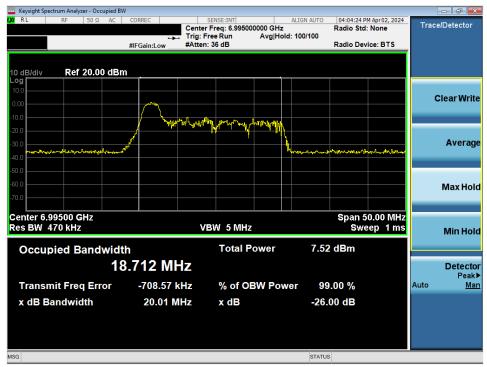


Plot 7-57. Occupied Bandwidth Plot MIMO ANT2 (320MHz BW 802. 11be (26 Tones) (UNII Band 7) - Ch. 127)

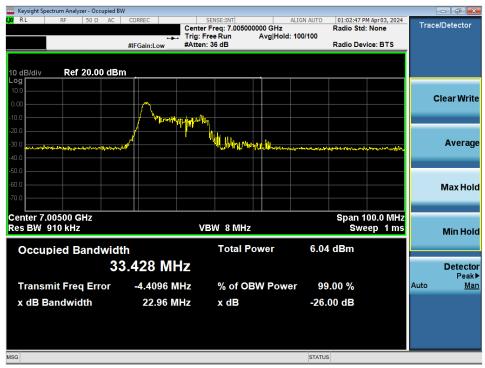
FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager	
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## MIMO Antenna-2 Bandwidth Measurements - (Partial Tones)



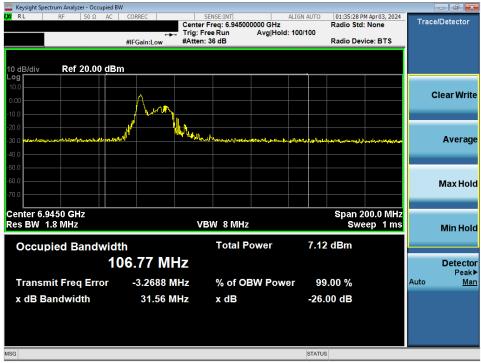
Plot 7-58. Occupied Bandwidth Plot MIMO ANT2 (20MHz BW 802. 11be (26 Tones) (UNII Band 8) - Ch. 209)



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

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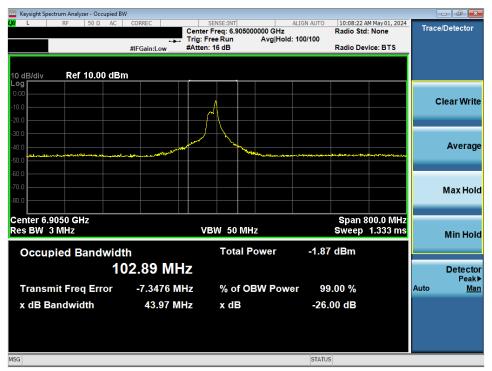
Plot 7-60. Occupied Bandwidth Plot MIMO ANT2 (80MHz BW 802. 11be (26 Tones) (UNII Band 8) - Ch. 199)



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

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

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



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



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

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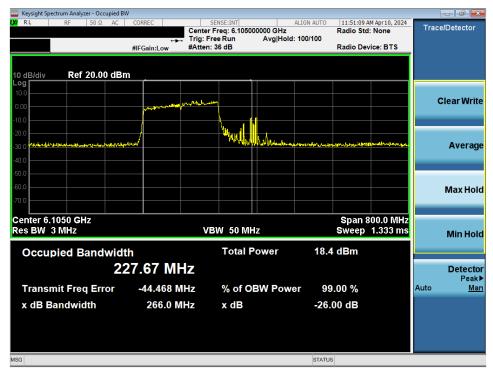
Plot 7-65. Occupied Bandwidth Plot MIMO ANT2 (80MHz BW 802. 11be (Full Tone) (UNII Band 5) - Ch. 39)



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

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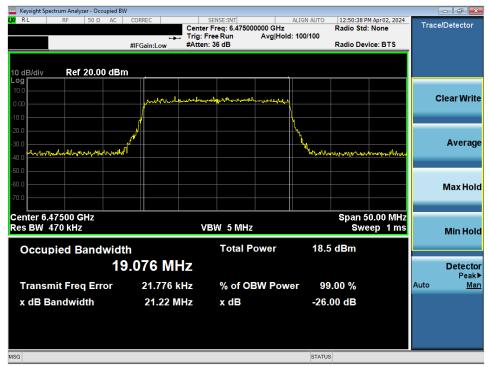


Plot 7-67. Occupied Bandwidth Plot MIMO ANT2 (320MHz BW 802. 11be (Full Tones) (UNII Band 5) - Ch. 31)

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



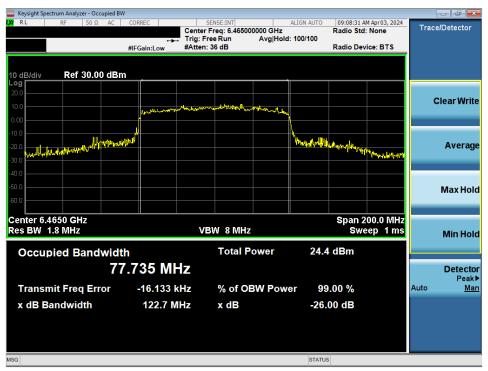
Plot 7-68. Occupied Bandwidth Plot MIMO ANT2 (20MHz BW 802. 11be (Full Tone) (UNII Band 6) - Ch. 105)



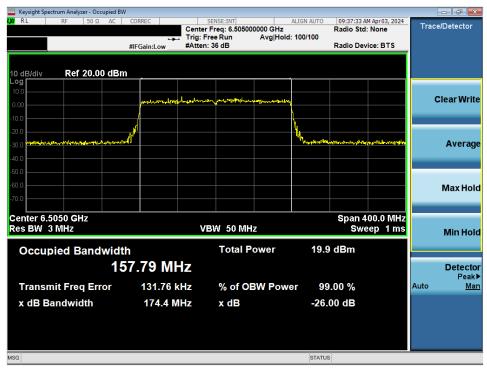
Plot 7-69. Occupied Bandwidth Plot MIMO ANT2 (40MHz BW 802. 11be (Full Tone) (UNII Band 6) - Ch. 107)

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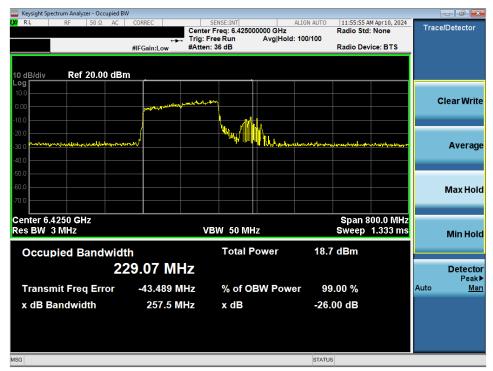
Plot 7-70. Occupied Bandwidth Plot MIMO ANT2 (80MHz BW 802. 11be (Full Tone) (UNII Band 6) - Ch. 103)



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

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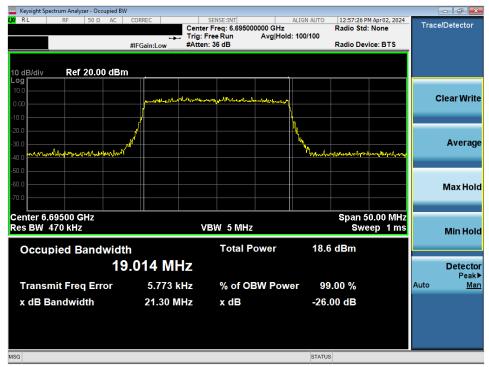


Plot 7-72. Occupied Bandwidth Plot MIMO ANT2 (320MHz BW 802. 11be (Full Tones) (UNII Band 6) - Ch. 95)

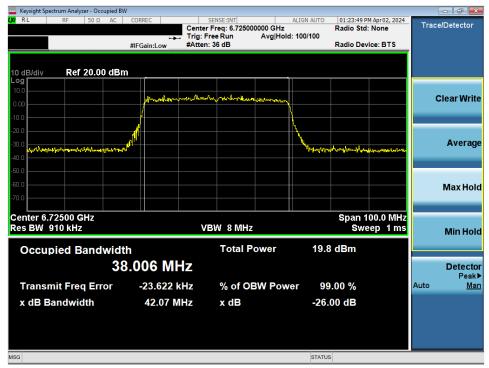
FCC ID: A3LNP960XMA		MEASUREMENT REPORT	Approved by: Technical Manager
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### MIMO Antenna-2 Bandwidth Measurements - (Full Tones)



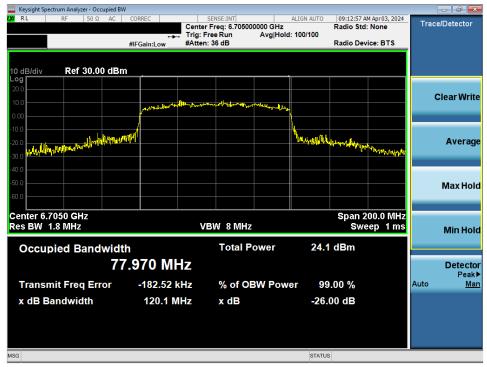
Plot 7-73. Occupied Bandwidth Plot MIMO ANT2 (20MHz BW 802. 11be (Full Tone) (UNII Band 7) - Ch. 149)



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

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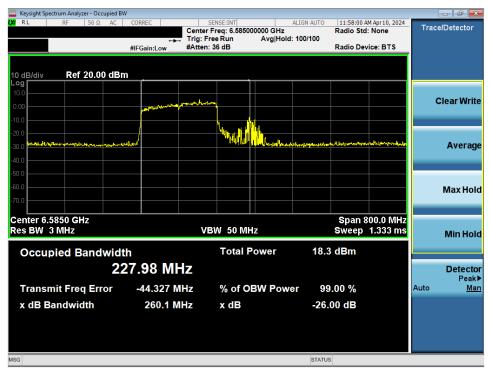
Plot 7-75. Occupied Bandwidth Plot MIMO ANT2 (80MHz BW 802. 11be (Full Tone) (UNII Band 7) - Ch. 151)



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

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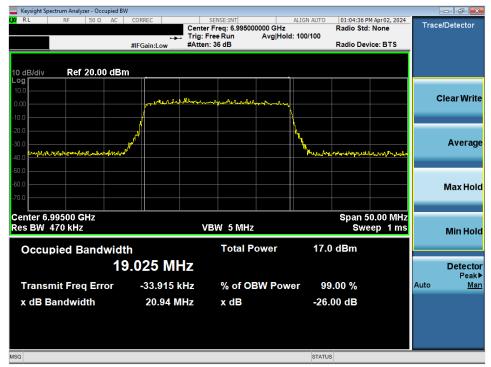


Plot 7-77. Occupied Bandwidth Plot MIMO ANT2 (320MHz BW 802. 11be (Full Tone) (UNII Band 7) - Ch. 127)

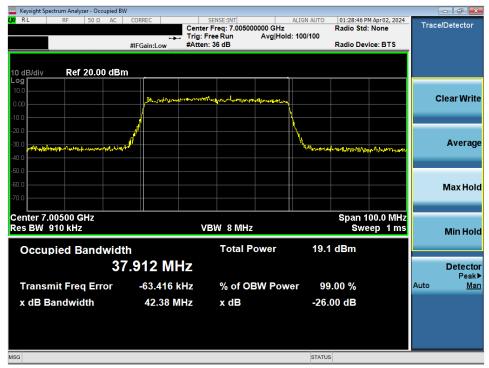
FCC ID: A3LNP960XMA		MEASUREMENT REPORT	Approved by: Technical Manager
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### MIMO Antenna-2 Bandwidth Measurements - (Full Tones)



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



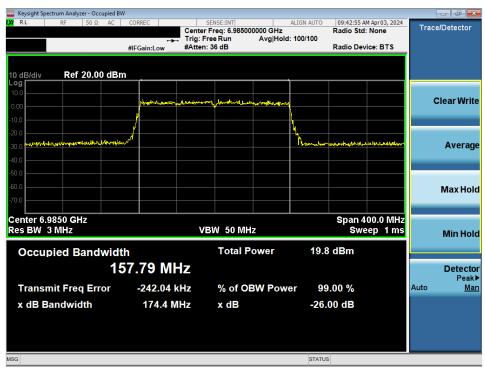
Plot 7-79. Occupied Bandwidth Plot MIMO ANT2 (40MHz BW 802. 11be (Full Tone) (UNII Band 8) - Ch. 211)

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



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

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

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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 either the low power indoor access point limit of 24dBm e.i.r.p. or the standard power access point limit of 30dBm e.i.r.p. as shown in the tables.

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# MIMO Maximum Conducted Output Power Measurements - LPI/SP

		Same (second	011	<b></b>				Average	Conducted Pow	er (dBm)				Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margin
	Band		Channel	Tones	ANT1	0 ANT2	MIMO	ANT1	4 ANT2	MIMO	ANT1	8 ANT2	MIMO	[dBi]	[dBm]	[dBm]	[dB]
	5	5935 6175	2 45	26T 26T	-3.70 -1.93	-3.36 -1.75	-0.52 1.17	-3.35 -1.97	-3.55 -1.75	-0.44 1.15	-4.4 -1.93	-3.60 -1.75	-0.98 1.17	-0.61 -0.61	-1.1 0.6	24.0 24.0	-25.05 -23.44
B	3	6415	93	26T	-1.12	-2.23	1.37	-1.12	-2.25	1.36	-1.12	-2.24	1.37	-0.61	0.8	24.0	-23.24
¥ <sub>Z</sub>	6	6435 6475	97 105	26T 26T	-1.33 -1.57	-2.15 -2.51	1.29 1.00	-1.33 -1.55	-2.14 -2.52	1.29 1.00	-1.34 -1.12	-2.13 -2.04	1.29 1.45	-0.10 -0.10	1.2	24.0 24.0	-22.81 -22.65
201		6515 6535	113 117	26T 26T	-1.46 -1.30	-2.51 -2.41	1.06 1.19	-1.45 -1.30	-2.50 -2.41	1.07 1.19	-1.44 -1.29	-2.52 -2.40	1.06 1.20	-0.10 -0.74	1.0 0.5	24.0 24.0	-23.04 -23.54
	7	6695	149 185	26T 26T	-1.20	-2.44	1.23	-1.23	-2.47	1.20	-1.24	-2.41	1.22	-0.74	0.5	24.0	-23.50
		6875 6895	189	26T	-1.81 -1.98	-1.64 -1.89	1.08	-1.82 -1.99	-1.66 -1.89	1.27 1.07	-1.83 -2.00	-1.68 -1.88	1.26 1.07	-0.74 -1.28	0.5 -0.2	24.0 24.0	-23.45 -24.21
	8	6995 7115	209 233	26T 26T	-2.05 -1.95	-1.84 -1.27	1.07	-2.07 -1.94	-1.87 -1.27	1.04	-2.09 -1.95	-1.85 -1.26	1.04	-1.28 -1.28	-0.2 0.1	24.0 24.0	-24.22 -23.87
							•	Average	Conducted Pow	er (dRm)							
	Band	Freq [MHz]	Channel	Tones				Arciugo	RU Index	ci (ubiii)				Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margin
					ANT1	37 ANT2	MIMO	ANT1	39 ANT2	MIMO	ANT1	40 ANT2	MIMO	[dBi]	[dBm]	[dBm]	[dB]
-	5	5935 6175	2 45	52T 52T	-0.88 2.38	-0.69 2.28	2.23 5.34	-1.24 2.40	-0.88 2.30	1.95 5.36	-1.32 2.36	-0.55 2.25	2.09 5.32	-0.61 -0.61	1.6 4.7	24.0 24.0	-22.39 -19.25
B	L-	6415 6435	93 97	52T 52T	2.98	1.72	5.41 5.45	2.99	1.72	5.41 5.44	2.99	1.72	5.41	-0.61 -0.10	4.8	24.0	-19.20 -18.65
Ë	6	6475	105	52T	2.80 2.58	2.05 1.52	5.09	2.79 2.58	2.04 1.53	5.10	2.80 2.59	2.05 1.50	5.45 5.09	-0.10	5.3 5.0	24.0 24.0	-19.01
20.1		6515 6535	113 117	52T 52T	2.62	1.58 1.82	5.14 5.30	2.65 2.73	1.57	5.15 5.32	2.64 2.75	1.55 1.83	5.14 5.32	-0.10 -0.74	5.0 4.6	24.0 24.0	-18.95 -19.41
	7	6695 6875	149 185	52T 52T	2.51 2.38	1.61 2.37	5.09 5.39	2.53 2.39	1.60 2.37	5.10 5.39	2.53 2.40	1.61 2.37	5.10 5.40	-0.74 -0.74	4.4 4.7	24.0 24.0	-19.63 -19.34
		6895	189	52T	2.19	2.16	5.19	2.23	2.17	5.21	2.19	2.16	5.19	-1.28	3.9	24.0	-20.07
	8	6995 7115	209 233	52T 52T	2.19 1.92	2.19 2.84	5.20 5.41	2.20 1.91	2.20 2.88	5.21 5.43	2.18 1.92	2.17 2.87	5.19 5.43	-1.28 -1.28	3.9 4.1	24.0 24.0	-20.07 -19.85
								Average	Conducted Pow	er (dBm)							
	Band	Freq [MHz]	Channel	Tones		53		1	RU Index 54			NA NA		Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
				40	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
3	5	5935 6175	2 45	106T 106T	1.93 5.12	1.90 5.33	4.93 8.24	1.41 5.10	1.99 5.35	4.72 8.24				-0.61 -0.61	4.3 7.6	24.0 24.0	-19.69 -16.38
Z B	-	6415 6435	93 97	106T 106T	5.67 5.80	5.26 5.06	8.48 8.46	5.68 5.81	5.28 5.08	8.49 8.47				-0.61 -0.10	7.9 8.4	24.0	-16.12 -15.63
Σ E	6	6475 6515	105 113	106T 106T	5.54 5.55	4.44 4.44	8.04 8.04	5.55 5.55	4.41 4.43	8.03 8.04				-0.10 -0.10 -0.10	7.9 7.9	24.0 24.0 24.0	-16.07 -16.06
20		6535	117	106T	5.51	4.41	8.01	5.50	4.42	8.00				-0.74	7.3	24.0	-16.73
	7	6695 6875	149 185	106T 106T	5.52 5.48	4.40 4.65	8.01 8.10	5.53 5.47	4.41 4.67	8.02 8.10				-0.74 -0.74	7.3 7.4	24.0 24.0	-16.72 -16.64
	8	6895 6995	189 209	106T 106T	5.37 5.03	4.85 5.06	8.13 8.06	5.35 5.01	4.87 5.02	8.13 8.03				-1.28 -1.28	6.8 6.8	24.0 24.0	-17.16 -17.23
	0	7115	233	106T	4.88	5.85	8.40	4.89	5.88	8.42				-1.28	7.1	24.0	-16.86
								Average	Conducted Pow	er (dBm)							
	Band	Freq [MHz]	Channel	Tones		61			RU Index NA			NA		Dir. Ant. Gain [dBi]	Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	e.i.r.p Margin [dB]
		5935	2	242T	ANT1 5.04	ANT2	MIMO 7.71	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	-0.61	7.1	24.0	-16.90
~	5	6175	45	242T	7.99	4.33 7.48	10.75							-0.61	10.1	24.0	-13.86
Z B	-	6415 6435	93 97	242T 242T	7.60 7.97	7.44 7.39	10.53 10.70							-0.61 -0.10	9.9 10.6	24.0 24.0	-14.08 -13.40
Σ	6	6475 6515	105 113	242T 242T	7.98 7.87	7.39 7.55 7.45	10.78 10.68							-0.10 -0.10	10.7 10.6	24.0 24.0 24.0	-13.32 -13.43
20		6535	117	242T	7.77	7.31	10.56							-0.74	9.8	24.0	-14.18
	7	6695 6875	149 185	242T 242T	7.69 7.89	7.01 7.74	10.37 10.83							-0.74 -0.74	9.6 10.1	24.0 24.0	-14.36 -13.91
	8	6895 6995	189 209	242T 242T	7.88 7.73	7.81 7.79	10.86 10.77							-1.28 -1.28	9.6 9.5	24.0 24.0	-14.43 -14.51
		7115	233														
			200	242T	7.85	7.70	10.79							-1.28	9.5	24.0	-14.50
			200	242T	7.85	7.70		Average	Conducted Pow	er (dBm)				-1.28	9.5	24.0	-14.50
	Band	Freq [MHz]	Channel	Tones		7.70	10.79	l	RU Index NA			NA			9.5 Max e.i.r.p [dBm]		
	Band	5965	Channel 3	Tones 484T	ANT1 9.71	7.70		Average ANT1	RU Index	er (dBm)	ANT1	NA ANT2	MIMO	-1.28 Dir. Ant. Gain	9.5 Max e.i.r.p [dBm]	e.i.r.p Limit [dBm]	-14.50  e.i.r.p Margin [dB]
W	Band 5	5965 6005	Channel 3 11	Tones 484T 484T	ANT1 9.71 9.97	7.70 65 ANT2 9.46 9.09	MIMO 12.60 12.56	l	RU Index NA		ANT1		МІМО	-1.28  Dir. Ant. Gain [dBi]  -0.61 -0.61	9.5 Max e.i.r.p [dBm] 12.0 11.9	e.i.r.p Limit [dBm]	-14.50  e.i.r.p Margin [dB]  -12.02 -12.05
z BW		5965 6005 6165 6405	3 11 43 91	Tones  484T 484T 484T 484T	ANT1 9.71 9.97 9.83 9.58	65 ANT2 9.46 9.09 9.53 9.34	MIMO 12.60 12.56 12.69 12.47	l	RU Index NA		ANT1		МІМО	-1.28  Dir. Ant. Gain [dBi] -0.61 -0.61 -0.61 -0.61	9.5  Max e.i.r.p [dBm]  12.0  11.9  12.1  11.9	e.i.r.p Limit [dBm] 24.0 24.0 24.0	-14.50  e.i.r.p Margin [dB]  -12.02 -12.05 -11.92 -12.14
MHz BW		5965 6005 6165 6405 6445 6485	Channel  3 11 43 91 99 107	Tones  484T 484T 484T 484T 484T 484T 484T	9.71 9.71 9.97 9.83 9.98 9.98	65 ANT2 9.46 9.09 9.53 9.34 9.25 9.49	MIMO 12.60 12.56 12.69 12.47 12.64 12.75	l	RU Index NA		ANT1		МІМО	-1.28  Dir. Ant. Gain [dBi]  -0.61 -0.61 -0.61 -0.10 -0.10	9.5  Max e.i.r.p [dBm]  12.0 11.9 12.1 11.9 12.5 12.6	24.0  e.i.r.p Limit [dBm]  24.0  24.0  24.0  24.0  24.0  24.0  24.0  24.0	-14.50  e.i.r.p Margin [dB] -12.02 -12.05 -11.92 -12.14 -11.46 -11.35
40MHz BW	5	5965 6005 6165 6405 6445 6485 6525	Channel  3 11 43 91 90 107 115	Tones  484T 484T 484T 484T 484T 484T 484T 48	9.71 9.71 9.97 9.83 9.58 9.98 9.98	7.70 65 ANT2 9.46 9.09 9.53 9.34 9.25 9.49 9.11	MIMO 12.60 12.56 12.47 12.64 12.75 12.48	l	RU Index NA		ANT1		МІМО	-1.28  Dir. Ant. Gain [dBi] -0.61 -0.61 -0.61 -0.61 -0.10 -0.10 -0.10	9.5  Max e.i.r.p [dBm]  12.0  11.9  12.1  11.9  12.5  12.6  12.4	e.i.r.p Limit [dBm] 24.0 24.0 24.0 24.0 24.0 24.0 24.0 24.0	-14.50  e.i.r.p Margin [dB] -12.02 -12.05 -11.92 -12.14 -11.46 -11.35 -11.62
40MHz BW	5	5965 6005 6165 6405 6445 6445 6485 6525 6565 6725	Channel  3 11 43 91 107 115 123 155	Tones  484T 484T 484T 484T 484T 484T 484T 48	ANT1 9.77 9.97 9.83 9.58 9.98 9.98 9.81 9.64	65 ANT2 9.46 9.09 9.53 9.34 9.25 9.49 9.11 9.42 9.07	MIMO 12.60 12.56 12.69 12.47 12.64 12.75 12.48 12.54	l	RU Index NA		ANT1		МІМО	-1.28  Dir. Ant. Gain [dBi]  -0.61 -0.61 -0.61 -0.61 -0.10 -0.10 -0.74	9.5  Max e.i.r.p [dBm]  12.0  11.9  12.1  11.9  12.5  12.6  12.4  11.8  11.7	24.0  e.i.r.p Limit [dBm]  24.0  24.0  24.0  24.0  24.0  24.0  24.0  24.0  24.0  24.0  24.0	-14.50  e.i.r.p Margin [dB]  -12.02 -12.05 -11.92 -12.14 -11.46 -11.35 -11.62 -12.20 -12.29
40MHz BW	5 6 7	5965 6005 6165 6405 6445 6485 6525 6525 6565 6725 6845	Channel  3 11 43 91 107 115 123 157 187	Tones  484T 484T 484T 484T 484T 484T 484T 48	ANT1 9.71 9.97 9.83 9.58 9.98 9.98 9.81 9.64 9.77 9.84 9.77	7.70  65  ANT2  9.46  9.09  9.53  9.34  9.25  9.49  9.11  9.42  9.07  8.54  8.78	MIMO 12.60 12.56 12.69 12.47 12.64 12.75 12.48 12.54 12.24 12.25 12.31	l	RU Index NA		ANT1		МІМО	-1.28  Dir. Ant. Gain [dBi]  -0.61 -0.61 -0.61 -0.61 -0.10 -0.10 -0.10 -0.10 -0.74 -0.74 -0.74 -1.28	9.5  Max e.i.r.p [dBm]  12.0  11.9  12.1  11.9  12.5  12.6  12.4  11.8  11.7  11.5	240  e.l.r,p.Limit [dBm]  240  240  240  240  240  240  240  24	-14.50  e.i.r.p Margin [dB]  -12.02 -12.05 -11.92 -12.14 -11.46 -11.35 -11.62 -12.29 -12.49 -12.97
40MHz BW	5	5965 6005 6165 6405 6445 6485 6525 6565 6725 6845	Channel  3 11 43 91 99 107 115 123 155 179	Tones  484T 484T 484T 484T 484T 484T 484T 48	ANT1 9.71 9.97 9.83 9.58 9.98 9.98 9.81 9.64 9.77	7.70 65 ANT2 9.46 9.09 9.53 9.34 9.25 9.49 9.11 9.42 9.07 8.54	MIMO 12.60 12.56 12.64 12.75 12.44 12.75 12.48 12.54 12.54 12.44 12.25	l	RU Index NA		ANT1		мімо	-1.28  Dir. Ant. Gain [dBi]  -0.61 -0.61 -0.61 -0.61 -0.10 -0.10 -0.10 -0.74 -0.74	9.5  Max e.i.r.p [dBm]  12.0 11.9 12.1 11.9 12.5 12.6 12.4 11.8 11.7 11.5	e.i.r,p Limit [dBm]  24.0 24.0 24.0 24.0 24.0 24.0 24.0 24.	-14.50  e.i.r.p Margin [dB]  -12.02 -12.05 -11.92 -12.14 -11.146 -11.35 -11.62 -12.20 -12.20 -12.29 -12.49
40MHz BW	5 6 7	5965 6005 6165 6405 6445 6445 6485 6525 6525 6565 6725 6845 6885 7005	Channel  3 11 43 91 99 107 115 123 155 179 187	Tones  484T 484T 484T 484T 484T 484T 484T 48	ANT1 9.71 9.97 9.83 9.58 9.98 9.81 9.64 9.77 9.84 9.77 9.78	7.70 65 ANT2 9.46 9.09 9.53 9.34 9.25 9.49 9.11 9.42 9.07 8.54 8.78	MIMO 12.60 12.56 12.69 12.47 12.64 12.75 12.48 12.54 12.25 12.31	ANT1	RU Index NA ANT2	MIMO	ANT1		MIMO	-1,28  Dir. Ant. Gain [d8i]  -0.61 -0.61 -0.61 -0.61 -0.10 -0.10 -0.10 -0.74 -0.74 -0.74 -1.28	9.5  Max e.ir.p [dbm]  12.0 11.9 12.1 11.9 12.5 12.6 12.4 11.8 11.7 11.5 11.0	240  e.i.r.p.Limit [dBm]  240 240 240 240 240 240 240 240 240 24	e.ir.p Margin [d8] -12.02 -12.05 -11.92 -12.14 -11.46 -11.63 -11.63 -11.63 -12.99 -12.99 -12.99 -12.99 -12.99 -12.93
40MHz BW	5 6 7	5965 6005 6165 6405 6445 6445 6485 6525 6525 6565 6725 6845 6885 7005	Channel  3 11 43 91 99 107 115 123 155 179 187	Tones  484T 484T 484T 484T 484T 484T 484T 48	ANT1 9.71 9.97 9.83 9.58 9.98 9.81 9.64 9.77 9.84 9.77 9.78	7.70 65 ANT2 9.46 9.09 9.53 9.34 9.25 9.49 9.11 9.42 9.07 8.54 8.78 8.87	MIMO 12.60 12.56 12.69 12.47 12.64 12.75 12.48 12.54 12.25 12.31	ANT1	RU Index NA ANT2 ANT2  c Conducted Pow RU Index	MIMO	ANT1	ANT2	МІМО	1.28  Dir. Ant. Gain [dBi]  -0.61 -0.61 -0.61 -0.61 -0.10 -0.10 -0.10 -0.17 -0.74 -0.74 -1.28 -1.28  Dir. Ant. Gain	9.5  Max e.ir.p [dBm]  12.0  11.9  12.1  11.9  12.5  12.6  12.4  11.8  11.7  11.0  Max e.ir.p	e.i.r.p.Limit  dBm    240   250   25	e.ir.p Margin [d8] -12.02 -12.05 -12.05 -11.92 -12.14 -11.35 -11.62 -12.20 -12.29 -12.49 -12.93 -12.93 -12.93 -12.93 -12.96
V 40MHz BW	5 6 7 8	\$965 6005 6165 6405 6445 6485 6825 6565 6725 6845 6885 7005 7085	Channel  3 11 43 91 107 115 123 125 179 187 221 227	Tones  494T 494T 494T 494T 494T 494T 494T 49	ANT1 9.71 9.97 9.98 9.88 9.88 9.89 9.81 9.64 9.77 9.84 9.77 9.87	7.70  65  65  ANT2  9.46  9.09  9.53  9.34  9.25  9.49  9.11  9.42  9.07  8.54  8.78  8.87  8.92	10.79  MIMO 12.60 12.56 12.56 12.69 12.47 12.64 12.75 12.48 12.54 12.25 12.31 12.36 12.32	ANT1	RU Index NA ANT2  Conducted Power	MIMO	ANTI		MIMO	1.28  Dir. Ant. Gain [d8]  0.61  0.61  0.61  0.61  0.61  0.010  0.10  0.10  0.74  0.74  1.28  1.28  Dir. Ant. Gain [d8]	9.5  Max e.ir.p [dBm] 12.0 11.9 12.1 11.9 12.5 12.6 12.4 11.8 11.7 11.0 11.1 Max e.ir.p [dBm]	e.i.r, p. Limit [dBm] 240 240 240 240 240 240 240 240 240 240	e.ir.p Margin [dB]  e.ir.p Margin [dB]  12.02  12.05  11.92  12.14  11.135  11.62  12.29  12.49  12.97  12.93  e.ir.p Margin [dB]
z BW 40MHz BW	5 6 7 8	\$965 6005 6165 64405 64415 64415 6525 6565 6725 6845 7005 7085	Channel  3 111 43 91 91 91 107 1155 122 155 179 187 211 227  Channel	Tones  484T 484T 484T 484T 484T 484T 484T 48	ANT1 971 977 982 983 988 988 988 981 961 977 967	7.70  65  ANT2  9.46  9.09  9.53  9.34  9.25  9.49  9.11  9.42  9.07  8.54  8.78  8.87  8.92	MIMO 12.66 12.64 12.64 12.64 12.64 12.64 12.64 12.64 12.64 12.64 12.64 12.64 12.65 12.31 12.36 12.32	ANT1	RU Index NA ANT2 ANT2 Conducted Pow RU Index NA	MIMO er (dBm)		ANT2		1.28  Dir. Ant. Gain [d8]  061  -0.61  -0.61  -0.61  -0.10  -0.10  -0.74  -0.74  -1.28  -1.28  Dir. Ant. Gain [d8]	9.5  Max e.ir.p [dBm] 120 120 121 119 121 119 125 126 124 118 11.7 11.5 11.0 11.1 11.0  Max e.ir.p [dBm] 11.8	e.i.r.p.Limit  ddm  240 240 240 240 240 240 240 240 240 240	e.ir.p Margin [dB] 1202 1205 1205 1192 1214 11135 11162 11229 1129 1129 1129 129 129 129 129 1
AHZ BW 40MHZ BW	5 6 7 8 Band 5	5965 6005 6165 6405 6445 6445 6525 6525 6725 6725 6845 7005 7085	Channel  3 11 43 91 107 115 123 155 155 127 221 227 Channel	Tones  484T 484T 484T 484T 484T 484T 484T 48	ANT1 9.71 9.97 9.83 9.59 9.88 9.98 9.81 9.64 9.77 9.78 9.84 9.77 9.78 9.78 ANT1 9.59	7.70  65  ANT2  9.46  9.09  9.53  9.34  9.25  9.49  9.11  9.42  8.78  8.87  67  ANT2  9.11	10.79  MIMO 12.60 12.56 12.69 12.47 12.64 12.75 12.48 12.54 12.54 12.54 12.54 12.55 12.30 12.30 MIMO 12.37	ANT1	RU Index NA ANT2 ANT2 Conducted Pow RU Index NA	MIMO er (dBm)		ANT2		1.28  Dir. Ant. Gain [disi]  0.61  0.61  0.61  0.61  0.01  0.01  0.00  0.07  0.74  0.74  1.28  1.28  Dir. Ant. Gain [disi]	9.5  Max e.ir.p [dBm] 120 120 121 119 121 119 125 126 124 118 11.7 11.5 11.0 11.1 11.0  Max e.ir.p [dBm] 11.8	e.i.r.p.Limit  ddm  240 240 240 240 240 240 240 240 240 240	e.ir.p Margin [de]  eir.p Margin [de]  12.02  12.05  11.92  12.14  11.32  11.29  12.29  12.29  12.97  12.99  12.99  e.ir.p Margin [de]  eir.p Margin [de]
80MHz BW 40MHz BW	5 6 7 8 Band 5 6	\$965 6005 6165 6405 6445 6525 6525 6525 6845 7085 7085 7085	Channel  3 11 43 91 90 107 115 123 155 179 211 227  Channel  7 39 87 103 119	Tones  484T 484T 484T 484T 484T 484T 484T 48	ANT1 9,71 9,71 9,73 9,83 9,83 9,98 9,81 9,84 9,77 9,84 9,77 ANT1 9,59 9,65 9,99 9,77	7.70  65  ANT2  9.46  9.09  9.53  9.34  9.25  9.42  9.72  9.72  9.72  9.72  ANT2  9.71  9.52  9.92  9.33  9.49  9.11	MIMO 12.56 12.55 12.56 12.56 12.56 12.55 12.56 12.56 12.56 12.56 12.57 12.58 12.58 12.58 12.58 12.58 12.58 12.58 12.58 12.59 12.59 12.50 1	ANT1	RU Index NA ANT2 ANT2 Conducted Pow RU Index NA	MIMO er (dBm)		ANT2		1.28  Dir. Ant. Gain [det]  0.61  0.61  0.61  0.61  0.01  0.10  0.10  0.10  0.74  1.28  1.28  Dir. Ant. Gain [det]	9.5  Max e.ir.p [dbm] 12.0 11.9 12.1 11.9 12.5 12.6 12.4 11.8 11.0 11.1 11.0  Max e.ir.p [dbm] 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0	e.i.r.p.Limit  ddm  240 240 240 240 240 240 240 240 240 240	e.ir.p Margin   del
8 OMHZ BW 40 MHZ BW	5 6 7 8 Band 5	\$965 6005 5105 5405 6405 6445 6485 6525 6555 7005 7005 7005 7005 7005 7005 6445 6885 7005 7005 7005 7005 7005 6445 645 645 645 645 645 645 645 645 6	Channel  3 11 43 43 91 107 115 123 155 179 187 211 227  Channel  7 99 197 103 119 151	Tones  484T 484T 484T 484T 484T 484T 484T 48	ANT1 9,71 9,77 9,83 9,58 9,58 9,89 9,81 9,64 9,77 9,77 9,77 9,67  ANT1 ANT1 0,59 9,79 9,69 9,79 9,79 9,69 9,79 9,79 9,7	7.70  65  ANT2 9.46 9.09 9.53 9.34 9.25 9.49 9.11 9.42 9.07 8.54 8.7  ANT2 9.11 9.12 9.12 9.13 9.25 9.49 9.25 9.49 9.25 9.29 9.29 9.20 9.20 9.20 9.23 9.44 9.41	MIMO 12.60 12.56 12.47 12.64 12.75 12.64 12.75 12.64 12.75 12.64 12.75 12.65 12.75 12.65 12.75 1	ANT1	RU Index NA ANT2 ANT2 Conducted Pow RU Index NA	MIMO er (dBm)		ANT2		1.28  Dir. Ant. Gain [det]  0.61  0.61  0.61  0.61  0.010  0.10  0.10  0.10  0.74  0.74  0.74  0.61  0.61  0.61  0.61  0.74  0.74  0.74  0.74  0.74	9.5  Max e.ir.p [dBm] 120 11.9 12.1 11.9 12.5 12.6 12.4 11.8 11.7 11.0  Max e.ir.p [dBm] 11.0  Max e.ir.p [dBm] 11.0  11.0	e.i.r.p.Limit  ddm  240 240 240 240 240 240 240 240 240 240	e.ir.p Margin   del
80MHz BW 40MHz BW	5 6 7 8 Band 5 6	\$965 6003 6165 6405 6445 6525 6525 6525 7005 7005 7005 5985 6145 645 645 645 645 645 645 645	Channel  3 11 43 91 91 107 115 122 125 179 Channel  Channel  7 7 39 87 103 119 119	Tones 4641 4641 4641 4641 4641 4641 4641 464	ANT1 9,71 9,97 9,83 9,58 9,59 9,99 9,98 9,98 1,964 9,77 9,84 ANT1 9,59 9,59 9,67 9,77 9,79 9,79 9,79 9,79 9,79 9,7	7.70  65  ANT2 9.46 9.59 9.59 9.39 9.34 9.25 9.49 9.11 9.42 9.17 8.54 8.87 8.87 8.97 8.97 8.99 9.99 9.99 9.99	10.79  MIMO 12.60 12.56 12.56 12.67 12.67 12.67 12.68 12.54 12.54 12.54 12.54 12.25 12.36 12.30 12.30 12.30 12.30 12.30 12.30 12.31 12.36 12.37 12.47 12.47 12.47 12.48 12.48 12.48 12.48 12.48 12.48 12.48 12.48 12.48 12.48 12.48 12.48 12.48	ANT1	RU Index NA ANT2 ANT2 Conducted Pow RU Index NA	MIMO er (dBm)		ANT2		1.28  Dir. Ant. Gain [diti]  0.61  0.61  0.61  0.61  0.10  0.10  0.10  0.74  0.74  1.28  1.28  Dir. Ant. Gain [diti]	9.5  Max e.ir.p [dBm] 12.0 11.9 12.1 12.1 12.1 12.5 12.6 12.4 11.8 11.7 11.5 11.0 11.1 11.0  Max e.ir.p [dBm] 11.8 12.0 12.1 12.1 12.1 13.1 14.1 15.1 15.1 16.1 17.1 18.1 18.1 19.1 19.1 11.1 11.1 11.1 11	e.i.r.p.Limit  dbm  240 240 240 240 240 240 240 240 240 240	e.ir.p Margin [de]  -12.02 -12.05 -12.05 -11.35 -11.62 -12.29 -12.49 -12.97 -12.93 -12.96 -12.97 -12.93 -12.96 -12.96 -12.97 -12.97 -12.98 -12.96 -12.20 -12.20 -12.20 -12.20 -12.20 -12.20 -12.20 -12.20 -12.20 -12.20 -11.65 -12.20 -11.65 -12.20 -11.69 -12.20 -11.69 -12.20 -11.69 -12.20 -11.69 -12.20 -11.69 -12.20 -11.69 -12.20 -12.20 -12.20 -12.20 -12.20 -12.20
BOMHz BW 40MHz BW	5 6 7 8 Band 5 6 7	\$965 6003 6165 6405 6445 6525 6526 6725 7005 7005 7005 5985 6445 6845 6845 6845 6845 6845 6845 68	Channel  3 11 43 91 90 107 115 123 155 179 211 227 Channel  Channel  7 7 87 103 119 119 119	Tones 484T 484T 484T 484T 484T 484T 484T 484	ANT1 9.71 9.71 9.72 9.73 9.73 9.75 9.75 9.75 9.77 9.77 9.77 9.77 9.77	7.70  65  ANT2 9.70 9.53 9.34 9.25 9.47 9.07 8.54 8.78 8.92  67  ANT2 9.11 9.52 9.34 9.11 9.52 9.11	10.79  MIMO 12.60 12.56 12.59 12.47 12.61 12.78 12.28 12.28 12.28 12.29 12.31 12.36 12.32  MIMO 12.37 12.60 12.32 12.31 12.36 12.32	ANT1  Average	RU Index NA ANT2  Conducted Pow RU Index NA ANT2	MIMO er (dBm)		ANT2		1.28  Dir. Ant. Gain [disi]  0.61  0.61  0.61  0.61  0.01  0.01  0.00  0.07  0.74  1.28  1.28  Dir. Ant. Gain [disi]  0.61  0.61  0.01  0.74  0.74  1.28  1.28	9.5  Max e.ir.p [dbm] 12.0 11.9 12.1 11.9 12.5 12.5 12.5 12.5 11.5 11.0 11.1 11.0  Max e.ir.p [dbm] 11.8 12.0 12.0 12.1 13.1 13.1 14.1 15.1 15.1 16.1 17.1 18.1 18.1 18.1 18.1 18.1 18.1 18	e.tr.p Limit [dbm] 240 240 240 240 240 240 240 240 240 240	e.ir.p Margin [de]  eir.p Margin [de]  12.02  12.05  11.92  12.14  11.32  12.29  12.29  12.29  12.29  12.93  12.96  e.ir.p Margin [de]  el.ir.p Margin [de]  11.50  11.50  11.50  11.50  11.50  11.50  11.50  11.50  11.50  11.50  11.50  11.50
80MHz BW 40MHz BW	5 6 7 8 Band 5 6 7	\$965 6005 6105 6405 6405 6445 6485 6525 5655 7085 7085 Freq [MHz] 5985 6146 6146 6146 6146 6146 6146 6146 614	Channel  3 11 43 91 90 107 115 123 155 179 211 227 Channel  Channel  7 7 87 103 119 119 119	Tones 484T 484T 484T 484T 484T 484T 484T 484	ANT1 9.71 9.71 9.72 9.73 9.73 9.75 9.75 9.75 9.77 9.77 9.77 9.77 9.77	7.70  65  ANT2 9.72 9.53 9.34 9.25 9.47 9.07 8.54 8.78 8.92  67  ANT2 9.11 9.52 9.25 9.25 9.34 9.77 9.77 9.77 9.77 9.78	10.79  MIMO 12.60 12.56 12.59 12.47 12.61 12.78 12.28 12.28 12.28 12.29 12.31 12.36 12.32  MIMO 12.37 12.60 12.32 12.31 12.36 12.32	ANT1  Average	RU Index NA ANT2  Conducted Pow RU Index NA ANT2  Conducted Pow RU Index RU Index RU Index RU Index RU Index	MIMO er (dBm)		NA ANTZ		1.28  Dir. Ant. Gain [disi]  0.61  0.61  0.61  0.61  0.61  0.01  0.01  0.01  0.074  1.28  1.28  Dir. Ant. Gain [disi]  0.61  0.61  0.61  0.74  1.28  1.28  Dir. Ant. Gain [disi]  0.61  0.61  0.74	9.5  Max e.ir.p [dbm] 12.0 11.9 12.1 11.9 12.5 12.6 13.4 11.7 11.9 11.0  Max e.ir.p [dbm] 11.8 12.0 12.3 12.4 11.7 12.9 12.9 12.1 13.1 14.0  Max e.ir.p	e.i.r.p.Limit [dbm] 240 240 240 240 240 240 240 240 240 240	e.i.r.p Margin   del   1-12.02   1-12.05   1-1
BW 80MHz BW 40MHz BW	5 6 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	\$965 6005 6105 6405 6405 6485 6485 6525 6565 6725 6885 7005 7085 7085 6885 7005 7085 6885 7095	Channel  31 111 111 119 199 107 115 123 155 155 179 187 127  Channel  Channel  7 39 87 103 119 119 151 183 199 151	Tones  484T 484T 484T 484T 484T 484T 484T 48	ANT1 971 937 983 958 988 981 967 977 978 967 977 978 967 977 978 967 979 989 981 999 981 999 981 999 981 997 978 978 979 979 979 979 979	7.70  65  ANT2  9.49  9.49  9.53  9.34  9.25  9.49  9.11  9.42  9.07  ANT2  ANT2  ANT2  ANT2  ANT2  9.11  9.42  9.11  9.42  9.11  9.42  9.11  9.45  67  67  67  67  9.40  9.40  9.40  9.44  9.41  9.11	MIMO 12.60 12.56 12.56 12.47 12.48 12.54 12.28 12.31 12.60 12.51 12.61 1	AVERAGE AVERAGE AVERAGE	RU Index NA ANT2  Conducted Pow RU Index NA ANT2  conducted Pow RI Index NA RI Index NA	MIMO er (dBm) MIMO	ANT1	NA ANT2	мімо	1.28  Dir. Ant. Gain [d8]	9.5  Max e.i.r.p [dBm] 120 119 121 119 125 12.6 12.4 11.8 11.7 11.0  Max e.i.r.p [dBm] 11.8 12.0 12.1 11.0  11.0	e.i.r.p.Limit	e.ir.p Margin   del   1202   1202   1203   1204   1205   1
Hz BW 40MHz BW 40MHz BW	5 6 7 8 Band 5 6 7 8 Band	\$965 6005 6105 6405 6445 6485 6525 6565 6725 6863 7085 Freq [MHz] 5985 6785 6785 6785 6785 6785 6785 6785 6865 6785	Channel  3 3 11 43 91 99 107 117 115 122 117 221 211 227 Channel  Channel  Channel  Channel	Tones  4941 4941 4941 4941 4941 4941 4941 49	ANT1 671 977 983 979 983 958 988 981 967 967 977 978 967 977 978 967 979 989 981 981 ANT1 957	65 ANT2 9.07 9.11 9.42 9.49 9.49 9.41 9.42 9.47 9.47 9.47 9.47 9.47 9.47 9.47 9.47	MIMO 12.56 12.75 12.81 12.55 12.71 12.55 12.71 12.55 12.71 12.55 12.55 12.71 12.55 12.55 12.55 12.55 12.55 12.55 12.55 12.55 12.55 12.71	ANT1  Average	RU Index NA ANT2  Conducted Pow RU Index NA ANT2  Conducted Pow RU Index RU Index RU Index RU Index RU Index	MIMO er (dBm)		NA ANTZ		1.28  Dir. Ant. Gain [d8]  O61  O61  O61  O61  O61  O74  O74  O74  O74  O74  O74  O77  Dir. Ant. Gain [d8]  O61  O61  O61  O77  O77  O77  O77  O77	9.5  Max e.i.r.p [dBm] 120 119 121 119 125 12.6 12.4 11.8 11.7 11.0  Max e.i.r.p [dBm] 11.8 12.0 12.1 11.8 11.0  Max e.i.r.p [dBm] 11.8 11.8 11.8 11.8 11.8 11.8 11.8 11.	e.i.r.p.Limit   ddm	e.ir.p Margin   del   12.02   12.02   12.02   12.03   13.04   13.05   14.05
OMHZ BW 40MHZ BW 40MHZ BW	5 6 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	\$965 6005 6105 6405 6405 6485 6485 6525 6555 6725 6845 7085 7085 Freq [MHz] 5985 6145 6385 6465 7085 5985 6145 6465	Channel  3 3 1 11 43 91 99 107 117 115 123 185 185 187 211 221  Channel  Channel  Channel  Channel  Channel	Tones 4841 4841 4841 4841 4841 4841 4841 484	ANT1 0.77 0.97 0.97 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98	65 ANT2 909 909 914 925 949 911 942 907 854 867 67 ANT2 911 942 911 942 911 942 907 854 867 67 ANT2 911 917 940 968 68 ANT2 918	10.79  MIMMO 12.60 12.56 12.56 12.47 12.64 12.75 12.48 12.54 12.25 12.48 12.54 12.25 12.49 12.59 12.60 12.60 12.60 12.60 12.60 12.70 12.60 12.70	AVERAGE AVERAGE AVERAGE	RU Index NA ANT2  Conducted Pow RU Index NA ANT2  conducted Pow RI Index NA RI Index NA	MIMO er (dBm) MIMO	ANT1	NA ANT2	мімо	1.28  Dir. Ant. Gain [d8]  0.61 -0.61 -0.61 -0.61 -0.10 -0.10 -0.74 -0.74 -0.74 -1.28 -1.28  Dir. Ant. Gain [d8] -0.61 -0.61 -0.61 -0.61 -0.61 -0.61 -0.61 -0.61 -0.61 -0.61	9.5  Max e.i.r.p [dBm] 120 119 121 119 125 12.6 12.4 11.8 11.7 11.0 11.1 11.0  Max e.i.r.p [dBm] 12.3 12.4 11.8 12.0 12.1 12.0 12.3 12.4 11.1 11.0  Max e.i.r.p [dBm] 12.3 12.4 11.7 12.0 12.1 12.0 12.1 12.0 12.1 12.0 12.1 12.0 12.1 12.0 12.1 12.0 12.0	e.i.r.p.Limit [dBm]  e.i.r.p.Limit [dBm]  240 240 240 240 240 240 240 240 240 24	e.ir.p Margin [d8]  e.ir.p Margin [d8]  12.02  12.02  12.05  11.92  12.14  11.35  11.62  12.29  12.49  12.29  12.93  12.93  e.ir.p Margin [d8]  12.57  12.57  12.57
160MHz BW 80MHz BW 40MHz BW	5 6 7 8 Band 5 6 6 7 8	\$965 6005 6105 6405 6445 6485 6525 85655 7085 7085 Freq [MHz] 5985 6445 6585 7095 6845 67705 6845 67705 6845 6785 6845 6785 6845 6785	Channel  3 11 11 43 43 43 43 10 10 107 115 123 155 159 179 187 221  Channel  Channel  Channel  Channel  Channel  Channel	Tones  484T 484T 484T 484T 484T 484T 484T 48	ANT1 9.71 9.71 9.71 9.72 9.83 9.83 9.84 9.77 9.84 9.77 9.84 9.77 9.87 9.87  ANT1 9.59 9.65 9.98 9.77 9.89 9.89	65 ANT2 9 44 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	10.79    MiMMO   12.60   12.56   12.56   12.57   12.61	AVERAGE AVERAGE AVERAGE	RU Index NA ANT2  Conducted Pow RU Index NA ANT2  conducted Pow RI Index NA RI Index NA	MIMO er (dBm) MIMO	ANT1	NA ANT2	мімо	1.28  Dir. Ant. Gain [dei]  0.61  0.61  0.61  0.61  0.61  0.01  0.10  0.10  0.10  0.74  1.28  1.28  Dir. Ant. Gain [dei]  0.61  0.61  0.61  0.61  0.61  0.61  0.61  0.61  0.61  0.61  0.74  0.76  0.61  0.61	9.5  Max e.ir.p [dbm] 12.0 11.9 12.1 11.9 12.5 12.6 12.4 11.8 11.0 11.0 11.1 11.0  Max e.ir.p [dbm] 12.2 12.3 12.4 11.8 11.9 12.0 12.0 12.1 13.1 14.1 15.1 16.0 17.0 18.1 18.1 19.1 19.1 19.1 19.1 19.1 19.1	e.i.r.p.Limit [dbm] 240 240 240 240 240 240 240 240 240 240	e.ir.p Margin   del
160MHz BW 80MHz BW 40MHz BW	5 6 7 8 Band 5 6 7 8 Band 7 7 8 Band 7 8 Band 7 8 Band 7	\$965 6005 6105 6405 6445 6485 6525 85652 85653 7085 Freq [MHz]  Freq [MHz]  Freq [MHz]  Freq [MHz]  6925 6945 6945 6945 6945 6945 6945 6945 694	Channel  3 11 11 43 43 43 99 99 107 115 123 155 155 179 187 211 227  Channel  Channel  Channel  Channel  Channel  113 183 199 151 183 199 151 183 199 161 175	Tones  484T 484T 484T 484T 484T 484T 484T 48	ANT1 9,71 9,77 9,83 9,83 9,98 9,81 9,64 9,77 9,84 9,77 9,78 9,67  ANT1 9,59 9,69 9,77 9,98 9,99 9,77 9,98 9,77 9,98 9,77 9,98 9,77 9,78 9,78	65  ANT2 9 46 9 09 9 49 9 49 9 49 9 53 9 34 9 25 9 49 9 49 9 41 9 47 9 67  ANT2 9 9 9 9 9 9 9 49 9 44 9 44 9 44 9 44 9	10.79    MiMO   12.60   12.56   12.56   12.57   12.61	AVERAGE AVERAGE AVERAGE	RU Index NA ANT2  Conducted Pow RU Index NA ANT2  conducted Pow RI Index NA RI Index NA	MIMO er (dBm) MIMO	ANT1	NA ANT2	мімо	1.28  Dir. Ant. Gain [dei]  0.61  0.61  0.61  0.61  0.61  0.01  0.10  0.10  0.10  0.74  1.28  1.28  Dir. Ant. Gain [dei]  0.61  0.61  0.61  0.61  0.74  1.28  Dir. Ant. Gain [dei]  0.61  0.61  0.61  0.61  0.74  0.71  0.61  0.61  0.61  0.61  0.61  0.61  0.74  0.74  0.74  0.74  0.74  0.74  0.74  0.74  0.74  0.74  0.74  0.74	9.5  Max e.ir.p [dbm] 120 11.9 12.1 11.9 12.5 12.6 11.8 11.0 11.1 11.0  Max e.ir.p [dbm] 12.0 12.1 11.1 11.0  Max e.ir.p [dbm] 12.0 12.1 13.1 14.0  Max e.ir.p [dbm] 11.1 11.1 11.0  Max e.ir.p [dbm] 11.1 11.1 11.2 11.8 11.3 11.4	e.i.r.p.Limit [dbm] 240 240 240 240 240 240 240 240 240 240	e.ir.p Margin   del   1-202   12.05   1-2.06   12.05   1-2.07   12.05   1-2.08   12.05   1-2.09   12.05   1-2.09   12.09   1-2.09   12.09   1-2.09   12.09   1-2.01   12.05   1-2.01   12.05   1-2.01   12.05   1-2.01   12.05   1-2.01   12.05   1-2.01   12.05   1-2.01   12.05   1-2.01   12.05   1-2.01   12.05   1-2.01   12.05   1-2.01   13.05   1-2.01   14.05   1-2.02   14.05   1-2.03   14.05   1-2.05   14.05   1-
160MHz BW 80MHz BW 40MHz BW	5 6 7 8 Band 5 6 6 7 8	\$965 6005 6105 6405 6405 6485 6485 6525 6525 6583 7005 Freq [MHz] 5985 6145 6325 645 7005 645 7005 7085 70	Channel  3 3 111 43 91 99 99 107 115 123 185 185 187 187 188 199 215  Channel  Channel  Channel  Channel	Tones 4841 4841 4841 4841 4841 4841 4841 484	ANT1 0.77 0.97 0.983 0.983 0.982 0.982 0.984 0.974 0.974 0.974 0.974 0.974 0.979 0.989 0.981 0.9	65 ANT2 909 953 934 925 949 911 942 907 854 878 878 879 971 941 941 941 941 941 941 941 941 941 94	10.79  MIMMO 12.60 12.56 12.56 12.47 12.64 12.75 12.48 12.54 12.25 12.49 12.49 12.50 12.49 12.50	ANT1  Average  ANT1  Average	RU Index NA ANT2  Conducted Pow RU Index NA ANT2  Conducted Pow RU Index NA ANT2  ANT2	er (dBm)  MIMO  er (dBm)  MIMO	ANT1	NA ANT2	мімо	1.28  Dir. Ant. Gain [desi]  0.61  0.61  0.61  0.61  0.61  0.01  0.00  0.00  0.074  0.74  1.28  1.28  1.28  Dir. Ant. Gain [desi]  0.61  0.61  0.61  0.61  0.61  0.61  0.61  0.61  0.74	9.5  Max e.i.r.p [dBm] 12 0 11 9 12 1 11 9 12 5 12 6 12 4 11 8 11 7 11 0 11 1 11 0 11 1 11 0  Max e.i.r.p [dBm] 12 3 12 4 11 7 11 8 11 9 12 1 1 1 8 12 1 1 8 12 1 1 8 12 1 1 8 12 1 1 8 12 1 1 8 12 1 1 8 12 1 1 8 12 1 1 8 13 1 1 8 14 1 1 8 15 1 1 8 16 1 1 8 17 1 1 8 18 1 1 8 18 1 1 8 18 1 1 8 18 1 1 8 18 1 1 8 18 1 1 8 18 1 1 8 18 1 1 8 18 1 1 8 18 1 1 8 18 1 1 8 18 1 1 8 18 1 1 8 18 1 8 1	e.i.r.p.Limit [dBm]  e.i.r.p.Limit [dBm]  240  240  240  240  240  240  240  24	e.ir.p Margin [dB]  e.ir.p Margin [dB]  1202  1202  1205  1192  1214  11.35  11.62  1229  12.97  12.97  12.97  12.98  e.ir.p Margin [dB]  12.25  12.02  11.65  12.25  12.25  12.25  12.27  12.57  e.ir.p Margin [dB]  [dB]  12.57  12.03
160MHz	5 6 7 8 Band 5 6 7 8 Band 5 6 7 8	\$965 6005 6105 6405 6405 6485 6485 6525 6555 6725 6845 7085 7085 Freq [MHz] 5985 6145 6385 6465 7085 7085 7085 7085 6485 6485 6485 6485 6525	Channel  3 3 111 43 91 99 99 107 115 123 185 185 187 187 188 199 215  Channel  Channel  Channel  Channel  15 15 15 15 15 15 17 7 7 7 7 7 7 7 7 7	Tones  4841 4841 4841 4841 4841 4841 4841 48	ANT1 9,71 9,77 9,83 9,83 9,98 9,81 9,64 9,77 9,84 9,77 9,78 9,67  ANT1 9,59 9,69 9,77 9,98 9,99 9,77 9,98 9,77 9,98 9,77 9,98 9,77 9,78 9,78	65  ANT2 9,14 9,25 9,34 9,25 9,49 9,11 9,42 9,07 8,87 8,92 67 67 67 67 67 8,92 9,11 9,11 9,11 9,11 9,11 9,11 9,11 9	10.79    MiMO   12.60   12.56   12.56   12.57   12.61	ANT1  Average  ANT1  Average	RU Index NA ANT2  Conducted Pow RU Index NA ANT2  Conducted Pow RU Index NA ANT2  Conducted Pow RU Index NA ANT2	er (dBm)  MIMO  er (dBm)  MIMO	ANT1	NA ANT2	мімо	1.28  Dir. Ant. Gain [dei]  0.61  0.61  0.61  0.61  0.61  0.010  0.10  0.10  0.10  0.74	9.5  Max e.i.r.p [dBm] 120 119 121 119 12.5 12.6 12.4 11.8 11.7 11.5 11.9  Max e.i.r.p [dBm] 11.8 11.9  Max e.i.r.p [dBm] 11.8 11.9 11.9 11.9 11.8 11.9 11.9 11.9	e.i.r.p.Limit [dBm] 240 240 240 240 240 240 240 240 240 240	e.ir.p Margin   del   12.02   12.02   12.05   11.05   12.05   11.05   12.05
BW 160MHz	5 6 7 8 Band 5 6 7 8 Band 7 7 8 Band 7 8 Band 7 8 Band 7	\$965 6005 6105 6105 6405 6445 6485 6585 6505 7025 7085  Freq [MHz]  Freq [MHz] 6025 6185 6545 6545 6545 6545 6545 6545 6545 65	Channel  3 3 1 11 43 91 99 107 117 115 123 185 185 211 2211 27 27 27 27 27 103 199 215 Channel  Channel  Channel  15 47 79 111 143 175 207  Channel	Tones 4841 4841 4841 4841 4841 4841 4841 484	ANT1 9.77 9.83 9.59 9.98 9.81 9.67 9.77 9.78 9.78 9.67 9.77 9.78 9.67 9.77 9.78 9.67 9.79 9.80 9.81 ANT1 9.59 9.98 9.98 9.98 9.98 9.98 9.98 9.98	65 ANT2 9.07 9.11 9.42 9.07 8.54 8.72 8.73 8.73 8.73 8.73 8.73 8.74 8.75 8.75 8.75 8.75 8.75 8.75 8.75 8.75	MIMO 12.60 12.56 12.56 12.54 12.55 12.55 12.71 MIMO 12.50 12	Average Average ANT1  Average ANT1	RU Index NA ANT2  Conducted Pow RU Index Index RU Index	er (dBm)  MIMO  MIMO  MIMO  MIMO  MIMO	ANT1	NA ANT2	мімо	1.28  Dir. Ant. Gain [d8]  Dir. Ant. Gain [d8]  0.61  0.61  0.61  0.61  0.010  0.10  0.74  0.74  1.28  1.28  Dir. Ant. Gain [d8]  Dir. Ant. Gain [d8]  Dir. Ant. Gain [d8]	9.5  Max e.i.r.p [dBm] 120 119 121 119 125 12.6 12.4 11.8 11.7 11.0  Max e.i.r.p [dBm] 11.8 12.0 12.3 12.4 11.8 11.0  Max e.i.r.p [dBm] 11.8 12.0 12.1 12.0 12.1 13.1 13.1 14.1 15.1 16.1  Max e.i.r.p [dBm] 17.0 18.1 19.1 19.1 19.1 19.1 19.1 19.1 19.1	e.i.r.p.Limit   ddm  2440 2440 2440 2440 2440 2440 2440 244	e.ir.p Margin [d8]  e.ir.p Margin [d8]
BW 160MHz	5 6 7 8 Band 5 6 7 8 Band 5 6 7 8	\$965 6005 6105 6105 6405 6445 6485 6525 6565 7085 7085 7085 6845 6445 6485 6585 7085 7085 Freq [MHz] 6705 6665 6585 6665 6685 6685 6685 6685 66	Channel  3 11 11 43 19 99 107 107 115 123 155 155 179 187 227  Channel  Channel  Channel  Channel  Channel  Channel  Channel  Channel  Channel	Tones  4841 4841 4841 4841 4841 4841 4841 48	ANT1 9.71 9.77 9.97 9.97 9.98 9.81 9.84 9.77 9.84 9.77 9.87 9.87 9.87 9.87 9.87 9.87 9.87	65 ANT2 9 746 9 759 9 749 9 749 9 759 9 749 9 759 9 759 9 759 9 759 9 759 9 759 9 759 8 75	MMMO   12.60   12.61   12.62   12.63   12.63   12.64   12.65   12.64   12.65   12.64   12.75   12.65	Average Average ANT1  Average ANT1  Average	RU Index NA ANT2  Conducted Pow RU Index NA ANT2	MIMO  er (dBm)  MIMO  MIMO  er (dBm)	ANTI	NA ANT2  NA ANT2	MIMO MIMO	1.28  Dir. Ant. Gain [dis]  Oct 1.061  Oct 1.061	9.5  Max e.ir.p [dbm] [dbm] 120 119 121 119 125 126 118 110 110  Max e.ir.p [dbm] 118 129 129 121 117 120 118 111 117 120 118 111 118 119 118 119 118 111 119 119	e.i.r.p Limit [dbm]  e.i.r.p Limit [dbm]  240  240  240  240  240  240  240  24	e.i.r.p Margin [dB] e.i.r.p Margin [dB] 12.02 12.02 12.05 11.92 12.14 11.146 11.35 11.62 12.97 12.97 12.98 12.99 12.96 e.i.r.p Margin [dB] 12.01
BW 160MHz	5 6 7 8  Band 5 6 7 8  Band 5 6 7 8  Band 5 6 7 8	\$965 6005 6105 6405 6445 6485 6525 6565 7085 7085  Freq [MHz]	Channel  3 111 43 43 43 43 43 43 43 43 43 45 45 45 45 45 45 47 47 47 47 47 47 47 47 47 47 47 47 47	Tones  484T 484T 484T 484T 484T 484T 484T 48	ANT1 9.71 9.77 9.77 9.77 9.77 9.87 9.80 9.81 9.84 9.77 9.77 9.77 9.77 9.78 9.67  ANT1 9.59 9.69 9.80 9.81 9.80 9.80 9.80 9.80 9.80 9.80 9.80 9.80	65 ANT2 9 46 9 09 9 49 9 49 9 49 9 49 9 53 9 34 9 25 9 49 9 49 9 41 9 47 9 47 9 57 8 87 8 87 8 87 8 87 8 87 8 87 8 87 8	10.79    MiMO   12.60   12.56   12.56   12.57   12.61	Average  ANT1  Average  ANT1  Average  ANT1  Average  9.55 9.46 9.77	RU Index NA ANT2  Conducted Pow RU Index RU	er (dBm)  MiMO  MiMO  MiMO  er (dBm)  MiMO  12.51  12.50  12.87	ANTI	NA ANT2  NA ANT2	MIMO MIMO	1.28  Dir. Ant. Gain [dei]  0.61  0.61  0.61  0.61  0.61  0.01  0.10  0.10  0.10  0.74  1.28  1.28  Dir. Ant. Gain [dei]	9.5  Max e.ir.p [dbm] 120 119 121 119 125 12.6 12.4 118 110 110 111 110  Max e.ir.p [dbm] 123 124 117 120 121 118 119 120 121 118 119 120 121 121 121 121 122 124 117 120 123 124 117 120 118 1118 1114  Max e.ir.p [dbm] 118 119 119 110 110 110 110 110 110 110 110	e.i.r.p.Limit [dbm] 240 240 240 240 240 240 240 240 240 240	e.ir.p Margin   del   12.02   12.03   12.03   12.04   12.05
160MHz	5 6 7 8 8 8 8 8 8 8 6 7 8 8 8 8 8 8 8 8 8	\$965 6005 6105 6105 6405 6405 6425 6725 6725 6725 6845 7005 7005 7005 5985 61145 6385 6385 6465 7005 6565 6385 6465 6385 6465 6385 6465 6485 6485 6485 6485 6485 6485 64	Channel  3 3 111 43 91 99 99 107 115 123 185 185 187 187 188 199 215  Channel  Channel  15 47 79 111 115 127  Channel  Channel  Channel  Channel	Tones  4641 4641 4641 4641 4641 4641 4641 46	ANT1 9.77 9.83 9.83 9.83 9.83 9.88 9.98 9.81 9.64 9.77 9.75 9.76 9.77 9.40 9.99 9.99 9.99 9.99 9.99 9.99 9.99	65 ANT2 9,09 9,09 9,34 9,25 9,34 9,25 9,34 9,27 9,07 8,54 8,78 8,92 9,07 ANT2 9,11 9,52 9,28 9,29 9,29 9,29 9,29 9,29 9,29 9,2	MIMO   12.60   12.58   12.58   12.58   12.71   12.60   12.60   12.60   12.60   12.60   12.60   12.60   12.70	AVerage  ANT1  Average  ANT1  AVerage  ANT1  AVERAGE  ANT1  9.55	RU Index NA ANT2  • Conducted Pow RU Index NA ANT2	er (dBm)  MIMO  MIMO  MIMO  MIMO  MIMO  12.51	ANTI	NA ANT2  NA ANT2	MIMO MIMO	1.28  Dir. Ant. Gain   deli	9.5  Max e.ir.p [dbm] 12.0 11.9 12.1 11.9 12.5 12.5 12.5 12.5 12.5 11.6 11.7 11.9 11.0 11.1 11.0  Max e.ir.p [dbm] 11.8 12.0 12.0 13.1 14.1 15.1 16.0  Max e.ir.p [dbm] 11.8 12.0 12.1 13.1 14.0  Max e.ir.p [dbm] 11.8 12.0 12.1 13.1 14.0  Max e.ir.p [dbm] 14.0 15.0 16.0 17.0 17.0 17.0 18.0 18.0 19.0 19.0 19.0 19.0 19.0 19.0 19.0 19	e.tr.p Limit [dbm] 240 240 240 240 240 240 240 240 240 240	e.ir.p Margin [de]  eir.p Margin [de]  12.02  12.05  11.192  12.14  11.186  11.29  12.29  12.29  12.29  12.29  12.29  12.29  12.29  12.29  12.29  12.29  12.29  12.29  12.29  12.29  12.29  12.29  12.29  12.25  12.02  12.165  11.65  11.55  12.17  12.15  12.17  12.17  12.17  12.18  e.ir.p Margin [de]  11.19  12.19  12.19  12.19  12.19  12.19  12.19  12.19  12.20  12.21  12.23  e.ir.p Margin [de]  11.19  12.20  12.237

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

FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 72 of 275
1M2401250007-08-R2.A3L	03/14/2024 - 05/01/2024	Portable Computing Device	



Book   Freq   Med   Channel   Took   APP									Average	Conducted Pow	er (dBm)							
Second   Color   Col	>	Danel	Cross [Miller]	Channal	T					MRU Index								e.i.r.p Margin
No.		Dallu	rieq (MHZ)	Channel	Tones										[dBi]	[dBm]	[dBm]	[dB]
Book   Freq   Med   Channel   Tones	Z					ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
Book   Freq   Med   Channel   Tones	Ξ	5	6145	39	242+484T	9.89	9.81	12.86	9.91	9.79	12.86	9.97	9.81	12.90	-0.61	12.3	24.0	-11.71
Book   Freq   Med   Channel   Tones	6	6	6465	103	242+484T	9.90	9.54	12.73	9.76	9.55	12.67	9.94	9.54	12.75	-0.10	12.7	24.0	-11.35
Band   Freq   Beta   Claimed   Tones	ō.	7	6705	151	242+484T	9.77	9.01	12.42	9.80	9.05	12.45	9.82	9.06	12.47	-0.74	11.7	24.0	-12.27
		8	6945	199	242+484T	9.69	9.52	12.62	9.88	9.61	12.76	9.98	9.61	12.81	-1.28	11.5	24.0	-12.48
Second   Control   Contr									Average	Conducted Pow	er (dBm)							
Second   Control   Contr		B	F (5 41 1-1	011	<b>+</b>					MDII Indov					Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margin
Record   Proc   Marco   Proc   Pro	~	Band	Freq [MHZ]	Channel	I ones		0.4						1004		[dBi]	[dBm]	[dBm]	
Record   Proc   Marco   Proc   Pro	Z					ANT1		MINAO	ANT1		MINAO	ANIT1		MINAO				
Record   Proc   Marco   Proc   Pro	Ξ	- 5	6105	47	006±404T										-0.61	11.0	240	-12.20
Record   Proc   Marco   Proc   Pro	≥ .																	
	9																	
Band   Freq Met    Channel   Freq Met    C	-	7																
Band   Free   Mart   Channel   Tones   Channel   Tones   Channel   Tones   Channel   Tones   Channel   Tones   Channel   Tones   Channel   Chann		_																
		8	0903	207	99074041	9.01	9.72	12.39	9.03	9.02	12.40	9.03	9.97	12.34	*1.20	11.3	24.0	-12./4
									Average	Conducted Pow	er (dBm)							
Channel   Chan					_						()				Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margin
\$\frac{5}{2} \frac{5}{105} \frac{31}{3} \frac{3096+6481}{3964} \frac{9.20}{23} \frac{9.00}{9.00} \frac{12.40}{12.47} \frac{9.22}{9.25} \frac{9.81}{12.43} \frac{9.34}{9.34} \frac{9.62}{9.21} \frac{12.40}{9.61} \frac{9.61}{12.42} \frac{9.61}{9.61} \frac{11.24}{12.42} \frac{9.61}{9.61} \frac{11.24}{12.22} \frac{9.61}{9.62} \frac{11.24}{12.22} \frac{9.61}{9.61} \frac{11.24}{12.22} \frac{9.61}{9.61} \frac{11.24}{12.22} \frac{9.61}{9.61} \frac{11.24}{12.22} \frac{9.61}{9.61} \frac{11.24}{12.22} \frac{9.61}{9.61} \frac{11.24}{11.22} \frac{9.61}{9.61} \frac{11.24}{11.22} \frac{9.61}{9.61} \frac{11.24}{12.22} \frac{9.61}{9.61} \frac{11.24}{1	≥ .	Band	Freq [MHz]	Channel	Tones		105						11106					
\$\frac{5}{2} \frac{5}{105} \frac{31}{3} \frac{3096+6481}{3964} \frac{9.20}{23} \frac{9.00}{9.00} \frac{12.40}{12.47} \frac{9.22}{9.25} \frac{9.81}{12.43} \frac{9.34}{9.34} \frac{9.62}{9.21} \frac{12.40}{9.61} \frac{9.61}{12.42} \frac{9.61}{9.61} \frac{11.24}{12.42} \frac{9.61}{9.61} \frac{11.24}{12.22} \frac{9.61}{9.62} \frac{11.24}{12.22} \frac{9.61}{9.61} \frac{11.24}{12.22} \frac{9.61}{9.61} \frac{11.24}{12.22} \frac{9.61}{9.61} \frac{11.24}{12.22} \frac{9.61}{9.61} \frac{11.24}{12.22} \frac{9.61}{9.61} \frac{11.24}{11.22} \frac{9.61}{9.61} \frac{11.24}{11.22} \frac{9.61}{9.61} \frac{11.24}{12.22} \frac{9.61}{9.61} \frac{11.24}{1	ω .					ANT1		MIMO	ANT1		MIMO	ANT1		MIMO	,,	,,	,,	,,
Part			6105	31	3x996+484T										-0.61	11.9	240	-12 12
Band   Freq   MHz    Channel   Tones	ŧ	5		63			9.67	12.47	9.22							11.9		-12 15
Band   Freq   MHz    Channel   Tones	ō	6																
Part	2																	
Record   19   3:996+4941   9.75   9.15   12.47   9.78   9.20   12.51   9.76   9.31   12.55   1.28   11.3   2.40   12.73	(1)	7																
Band   Free   Mitt    Channel   Tones     Average Conducted Power (dBm)     Millor     Millor		0																
Band   Free   MHz    Channel   Tones		0	0903	191	3899014041	9.73	9.13	12.47	5.70	9.20	12.31	9.70	9.01	12.55	-1.20	11.5	24.0	-12.73
Band   Freq   Mrt.   Channel   Tones     MRU Index     Dis. Ant. Gain   Gibin   Gibi									Average	Conducted Down	or (dDm)							
Search   Feet   Mirty   Channel   Tones   To						-			Average		er (ubili)				Dir Ant Gain	Mayairn	o i r n l imit	o i r n Marair
ANTI	>	Band	nd Freq [MHz]	Channel	Tones		104		1				11104					
\$\frac{9}{5}\$ \frac{6165}{6}\$ \frac{31}{3}\$ \frac{3996f1}{9}\$ \frac{9}{50}\$ \frac{9}{10}\$ \frac{7}{220}\$ \frac{9}{29}\$ \frac{9}{15}\$ \frac{1254}{1254}\$ \frac{9}{935}\$ \frac{972}{972}\$ \frac{1255}{1225}\$ \rrac{4}{-0.61}\$ \frac{1119}{119}\$ \frac{240}{-0.61}\$ \rrac{1207}{1207}\$ \rrac{1207}{90}\$ \rrace{1207}{90}\$ \rra	æ					41174		1 10110	ANTA		141140	41174		1 11110	[ubij	[ubiii]	lapini	[ub]
Part			6105	0.1	0.0007										0.61	44.0	040	10.07
Band   Freq   MHz    Channel   Tones		5																
Second   S	≥																	
Freq   M+z    Channel   Freq   M+z    Channel   Tones	₹	- 6																
Band   Freq   MHz    Channel   Tones	70	7																
Rand   Freq   MHz    Channel   Tones																		
Band   Freq   Mitz    Channel   Tones		- 8	6905	191	3x996T	9.73	9.44	12.60	9.76	9.54	12.66	9.92	9.81	12.88	-1.28	11.6	24.0	-12.41
Band   Freq   MHz    Channel   Tones		_							•	011-10	/-ID\							
Search   Color   Col									Average		er (aBm)				Dir Ant Gain	Mayaira	o i r n l imit	o i r n Margin
\$\frac{5}{5}\$ \ \frac{6105}{6}\$ \ \frac{31}{3}\$ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	>	Band	Freq [MHz]	Channel	Tones		101						11102					
\$\frac{5}{5}\$ \ \frac{6105}{6}\$ \ \frac{31}{3}\$ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	<u>a</u>					ANT1		MIMO	ANT1		MIMO	ANT1		MIMO	[dbij	[ubiiij	[dbiii]	[ubj
Second Column   Freq   MHz    Channel   Channe		_	6105	21	2×006±494T										-0.61	12.0	240	-11.06
Band   Freq [MHz]   Channel   Tones	•	5																
Band   Freq   MHz    Channel   Tones		-				9.27	9.70	12.00	9.29		12.00			12.02				
Band   Freq   MHz    Channel   Tones	ų .									9.93	12.03			12.02		12.0		-11.18
Band Freq   MHz    Channel   Tones	,	7																
Band   Freq   MHz    Channel   Tones     Average Conducted Power (Bitn)   MBU Index   Dir. Ant. Gain   [dBitn]   (dBitn)   (		_																
Band   Freq   MHz    Channel   Tones     Tones     Tones     Tones     Tones				191	ZX990+4841	9.59	9.02	12.32	9.01	9.10	12.40	9.93	9.41	12.09	*1.28	11.4	24.0	*12.00
		8	0903						A	Conducted Pow	er (dBm)							
Band   Heq. MHz    Channel   Iones   To   To   To   To   To   To   To   T		8	0903												Dir Ant Gain	Max e.i.r.p	o i r n l imit	e.i.r.p Margir
ANT					_				Average									
5   6175   45   5226   281   298   591   299   288   595   239   277   559   -0.61   5.3   240   -18.67     6   6475   105   5226   2.60   2.99   5.81   2.19   2.97   5.61   2.45   2.79   5.30   -0.01   5.7   2.40   -18.67     7   6695   149   5226   2.21   2.94   5.60   2.31   2.98   5.67   2.44   2.90   5.69   -0.74   4.9   2.40   -1.9.58     8   6995   2.09   5226   2.21   2.94   5.65   2.31   2.98   5.67   2.44   2.90   5.69   -0.74   4.9   2.40   -1.9.58     8   6995   2.09   5226   2.21   2.94   5.65   2.47   2.98   5.74   2.61   2.69   5.66   -1.28   4.5   2.40   -1.9.54     8   8   8	3.00			Channel	Tones		70		Average	MRU Index			72					
6 6475 105 52*26T 220 299 5.81 219 2.97 5.61 2.45 2.79 5.63 -0.10 5.7 240 18.29 6695 149 52*26T 221 294 5.60 2.31 2.98 5.67 2.44 2.90 5.69 -0.74 4.9 2.40 1.90.5 8 6995 299 52*26T 2.39 2.87 5.65 2.47 2.98 5.74 2.61 2.69 5.66 1.1.28 4.5 240 1.95.5 8 6.95.5 2.99 52*26T 2.39 2.87 5.65 2.47 2.98 5.74 2.61 2.69 5.66 1.1.28 4.5 240 1.95.5 8 6.95.5 8	7 DVV			Channel	Tones	ANT1		I MIMO		MRU Index 71	MIMO	ANT1		I MIMO				
Tone	HZ BW	Band	Freq [MHz]				ANT2		ANT1	MRU Index 71 ANT2			ANT2		[dBi]	[dBm]	[dBm]	[dB]
Red		Band 5	Freq [MHz]	45	52+26T	2.81	2.98	5.91	ANT1 2.99	71 ANT2 2.88	5.95	2.39	2.77	5.59	[dBi] -0.61	[dBm] 5.3	[dBm] 24.0	[dB] -18.67
Band   Freq  MHz    Channel   Tones     Sz   MilMO   MNT1   MNT2   MilMO   MNT1   MNT2   MilMO   MNT1   MNT2   MilMO   MNT1   MNT2   MNMO   MNT1   MNT2   MNMO   MNT1   MNT2   MNMO   MNT1   MNT2   MNMO   MNT3   MNT3   MNMO   MNT3   MNMO   MNT3   MNMO	ZUVIHZ BW	Band 5 6	Freq [MHz] 6175 6475	45 105	52+26T 52+26T	2.81 2.60	2.98 2.99	5.91 5.81	ANT1 2.99 2.19	71 ANT2 2.88 2.97	5.95 5.61	2.39 2.45	2.77 2.79	5.59 5.63	-0.61 -0.10	[dBm] 5.3 5.7	[dBm] 24.0 24.0	[dB] -18.67 -18.29
Band   Freq   MHz    Channel   Tones	ZUMITZ BW	<b>Band</b> 5 6 7	Freq [MHz] 6175 6475 6695	45 105 149	52+26T 52+26T 52+26T	2.81 2.60 2.21	2.98 2.99 2.99	5.91 5.81 5.60	ANT1 2.99 2.19 2.31	71 ANT2 2.88 2.97 2.98	5.95 5.61 5.67	2.39 2.45 2.44	2.77 2.79 2.90	5.59 5.63 5.69	-0.61 -0.10 -0.74	[dBm] 5.3 5.7 4.9	[dBm] 24.0 24.0 24.0	-18.67 -18.29 -19.05
Band   Freq   MHz    Channel   Tones	VINITZ BW	<b>Band</b> 5 6 7	Freq [MHz] 6175 6475 6695	45 105 149	52+26T 52+26T 52+26T	2.81 2.60 2.21	2.98 2.99 2.99	5.91 5.81 5.60	ANT1 2.99 2.19 2.31	71 ANT2 2.88 2.97 2.98	5.95 5.61 5.67	2.39 2.45 2.44	2.77 2.79 2.90	5.59 5.63 5.69	-0.61 -0.10 -0.74	[dBm] 5.3 5.7 4.9	[dBm] 24.0 24.0 24.0	-18.67 -18.29 -19.05
Band   Freq   MHz    Channel   Cha	ZUMHZ BW	<b>Band</b> 5 6 7	Freq [MHz] 6175 6475 6695	45 105 149	52+26T 52+26T 52+26T	2.81 2.60 2.21	2.98 2.99 2.99	5.91 5.81 5.60	ANT1 2.99 2.19 2.31 2.47	71 ANT2 2.88 2.97 2.98 2.98	5.95 5.61 5.67 5.74	2.39 2.45 2.44	2.77 2.79 2.90	5.59 5.63 5.69	-0.61 -0.10 -0.74	[dBm] 5.3 5.7 4.9	[dBm] 24.0 24.0 24.0	[dB] -18.67 -18.29 -19.05
ANT	/ 20MHz BW	5 6 7 8	Freq [MHz] 6175 6475 6695 6995	45 105 149 209	52+26T 52+26T 52+26T 52+26T 52+26T	2.81 2.60 2.21	2.98 2.99 2.99	5.91 5.81 5.60	ANT1 2.99 2.19 2.31 2.47	MRU Index 71 ANT2 2.88 2.97 2.98 2.98 Conducted Pow	5.95 5.61 5.67 5.74	2.39 2.45 2.44	2.77 2.79 2.90	5.59 5.63 5.69	-0.61 -0.10 -0.74 -1.28	[dBm] 5.3 5.7 4.9 4.5	24.0 24.0 24.0 24.0 24.0	[dB] -18.67 -18.29 -19.05 -19.54
5 6175 45 106+26T 5.66 507 8.39 5.29 5.25 8.28 -0.61 7.8 240 -16.23 6 6475 105 106+26T 5.97 5.61 8.80 5.78 5.17 8.50 -0.10 8.7 240 -15.30 7 6695 149 106+26T 5.92 5.52 8.73 5.84 5.01 8.46 -0.74 8.0 240 -15.00	3W 20MHz BW	5 6 7 8	Freq [MHz] 6175 6475 6695 6995	45 105 149 209	52+26T 52+26T 52+26T 52+26T 52+26T	2.81 2.60 2.21	2.98 2.99 2.94 2.87	5.91 5.81 5.60	ANT1 2.99 2.19 2.31 2.47	MRU Index 71 ANT2 2.88 2.97 2.98 2.98 Conducted Pow	5.95 5.61 5.67 5.74	2.39 2.45 2.44	2.77 2.79 2.90	5.59 5.63 5.69	[dBi] -0.61 -0.10 -0.74 -1.28  Dir. Ant. Gain	[dBm] 5.3 5.7 4.9 4.5  Max e.i.r.p	[dBm]  24.0  24.0  24.0  24.0  24.0  24.0	-18.67 -18.29 -19.05 -19.54 e.i.r.p Margin
6 6475 105 106+26T 597 5.61 8.80 5.78 5.17 8.50 -0.10 8.7 240 -15.00 7 6695 149 106+26T 592 5.52 5.73 5.84 5.01 8.46 -0.74 8.0 240 -15.00	z BW 20MHz BW	5 6 7 8	Freq [MHz] 6175 6475 6695 6995	45 105 149 209	52+26T 52+26T 52+26T 52+26T 52+26T	2.81 2.60 2.21 2.39	2.98 2.99 2.94 2.87	5.91 5.81 5.60 5.65	ANT1 2.99 2.19 2.31 2.47 Average	MRU Index 71 ANT2 2.88 2.97 2.98 2.98 Conducted Pow MRU Index 83	5.95 5.61 5.67 5.74 er (dBm)	2.39 2.45 2.44 2.61	2.77 2.79 2.90 2.69	5.59 5.63 5.69 5.66	[dBi] -0.61 -0.10 -0.74 -1.28  Dir. Ant. Gain	[dBm] 5.3 5.7 4.9 4.5  Max e.i.r.p	[dBm]  24.0  24.0  24.0  24.0  24.0  24.0	-18.67 -18.29 -19.05 -19.54 e.i.r.p Margin
7 6695 149 106+26T 5.92 5.52 8.73 5.84 5.01 8.46 -0.74 8.0 24.0 -16.00	Hz BW 20MHz BW	8and 5 6 7 8 8	Freq [MHz] 6175 6475 6695 6995 Freq [MHz]	45 105 149 209 Channel	52+26T 52+26T 52+26T 52+26T 52+26T	2.81 2.60 2.21 2.39	2.98 2.99 2.94 2.87 82 ANT2	5.91 5.81 5.60 5.65	ANT1 2.99 2.19 2.31 2.47 Average	MRU Index 71 ANT2 2.88 2.97 2.98 2.98 Conducted Power MRU Index 83 ANT2	5.95 5.61 5.67 5.74 er (dBm)	2.39 2.45 2.44 2.61	2.77 2.79 2.90 2.69	5.59 5.63 5.69 5.66	-0.61 -0.10 -0.74 -1.28 Dir. Ant. Gain [dBi]	[dBm] 5.3 5.7 4.9 4.5  Max e.i.r.p [dBm]	24.0 24.0 24.0 24.0 24.0 24.0 24.0 4.0 24.0 e.i.r.p.Limit [dBm]	-18.67 -18.29 -19.05 -19.54 e.i.r.p Margin [dB]
	MHz BW 20MHz BW	8 Band  5 6 7 8  Band  5 5 6 7 8	Freq [MHz] 6175 6475 6495 6995 Freq [MHz]	45 105 149 209 Channel	52+26T 52+26T 52+26T 52+26T 52+26T Tones	2.81 2.60 2.21 2.39 ANT1 5.66	2.98 2.99 2.94 2.87 82 ANT2 5.07	5.91 5.81 5.60 5.65	ANT1 2.99 2.19 2.31 2.47 Average	MRU Index 71 ANT2 2.88 2.97 2.98 2.98 2.98 Conducted Pow MRU Index 83 ANT2 5.25	5.95 5.61 5.67 5.74 er (dBm)	2.39 2.45 2.44 2.61	2.77 2.79 2.90 2.69	5.59 5.63 5.69 5.66	[dBi]	[dBm] 5.3 5.7 4.9 4.5  Max e.i.r.p [dBm]	[dBm]  24.0 24.0 24.0 24.0 24.0 24.0  e.i.r.p Limit [dBm]	[dB] -18.67 -18.29 -19.05 -19.54  e.i.r.p Margin [dB] -16.23
	ZOMHZ BW 20MHz BW	5 6 7 8 Band	Freq [MHz] 6175 6475 6695 6995 Freq [MHz] 6175 6475	45 105 149 209 Channel 45 105	52+26T 52+26T 52+26T 52+26T 52+26T <b>Tones</b>	2.81 2.60 2.21 2.39 ANT1 5.66 5.97	2.98 2.99 2.94 2.87 82 ANT2 5.07 5.61	5.91 5.81 5.60 5.65 MIMO 8.39 8.80	ANT1 2.99 2.19 2.31 2.47  Average  ANT1 5.29 5.78	MRU Index 71 ANT2 2.88 2.97 2.98 2.98 2.98 2.98 3.98 Conducted Pow. MRU Index 83 ANT2 5.25 5.17	5.95 5.61 5.67 5.74 er (dBm) MIMO 8.28 8.50	2.39 2.45 2.44 2.61	2.77 2.79 2.90 2.69	5.59 5.63 5.69 5.66	[dBi]	[dBm]  5.3 5.7 4.9 4.5  Max e.i.r.p [dBm]  7.8 8.7	[dBm]  24.0 24.0 24.0 24.0 24.0 24.0  e.i.r.p.Limit [dBm] 24.0 24.0	[dB] -18.67 -18.29 -19.05 -19.54  e.i.r.p Margin [dB] -16.23 -15.30

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

FCC ID: A3LNP960XMA		MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 73 of 275
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## MIMO Maximum Conducted Output Power Measurements - SP

							Averag	e Conducted Pow	er (dRm)							
							Arciug	RU Index	cr (ubiii)				Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margin
Band	Freq [MHz]	Channel	Tones		0			4			8		[dBi]	[dBm]	[dBm]	[dB]
				ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	,,	,,	[]	
	5935	2	26T	-3.70	-3.36	-0.52	-3.35	-3.55	-0.44	-4.4	-3.60	-0.98	-0.61	-1.1	24.0	-25.05
5	6175	45	26T	8.76	8.71	11.75	8.98	8.31	11.67	8.14	8.36	11.26	-0.61	11.1	24.0	-12.87
	6415	93	26T	8.93	8.98	11.97	8.71	8.54	11.64	8.59	8.77	11.69	-0.61	11.4	24.0	-12.65
7	6535	117	26T	8.83	8.16	11.52	8.98	8.95	11.98	8.86	8.22	11.56	-0.74	11.2	24.0	-12.76
/	6695	149	26T	8.59	8.13	11.38	8.79	8.69	11.75	8.75	8.04	11.42	-0.74	11.0	24.0	-12.99
							Averag	e Conducted Pow	er (dBm)							
			_					RU Index					Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margin
Band	Freq [MHz]	Channel	Tones		37			39			40		[dBi]	[dBm]	[dBm]	[dB]
				ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
	5935	2	52T	-0.88	-0.69	2.23	-1.24	-0.88	1.95	-1.32	-0.55	2.09	-0.61	1.6	24.0	-22.39
5	6175	45	52T	8.75	8.14	11.47	8.97	8.39	11.70	8.61	8.48	11.56	-0.61	11.1	24.0	-12.91
	6415	93	52T	8.76	8.61	11.70	8.95	8.48	11.73	8.56	8.47	11.53	-0.61	11.1	24.0	-12.88
7	6535	117	52T	8.89	8.27	11.60	8.57	8.33	11.46	8.92	8.11	11.54	-0.74	10.9	24.0	-13.14
_ ′	6695	149	52T	8.93	8.36	11.66	8.65	8.02	11.36	8.84	7.71	11.32	-0.74	10.9	24.0	-13.07
							Averag	e Conducted Pow	er (dBm)							
			_					RU Index					Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margin
Band	Freq [MHz]	Channel	Tones		53			54			NA		[dBi]	[dBm]	[dBm]	[dB]
				ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
	5935	2	106T	1.93	1.90	4.93	1.41	1.99	4.72				-0.61	4.3	24.0	-19.69
	6175	45	106T	8.60	7.83	11.24	8.63	8.14	11.40				-0.61	10.8	24.0	-13.21
	6415	93	106T	8.74	8.44	11.60	8.97	8.79	11.89				-0.61	11.3	24.0	-12.72
7	6535	117	106T	8.61	8.43	11.53	8.96	8.47	11.73				-0.74	11.0	24.0	-13.01
′	6695	149	106T	8.64	8.16	11.42	8.96	8.07	11.55				-0.74	10.8	24.0	-13.19
_							Averes	e Conducted Pow	as (dDm)							
							Average	RU Index	er (ubili)				Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margin
Band	Freq [MHz]	Channel	Tones		61			NA NA			NA		[dBi]	[dBm]	[dBm]	[dB]
				ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	lapil	[dbiii]	[ubiii]	[db]
	5935	2	242T	4.88	4.22	7.57							-0.61	7.0	24.0	-17.04
5	6175	45	242T	7.97	7.42	10.71							-0.61	10.1	24.0	-13.90
	6415	93	242T	7.54	7.48	10.52							-0.61	9.9	24.0	-14.09
7	6535	117	242T	7.99	7.65	10.83							-0.74	10.1	24.0	-13.90
	6695	149	242T	7.93	7.58	10.77							-0.74	10.0	24.0	-13.97

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

							Average	Conducted Pow	er (dBm)				D1: 4 4 5 5			
Band	Freq [MHz]	Channel	Tones					MRU Index					Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margir
					90			91			92		[dBi]	[dBm]	[dBm]	[dB]
_				ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
5	6145	39	242+484T	9.89	9.81	12.86	9.91	9.79	12.86	9.97	9.81	12.90	-0.61	12.3	24.0	-11.71
7	6705	151	242+484T	9.77	9.01	12.42	9.80	9.05	12.45	9.82	9.06	12.47	-0.74	11.7	24.0	-12.27
							Average	Conducted Pow	er (dBm)							
Band	Freq [MHz]	Channel	Tones					MRU Index					Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margi
Dank	i rreq [wiriz]	Citatillei	Tolles		94			95			1094		[dBi]	[dBm]	[dBm]	[dB]
				ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
5	6185	47	996+484T	9.02	9.67	12.37	9.04	9.74	12.41	9.00	9.76	12.41	-0.61	11.8	24.0	-12.20
7	6665	143	996+484T	9.27	9.50	12.40	9.20	9.48	12.35	9.06	9.55	12.32	-0.74	11.7	24.0	-12.34
							Average	Conducted Pow	er (dBm)							
			_					MRU Index					Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margi
Band	Freq [MHz]	Channel	Tones		105			1106			11106		[dBi]	[dBm]	[dBm]	[dB]
				ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
5	6105	31	3x996+484T	9.30	9.60	12.46	9.22	9.61	12.43	9.34	9.62	12.49	-0.61	11.9	24.0	-12.12
7	6585	127	3x996+484T	9.27	9.57	12.43	9.35	9.57	12.47	9.31	9.65	12.49	-0.74	11.8	24.0	-12.24
							Average	Conducted Pow	er (dBm)							
			_					MRU Index					Dir. Ant. Gain	Max e.i.r.p		e.i.r.p Margin [dB]
Band	Freq [MHz]	Channel	Tones		104			1104			11104		[dBi]	[dBm]	[dBm]	
				ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
5	6105	31	3x996T	9.30	9.67	12.50	9.29	9.76	12.54	9.35	9.72	12.55	-0.61	11.9	24.0	-12.07
7	6585	127	3x996T	9.16	9.55	12.37	9.30	9.66	12.49	9.11	9.68	12.41	-0.74	11.8	24.0	-12.24
		•		•		•			•						•	•
							Average	Conducted Pow	er (dBm)							
	Frea (MHz)	01	<b></b>					MRU Index					Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Marg
Band	i Freq (MHZ)	Channel	Tones		101			1100			11102		[dBi]	[dBm]	[dBm]	[dB]
				ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
5	6105	31	2x996+484T	9.54	9.74	12.65	9.47	9.76	12.63	9.46	9.74	12.61	-0.61	12.0	24.0	-11.96
7	6585	127	2x996+484T	9.26	9.86	12.58	9.49	9.91	12.72	9.33	9.82	12.59	-0.74	12.0	24.0	-12.02
	_															
							Average	Conducted Pow	er (dBm)							
Band	Freq [MHz]	Channel	Tones					MRU Index					Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Marg
Dalik	i rieq (winz)	Channel	Tones		70			71			72		[dBi]	[dBm]	[dBm]	[dB]
				ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
5	6175	45	52+26T	8.80	8.69	11.76	8.94	8.67	11.82	8.73	8.94	11.85	-0.61	11.2	24.0	-12.77
7	6695	149	52+26T	8.27	8.93	11.62	8.10	8.64	11.39	8.52	8.93	11.74	-0.74	11.0	24.0	-13.00
							Average	Conducted Pow	er (dBm)							
Band	Freq [MHz]	Channel	Tones					MRU Index					Dir. Ant. Gain	Max e.i.r.p	e.i.r.p Limit	e.i.r.p Margi
Band	ried [MHZ]	Criannei	runes		82			83					[dBi]	[dBm]	[dBm]	[dB]
				ANT1	ANT2	MIMO	ANT1	ANT2	MIMO	ANT1	ANT2	MIMO				
5	6175	45 149	106+26T	8.46 8.36	8.78 8.83	11.63	8.89 8.37	8.89 8.82	11.90				-0.61 -0.74	11.3 10.9	24.0 24.0	-12.71 -13.13

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

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### **Sample MIMO Calculation:**

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

$$(-3.70 \text{ dBm} + -3.36 \text{ dBm}) = (0.427 \text{ mW} + 0.461 \text{ mW}) = 0.888 \text{ mW} = -0.52 \text{ dBm}$$

### Sample Directional Gain Calculation:

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

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

#### Sample e.i.r.p. Calculation:

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

$$-0.52 \text{ dBm} + -0.61 \text{ dBi} = -1.13 \text{ dBm}$$

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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.

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

## **Test Procedure Used**

ANSI C63.10-2013 – Section 12.3.2.2 ANSI C63.10-2013 – Section 14.3.2.2 Measure-and-Sum Technique

#### **Test Settings**

- 1. Analyzer was set to the center frequency of the UNII channel under investigation
- 2. Span was set to encompass the entire emission bandwidth of the signal
- 3. RBW = 1MHz
- 4. VBW = 3MHz
- 5. Number of sweep points  $\geq 2 \times (\text{span/RBW})$
- 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**

None

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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]	Antenna-1 Gain [dBi]	Antenna-2 Gain [dBi]	Summed MIMO Power Density [dBm]	Directional Gain [dBi]	EIRP [dBm]	Max EIRP [dBm]	Margin [dB]
	5935	2	be (20MHz)	-3.41	-4.81	-3.67	-3.58	-1.04	-0.61	-1.65	-1	-0.65
	6175	45	be (20MHz)	-3.39	-3.70	-3.67	-3.58	-0.53	-0.61	-1.14	-1	-0.14
	6415	93	be (20MHz)	-3.40	-3.70	-3.67	-3.58	-0.54	-0.61	-1.15	-1	-0.15
	5965	3	be (40MHz)	-3.10	-4.30	-3.67	-3.58	-0.65	-0.61	-1.27	-1	-0.27
	6165	43	be (40MHz)	-4.96	-5.38	-3.67	-3.58	-2.15	-0.61	-2.77	-1	-1.77
	6405	91	be (40MHz)	-2.81	-5.17	-3.67	-3.58	-0.82	-0.61	-1.44	-1	-0.44
Band 5	5985	7	be (80MHz)	-6.67	-6.29	-3.67	-3.58	-3.46	-0.61	-4.08	-1	-3.08
Baı	6145	39	be (80MHz)	-6.70	-7.12	-3.67	-3.58	-3.89	-0.61	-4.51	-1	-3.51
	6385	87	be (80MHz)	-6.03	-5.80	-3.67	-3.58	-2.90	-0.61	-3.52	-1	-2.52
	6025	15	be (160MHz)	-3.47	-5.18	-3.67	-3.58	-1.23	-0.61	-1.84	-1	-0.84
	6185	47	be (160MHz)	-4.04	-4.35	-3.67	-3.58	-1.18	-0.61	-1.80	-1	-0.80
	6345	79	be (160MHz)	-3.80	-4.49	-3.67	-3.58	-1.12	-0.61	-1.73	-1	-0.73
	6105	31	be (320MHz)	-4.01	-5.41	-3.67	-3.58	-1.64	-0.61	-2.25	-1	-1.25
	6265	63	be (320MHz)	-3.42	-4.44	-3.67	-3.58	-0.89	-0.61	-1.50	-1	-0.50
	6475	97	be (20MHz)	-4.48	-4.88	-3.67	-3.58	-1.66	-0.10	-1.77	-1	-0.77
	6475	105	be (20MHz)	-4.90	-4.89	-3.67	-3.58	-1.89	-0.10	-1.99	-1	-0.99
LO.	6515	113	be (20MHz)	-3.91	-4.15	-3.21	-3.02	-1.02	-0.10	-1.12	-1	-0.12
Band 6	6445	99	be (40MHz)	-3.57	-4.39	-3.67	-3.58	-0.95	-0.10	-1.06	-1	-0.06
Ba	6485	107	be (40MHz)	-4.07	-4.11	-3.21	-3.02	-1.08	-0.10	-1.18	-1	-0.18
	6525	115	be (40MHz)	-4.60	-4.68	-3.21	-3.02	-1.63	-0.10	-1.73	-1	-0.73
	6465	103	be (80MHz)	-5.26	-5.64	-3.67	-3.58	-2.44	-0.10	-2.54	-1	-1.54
	6505	111	be (160MHz)	-3.85	-4.24	-3.21	-3.02	-1.03	-0.10	-1.13	-1	-0.13
Band 5/6/7	6425	95	ax (320MHz)	-3.95	-4.76	-3.67	-3.58	-1.32	-0.10	-1.43	-1	-0.43
	6695	117	be (20MHz)	-3.03	-3.84	-4.11	-3.40	-0.41	-0.74	-1.14	-1	-0.14
	6695	149	be (20MHz)	-2.77	-4.05	-4.11	-3.40	-0.36	-0.74	-1.09	-1	-0.09
	6875	185	be (20MHz)	-4.09	-3.78	-4.11	-3.40	-0.92	-0.74	-1.66	-1	-0.66
	6565	123	be (40MHz)	-4.62	-4.71	-3.21	-3.02	-1.66	-0.74	-2.39	-1	-1.39
d 7	6685	155	be (40MHz)	-4.53	-5.34	-4.11	-3.40	-1.91	-0.74	-2.64	-1	-1.64
Band 7	6845	179	be (40MHz)	-5.10	-5.21	-4.11	-3.40	-2.14	-0.74	-2.88	-1	-1.88
	6545	119	be (80MHz)	-6.16	-6.32	-3.21	-3.02	-3.23	-0.74	-3.96	-1	-2.96
	6705	151	be (80MHz)	-6.43	-6.23	-4.11	-3.40	-3.32	-0.74	-4.06	-1	-3.06
	6865	183	be (80MHz)	-6.98	-6.59	-4.11	-3.40	-3.77	-0.74	-4.51	-1	-3.51
	6665	143	be (160MHz)	-3.55	-3.77	-4.11	-3.40	-0.65	-0.74	-1.38	-1	-0.38
D 1 C /7	6825	175	be (160MHz)	-3.33	-3.76	-4.11	-3.40	-0.53	-0.74	-1.26	-1	-0.26
Band 6/7	6585	127	be (320MHz)	-4.34	-4.51	-4.11	-3.40	-1.41	-0.74	-2.15	-1	-1.15
Band 7/8	6745	159	be (320MHz)	-4.59	-5.29	-4.11	-3.40	-1.92	-0.74	-2.65	-1	-1.65
	7115	189	be (20MHz)	-4.12	-4.13	-4.28	-4.31	-1.11	-1.28	-2.40	-1	-1.40 -1.64
	6995	209 233	be (20MHz)	-4.03	-4.73	-4.28	-4.31 4.31	-1.35	-1.28	-2.64	-1 -1	
	7115		be (20MHz)	-4.32	-4.92 4.06	-4.28	-4.31	-1.60	-1.28	-2.89		-1.89
Band 8	6885	187	be (40MHz)	-4.96	-4.96	-4.28	-4.31	-1.95	-1.28	-3.23	-1	-2.23
Bar	6965	211 227	be (40MHz)	-5.22 -4.29	-6.87	-4.28 -4.28	-4.31	-2.96	-1.28	-4.24	-1 -1	-3.24
	7085		be (40MHz)		-4.38		-4.31 4.31	-1.32	-1.28	-2.61	_	-1.61
	6945	199 215	be (80MHz)	-6.54	-6.07	-4.28	-4.31 -4.31	-3.29 -3.45	-1.28 -1.28	-4.57 -4.73	-1 -1	-3.57 -3.73
	7025 6985	207	be (80MHz)	-6.17 -3.37	-6.78 -4.02	-4.28 -4.28	-4.31 -4.31	-3.45 -0.67		-4.73 -1.95	-1	-3.73
Bond 7/0		191	be (160MHz) be (320MHz)	-3.37 -4.80	-4.02 -6.09	-4.28 -4.28	-4.31 -4.31	-0.67	-1.28	-3.67	-1	-0.95
Band 7/8	6985	191	ne (32UIVIHZ)	-4.8U	-0.09	-4.28	-4.31	-2.39	-1.28	-3.0/	-1	-2.0/

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

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

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

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

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

FCC ID: A3LNP960XMA		MEASUREMENT REPORT	Approved by: Technical Manager
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	Frequency [MHz]	Channel	802.11 MODE	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Antenna-1 Gain [dBi]	Antenna-2 Gain [dBi]	Summed MIMO Power Density [dBm]	Directional Gain [dBi]	EIRP [dBm]	Max EIRP [dBm]	Margin [dB]
	5935	2	be (20MHz)	-5.75	-7.32	-3.67	-3.58	-3.45	-0.61	-4.07	17	-21.07
	6175	45	be (20MHz)	-2.38	-3.01	-3.67	-3.58	0.33	-0.61	-0.29	17	-17.29
	6415	93	be (20MHz)	-2.92	-3.11	-4.11	-3.40	0.00	-0.61	-0.62	17	-17.62
	5965	3	be (40MHz)	-4.64	-4.98	-3.67	-3.58	-1.79	-0.61	-2.41	17	-19.41
	6165	43	be (40MHz)	-4.86	-5.15	-3.67	-3.58	-1.99	-0.61	-2.61	17	-19.61
	6405	91	be (40MHz)	-4.71	-5.27	-4.11	-3.40	-1.97	-0.61	-2.58	17	-19.58
Band 5	5985	7	be (80MHz)	-8.59	-7.83	-3.67	-3.58	-5.18	-0.61	-5.80	17	-22.80
Bar	6145	39	be (80MHz)	-8.28	-7.41	-3.67	-3.58	-4.81	-0.61	-5.43	17	-22.43
	6385	87	be (80MHz)	-8.69	-7.07	-4.11	-3.40	-4.79	-0.61	-5.41	17	-22.41
	6025	15	be (160MHz)	-10.71	-11.35	-3.01	-4.86	-8.01	-0.61	-8.62	17	-25.62
	6185	47	be (160MHz)	-11.15	-11.24	-3.07	-2.78	-8.18	-0.61	-8.80	17	-25.80
	6345	79	be (160MHz)	-11.29	-11.19	-3.59	-3.42	-8.23	-0.61	-8.84	17	-25.84
	6105	31	be (320MHz)	-8.99	-10.07	-3.07	-2.78	-6.49	-0.61	-7.10	17	-24.10
	6265	63	be (320MHz)	-9.16	-9.49	-3.59	-3.42	-6.31	-0.61	-6.92	17	-23.92
	6695	117	be (20MHz)	-2.66	-3.02	-4.11	-3.40	0.17	-0.74	-0.56	17	-17.56
	6695	149	be (20MHz)	-2.44	-3.13	-4.11	-3.40	0.24	-0.74	-0.50	17	-17.50
	6875	185	be (20MHz)	-2.81	-3.98	-4.11	-3.40	-0.34	-0.74	-1.08	17	-18.08
	6565	123	be (40MHz)	-5.44	-5.15	-4.11	-3.40	-2.28	-0.74	-3.02	17	-20.02
_	6685	155	be (40MHz)	-4.37	-4.80	-4.11	-3.40	-1.57	-0.74	-2.31	17	-19.31
Band 7	6845	179	be (40MHz)	-4.79	-5.70	-4.11	-3.40	-2.21	-0.74	-2.95	17	-19.95
œ .	6545	119	be (80MHz)	-8.39	-8.30	-4.11	-3.40	-5.33	-0.74	-6.07	17	-23.07
	6705	151	be (80MHz)	-7.14	-7.57	-4.11	-3.40	-4.34	-0.74	-5.08	17	-22.08
	6865	183	be (80MHz)	-7.19	-7.47	-4.11	-3.40	-4.32	-0.74	-5.05	17	-22.05
	6665	143	be (160MHz)	-10.85	-11.43	-3.81	-3.43	-8.12	-0.74	-8.86	17	-25.86
	6825	175	be (160MHz)	-10.64	-11.93	-3.65	-5.95	-8.23	-0.74	-8.97	17	-25.97

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

	Frequency [MHz]	Channel	802.11 MODE	Tones	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Antenna-1 Gain [dBi]	Antenna-2 Gain [dBi]	Summed MIMO Power Density [dBm]	Directional Gain [dBi]	EIRP [dBm]	Max EIRP [dBm]	Margin [dB]
	6175	45	be (20MHz)	52+26T	-4.02	-4.00	-3.67	-3.58	-1.00	-0.61	-1.61	-1	-0.61
	6175	45	be (20MHz)	106+26T	-4.38	-5.05	-3.67	-3.58	-1.69	-0.61	-2.31	-1	-1.31
ம	6145	39	be (80MHz)	242+484T	-5.05	-5.08	-3.67	-3.58	-2.06	-0.61	-2.67	-1	-1.67
Band	6185	47	be (160MHz)	996+484T	-9.28	-10.67	-3.67	-3.58	-6.91	-0.61	-7.52	-1	-6.52
œ .	6105	31	be (320MHz)	3x996+484T	-11.47	-12.06	-3.67	-3.58	-8.74	-0.61	-9.35	-1	-8.35
	6105	31	be (320MHz)	3x996T	-10.99	-10.84	-3.67	-3.58	-7.90	-0.61	-8.52	-1	-7.52
	6105	31	be (320MHz)	2x996+484T	-10.30	-11.06	-3.67	-3.58	-7.65	-0.61	-8.27	-1	-7.27
9	6475	105	be (20MHz)	52+26T	-4.62	-3.82	-3.67	-3.58	-1.19	-0.10	-1.29	-1	-0.29
ğ	6475	105	be (20MHz)	106+26T	-4.28	-4.57	-3.67	-3.58	-1.41	-0.10	-1.51	-1	-0.51
Band	6465	103	be (80MHz)	242+484T	-6.18	-5.79	-3.67	-3.58	-2.97	-0.10	-3.07	-1	-2.07
	6505	111	be (160MHz)	996+484T	-9.32	-10.13	-3.21	-3.02	-6.70	-0.10	-6.80	-1	-5.80
	6425	95	be (320MHz)	3x996+484T	-11.11	-12.03	-3.67	-3.58	-8.54	-0.10	-8.64	-1	-7.64
Band 5/6/7	6425	95	be (320MHz)	3x996T	-10.12	-10.27	-3.67	-3.58	-7.18	-0.10	-7.28	-1	-6.28
	6425	95	be (320MHz)	2x996+484T	-9.82	-9.71	-3.67	-3.58	-6.75	-0.10	-6.85	-1	-5.85
	6695	149	be (20MHz)	52+26T	-4.30	-3.94	-4.11	-3.40	-1.11	-0.74	-1.84	-1	-0.84
7 pi	6875	149	be (20MHz)	106+26T	-4.03	-4.39	-4.11	-3.40	-1.19	-0.74	-1.93	-1	-0.93
Band	6705	151	be (80MHz)	242+484T	-5.99	-5.94	-4.11	-3.40	-2.95	-0.74	-3.69	-1	-2.69
	6665	143	be (160MHz)	996+484T	-8.65	-10.58	-4.11	-3.40	-6.50	-0.74	-7.24	-1	-6.24
	6585	127	be (320MHz)	3x996+484T	-11.30	-12.79	-4.11	-3.40	-8.97	-0.74	-9.71	-1	-8.71
Band 6/7	6585	127	be (320MHz)	3x996T	-10.41	-11.60	-4.11	-3.40	-7.95	-0.74	-8.69	-1	-7.69
	6585	127	be (320MHz)	2x996+484T	-10.95	-12.04	-4.11	-3.40	-8.45	-0.74	-9.19	-1	-8.19
	6995	209	be (20MHz)	52+26T	-4.51	-4.13	-4.28	-4.31	-1.31	-1.28	-2.59	-1	-1.59
8 9	6995	209	be (20MHz)	106+26T	-4.30	-5.35	-4.28	-4.31	-1.78	-1.28	-3.07	-1	-2.07
Band	6945	199	be (80MHz)	242+484T	-6.56	-5.45	-4.28	-4.31	-2.96	-1.28	-4.25	-1	-3.25
	6985	207	be (160MHz)	996+484T	-9.20	-10.43	-4.28	-4.31	-6.76	-1.28	-8.05	-1	-7.05
	6985	191	be (320MHz)	3x996+484T	-11.73	-13.71	-4.28	-4.31	-9.60	-1.28	-10.88	-1	-9.88
Band 7/8	6985	191	be (320MHz)	3x996T	-11.06	-12.87	-4.28	-4.31	-8.86	-1.28	-10.14	-1	-9.14
	6985	191	be (320MHz)	2x996+484T	-10.58	-12.78	-4.28	-4.31	-8.53	-1.28	-9.82	-1	-8.82

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

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

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

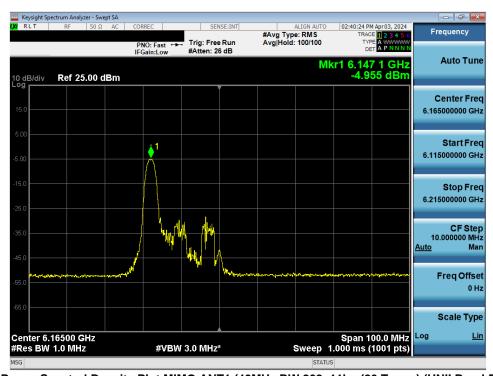
FCC ID: A3LNP960XMA		MEASUREMENT REPORT	Approved by: Technical Manager		
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## 7.4.1 MIMO Antenna-1 Power Spectral Density Measurements



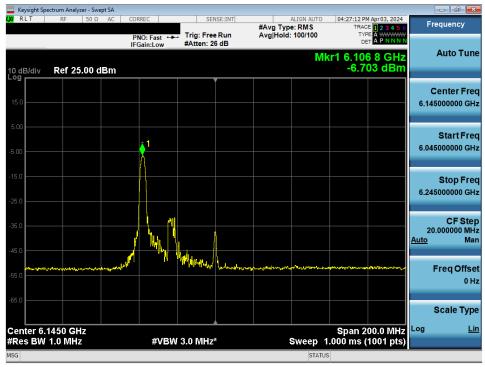
Plot 7-83. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11be (26 Tones) (UNII Band 5) - Ch. 45)



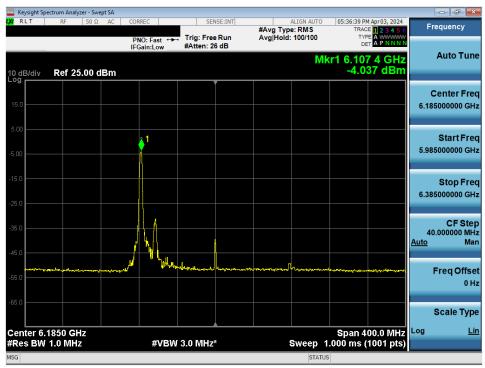
Plot 7-84. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802. 11be (26 Tones) (UNII Band 5) - Ch. 43)

FCC ID: A3LNP960XMA		MEASUREMENT REPORT	Approved by: Technical Manager			
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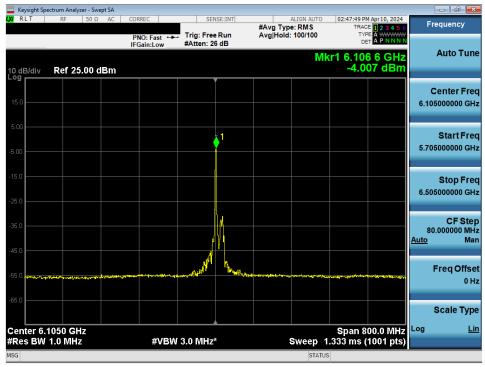
Plot 7-85. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802. 11be (26 Tones) (UNII Band 5) - Ch. 39)



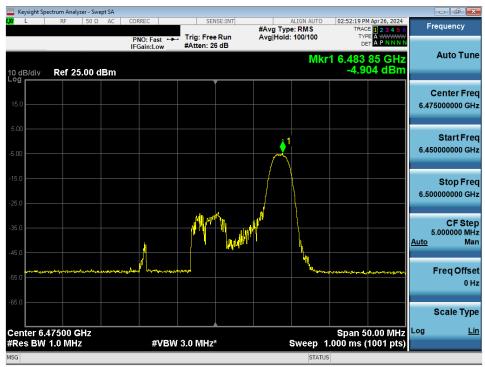
Plot 7-86. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802. 11be (26 Tones) (UNII Band 5) - Ch. 47)

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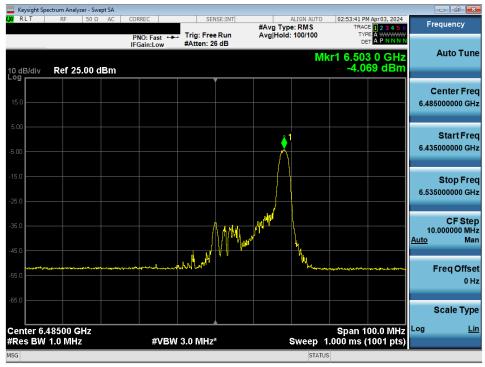
Plot 7-87. Power Spectral Density Plot MIMO ANT1 (320MHz BW 802. 11be (26 Tones) (UNII Band 5) - Ch. 31)



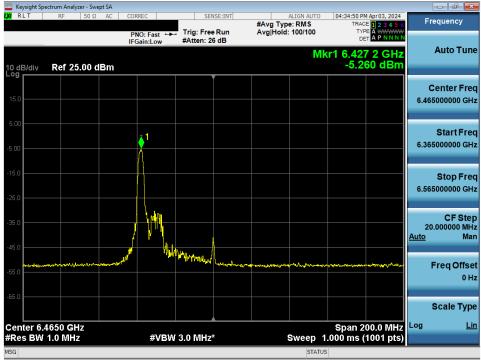
Plot 7-88. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802. 11be (26 Tones) (UNII Band 6) - Ch. 105)

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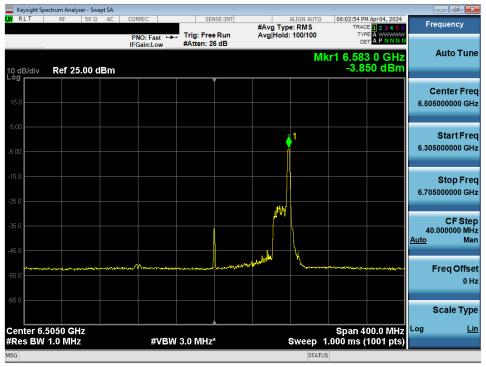
Plot 7-89. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802. 11be (26 Tones) (UNII Band 6) - Ch. 107)



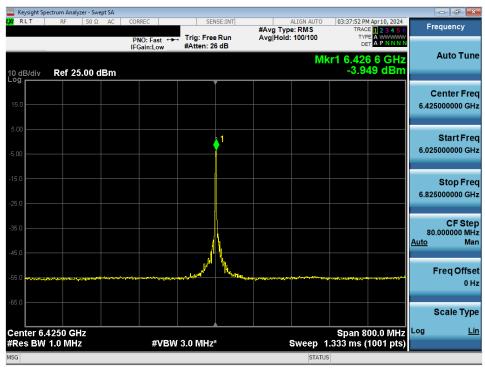
Plot 7-90. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802. 11be (26 Tones) (UNII Band 6) - Ch. 103)

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



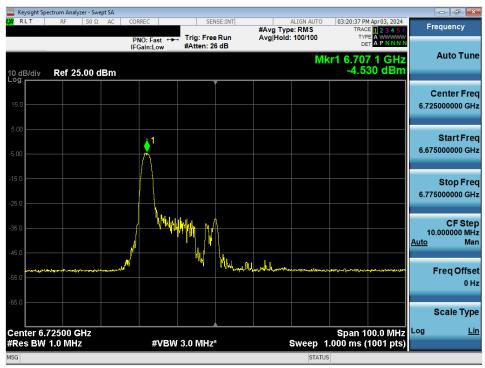
Plot 7-92. Power Spectral Density Plot MIMO ANT1 (320MHz BW 802. 11be (26 Tones) (UNII Band 6) - Ch. 95)

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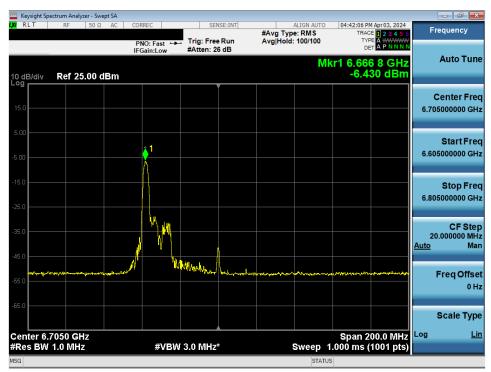
Plot 7-93. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802. 11be (26 Tones) (UNII Band 7) - Ch. 149)



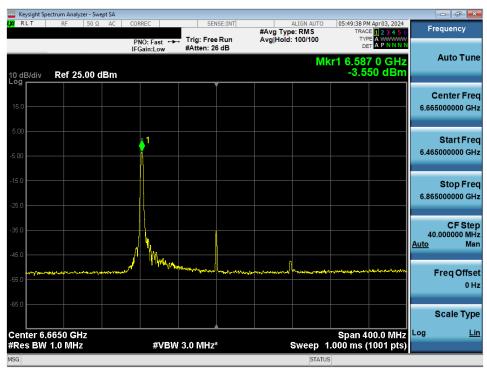
Plot 7-94. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802. 11be (26 Tones) (UNII Band 7) - Ch. 155)

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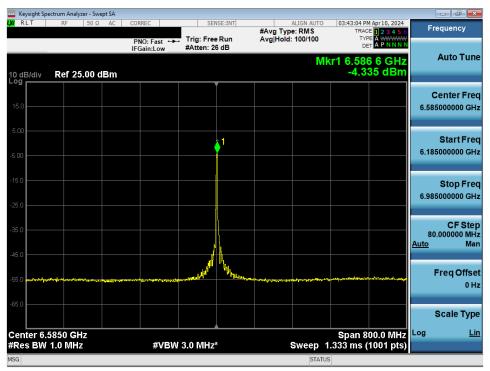
Plot 7-95. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802. 11be (26 Tones) (UNII Band 7) - Ch. 151)



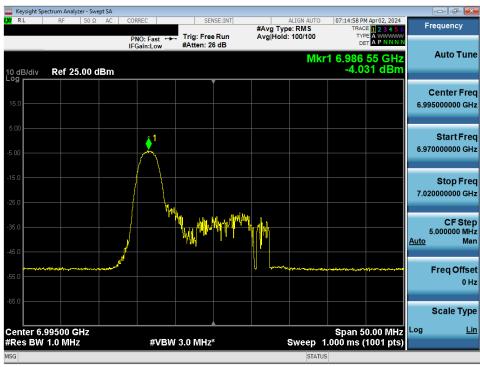
Plot 7-96. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802. 11be (26 Tones) (UNII Band 7) - Ch. 143)

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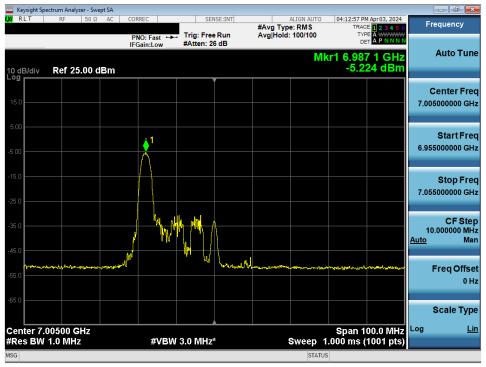
Plot 7-97. Power Spectral Density Plot MIMO ANT1 (320MHz BW 802. 11be (26 Tones) (UNII Band 7) - Ch. 127)



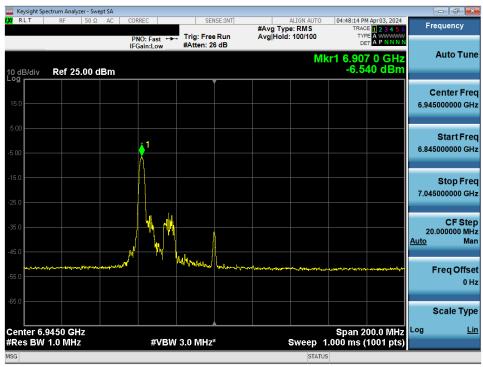
Plot 7-98. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802. 11be (26 Tones) (UNII Band 8) - Ch. 209)

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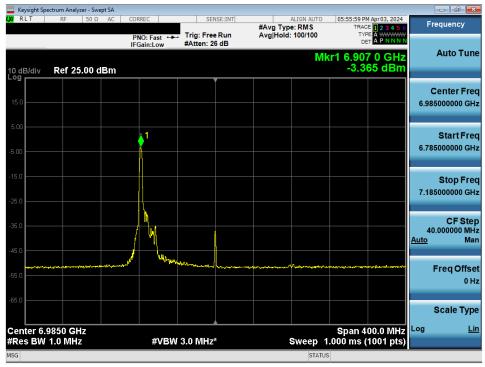
Plot 7-99. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802. 11be (26 Tones) (UNII Band 8) - Ch. 211)



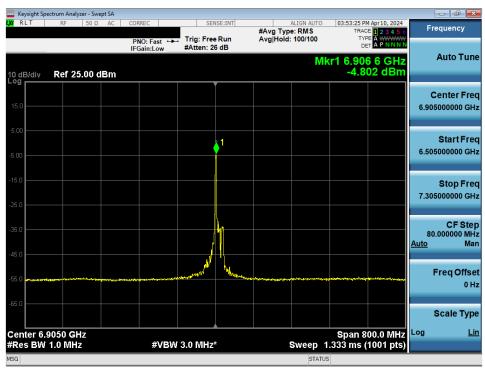
Plot 7-100. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802. 11be (26 Tones) (UNII Band 8) - Ch. 199)

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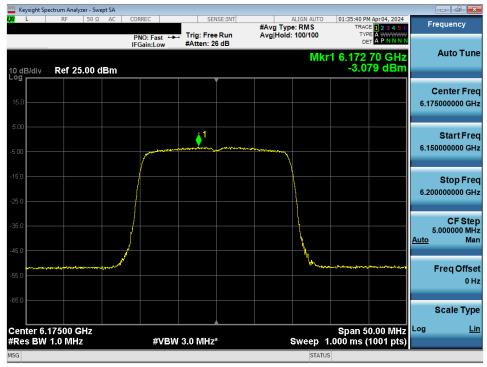
Plot 7-101. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802. 11be (26 Tones) (UNII Band 8) - Ch. 207)



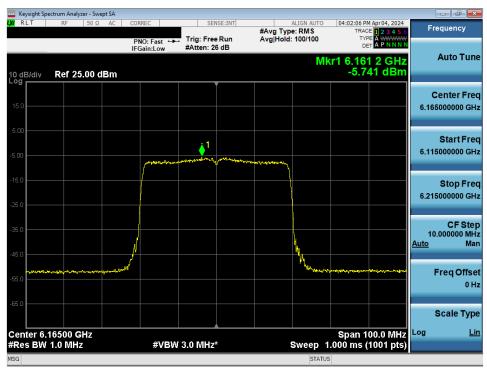
Plot 7-102. Power Spectral Density Plot MIMO ANT1 (320MHz BW 802. 11be (26 Tones) (UNII Band 8) - Ch. 191)

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



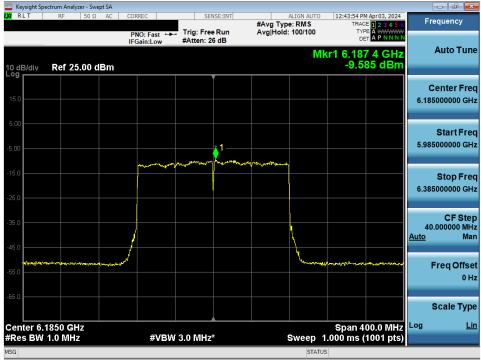
Plot 7-104. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802. 11be (Full Tone) (UNII Band 5) - Ch. 43)

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

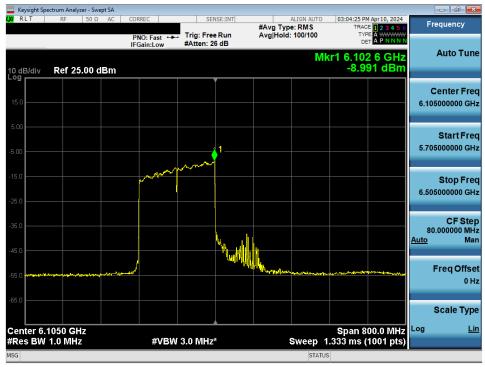


Plot 7-106. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802. 11be (Full Tone) (UNII Band 5) - Ch. 47)

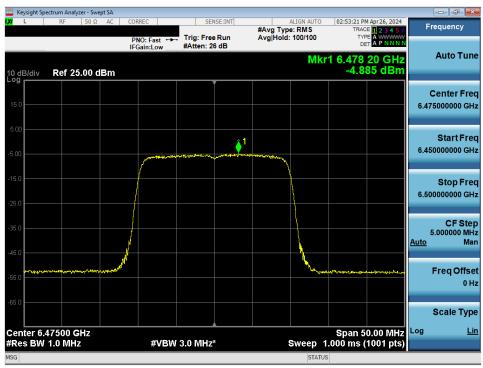
FCC ID: A3LNP960XMA	MEASUREMENT REPORT		Approved by: Technical Manager
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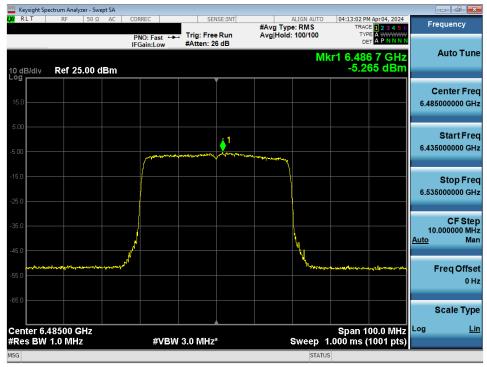
Plot 7-107. Power Spectral Density Plot MIMO ANT1 (320MHz BW 802. 11be (Full Tones) (UNII Band 5) - Ch. 31)



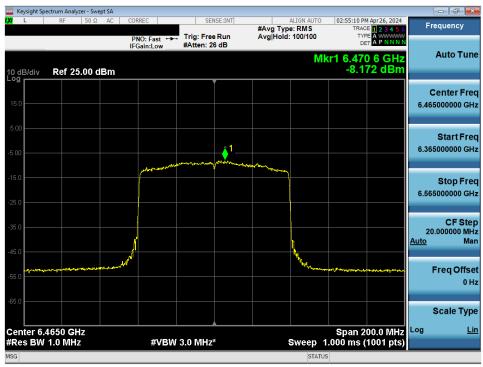
Plot 7-108. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802. 11be (Full Tone) (UNII Band 6) - Ch. 105)

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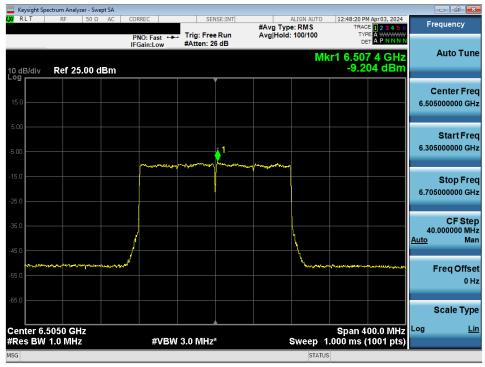
Plot 7-109. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802. 11be (Full Tone) (UNII Band 6) - Ch. 107)



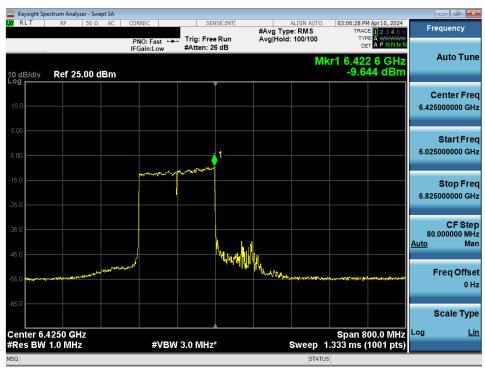
Plot 7-110. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802. 11be (Full Tone) (UNII Band 6) - Ch. 103)

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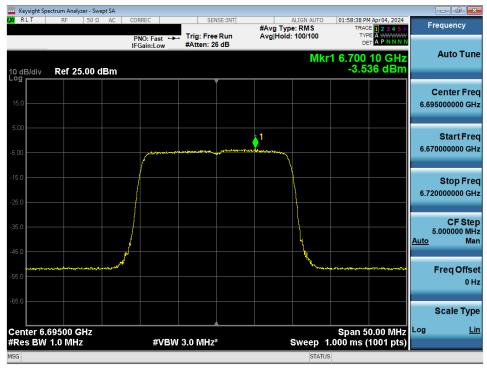
Plot 7-111. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802. 11be (Full Tone) (UNII Band 6) - Ch. 111)



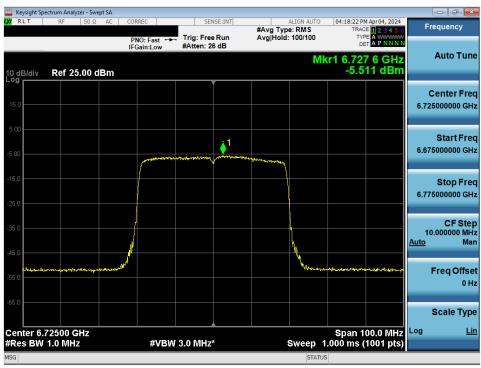
Plot 7-112. Power Spectral Density Plot MIMO ANT1 (320MHz BW 802. 11be (Full Tones) (UNII Band 6) - Ch. 95)

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



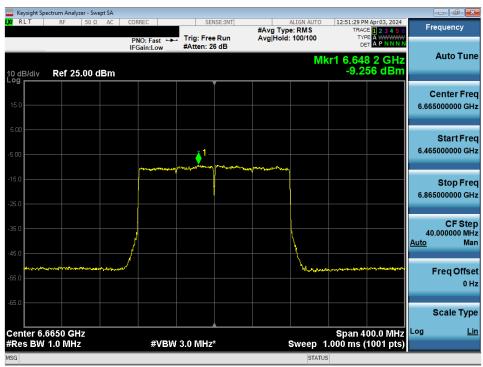
Plot 7-114. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802. 11be (Full Tone) (UNII Band 7) - Ch. 155)

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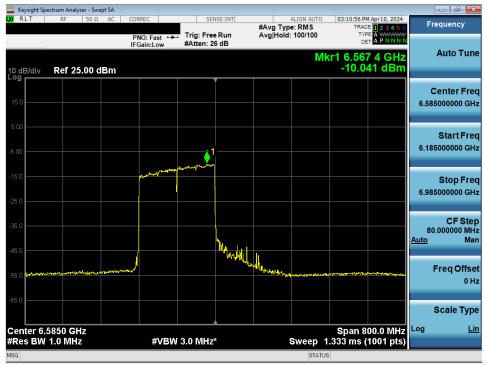
Plot 7-115. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802. 11be (Full Tone) (UNII Band 7) - Ch. 151)



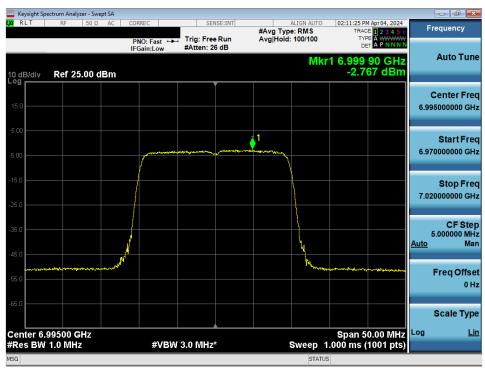
Plot 7-116. Power Spectral Density Plot MIMO ANT1 (160MHz BW 802. 11be (Full Tone) (UNII Band 7) - Ch. 143)

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



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

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