

# **PCTEST**

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# MEASUREMENT REPORT FCC Part 15.407 802.11ax WIFI 6E

#### **Applicant Name:**

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

# Date of Testing:

9/9 – 11/18/2021 **Test Report Issue Date:** 12/22/2021 **Test Site/Location:** PCTEST Lab. Columbia, MD, USA **Test Report Serial No.:** 1M2109220110-12-R1.A3L

# FCC ID:

#### A3LSMS908E

# APPLICANT:

#### Application Type: Model: Additional Model(s): EUT Type: Frequency Range: Modulation Type: FCC Classification: Test Procedure(s):

Certification SM-S908E/DS SM-S908E Portable Handset 5935 – 7115MHz OFDMA 15E 6GHz Low Power Indoor Client (6XD) ANSI C63.10-2013, KDB 789033 D02 v02r01, KDB 648474 D03 v01r04, KDB 662911 D01 v02r01,

Samsung Electronics Co., Ltd.

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 and KDB 789033 D02 v02r01. Test results reported herein relate only to the item(s) tested.

KDB 987594 D02 V01R01

Note: This revised Test Report (S/N: 1M2109220110-12-R1.A3L) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

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.

Randy Ortanez President



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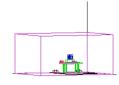


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Channel			МІМО			
Channel Bandwidth [MHz]	UNII Band	Tx Frequency [MHz]	Max. Power [mW]	Max. Power [dBm]		
	5	5935 - 6415	19.377	12.87		
20	6	6435 - 6515	31.470	14.98		
20	7	6535 - 6875	30.190	14.80		
	8	6895 - 7115	31.328	14.96		
	5	5965 - 6405	36.736	15.65		
40	6	6445 - 6525	38.712	15.88		
40	7	6565 - 6845	39.716	15.99		
	8	6885 - 7085	36.405	15.61		
	5	5985 - 6385	39.621	15.98		
80	6	6465	38.078	15.81		
80	7	6545 - 6865	39.056	15.92		
	8	6945 - 7025	38.391	15.84		
	5	6025 - 6345	39.727	15.99		
160	6	6505	39.742	15.99		
100	7	6665 - 6825	39.489	15.96		
	8	6985	38.791	15.89		

EUT Overview

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# 1.0 INTRODUCTION

#### 1.1 Scope

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

### 1.2 PCTEST Test Location

These measurement tests were conducted at the PCTEST facility 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 PCTEST located in Columbia, MD 21046, U.S.A.

- PCTEST 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.
- PCTEST 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).
- PCTEST facility is a registered (2451B) test laboratory with the site description on file with ISED.

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#### **PRODUCT INFORMATION** 2.0

#### 2.1 **Equipment Description**

The Equipment Under Test (EUT) is the Samsung Portable Handset FCC ID: A3LSMS908E. 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.: 0501M, 0579M, 3922M, 0299M, 0545M

#### 2.2 **Device Capabilities**

This device contains the following capabilities:

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

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

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

	Band 5		Band 6		Band 7		Band 8
Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
3	5965	99	6445	123	6565	187	6885
:	:		:	:	:		:
43	6165	107	6485	155	6725	211	7005
:	:	:	:	:	:	:	:
91	6405	115	6525	179	6845	227	7085
ł	Tab	ole 2-2. 802	.11ax (40MHz B	W) Frequency	y / Channel Opera	ations	

	Band 5			Band 6			Band 7			Band 8
Ch.	Frequency (MHz)		Ch.	Frequency (MHz)		Ch.	Frequency (MHz)		Ch.	Frequency (MHz)
7	5985		103	6465		119	6545		199	6945
:	:				-	:	:		:	:
39	6145					151	6705		215	7025
:	:					:	:	1.		
87	6385					183	6865	1		
	Table 2-3. 802.11ax (80MHz BW) Frequency / Channel Operations									

PCTEST (re MEASUREMENT REPORT Approved by: SAMSUNG FCC ID: A3LSMS908E (CERTIFICATION) ad to be part of 🛞 🐽 **Technical Manager** EUT Type: Test Report S/N: Test Dates: Page 5 of 305 1M2109220110-12-R1.A3L 9/9 - 11/18/2021 Portable Handset © 2021 PCTEST V 9.0 02/01/2019



		Band 6				Band 7				
Ch.	Frequency (MHz)	С	h.	Frequency (MHz)		Ch.	Frequency (MHz)	Ch		
15	6025	1	11	6505		143	6665	207		
:	:				-	:	:			
47	6185					175	6825			
:	:									
79	6345									
	Table	e 2-4. 8	802.	11ax (160MHz BW	) <b>F</b> i	requer	cy / Channel Opera	ations		

	Band 6			Band 7	_		Band 8
Ch.	Frequency (MHz)		Ch.	Frequency (MHz)		Ch.	Frequency (MHz)
111	6505		143	6665		207	6985
		-	:	:			
			175	6825			
					-		

#### Notes:

1. 6GHz NII operation is possible in 20MHz, and 40MHz, and 80MHz and 160MHz channel bandwidths. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = peak per the guidance of Section B)2)b) of ANSI C63.10-2013 and KDB 789033 D02 v02r01. 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:

802.11 Mode	Bandwidth [MHz]	Tone	Duty Cycle
		26T	99.0
	20	52T	98.2
	20	106T	96.1
		242T	96.8
		26T	99.0
		52T	98.0
	40	106T	98.2
		242T	96.7
		484T	94.3
		26T	98.9
		52T	97.9
	80	106T	95.4
	80	242T	96.6
6GHz		484T	93.5
		996T	90.8
		26T	98.9
		52T	97.9
	160	106T	97.9
	1st	242T	96.7
		484T	94.2
		996T	90.6
		26T	99.6
		52T	97.9
	160	106T	95.9
	2nd	242T	96.6
		484T	94.1
		996T	90.4
Table 2	E Maggur	od Duty	Cycles

#### Table 2-5. Measured Duty Cycles

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

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WiFi Configurations		CDD		SDM	
		ANT1	ANT2	ANT1	ANT2
6 GHz	11ax (20MHz)	✓	✓	✓	✓
	11ax (40MHz)	✓	✓	✓	✓
	11ax (80MHz)	✓	✓	✓	✓
	11ax (160MHz)	✓	$\checkmark$	$\checkmark$	$\checkmark$

Table 2-6.	Frequency	/ / Channel	Operations

 $\checkmark$  = Support; = NOT Support SDM = Spatial Diversity Multiplexing – MIMO function CDD = Cyclic Delay Diversity - 2Tx Function

3. This device supports simultaneous transmission operation, which allows for two SISO channels to operate independent of one another in the 2.4GHz (WLAN & BT), 5GHz, and 6GHz bands simultaneously on each antenna.

#### 2.3 Antenna Description

Following antenna gain was used for the testing.

Frequency Band	Antenna-1 Gain [dBi]	Antenna-2 Gain [dBi]	Directional Gain [dBi]
Band 5	-6.31	-5.56	-2.92
Band 6	-11.39	-6.32	-5.48
Band 7	-7.00	-7.37	-4.17
Band 8	-7.00	-10.56	-5.59

Table 2-7. Antenna Peak Gain

# 2.4 Test Configuration

The EUT was tested per the guidance of KDB 987594 D02 and KDB 789033 D02 v02r01. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing. See Sections 3.2 for AC line conducted emissions test setups, 3.3 for radiated emissions test setups, and 0, 7.3, 7.4, 7.5 and 7.6 for antenna port conducted emissions test setups.

This device supports wireless charging capability and, thus, is subject to the test requirements of KDB 648474 D03 v01r04. Additional radiated spurious emission measurements were performed with the EUT lying flat on an authorized wireless charging pad (WCP) Model: EP-N5100 while operating under normal conditions in a simulated call or data transmission configuration. The worst case radiated emissions data is shown in this report.

# 2.5 Software and Firmware

The test was conducted with firmware version F926USQ0AUCE installed on the EUT.

# 2.6 EMI Suppression Device(s)/Modifications

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

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# 3.0 DESCRIPTION OF TESTS

#### 3.1 Evaluation Procedure

The measurement procedures described in the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10-2013) and the guidance provided in KDB 789033 D02 v02r01 were used in the measurement of the EUT.

Deviation from measurement procedure.....None

# 3.2 AC Line Conducted Emissions

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

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

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

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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 474788 D01.

#### 3.4 Environmental Conditions

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

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# 4.0 ANTENNA REQUIREMENTS

#### Excerpt from §15.203 of the FCC Rules/Regulations:

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

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

#### **Conclusion:**

The EUT complies with the requirement of §15.203.

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# 5.0 MEASUREMENT UNCERTAINTY

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

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

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# 6.0 TEST EQUIPMENT CALIBRATION DATA

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

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	WL25-1	Conducted Cable Set (25GHz)	9/7/2021	Annual	9/7/2022	WL25-1
-	WL25-2	Conducted Cable Set (25GHz)	9/7/2021	Annual	9/7/2022	WL25-2
-	WL25-3	Conducted Cable Set (25GHz)	9/7/2021	Annual	9/7/2022	WL25-3
-	WL40-1	Conducted Cable Set (40GHz)	9/10/2021	Annual	9/10/2022	WL40-1
Agilent	N9038A	MXE EMI Receiver	8/11/2020	Annual	12/1/2021	MY51210133
Agilent	N9030A	PXA Signal Analyzer (44GHz)	7/21/2021	Annual	7/21/2022	MY49430494
Anritsu	ML2495A	Power Meter	1/18/2021	Annual	1/18/2022	941001
Anritsu	MA2411B	Pulse Power Sensor	3/8/2021	Annual	3/8/2022	1339007
Emco	3115	Horn Antenna (1-18GHz)	6/18/2020	Biennial	6/18/2022	9704-5182
Emco	3116C	Horn Antenna (18 - 40GHz)	5/112021	Biennial	5/11/2023	218893
ETS-Lindgren	3816/2NM	Line Impedance Stabilization Network	7/9/2020	Biennial	7/9/2022	114451
Keysight Technologies	N9030A	PXA Signal Analyzer (44GHz)	8/17/2020	Annual	12/17/2021	MY52350166
Pasternack	NMLC-2	Line Conducted Emissions Cable (NM)	9/10/2021	Annual	9/10/2022	NMLC-2
Keysight Technologies	N9030A	PXA Signal Analyzer (44GHz)	7/21/2021	Annual	7/12/2022	MY49430494
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	8/3/2021	Annual	8/3/2022	100342
Rohde & Schwarz	ESW44	EMI Test Receiver 2Hz to 44GHz	1/21/2021	Annual	1/21/2022	101716
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	8/25/2021	Annual	8/25/2022	103200
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	9/3/2021	Annual	9/3/2022	102138
Solar Electronics	8012-50-R-24-BNC	Line Impedance Stabilization Network	9/21/2021	Biennial	9/21/2023	310233
Schwarzbeck	VULB9162	Bilog Antenna	4/17/2020	Biennial	4/17/2022	00301

Table 6-1. Annual Test Equipment Calibration Schedule

#### Note:

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

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# 7.0 TEST RESULTS

#### 7.1 Summary

Company Name:	Samsung Electronics Co., Ltd.
FCC ID:	A3LSMS908E
FCC Classification:	15E 6 GHz Low Power Indoor Client (6XD)

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1046, 15.407(a)(11)	Maximum Conducted Output Power	N/A		PASS	Section 7.3
2.1049, 15.407(a)(10)	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	< -1dBm/MHz e.i.r.p.	CONDUCTED	PASS	Section 7.4
15.407(a)(8)	Maximum Radiated Output Power	< 24dBm over the frequency band of operation		PASS	Section 7.3
15.407(b)(6)	In-Band Emissions	EUT must meet the limits detailed in 15.407(b)(6)		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)(5)	Undesirable Emissions	< -27dBm/MHz e.i.r.p. outside of the 5.925 – 7.125GHz band	DADIATES	PASS	Section 7.7
15.205, 15.209	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209	RADIATED	PASS	Section 7.7, 7.8

Table 7-1. Summary of Test Results

#### Notes:

- 1) All channels, modes, and modulations/data rates were investigated among all UNII bands. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables and attenuators.
- 4) For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST "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 PCTEST "Chamber Automation," Version 1.3.1.

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### 7.2 26dB Bandwidth Measurement – 802.11ax

<u>2.1049, 15.407(a)(10)</u>

#### **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 KDB 789033 D02 v02r01, and at the appropriate frequencies. The spectrum analyzer's bandwidth measurement function is configured to measure the 26dB bandwidth.

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

#### Test Procedure Used

ANSI C63.10-2013 – Section 12.4 KDB 789033 D02 v02r01 – Section C KDB 987594 D02 V01R01

#### **Test Settings**

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

#### Test Setup

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



Figure 7-1. Test Instrument & Measurement Setup

#### Test Notes

None.

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# MIMO Antenna-1 26dB Bandwidth Measurements (26 Tones)

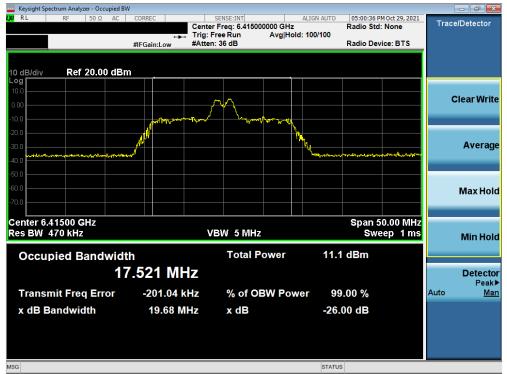
Plot 7-1. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (26 Tones) (UNII Band 5) – Ch. 2)



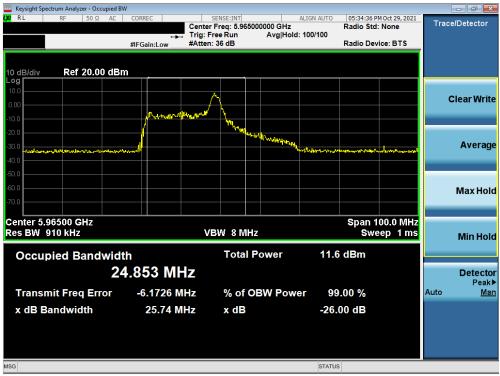
Plot 7-2. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (26 Tones) (UNII Band 5) - Ch. 45)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
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Plot 7-3. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (26 Tones) UNII Band 5) - Ch. 93)



Plot 7-4. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (26 Tones) (UNII Band 5) - Ch. 3)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
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Keysight Spectrum Analyzer - Occupied E	BW				
LX/ RL RF 50Ω AC	CORREC			4 Oct 29, 2021	Trace/Detector
		iter Freq: 6.165000000 GHz j: Free Run Avg Hold	Radio Std:	None	Tacerbelector
		j: Free Run Avg∣Hold ten: 36 dB	Radio Devi	ice: BTS	
	#IFGalli.LOW #/		rtadio Berr	00.010	
10 dB/div Ref 20.00 dB	m				
Log					
10.0					
0.00					Clear Write
-10.0	manualland	w h			
		March 1			
-20.0		Www. Wermon Walderwark			
-30.0			une phates and a second		Average
-40.0	L. Marine M.				
-50.0					
-60.0					Max Hold
-70.0					
Center 6.16500 GHz			Span 1	00.0 MHz	
Res BW 910 kHz		VBW 8 MHz		ep 1 ms	Min Hold
				<u> </u>	WIIT HOID
Occupied Bandwid	lth	Total Power	10.5 dBm		
2	4.446 MHz				Detector
					Peak►
Transmit Freq Error	-5.9962 MHz	% of OBW Powe	er 99.00 %	4	Auto <u>Man</u>
x dB Bandwidth	24.71 MHz	x dB	-26.00 dB		
X dB Balldwidth	24.71 10112	A dB	-20.00 00		
MSG			STATUS		

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



Plot 7-6. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (26 Tones) (UNII Band 5) - Ch. 91)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	MSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 47 af 205
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	nt Spectrum Analyzer - Occupied B	BW				
L <mark>XI</mark> RL	RF 50 Ω AC	CORREC			PM Oct 29, 2021	Trace/Detector
			Freq: 5.985000000 GHz	Radio Sto	d: None	Trace/Delector
			Free Run Avg Hold: :: 36 dB		vice: BTS	
		#IFGain:Low #Atten	1. 36 dB	Radio De	VICE: DTS	
10 dB/di	iv Ref 20.00 dB	m				
Log						
10.0						
0.00			$\wedge$			Clear Write
		م <del>هار</del> بر میلار	M hunthere			
-10.0						
-20.0						
-30.0		A ALANDAR	Muthylerent			Average
	and a first of the second s			talen et all finanskalter fotbelinger fo		Average
-40.0						
-50.0						
-60.0						
						Max Hold
-70.0						
	5.9850 GHz				200.0 MHz	
Res BV	N 1.8 MHz	v	BW 8 MHz	Sw	eep 1 ms	Min Hold
Occ	cupied Bandwid	lth	Total Power	11.5 dBm		
	4	2.979 MHz				Detector
						Peak►
Trar	nsmit Freq Error	-1.2136 MHz	% of OBW Powe	er 99.00 %		Auto <u>Man</u>
v dE	Bandwidth	45.55 MHz	x dB	-26.00 dB		
A UE	5 Danuwiuun	45.55 WITZ	X UD	-20.00 uB		
MSG				STATUS		

Plot 7-7. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (26 Tones) (UNII Band 5) - Ch. 7)



Plot 7-8. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (26 Tones) (UNII Band 5) - Ch. 39)

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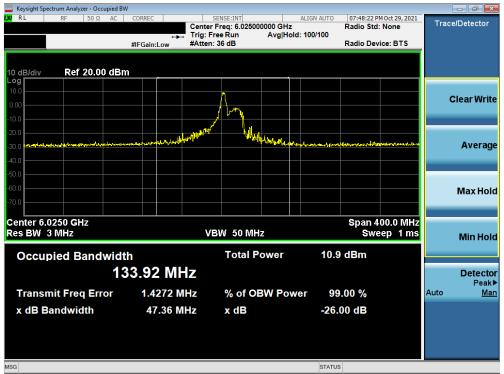
Plot 7-9. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (26 Tones) (UNII Band 5) - Ch. 87)



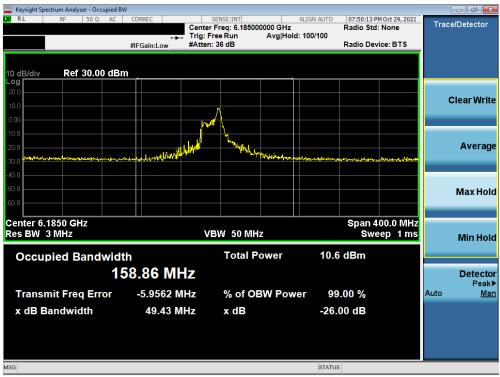
Plot 7-10. 26dB Bandwidth Plot MIMO ANT1 (160MHz BW (L) 802.11ax (26 Tones) (UNII Band 5) - Ch. 15)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 10 of 205	
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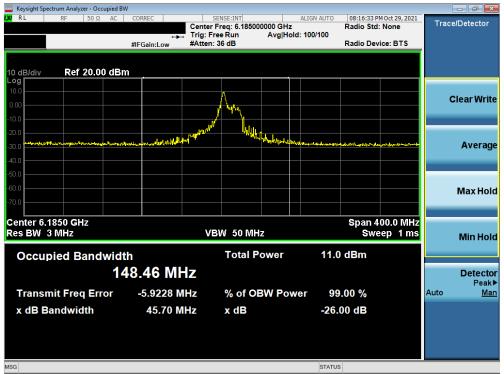
Plot 7-11. 26dB Bandwidth Plot MIMO ANT1 (160MHz BW (U) 802.11ax (26 Tones) (UNII Band 5) - Ch. 15)



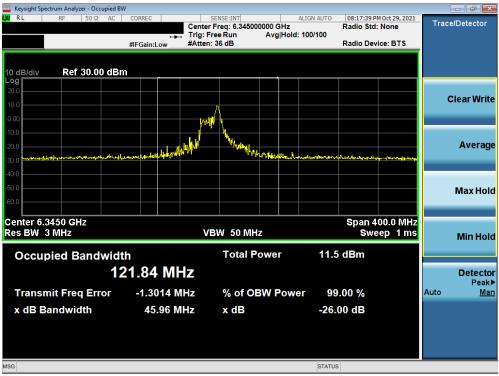
Plot 7-12. 26dB Bandwidth Plot MIMO ANT1 (160MHz BW (L) 802.11ax (26 Tones) (UNII Band 5) - Ch. 47)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMBUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		De	
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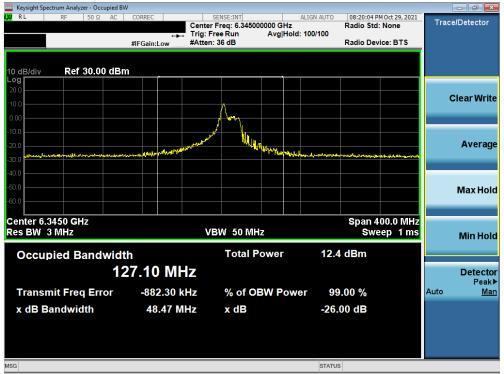
Plot 7-13. 26dB Bandwidth Plot MIMO ANT1 (160MHz BW (U) 802.11ax (26 Tones) (UNII Band 5) - Ch. 47)



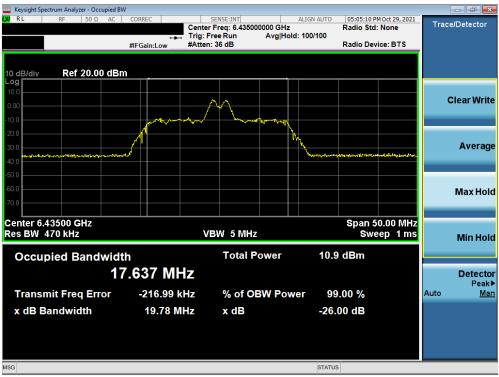
Plot 7-14. 26dB Bandwidth Plot MIMO ANT1 (160MHz BW (L) 802.11ax (26 Tones) (UNII Band 5) - Ch. 79)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Da an 04 at 205	
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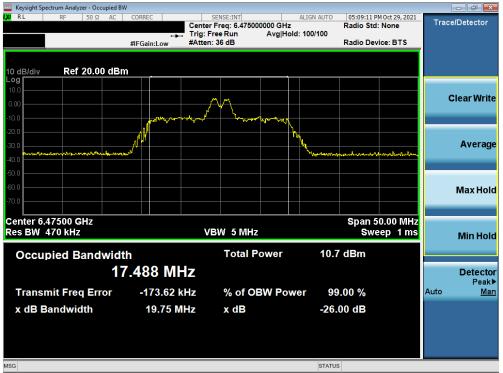
Plot 7-15. 26dB Bandwidth Plot MIMO ANT1 (160MHz BW (U) 802.11ax (26 Tones) (UNII Band 5) - Ch. 79)



Plot 7-16. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (26 Tones) (UNII Band 6) - Ch. 97)

FCC ID: A3LSMS908E		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 00 of 005
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Plot 7-17. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (26 Tones) (UNII Band 6) - Ch. 105)



Plot 7-18. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (26 Tones) (UNII Band 6) - Ch. 113)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	MSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 00 af 005
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Plot 7-19. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (26 Tones) (UNII Band 6) - Ch. 99)



Plot 7-20. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (26 Tones) (UNII Band 6) - Ch. 107)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager		
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Plot 7-21. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (26 Tones) (UNII Band 6) - Ch. 115)



Plot 7-22. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (26 Tones) (UNII Band 6) - Ch. 103)

FCC ID: A3LSMS908E	Proved to be part of the element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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🔤 Kej	/sight Spectrun	n Analyzer - Oc	cupied BW									
L <mark>XI</mark> RI	L F	RF 50 Ω	AC COF	RREC		NSE:INT		ALIGN AUTO		M Oct 29, 2021	Trac	e/Detector
						req: 6.50500			Radio Std:	None	mac	erDelector
				· · · · · ·	Trig: Fre #Atten: 3		Avg Hold	1: 100/100	Radio Dev	ion BTS		
			#IF	Gain:Low	#Atten: 5	0 UD			Raulo Dev	ICE. DTS		
10 di	3/div	Ref 20.0	0 dBm									
Log												
10.0					/	1						Clear Write
0.00					lun						,	slear write
-10.0						<b>\</b>						
-20.0					<b>.</b> .	W.						
	Webser Hersterd I	was during	لحافل والجعيرة وم	menterally	ALC: NO.	A MARINE AND	Walnum	and the second	when a sale.	ala alabét a sad		Average
-30.0												Average
-40.0												
-50.0												
-60.0												Maxilald
-70.0												Max Hold
-70.0												
Cen	ter 6.505	0 GHz							Span 4	00.0 MHz		
	BW 3M				VB	N 50 MH	z			ep 1 ms		
												Min Hold
0	ccunie	d Band	width			Total F	ower	11.0	dBm			
<u> </u>	ooupio			-								
			156.	71 MI	ΗZ							Detector
-	ranemit	Freq Er		-977.19		% of O	BW Pow	or 00	.00 %		Auto	Peak▶ Man
							DWFOW				Auto	Man
X	dB Ban	dwidth		47.28 N	IHz	x dB		-26.	00 dB			
MSG								STATUS				

Plot 7-23. 26dB Bandwidth Plot MIMO ANT1 (160MHz BW (L) 802.11ax (26 Tones) (UNII Band 6) - Ch. 111)



Plot 7-24. 26dB Bandwidth Plot MIMO ANT1 (160MHz BW (U) 802.11ax (26 Tones) (UNII Band 6) - Ch. 111)

FCC ID: A3LSMS908E		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
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Plot 7-25. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (26 Tones) (UNII Band 7) - Ch. 117)



Plot 7-26. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (26 Tones) (UNII Band 7) - Ch. 149)

FCC ID: A3LSMS908E	Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager		
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Plot 7-27. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (26 Tones) (UNII Band 7) - Ch. 185)



Plot 7-28. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (26 Tones) (UNII Band 7) - Ch. 123)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	AMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 00 at 205
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Plot 7-29. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (26 Tones) (UNII Band 7) - Ch. 155)



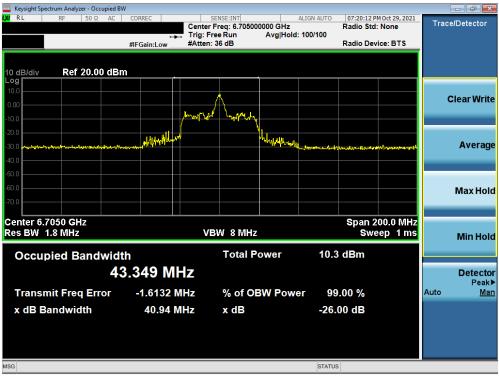
Plot 7-30. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (26 Tones) (UNII Band 7) - Ch. 179)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dama 00 at 005	
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Keysight Spectrum Analyzer - Occupied B					
LX/RL RF 50Ω AC	CORREC	SENSE:INT AI	LIGN AUTO 07:18:57 Radio St	PM Oct 29, 2021	Trace/Detector
	Trig: I	Free Run Avg Hold: 1			
	#IFGain:Low #Atter	1: 36 dB	Radio De	evice: BTS	
10 dB/div Ref 20.00 dBr	n				
10.0					
0.00					Clear Write
-10.0	Mun Mar	V Martin 1			
-20.0					
-2010	Aughter Villen	M WWW. wy Warner			Average
-40.0					Average
-50.0					
-60.0					Max Hold
-70.0					
Center 6.5450 GHz			Span	200.0 MHz	
Res BW 1.8 MHz	v	BW 8 MHz		/eep 1 ms	Min Hold
		T-4-1 Damag			
Occupied Bandwid		Total Power	10.3 dBm		
5	0.752 MHz				Detector
T	-1.0539 MHz	% of OBW Power	r 99.00 %		Peak► Auto Man
Transmit Freq Error		% OF OBW Power			Auto <u>Man</u>
x dB Bandwidth	44.56 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-31. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (26 Tones) (UNII Band 7) - Ch. 119)



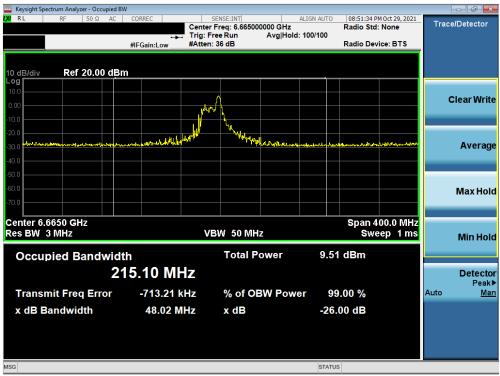
Plot 7-32. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (26 Tones) (UNII Band 7) - Ch. 151)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dama 00 at 005	
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🔤 Kej	/sight Spectrun	n Analyzer - Oc	cupied BW									
L <mark>XI</mark> RI	L F	RF 50 Ω	AC CO	ORREC		SENSE:INT		ALIGN AUTO		M Oct 29, 2021	Trac	e/Detector
						er Freq: 6.8650 Free Run	00000 GHz Avg Hold:	400/400	Radio Std	: None	1140	
			#1	⊷ FGain:Low		n: 36 dB	Avginoid	. 100/100	Radio Dev	vice: BTS		
				I Guill.EGW								
10 di	3/div	Ref 20.0	0 dBm									
Log												
10.0						r.						Clear Write
0.00						-/\\					,	sieai write
-10.0					J <sup>IN</sup> ANY	Jef Venermale	ι I					
				أدم	1		λ.					
-20.0				-			holl when he fail					
-30.0	the second second	-	Annahorpania	THAT				hipbledigiteress	and the second states of	مميانيو الوريوناريور		Average
-40.0												
-50.0												
-60.0												Max Hold
-70.0												
Cen	ter 6.865	0 GHz							Span 2	00.0 MHz		
Res	BW 1.8	MHz			١	/BW 8 MH:	z		Swe	eep 1 ms		Min Hold
												Minitiona
0	ccupie	d Band	width			Total F	ower	11.6	dBm			
			43.0	085 M	HZ							Detector
		_		4.0700			-					Peak►
	ransmit	Freq Eri	or	-1.0702	MHZ	% of O	BW Powe	er 99	.00 %		Auto	<u>Man</u>
Y	dB Ban	dwidth		45.28	MHz	x dB		-26	00 dB			
<b>^</b>		awraan		40.20		A GD		20.				
											_	
100								07470				
MSG								STATUS				

Plot 7-33. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (26 Tones) (UNII Band 7) - Ch. 183)



Plot 7-34. 26dB Bandwidth Plot MIMO ANT1 (160MHz BW (L) 802.11ax (26 Tones) (UNII Band 7) - Ch. 143)

FCC ID: A3LSMS908E		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dama 04 af 005	
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Keysight Spectrum Analyzer - Occupied B	W				
LXI RE 50Ω AC	CORREC		ALIGN AUTO 08:52:33 Radio Sto	PM Oct 29, 2021	Trace/Detector
		er Freq: 6.665000000 GHz Free Run Avg Hold:		d: None	
		n: 36 dB		vice: BTS	
10 dB/div Ref 20.00 dB Log	m				
10.0					
		$\wedge$			Clear Write
0.00		hard h			
-10.0		1 h H			
-20.0					
-30.0 Anno Alterte Anglation of the	heremony and high attaining the	"The Work and a second	warner have been provided and a second	Marrian and a state	Average
-40.0					Ű
-50.0					
-60.0					Max Hold
-70.0					
Center 6.6650 GHz			Span	400.0 MHz	
Res BW 3 MHz	1	VBW 50 MHz	Sw	reep 1 ms	Min Hold
Occupied Bandwid	th	Total Power	10.9 dBm		
1	49.71 MHz				Detector
					Peak►
Transmit Freq Error	-1.3436 MHz	% of OBW Powe	r 99.00 %		Auto <u>Man</u>
x dB Bandwidth	48.17 MHz	x dB	-26.00 dB		
			E0.00 UD		
MSG			STATUS		

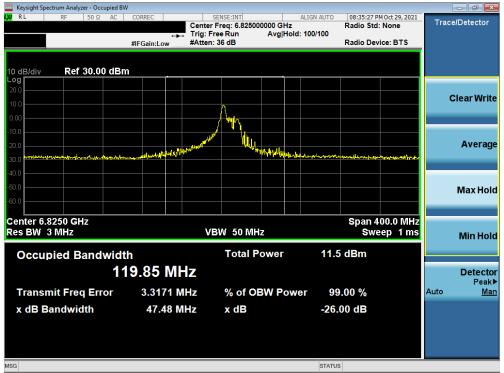
Plot 7-35. 26dB Bandwidth Plot MIMO ANT1 (160MHz BW (U) 802.11ax (26 Tones) (UNII Band 7) - Ch. 143)



Plot 7-36. 26dB Bandwidth Plot MIMO ANT1 (160MHz BW (L) 802.11ax (26 Tones) (UNII Band 7) - Ch. 175)

FCC ID: A3LSMS908E	Proud to be part of the element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager			
Test Report S/N:	Test Dates:	EUT Type:	Dama 00 at 005			
1M2109220110-12-R1.A3L	9/9 - 11/18/2021	Portable Handset	Page 32 of 305			
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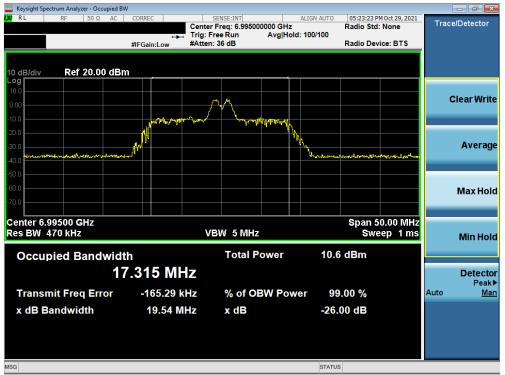
Plot 7-37. 26dB Bandwidth Plot MIMO ANT1 (160MHz BW (U) 802.11ax (26 Tones) (UNII Band 7) - Ch. 175)



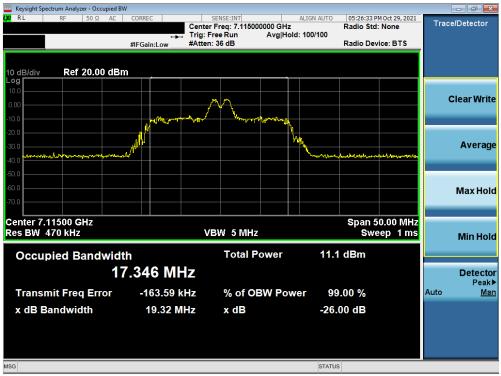
Plot 7-38. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (26 Tones) (UNII Band 8) - Ch. 189)

FCC ID: A3LSMS908E		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type: Portable Handset		Dama 00 at 005	
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Plot 7-39. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (26 Tones) (UNII Band 8) - Ch. 209)



Plot 7-40. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (26 Tones) (UNII Band 8) - Ch. 233)

FCC ID: A3LSMS908E	Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager			
Test Report S/N:	Test Dates:	EUT Type:	Dama 0.4 at 005			
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Plot 7-41. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (26 Tones) (UNII Band 8) - Ch. 187)



Plot 7-42. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (26 Tones) (UNII Band 8) - Ch. 211)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager			
Test Report S/N:	Test Dates:	EUT Type:	Dama 05 at 005			
1M2109220110-12-R1.A3L	9/9 – 11/18/2021	Portable Handset	Page 35 of 305			
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Plot 7-43. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (26 Tones) (UNII Band 8) - Ch. 227)



Plot 7-44. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (26 Tones) (UNII Band 8) - Ch. 199)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager			
Test Report S/N:	Test Dates:	EUT Type:	Page 36 of 305			
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	sight Spectrum	Analyzer - Oc	cupied BW									- •
L <mark>XI</mark> RL	. RI	F 50 Ω	AC COF	RREC		NSE:INT		ALIGN AUTO	07:27:04 P	M Oct 29, 2021	Trac	e/Detector
						req: 7.02500 e Run	Avg Hold:	100/100	Radio Std	None		
			#IF	Gain:Low	#Atten: 3		, trainera		Radio Dev	ice: BTS		
10 dE Log	3/div	Ref 20.0	V dBm			1						
10.0												
0.00					/	Λ.					0	Clear Write
					Almanthe	In All In						
-10.0					V							
-20.0				J. M. June			William March Hallow					
-30.0	warner an Annaly	-	touthour mour	KAMP TO				hadronar days and	www.wheeliteadur	at whether the stand at		Average
-40.0												
-50.0												
-60.0												
												Max Hold
-70.0												
Cont	ter 7.0250								Enon 2	00.0 MHz		
	BW 1.8				VBI	N 8 MHz				ep 1 ms		
1100	BN 1.01	11112							0			Min Hold
0	ccupie	d Band	width			Total P	ower	11.0	dBm			
ľ	ooupio											
			42.0	95 M	HZ							Detector
Т	ansmit l	Freq Err	or	-942.81	kHz	% of O	<b>BW Powe</b>	er 99	.00 %		Auto	Peak► <u>Man</u>
	dB Band	width		48.63		x dB		-26	00 dB			
^				40.051	1112			-20.	00 UD			
MSG								STATUS	;			

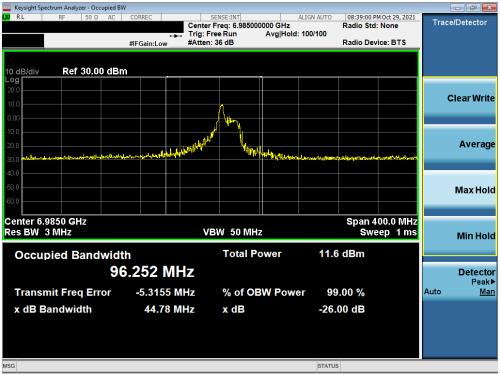
Plot 7-45. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (26 Tones) (UNII Band 8) - Ch. 215)



Plot 7-46. 26dB Bandwidth Plot MIMO ANT1 (160MHz BW (L) 802.11ax (26 Tones) (UNII Band 8) - Ch. 207)

FCC ID: A3LSMS908E		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager					
Test Report S/N:	Test Dates:	EUT Type:	D 07 -( 005					
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Plot 7-47. 26dB Bandwidth Plot MIMO ANT1 (160MHz BW (U) 802.11ax (26 Tones) (UNII Band 8) - Ch. 207)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dage 28 of 205	
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#### Keysight Spectrum Analyzer - Occupied BW K R L RF 50 Ω AC 04:58:53 PM Oct 29, 2021 SENSE:IN ALIGN AUTO Trace/Detector Center Freq: 5.935000000 GHz Trig: Free Run Avg|Hol Radio Std: None Avg|Hold: 100/100 Radio Device: BTS #IFGain:Low #Atten: 36 dB Ref 20.00 dBm 0 dB/div og . Line de la سيعاطم **Clear Write** Average Max Hold Center 5.93500 GHz Res BW 470 kHz Span 50.00 MHz VBW 5 MHz Sweep 1 ms Min Hold **Total Power** 20.2 dBm **Occupied Bandwidth** 19.222 MHz Detector Peak▶ Transmit Freq Error -19.807 kHz % of OBW Power 99.00 % Auto Man x dB Bandwidth 21.87 MHz x dB -26.00 dB STATUS MSG

# MIMO Antenna-1 26dB Bandwidth Measurements (FULL Tones)

Plot 7-48. 26dB Bandwidth Plot MIMO ANT1 (20MHz 802.11ax (FULL Tones) (UNII Band 5) - Ch. 2)



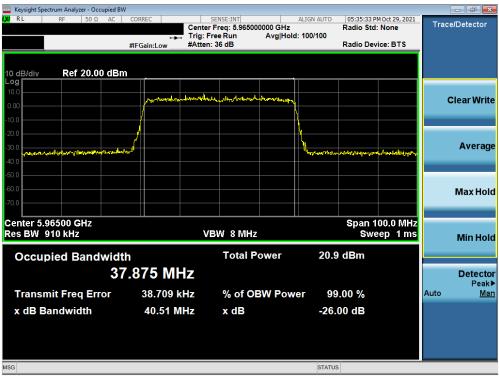
Plot 7-49. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (FULL Tones) (UNII Band 5) - Ch. 45)

FCC ID: A3LSMS908E	Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: Test Dates:		EUT Type:	Dage 20 of 205
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Keysight Spectrum Analyze	er - Occupied BW									
LXI RL RF	50 Ω AC COP	REC		ISE:INT		ALIGN AUTO		M Oct 29, 2021	Trac	e/Detector
				eq: 6.41500 Run		l: 100/100	Radio Std	: None		
	#IFC	Gain:Low	#Atten: 30		, ang in one		Radio Dev	vice: BTS		
10 dB/div Ref 2	20.00 dBm	·								
10.0										
0.00		10 m Mall moldage	well-marker	بالدينية المكالية الم	willounder					Clear Write
-10.0	<del>ار</del>					h				
-20.0										
-30.0	N					լ_ <b>կ</b>				Average
-40.0 Marylen My aller & Arrown	und more the					"hypother	whatesoftware	prot-stitudes		_
-50.0										
-60.0										Max Hold
-70.0										
Center 6.41500 G	Hz							0.00 MHz		
Res BW 470 kHz			VBV	V 5 MHz			Swe	eep 1 ms		Min Hold
				Tetel D		40.5				
Occupied Ba	andwidth			Total P	ower	19.5	dBm			
	19 1	58 MH	7							Detector
										Peak►
Transmit Freq	Error	17.091 k	Hz	% of OE	<b>3W Pow</b>	er 99	.00 %		Auto	<u>Man</u>
x dB Bandwid	th	21.53 M	<b>U</b> -7	x dB		-26	00 dB			
	ui	21.JJ W	<b>H</b> 2	X UD		-20.	00 UB			
MSG						STATUS	5			

Plot 7-50. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (FULL Tones) UNII Band 5) - Ch. 93)



Plot 7-51. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (FULL Tones) (UNII Band 5) - Ch. 3)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SUNG	Approved by: Technical Manager				
Test Report S/N: Test Dates:		EUT Type:		Page 40 of 305				
1M2109220110-12-R1.A3L	9/9 – 11/18/2021	9 – 11/18/2021 Portable Handset						
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					- ē 💌
XIRL RF 50Ω AC		SENSE:INT r Freg: 6.165000000 GHz	ALIGN AUTO 05:36:31 F Radio Std	M Oct 29, 2021	Trace/Detector
	Trig: F			: None	
		n: 36 dB	Radio Dev	vice: BTS	
10 dB/div Ref 20.00 dBm					
Log					
10.0	un marken and an all and and	mound			Clear Write
0.00					
-10.0					
-20.0			<u>\</u>		
-30.0	w l		harry harrist	menter of the last	Average
-40.0					
-50.0					
-60.0					Max Hold
-70.0					Maxiloid
Center 6.16500 GHz				00.0 MHz	
Res BW 910 kHz	V	BW 8 MHz	Sw	eep 1 ms	Min Hold
Occupied Rendwidth		Total Power	20.3 dBm		
Occupied Bandwidth		I Otal FOWEI	20.5 ubm		
37	.780 MHz				Detector Peak▶
Transmit Freq Error	36.707 kHz	% of OBW Pow	er 99.00 %		Auto <u>Man</u>
x dB Bandwidth	41.27 MHz	x dB	-26.00 dB		
	41.27 WI12	X UD	-20.00 00		
MSG			STATUS		

Plot 7-52. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (FULL Tones) (UNII Band 5) - Ch. 43)



Plot 7-53. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (FULL Tones) (UNII Band 5) - Ch. 91)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager			
Test Report S/N:	Test Dates:	EUT Type:		Dama 44 af 205			
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Keysight Spectrum Analyzer - Occupied BW	1				- • • <del>•</del>
💢 RL RF 50Ω AC	CORREC	SENSE:INT		1 PM Oct 29, 2021	Trace/Detector
		er Freq: 5.985000000 GHz Free Run Avg Hol	d: 100/100	itd: None	
		n: 36 dB		evice: BTS	
	_				
10 dB/div Ref 30.00 dBm Log					
20.0					
10.0					Clear Write
	por al abrander between the	how we have a first and the second	<b>0</b>		
0.00					
-10.0					
-20.0					Average
-30.0 manager and the population of balando	w/		And wanted to be a sound where	states of the second states at a second	
-40.0					
-50.0					Max Hold
-60.0					
Center 5.9850 GHz			On or	200 0 MU-	
Res BW 1.8 MHz	1	/BW 8 MHz		veep 1 ms	
Res BW 1:8 WIHZ			3	weep mis	Min Hold
Occupied Bandwidt	h	Total Power	22.7 dBm		
77	.445 MHz				Detector
Tana a subit Face a Face a	C4 470 I-U-				Peak► Auto Man
Transmit Freq Error	-61.172 kHz	% of OBW Pov	ver 99.00 %		Auto <u>Man</u>
x dB Bandwidth	83.40 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-54. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (FULL Tones) (UNII Band 5) - Ch. 7)



Plot 7-55. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (FULL Tones) (UNII Band 5) - Ch. 39)

FCC ID: A3LSMS908E	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager				
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🔤 Keysight Spectrum Analyzer - Occup									
<mark>(X/</mark> RL RF 50 Ω	AC CORREC	Cente	SENSE:INT Freq: 6.38500		ALIGN AUTO	07:13:18 P	MOct 29, 2021	Trac	e/Detector
		Trig: I	Free Run	Avg Hold	: 100/100				
	#IFGain:	Low #Atter	n: 36 dB			Radio Dev	ice: BTS		
10 dB/div Ref 30.00	dBm								
20.0									
10.0									Clear Write
	محار	while the second s	incompression and a little	Uner marting					
0.00									
-10.0					l,				_
-20.0					1				Average
-30.0 water and the second state of the second state	-happing the				Rennergues	erne skillere aftere	and the second		
-40.0									
-50.0									Max Hold
-60.0									
Center 6.3850 GHz Res BW 1.8 MHz			/BW 8 MHz				00.0 MHz ep 1 ms		
Res DW 1.0 WINZ		v				300	ep Tills		Min Hold
Occupied Bandw	vidth		Total P	ower	22.3	dBm			
	77.383								Detector
	11.303								Detector Peak▶
Transmit Freq Erro	r	-757 Hz	% of OE	<b>SW Pow</b>	er 99	.00 %		Auto	Man
x dB Bandwidth	82	2.93 MHz	x dB		-26.	00 dB			
					201				
MSG					STATUS	5			

Plot 7-56. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (FULL Tones) (UNII Band 5) - Ch. 87)



Plot 7-57. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (FULL Tones) (UNII Band 6) - Ch. 97)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager				
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Keysight Spectrum Analyzer - Occu	upied BW						- 0
LX RL RF 50 Ω	AC CORREC	SENSE:INT	ALIGN AUTO		M Oct 29, 2021	Trace	/Detector
		Center Freq: 6.47500		Radio Std	: None	ITace	
		Trig: Free Run #Atten: 36 dB	Avg Hold: 100/100	Radio Dev	ion BTS		
	#IFGain:Low	#Atten: 36 dB		Radio Dev	ICE. DTS		
10 dB/div Ref 20.00	dBm						
Log							
10.0							
	Altreno Redering	when Mary Melonge	almanhara.			c	lear Write
0.00							
-10.0			l				
-20.0	/		4				
	N						
-30.0			<u> </u>				Average
-40.0	lyman .		· · · · · · · · · · · · · · · · · · ·	when the states of the second	hangther work the second	_	
50.0							
-50.0							
-60.0							Max Hold
-70.0							maxitora
10.0							
Center 6.47500 GHz			I	Snan 5	0.00 MHz		
Res BW 470 kHz		VBW 5 MHz			ep 1 ms		
Res BW 470 KHz				300	ep mis		Min Hold
		Total P	40	3 dBm			
Occupied Bandy	Niath	TOTAL	ower 19.	завш			
	19.286 MH	7					Detector
							Peak
Transmit Freq Erro	or 44.386 k	Hz % of OE	BW Power 9	9.00 %		Auto	Man
x dB Bandwidth	21.95 M	Hz xdB	26	.00 dB			
	21.95 WI		-20	.00 ub			
MSG			STATU	JS			

Plot 7-58. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (FULL Tones) (UNII Band 6) - Ch. 105)



Plot 7-59. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (FULL Tones) (UNII Band 6) - Ch. 113)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:		Dama 44 at 205
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Keysight Spectrum Analyzer - Occupied	1 BW				
<b>ΙΧ΄ R L</b> RF 50 Ω AC	Ce	SENSE:INT enter Freq: 6.445000000 GHz ig: Free Run Avg Hol		8 PM Oct 29, 2021 Std: None	Trace/Detector
		tten: 36 dB		evice: BTS	
10 dB/div Ref 30.00 dl	Bm				
20.0					
10.0					Clear Write
0.00	www.alpelus.mother	warning alimberganing and and a	· · · · · · · · · · · · · · · · · · ·		
-10.0			<u>\</u>		
-20.0			<u>.</u>		Average
-30.0					
-40.0	40-48W		hand the second of the second	the states and the second s	
-50.0					Max Hold
-60.0					Maxilola
Center 6.44500 GHz Res BW 910 kHz		VBW 8 MHz		100.0 MHz weep 1 ms	
				hoop Thio	Min Hold
Occupied Bandwi	dth	Total Power	20.6 dBm		
	37.706 MHz				Detector
			00.00		Peak►
Transmit Freq Error	-22.982 kHz		ver 99.00 %		Auto <u>Man</u>
x dB Bandwidth	40.68 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-60. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (FULL Tones) (UNII Band 6) - Ch. 99)



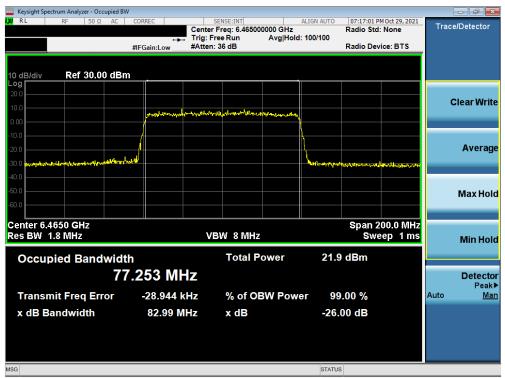
Plot 7-61. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (FULL Tones) (UNII Band 6) - Ch. 107)

FCC ID: A3LSMS908E		MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
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🔤 Keysight Spectrum Analyzer - Occupied BW	
M     RL     RF     50 Ω     AC     CORREC     SENSE:INT     ALIGN AUTO     06:39:19 PM Oct 29, Center Freq: 6.25000000 GHz     Radio Std: None	Trace/Detector
#IFGain:Low #Atten: 36 dB Radio Device: BT	s
10 dB/div Ref 20.00 dBm	
0.00	Clear Write
-10.0	
20.0	
	Average
30.0 minute and a second and a second and a second a se	Muth Average
-40.0	
-50.0	
-60.0	Max Hold
-70.0	
Center 6.52500 GHz Span 100.0 I	
Res BW 910 kHz VBW 8 MHz Sweep 1	
Occupied Bandwidth Total Power 20.6 dBm	
Coupled Ballathall	
37.750 MHz	Detector Peak▶
Transmit Freq Error -5.799 kHz % of OBW Power 99.00 %	Auto <u>Man</u>
x dB Bandwidth 40.48 MHz x dB -26.00 dB	
MSG STATUS	

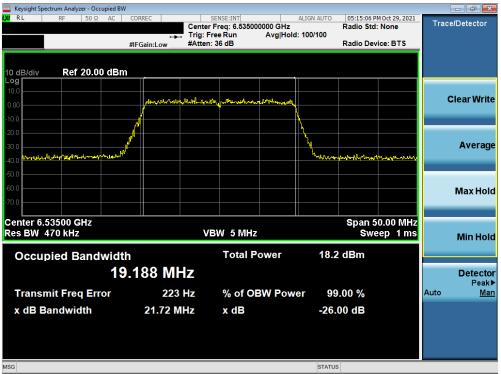
Plot 7-62. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (FULL Tones) (UNII Band 6) - Ch. 115)



Plot 7-63. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (FULL Tones) (UNII Band 6) - Ch. 103)

FCC ID: A3LSMS908E	Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
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Plot 7-64. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (FULL Tones) (UNII Band 7) - Ch. 117)



Plot 7-65. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (FULL Tones) (UNII Band 7) - Ch. 149)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager
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Plot 7-66. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (FULL Tones) (UNII Band 7) - Ch. 185)



Plot 7-67. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (FULL Tones) (UNII Band 7) - Ch. 123)

FCC ID: A3LSMS908E		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Da an 10 at 205	
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Keysight Spectrum Analyzer - Occupied BW					- ē 💌
LX/RL RF 50Ω AC (	CORREC Cente	SENSE:INT r Freq: 6.725000000 GHz		1 PM Oct 29, 2021 itd: None	Trace/Detector
	🛶 Trig: F		i: 100/100	DIA DIA	
#	#FGain:Low #Atter	1: 36 dB	Radio L	evice: BTS	
10 dB/div Ref 30.00 dBm					
20.0					
10.0					Clear Write
	menourseman	test and an all and all and			
-10.0	/				
-20.0					Average
	1		4		Avenuge
-30.0 ulunar all lengen troom Walness with			howanter	and the second states	
-40.0					
-50.0					Max Hold
-60.0					
Center 6.72500 GHz			Spar	100.0 MHz	
Res BW 910 kHz	V	BW 8 MHz		weep 1ms	Min Hold
			04.0.15		
Occupied Bandwidth		Total Power	21.0 dBm		
37.	772 MHz				Detector
Tronomit Eron Ernen	0.024 64		er 99.00 %		Peak▶ Auto Man
Transmit Freq Error	8.834 kHz	% of OBW Pow			Auto <u>Ivian</u>
x dB Bandwidth	41.03 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-68. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (FULL Tones) (UNII Band 7) - Ch. 155)



Plot 7-69. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (FULL Tones) (UNII Band 7) - Ch. 179)

FCC ID: A3LSMS908E		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Da an 10 at 205	
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Keysight Spectrum Analyzer - Occupied BW							×
LXI RE 50Ω AC	CORREC	SENSE:INT	ALIGN A		M Oct 29, 2021	Trace/Detecto	or
		Center Freq: 6.54500 Trig: Free Run	Avg Hold: 100/1	Radio Std:	None		
	#IFGain:Low	#Atten: 36 dB	/ regimental record	Radio Dev	ice: BTS		
10 dB/div Ref 30.00 dBm Log							
20.0							
						Clear W	rite
10.0	and a start and the start of the	Morrow population	www.whenlow				
0.00	_						
-10.0			<b>├</b> ──				
-20.0			<u>ا</u> ر			Avera	age
-30.0 Marine marine to a start and the start and the	no l						Ŭ
	*			an burn a star a frankriger fra	e-leventen/w-yor		
-40.0							
-50.0						Max H	old
-60.0							
Center 6.5450 GHz					00.0 MHz		
Res BW 1.8 MHz		VBW 8 MHz		Swe	ep 1 ms	Min H	old
Occupied Bandwidt	า	Total P	ower	21.5 dBm			
77	.532 MH	7				Detec	tor
							ak▶
Transmit Freq Error	-68.523 kl	Hz % of OE	3W Power	99.00 %		Auto <u>I</u>	Man
x dB Bandwidth	83.08 MI	Hz xdB		-26.00 dB			
	00.00 111			-20.00 uB			
MSG				STATUS			

Plot 7-70. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (FULL Tones) (UNII Band 7) - Ch. 119)



Plot 7-71. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (FULL Tones) (UNII Band 7) - Ch. 151)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dama 50 at 205	
1M2109220110-12-R1.A3L	9/9 – 11/18/2021	Portable Handset	Page 50 of 305	
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Keysight Spectrum Analyzer - Occupied B <sup>1</sup>					- • • <del>•</del>
LX/ RL RF 50Ω AC	CORREC	SENSE:INT r Freg: 6.865000000 GHz		PM Oct 29, 2021	Trace/Detector
			i: 100/100	ta: None	
	#IFGain:Low #Atter	n: 36 dB	Radio D	evice: BTS	
10 dB/div Ref 30.00 dBr	n				
20.0					
					Clear Write
10.0	weighter low and with a second	-mar moderate and march			
0.00					
-10.0					
-20.0					Average
-30.0 moundailed and martin have the second	www.		Jan Mary Walk water when	and rank restored and the	
-40.0					
-50.0					Maxilald
-60.0					Max Hold
-80.0					
Center 6.8650 GHz			Span	200.0 MHz	
Res BW 1.8 MHz	V	/BW 8 MHz		veep 1 ms	Min Hold
Occupied Denduid	11-	Total Power	21.4 dBm		
Occupied Bandwid		TOtal FOwer	21.4 ubiii		
7	7.334 MHz				Detector Peak▶
Transmit Freq Error	-85.109 kHz	% of OBW Pow	er 99.00 %		Auto <u>Man</u>
x dB Bandwidth	83.24 MHz	x dB	-26.00 dB		
		X dB	20.00 48		
MSG			STATUS		

Plot 7-72. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (FULL Tones) (UNII Band 7) - Ch. 183)



Plot 7-73. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (FULL Tones) (UNII Band 8) - Ch. 189)

FCC ID: A3LSMS908E	Proud to be part of the element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager		
Test Report S/N:	Test Dates:	EUT Type:			
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- Keysight Spectrum Analyzer - Οccι	upied BW								
LXU RL RF 50Ω	AC CORREC		SE:INT		ALIGN AUTO	05:23:59 P	M Oct 29, 2021	Trac	e/Detector
		Trig: Free	eq: 6.995000 Run		l: 100/100	Radio Std	None		
	#IFGain:Low	#Atten: 36				Radio Dev	ice: BTS		
40 JID 46 Dof 20.00	dBm								
10 dB/div Ref 20.00	ивш								
10.0									
0.00	menhadellen	www.llvor.l.sershipsty	aller when they	number and				0	Clear Write
-10.0	d in the second s				L.				
	1				<b>h</b> .				
-20.0									
-30.0	- 14				<u>⊢ h</u> ,				Average
-40.0 Motor and Marin marine	-lithert				Working	and the second second	weby-hours by which		
-50.0									
-60.0									
									Max Hold
-70.0									
Center 6.99500 GHz						Snan 5	0.00 MHz		
Res BW 470 kHz		VBM	5 MHz				ep 1 ms		
		020	VIIIII			0	ср тпо		Min Hold
Occupied Bandy	width		Total P	ower	18.9	dBm			
	19.174 M	HZ							Detector
Tronomit Ero <del>g Err</del>	or 6	8 Hz	% of OE		00	.00 %		Auto	Peak▶ Man
Transmit Freq Erro	01 -0	0 82		SVV FOW	er 99	.00 %		Auto	IVIAII
x dB Bandwidth	22.08	MHz	x dB		-26.	00 dB			
MSG					STATUS				

Plot 7-74. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (FULL Tones) (UNII Band 8) - Ch. 209)



Plot 7-75. 26dB Bandwidth Plot MIMO ANT1 (20MHz BW 802.11ax (FULL Tones) (UNII Band 8) - Ch. 233)

FCC ID: A3LSMS908E	PCTEST Proud to be part of the element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:		Dawa 50 at 205	
1M2109220110-12-R1.A3L	9/9 - 11/18/2021	Portable Handset		Page 52 of 305	
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X     RL     RF     50 Ω     AC     CORREC     SENSE:INT     ALIGN AUTO     06:52:09 PM 0ct 29, 2021     Trace/Detecto       Center Freq:     6.885000000 GHz     Avg Hold:     100/100     Radio Std: None     Radio Device: BTS       10 dB/div     Ref 30.00 dBm     Freq:     6.88500000 GHz     Radio Device: BTS     Clear Wr       000     Interventional difference     Interventional difference     Interventional difference     Clear Wr
Trig: Free Run     Avg Hold: 100/100       #IFGain:Low     #Atten: 36 dB     Radio Device: BTS       10 dB/div     Ref 30.00 dBm     Clear Wr       200     Image: State
10 dB/div Ref 30.00 dBm
Log 200 100 100
Log 200 100 100
20.0 10.0
10.0
-10.0
-20.0 Avera
-80.0 Max Ho
Center 6.88500 GHz Span 100.0 MHz
Res BW 910 kHz VBW 8 MHz Sweep 1 ms Min Ho
Occupied Bandwidth Total Power 20.4 dBm
occupied Bandmath
37.830 MHz Detec
Transmit Freq Error 44.257 kHz % of OBW Power 99.00 %
x dB Bandwidth 40.64 MHz x dB -26.00 dB
MSG STATUS

Plot 7-76. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (FULL Tones) (UNII Band 8) - Ch. 187)



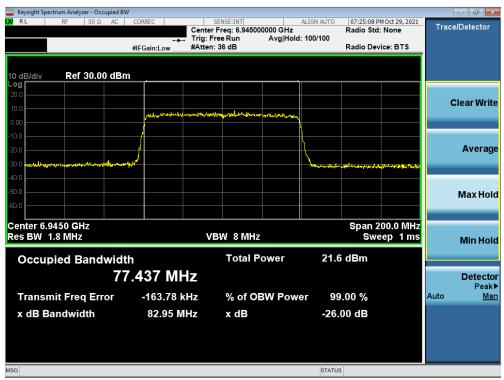
Plot 7-77. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (FULL Tones) (UNII Band 8) - Ch. 211)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager		
Test Report S/N:	Test Dates:	EUT Type:	Da		
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🔤 Keysight Spectrum Analyzer - Occupi	ed BW				
()// RL   RF   50 Ω Α	Q →→→ T	SENSE:INT Center Freq: 7.085000000 GHz rig: Free Run Avg Ho Atten: 36 dB	Radio S Id: 100/100	5 PM Oct 29, 2021 td: None evice: BTS	Trace/Detector
10 dB/div Ref 20.00 c	IBm		1		
0.00	julana shara ana	howay other and the owner was	, ,		Clear Write
-10.0 -20.0 -30.0			hannesterhitzerietnisztrustraf		Average
-40.0					
-60.0					Max Hold
Center 7.08500 GHz Res BW 910 kHz		VBW 8 MHz		100.0 MHz veep 1 ms	Min Hold
Occupied Bandw	<sub>idth</sub> 37.651 MHz	Total Power	20.3 dBm		Detector
Transmit Freq Error			wer 99.00 %		Peak► Auto <u>Man</u>
x dB Bandwidth	40.72 MHz	z x dB	-26.00 dB		
MSG			STATUS		

Plot 7-78. 26dB Bandwidth Plot MIMO ANT1 (40MHz BW 802.11ax (FULL Tones) (UNII Band 8) - Ch. 227)



Plot 7-79. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (FULL Tones) (UNII Band 8) - Ch. 199)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager		
Test Report S/N:	Test Dates:	EUT Type:	Dage 54 of 205		
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Keysight Spectrum Analyzer - Occupied B					
XX RL RF 50Ω AC	CORREC			PM Oct 29, 2021	Trace/Detector
		r Freq: 7.025000000 GHz Free Run Avg Hold:	Radio St 100/100	d: None	
		n: 36 dB		evice: BTS	
10 dB/div Ref 30.00 dB	m				
20.0					
10.0					Clear Write
	and the second second and the second s	muchaplingmenter			
0.00					
-10.0			L		
-20.0			L		Average
-30.0 word water an and a factor of the			h		
				and an and the second	
-40.0					
-50.0					Max Hold
-60.0					
Center 7.0250 GHz				200.0 MHz	
Res BW 1.8 MHz	V	BW 8MHz	Sv	/eep 1ms	Min Hold
		T-4-1 D	04 C -1D		
Occupied Bandwid	th	Total Power	21.6 dBm		
7	7.306 MHz				Detector
					Peak►
Transmit Freq Error	-63.523 kHz	% of OBW Powe	er 99.00 %		Auto <u>Man</u>
x dB Bandwidth	82.82 MHz	x dB	-26.00 dB		
		хub	-20.00 UB		
MSG			STATUS		

Plot 7-80. 26dB Bandwidth Plot MIMO ANT1 (80MHz BW 802.11ax (FULL Tones) (UNII Band 8) - Ch. 215)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage FE of 205
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# MIMO Antenna-2 26dB Bandwidth Measurements (26 Tones)

Plot 7-81. 26dB Bandwidth Plot MIMO ANT2 (20MHz 802.11ax (26 Tones) (UNII Band 5) - Ch. 2)



Plot 7-82. 26dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (26 Tones) (UNII Band 5) - Ch. 45)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage EC of 20E	
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Plot 7-83. 26dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (26 Tones) UNII Band 5) - Ch. 93)



Plot 7-84. 26dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax (26 Tones) (UNII Band 5) - Ch. 3)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager		
Test Report S/N:	Test Dates:	EUT Type:	D 57 -( 205		
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Plot 7-85. 26dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax (26 Tones) (UNII Band 5) - Ch. 43)



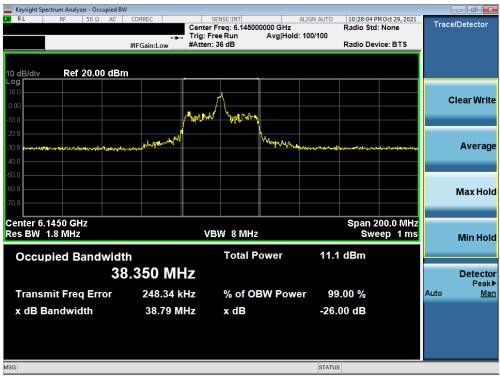
Plot 7-86. 26dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax (26 Tones) (UNII Band 5) - Ch. 91)

FCC ID: A3LSMS908E	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager			
Test Report S/N:	Test Dates:	EUT Type:	Daga EQ of 20E			
1M2109220110-12-R1.A3L	9/9 – 11/18/2021	Portable Handset	Page 58 of 305			
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Keysight Spectrum Analyzer - Occupied BV	V								
💢 RL RF 50Ω AC	CORREC		VSE:INT		ALIGN AUTO		M Oct 29, 2021	Trac	e/Detector
		Taken Free	eq: 5.98500	0000 GHz Avg Hold:	100/100	Radio Std	: None	mae	
	+→→ #IFGain:Low	#Atten: 3		Avginoid.	100/100	Radio Dev	ice: BTS		
10 dB/div Ref 30.00 dBn	n								
20.0									
									Clear Write
10.0		1	١						
0.00									
-10.0									
-20.0									Average
-30.0 participante and a strategic strategic strategics	and some of the sources of the			Marth Programmer	ware deal at an aft		declosered at		J
-40.0									
-50.0									Max Hold
-60.0									
Center 5.9850 GHz							00.0 MHz		
Res BW 1.8 MHz		VBV	V 8 MHz			Swe	ep 1ms		Min Hold
Occupied Bandwidt	h		Total P	ower	12.8	dBm			
39	8.930 M⊦	7							Detector
									Peak►
Transmit Freq Error	-106.52 k	Hz	% of O	3W Powe	er 99	.00 %		Auto	<u>Man</u>
x dB Bandwidth	39.99 M	H7	x dB		-26	00 dB			
	39.99 W	ΠZ	хuв		-20.	00 UB			
MSG					STATUS				

Plot 7-87. 26dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ax (26 Tones) (UNII Band 5) - Ch. 7)



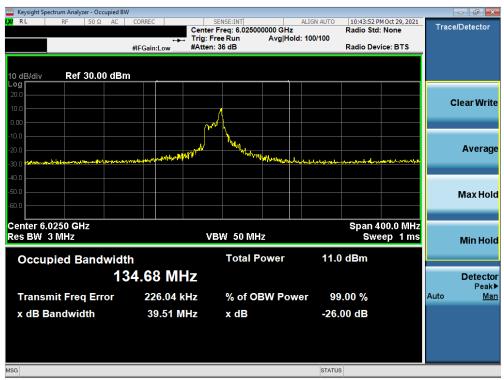
Plot 7-88. 26dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ax (26 Tones) (UNII Band 5) - Ch. 39)

FCC ID: A3LSMS908E	Proud to be part of the element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager			
Test Report S/N:	Test Dates:	EUT Type:	Dama 50 af 005			
1M2109220110-12-R1.A3L	9/9 – 11/18/2021	Portable Handset	Page 59 of 305			
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	sight Spectrum											
L <mark>XI</mark> RI	- R	F 50 Ω	AC CO	RREC		NSE:INT req: 6.3850		ALIGN AUTO	10:29:09 P Radio Std	M Oct 29, 2021	Tra	ce/Detector
							Avg Hold	: 100/100	Raulo Stu	. None		
			#IF	Gain:Low	#Atten: 3	86 dB			Radio Dev	rice: BTS		
10 dE	3/div	Ref 20.0	0 dBm									
Log												
10.0					1	1						Clear Write
0.00					10	4						ereal mile
-10.0					and the second	~111 × 11/14						
-20.0				inthe national			White land					
-30.0	Marrie and marries	والرواحية والمعامي والمع		in the second			- Your Marry	-	all mark that was	- Jonnowashing		Average
-40.0												
-50.0												
-60.0												
												Max Hold
-70.0												
Cen	ter 6.385	0 GHz							Span 2	00.0 MHz		
Res	BW 1.81	MHz			VB	W 8 MHz	4			ep 1ms		Min Hold
												Millinoid
0	ccupie	d Band	width			Total F	ower	11.7	′ dBm			
			38 5	546 MH	17							Detector
												Peak▶
T	ransmit	Freq Err	ror	-124.60	٢Hz	% of O	BW Powe	er 99	.00 %		Auto	<u>Man</u>
x	dB Band	dwidth		39.96 M	IHz	x dB		-26.	00 dB			
MSG								STATUS	5			

Plot 7-89. 26dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ax (26 Tones) (UNII Band 5) - Ch. 87)



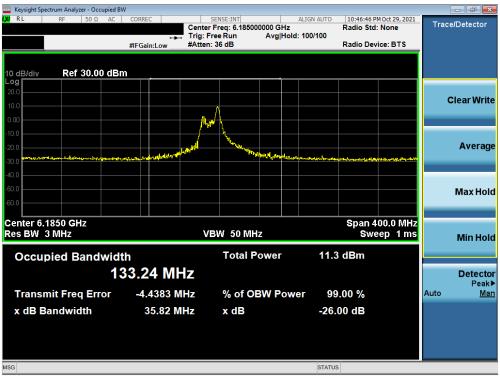
Plot 7-90. 26dB Bandwidth Plot MIMO ANT2 (160MHz BW (L) 802.11ax (26 Tones) (UNII Band 5) - Ch. 15)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager		
Test Report S/N:	Test Dates:	EUT Type:	Dage 60 of 205		
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	ht Spectrum Analyzer - C	ccupied BW										
LXI RL	RF 50	Ω AC COI	RREC		NSE:INT			IGN AUTO	10:45:36 P Radio Std	M Oct 29, 2021	Trac	e/Detector
					req: 6.02500 e Run			00/100	Radio Std	None		
		#IF	Gain:Low	#Atten: 3					Radio Dev	ice: BTS		
			_									
10 dB/d Log	iv Ref 20.	00 dBm										
10.0												
					Λ.							Clear Write
				/	L Marty							
-10.0				کل ا								
-20.0				week and the state								
-30.0 🛥	m lakel and a second second	meren Marcharophie	mare the second of the	<b>V</b> -1.	ν.	WHITHUNK	studigues	wing a stand gailer	ا <sup>ر</sup> بەلىرىيەرسەر يەرىيەر يەرىپەر	der nan seriense		Average
-40.0												_
-50.0												
-60.0												Max Hold
-70.0												
	6.0250 GHz									00.0 MHz		
Res B	W 3 MHz			VBI	N 50 MH	Z			Swe	ep 1 ms		Min Hold
					Total P			40.0	dBm			
	cupied Ban				l otal P	ower		10.9	авт			
		127	79 MI	17								Detector
												Peak►
Tra	nsmit Freq E	rror	619.30 k	(Hz	% of O	BW Po	wer	99	.00 %		Auto	<u>Man</u>
v di	3 Bandwidth		40.46 N		x dB			-26 (	)0 dB			
A UL	5 Bandwiddii		40.40 1	INZ	X UD			-20.0	JU UB			
MSG								STATUS				

Plot 7-91. 26dB Bandwidth Plot MIMO ANT2 (160MHz BW (U) 802.11ax (26 Tones) (UNII Band 5) - Ch. 15)



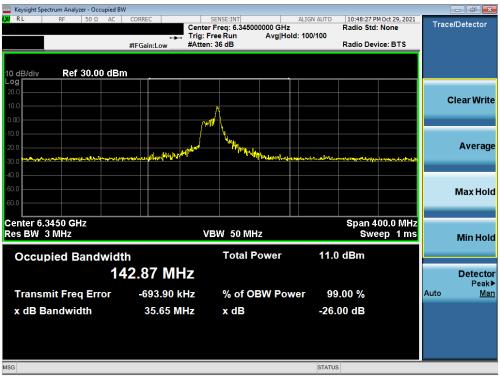
Plot 7-92. 26dB Bandwidth Plot MIMO ANT2 (160MHz BW (L) 802.11ax (26 Tones) (UNII Band 5) - Ch. 47)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dage 61 of 205		
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Keysight Spectrum Analyzer - Occupied B					
X RL RF 50Ω AC		SENSE:INT Freg: 6.185000000 GHz	ALIGN AUTO 10:47:34 Radio Sto	PM Oct 29, 2021	Trace/Detector
		ree Run Avg Hold		1: None	
		: 36 dB	Radio De	vice: BTS	
10 dB/div Ref 20.00 dB	m				
Log 10.0					
		$\wedge$			Clear Write
0.00		/ <b>L</b> #h			
-10.0					
-20.0	in Look/Manager	Million and			
-30.0 monthstand they have a start	manuful with the state of the	" White the radia but wanted	mandadpartianande	had a stand of the second	Average
-40.0					
-50.0					
-60.0					
					Max Hold
-70.0					
Center 6.1850 GHz			Snan 4	100.0 MHz	
Res BW 3 MHz	v	BW 50 MHz		eep 1 ms	Min Hold
					Min Hold
Occupied Bandwid	th	Total Power	10.7 dBm		
	54.50 MHz				Detector
	54.50 WINZ				Detector Peak►
Transmit Freq Error	-5.5692 MHz	% of OBW Pow	er 99.00 %		Auto <u>Man</u>
x dB Bandwidth	37.91 MHz	x dB	-26.00 dB		
MSG			STATUS		

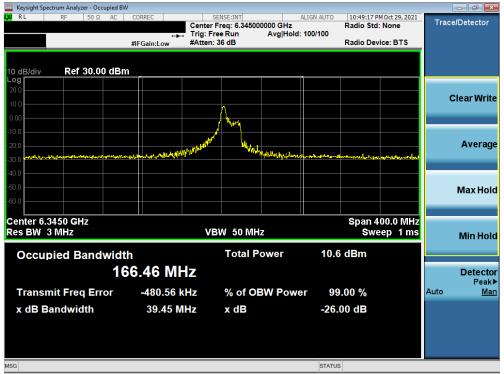
Plot 7-93. 26dB Bandwidth Plot MIMO ANT2 (160MHz BW (U) 802.11ax (26 Tones) (UNII Band 5) - Ch. 47)



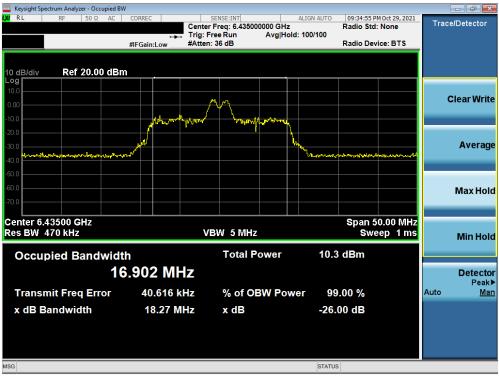
Plot 7-94. 26dB Bandwidth Plot MIMO ANT2 (160MHz BW (L) 802.11ax (26 Tones) (UNII Band 5) - Ch. 79)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager		
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Plot 7-95. 26dB Bandwidth Plot MIMO ANT2 (160MHz BW (U) 802.11ax (26 Tones) (UNII Band 5) - Ch. 79)



Plot 7-96. 26dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (26 Tones) (UNII Band 6) - Ch. 97)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager			
Test Report S/N:	Test Dates:	EUT Type:	Dama 02 of 205			
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Plot 7-97. 26dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (26 Tones) (UNII Band 6) - Ch. 105)



Plot 7-98. 26dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (26 Tones) (UNII Band 6) - Ch. 113)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager		
Test Report S/N:	Test Dates:	EUT Type:		Dege 64 of 205		
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Plot 7-99. 26dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax (26 Tones) (UNII Band 6) - Ch. 99)



Plot 7-100. 26dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax (26 Tones) (UNII Band 6) - Ch. 107)

FCC ID: A3LSMS908E	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Technical Manager		
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Plot 7-101. 26dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax (26 Tones) (UNII Band 6) - Ch. 115)



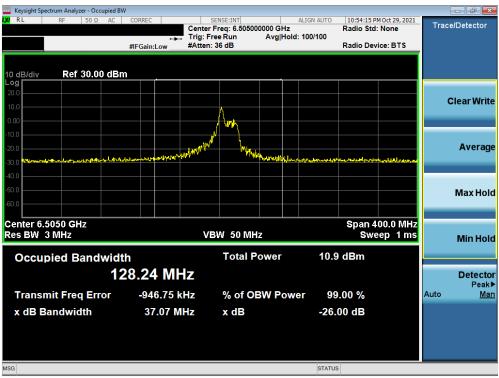
Plot 7-102. 26dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ax (26 Tones) (UNII Band 6) - Ch. 103)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager			
Test Report S/N:	Test Dates:	EUT Type:	Dage CC of 205			
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Keysight Spectrum Analyzer - Occu	upied BW						7 ×
LX/ RL RF 50 Ω	AC CORREC	SENSE:INT	ALIGN AUTO		1 Oct 29, 2021	Trace/Dete	otor
		Center Freq: 6.505000		Radio Std:	None	Trace/Dele	CLOI
		Trig: Free Run #Atten: 36 dB	Avg Hold: 100/100	Radio Devi	an BTS		
	#IFGain:Low	#Atten: 30 ub		Raulo Devi	ce. BT3		
10 dB/div Ref 20.00	dBm						
Log							
10.0						Clear	Mrito
0.00		- Maral L				Clear	write
-10.0		/					
-20.0		A Mary					
-30.0	unon and wanted by the proposed	"Water	Mr. How Amount	، مرحقة على مينا والمرقم عام.	ليررقون المراسح معراصيان	Δv	erage
							cruge
-40.0							
-50.0							
-60.0						Мах	Hold
-70.0							
Center 6.5050 GHz					00.0 MHz		
Res BW 3 MHz		VBW 50 MHz		Swe	ep 1 ms	Min	Hold
Occupied Bandy	width	Total Po	wer 12	.2 dBm			
	110.83 MH	7				Def	ector
							Peak▶
Transmit Freq Erro	or -1.0021 MI	Hz % of OB	N Power 9	9.00 %		Auto	<u>Man</u>
x dB Bandwidth	36.13 MI	lz xdB	-20	6.00 dB			
MSG			STAT	US			

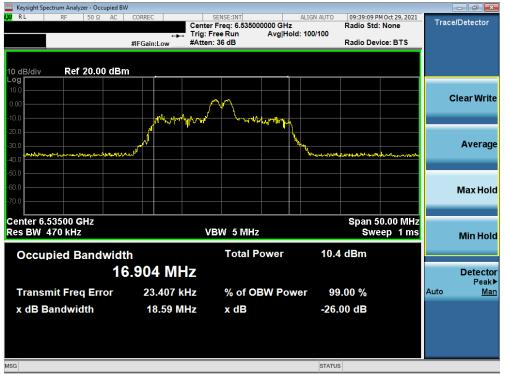
Plot 7-103. 26dB Bandwidth Plot MIMO ANT2 (160MHz BW (L) 802.11ax (26 Tones) (UNII Band 6) - Ch. 111)



Plot 7-104. 26dB Bandwidth Plot MIMO ANT2 (160MHz BW (U) 802.11ax (26 Tones) (UNII Band 6) - Ch. 111)

FCC ID: A3LSMS908E	Proud to be part of the element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager			
Test Report S/N:	Test Dates:	EUT Type:	Dawa 07 at 005			
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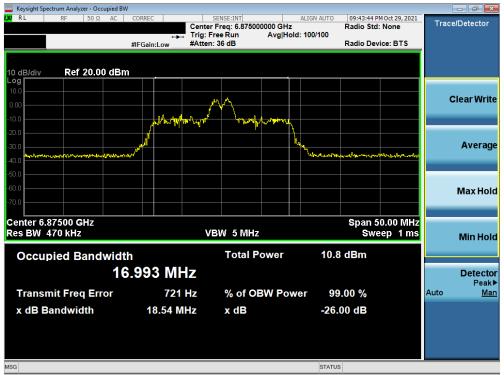
Plot 7-105. 26dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (26 Tones) (UNII Band 7) - Ch. 117)



Plot 7-106. 26dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (26 Tones) (UNII Band 7) - Ch. 149)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 00 of 005
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Plot 7-107. 26dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (26 Tones) (UNII Band 7) - Ch. 185)



Plot 7-108. 26dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax (26 Tones) (UNII Band 7) - Ch. 123)

FCC ID: A3LSMS908E	Proud to be part of the element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager			
Test Report S/N:	Test Dates:	EUT Type:	Dama 60 af 805			
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Plot 7-109. 26dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax (26 Tones) (UNII Band 7) - Ch. 155)



Plot 7-110. 26dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax (26 Tones) (UNII Band 7) - Ch. 179)

FCC ID: A3LSMS908E	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager			
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2021 PCTEST V 9.0 02/01/2019						



Keysight Spectrum Analyzer -	Occupied BW								
🗶 RL RF 50	Ω AC CORREC		ENSE:INT		ALIGN AUTO	10:32:29 Pl Radio Std:	M Oct 29, 2021	Trac	e/Detector
		Trig: Fr	Freq: 6.54500 ee Run	Avg Hold:	>100/100	Radio Std:	None		
	#IFGain:Low					Radio Dev	ice: BTS		
10 dB/div Ref 30	.00 dBm								
Log	.00 aBili			1					
20.0									
10.0								(	Clear Write
0.00			Λ.						
		we then had	1 Julia -						
-10.0		- Mariata	Ken hikard						
-20.0				Ward I					Average
-30.0 mmanutere	and the second	M		Verwent Mathe	managhan	-	Wardequeries and		
-40.0									
-50.0									
									Max Hold
-60.0									
Center 6.5450 GHz						Snan 2	00.0 MHz		
Res BW 1.8 MHz		VE	W 8 MHz				ep 1 ms		
							ep The		Min Hold
Occupied Ban	dwidth		Total F	ower	11.0	dBm			
	39.123 I	VIHZ							Detector Peak▶
Transmit Freq E	rror -433.2	22 kHz	% of O	BW Powe	er 99	.00 %		Auto	Peak≯ <u>Man</u>
x dB Bandwidth	30 4	8 MHz	x dB		-26	00 dB			
	55.4	0 10112	X UD		-20.				
MSG					STATUS				

Plot 7-111. 26dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ax (26 Tones) (UNII Band 7) - Ch. 119)



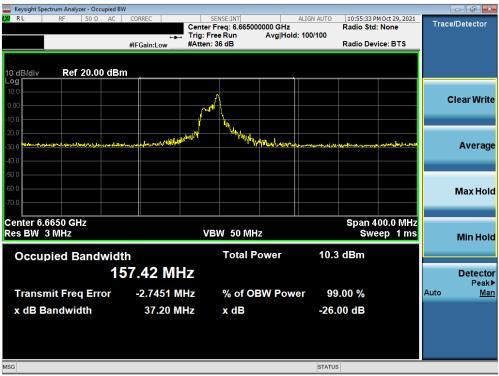
Plot 7-112. 26dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ax (26 Tones) (UNII Band 7) - Ch. 151)

FCC ID: A3LSMS908E		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
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Keysight Spectrum Analyzer - Occupied B <sup>1</sup>	N								
💢 RL RF 50Ω AC	CORREC		ISE:INT		ALIGN AUTO		M Oct 29, 2021	Trac	e/Detector
		Trig: Free	eq: 6.86500	Avg Hold	· 100/100	Radio Std	None		
	#IFGain:Low	#Atten: 30		, training		Radio Dev	ice: BTS		
10 dB/div Ref 20.00 dBr	n								
10.0									
0.00		1	4						Clear Write
		աներեր	h. Inda						
-10.0		- આવ્યું અન્ય	TUR						
-20.0									
-30.0 adversed and the second at second	profit maker with			lent printed and	بالاندور محمايه اليالي	Inderson	www.		Average
-40.0									-
-50.0									
-60.0									Max Hold
-70.0				L					
Center 6.8650 GHz							00.0 MHz		
Res BW 1.8 MHz		VBV	V 8 MHz			Swe	ep 1 ms		Min Hold
Occupied Bandwid	ih		Total P	ower	11.0	dBm			
30	9.048 MH	7							Detector
									Peak
Transmit Freq Error	-57.119 k	Hz	% of O	BW Powe	er 99	.00 %		Auto	Man
x dB Bandwidth	40.26 MI	H7	x dB		-26	00 dB			
	40.20 111		AUD		20.				
MSG					STATUS	;			

Plot 7-113. 26dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ax (26 Tones) (UNII Band 7) - Ch. 183)



Plot 7-114. 26dB Bandwidth Plot MIMO ANT2 (160MHz BW (L) 802.11ax (26 Tones) (UNII Band 7) - Ch. 143)

FCC ID: A3LSMS908E		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
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Keysight Spectrum Analyzer - Occupied B	W				
LXI RL RF 50Ω AC	CORREC			PM Oct 29, 2021	Trace/Detector
		r Freq: 6.665000000 GHz Free Run Avg Hold:	Radio Sto	1: None	
		n: 36 dB		vice: BTS	
10 dB/div Ref 20.00 dB	m				
10.0					
		Λ			Clear Write
0.00		/ ww			erear mine
-10.0					
-20.0					
	under and with a ship with the state	Mary Markellope and	and the second second second	Munan	Average
-30.0					Average
-40.0					
-50.0					
-60.0					
					Max Hold
-70.0					
Center 6.6650 GHz			Snan	100.0 MHz	
Res BW 3 MHz	1	/BW 50 MHz		eep 1 ms	
Res Day 5 Ivil 12	, i i i i i i i i i i i i i i i i i i i	Daa jo lainz		eep mis	Min Hold
Occupied Bondwid	<b>4</b> Ia	Total Power	10.8 dBm		
Occupied Bandwid			10.0 0.011		
1	48.81 MHz				Detector
					Peak▶
Transmit Freq Error	-1.1364 MHz	% of OBW Powe	r 99.00 %		Auto <u>Man</u>
x dB Bandwidth	35.95 MHz	x dB	-26.00 dB	Ì	
	55.55 MILE	A GB	-20.00 uB		
MEG			2117472		
MSG			STATUS		

Plot 7-115. 26dB Bandwidth Plot MIMO ANT2 (160MHz BW (U) 802.11ax (26 Tones) (UNII Band 7) - Ch. 143)



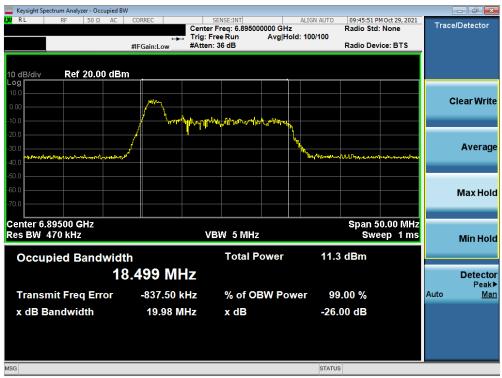
Plot 7-116. 26dB Bandwidth Plot MIMO ANT2 (160MHz BW (L) 802.11ax (26 Tones) (UNII Band 7) - Ch. 175)

FCC ID: A3LSMS908E	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager			
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🔤 Keysight Spectrum Analyzer - Occupied					- 6 -
LXIRL RF 50Ω AC	CORREC	SENSE:INT ter Freg: 6.825000000 GH	ALIGN AUTO	10:58:13 PM Oct Radio Std: Nor	
	+++ Trig	: Free Run Avg H	old: 100/100		
	#IFGain:Low #Att	en: 36 dB		Radio Device:	BTS
10 dB/div Ref 30.00 dB	im				
20.0					
					Clear Write
10.0		$\Lambda$			
0.00					
-10.0					
-20.0	للاياس المراجع	No. Markey and a second			Average
-30.0 -30.0	hand a sharp of the offer the state of the s		Astreeghter yearship	and the state of the	
-40.0					
-50.0					Max Hold
-60.0					Maxilolu
Center 6.8250 GHz				Span 400.0	0 MHz
Res BW 3 MHz		VBW 50 MHz		Sweep	1 ms Min Hold
Occurried Dandwin	1415	Total Power	11 (	ə dBm	
Occupied Bandwid		TOTALLOWER	11.3	9 UBIII	
9	6.097 MHz				Detector
Transmit Freq Error	3.3635 MHz	% of OBW Po		9.00 %	Peak► Auto Man
x dB Bandwidth	39.00 MHz	x dB	-26.	00 dB	
MSG			STATU	s	
			UNATO		

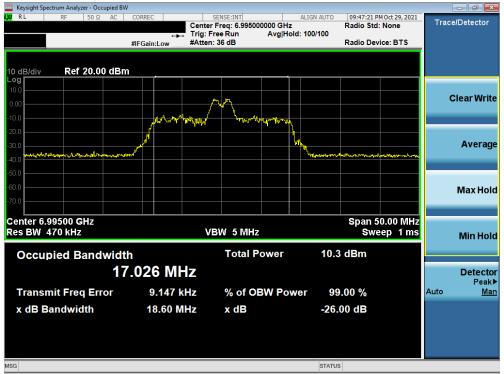
Plot 7-117. 26dB Bandwidth Plot MIMO ANT2 (160MHz BW (U) 802.11ax (26 Tones) (UNII Band 7) - Ch. 175)



Plot 7-118. 26dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (26 Tones) (UNII Band 8) - Ch. 189)

FCC ID: A3LSMS908E	PCTEST Proud to be part of @ element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager		
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Plot 7-119. 26dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (26 Tones) (UNII Band 8) - Ch. 209)



Plot 7-120. 26dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (26 Tones) (UNII Band 8) - Ch. 233)

FCC ID: A3LSMS908E	Proud to be part of the element	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager		
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Plot 7-121. 26dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax (26 Tones) (UNII Band 8) - Ch. 187)



Plot 7-122. 26dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax (26 Tones) (UNII Band 8) - Ch. 211)

FCC ID: A3LSMS908E	PCTEST *	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager		
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Plot 7-123. 26dB Bandwidth Plot MIMO ANT2 (40MHz BW 802.11ax (26 Tones) (UNII Band 8) - Ch. 227)



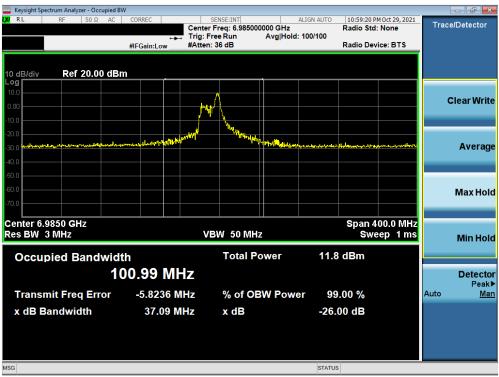
Plot 7-124. 26dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ax (26 Tones) (UNII Band 8) - Ch. 199)

FCC ID: A3LSMS908E		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager		
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Keysight Spectrum Analyzer - Occupie	d BW				
💢 RL RF 50Ω A		SENSE:INT		2 PM Oct 29, 2021 Std: None	Trace/Detector
		enter Freq: 7.025000000 GH ig: Free Run Avg H	iz Radio : lold: 100/100	sta: None	
		tten: 36 dB		Device: BTS	
10 dB/div Ref 30.00 d	Bm				
Log					
20.0					Clear Write
10.0					
0.00					
-10.0		«Ի <sub>պ</sub> - Կարյ <sub>առա</sub>			
-20.0					Average
	mound	the difference	Ma .		
-30.0 booledberghandstandstandstandstandstandstandstandst	and the second s		· ····································	and a second	
-40.0					
-50.0					Max Hold
-60.0					
Center 7.0250 GHz				n 200.0 MHz	
Res BW 1.8 MHz		VBW 8 MHz	S	weep 1 ms	Min Hold
Occupied Bandwi	dth	Total Power	11.2 dBm		
	38.014 MHz				Detector
					Peak►
Transmit Freq Error	-220.48 kHz	% of OBW Po	ower 99.00 %		Auto <u>Man</u>
x dB Bandwidth	38.82 MHz	x dB	-26.00 dB		
MSG			STATUS		

Plot 7-125. 26dB Bandwidth Plot MIMO ANT2 (80MHz BW 802.11ax (26 Tones) (UNII Band 8) - Ch. 215)



Plot 7-126. 26dB Bandwidth Plot MIMO ANT2 (160MHz BW (L) 802.11ax (26 Tones) (UNII Band 8) - Ch. 207)

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Keysight Spectrum Analyzer - Occupied BW						
LX RL RF 50Ω AC COR		SENSE:INT Freg: 6.985000000 GH	ALIGN AUTO	11:00:38 PM 0 Radio Std: N		Trace/Detector
			iz lold: 100/100	Radio Std: N	one	
#IFG	Gain:Low #Atten			Radio Device	BTS	
10 dB/div Ref 30.00 dBm						
20.0						
10.0						Clear Write
		Α.				
0.00						
-10.0	. <i>W</i>					
-20.0	in the second strength of	Hundred of the				Average
-30.0 Margarent ladaren markan harristat on dare	wet-white the party in the party in the second s	. Lader of the start of the sta	haran produced and a	uldportent-sourcestor	Northeast	
-40.0						
-50.0						
						Max Hold
-60.0						
Center 6.9850 GHz				Span 400	0 MHz	
Res BW 3 MHz	V	BW 50 MHz			0 1 ms	Min Hala
						Min Hold
Occupied Bandwidth		Total Power	11.9	) dBm		
105.	09 MHz					Detector Peak►
Transmit Freq Error -6	6.2946 MHz	% of OBW Po	wer <u>q</u> q	.00 %		Auto Man
x dB Bandwidth	35.61 MHz	x dB	-26.	00 dB		
			OTATUS			
MSG			STATUS			

Plot 7-127. 26dB Bandwidth Plot MIMO ANT2 (160MHz BW (U) 802.11ax (26 Tones) (UNII Band 8) - Ch. 207)

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### Keysight Spectrum Analyzer - Occupied BW K R L RF 50 Ω AC - - - X 09:28:34 PM Oct 29, 2021 SENSE:IN ALIGN AUTO Trace/Detector Center Freq: 5.935000000 GHz Trig: Free Run Avg|Hol Radio Std: None Avg|Hold: 100/100 Radio Device: BTS #IFGain:Low #Atten: 36 dB Ref 20.00 dBm 0 dB/div og **Clear Write** Average Max Hold Center 5.93500 GHz Res BW 470 kHz Span 50.00 MHz VBW 5 MHz Sweep 1 ms Min Hold 19.8 dBm **Total Power Occupied Bandwidth** 19.199 MHz Detector Peak▶ Transmit Freq Error 37.707 kHz % of OBW Power 99.00 % Auto Man x dB Bandwidth 21.53 MHz x dB -26.00 dB STATUS MSG

# MIMO Antenna-2 26dB Bandwidth Measurements (FULL Tones)

Plot 7-128. 26dB Bandwidth Plot MIMO ANT2 (20MHz 802.11ax (FULL Tones) (UNII Band 5) – Ch. 2)



Plot 7-129. 26dB Bandwidth Plot MIMO ANT2 (20MHz BW 802.11ax (FULL Tones) (UNII Band 5) - Ch. 45)

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