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PART 27 MEASUREMENT REPORT

Applicant Name:
Microsoft Corporation
One Microsoft Way
Redmond, WA 98052
United States

Date of Testing:
12/14/2023 – 03/21/2024
Test Report Issue Date:
03/26/2024
Test Site/Location:
Element lab., Columbia, MD, USA
Test Report Serial No.:
1M2312040120-11.C3K

FCC ID:	**C3K2077**
Applicant Name:	**Microsoft Corporation**

Application Type:	Certification
Model:	2077
EUT Type:	Portable Computing Device
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part:	27
Test Procedure(s):	ANSI C63.26-2015

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 §2.947. Test results reported herein relate only to the item(s) tested.

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

RJ Ortanez
Executive Vice President

ACCREDITED
CERT #2041.01

TABLE OF CONTENTS

PART 27 MEASUREMENT REPORT

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
LTE Band 30	10 MHz	QPSK	2310.0	0.178	22.51	9M10G7D
		16QAM	2310.0	0.170	22.31	9M06W7D
	5 MHz	QPSK	2307.5 - 2312.5	0.193	22.85	4M54G7D
		16QAM	2307.5 - 2312.5	0.191	22.81	4M54W7D
LTE Band 41(PC2)	20 MHz	QPSK	2506.0 - 2680.0	0.603	27.80	18M0G7D
		16QAM	2506.0 - 2680.0	0.494	26.93	18M1W7D
	15 MHz	QPSK	2503.5 - 2682.5	0.600	27.78	13M5G7D
		16QAM	2503.5 - 2682.5	0.477	26.78	13M5W7D
	10 MHz	QPSK	2501.0 - 2685.0	0.623	27.94	8M97G7D
		16QAM	2501.0 - 2685.0	0.504	27.02	9M06W7D
	5 MHz	QPSK	2498.5 - 2687.5	0.623	27.94	4M52G7D
		16QAM	2498.5 - 2687.5	0.516	27.12	4M50W7D
LTE Band 41 (PC3)	20 MHz	QPSK	2506.0 - 2680.0	0.367	25.64	18M0G7D
		16QAM	2506.0 - 2680.0	0.309	24.89	18M0W7D
	15 MHz	QPSK	2503.5 - 2682.5	0.364	25.61	13M6G7D
		16QAM	2503.5 - 2682.5	0.313	24.95	13M6W7D
	10 MHz	QPSK	2501.0 - 2685.0	0.380	25.79	9M06G7D
		16QAM	2501.0 - 2685.0	0.320	25.05	9M04W7D
	5 MHz	QPSK	2498.5 - 2687.5	0.378	25.77	4M53G7D
		16QAM	2498.5 - 2687.5	0.311	24.93	4M52W7D
NR Band n30	10 MHz	π/2 BPSK	2310.0	0.191	22.81	9M04G7D
		QPSK	2310.0	0.182	22.61	9M00G7D
		16QAM	2310.0	0.160	22.05	9M02W7D
	5 MHz	π/2 BPSK	2307.5 - 2312.5	0.199	22.98	4M51G7D
		QPSK	2307.5 - 2312.5	0.190	22.78	4M52G7D
		16QAM	2307.5 - 2312.5	0.166	22.21	4M52W7D
NR Band n41(PC3)	100 MHz	π/2 BPSK	2546.0 - 2640.0	0.566	27.53	97M1G7D
		QPSK	2546.0 - 2640.0	0.597	27.76	97M9G7D
		16QAM	2546.0 - 2640.0	0.483	26.84	98M1W7D
	90 MHz	π/2 BPSK	2541.0 - 2645.0	0.611	27.86	87M4G7D
		QPSK	2541.0 - 2645.0	0.636	28.03	88M1G7D
		16QAM	2541.0 - 2645.0	0.494	26.94	87M9W7D
	80 MHz	π/2 BPSK	2536.0 - 2650.0	0.602	27.80	77M7G7D
		QPSK	2536.0 - 2650.0	0.642	28.07	77M9G7D
		16QAM	2536.0 - 2650.0	0.532	27.26	77M9W7D
	70 MHz	π/2 BPSK	2531.0 - 2655.0	0.603	27.80	64M5G7D
		QPSK	2531.0 - 2655.0	0.624	27.95	67M6G7D
		16QAM	2531.0 - 2655.0	0.526	27.21	67M8W7D
	60 MHz	π/2 BPSK	2526.0 - 2660.0	0.622	27.94	58M5G7D
		QPSK	2526.0 - 2660.0	0.637	28.04	58M3G7D
		16QAM	2526.0 - 2660.0	0.553	27.43	58M3W7D
	50 MHz	π/2 BPSK	2521.0 - 2665.0	0.628	27.98	46M2G7D
		QPSK	2521.0 - 2665.0	0.663	28.22	47M8G7D
		16QAM	2521.0 - 2665.0	0.553	27.42	47M9W7D
	40 MHz	π/2 BPSK	2516.0 - 2670.0	0.604	27.81	36M0G7D
		QPSK	2516.0 - 2670.0	0.645	28.09	38M1G7D
		16QAM	2516.0 - 2670.0	0.547	27.38	38M1W7D
	30 MHz	π/2 BPSK	2511.0 - 2675.0	0.606	27.83	27M0G7D
		QPSK	2511.0 - 2675.0	0.646	28.10	28M1G7D
		16QAM	2511.0 - 2675.0	0.520	27.16	28M0W7D
	20 MHz	π/2 BPSK	2506.0 - 2680.0	0.606	27.83	18M0G7D
		QPSK	2506.0 - 2680.0	0.641	28.07	18M5G7D
		16QAM	2506.0 - 2680.0	0.534	27.28	18M4W7D

Overview Table – Antenna 1

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
NR Band n30	10 MHz	π/2 BPSK	2310.0	0.172	22.36	9M02G7D
		QPSK	2310.0	0.180	22.54	9M01G7D
		16QAM	2310.0	0.132	21.22	9M02W7D
	5 MHz	π/2 BPSK	2307.5 - 2312.5	0.177	22.47	4M52G7D
		QPSK	2307.5 - 2312.5	0.182	22.60	4M50G7D
		16QAM	2307.5 - 2312.5	0.151	21.79	4M53W7D
NR Band n41(PC3)	100 MHz	π/2 BPSK	2546.0 - 2640.0	0.477	26.78	96M9G7D
		QPSK	2546.0 - 2640.0	0.481	26.82	97M9G7D
		16QAM	2546.0 - 2640.0	0.397	25.98	97M9W7D
	90 MHz	π/2 BPSK	2541.0 - 2645.0	0.490	26.90	87M3G7D
		QPSK	2541.0 - 2645.0	0.482	26.83	87M8G7D
		16QAM	2541.0 - 2645.0	0.431	26.34	87M8W7D
	80 MHz	π/2 BPSK	2536.0 - 2650.0	0.499	26.98	77M4G7D
		QPSK	2536.0 - 2650.0	0.475	26.77	77M6G7D
		16QAM	2536.0 - 2650.0	0.376	25.75	77M6W7D
	70 MHz	π/2 BPSK	2531.0 - 2655.0	0.473	26.75	64M7G7D
		QPSK	2531.0 - 2655.0	0.472	26.74	67M8G7D
		16QAM	2531.0 - 2655.0	0.386	25.87	67M8W7D
	60 MHz	π/2 BPSK	2526.0 - 2660.0	0.524	27.20	58M5G7D
		QPSK	2526.0 - 2660.0	0.512	27.09	58M2G7D
		16QAM	2526.0 - 2660.0	0.413	26.16	58M2W7D
	50 MHz	π/2 BPSK	2521.0 - 2665.0	0.512	27.09	46M1G7D
		QPSK	2521.0 - 2665.0	0.511	27.09	47M7G7D
		16QAM	2521.0 - 2665.0	0.417	26.20	47M7W7D
	40 MHz	π/2 BPSK	2516.0 - 2670.0	0.518	27.14	35M9G7D
		QPSK	2516.0 - 2670.0	0.527	27.22	38M0G7D
		16QAM	2516.0 - 2670.0	0.449	26.52	38M1W7D
	30 MHz	π/2 BPSK	2511.0 - 2675.0	0.532	27.26	27M0G7D
		QPSK	2511.0 - 2675.0	0.512	27.10	28M0G7D
		16QAM	2511.0 - 2675.0	0.455	26.58	28M0W7D
	20 MHz	π/2 BPSK	2506.0 - 2680.0	0.516	27.12	18M0G7D
		QPSK	2506.0 - 2680.0	0.480	26.81	18M3G7D
		16QAM	2506.0 - 2680.0	0.395	25.97	18M4W7D

Overview Table – Antenna 4

1.0 INTRODUCTION

1.1 Scope

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

1.2 Element Test Location

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

1.3 Test Facility / Accreditations

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

- Element Washington DC LLC is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.

- Element Washington DC LLC TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).

- Element Washington DC LLC facility is a registered (2451B) test laboratory with the site description on file with ISED.

- Element Washington DC LLC is a Recognized U.S. Certification Assessment Body (CAB # US0110) for ISED Canada as designated by NIST under the U.S. and Canada Mutual Recognition Agreement.

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Microsoft Corporation Portable Computable Device FCC ID: C3K2077**. The test data contained in this report pertains only to the emissions due to the EUT's licensed transmitters that operate under the provisions of Part 27.

Test Device Serial No.: B44F2, B44D2, B44T2, 7CDR2, B44G2, 7CBC2

2.2 Device Capabilities

This device contains the following capabilities:

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

2.3 Test Configuration

The EUT was tested per the guidance of ANSI C63.26-2015. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

2.4 Software and Firmware

Testing was performed on device(s) using software/firmware version 2024.111.46 installed on the EUT.

2.5 EMI Suppression Device(s)/Modifications

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

3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedures described in the "American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services" (ANSI C63.26-2015) were used in the measurement of the EUT**.**

Deviation from Measurement Procedure……..……None

3.2 Radiated Power and Radiated Spurious 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. For measurements below 1GHz, the absorbers are removed. A raised turntable is used for radiated measurement. The turn table is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm tall test table made of Styrodur is placed on top of the turn table. A Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable 3 meters from the receive antenna. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer.

For radiated power measurements, substitution method is used per the guidance of ANSI C63.26-2015. For emissions below 1GHz, a half-wave dipole is substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

$$P_{d\ [dBm]} = P_{g\ [dBm]} - \text{cable loss}_{\ [dB]} + \text{antenna gain}_{\ [dBd/dBi]};$$

where P_d is the dipole equivalent power, P_g is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to $P_{g\ [dBm]}$ – cable loss $_{[dB]}$.

For radiated spurious emissions measurements, the field strength conversion method is used per the formulas in Section 5.2.7 of ANSI C63.26-2015. Field Strength (EIRP) is calculated using the following formulas:

$$E_{[dB\mu V/m]} = \text{Measured amplitude level}_{[dBm]} + 107 + \text{Cable Loss}_{[dB]} + \text{Antenna Factor}_{[dB/m]}$$

And

$$EIRP_{[dBm]} = E_{[dB\mu V/m]} + 20\log D - 104.8;$$ where D is the measurement distance in meters.

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.

Radiated power and radiated spurious emission levels are investigated with the receive antenna horizontally and vertically polarized per ANSI C63.26-2015.

4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. 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
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

5.0 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
-	AP2-001	EMC Cable and Switch System	11/15/2023	Annual	11/15/2024	AP2-001
-	AP2-002	EMC Cable and Switch System	11/15/2023	Annual	11/15/2024	AP2-002
-	AP1-002	EMC Cable and Switch System	11/15/2023	Annual	11/15/2024	AP1-002
-	LTx3	Licensed Transmitter Cable Set	11/15/2023	Annual	11/15/2024	LTx3
-	LTx4	Licensed Transmitter Cable Set	11/15/2023	Annual	11/15/2024	LTx4
-	LTx5	Licensed Transmitter Cable Set	11/15/2023	Annual	11/15/2024	LTx5
Anritsu	MT8821C	Radio Communication Analyzer	7/5/2023	Annual	7/5/2024	6262150000
Espec	SCP-220	Environmental Chamber	5/25/2022	Annual	5/25/2024	OCPS5H0612K05
Keysight Technologies	N9030A	PXA Signal Analyzer (44GHz)	3/15/2023	Annual	3/15/2024	MY52350166
Keysight Technologies	N9020A	MXA Signal Analyzer	3/15/2023	Annual	3/15/2024	MY54500644
Keysight Technologies	N9030A	PXA Signal Analyzer	2/29/2024	Annual	3/1/2025	MY55410501
Keysight Technologies	N9030B	PXA Signal Analyzer, Multi-touch	9/7/2023	Annual	9/7/2024	MY57141001
Keysight Technologies	N9038A	MXE EMI Receiver	8/30/2023	Annual	8/30/2024	MY51210133
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A			100976
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	9/25/2023	Annual	9/25/2024	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	9/11/2020	Annual	9/11/2024	100348
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	2/15/2024	Annual	2/15/2025	103200
Schwarzbeck	VULB9162	Bilog Antenna	2/21/2023	Biennial	2/21/2025	83706
Rohde & Schwarz	TC-TA18	Vivaldi Antenna	2/23/2023	Biennial	2/23/2025	101072

Table 5-1. Test Equipment

Notes:

1. 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.

2. Equipment with a calibration date of “N/A” shown in this list was not used to make direct calibrated measurements.

6.0 SAMPLE CALCULATIONS

QPSK Modulation

Emission Designator = 8M62G7D
LTE BW = 8.62 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data transmission, telemetry, telecommand

QAM Modulation

Emission Designator = 8M45W7D
LTE BW = 8.45 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data transmission, telemetry, telecommand

Spurious Radiated Emission

Example: Spurious emission at 3700.40 MHz

The receive spectrum analyzer reading at 3 meters with the EUT on the turntable was –81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of –81.0 dBm on the spectrum analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 3700.40 MHz. So 6.1 dB is added to the signal generator reading of –30.9 dBm yielding –24.80 dBm. The fundamental EIRP was 25.50 dBm so this harmonic was 25.50 dBm – (-24.80) = 50.3 dBc.

7.0 TEST RESULTS

7.1 Summary

Company Name: Microsoft Corporation

FCC ID: C3K2077

FCC Classification: PCS Licensed Transmitter (PCB)

Mode(s): LTE/NR/ULCA

Test Condition	Test Description	FCC Part Section(s)	Test Limit	Test Result	Reference
CONDUCTED	Transmitter Conducted Output Power*	2.1046(a), 2.1046(c)	N/A	PASS	Section 7.2
	Occupied Bandwidth	2.1049(h)	N/A	PASS	Section 7.3
	Conducted Band Edge / Spurious Emissions (LTE Band 30; NR Band n30)	2.1051, 27.53(a)(4)	Undesirable emissions must meet the limits detailed in 27.53(a)(4)	PASS	Sections 7.4, 7.5
	Conducted Band Edge / Spurious Emissions (LTE Band 41; NR Band n41)	2.1051, 27.53(m)(4)	Undesirable emissions must meet the limits detailed in 27.53(m)(4)	PASS	Sections 7.4, 7.5
	Frequency Stability	2.1055, 27.54	Fundamental emissions stay within authorized frequency block	PASS	Section 7.8
RADIATED	Equivalent Isotropic Radiated Power (LTE Band 30; NR Band n30)	27.50(a)(3)	≤ 250mW / 5MHz max. EIRP	PASS	Section 7.6
	Equivalent Isotropic Radiated Power (LTE Band 41; NR Band n41)	27.50(h)(2)	≤ 2 Watts max. EIRP	PASS	Section 7.6
	Radiated Spurious Emissions (LTE Band 30; NR Band n30)	2.1053, 27.53(a)(4)	Undesirable emissions must meet the limits detailed in 27.53(a)(4)	PASS	Section 7.7
	Radiated Spurious Emissions (LTE Band 41; NR Band n41)	2.1053, 27.53(m)	Undesirable emissions must meet the limits detailed in 27.53(m)	PASS	Section 7.7

* The only transmitter output conducted powers included in this report are those where the Pmax value, per the tune-up document, is higher than any of the DSI power levels. For the remaining conducted power measurements, see the **RF Exposure Report**.

Table 7-1. Summary of Test Results (FCC)

Notes:

1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
2) The analyzer plots were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT 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, attenuators, and couplers.
4) All conducted emissions measurements are performed with automated test software to capture the corresponding plots necessary to show compliance. The measurement software utilized is EMC Software Tool v1.2.2.

7.2 Conducted Output Power Data

Test Overview

All emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

Test Procedure Used

ANSI C63.26-2015 – Section 5.2

Test Settings

1. Span = 2 x OBW to 3 x OBW
2. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. Please see test notes below for RBW and VBW settings

Test Setup

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

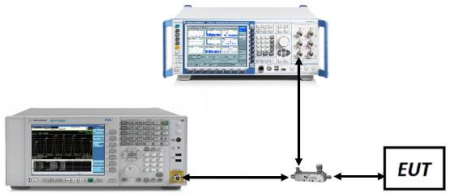


Figure 7-1. Test Instrument & Measurement Setup

Test Notes

1. Uplink carrier aggregation is only supported in this EUT while operating in Power Class 3.

2. Conducted power measurements were evaluated using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device.

3. All other conducted power measurements are contained in the RF exposure report for this filing.

4. Conducted power was found to reduce for the higher order QAM modulations when compared to 16QAM. Due to this trend, only the worst-case QAM (16QAM) powers are included in this section.

Power State	Band	Bandwidth (PCC + SCC)	PCC					SCC					ULCA Tx. Power [dBm]
			Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	
Max	LTE B41 (PC3)	20MHz + 20MHz	QPSK	39750	2506.0	1	99	QPSK	39948	2525.8	1	0	24.68
				40620	2593.0	1	99		40818	2612.8	1	0	24.86
				41490	2680.0	1	0		41292	2660.2	1	99	24.89
			QPSK	41490	2680	100	0	QPSK	41292	2660.2	100	0	22.67
			16-QAM	41490	2680	100	0	16-QAM	41292	2660.2	100	0	21.68
			64-QAM	41490	2680	100	0	64-QAM	41292	2660.2	100	0	21.79
			256-QAM	41490	2680	100	0	256-QAM	41292	2660.2	100	0	19.65

Table 7-2. Conducted Power Data (ULCA LTE B41(PC3) – Ant1)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
10 M	QPSK	27710	2310.0	1 / 25	22.47
	16-QAM	27710	2310.0	1 / 25	21.09
5 MHz	QPSK	27685	2307.5	1 / 12	22.35
		27710	2310.0	1 / 12	22.81
		27735	2312.5	1 / 24	22.44
	16-QAM	27710	2310.0	1 / 12	21.58

Table 7-3. Conducted Power Data (LTE B30) – Ant1)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
20 MHz	QPSK	39750	2506.0	1 / 0	26.43
		40620	2593.0	1 / 0	26.35
		41490	2680.0	1 / 50	26.60
	16-QAM	39750	2506.0	1 / 50	25.69
15 MHz	QPSK	39725	2503.5	1 / 0	26.41
		40620	2593.0	1 / 0	26.28
		41515	2682.5	1 / 37	26.62
	16-QAM	39725	2503.5	1 / 37	25.54
10 MHz	QPSK	39700	2501.0	1 / 0	26.57
		40620	2593.0	1 / 25	26.44
		41540	2685.0	1 / 49	26.68
	16-QAM	39700	2501.0	1 / 49	25.78
5 MHz	QPSK	39675	2498.5	1/12	26.57
		40620	2593.0	1/12	26.55
		41565	2687.5	1/24	26.61
	16-QAM	39675	2498.5	1/12	25.88

Table 7-4. Conducted Power Data (LTE B41 (PC2)) – Ant1)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
20 MHz	QPSK	39750	2506.0	1 / 0	24.23
		40620	2593.0	1 / 0	24.18
		41490	2680.0	1 / 50	24.49
	16-QAM	39750	2506.0	1 / 0	23.29
15 MHz	QPSK	39725	2503.5	1 / 37	24.20
		40620	2593.0	1 / 37	24.09
		41515	2682.5	1 / 37	24.40
	16-QAM	39725	2503.5	1 / 0	23.35
10 MHz	QPSK	39700	2501.0	1 / 0	24.38
		40620	2593.0	1 / 25	24.27
		41540	2685.0	1 / 49	24.56
	16-QAM	39700	2501.0	1 / 0	23.45
5 MHz	QPSK	39675	2498.5	1/12	24.36
		40620	2593.0	1/12	24.28
		41565	2687.5	1/24	24.45
	16-QAM	40620	2593.0	1/12	23.46

Table 7-5. Conducted Power Data (LTE B41 (PC3)) – Ant1)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
10 MHz	π/2 BPSK	27710	2310.0	1 / 1	22.55
	QPSK	27710	2310.0	1 / 1	22.38
	16-QAM	27710	2310.0	1 / 1	22.04
5 MHz	π/2 BPSK	27685	2307.5	1 / 1	22.41
		27710	2310.0	1 / 1	22.72
		27735	2312.5	1 / 12	22.69
	QPSK	27685	2307.5	1 / 1	22.48
		27710	2310.0	1 / 1	22.42
		27735	2312.5	1 / 12	22.55
	16-QAM	27735	2312.5	1 / 12	22.20

Table 7-6. Conducted Power Data (NR Band n30) – Ant1)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
100 MHz	π/2 BPSK	509202	2546.01	1 / 136	24.72
		518598	2592.99	1 / 136	24.53
		528000	2640.00	1 / 136	24.78
	QPSK	509202	2546.01	1 / 136	24.71
		518598	2592.99	1 / 136	24.51
		528000	2640.00	1 / 136	24.78
	16-QAM	518598	2592.99	1 / 136	23.39
90 MHz	π/2 BPSK	508200	2541.00	1 / 122	24.68
		518598	2592.99	1 / 243	24.86
		528996	2644.98	1 / 122	24.76
	QPSK	508200	2541.00	1 / 122	24.63
		518598	2592.99	1 / 243	24.78
		528996	2644.98	1 / 122	24.78
	16-QAM	518598	2592.99	1 / 243	23.49
80 MHz	π/2 BPSK	507204	2536.02	1 / 108	24.71
		518598	2592.99	1 / 1	24.80
		529998	2649.99	1 / 108	24.91
	QPSK	507204	2536.02	1 / 108	24.66
		518598	2592.99	1 / 1	24.82
		529998	2649.99	1 / 108	24.77
	16-QAM	518598	2592.99	1 / 1	23.81
70 MHz	π/2 BPSK	506202	2531.01	1 / 187	24.68
		518598	2592.99	1 / 1	24.80
		531000	2655.00	1 / 1	24.28
	QPSK	506202	2531.01	1 / 187	24.71
		518598	2592.99	1 / 1	24.71
		531000	2655.00	1 / 1	24.67
	16-QAM	518598	2592.99	1 / 1	23.76
60 MHz	π/2 BPSK	505200	2526.00	1 / 81	24.95
		518598	2592.99	1 / 160	24.94
		531996	2659.98	1 / 81	24.97
	QPSK	505200	2526.00	1 / 81	24.71
		518598	2592.99	1 / 160	24.79
		531996	2659.98	1 / 81	24.92
	16-QAM	518598	2592.99	1 / 160	23.98
50 MHz	π/2 BPSK	504204	2521.02	1 / 66	24.88
		518598	2592.99	1 / 1	24.98
		532998	2664.99	1 / 66	24.84
	QPSK	504204	2521.02	1 / 66	24.83
		518598	2592.99	1 / 1	24.97
		532998	2664.99	1 / 66	24.82
	16-QAM	518598	2592.99	1 / 1	23.97
40 MHz	π/2 BPSK	503202	2516.01	1 / 1	24.88
		518598	2592.99	1 / 1	24.81
		534000	2670.00	1 / 104	24.96
	QPSK	503202	2516.01	1 / 1	24.88
		518598	2592.99	1 / 1	24.85
		534000	2670.00	1 / 104	24.93
	16-QAM	518598	2592.99	1 / 1	23.93
30 MHz	π/2 BPSK	502200	2511.00	1 / 76	24.88
		518598	2592.99	1 / 76	24.83
		534996	2674.98	1 / 76	24.90
	QPSK	502200	2511.00	1 / 76	24.85
		518598	2592.99	1 / 76	24.86
		534996	2674.98	1 / 76	24.86
	16-QAM	518598	2592.99	1 / 1	23.71
20 MHz	π/2 BPSK	501204	2506.02	1 / 25	24.83
		518598	2592.99	1 / 1	24.83
		535998	2679.99	1 / 49	24.83
	QPSK	501204	2506.02	1 / 25	24.81
		518598	2592.99	1 / 1	24.82
		535998	2679.99	1 / 49	24.78
	16-QAM	518598	2592.99	1 / 1	23.83

Table 7-7. Conducted Power Data (NR Band n41 (PC3)) – Ant1)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
10 MHz	π/2 BPSK	27710	2310.0	1 / 1	22.46
	QPSK	27710	2310.0	1 / 1	22.55
	16-QAM	27710	2310.0	1 / 1	21.16
5 MHz	π/2 BPSK	27685	2307.5	1 / 12	22.58
		27710	2310.0	1 / 12	22.55
		27735	2312.5	1 / 12	22.37
	QPSK	27685	2307.5	1 / 12	22.32
		27710	2310.0	1 / 12	22.61
		27735	2312.5	1 / 12	22.38
	16-QAM	27735	2312.5	1 / 12	21.73

Table 7-8. Conducted Power Data (NR Band n30) – Ant4)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
100 MHz	π/2 BPSK	509202	2546.01	1 / 136	24.41
		518598	2592.99	1 / 136	24.53
		528000	2640.00	1 / 136	24.41
	QPSK	509202	2546.01	1 / 136	24.38
		518598	2592.99	1 / 136	24.55
		528000	2640.00	1 / 136	24.54
	16-QAM	528000	2640.00	1 / 136	23.39
90 MHz	π/2 BPSK	508200	2541.00	1 / 243	24.36
		518598	2592.99	1 / 122	24.57
		528996	2644.98	1 / 122	24.53
	QPSK	508200	2541.00	1 / 243	24.25
		518598	2592.99	1 / 122	24.54
		528996	2644.98	1 / 122	24.55
	16-QAM	528996	2644.98	1 / 122	23.75
80 MHz	π/2 BPSK	507204	2536.02	1 / 215	24.37
		518598	2592.99	1 / 108	24.52
		529998	2649.99	1 / 108	24.61
	QPSK	507204	2536.02	1 / 215	24.46
		518598	2592.99	1 / 108	24.54
		529998	2649.99	1 / 108	24.48
	16-QAM	529998	2649.99	1 / 108	23.16
70 MHz	π/2 BPSK	506202	2531.01	1 / 187	24.52
		518598	2592.99	1 / 1	24.64
		531000	2655.00	1 / 94	24.38
	QPSK	506202	2531.01	1 / 187	24.44
		518598	2592.99	1 / 1	24.62
		531000	2655.00	1 / 94	24.45
	16-QAM	531000	2655.00	1 / 94	23.28
60 MHz	π/2 BPSK	505200	2526.00	1 / 160	24.52
		518598	2592.99	1 / 81	24.78
		531996	2659.98	1 / 81	24.82
	QPSK	505200	2526.00	1 / 160	24.45
		518598	2592.99	1 / 81	24.79
		531996	2659.98	1 / 81	24.81
	16-QAM	531996	2659.98	1 / 81	23.56
50 MHz	π/2 BPSK	504204	2521.02	1 / 1	24.65
		518598	2592.99	1 / 1	24.95
		532998	2664.99	1 / 1	24.72
	QPSK	504204	2521.02	1 / 1	24.59
		518598	2592.99	1 / 1	24.88
		532998	2664.99	1 / 1	24.81
	16-QAM	532998	2664.99	1 / 1	23.61
40 MHz	π/2 BPSK	503202	2516.01	1 / 1	24.63
		518598	2592.99	1 / 1	24.97
		534000	2670.00	1 / 1	24.77
	QPSK	503202	2516.01	1 / 1	24.68
		518598	2592.99	1 / 1	24.94
		534000	2670.00	1 / 1	24.94
	16-QAM	534000	2670.00	1 / 1	23.93
30 MHz	π/2 BPSK	502200	2511.00	1 / 1	24.63
		518598	2592.99	1 / 1	24.98
		534996	2674.98	1 / 1	24.89
	QPSK	502200	2511.00	1 / 1	24.65
		518598	2592.99	1 / 1	24.98
		534996	2674.98	1 / 1	24.81
	16-QAM	534996	2674.98	1 / 1	23.99
20 MHz	π/2 BPSK	501204	2506.02	1 / 49	24.61
		518598	2592.99	1 / 49	24.90
		535998	2679.99	1 / 25	24.75
	QPSK	501204	2506.02	1 / 49	24.58
		518598	2592.99	1 / 49	24.87
		535998	2679.99	1 / 25	24.53
	16-QAM	535998	2679.99	1 / 25	23.37

Table 7-9. Conducted Power Data (NR Band n41 (PC3)) – Ant4)

Bandwidth	Modulation	Channel	Frequency [MHz]	Ant 1 RB Size/Offset	Ant 1 Conducted Power [dBm]	Ant 4 RB Size/Offset	Ant 4 Conducted Power [dBm]	UL-MIMO Conducted Power [dBm]
100 MHz	QPSK	509202	2546.01	1/136	19.76	1/136	19.83	22.81
		518598	2592.99	1/136	19.91	1/136	19.98	22.96
		528000	2640.00	1/136	19.66	1/136	19.84	22.76
	16-QAM	509202	2546.01	1/136	19.49	1/136	19.47	22.49
		518598	2592.99	1/136	18.79	1/136	19.61	22.23
		528000	2640.00	1/136	19.19	1/136	19.75	22.49
	64-QAM	509202	2546.01	1/136	17.68	1/136	17.76	20.73
		518598	2592.99	1/136	17.55	1/136	18.13	20.86
		528000	2640.00	1/136	17.20	1/136	18.00	20.63
	256-QAM	509202	2546.01	1/136	14.58	1/136	15.34	17.99
		518598	2592.99	1/136	14.96	1/136	15.25	18.12
		528000	2640.00	1/136	14.56	1/136	15.09	17.84

Table 7-10. Conducted Power Data (UL-MIMO NR Band n41 (PC3)) – Ant1 and Ant4)

7.3 Occupied Bandwidth

Test Overview

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Procedure Used

ANSI C63.26-2015 – Section 5.4.4

Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5% of the expected OBW
3. VBW ≥ 3 x RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5% of the 99% occupied bandwidth observed in Step 7

Test Setup

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

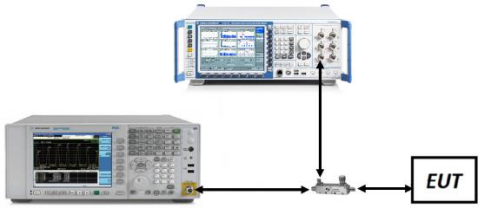


Figure 7-2. Test Instrument & Measurement Setup

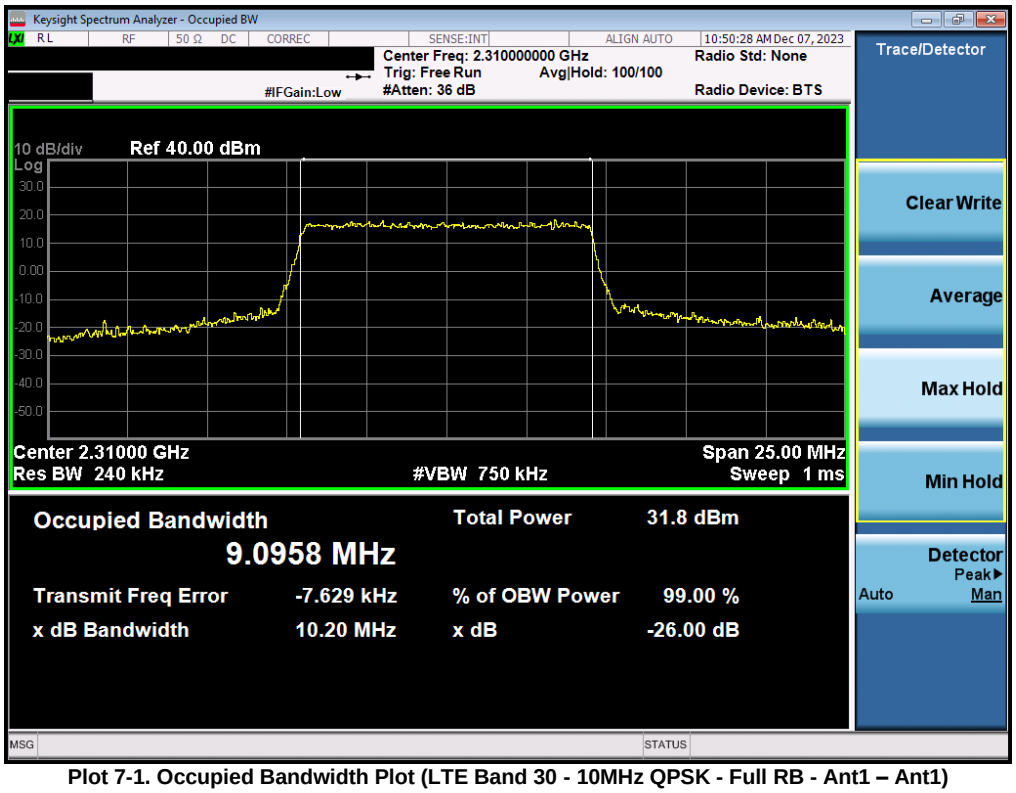
Test Notes

None.

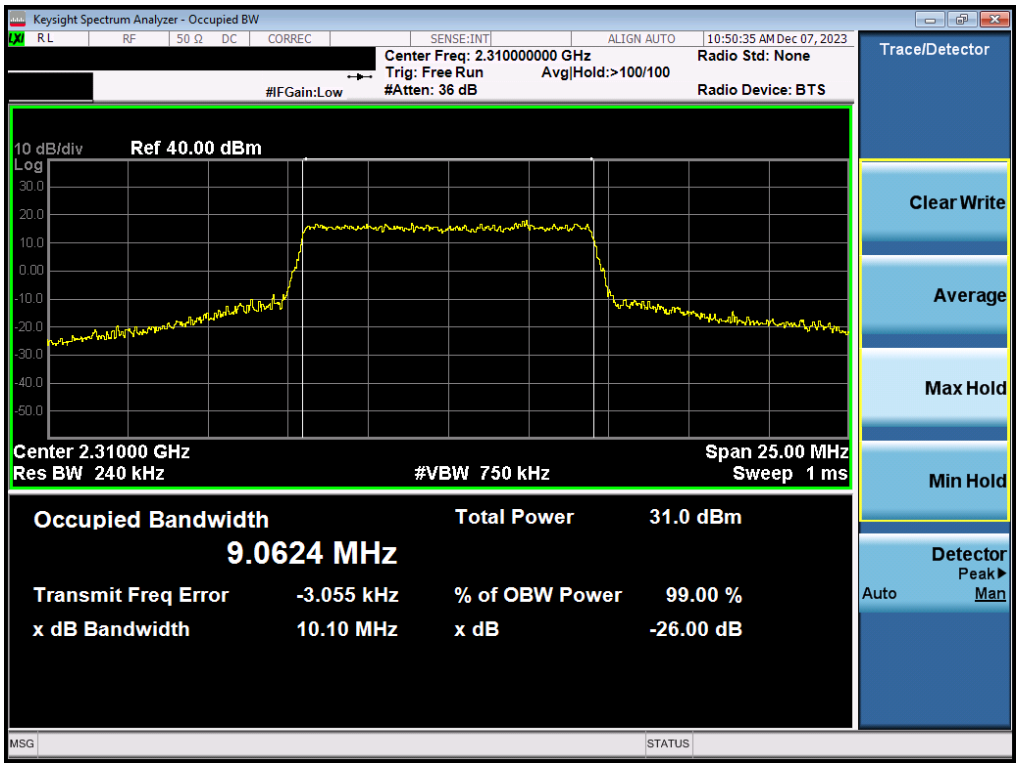
Mode	Bandwidth	Modulation	OBW [MHz]
LTE Band 30	10MHz	QPSK	9.10
		16QAM	9.06
	5 MHz	QPSK	4.54
		16QAM	4.54
LTE Band 41(PC2)	20 MHz	QPSK	17.99
		16QAM	18.06
	15 MHz	QPSK	13.51
		16QAM	13.49
	10 MHz	QPSK	8.97
		16QAM	9.06
	5 MHz	QPSK	4.52
		16QAM	4.50
LTE Band 41(PC3)	20 MHz	QPSK	18.05
		16QAM	18.03
	15 MHz	QPSK	13.56
		16QAM	13.59
	10 MHz	QPSK	9.06
		16QAM	9.04
	5 MHz	QPSK	4.53
		16QAM	4.52

Table 7-11. Occupied Bandwidth Results – LTE – Ant 1

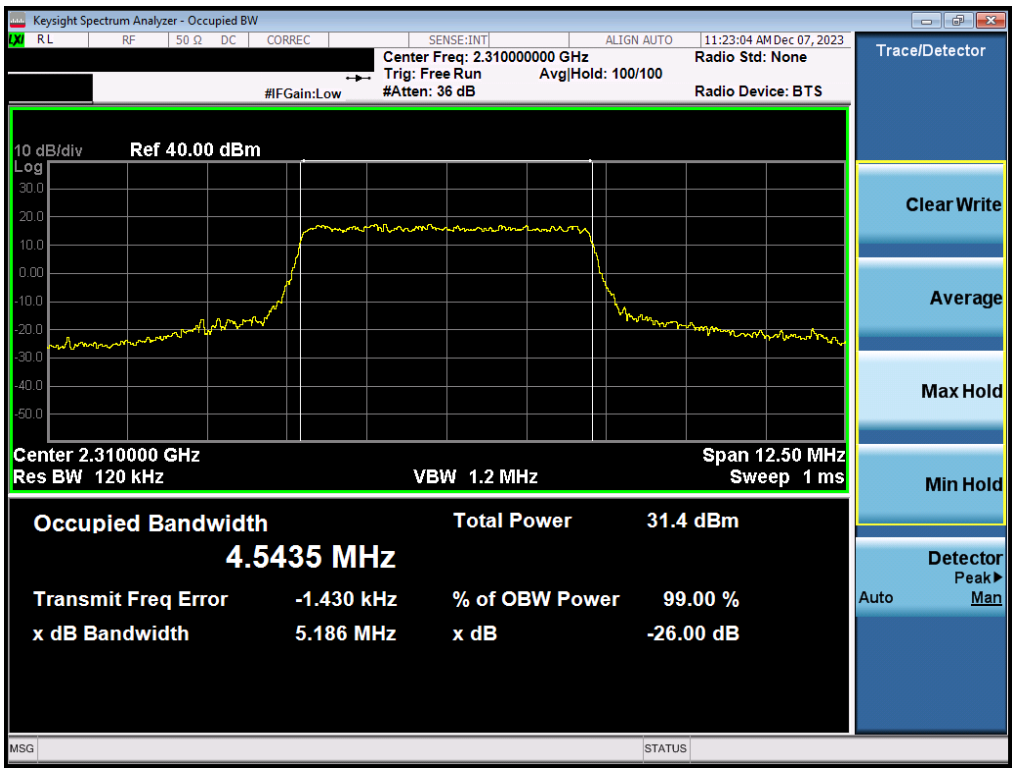
LTE Band 30 – Ant1



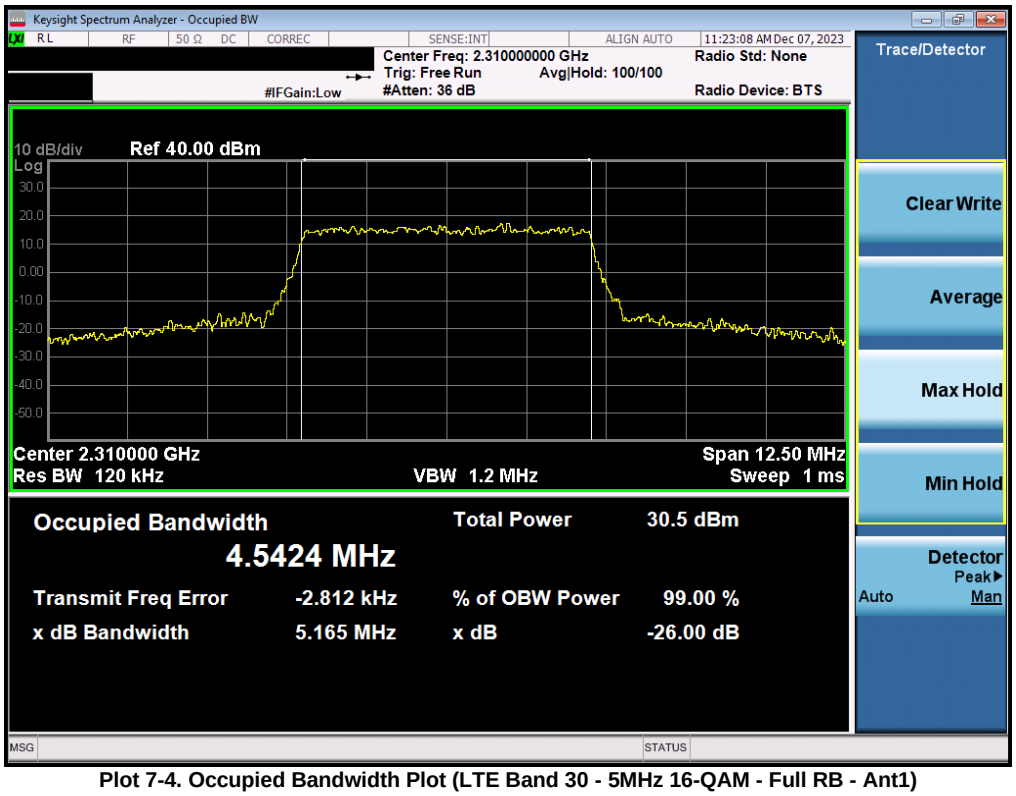
Plot 7-1. Occupied Bandwidth Plot (LTE Band 30 - 10MHz QPSK - Full RB - Ant1 – Ant1)



Plot 7-2. Occupied Bandwidth Plot (LTE Band 30 - 10MHz 16-QAM - Full RB - Ant1)



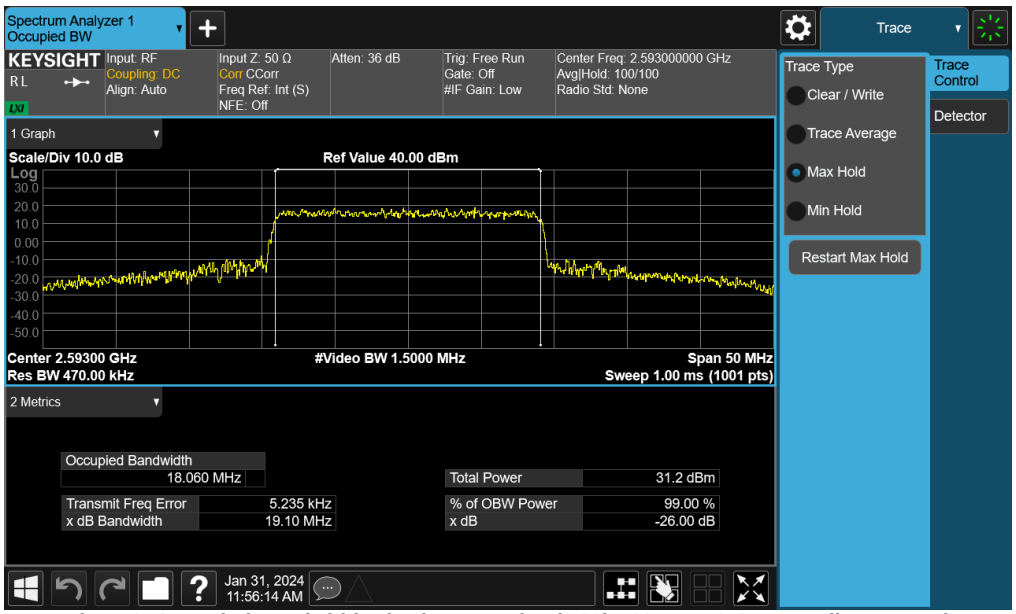
Plot 7-3. Occupied Bandwidth Plot (LTE Band 30 - 5MHz QPSK - Full RB - Ant1)



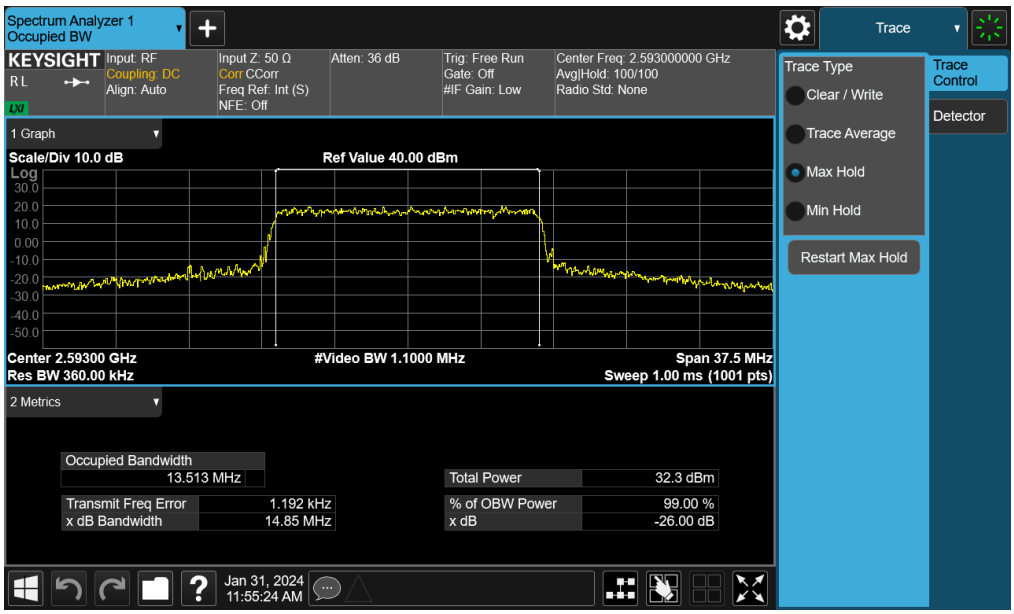
Plot 7-4. Occupied Bandwidth Plot (LTE Band 30 - 5MHz 16-QAM - Full RB - Ant1)

LTE Band 41(PC2) – Ant1

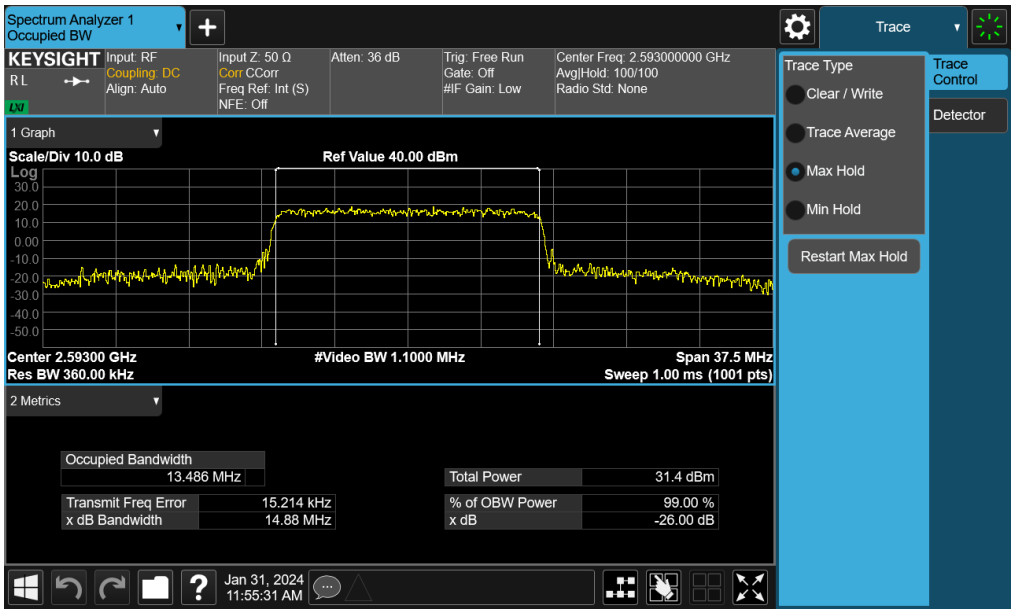
Plot 7-5. Occupied Bandwidth Plot (LTE Band 41(PC2) - 20MHz QPSK - Full RB - Ant1)



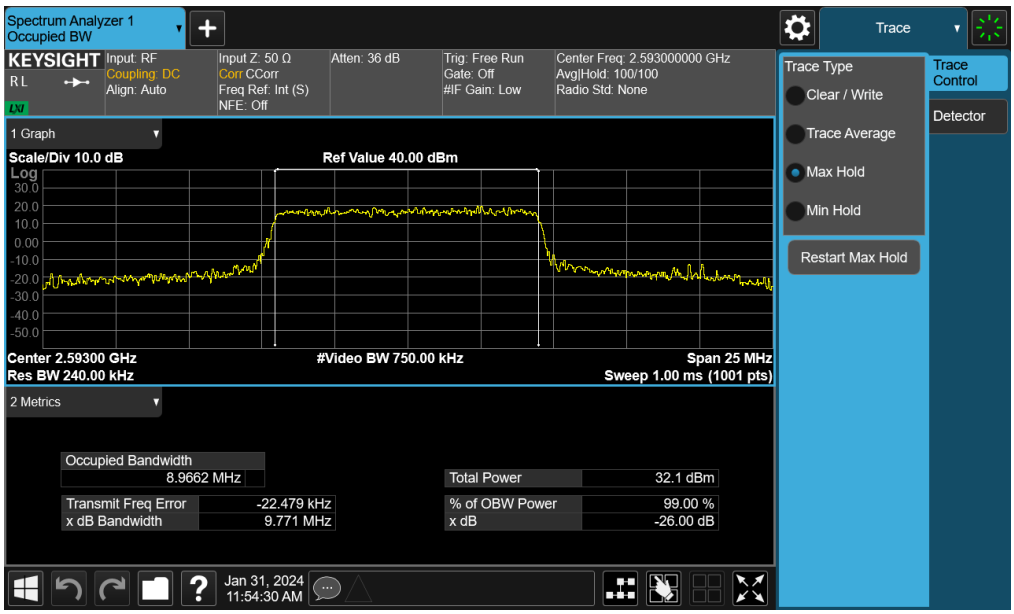
Plot 7-6. Occupied Bandwidth Plot (LTE Band 41(PC2) - 20MHz 16-QAM - Full RB - Ant1)



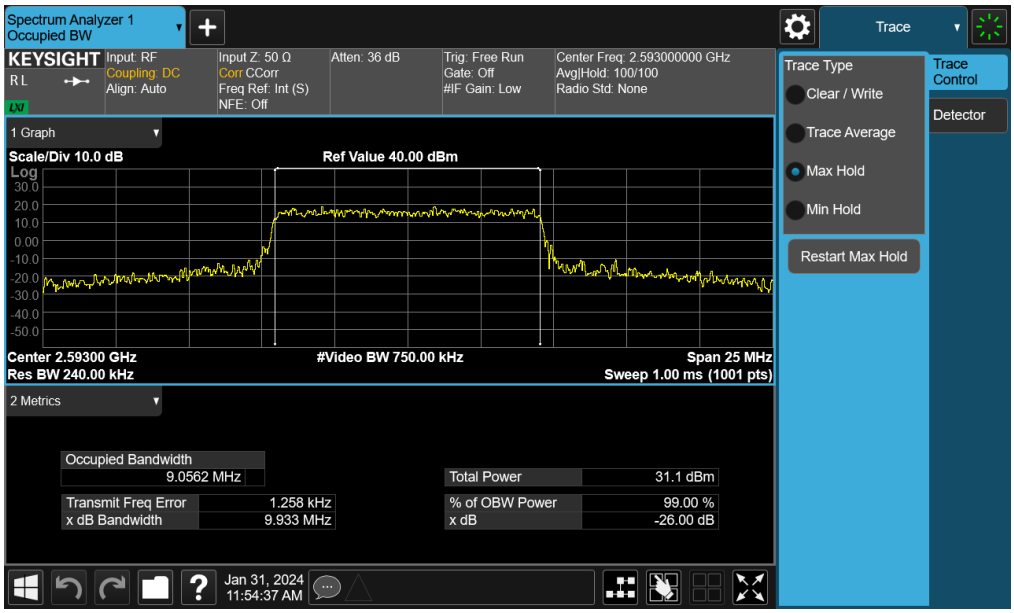
Plot 7-7. Occupied Bandwidth Plot (LTE Band 41(PC2) - 15MHz QPSK - Full RB - Ant1)



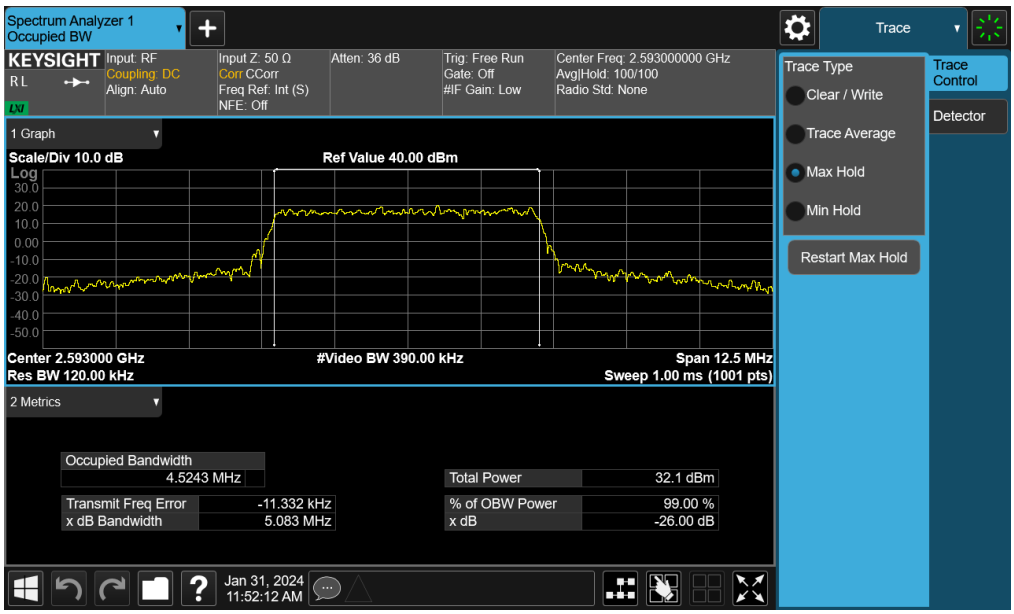
Plot 7-8. Occupied Bandwidth Plot (LTE Band 41(PC2) - 15MHz 16-QAM - Full RB - Ant1)



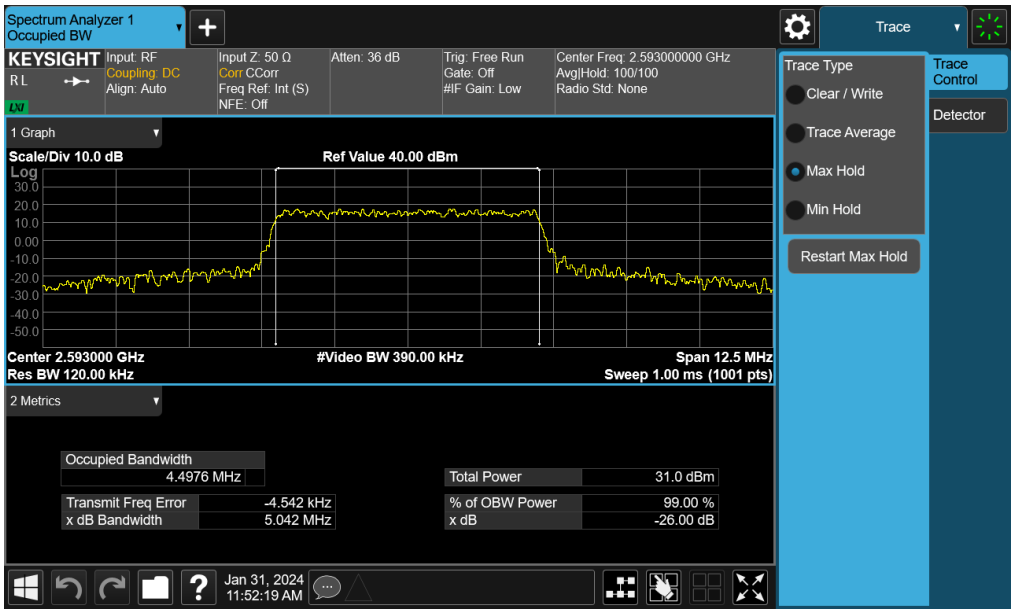
Plot 7-9. Occupied Bandwidth Plot (LTE Band 41(PC2) - 10MHz QPSK - Full RB - Ant1)



Plot 7-10. Occupied Bandwidth Plot (LTE Band 41(PC2) - 10MHz 16-QAM - Full RB - Ant1)

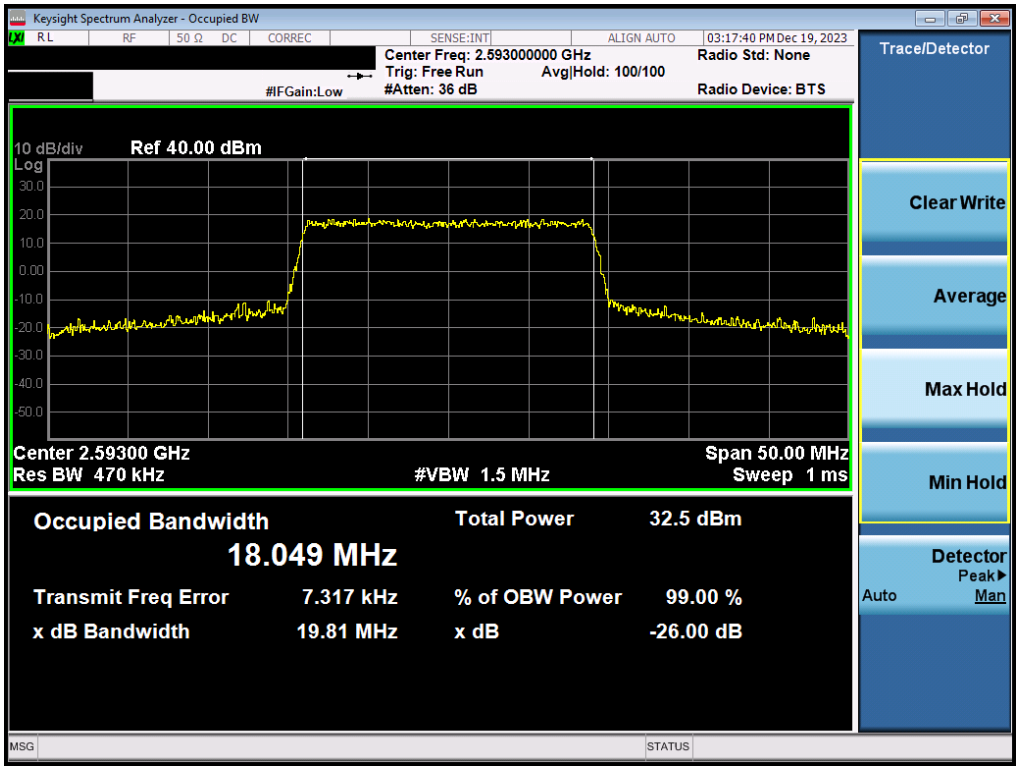


Plot 7-11. Occupied Bandwidth Plot (LTE Band 41(PC2) - 5MHz QPSK - Full RB - Ant1)

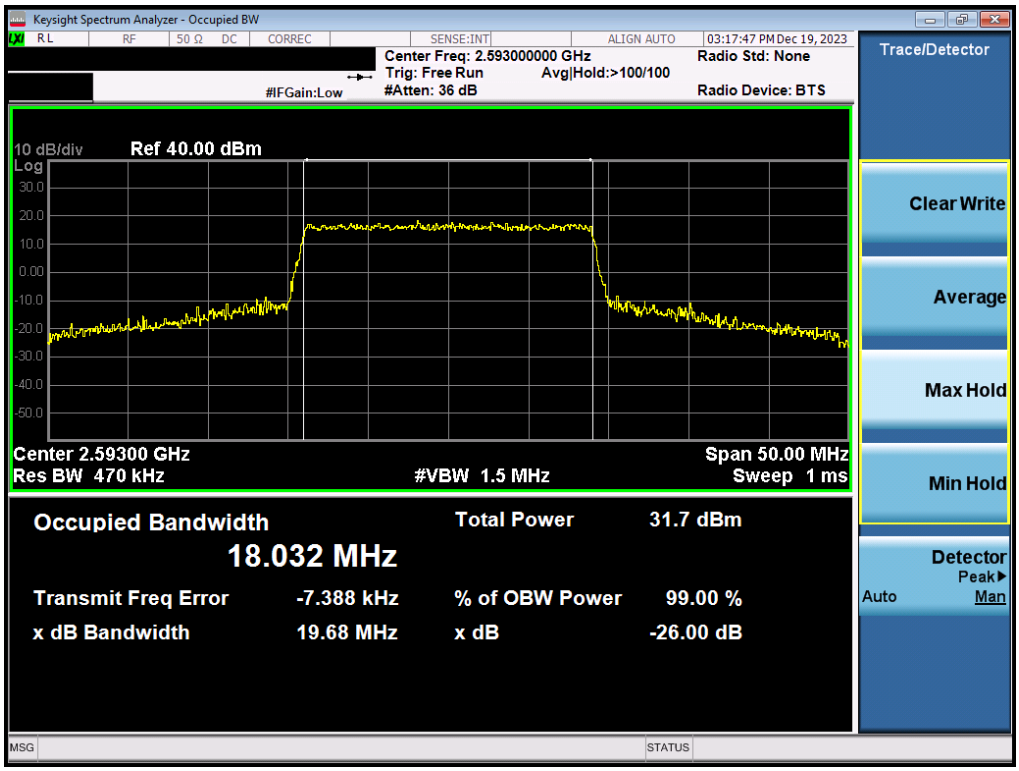


Plot 7-12. Occupied Bandwidth Plot (LTE Band 41(PC2) - 5MHz 16-QAM - Full RB - Ant1)

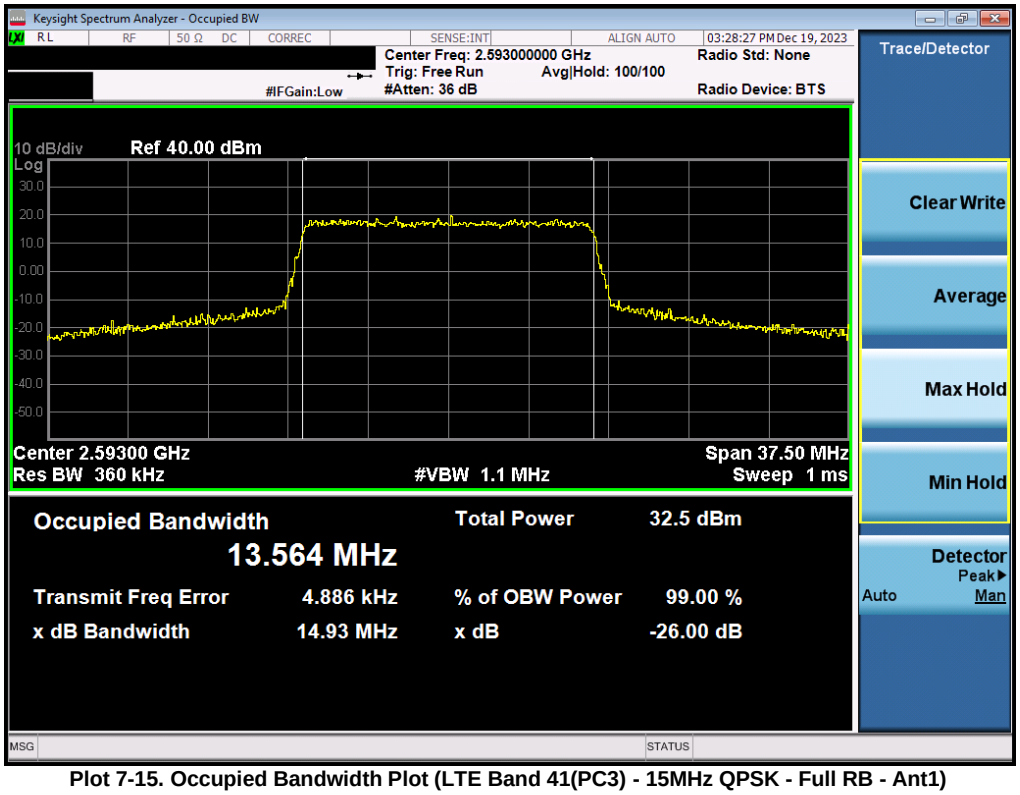
LTE Band 41(PC3) – Ant1



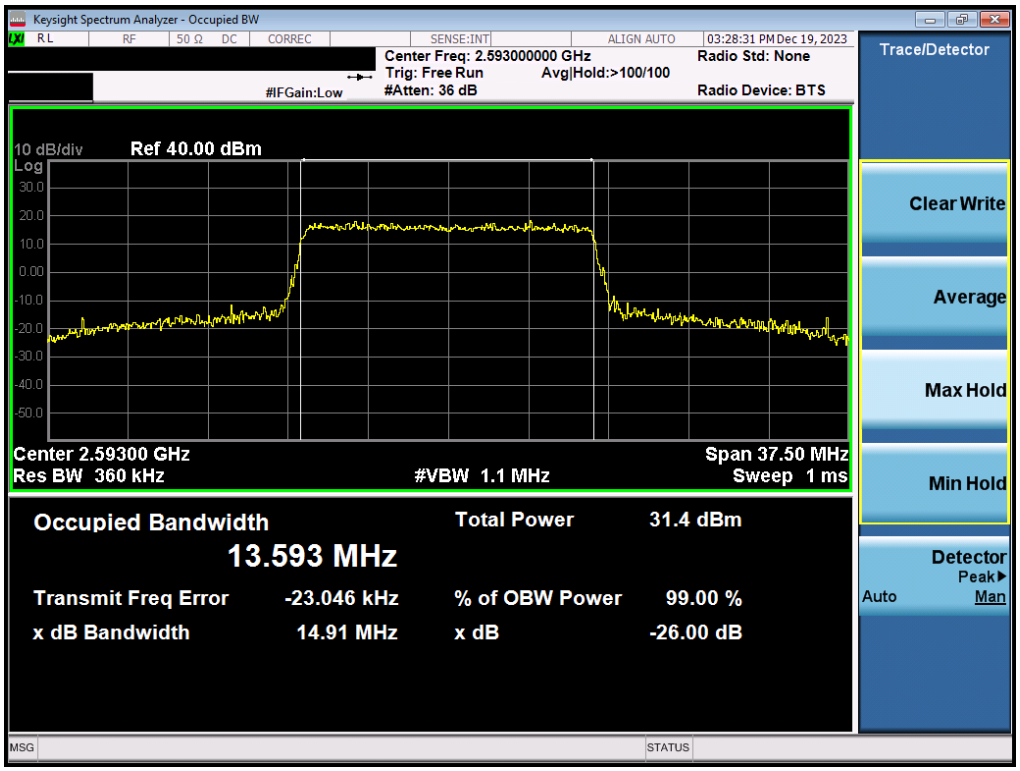
Plot 7-13. Occupied Bandwidth Plot (LTE Band 41(PC3) - 20MHz QPSK - Full RB - Ant1)



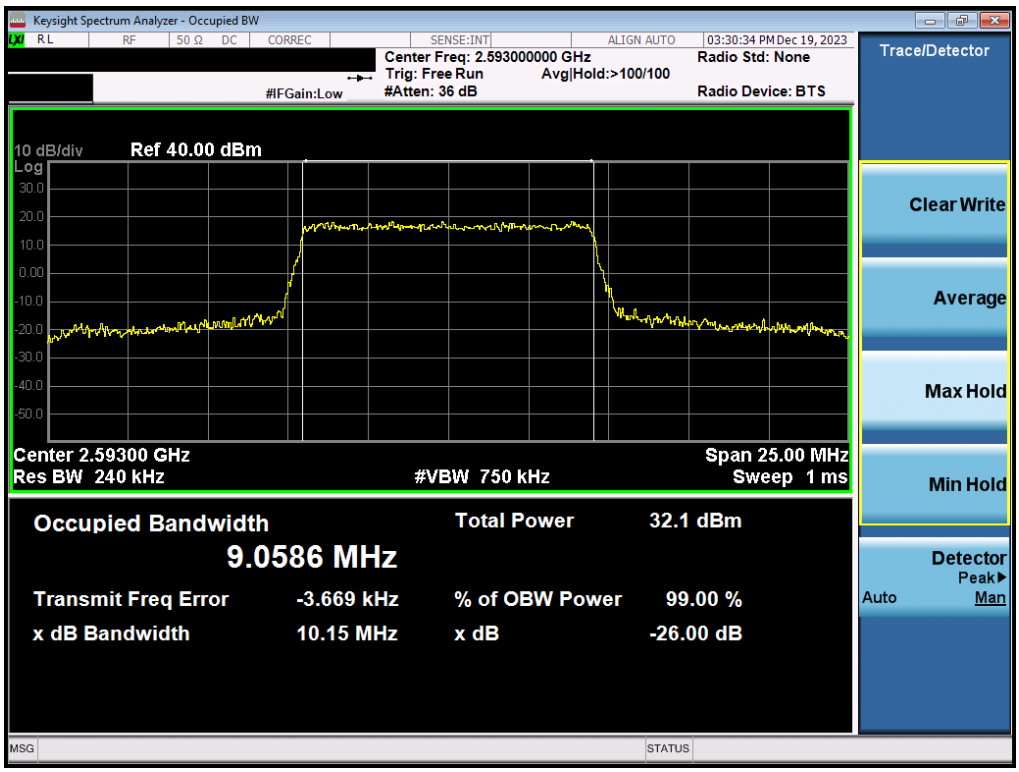
Plot 7-14. Occupied Bandwidth Plot (LTE Band 41(PC3) - 20MHz 16-QAM - Full RB - Ant1)



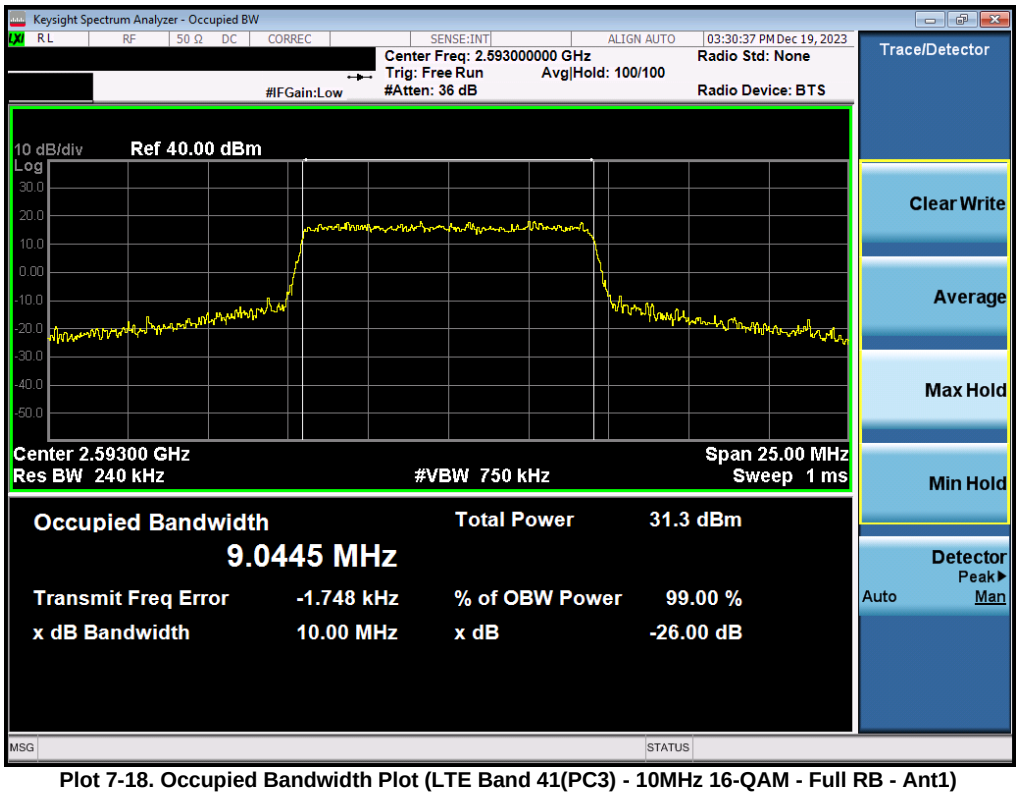
Plot 7-15. Occupied Bandwidth Plot (LTE Band 41(PC3) - 15MHz QPSK - Full RB - Ant1)



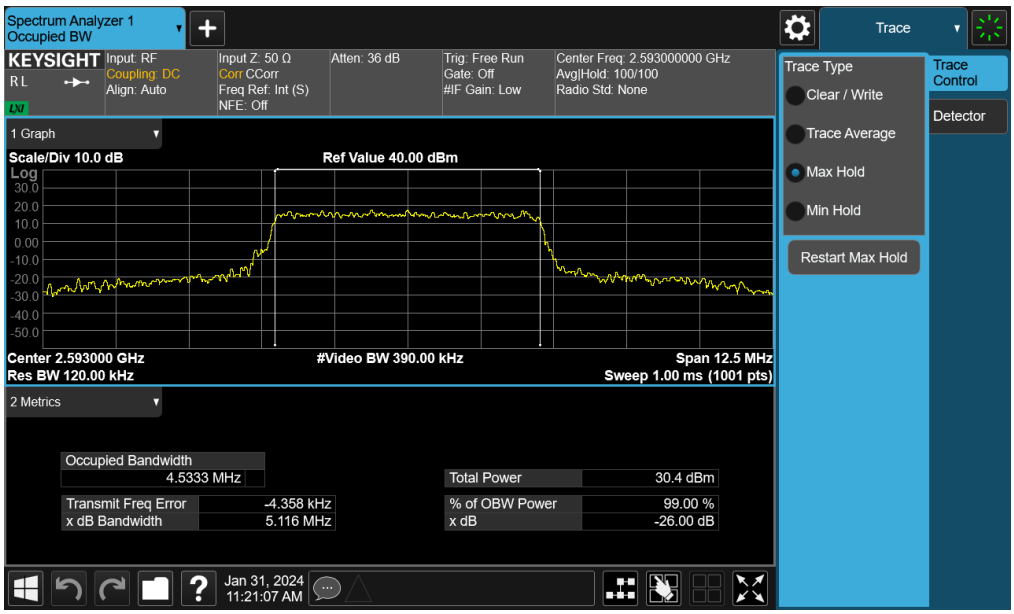
Plot 7-16. Occupied Bandwidth Plot (LTE Band 41(PC3) - 15MHz 16-QAM - Full RB - Ant1)



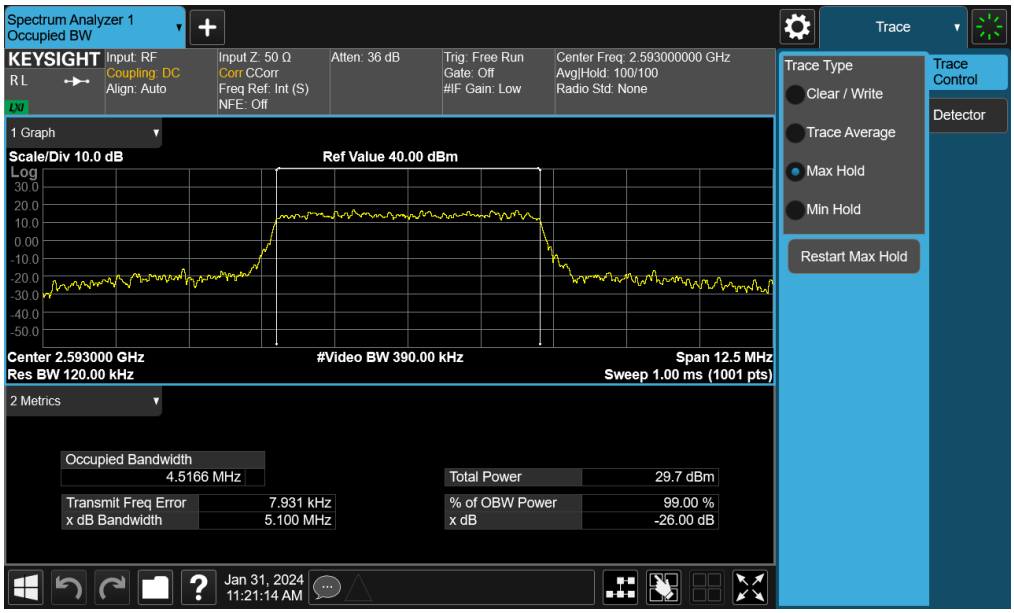
Plot 7-17. Occupied Bandwidth Plot (LTE Band 41(PC3) - 10MHz QPSK - Full RB - Ant1)



Plot 7-18. Occupied Bandwidth Plot (LTE Band 41(PC3) - 10MHz 16-QAM - Full RB - Ant1)



Plot 7-19. Occupied Bandwidth Plot (LTE Band 41(PC3) - 5MHz QPSK - Full RB - Ant1)



Plot 7-20. Occupied Bandwidth Plot (LTE Band 41(PC3) - 5MHz 16-QAM - Full RB - Ant1)

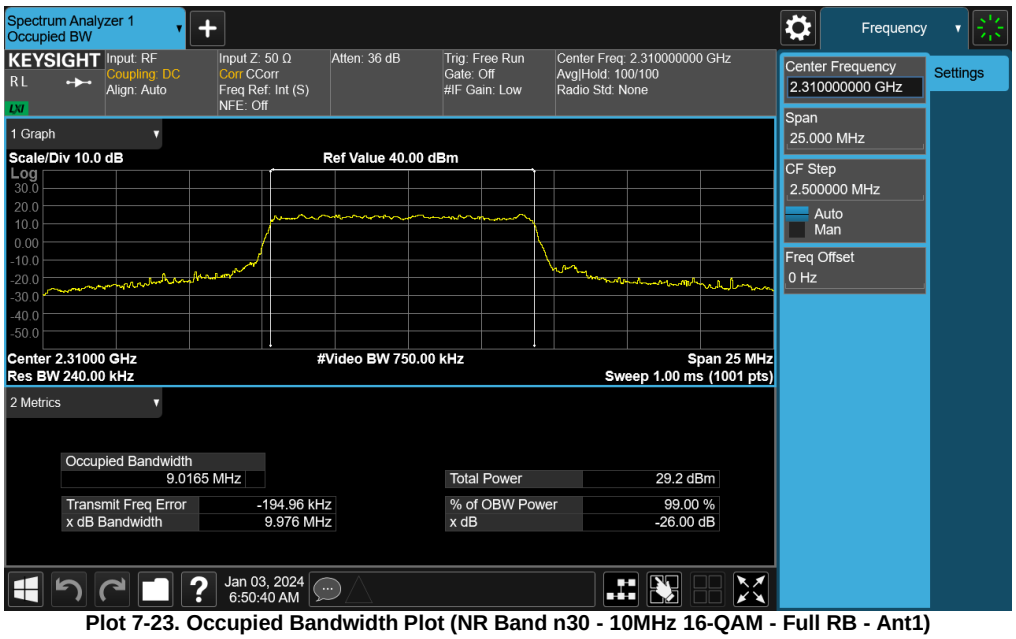
Mode	Bandwidth	Modulation	OBW [MHz]
NR-n30	10MHz	BPSK	9.04
		QPSK	9.00
		16QAM	9.02
	5MHz	BPSK	4.51
		QPSK	4.52
		16QAM	4.52
NR-n41PC3	100MHz	BPSK	97.07
		QPSK	97.91
		16QAM	98.12
	90MHz	BPSK	87.35
		QPSK	88.06
		16QAM	87.92
	80MHz	BPSK	77.74
		QPSK	77.89
		16QAM	77.95
	70MHz	BPSK	64.45
		QPSK	67.59
		16QAM	67.77
	60MHz	BPSK	58.50
		QPSK	58.32
		16QAM	58.31
	50MHz	BPSK	46.16
		QPSK	47.80
		16QAM	47.91
	40MHz	BPSK	35.98
		QPSK	38.11
		16QAM	38.12
	30MHz	BPSK	27.01
		QPSK	28.07
		16QAM	28.04
	20MHz	BPSK	18.00
		QPSK	18.51
		16QAM	18.42

Table 7-12. Occupied Bandwidth Results – NR – Ant 1

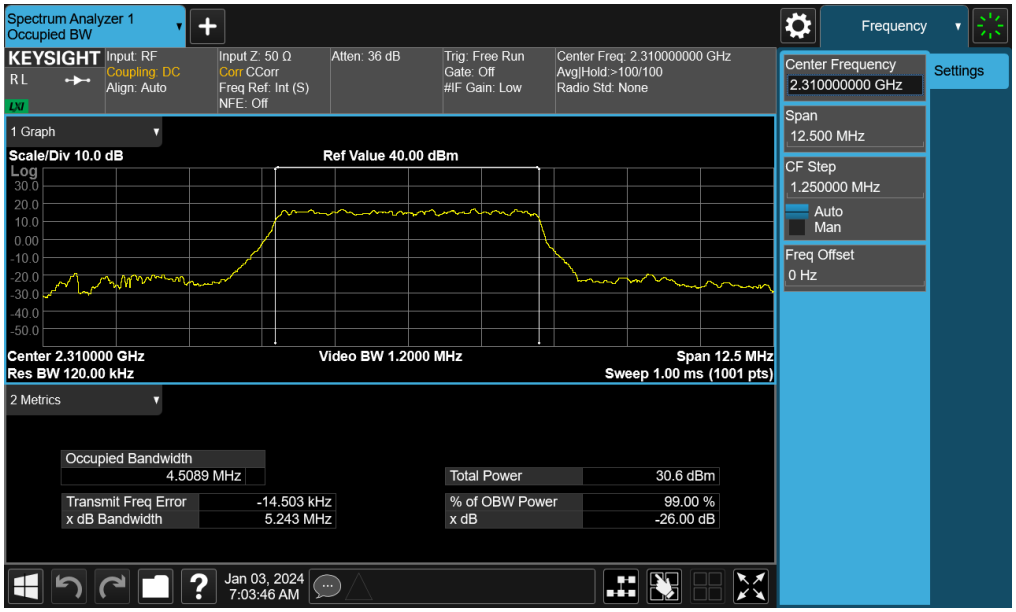
NR Band n30 – Ant1

Plot 7-21. Occupied Bandwidth Plot (NR Band n30 - 10MHz π/2 BPSK - Full RB - Ant1)

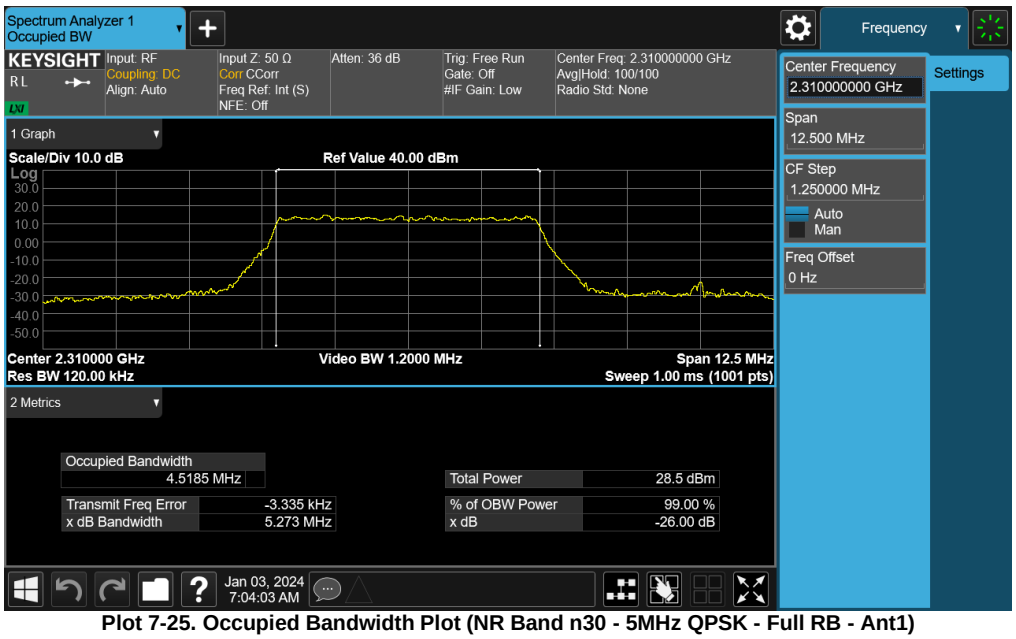
Plot 7-22. Occupied Bandwidth Plot (NR Band n30 - 10MHz QPSK - Full RB - Ant1)



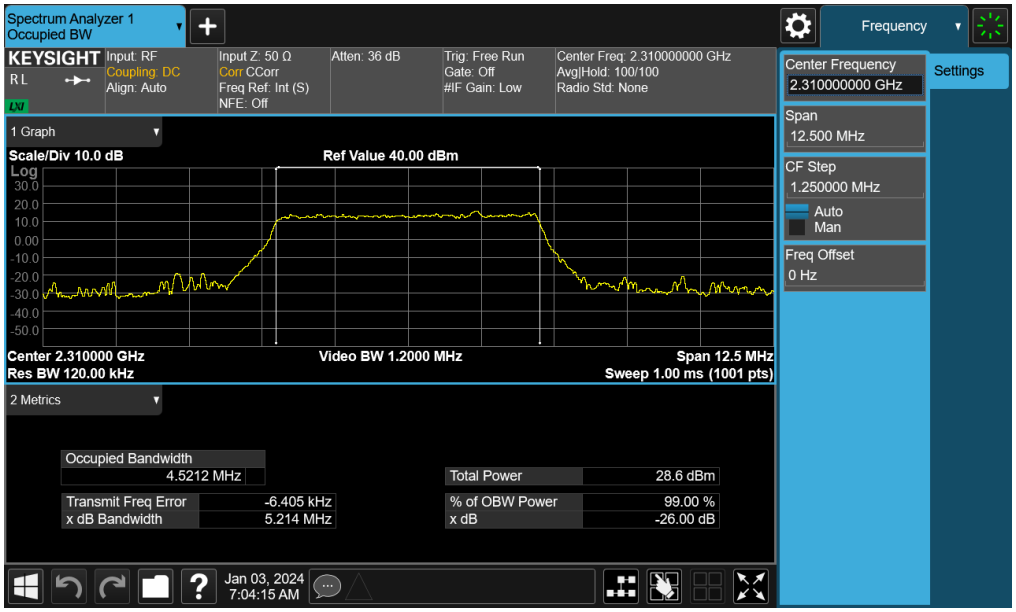
Plot 7-23. Occupied Bandwidth Plot (NR Band n30 - 10MHz 16-QAM - Full RB - Ant1)



Plot 7-24. Occupied Bandwidth Plot (NR Band n30 - 5MHz π/2 BPSK - Full RB - Ant1)

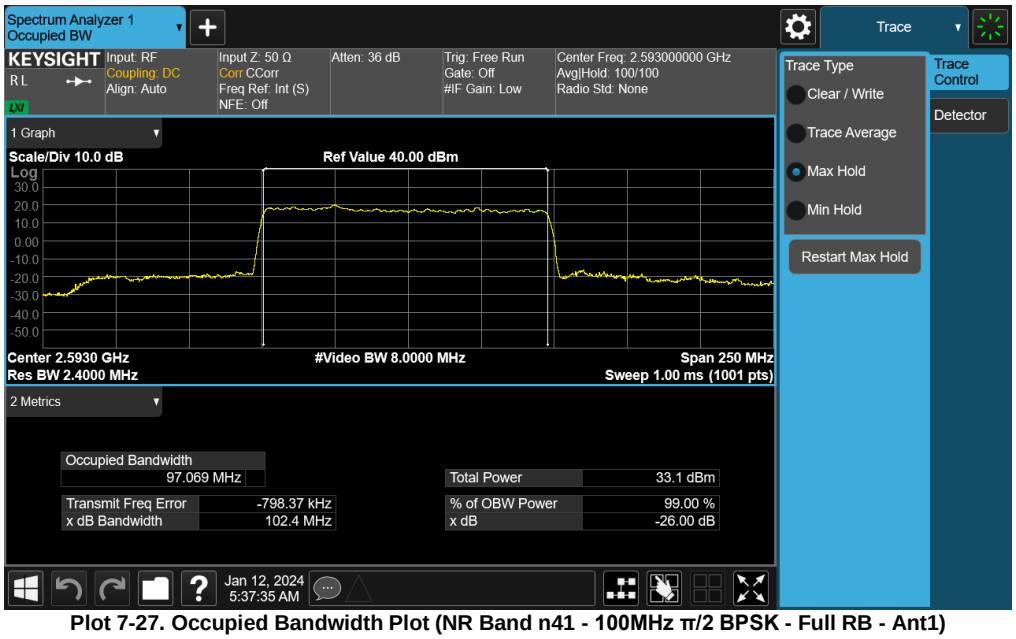


Plot 7-25. Occupied Bandwidth Plot (NR Band n30 - 5MHz QPSK - Full RB - Ant1)

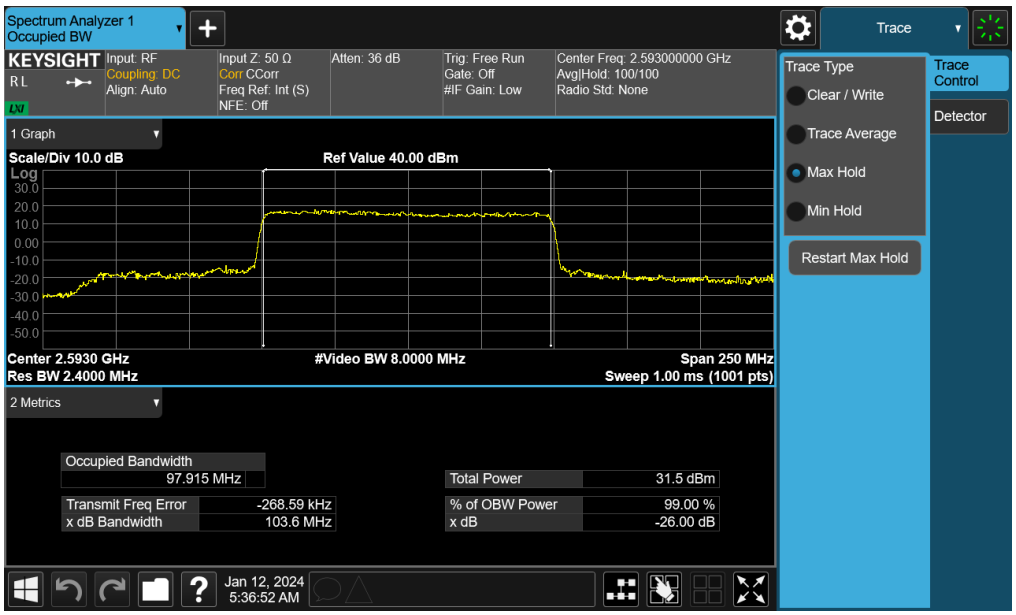


Plot 7-26. Occupied Bandwidth Plot (NR Band n30 - 5MHz 16-QAM - Full RB - Ant1)

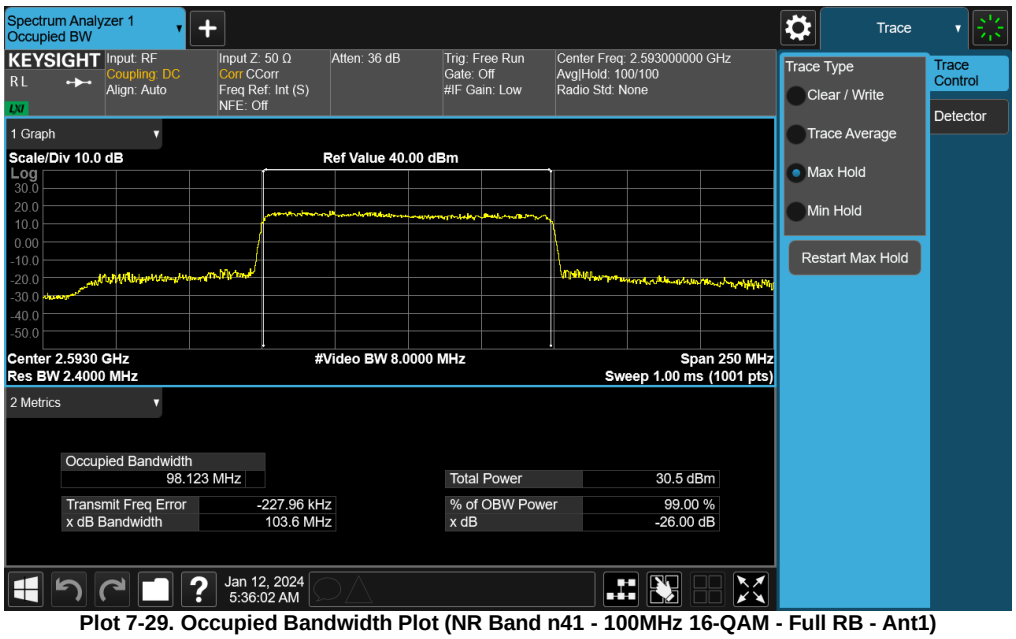
NR Band n41 – Ant1



Plot 7-27. Occupied Bandwidth Plot (NR Band n41 - 100MHz π/2 BPSK - Full RB - Ant1)

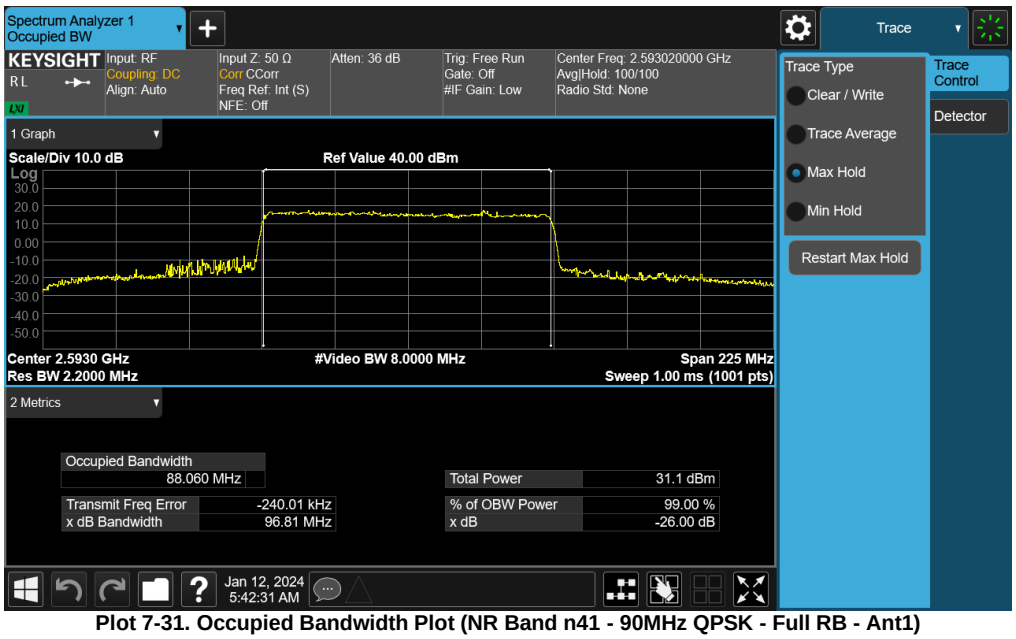


Plot 7-28. Occupied Bandwidth Plot (NR Band n41 - 100MHz QPSK - Full RB - Ant1)

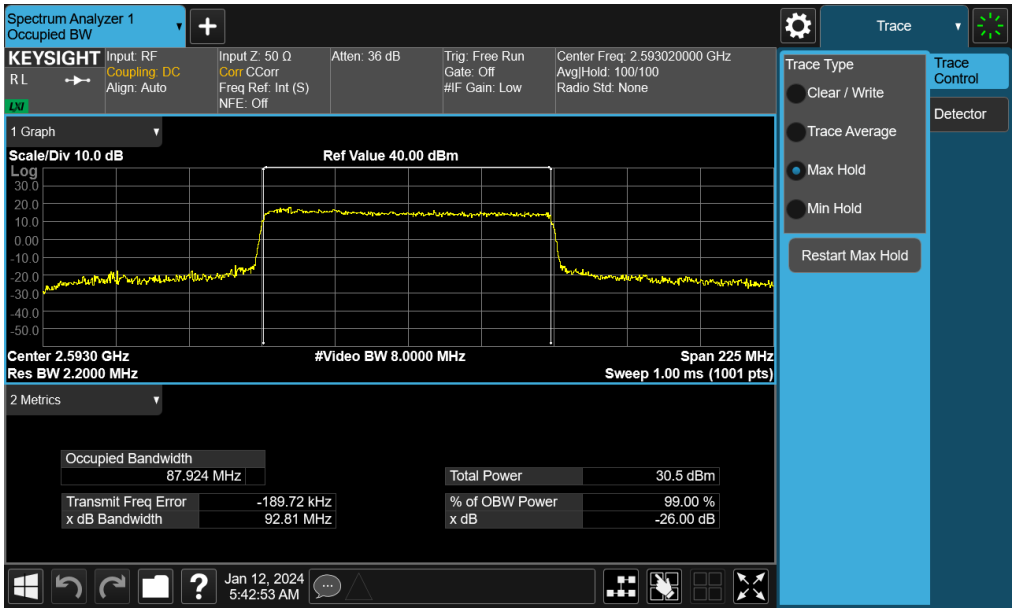


Plot 7-29. Occupied Bandwidth Plot (NR Band n41 - 100MHz 16-QAM - Full RB - Ant1)

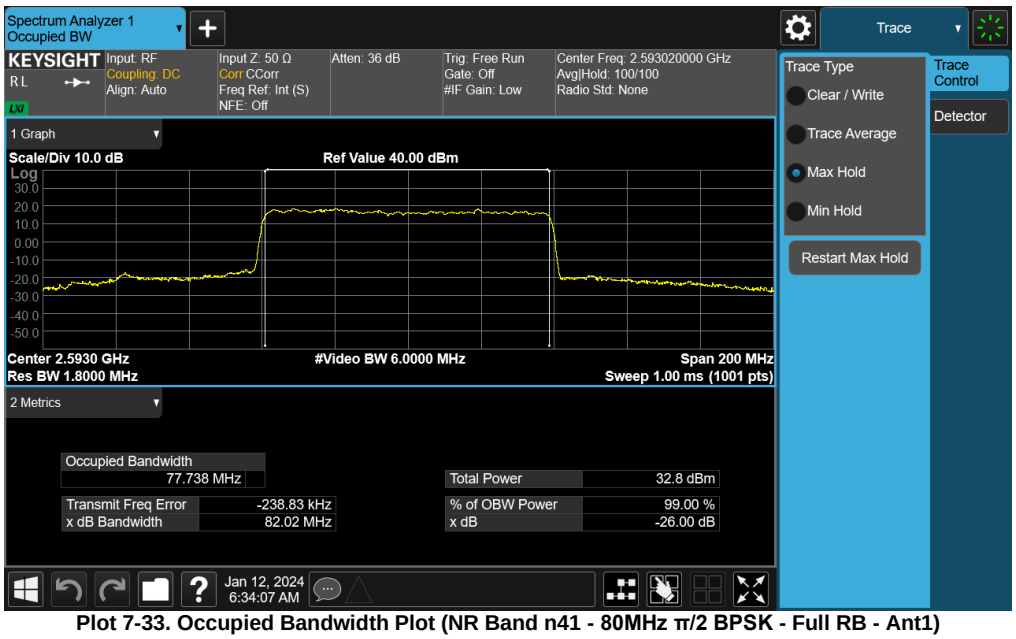
Plot 7-30. Occupied Bandwidth Plot (NR Band n41 - 90MHz π/2 BPSK - Full RB - Ant1)



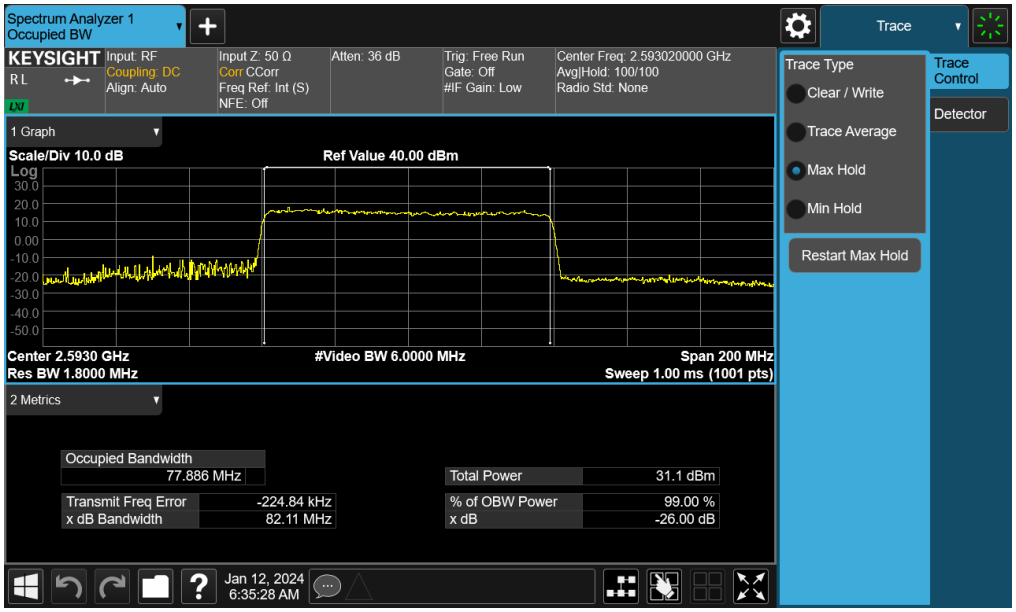
Plot 7-31. Occupied Bandwidth Plot (NR Band n41 - 90MHz QPSK - Full RB - Ant1)



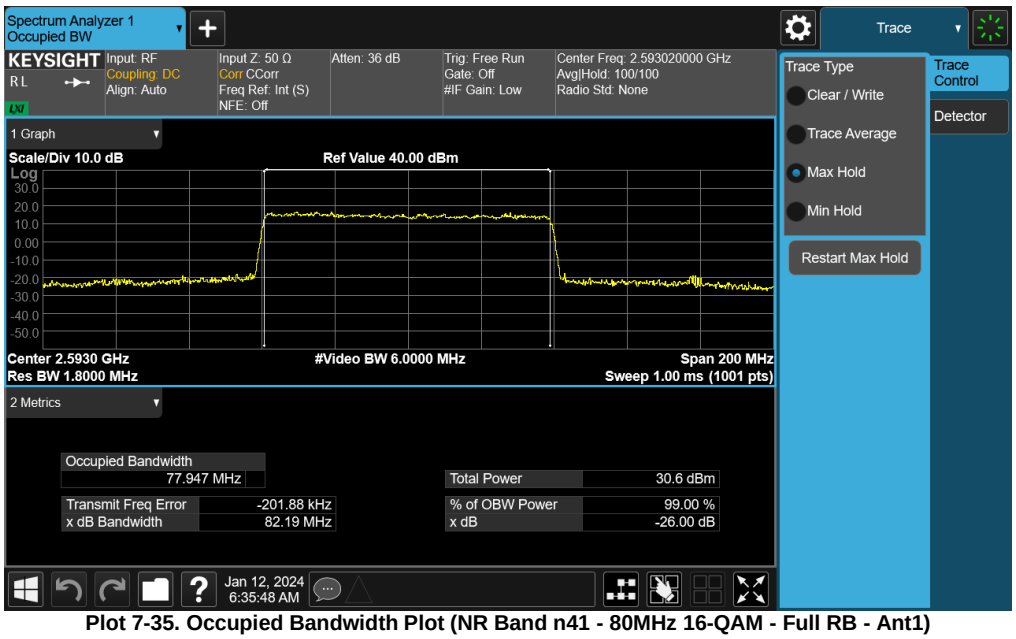
Plot 7-32. Occupied Bandwidth Plot (NR Band n41 - 90MHz 16-QAM - Full RB - Ant1)



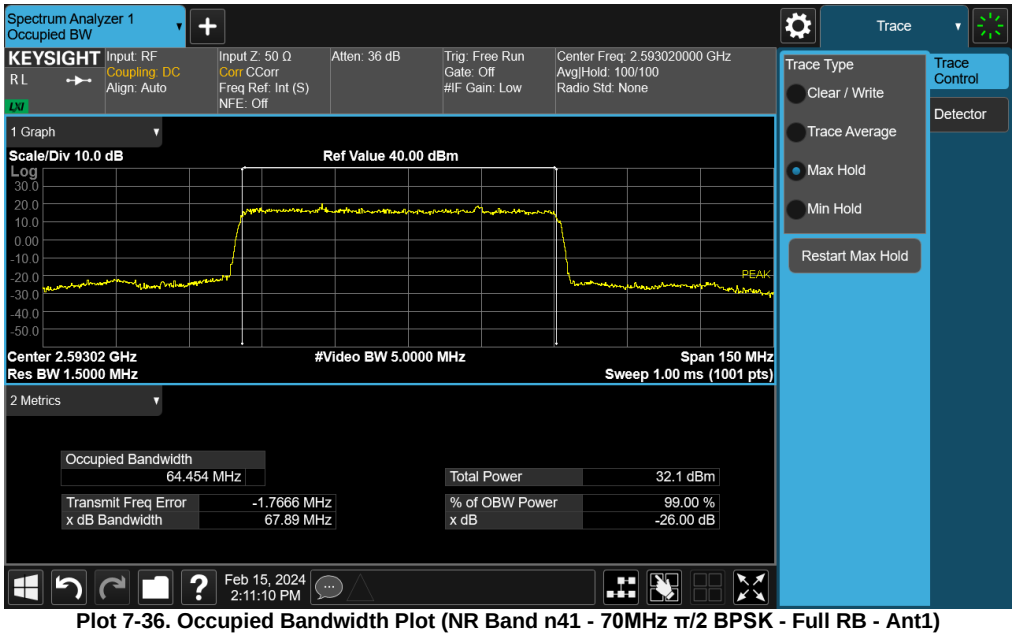
Plot 7-33. Occupied Bandwidth Plot (NR Band n41 - 80MHz π/2 BPSK - Full RB - Ant1)



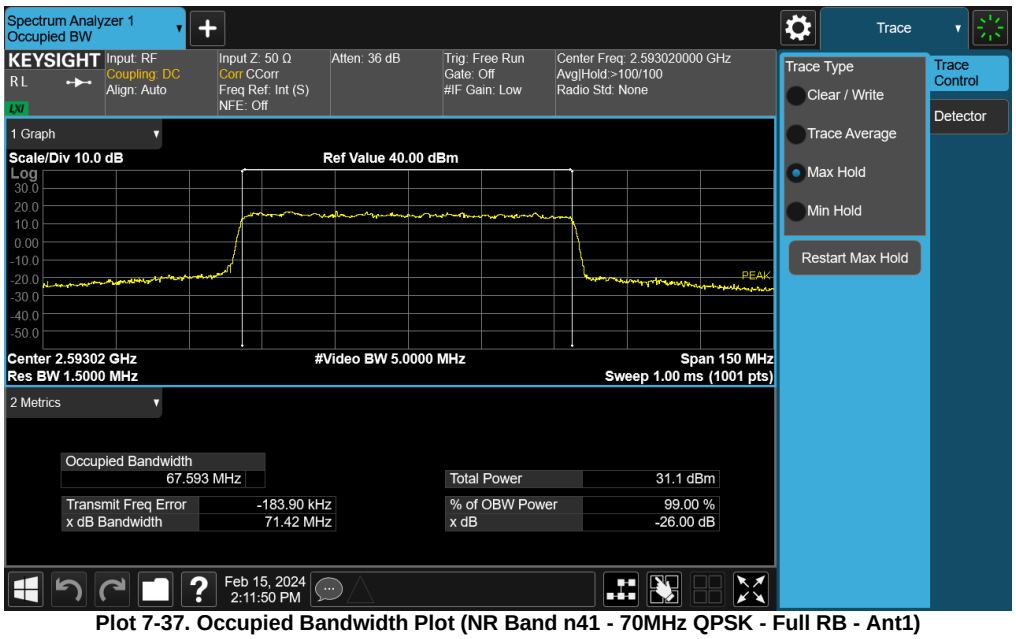
Plot 7-34. Occupied Bandwidth Plot (NR Band n41 - 80MHz QPSK - Full RB - Ant1)



Plot 7-35. Occupied Bandwidth Plot (NR Band n41 - 80MHz 16-QAM - Full RB - Ant1)

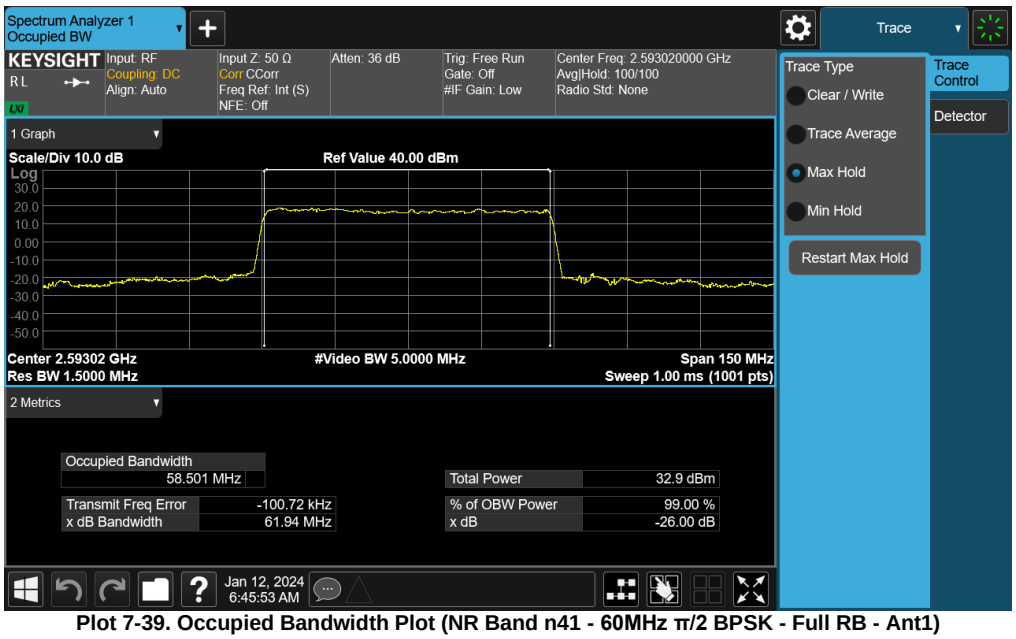


Plot 7-36. Occupied Bandwidth Plot (NR Band n41 - 70MHz π/2 BPSK - Full RB - Ant1)

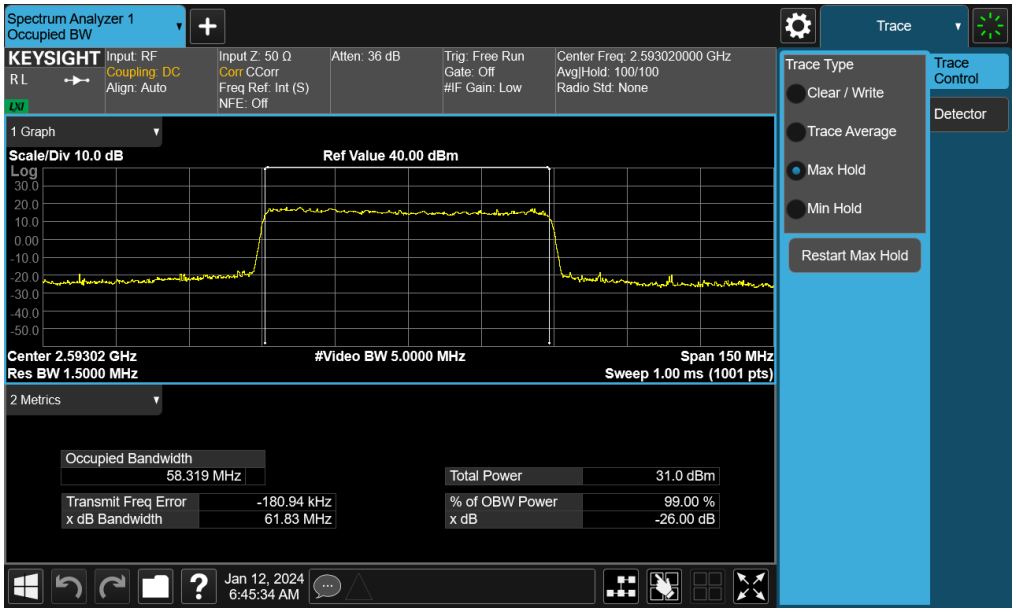


Plot 7-37. Occupied Bandwidth Plot (NR Band n41 - 70MHz QPSK - Full RB - Ant1)

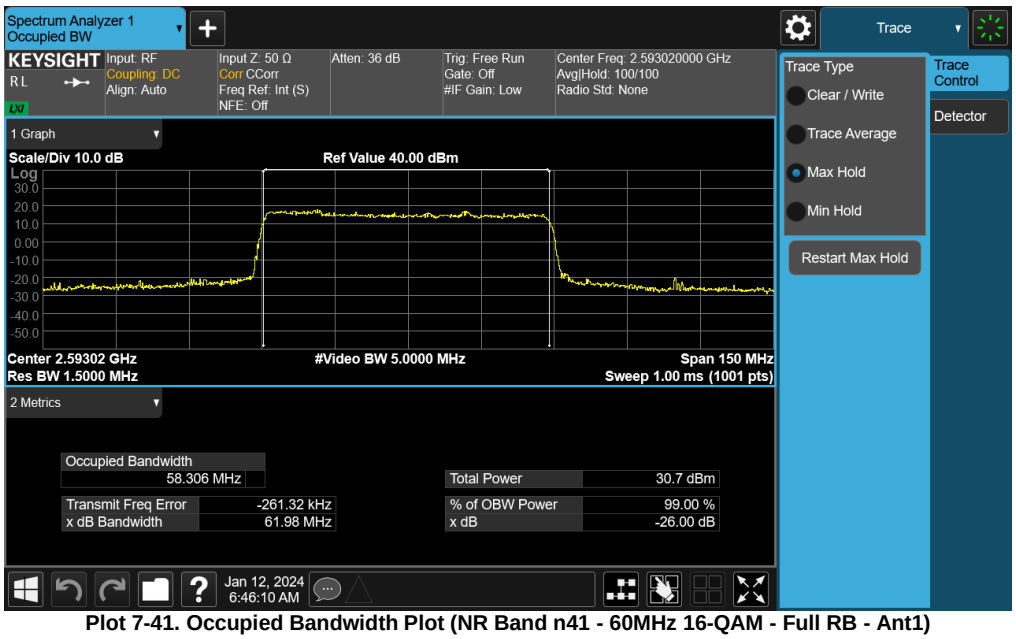
Plot 7-38. Occupied Bandwidth Plot (NR Band n41 - 70MHz 16-QAM - Full RB - Ant1)



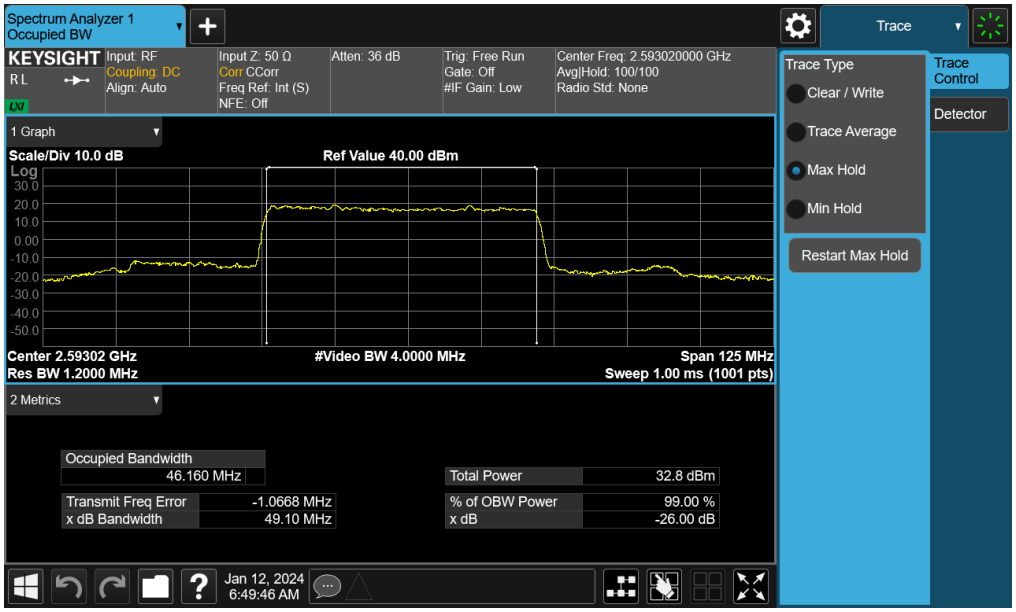
Plot 7-39. Occupied Bandwidth Plot (NR Band n41 - 60MHz π/2 BPSK - Full RB - Ant1)



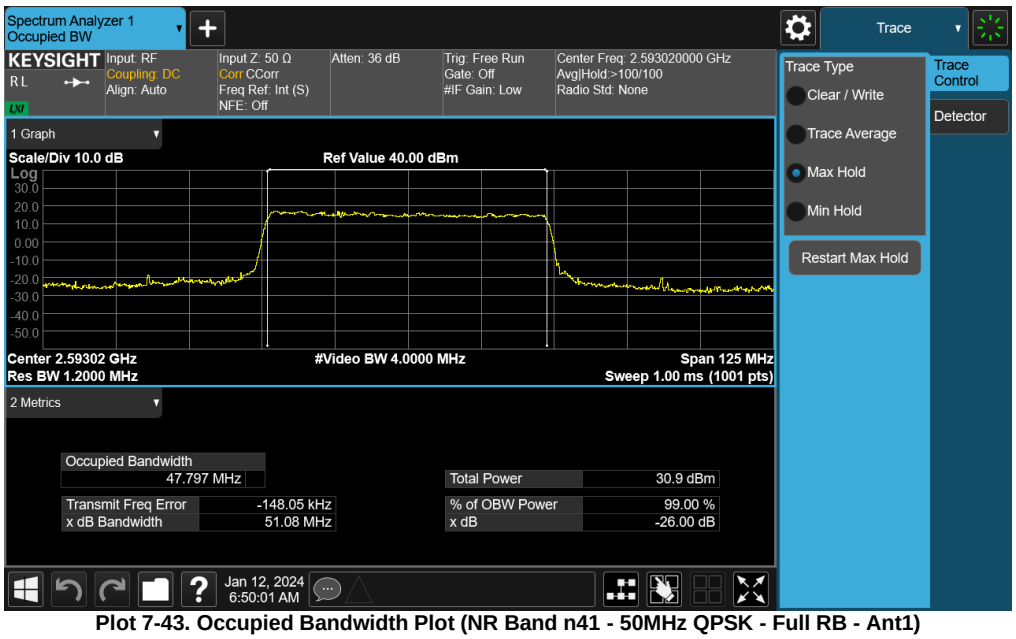
Plot 7-40. Occupied Bandwidth Plot (NR Band n41 - 60MHz QPSK - Full RB - Ant1)



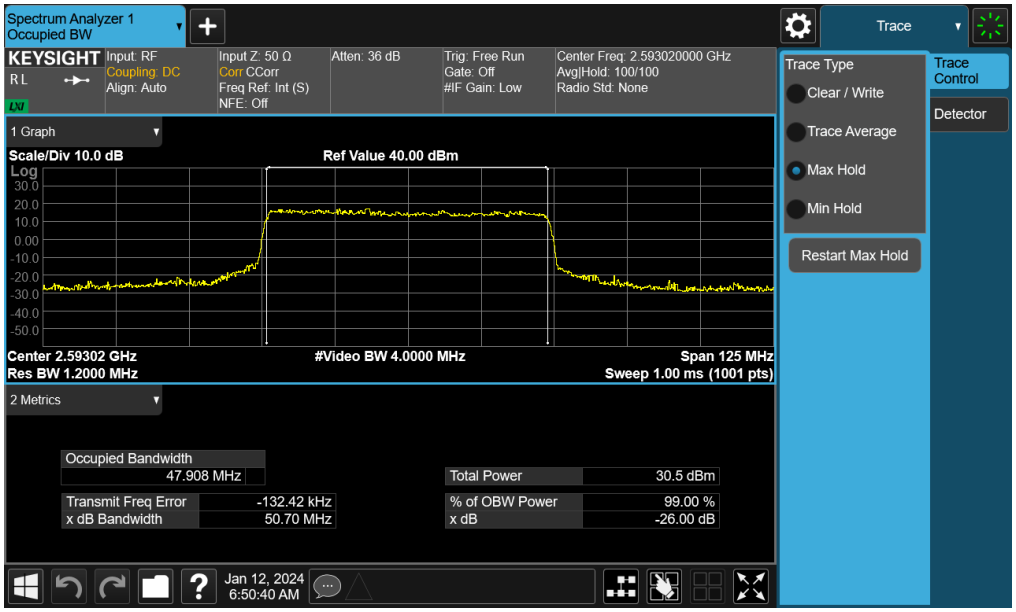
Plot 7-41. Occupied Bandwidth Plot (NR Band n41 - 60MHz 16-QAM - Full RB - Ant1)



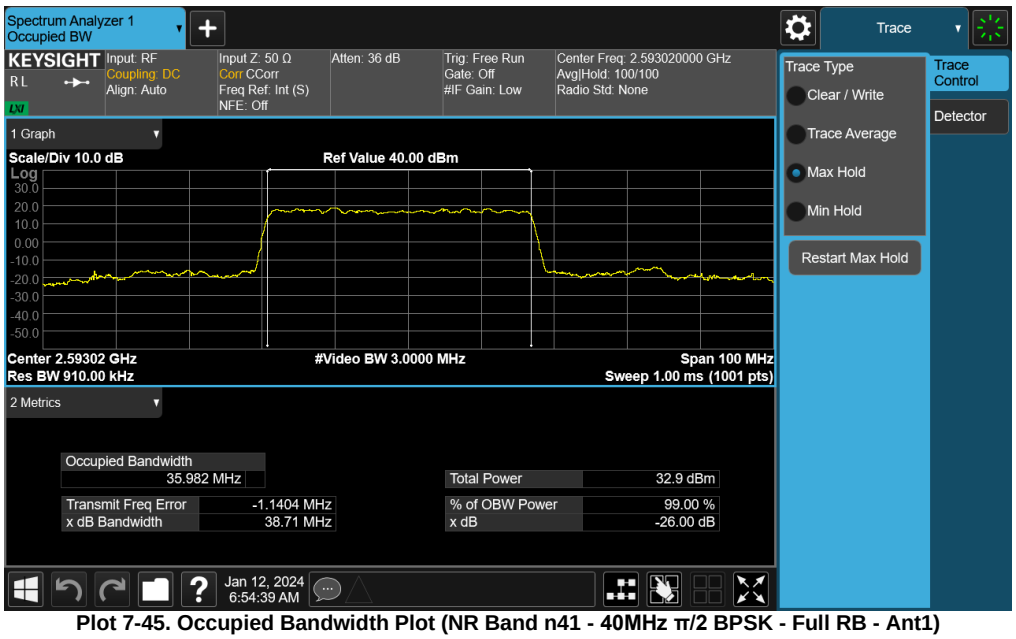
Plot 7-42. Occupied Bandwidth Plot (NR Band n41 - 50MHz π/2 BPSK - Full RB - Ant1)



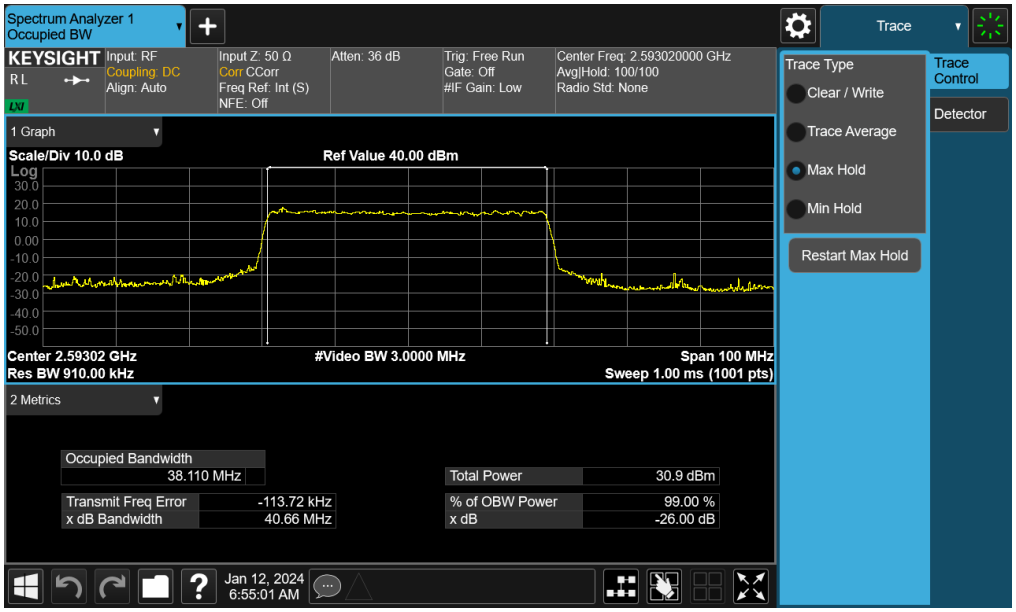
Plot 7-43. Occupied Bandwidth Plot (NR Band n41 - 50MHz QPSK - Full RB - Ant1)



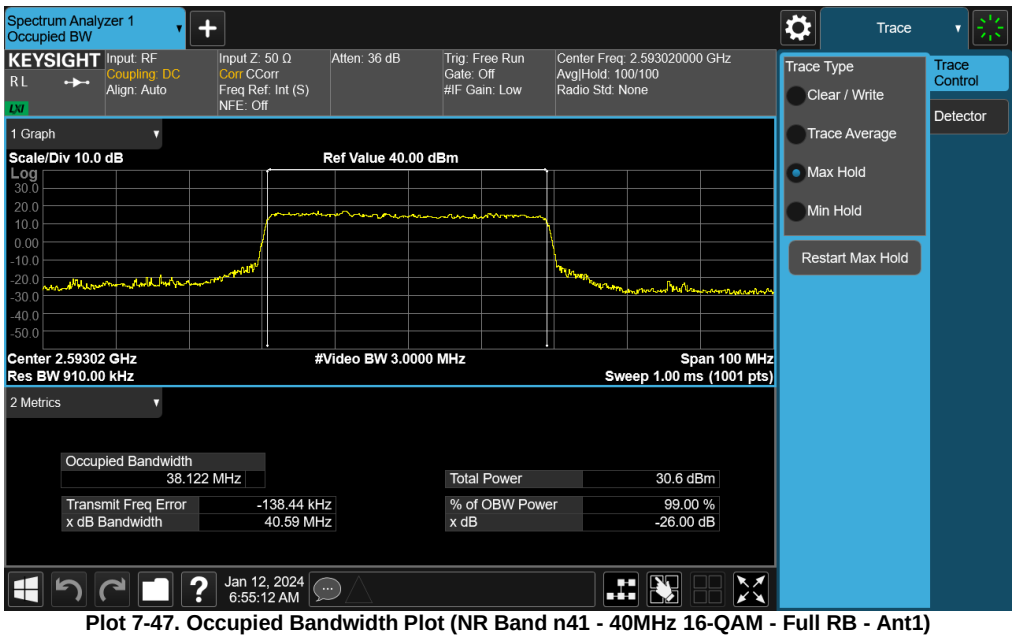
Plot 7-44. Occupied Bandwidth Plot (NR Band n41 - 50MHz 16-QAM - Full RB - Ant1)



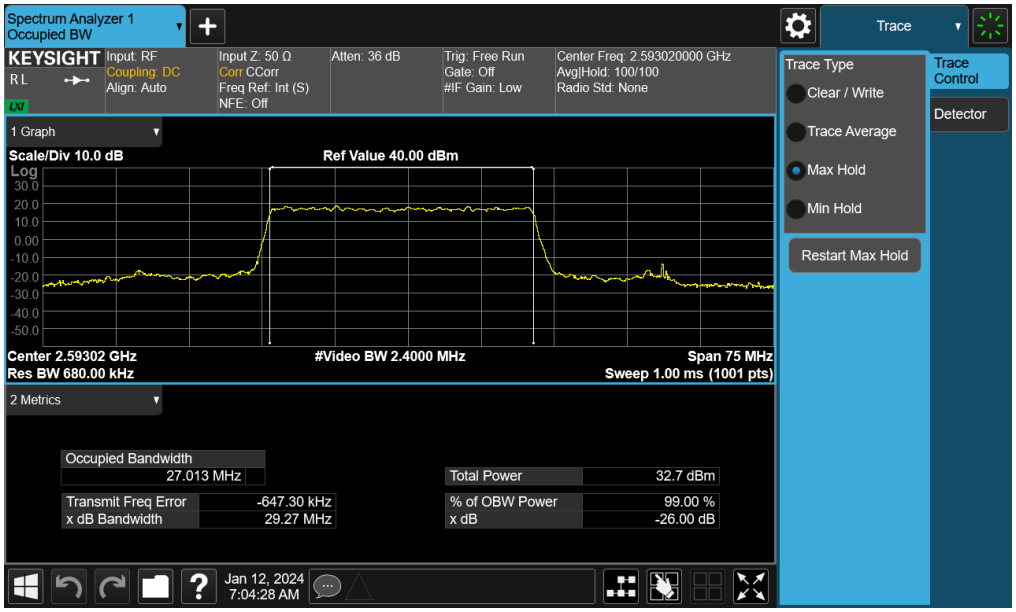
Plot 7-45. Occupied Bandwidth Plot (NR Band n41 - 40MHz π/2 BPSK - Full RB - Ant1)



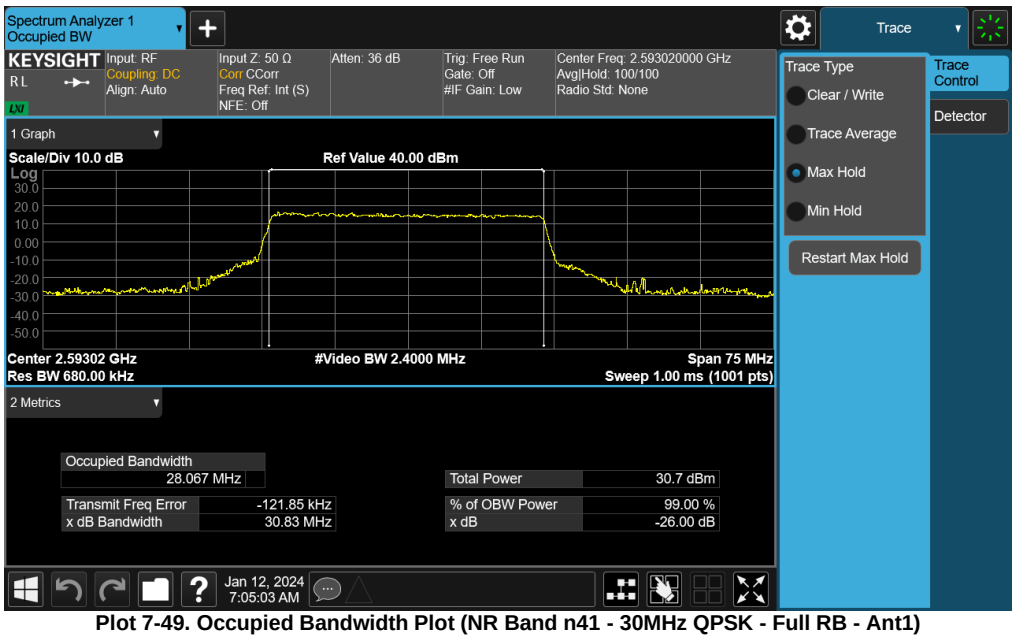
Plot 7-46. Occupied Bandwidth Plot (NR Band n41 - 40MHz QPSK - Full RB - Ant1)



Plot 7-47. Occupied Bandwidth Plot (NR Band n41 - 40MHz 16-QAM - Full RB - Ant1)

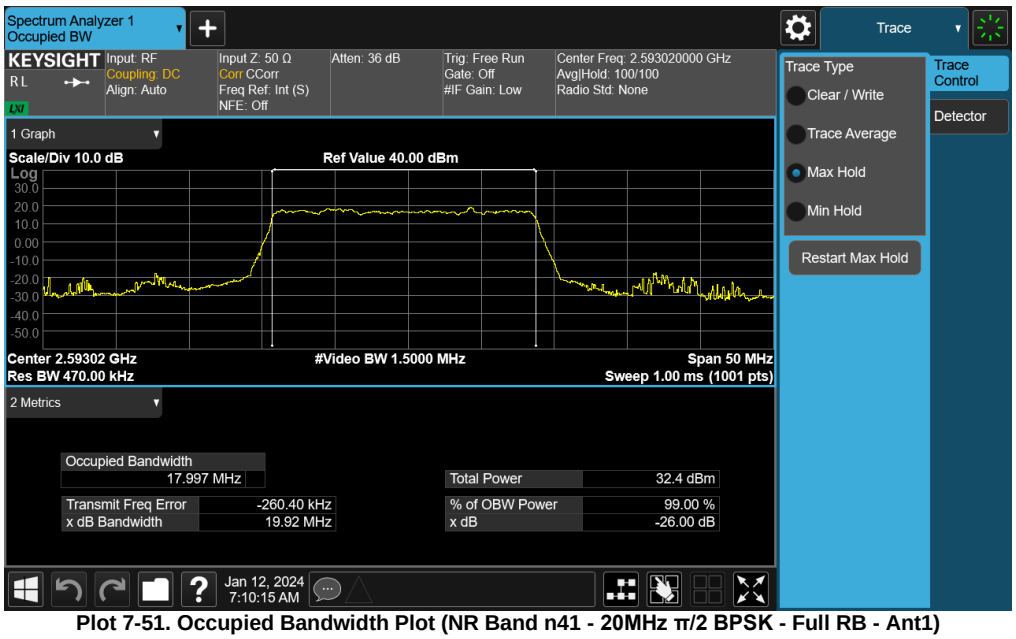


Plot 7-48. Occupied Bandwidth Plot (NR Band n41 - 30MHz π/2 BPSK - Full RB - Ant1)

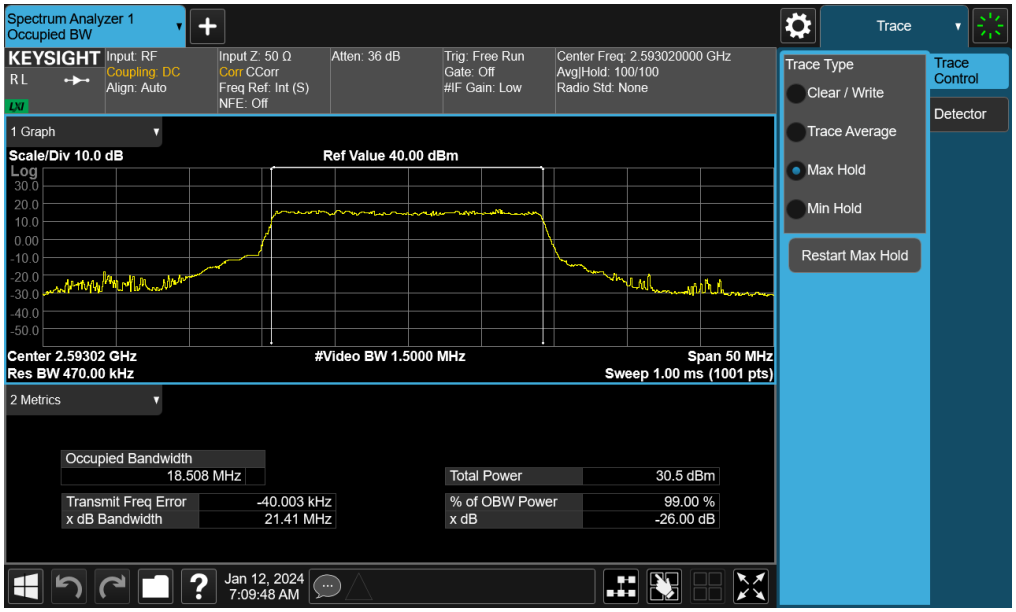


Plot 7-49. Occupied Bandwidth Plot (NR Band n41 - 30MHz QPSK - Full RB - Ant1)

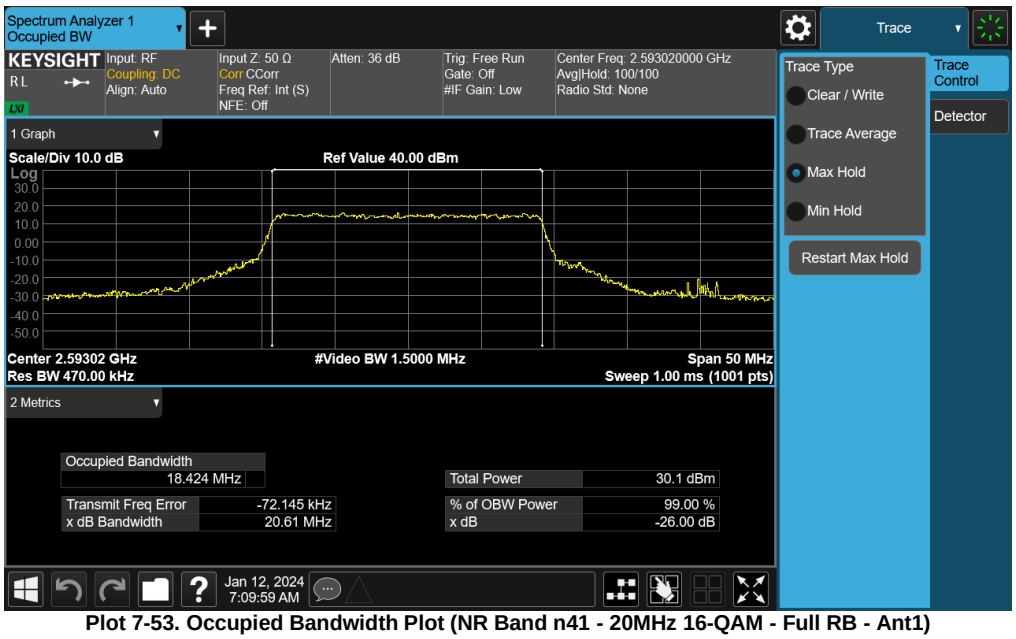
Plot 7-50. Occupied Bandwidth Plot (NR Band n41 - 30MHz 16-QAM - Full RB - Ant1)



Plot 7-51. Occupied Bandwidth Plot (NR Band n41 - 20MHz π/2 BPSK - Full RB - Ant1)



Plot 7-52. Occupied Bandwidth Plot (NR Band n41 - 20MHz QPSK - Full RB - Ant1)

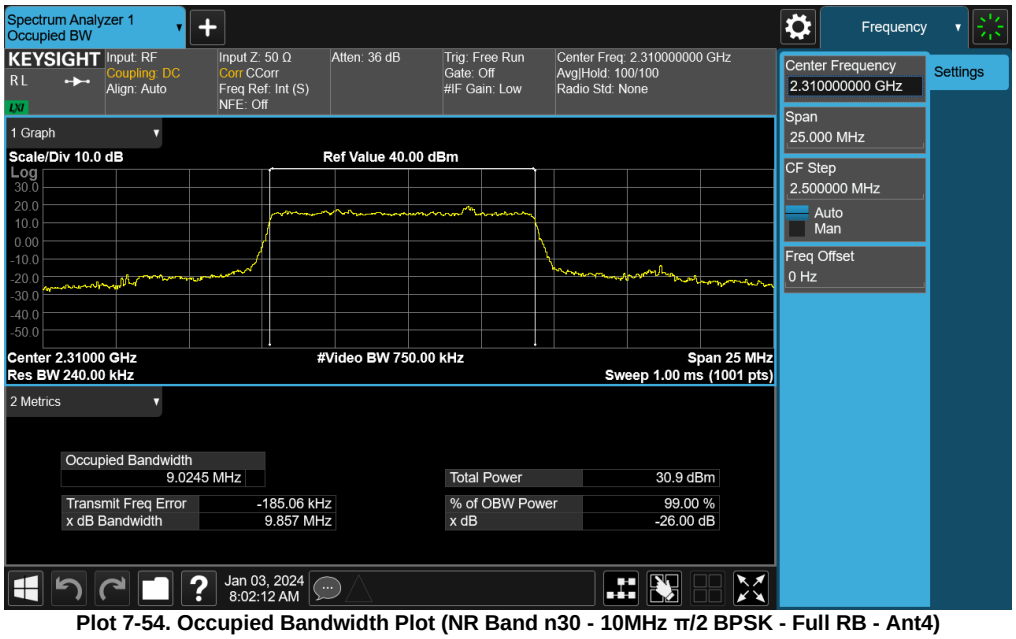


Plot 7-53. Occupied Bandwidth Plot (NR Band n41 - 20MHz 16-QAM - Full RB - Ant1)

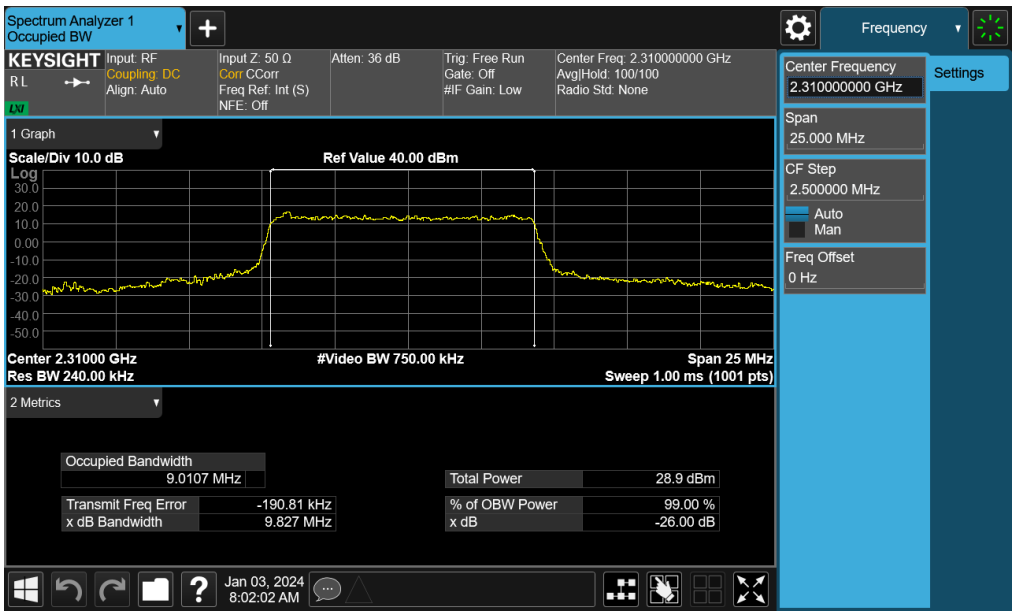
Mode	Bandwidth	Modulation	OBW [MHz]
NR-n30	10MHz	BPSK	9.02
		QPSK	9.01
		16QAM	9.02
	5MHz	BPSK	4.52
		QPSK	4.50
		16QAM	4.53
NR-n41PC3	100MHz	BPSK	96.91
		QPSK	97.90
		16QAM	97.86
	90MHz	BPSK	87.29
		QPSK	87.83
		16QAM	87.84
	80MHz	BPSK	77.40
		QPSK	77.61
		16QAM	77.57
	70MHz	BPSK	64.70
		QPSK	67.76
		16QAM	67.82
	60MHz	BPSK	58.48
		QPSK	58.20
		16QAM	58.15
	50MHz	BPSK	46.10
		QPSK	47.74
		16QAM	47.74
	40MHz	BPSK	35.90
		QPSK	38.02
		16QAM	38.09
	30MHz	BPSK	26.96
		QPSK	27.96
		16QAM	28.02
	20MHz	BPSK	17.99
		QPSK	18.33
		16QAM	18.35

Table 7-13. Occupied Bandwidth Results – NR – Ant 4

NR Band n30 – Ant4

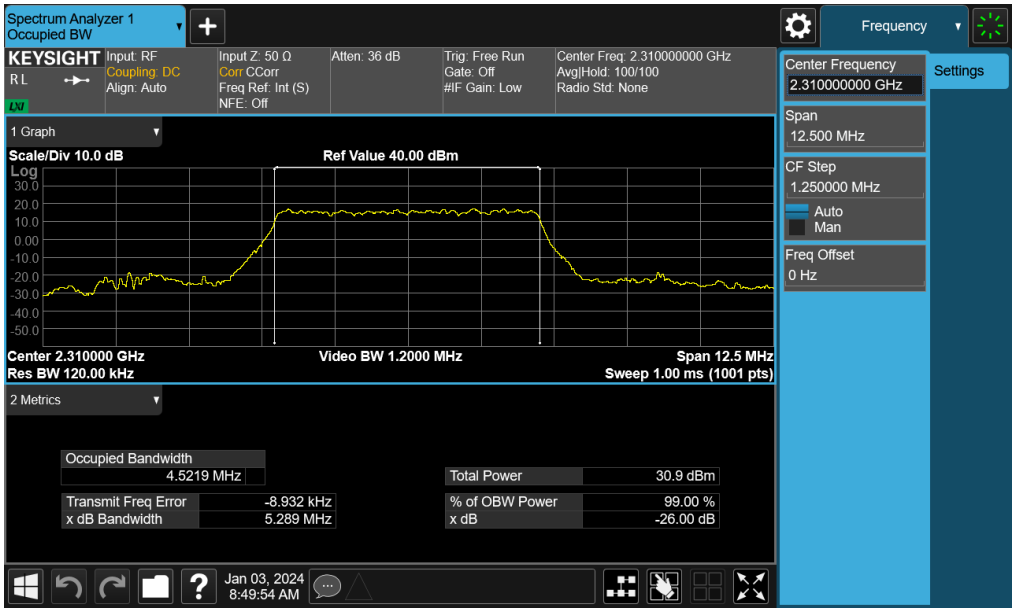


Plot 7-54. Occupied Bandwidth Plot (NR Band n30 - 10MHz π/2 BPSK - Full RB - Ant4)

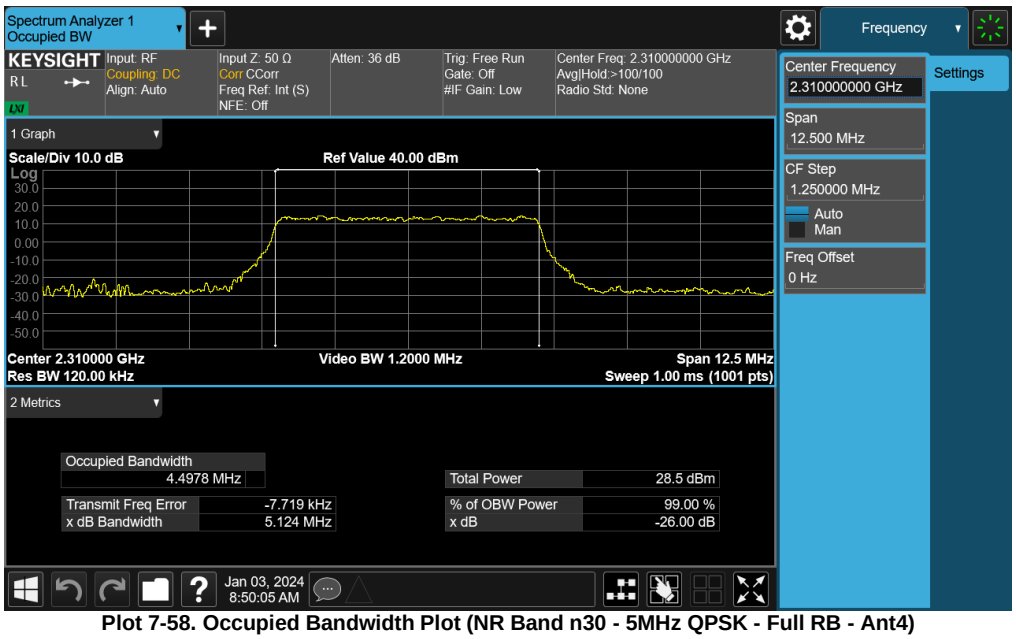


Plot 7-55. Occupied Bandwidth Plot (NR Band n30 - 10MHz QPSK - Full RB - Ant4)

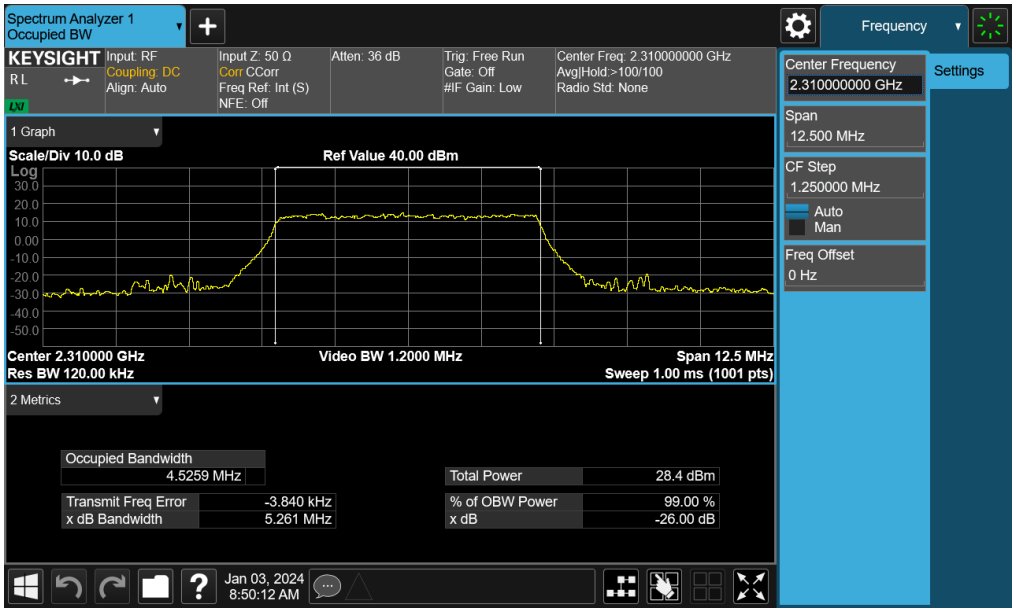
Plot 7-56. Occupied Bandwidth Plot (NR Band n30 - 10MHz 16-QAM - Full RB - Ant4)



Plot 7-57. Occupied Bandwidth Plot (NR Band n30 - 5MHz π/2 BPSK - Full RB - Ant4)



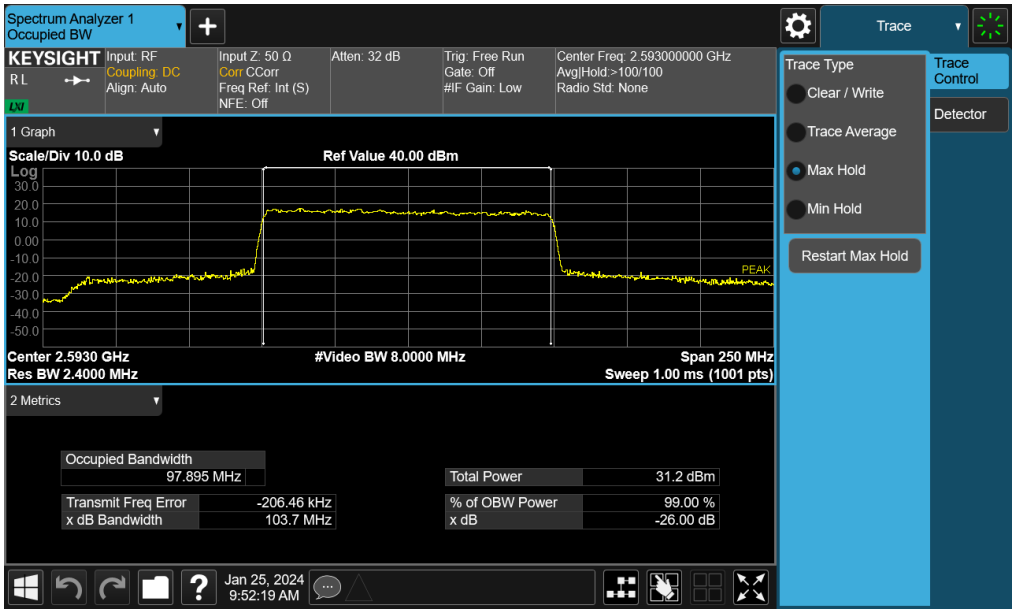
Plot 7-58. Occupied Bandwidth Plot (NR Band n30 - 5MHz QPSK - Full RB - Ant4)



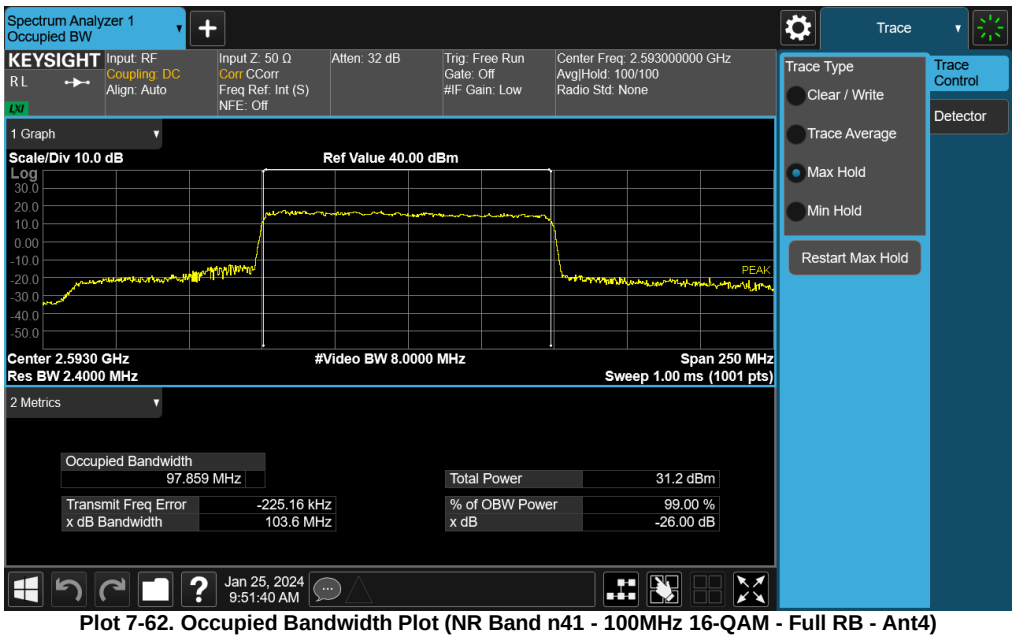
Plot 7-59. Occupied Bandwidth Plot (NR Band n30 - 5MHz 16-QAM - Full RB - Ant4)

NR Band n41 – Ant4

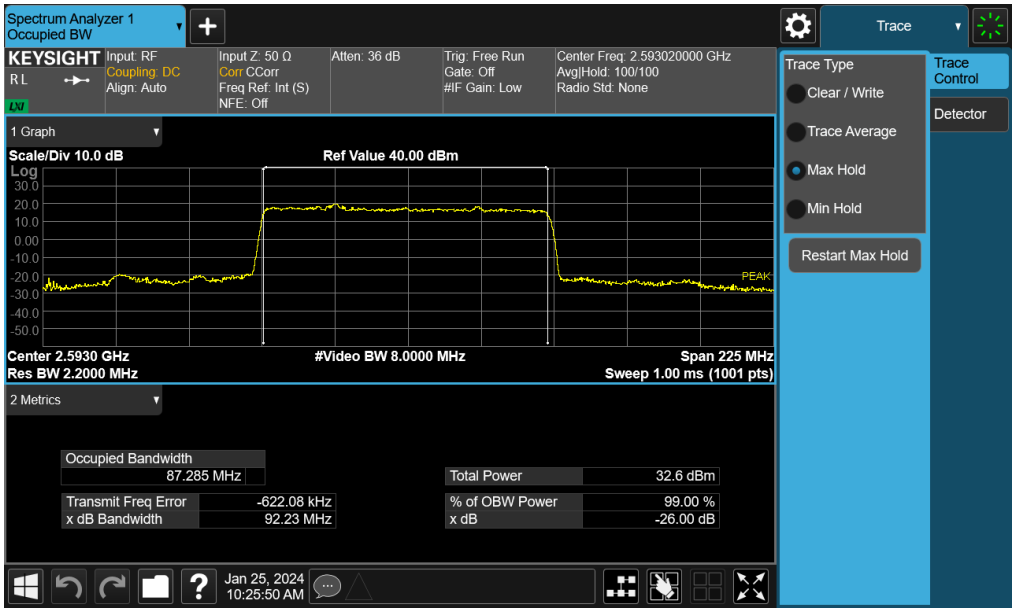
Plot 7-60. Occupied Bandwidth Plot (NR Band n41 - 100MHz π/2 BPSK - Full RB - Ant4)



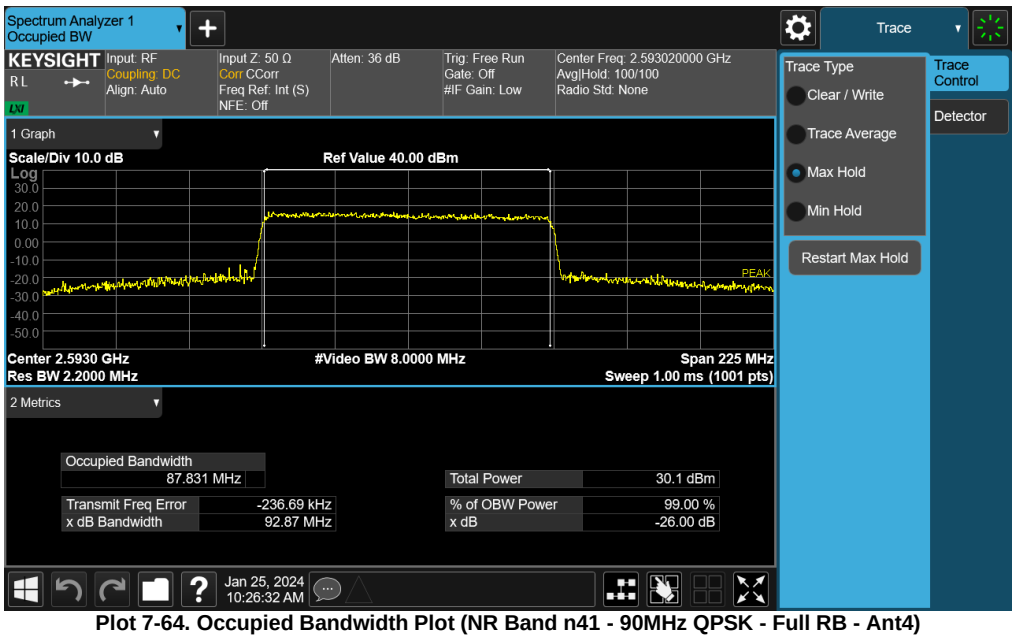
Plot 7-61. Occupied Bandwidth Plot (NR Band n41 - 100MHz QPSK - Full RB - Ant4)



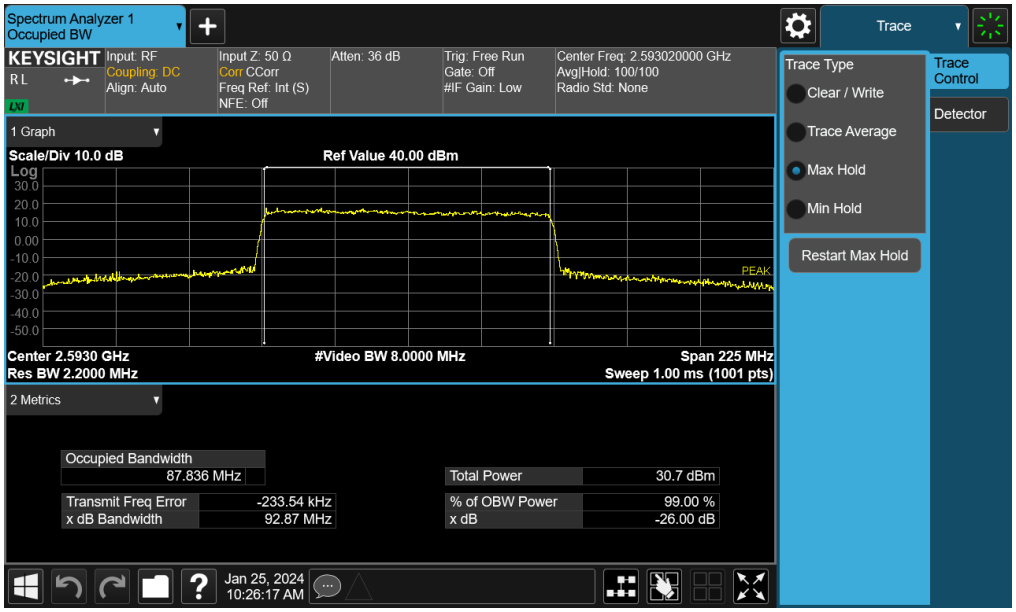
Plot 7-62. Occupied Bandwidth Plot (NR Band n41 - 100MHz 16-QAM - Full RB - Ant4)



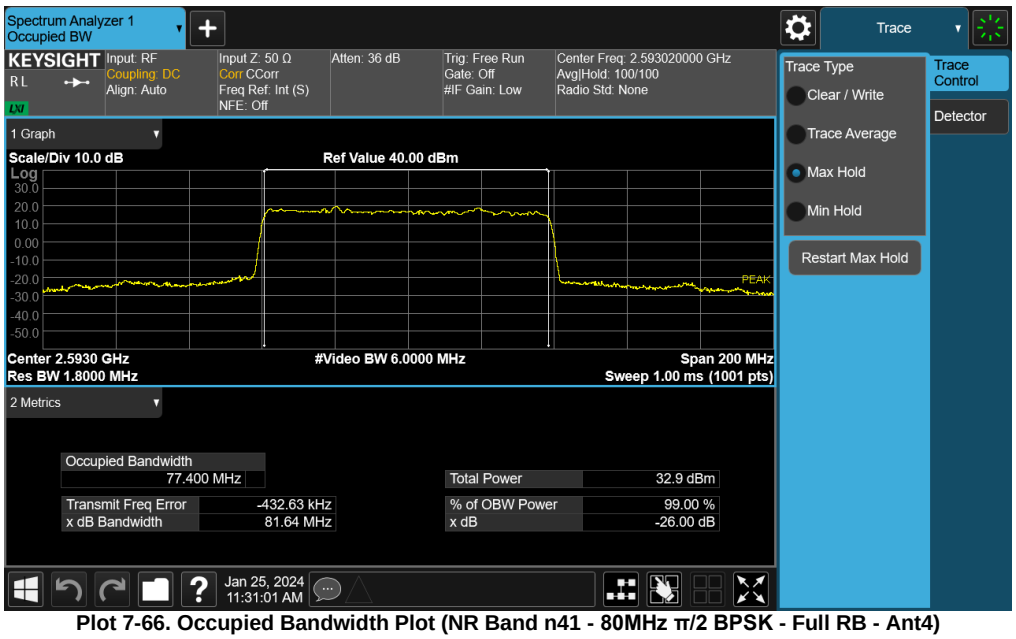
Plot 7-63. Occupied Bandwidth Plot (NR Band n41 - 90MHz π/2 BPSK - Full RB - Ant4)



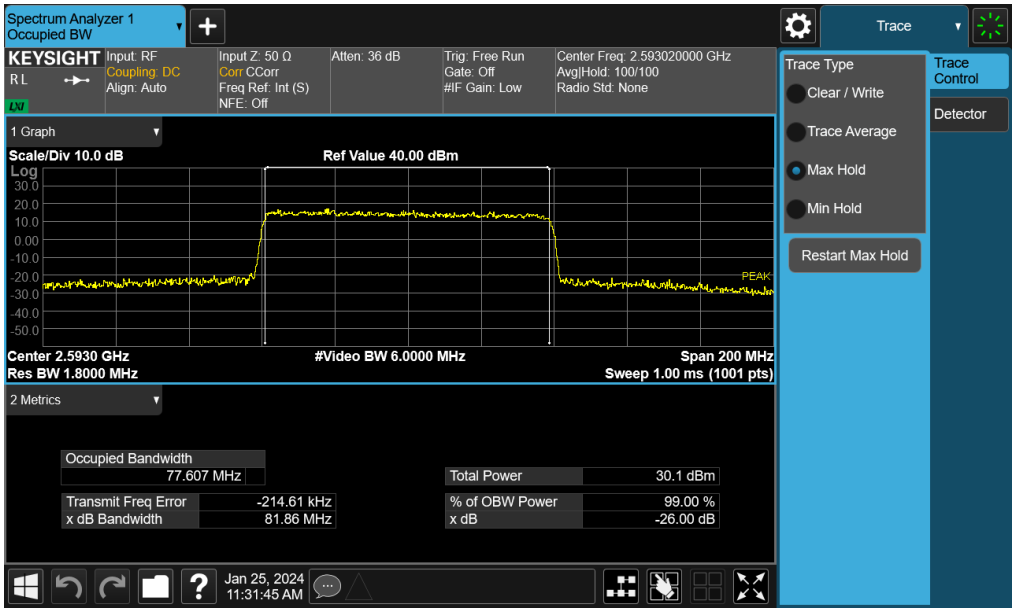
Plot 7-64. Occupied Bandwidth Plot (NR Band n41 - 90MHz QPSK - Full RB - Ant4)



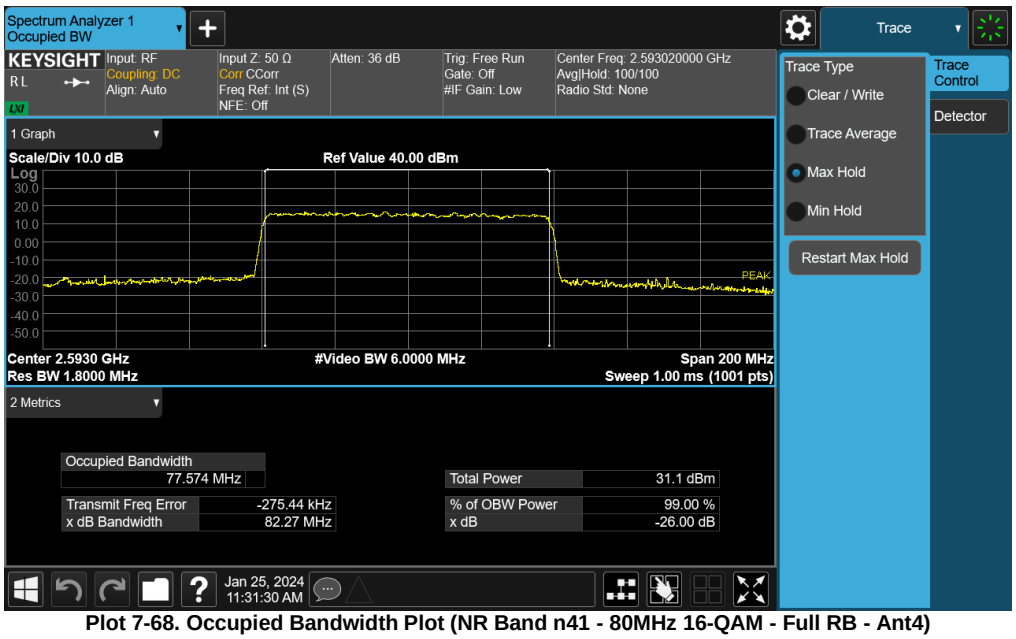
Plot 7-65. Occupied Bandwidth Plot (NR Band n41 - 90MHz 16-QAM - Full RB - Ant4)



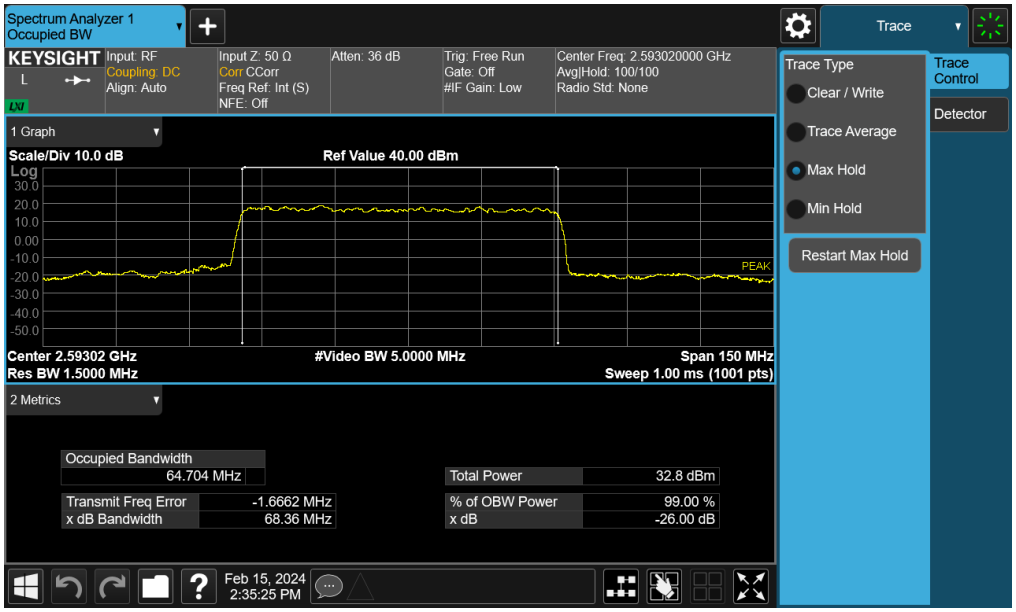
Plot 7-66. Occupied Bandwidth Plot (NR Band n41 - 80MHz π/2 BPSK - Full RB - Ant4)



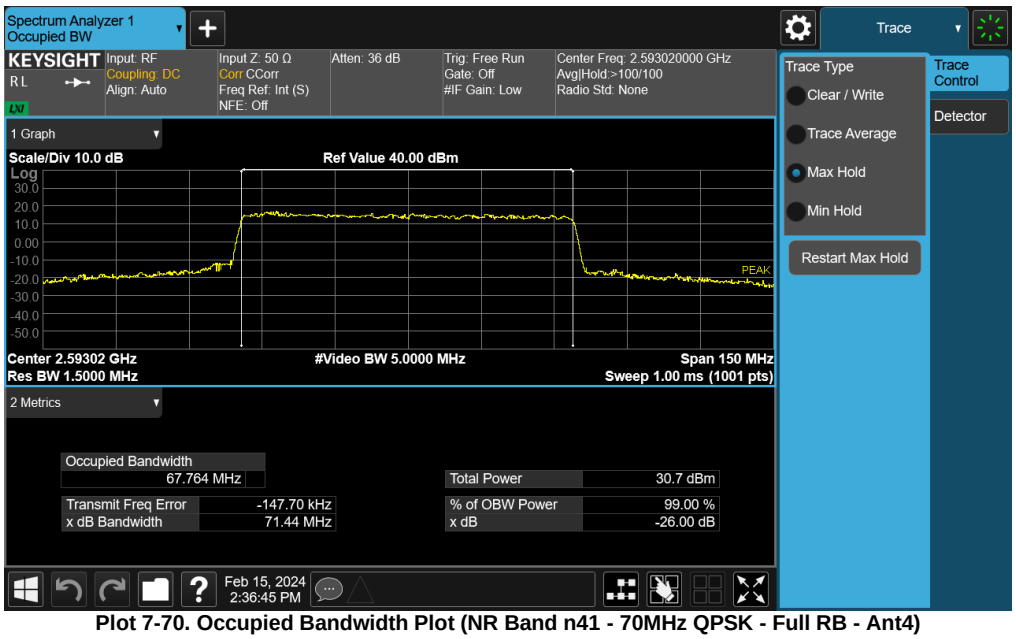
Plot 7-67. Occupied Bandwidth Plot (NR Band n41 - 80MHz QPSK - Full RB - Ant4)



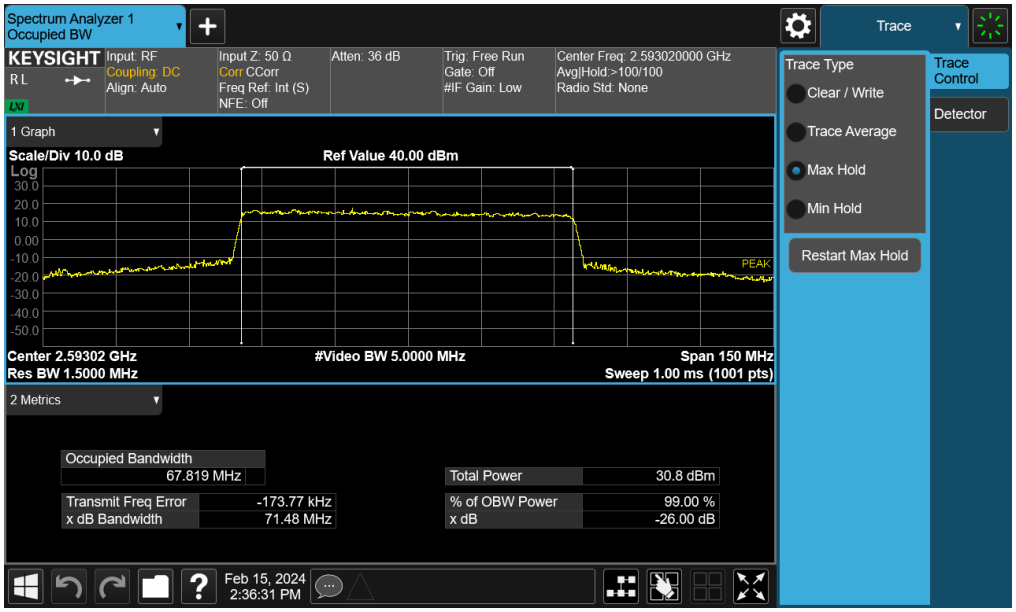
Plot 7-68. Occupied Bandwidth Plot (NR Band n41 - 80MHz 16-QAM - Full RB - Ant4)



Plot 7-69. Occupied Bandwidth Plot (NR Band n41 - 70MHz π/2 BPSK - Full RB - Ant4)



Plot 7-70. Occupied Bandwidth Plot (NR Band n41 - 70MHz QPSK - Full RB - Ant4)



Plot 7-71. Occupied Bandwidth Plot (NR Band n41 - 70MHz 16-QAM - Full RB - Ant4)