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PART 27 MEASUREMENT REPORT

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

Date of Testing:
12/3/2024 - 2/14/2025
Test Report Issue Date:
4/29/2025
Test Site/Location:
Element Lab., Columbia, MD, USA
Test Report Serial No.:
1M2411190103-03-R3.C3K

FCC ID:	**C3K2114**
APPLICANT:	**Microsoft Corporation**

Application Type:	Certification
Model:	2114
EUT Type:	Full Modular
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.

This revised Test Report (S/N: 1M2411190103-03-R3.C3K) supersedes and replaces the previously issued test report (S/N: 1M2411190103-03-R2.C3K) on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

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

RJ Ortanez
Executive Vice President

ACCREDITED
CERT #2041.01

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MEASUREMENT REPORT
FCC Part 27

Antenna-1						
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
WCDMA1700	N/A	Spread Spectrum	1712.4 - 1752.6	0.746	28.73	4M17F9W
LTE Band 66/4	20 MHz	QPSK	1720.0 - 1770.0	0.773	28.88	18M0G7D
		16QAM	1720.0 - 1770.0	0.657	28.18	18M0W7D
	15 MHz	QPSK	1717.5 - 1772.5	0.751	28.76	13M6G7D
		16QAM	1717.5 - 1772.5	0.632	28.01	13M6W7D
	10 MHz	QPSK	1715.0 - 1775.0	0.799	29.03	9M06G7D
		16QAM	1715.0 - 1775.0	0.664	28.22	9M06W7D
	5 MHz	QPSK	1712.5 - 1777.5	0.767	28.85	4M53G7D
		16QAM	1712.5 - 1777.5	0.667	28.24	4M56W7D
	3 MHz	QPSK	1711.5 - 1778.5	0.778	28.91	2M71G7D
		16QAM	1711.5 - 1778.5	0.660	28.19	2M72W7D
	1.4 MHz	QPSK	1710.7 - 1779.3	0.800	29.03	1M11G7D
		16QAM	1710.7 - 1779.3	0.687	28.37	1M11W7D
NR Band n66	40 MHz	π/2 BPSK	1730.0 - 1760.0	0.753	28.77	38M7G7D
		QPSK	1730.0 - 1760.0	0.760	28.81	38M8G7D
		16QAM	1730.0 - 1760.0	0.596	27.75	38M8W7D
	30 MHz	π/2 BPSK	1725.0 - 1765.0	0.829	29.18	28M7G7D
		QPSK	1725.0 - 1765.0	0.827	29.17	28M7G7D
		16QAM	1725.0 - 1765.0	0.746	28.73	28M8W7D
	25 MHz	π/2 BPSK	1722.5 - 1767.5	0.759	28.80	23M1W7D
		QPSK	1722.5 - 1767.5	0.804	29.05	24M0W7D
		16QAM	1722.5 - 1767.5	0.607	27.83	24M0W7D
	20 MHz	π/2 BPSK	1720.0 - 1770.0	0.755	28.78	18M0G7D
		QPSK	1720.0 - 1770.0	0.760	28.81	19M0G7D
		16QAM	1720.0 - 1770.0	0.597	27.76	19M1W7D
	15 MHz	π/2 BPSK	1717.5 - 1772.5	0.762	28.82	13M5G7D
		QPSK	1717.5 - 1772.5	0.773	28.88	14M2G7D
		16QAM	1717.5 - 1772.5	0.587	27.69	14M2W7D
	10 MHz	π/2 BPSK	1715.0 - 1775.0	0.743	28.71	9M00G7D
		QPSK	1715.0 - 1775.0	0.748	28.74	9M36G7D
		16QAM	1715.0 - 1775.0	0.590	27.71	9M37W7D
	5 MHz	π/2 BPSK	1712.5 - 1777.5	0.745	28.72	4M54G7D
		QPSK	1712.5 - 1777.5	0.736	28.67	4M56G7D
		16QAM	1712.5 - 1777.5	0.569	27.55	4M54W7D

Antenna-2						
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	ERP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
LTE Band 71	20 MHz	QPSK	673.0 - 688.0	1.027	30.12	18M0G7D
		16QAM	673.0 - 688.0	0.874	29.41	18M1W7D
	15 MHz	QPSK	670.5 - 690.5	1.057	30.24	13M5G7D
		16QAM	670.5 - 690.5	0.915	29.61	13M6W7D
	10 MHz	QPSK	668.0 - 693.0	1.096	30.40	9M02G7D
		16QAM	668.0 - 693.0	0.890	29.50	9M04W7D
	5 MHz	QPSK	665.5 - 695.5	1.106	30.44	4M52G7D
		16QAM	665.5 - 695.5	0.986	29.94	4M55W7D
LTE Band 12	10 MHz	QPSK	704.0 - 711.0	0.620	27.92	9M04G7D
		16QAM	704.0 - 711.0	0.544	27.36	9M04W7D
	5 MHz	QPSK	701.5 - 713.5	0.634	28.02	4M54G7D
		16QAM	701.5 - 713.5	0.556	27.45	4M55W7D
	3 MHz	QPSK	700.5 - 714.5	0.632	28.01	2M73G7D
		16QAM	700.5 - 714.5	0.535	27.28	2M73W7D
	1.4 MHz	QPSK	699.7 - 715.3	0.628	27.98	1M11G7D
		16QAM	699.7 - 715.3	0.519	27.15	1M11W7D
LTE Band 13	10 MHz	QPSK	782.0	0.621	27.93	9M03G7D
		16QAM	782.0	0.510	27.08	9M02W7D
	5 MHz	QPSK	779.5 - 784.5	0.637	28.04	4M54G7D
		16QAM	779.5 - 784.5	0.559	27.48	4M54W7D
NR Band n71	20 MHz	π/2 BPSK	673.0 - 688.0	0.489	26.89	17M9G7D
		QPSK	673.0 - 688.0	0.490	26.90	19M0G7D
		16QAM	673.0 - 688.0	0.392	25.93	19M0W7D
	15 MHz	π/2 BPSK	670.5 - 690.5	0.481	26.82	13M5G7D
		QPSK	670.5 - 690.5	0.480	26.81	14M2G7D
		16QAM	670.5 - 690.5	0.380	25.80	14M2W7D
	10 MHz	π/2 BPSK	668.0 - 693.0	0.481	26.82	8M99G7D
		QPSK	668.0 - 693.0	0.476	26.78	9M35G7D
		16QAM	668.0 - 693.0	0.375	25.74	9M35W7D
	5 MHz	π/2 BPSK	665.5 - 695.5	0.483	26.84	4M53G7D
		QPSK	665.5 - 695.5	0.484	26.85	4M52G7D
		16QAM	665.5 - 695.5	0.377	25.76	4M59W7D
NR Band n12	15 MHz	π/2 BPSK	706.5 - 708.5	0.543	27.35	13M5G7D
		QPSK	706.5 - 708.5	0.543	27.35	14M2G7D
		16QAM	706.5 - 708.5	0.412	26.15	14M2W7D
	10 MHz	π/2 BPSK	704.0 - 711.0	0.530	27.24	9M00G7D
		QPSK	704.0 - 711.0	0.532	27.26	9M36G7D
		16QAM	704.0 - 711.0	0.413	26.16	9M36W7D
	5 MHz	π/2 BPSK	701.5 - 713.5	0.532	27.26	4M54G7D
		QPSK	701.5 - 713.5	0.535	27.28	4M52G7D
		16QAM	701.5 - 713.5	0.405	26.07	4M55W7D

Antenna-5						
Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	ERP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
LTE Band 71	20 MHz	QPSK	673.0 - 688.0	1.067	30.28	18M0G7D
		16QAM	673.0 - 688.0	0.894	29.51	18M0W7D
	15 MHz	QPSK	670.5 - 690.5	1.069	30.29	13M5G7D
		16QAM	670.5 - 690.5	0.880	29.44	13M6W7D
	10 MHz	QPSK	668.0 - 693.0	1.154	30.62	9M03G7D
		16QAM	668.0 - 693.0	0.912	29.60	9M03W7D
	5 MHz	QPSK	665.5 - 695.5	1.136	30.55	4M54G7D
		16QAM	665.5 - 695.5	0.928	29.68	4M54W7D
LTE Band 12	10 MHz	QPSK	704.0 - 711.0	0.604	27.81	9M04G7D
		16QAM	704.0 - 711.0	0.519	27.15	9M04W7D
	5 MHz	QPSK	701.5 - 713.5	0.620	27.93	4M53G7D
		16QAM	701.5 - 713.5	0.501	27.00	4M53W7D
	3 MHz	QPSK	700.5 - 714.5	0.615	27.89	2M73G7D
		16QAM	700.5 - 714.5	0.503	27.02	2M72W7D
	1.4 MHz	QPSK	699.7 - 715.3	0.582	27.65	1M11G7D
		16QAM	699.7 - 715.3	0.497	26.96	1M11W7D
LTE Band 13	10 MHz	QPSK	782.0	0.605	27.82	9M02G7D
		16QAM	782.0	0.514	27.11	9M02W7D
	5 MHz	QPSK	779.5 - 784.5	0.612	27.87	4M53G7D
		16QAM	779.5 - 784.5	0.531	27.25	4M53W7D
NR Band n71	20 MHz	π/2 BPSK	673.0 - 688.0	0.520	27.16	17M9G7D
		QPSK	673.0 - 688.0	0.524	27.19	19M0G7D
		16QAM	673.0 - 688.0	0.408	26.11	19M0W7D
	15 MHz	π/2 BPSK	670.5 - 690.5	0.511	27.08	13M5G7D
		QPSK	670.5 - 690.5	0.508	27.06	14M2G7D
		16QAM	670.5 - 690.5	0.402	26.04	14M2W7D
	10 MHz	π/2 BPSK	668.0 - 693.0	0.511	27.08	8M99G7D
		QPSK	668.0 - 693.0	0.509	27.07	9M36G7D
		16QAM	668.0 - 693.0	0.406	26.09	9M36W7D
	5 MHz	π/2 BPSK	665.5 - 695.5	0.516	27.13	4M53G7D
		QPSK	665.5 - 695.5	0.514	27.11	4M52G7D
		16QAM	665.5 - 695.5	0.400	26.02	4M59W7D
NR Band n12	15 MHz	π/2 BPSK	706.5 - 708.5	0.589	27.70	13M5G7D
		QPSK	706.5 - 708.5	0.589	27.70	14M2G7D
		16QAM	706.5 - 708.5	0.473	26.75	14M2W7D
	10 MHz	π/2 BPSK	704.0 - 711.0	0.569	27.55	9M00G7D
		QPSK	704.0 - 711.0	0.570	27.56	9M35G7D
		16QAM	704.0 - 711.0	0.552	27.42	9M36W7D
	5 MHz	π/2 BPSK	701.5 - 713.5	0.571	27.57	4M53G7D
		QPSK	701.5 - 713.5	0.566	27.53	4M56G7D
		16QAM	701.5 - 713.5	0.437	26.40	4M55W7D

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

Measurements were conducted at the Element laboratory(ies) indicated in Section 1.3 below. All measurement facilities are compliant with the test site requirements specified in ANSI C63.4-2014 and KDB 414788 D01 v01r01.

1.3 Test Facility / Accreditations

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

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

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

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

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

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Microsoft Corporation Full Modular FCC ID: C3K2114**. 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.: (004400152020002) EV2#48, EV2#37, EV2#41, EV2#47

2.2 Device Capabilities

This device contains the following capabilities:

850/1700/1900 WCDMA/HSPA, Multi-band LTE, Multi-band 5G NR (FR1)

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 250129-XXX-de2e260-00452-1 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 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 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 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

Table 4-1. Measurement Uncertainty Budget

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
-	LTx1	Licensed Transmitter Cable Set	4/2/2024	Annual	4/2/2025	LTx1
-	LTx2	Licensed Transmitter Cable Set	4/2/2024	Annual	4/2/2025	LTx2
-	LTx3	LIcensed Transmitter Cable Set	4/2/2024	Annual	4/2/2025	LTx3
-	WL25-1	Conducted Cable Set (25GHz)	4/2/2024	Annual	4/2/2025	WL25-1
-	WL40-1	Conducted Cable Set (40GHz)	4/2/2024	Annual	4/2/2025	WL40-1
Agilent	N9020A	MXA Signal Analyzer	3/22/2024	Annual	3/22/2025	US46470561
Agilent	N9038A	MXE EMI Receiver	9/16/2024	Annual	9/16/2025	MY51210133
Agilent	N9030A	PXA Signal Analyzer (44GHz)	4/9/2024	Annual	4/9/2025	MY52350166
Anritsu	MT8821C	Radio Communication Analyzer	N/A			6201381794
Anritsu	MT8821C	Radio Communication Analyzer	N/A			6200901190
Emco	3115	Horn Antenna (1-18GHz)	6/7/2024	Biennial	6/7/2026	150693
Espec	ESX-2CA	Environmental Chamber	7/5/2023	Annual	7/5/2025	17620
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	3/29/2023	Biennial	3/29/2025	128337
Keysight Technologies	N9030A	PXA Signal Analyzer (3Hz-26.5GHz)	8/26/2024	Annual	8/26/2025	MY54490576
Keysight Technologies	N9020A	MXA Signal Analyzer	4/11/2024	Annual	4/11/2025	MY54500644
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A			100976
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A			112347
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A			102060
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	10/16/2024	Annual	10/16/2025	100342
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	2/15/2024	Annual	2/15/2025	103200
Sunol	DRH-118	Horn Antenna (1-18GHz)	2/21/2024	Biennial	2/21/2026	A050307
Sunol	DRH-118	Horn Antenna (1-18 GHz)	2/13/2024	Biennial	2/13/2026	A042511
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	9/11/2024	Biennial	9/11/2026	A051107

Table 5-1. Test Equipment Calibration Table

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 EMISSION DESIGNATORS

Emission Designator

WCDMA Emission Designator

Emission Designator = 4M16F9W

WCDMA BW = 4.16 MHz
F = Frequency Modulation
9 = Composite Digital Info
W = Combination (Audio/Data)

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

7.0 TEST RESULTS

7.1 Summary

Company Name: Microsoft Corporation

FCC ID: C3K2114

FCC Classification: PCS Licensed Transmitter (PCB)

Mode(s): WCDMA/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
	Effective Radiated Power (LTE Band 13)	27.50(b)(9)	≤ 30 Watts max. ERP	PASS	Section 7.2
	Effective Radiated Power (LTE Band 12, 71; NR Band n12, n71)	27.50(c)(9)	≤ 30 Watts max. ERP	PASS	Section 7.2
	Equivalent Isotropic Radiated Power (WCDMA AWS; LTE Band 4, 66; NR Band n66)	27.50(d)(4)	≤ 1 Watt max. EIRP	PASS	Section 7.2
	Occupied Bandwidth	2.1049(h)	N/A	PASS	Section 7.3
	Conducted Band Edge / Spurious Emissions (LTE Band 13)	2.1051, 27.53(c), 27.53(f)	Undesirable emissions must meet the limits detailed in sections 27.53(c) and 27.53(f)	PASS	Sections 7.4, 7.5
	Conducted Band Edge / Spurious Emissions (LTE Band 12, 71; NR Band n12, n71)	2.1051, 27.53(g)	≥ 43 + 10 log (P[Watts]) dB of attenuation below transmitter power	PASS	Sections 7.4, 7.5
	Conducted Band Edge / Spurious Emissions (WCDMA AWS; LTE Band 4, 66; NR Band n66)	2.1051, 27.53(h)	≥ 43 + 10 log (P[Watts]) dB of attenuation below transmitter power	PASS	Sections 7.4, 7.5
	Peak-to-Average Ratio (WCDMA AWS; LTE Band 4, 66; NR Band n66)	27.50(d)(5)	≤ 13 dB	PASS	Section 7.6
	Frequency Stability	2.1055, 27.54	Fundamental emissions stay within authorized frequency block	PASS	Section 7.8
RADIATED	Radiated Spurious Emissions (LTE Band 13)	2.1053, 27.53(c), 27.53(f)	Undesirable emissions must meet the limits detailed in sections 27.53(c) and 27.53(f)	PASS	Section 7.7
	Radiated Spurious Emissions (LTE Band 12, 71; NR Band n12, n71)	2.1053, 27.53(g)	≥ 43 + 10 log (P[Watts]) dB of attenuation below transmitter power	PASS	Section 7.7
	Radiated Spurious Emissions (WCDMA AWS; LTE Band 4, 66; NR Band n66)	2.1053, 27.53(h)(1)	≥ 43 + 10 log (P[Watts]) dB of attenuation below transmitter power	PASS	Section 7.7

Table 7-1. Summary of Test Results

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 shown in Section 7.0 were 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) 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 EMC Software Tool v2.3.0.

7.2 Conducted Output Power Data and ERP/EIRP

Test Overview

All emissions are measured with a callbox 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 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. 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.
4. ERP/EIRP is calculated using conducted power and antenna gain.
5. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) 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.

Power State	Band	Bandwidth (PCC + SCC)	PCC					SCC					ULCA Tx. Power [dBm]
			Modulation	UL Channel	UL	UL # RB	UL RB	Modulation	UL Channel	UL	UL # RB	UL RB	
Max	LTE B12	5MHz + 5MHz	QPSK	23035	701.5	1	24	QPSK	23083	706.3	1	0	24.86
				23095	707.5	1	24		23143	712.3	1	0	24.90
				23155	713.5	1	0		23107	708.7	1	24	24.86
			QPSK	23095	707.5	100	0	QPSK	23143	712.3	100	0	23.31
			16-QAM	23095	707.5	100	0	16-QAM	23143	712.3	100	0	22.30
			64-QAM	23095	707.5	100	0	64-QAM	23143	712.3	100	0	22.03
			256-QAM	23095	707.5	100	0	256-QAM	23143	712.3	100	0	20.31

Table 7-2. Conducted Powers (Uplink CA LTE Band 12 – Ant 5)

Power State	Band	Bandwidth (PCC + SCC)	PCC					SCC					ULCA Tx. Power [dBm]
			Modulation	UL Channel	UL	UL # RB	UL RB	Modulation	UL Channel	UL	UL # RB	UL RB	
Max	LTE B12	5MHz + 5MHz	QPSK	23035	701.5	1	24	QPSK	23083	706.3	1	0	24.79
				23095	707.5	1	24		23143	712.3	1	0	24.69
				23155	713.5	1	0		23107	708.7	1	24	24.67
			QPSK	23035	701.5	100	0	QPSK	23083	706.3	100	0	23.00
			16-QAM	23035	701.5	100	0	16-QAM	23083	706.3	100	0	21.97
			64-QAM	23035	701.5	100	0	64-QAM	23083	706.3	100	0	21.81
			256-QAM	23035	701.5	100	0	256-QAM	23083	706.3	100	0	19.99

Table 7-3. Conducted Powers (Uplink CA LTE Band 12 – Ant 2)

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 B66	20MHz + 20MHz	QPSK	132072	1720.0	1	99	QPSK	132270	1739.8	1	0	24.99
				132322	1745.0	1	99		132520	1764.8	1	0	24.98
				132572	1770.0	1	0		132374	1750.2	1	99	24.95
			QPSK	132072	1720	100	0	QPSK	132270	1739.8	100	0	23.09
			16-QAM	132072	1720	100	0	16-QAM	132270	1739.8	100	0	22.15
			64-QAM	132072	1720	100	0	64-QAM	132270	1739.8	100	0	21.77
			256-QAM	132072	1720	100	0	256-QAM	132270	1739.8	100	0	20.15

Table 7-4. Conducted Powers (Uplink CA LTE Band 66B/C – Ant 1)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Ant Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
20 MHz	QPSK	133222	673.0	1 / 99	23.77	8.40	30.02	1.004	44.77	-14.75
		133297	680.5	1 / 99	23.87	8.40	30.12	1.027	44.77	-14.65
		133372	688.0	1 / 0	23.83	8.40	30.08	1.018	44.77	-14.69
	16-QAM	133222	673.0	1 / 99	23.16	8.40	29.41	0.874	44.77	-15.36
15 MHz	QPSK	133197	670.5	1 / 0	23.70	8.40	29.95	0.989	44.77	-14.82
		133297	680.5	1 / 0	23.99	8.40	30.24	1.057	44.77	-14.53
		133397	690.5	1 / 37	23.71	8.40	29.96	0.991	44.77	-14.81
	16-QAM	133397	690.5	1 / 37	23.36	8.40	29.61	0.915	44.77	-15.16
10 MHz	QPSK	133172	668.0	1 / 49	23.98	8.40	30.23	1.053	44.77	-14.54
		133297	680.5	1 / 25	24.15	8.40	30.40	1.096	44.77	-14.37
		133422	693.0	1 / 49	23.97	8.40	30.22	1.051	44.77	-14.55
	16-QAM	133422	693.0	1 / 49	23.25	8.40	29.50	0.890	44.77	-15.27
5 MHz	QPSK	133147	665.5	1 / 0	23.86	8.40	30.11	1.026	44.77	-14.66
		133297	680.5	1 / 24	24.19	8.40	30.44	1.106	44.77	-14.33
		133447	695.5	1 / 12	24.10	8.40	30.35	1.083	44.77	-14.42
	16-QAM	133447	695.5	1 / 12	23.69	8.40	29.94	0.986	44.77	-14.83

Table 7-5. ERP Data (LTE Band 71 – Ant 2)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Ant Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
10 MHz	QPSK	23230	782.0	1 / 0	24.18	5.90	27.93	0.621	44.77	-16.84
	16-QAM	23230	782.0	1 / 0	23.33	5.90	27.08	0.510	44.77	-17.69
5 MHz	QPSK	23205	779.5	1 / 12	24.20	5.90	27.95	0.624	44.77	-16.82
		23230	782.0	1 / 24	24.06	5.90	27.81	0.604	44.77	-16.96
		23255	784.5	1 / 12	24.29	5.90	28.04	0.637	44.77	-16.73
	16-QAM	23255	784.5	1 / 12	23.73	5.90	27.48	0.559	44.77	-17.29

Table 7-6. ERP Data (LTE Band 13 – Ant 2)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Ant Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
10 MHz	QPSK	23060	704.0	1 / 25	24.47	5.60	27.92	0.620	44.77	-16.85
		23095	707.5	1 / 25	24.44	5.60	27.89	0.615	44.77	-16.88
		23130	711.0	1 / 0	24.47	5.60	27.92	0.619	44.77	-16.85
	16-QAM	23130	711.0	1 / 0	23.91	5.60	27.36	0.544	44.77	-17.41
5 MHz	QPSK	23035	701.5	1 / 12	24.56	5.60	28.01	0.632	44.77	-16.76
		23095	707.5	1 / 0	24.36	5.60	27.81	0.604	44.77	-16.96
		23155	713.5	1 / 12	24.57	5.60	28.02	0.634	44.77	-16.75
	16-QAM	23035	701.5	1 / 12	24.00	5.60	27.45	0.556	44.77	-17.32
3 MHz	QPSK	23025	700.5	1 / 0	24.33	5.60	27.78	0.599	44.77	-16.99
		23095	707.5	1 / 14	24.38	5.60	27.83	0.607	44.77	-16.94
		23165	714.5	1 / 7	24.56	5.60	28.01	0.632	44.77	-16.76
	16-QAM	23025	700.5	1 / 0	23.83	5.60	27.28	0.535	44.77	-17.49
1.4 MHz	QPSK	23017	699.7	1 / 0	24.45	5.60	27.90	0.617	44.77	-16.87
		23095	707.5	1 / 5	24.53	5.60	27.98	0.628	44.77	-16.79
		23173	715.3	1 / 0	24.43	5.60	27.88	0.614	44.77	-16.89
	16-QAM	23095	707.5	1 / 5	23.70	5.60	27.15	0.519	44.77	-17.62

Table 7-7. ERP Data (LTE Band 12– Ant 2)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Ant Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
20 MHz	π/2 BPSK	134600	673.0	1 / 53	23.50	5.40	26.75	0.473	44.77	-18.02
		136100	680.5	1 / 53	23.58	5.40	26.83	0.482	44.77	-17.94
		137600	688.0	1 / 1	23.64	5.40	26.89	0.489	44.77	-17.88
	QPSK	134600	673.0	1 / 104	23.50	5.40	26.75	0.473	44.77	-18.02
		136100	680.5	1 / 53	23.57	5.40	26.82	0.481	44.77	-17.95
		137600	688.0	1 / 1	23.65	5.40	26.90	0.490	44.77	-17.87
	16-QAM	137600	688.0	1 / 1	22.68	5.40	25.93	0.392	44.77	-18.84
15 MHz	π/2 BPSK	134100	670.5	1 / 39	23.57	5.40	26.82	0.481	44.77	-17.95
		136100	680.5	1 / 39	23.49	5.40	26.74	0.472	44.77	-18.03
		138100	690.5	1 / 1	23.51	5.40	26.76	0.474	44.77	-18.01
	QPSK	134100	670.5	1 / 77	23.54	5.40	26.79	0.478	44.77	-17.98
		136100	680.5	1 / 39	23.54	5.40	26.79	0.478	44.77	-17.98
		138100	690.5	1 / 1	23.56	5.40	26.81	0.480	44.77	-17.96
	16-QAM	138100	690.5	1 / 1	22.55	5.40	25.80	0.380	44.77	-18.97
10 MHz	π/2 BPSK	133600	668.0	1 / 26	23.57	5.40	26.82	0.481	44.77	-17.95
		136100	680.5	1 / 26	23.44	5.40	26.69	0.467	44.77	-18.08
		138600	693.0	1 / 1	23.48	5.40	26.73	0.471	44.77	-18.04
	QPSK	133600	668.0	1 / 1	23.53	5.40	26.78	0.476	44.77	-17.99
		136100	680.5	1 / 26	23.42	5.40	26.67	0.465	44.77	-18.10
		138600	693.0	1 / 26	23.46	5.40	26.71	0.469	44.77	-18.06
	16-QAM	136100	680.5	1 / 1	22.49	5.40	25.74	0.375	44.77	-19.03
5 MHz	π/2 BPSK	133100	665.5	1 / 23	23.59	5.40	26.84	0.483	44.77	-17.93
		136100	680.5	1 / 1	23.43	5.40	26.68	0.466	44.77	-18.09
		139100	695.5	1 / 1	23.43	5.40	26.68	0.466	44.77	-18.09
	QPSK	133100	665.5	1 / 1	23.60	5.40	26.85	0.484	44.77	-17.92
		136100	680.5	1 / 1	23.42	5.40	26.67	0.465	44.77	-18.10
		139100	695.5	1 / 1	23.50	5.40	26.75	0.473	44.77	-18.02
	16-QAM	133100	665.5	1 / 1	22.51	5.40	25.76	0.377	44.77	-19.01

Table 7-8. ERP Data (NR Band n71 – Ant 2)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Ant Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
15 MHz	π/2 BPSK	141300	706.5	1 / 39	23.81	5.60	27.26	0.532	44.77	-17.51
		141500	707.5	1 / 39	23.90	5.60	27.35	0.543	44.77	-17.42
		141700	708.5	1 / 39	23.87	5.60	27.32	0.540	44.77	-17.45
	QPSK	141300	706.5	1 / 77	23.90	5.60	27.35	0.543	44.77	-17.42
		141500	707.5	1 / 77	23.88	5.60	27.33	0.541	44.77	-17.44
		141700	708.5	1 / 39	23.85	5.60	27.30	0.537	44.77	-17.47
	16-QAM	141700	708.5	1 / 1	22.70	5.60	26.15	0.412	44.77	-18.62
10 MHz	π/2 BPSK	140800	704.0	1 / 1	23.72	5.60	27.17	0.521	44.77	-17.60
		141500	707.5	1 / 26	23.79	5.60	27.24	0.530	44.77	-17.53
		142200	711.0	1 / 50	23.76	5.60	27.21	0.526	44.77	-17.56
	QPSK	140800	704.0	1 / 26	23.67	5.60	27.12	0.515	44.77	-17.65
		141500	707.5	1 / 1	23.81	5.60	27.26	0.532	44.77	-17.51
		142200	711.0	1 / 1	23.74	5.60	27.19	0.524	44.77	-17.58
	16-QAM	141500	707.5	1 / 1	22.71	5.60	26.16	0.413	44.77	-18.61
5 MHz	π/2 BPSK	140300	701.5	1 / 12	23.74	5.60	27.19	0.524	44.77	-17.58
		141500	707.5	1 / 1	23.81	5.60	27.26	0.532	44.77	-17.51
		142700	713.5	1 / 1	23.72	5.60	27.17	0.521	44.77	-17.60
	QPSK	140300	701.5	1 / 12	23.73	5.60	27.18	0.522	44.77	-17.59
		141500	707.5	1 / 23	23.83	5.60	27.28	0.535	44.77	-17.49
		142700	713.5	1 / 12	23.79	5.60	27.24	0.530	44.77	-17.53
	16-QAM	142700	713.5	1 / 1	22.62	5.60	26.07	0.405	44.77	-18.70

Table 7-9. ERP Data (NR Band n12 – Ant 2)

Frequency [MHz]	Mode	Conducted Power [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1712.40	WCDMA1700	24.08	4.50	28.58	0.721	30.00	-1.42
1732.60	WCDMA1700	24.11	4.50	28.61	0.727	30.00	-1.39
1752.60	WCDMA1700	24.23	4.50	**28.73**	**0.746**	30.00	-1.27

Table 7-10. EIRP Data (WCDMA AWS – Ant 1)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Ant Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
20 MHz	QPSK	132072	1720.0	1 / 0	24.38	4.50	28.88	0.773	30.00	-1.12
		132322	1745.0	1 / 0	24.19	4.50	28.69	0.740	30.00	-1.31
		132572	1770.0	1 / 0	24.24	4.50	28.74	0.747	30.00	-1.26
	16-QAM	132322	1745.0	1 / 0	23.68	4.50	28.18	0.657	30.00	-1.82
15 MHz	QPSK	132047	1717.5	1 / 37	24.26	4.50	28.76	0.751	30.00	-1.24
		132322	1745.0	1 / 0	24.25	4.50	28.75	0.750	30.00	-1.25
		132597	1772.5	1 / 0	24.17	4.50	28.67	0.736	30.00	-1.33
	16-QAM	132597	1772.5	1 / 0	23.51	4.50	28.01	0.632	30.00	-1.99
10 MHz	QPSK	132022	1715.0	1 / 25	24.53	4.50	29.03	0.799	30.00	-0.97
		132322	1745.0	1 / 25	24.42	4.50	28.92	0.780	30.00	-1.08
		132622	1775.0	1 / 25	24.34	4.50	28.84	0.766	30.00	-1.16
	16-QAM	132022	1715.0	1 / 25	23.72	4.50	28.22	0.664	30.00	-1.78
5 MHz	QPSK	131997	1712.5	1 / 12	24.35	4.50	28.85	0.767	30.00	-1.15
		132322	1745.0	1 / 0	24.34	4.50	28.84	0.765	30.00	-1.16
		132647	1777.5	1 / 24	24.23	4.50	28.73	0.747	30.00	-1.27
	16-QAM	131997	1712.5	1 / 12	23.74	4.50	28.24	0.667	30.00	-1.76
3 MHz	QPSK	131987	1711.5	1 / 14	24.38	4.50	28.88	0.772	30.00	-1.12
		132322	1745.0	1 / 0	24.41	4.50	28.91	0.778	30.00	-1.09
		132657	1778.5	1 / 7	24.29	4.50	28.79	0.757	30.00	-1.21
	16-QAM	131987	1711.5	1 / 14	23.69	4.50	28.19	0.660	30.00	-1.81
1.4 MHz	QPSK	131979	1710.7	1 / 3	24.53	4.50	29.03	0.800	30.00	-0.97
		132322	1745.0	1 / 3	24.43	4.50	28.93	0.782	30.00	-1.07
		132665	1779.3	1 / 3	24.32	4.50	28.82	0.761	30.00	-1.18
	16-QAM	131979	1710.7	1 / 3	23.87	4.50	28.37	0.687	30.00	-1.63

Table 7-11. EIRP Data (LTE Band 66/4 – Ant 1)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Ant Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
40 MHz	π/2 BPSK	346000	1730.0	1 / 214	24.19	4.50	28.69	0.740	30.00	-1.31
		349000	1745.0	1 / 1	24.27	4.50	28.77	0.753	30.00	-1.23
		352000	1760.0	1 / 108	24.10	4.50	28.60	0.724	30.00	-1.40
	QPSK	346000	1730.0	1 / 1	24.26	4.50	28.76	0.752	30.00	-1.24
		349000	1745.0	1 / 1	24.31	4.50	28.81	0.760	30.00	-1.19
		352000	1760.0	1 / 108	24.16	4.50	28.66	0.735	30.00	-1.34
	16-QAM	349000	1745.0	1 / 1	23.25	4.50	27.75	0.596	30.00	-2.25
30 MHz	π/2 BPSK	345000	1725.0	1 / 80	24.44	4.50	28.94	0.784	30.00	-1.06
		349000	1745.0	1 / 158	24.68	4.50	29.18	0.829	30.00	-0.82
		353000	1765.0	1 / 1	24.47	4.50	28.97	0.789	30.00	-1.03
	QPSK	345000	1725.0	1 / 80	24.33	4.50	28.83	0.764	30.00	-1.17
		349000	1745.0	1 / 158	24.67	4.50	29.17	0.827	30.00	-0.83
		353000	1765.0	1 / 1	24.66	4.50	29.16	0.823	30.00	-0.84
	16-QAM	353000	1765.0	1 / 158	24.23	4.50	28.73	0.746	30.00	-1.27
25 MHz	π/2 BPSK	344500	1722.5	1 / 131	24.21	4.50	28.71	0.743	30.00	-1.29
		349000	1745.0	1 / 1	24.30	4.50	28.80	0.759	30.00	-1.20
		353500	1767.5	1 / 66	24.25	4.50	28.75	0.750	30.00	-1.25
	QPSK	344500	1722.5	1 / 131	24.55	4.50	29.05	0.804	30.00	-0.95
		349000	1745.0	1 / 131	24.37	4.50	28.87	0.771	30.00	-1.13
		353500	1767.5	1 / 131	24.30	4.50	28.80	0.759	30.00	-1.20
	16-QAM	349000	1745.0	1 / 1	23.33	4.50	27.83	0.607	30.00	-2.17
20 MHz	π/2 BPSK	344000	1720.0	1 / 53	24.23	4.50	28.73	0.746	30.00	-1.27
		349000	1745.0	1 / 1	24.28	4.50	28.78	0.755	30.00	-1.22
		354000	1770.0	1 / 104	24.16	4.50	28.66	0.735	30.00	-1.34
	QPSK	344000	1720.0	1 / 1	24.27	4.50	28.77	0.753	30.00	-1.23
		349000	1745.0	1 / 1	24.31	4.50	28.81	0.760	30.00	-1.19
		354000	1770.0	1 / 1	24.14	4.50	28.64	0.731	30.00	-1.36
	16-QAM	349000	1745.0	1 / 1	23.26	4.50	27.76	0.597	30.00	-2.24
15 MHz	π/2 BPSK	343500	1717.5	1 / 1	24.32	4.50	28.82	0.762	30.00	-1.18
		349000	1745.0	1 / 77	24.29	4.50	28.79	0.757	30.00	-1.21
		354500	1772.5	1 / 77	24.09	4.50	28.59	0.723	30.00	-1.41
	QPSK	343500	1717.5	1 / 1	24.38	4.50	28.88	0.773	30.00	-1.12
		349000	1745.0	1 / 77	24.32	4.50	28.82	0.762	30.00	-1.18
		354500	1772.5	1 / 77	24.14	4.50	28.64	0.731	30.00	-1.36
	16-QAM	349000	1745.0	1 / 1	23.19	4.50	27.69	0.587	30.00	-2.31
10 MHz	π/2 BPSK	343000	1715.0	1 / 26	24.21	4.50	28.71	0.743	30.00	-1.29
		349000	1745.0	1 / 26	24.14	4.50	28.64	0.731	30.00	-1.36
		355000	1775.0	1 / 26	24.14	4.50	28.64	0.731	30.00	-1.36
	QPSK	343000	1715.0	1 / 1	24.24	4.50	28.74	0.748	30.00	-1.26
		349000	1745.0	1 / 1	24.13	4.50	28.63	0.729	30.00	-1.37
		355000	1775.0	1 / 26	24.17	4.50	28.67	0.736	30.00	-1.33
	16-QAM	343000	1715.0	1 / 1	23.21	4.50	27.71	0.590	30.00	-2.29
5 MHz	π/2 BPSK	342500	1712.5	1 / 12	24.22	4.50	28.72	0.745	30.00	-1.28
		349000	1745.0	1 / 12	24.07	4.50	28.57	0.719	30.00	-1.43
		355500	1777.5	1 / 12	24.07	4.50	28.57	0.719	30.00	-1.43
	QPSK	342500	1712.5	1 / 23	24.17	4.50	28.67	0.736	30.00	-1.33
		349000	1745.0	1 / 12	24.12	4.50	28.62	0.728	30.00	-1.38
		355500	1777.5	1 / 12	24.08	4.50	28.58	0.721	30.00	-1.42
	16-QAM	349000	1745.0	1 / 1	23.05	4.50	27.55	0.569	30.00	-2.45

Table 7-12. EIRP Data (NR Band n66 – Ant 1)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Ant Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
20 MHz	QPSK	133222	673.0	1 / 99	23.88	8.40	30.13	1.030	44.77	-14.64
		133297	680.5	1 / 0	23.99	8.40	30.24	1.056	44.77	-14.53
		133372	688.0	1 / 0	24.03	8.40	30.28	1.067	44.77	-14.49
	16-QAM	133222	673.0	1 / 99	23.26	8.40	29.51	0.894	44.77	-15.26
15 MHz	QPSK	133197	670.5	1 / 37	23.97	8.40	30.22	1.053	44.77	-14.55
		133297	680.5	1 / 74	24.04	8.40	30.29	1.069	44.77	-14.48
		133397	690.5	1 / 37	23.87	8.40	30.12	1.029	44.77	-14.65
	16-QAM	133297	680.5	1 / 74	23.19	8.40	29.44	0.880	44.77	-15.33
10 MHz	QPSK	133172	668.0	1 / 49	24.17	8.40	30.42	1.102	44.77	-14.35
		133297	680.5	1 / 25	24.09	8.40	30.34	1.081	44.77	-14.43
		133422	693.0	1 / 0	24.37	8.40	30.62	1.154	44.77	-14.15
	16-QAM	133422	693.0	1 / 0	23.35	8.40	29.60	0.912	44.77	-15.17
5 MHz	QPSK	133147	665.5	1 / 12	24.02	8.40	30.27	1.065	44.77	-14.50
		133297	680.5	1 / 12	24.09	8.40	30.34	1.082	44.77	-14.43
		133447	695.5	1 / 0	24.30	8.40	30.55	1.136	44.77	-14.22
	16-QAM	133147	665.5	1 / 12	23.43	8.40	29.68	0.928	44.77	-15.09

Table 7-13. ERP Data (LTE Band 71 – Ant 5)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Ant Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
10 MHz	QPSK	23060	704.0	1 / 25	24.36	5.60	27.81	0.604	44.77	-16.96
		23095	707.5	1 / 0	24.28	5.60	27.73	0.593	44.77	-17.04
		23130	711.0	1 / 25	24.34	5.60	27.79	0.601	44.77	-16.98
	16-QAM	23095	707.5	1 / 0	23.70	5.60	27.15	0.519	44.77	-17.62
5 MHz	QPSK	23035	701.5	1 / 12	24.23	5.60	27.68	0.586	44.77	-17.09
		23095	707.5	1 / 12	24.29	5.60	27.74	0.594	44.77	-17.03
		23155	713.5	1 / 24	24.48	5.60	27.93	0.620	44.77	-16.84
	16-QAM	23095	707.5	1 / 12	23.55	5.60	27.00	0.501	44.77	-17.77
3 MHz	QPSK	23025	700.5	1 / 7	24.19	5.60	27.64	0.580	44.77	-17.13
		23095	707.5	1 / 14	24.29	5.60	27.74	0.594	44.77	-17.03
		23165	714.5	1 / 7	24.44	5.60	27.89	0.615	44.77	-16.88
	16-QAM	23025	700.5	1 / 7	23.57	5.60	27.02	0.503	44.77	-17.75
1.4 MHz	QPSK	23017	699.7	1 / 5	24.11	5.60	27.56	0.570	44.77	-17.21
		23095	707.5	1 / 0	24.11	5.60	27.56	0.571	44.77	-17.21
		23173	715.3	1 / 3	24.20	5.60	27.65	0.582	44.77	-17.12
	16-QAM	23017	699.7	1 / 5	23.51	5.60	26.96	0.497	44.77	-17.81

Table 7-14. ERP Data (LTE Band 12– Ant 5)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Ant Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
10 MHz	QPSK	23230	782.0	1 / 25	24.07	5.90	27.82	0.605	44.77	-16.95
	16-QAM	23230	782.0	1 / 25	23.36	5.90	27.11	0.514	44.77	-17.66
5 MHz	QPSK	23205	779.5	1 / 12	24.05	5.90	27.80	0.603	44.77	-16.97
		23230	782.0	1 / 12	24.12	5.90	27.87	0.612	44.77	-16.90
		23255	784.5	1 / 0	24.08	5.90	27.83	0.606	44.77	-16.94
	16-QAM	23230	782.0	1 / 12	23.50	5.90	27.25	0.531	44.77	-17.52

Table 7-15. ERP Data (LTE Band 13 – Ant 5)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Ant Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
20 MHz	π/2 BPSK	134600	673.0	1 / 53	23.74	5.40	26.99	0.500	44.77	-17.78
		136100	680.5	1 / 53	23.84	5.40	27.09	0.512	44.77	-17.68
		137600	688.0	1 / 1	23.91	5.40	27.16	0.520	44.77	-17.61
	QPSK	134600	673.0	1 / 53	23.76	5.40	27.01	0.502	44.77	-17.76
		136100	680.5	1 / 53	23.82	5.40	27.07	0.509	44.77	-17.70
		137600	688.0	1 / 1	23.94	5.40	27.19	0.524	44.77	-17.58
	16-QAM	137600	688.0	1 / 1	22.86	5.40	26.11	0.408	44.77	-18.66
15 MHz	π/2 BPSK	134100	670.5	1 / 39	23.78	5.40	27.03	0.505	44.77	-17.74
		136100	680.5	1 / 1	23.81	5.40	27.06	0.508	44.77	-17.71
		138100	690.5	1 / 1	23.83	5.40	27.08	0.511	44.77	-17.69
	QPSK	134100	670.5	1 / 77	23.79	5.40	27.04	0.506	44.77	-17.73
		136100	680.5	1 / 1	23.81	5.40	27.06	0.508	44.77	-17.71
		138100	690.5	1 / 1	23.76	5.40	27.01	0.502	44.77	-17.76
	16-QAM	138100	690.5	1 / 1	22.79	5.40	26.04	0.402	44.77	-18.73
10 MHz	π/2 BPSK	133600	668.0	1 / 1	23.83	5.40	27.08	0.511	44.77	-17.69
		136100	680.5	1 / 1	23.72	5.40	26.97	0.498	44.77	-17.80
		138600	693.0	1 / 26	23.71	5.40	26.96	0.497	44.77	-17.81
	QPSK	133600	668.0	1 / 1	23.82	5.40	27.07	0.509	44.77	-17.70
		136100	680.5	1 / 1	23.71	5.40	26.96	0.497	44.77	-17.81
		138600	693.0	1 / 26	23.76	5.40	27.01	0.502	44.77	-17.76
	16-QAM	133600	668.0	1 / 26	22.84	5.40	26.09	0.406	44.77	-18.68
5 MHz	π/2 BPSK	133100	665.5	1 / 1	23.88	5.40	27.13	0.516	44.77	-17.64
		136100	680.5	1 / 1	23.70	5.40	26.95	0.495	44.77	-17.82
		139100	695.5	1 / 12	23.80	5.40	27.05	0.507	44.77	-17.72
	QPSK	133100	665.5	1 / 23	23.86	5.40	27.11	0.514	44.77	-17.66
		136100	680.5	1 / 1	23.69	5.40	26.94	0.494	44.77	-17.83
		139100	695.5	1 / 12	23.77	5.40	27.02	0.504	44.77	-17.75
	16-QAM	136100	680.5	1 / 12	22.77	5.40	26.02	0.400	44.77	-18.75

Table 7-16. ERP Data (NR Band n71 – Ant 5)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]	Ant Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
15 MHz	π/2 BPSK	141300	706.5	1 / 39	24.25	5.60	27.70	0.589	44.77	-17.07
		141500	707.5	1 / 39	24.20	5.60	27.65	0.582	44.77	-17.12
		141700	708.5	1 / 39	24.18	5.60	27.63	0.579	44.77	-17.14
	QPSK	141300	706.5	1 / 77	24.25	5.60	27.70	0.589	44.77	-17.07
		141500	707.5	1 / 77	24.20	5.60	27.65	0.582	44.77	-17.12
		141700	708.5	1 / 39	24.19	5.60	27.64	0.581	44.77	-17.13
	16-QAM	141700	708.5	1 / 77	23.30	5.60	26.75	0.473	44.77	-18.02
10 MHz	π/2 BPSK	140800	704.0	1 / 50	24.10	5.60	27.55	0.569	44.77	-17.22
		141500	707.5	1 / 1	24.10	5.60	27.55	0.569	44.77	-17.22
		142200	711.0	1 / 50	24.10	5.60	27.55	0.569	44.77	-17.22
	QPSK	140800	704.0	1 / 1	23.99	5.60	27.44	0.555	44.77	-17.33
		141500	707.5	1 / 26	24.08	5.60	27.53	0.566	44.77	-17.24
		142200	711.0	1 / 1	24.11	5.60	27.56	0.570	44.77	-17.21
	16-QAM	141500	707.5	1 / 50	23.97	5.60	27.42	0.552	44.77	-17.35
5 MHz	π/2 BPSK	140300	701.5	1 / 12	24.05	5.60	27.50	0.562	44.77	-17.27
		141500	707.5	1 / 1	24.05	5.60	27.50	0.562	44.77	-17.27
		142700	713.5	1 / 12	24.12	5.60	27.57	0.571	44.77	-17.20
	QPSK	140300	701.5	1 / 12	23.99	5.60	27.44	0.555	44.77	-17.33
		141500	707.5	1 / 12	24.08	5.60	27.53	0.566	44.77	-17.24
		142700	713.5	1 / 12	24.08	5.60	27.53	0.566	44.77	-17.24
	16-QAM	142700	713.5	1 / 23	22.95	5.60	26.40	0.44	44.77	-18.37

Table 7-17. ERP Data (NR Band n12 – Ant 5)

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.

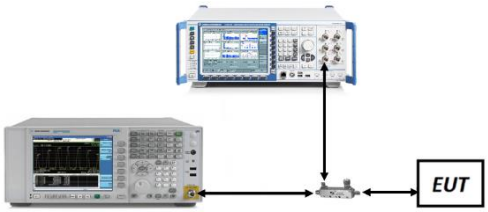


Figure 7-2. Test Instrument & Measurement Setup

Test Notes

None.

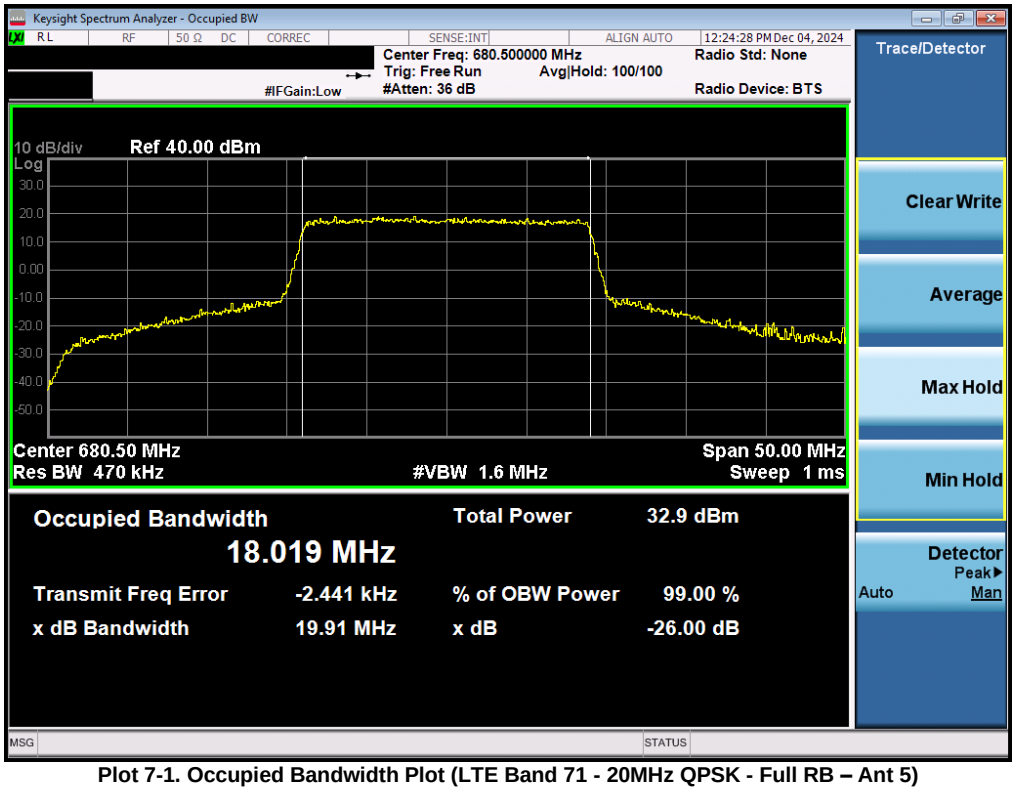
Mode	Bandwidth	Modulation	OBW [MHz]
LTE-B71	20MHz	QPSK	18.02
		16QAM	18.01
	15MHz	QPSK	13.55
		16QAM	13.55
	10MHz	QPSK	9.03
		16QAM	9.03
	5MHz	QPSK	4.54
		16QAM	4.54
LTE-B12	10MHz	QPSK	9.04
		16QAM	9.04
	5MHz	QPSK	4.53
		16QAM	4.53
	3MHz	QPSK	2.73
		16QAM	2.72
	1.4MHz	QPSK	1.11
		16QAM	1.11
LTE-B13	10MHz	QPSK	9.02
		16QAM	9.02
	5MHz	QPSK	4.53
		16QAM	4.53

Table 7-18.Occupied Bandwidth Test Results – Ant 5

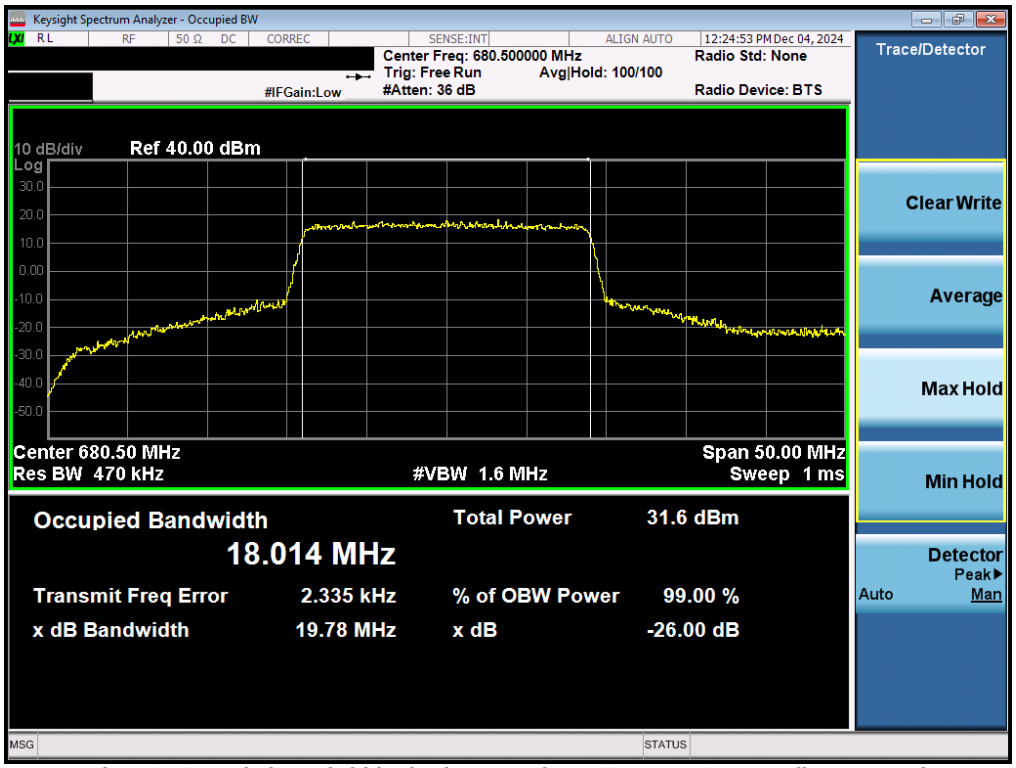
Mode	Bandwidth	Modulation	OBW [MHz]
NR-n12	15MHz	π/2 BPSK	13.48
		QPSK	14.19
		16QAM	14.21
	10MHz	π/2 BPSK	9.00
		QPSK	9.35
		16QAM	9.36
	5MHz	π/2 BPSK	4.53
		QPSK	4.56
		16QAM	4.55
NR-n71	20MHz	π/2 BPSK	17.93
		QPSK	18.98
		16QAM	19.05
	15MHz	π/2 BPSK	13.50
		QPSK	14.17
		16QAM	14.19
	10MHz	π/2 BPSK	8.99
		QPSK	9.36
		16QAM	9.36
	5MHz	π/2 BPSK	4.53
		QPSK	4.52
		16QAM	4.59

Table 7-19.Occupied Bandwidth Test Results – Ant 5

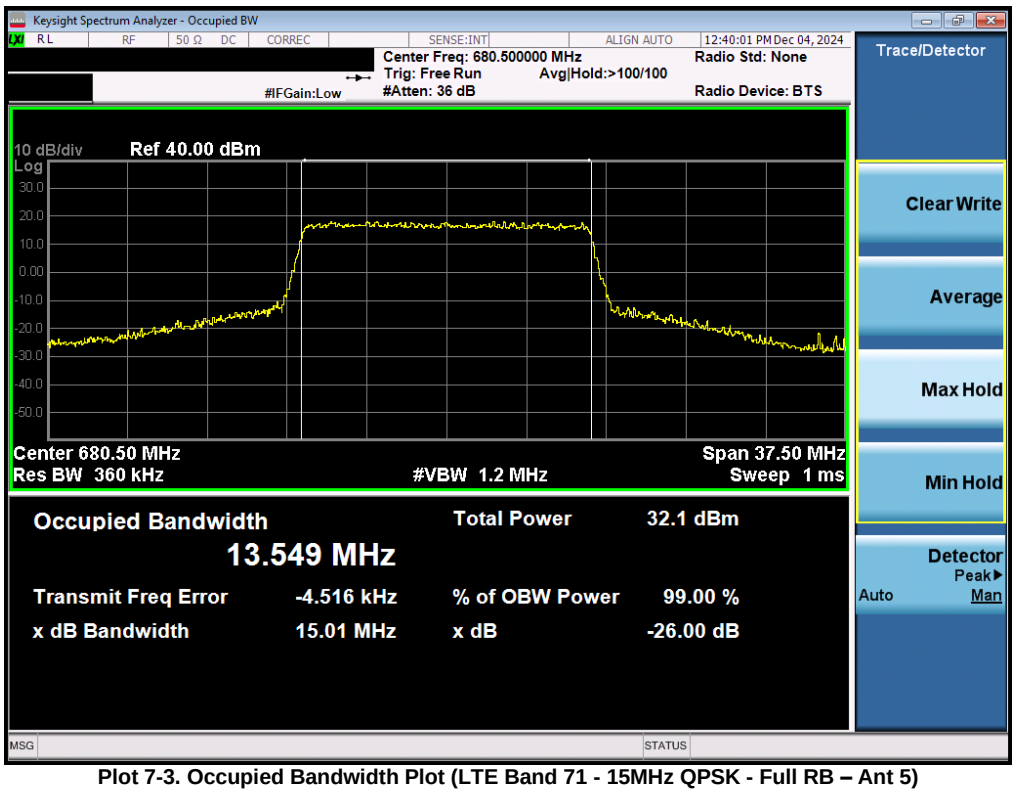
LTE Band 71 – Ant 5



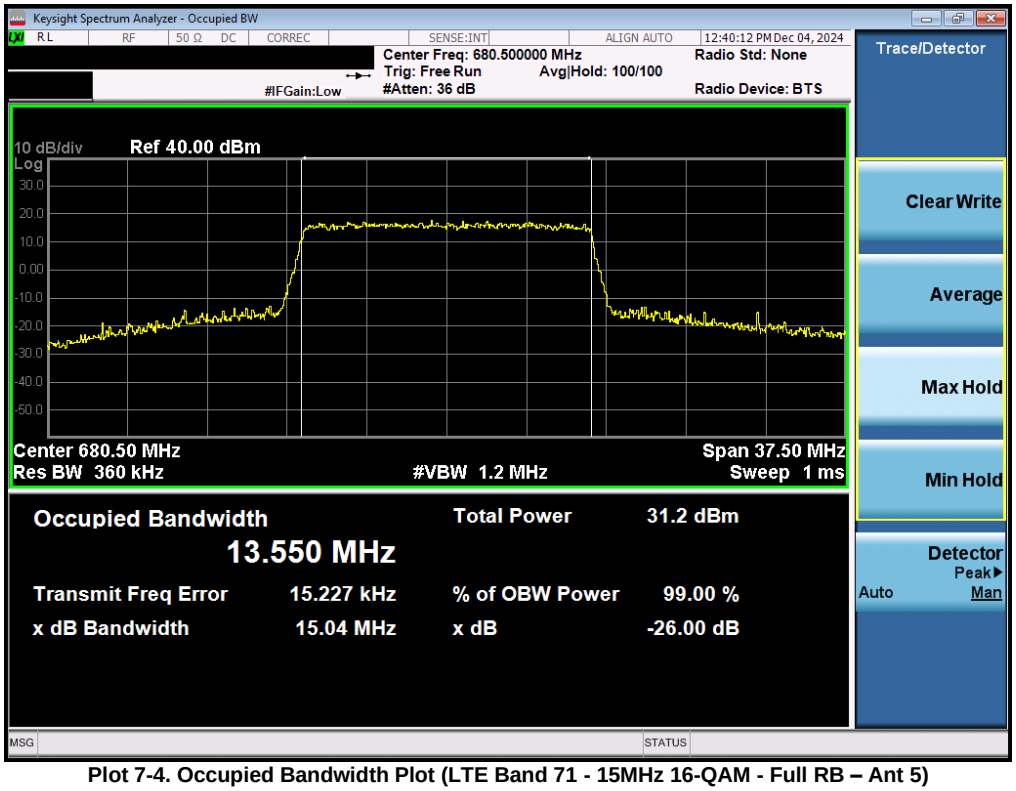
Plot 7-1. Occupied Bandwidth Plot (LTE Band 71 - 20MHz QPSK - Full RB – Ant 5)



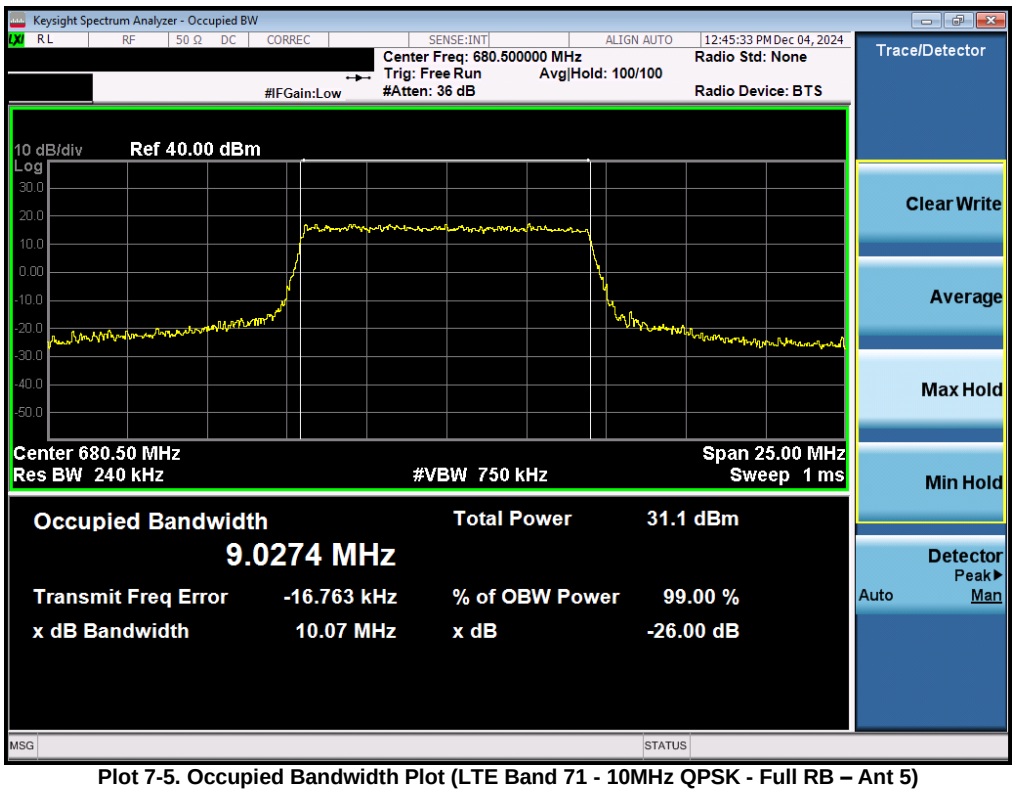
Plot 7-2. Occupied Bandwidth Plot (LTE Band 71 - 20MHz 16-QAM - Full RB – Ant 5)



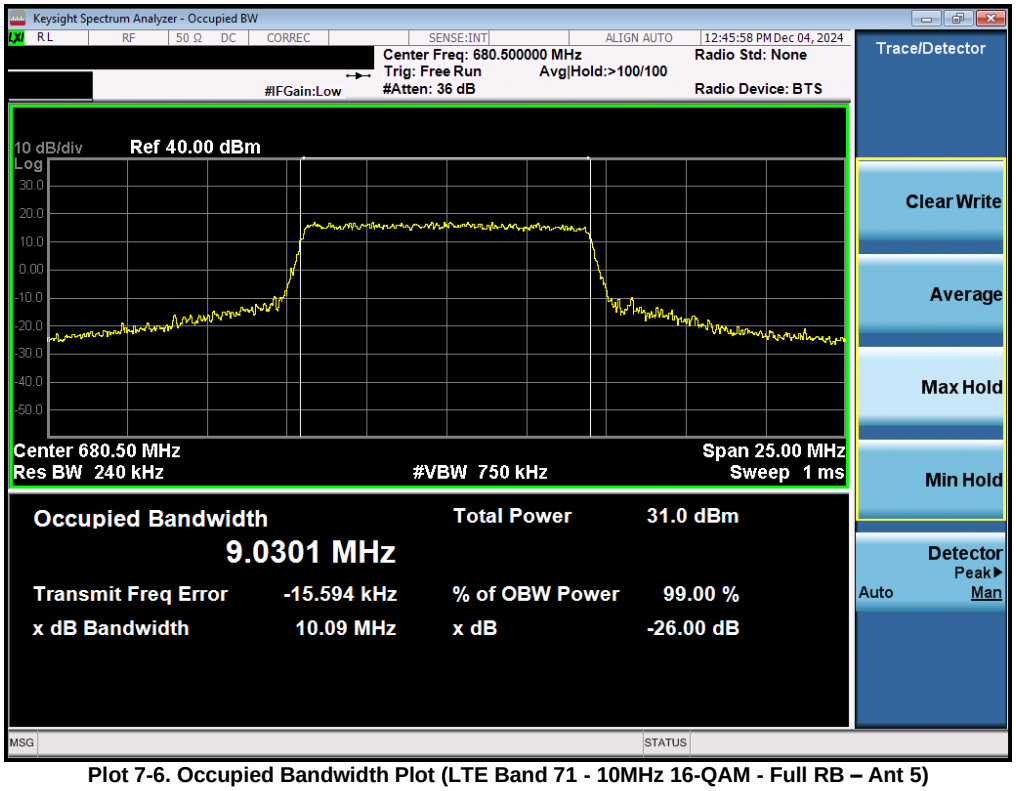
Plot 7-3. Occupied Bandwidth Plot (LTE Band 71 - 15MHz QPSK - Full RB – Ant 5)



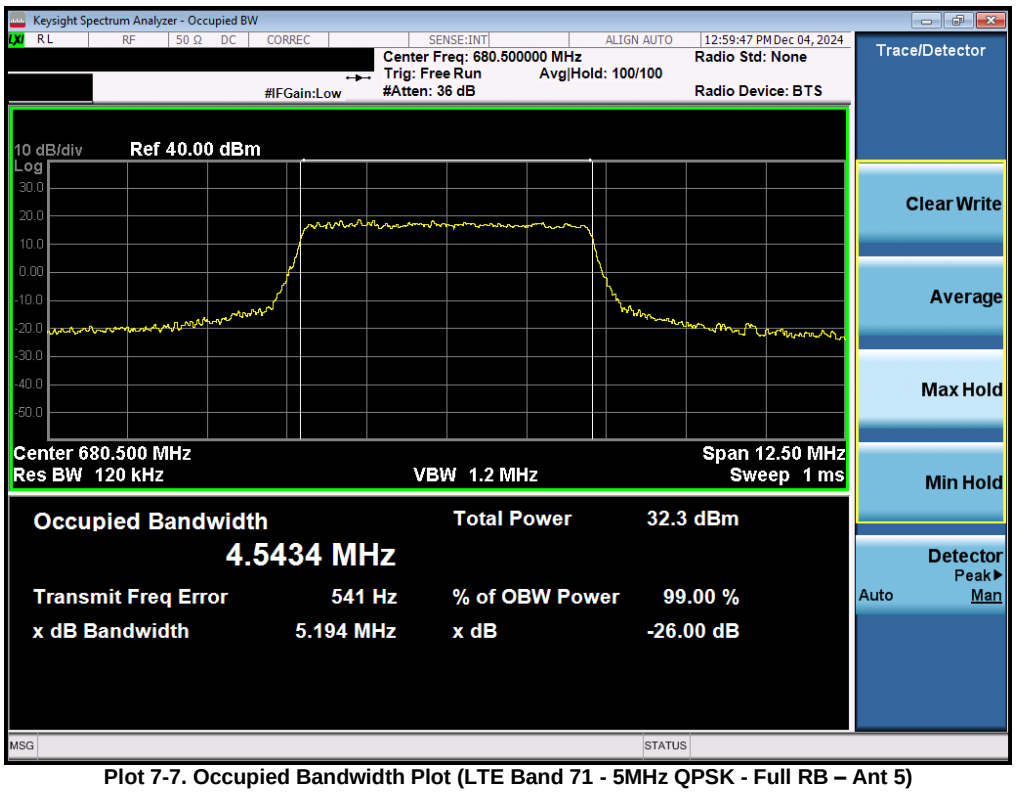
Plot 7-4. Occupied Bandwidth Plot (LTE Band 71 - 15MHz 16-QAM - Full RB – Ant 5)



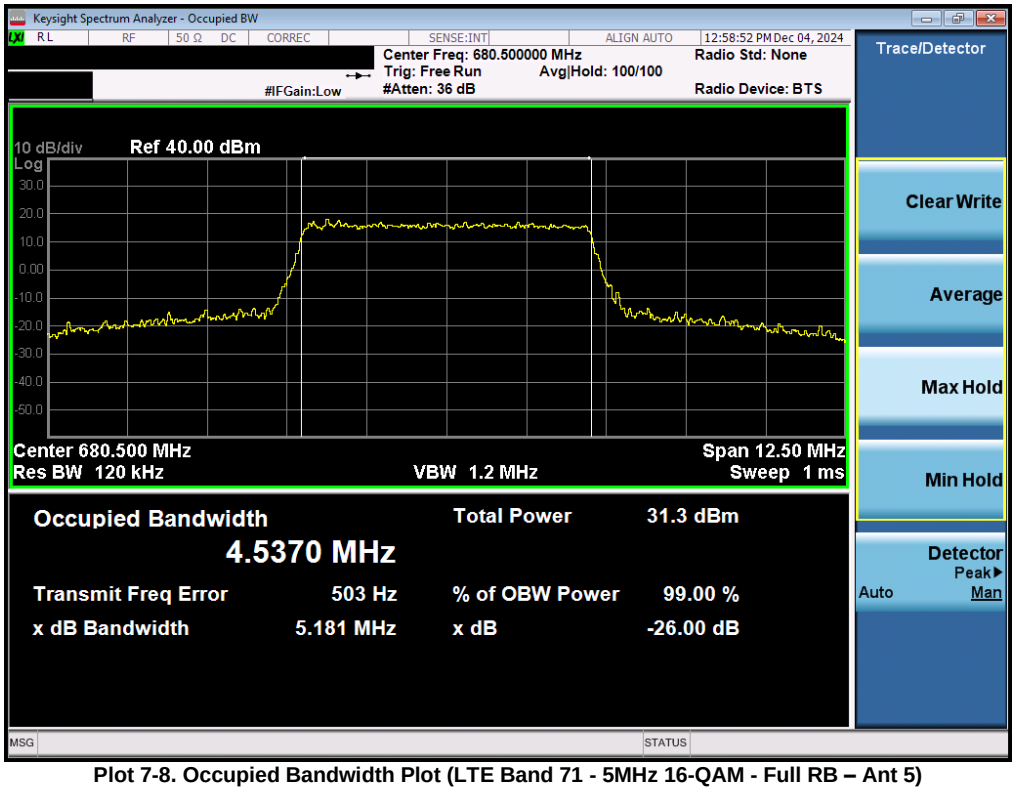
Plot 7-5. Occupied Bandwidth Plot (LTE Band 71 - 10MHz QPSK - Full RB – Ant 5)



Plot 7-6. Occupied Bandwidth Plot (LTE Band 71 - 10MHz 16-QAM - Full RB – Ant 5)

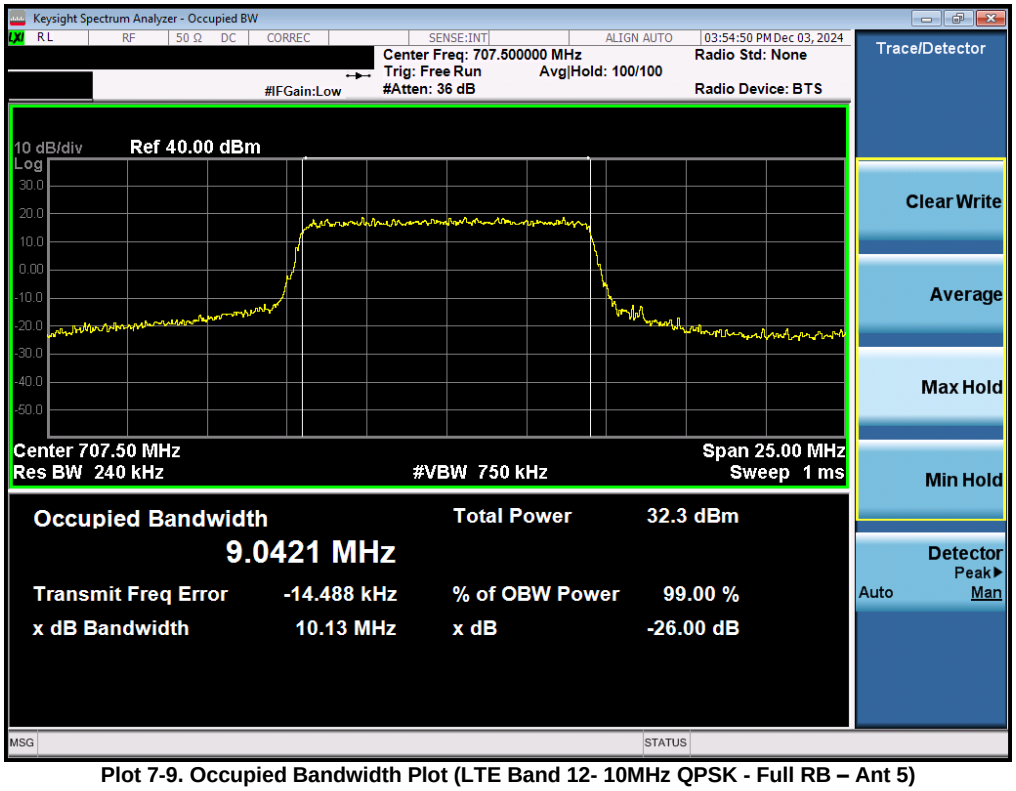


Plot 7-7. Occupied Bandwidth Plot (LTE Band 71 - 5MHz QPSK - Full RB – Ant 5)

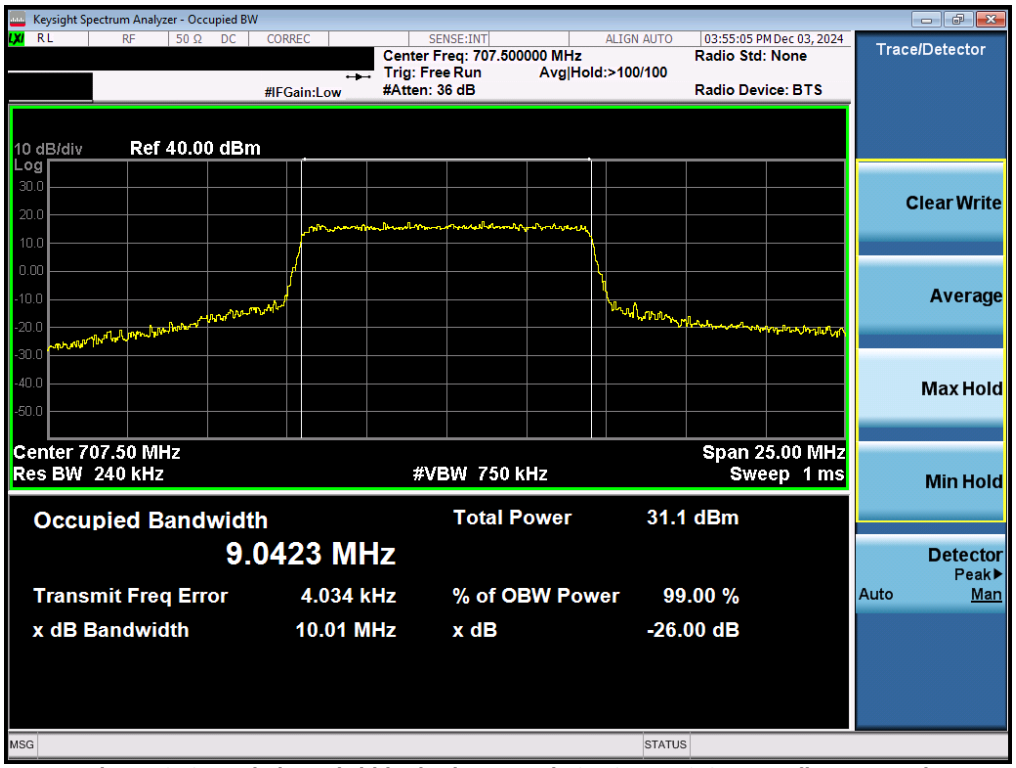


Plot 7-8. Occupied Bandwidth Plot (LTE Band 71 - 5MHz 16-QAM - Full RB – Ant 5)

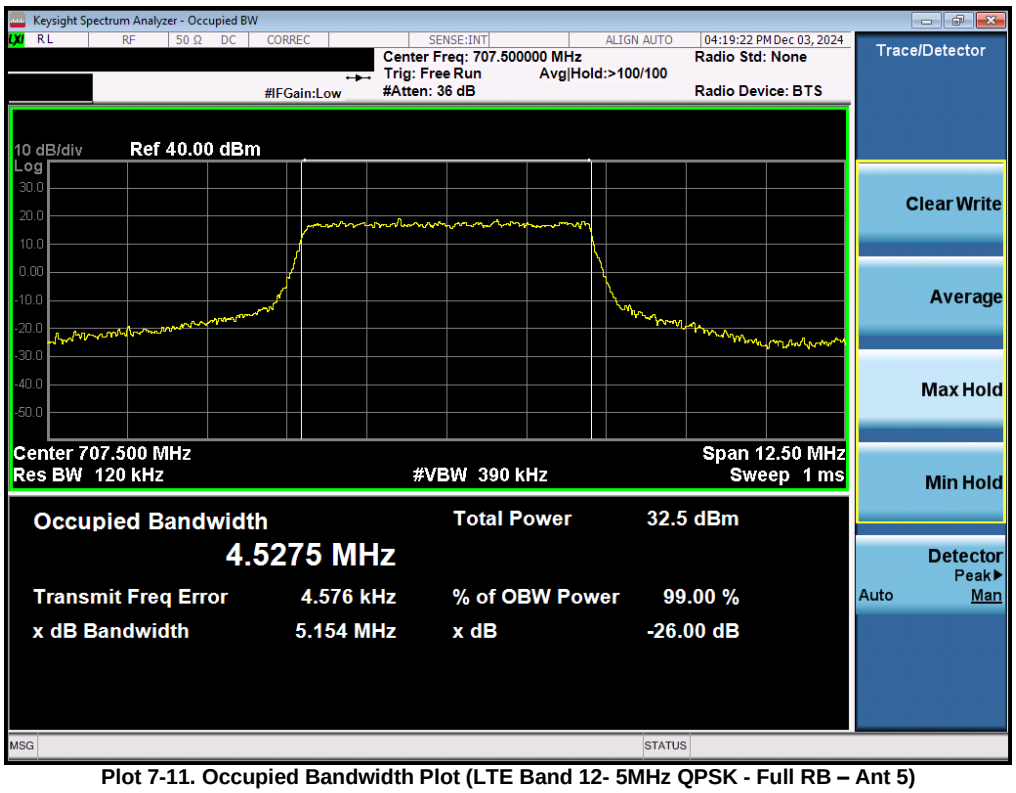
LTE Band 12– Ant 5



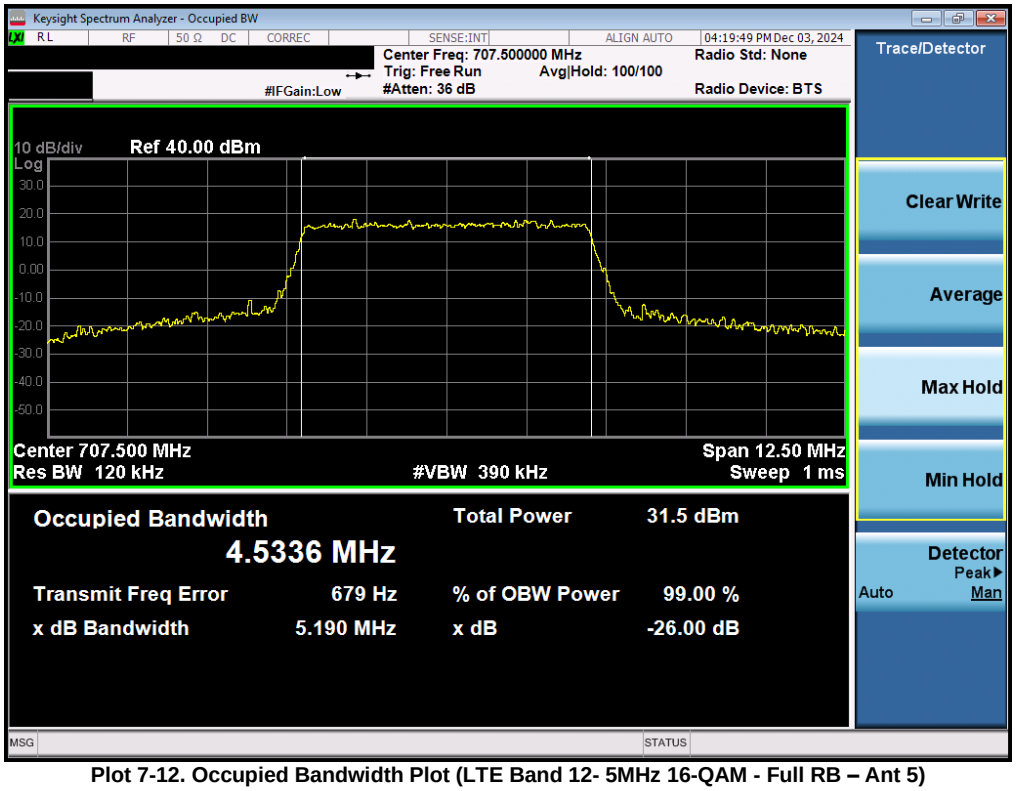
Plot 7-9. Occupied Bandwidth Plot (LTE Band 12- 10MHz QPSK - Full RB – Ant 5)



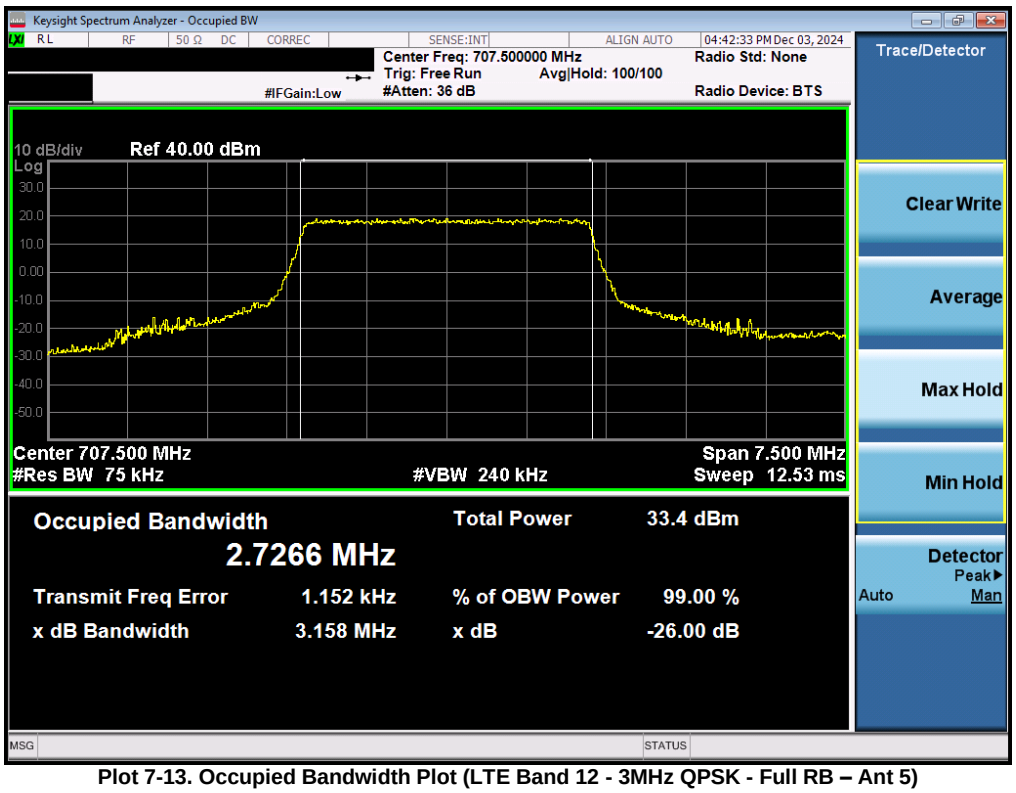
Plot 7-10. Occupied Bandwidth Plot (LTE Band 12- 10MHz 16-QAM - Full RB – Ant 5)



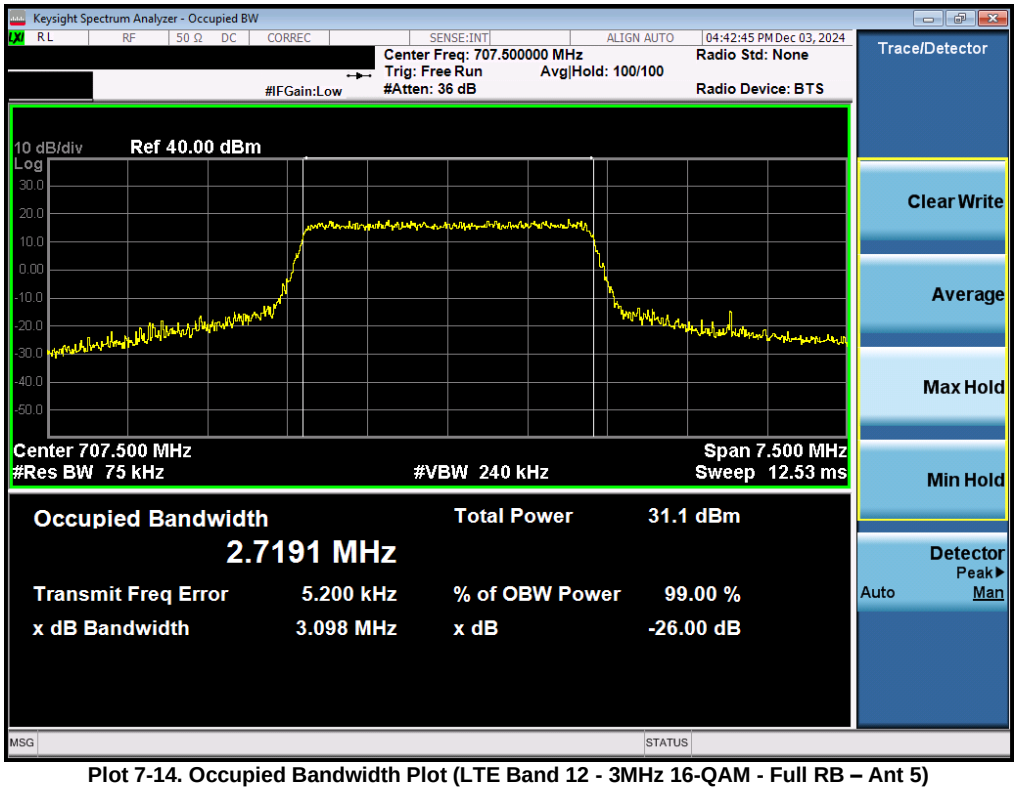
Plot 7-11. Occupied Bandwidth Plot (LTE Band 12- 5MHz QPSK - Full RB – Ant 5)



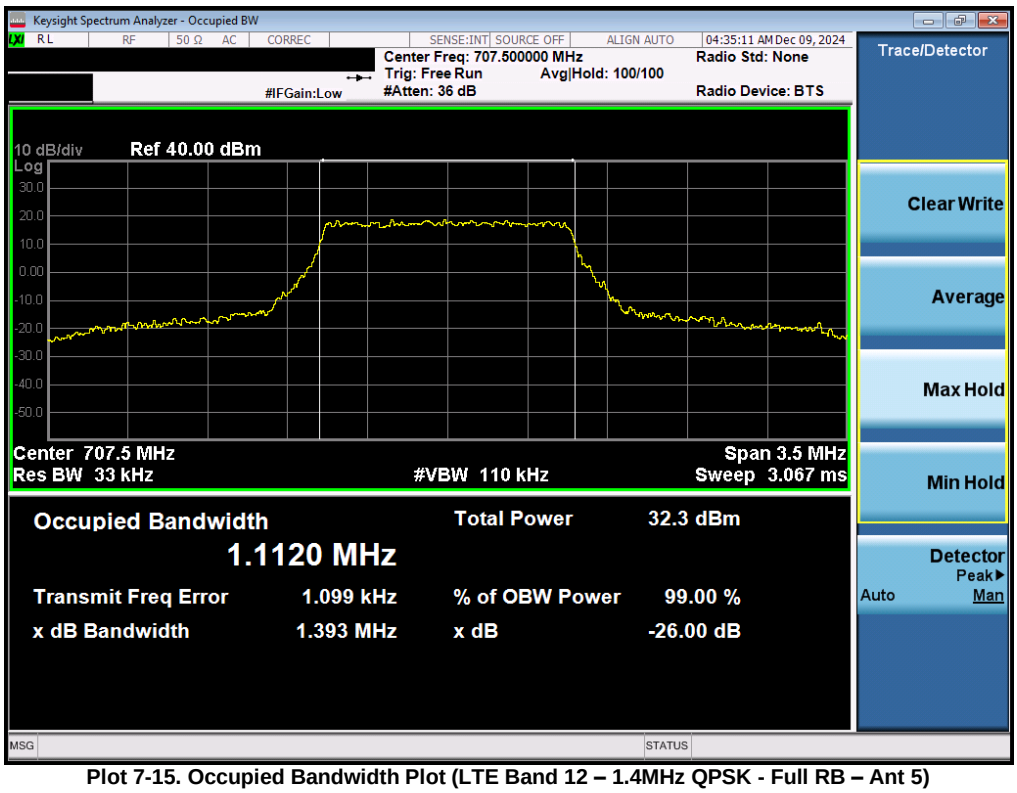
Plot 7-12. Occupied Bandwidth Plot (LTE Band 12- 5MHz 16-QAM - Full RB – Ant 5)



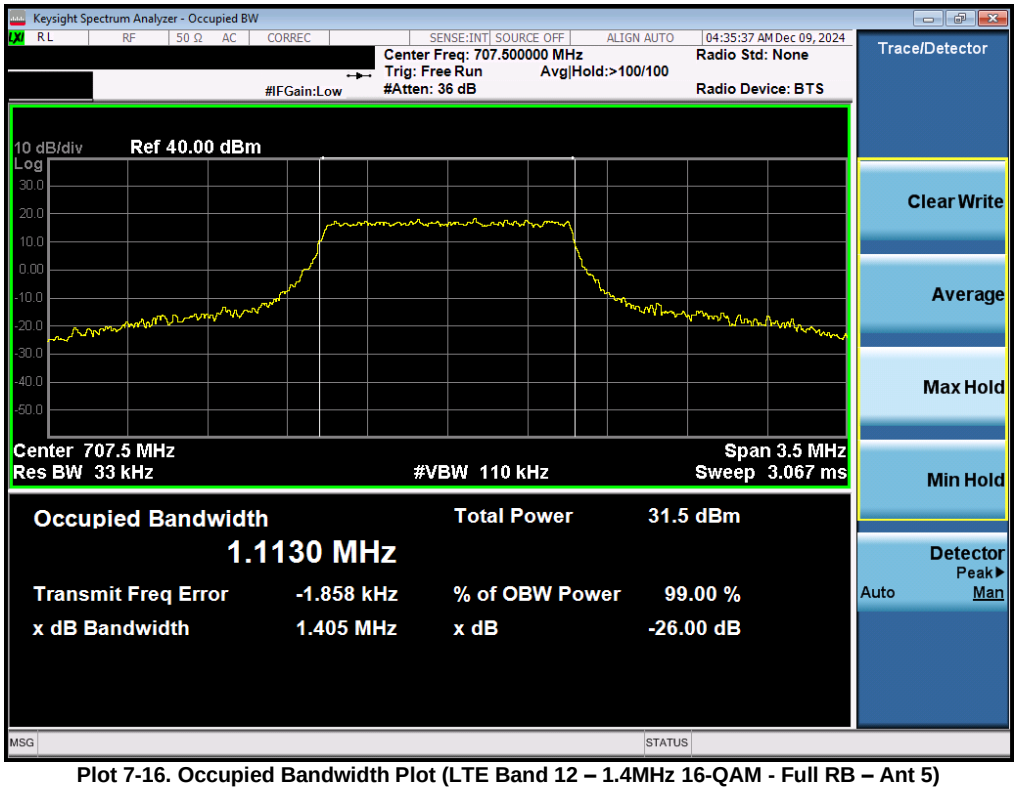
Plot 7-13. Occupied Bandwidth Plot (LTE Band 12 - 3MHz QPSK - Full RB – Ant 5)



Plot 7-14. Occupied Bandwidth Plot (LTE Band 12 - 3MHz 16-QAM - Full RB – Ant 5)

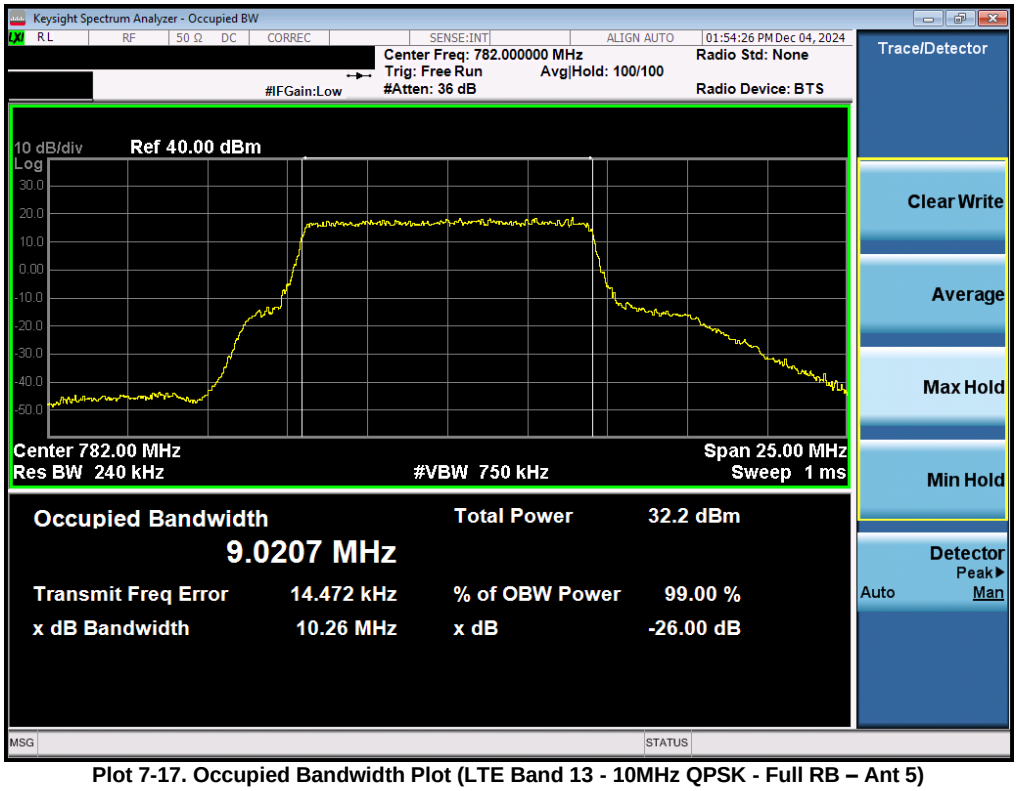


Plot 7-15. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz QPSK - Full RB – Ant 5)

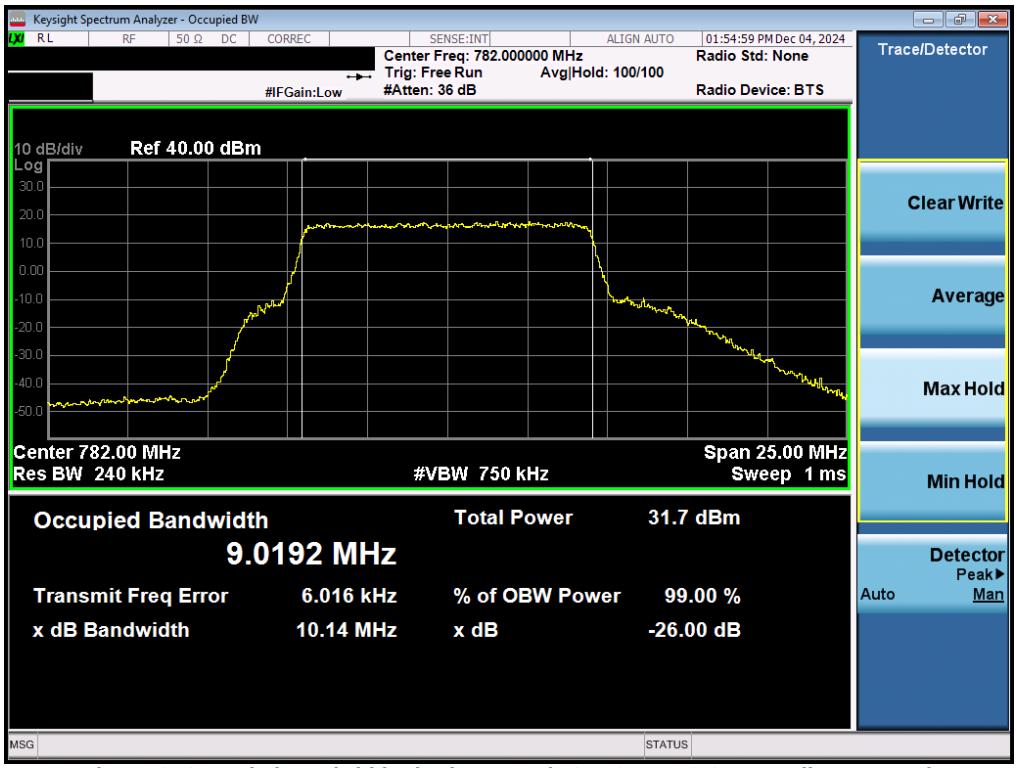


Plot 7-16. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz 16-QAM - Full RB – Ant 5)

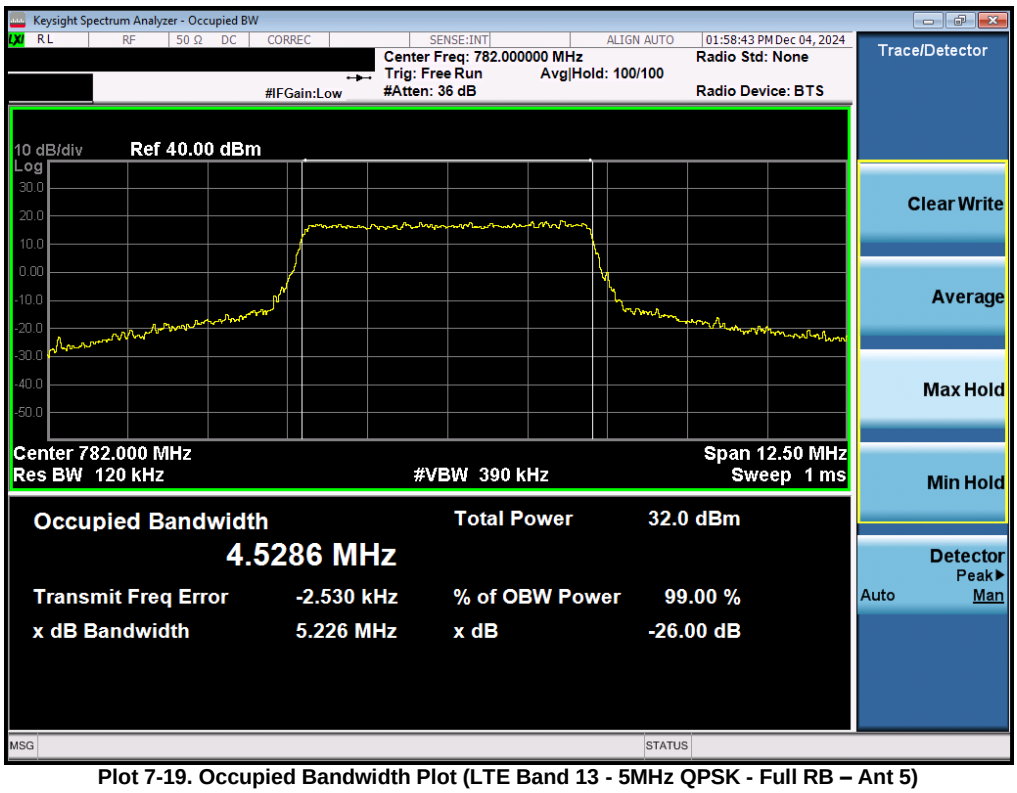
LTE Band 13 – Ant 5



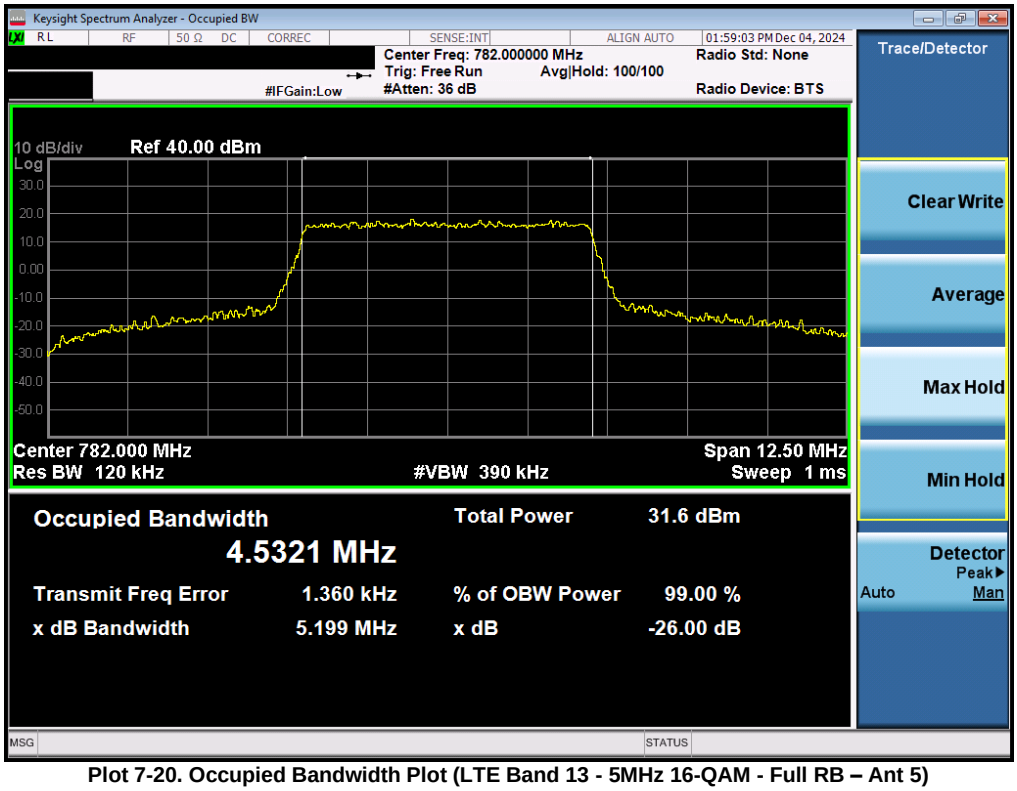
Plot 7-17. Occupied Bandwidth Plot (LTE Band 13 - 10MHz QPSK - Full RB – Ant 5)



Plot 7-18. Occupied Bandwidth Plot (LTE Band 13 - 10MHz 16-QAM - Full RB – Ant 5)

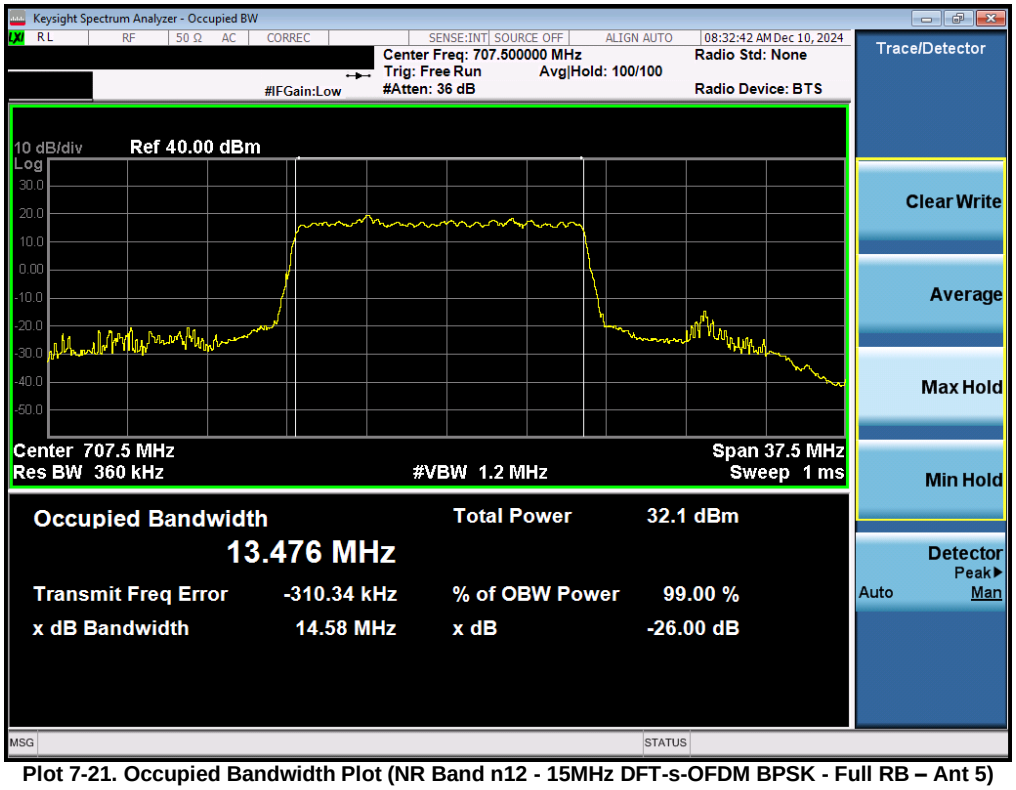


Plot 7-19. Occupied Bandwidth Plot (LTE Band 13 - 5MHz QPSK - Full RB – Ant 5)

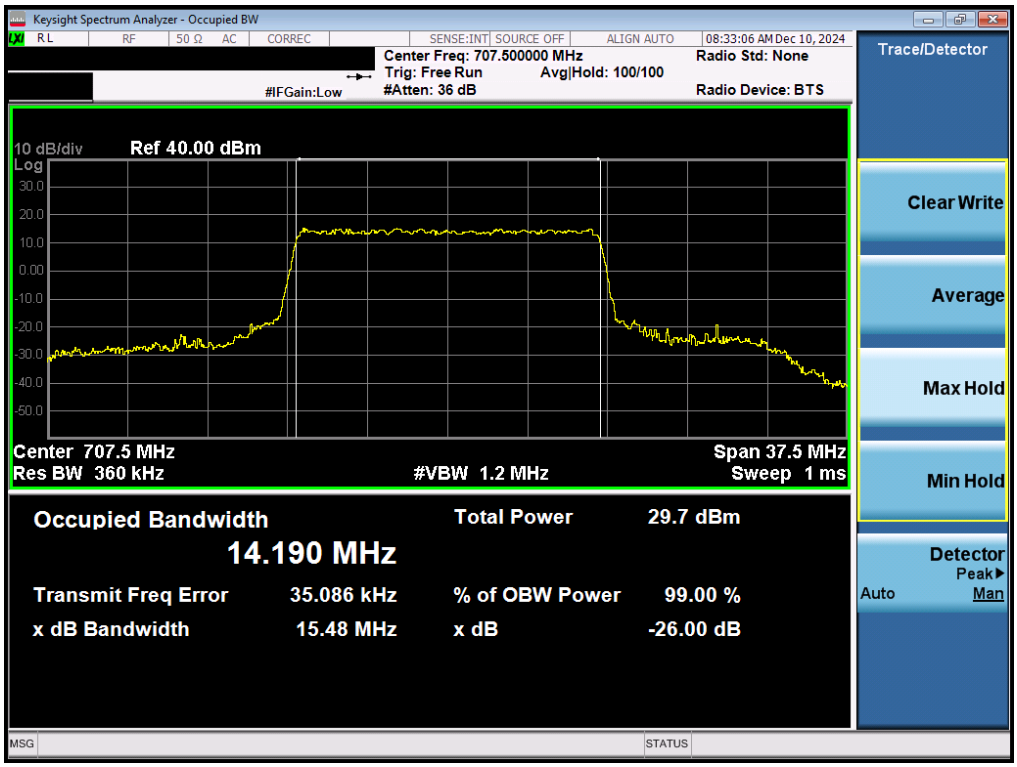


Plot 7-20. Occupied Bandwidth Plot (LTE Band 13 - 5MHz 16-QAM - Full RB – Ant 5)

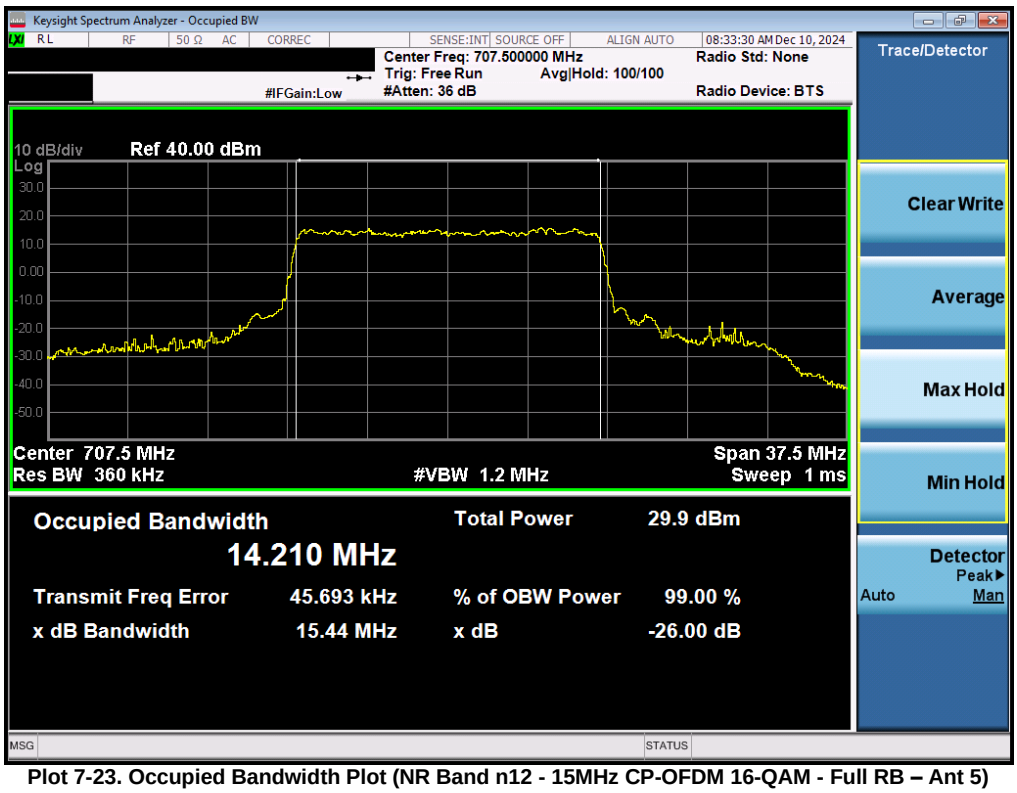
NR Band n12 – Ant 5



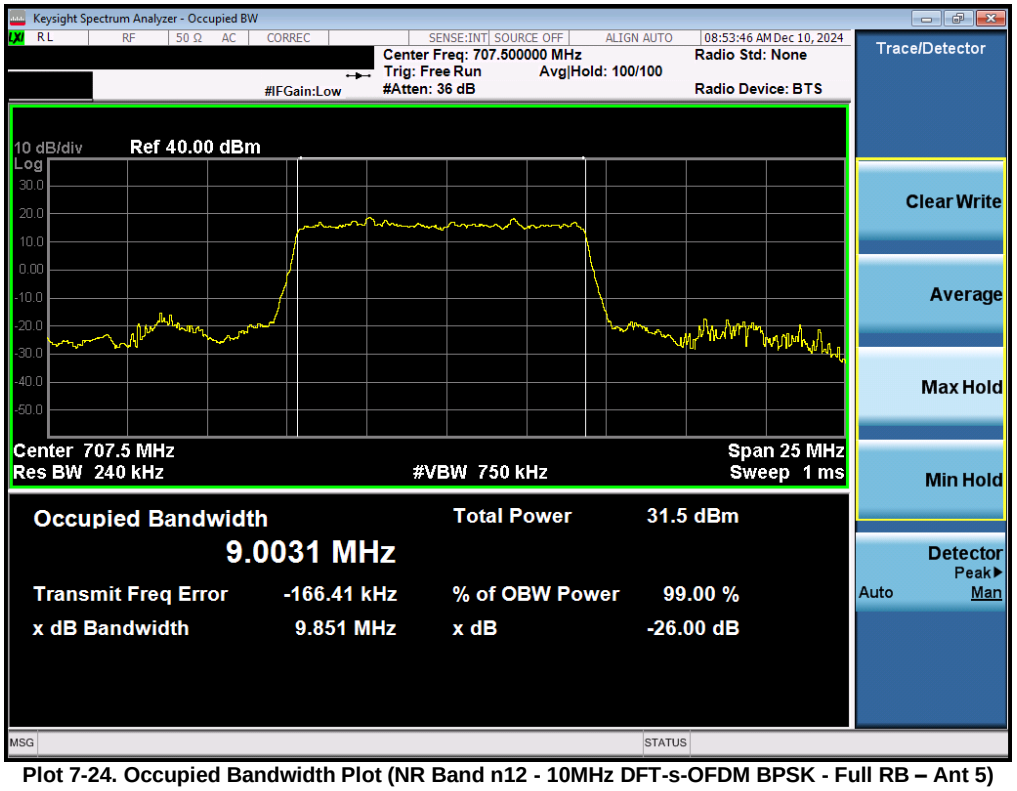
Plot 7-21. Occupied Bandwidth Plot (NR Band n12 - 15MHz DFT-s-OFDM BPSK - Full RB – Ant 5)



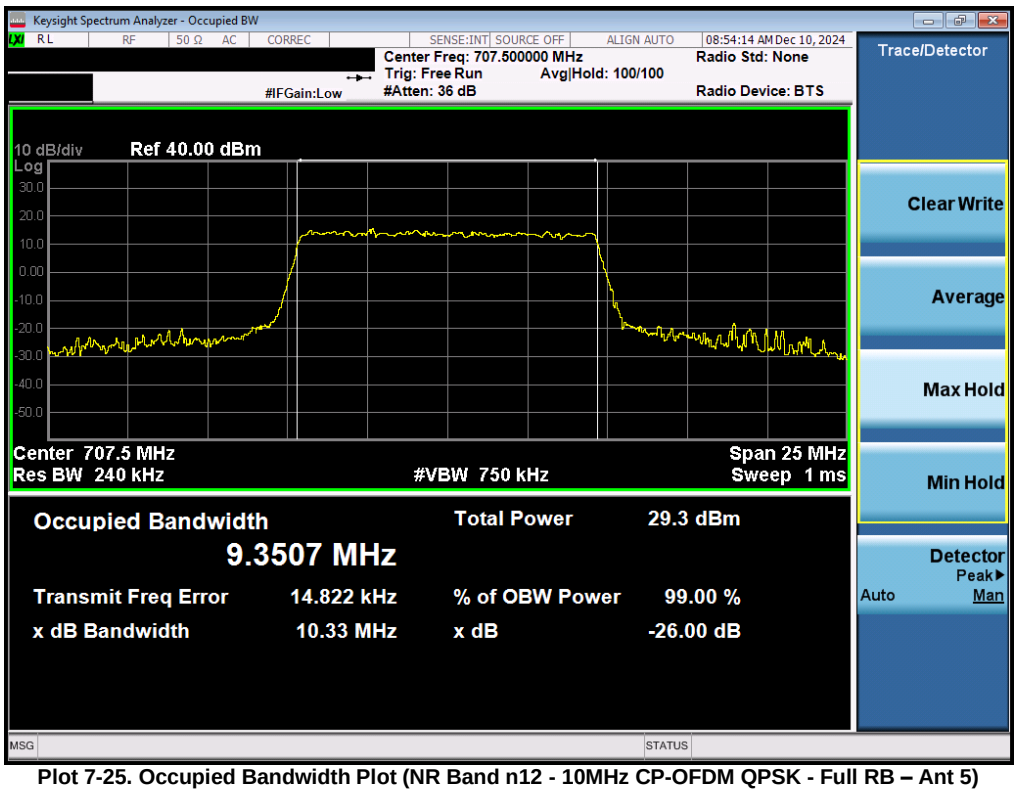
Plot 7-22. Occupied Bandwidth Plot (NR Band n12 - 15MHz CP-OFDM QPSK - Full RB – Ant 5)



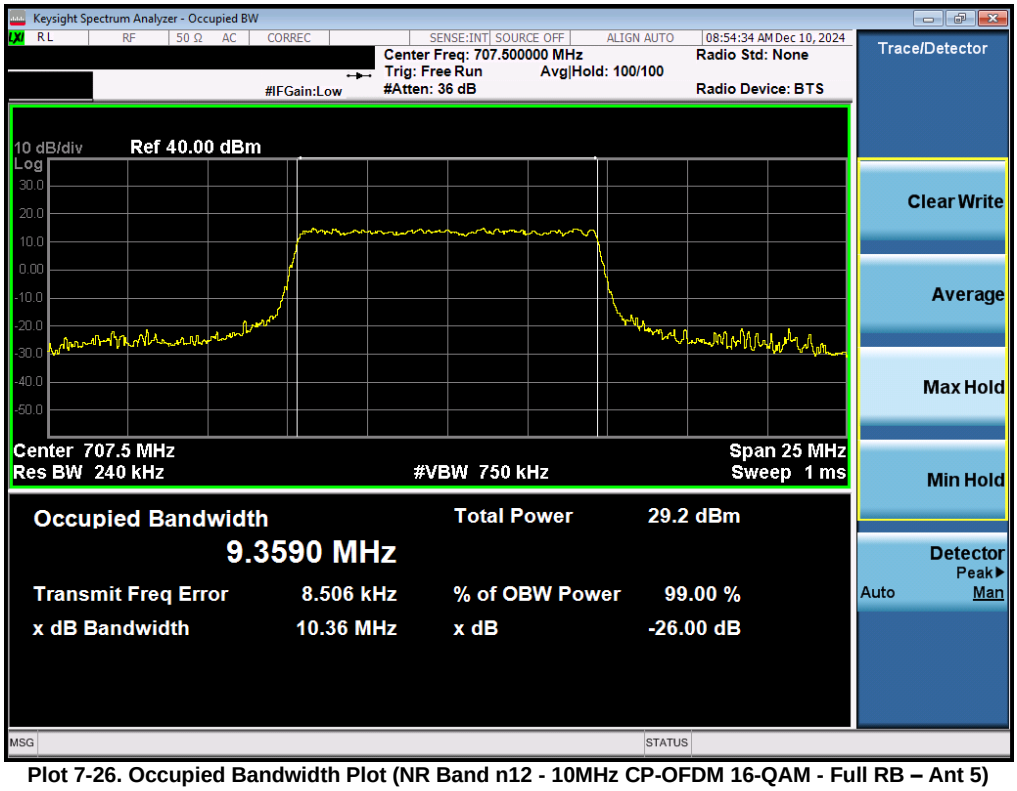
Plot 7-23. Occupied Bandwidth Plot (NR Band n12 - 15MHz CP-OFDM 16-QAM - Full RB – Ant 5)



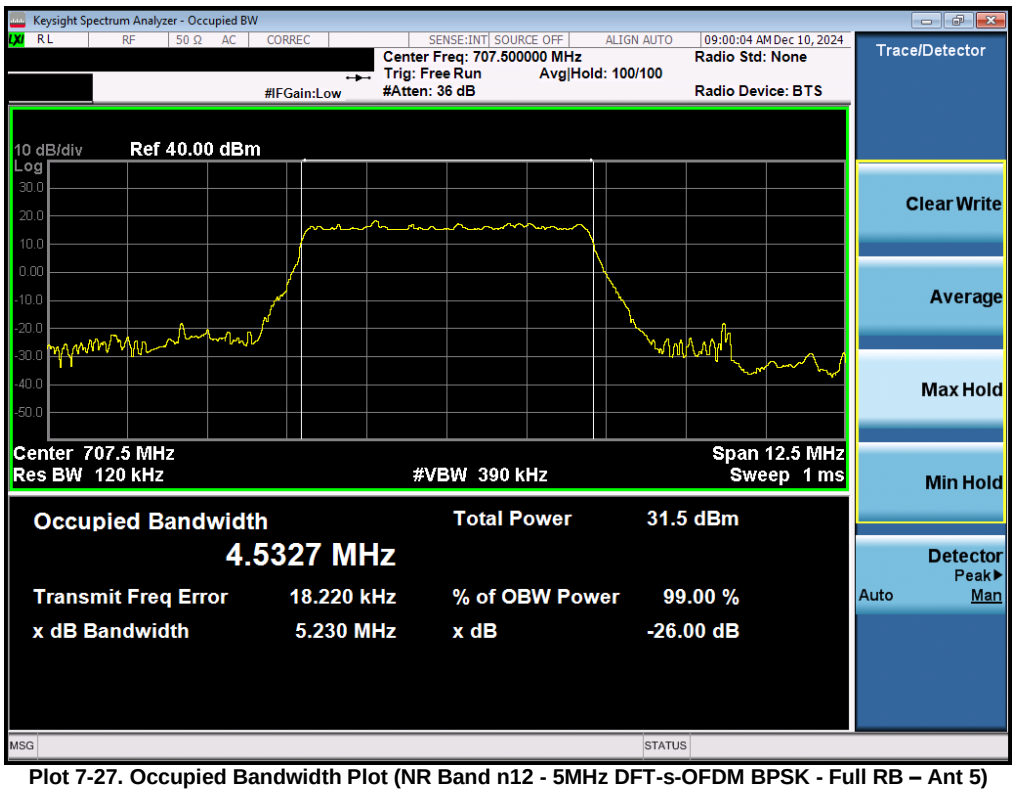
Plot 7-24. Occupied Bandwidth Plot (NR Band n12 - 10MHz DFT-s-OFDM BPSK - Full RB – Ant 5)



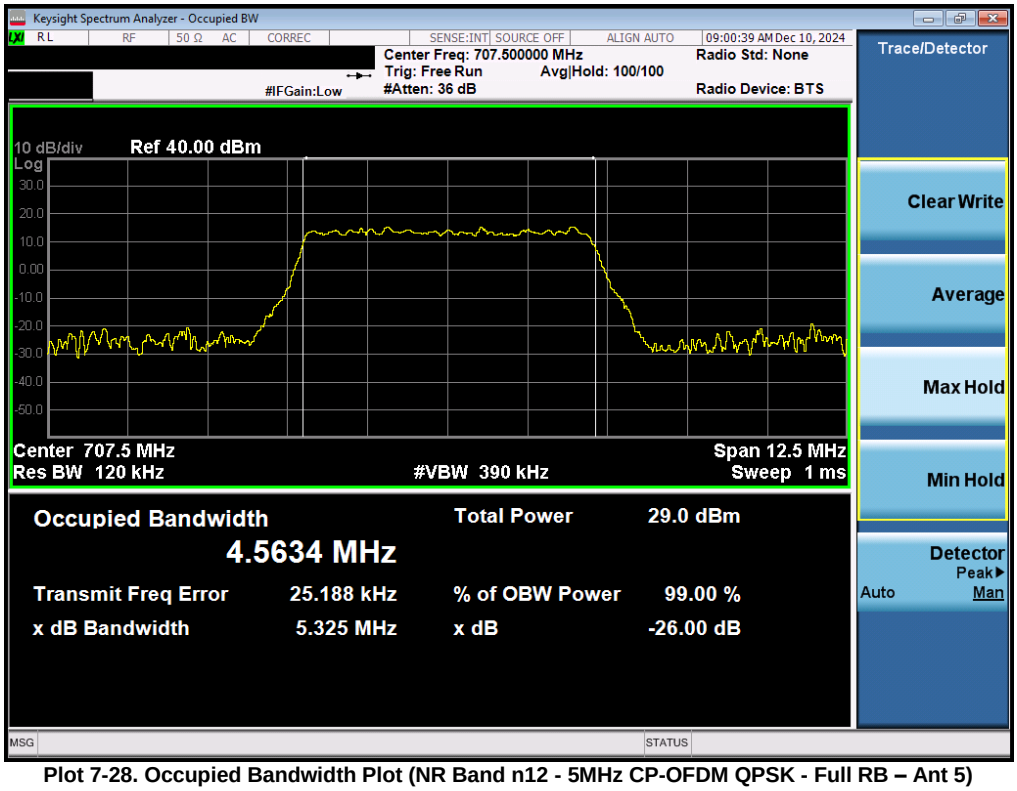
Plot 7-25. Occupied Bandwidth Plot (NR Band n12 - 10MHz CP-OFDM QPSK - Full RB – Ant 5)



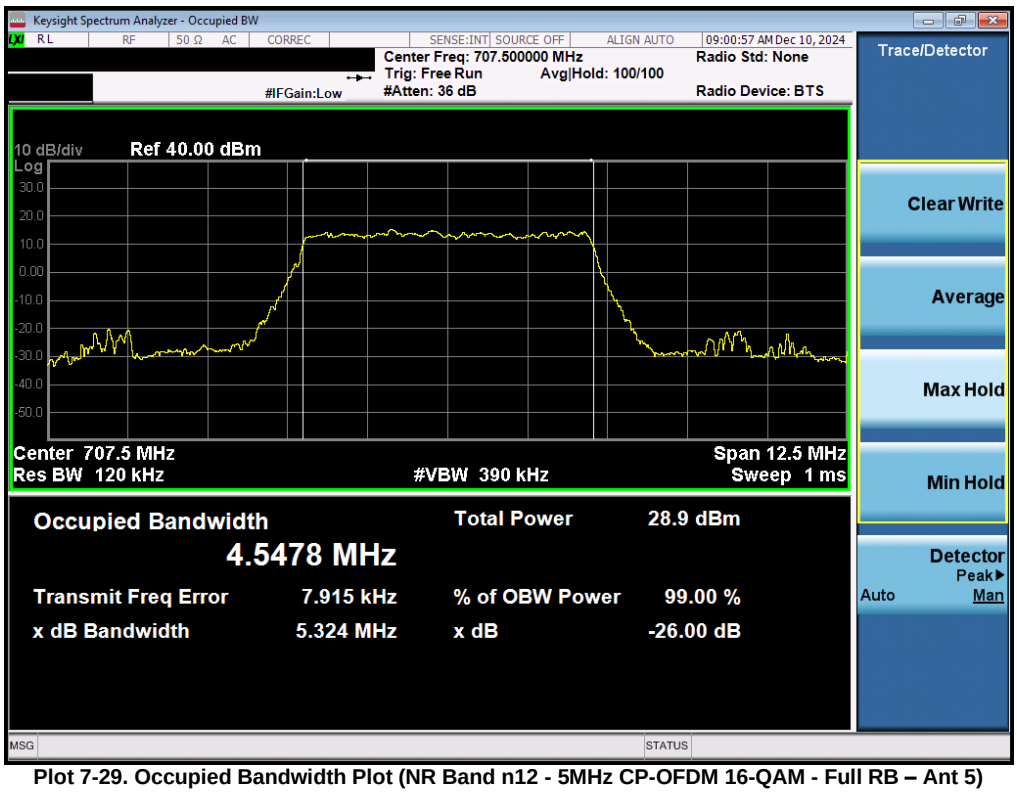
Plot 7-26. Occupied Bandwidth Plot (NR Band n12 - 10MHz CP-OFDM 16-QAM - Full RB – Ant 5)



Plot 7-27. Occupied Bandwidth Plot (NR Band n12 - 5MHz DFT-s-OFDM BPSK - Full RB – Ant 5)

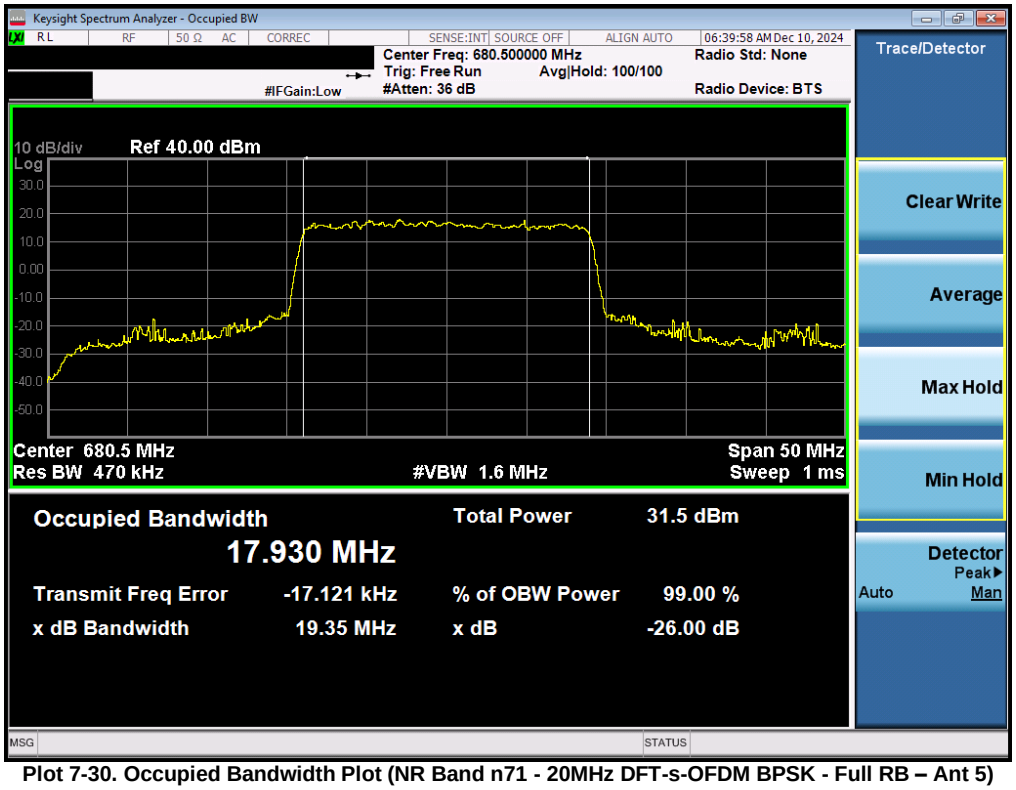


Plot 7-28. Occupied Bandwidth Plot (NR Band n12 - 5MHz CP-OFDM QPSK - Full RB – Ant 5)

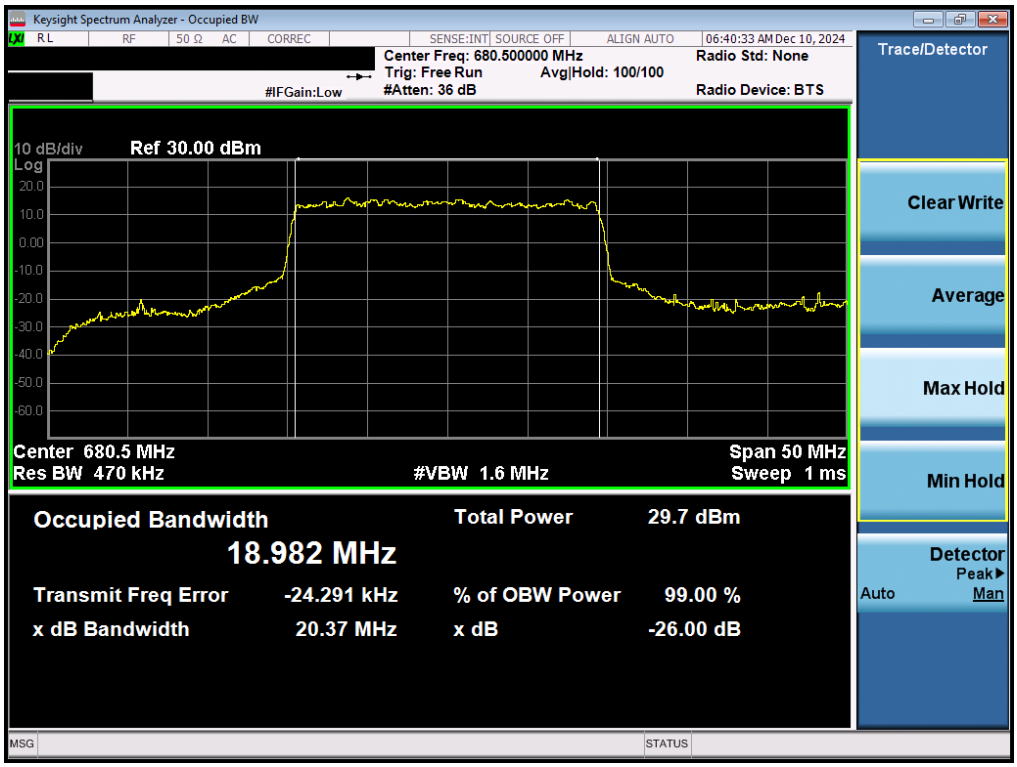


Plot 7-29. Occupied Bandwidth Plot (NR Band n12 - 5MHz CP-OFDM 16-QAM - Full RB – Ant 5)

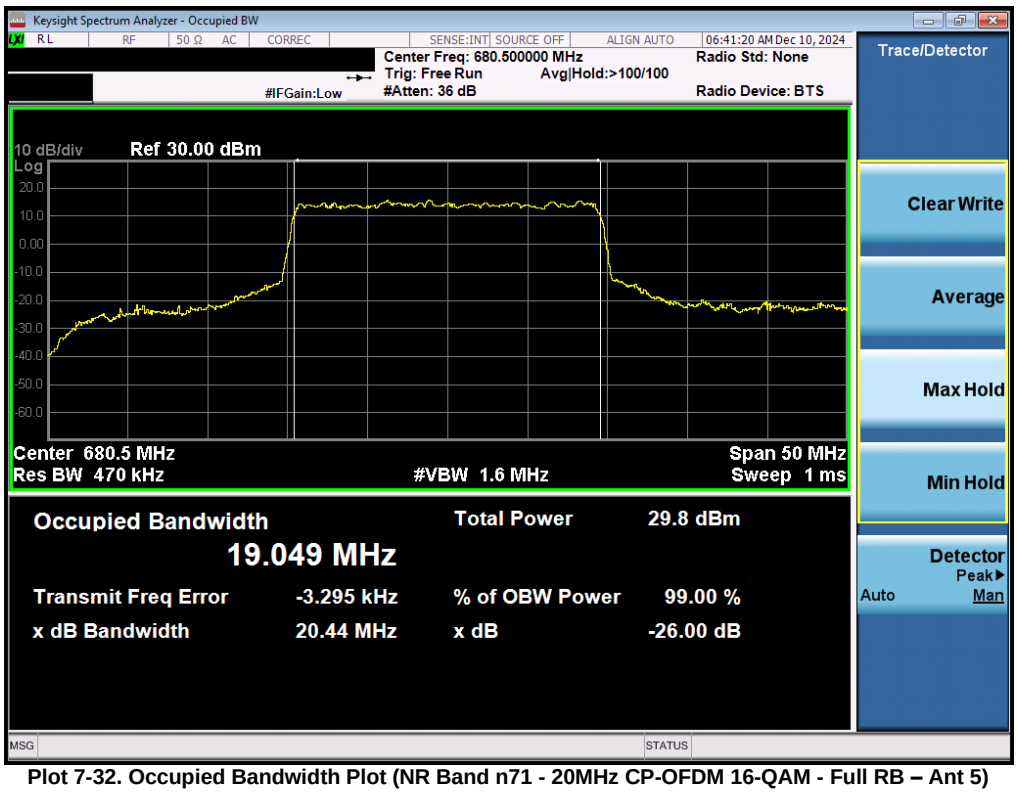
NR Band n71 – Ant 5



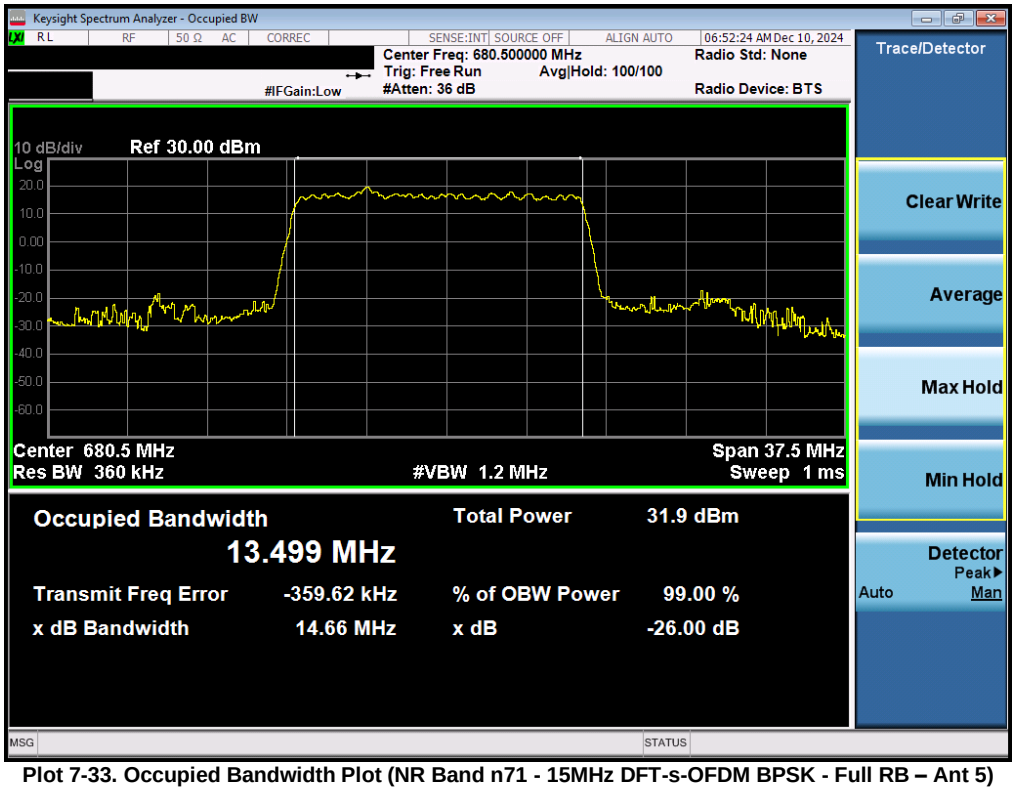
Plot 7-30. Occupied Bandwidth Plot (NR Band n71 - 20MHz DFT-s-OFDM BPSK - Full RB – Ant 5)



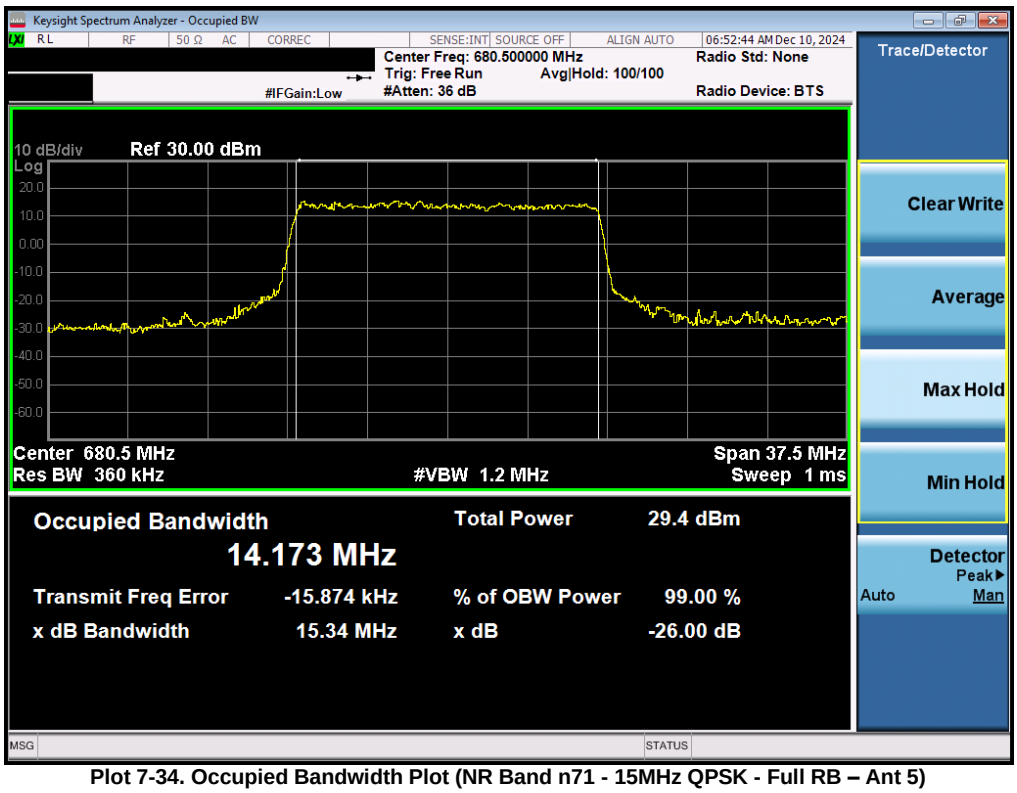
Plot 7-31. Occupied Bandwidth Plot (NR Band n71 - 20MHz CP-OFDM QPSK - Full RB – Ant 5)



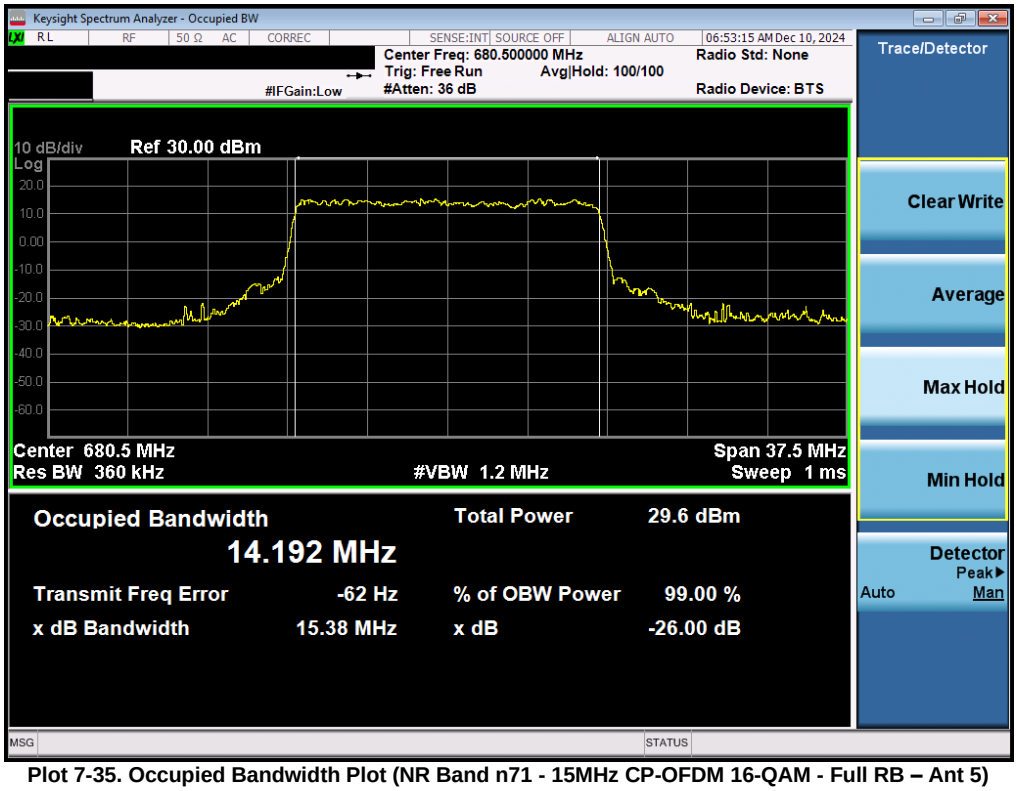
Plot 7-32. Occupied Bandwidth Plot (NR Band n71 - 20MHz CP-OFDM 16-QAM - Full RB – Ant 5)



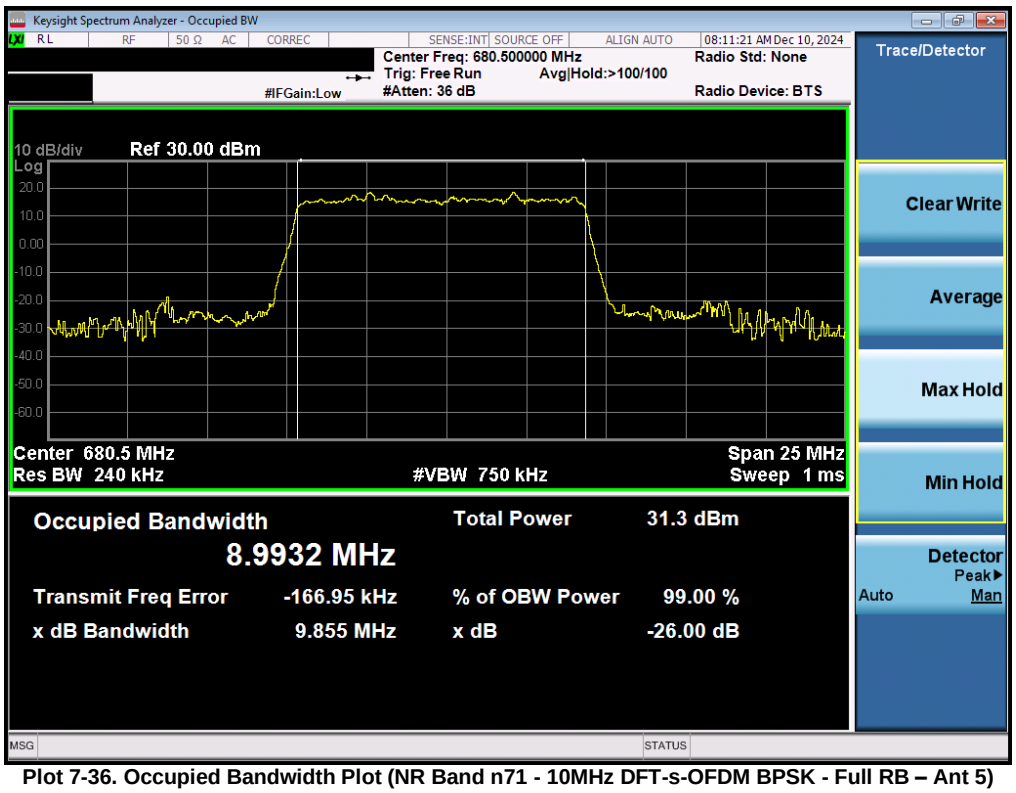
Plot 7-33. Occupied Bandwidth Plot (NR Band n71 - 15MHz DFT-s-OFDM BPSK - Full RB – Ant 5)



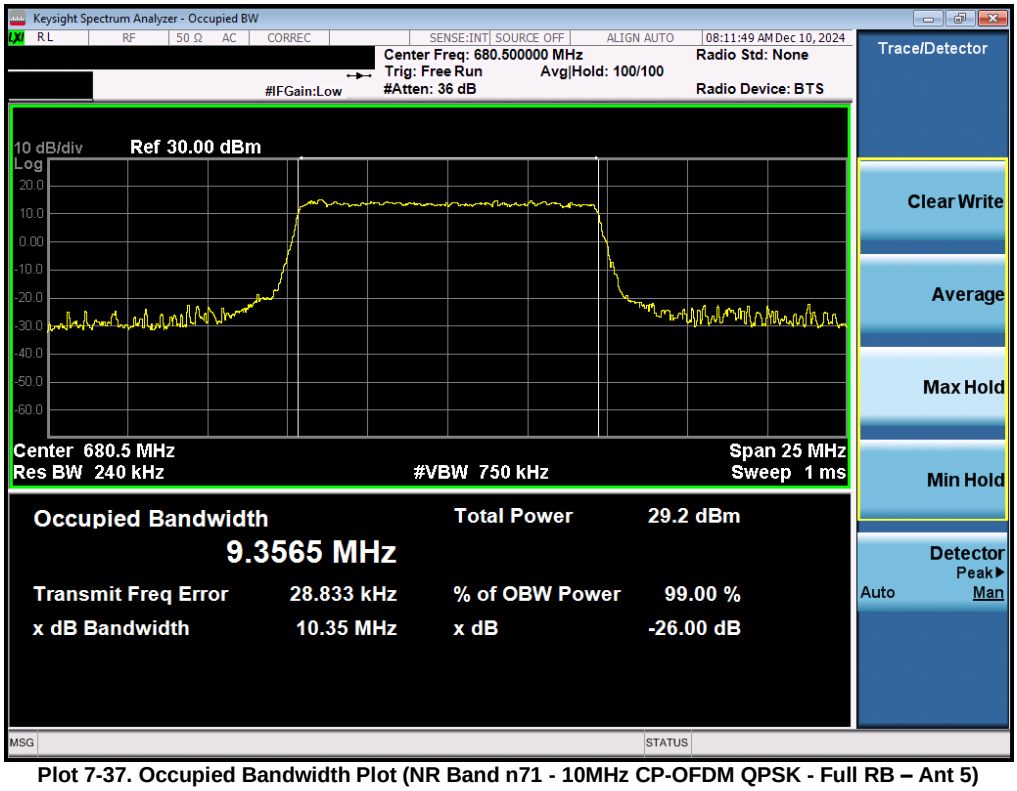
Plot 7-34. Occupied Bandwidth Plot (NR Band n71 - 15MHz QPSK - Full RB – Ant 5)



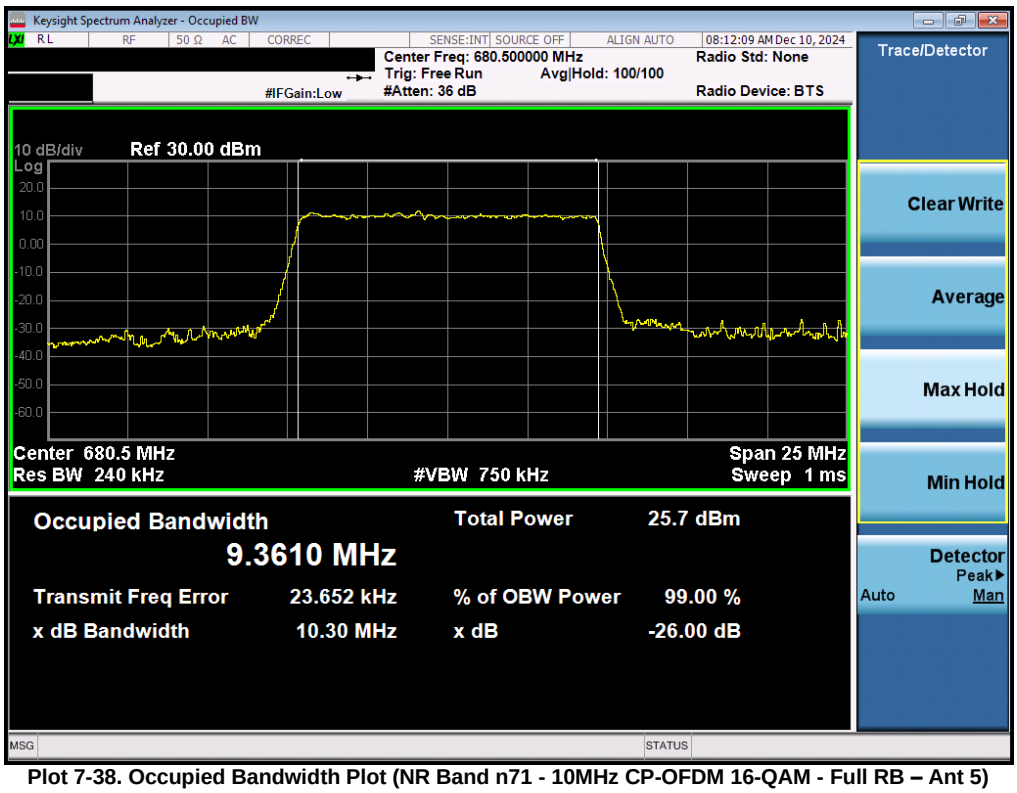
Plot 7-35. Occupied Bandwidth Plot (NR Band n71 - 15MHz CP-OFDM 16-QAM - Full RB – Ant 5)



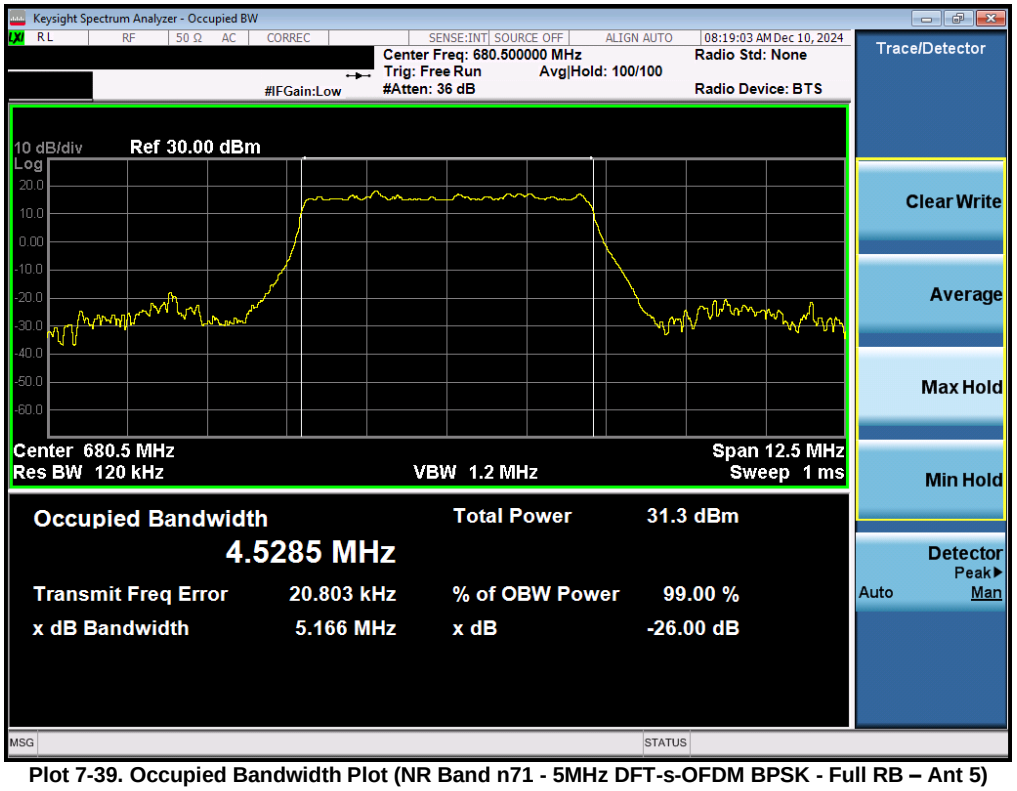
Plot 7-36. Occupied Bandwidth Plot (NR Band n71 - 10MHz DFT-s-OFDM BPSK - Full RB – Ant 5)



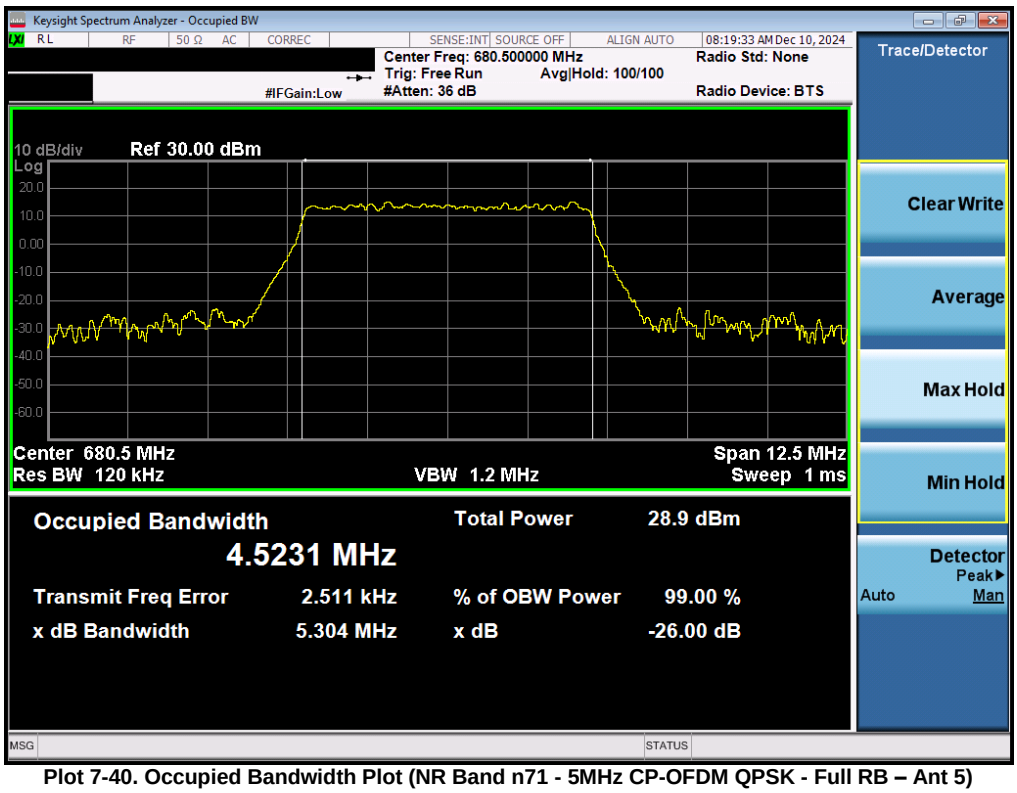
Plot 7-37. Occupied Bandwidth Plot (NR Band n71 - 10MHz CP-OFDM QPSK - Full RB – Ant 5)



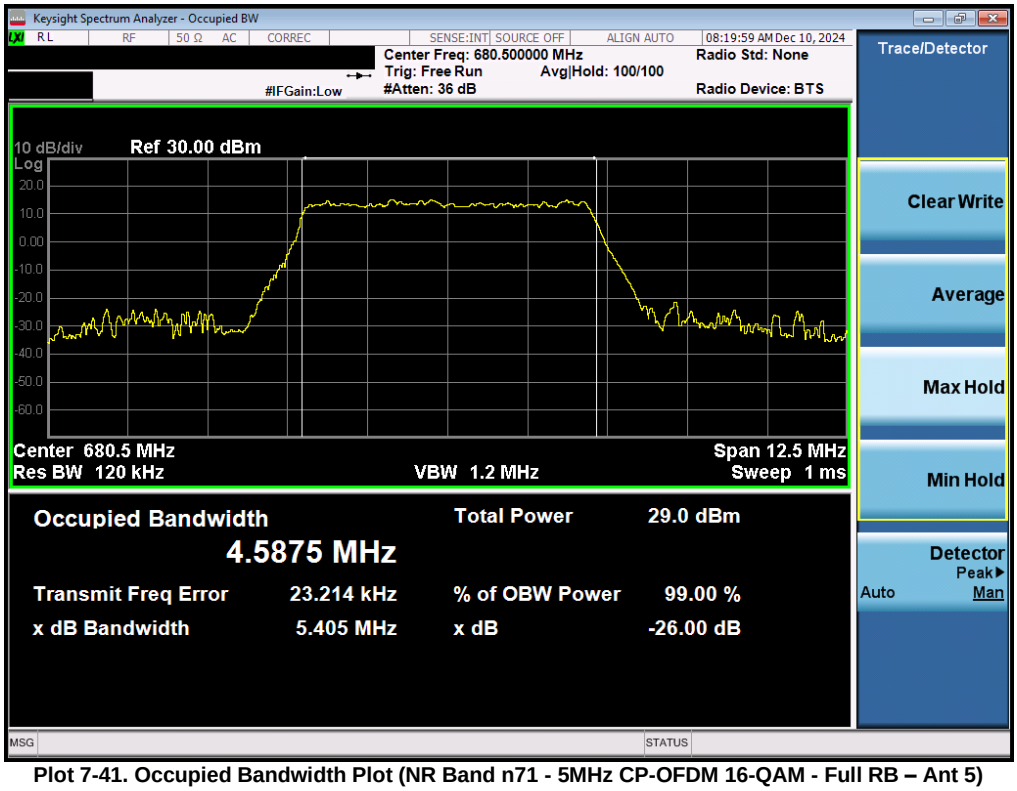
Plot 7-38. Occupied Bandwidth Plot (NR Band n71 - 10MHz CP-OFDM 16-QAM - Full RB – Ant 5)



Plot 7-39. Occupied Bandwidth Plot (NR Band n71 - 5MHz DFT-s-OFDM BPSK - Full RB – Ant 5)



Plot 7-40. Occupied Bandwidth Plot (NR Band n71 - 5MHz CP-OFDM QPSK - Full RB – Ant 5)



Plot 7-41. Occupied Bandwidth Plot (NR Band n71 - 5MHz CP-OFDM 16-QAM - Full RB – Ant 5)

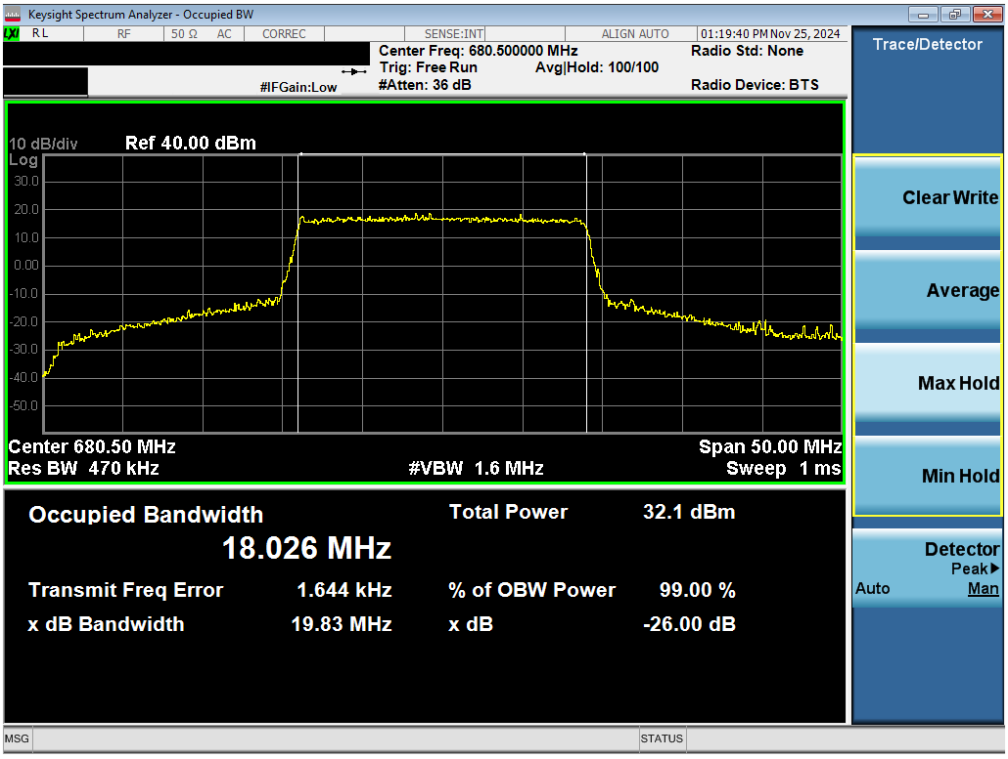
Mode	Bandwidth	Modulation	OBW [MHz]
LTE-B71	20MHz	QPSK	18.03
		16QAM	18.06
	15MHz	QPSK	13.55
		16QAM	13.55
	10MHz	QPSK	9.02
		16QAM	9.04
	5MHz	QPSK	4.52
		16QAM	4.55
LTE-B12	10MHz	QPSK	9.04
		16QAM	9.04
	5MHz	QPSK	4.54
		16QAM	4.55
	3MHz	QPSK	2.73
		16QAM	2.73
	1.4MHz	QPSK	1.11
		16QAM	1.11
LTE-B13	10MHz	QPSK	9.03
		16QAM	9.02
	5MHz	QPSK	4.54
		16QAM	4.54

Table 7-20.Occupied Bandwidth Test Results – Ant 2

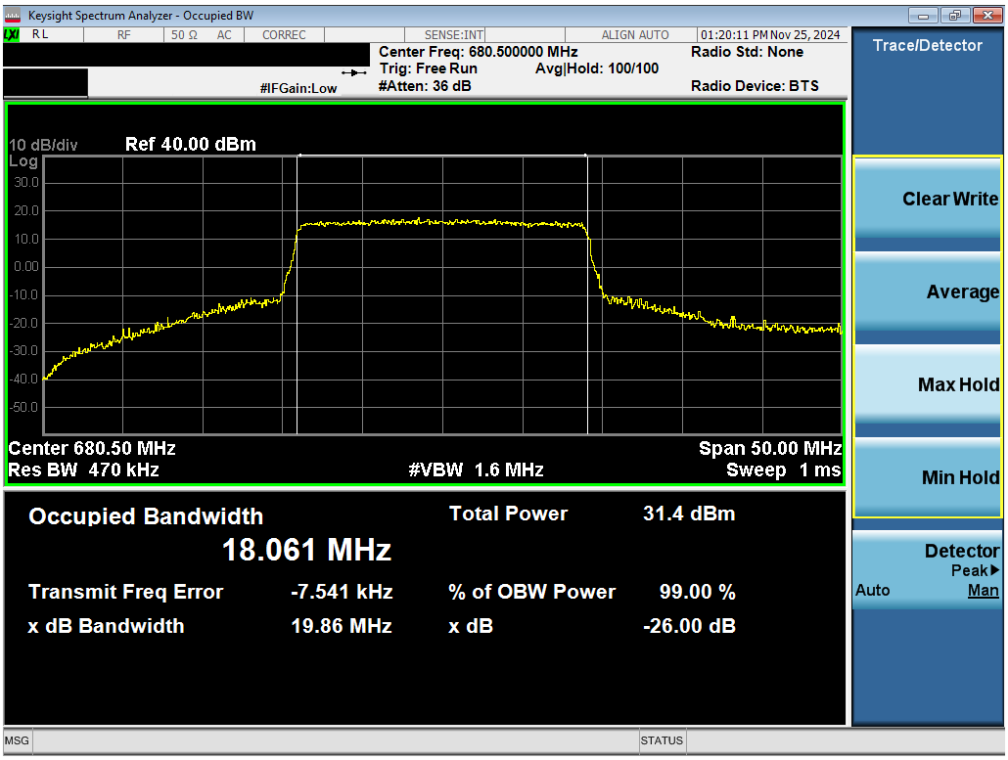
Mode	Bandwidth	Modulation	OBW [MHz]
NR-n12	15MHz	π/2 BPSK	13.48
		QPSK	14.19
		16QAM	14.20
	10MHz	π/2 BPSK	9.00
		QPSK	9.36
		16QAM	9.36
	5MHz	π/2 BPSK	4.54
		QPSK	4.52
		16QAM	4.55
NR-n71	20MHz	π/2 BPSK	17.94
		QPSK	19.00
		16QAM	19.04
	15MHz	π/2 BPSK	13.48
		QPSK	14.17
		16QAM	14.20
	10MHz	π/2 BPSK	8.99
		QPSK	9.35
		16QAM	9.35
	5MHz	π/2 BPSK	4.53
		QPSK	4.52
		16QAM	4.59

Table 7-21.Occupied Bandwidth Test Results – Ant 2

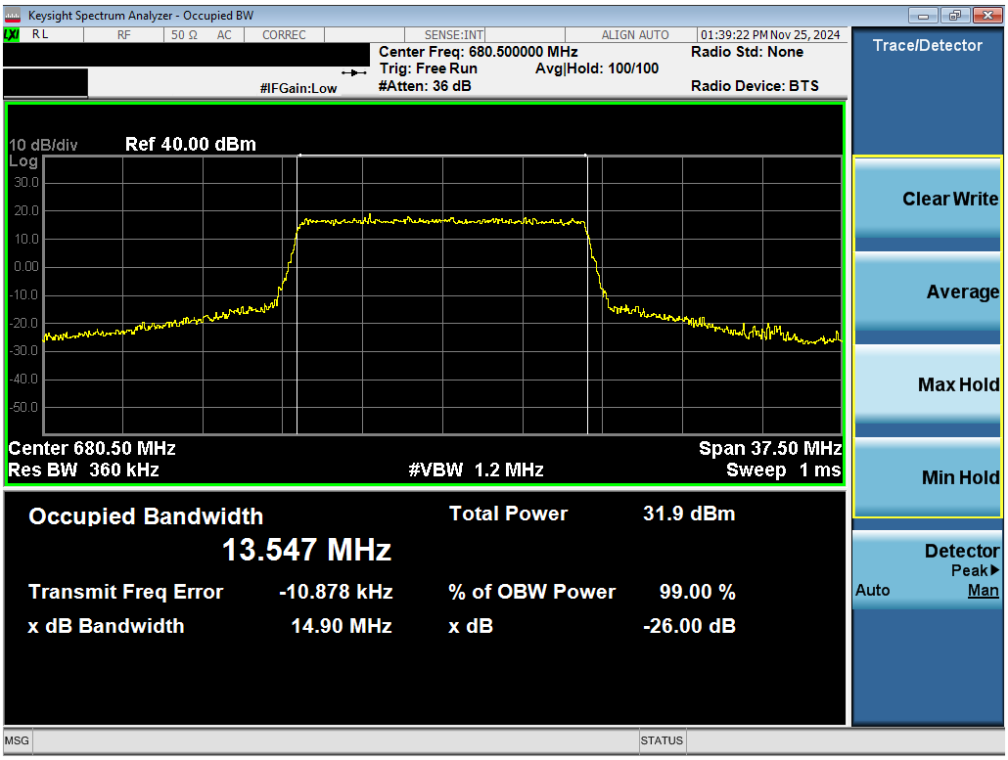
LTE Band 71 – Ant 2



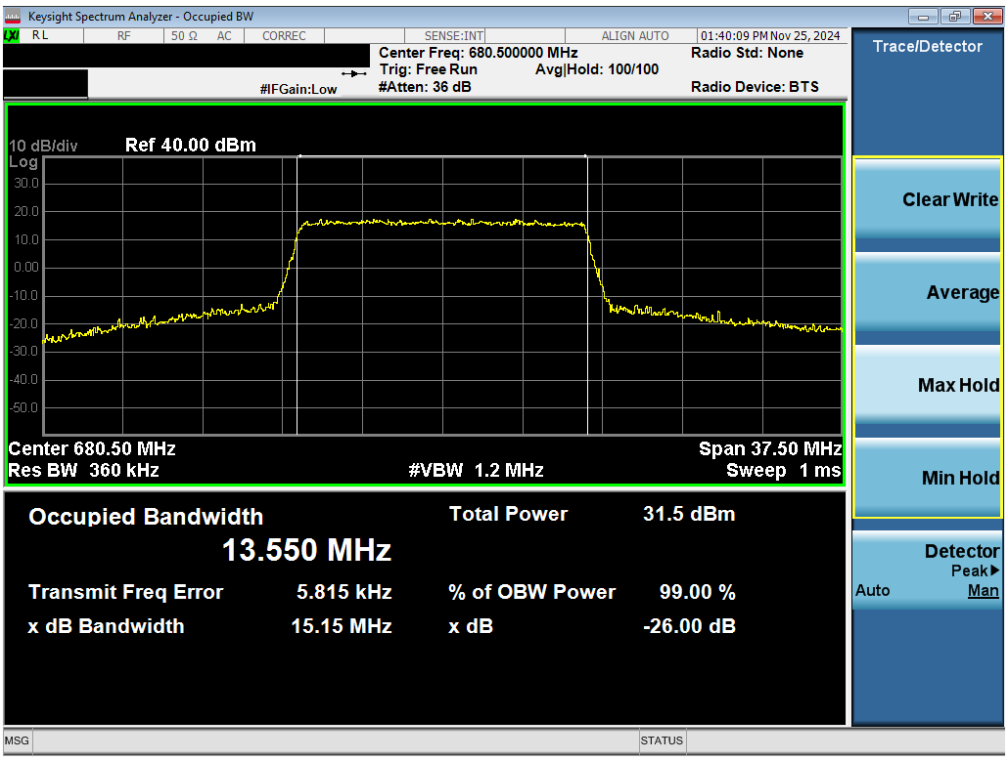
Plot 7-42. Occupied Bandwidth Plot (LTE Band 71 - 20MHz QPSK - Full RB – Ant 2)



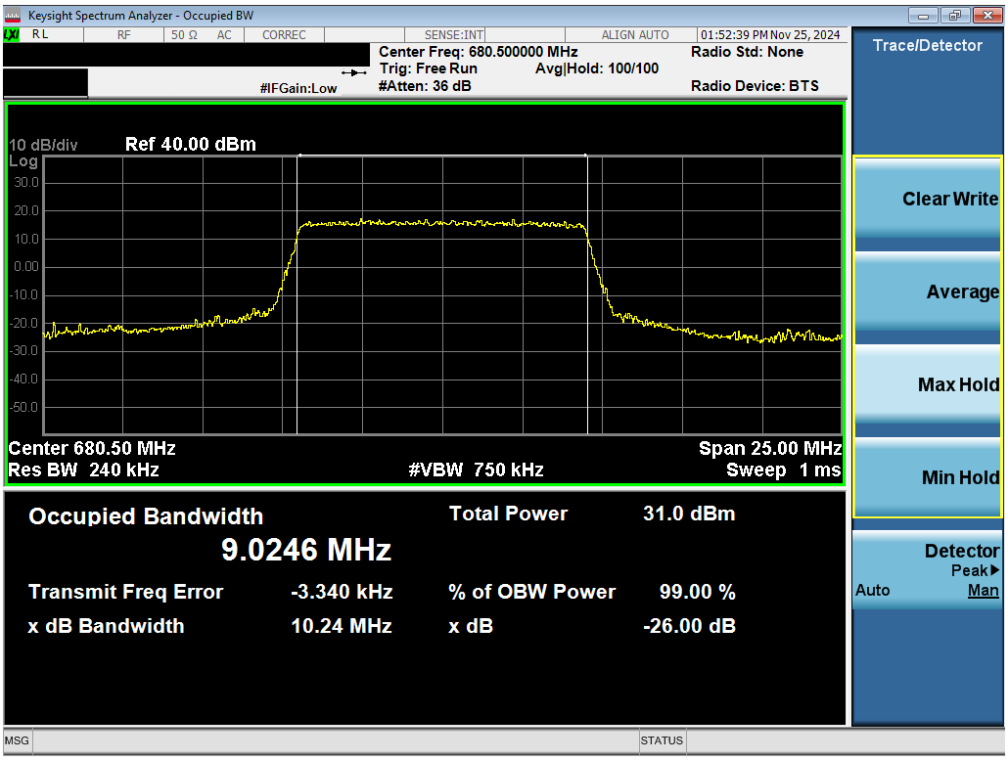
Plot 7-43. Occupied Bandwidth Plot (LTE Band 71 - 20MHz 16-QAM - Full RB – Ant 2)



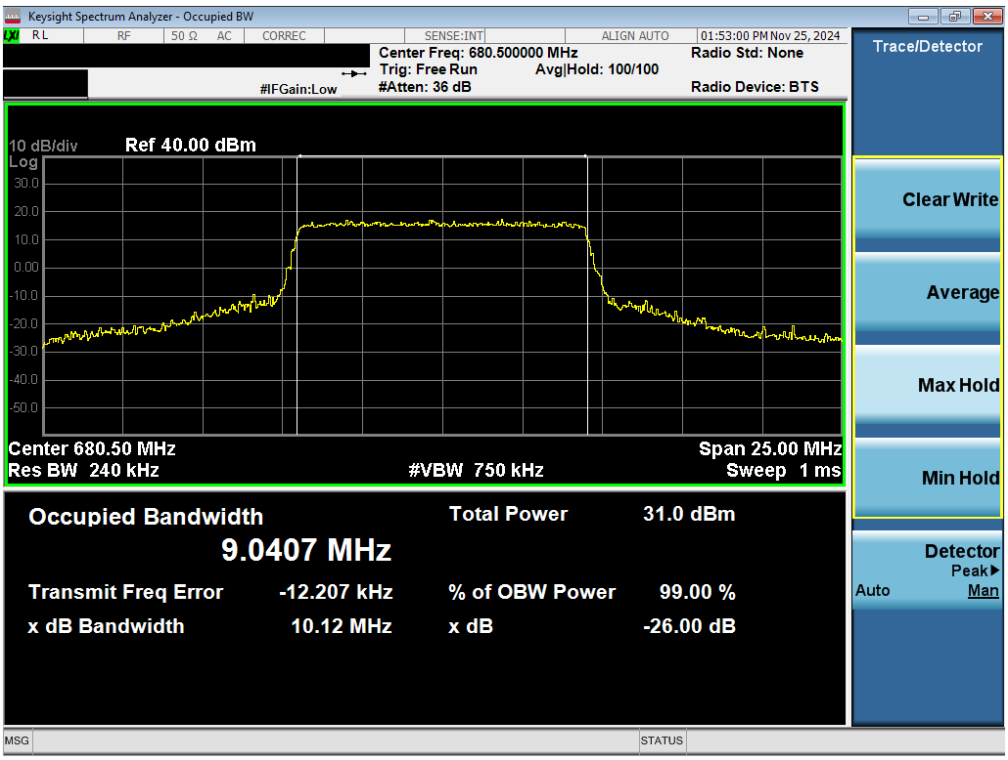
Plot 7-44. Occupied Bandwidth Plot (LTE Band 71 - 15MHz QPSK - Full RB – Ant 2)



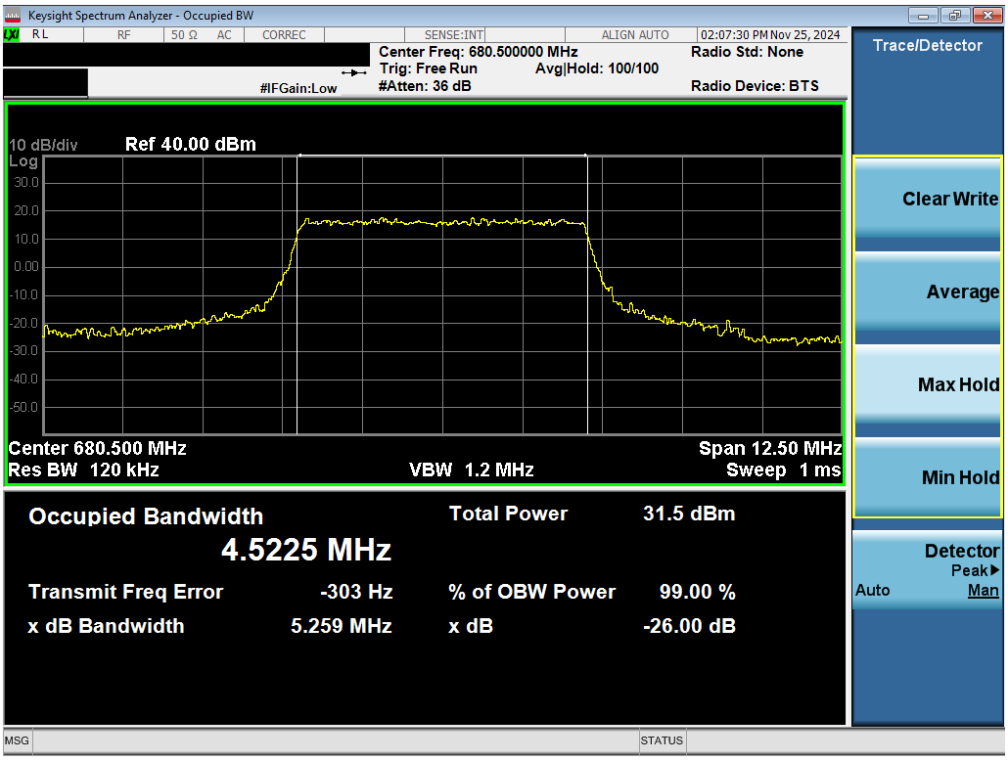
Plot 7-45. Occupied Bandwidth Plot (LTE Band 71 - 15MHz 16-QAM - Full RB – Ant 2)



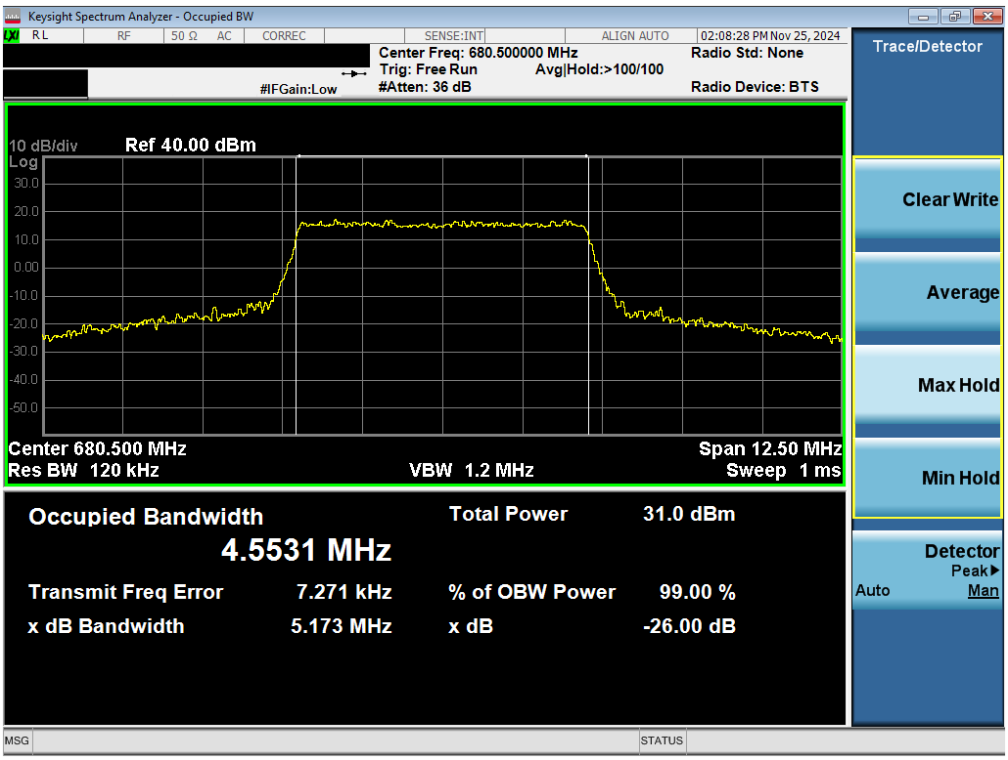
Plot 7-46. Occupied Bandwidth Plot (LTE Band 71 - 10MHz QPSK - Full RB – Ant 2)



Plot 7-47. Occupied Bandwidth Plot (LTE Band 71 - 10MHz 16-QAM - Full RB – Ant 2)

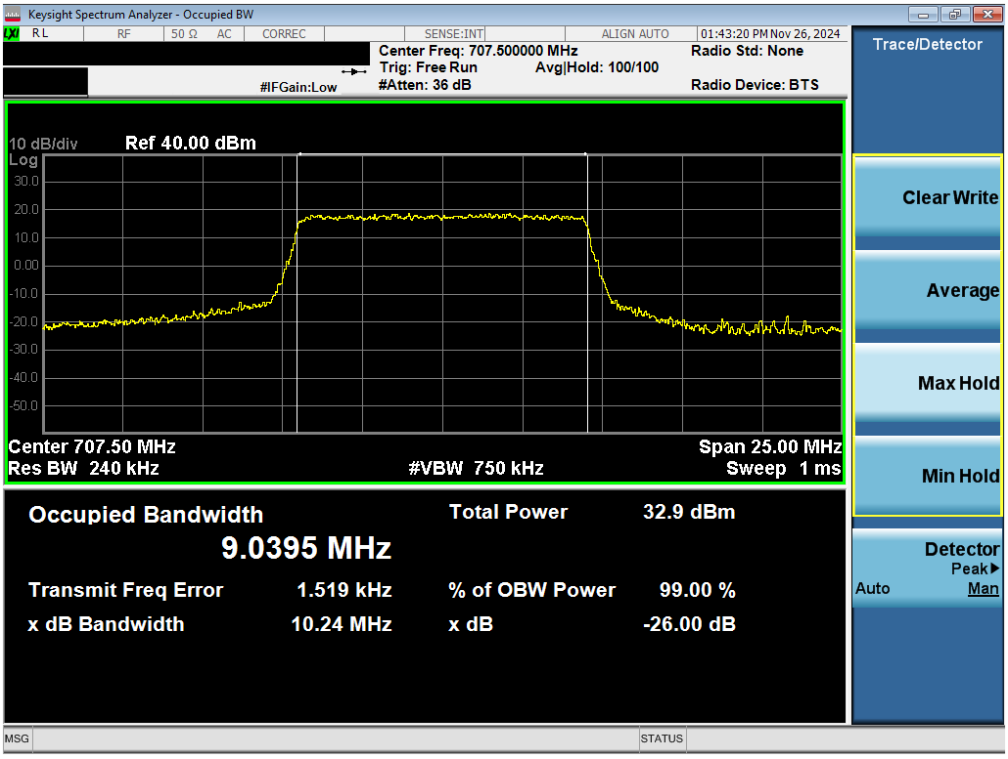


Plot 7-48. Occupied Bandwidth Plot (LTE Band 71 - 5MHz QPSK - Full RB – Ant 2)

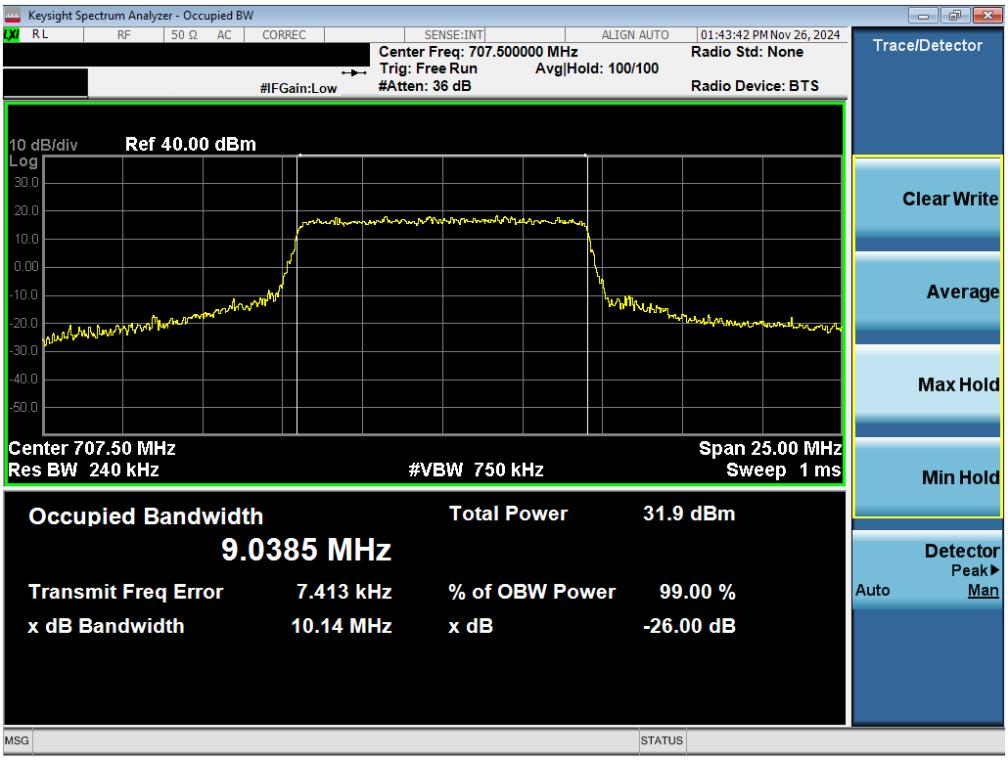


Plot 7-49. Occupied Bandwidth Plot (LTE Band 71 - 5MHz 16-QAM - Full RB – Ant 2)

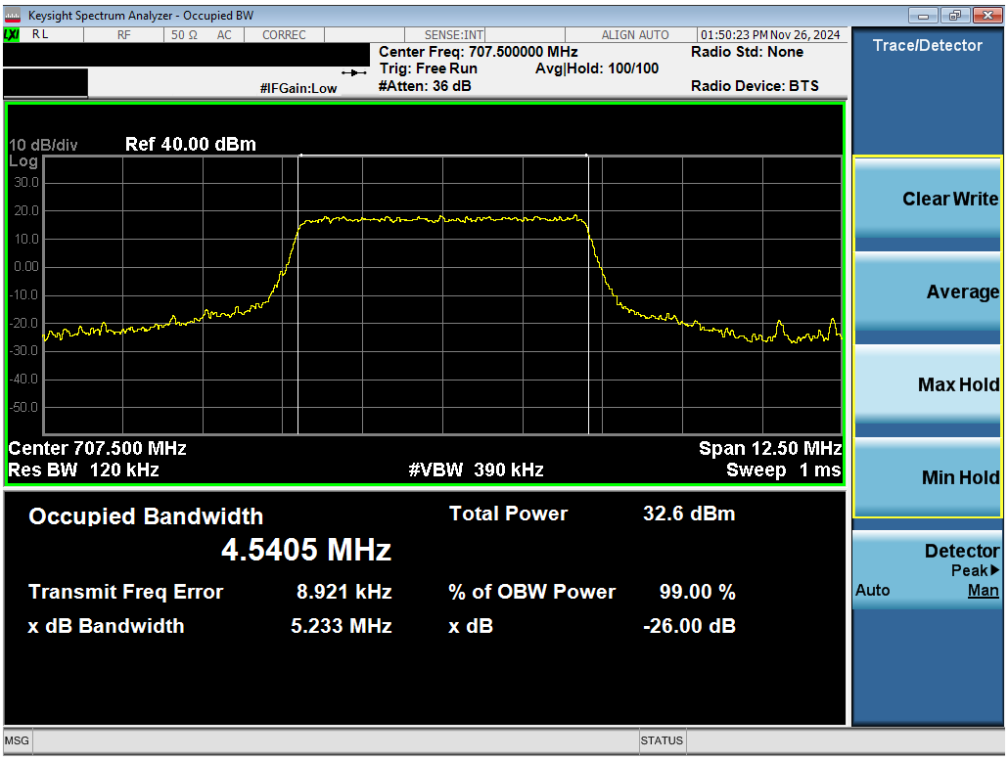
LTE Band 12 – Ant 2



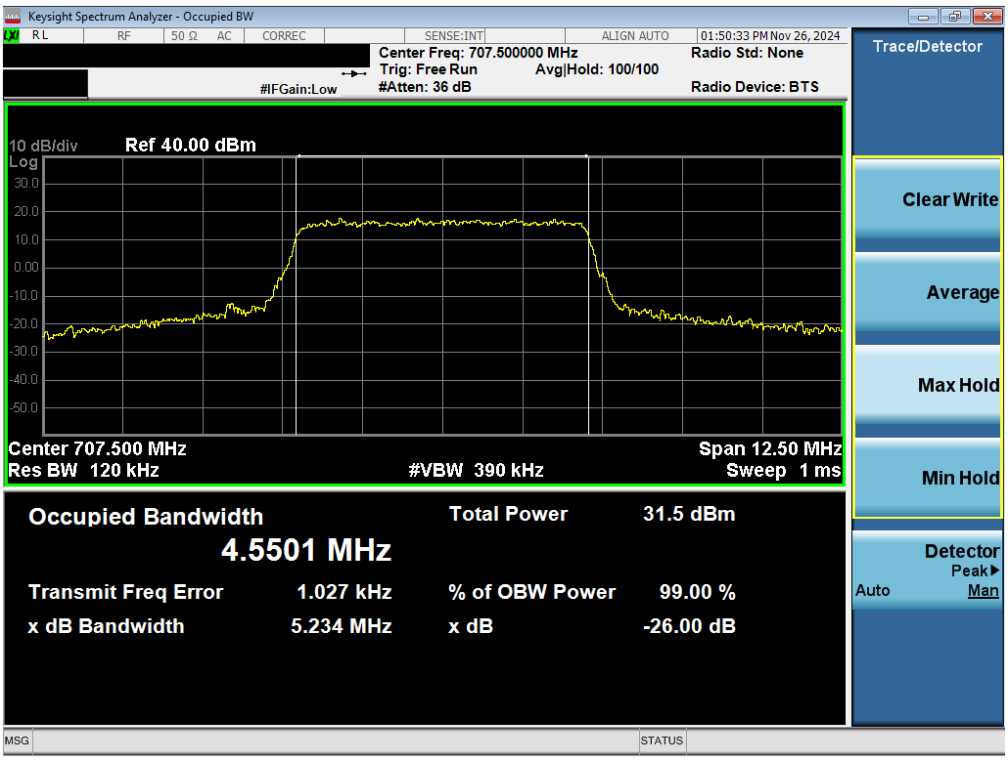
Plot 7-50. Occupied Bandwidth Plot (LTE Band 12 - 10MHz QPSK - Full RB – Ant 2)



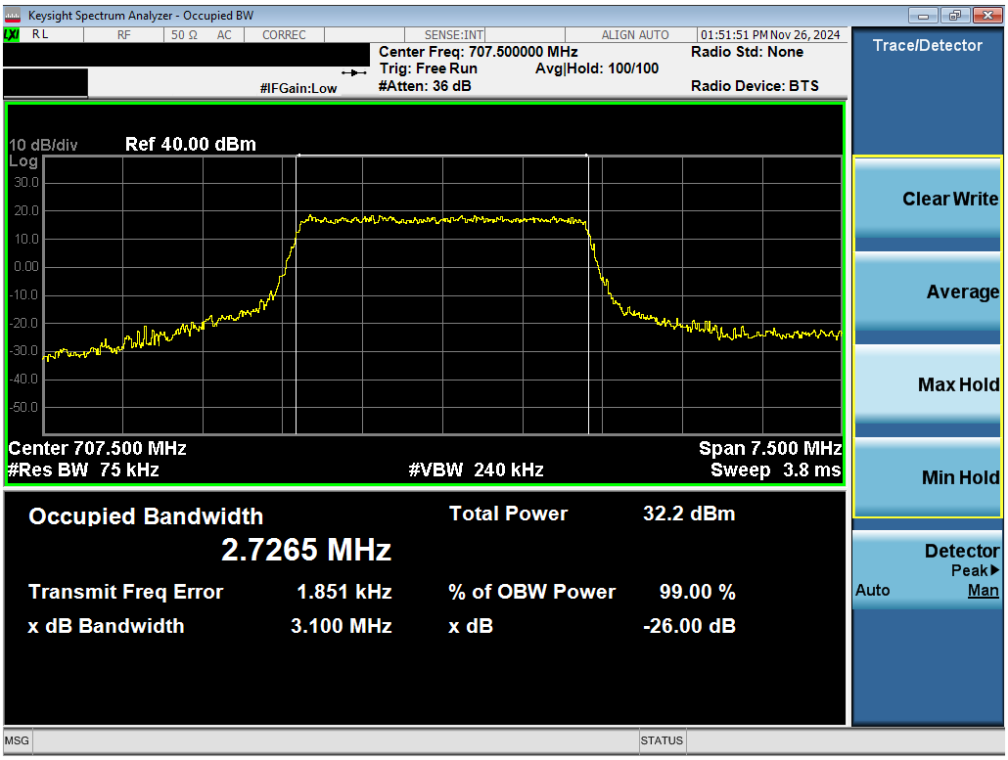
Plot 7-51. Occupied Bandwidth Plot (LTE Band 12 - 10MHz 16-QAM - Full RB – Ant 2)



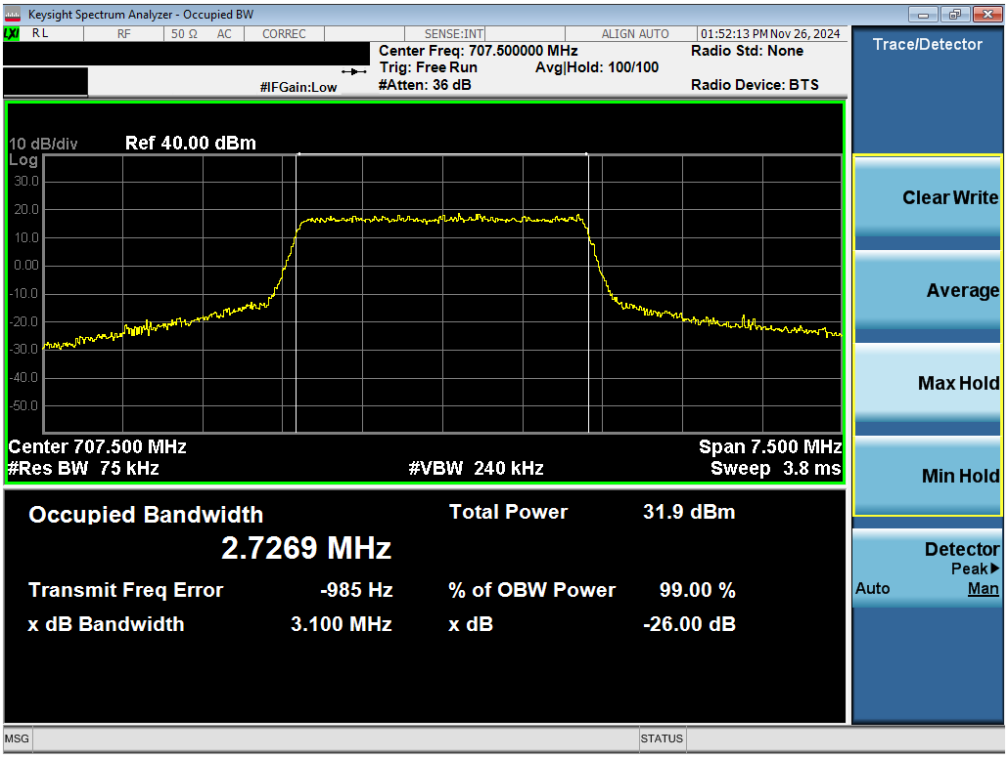
Plot 7-52. Occupied Bandwidth Plot (LTE Band 12 - 5MHz QPSK - Full RB – Ant 2)



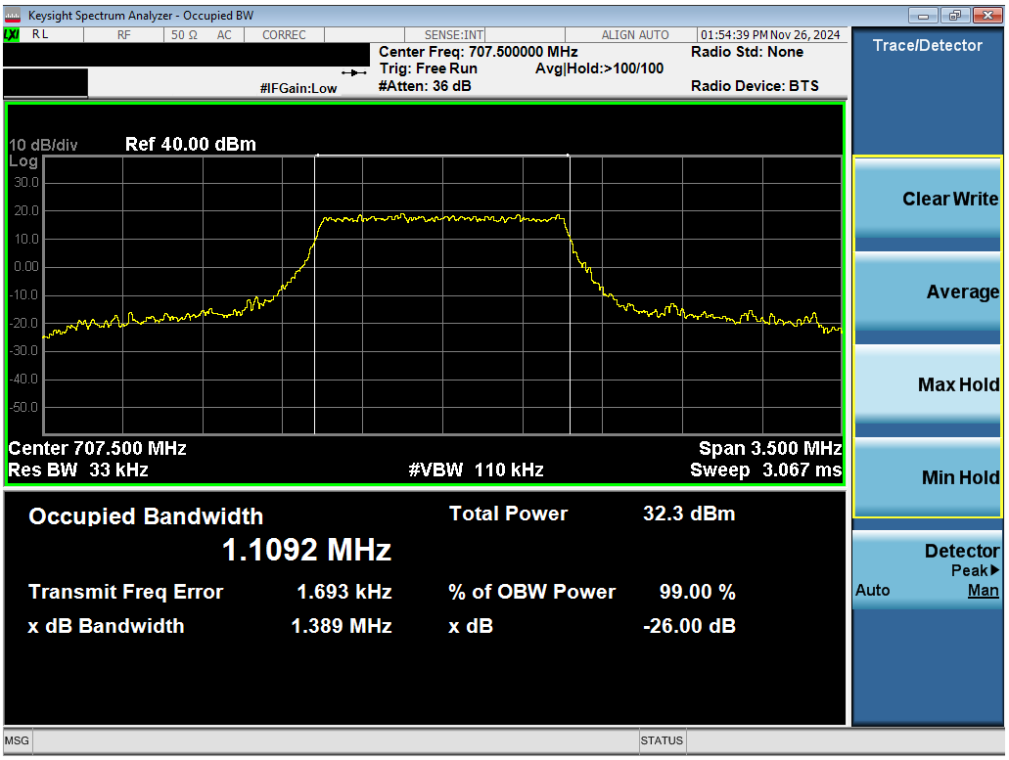
Plot 7-53. Occupied Bandwidth Plot (LTE Band 12 - 5MHz 16-QAM - Full RB – Ant 2)



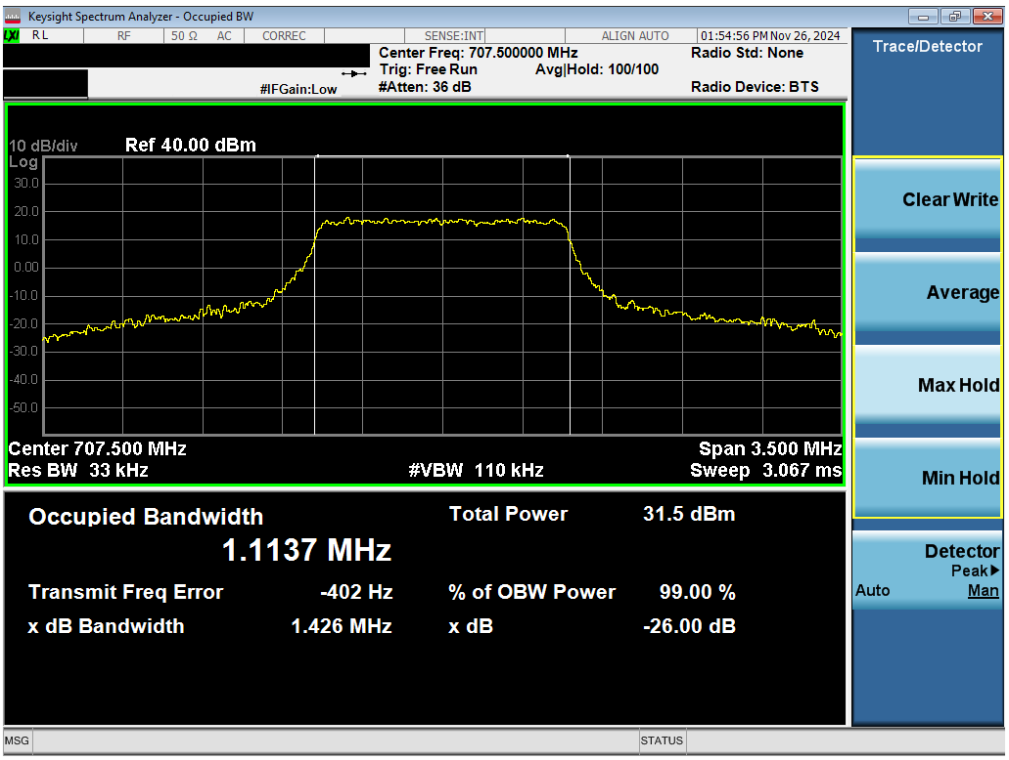
Plot 7-54. Occupied Bandwidth Plot (LTE Band 12 - 3MHz QPSK - Full RB – Ant 2)



Plot 7-55. Occupied Bandwidth Plot (LTE Band 12 - 3MHz 16-QAM - Full RB – Ant 2)

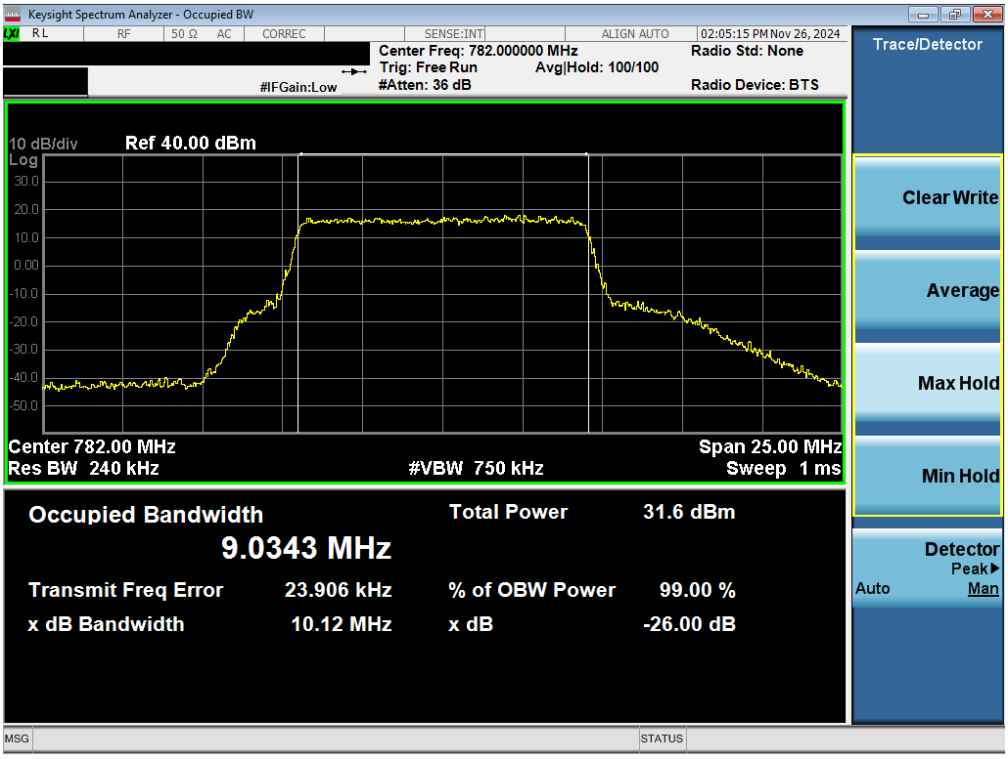


Plot 7-56. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz QPSK - Full RB – Ant 2)

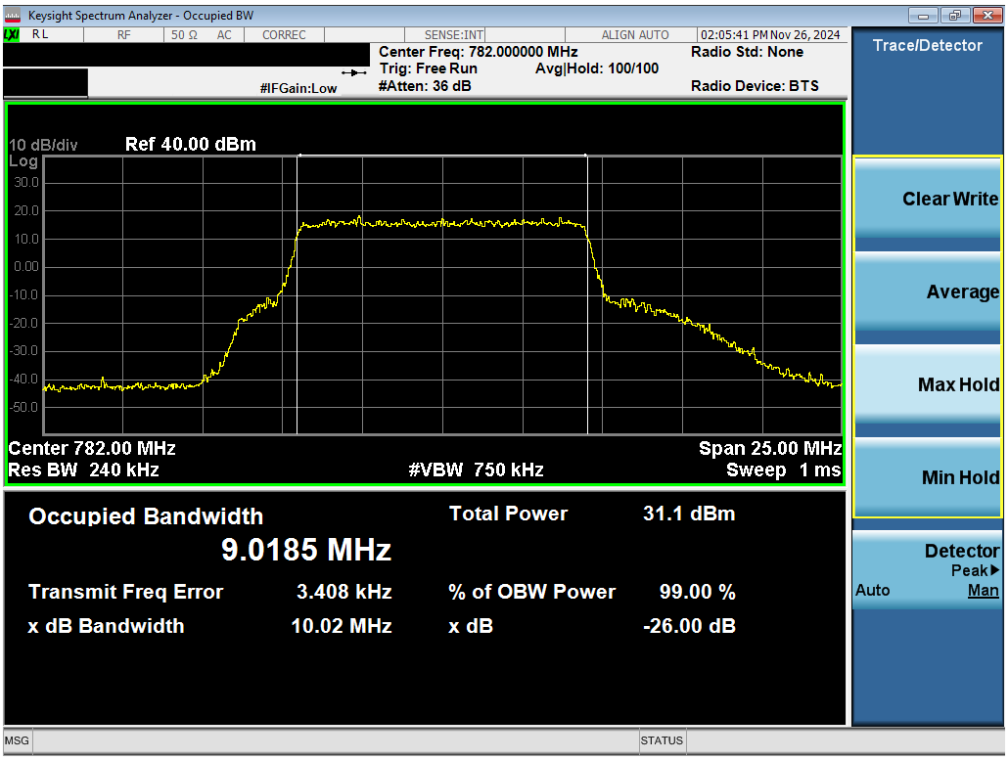


Plot 7-57. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz 16-QAM - Full RB – Ant 2)

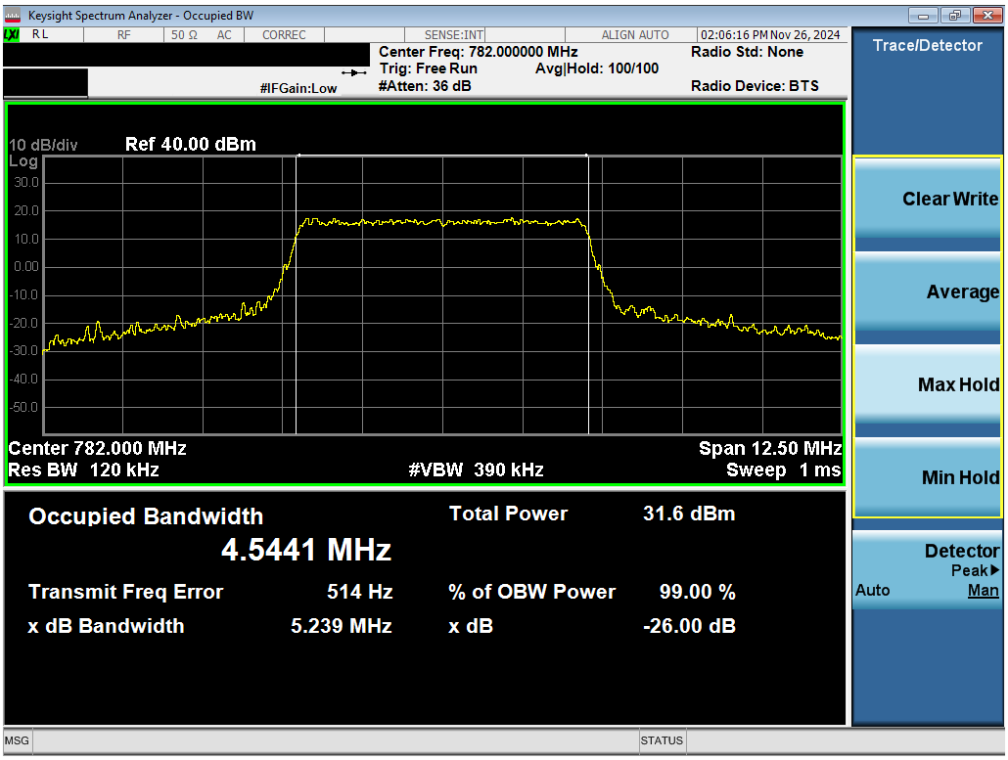
LTE Band 13 – Ant 2



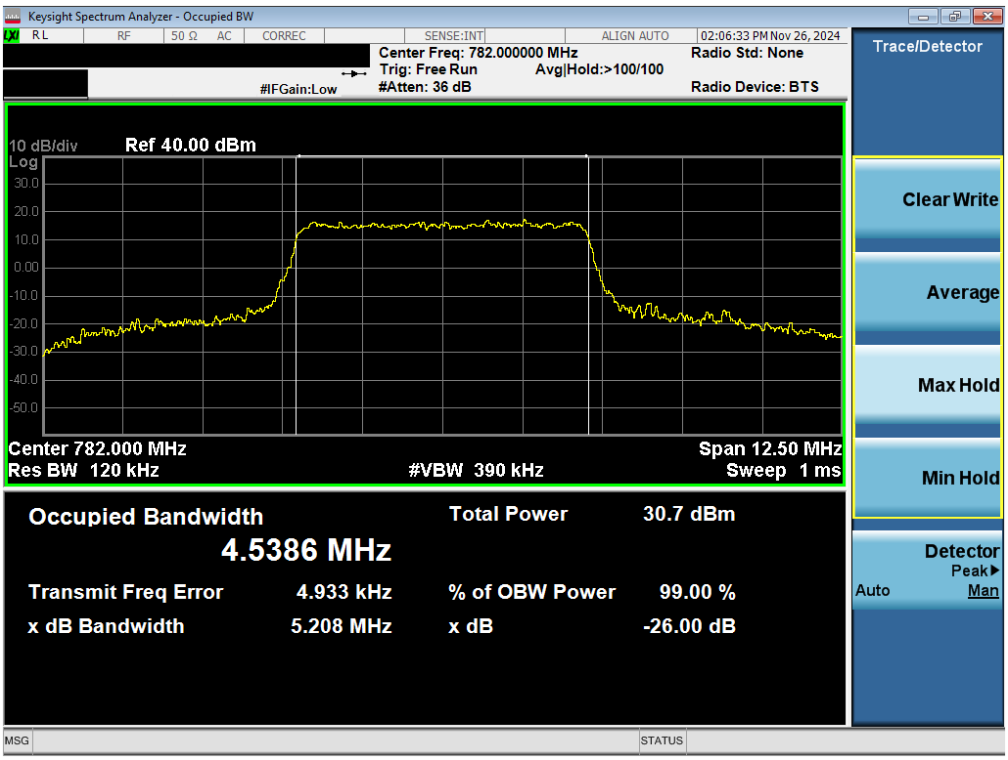
Plot 7-58. Occupied Bandwidth Plot (LTE Band 13 - 10MHz QPSK - Full RB – Ant 2)



Plot 7-59. Occupied Bandwidth Plot (LTE Band 13 - 10MHz 16-QAM - Full RB – Ant 2)

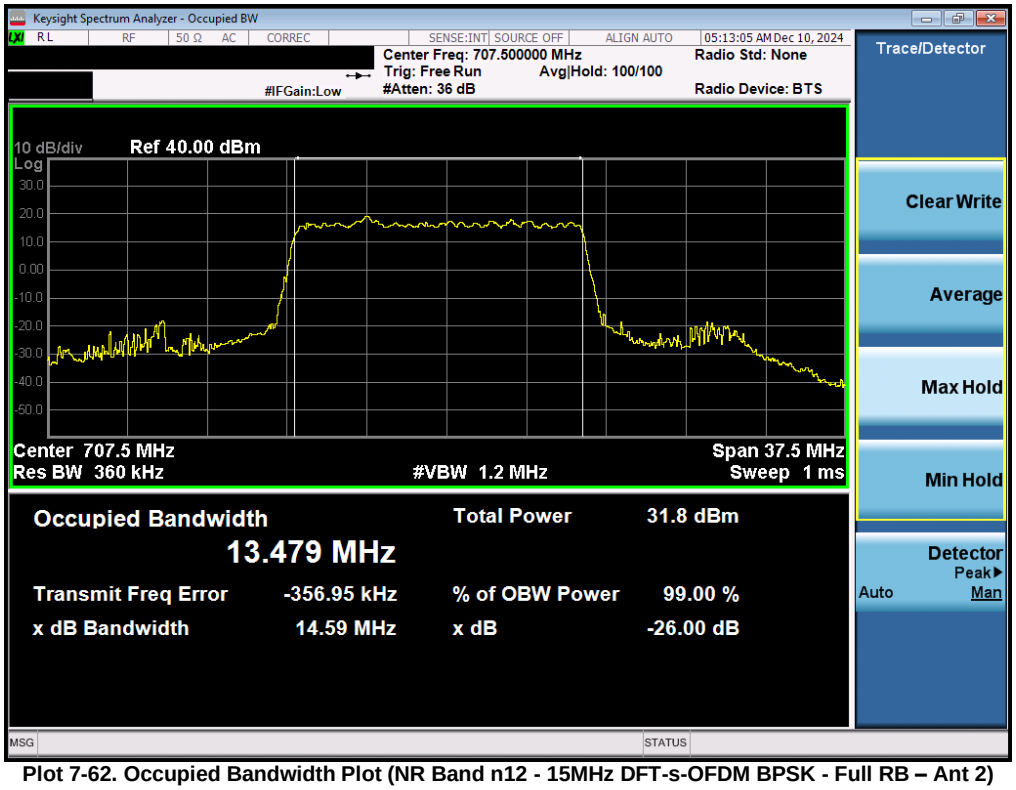


Plot 7-60. Occupied Bandwidth Plot (LTE Band 13 - 5MHz QPSK - Full RB – Ant 2)

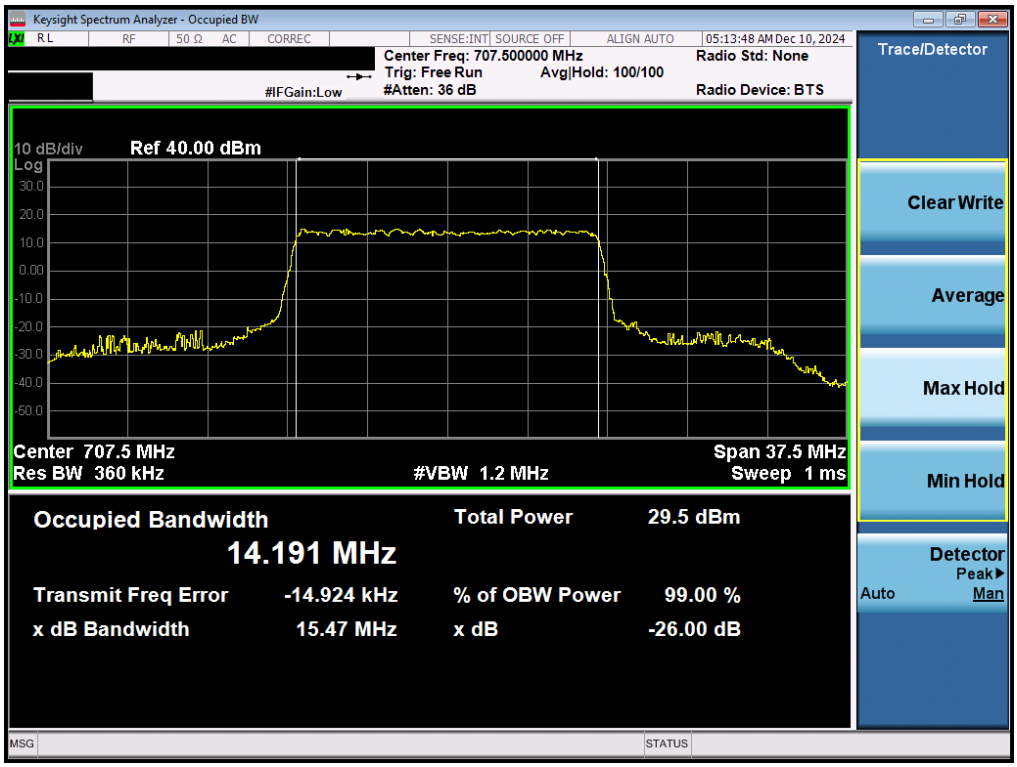


Plot 7-61. Occupied Bandwidth Plot (LTE Band 13 - 5MHz 16-QAM - Full RB – Ant 2)

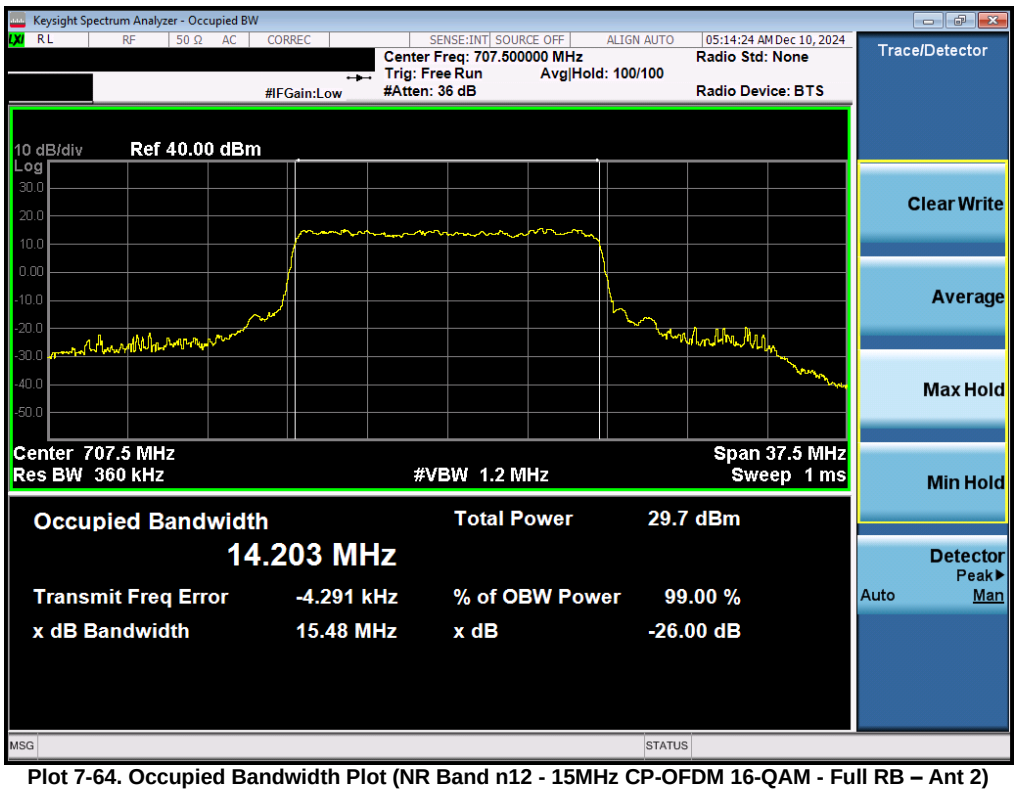
NR Band n12 – Ant 2



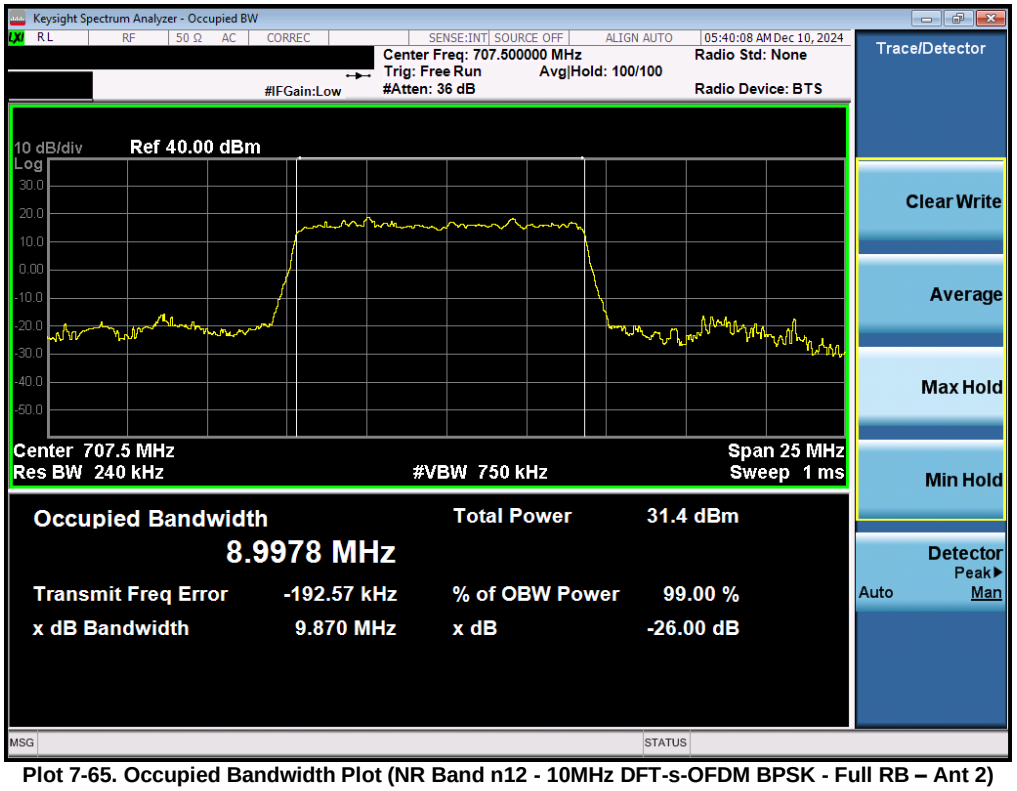
Plot 7-62. Occupied Bandwidth Plot (NR Band n12 - 15MHz DFT-s-OFDM BPSK - Full RB – Ant 2)



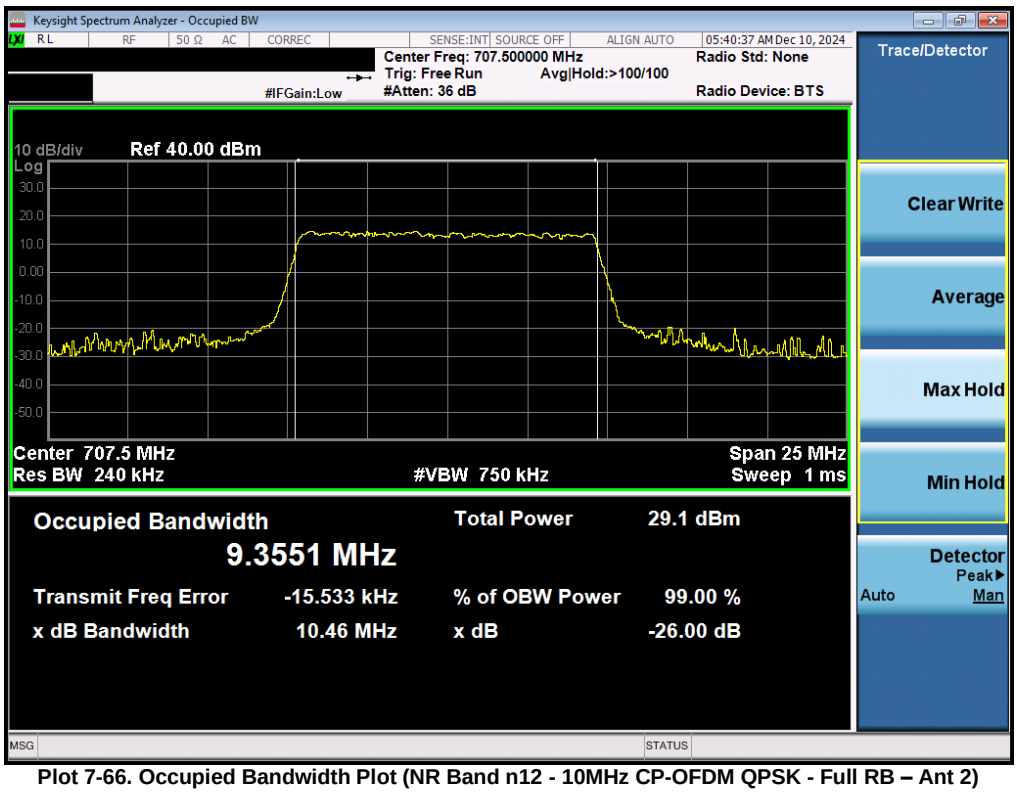
Plot 7-63. Occupied Bandwidth Plot (NR Band n12 - 15MHz CP-OFDM QPSK - Full RB – Ant 2)



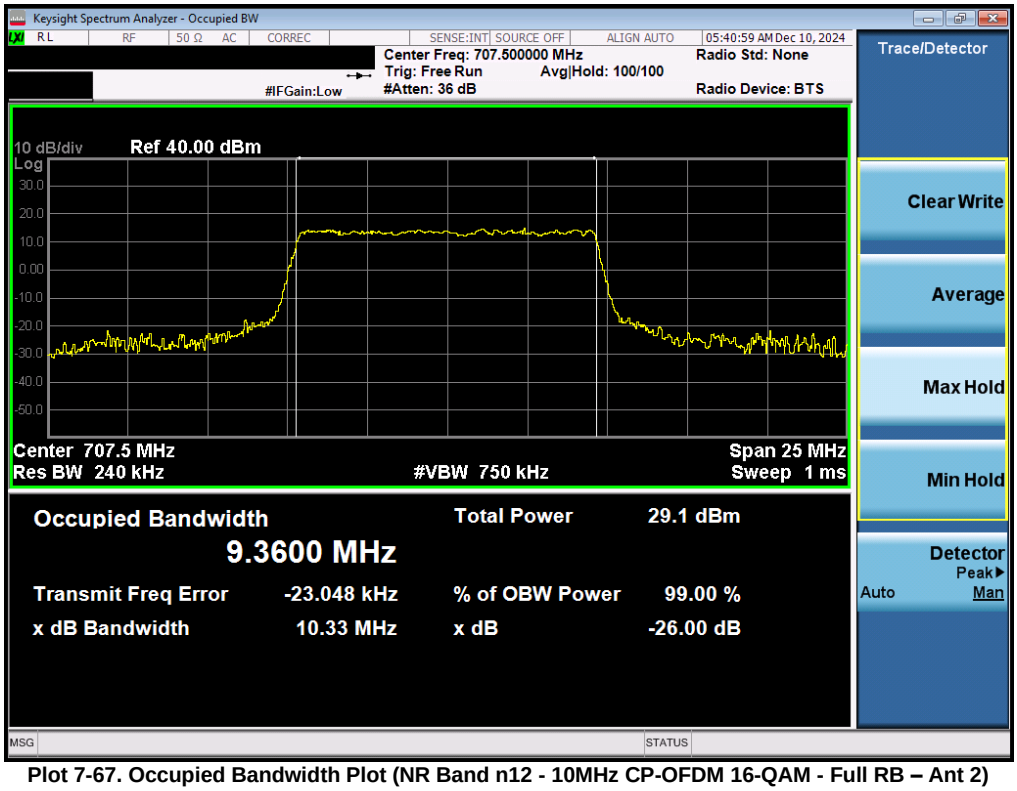
Plot 7-64. Occupied Bandwidth Plot (NR Band n12 - 15MHz CP-OFDM 16-QAM - Full RB – Ant 2)



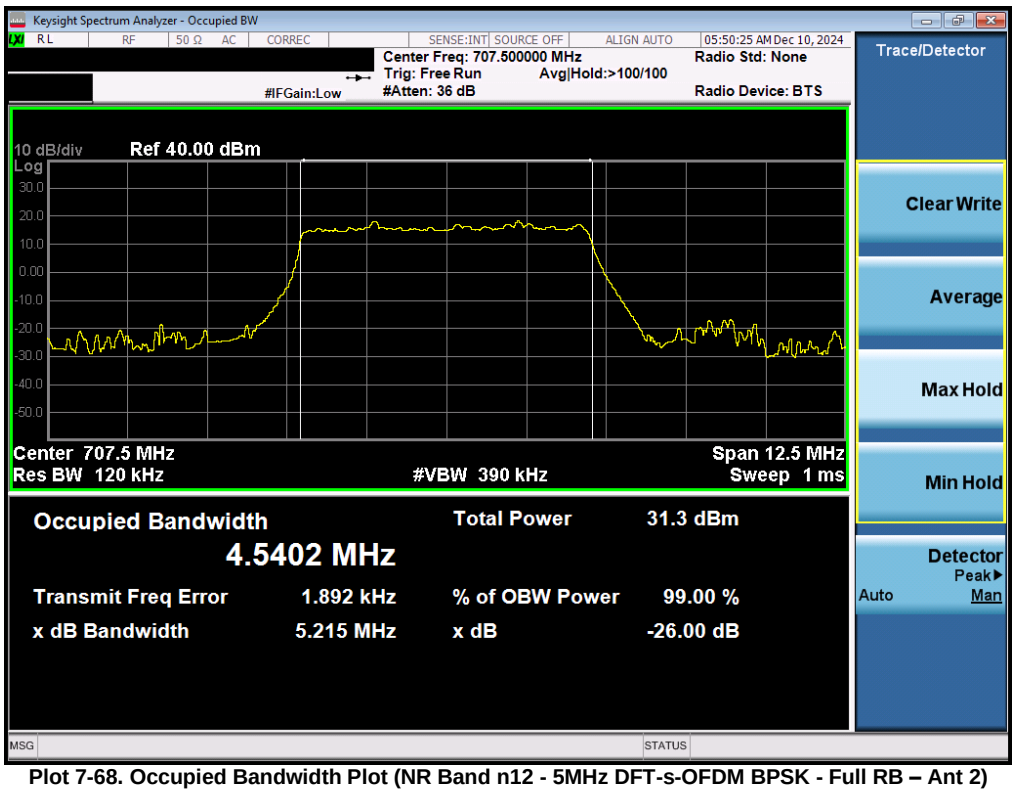
Plot 7-65. Occupied Bandwidth Plot (NR Band n12 - 10MHz DFT-s-OFDM BPSK - Full RB – Ant 2)



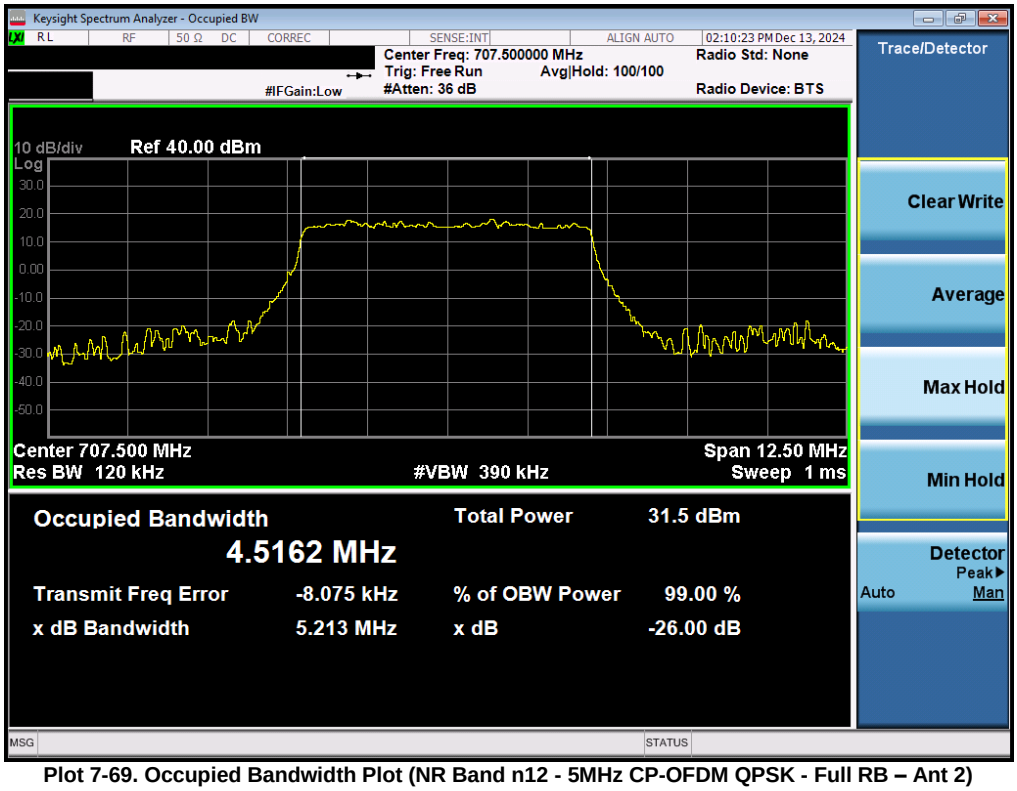
Plot 7-66. Occupied Bandwidth Plot (NR Band n12 - 10MHz CP-OFDM QPSK - Full RB – Ant 2)



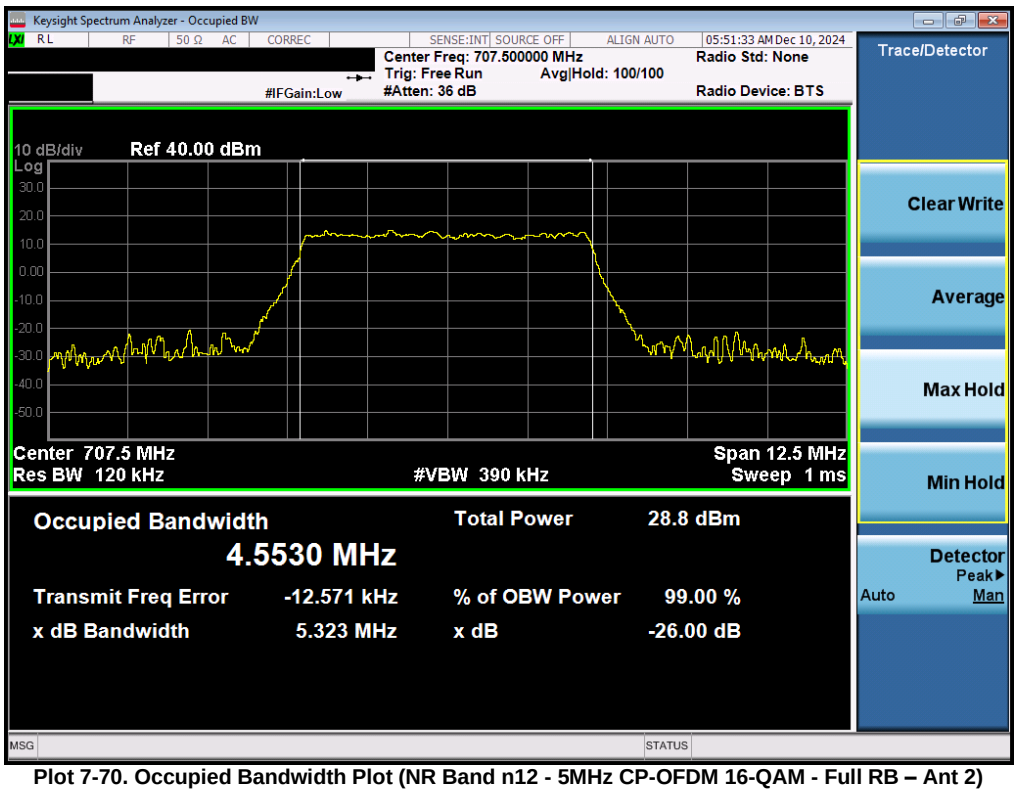
Plot 7-67. Occupied Bandwidth Plot (NR Band n12 - 10MHz CP-OFDM 16-QAM - Full RB – Ant 2)



Plot 7-68. Occupied Bandwidth Plot (NR Band n12 - 5MHz DFT-s-OFDM BPSK - Full RB – Ant 2)

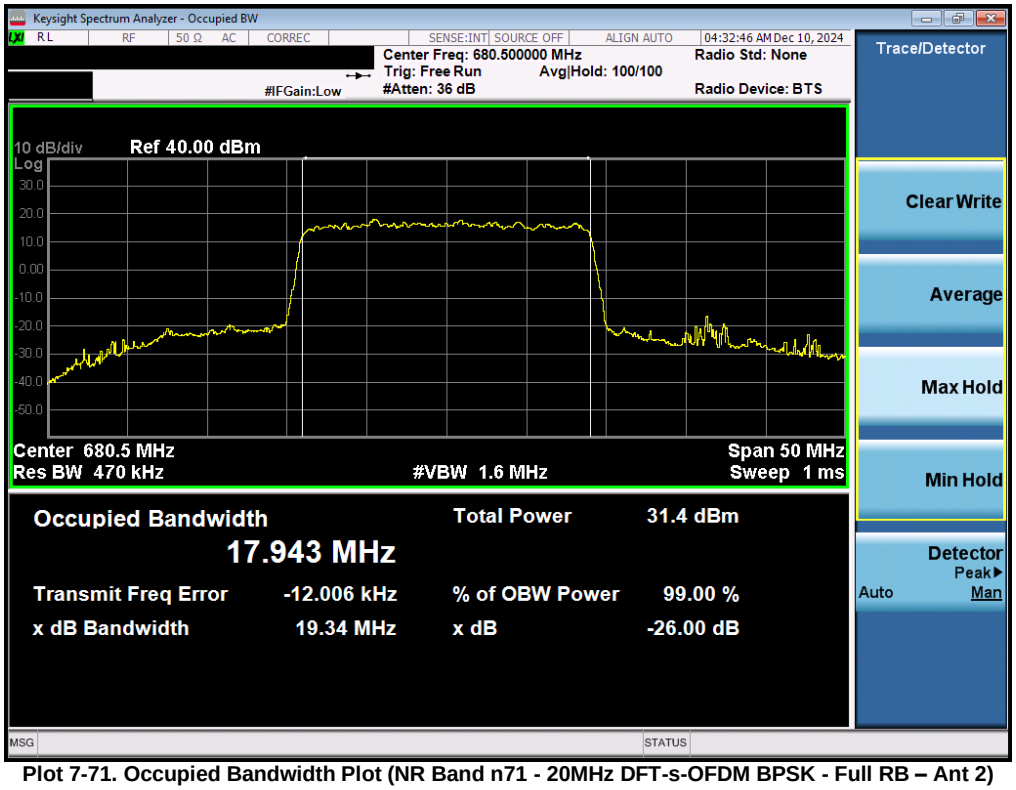


Plot 7-69. Occupied Bandwidth Plot (NR Band n12 - 5MHz CP-OFDM QPSK - Full RB – Ant 2)

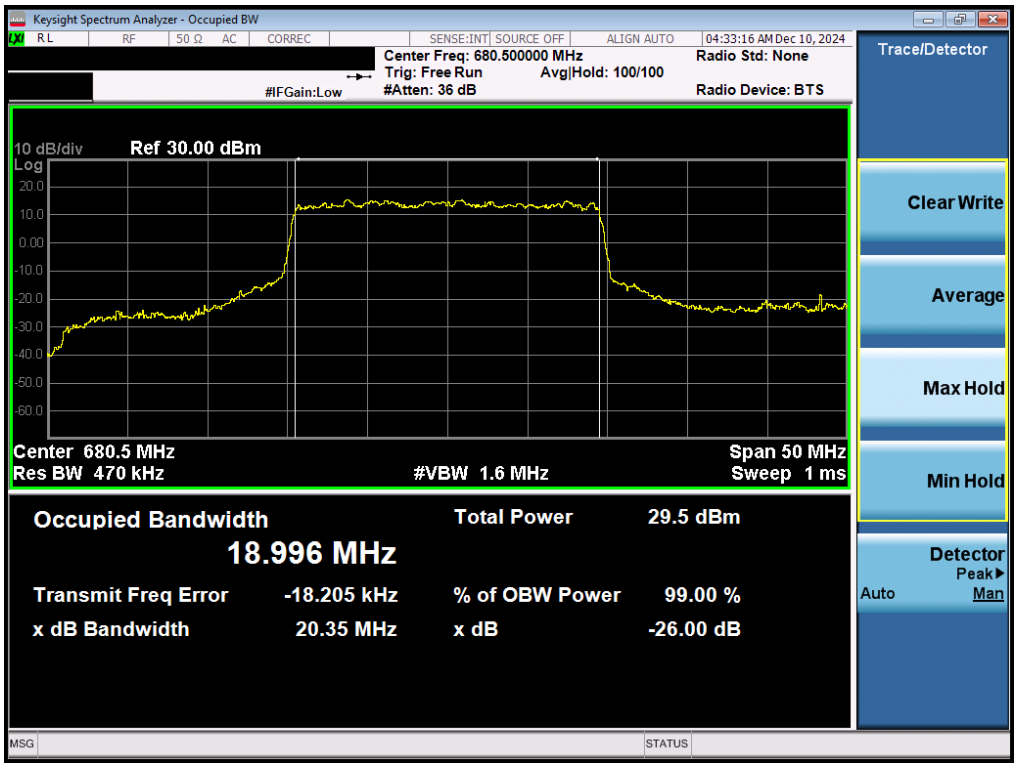


Plot 7-70. Occupied Bandwidth Plot (NR Band n12 - 5MHz CP-OFDM 16-QAM - Full RB – Ant 2)

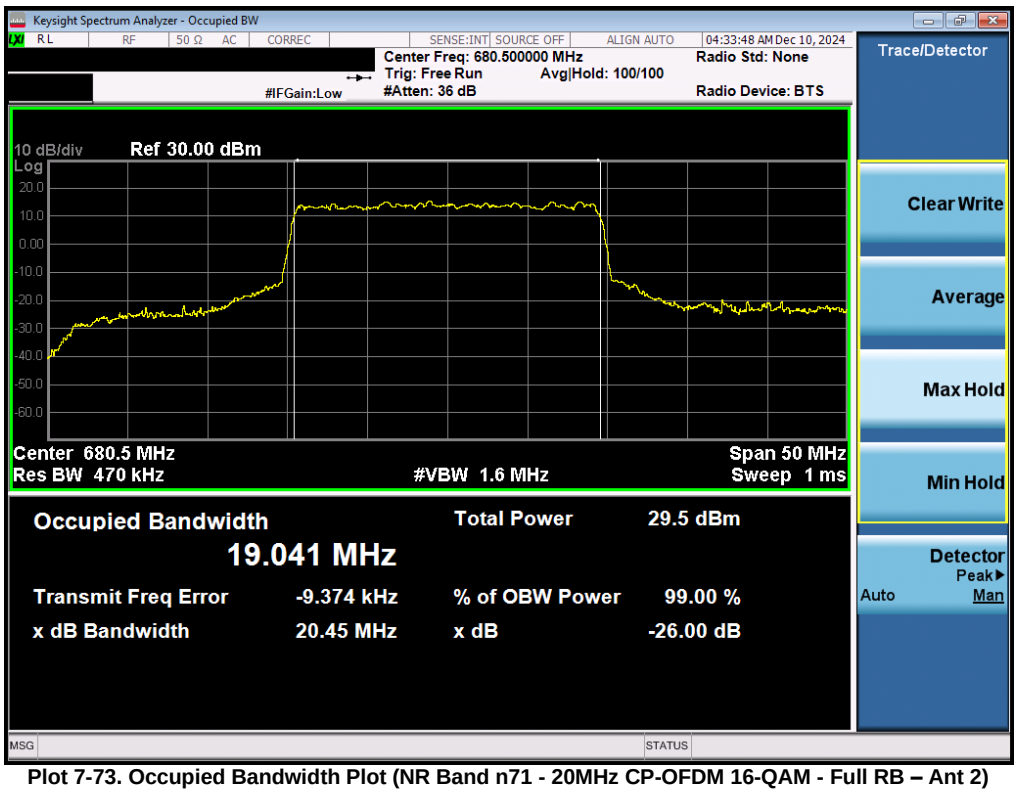
NR Band n71 – Ant 2



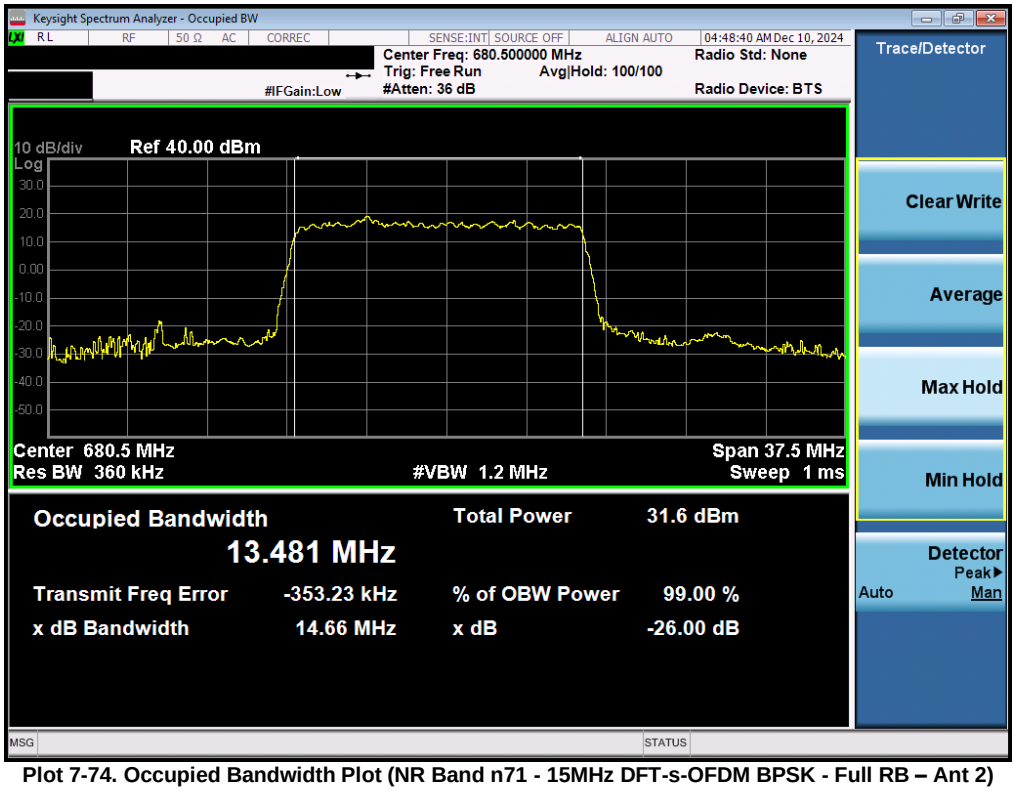
Plot 7-71. Occupied Bandwidth Plot (NR Band n71 - 20MHz DFT-s-OFDM BPSK - Full RB – Ant 2)



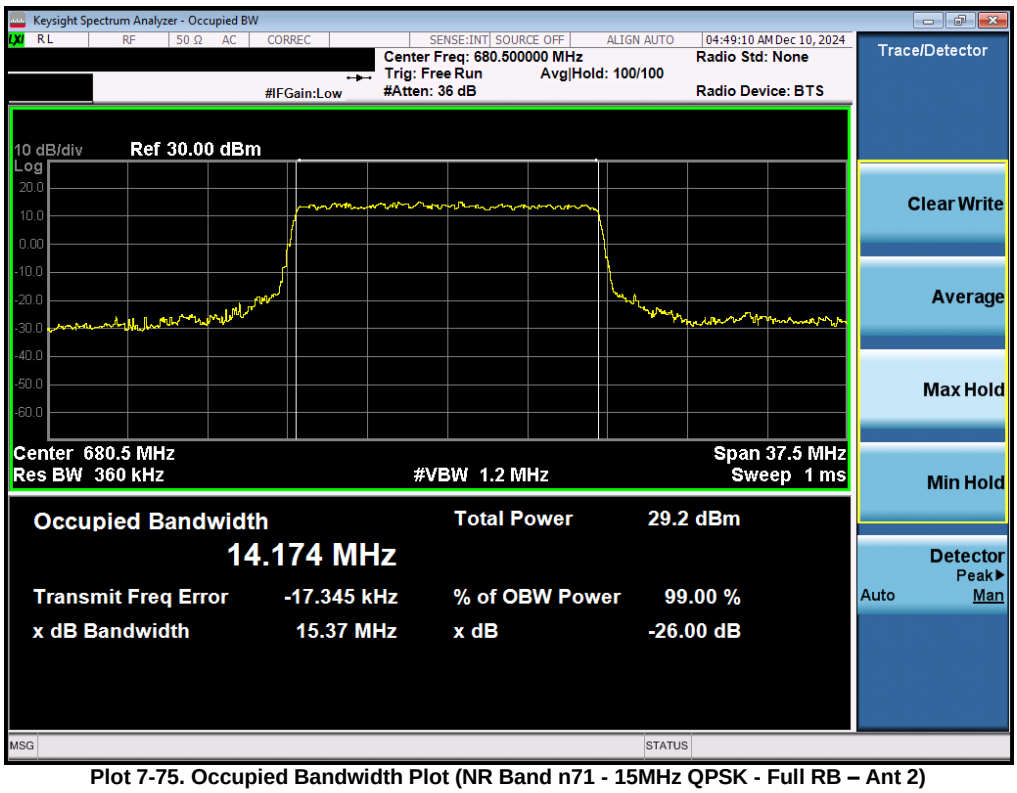
Plot 7-72. Occupied Bandwidth Plot (NR Band n71 - 20MHz CP-OFDM QPSK - Full RB – Ant 2)



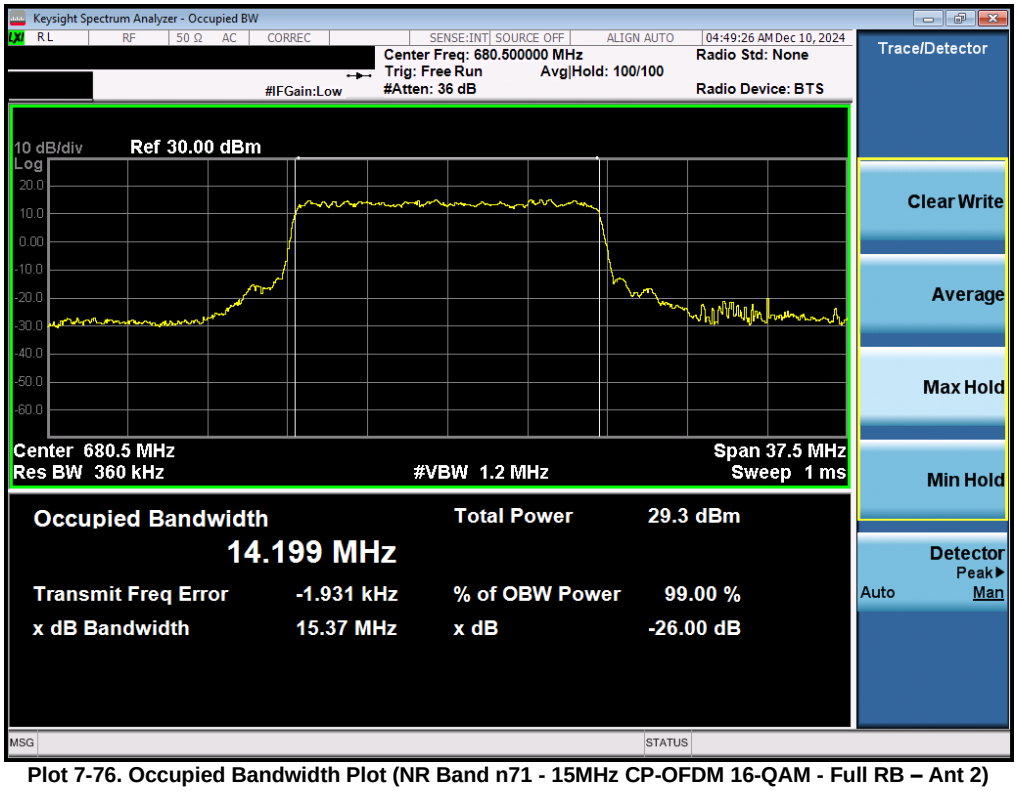
Plot 7-73. Occupied Bandwidth Plot (NR Band n71 - 20MHz CP-OFDM 16-QAM - Full RB – Ant 2)



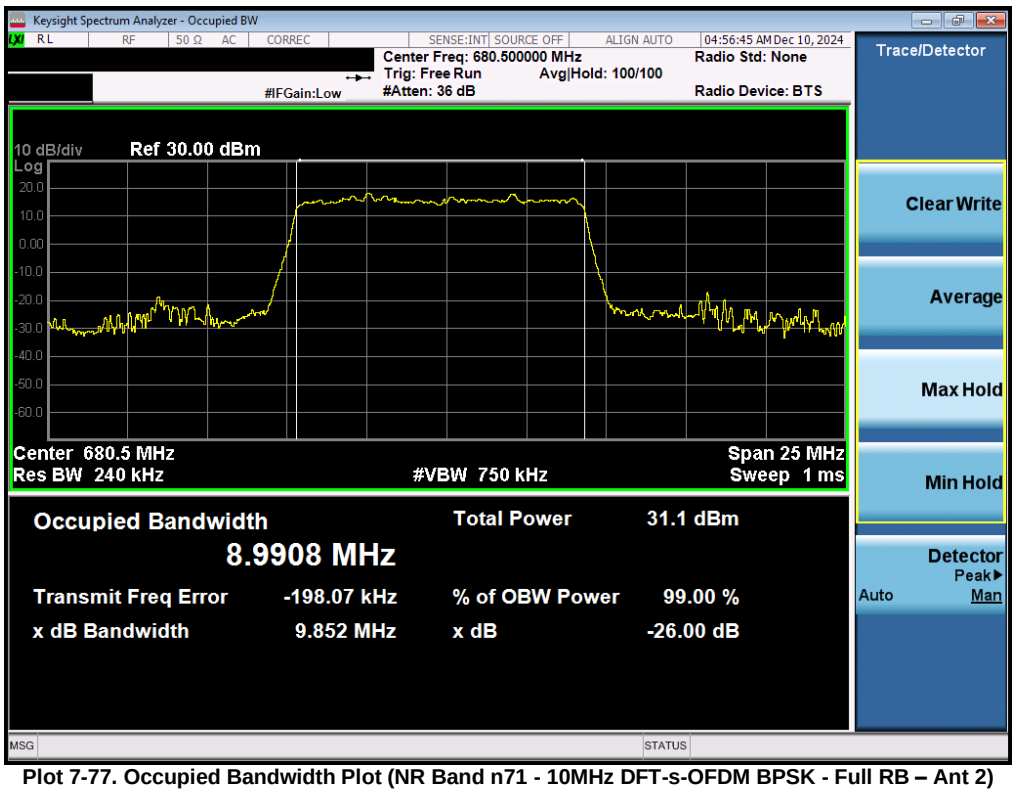
Plot 7-74. Occupied Bandwidth Plot (NR Band n71 - 15MHz DFT-s-OFDM BPSK - Full RB – Ant 2)



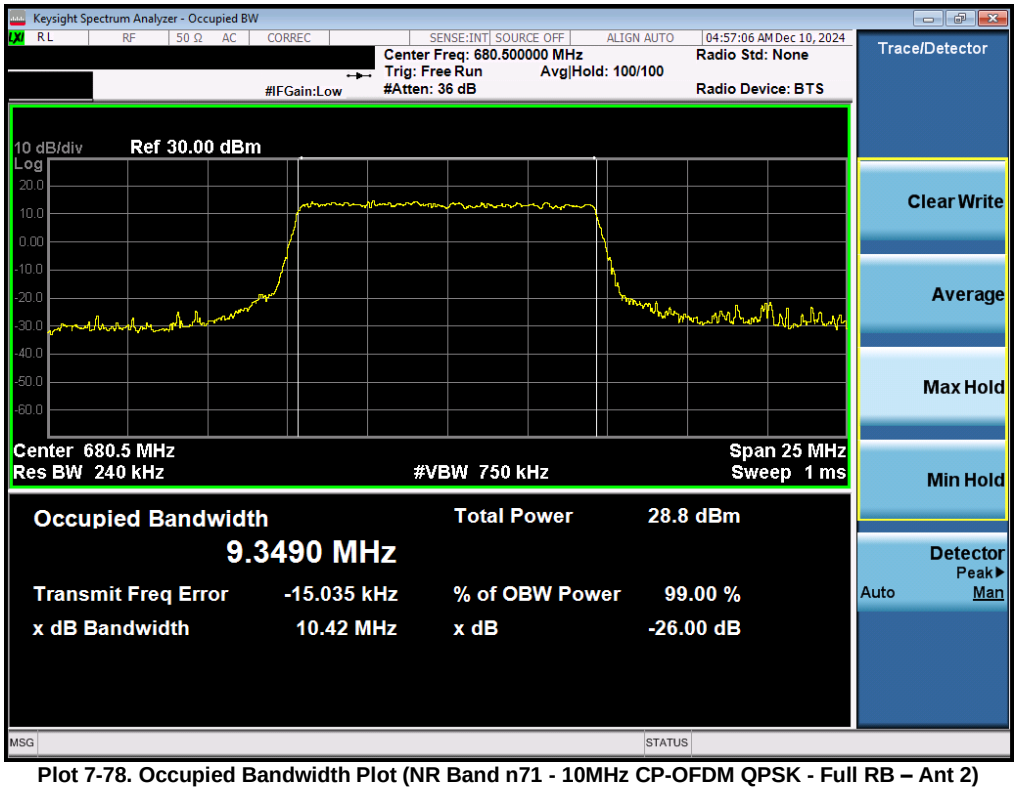
Plot 7-75. Occupied Bandwidth Plot (NR Band n71 - 15MHz QPSK - Full RB – Ant 2)



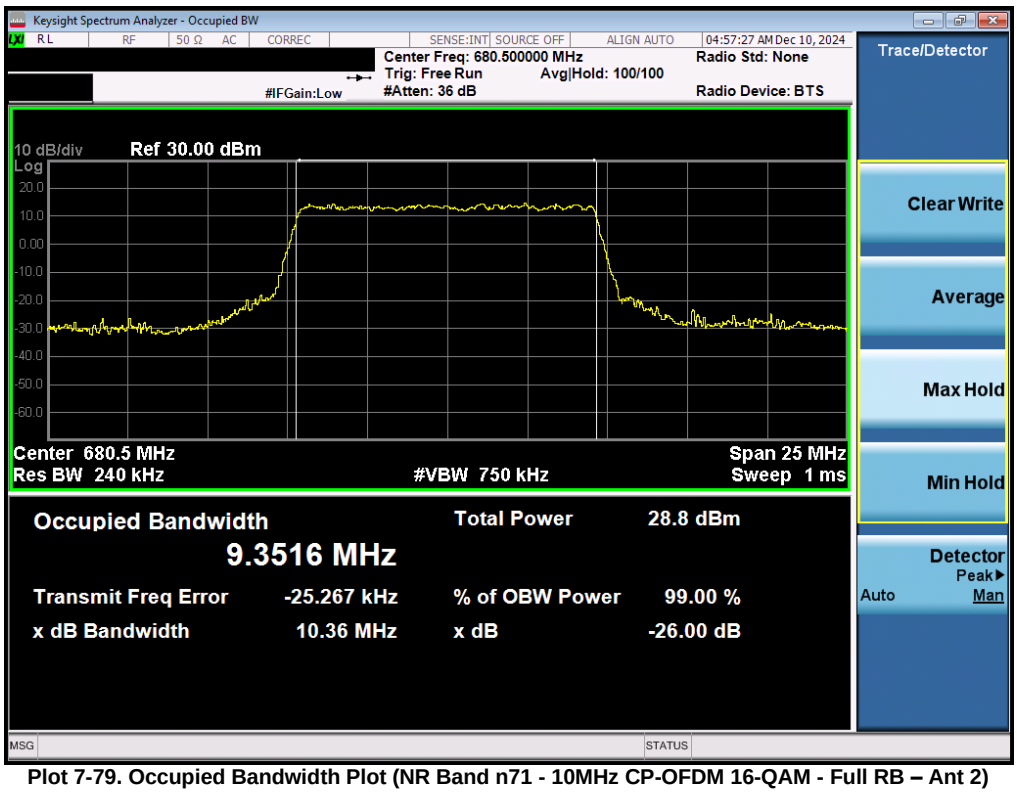
Plot 7-76. Occupied Bandwidth Plot (NR Band n71 - 15MHz CP-OFDM 16-QAM - Full RB – Ant 2)



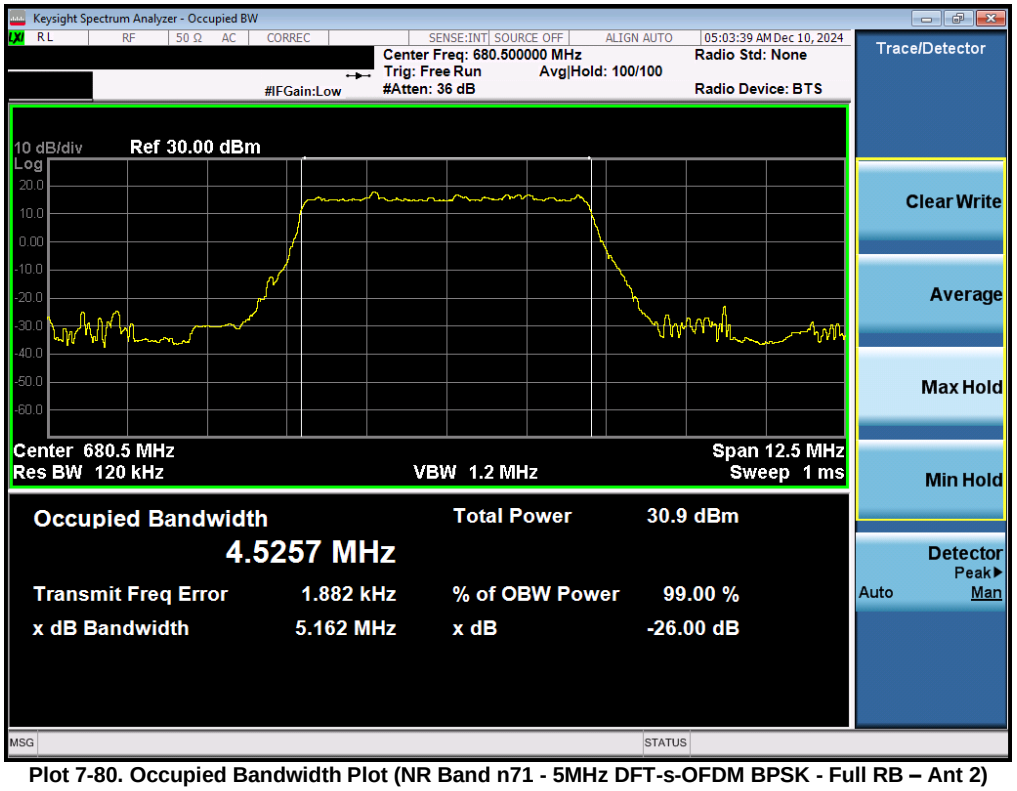
Plot 7-77. Occupied Bandwidth Plot (NR Band n71 - 10MHz DFT-s-OFDM BPSK - Full RB – Ant 2)



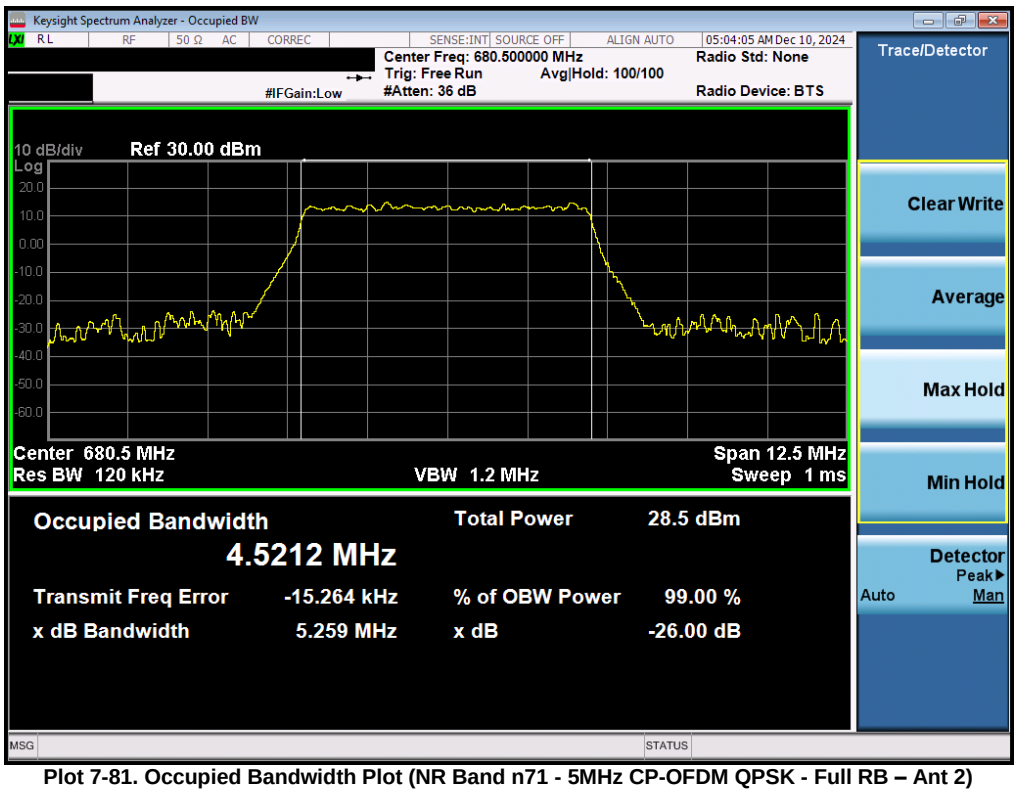
Plot 7-78. Occupied Bandwidth Plot (NR Band n71 - 10MHz CP-OFDM QPSK - Full RB – Ant 2)



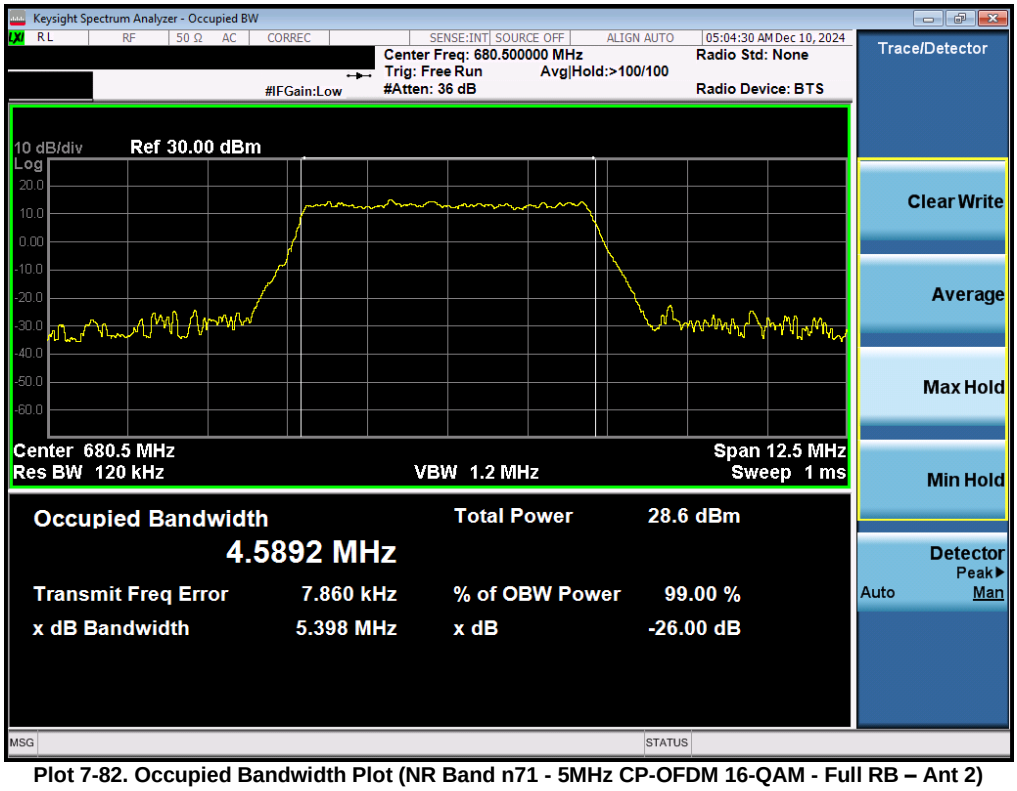
Plot 7-79. Occupied Bandwidth Plot (NR Band n71 - 10MHz CP-OFDM 16-QAM - Full RB – Ant 2)



Plot 7-80. Occupied Bandwidth Plot (NR Band n71 - 5MHz DFT-s-OFDM BPSK - Full RB – Ant 2)



Plot 7-81. Occupied Bandwidth Plot (NR Band n71 - 5MHz CP-OFDM QPSK - Full RB – Ant 2)

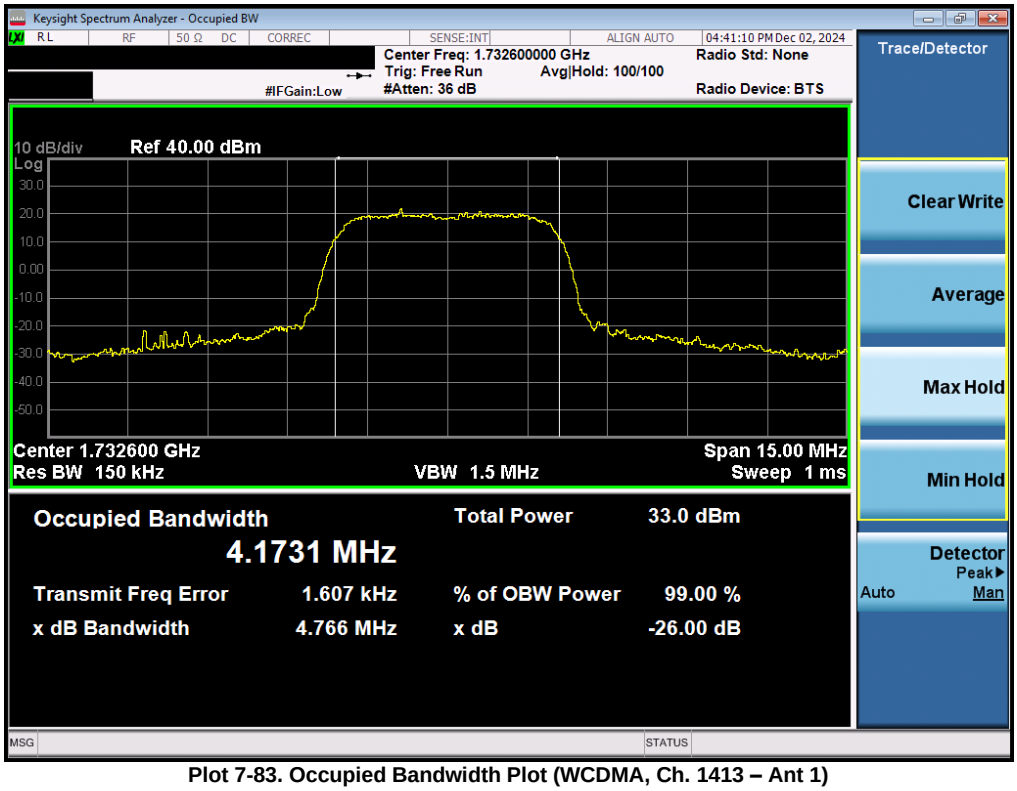


Plot 7-82. Occupied Bandwidth Plot (NR Band n71 - 5MHz CP-OFDM 16-QAM - Full RB – Ant 2)

Mode	Bandwidth	Modulation	OBW [MHz]
WCDMA-AWS	5MHz	GMSK	4.173
LTE-B66-4	20MHz	QPSK	18.01
		16QAM	18.05
	15MHz	QPSK	13.58
		16QAM	13.56
	10MHz	QPSK	9.06
		16QAM	9.06
	5MHz	QPSK	4.53
		16QAM	4.56
	3MHz	QPSK	2.71
		16QAM	2.72
	1.4MHz	QPSK	1.11
		16QAM	1.11
NR-n66	40MHz	π/2 BPSK	38.71
		QPSK	38.82
		16QAM	38.82
	30MHz	π/2 BPSK	28.74
		QPSK	28.74
		16QAM	28.83
	25MHz	π/2 BPSK	23.12
		QPSK	24.00
		16QAM	23.98
	20MHz	π/2 BPSK	17.99
		QPSK	19.04
		16QAM	19.07
	15MHz	π/2 BPSK	13.51
		QPSK	14.20
		16QAM	14.22
	10MHz	π/2 BPSK	9.00
		QPSK	9.36
		16QAM	9.37
	5MHz	π/2 BPSK	4.54
		QPSK	4.56
		16QAM	4.54

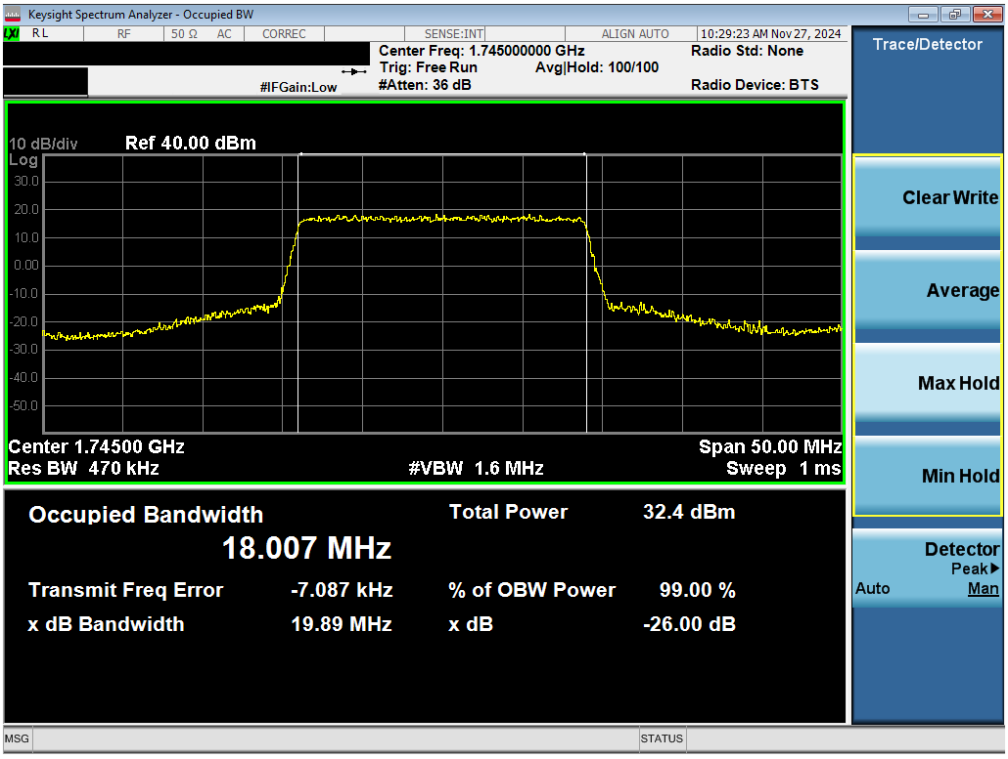
Table 7-22.Occupied Bandwidth Test Results – Ant 1

WCDMA AWS – Ant 1

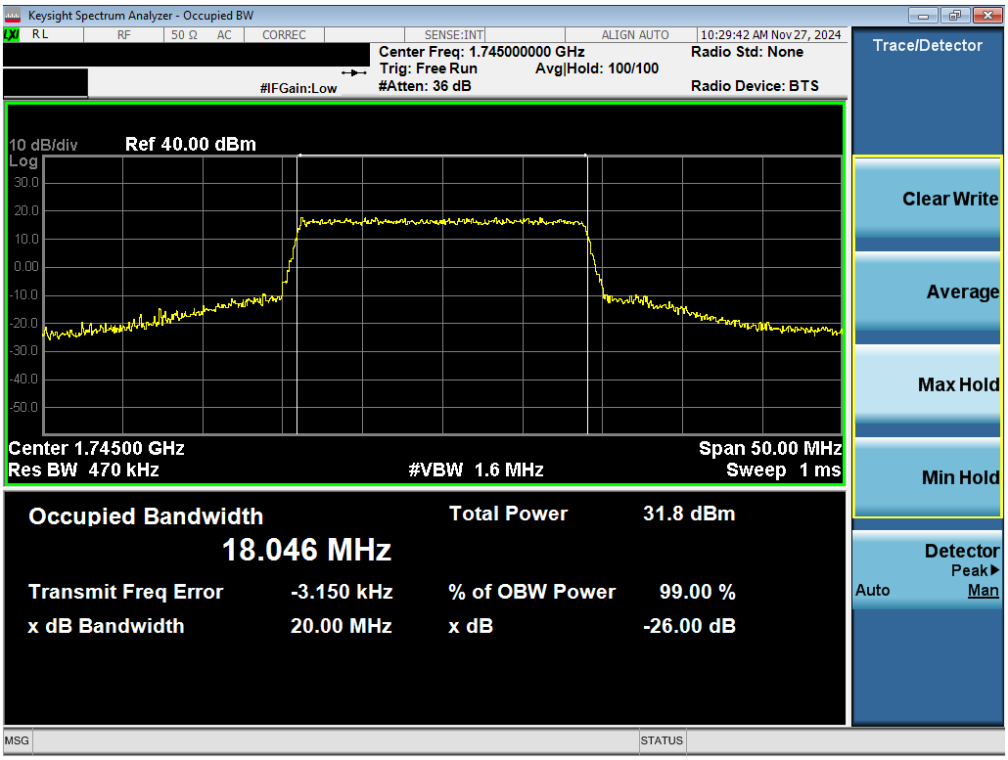


Plot 7-83. Occupied Bandwidth Plot (WCDMA, Ch. 1413 – Ant 1)

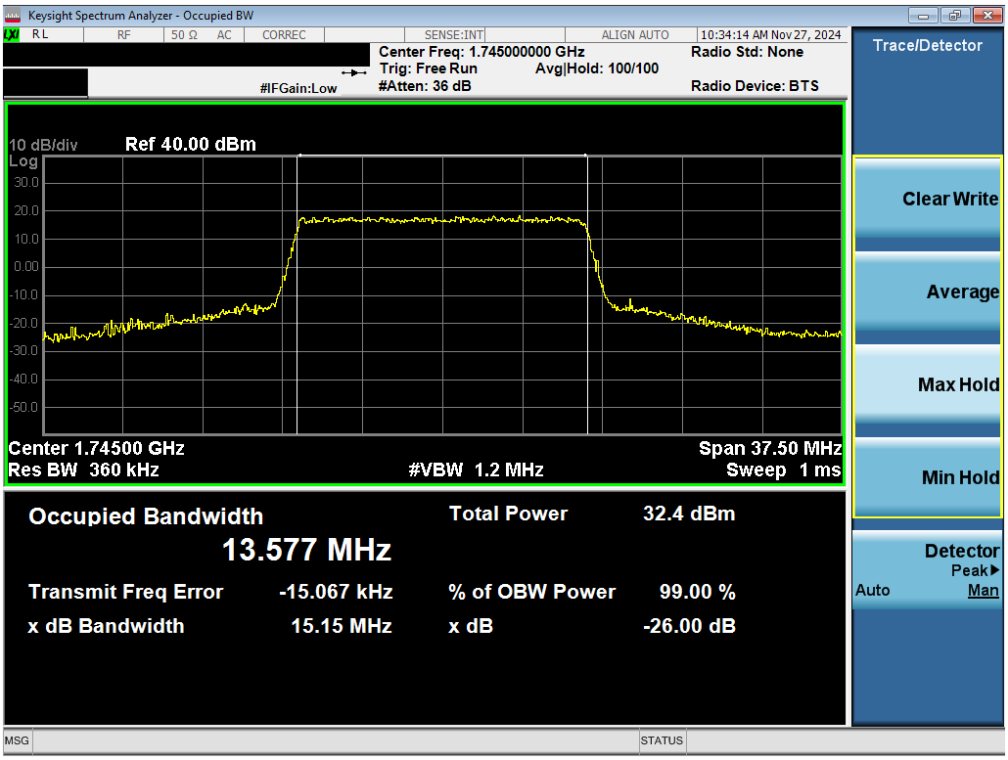
LTE Band 66/4 - Ant 1



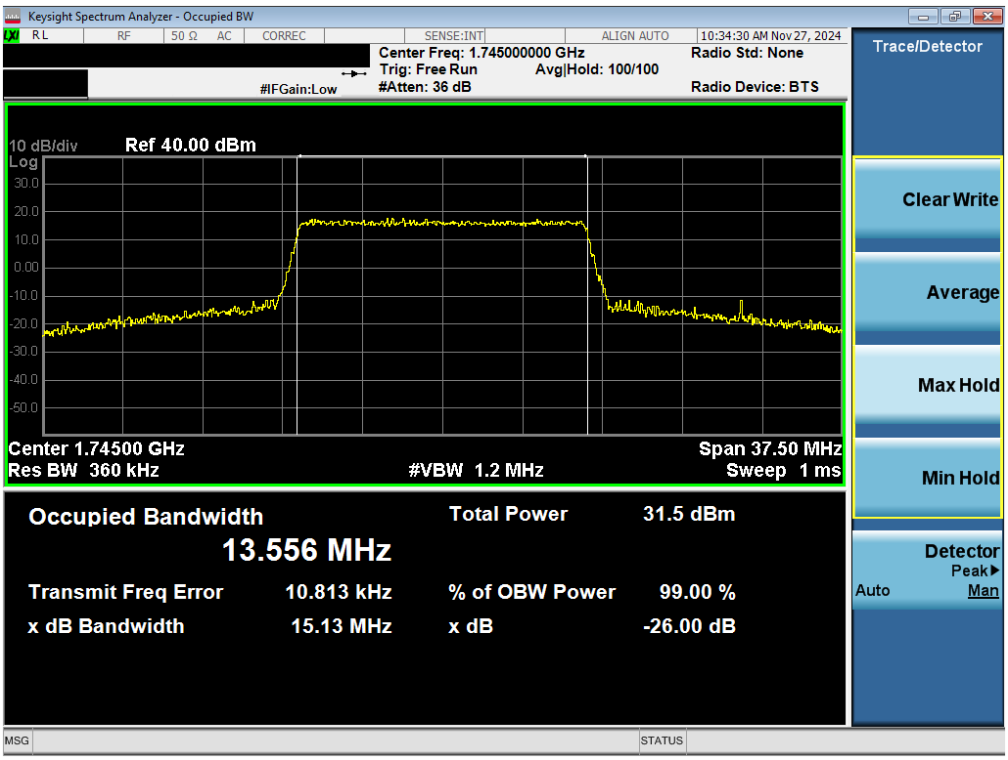
Plot 7-84. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz QPSK - Full RB - Ant 1)



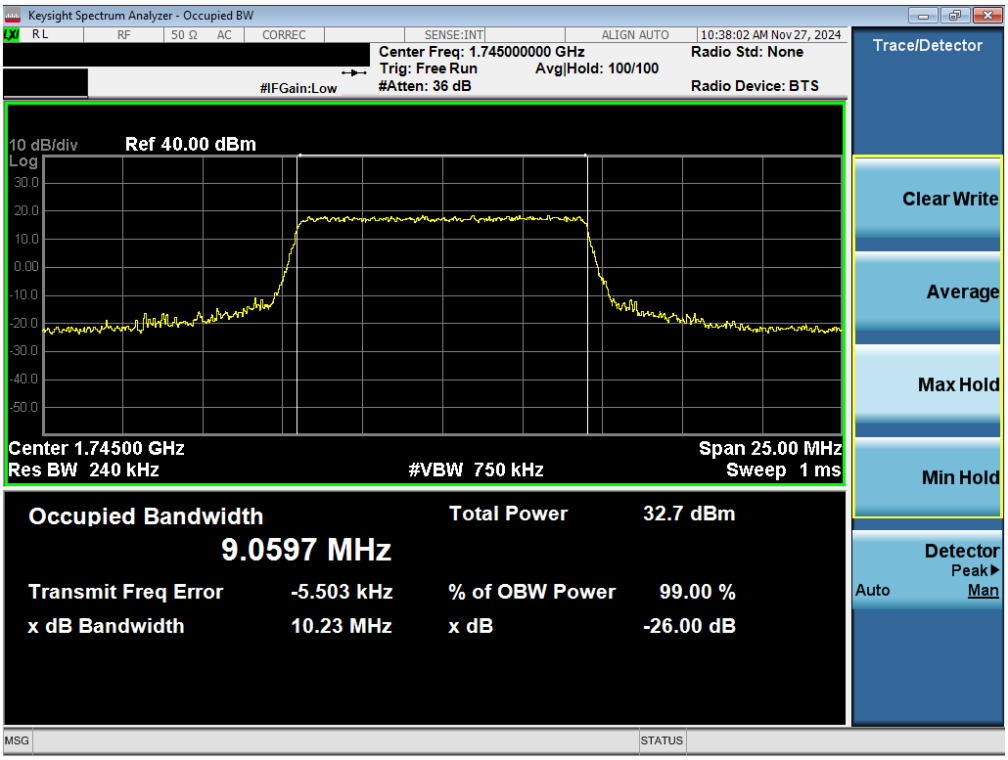
Plot 7-85. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz 16-QAM - Full RB - Ant 1)



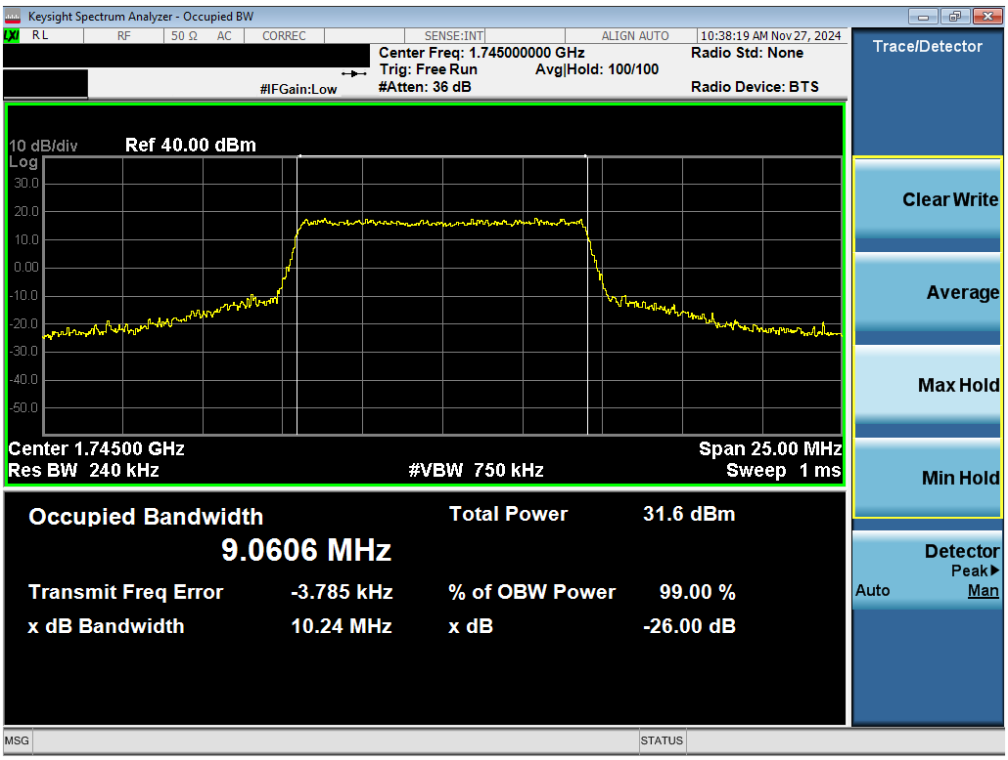
Plot 7-86. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz QPSK - Full RB - Ant 1)



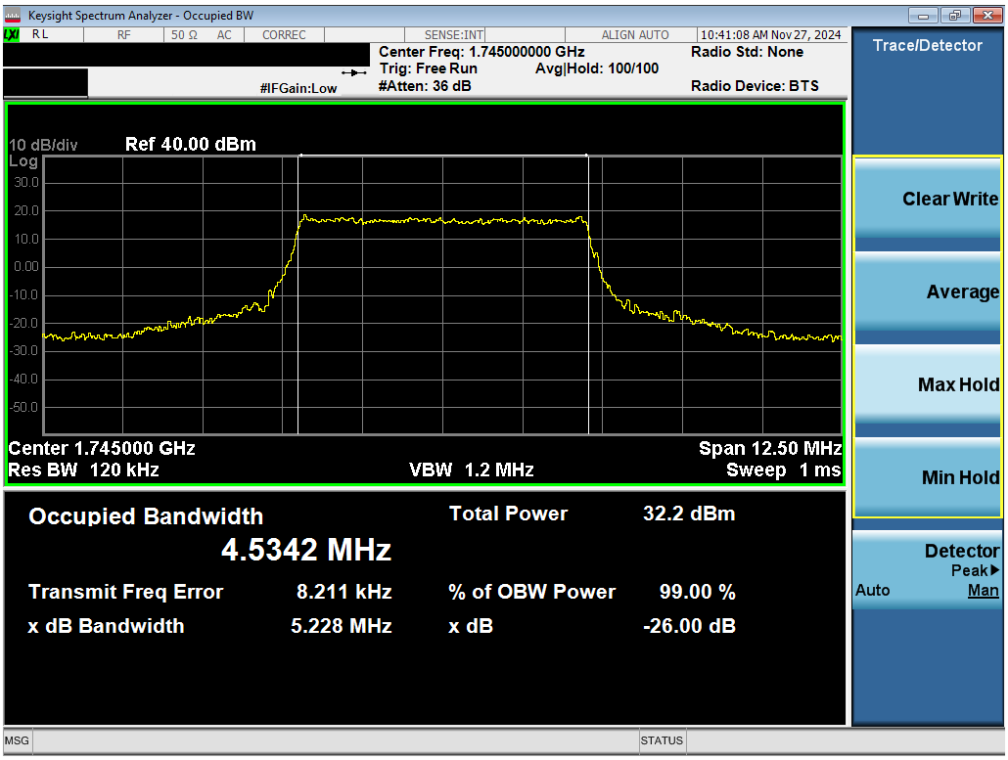
Plot 7-87. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz 16-QAM - Full RB - Ant 1)



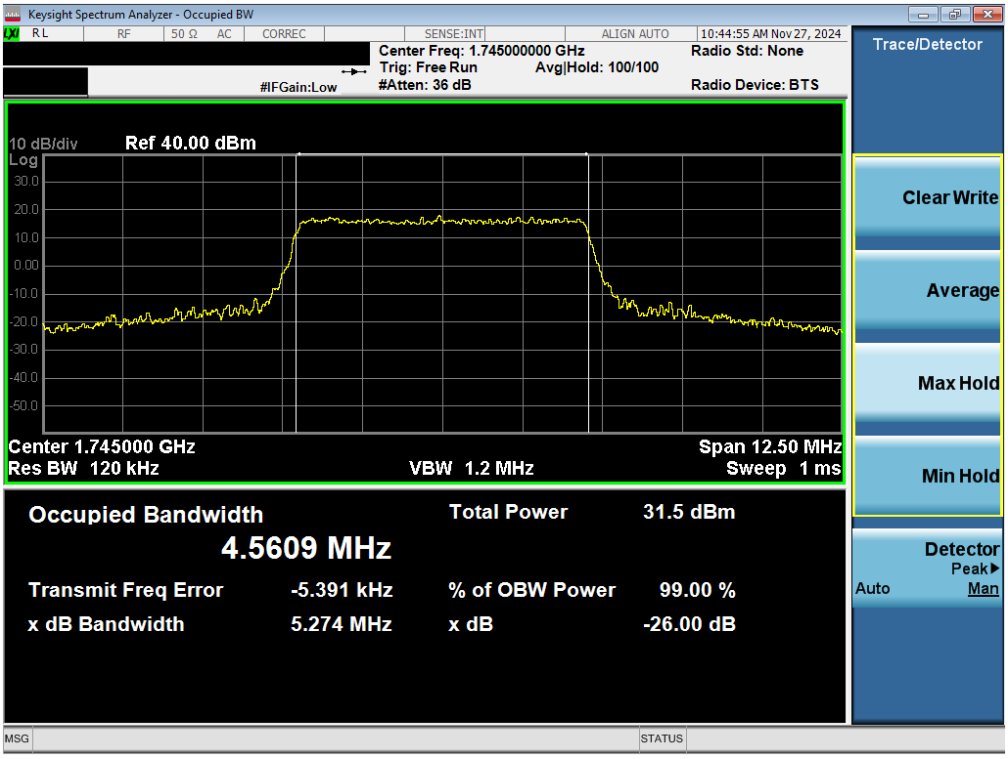
Plot 7-88. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz QPSK - Full RB - Ant 1)



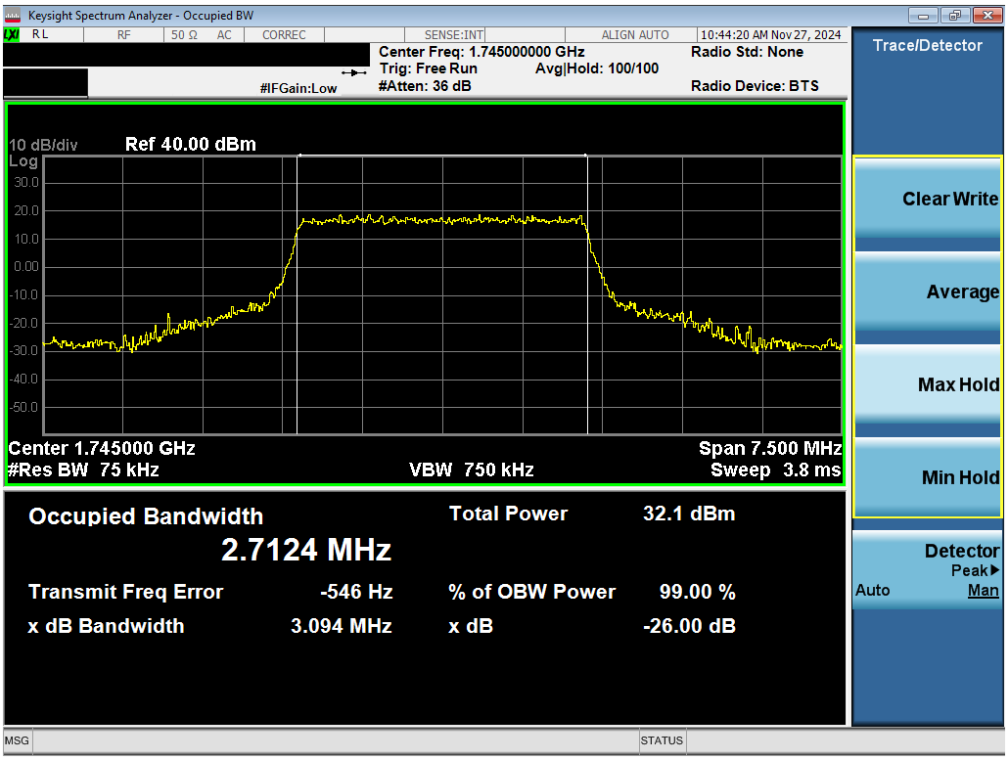
Plot 7-89. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz 16-QAM - Full RB - Ant 1)



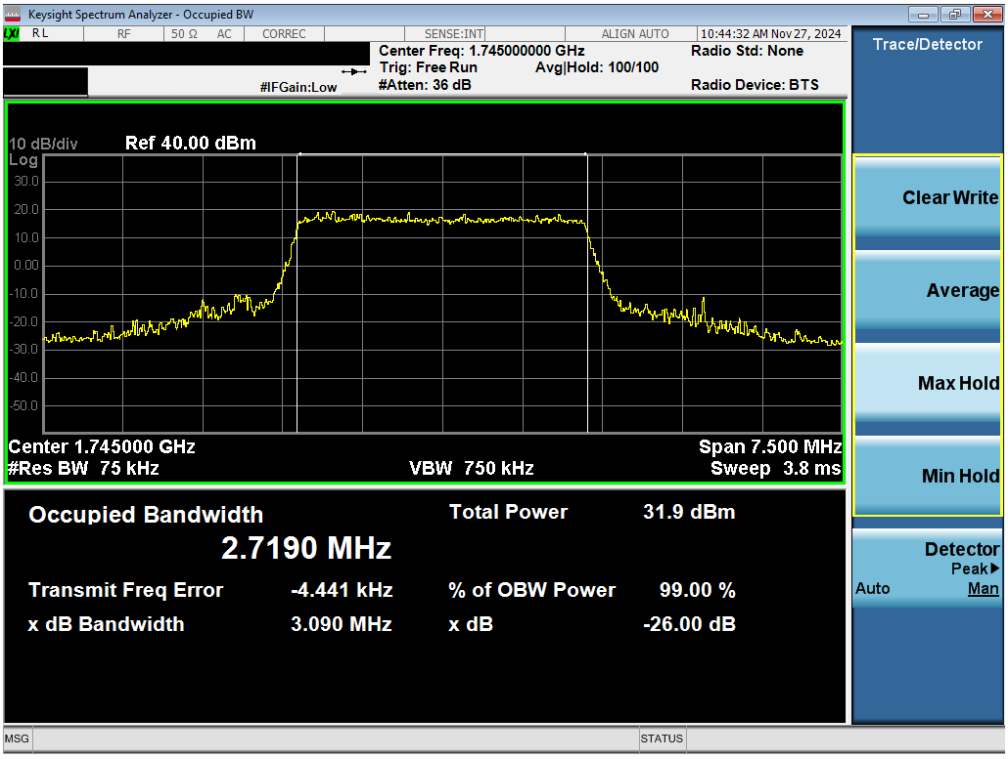
Plot 7-90. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz QPSK - Full RB - Ant 1)



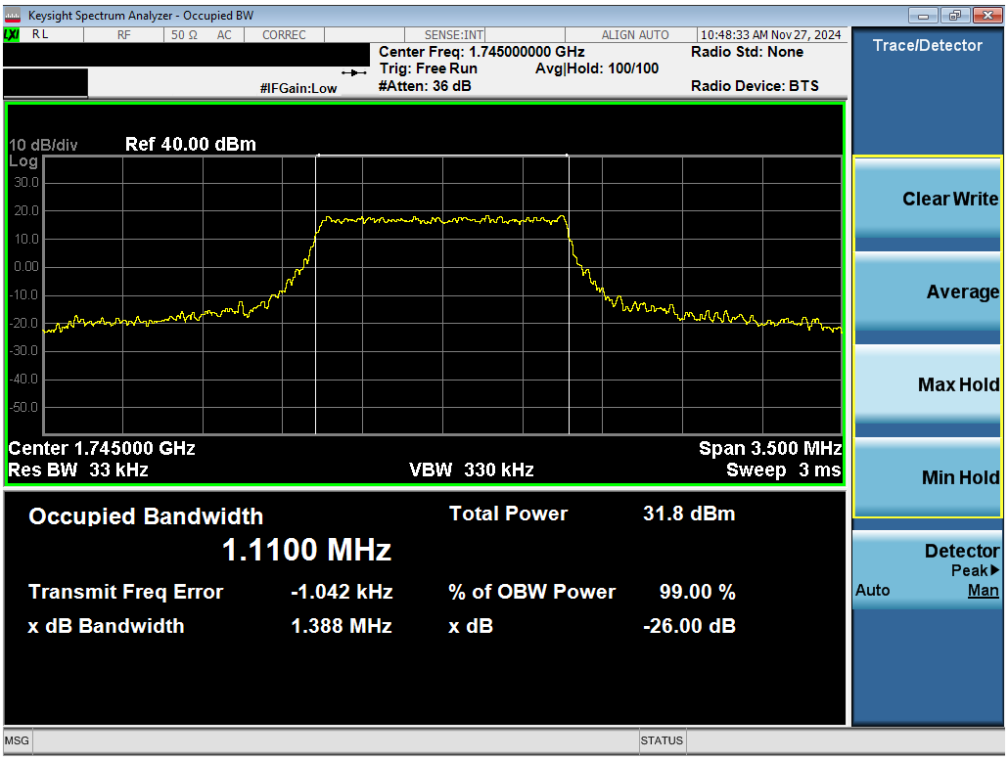
Plot 7-91. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz 16-QAM - Full RB - Ant 1)



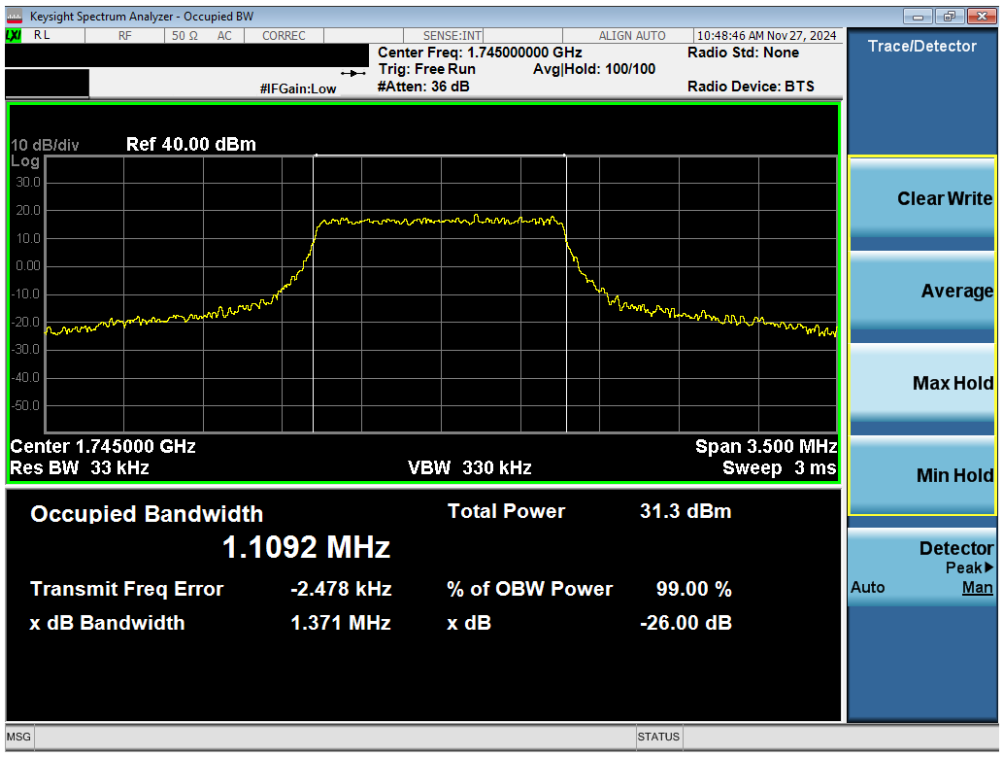
Plot 7-92. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz QPSK - Full RB - Ant 1)



Plot 7-93. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz 16-QAM - Full RB - Ant 1)

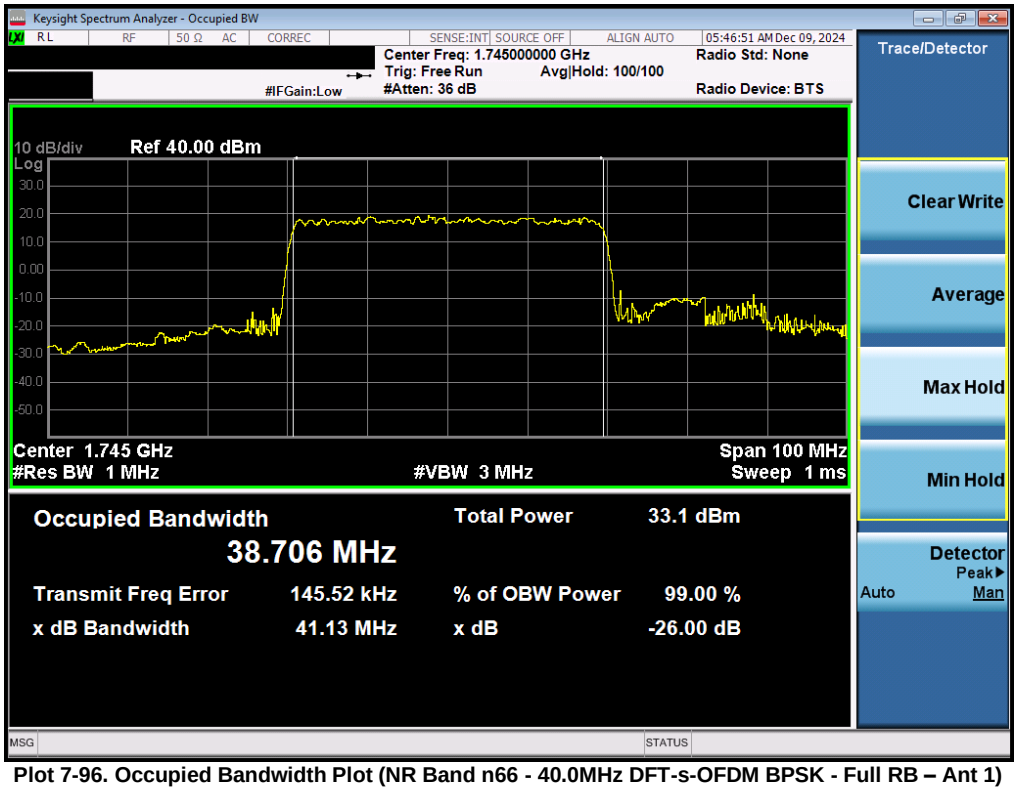


Plot 7-94. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz QPSK - Full RB - Ant 1)

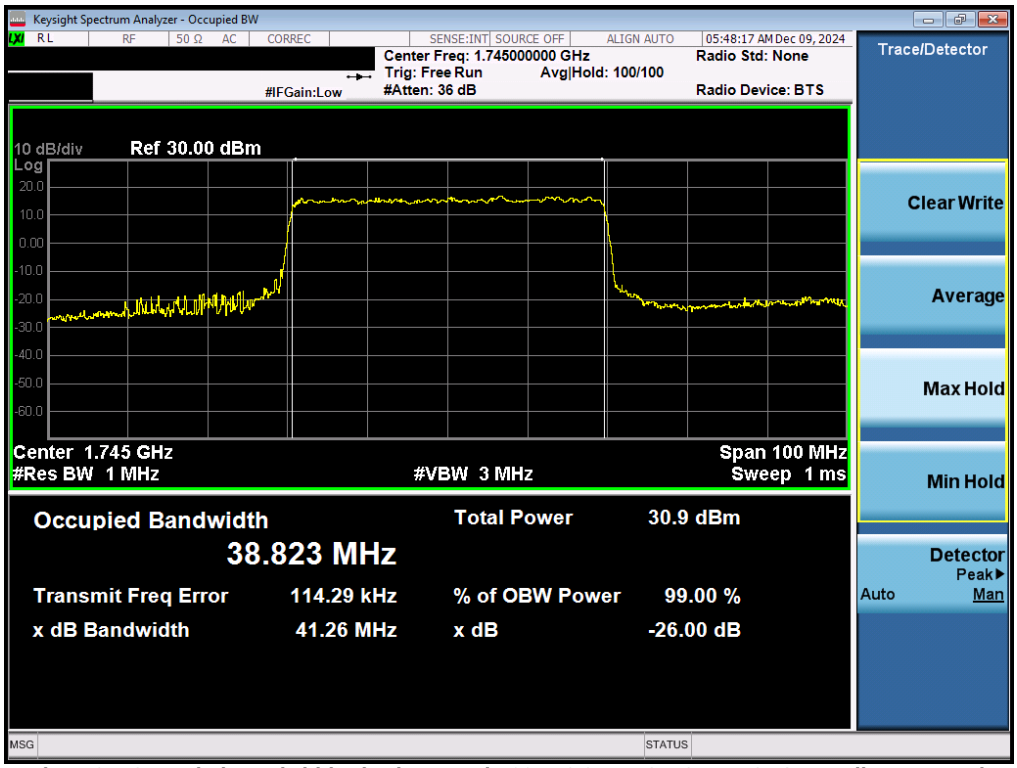


Plot 7-95. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz 16-QAM - Full RB - Ant 1)

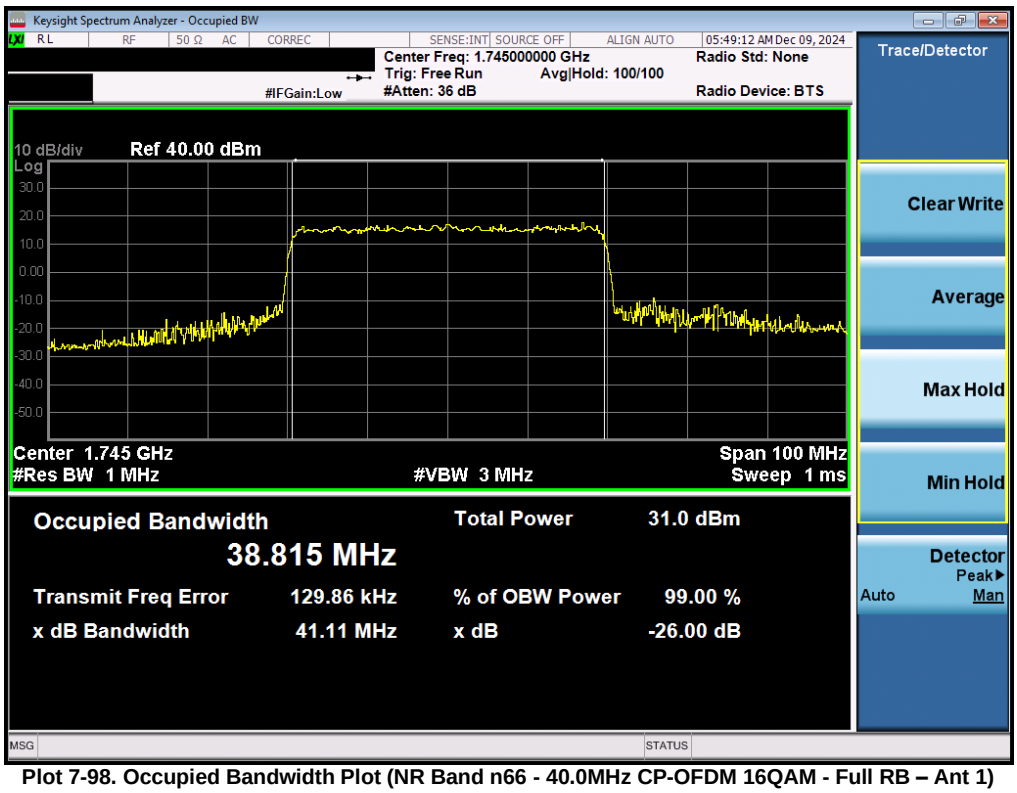
NR Band n66 – Ant 1



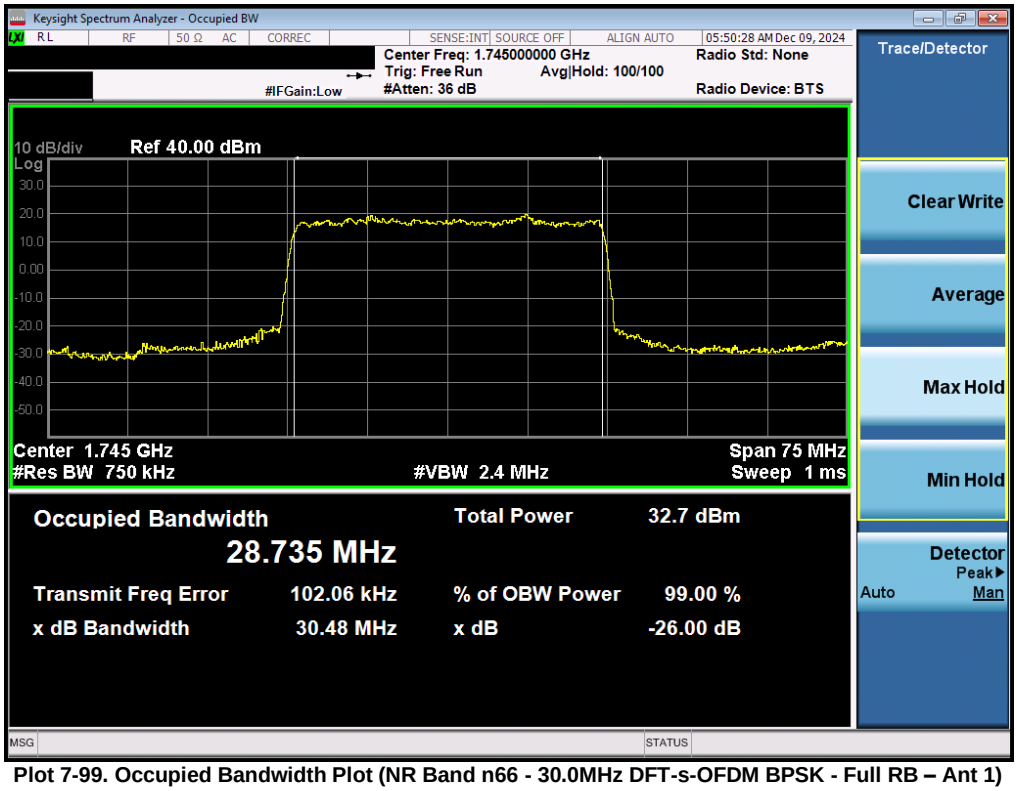
Plot 7-96. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz DFT-s-OFDM BPSK - Full RB – Ant 1)



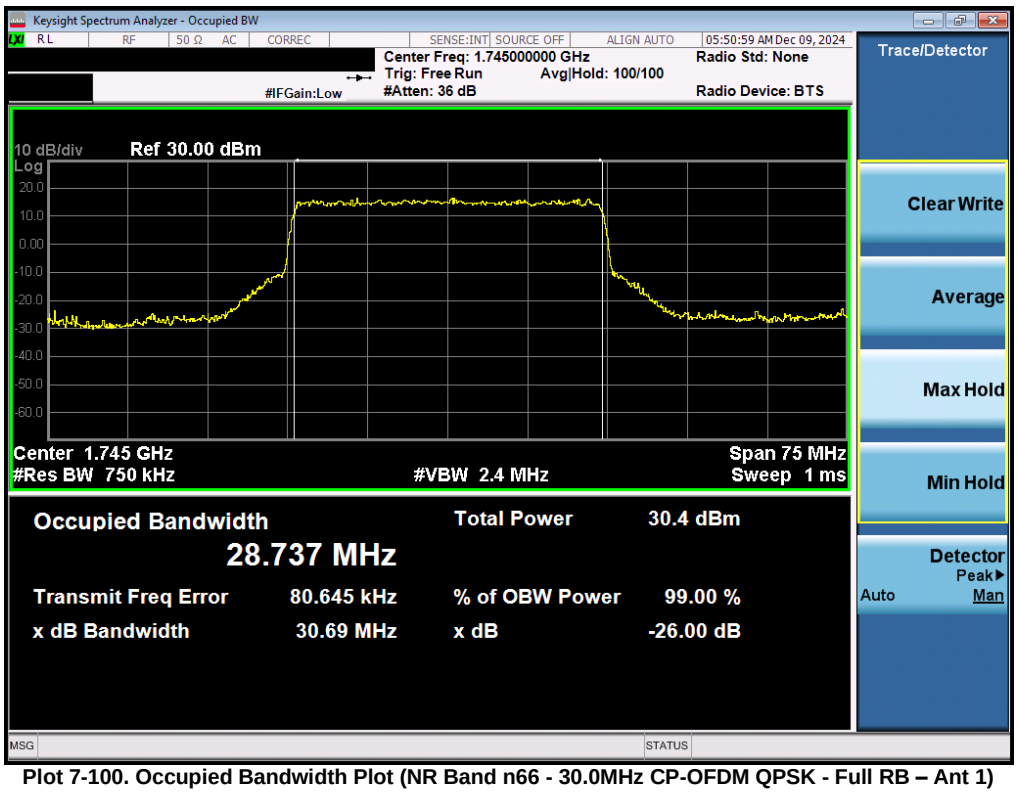
Plot 7-97. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz CP-OFDM QPSK - Full RB – Ant 1)



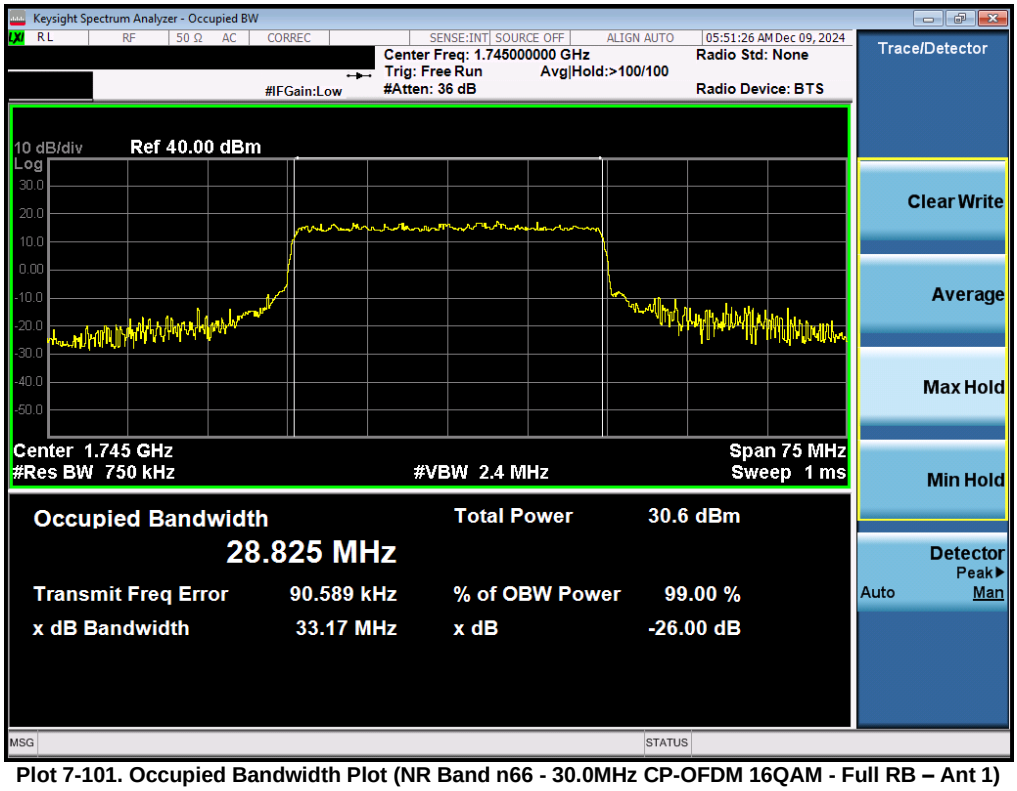
Plot 7-98. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz CP-OFDM 16QAM - Full RB – Ant 1)



Plot 7-99. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz DFT-s-OFDM BPSK - Full RB – Ant 1)



Plot 7-100. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz CP-OFDM QPSK - Full RB – Ant 1)



Plot 7-101. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz CP-OFDM 16QAM - Full RB – Ant 1)