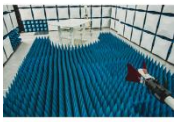
Element Materials Technology
(formerly PCTEST)
18855 Adams Court, Morgan Hill, CA 95037 USA
Tel. 408.538.5600
http://www.element.com



PART 27 MEASUREMENT REPORT

Applicant Name:
Apple Inc.
One Apple Park Way
Cupertino, CA 95014
United States

Date of Testing:
7/1/2024 - 1/17/2025
Test Report Issue Date:
1/27/2025
Test Site/Location:
Element Materials Technology Morgan Hill, CA, USA
Test Report Serial No.:
1C2410210077-09-R1.BCG

FCC ID:	**BCGA3355**
APPLICANT:	**Apple Inc.**

Application Type:	Certification
Model:	A3355, A3356
EUT Type:	Tablet Device
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part:	27
Test Procedure(s):	ANSI C63.26-2015, TIA-603-E-2016, KDB 971168 D01 v03r01

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: 1C2410210077-09-R1.BCG) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose 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 #2041.02

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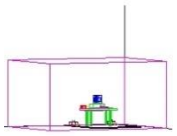
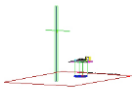


PART 27 MEASUREMENT REPORT



Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	OBW [MHz]	ERP		Emission Designator
					Max. Power [W]	Max. Power [dBm]	
LTE Band 71	5 MHz	QPSK	665.5 - 695.5	4.5479	0.175	22.43	4M55G7W
		16QAM	665.5 - 695.5	4.5449	0.144	21.58	4M54D7W
		64QAM	665.5 - 695.5	4.5532	0.114	20.58	4M55D7W
		256QAM	665.5 - 695.5	4.5402	0.059	17.69	4M54D7W
	10 MHz	QPSK	668.0 - 693.0	9.0188	0.180	22.55	9M02G7W
		16QAM	668.0 - 693.0	9.0462	0.141	21.49	9M05D7W
		64QAM	668.0 - 693.0	9.0471	0.114	20.55	9M05D7W
		256QAM	668.0 - 693.0	9.0353	0.056	17.52	9M04D7W
	15 MHz	QPSK	670.5 - 690.5	13.5530	0.180	22.55	13M6G7W
		16QAM	670.5 - 690.5	13.5399	0.142	21.52	13M5D7W
		64QAM	670.5 - 690.5	13.5292	0.113	20.53	13M5D7W
		256QAM	670.5 - 690.5	13.5293	0.057	17.59	13M5D7W
	20 MHz	QPSK	673.0 - 688.0	18.0233	0.180	22.55	18M0G7W
		16QAM	673.0 - 688.0	18.0228	0.141	21.49	18M0D7W
		64QAM	673.0 - 688.0	18.0063	0.113	20.52	18M0D7W
		256QAM	673.0 - 688.0	18.0119	0.058	17.65	18M0D7W
LTE Band 12	1.4 MHz	QPSK	699.7 - 715.3	1.1173	0.150	21.75	1M12G7W
		16QAM	699.7 - 715.3	1.1232	0.117	20.69	1M12D7W
		64QAM	699.7 - 715.3	1.1133	0.095	19.79	1M11D7W
		256QAM	699.7 - 715.3	1.1102	0.047	16.70	1M11D7W
	3 MHz	QPSK	700.5 - 714.5	2.7256	0.167	22.24	2M73G7W
		16QAM	700.5 - 714.5	2.7299	0.134	21.26	2M73D7W
		64QAM	700.5 - 714.5	2.7298	0.106	20.24	2M73D7W
		256QAM	700.5 - 714.5	2.7299	0.055	17.37	2M73D7W
	5 MHz	QPSK	701.5 - 713.5	4.5338	0.168	22.25	4M53G7W
		16QAM	701.5 - 713.5	4.5300	0.133	21.25	4M53D7W
		64QAM	701.5 - 713.5	4.5533	0.106	20.25	4M55D7W
		256QAM	701.5 - 713.5	4.5392	0.054	17.29	4M54D7W
	10 MHz	QPSK	704.0 - 711.0	9.0199	0.166	22.21	9M02G7W
		16QAM	704.0 - 711.0	9.0330	0.133	21.25	9M03D7W
		64QAM	704.0 - 711.0	9.0393	0.107	20.29	9M04D7W
		256QAM	704.0 - 711.0	9.0213	0.055	17.39	9M02D7W
LTE Band 17	5 MHz	QPSK	706.5 - 713.5	4.5338	0.164	22.16	4M53G7W
		16QAM	706.5 - 713.5	4.5300	0.135	21.30	4M53D7W
		64QAM	706.5 - 713.5	4.5533	0.108	20.33	4M55D7W
		256QAM	706.5 - 713.5	4.5392	0.054	17.33	4M54D7W
	10 MHz	QPSK	709.0 - 711.0	9.0199	0.167	22.22	9M02G7W
		16QAM	709.0 - 711.0	9.0330	0.132	21.21	9M03D7W
		64QAM	709.0 - 711.0	9.0393	0.106	20.26	9M04D7W
		256QAM	709.0 - 711.0	9.0213	0.055	17.38	9M02D7W
LTE Band 13	5 MHz	QPSK	779.5 - 784.5	4.5540	0.208	23.18	4M55G7W
		16QAM	779.5 - 784.5	4.5577	0.166	22.21	4M56D7W
		64QAM	779.5 - 784.5	4.5537	0.134	21.28	4M55D7W
		256QAM	779.5 - 784.5	4.5554	0.069	18.38	4M56D7W
	10 MHz	QPSK	782.0	9.0060	0.193	22.86	9M01G7W
		16QAM	782.0	9.0127	0.165	22.18	9M01D7W
		64QAM	782.0	9.0160	0.134	21.28	9M02D7W
		256QAM	782.0	9.0202	0.063	17.99	9M02D7W

Overview Table (<1GHz Band)

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	OBW [MHz]	ERP		Emission Designator
					Max. Power [W]	Max. Power [dBm]	
NR Band n71	5 MHz	π/2 BPSK	665.5 - 695.5	4.4413	0.180	22.55	4M44G7W
		QPSK	665.5 - 695.5	4.4621	0.179	22.54	4M46G7W
		16QAM	665.5 - 695.5	4.4820	0.143	21.55	4M48D7W
		64QAM	665.5 - 695.5	4.4898	0.114	20.58	4M49D7W
		256QAM	665.5 - 695.5	4.4811	0.058	17.62	4M48D7W
	10 MHz	π/2 BPSK	668.0 - 693.0	8.9610	0.180	22.55	8M96G7W
		QPSK	668.0 - 693.0	9.2623	0.170	22.30	9M26G7W
		16QAM	668.0 - 693.0	9.2861	0.144	21.57	9M29D7W
		64QAM	668.0 - 693.0	9.3056	0.113	20.53	9M31D7W
		256QAM	668.0 - 693.0	9.3005	0.058	17.65	9M30D7W
	15 MHz	π/2 BPSK	670.5 - 690.5	13.3590	0.179	22.53	13M4G7W
		QPSK	670.5 - 690.5	14.0718	0.180	22.55	14M1G7W
		16QAM	670.5 - 690.5	14.1249	0.142	21.53	14M1D7W
		64QAM	670.5 - 690.5	14.1282	0.112	20.50	14M1D7W
		256QAM	670.5 - 690.5	14.0850	0.058	17.64	14M1D7W
	20 MHz	π/2 BPSK	673.0 - 688.0	17.8823	0.178	22.51	17M9G7W
		QPSK	673.0 - 688.0	18.8950	0.180	22.55	18M9G7W
		16QAM	673.0 - 688.0	18.9063	0.144	21.57	18M9D7W
		64QAM	673.0 - 688.0	18.9679	0.113	20.54	19M0D7W
		256QAM	673.0 - 688.0	18.9067	0.058	17.65	18M9D7W
NR Band n12	5 MHz	π/2 BPSK	701.5 - 713.5	4.4710	0.166	22.21	4M47G7W
		QPSK	701.5 - 713.5	4.4846	0.168	22.25	4M48G7W
		16QAM	701.5 - 713.5	4.4763	0.131	21.18	4M48D7W
		64QAM	701.5 - 713.5	4.4755	0.104	20.19	4M48D7W
		256QAM	701.5 - 713.5	4.4860	0.054	17.35	4M49D7W
	10 MHz	π/2 BPSK	704.0 - 711.0	8.9420	0.168	22.25	8M94G7W
		QPSK	704.0 - 711.0	9.2693	0.168	22.25	9M27G7W
		16QAM	704.0 - 711.0	9.3263	0.133	21.23	9M33D7W
		64QAM	704.0 - 711.0	9.3238	0.105	20.22	9M32D7W
		256QAM	704.0 - 711.0	9.2877	0.054	17.33	9M29D7W
	15 MHz	π/2 BPSK	706.5 - 708.5	13.4410	0.168	22.25	13M4G7W
		QPSK	706.5 - 708.5	14.1182	0.165	22.17	14M1G7W
		16QAM	706.5 - 708.5	14.1099	0.133	21.25	14M1D7W
		64QAM	706.5 - 708.5	14.1385	0.107	20.28	14M1D7W
		256QAM	706.5 - 708.5	14.0953	0.055	17.40	14M1D7W

Overview Table (<1GHz Band)

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	OBW [MHz]	PAR at 0.1% [dB]	EIRP		Emission Designator
						Max. Power [W]	Max. Power [dBm]	
WCDMA1700	5 MHz	Spread Spectrum	1712.4 - 1752.6	4.1647	2.87	0.603	27.80	4M16F9W
LTE Band 4	1.4 MHz	QPSK	1710.7 - 1754.3	1.1116	4.97	0.596	27.75	1M11G7W
		16QAM	1710.7 - 1754.3	1.1084	5.76	0.472	26.74	1M11D7W
		64QAM	1710.7 - 1754.3	1.1072	6.51	0.377	25.76	1M11D7W
		256QAM	1710.7 - 1754.3	1.1116	6.82	0.195	22.91	1M11D7W
	3 MHz	QPSK	1711.5 - 1753.5	2.7370	4.64	0.603	27.80	2M74G7W
		16QAM	1711.5 - 1753.5	2.7359	5.68	0.468	26.70	2M74D7W
		64QAM	1711.5 - 1753.5	2.7297	6.44	0.374	25.73	2M73D7W
		256QAM	1711.5 - 1753.5	2.7261	6.66	0.189	22.77	2M73D7W
	5 MHz	QPSK	1712.5 - 1752.5	4.5697	4.86	0.598	27.77	4M57G7W
		16QAM	1712.5 - 1752.5	4.5475	5.85	0.479	26.80	4M55D7W
		64QAM	1712.5 - 1752.5	4.5545	6.43	0.378	25.77	4M55D7W
		256QAM	1712.5 - 1752.5	4.5438	6.63	0.195	22.90	4M54D7W
	10MHz	QPSK	1715.0 - 1750.0	9.0439	4.98	0.603	27.80	9M04G7W
		16QAM	1715.0 - 1750.0	9.0592	5.87	0.474	26.76	9M06D7W
		64QAM	1715.0 - 1750.0	9.0576	6.45	0.380	25.80	9M06D7W
		256QAM	1715.0 - 1750.0	9.0438	6.66	0.186	22.69	9M04D7W
	15 MHz	QPSK	1717.5 - 1747.5	13.5759	5.00	0.603	27.80	13M6G7W
		16QAM	1717.5 - 1747.5	13.5460	5.91	0.481	26.82	13M5D7W
		64QAM	1717.5 - 1747.5	13.5844	6.44	0.367	25.65	13M6D7W
		256QAM	1717.5 - 1747.5	13.5403	6.65	0.195	22.91	13M5D7W
	20 MHz	QPSK	1720.0 - 1745.0	18.0340	4.91	0.603	27.80	18M0G7W
		16QAM	1720.0 - 1745.0	18.0819	5.86	0.476	26.78	18M1D7W
		64QAM	1720.0 - 1745.0	18.0447	6.43	0.381	25.81	18M0D7W
		256QAM	1720.0 - 1745.0	18.0409	6.67	0.194	22.88	18M0D7W
LTE Band 66	1.4 MHz	QPSK	1710.7 - 1779.3	1.1116	5.05	0.600	27.78	1M11G7W
		16QAM	1710.7 - 1779.3	1.1084	5.85	0.468	26.70	1M11D7W
		64QAM	1710.7 - 1779.3	1.1072	6.51	0.377	25.76	1M11D7W
		256QAM	1710.7 - 1779.3	1.1116	6.74	0.193	22.85	1M11D7W
	3 MHz	QPSK	1711.5 - 1778.5	2.7370	4.70	0.603	27.80	2M74G7W
		16QAM	1711.5 - 1778.5	2.7359	5.74	0.480	26.81	2M74D7W
		64QAM	1711.5 - 1778.5	2.7297	6.53	0.378	25.78	2M73D7W
		256QAM	1711.5 - 1778.5	2.7261	6.74	0.195	22.89	2M73D7W
	5 MHz	QPSK	1712.5 - 1777.5	4.5697	4.94	0.575	27.60	4M57G7W
		16QAM	1712.5 - 1777.5	4.5475	5.89	0.476	26.78	4M55D7W
		64QAM	1712.5 - 1777.5	4.5545	6.54	0.369	25.67	4M55D7W
		256QAM	1712.5 - 1777.5	4.5438	6.71	0.195	22.90	4M54D7W
	10 MHz	QPSK	1715.0 - 1775.0	9.0439	5.05	0.603	27.80	9M04G7W
		16QAM	1715.0 - 1775.0	9.0592	5.92	0.468	26.70	9M06D7W
		64QAM	1715.0 - 1775.0	9.0576	6.50	0.376	25.75	9M06D7W
		256QAM	1715.0 - 1775.0	9.0438	6.72	0.194	22.87	9M04D7W
	15 MHz	QPSK	1717.5 - 1772.5	13.5759	5.03	0.603	27.80	13M6G7W
		16QAM	1717.5 - 1772.5	13.5460	5.94	0.475	26.77	13M5D7W
		64QAM	1717.5 - 1772.5	13.5844	6.49	0.371	25.69	13M6D7W
		256QAM	1717.5 - 1772.5	13.5403	6.73	0.193	22.86	13M5D7W
	20 MHz	QPSK	1720.0 - 1770.0	18.0340	4.91	0.603	27.80	18M0G7W
		16QAM	1720.0 - 1770.0	18.0819	5.90	0.479	26.80	18M1D7W
		64QAM	1720.0 - 1770.0	18.0447	6.49	0.373	25.72	18M0D7W
		256QAM	1720.0 - 1770.0	18.0409	6.72	0.195	22.90	18M0D7W

Overview Table (>1GHz Bands)

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	OBW [MHz]	PAR at 0.1% [dB]	EIRP		Emission Designator
						Max. Power [W]	Max. Power [dBm]	
NR Band n66	5 MHz	π/2 BPSK	1712.5 - 1777.5	4.4654	4.05	0.603	27.80	4M47G7W
		QPSK	1712.5 - 1777.5	4.4425	5.37	0.598	27.77	4M44G7W
		16QAM	1712.5 - 1777.5	4.4613	6.56	0.478	26.79	4M46D7W
		64QAM	1712.5 - 1777.5	4.5173	6.55	0.380	25.80	4M52D7W
		256QAM	1712.5 - 1777.5	4.4636	6.49	0.197	22.94	4M46D7W
	10 MHz	π/2 BPSK	1715.0 - 1775.0	8.9626	4.32	0.603	27.80	8M96G7W
		QPSK	1715.0 - 1775.0	9.3152	5.52	0.603	27.80	9M32G7W
		16QAM	1715.0 - 1775.0	9.3310	6.28	0.478	26.79	9M33D7W
		64QAM	1715.0 - 1775.0	9.3302	6.63	0.380	25.80	9M33D7W
		256QAM	1715.0 - 1775.0	9.2964	6.71	0.191	22.81	9M30D7W
	15 MHz	π/2 BPSK	1717.5 - 1772.5	13.3774	4.23	0.603	27.80	13M4G7W
		QPSK	1717.5 - 1772.5	14.0918	5.40	0.601	27.79	14M1G7W
		16QAM	1717.5 - 1772.5	14.1799	6.27	0.481	26.82	14M2D7W
		64QAM	1717.5 - 1772.5	14.1375	6.50	0.380	25.80	14M1D7W
		256QAM	1717.5 - 1772.5	14.1330	6.67	0.194	22.87	14M1D7W
	20 MHz	π/2 BPSK	1720.0 - 1770.0	17.9121	4.37	0.598	27.77	17M9G7W
		QPSK	1720.0 - 1770.0	18.9566	5.40	0.603	27.80	19M0G7W
		16QAM	1720.0 - 1770.0	18.9790	6.32	0.478	26.79	19M0D7W
		64QAM	1720.0 - 1770.0	18.9351	6.54	0.377	25.76	18M9D7W
		256QAM	1720.0 - 1770.0	18.9670	6.77	0.195	22.90	19M0D7W
	25 MHz	π/2 BPSK	1722.5 - 1767.5	22.8866	4.18	0.603	27.80	22M9G7W
		QPSK	1722.5 - 1767.5	23.8024	5.21	0.603	27.80	23M8G7W
		16QAM	1722.5 - 1767.5	23.8497	6.24	0.486	26.87	23M8D7W
		64QAM	1722.5 - 1767.5	23.8076	6.47	0.389	25.90	23M8D7W
		256QAM	1722.5 - 1767.5	23.7161	6.58	0.195	22.89	23M7D7W
	30 MHz	π/2 BPSK	1725.0 - 1765.0	28.6130	4.29	0.597	27.76	28M6G7W
		QPSK	1725.0 - 1765.0	28.5757	5.35	0.603	27.80	28M6G7W
		16QAM	1725.0 - 1765.0	28.6449	6.29	0.475	26.77	28M6D7W
		64QAM	1725.0 - 1765.0	28.6744	6.44	0.379	25.79	28M7D7W
		256QAM	1725.0 - 1765.0	28.6431	6.58	0.195	22.90	28M6D7W
	35 MHz	π/2 BPSK	1727.5 - 1762.5	32.2860	4.43	0.603	27.80	32M3G7W
		QPSK	1727.5 - 1762.5	33.6244	5.37	0.592	27.72	33M6G7W
		16QAM	1727.5 - 1762.5	33.6609	6.39	0.481	26.82	33M7D7W
		64QAM	1727.5 - 1762.5	33.6237	6.66	0.382	25.82	33M6D7W
		256QAM	1727.5 - 1762.5	33.7164	6.48	0.194	22.87	33M7D7W
	40 MHz	π/2 BPSK	1730.0 - 1760.0	38.5171	4.24	0.603	27.80	38M5G7W
		QPSK	1730.0 - 1760.0	38.6786	5.22	0.596	27.75	38M7G7W
		16QAM	1730.0 - 1760.0	38.7240	6.34	0.472	26.74	38M7D7W
		64QAM	1730.0 - 1760.0	38.6216	6.69	0.372	25.71	38M6D7W
		256QAM	1730.0 - 1760.0	38.4955	6.53	0.195	22.89	38M5D7W
NR Band n70	5 MHz	π/2 BPSK	1697.5 - 1707.5	4.4992	4.01	0.434	26.37	4M50G7W
		QPSK	1697.5 - 1707.5	4.4566	5.36	0.437	26.40	4M46G7W
		16QAM	1697.5 - 1707.5	4.4575	6.41	0.334	25.24	4M46D7W
		64QAM	1697.5 - 1707.5	4.4846	6.59	0.270	24.32	4M48D7W
		256QAM	1697.5 - 1707.5	4.4552	6.77	0.141	21.49	4M46D7W
	10 MHz	π/2 BPSK	1700.0 - 1705.0	8.9692	4.26	0.437	26.40	8M97G7W
		QPSK	1700.0 - 1705.0	9.3413	5.56	0.435	26.38	9M34G7W
		16QAM	1700.0 - 1705.0	9.2652	6.30	0.345	25.38	9M27D7W
		64QAM	1700.0 - 1705.0	9.3449	6.67	0.275	24.40	9M34D7W
		256QAM	1700.0 - 1705.0	9.2777	7.06	0.141	21.49	9M28D7W
	15 MHz	π/2 BPSK	1702.5	13.4348	4.17	0.433	26.36	13M4G7W
		QPSK	1702.5	14.1567	5.41	0.423	26.26	14M2G7W
		16QAM	1702.5	14.1285	6.32	0.344	25.37	14M1D7W
		64QAM	1702.5	14.0970	6.64	0.275	24.40	14M1D7W
		256QAM	1702.5	14.1230	6.83	0.127	21.04	14M1D7W

Overview Table (>1GHz Bands)

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 Materials Technology Test Location

These measurement tests were conducted at the Element Materials Technology facility located at 18855 Adams Court, Morgan Hill, CA 95037. The measurement facility is 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 Materials Technology

- Element Materials Technology is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.02 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 Materials Technology 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 Materials Technology facility is a registered (22831) 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 Agreements (MRAs).

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Apple Tablet Device FCC ID: BCGA3355**. 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.: M323DRYF34, G52L73WFXX, LN9DXV6D7V, H9HHAF0006K0000VYP, H9HH8N0000N0000VYR

2.2 Device Capabilities

This device contains the following capabilities:

850/1700/1900 WCDMA/HSPA, Multi-band LTE, 5G NR (FR1), 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII, Bluetooth (1x, EDR, LE1M, LE2M, HDR4, HDR8)

This device supports BT Beamforming

This device supports simultaneous transmission operations, which allows for multiple transmitters to transmit simultaneously on the same antenna. The table below shows all configurations possible.

Antenna	Simultaneous Tx Config	Bluetooth 2.4GHz	WLAN	WIFI 5GHz	LTE / FR1 NR		
		BDR, EDR, HDR4/8, LE1/2M	802.11 b/g/n/ax	802.11 a/n/ac/ax	LB	MB/HB	Ultra High Band
Ant 3a	Config 1	✓	×	✓	×	✓	×
Ant 3a	Config 2	✓	×	✓	×	×	×
Ant 3a	Config 3	×	✓	×	×	✓	×
Ant 1a	Config 4	✓	×	×	×	×	✓
Ant 1a	Config 5	×	✓	×	×	×	✓
Ant 1b	Config 6	×	×	✓	×	✓	×

Table 2-1. Simultaneous Transmission Configurations

✓ = Support; × = Not Support

Note:

All the above simultaneous transmission configurations have been tested and the worst-case configuration was found to be Config 1 and reported in RF Bluetooth, RF UNII OFDM, and RF FCC Part 27b test reports.

Specific 2.4GHz Wi-Fi antenna that can only transmit simultaneously with 2.4GHz Bluetooth antenna is listed in the SAR test report. For BT (2.4GHz), in both connected and disconnected modes, and Wi-Fi (2.4GHz) - Wi-Fi max power will not exceed minimum of (13.5dBm, SAR max cap, Reg max cap) power. Bluetooth can simultaneously transmit with IEEE 802.11a/n/ac/ax 5GHz on separate antenna.

2.3 Antenna Description

The following antenna gains provided by the manufacturer were used for testing.

Band	Antenna Gain [dBi]				
	Antenna 4	Antenna 3b	Antenna 2b	Antenna 3a	Antenna 1b
LTE Band 12/17	-1.3	-2.9	×	×	×
NR Band 12					
LTE Band 13	-0.3	-2.7	×	×	×
LTE Band 4/66	2.1	×	-2.5	-0.2	-0.8
NR Band n66					
WCDMA1700					
LTE Band 71	-1.0	-2.9	×	×	×
NR Band n71					
NR Band 70	0.7	×	-3.5	-1.5	-2.4

Table 2-2. Highest Antenna Gains

× = Not Support

2.4 Test Support Equipment

1	Apple MacBook Pro	Model:	A2141	S/N:	C02H604EQ05D
	w/AC/DC Adapter	Model:	A2166	S/N:	C4H042705ZNPM0WA6
2	Apple USB-C Cable	Model:	Spartan	S/N:	GXK1336018XKTR024
3	USB-C Cable	Model:	A246C	S/N:	DWH80115BK826GV19
	w/ AC Adapter	Model:	A2305	S/N:	C4H95160004PF4F4V
4	DC Power Supply	Model:	KPS3010D	S/N:	N/A

Table 2-3. Test Support Equipment

2.5 Test Configuration

The EUT was tested per the guidance of ANSI C63.26 2015, TIA-603-E-2016 and KDB 971168 D01 v03r01. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

For emissions from 1GHz – 18GHz, low, mid, and high channels were tested with highest power and worst case configuration. The emissions below 1GHz and above 18GHz were tested with the highest transmitting power and the worst case channel.

The EUT was manipulated through three orthogonal planes of X-orientation (flatbed), Y-orientation (landscape), and Z-orientation (portrait) during the testing. Only the worst case emissions were reported in this test report.

2.6 Software and Firmware

The test was conducted with firmware version 22D8 installed on the EUT.

2.7 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 documents titled “American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services” (ANSI C63.26-2015 and TIA-603-E-2016) and “Procedures for Compliance Measurement of the Fundamental Emission Power of Licensed Wideband (> 1 MHz) Digital Transmission Systems” (KDB 971168 D01 v03r01) 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 and calculations, conversion method is used per the formulas in KDB 971168 Section 5.8.4. 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

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

All radiated measurements are performed in a chamber that meets the site requirements per ANSI C63.4-2014.

Per KDB 414788 D01 v01r01, radiated emission test sites other than open-field test sites (e.g., shielded anechoic chambers), may be employed for emission measurements below 30MHz if characterized so that the measurements correspond to those obtained at an open-field test site. To determine test site equivalency, a reference sample transmitting at 149kHz was measured on an open field test site (asphalt with no ground plane) and then measured in the 3m semi-anechoic chamber. A calibrated 60cm loop antenna was used while the reference device was rotated through the X, Y and Z axis in order to capture the worst case level. A maximum deviation of 2.77dB at 149kHz was measured when comparing the 3 meter semi-anechoic chamber to the open field site.

Radiated spurious emission levels are investigated with the receive antenna horizontally and vertically polarized per ANSI C63.26-2015 and TIA-603-E-2016.

4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.23-2012. 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	2.07
Radiated Disturbance (<30MHz)	4.12
Radiated Disturbance (30MHz-1GHz)	4.85
Radiated Disturbance (1-18GHz)	5.08
Radiated Disturbance (>18GHz)	5.22

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
ATM	180-442A-KF	20dB Nominal Gain Horn Antenna	3/14/2024	Annual	3/14/2025	T058701-01
ESPEC	SU-241	Tabletop Temperature Chamber	10/24/2024	Annual	10/24/2025	92009574
ETS-Lindgren	3117	Double Ridged Guide Antenna (1-18 GHz)	4/9/2024	Annual	4/9/2025	00218555
Fairview Microwave/MCL	FMCA1975-36/BW-K10-2W44+	30MHz-40GHz RF Cable/Attenuator *	6/10/2024	Annual	6/10/2025	-
Fairview Microwave	M2CP1122-10	RF Directional Coupler *	6/10/2024	Annual	6/10/2025	1946
Keysight Technology	N9040B	UXA Signal Analyzer	5/28/2024	Annual	5/28/2025	MY57212015
Rohde & Schwarz	FSW67	Signal and Spectrum Analyzer (2Hz-67GHz)	7/5/2024	Annual	7/5/2025	101366
Rohde & Schwarz	TS-PR18	Pre-Amplifier (1GHz - 18GHz)	3/1/2024	Annual	3/1/2025	102143
Rohde & Schwarz	FSV40	Signal Analyzer (10Hz-40GHz)	5/29/2024	Annual	5/29/2025	101619
Rohde & Schwarz	ESW44	EMI Test Receiver	5/1/2024	Annual	5/1/2025	101867
Rohde & Schwarz	TS-PR8	Pre-Amplifier (30MHz - 8GHz)	7/3/2024	Annual	7/3/2025	102356
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	12/27/2023	Annual	12/27/2024	164715
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	10/21/2024	Annual	10/21/2025	187423
Rohde & Schwarz	TS-PR1840	Pre-Amplifier (18GHz - 40GHz)	6/10/2024	Annual	6/10/2025	100057
Rohde & Schwarz	HFH2-Z2	Loop Antenna	6/21/2024	Annual	6/21/2025	100519
Rohde & Schwarz	ENV216	Two-Line V-Network	4/24/2024	Annual	4/24/2025	101364
Schwarzbeck	VULB 9162	Bilog Antenna (30MHz - 6GHz)	4/29/2024	Annual	4/29/2025	00304

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. * denotes passive equipment that have been internally verified/calibrated.

6.0 SAMPLE CALCULATIONS

Emission Designator

WCDMA Emission Designator

Emission Designator = 4M16F9W
WCDMA BW = 4.16 MHz
F = Frequency Modulation
9 = Composite Digital Info
W = Combination (Audio/Data)

π/2 BPSK / QPSK Modulation

Emission Designator = 8M62G7W
BW = 8.62 MHz
G = Phase Modulation
7 = Quantized/Digital Info
W = Combination of Any

QAM Modulation

Emission Designator = 8M45D7W
LTE BW = 8.45 MHz
D = Amplitude/Angle Modulated
7 = Quantized/Digital Info
W = Combination of Any

Spurious Radiated Emission

Example: Middle Channel LTE Mode 2nd Harmonic (1564 MHz)

The average 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 analzyer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 1564 MHz. So 6.1 dB is added to the signal generator reading of –30.9 dBm yielding –24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm – (-24.80).

7.0 TEST RESULTS

7.1 Summary

Company Name: Apple Inc.

FCC ID: BCGA3355

FCC Classification: PCS Licensed Transmitter (PCB)

Mode(s): WCDMA/LTE/NR

Test Condition	Test Description	FCC Part Section(s)	Test Limit	Test Result	Reference
CONDUCTED	Occupied Bandwidth	2.1049	N/A	N/A	Section 7.2
	Conducted Band Edge / Spurious Emissions	2.1051, 27.53	-13 dBm at Band Edge and for all out-of-band emissions	PASS	Sections 7.3, 7.4
	Conducted Band Edge / Spurious Emissions (LTE Band 13)	2.1051, 27.53	-13 dBm at Band Edge and for all out-of-band emissions < -70 dBW/MHz (for wideband signals) < -80 dBW (for discrete emissions less than 700Hz BW) For all emissions in the band 1559 - 1610 MHz	PASS	Sections 7.3, 7.4
	Peak-Average Ratio	27.50(d)(5)	< 13 dB	PASS	Section 7.5
	Transmitter Conducted Output Power	2.1046	N/A	N/A	See RF Exposure Report
	Frequency Stability	2.1055, 27.54	Fundamental emissions stay within authorized frequency block over the temperature and voltage range as tested	PASS	Section 7.8
	Effective Radiated Power / Equivalent Isotropic Radiated Power (LTE Band 71)	27.50(b)(10)	< 3 Watts max. ERP	PASS	Section 7.6
	Effective Radiated Power / Equivalent Isotropic Radiated Power (NR Band n71)			PASS	Section 7.6
	Effective Radiated Power / Equivalent Isotropic Radiated Power (LTE Band 12/17)			PASS	Section 7.6
	Effective Radiated Power / Equivalent Isotropic Radiated Power (NR Band 12)			PASS	Section 7.6
	Effective Radiated Power / Equivalent Isotropic Radiated Power (LTE Band 13)	27.50(c)(10)	< 3 Watts max. ERP	PASS	Section 7.6
	Equivalent Isotropic Radiated Power (WCDMA)	27.50(d)(4)	< 1 Watts max. EIRP	PASS	Section 7.6
	Equivalent Isotropic Radiated Power (NR Band n66)			PASS	Section 7.6
	Equivalent Isotropic Radiated Power (LTE Band 4/66)			PASS	Section 7.6
	Equivalent Isotropic Radiated Power (NR Band n70)			PASS	Section 7.6
RADIATED	Radiated Spurious Emissions (LTE Band 13)	2.1053, 27.53(f)	-13 dBm for all out-of-band emissions < -70 dBW/MHz (for wideband signals) < -80 dBW (for discrete emissions less than 700Hz BW) For all emissions in the band 1559 - 1610 MHz	PASS	Section 7.7
	Radiated Spurious Emissions	2.1053, 27.53	-13 dBm for all out-of-band emissions	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 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 ports 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 Element EMC Software Tool v1.1.

5. For radiated spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is Element "Chamber Automation," Version 3.1.0.

7.2 Occupied Bandwidth

§2.1049

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. All ports were tested and only the worst case data were reported.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 4.2

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.

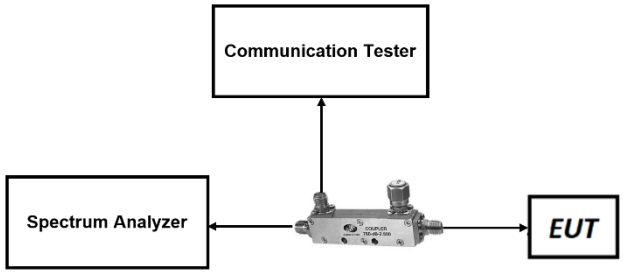


Figure 7-1. LTE Test Instrument & Measurement Setup

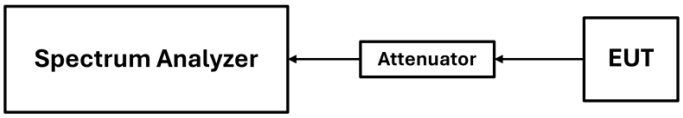


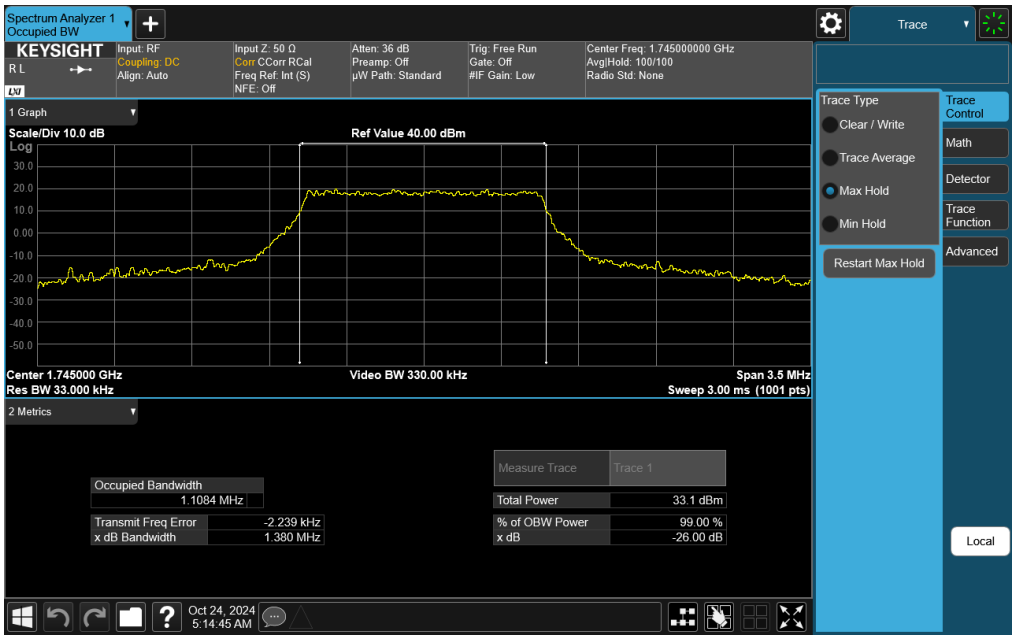
Figure 7-2. FR1 Test Instrument & Measurement Setup

Test Notes

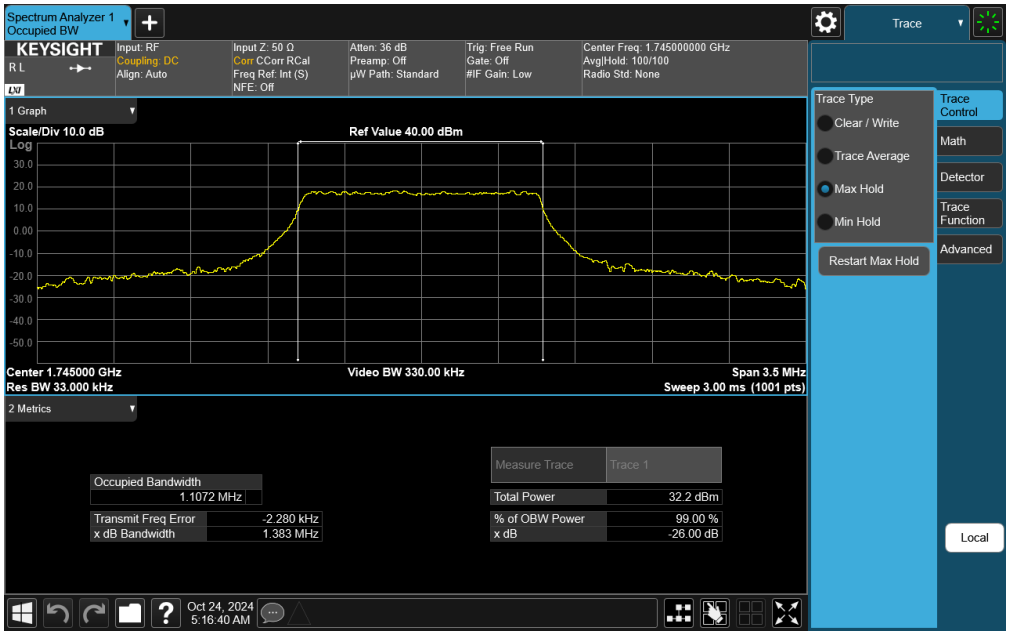
None.

LTE Band 66/4

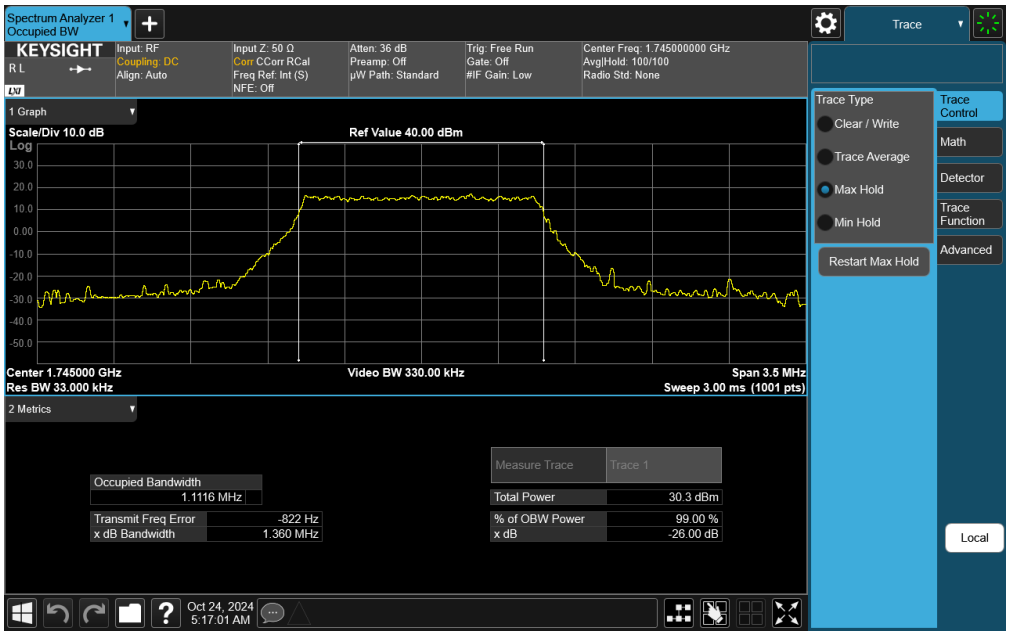
Plot 7-1. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz QPSK - Full RB)



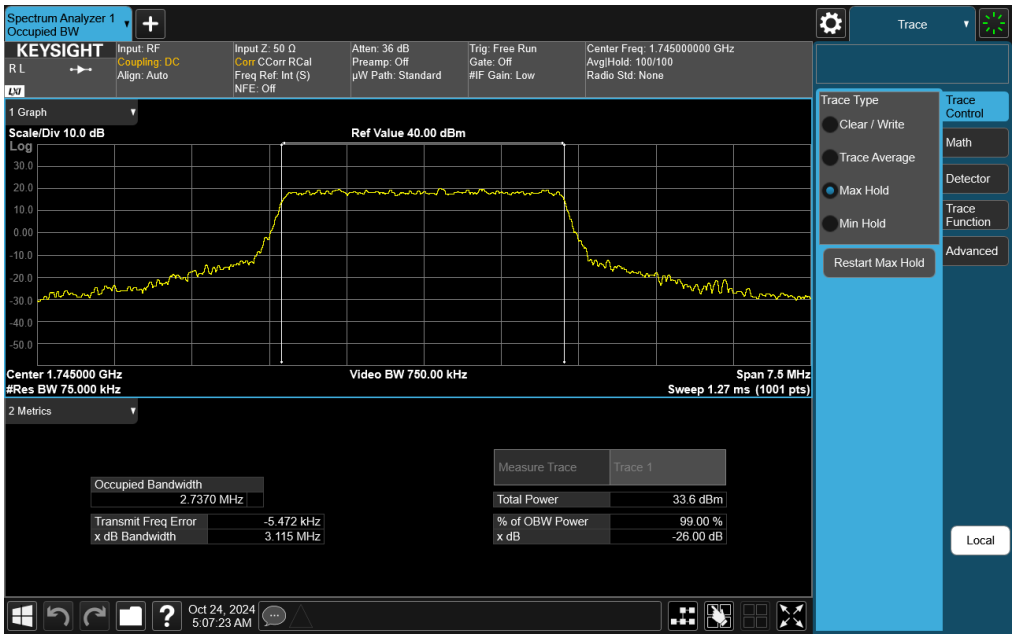
Plot 7-2. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz 16-QAM - Full RB)



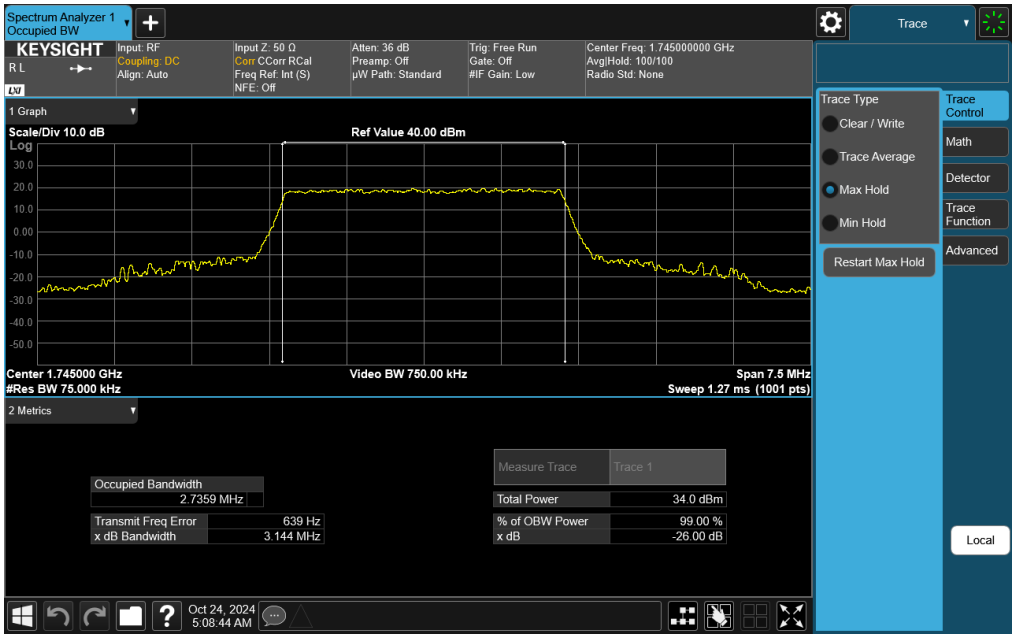
Plot 7-3. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz 64-QAM - Full RB)



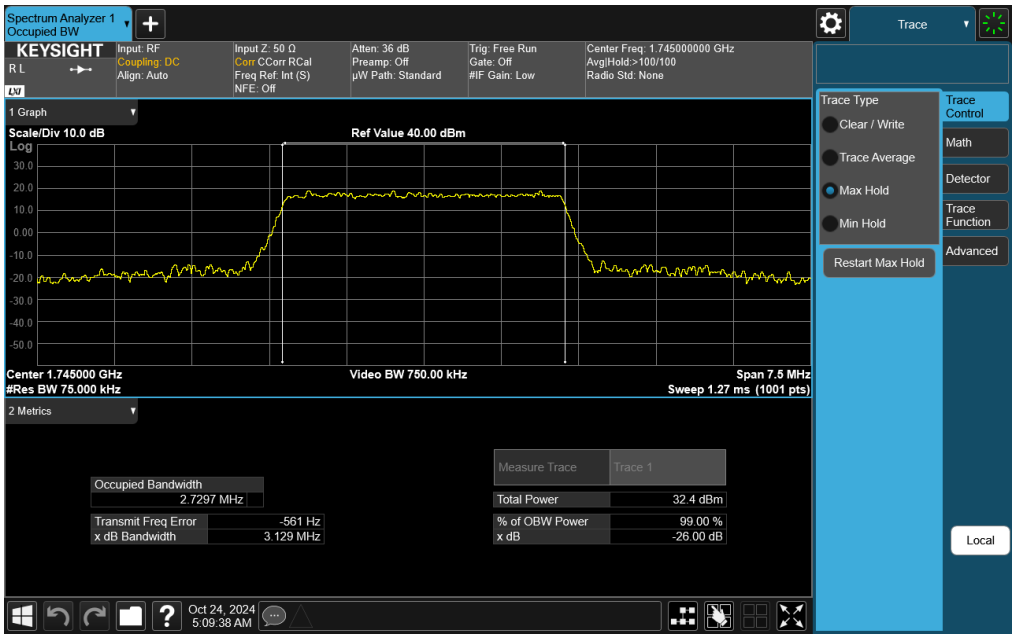
Plot 7-4. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz 256-QAM - Full RB)



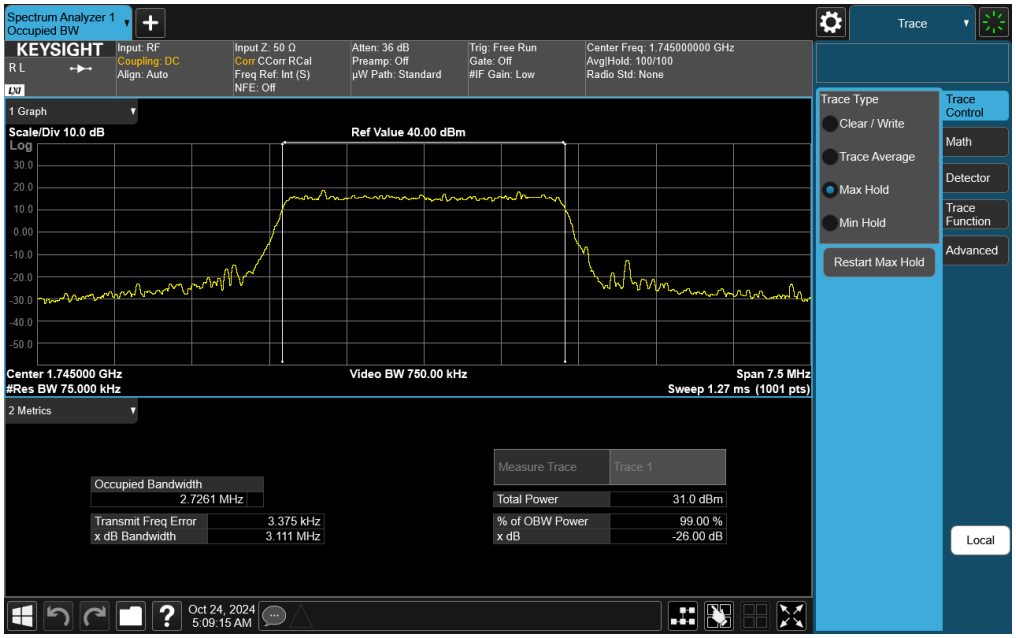
Plot 7-5. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz QPSK - Full RB)



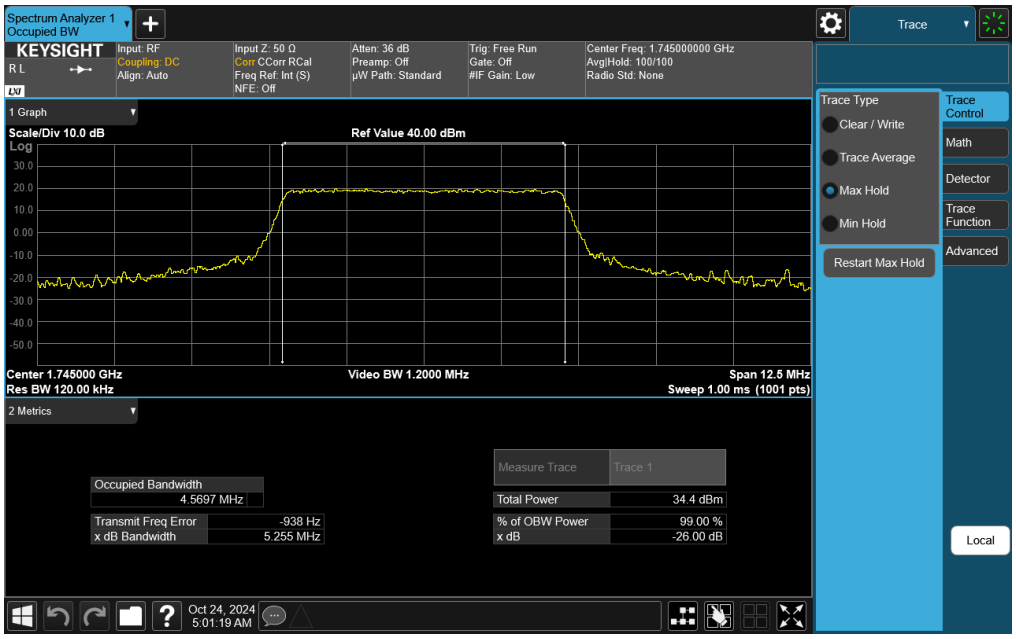
Plot 7-6. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz 16-QAM - Full RB)



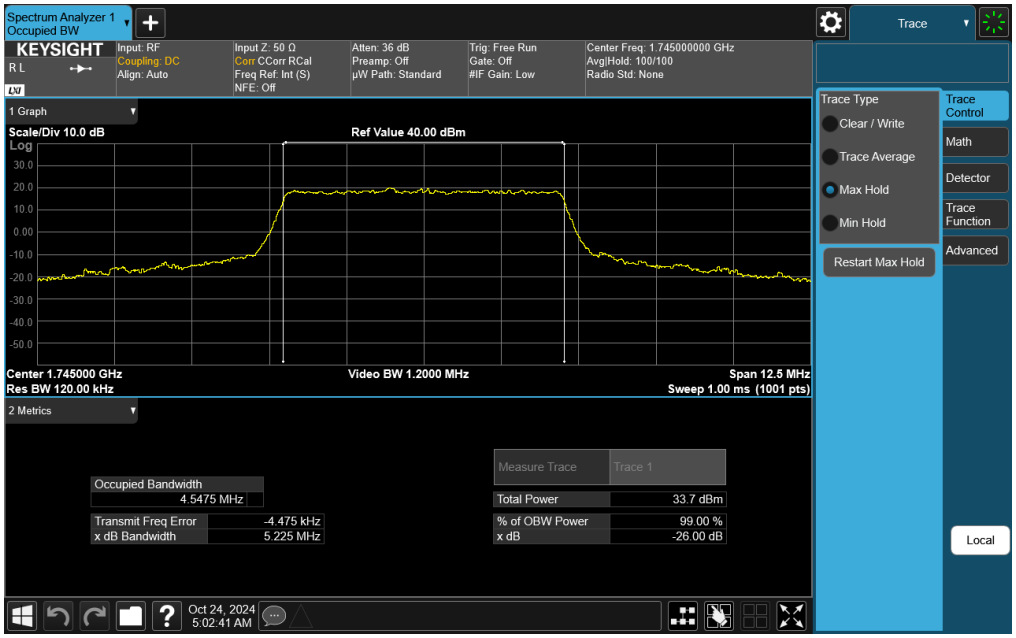
Plot 7-7. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz 64-QAM - Full RB)



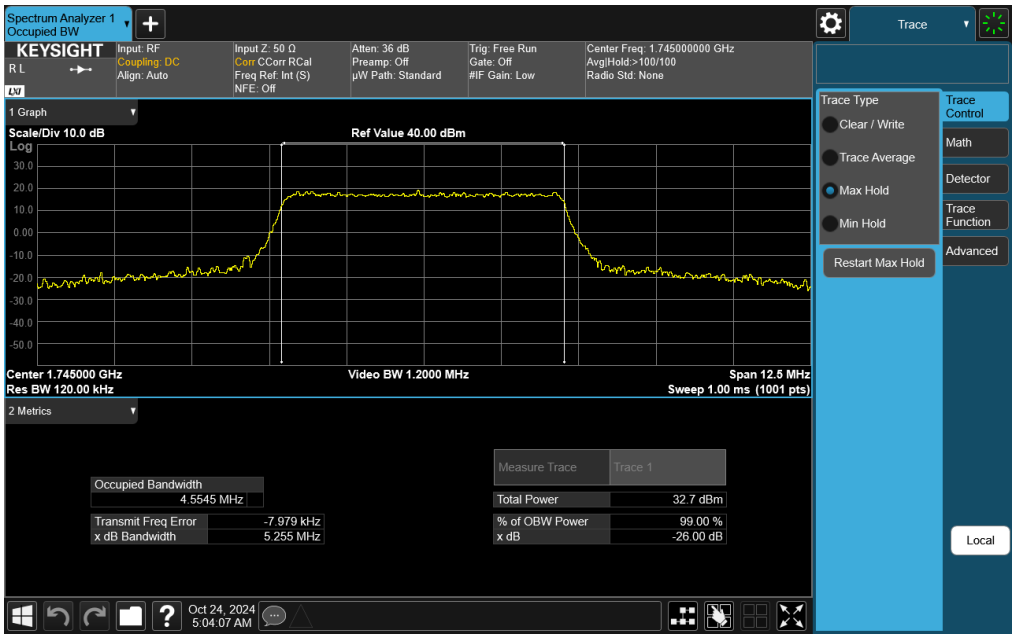
32Plot 7-8. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz 256-QAM - Full RB)



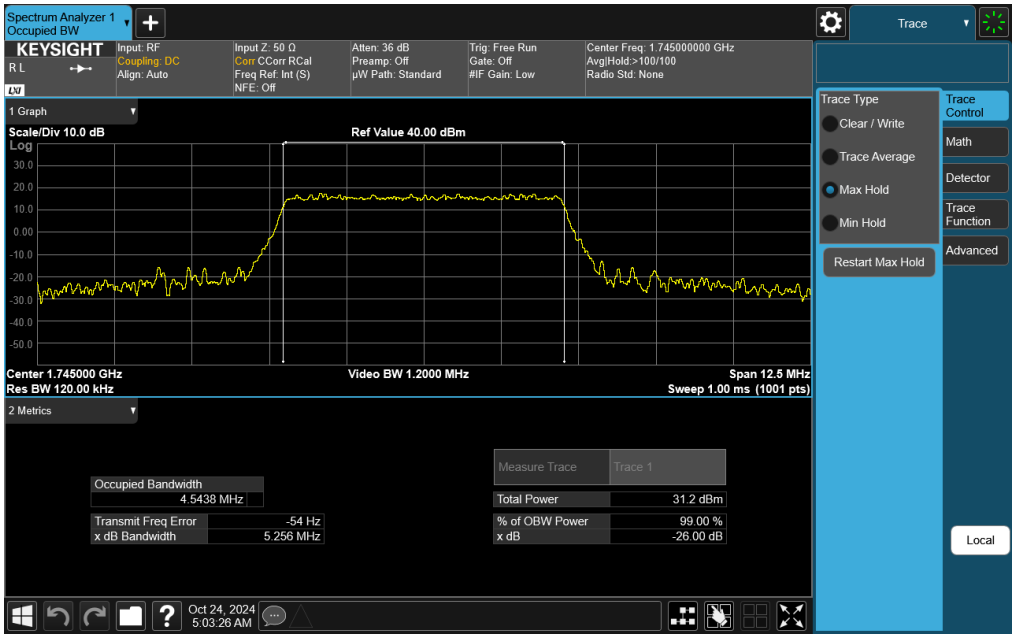
Plot 7-9. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz QPSK - Full RB)



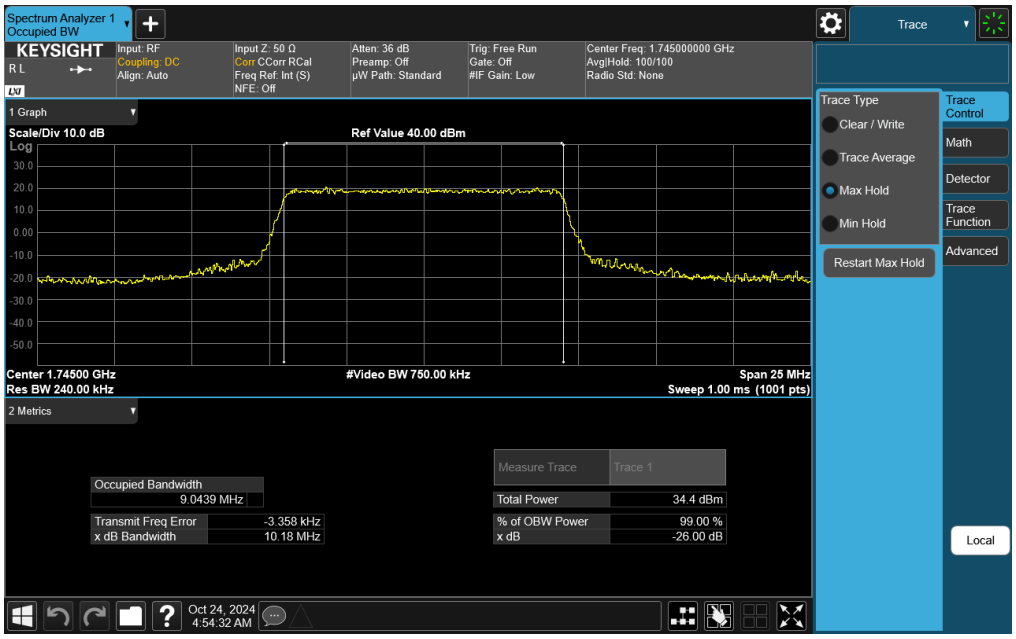
Plot 7-10. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz 16-QAM - Full RB)



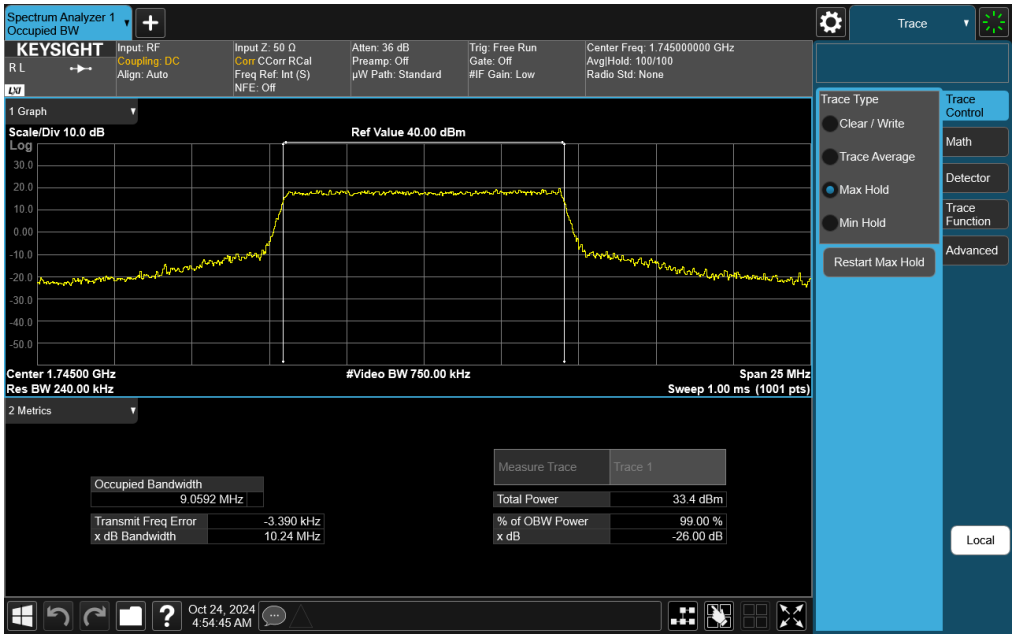
Plot 7-11. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz 64-QAM - Full RB)



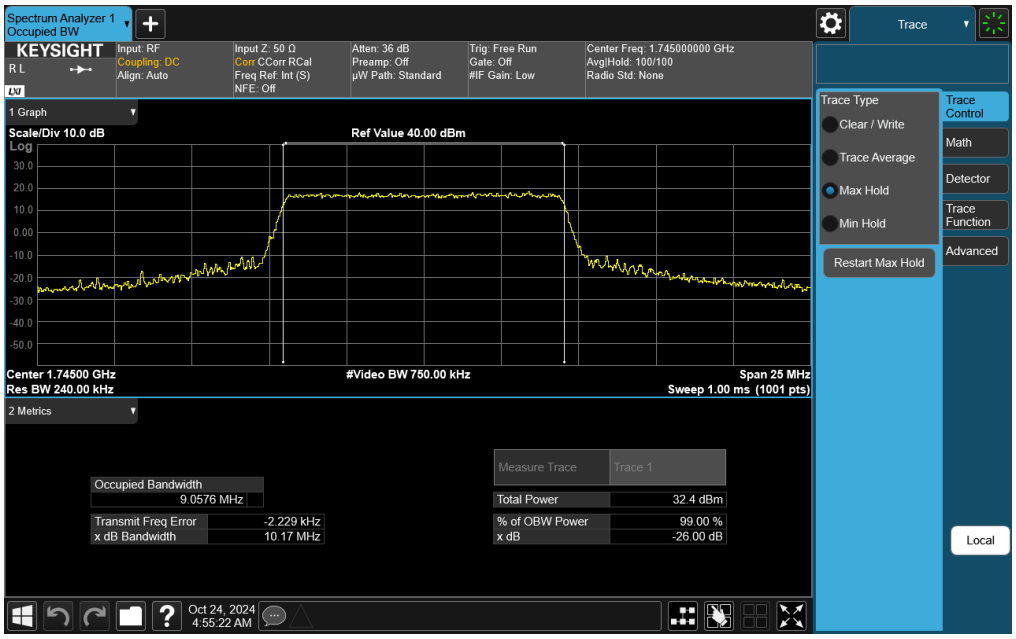
Plot 7-12. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz 256-QAM - Full RB)



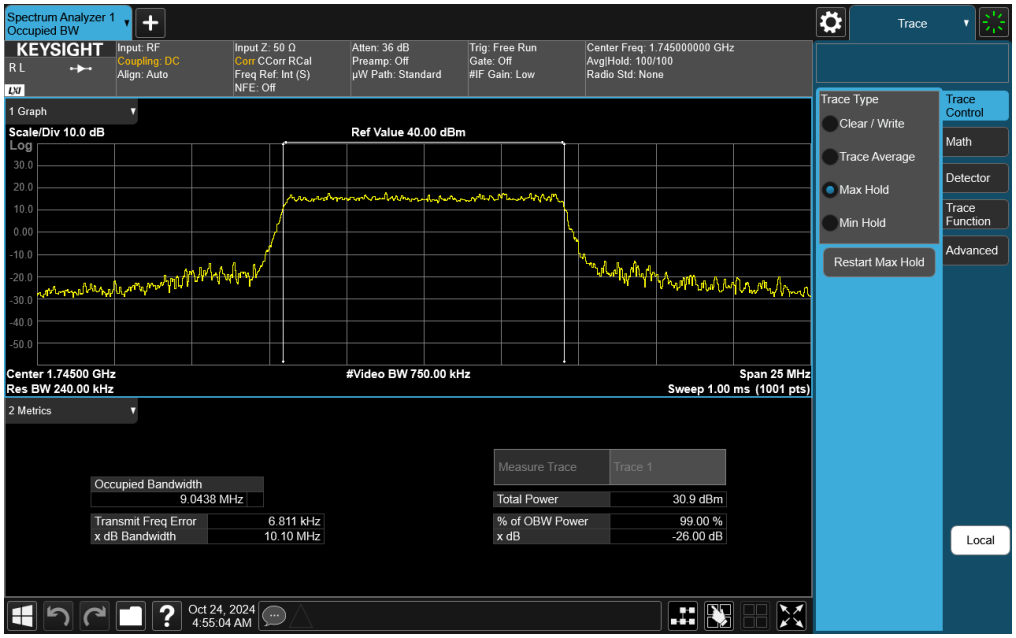
Plot 7-13. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz QPSK - Full RB)



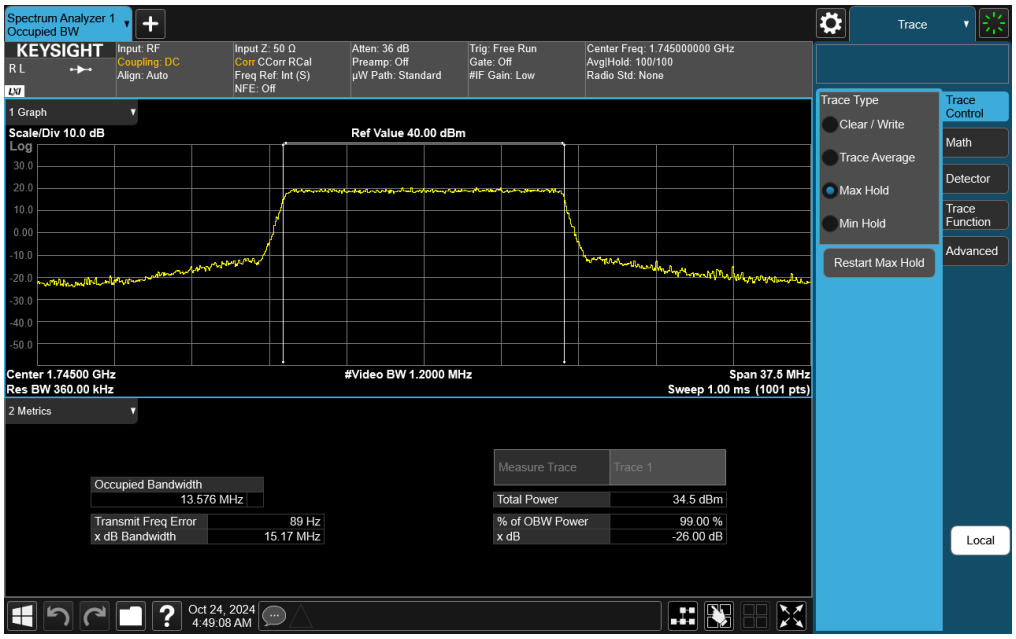
Plot 7-14. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz 16-QAM - Full RB)



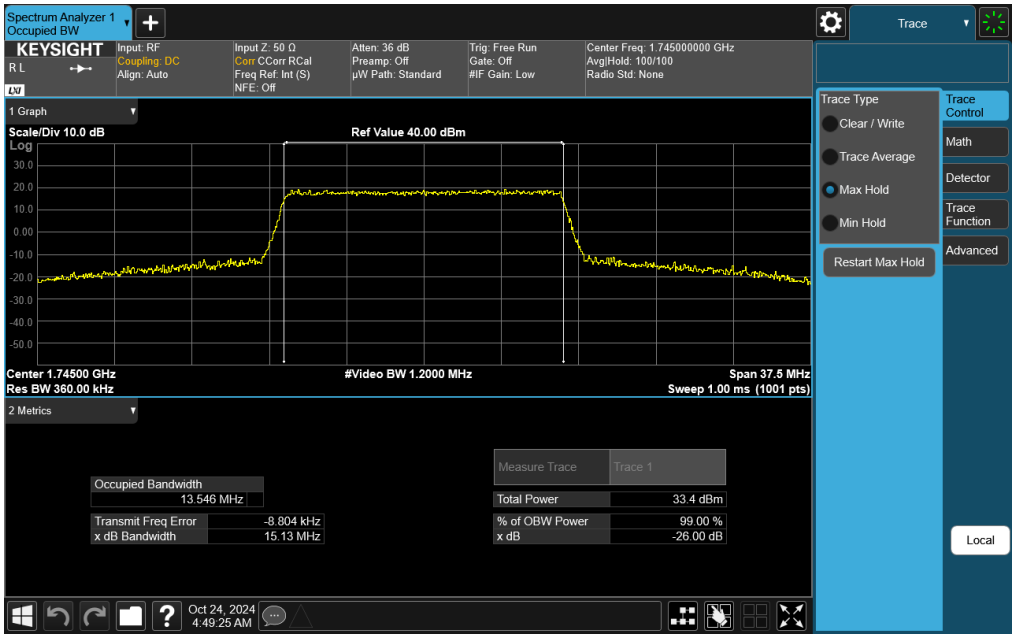
Plot 7-15. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz 64-QAM - Full RB)



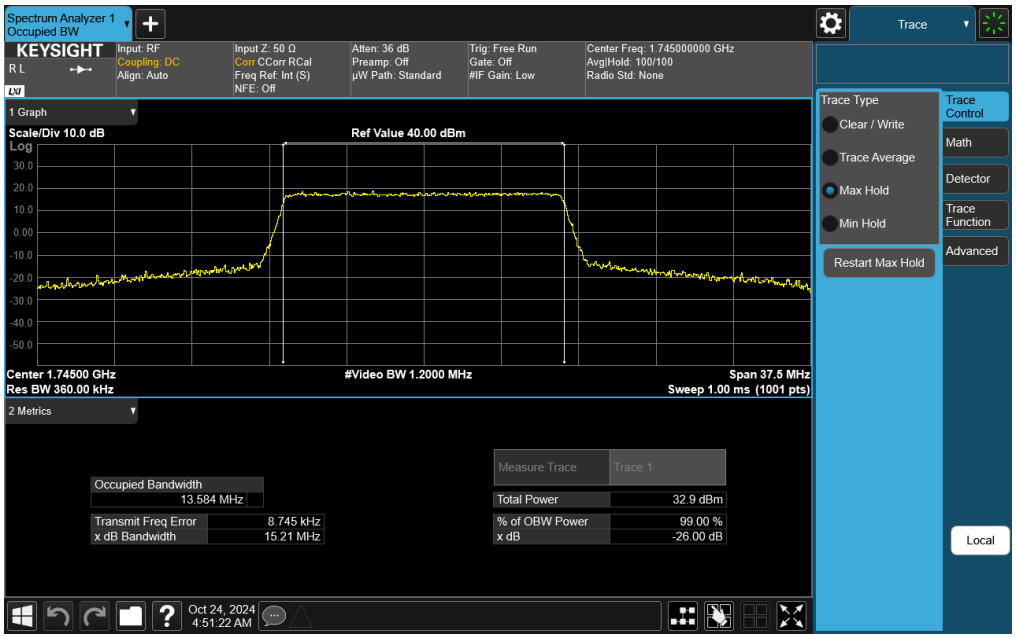
Plot 7-16. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz 256-QAM - Full RB)



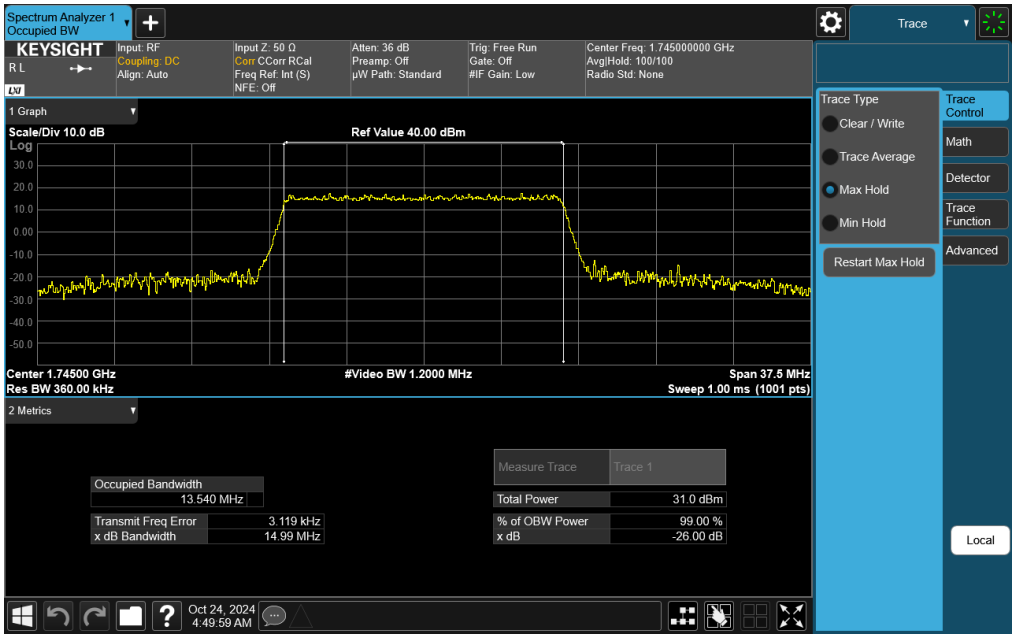
Plot 7-17. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz QPSK - Full RB)



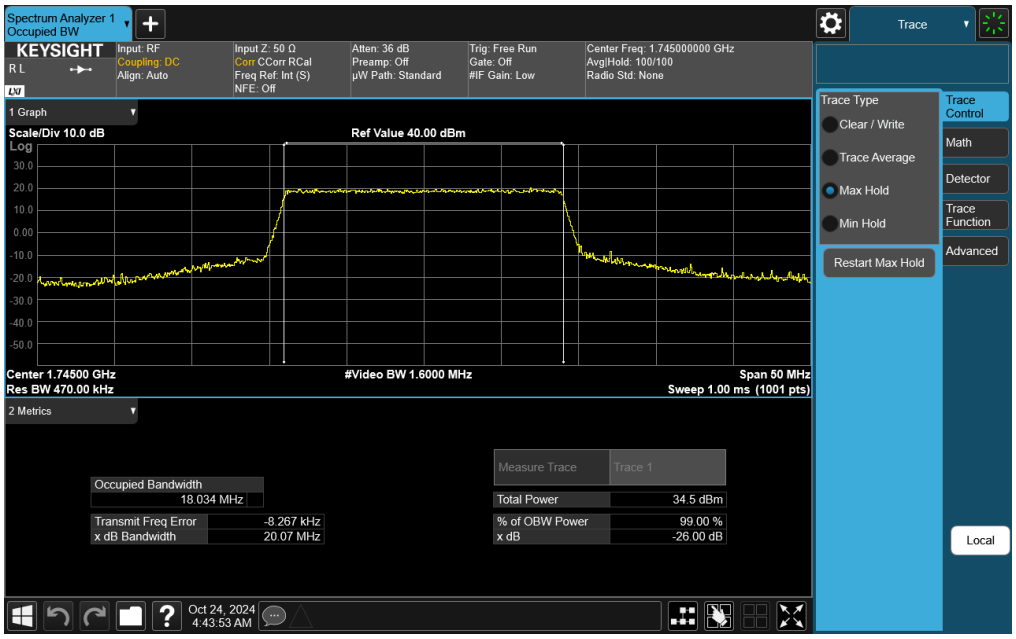
Plot 7-18. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz 16-QAM - Full RB)



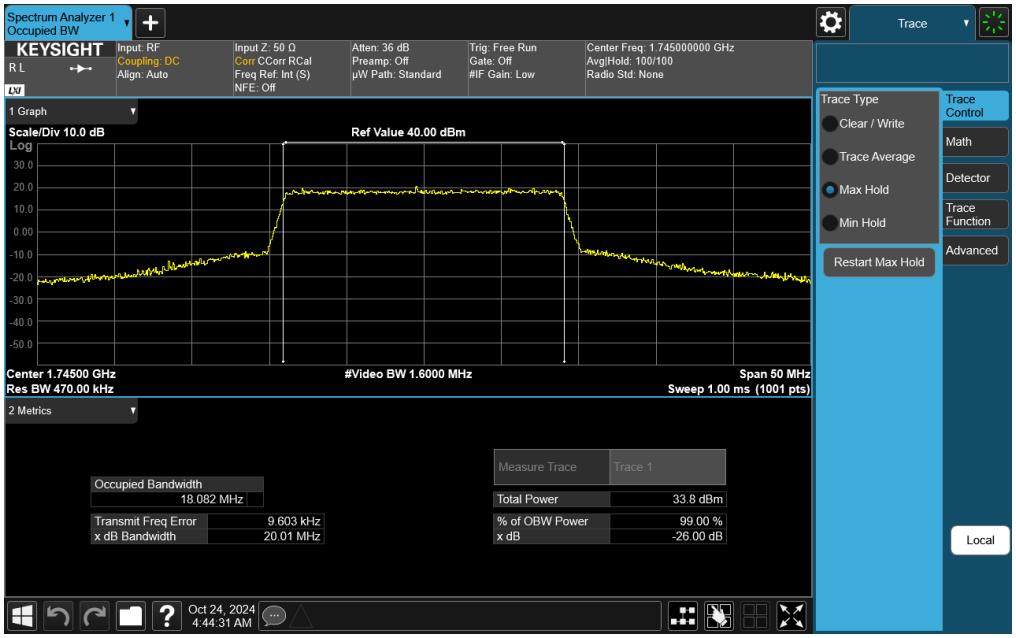
Plot 7-19. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz 64-QAM - Full RB)



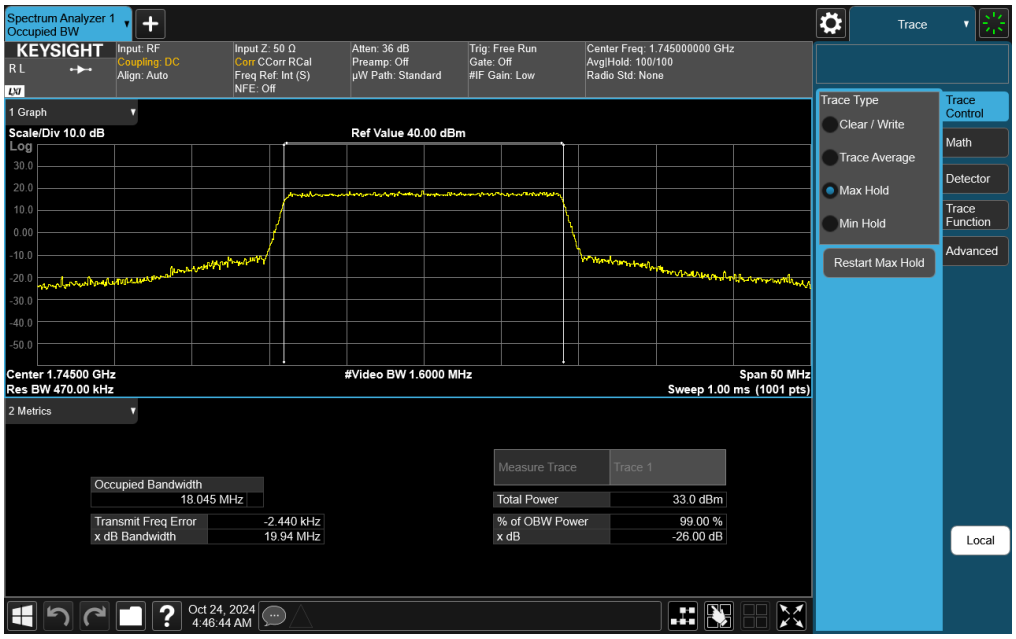
Plot 7-20. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz 256-QAM - Full RB)



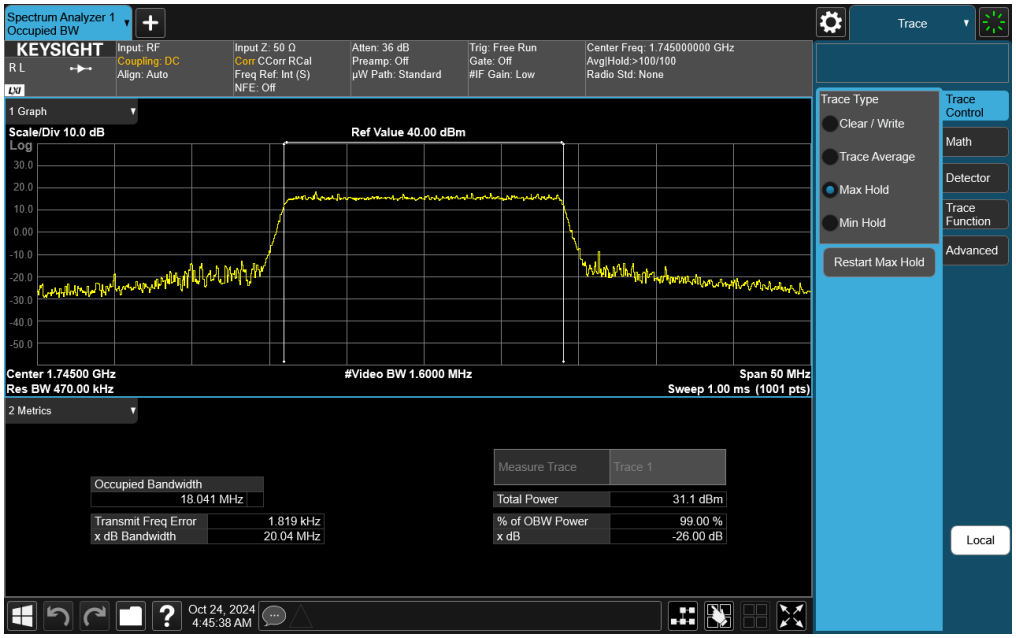
Plot 7-21. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz QPSK - Full RB)



Plot 7-22. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz 16-QAM - Full RB)

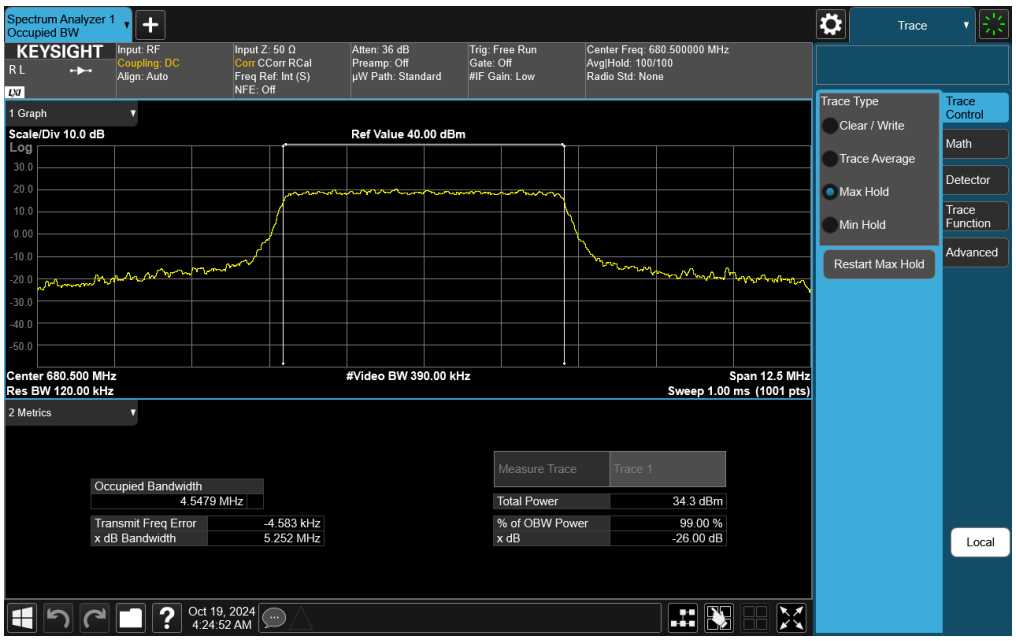


Plot 7-23. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz 64-QAM - Full RB)

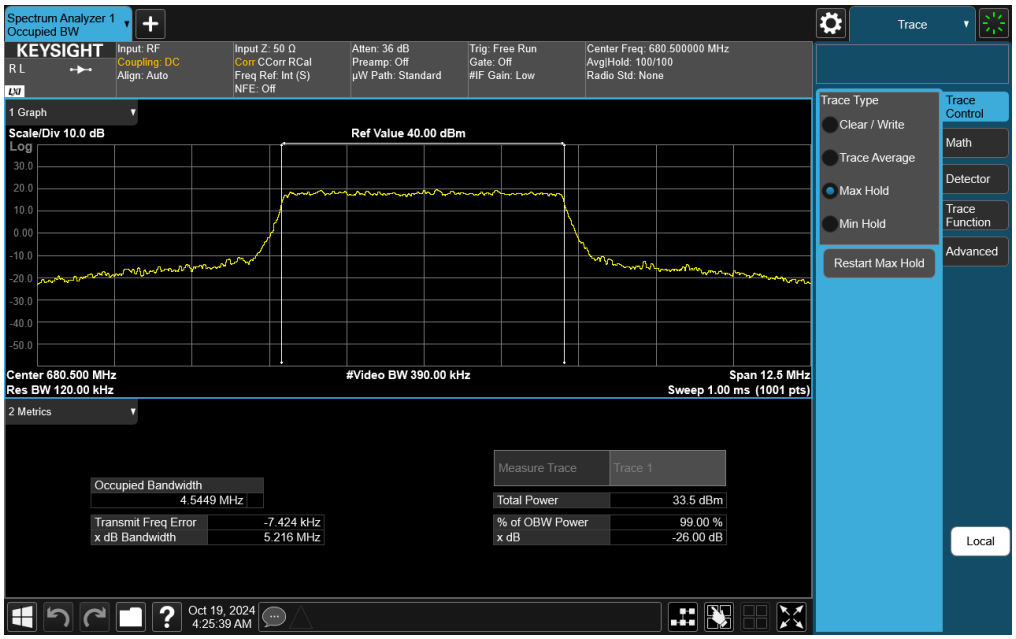


Plot 7-24. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz 256-QAM - Full RB)

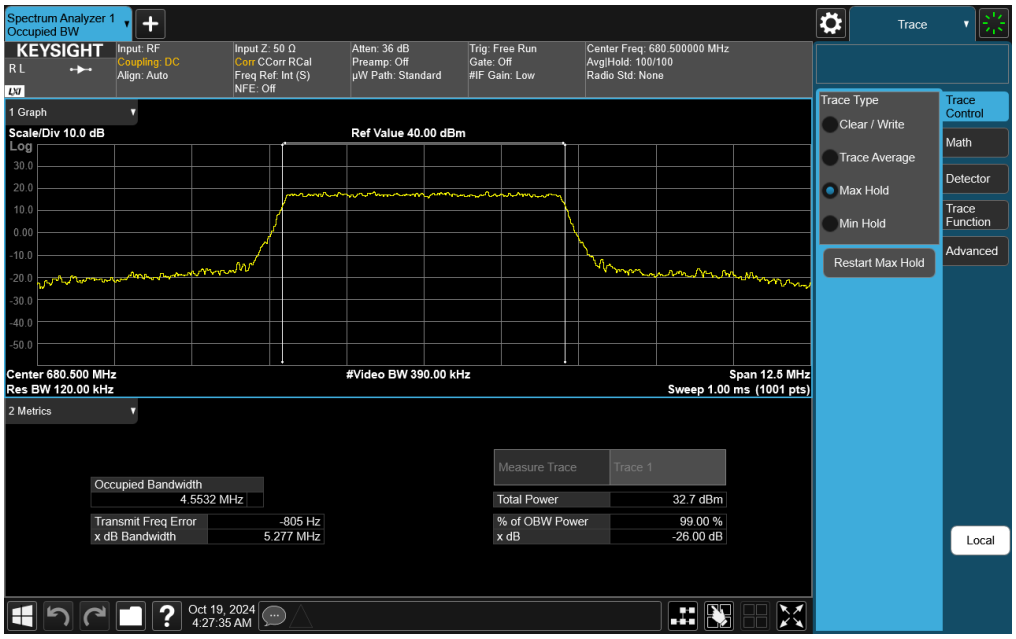
LTE Band 71



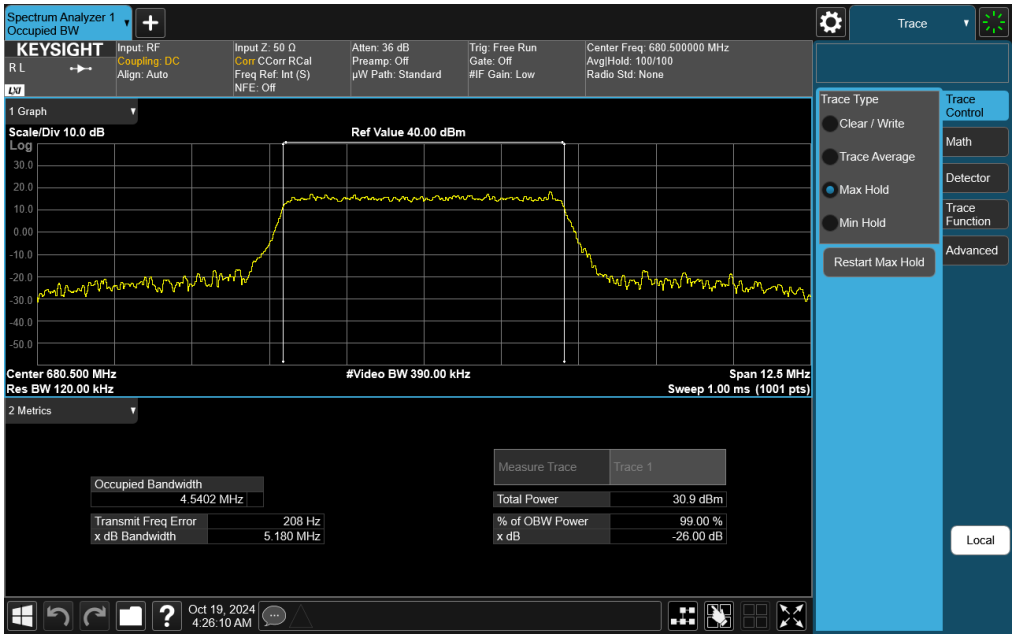
Plot 7-25. Occupied Bandwidth Plot (LTE Band 71 - 5MHz QPSK - Full RB)



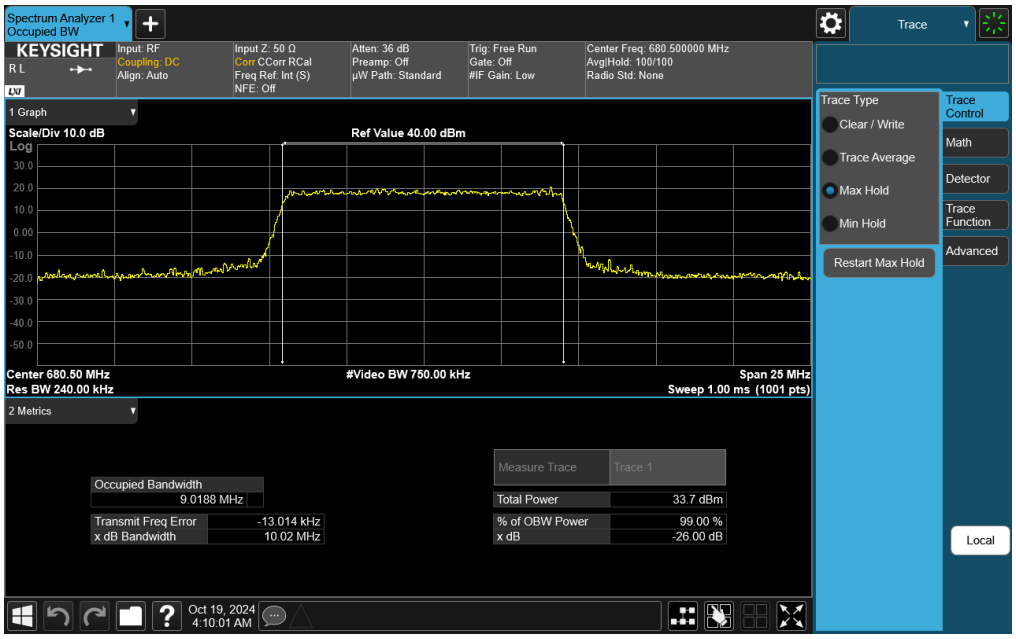
Plot 7-26. Occupied Bandwidth Plot (LTE Band 71 - 5MHz 16-QAM - Full RB)



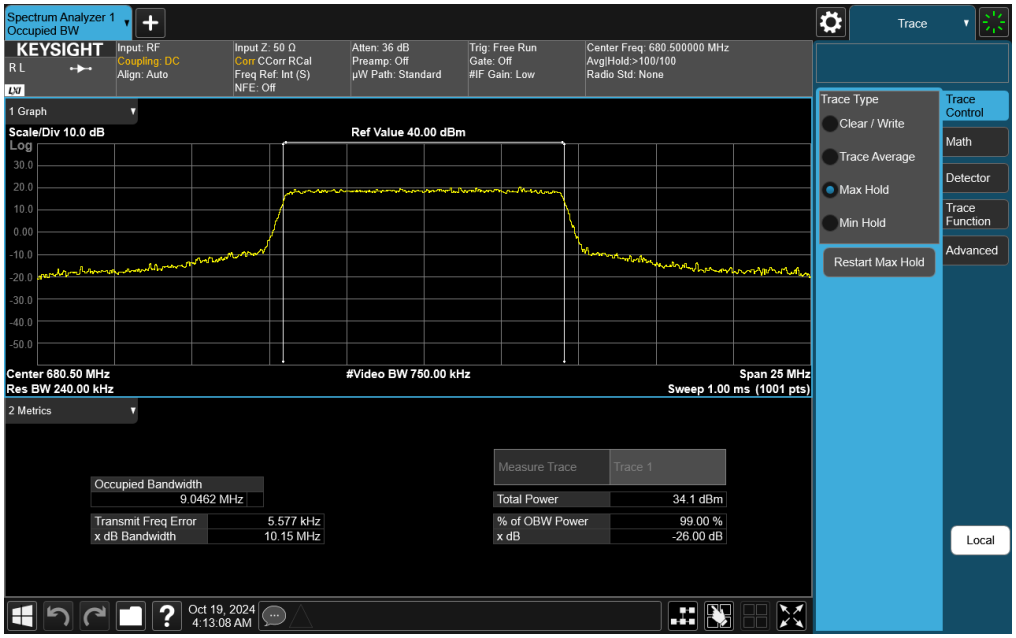
Plot 7-27. Occupied Bandwidth Plot (LTE Band 71 - 5MHz 64-QAM - Full RB)



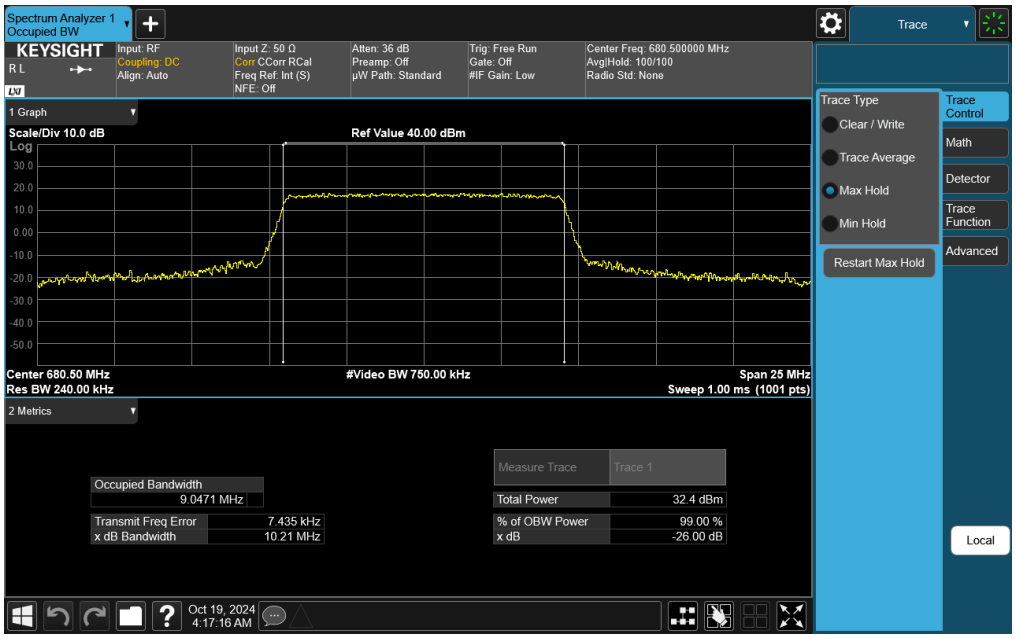
Plot 7-28. Occupied Bandwidth Plot (LTE Band 71 - 5MHz 256-QAM - Full RB)



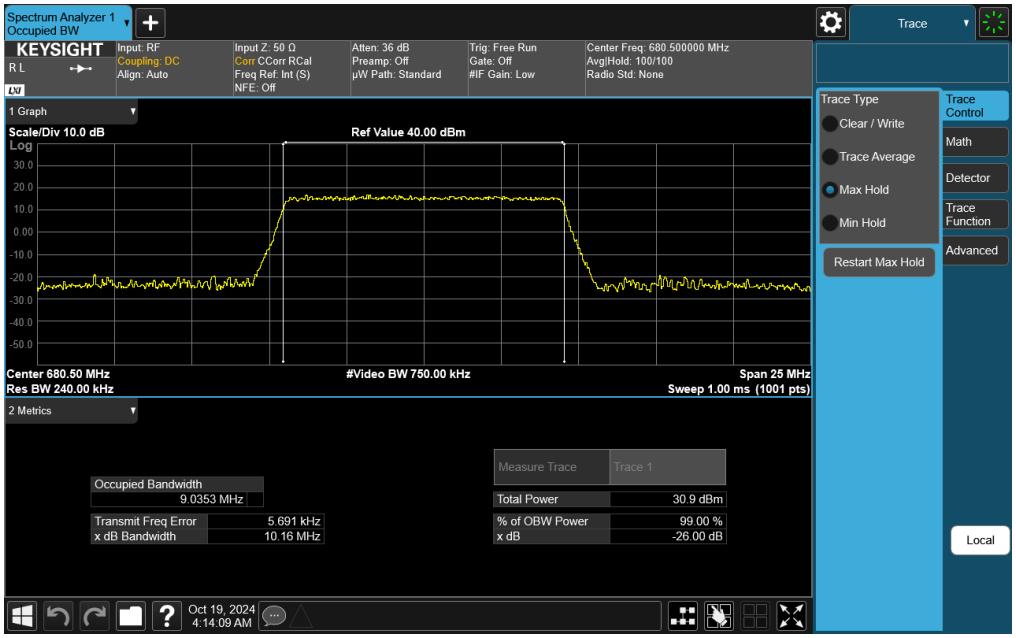
Plot 7-29. Occupied Bandwidth Plot (LTE Band 71 - 10MHz QPSK - Full RB)



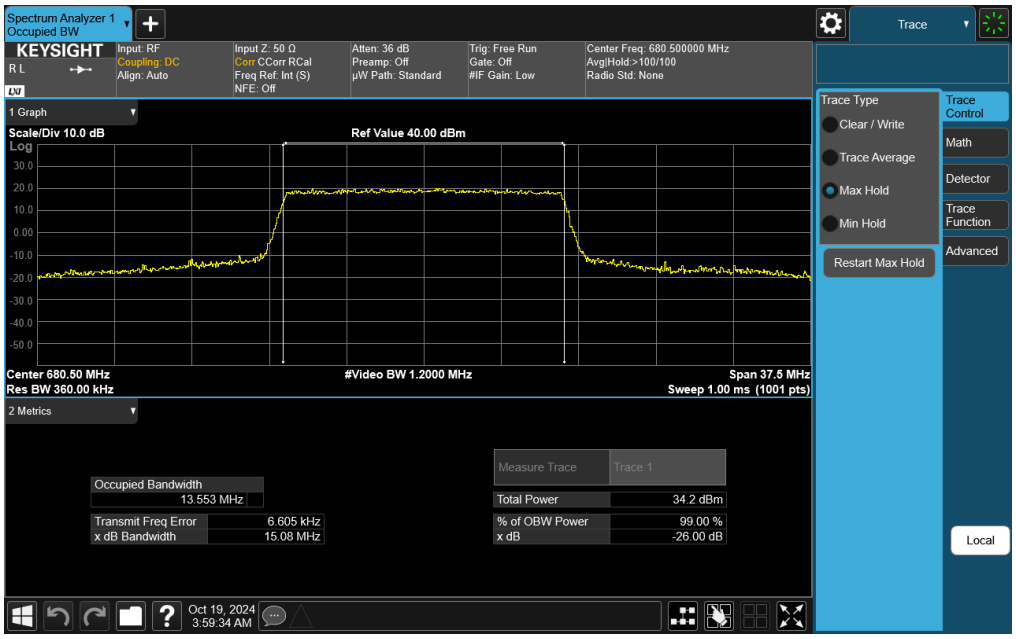
Plot 7-30. Occupied Bandwidth Plot (LTE Band 71 - 10MHz 16-QAM - Full RB)



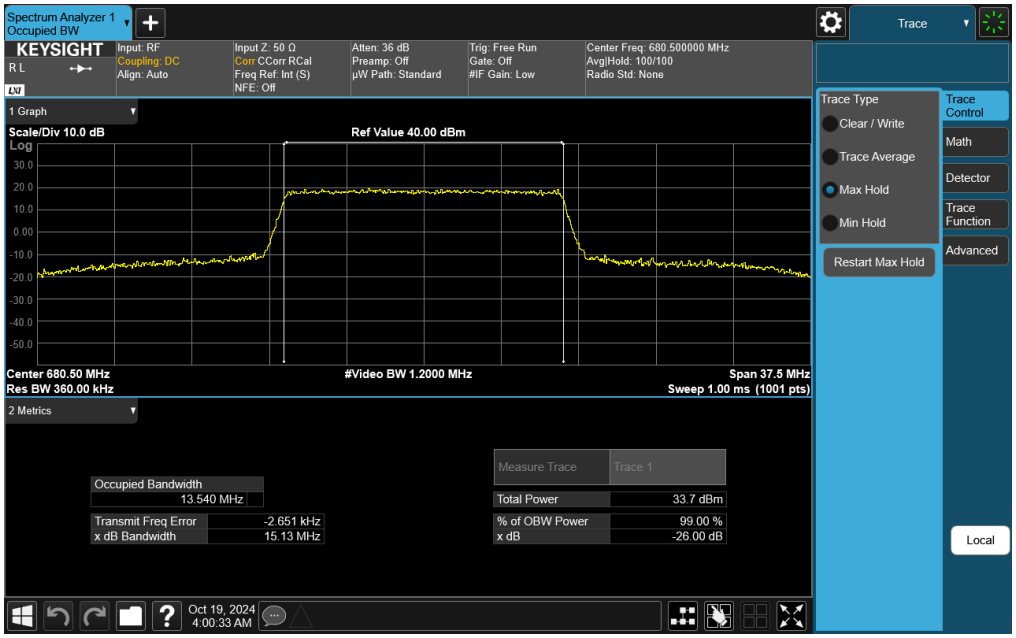
Plot 7-31. Occupied Bandwidth Plot (LTE Band 71 - 10MHz 64-QAM - Full RB)



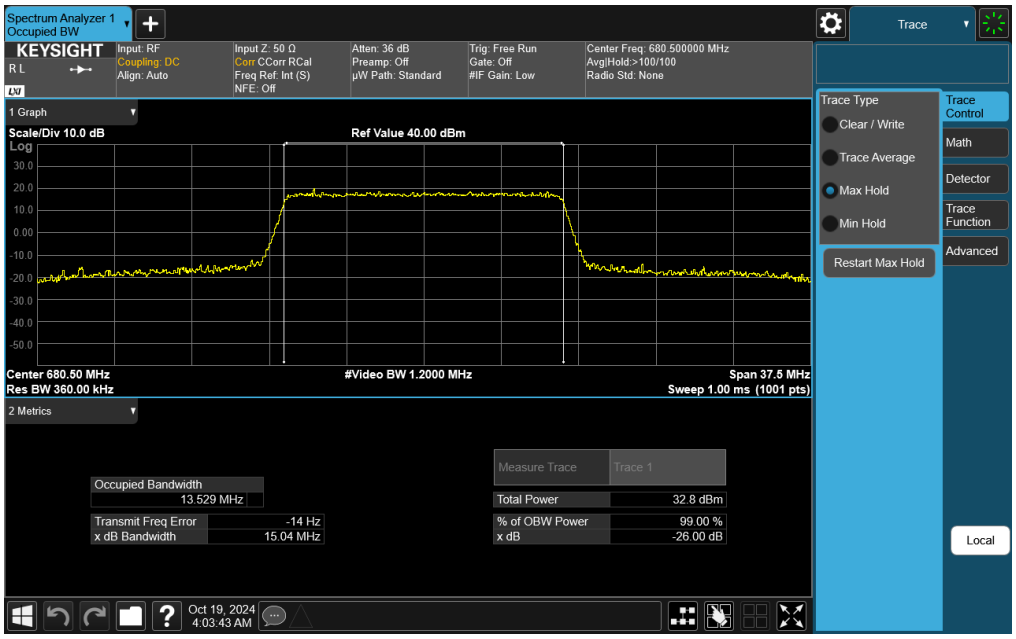
Plot 7-32. Occupied Bandwidth Plot (LTE Band 71 - 10MHz 256-QAM - Full RB)



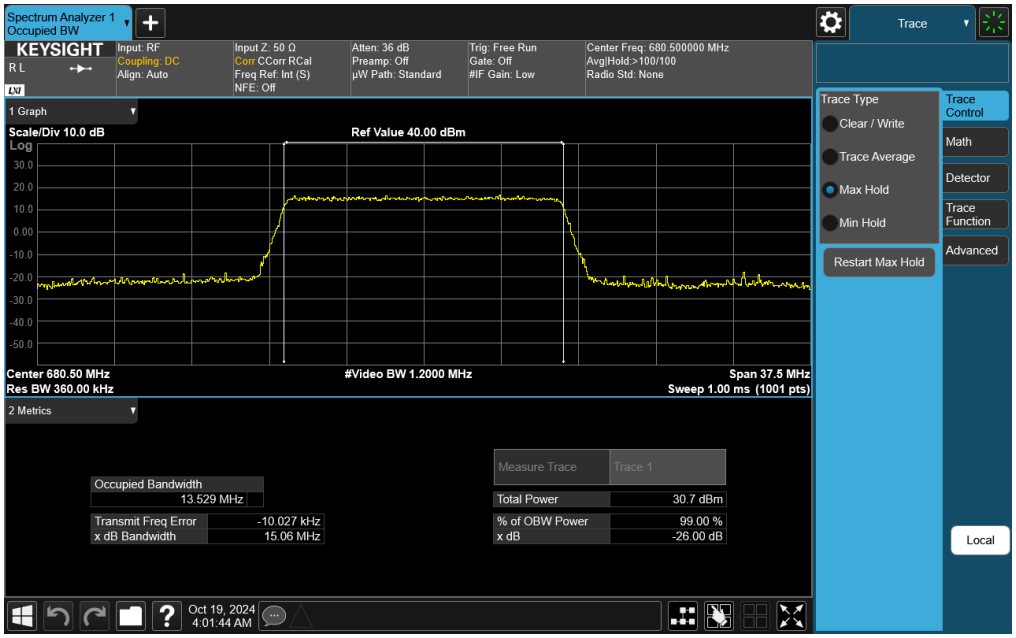
Plot 7-33. Occupied Bandwidth Plot (LTE Band 71 - 15MHz QPSK - Full RB)



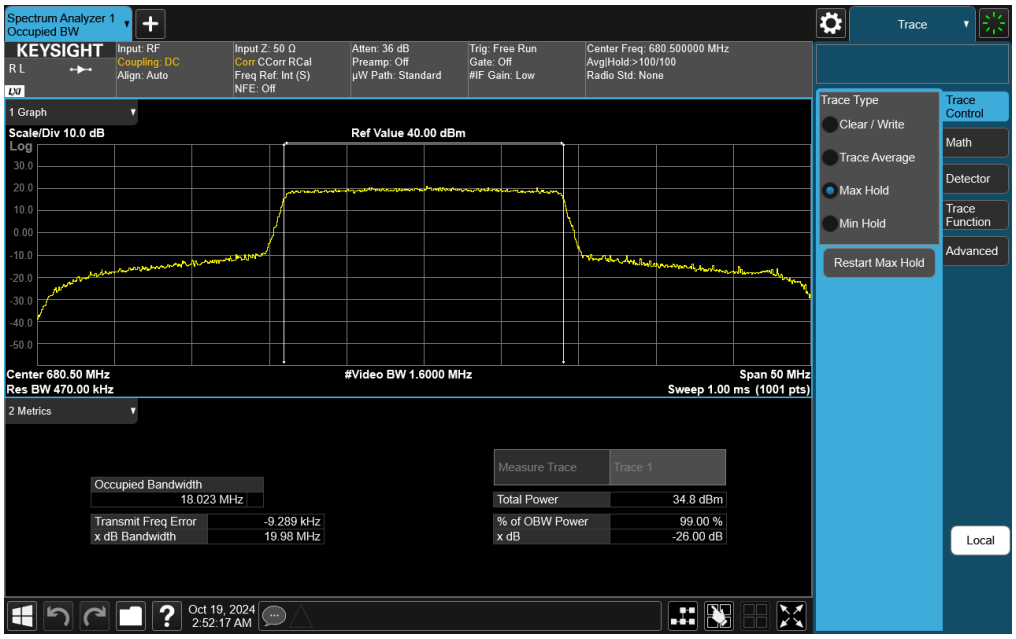
Plot 7-34. Occupied Bandwidth Plot (LTE Band 71 - 15MHz 16-QAM - Full RB)



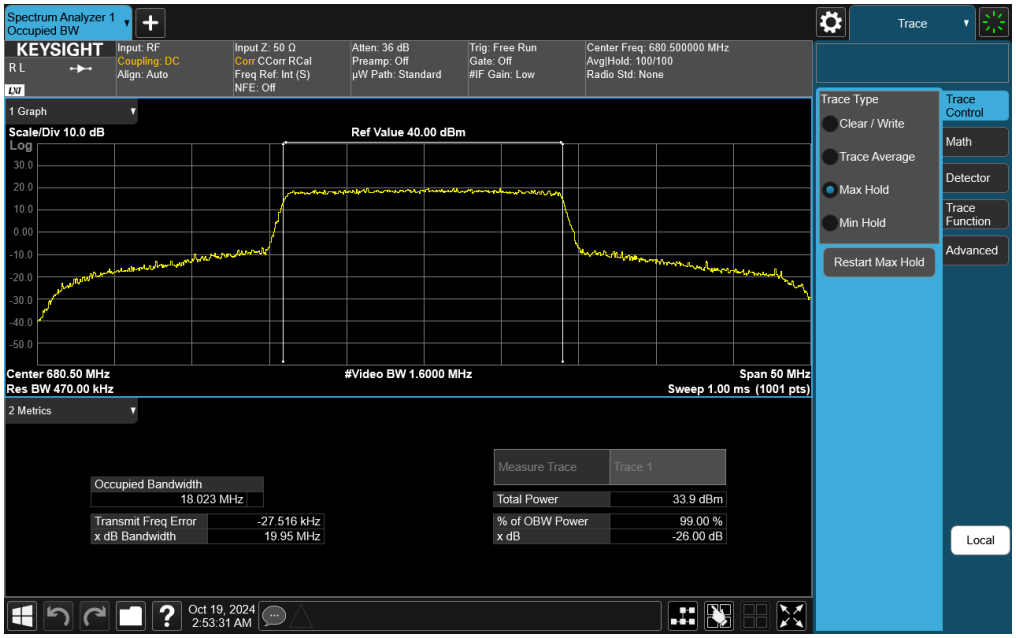
Plot 7-35. Occupied Bandwidth Plot (LTE Band 71 - 15MHz 64-QAM - Full RB)



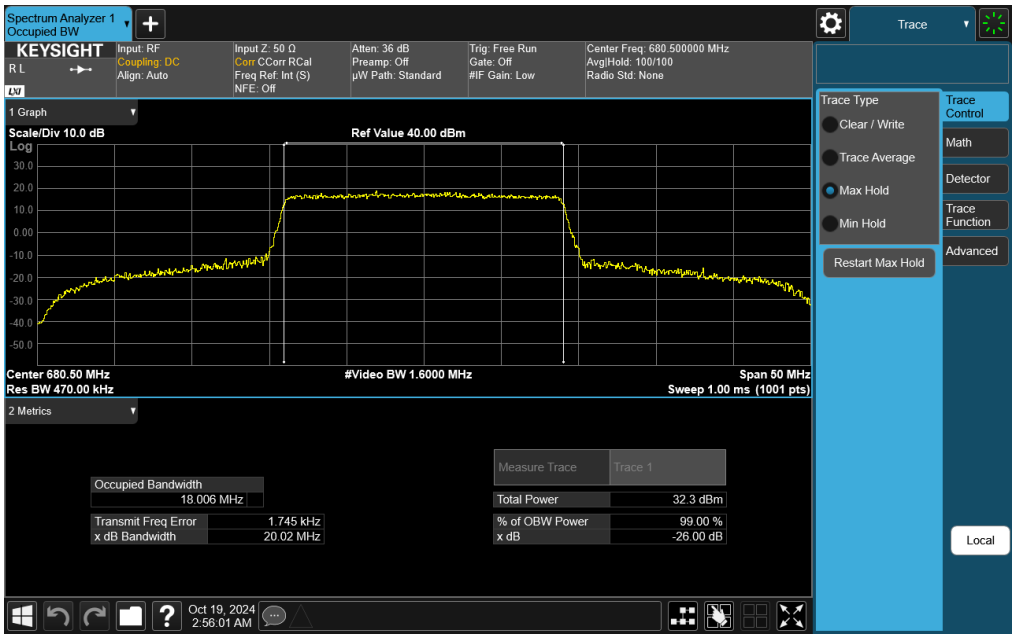
Plot 7-36. Occupied Bandwidth Plot (LTE Band 71 - 15MHz 256-QAM - Full RB)



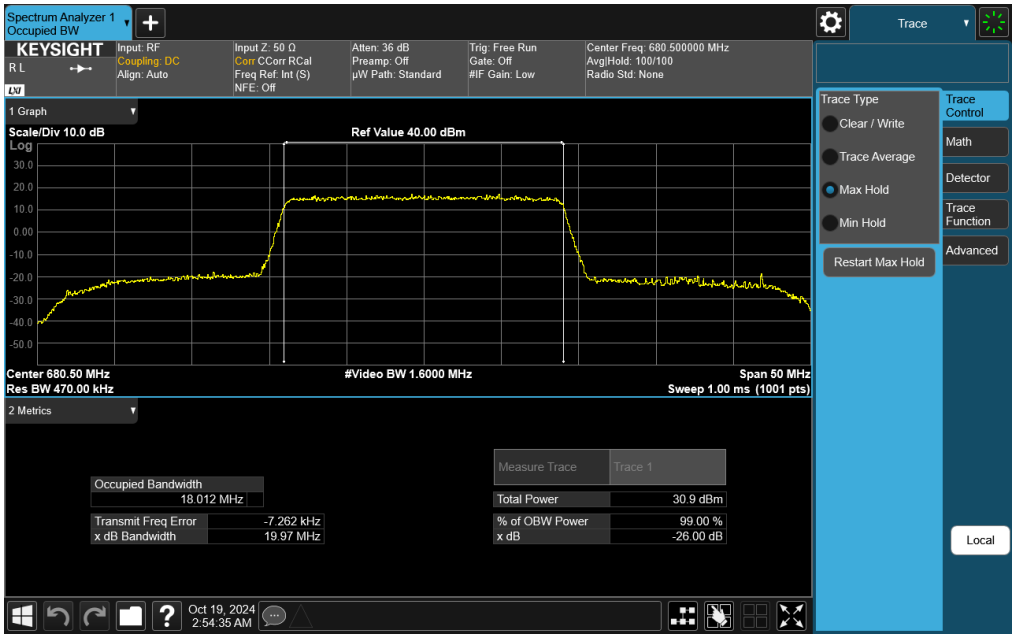
Plot 7-37. Occupied Bandwidth Plot (LTE Band 71 - 20MHz QPSK - Full RB)



Plot 7-38. Occupied Bandwidth Plot (LTE Band 71 - 20MHz 16-QAM - Full RB)

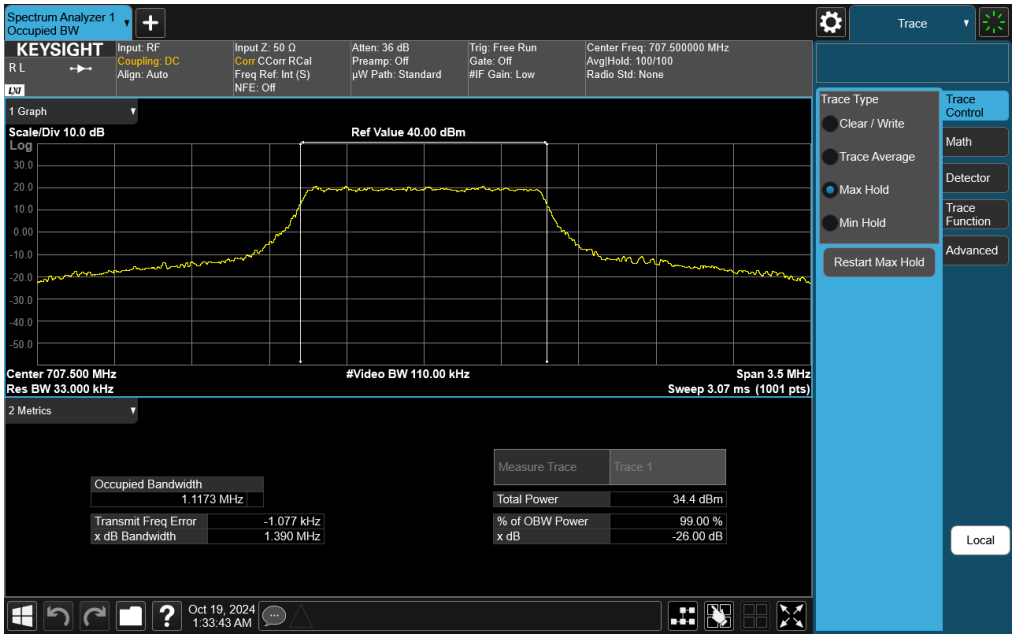


Plot 7-39. Occupied Bandwidth Plot (LTE Band 71 - 20MHz 64-QAM - Full RB)

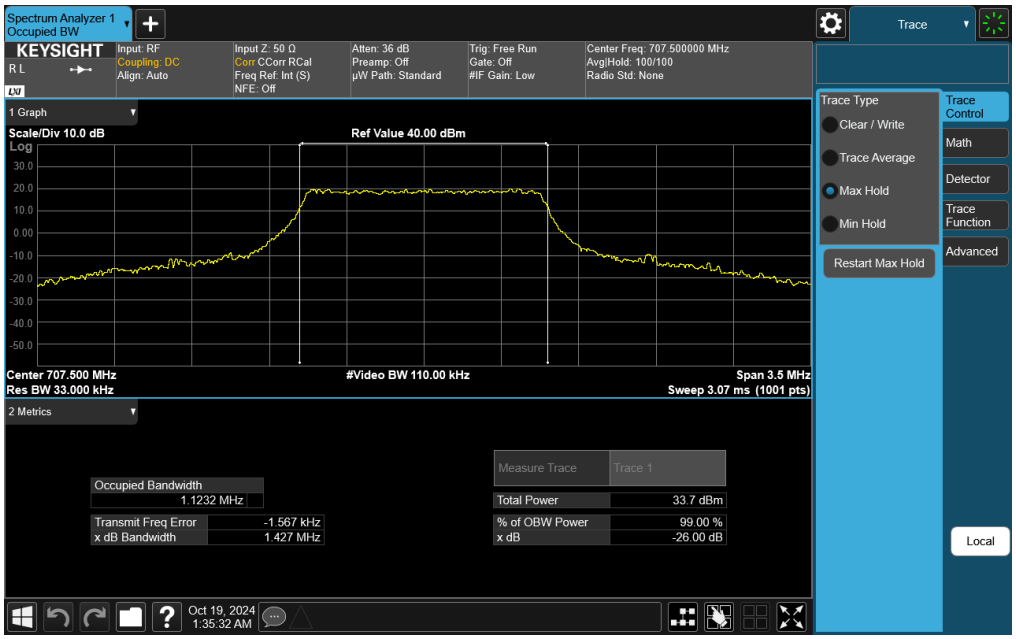


Plot 7-40. Occupied Bandwidth Plot (LTE Band 71 - 20MHz 256-QAM - Full RB)

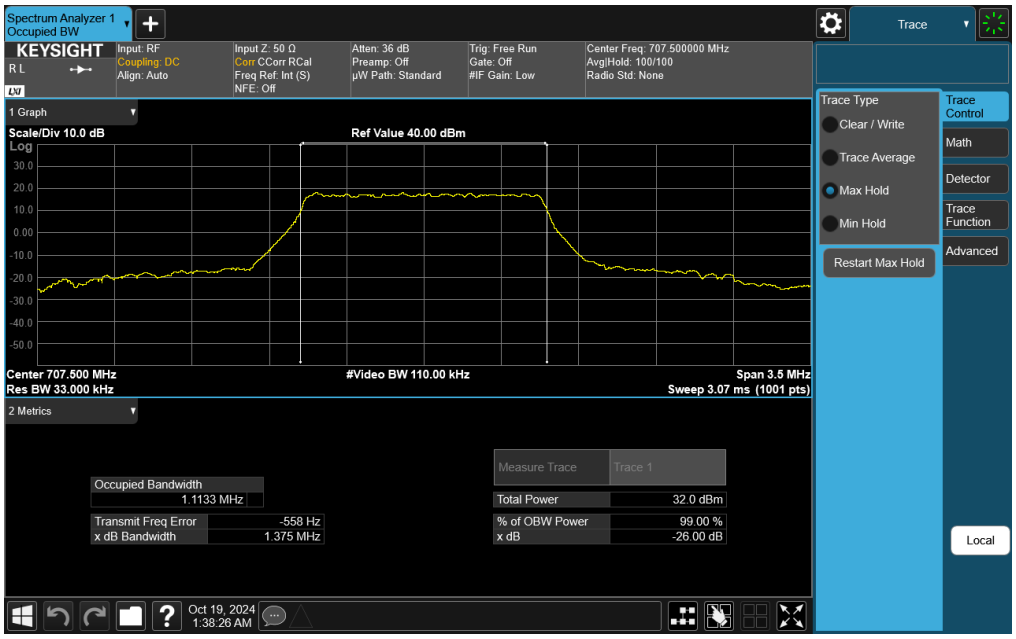
LTE Band 12/17



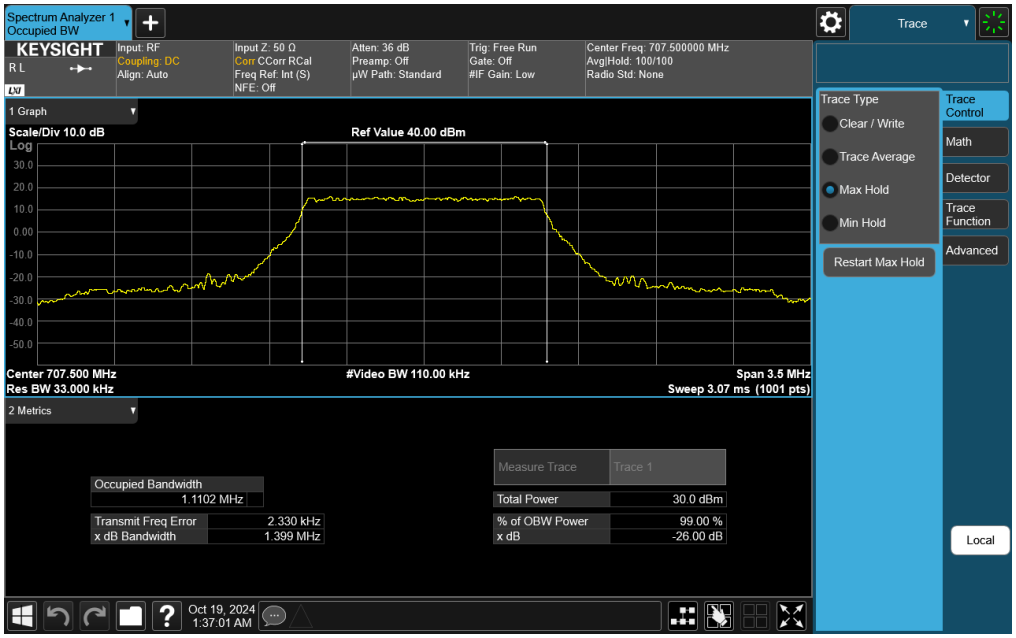
Plot 7-41. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz QPSK - Full RB)



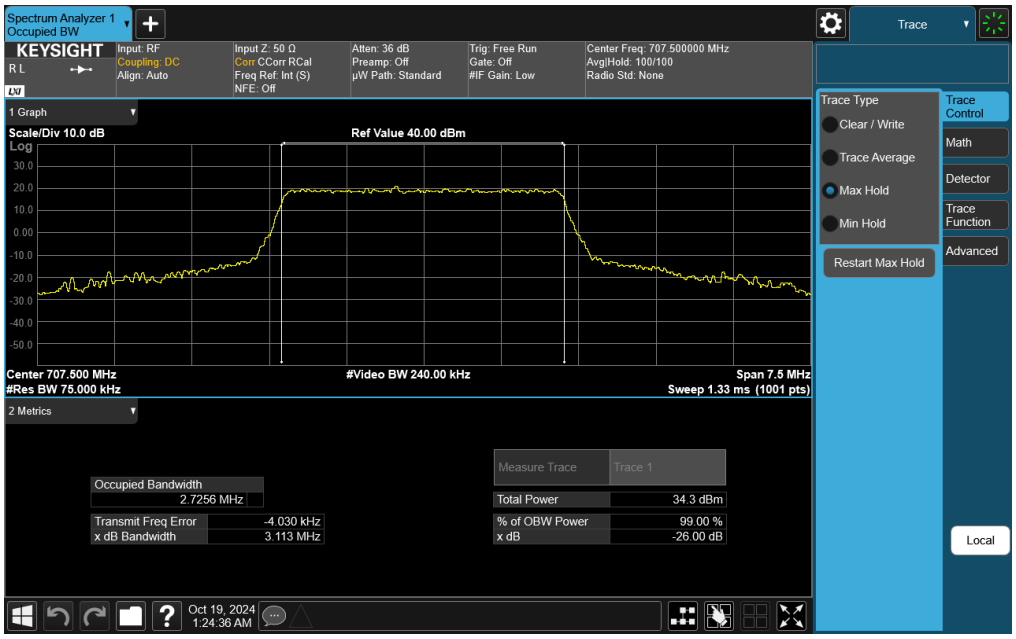
Plot 7-42. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz 16-QAM - Full RB)



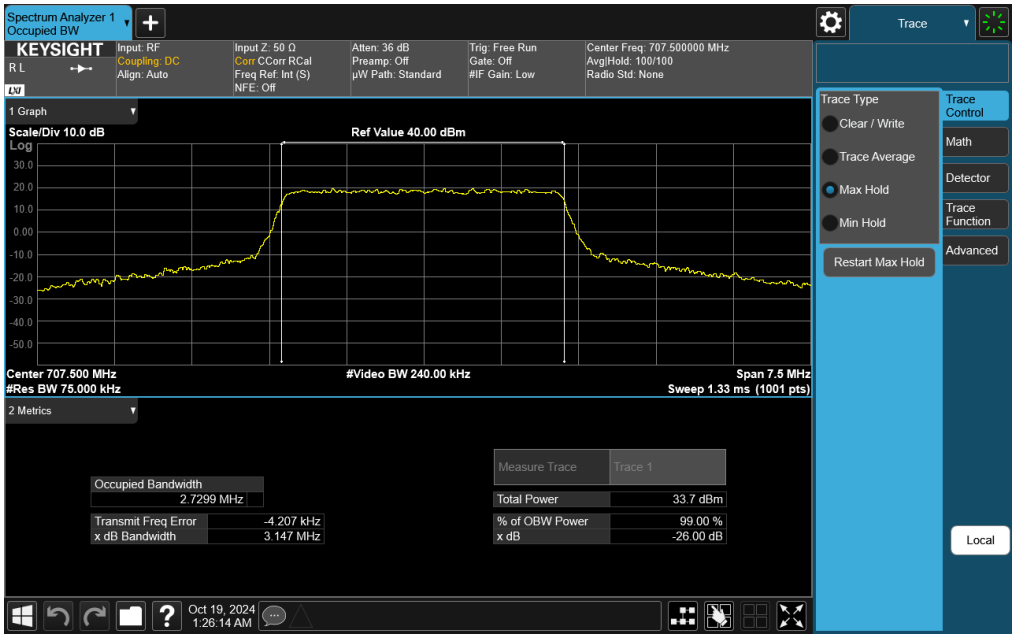
Plot 7-43. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz 64-QAM - Full RB)



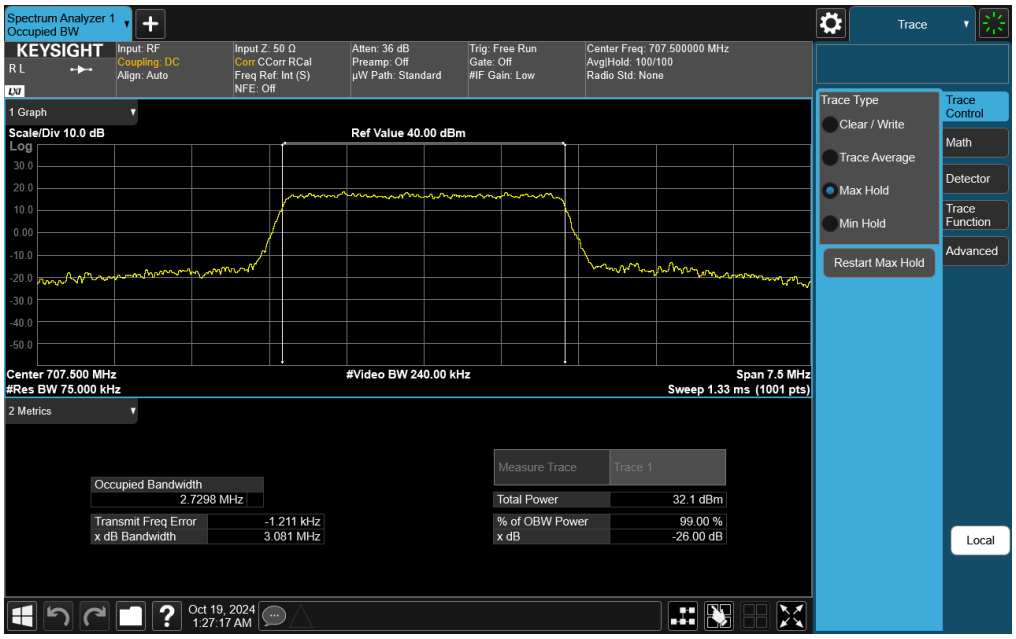
Plot 7-44. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz 256-QAM - Full RB)



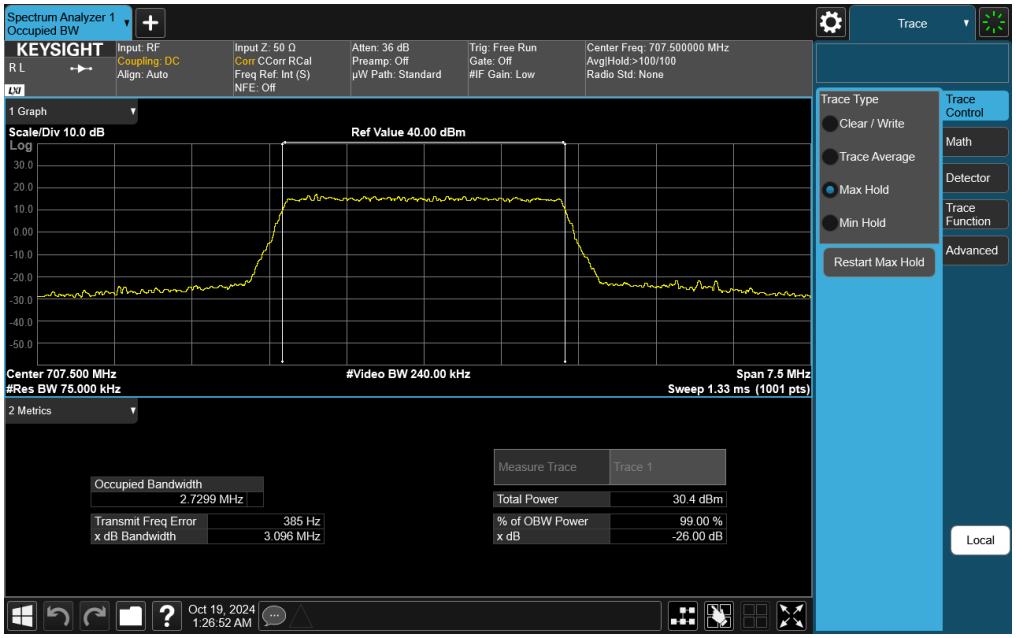
Plot 7-45. Occupied Bandwidth Plot (LTE Band 12 - 3MHz QPSK - Full RB)



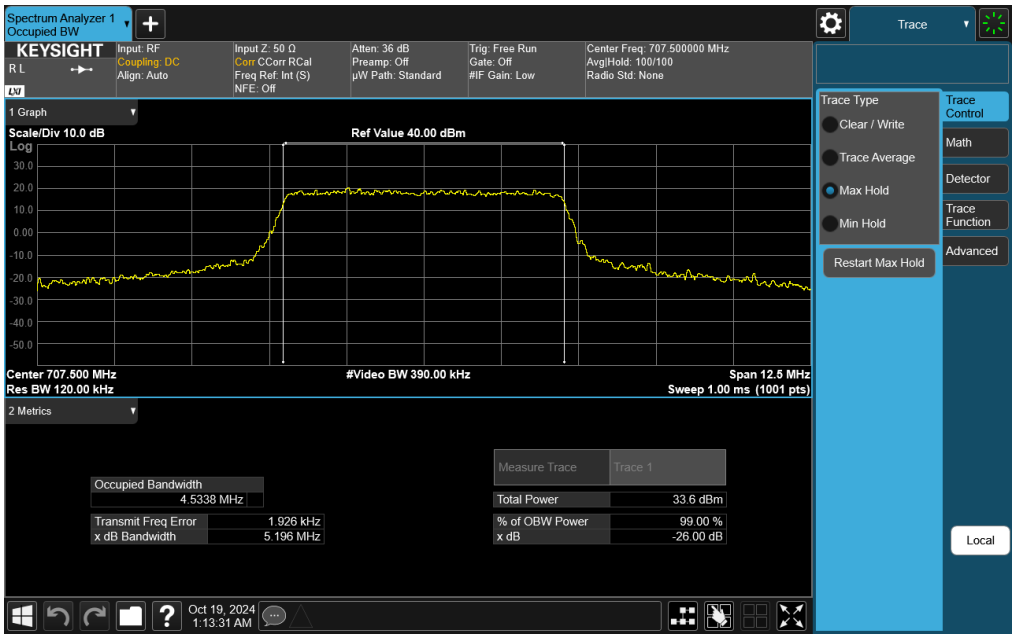
Plot 7-46. Occupied Bandwidth Plot (LTE Band 12 - 3MHz 16-QAM - Full RB)



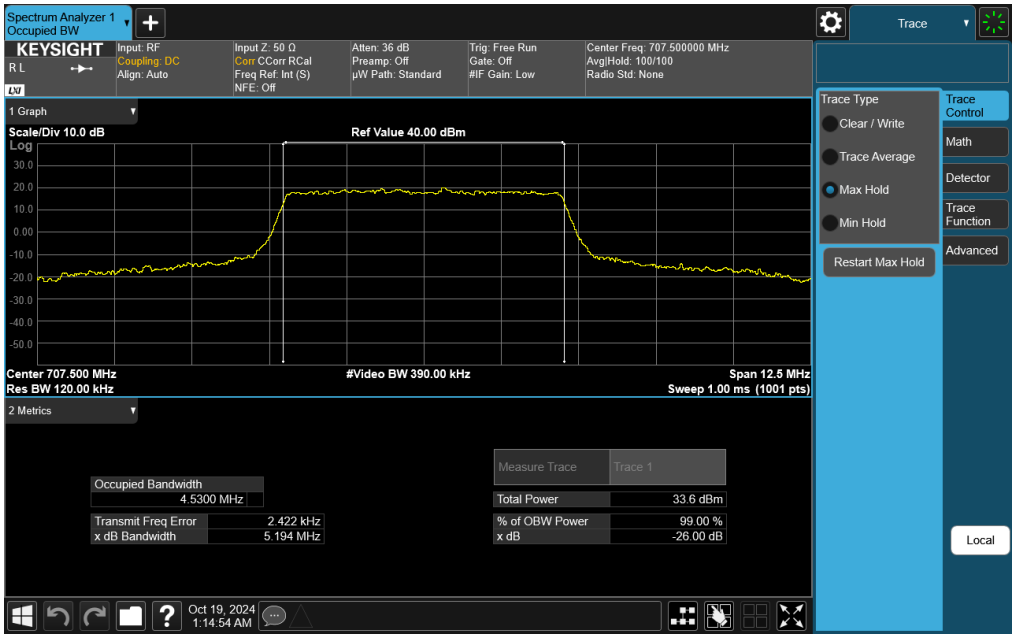
Plot 7-47. Occupied Bandwidth Plot (LTE Band 12 - 3MHz 64-QAM - Full RB)



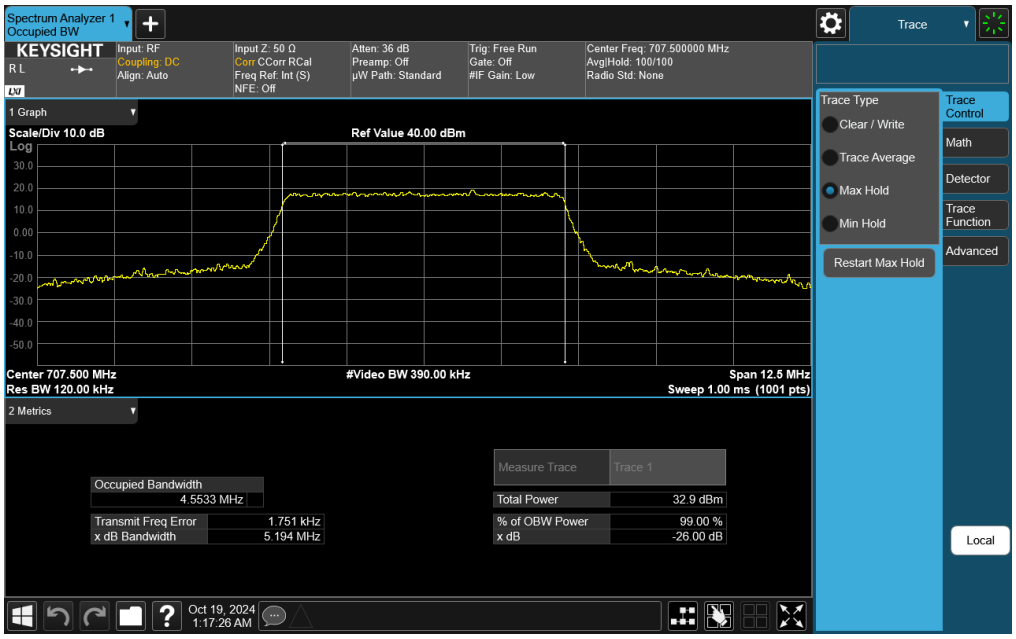
Plot 7-48. Occupied Bandwidth Plot (LTE Band 12 - 3MHz 256-QAM - Full RB)



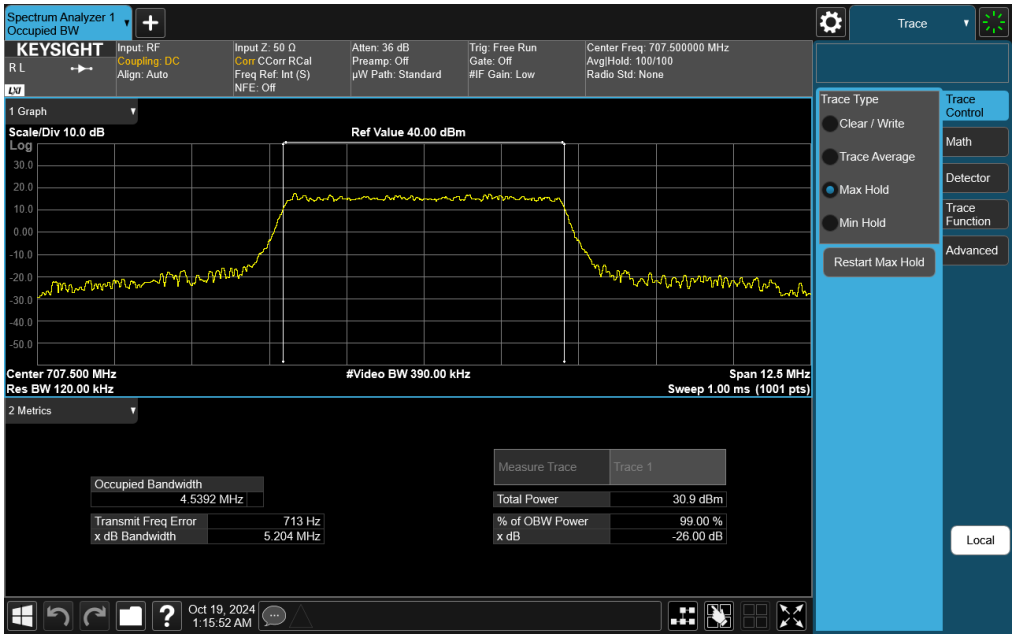
Plot 7-49. Occupied Bandwidth Plot (LTE Band 12/17 - 5MHz QPSK - Full RB)



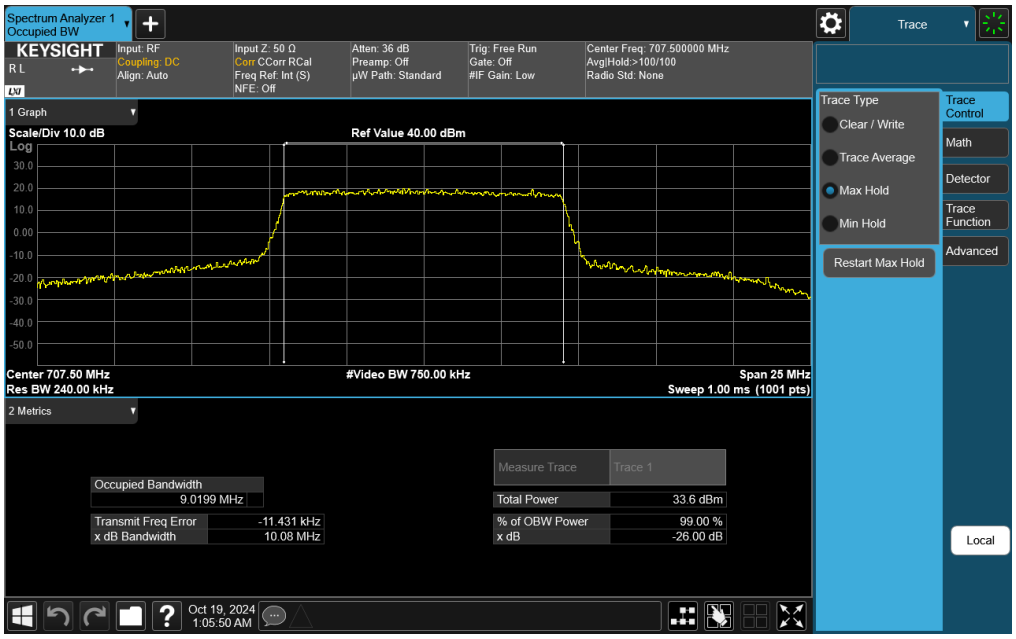
Plot 7-50. Occupied Bandwidth Plot (LTE Band 12/17 - 5MHz 16-QAM - Full RB)



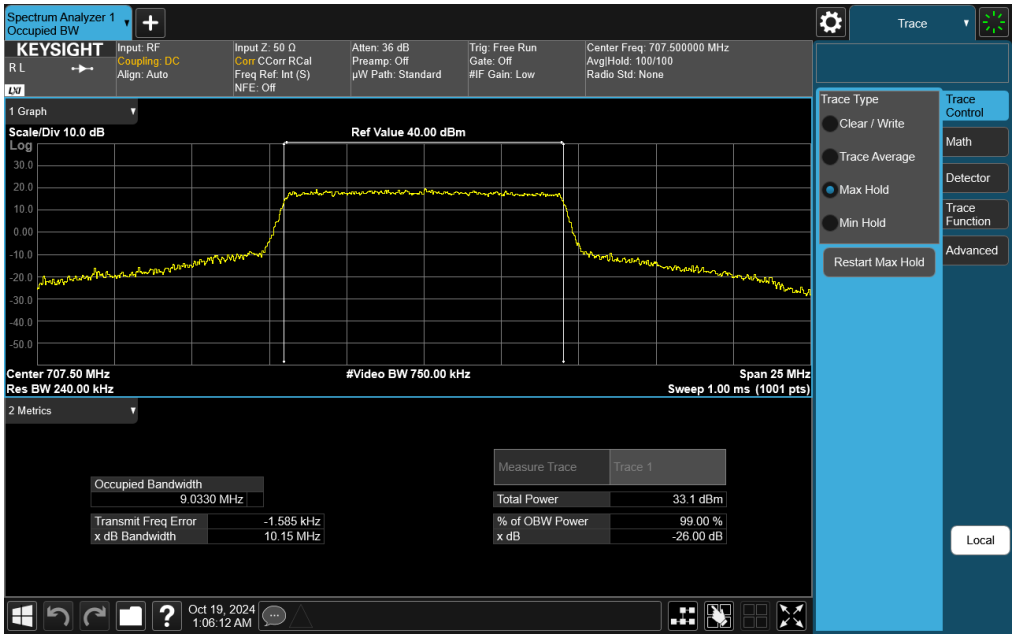
Plot 7-51. Occupied Bandwidth Plot (LTE Band 12/17 - 5MHz 64-QAM - Full RB)



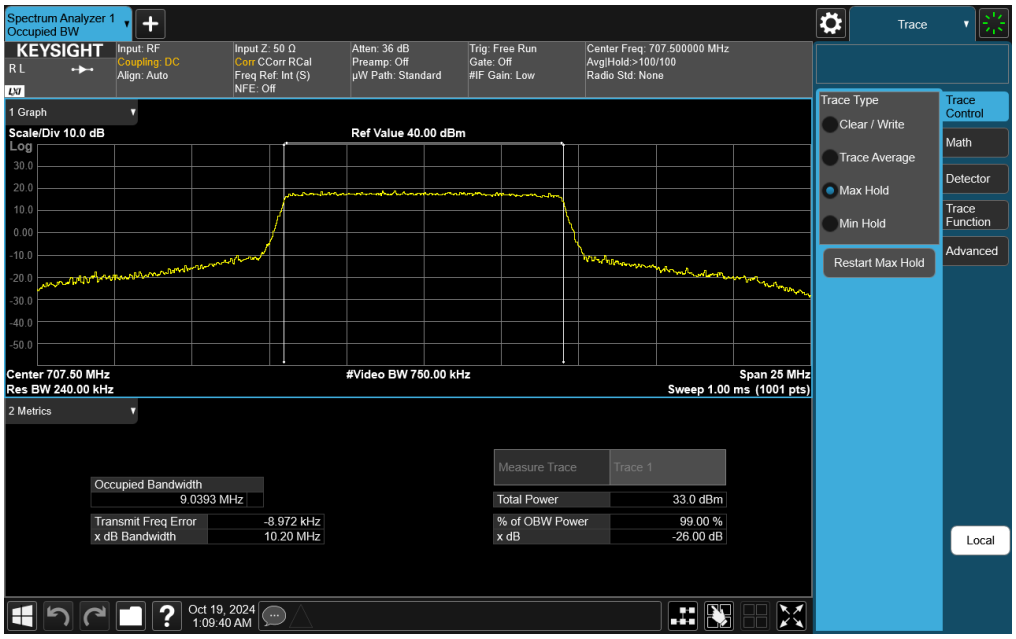
Plot 7-52. Occupied Bandwidth Plot (LTE Band 12/17 - 5MHz 256-QAM - Full RB)



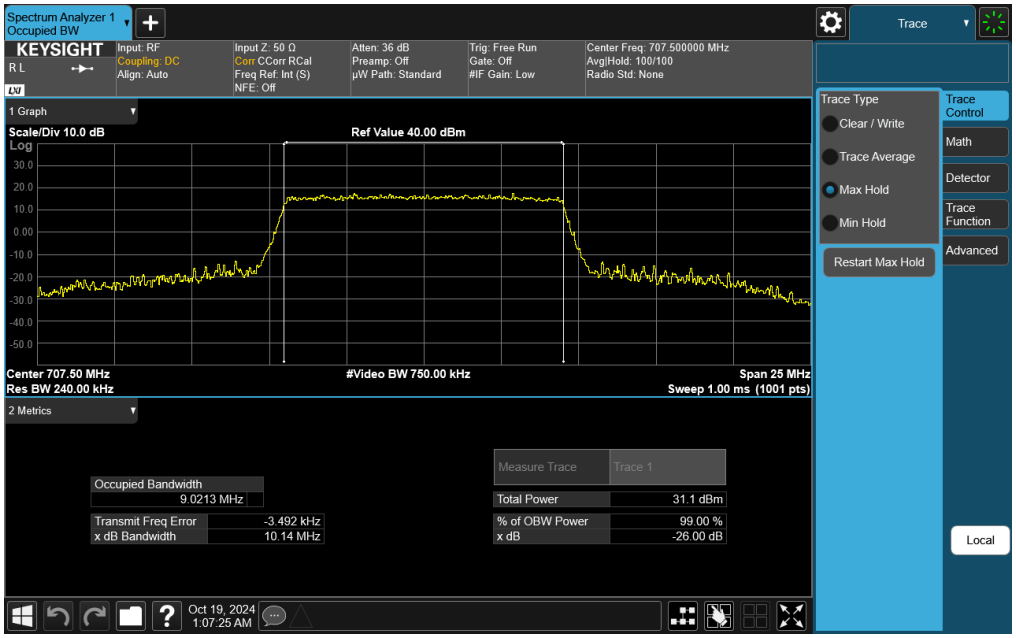
Plot 7-53. Occupied Bandwidth Plot (LTE Band 12/17 - 10MHz QPSK - Full RB)



Plot 7-54. Occupied Bandwidth Plot (LTE Band 12/17 - 10MHz 16-QAM - Full RB)

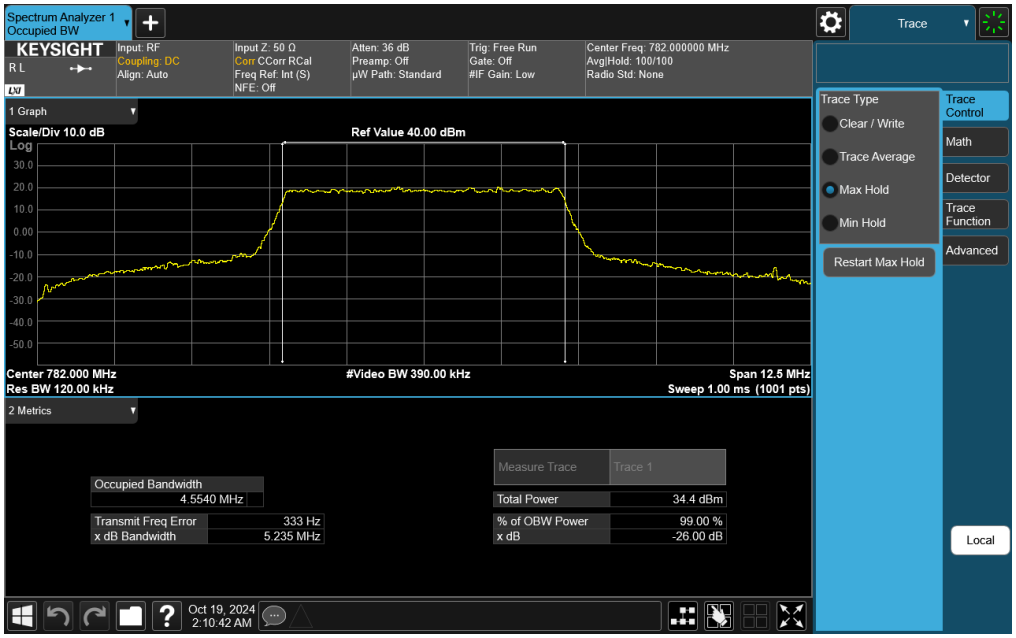


Plot 7-55. Occupied Bandwidth Plot (LTE Band 12/17 - 10MHz 64-QAM - Full RB)

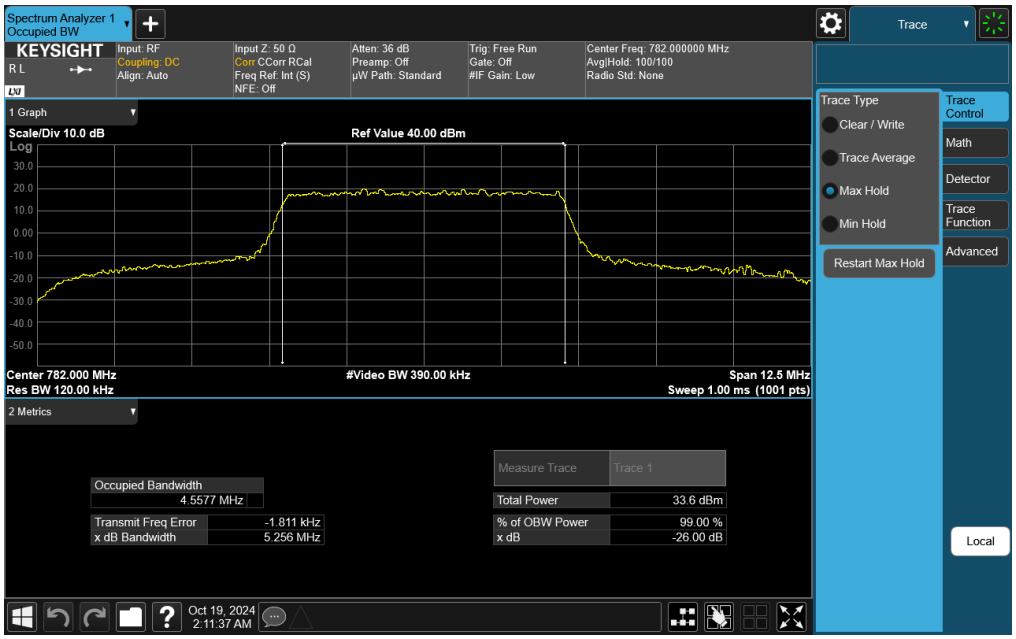


Plot 7-56. Occupied Bandwidth Plot (LTE Band 12/17 - 10MHz 256-QAM - Full RB)

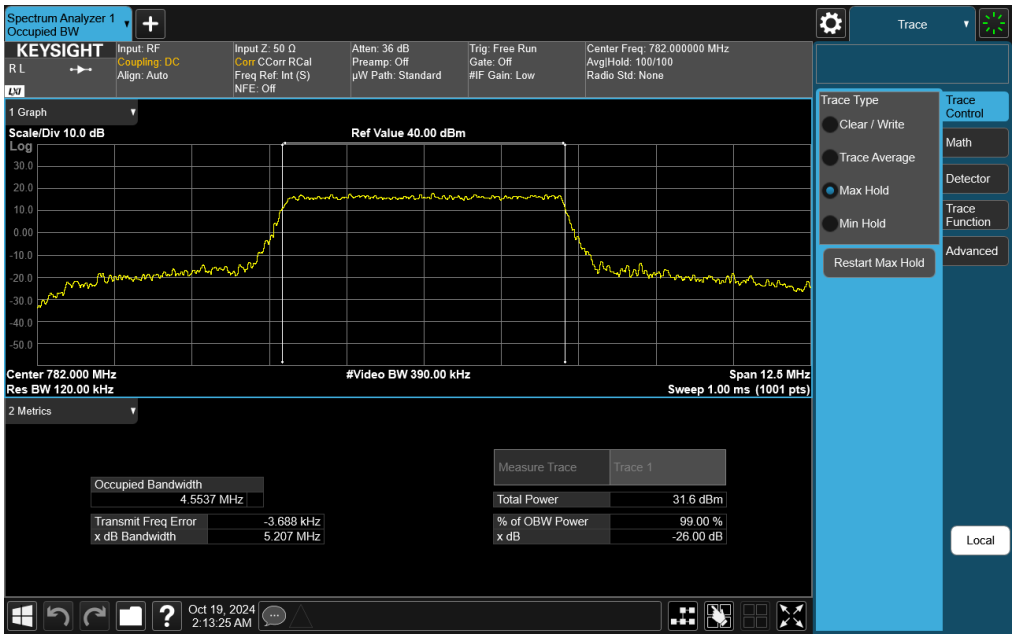
LTE Band 13



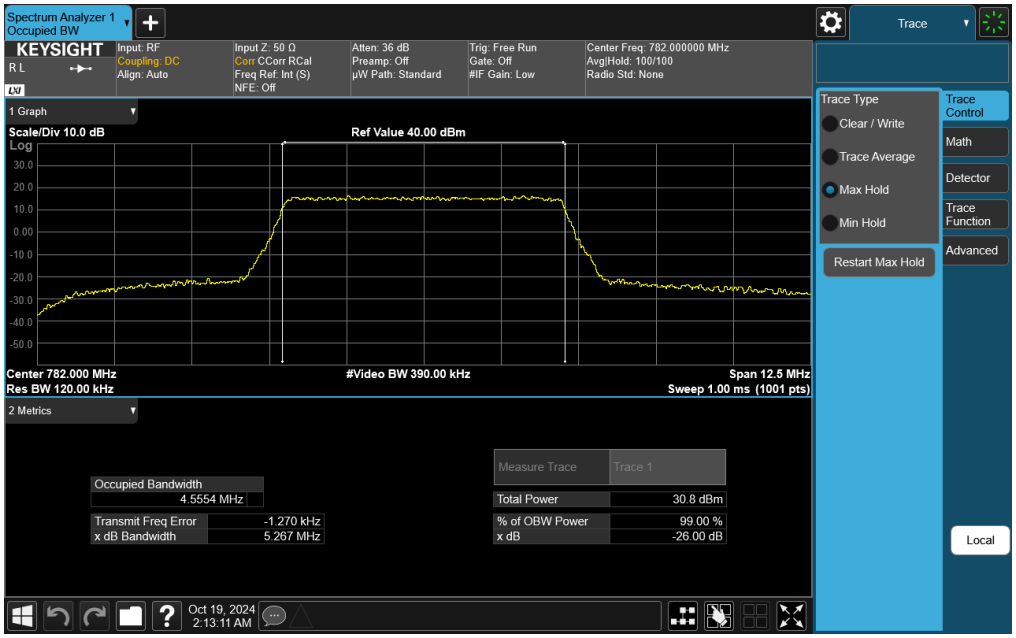
Plot 7-57. Occupied Bandwidth Plot (LTE Band 13 - 5MHz QPSK - Full RB)



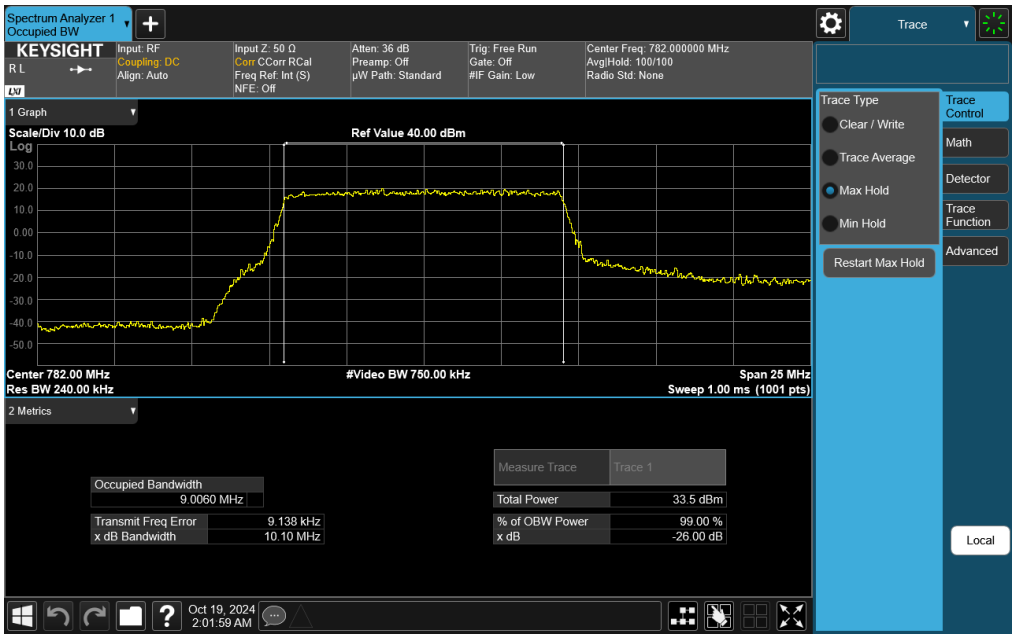
Plot 7-58. Occupied Bandwidth Plot (LTE Band 13 - 5MHz 16-QAM - Full RB)



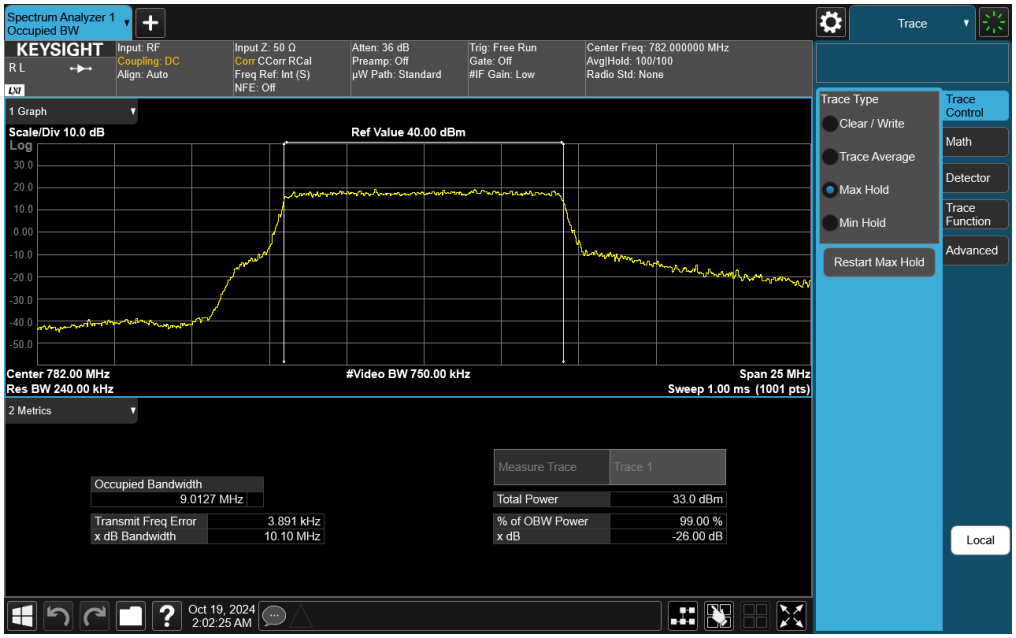
Plot 7-59. Occupied Bandwidth Plot (LTE Band 13 - 5MHz 64-QAM - Full RB)



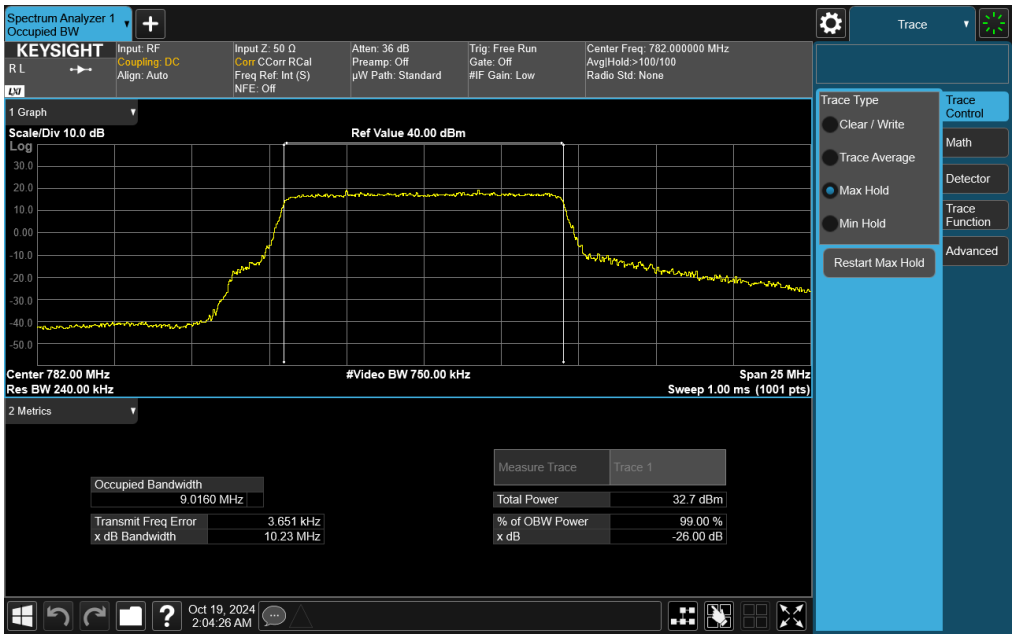
Plot 7-60. Occupied Bandwidth Plot (LTE Band 13 - 5MHz 256-QAM - Full RB)



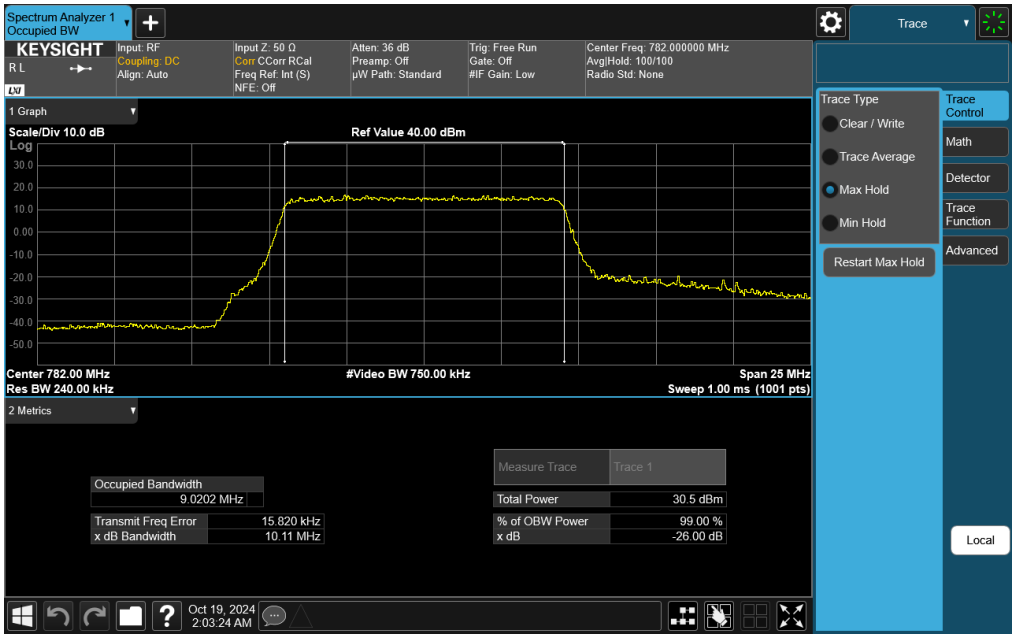
Plot 7-61. Occupied Bandwidth Plot (LTE Band 13 - 10MHz QPSK - Full RB)



Plot 7-62. Occupied Bandwidth Plot (LTE Band 13 - 10MHz 16-QAM - Full RB)

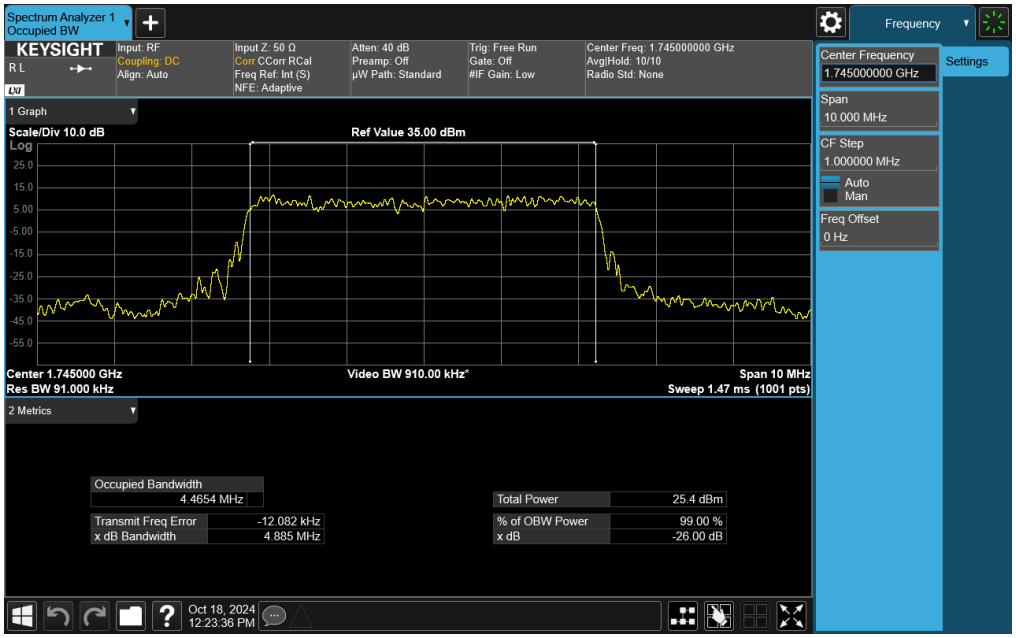


Plot 7-63. Occupied Bandwidth Plot (LTE Band 13 - 10MHz 64-QAM - Full RB)

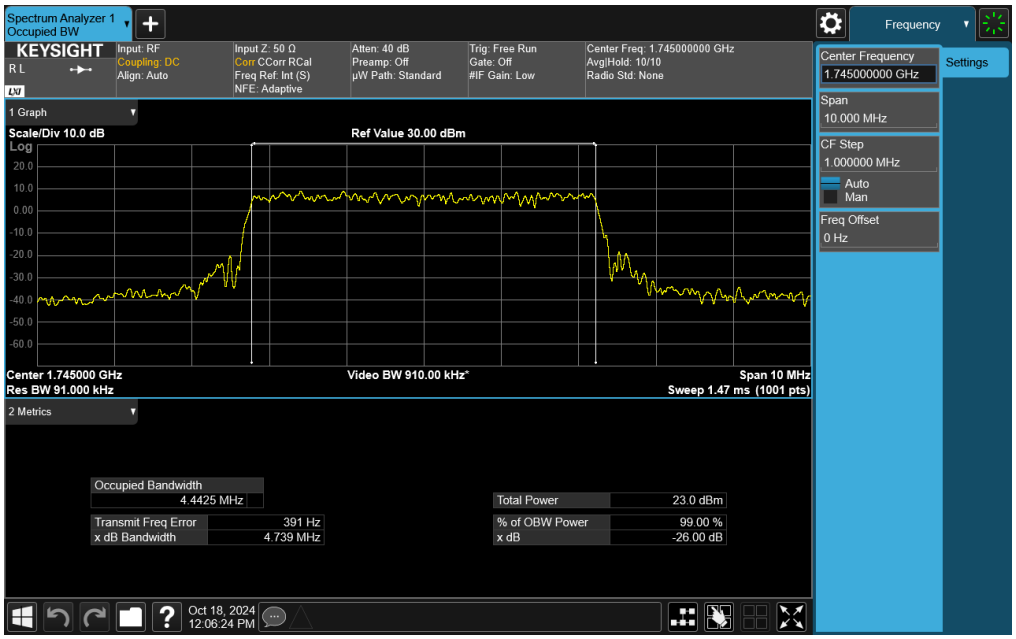


Plot 7-64. Occupied Bandwidth Plot (LTE Band 13 - 10MHz 256-QAM - Full RB)

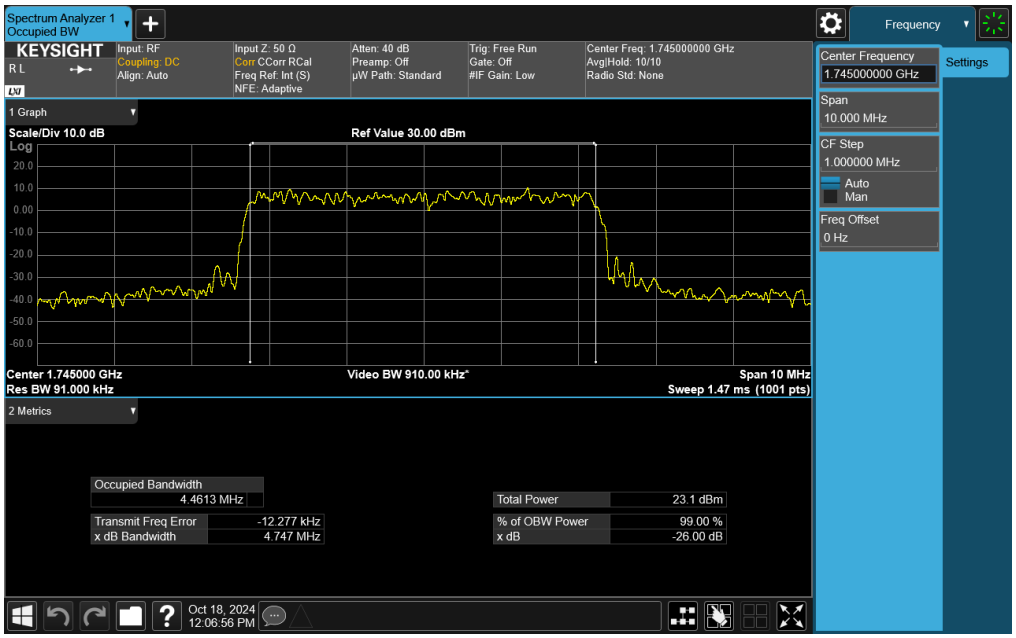
NR Band n66



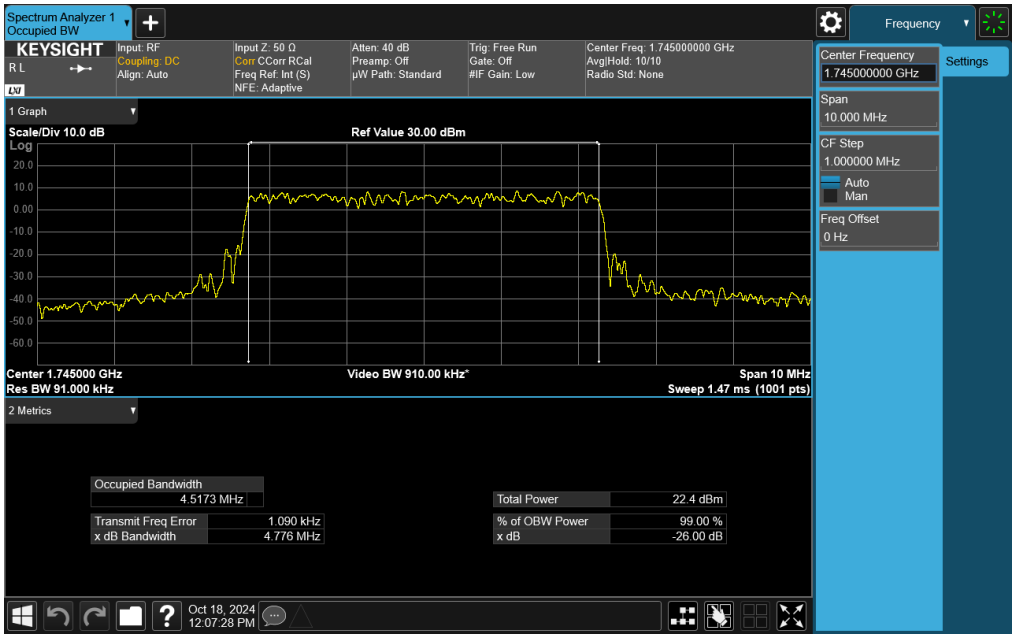
Plot 7-65. Occupied Bandwidth Plot (NR Band n66 - 5MHz DFT-s-OFDM π/2 BPSK - Full RB)



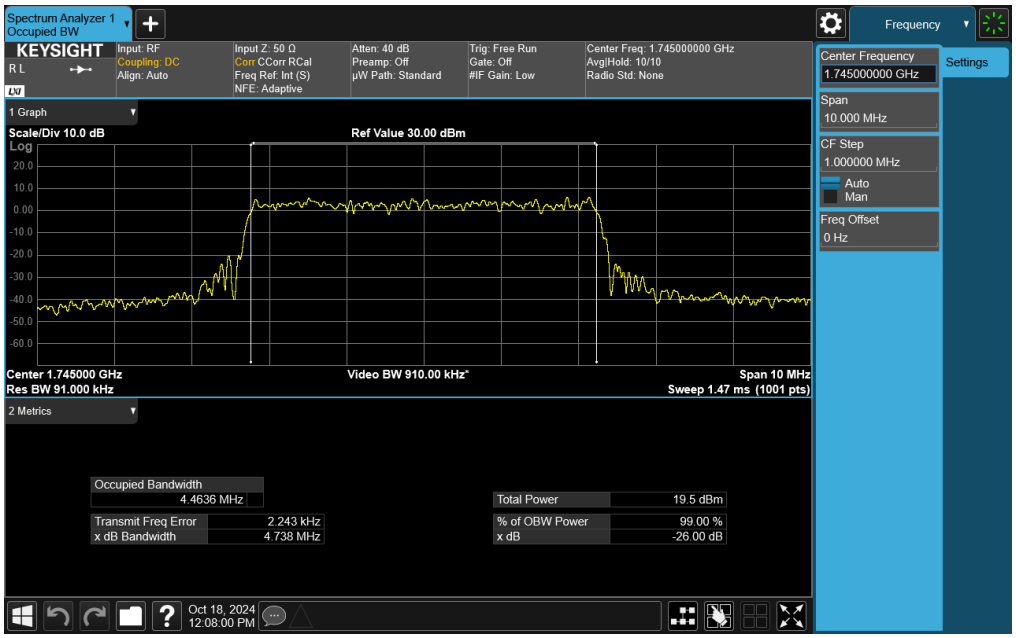
Plot 7-66. Occupied Bandwidth Plot (NR Band n66 - 5MHz CP-OFDM QPSK - Full RB)



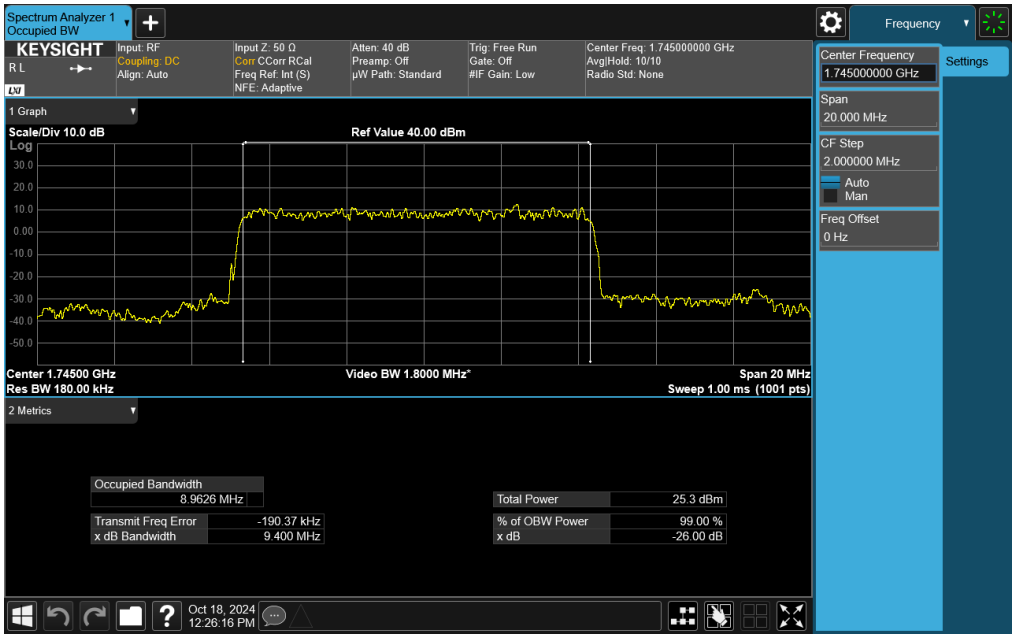
Plot 7-67. Occupied Bandwidth Plot (NR Band n66 - 5MHz CP-OFDM 16QAM - Full RB)



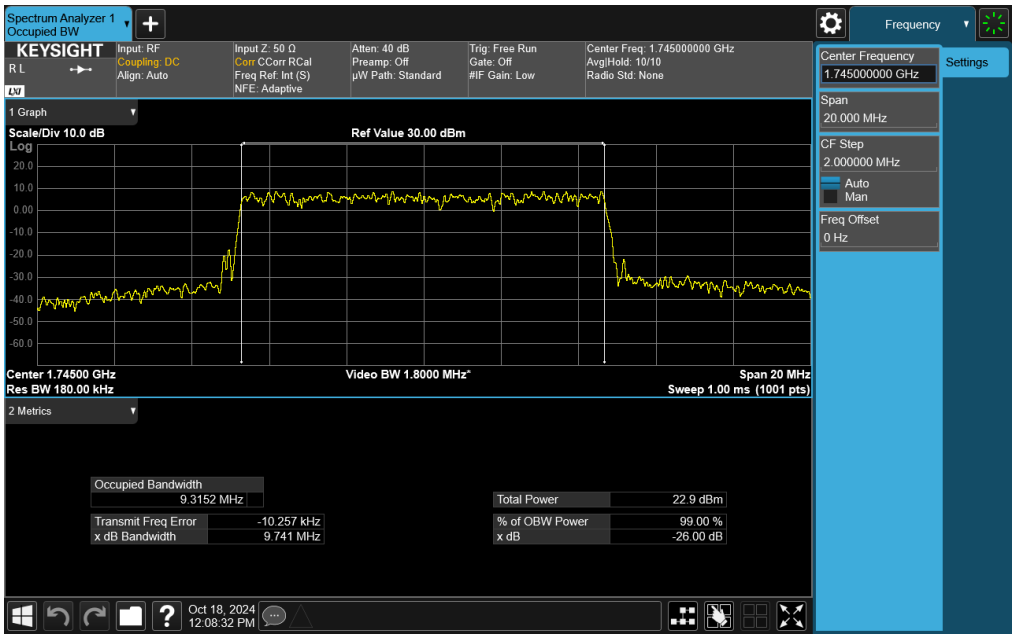
Plot 7-68. Occupied Bandwidth Plot (NR Band n66 - 5MHz CP-OFDM 64QAM - Full RB)



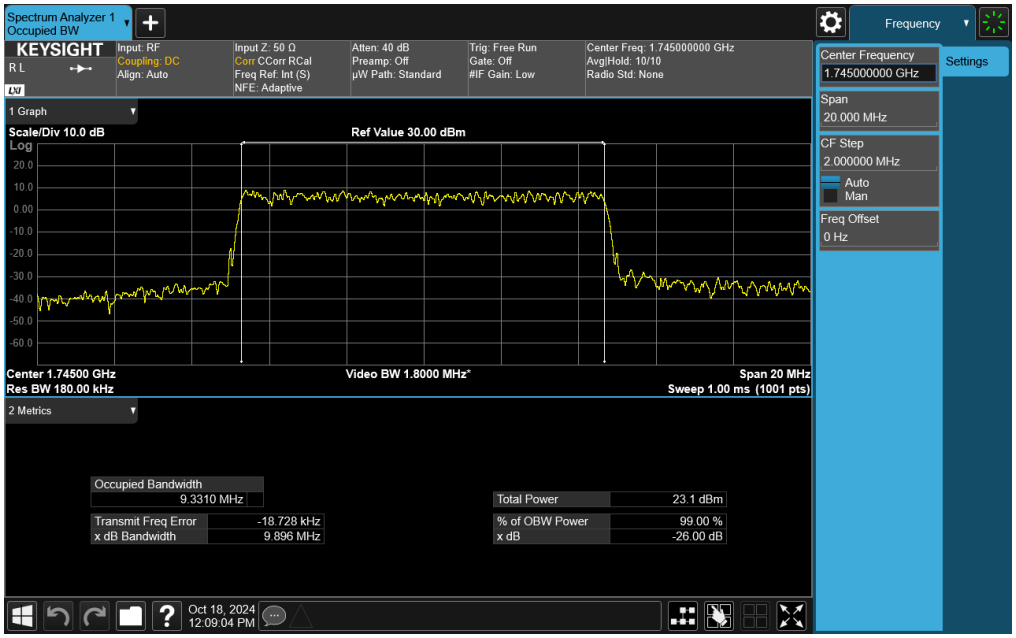
Plot 7-69. Occupied Bandwidth Plot (NR Band n66 - 5MHz CP-OFDM 256QAM - Full RB)



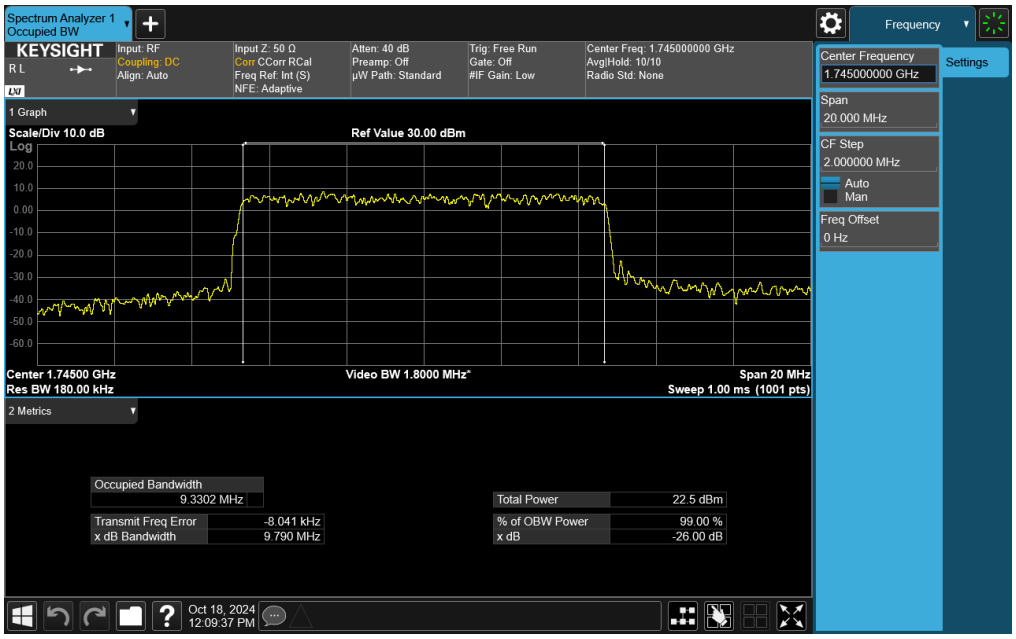
Plot 7-70. Occupied Bandwidth Plot (NR Band n66 - 10MHz DFT-s-OFDM π/2 BPSK - Full RB)



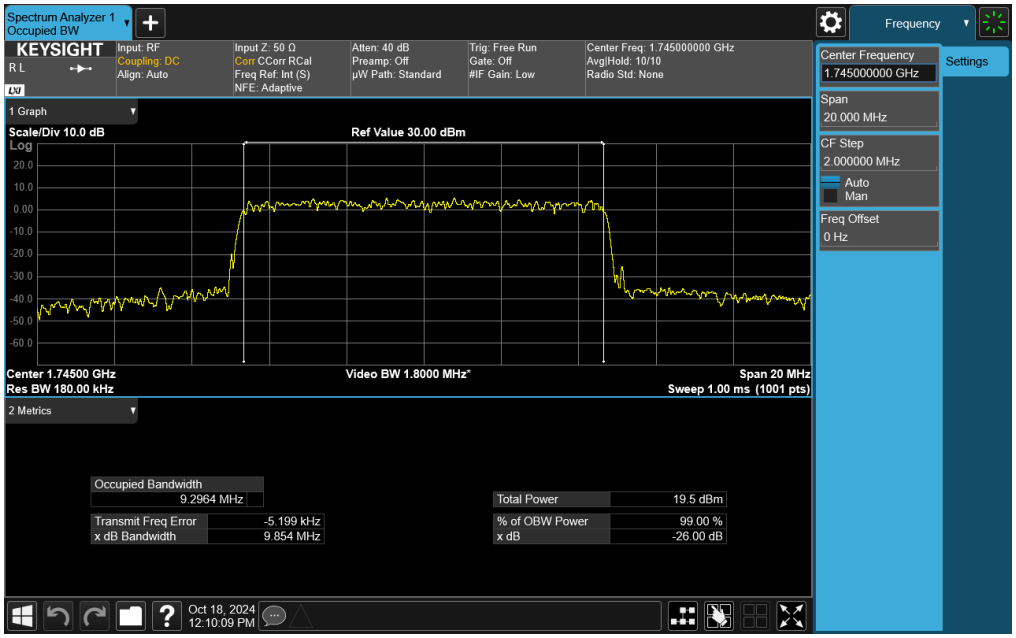
Plot 7-71. Occupied Bandwidth Plot (NR Band n66 - 10MHz CP-OFDM QPSK - Full RB)



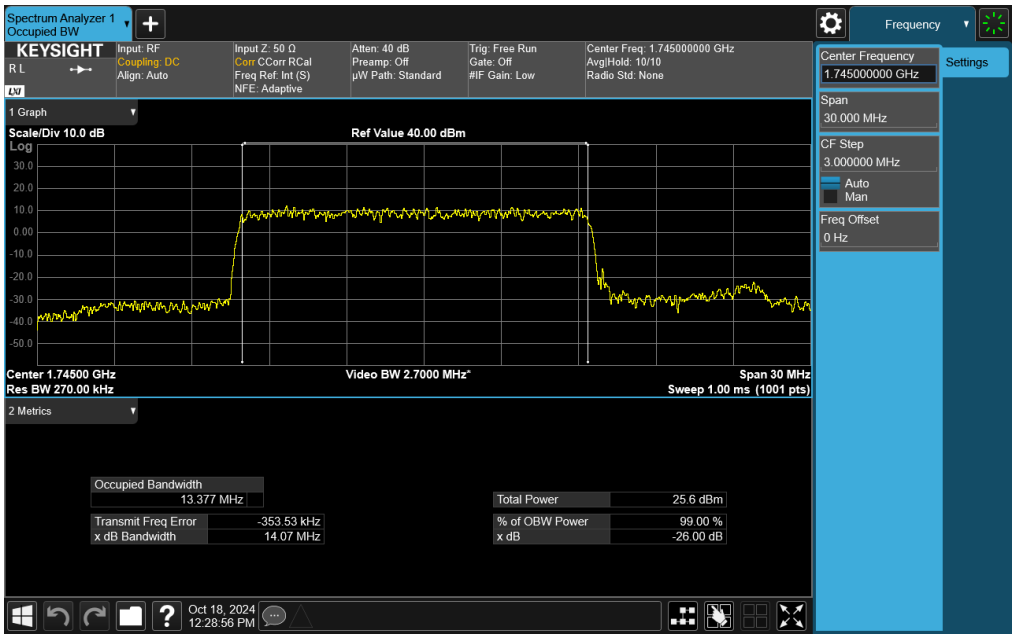
Plot 7-72. Occupied Bandwidth Plot (NR Band n66 - 10MHz CP-OFDM 16QAM - Full RB)



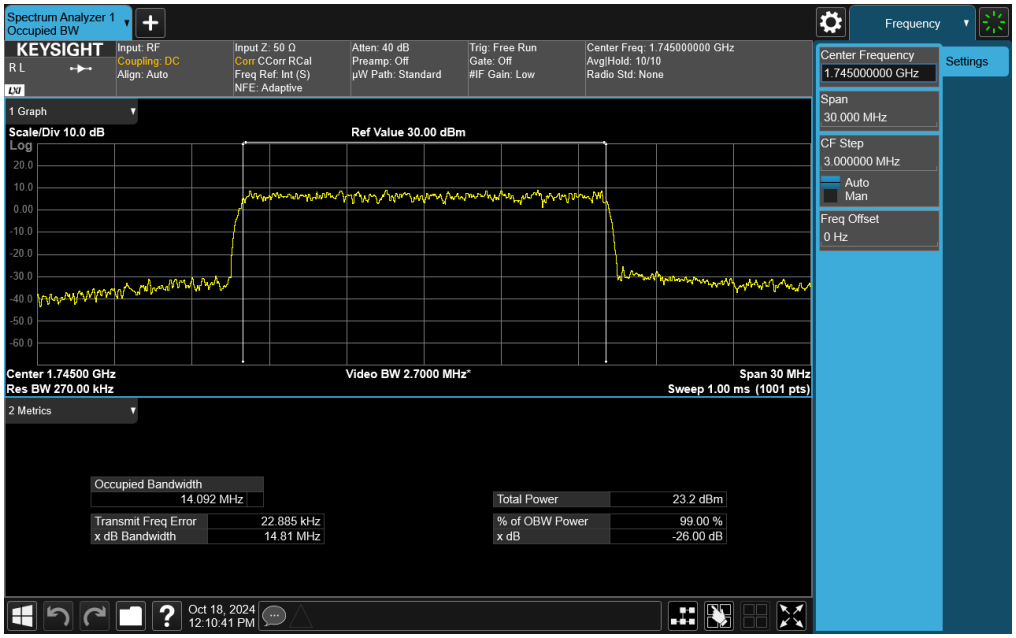
Plot 7-73. Occupied Bandwidth Plot (NR Band n66 - 10MHz CP-OFDM 64QAM - Full RB)



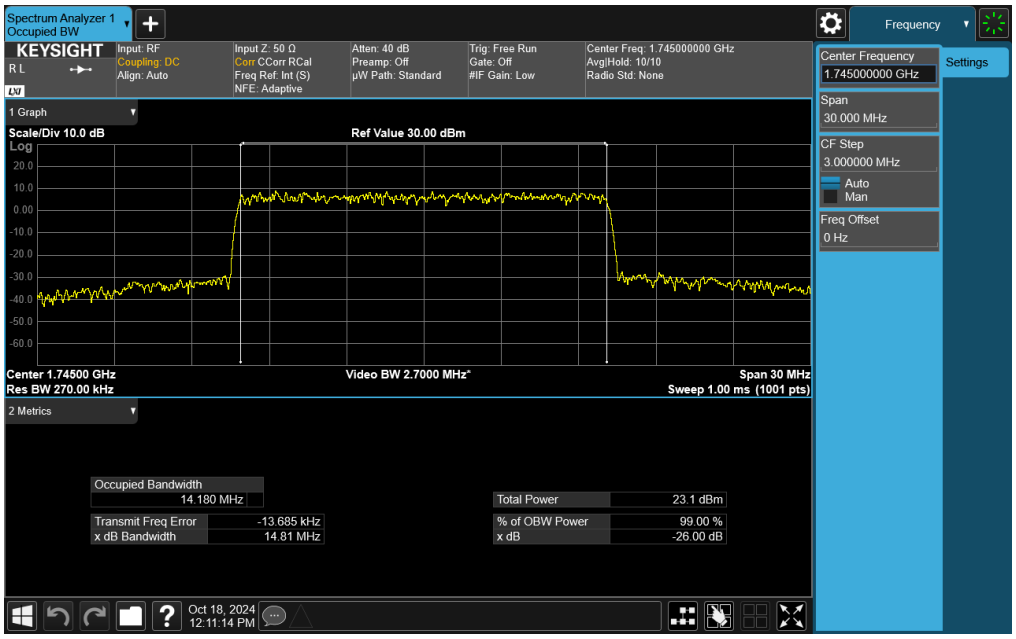
Plot 7-74. Occupied Bandwidth Plot (NR Band n66 - 10MHz CP-OFDM 256QAM - Full RB)



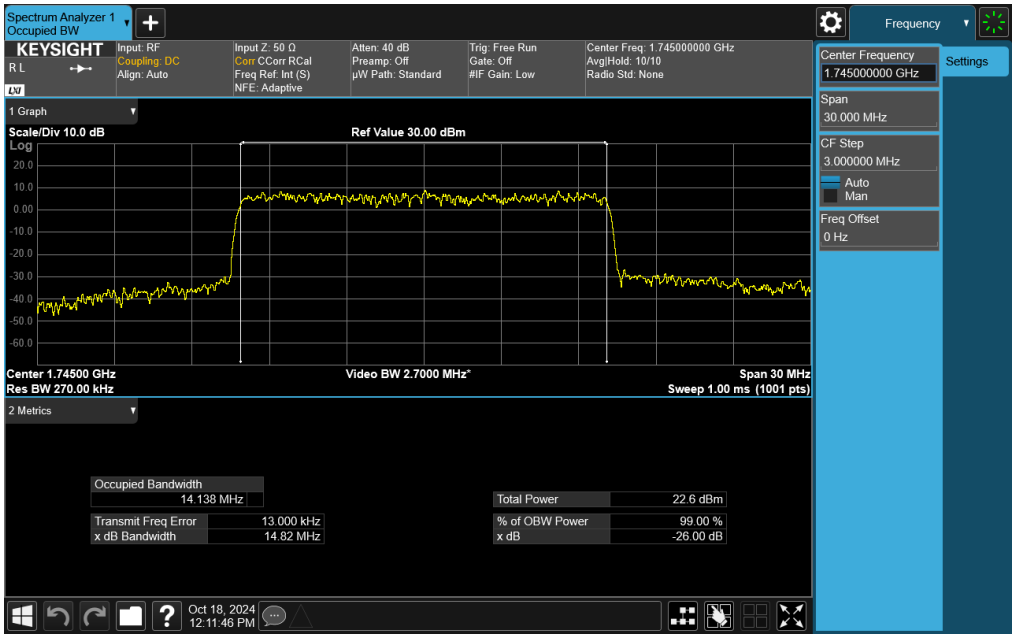
Plot 7-75. Occupied Bandwidth Plot (NR Band n66 - 15MHz DFT-s-OFDM π/2 BPSK - Full RB)



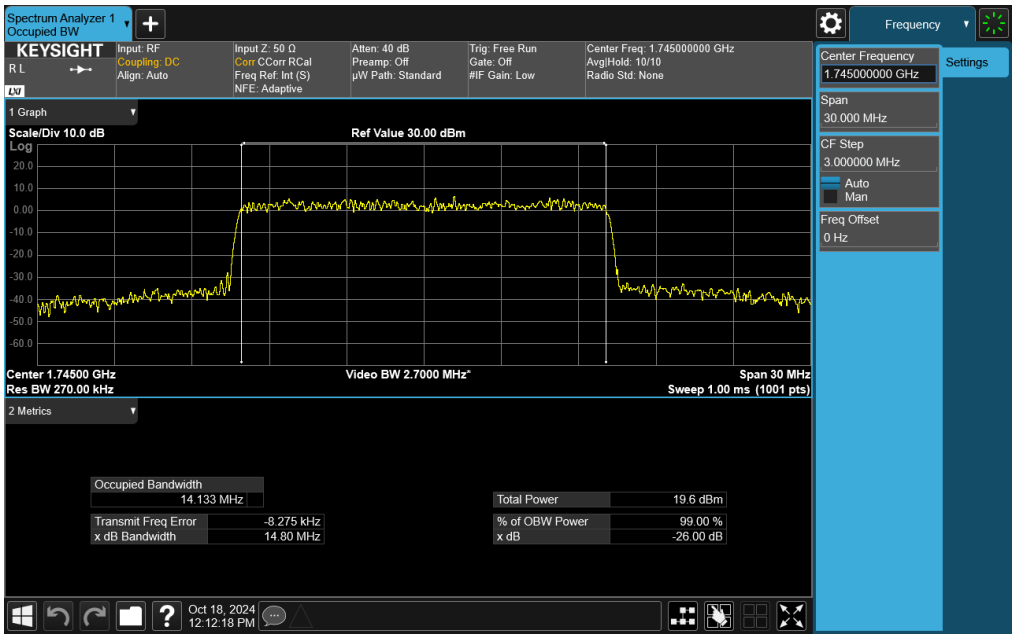
Plot 7-76. Occupied Bandwidth Plot (NR Band n66 - 15MHz CP-OFDM QPSK - Full RB)



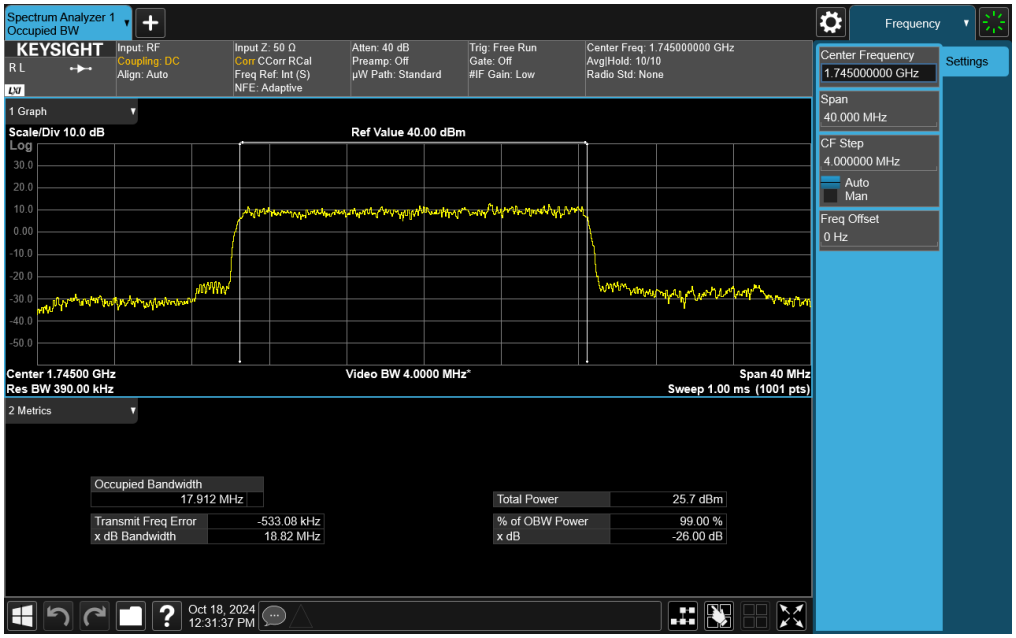
Plot 7-77. Occupied Bandwidth Plot (NR Band n66 - 15MHz CP-OFDM 16QAM - Full RB)



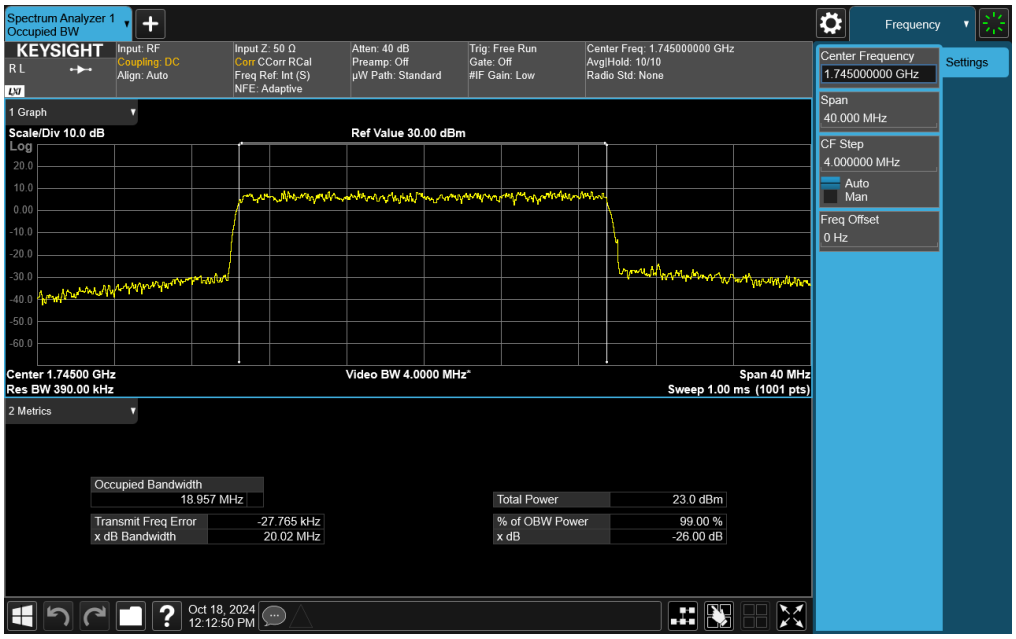
Plot 7-78. Occupied Bandwidth Plot (NR Band n66 - 15MHz CP-OFDM 64QAM - Full RB)



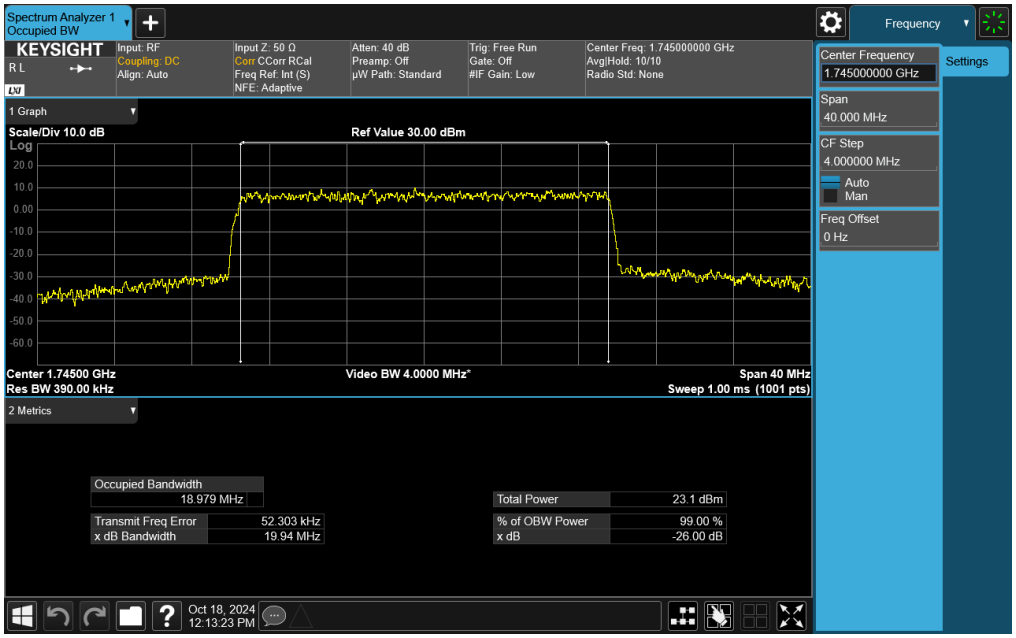
Plot 7-79. Occupied Bandwidth Plot (NR Band n66 - 15MHz CP-OFDM 256QAM - Full RB)



Plot 7-80. Occupied Bandwidth Plot (NR Band n66 - 20MHz DFT-s-OFDM π/2 BPSK - Full RB)



Plot 7-81. Occupied Bandwidth Plot (NR Band n66 - 20MHz CP-OFDM QPSK - Full RB)



Plot 7-82. Occupied Bandwidth Plot (NR Band n66 - 20MHz CP-OFDM 16QAM - Full RB)