Element Washington DC LLC
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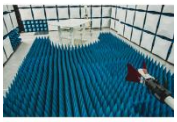


PART 27 MEASUREMENT REPORT

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

Date of Testing:
7/3/2022 - 9/15/2022
Test Site/Location:
Element Washington DC LLC Lab Morgan Hill, CA, USA
Test Report Serial No.:
1C2205090023-04-R1.BCG

FCC ID:	**BCGA2757**
Applicant Name:	**Apple Inc.**

Application Type:	Certification
Model:	A2757(A2777)
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.

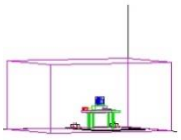
This revised Test Report (S/N: 1C2205090023-04-R1.BCG) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

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.

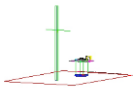
RJ Ortanez
Executive Vice President

ACCREDITED
CERT #2041.02

TABLE OF CONTENTS



PART 27 MEASUREMENT REPORT



Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	OBW [MHz]	EIRP		Emission Designator
					Max. Power [W]	Max. Power [dBm]	
LTE Band 30	5 MHz	QPSK	2307.5 - 2312.5	4.5590	0.196	22.92	4M56G7W
		16QAM	2307.5 - 2312.5	4.5228	0.168	22.26	4M52D7W
		64QAM	2307.5 - 2312.5	4.5346	0.134	21.26	4M53D7W
		256QAM	2307.5 - 2312.5	4.5291	0.068	18.33	4M53D7W
	10MHz	QPSK	2310	9.0292	0.200	23.00	9M03G7W
		16QAM	2310	9.0089	0.173	22.39	9M01D7W
		64QAM	2310	8.9921	0.146	21.65	8M99D7W
		256QAM	2310	8.9932	0.073	18.64	8M99D7W
LTE Band 7	5 MHz	QPSK	2502.5 - 2567.5	4.5699	0.585	27.67	4M57G7W
		16QAM	2502.5 - 2567.5	4.5211	0.504	27.02	4M52D7W
		64QAM	2502.5 - 2567.5	4.5482	0.405	26.07	4M55D7W
		256QAM	2502.5 - 2567.5	4.5312	0.202	23.06	4M53D7W
	10 MHz	QPSK	2505 - 2565	9.0184	0.575	27.60	9M02G7W
		16QAM	2505 - 2565	9.0283	0.497	26.96	9M03D7W
		64QAM	2505 - 2565	8.9977	0.424	26.27	9M00D7W
		256QAM	2505 - 2565	8.9940	0.213	23.29	8M99D7W
	15 MHz	QPSK	2507.5 - 2562.5	13.5217	0.600	27.78	13M5G7W
		16QAM	2507.5 - 2562.5	13.5235	0.509	27.07	13M5D7W
		64QAM	2507.5 - 2562.5	13.4779	0.437	26.40	13M5D7W
		256QAM	2507.5 - 2562.5	13.5121	0.214	23.30	13M5D7W
	20 MHz	QPSK	2510 - 2560	18.0153	0.603	27.80	18M0G7W
		16QAM	2510 - 2560	18.0091	0.502	27.01	18M0D7W
		64QAM	2510 - 2560	18.0571	0.439	26.42	18M1D7W
		256QAM	2510 - 2560	18.0190	0.207	23.15	18M0D7W
LTE Band 41 (PC2)	5 MHz	QPSK	2498.5 - 2687.5	4.5281	1.047	30.20	4M53G7W
		16QAM	2498.5 - 2687.5	4.5076	0.975	29.89	4M51D7W
		64QAM	2498.5 - 2687.5	4.5172	0.899	29.54	4M52D7W
		256QAM	2498.5 - 2687.5	4.5275	0.424	26.27	4M53D7W
	10 MHz	QPSK	2501 - 2685	9.0341	1.047	30.20	9M03G7W
		16QAM	2501 - 2685	8.9952	0.959	29.82	9M00D7W
		64QAM	2501 - 2685	8.9897	0.723	28.59	8M99D7W
		256QAM	2501 - 2685	9.0353	0.378	25.77	9M04D7W
	15 MHz	QPSK	2503.5 - 2682.5	13.4727	1.047	30.20	13M5G7W
		16QAM	2503.5 - 2682.5	13.5072	0.927	29.67	13M5D7W
		64QAM	2503.5 - 2682.5	13.4843	0.708	28.50	13M5D7W
		256QAM	2503.5 - 2682.5	13.5202	0.376	25.75	13M5D7W
	20 MHz	QPSK	2506 - 2680	17.9722	1.047	30.20	18M0G7W
		16QAM	2506 - 2680	17.9383	0.935	29.71	17M9D7W
		64QAM	2506 - 2680	17.9423	0.769	28.86	17M9D7W
		256QAM	2506 - 2680	18.0028	0.429	26.32	18M0D7W
LTE Band 41(PC3)	5 MHz	QPSK	2498.5 - 2687.5	4.5281	0.723	28.59	4M53G7W
		16QAM	2498.5 - 2687.5	4.5076	0.571	27.57	4M51D7W
		64QAM	2498.5 - 2687.5	4.5172	0.490	26.90	4M52D7W
		256QAM	2498.5 - 2687.5	4.5275	0.240	23.80	4M53D7W
	10 MHz	QPSK	2501 - 2685	9.0341	0.731	28.64	9M03G7W
		16QAM	2501 - 2685	8.9952	0.603	27.80	9M00D7W
		64QAM	2501 - 2685	8.9897	0.454	26.57	8M99D7W
		256QAM	2501 - 2685	9.0353	0.233	23.68	9M04D7W
	15 MHz	QPSK	2503.5 - 2682.5	13.4727	0.708	28.50	13M5G7W
		16QAM	2503.5 - 2682.5	13.5072	0.581	27.64	13M5D7W
		64QAM	2503.5 - 2682.5	13.4843	0.443	26.46	13M5D7W
		256QAM	2503.5 - 2682.5	13.5202	0.231	23.63	13M5D7W
	20 MHz	QPSK	2506 - 2680	17.9722	0.700	28.45	18M0G7W
		16QAM	2506 - 2680	17.9383	0.592	27.72	17M9D7W
		64QAM	2506 - 2680	17.9423	0.448	26.51	17M9D7W
		256QAM	2506 - 2680	18.0028	0.256	24.08	18M0D7W

EUT Overview

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	OBW [MHz]	EIRP		Emission Designator
					Max. Power [W]	Max. Power [dBm]	
ULCA LTE Band 7	20 + 20 MHz	QPSK	2510 - 2560	37.4625	0.583	27.66	37M5G7W
		16QAM	2510 - 2560	37.4999	0.299	24.76	37M5D7W
		64QAM	2510 - 2560	37.4318	0.295	24.70	37M4D7W
		256QAM	2510 - 2560	37.4493	0.191	22.81	37M4D7W
ULCA LTE Band 41(PC2)	20 + 20 MHz	QPSK	2506 - 2680	37.5116	1.119	30.49	37M5G7W
		16QAM	2506 - 2680	37.5249	0.578	27.62	37M5D7W
		64QAM	2506 - 2680	37.4708	0.569	27.55	37M5D7W
		256QAM	2506 - 2680	37.4930	0.358	25.54	37M5D7W
ULCA LTE Band 41(PC3)	20 + 20 MHz	QPSK	2506 - 2680	37.5116	0.741	28.70	37M5G7W
		16QAM	2506 - 2680	37.5249	0.377	25.76	37M5D7W
		64QAM	2506 - 2680	37.4708	0.378	25.77	37M5D7W
		256QAM	2506 - 2680	37.4930	0.237	23.75	37M5D7W
NR Band n30	5 MHz	π/2 BPSK	2307.5 - 2312.5	4.5069	0.169	22.27	4M51G7W
		QPSK	2307.5 - 2312.5	4.5291	0.172	22.36	4M53G7W
		16QAM	2307.5 - 2312.5	4.5168	0.148	21.71	4M52D7W
		64QAM	2307.5 - 2312.5	4.5136	0.099	19.97	4M51D7W
		256QAM	2307.5 - 2312.5	4.5088	0.060	17.81	4M51D7W
	10MHz	π/2 BPSK	2310	9.0013	0.169	22.28	9M00G7W
		QPSK	2310	9.3186	0.171	22.33	9M32G7W
		16QAM	2310	9.3400	0.142	21.53	9M34D7W
		64QAM	2310	9.3347	0.106	20.24	9M33D7W
		256QAM	2310	9.3192	0.061	17.88	9M32D7W
NR Band n7	5 MHz	π/2 BPSK	2502.5 - 2567.5	4.5062	0.610	27.85	4M51G7W
		QPSK	2502.5 - 2567.5	4.5155	0.617	27.90	4M52G7W
		16QAM	2502.5 - 2567.5	4.5336	0.475	26.77	4M53D7W
		64QAM	2502.5 - 2567.5	4.5001	0.356	25.52	4M50D7W
		256QAM	2502.5 - 2567.5	4.5356	0.212	23.27	4M54D7W
	10MHz	π/2 BPSK	2505 - 2565	9.0086	0.612	27.87	9M01G7W
		QPSK	2505 - 2565	9.3429	0.617	27.90	9M34G7W
		16QAM	2505 - 2565	9.3347	0.507	27.05	9M33D7W
		64QAM	2505 - 2565	9.3700	0.346	25.39	9M37D7W
		256QAM	2505 - 2565	9.3312	0.222	23.46	9M33D7W
	15 MHz	π/2 BPSK	2507.5 - 2562.5	13.4818	0.616	27.90	13M5G7W
		QPSK	2507.5 - 2562.5	14.2247	0.617	27.90	14M2G7W
		16QAM	2507.5 - 2562.5	14.1859	0.486	26.86	14M2D7W
		64QAM	2507.5 - 2562.5	14.2158	0.344	25.36	14M2D7W
		256QAM	2507.5 - 2562.5	14.1488	0.215	23.33	14M1D7W
	20MHz	π/2 BPSK	2510 - 2560	17.9839	0.597	27.76	18M0G7W
		QPSK	2510 - 2560	19.0360	0.605	27.82	19M0G7W
		16QAM	2510 - 2560	19.0418	0.510	27.08	19M0D7W
		64QAM	2510 - 2560	19.1149	0.359	25.55	19M1D7W
		256QAM	2510 - 2560	19.0258	0.218	23.39	19M0D7W
	25MHz	π/2 BPSK	2512.5 - 2557.5	23.0118	0.617	27.90	23M0G7W
		QPSK	2512.5 - 2557.5	23.8813	0.615	27.89	23M9G7W
		16QAM	2512.5 - 2557.5	23.9120	0.518	27.14	23M9D7W
		64QAM	2512.5 - 2557.5	23.9363	0.359	25.55	23M9D7W
		256QAM	2512.5 - 2557.5	23.9292	0.219	23.41	23M9D7W
	30MHz	π/2 BPSK	2515 - 2555	28.7204	0.617	27.90	28M7G7W
		QPSK	2515 - 2555	28.8309	0.597	27.76	28M8G7W
		16QAM	2515 - 2555	28.6524	0.486	26.87	28M7D7W
		64QAM	2515 - 2555	28.7694	0.348	25.42	28M8D7W
		256QAM	2515 - 2555	28.7902	0.208	23.19	28M8D7W
	40MHz	π/2 BPSK	2520 - 2550	38.7742	0.597	27.76	38M8G7W
		QPSK	2520 - 2550	38.8563	0.611	27.86	38M9G7W
		16QAM	2520 - 2550	38.7042	0.545	27.36	38M7D7W
		64QAM	2520 - 2550	38.5853	0.369	25.67	38M6D7W
		256QAM	2520 - 2550	38.7149	0.227	23.56	38M7D7W

EUT Overview

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	OBW [MHz]	EIRP		Emission Designator
					Max. Power [W]	Max. Power [dBm]	
NR Band n41 (PC2)	20 MHz	π/2 BPSK	2506 - 2680	17.9565	1.170	30.68	18M0G7W
		QPSK	2506 - 2680	18.3274	1.175	30.70	18M3G7W
		16QAM	2506 - 2680	18.3750	0.975	29.89	18M4D7W
		64QAM	2506 - 2680	18.3650	0.665	28.23	18M4D7W
		256QAM	2506 - 2680	18.3076	0.459	26.62	18M3D7W
	30MHz	π/2 BPSK	2511 - 2675	26.9486	1.175	30.70	26M9G7W
		QPSK	2511 - 2675	28.0415	1.169	30.68	28M0G7W
		16QAM	2511 - 2675	27.9597	1.036	30.15	28M0D7W
		64QAM	2511 - 2675	28.0300	0.708	28.50	28M0D7W
		256QAM	2511 - 2675	27.8920	0.478	26.80	27M9D7W
	40 MHz	π/2 BPSK	2516 - 2670	35.8869	1.175	30.70	35M9G7W
		QPSK	2516 - 2670	37.9918	1.123	30.50	38M0G7W
		16QAM	2516 - 2670	38.0445	0.954	29.80	38M0D7W
		64QAM	2516 - 2670	38.0087	0.718	28.56	38M0D7W
		256QAM	2516 - 2670	38.0232	0.459	26.62	38M0D7W
	50 MHz	π/2 BPSK	2521 - 2665	46.0849	1.175	30.70	46M1G7W
		QPSK	2521 - 2665	47.7266	1.166	30.67	47M7G7W
		16QAM	2521 - 2665	47.8293	0.981	29.92	47M8D7W
		64QAM	2521 - 2665	47.8024	0.694	28.42	47M8D7W
		256QAM	2521 - 2665	47.7986	0.456	26.59	47M8D7W
	60 MHz	π/2 BPSK	2526 - 2660	58.2317	1.175	30.70	58M2G7W
		QPSK	2526 - 2660	58.2557	1.170	30.68	58M3G7W
		16QAM	2526 - 2660	58.4034	0.924	29.66	58M4D7W
		64QAM	2526 - 2660	58.3147	0.691	28.40	58M3D7W
		256QAM	2526 - 2660	58.4268	0.450	26.54	58M4D7W
	80 MHz	π/2 BPSK	2536 - 2650	77.7346	1.161	30.65	77M7G7W
		QPSK	2536 - 2650	78.0890	1.175	30.70	78M1G7W
		16QAM	2536 - 2650	77.9217	0.959	29.82	77M9D7W
		64QAM	2536 - 2650	78.2337	0.697	28.43	78M2D7W
		256QAM	2536 - 2650	77.8962	0.450	26.53	77M9D7W
	90 MHz	π/2 BPSK	2541 - 2645	87.5568	1.175	30.70	87M6G7W
		QPSK	2541 - 2645	88.3019	1.159	30.64	88M3G7W
		16QAM	2541 - 2645	88.1932	0.927	29.67	88M2D7W
		64QAM	2541 - 2645	88.2167	0.674	28.29	88M2D7W
		256QAM	2541 - 2645	88.2143	0.445	26.49	88M2D7W
	100 MHz	π/2 BPSK	2546 - 2640	97.0827	1.175	30.70	97M1G7W
		QPSK	2546 - 2640	98.2083	1.166	30.67	98M2G7W
		16QAM	2546 - 2640	98.3032	0.942	29.74	98M3D7W
		64QAM	2546 - 2640	98.3878	0.670	28.26	98M4D7W
		256QAM	2546 - 2640	98.0820	0.431	26.34	98M1D7W
NR Band n41 (PC3)	20 MHz	π/2 BPSK	2506 - 2680	17.9565	0.741	28.70	18M0G7W
		QPSK	2506 - 2680	18.3274	0.739	28.69	18M3G7W
		16QAM	2506 - 2680	18.3750	0.631	28.00	18M4D7W
		64QAM	2506 - 2680	18.3650	0.433	26.36	18M4D7W
		256QAM	2506 - 2680	18.3076	0.284	24.53	18M3D7W
	30MHz	π/2 BPSK	2511 - 2675	26.9486	0.741	28.70	26M9G7W
		QPSK	2511 - 2675	28.0415	0.738	28.68	28M0G7W
		16QAM	2511 - 2675	27.9597	0.597	27.76	28M0D7W
		64QAM	2511 - 2675	28.0300	0.409	26.12	28M0D7W
		256QAM	2511 - 2675	27.8920	0.269	24.29	27M9D7W
	40 MHz	π/2 BPSK	2516 - 2670	35.8869	0.741	28.70	35M9G7W
		QPSK	2516 - 2670	37.9918	0.724	28.60	38M0G7W
		16QAM	2516 - 2670	38.0445	0.601	27.79	38M0D7W
		64QAM	2516 - 2670	38.0087	0.425	26.28	38M0D7W
		256QAM	2516 - 2670	38.0232	0.277	24.43	38M0D7W
	50 MHz	π/2 BPSK	2521 - 2665	46.0849	0.741	28.70	46M1G7W
		QPSK	2521 - 2665	47.7266	0.734	28.66	47M7G7W
		16QAM	2521 - 2665	47.8293	0.606	27.83	47M8D7W
		64QAM	2521 - 2665	47.8024	0.429	26.33	47M8D7W
		256QAM	2521 - 2665	47.7986	0.277	24.42	47M8D7W
	60 MHz	π/2 BPSK	2526 - 2660	58.2317	0.741	28.70	58M2G7W
		QPSK	2526 - 2660	58.2557	0.729	28.63	58M3G7W
		16QAM	2526 - 2660	58.4034	0.614	27.88	58M4D7W
		64QAM	2526 - 2660	58.3147	0.460	26.63	58M3D7W
		256QAM	2526 - 2660	58.4268	0.280	24.47	58M4D7W
	80 MHz	π/2 BPSK	2536 - 2650	77.7346	0.732	28.64	77M7G7W
		QPSK	2536 - 2650	78.0890	0.741	28.70	78M1G7W
		16QAM	2536 - 2650	77.9217	0.597	27.76	77M9D7W
		64QAM	2536 - 2650	78.2337	0.415	26.18	78M2D7W
		256QAM	2536 - 2650	77.8962	0.272	24.35	77M9D7W
	90 MHz	π/2 BPSK	2541 - 2645	87.5568	0.732	28.64	87M6G7W
		QPSK	2541 - 2645	88.3019	0.741	28.70	88M3G7W
		16QAM	2541 - 2645	88.1932	0.640	28.06	88M2D7W
		64QAM	2541 - 2645	88.2167	0.445	26.48	88M2D7W
		256QAM	2541 - 2645	88.2143	0.276	24.42	88M2D7W
	100 MHz	π/2 BPSK	2546 - 2640	97.0827	0.740	28.69	97M1G7W
		QPSK	2546 - 2640	98.2083	0.741	28.70	98M2G7W
		16QAM	2546 - 2640	98.3032	0.616	27.90	98M3D7W
		64QAM	2546 - 2640	98.3878	0.419	26.22	98M4D7W
		256QAM	2546 - 2640	98.0820	0.283	24.52	98M1D7W

EUT Overview

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 Washington DC LLC Test Location

These measurement tests were conducted at the Element 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 Washington DC LLC located in Morgan Hill, CA 95037, 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 2041.02 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 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 (22831) test laboratory with the site description on file with ISED.

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Apple Tablet Device FCC ID:BCGA2757**. 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.: YG6YDYXRKQ, F32YWYM00Y, DLX216700E11KXN1M

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

Measurements for LTE-Band41/n41 and ULCA CA_41C were performed with NS04 for all antenna ports.

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	WiFi 2.4GHz	Bluetooth	WiFi 5GHz	WCDMA / LTE / FR1 NR		
		802.11 b/g/n/ax	BDR, EDR, HDR4/8, LE1/2M	802.11 a/n/ac/ax	Mid Band	High Band	Ultra High Band
3a	Config 1	×	✓	✓	×	×	×
3a	Config 2	✓	×	×	✓	×	×
3a	Config 3	✓	×	×	×	✓	×
3a	Config 4	×	✓	✓	✓	×	×
3a	Config 5	×	✓	✓	×	✓	×
1b	Config 6	×	×	✓	✓	×	×
1b	Config 7	×	×	✓	×	✓	×
1a	Config 8	✓	×	×	×	×	✓
1a	Config 9	×	✓	×	×	×	✓

Table 2-1. Simultaneous Transmission Configurations

✓ = Support; × = Not Support

Note:

1. Wi-Fi 2.4GHz and Bluetooth 2.4 GHz can transmit simultaneously on separate antennas. Specific 2.4GHz Wi-Fi antenna that can only transmit simultaneously with 2.4 GHz Bluetooth antenna is listed in the SAR test report. For BT (2.4 GHz) in connected mode and Wi-Fi (2.4 GHz) – Wi-Fi max power will not exceed minimum of (13.5dBm, SAR max cap, Reg max cap) power. For BT (2.4 GHz) in disconnected mode and Wi-Fi (2.4 GHz) – BT will be using iPA only and Wi-Fi max power will not exceed minimum of (SAR max cap, Reg max cap) power.

2.3 Antenna Description

Following antenna gains provided by manufacturer were used for testing.

Band	Antenna Gain (dBi)			
	Antenna 4	Antenna 2b	Antenna 3a	Antenna 1b
LTE Band 30	1.2	-1.6	0.8	-4.5
LTE Band n30				
LTE Band 7	2.2	-0.9	3.0	-4.4
LTE Band n7				
LTE Band 41	3.0	-0.9	2.8	-3.9
LTE Band n41				

Table 2-2. Highest Antenna Gain

2.4 Test Support Equipment

1	Apple MacBook Pro	Model:	A2141	S/N:	C02DV7VKMD6T
	w/AC/DC Adapter	Model:	A2166	S/N:	N/A
2	Apple USB-C Cable	Model:	Spartan	S/N:	000MKTR02U
3	USB-C Cable	Model:	A246	S/N:	N/A
	w/ AC Adapter	Model:	A2305	S/N:	N/A
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.

All possible simultaneous transmission configurations have been investigated and the worst case config has been reported.

Description	WLAN	LTE Band 30
Antenna	3a	3a
Channel	1	27710
Operating Frequency (MHz)	2412	2310MHz
Mode/Modulation	b / 11Mbps	QPSK/1RB/10MHz

Table 2-4. Worst Case Simultaneous Transmission Configuration

2.6 Software and Firmware

The test was conducted with firmware version 20A32640u 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 "Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards" (ANSI C63.26 2015, TIA-603-E-2016) and "Measurement Guidance for Certification of Licensed Digital Transmitters" (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

$$EIRP_{[dBm]} = E_{[dB\mu V/m]} + 20\log D - 104.8;$$ 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	1.77
Radiated Disturbance (<30MHz)	4.38
Radiated Disturbance (30MHz-1GHz)	4.75
Radiated Disturbance (1-18GHz)	5.20
Radiated Disturbance (>18GHz)	4.72

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
Agilent Technologies	N9030A	3Hz-44GHz PXA Signal Analyzer	6/10/2022	Annual	6/10/2023	MY49430244
Agilent Technologies	N9020A	MXA Signal Analyzer	4/26/2022	Annual	4/26/2023	MY56470202
ATM	180-442A-KF	20dB Nominal Gain Horn Antenna	1/19/2022	Annual	1/19/2023	T058701-02
ETS-Lindgren	3142E	Biconilog Antenna (26-6000MHz)	10/21/2021	Annual	10/21/2022	208204
ETS-Lindgren	3117	Double Ridged Guide Horn Antenna (1-18GHz)	10/25/2021	Annual	10/25/2022	227597
ETS-Lindgren	SU-241	Table Top Temperature Chamber	10/6/2021	Annual	10/6/2022	92009574
Keysight Technology	N9040B	UXA Signal Analyzer	2/8/2022	Annual	2/8/2023	MY57212015
Rohde & Schwarz	TS-PR8	Pre-Amplifier (30MHz-6GHz)	1/6/2022	Annual	1/6/2023	102328
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	10/11/2021	Annual	10/11/2022	161616
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	11/4/2021	Annual	11/4/2022	151888
Rohde & Schwarz	ESW26	EMI Test Receiver	5/19/2022	Annual	5/19/2023	101299
Rohde & Schwarz	ESW44	EMI Test Receiver	12/2/2021	Annual	12/2/2022	101570
Rohde & Schwarz	FSV40	Signal Analyzer (10Hz-40GHz)	3/4/2022	Annual	3/4/2023	101619
Rohde & Schwarz	FSVA3044	Signal Analyzer (up to 44 GHz)	5/12/2022	Annual	5/12/2023	101098
Rohde & Schwarz	HFH2-Z2	Loop Antenna	4/3/2022	Annual	4/3/2023	100546
Rohde & Schwarz	TC-TA18	Cross-Polarized Antenna 400MHz-18GHz	1/25/2022	Annual	1/25/2023	101063
Rohde & Schwarz	TS-PR18	Pre-Amplifier (1GHz-18GHz)	1/6/2022	Annual	1/6/2023	101639
Rohde & Schwarz	TS-PR1840	Pre-Amplifier (18GHz-40GHz)	4/18/2022	Annual	4/18/2023	100050

Table 5-1. Test Equipment

Notes:

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.

6.0 SAMPLE CALCULATIONS

Emission Designator

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
BW = 8.45 MHz
D = Amplitude/Angle Modulated
7 = Quantized/Digital Info
W = Combination of Any

Spurious Radiated Emission

Example: Spurious emission at 3700.40 MHz

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

7.0 TEST RESULTS

7.1 Summary

Company Name: Apple Inc.

FCC ID: BCGA2757

FCC Classification: PCS Licensed Transmitter (PCB)

Mode(s): LTE/NR/ULCA

Test Condition	Test Description	FCC Part Section(s)	Test Limit	Test Result	Reference
CONDUCTED	Occupied Bandwidth	2.1049	N/A	N/A	Section 7.2
	Conducted Band Edge / Spurious Emissions (LTE Band 30)	2.1051, 27.53(a)	Undesirable emissions must meet the limits detailed in 27.53(a)	PASS	Sections 7.3, 7.4
	Conducted Band Edge / Spurious Emissions (LTE Band 7)	2.1051, 27.53(m)	Undesirable emissions must meet the limits detailed in 27.53(m)	PASS	Sections 7.3, 7.4
	Conducted Band Edge / Spurious Emissions (LTE Band 41)			PASS	Sections 7.3, 7.4
	Conducted Band Edge / Spurious Emissions (NR Band n41)			PASS	Sections 7.3, 7.4
	Transmitter Conducted Output Power	2.1046	N/A	N/A	See RF Exposure Report
	Additional Maximum Power Reduction (A-MPR)	2.1046	N/A	N/A	Section 7.5
	Effective Radiated Power / Equivalent Isotropic Radiated Power (LTE Band 30)	27.50(a)(3)	< 0.25 Watts max. EIRP	PASS	Section 7.6
	Effective Radiated Power / Equivalent Isotropic Radiated Power (LTE Band 7)	27.50(h)(2)	< 2 Watts max. EIRP	PASS	Section 7.6
	Effective Radiated Power / Equivalent Isotropic Radiated Power (LTE Band 41)			PASS	Section 7.6
	Effective Radiated Power / Equivalent Isotropic Radiated Power (NR Band n41)			PASS	Section 7.6
	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
RADIATED	Radiated Spurious Emissions (LTE Band 30)	2.1053, 27.53(a)	> 70 + 10log10(P[Watts])	PASS	Section 7.7
	Radiated Spurious Emissions (LTE Band 7)	2.1053, 27.53(m)	Undesirable emissions must meet the limits detailed in 27.53(m)	PASS	Section 7.7
	Radiated Spurious Emissions (LTE Band 41)			PASS	Section 7.7
	Radiated Spurious Emissions (NR Band n41)			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 port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.

4. All conducted emissions measurements are performed with automated test software to capture the corresponding plots necessary to show compliance. The measurement software utilized was Element EMC Software Tool v1.1.

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.

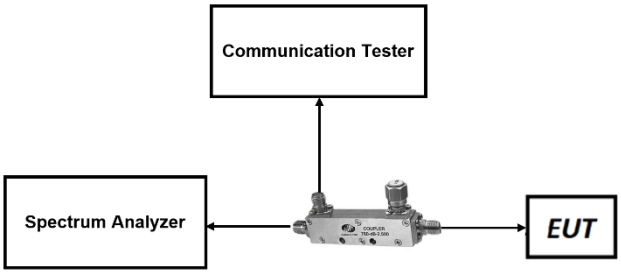
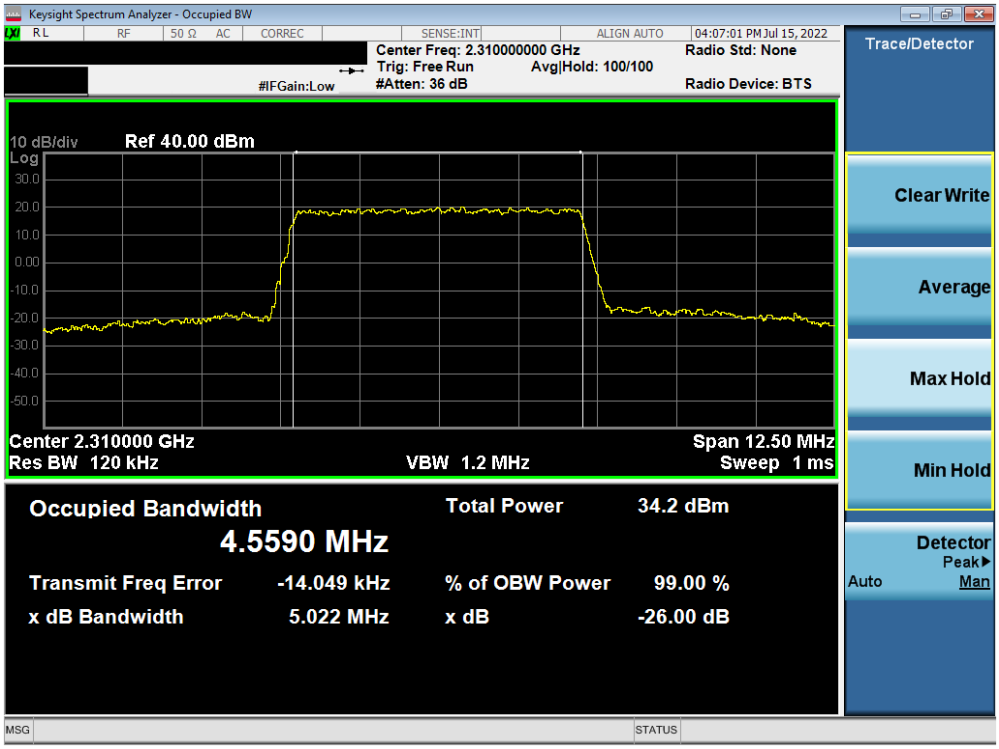


Figure 7-1. Test Instrument & Measurement Setup

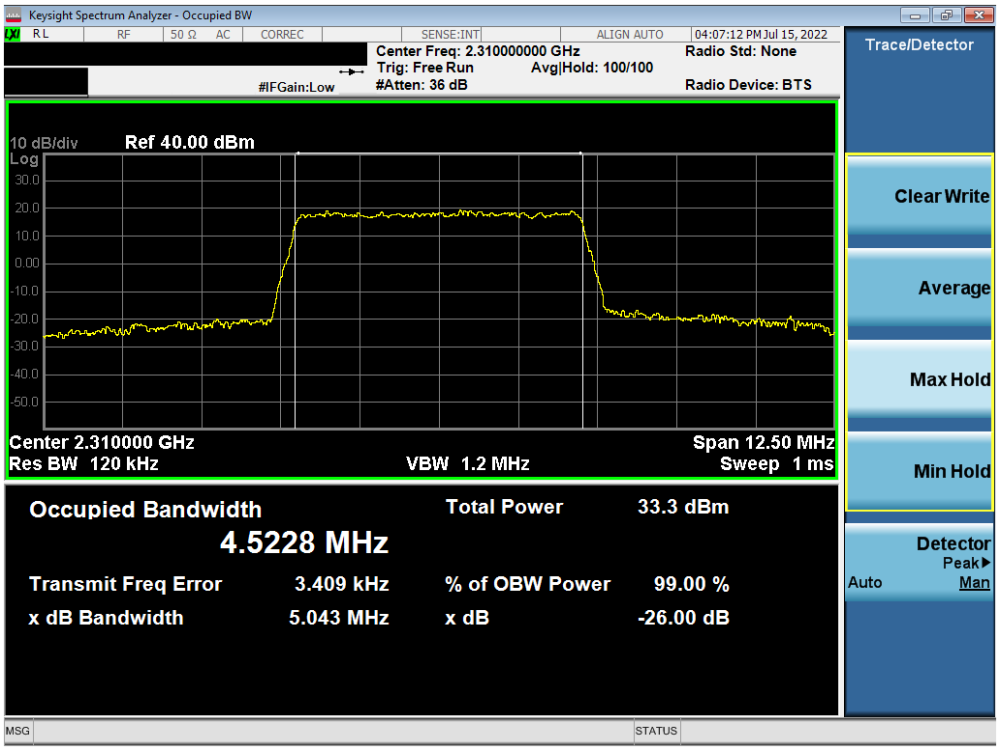
Test Notes

None.

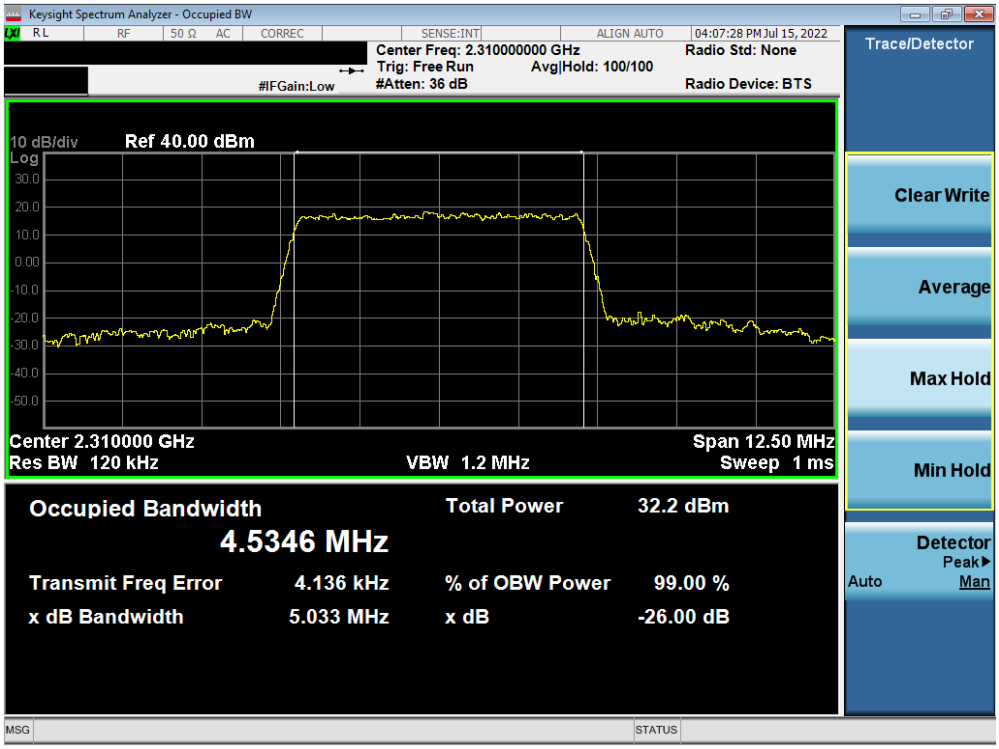
LTE Band 30



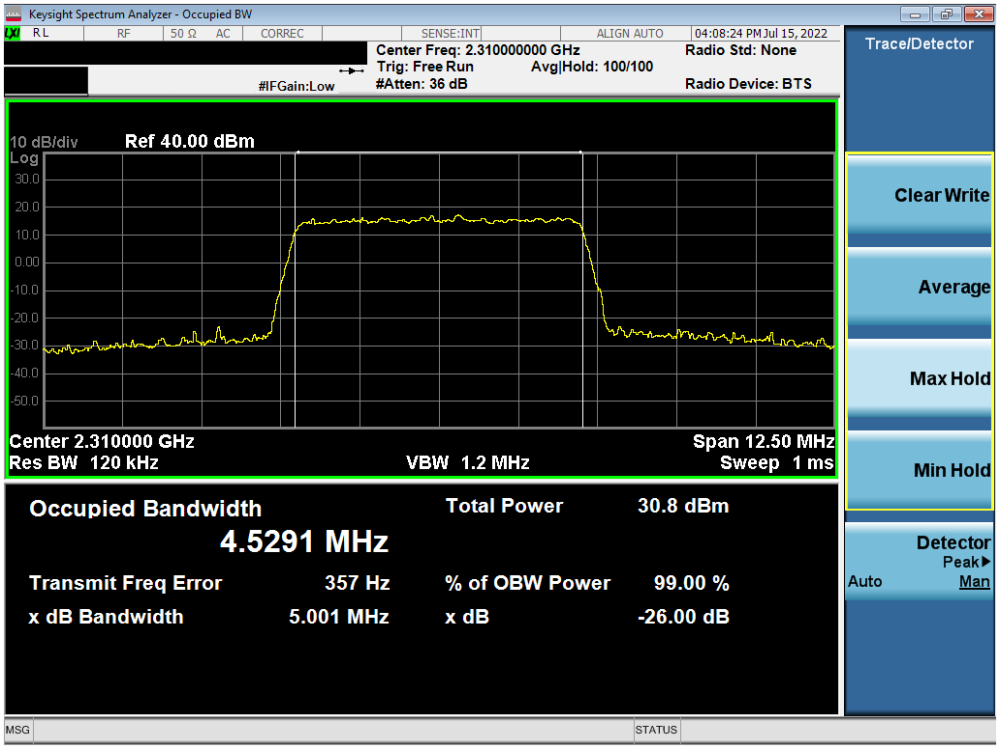
Plot 7-1. Occupied Bandwidth Plot (LTE Band 30 - 5MHz QPSK - Full RB)



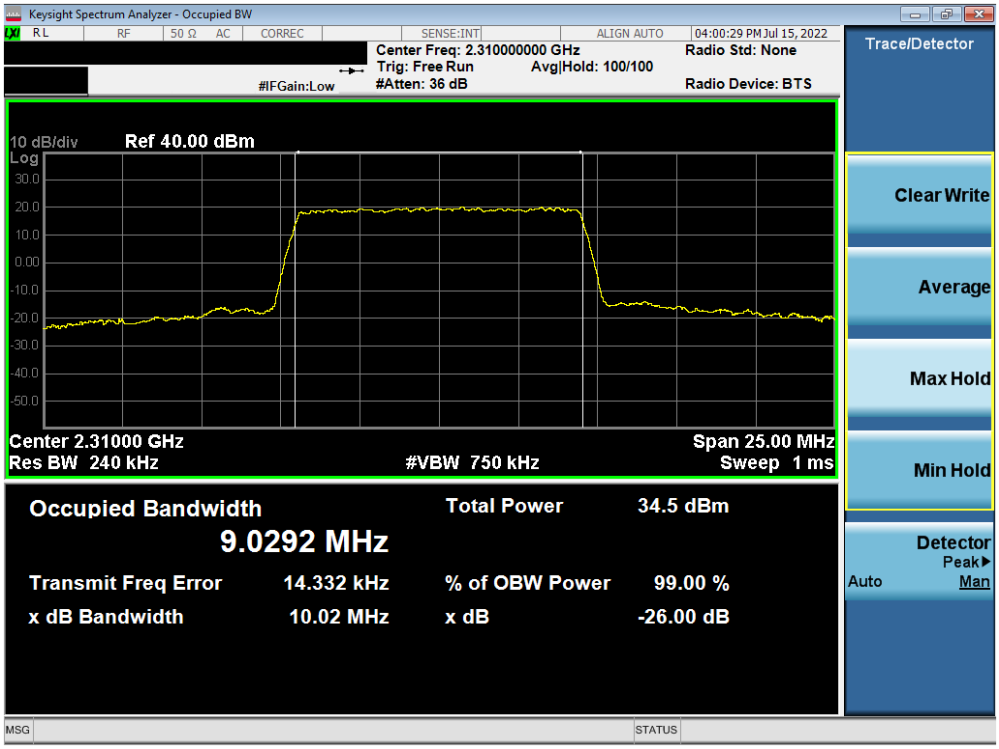
Plot 7-2. Occupied Bandwidth Plot (LTE Band 30 - 5MHz 16-QAM - Full RB)



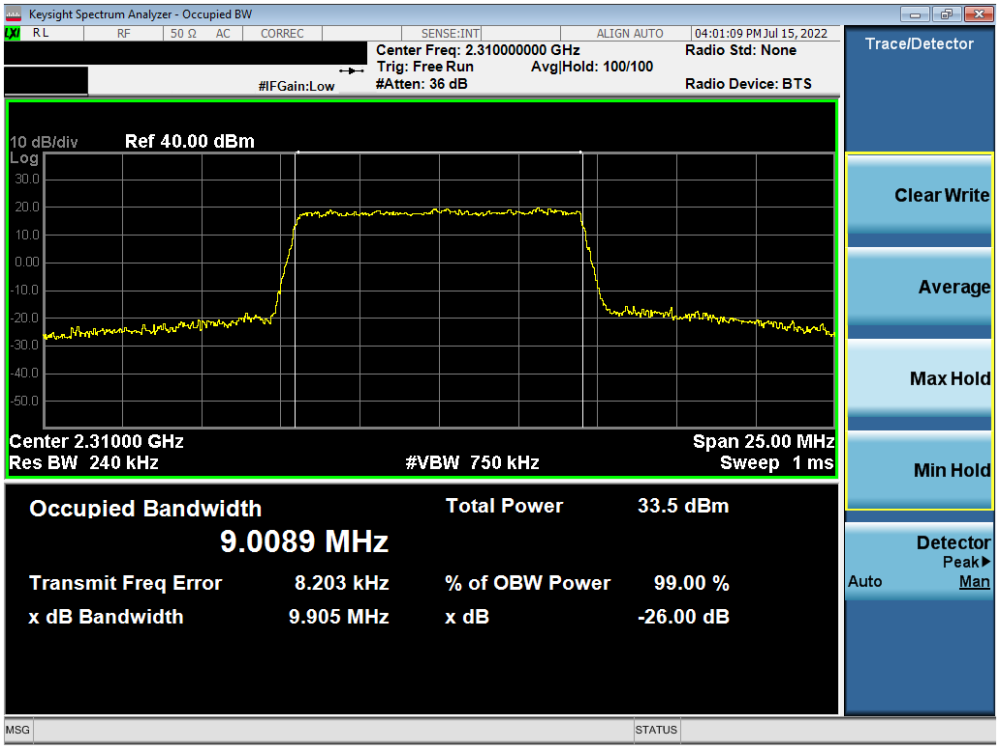
Plot 7-3. Occupied Bandwidth Plot (LTE Band 30 - 5MHz 64-QAM - Full RB)



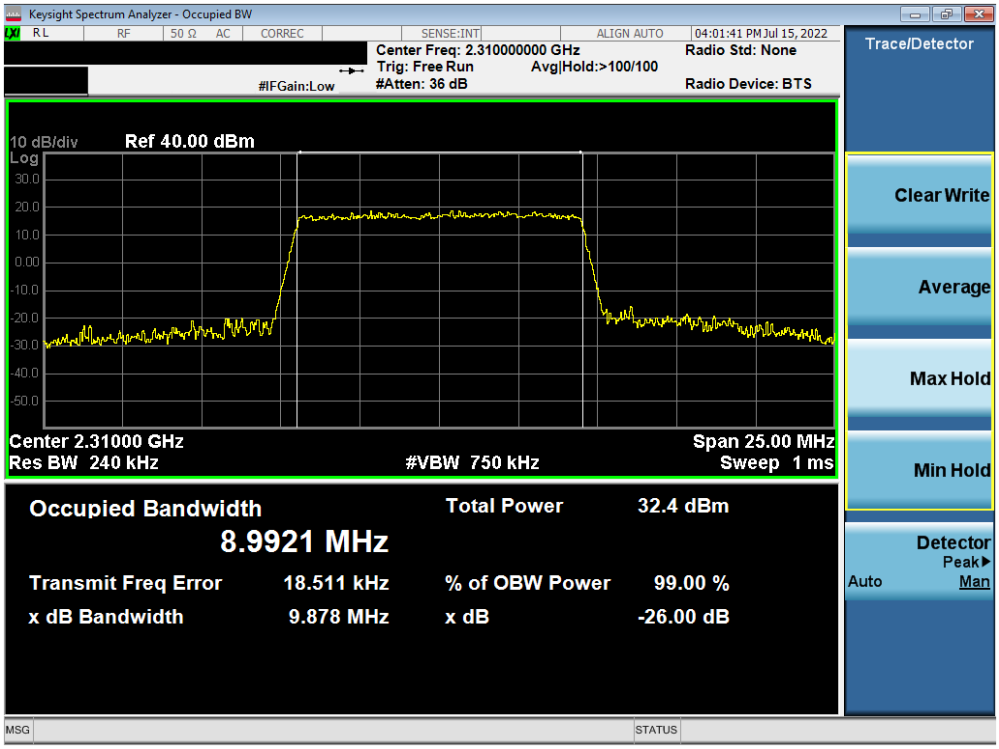
Plot 7-4. Occupied Bandwidth Plot (LTE Band 30 - 5MHz 256-QAM - Full RB)



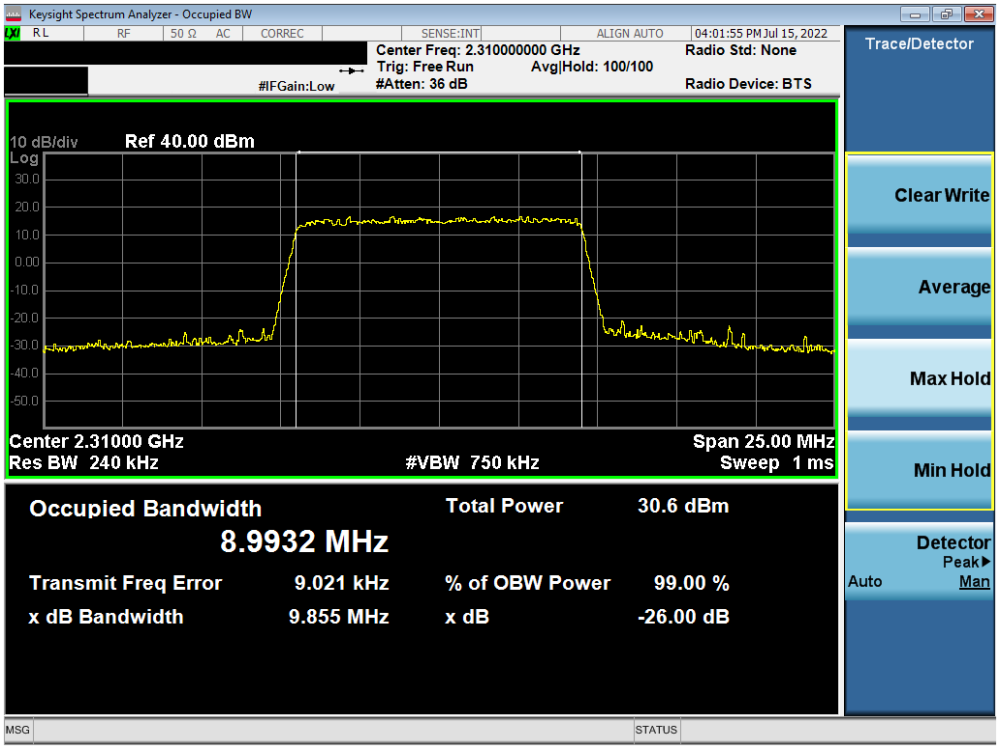
Plot 7-5. Occupied Bandwidth Plot (LTE Band 30 - 10MHz QPSK - Full RB)



Plot 7-6. Occupied Bandwidth Plot (LTE Band 30 - 10MHz 16-QAM - Full RB)

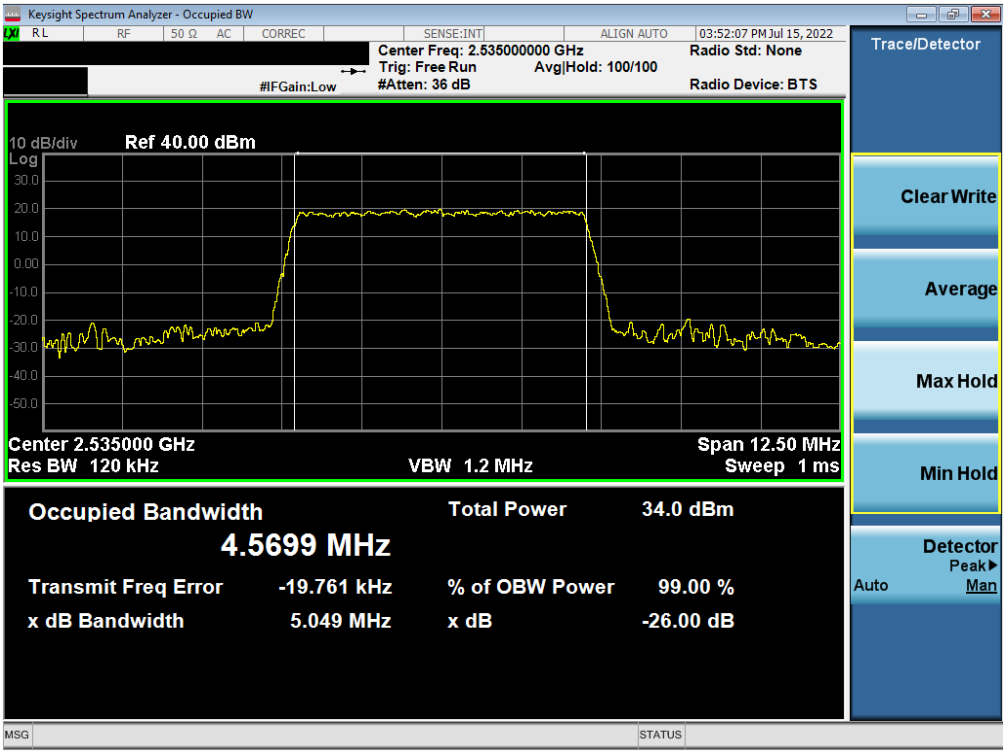


Plot 7-7. Occupied Bandwidth Plot (LTE Band 30 - 10MHz 64-QAM - Full RB)

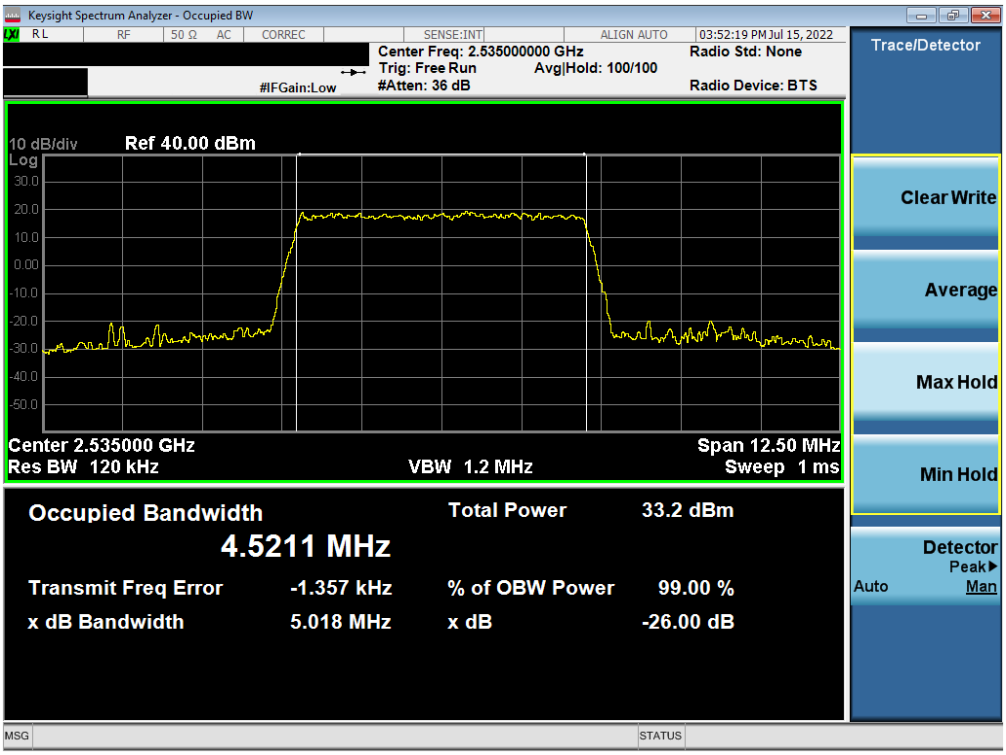


Plot 7-8. Occupied Bandwidth Plot (LTE Band 30 - 10MHz 256-QAM - Full RB)

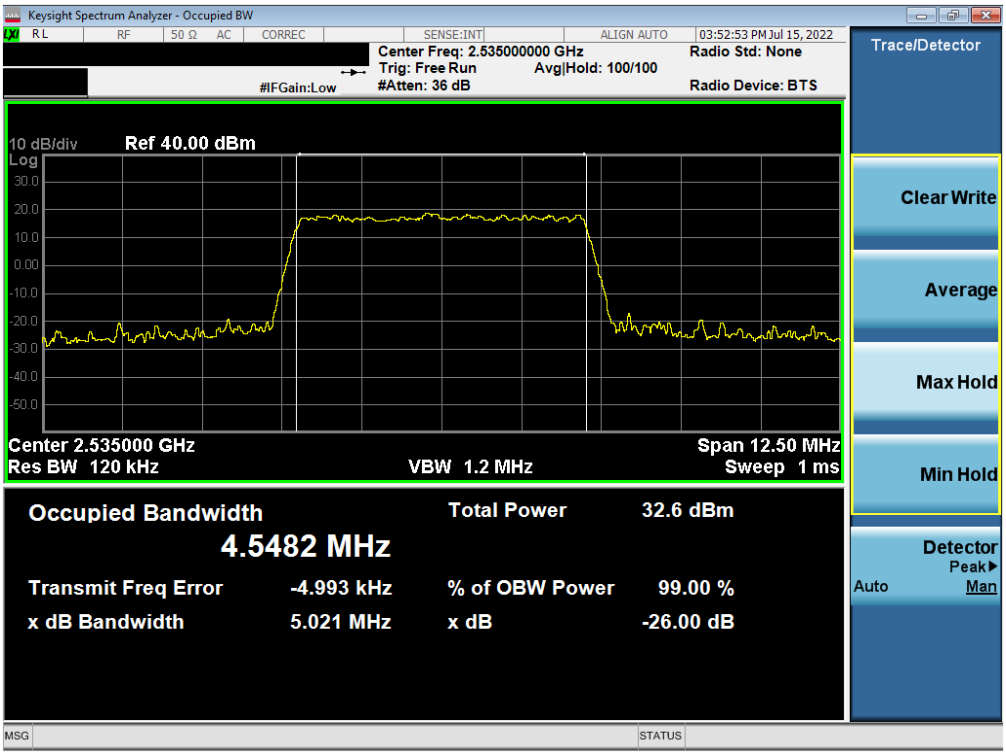
LTE Band 7



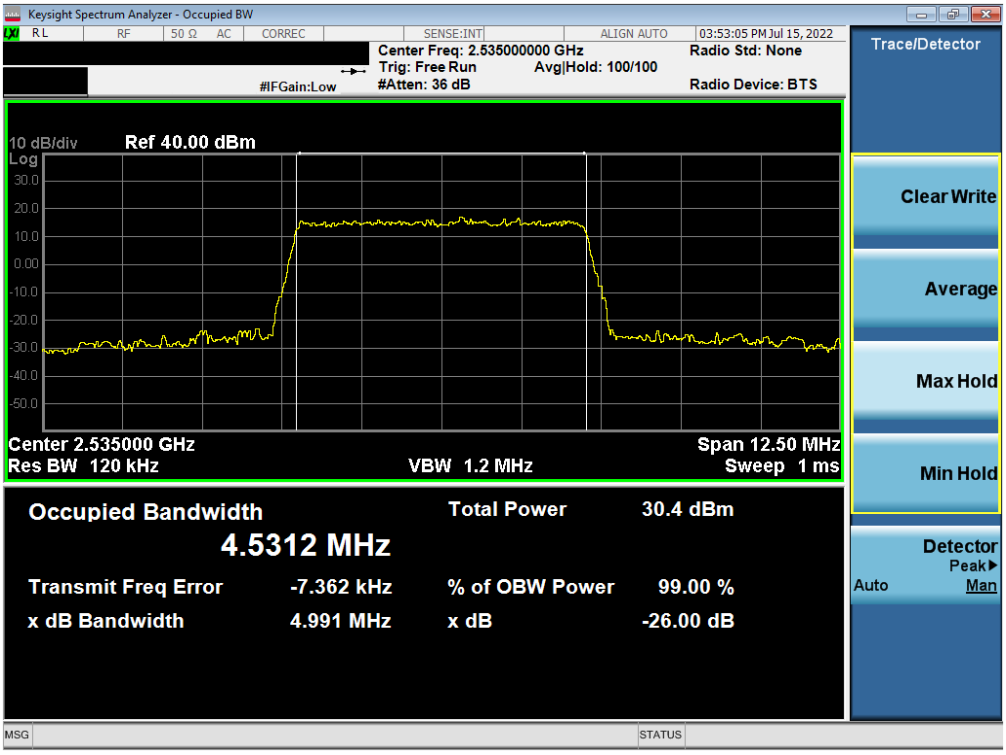
Plot 7-9. Occupied Bandwidth Plot (LTE Band 7 - 5MHz QPSK - Full RB)



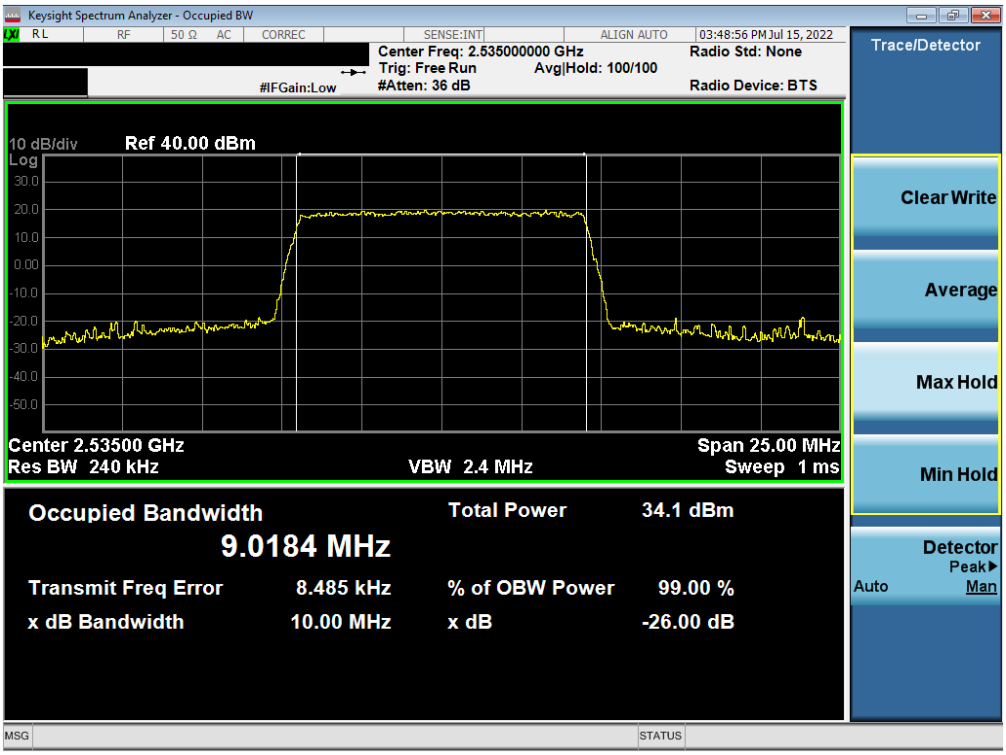
Plot 7-10. Occupied Bandwidth Plot (LTE Band 7 - 5MHz 16-QAM - Full RB)



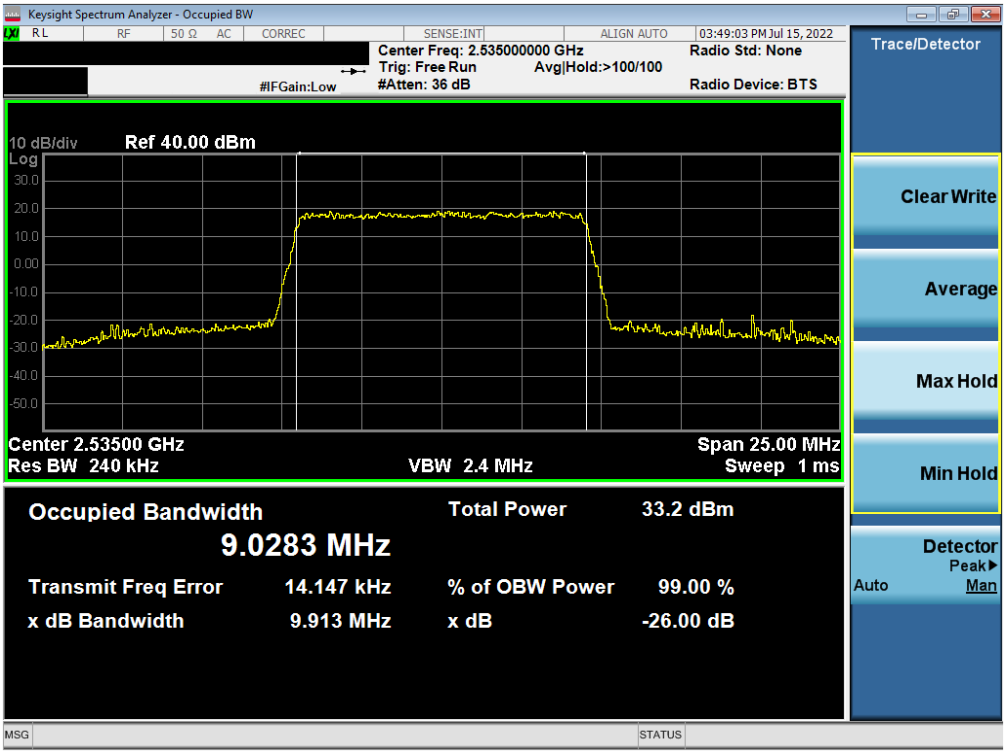
Plot 7-11. Occupied Bandwidth Plot (LTE Band 7 - 5MHz 64-QAM - Full RB)



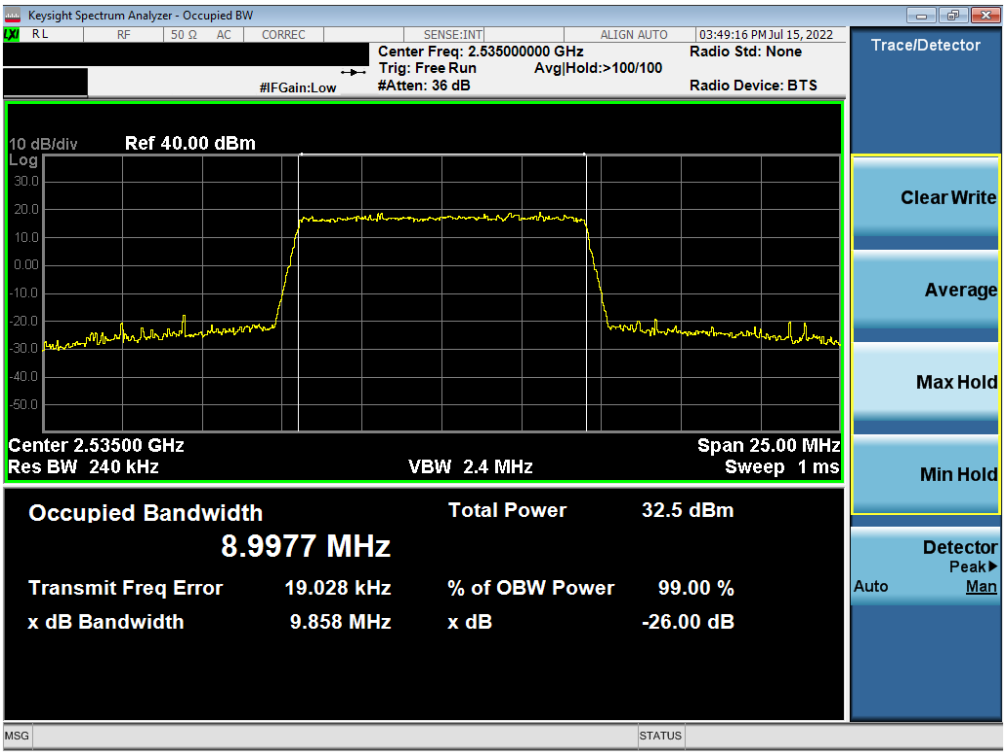
Plot 7-12. Occupied Bandwidth Plot (LTE Band 7 - 5MHz 256-QAM - Full RB)



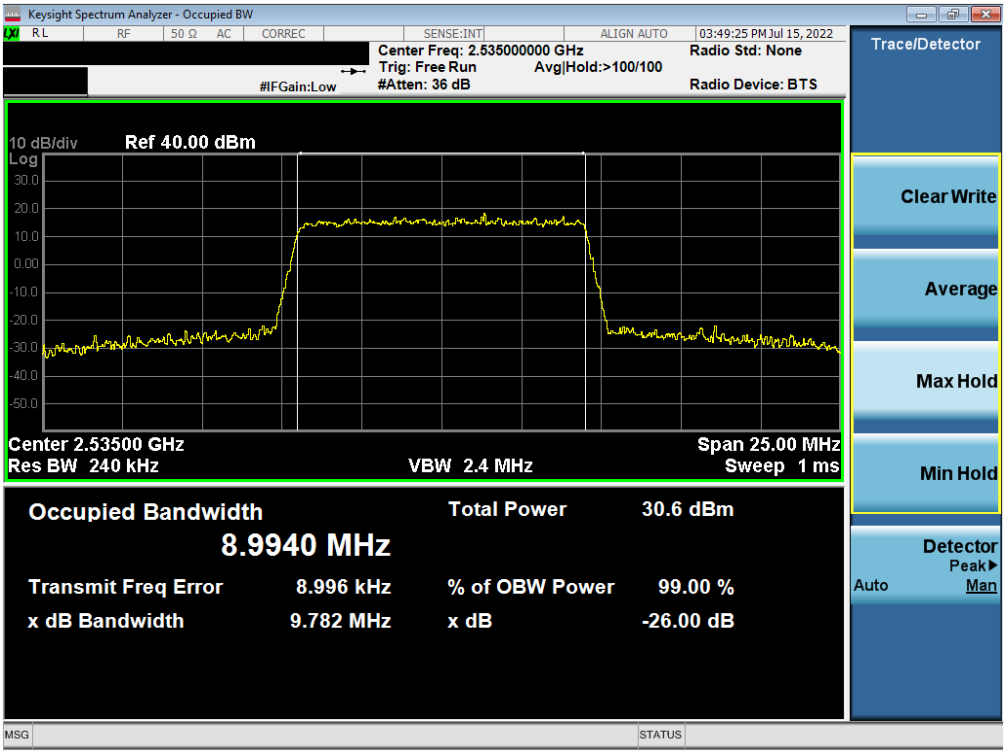
Plot 7-13. Occupied Bandwidth Plot (LTE Band 7 - 10MHz QPSK - Full RB)



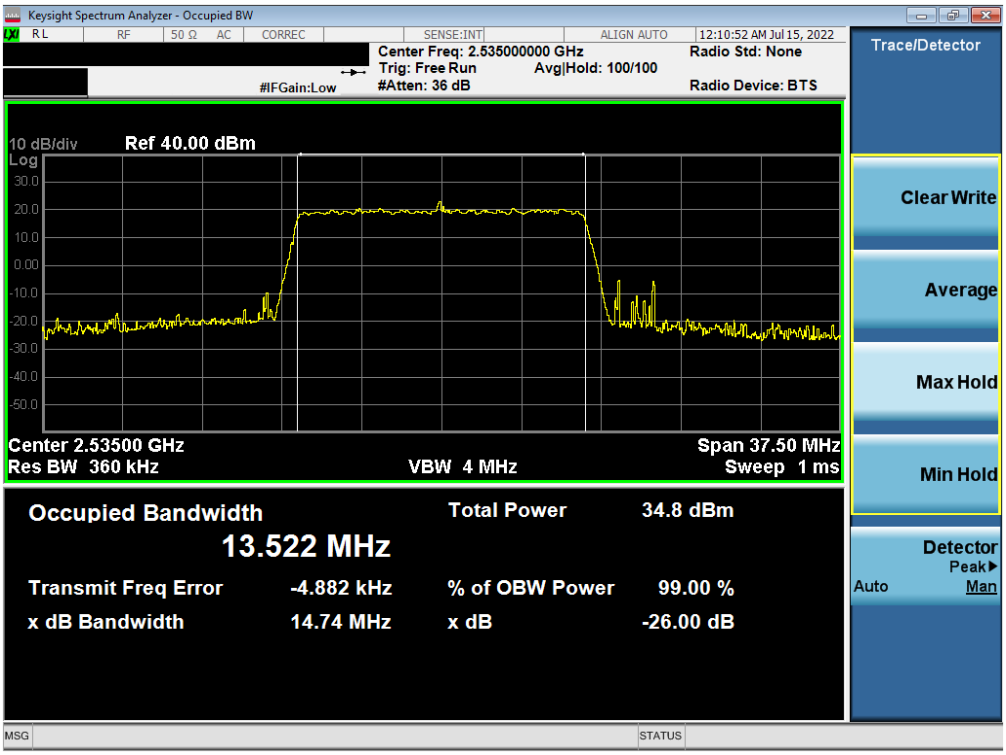
Plot 7-14. Occupied Bandwidth Plot (LTE Band 7 - 10MHz 16-QAM - Full RB)



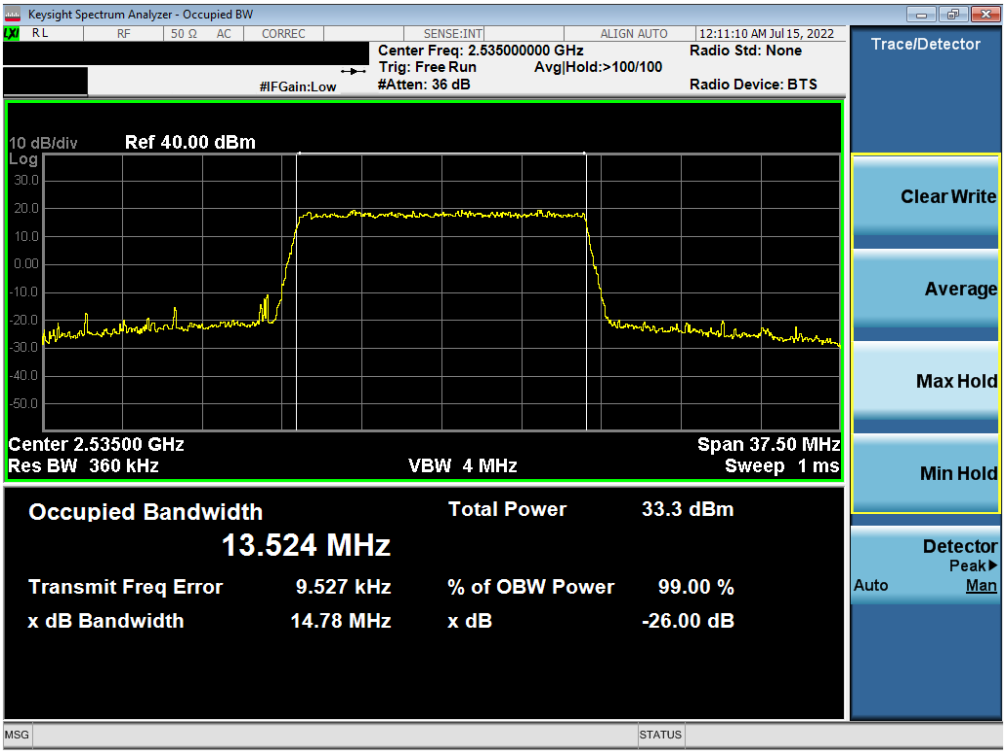
Plot 7-15. Occupied Bandwidth Plot (LTE Band 7 - 10MHz 64-QAM - Full RB)



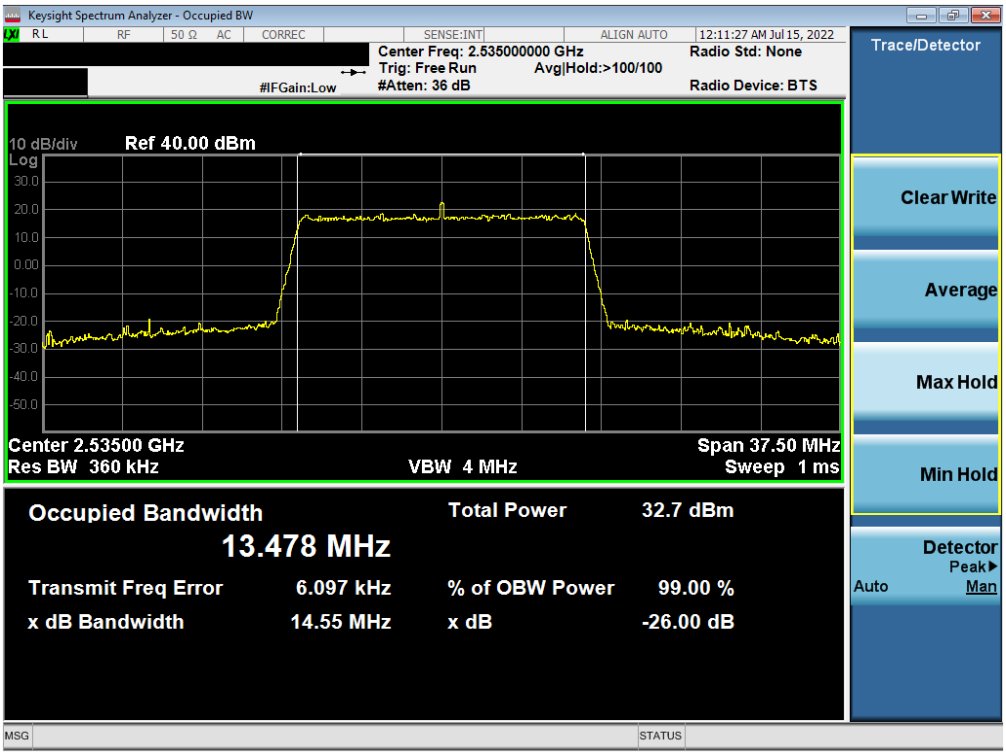
Plot 7-16. Occupied Bandwidth Plot (LTE Band 7 - 10MHz 256-QAM - Full RB)



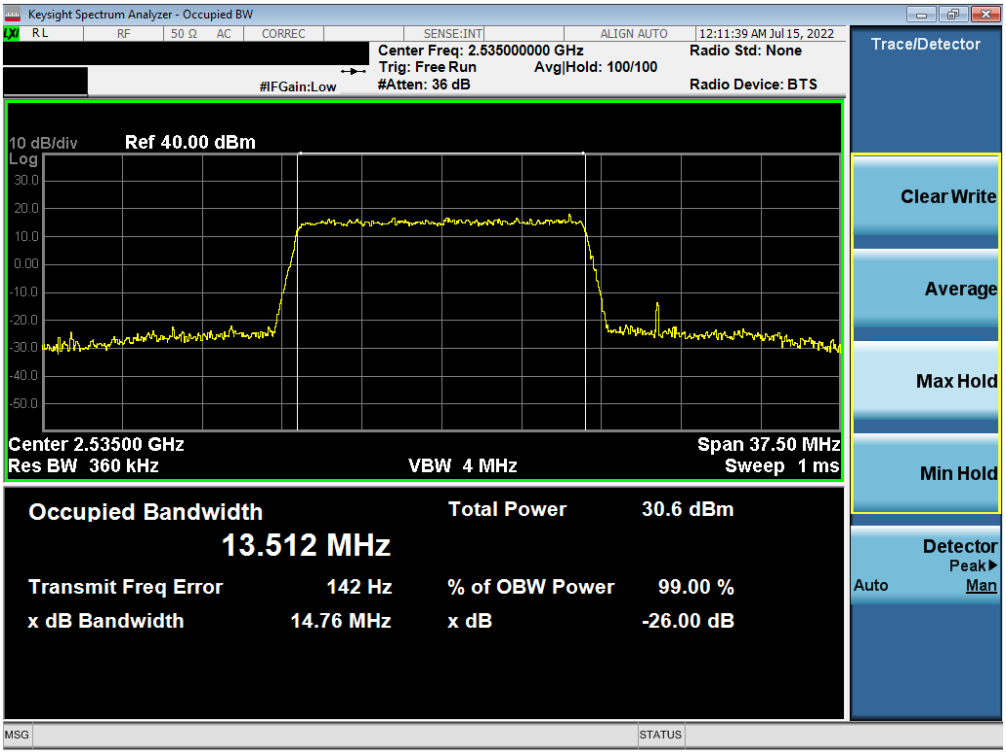
Plot 7-17. Occupied Bandwidth Plot (LTE Band 7 - 15MHz QPSK - Full RB)



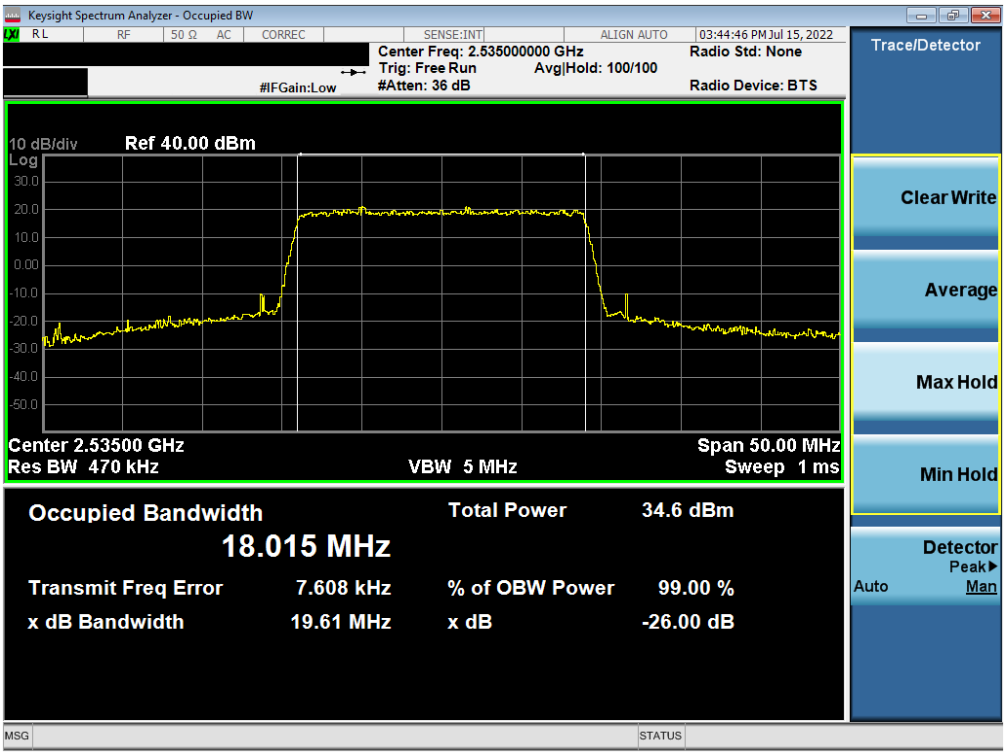
Plot 7-18. Occupied Bandwidth Plot (LTE Band 7 - 15MHz 16-QAM - Full RB)



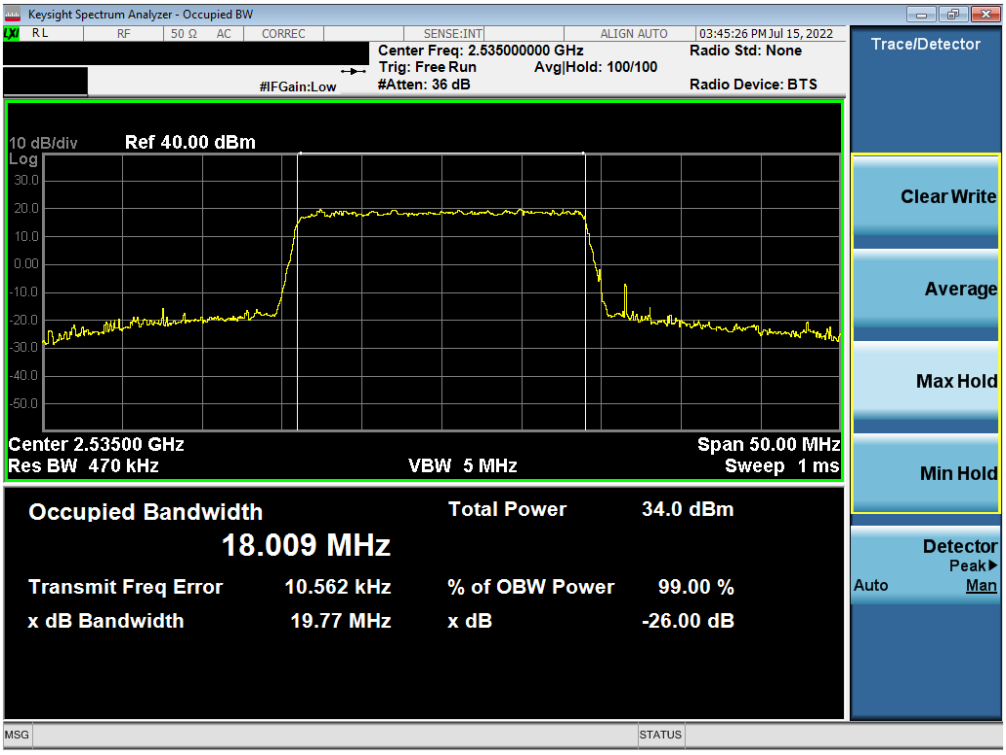
Plot 7-19. Occupied Bandwidth Plot (LTE Band 7 - 15MHz 64-QAM - Full RB)



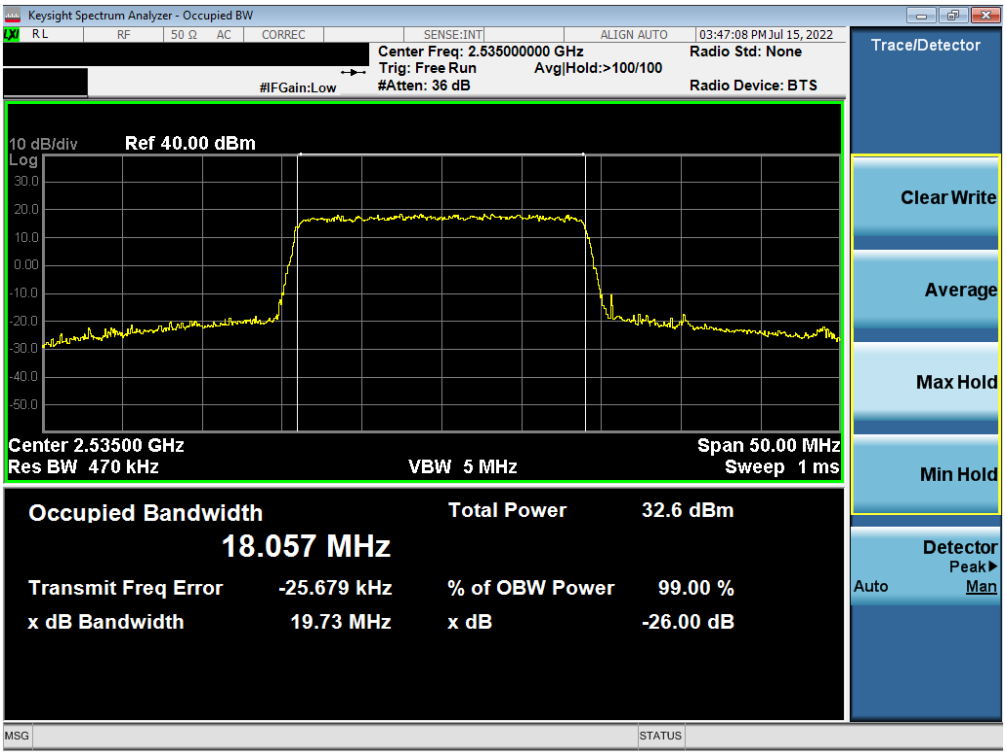
Plot 7-20. Occupied Bandwidth Plot (LTE Band 7 - 15MHz 256-QAM - Full RB)



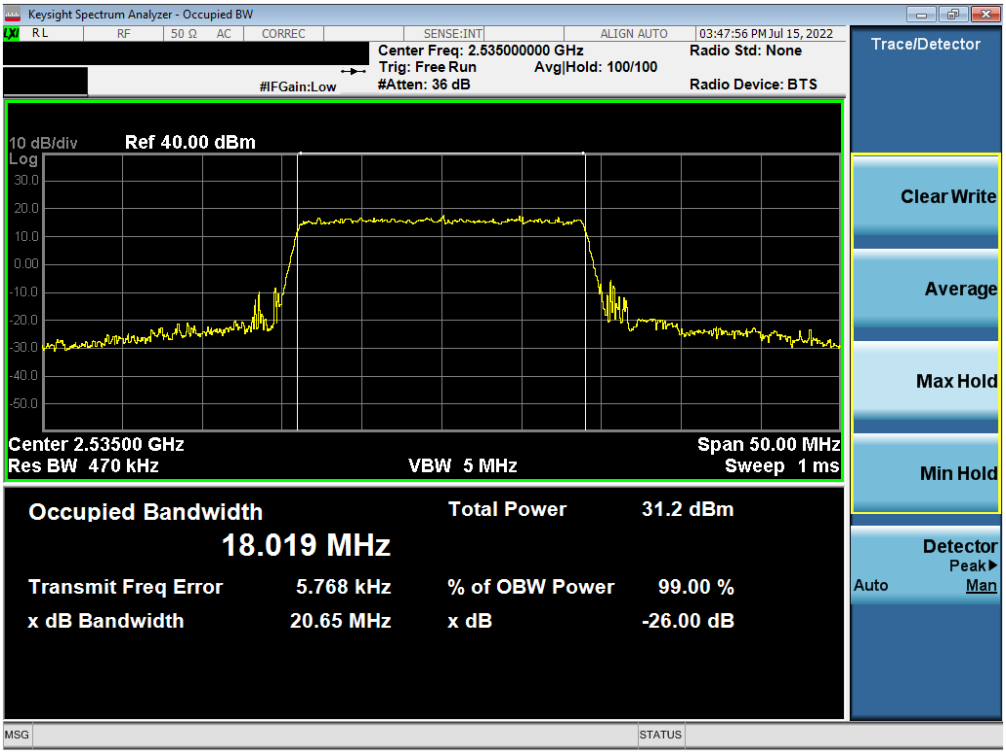
Plot 7-21. Occupied Bandwidth Plot (LTE Band 7 - 20MHz QPSK - Full RB)



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

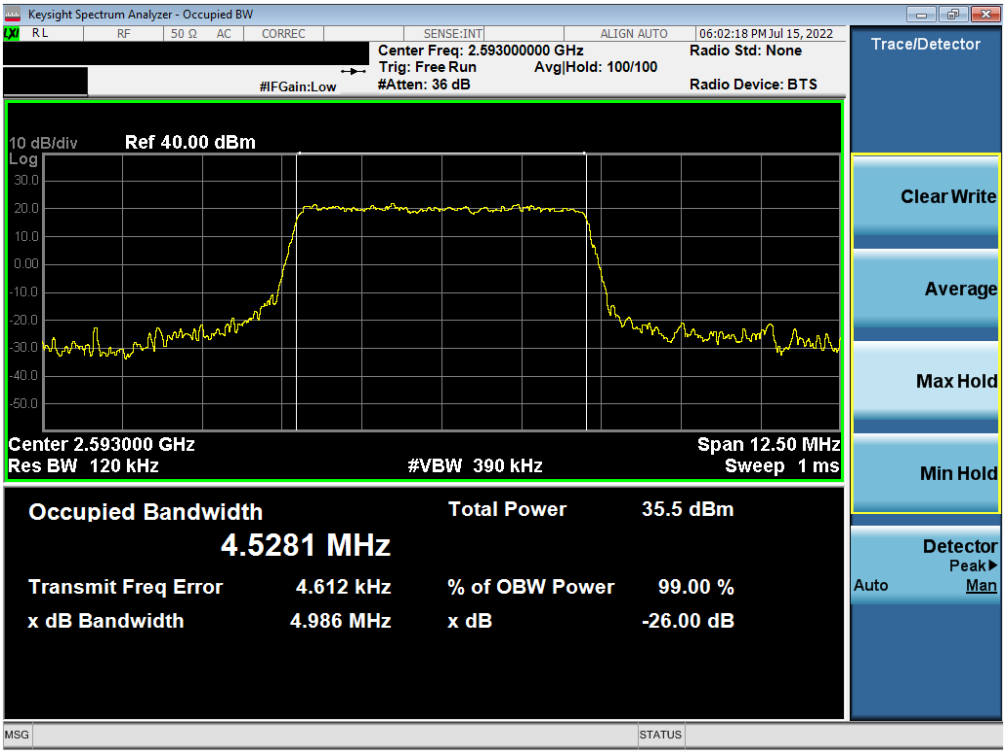


Plot 7-23. Occupied Bandwidth Plot (LTE Band 7 - 20MHz 64-QAM - Full RB)

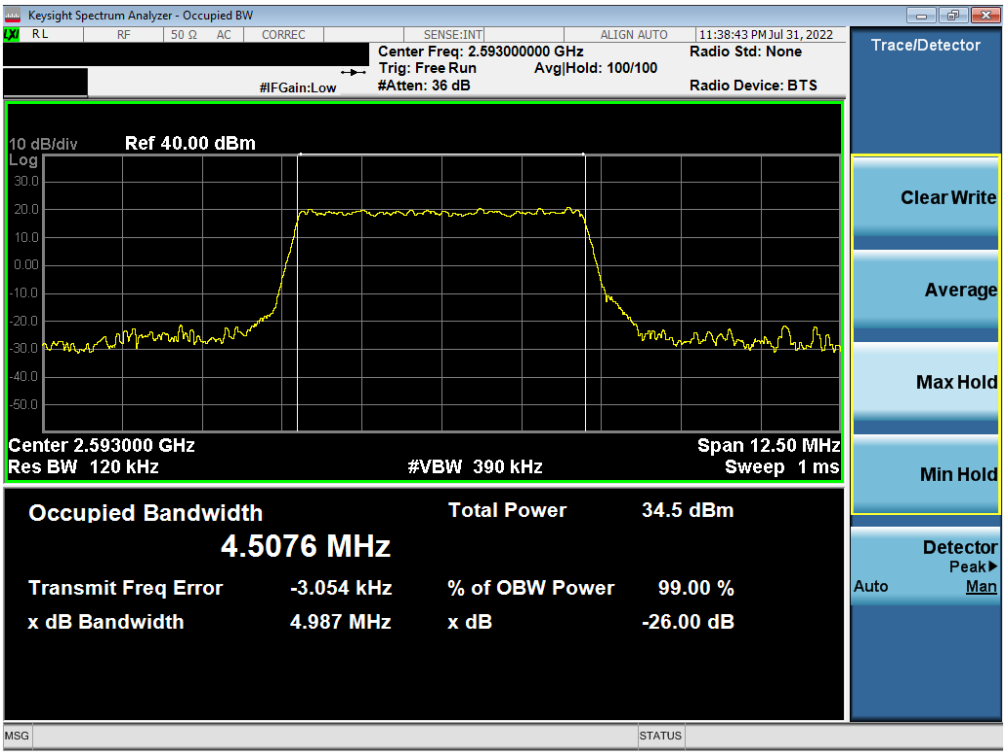


Plot 7-24. Occupied Bandwidth Plot (LTE Band 7 - 20MHz 256-QAM - Full RB)

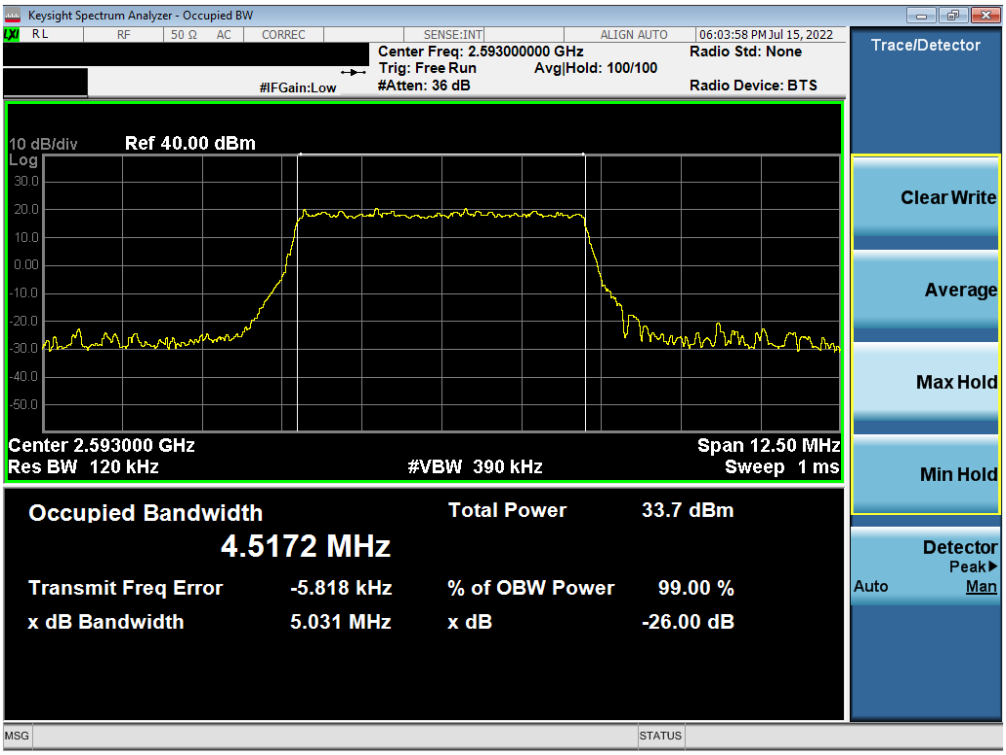
LTE Band 41



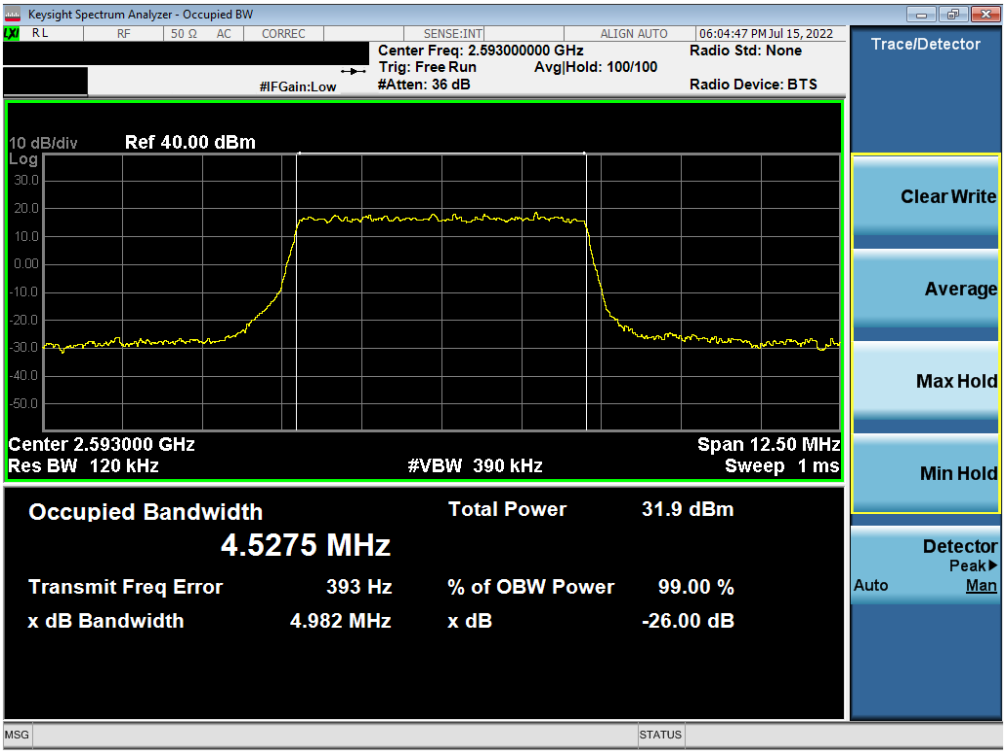
Plot 7-25. Occupied Bandwidth Plot (LTE Band 41 - 5MHz QPSK - Full RB)



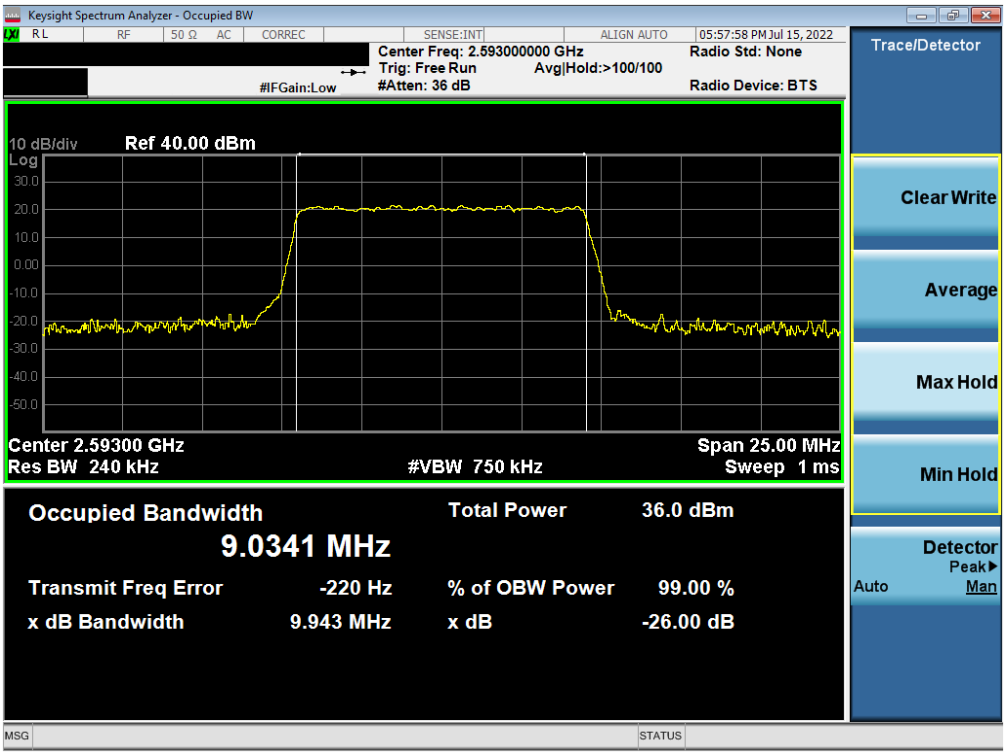
Plot 7-26. Occupied Bandwidth Plot (LTE Band 41 - 5MHz 16-QAM - Full RB)



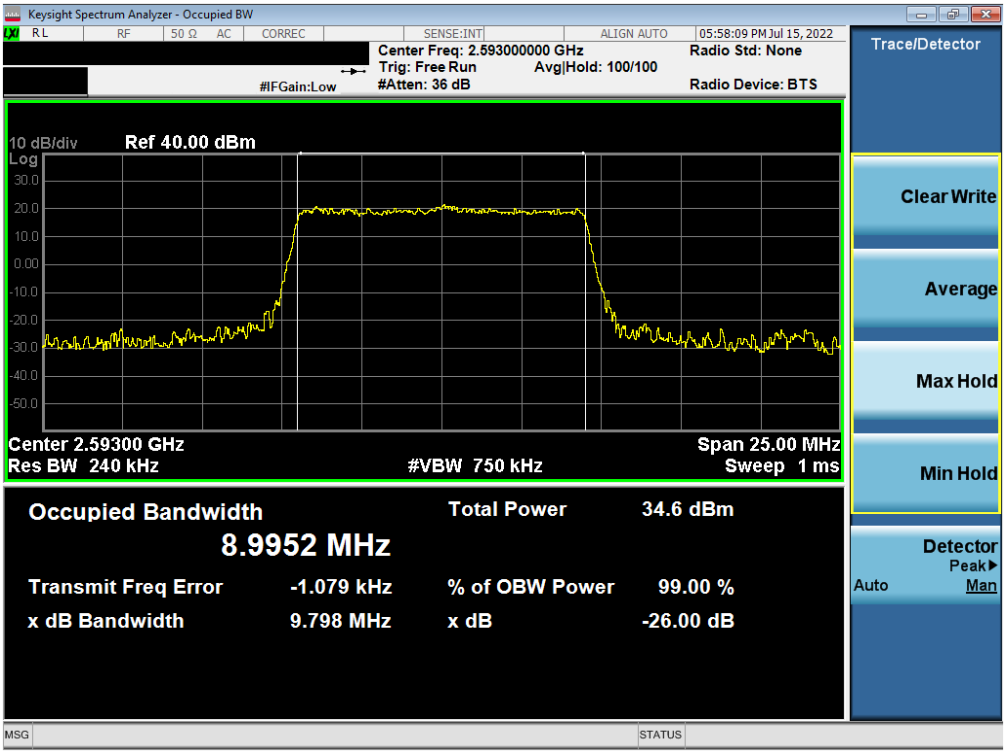
Plot 7-27. Occupied Bandwidth Plot (LTE Band 41 - 5MHz 64-QAM - Full RB)



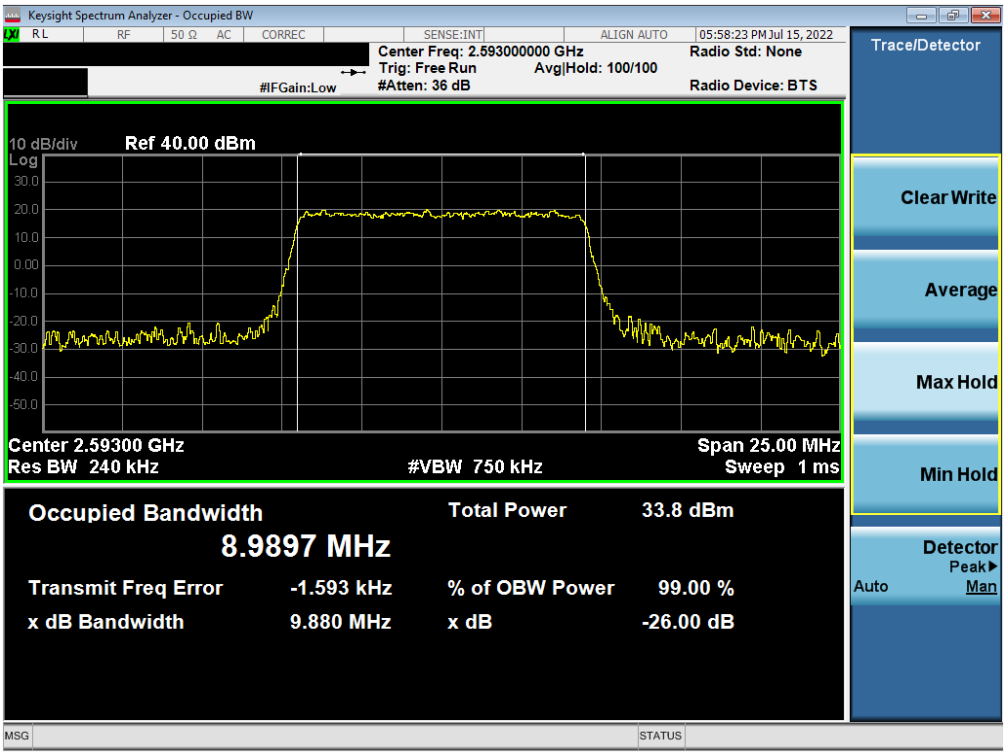
Plot 7-28. Occupied Bandwidth Plot (LTE Band 41 - 5MHz 256-QAM - Full RB)



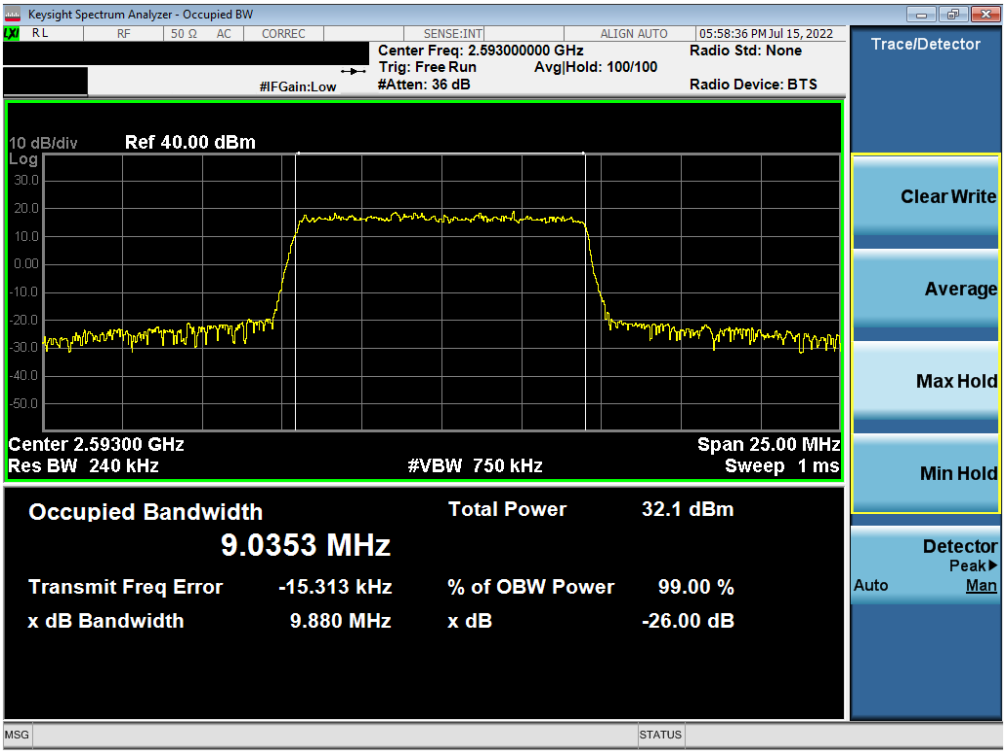
Plot 7-29. Occupied Bandwidth Plot (LTE Band 41 - 10MHz QPSK - Full RB)



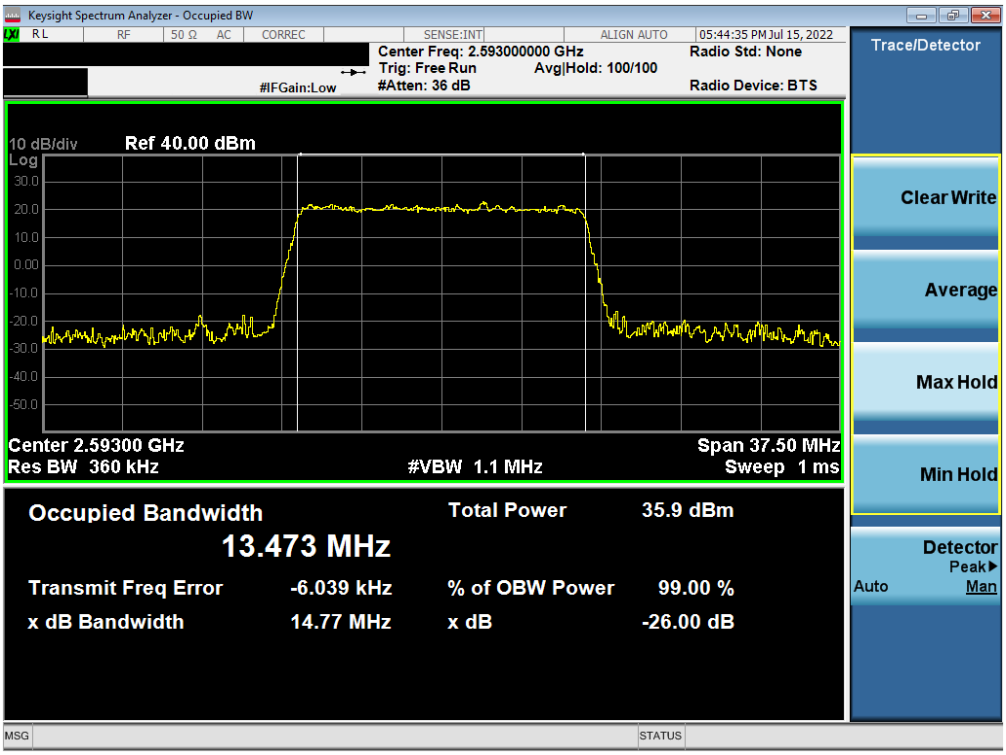
Plot 7-30. Occupied Bandwidth Plot (LTE Band 41 - 10MHz 16-QAM - Full RB)



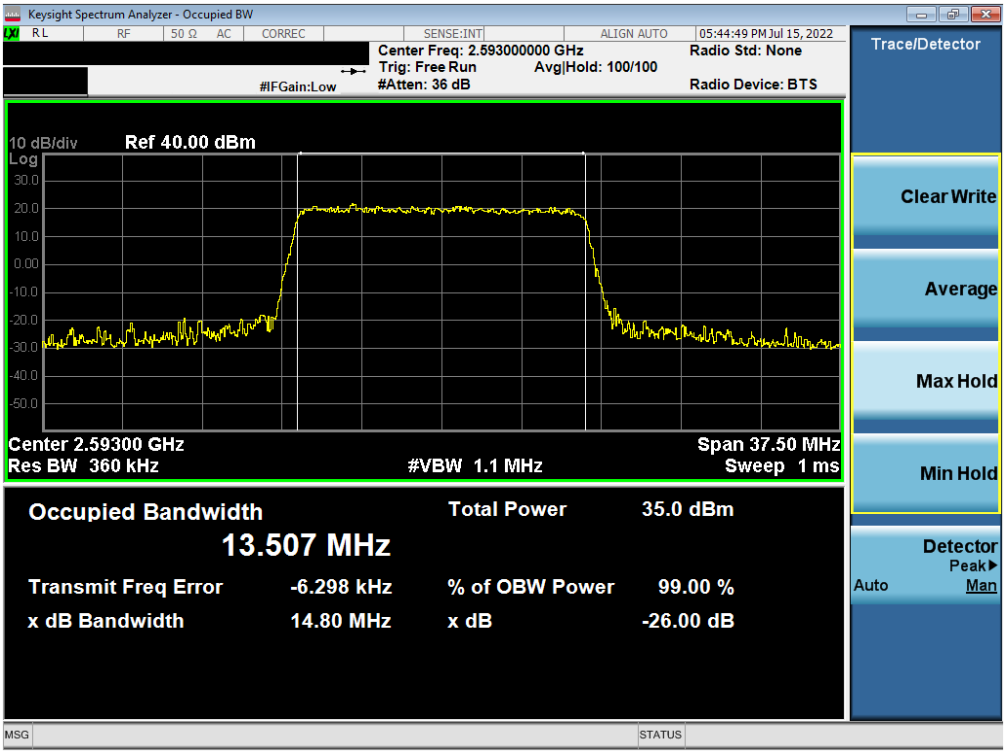
Plot 7-31. Occupied Bandwidth Plot (LTE Band 41 - 10MHz 64-QAM - Full RB)



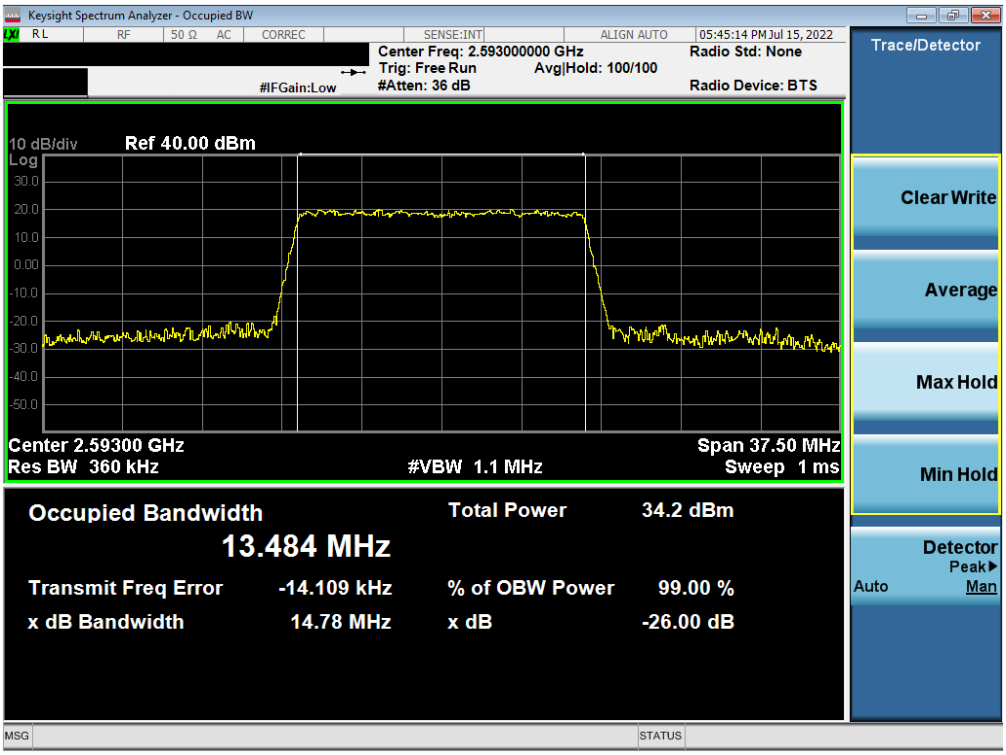
Plot 7-32. Occupied Bandwidth Plot (LTE Band 41 - 10MHz 256-QAM - Full RB)



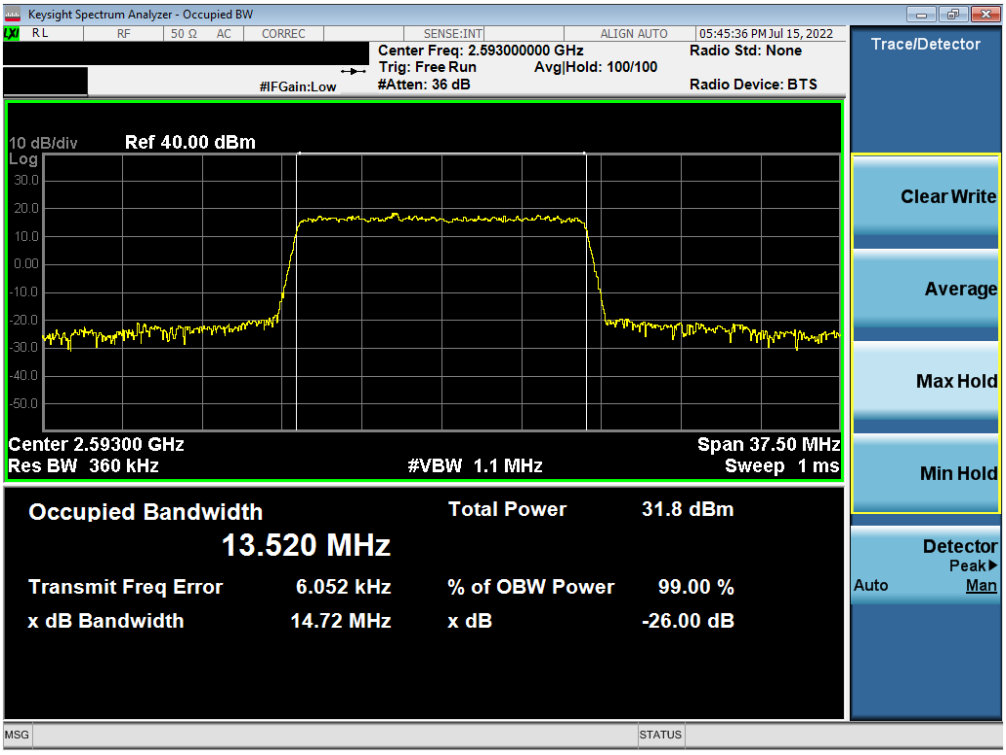
Plot 7-33. Occupied Bandwidth Plot (LTE Band 41 - 15MHz QPSK - Full RB)



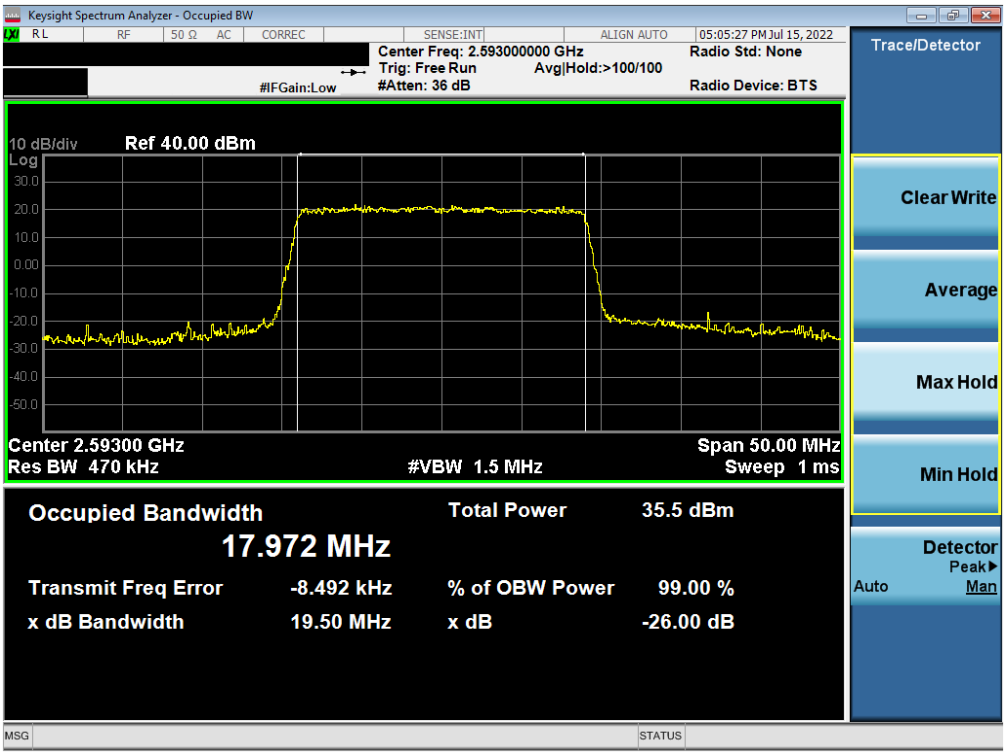
Plot 7-34. Occupied Bandwidth Plot (LTE Band 41 - 15MHz 16-QAM - Full RB)



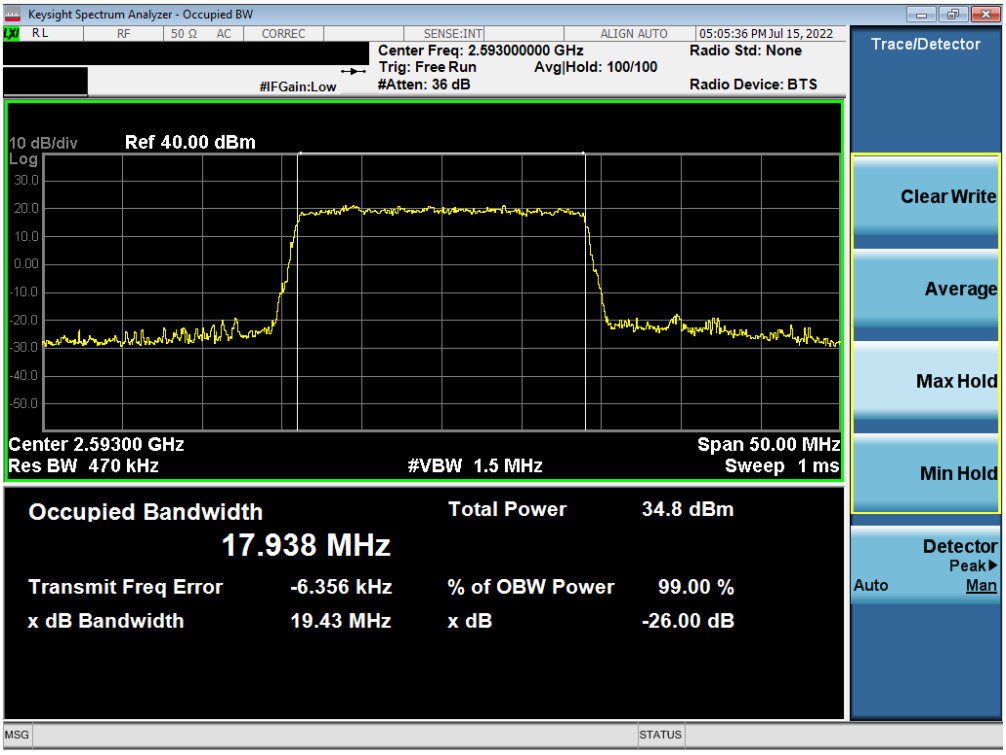
Plot 7-35. Occupied Bandwidth Plot (LTE Band 41 - 15MHz 64-QAM - Full RB)



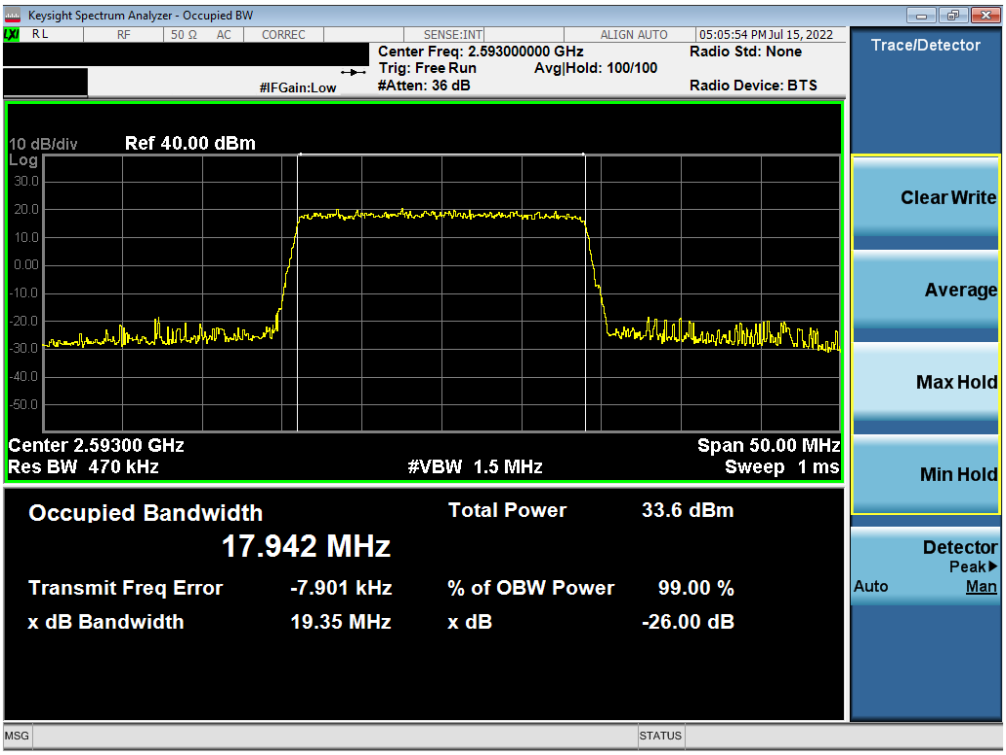
Plot 7-36. Occupied Bandwidth Plot (LTE Band 41 - 15MHz 256-QAM - Full RB)



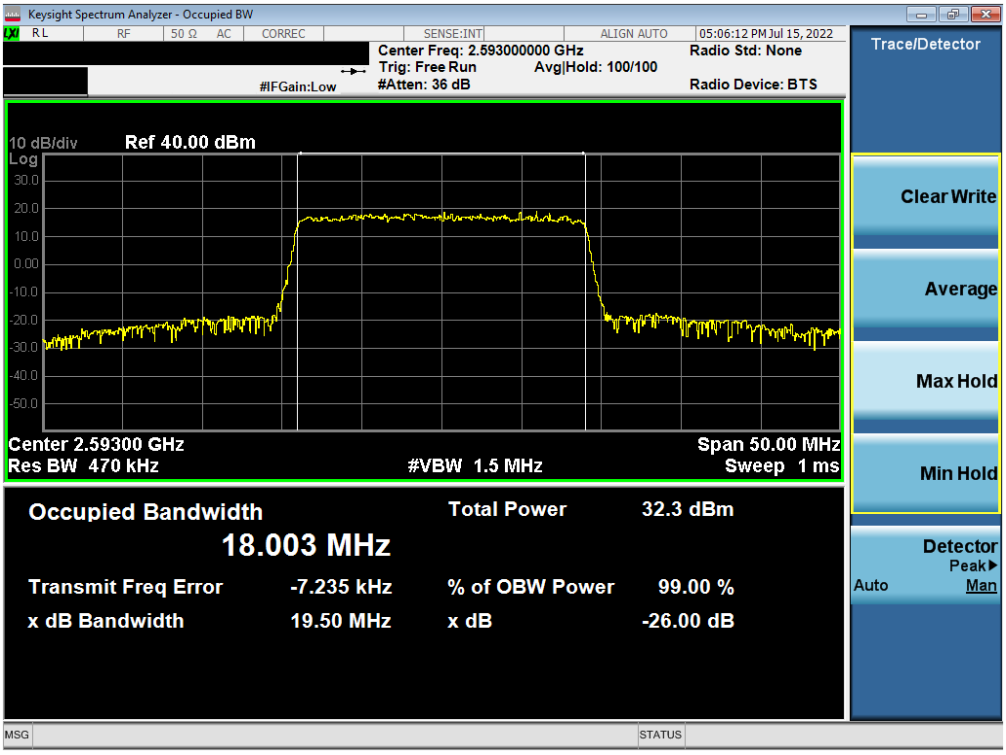
Plot 7-37. Occupied Bandwidth Plot (LTE Band 41 - 20MHz QPSK - Full RB)



Plot 7-38. Occupied Bandwidth Plot (LTE Band 41 - 20MHz 16-QAM - Full RB)

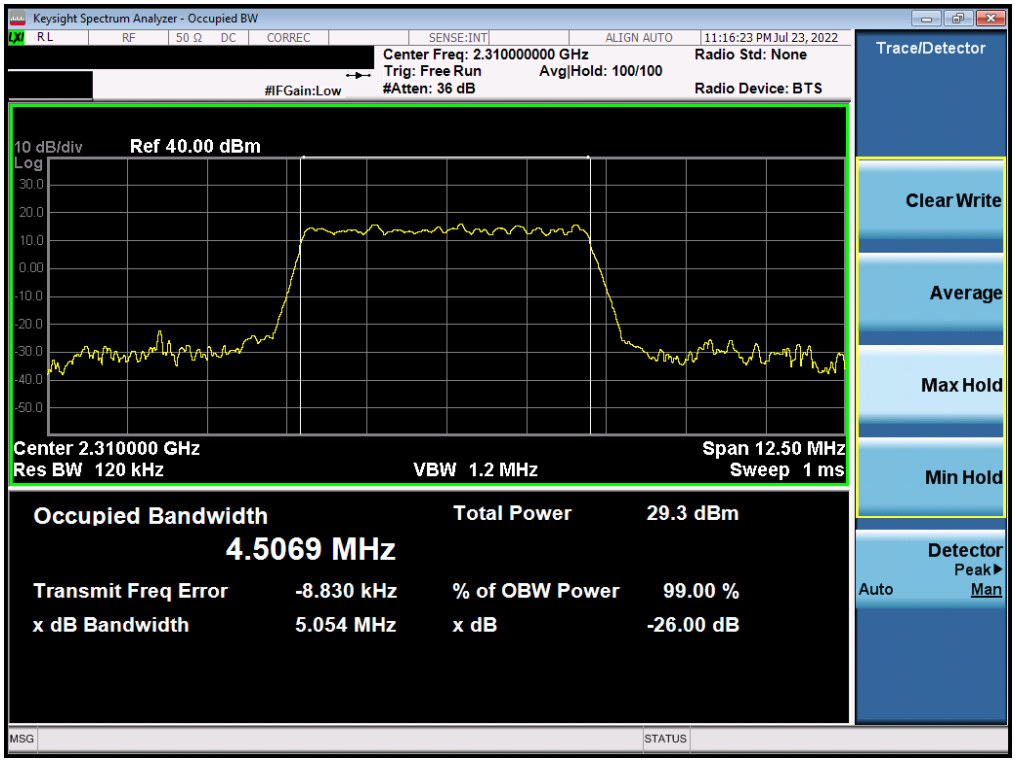


Plot 7-39. Occupied Bandwidth Plot (LTE Band 41 - 20MHz 64-QAM - Full RB)

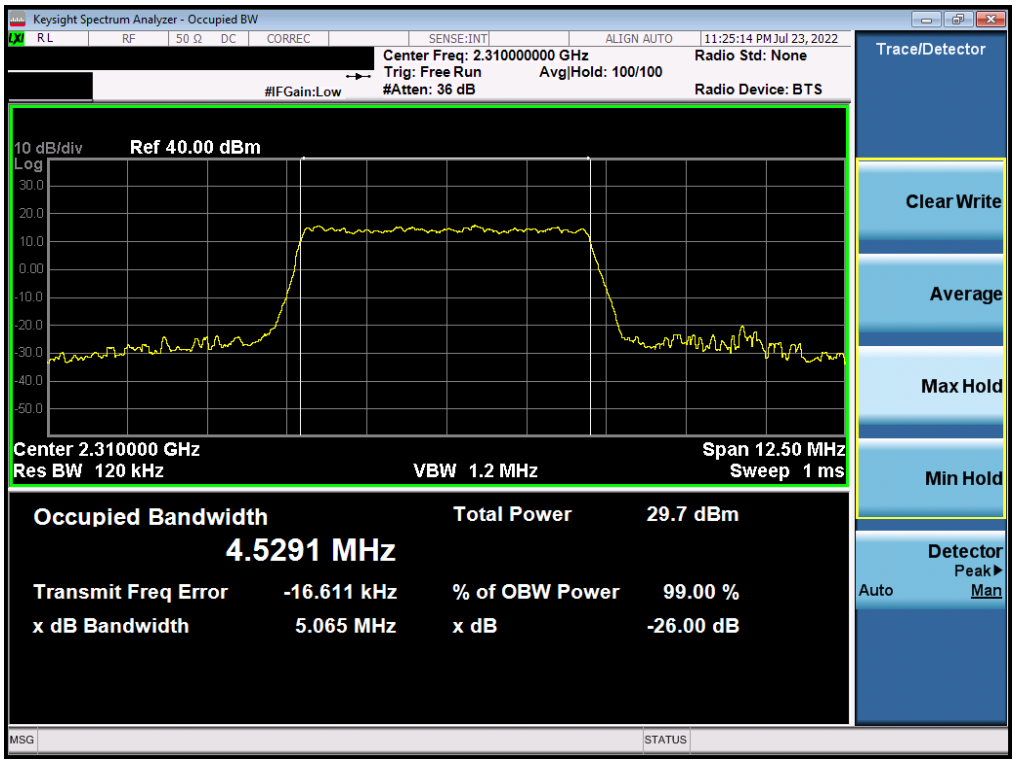


Plot 7-40. Occupied Bandwidth Plot (LTE Band 41 - 20MHz 256-QAM - Full RB)

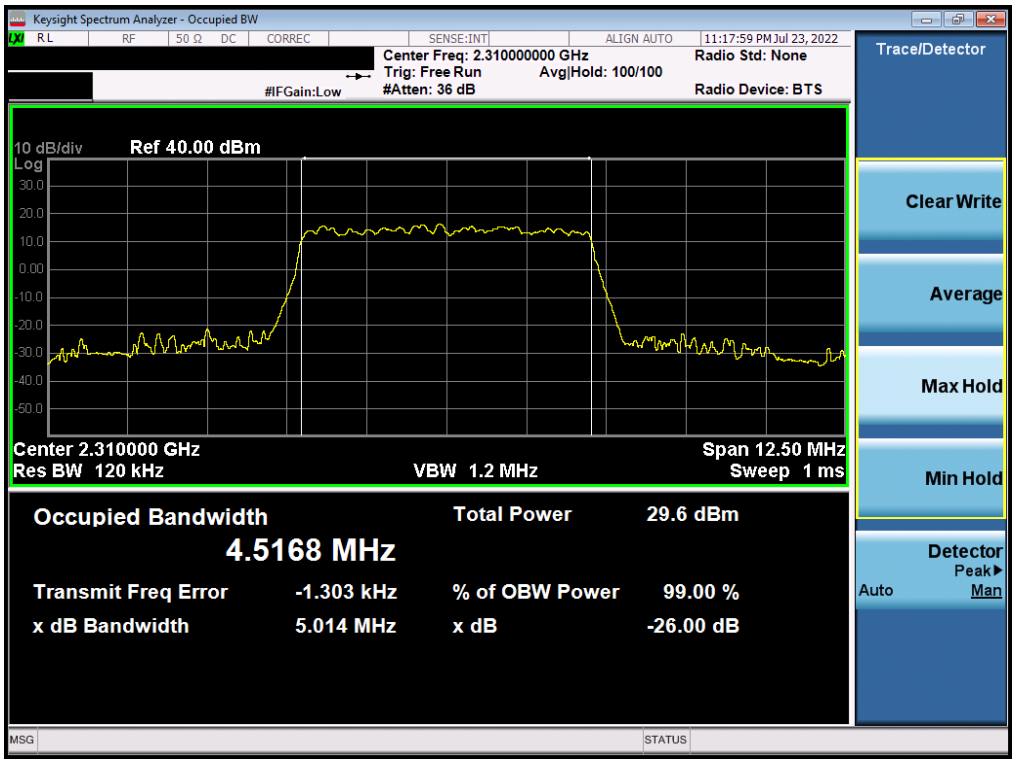
NR Band n30



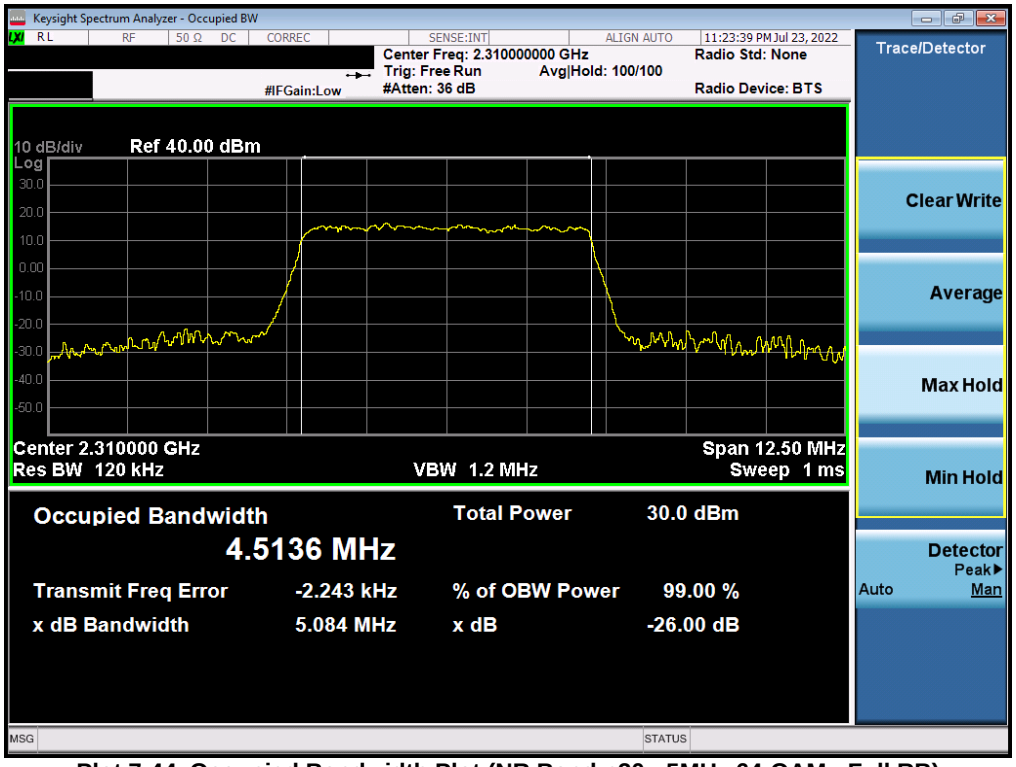
Plot 7-41. Occupied Bandwidth Plot (NR Band n30 - 5MHz π/2 BPSK - Full RB)



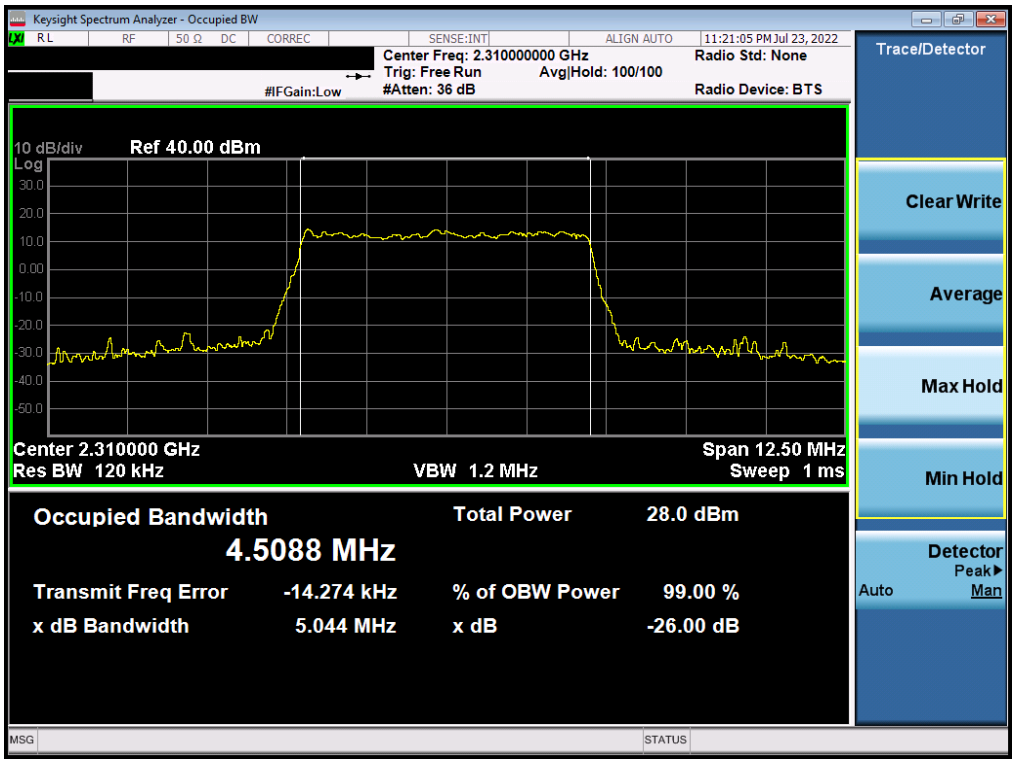
Plot 7-42. Occupied Bandwidth Plot (NR Band n30 - 5MHz QPSK - Full RB)



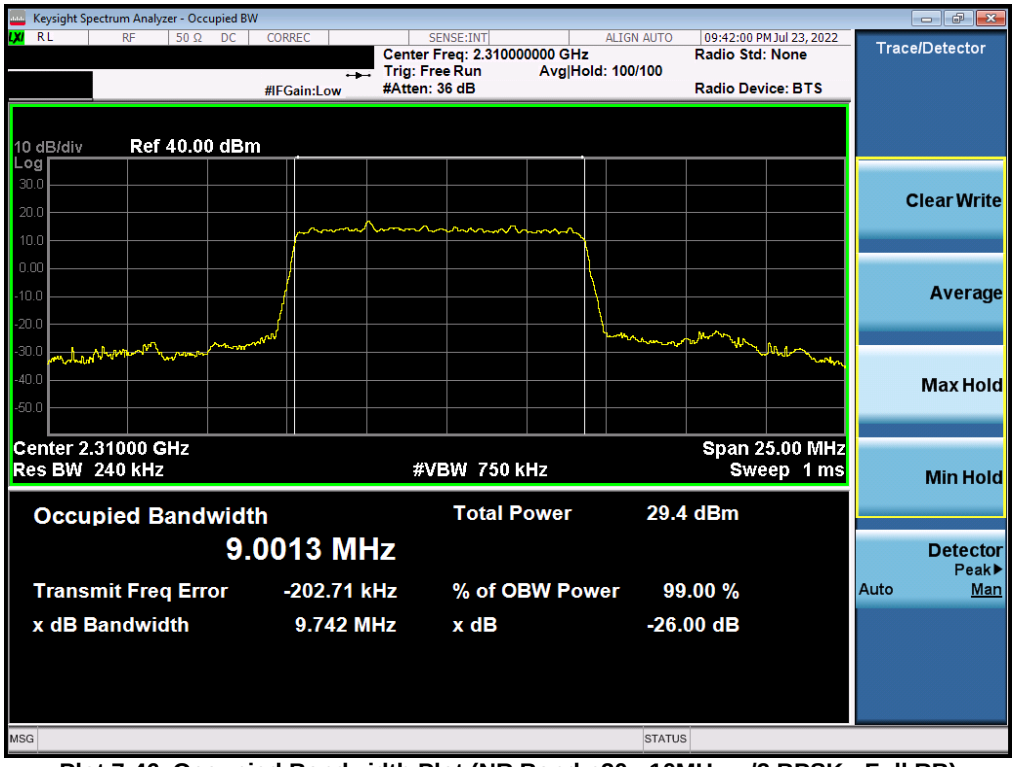
Plot 7-43. Occupied Bandwidth Plot (NR Band n30 - 5MHz 16-QAM - Full RB)



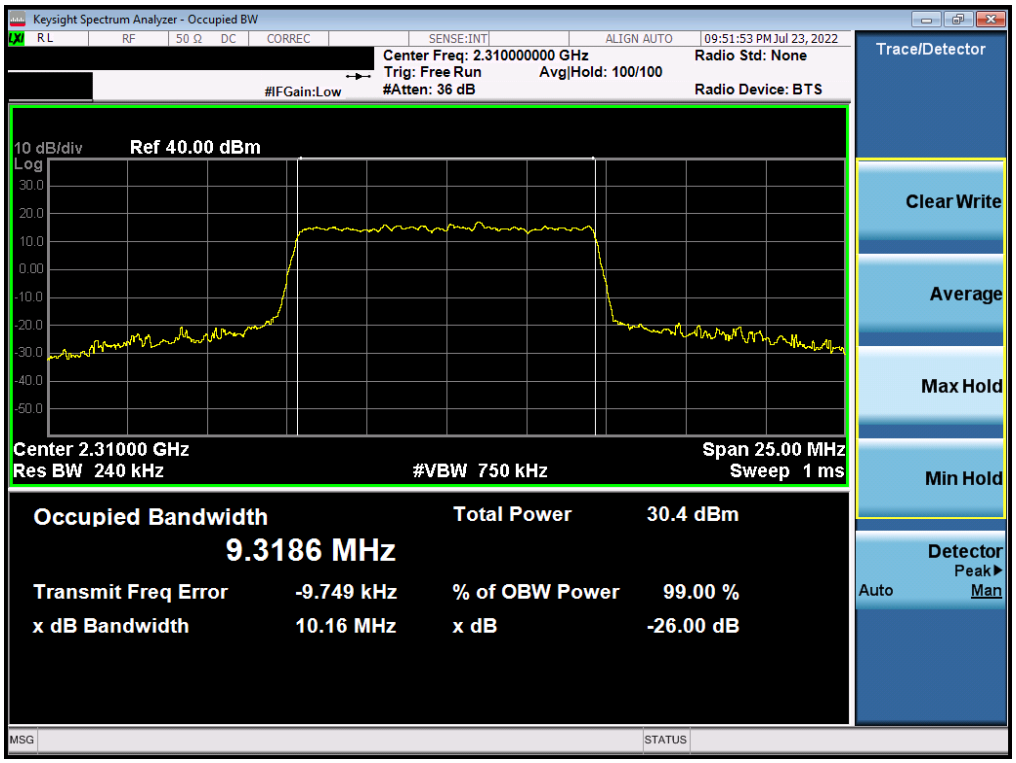
Plot 7-44. Occupied Bandwidth Plot (NR Band n30 - 5MHz 64-QAM - Full RB)



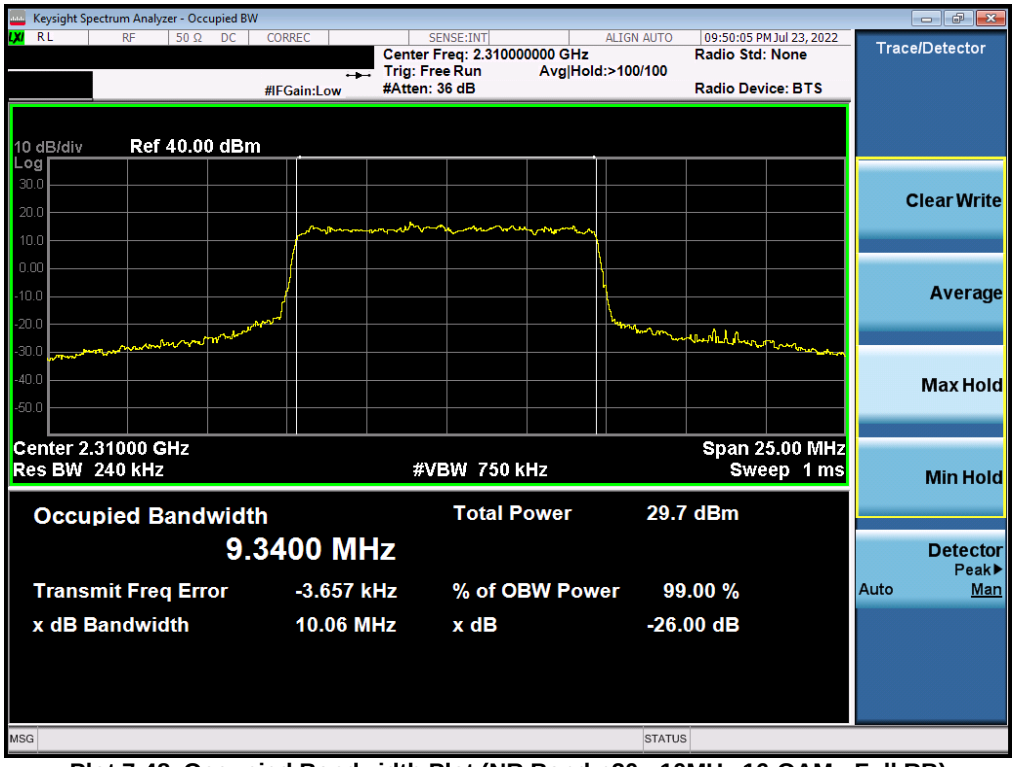
Plot 7-45. Occupied Bandwidth Plot (NR Band n30 - 5MHz 256-QAM - Full RB)



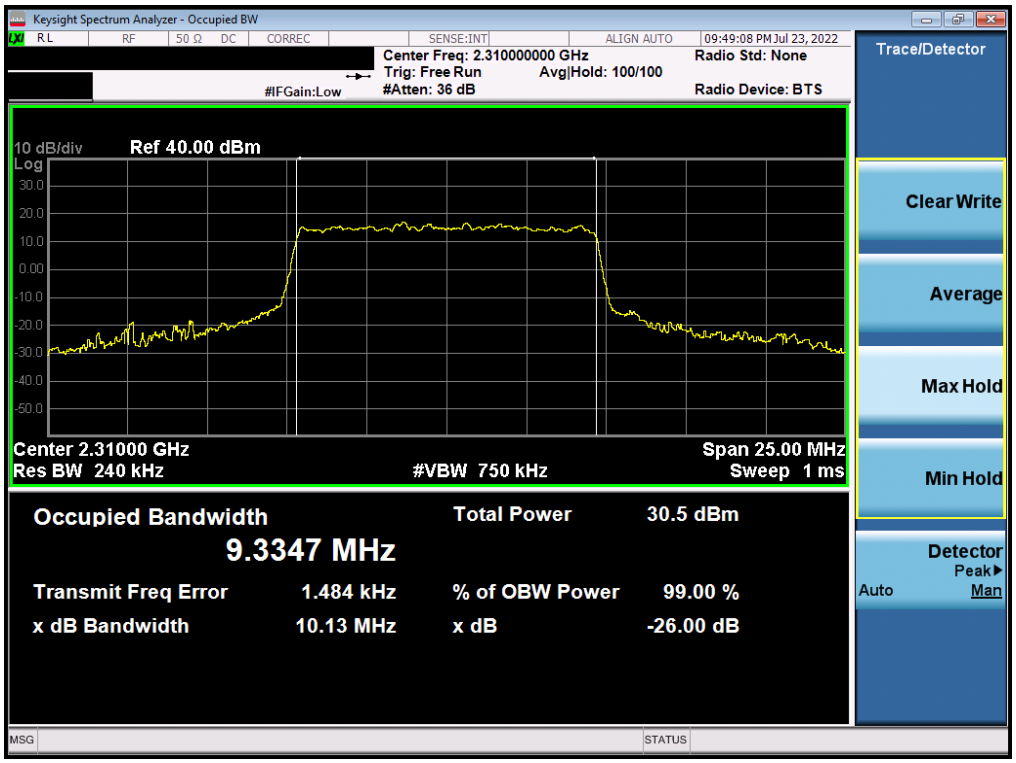
Plot 7-46. Occupied Bandwidth Plot (NR Band n30 - 10MHz π/2 BPSK - Full RB)



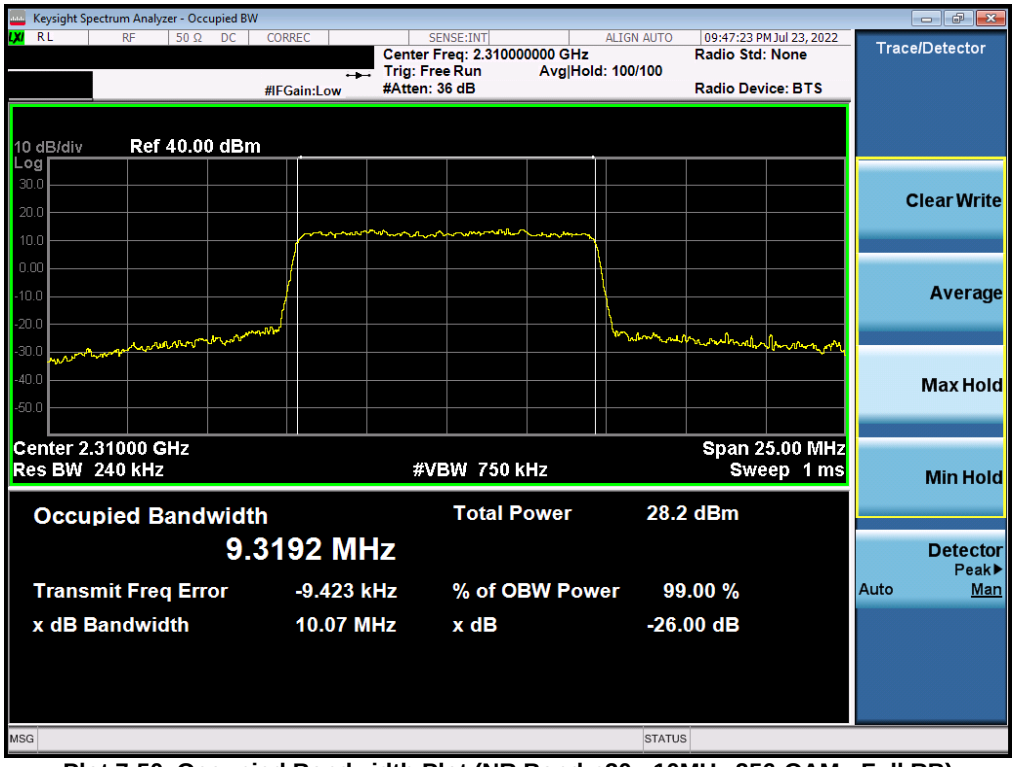
Plot 7-47. Occupied Bandwidth Plot (NR Band n30 - 10MHz QPSK - Full RB)



Plot 7-48. Occupied Bandwidth Plot (NR Band n30 - 10MHz 16-QAM - Full RB)



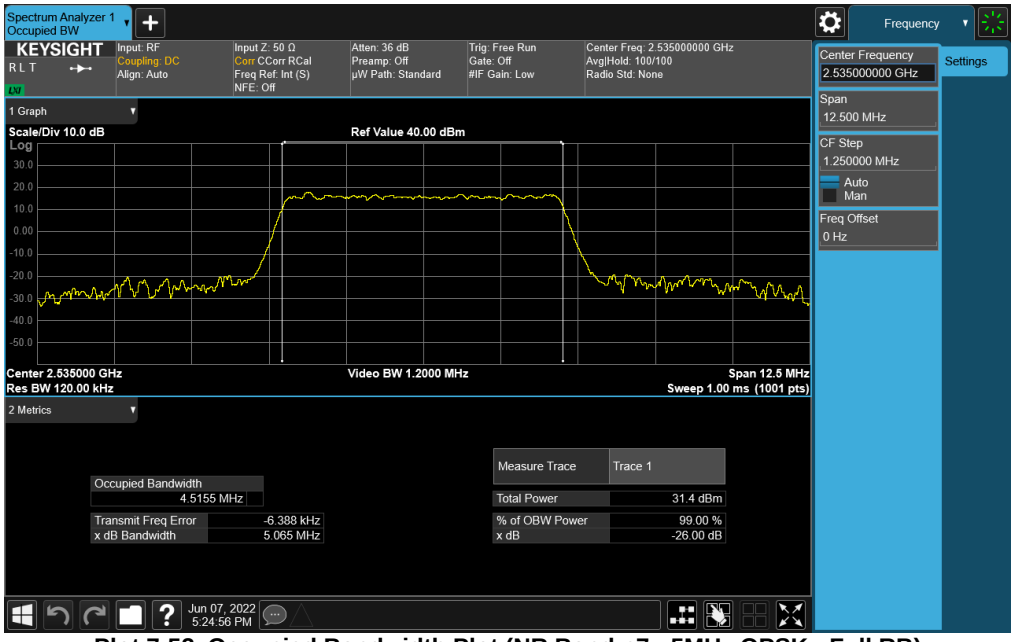
Plot 7-49. Occupied Bandwidth Plot (NR Band n30 - 10MHz 64-QAM - Full RB)



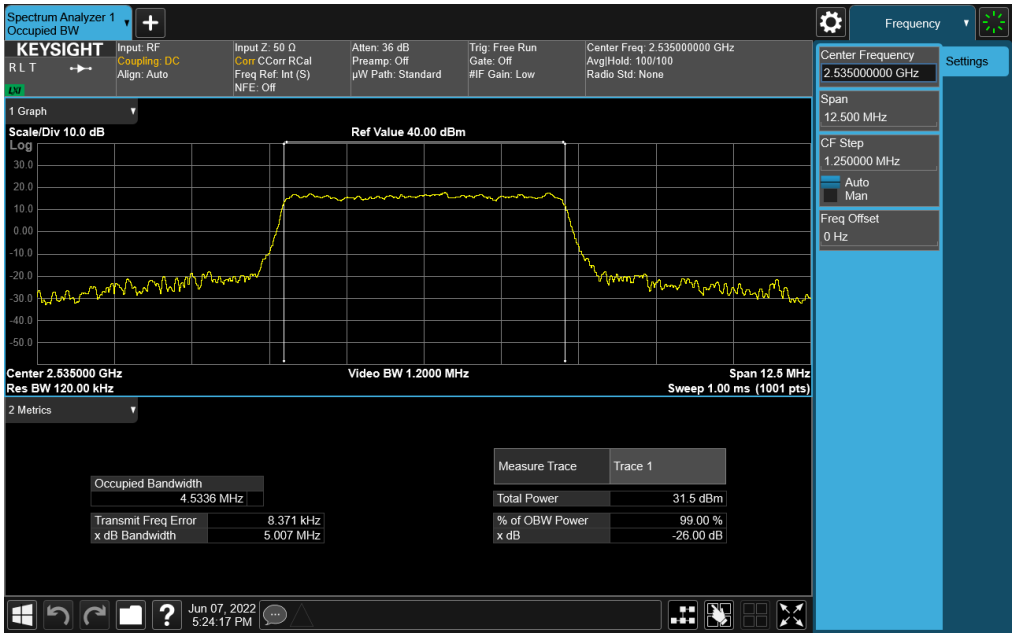
Plot 7-50. Occupied Bandwidth Plot (NR Band n30 - 10MHz 256-QAM - Full RB)

NR Band n7

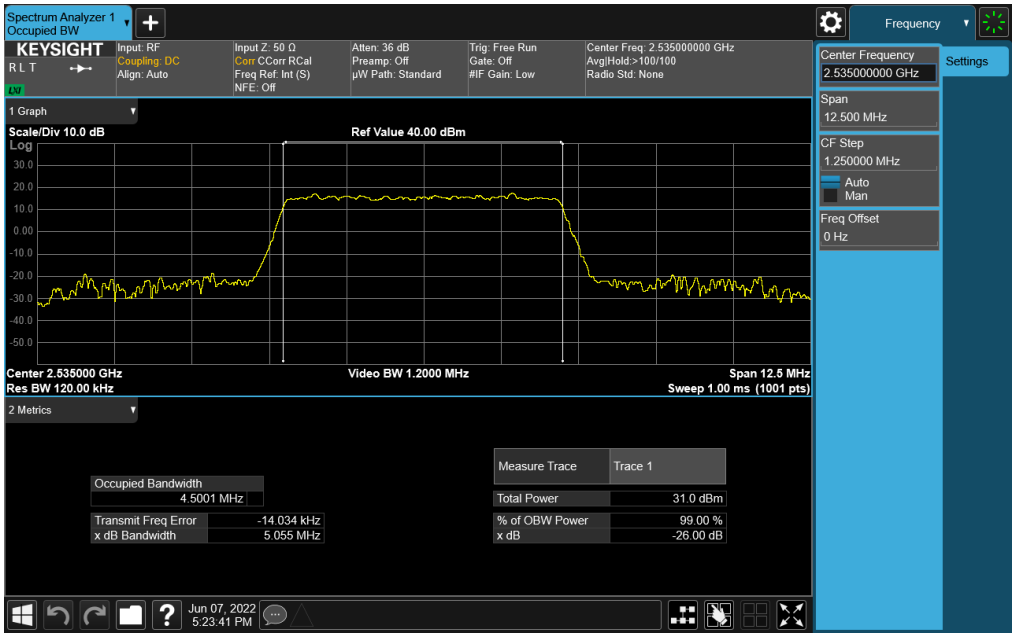
Plot 7-51. Occupied Bandwidth Plot (NR Band n7 - 5MHz π/2 BPSK - Full RB)



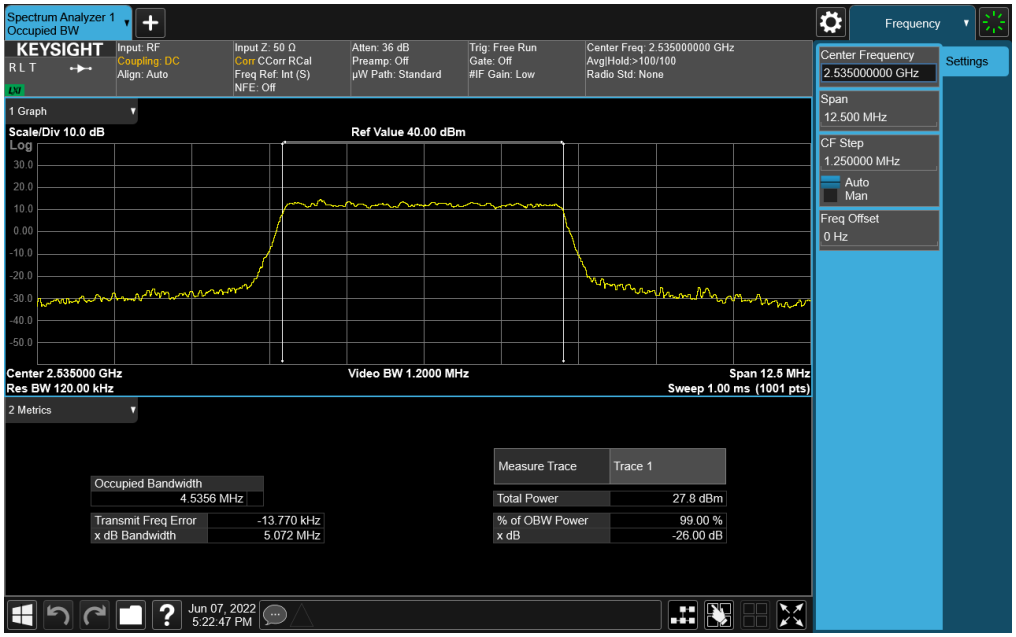
Plot 7-52. Occupied Bandwidth Plot (NR Band n7 - 5MHz QPSK - Full RB)



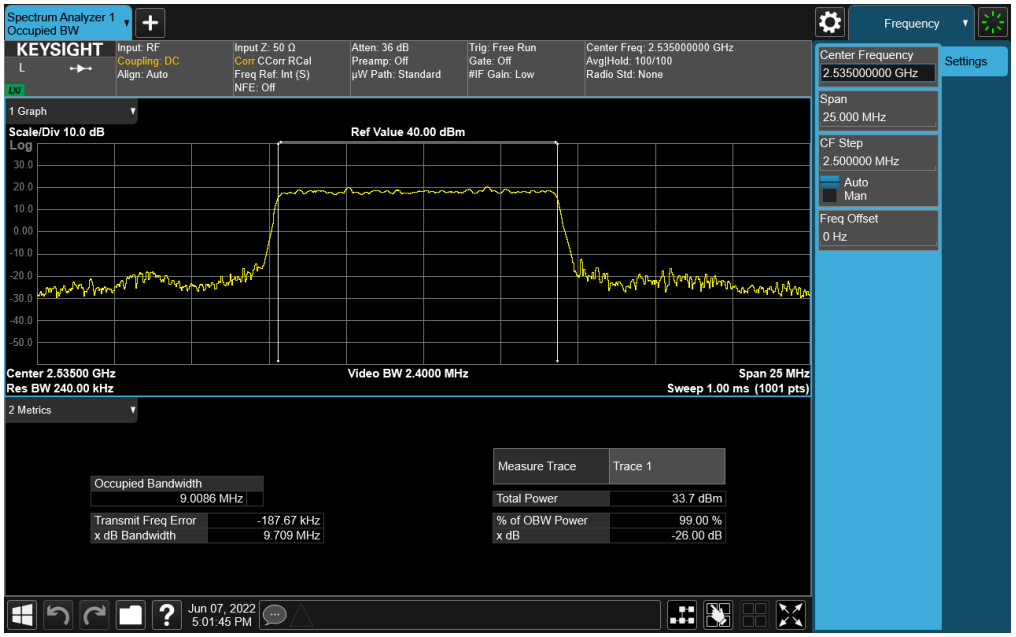
Plot 7-53. Occupied Bandwidth Plot (NR Band n7 - 5MHz 16-QAM - Full RB)



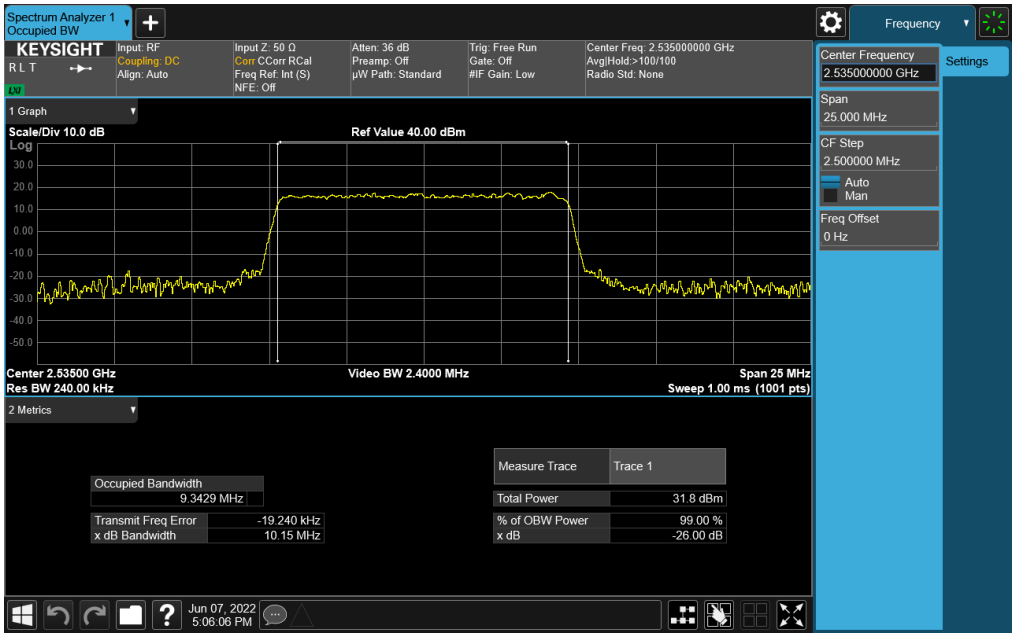
Plot 7-54. Occupied Bandwidth Plot (NR Band n7 - 5MHz 64-QAM - Full RB)



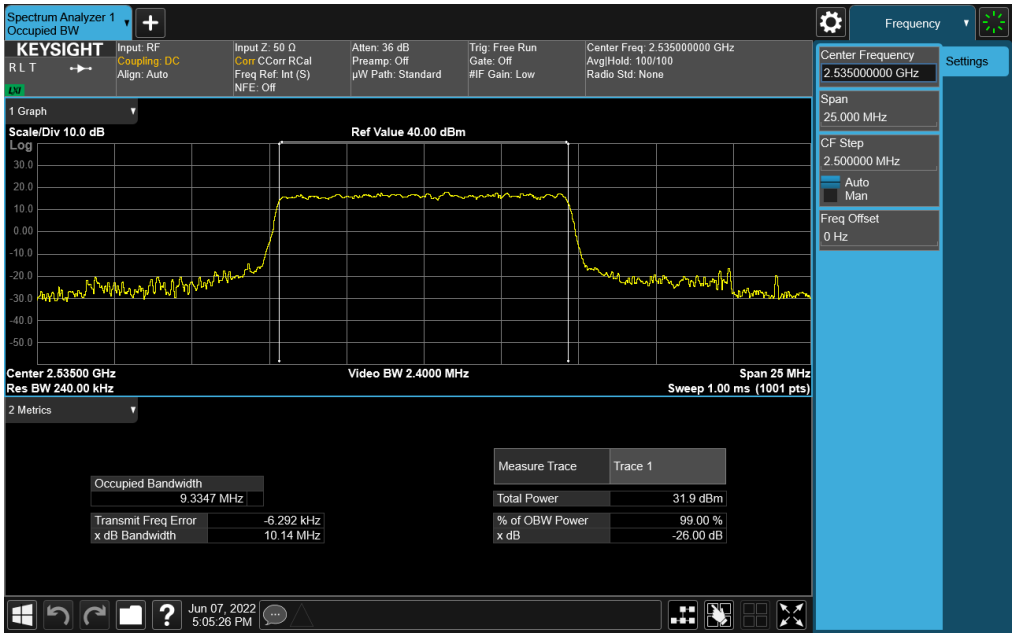
Plot 7-55. Occupied Bandwidth Plot (NR Band n7 - 5MHz 256-QAM - Full RB)



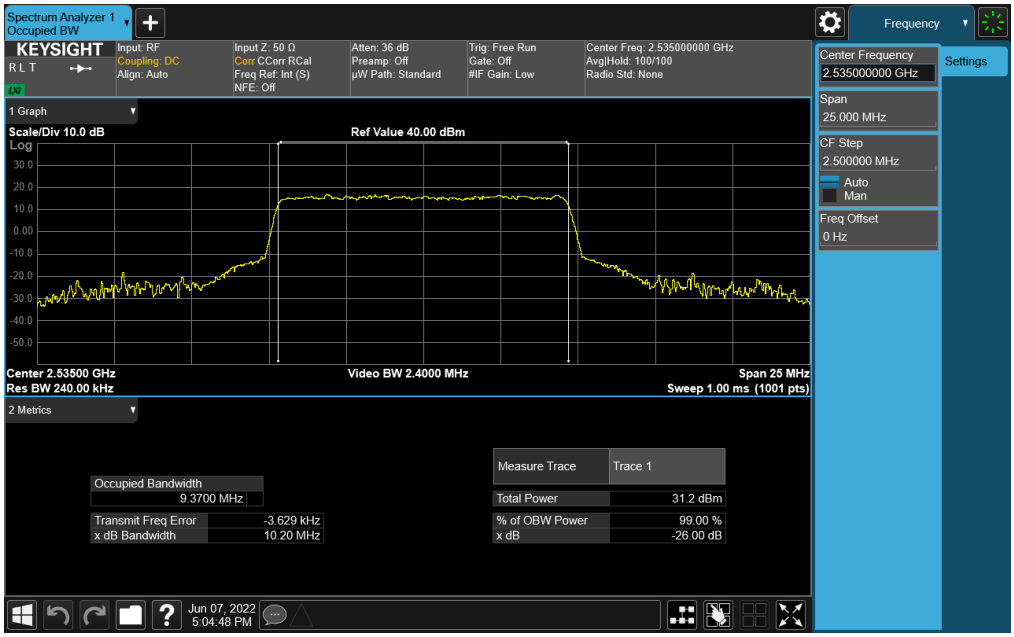
Plot 7-56. Occupied Bandwidth Plot (NR Band n7 - 10MHz π/2 BPSK - Full RB)



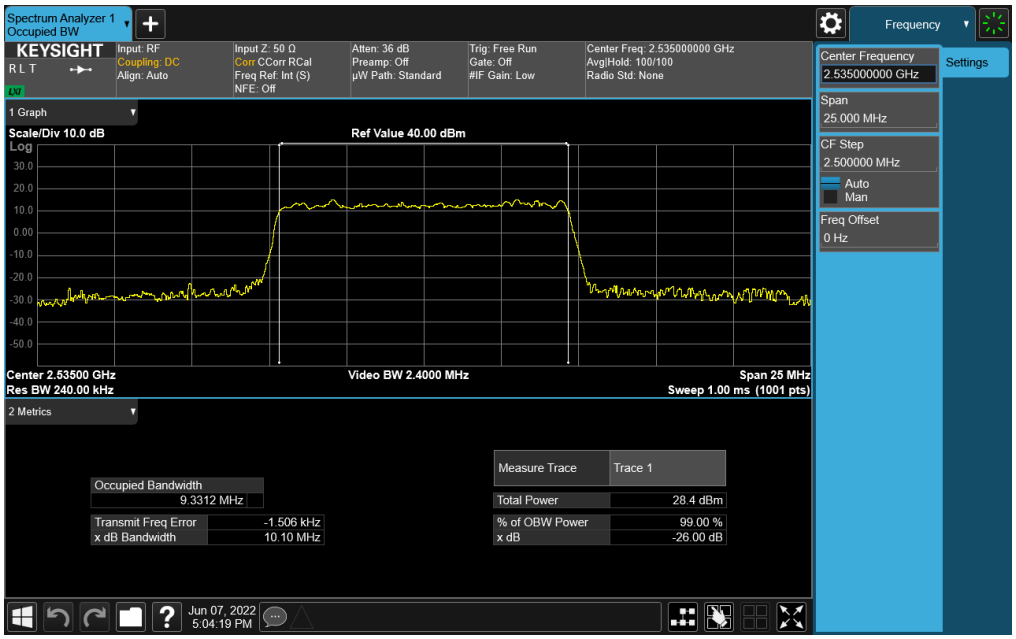
Plot 7-57. Occupied Bandwidth Plot (NR Band n7 - 10MHz QPSK - Full RB)



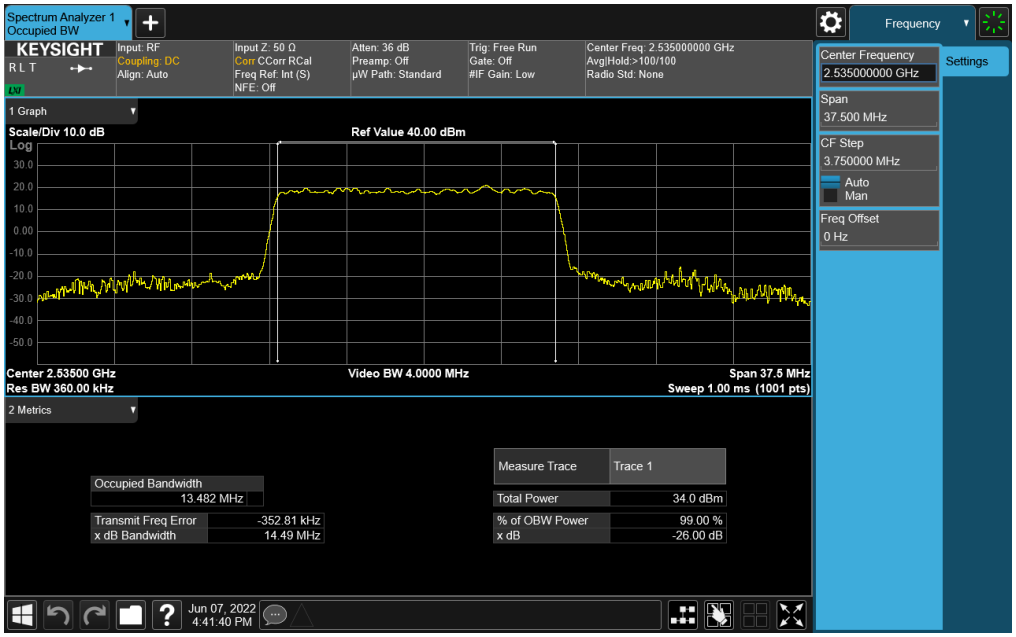
Plot 7-58. Occupied Bandwidth Plot (NR Band n7 - 10MHz 16-QAM - Full RB)



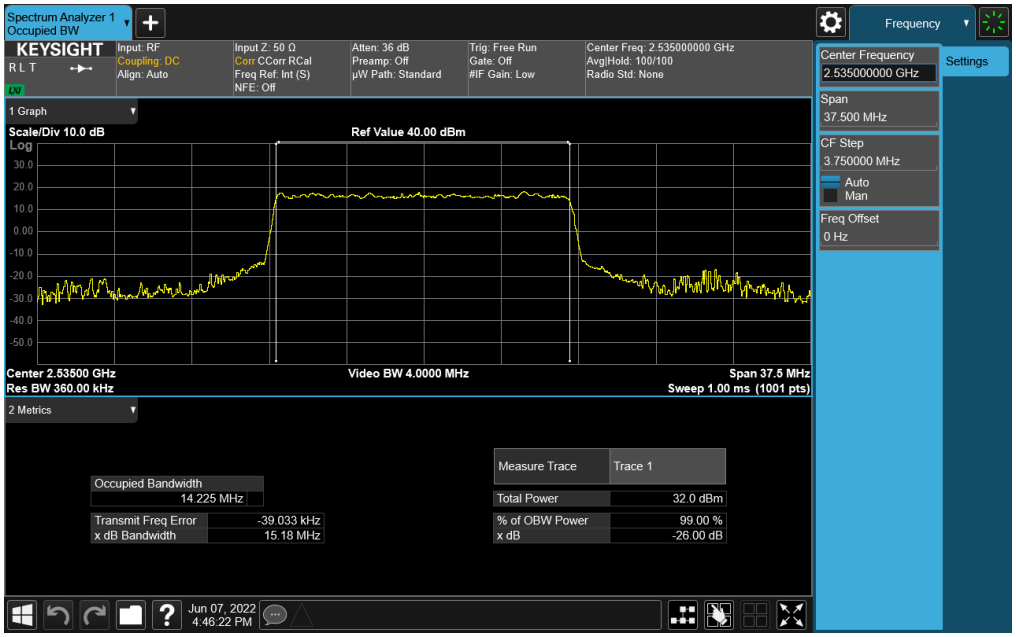
Plot 7-59. Occupied Bandwidth Plot (NR Band n7 - 10MHz 64-QAM - Full RB)



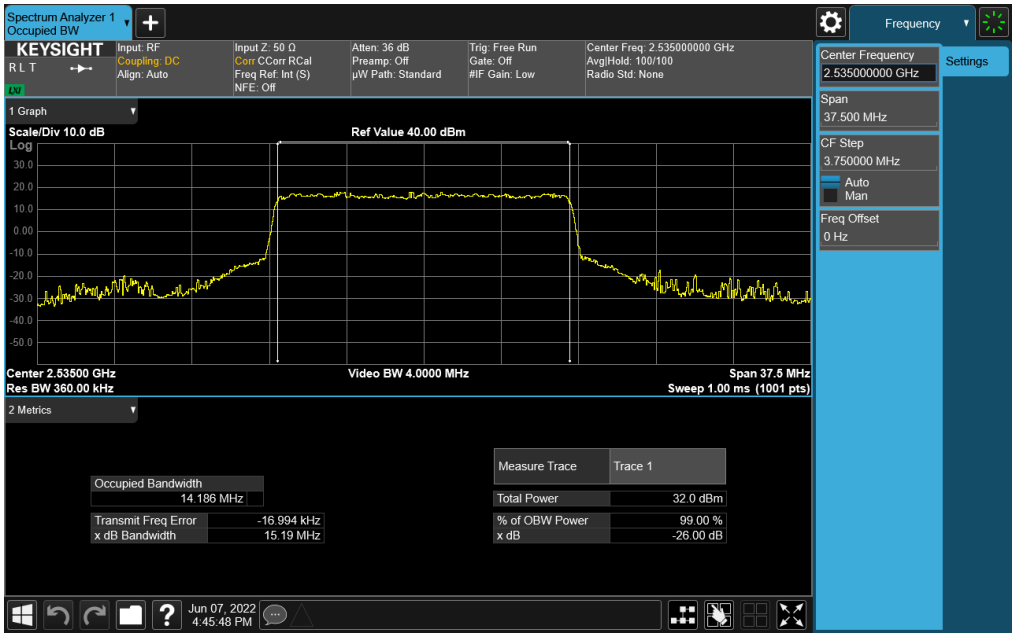
Plot 7-60. Occupied Bandwidth Plot (NR Band n7 - 10MHz 256-QAM - Full RB)



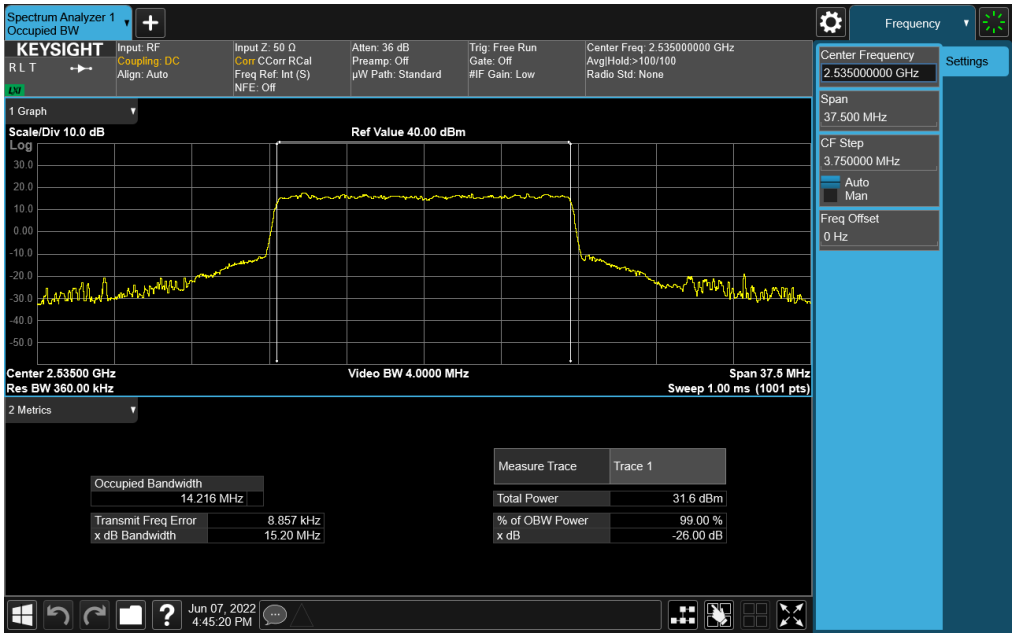
Plot 7-61. Occupied Bandwidth Plot (NR Band n7 - 15MHz π/2 BPSK - Full RB)



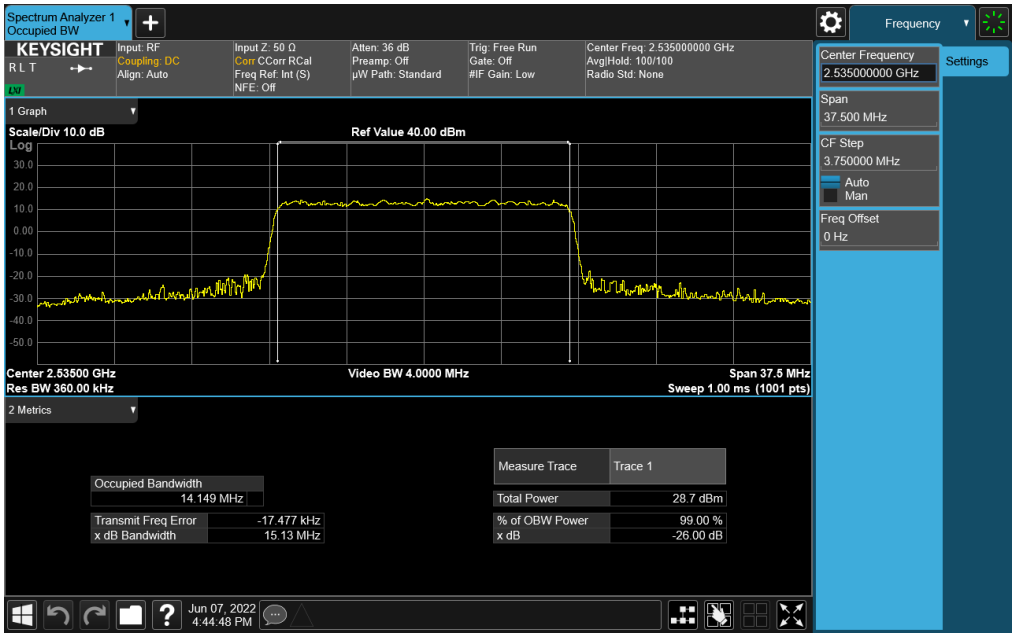
Plot 7-62. Occupied Bandwidth Plot (NR Band n7 - 15MHz QPSK - Full RB)



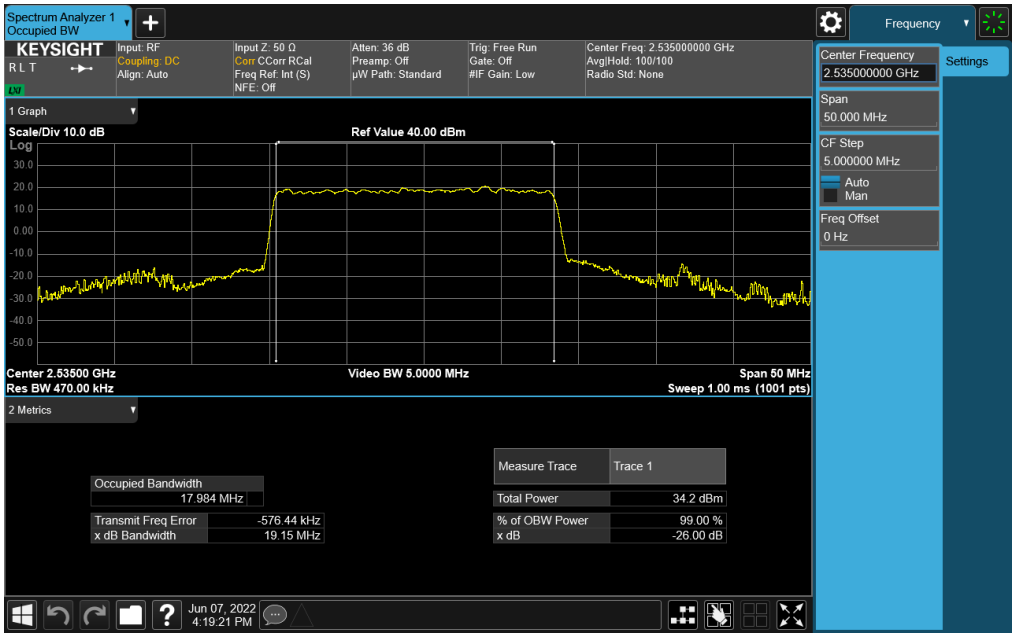
Plot 7-63. Occupied Bandwidth Plot (NR Band n7 - 15MHz 16-QAM - Full RB)



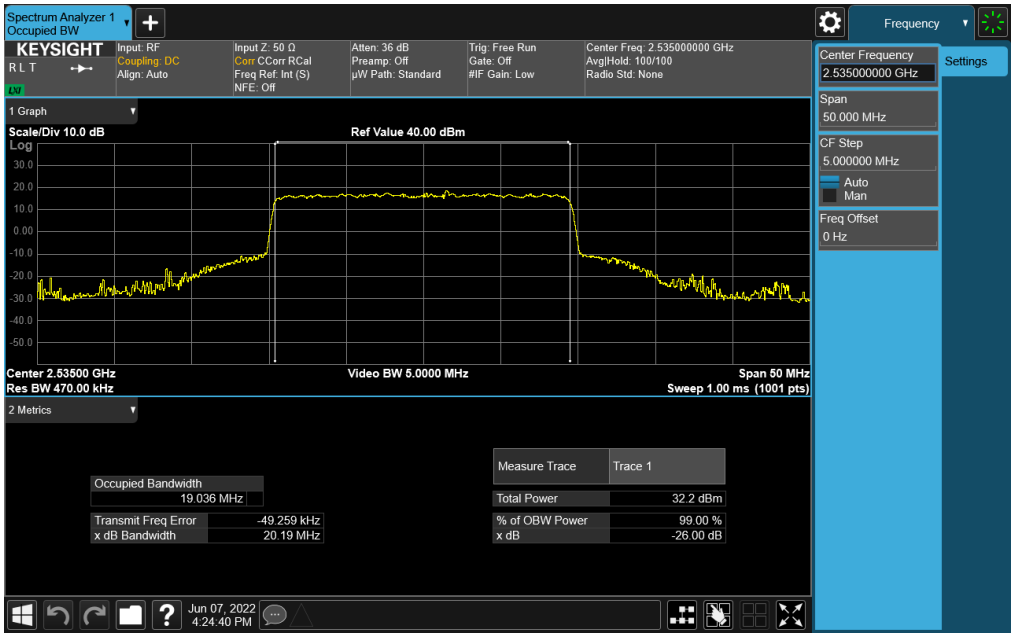
Plot 7-64. Occupied Bandwidth Plot (NR Band n7 - 15MHz 64-QAM - Full RB)



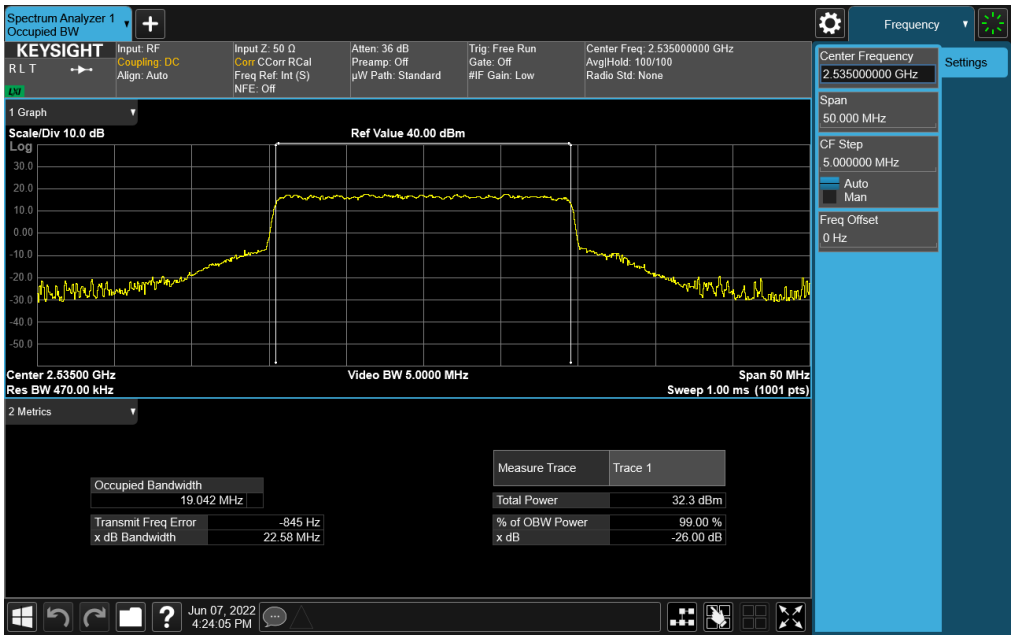
Plot 7-65. Occupied Bandwidth Plot (NR Band n7 - 15MHz 256-QAM - Full RB)



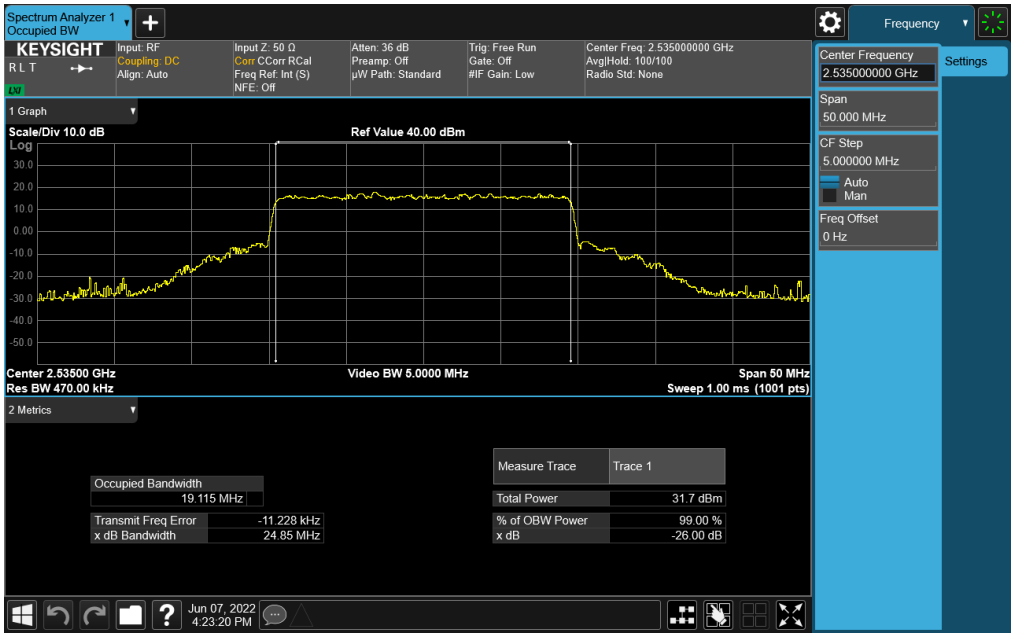
Plot 7-66. Occupied Bandwidth Plot (NR Band n7 - 20MHz π/2 BPSK - Full RB)



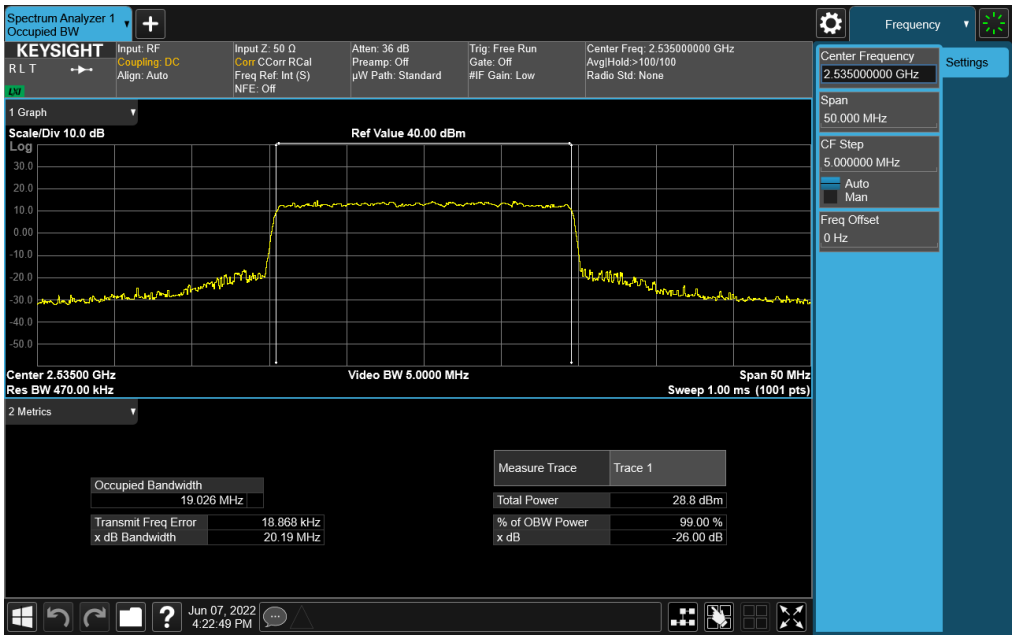
Plot 7-67. Occupied Bandwidth Plot (NR Band n7 - 20MHz QPSK - Full RB)



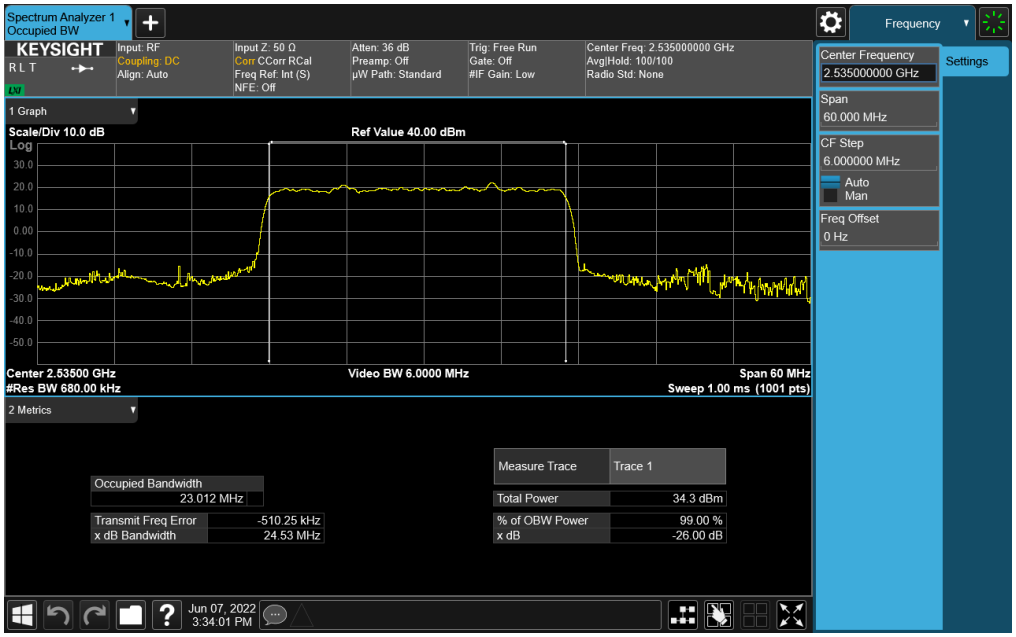
Plot 7-68. Occupied Bandwidth Plot (NR Band n7 - 20MHz 16-QAM - Full RB)



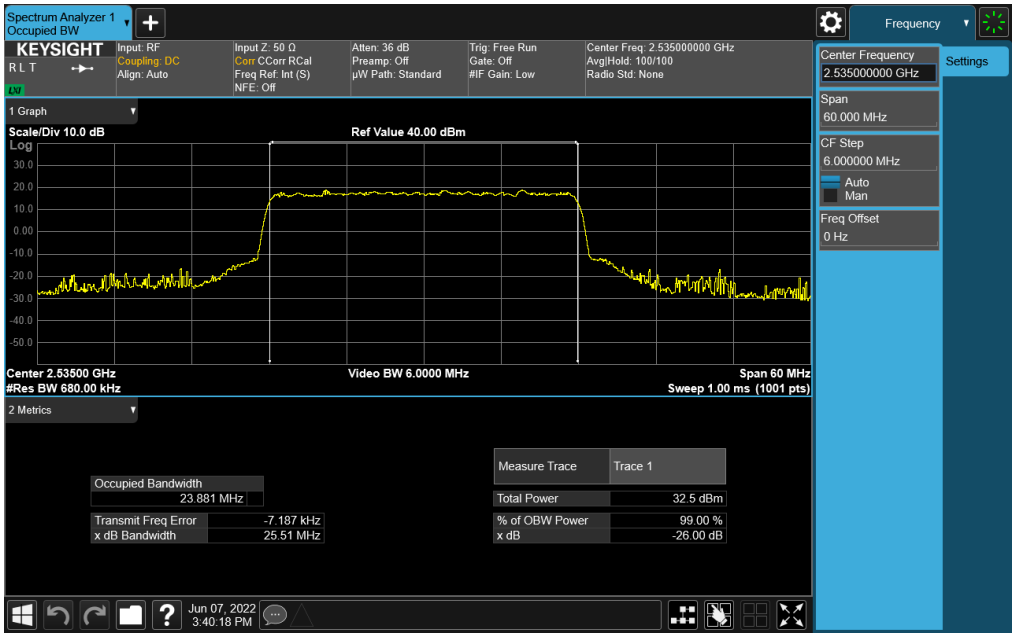
Plot 7-69. Occupied Bandwidth Plot (NR Band n7 - 20MHz 64-QAM - Full RB)



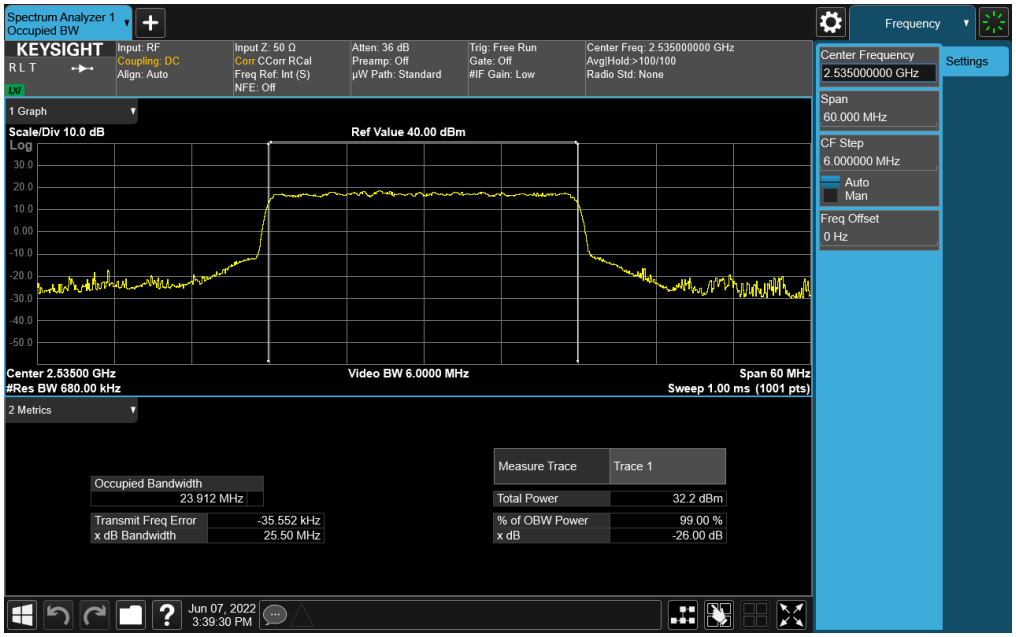
Plot 7-70. Occupied Bandwidth Plot (NR Band n7 - 20MHz 256-QAM - Full RB)



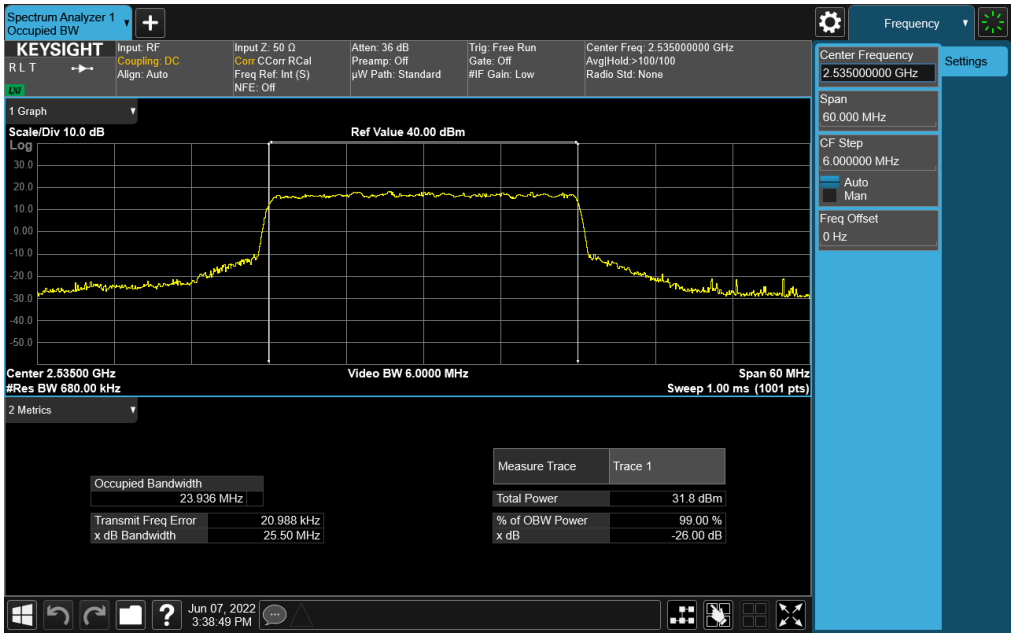
Plot 7-71. Occupied Bandwidth Plot (NR Band n7 - 25MHz π/2 BPSK - Full RB)



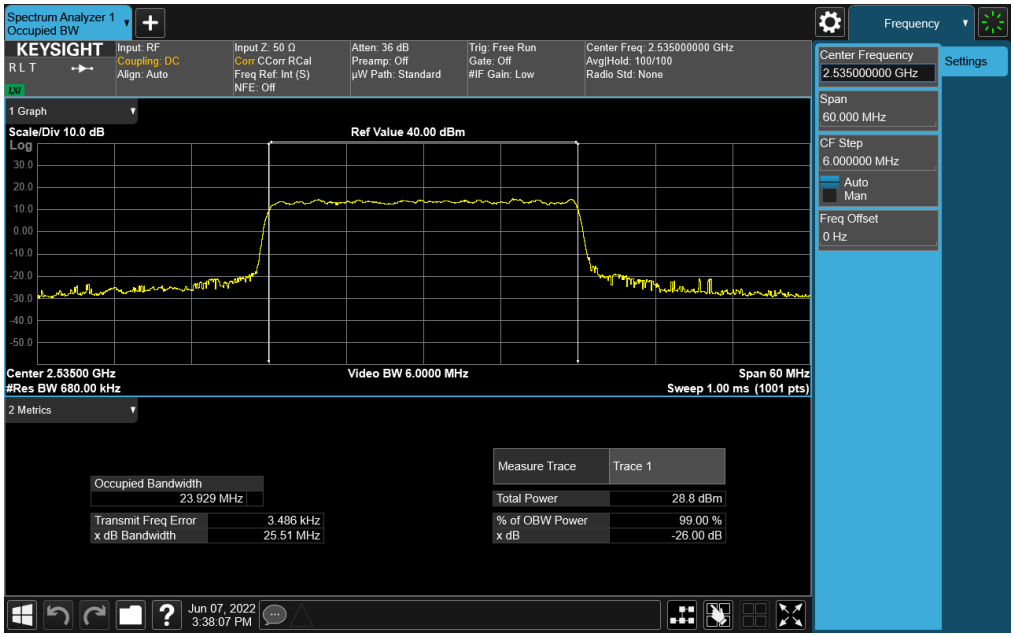
Plot 7-72. Occupied Bandwidth Plot (NR Band n7 - 25MHz QPSK - Full RB)



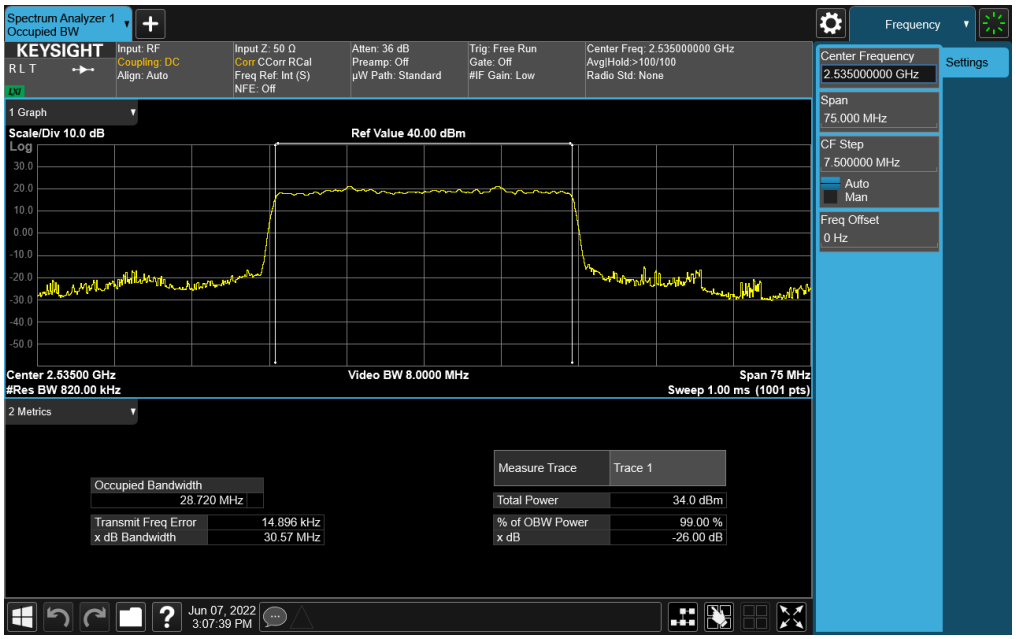
Plot 7-73. Occupied Bandwidth Plot (NR Band n7 - 25MHz 16-QAM - Full RB)



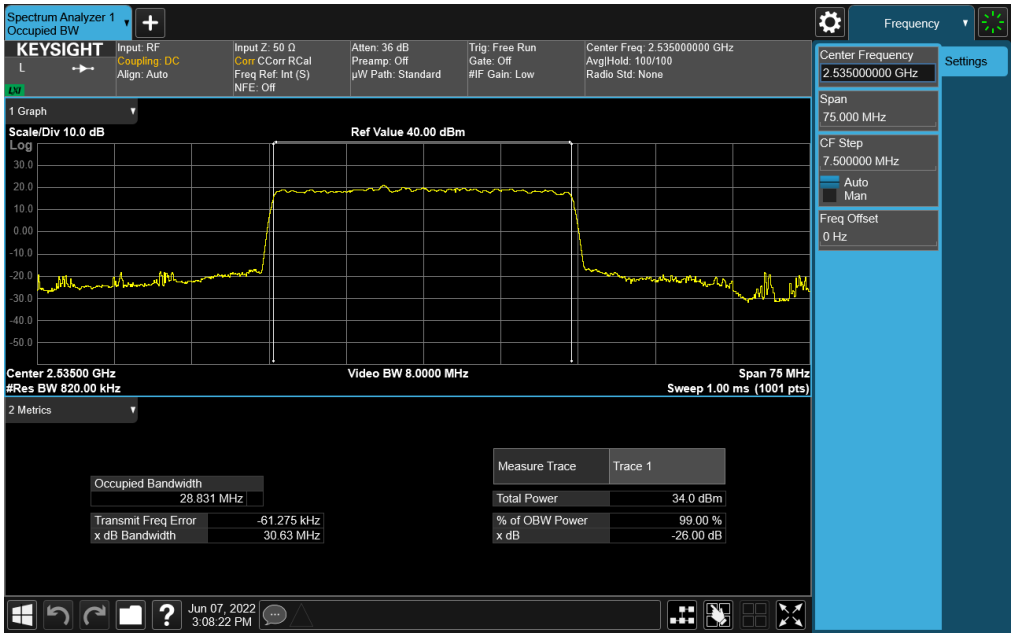
Plot 7-74. Occupied Bandwidth Plot (NR Band n7 - 25MHz 64-QAM - Full RB)



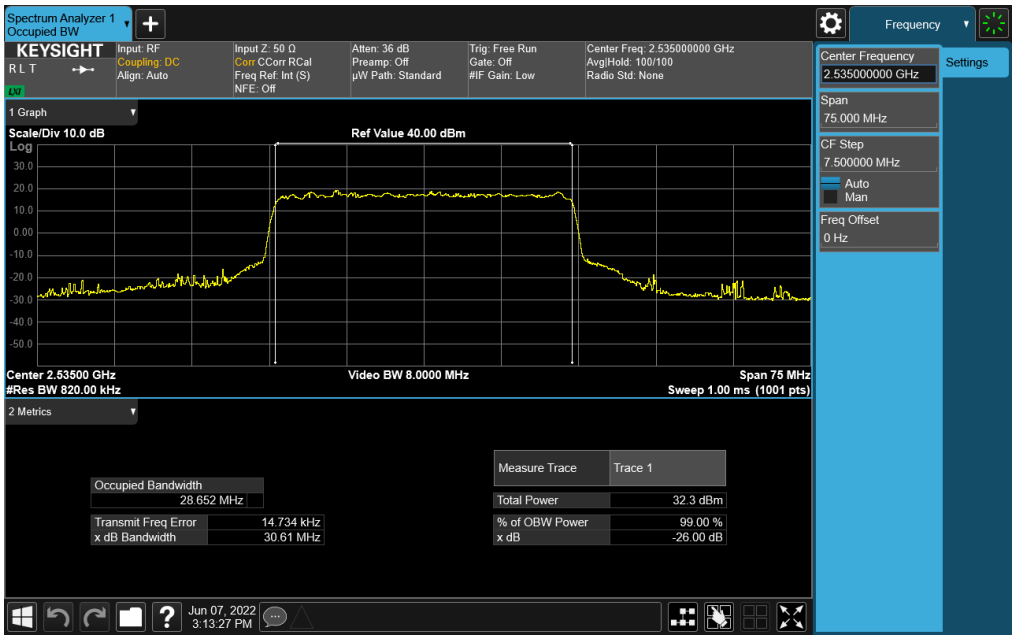
Plot 7-75. Occupied Bandwidth Plot (NR Band n7 - 25MHz 256-QAM - Full RB)



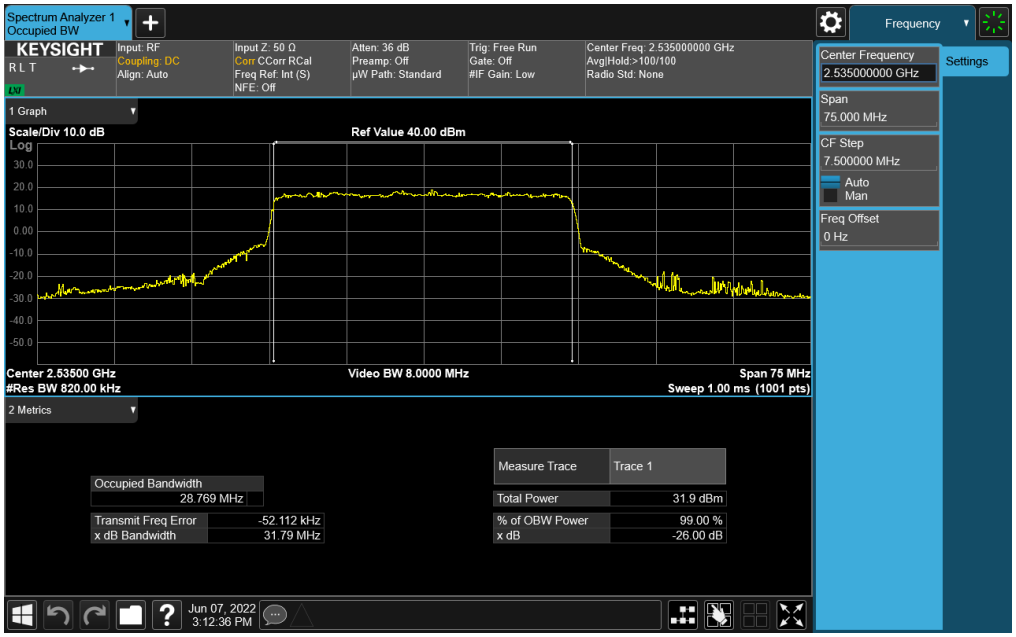
Plot 7-76. Occupied Bandwidth Plot (NR Band n7 - 30MHz π/2 BPSK - Full RB)



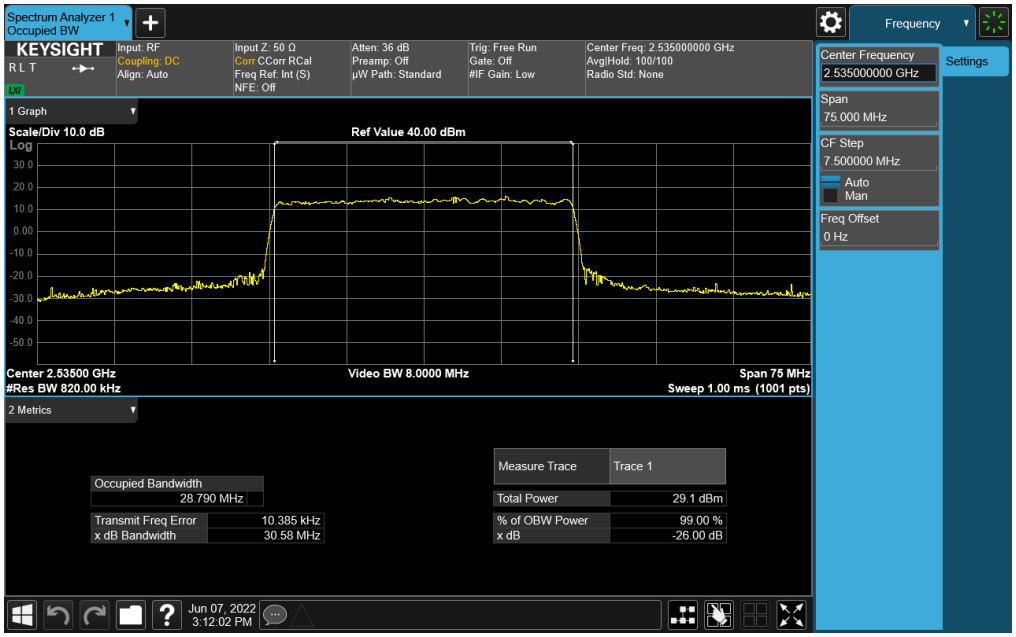
Plot 7-77. Occupied Bandwidth Plot (NR Band n7 - 30MHz QPSK - Full RB)



Plot 7-78. Occupied Bandwidth Plot (NR Band n7 - 30MHz 16-QAM - Full RB)

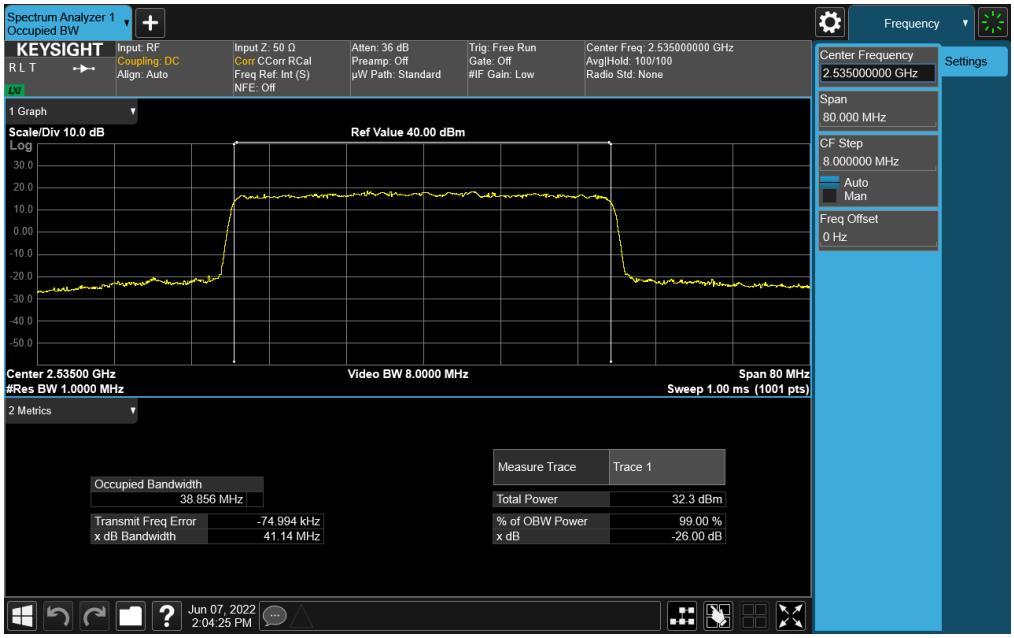


Plot 7-79. Occupied Bandwidth Plot (NR Band n7 - 30MHz 64-QAM - Full RB)

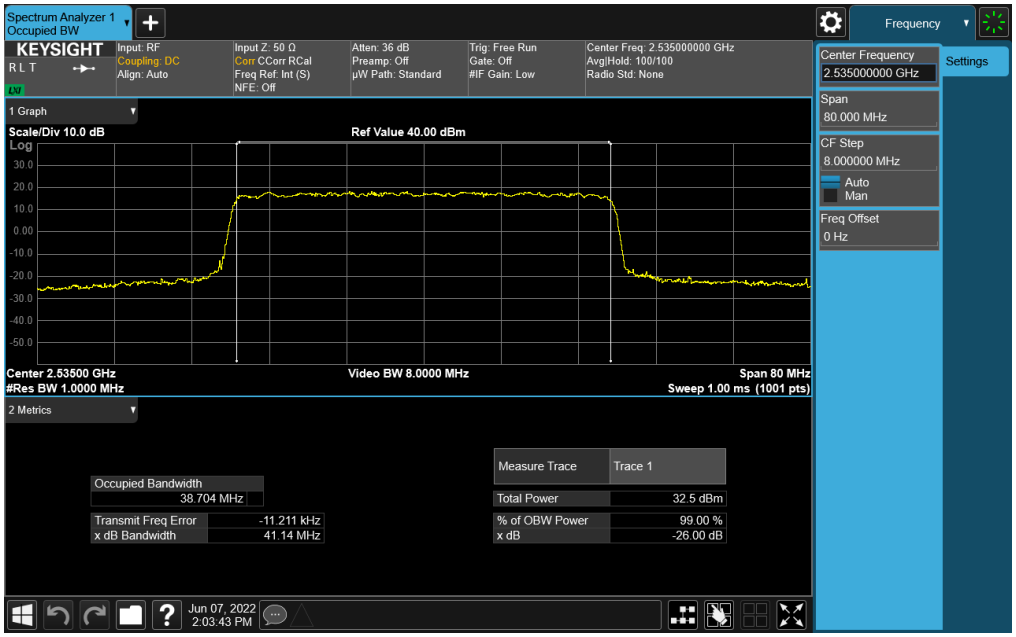


Plot 7-80. Occupied Bandwidth Plot (NR Band n7 - 30MHz 256-QAM - Full RB)

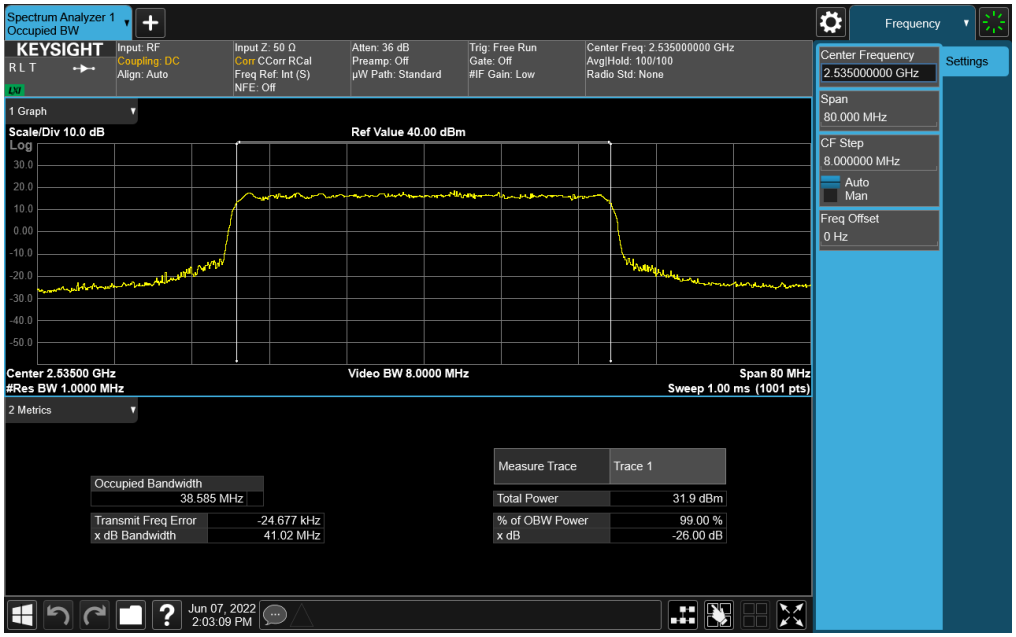
Plot 7-81. Occupied Bandwidth Plot (NR Band n7 - 40MHz π/2 BPSK - Full RB)



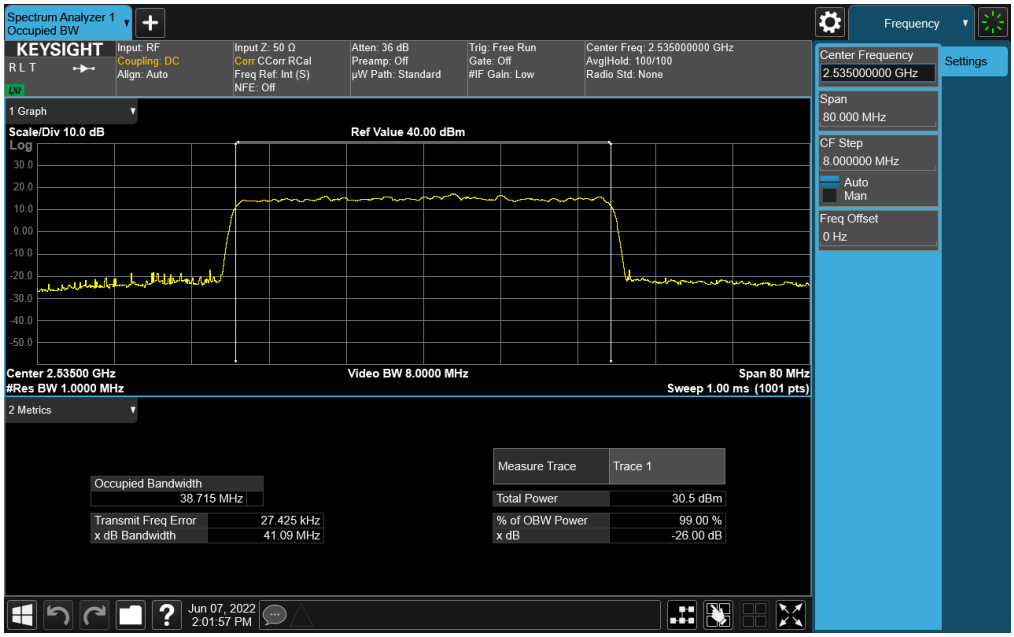
Plot 7-82. Occupied Bandwidth Plot (NR Band n7 - 40MHz QPSK - Full RB)



Plot 7-83. Occupied Bandwidth Plot (NR Band n7 - 40MHz 16-QAM - Full RB)

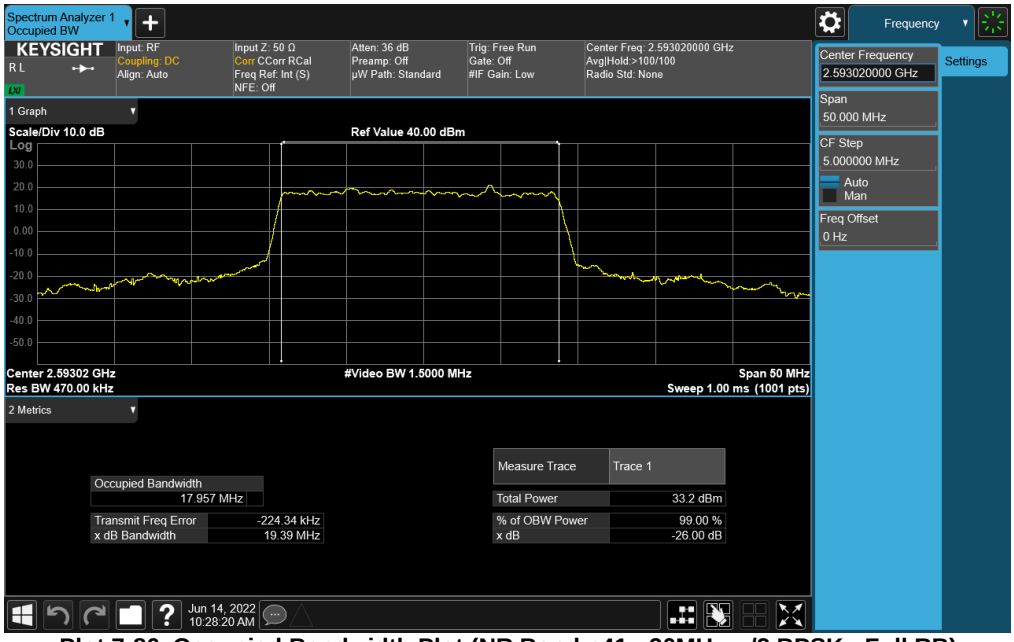


Plot 7-84. Occupied Bandwidth Plot (NR Band n7 - 40MHz 64-QAM - Full RB)

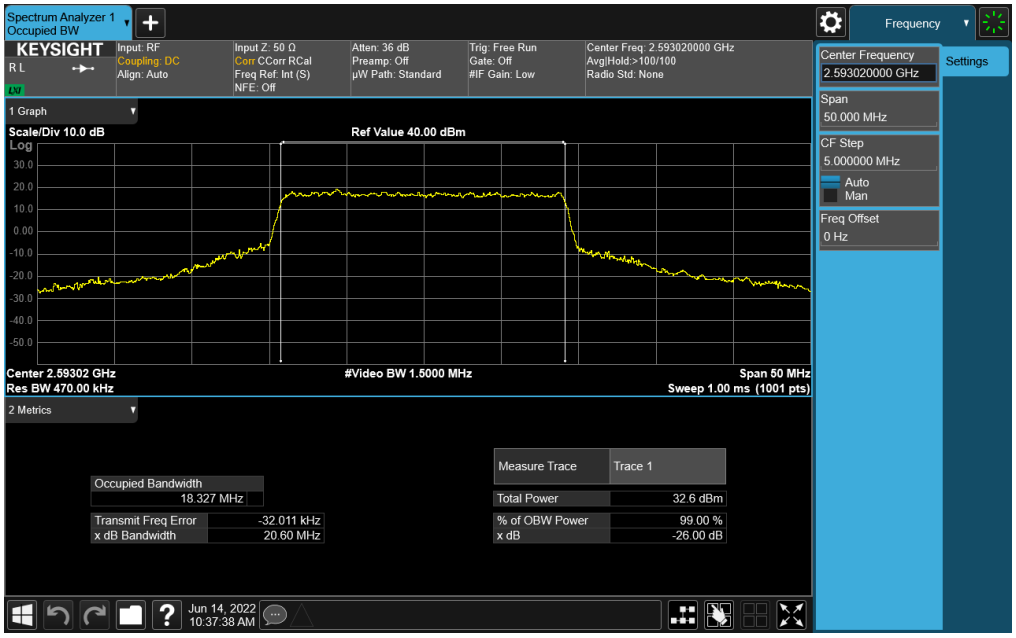


Plot 7-85. Occupied Bandwidth Plot (NR Band n7 - 40MHz 256-QAM - Full RB)

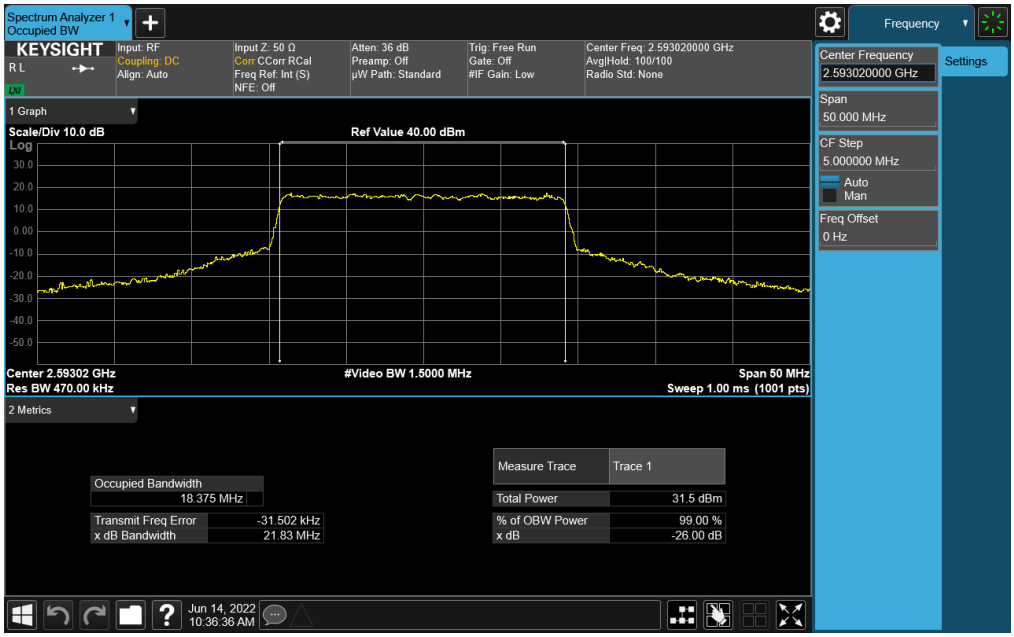
NR Band n41



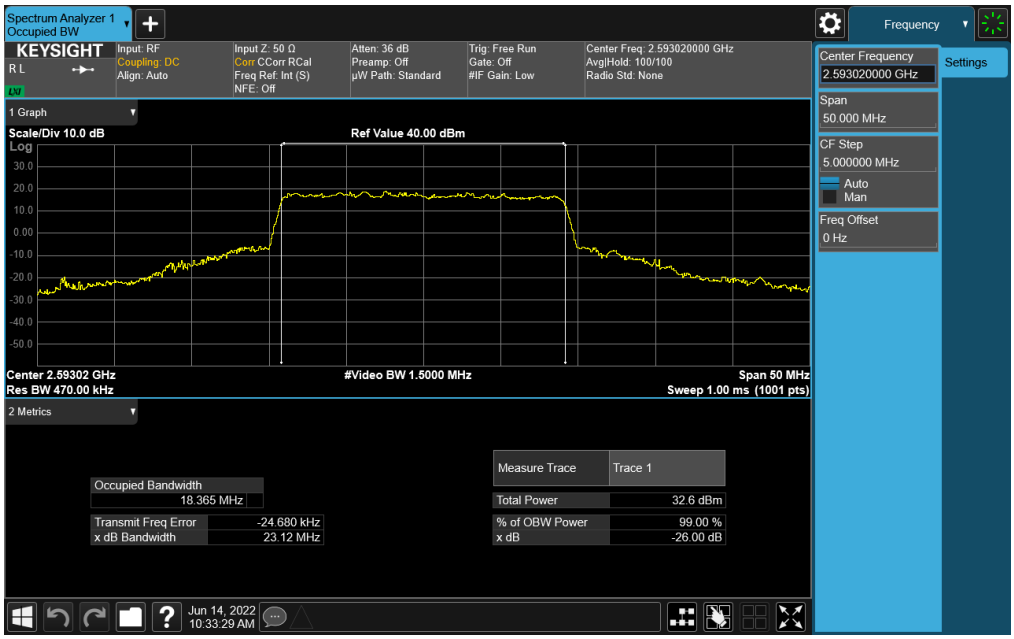
Plot 7-86. Occupied Bandwidth Plot (NR Band n41 - 20MHz π/2 BPSK - Full RB)



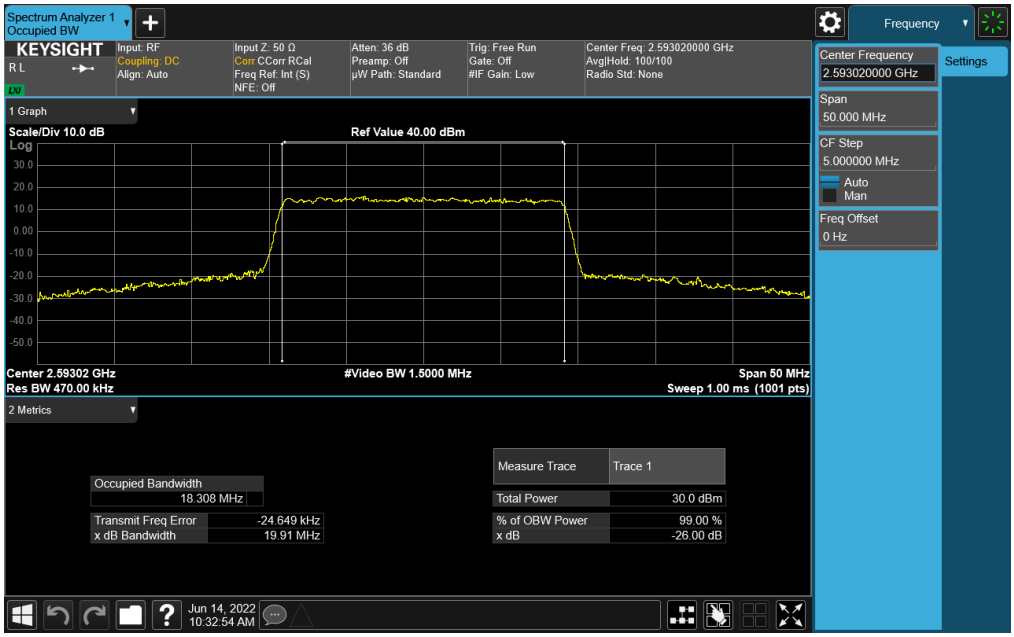
Plot 7-87. Occupied Bandwidth Plot (NR Band n41 - 20MHz QPSK - Full RB)



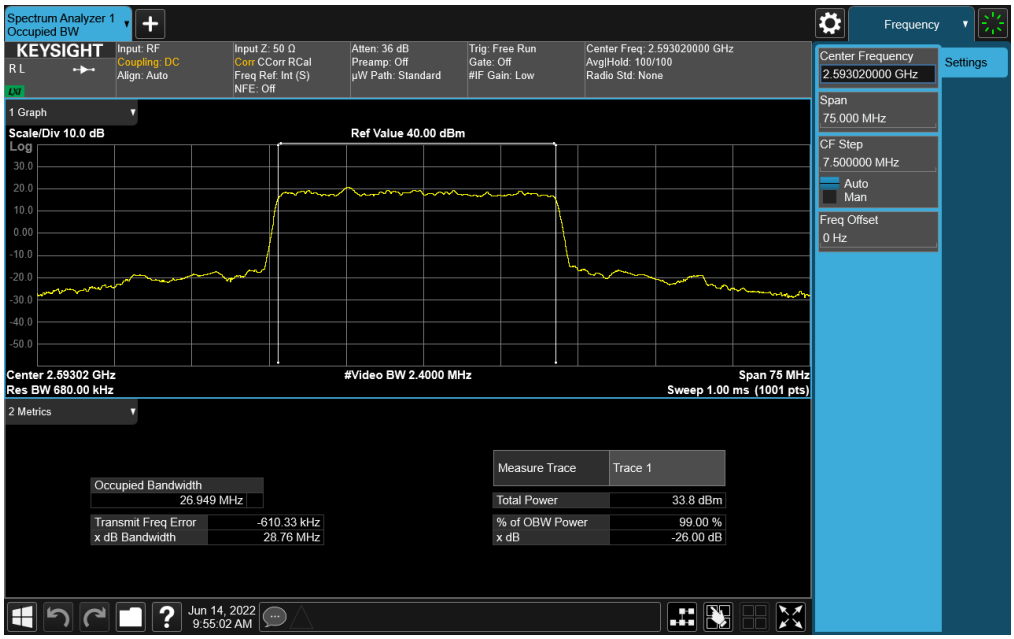
Plot 7-88. Occupied Bandwidth Plot (NR Band n41 - 20MHz 16-QAM - Full RB)



Plot 7-89. Occupied Bandwidth Plot (NR Band n41 - 20MHz 64-QAM - Full RB)



Plot 7-90. Occupied Bandwidth Plot (NR Band n41 - 20MHz 256-QAM - Full RB)



Plot 7-91. Occupied Bandwidth Plot (NR Band n41 – 30MHz π/2 BPSK - Full RB)