

## PART 27 MEASUREMENT REPORT

**Applicant Name:**

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

**Date of Testing:**

10/1/2023 - 3/18/2024

**Test Report Issue Date:**

3/22/2024

**Test Site/Location:**

Element Materials Technology Morgan Hill, CA, USA

**Test Report Serial No.:**

1C2311270064-11-R1.BCG

**FCC ID:**

**BCGA2903**

**Applicant Name:**

**Apple Inc.**

**Application Type:**

Certification

**Model:**

A2903, A2904

**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: 1C2311270064-11-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

**Prepared by:** WKR0000006193


**Reviewed by:** WKR0000005805

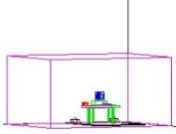


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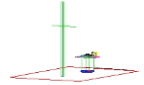
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Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	OBW [MHz]	PAR at 0.1% [dB]	EIRP		Emission Designator
						Max. Power [W]	Max. Power [dBm]	
NR Band n77 (PC2) (3450 - 3550MHz)	10 MHz	$\pi/2$ BPSK	3455.0 - 3545.0	8.614	4.14	0.813	29.10	8M61G7W
		QPSK	3455.0 - 3545.0	8.955	5.51	0.793	28.99	8M96G7W
		16QAM	3455.0 - 3545.0	8.949	6.33	0.640	28.06	8M95D7W
		64QAM	3455.0 - 3545.0	8.978	6.33	0.499	26.98	8M98D7W
		256QAM	3455.0 - 3545.0	8.999	6.76	0.261	24.16	9M00D7W
	15 MHz	$\pi/2$ BPSK	3457.5 - 3542.5	12.827	4.02	0.813	29.10	12M8G7W
		QPSK	3457.5 - 3542.5	13.591	5.39	0.805	29.06	13M6G7W
		16QAM	3457.5 - 3542.5	13.631	6.22	0.646	28.10	13M6D7W
		64QAM	3457.5 - 3542.5	13.642	6.52	0.512	27.09	13M6D7W
		256QAM	3457.5 - 3542.5	13.548	6.48	0.260	24.15	13M5D7W
	20 MHz	$\pi/2$ BPSK	3460.0 - 3540.0	17.903	4.01	0.813	29.10	17M9G7W
		QPSK	3460.0 - 3540.0	18.332	5.42	0.802	29.04	18M3G7W
		16QAM	3460.0 - 3540.0	18.232	6.19	0.653	28.15	18M2D7W
		64QAM	3460.0 - 3540.0	18.256	6.48	0.520	27.16	18M3D7W
		256QAM	3460.0 - 3540.0	18.270	6.84	0.262	24.19	18M3D7W
	30 MHz	$\pi/2$ BPSK	3465.0 - 3535.0	26.742	4.06	0.813	29.10	26M7G7W
		QPSK	3465.0 - 3535.0	27.892	5.42	0.787	28.96	27M9G7W
		16QAM	3465.0 - 3535.0	27.918	6.33	0.646	28.10	27M9D7W
		64QAM	3465.0 - 3535.0	27.945	7.18	0.513	27.10	27M9D7W
		256QAM	3465.0 - 3535.0	27.934	6.53	0.265	24.23	27M9D7W
	40 MHz	$\pi/2$ BPSK	3470.0 - 3530.0	35.873	4.09	0.778	28.91	35M9G7W
		QPSK	3470.0 - 3530.0	37.934	5.33	0.813	29.10	37M9G7W
		16QAM	3470.0 - 3530.0	37.873	6.20	0.641	28.07	37M9D7W
		64QAM	3470.0 - 3530.0	37.850	6.35	0.514	27.11	37M8D7W
		256QAM	3470.0 - 3530.0	37.869	6.33	0.255	24.07	37M9D7W
	50 MHz	$\pi/2$ BPSK	3475.0 - 3525.0	45.734	3.83	0.813	29.10	45M7G7W
		QPSK	3475.0 - 3525.0	47.518	5.19	0.813	29.10	47M5G7W
		16QAM	3475.0 - 3525.0	47.707	5.99	0.632	28.01	47M7D7W
		64QAM	3475.0 - 3525.0	47.637	6.37	0.509	27.07	47M6D7W
		256QAM	3475.0 - 3525.0	47.490	6.45	0.262	24.18	47M5D7W
	60 MHz	$\pi/2$ BPSK	3480.0 - 3520.0	57.814	4.00	0.805	29.06	57M8G7W
		QPSK	3480.0 - 3520.0	57.982	5.30	0.813	29.10	58M0G7W
		16QAM	3480.0 - 3520.0	58.142	6.18	0.646	28.10	58M1D7W
		64QAM	3480.0 - 3520.0	57.940	6.45	0.511	27.08	57M9D7W
		256QAM	3480.0 - 3520.0	58.041	6.69	0.262	24.19	58M0D7W
	70 MHz	$\pi/2$ BPSK	3485.0 - 3515.0	64.359	4.36	0.804	29.05	64M4G7W
		QPSK	3485.0 - 3515.0	67.666	5.61	0.813	29.10	67M7G7W
		16QAM	3485.0 - 3515.0	67.619	6.39	0.650	28.13	67M6D7W
		64QAM	3485.0 - 3515.0	67.604	6.59	0.515	27.12	67M6D7W
		256QAM	3485.0 - 3515.0	67.772	6.78	0.264	24.22	67M8D7W
	80 MHz	$\pi/2$ BPSK	3490.0 - 3510.0	77.305	4.00	0.813	29.10	77M3G7W
		QPSK	3490.0 - 3510.0	77.610	5.32	0.791	28.98	77M6G7W
		16QAM	3490.0 - 3510.0	77.765	6.17	0.644	28.09	77M8D7W
		64QAM	3490.0 - 3510.0	77.703	6.46	0.512	27.09	77M7D7W
		256QAM	3490.0 - 3510.0	77.704	6.75	0.261	24.17	77M7D7W
	90 MHz	$\pi/2$ BPSK	3495.0 - 3505.0	87.075	4.00	0.813	29.10	87M1G7W
		QPSK	3495.0 - 3505.0	87.643	5.38	0.807	29.07	87M6G7W
		16QAM	3495.0 - 3505.0	87.733	6.16	0.644	28.09	87M7D7W
		64QAM	3495.0 - 3505.0	87.844	6.50	0.504	27.02	87M8D7W
		256QAM	3495.0 - 3505.0	87.697	6.57	0.262	24.18	87M7D7W
100 MHz	$\pi/2$ BPSK	3500	96.559	4.11	0.813	29.10	96M6G7W	
	QPSK	3500	97.630	5.41	0.794	29.00	97M6G7W	
	16QAM	3500	97.719	6.24	0.630	27.99	97M7D7W	
	64QAM	3500	97.955	6.43	0.513	27.10	98M0D7W	
	256QAM	3500	97.627	6.55	0.252	24.02	97M6D7W	

## EUT Overview

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N: 1C2311270064-11-R1.BCG	Test Dates: 10/1/2023 - 3/18/2024	EUT Type: Tablet Device
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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 n77 (PC3) (3450 - 3550MHz)	10 MHz	$\pi/2$ BPSK	3455.0 - 3545.0	8.614	4.14	0.589	27.70	8M61G7W
		QPSK	3455.0 - 3545.0	8.955	5.51	0.588	27.69	8M96G7W
		16QAM	3455.0 - 3545.0	8.949	6.33	0.469	26.71	8M95D7W
		64QAM	3455.0 - 3545.0	8.978	6.33	0.345	25.38	8M98D7W
		256QAM	3455.0 - 3545.0	8.999	6.76	0.217	23.37	9M00D7W
	15 MHz	$\pi/2$ BPSK	3457.5 - 3542.5	12.827	4.02	0.589	27.70	12M8G7W
		QPSK	3457.5 - 3542.5	13.591	5.39	0.588	27.69	13M6G7W
		16QAM	3457.5 - 3542.5	13.631	6.22	0.480	26.81	13M6D7W
		64QAM	3457.5 - 3542.5	13.642	6.52	0.348	25.41	13M6D7W
		256QAM	3457.5 - 3542.5	13.548	6.48	0.220	23.42	13M5D7W
	20 MHz	$\pi/2$ BPSK	3460.0 - 3540.0	17.903	4.01	0.589	27.70	17M9G7W
		QPSK	3460.0 - 3540.0	18.332	5.42	0.587	27.68	18M3G7W
		16QAM	3460.0 - 3540.0	18.232	6.19	0.487	26.88	18M2D7W
		64QAM	3460.0 - 3540.0	18.256	6.48	0.346	25.39	18M3D7W
		256QAM	3460.0 - 3540.0	18.270	6.84	0.218	23.38	18M3D7W
	30 MHz	$\pi/2$ BPSK	3465.0 - 3535.0	26.742	4.06	0.589	27.70	26M7G7W
		QPSK	3465.0 - 3535.0	27.892	5.42	0.586	27.68	27M9G7W
		16QAM	3465.0 - 3535.0	27.918	6.33	0.463	26.66	27M9D7W
		64QAM	3465.0 - 3535.0	27.945	7.18	0.359	25.55	27M9D7W
		256QAM	3465.0 - 3535.0	27.934	6.53	0.228	23.58	27M9D7W
	40 MHz	$\pi/2$ BPSK	3470.0 - 3530.0	35.873	4.09	0.585	27.67	35M9G7W
		QPSK	3470.0 - 3530.0	37.934	5.33	0.589	27.70	37M9G7W
		16QAM	3470.0 - 3530.0	37.873	6.20	0.473	26.75	37M9D7W
		64QAM	3470.0 - 3530.0	37.850	6.35	0.366	25.63	37M8D7W
		256QAM	3470.0 - 3530.0	37.869	6.33	0.228	23.57	37M9D7W
	50 MHz	$\pi/2$ BPSK	3475.0 - 3525.0	45.734	3.83	0.584	27.67	45M7G7W
		QPSK	3475.0 - 3525.0	47.518	5.19	0.589	27.70	47M5G7W
		16QAM	3475.0 - 3525.0	47.707	5.99	0.463	26.66	47M7D7W
		64QAM	3475.0 - 3525.0	47.637	6.37	0.344	25.37	47M6D7W
		256QAM	3475.0 - 3525.0	47.490	6.45	0.212	23.27	47M5D7W
	60 MHz	$\pi/2$ BPSK	3480.0 - 3520.0	57.814	4.00	0.589	27.70	57M8G7W
		QPSK	3480.0 - 3520.0	57.982	5.30	0.582	27.65	58M0G7W
		16QAM	3480.0 - 3520.0	58.142	6.18	0.476	26.77	58M1D7W
		64QAM	3480.0 - 3520.0	57.940	6.45	0.340	25.32	57M9D7W
		256QAM	3480.0 - 3520.0	58.041	6.69	0.214	23.30	58M0D7W
	70 MHz	$\pi/2$ BPSK	3485.0 - 3515.0	64.359	4.36	0.589	27.70	64M4G7W
		QPSK	3485.0 - 3515.0	67.666	5.61	0.567	27.54	67M7G7W
		16QAM	3485.0 - 3515.0	67.619	6.39	0.492	26.92	67M6D7W
		64QAM	3485.0 - 3515.0	67.604	6.59	0.340	25.31	67M6D7W
		256QAM	3485.0 - 3515.0	67.772	6.78	0.215	23.32	67M8D7W
	80 MHz	$\pi/2$ BPSK	3490.0 - 3510.0	77.305	4.00	0.587	27.68	77M3G7W
		QPSK	3490.0 - 3510.0	77.610	5.32	0.589	27.70	77M6G7W
		16QAM	3490.0 - 3510.0	77.765	6.17	0.475	26.77	77M8D7W
		64QAM	3490.0 - 3510.0	77.703	6.46	0.341	25.33	77M7D7W
		256QAM	3490.0 - 3510.0	77.704	6.75	0.210	23.23	77M7D7W
	90 MHz	$\pi/2$ BPSK	3495.0 - 3505.0	87.075	4.00	0.589	27.70	87M1G7W
		QPSK	3495.0 - 3505.0	87.643	5.38	0.581	27.64	87M6G7W
		16QAM	3495.0 - 3505.0	87.733	6.16	0.491	26.91	87M7D7W
		64QAM	3495.0 - 3505.0	87.844	6.50	0.337	25.28	87M8D7W
		256QAM	3495.0 - 3505.0	87.697	6.57	0.214	23.30	87M7D7W
	100 MHz	$\pi/2$ BPSK	3500	96.559	4.11	0.589	27.70	96M6G7W
		QPSK	3500	97.630	5.41	0.530	27.24	97M6G7W
		16QAM	3500	97.719	6.24	0.466	26.68	97M7D7W
		64QAM	3500	97.955	6.43	0.377	25.76	98M0D7W
		256QAM	3500	97.627	6.55	0.220	23.42	97M6D7W

### EUT Overview

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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 n77 (PC2) (3700 - 3980MHz)	10 MHz	$\pi/2$ BPSK	3705.0 - 3975.0	8.625	4.22	0.885	29.47	8M62G7W
		QPSK	3705.0 - 3975.0	8.603	5.65	0.891	29.50	8M60G7W
		16QAM	3705.0 - 3975.0	8.601	6.29	0.714	28.54	8M60D7W
		64QAM	3705.0 - 3975.0	8.598	6.35	0.558	27.47	8M60D7W
		256QAM	3705.0 - 3975.0	8.605	6.90	0.355	25.50	8M61D7W
	15 MHz	$\pi/2$ BPSK	3707.5 - 3972.5	12.913	4.22	0.891	29.50	12M9G7W
		QPSK	3707.5 - 3972.5	13.615	5.58	0.881	29.45	13M6G7W
		16QAM	3707.5 - 3972.5	13.559	6.44	0.690	28.39	13M6D7W
		64QAM	3707.5 - 3972.5	13.623	6.59	0.553	27.43	13M6D7W
		256QAM	3707.5 - 3972.5	13.536	6.61	0.355	25.50	13M5D7W
	20 MHz	$\pi/2$ BPSK	3710.0 - 3970.0	17.850	4.27	0.891	29.50	17M8G7W
		QPSK	3710.0 - 3970.0	18.323	5.64	0.887	29.48	18M3G7W
		16QAM	3710.0 - 3970.0	18.329	6.40	0.706	28.49	18M3D7W
		64QAM	3710.0 - 3970.0	18.280	6.67	0.562	27.50	18M3D7W
		256QAM	3710.0 - 3970.0	18.248	6.81	0.355	25.50	18M2D7W
	30 MHz	$\pi/2$ BPSK	3715.0 - 3965.0	26.867	4.45	0.867	29.38	26M9G7W
		QPSK	3715.0 - 3965.0	27.875	5.71	0.891	29.50	27M9G7W
		16QAM	3715.0 - 3965.0	27.922	6.46	0.693	28.41	27M9D7W
		64QAM	3715.0 - 3965.0	27.933	6.52	0.560	27.48	27M9D7W
		256QAM	3715.0 - 3965.0	28.018	6.78	0.355	25.50	28M0D7W
	40 MHz	$\pi/2$ BPSK	3720.0 - 3960.0	35.919	4.34	0.891	29.50	35M9G7W
		QPSK	3720.0 - 3960.0	37.850	5.71	0.889	29.49	37M8G7W
		16QAM	3720.0 - 3960.0	37.998	6.51	0.721	28.58	38M0D7W
		64QAM	3720.0 - 3960.0	37.939	6.64	0.570	27.56	37M9D7W
		256QAM	3720.0 - 3960.0	37.901	6.69	0.355	25.50	37M9D7W
	50 MHz	$\pi/2$ BPSK	3725.0 - 3955.0	45.750	3.91	0.879	29.44	45M8G7W
		QPSK	3725.0 - 3955.0	47.557	5.40	0.891	29.50	47M6G7W
		16QAM	3725.0 - 3955.0	47.545	6.17	0.705	28.48	47M5D7W
		64QAM	3725.0 - 3955.0	47.508	6.65	0.565	27.52	47M5D7W
		256QAM	3725.0 - 3955.0	47.493	6.75	0.355	25.50	47M5D7W
	60 MHz	$\pi/2$ BPSK	3730.0 - 3950.0	57.821	3.98	0.871	29.40	57M8G7W
		QPSK	3730.0 - 3950.0	58.038	5.39	0.891	29.50	58M0G7W
		16QAM	3730.0 - 3950.0	58.009	6.26	0.710	28.51	58M0D7W
		64QAM	3730.0 - 3950.0	57.931	6.54	0.553	27.43	57M9D7W
		256QAM	3730.0 - 3950.0	57.915	6.66	0.355	25.50	57M9D7W
	70 MHz	$\pi/2$ BPSK	3735.0 - 3945.0	64.525	4.41	0.891	29.50	64M5G7W
		QPSK	3735.0 - 3945.0	67.736	5.72	0.891	29.50	67M7G7W
		16QAM	3735.0 - 3945.0	67.596	6.42	0.708	28.50	67M6D7W
		64QAM	3735.0 - 3945.0	67.818	6.75	0.547	27.38	67M8D7W
		256QAM	3735.0 - 3945.0	67.658	6.71	0.355	25.50	67M7D7W
	80 MHz	$\pi/2$ BPSK	3740.0 - 3940.0	77.362	4.01	0.891	29.50	77M4G7W
		QPSK	3740.0 - 3940.0	77.611	5.42	0.883	29.46	77M6G7W
		16QAM	3740.0 - 3940.0	77.645	6.29	0.716	28.55	77M6D7W
		64QAM	3740.0 - 3940.0	77.774	6.66	0.566	27.53	77M8D7W
		256QAM	3740.0 - 3940.0	77.661	6.79	0.355	25.50	77M7D7W
	90 MHz	$\pi/2$ BPSK	3745.0 - 3935.0	87.030	4.01	0.891	29.50	87M0G7W
		QPSK	3745.0 - 3935.0	87.703	5.46	0.891	29.50	87M7G7W
		16QAM	3745.0 - 3935.0	87.629	6.28	0.700	28.45	87M6D7W
		64QAM	3745.0 - 3935.0	87.753	6.67	0.555	27.44	87M8D7W
		256QAM	3745.0 - 3935.0	87.892	6.64	0.355	25.50	87M9D7W
	100 MHz	$\pi/2$ BPSK	3750.0 - 3930.0	96.740	4.01	0.889	29.49	96M7G7W
		QPSK	3750.0 - 3930.0	97.742	5.49	0.891	29.50	97M7G7W
16QAM		3750.0 - 3930.0	97.575	6.37	0.708	28.50	97M6D7W	
64QAM		3750.0 - 3930.0	97.708	6.66	0.551	27.41	97M7D7W	
256QAM		3750.0 - 3930.0	97.650	6.72	0.355	25.50	97M6D7W	

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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 n77 (PC3) (3700 - 3980MHz)	10 MHz	$\pi/2$ BPSK	3705.0 - 3975.0	8.625	4.22	0.645	28.10	8M62G7W
		QPSK	3705.0 - 3975.0	8.603	5.65	0.646	28.10	8M60G7W
		16QAM	3705.0 - 3975.0	8.601	6.29	0.509	27.06	8M60D7W
		64QAM	3705.0 - 3975.0	8.598	6.35	0.368	25.66	8M60D7W
		256QAM	3705.0 - 3975.0	8.605	6.90	0.229	23.60	8M61D7W
	15 MHz	$\pi/2$ BPSK	3707.5 - 3972.5	12.913	4.22	0.646	28.10	12M9G7W
		QPSK	3707.5 - 3972.5	13.615	5.58	0.643	28.09	13M6G7W
		16QAM	3707.5 - 3972.5	13.559	6.44	0.518	27.14	13M6D7W
		64QAM	3707.5 - 3972.5	13.623	6.59	0.379	25.79	13M6D7W
		256QAM	3707.5 - 3972.5	13.536	6.61	0.236	23.73	13M5D7W
	20 MHz	$\pi/2$ BPSK	3710.0 - 3970.0	17.850	4.27	0.646	28.10	17M8G7W
		QPSK	3710.0 - 3970.0	18.323	5.64	0.643	28.08	18M3G7W
		16QAM	3710.0 - 3970.0	18.329	6.40	0.531	27.25	18M3D7W
		64QAM	3710.0 - 3970.0	18.280	6.67	0.380	25.80	18M3D7W
		256QAM	3710.0 - 3970.0	18.248	6.81	0.233	23.67	18M2D7W
	30 MHz	$\pi/2$ BPSK	3715.0 - 3965.0	26.867	4.45	0.636	28.03	26M9G7W
		QPSK	3715.0 - 3965.0	27.875	5.71	0.646	28.10	27M9G7W
		16QAM	3715.0 - 3965.0	27.922	6.46	0.523	27.18	27M9D7W
		64QAM	3715.0 - 3965.0	27.933	6.52	0.374	25.73	27M9D7W
		256QAM	3715.0 - 3965.0	28.018	6.78	0.235	23.71	28M0D7W
	40 MHz	$\pi/2$ BPSK	3720.0 - 3960.0	35.919	4.34	0.646	28.10	35M9G7W
		QPSK	3720.0 - 3960.0	37.850	5.71	0.640	28.06	37M8G7W
		16QAM	3720.0 - 3960.0	37.998	6.51	0.542	27.34	38M0D7W
		64QAM	3720.0 - 3960.0	37.939	6.64	0.357	25.53	37M9D7W
		256QAM	3720.0 - 3960.0	37.901	6.69	0.231	23.63	37M9D7W
	50 MHz	$\pi/2$ BPSK	3725.0 - 3955.0	45.750	3.91	0.612	27.87	45M8G7W
		QPSK	3725.0 - 3955.0	47.557	5.40	0.616	27.90	47M6G7W
		16QAM	3725.0 - 3955.0	47.545	6.17	0.512	27.09	47M5D7W
		64QAM	3725.0 - 3955.0	47.508	6.65	0.344	25.37	47M5D7W
		256QAM	3725.0 - 3955.0	47.493	6.75	0.217	23.37	47M5D7W
	60 MHz	$\pi/2$ BPSK	3730.0 - 3950.0	57.821	3.98	0.592	27.73	57M8G7W
		QPSK	3730.0 - 3950.0	58.038	5.39	0.603	27.80	58M0G7W
		16QAM	3730.0 - 3950.0	58.009	6.26	0.506	27.04	58M0D7W
		64QAM	3730.0 - 3950.0	57.931	6.54	0.359	25.55	57M9D7W
		256QAM	3730.0 - 3950.0	57.915	6.66	0.222	23.47	57M9D7W
	70 MHz	$\pi/2$ BPSK	3735.0 - 3945.0	64.525	4.41	0.623	27.95	64M5G7W
		QPSK	3735.0 - 3945.0	67.736	5.72	0.637	28.04	67M7G7W
		16QAM	3735.0 - 3945.0	67.596	6.42	0.496	26.96	67M6D7W
		64QAM	3735.0 - 3945.0	67.818	6.75	0.363	25.60	67M8D7W
		256QAM	3735.0 - 3945.0	67.658	6.71	0.226	23.54	67M7D7W
	80 MHz	$\pi/2$ BPSK	3740.0 - 3940.0	77.362	4.01	0.608	27.84	77M4G7W
		QPSK	3740.0 - 3940.0	77.611	5.42	0.618	27.91	77M6G7W
		16QAM	3740.0 - 3940.0	77.645	6.29	0.502	27.01	77M6D7W
		64QAM	3740.0 - 3940.0	77.774	6.66	0.351	25.45	77M8D7W
		256QAM	3740.0 - 3940.0	77.661	6.79	0.221	23.43	77M7D7W
	90 MHz	$\pi/2$ BPSK	3745.0 - 3935.0	87.030	4.01	0.631	28.00	87M0G7W
		QPSK	3745.0 - 3935.0	87.703	5.46	0.616	27.90	87M7G7W
		16QAM	3745.0 - 3935.0	87.629	6.28	0.464	26.66	87M6D7W
		64QAM	3745.0 - 3935.0	87.753	6.67	0.337	25.27	87M8D7W
		256QAM	3745.0 - 3935.0	87.892	6.64	0.204	23.10	87M9D7W
	100 MHz	$\pi/2$ BPSK	3750.0 - 3930.0	96.740	4.01	0.575	27.60	96M7G7W
		QPSK	3750.0 - 3930.0	97.742	5.49	0.607	27.84	97M7G7W
		16QAM	3750.0 - 3930.0	97.575	6.37	0.487	26.87	97M6D7W
		64QAM	3750.0 - 3930.0	97.708	6.66	0.355	25.51	97M7D7W
		256QAM	3750.0 - 3930.0	97.650	6.72	0.203	23.07	97M6D7W

### EUT Overview

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# 1.0 INTRODUCTION

## 1.1 Scope

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


## 1.2 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).

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## 2.0 PRODUCT INFORMATION

### 2.1 Equipment Description

The Equipment Under Test (EUT) is the **Apple Tablet Device FCC ID:BCGA2903**. 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.:** RH779H9653, W046C4WFF6, F1Y0XGN9Q3, DLXGYH0000A0000EVL, DLXGY90000D0000EVP

### 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, 802.11a/ax WIFI 6E, 802.15.4, Bluetooth (1x, EDR, LE1M, LE2M, HDR4, HDR8), NB UNII (1x, HDR4, HDR8), WPT


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	Wifi 2GHz	Bluetooth	Thread	Wifi 5GHz	Wifi 6GHz	NB UNII	LTE/FR1 NR	
		802.11 b/g/n/ax	BDR, EDR, HDR4/8, LE1/2M	802.15.4	802.11 a/n/ac/ax	802.11 a/ax	BDR, HDR4/8	MB/HB	UHB
3a	Config 1	X	✓	X	✓	X	X	✓	X
3a	Config 2	X	✓	X	X	✓	X	✓	X
3a	Config 3	✓	X	X	X	X	✓	✓	X
3a	Config 4	X	X	✓	✓	X	X	✓	X
3a	Config 5	X	X	✓	X	✓	X	✓	X
3a	Config 6	✓	X	X	X	X	✓	X	X
3a	Config 7	✓	X	X	X	X	X	✓	X
3a	Config 8	X	✓	X	✓	X	X	X	X
3a	Config 9	X	✓	X	X	✓	X	X	X
3a	Config 10	X	✓	X	X	X	X	✓	X
3a	Config 11	X	X	✓	✓	X	X	X	X
3a	Config 13	X	X	✓	X	✓	X	X	X
3a	Config 14	X	X	✓	X	X	X	✓	X
3a	Config 15	X	X	X	✓	X	X	✓	X
3a	Config 16	X	X	X	X	✓	X	✓	X
3a	Config 17	X	X	X	X	X	✓	✓	X
1a	Config 18	✓	X	X	X	X	X	X	✓
1a	Config 15	X	✓	X	X	X	X	X	✓
1a	Config 16	X	X	✓	X	X	X	X	✓
1b	Config 17	X	X	X	✓	X	X	✓	X
1b	Config 18	X	X	X	X	✓	X	✓	X
1b	Config 19	X	X	X	X	X	✓	✓	X

Table 2-1. Simultaneous Transmission Configurations

✓ = Support; ✗ = Not Support

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**Note:**

All the above simultaneous transmission configurations have been tested and the worst case configuration was found to be Config 1 and reported in Part 27b, Bluetooth and UNII RF 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 connected mode and Wi-Fi (2.4GHz) - Wi-Fi max power will not exceed minimum of (13.5dBm, SAR max cap, Reg max cap) power. For BT (2.4GHz) in disconnected mode and Wi-Fi (2.4GHz) - BT will be using iPA only and Wi-Fi max power will not exceed minimum of (SAR max cap, Reg max cap) power. Bluetooth can simultaneously transmit with IEEE 802.11a/n/ac/ax 5/6 GHz on separate antenna.

### 2.3 Antenna Description

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


Band	Antenna Gain [dBi]			
	Antenna 3b	Antenna 2a	Antenna 4	Antenna 1a
NR Band n77(Sub 1)	2.0	1.7	-3.1	-2.0
NR Band n77(Sub 2)	2.4	2.2	-1.0	-2.9

**Table 2-2. Highest Antenna Gain**

### 2.4 Test Support Equipment

1	Apple MacBook Pro w/AC/DC Adapter	Model: Model:	A2141 A2166	S/N: S/N:	C02H604EQ05D C4H042705ZNP0WA6
2	Apple USB-C Cable	Model:	Spartan	S/N:	GXK1336018XKTR024
3	USB-C Cable w/ AC Adapter	Model: Model:	A246C A2305	S/N: S/N:	DWH80115BK826GV19 C4H95160004PF4F4V
4	Apple Pencil	Model:	A2538	S/N:	KJ26TCFXJW
5	DC Power Supply	Model:	KPS3010D	S/N:	N/A

**Table 2-3. Test Support Equipment**

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## 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 21E8197 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.

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## 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

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

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.

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## 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 ( $\pm$ 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)	4.59

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## 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	6/21/2023	Annual	6/21/2024	MY49430244
ESPEC	SU-241	Tabletop Temperature Chamber	11/17/2023	Annual	11/17/2024	92009574
ETS-Lindgren	3117	Double Ridged Guide Antenna (1-18 GHz)	3/30/2023	Annual	3/30/2024	00218555
Keysight Technology	N9040B	UXA Signal Analyzer	11/5/2023	Annual	11/5/2024	MY57213068
Rohde & Schwarz	TS-PR18	Pre-Amplifier (1GHz - 18GHz)	8/31/2023	Annual	8/31/2024	100052
Rohde & Schwarz	FSV40	Signal Analyzer (10Hz-40GHz)	5/11/2023	Annual	5/11/2024	101619
Rohde & Schwarz	ESW44	EMI Test Receiver	6/6/2023	Annual	6/6/2024	101668
Rohde & Schwarz	TS-PR8	Pre-Amplifier (30MHz - 8GHz)	6/22/2023	Annual	6/22/2024	102356
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	11/30/2023	Annual	11/30/2024	161616
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	12/27/2023	Annual	12/27/2024	164715
Rohde & Schwarz	TS-PR1840	Pre-Amplifier (18GHz - 40GHz)	6/2/2023	Annual	6/2/2024	100050
Rohde & Schwarz	HFH2-Z2	Loop Antenna	5/1/2023	Annual	5/1/2024	100519
Rohde & Schwarz	FSW43	Signal Analyzer (2Hz-43.5GHz)	7/13/2023	Annual	7/13/2024	101261
Schwarzbeck	VULB 9162	Bilog Antenna (30MHz - 6GHz)	4/17/2023	Annual	4/17/2024	00304

**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.

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## 6.0 SAMPLE CALCULATIONS

### Emission Designator

#### $\pi/2$ 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.

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## 7.0 TEST RESULTS

### 7.1 Summary

Company Name: Apple Inc.  
 FCC ID: BCGA2903  
 FCC Classification: PCS Licensed Transmitter (PCB)  
 Mode(s): 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 (NR Band n77 - 3450-3550MHz)	2.1051, 27.53(n)(2)	-13dBm at Band Edge and for all out-of-band emissions	PASS	Sections 7.3, 7.4
	Conducted Band Edge / Spurious Emissions (NR Band n77 - 3700-3980MHz)	2.1051, 27.53(l)(2)		PASS	Sections 7.3, 7.4
	Peak-Average Ratio (NR Band n77 - 3450-3550MHz)	27.50(k)(4)	< 13 dB	PASS	Sections 7.5
	Peak-Average Ratio (NR Band n77 - 3700-3980MHz)	27.50(j)(4)		PASS	Sections 7.5
	Transmitter Conducted Output Power	2.1046	N/A	N/A	See RF Exposure Report
	Effective Radiated Power / Equivalent Isotropic Radiated Power (NR Band n77 - 3450-3550MHz)	27.50(k)(3)	< 1 Watts max. EIRP	PASS	Section 7.6
	Effective Radiated Power / Equivalent Isotropic Radiated Power (NR Band n77 - 3700-3980MHz)	27.50(j)(3)		PASS	Section 7.6
	Frequency Stability	2.1055, 27.54	Fundamental emissions stay within authorized frequency block	PASS	Section 7.8
	RADIATED	Radiated Spurious Emissions (NR Band n77 - 3450-3550MHz)	2.1051, 27.53(n)(2)	-13dBm for all out-of-band emissions	PASS
Radiated Spurious Emissions (NR Band n77 - 3700-3980MHz)		2.1051, 27.53(l)(2)	PASS		Section 7.7

Table 7-1. Summary of Test Results

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**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.

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## 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

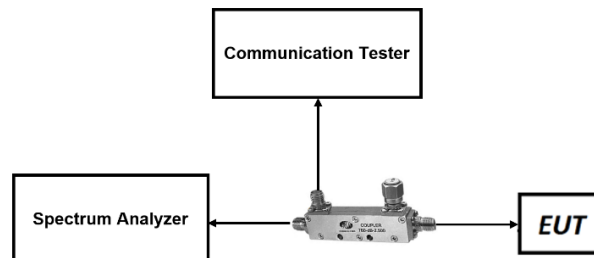
KDB 971168 D01 v03r01 – Section 4.2

#### 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  $\geq 3 \times$  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**

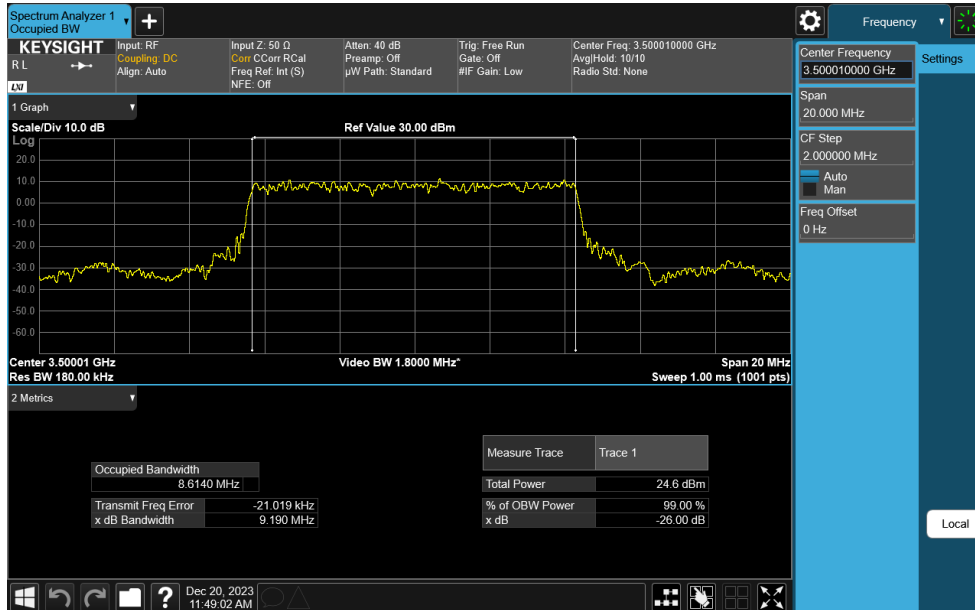
#### Test Notes

None.

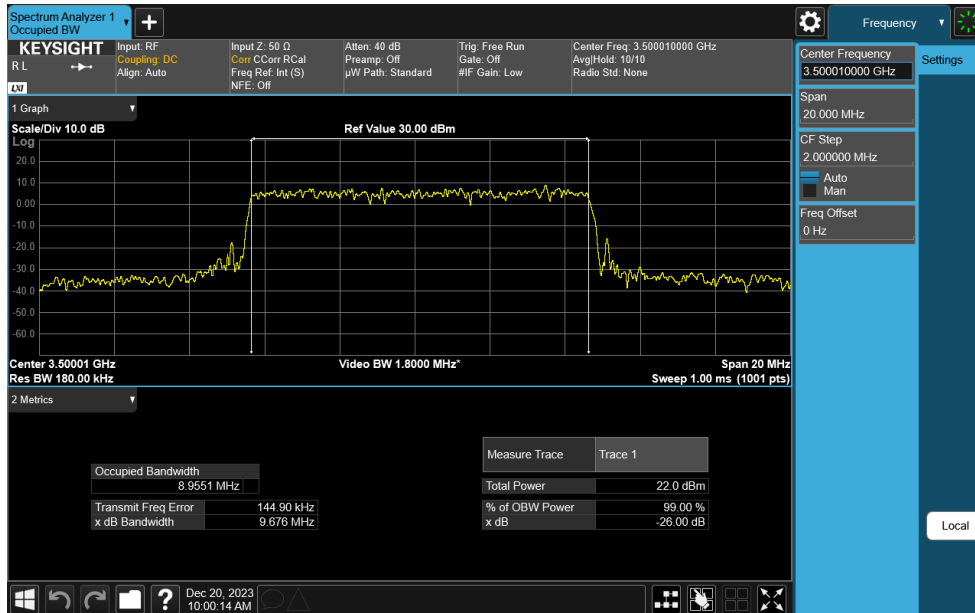
FCC ID: BCGA2903	 PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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# NR Band n77 DoD-Band

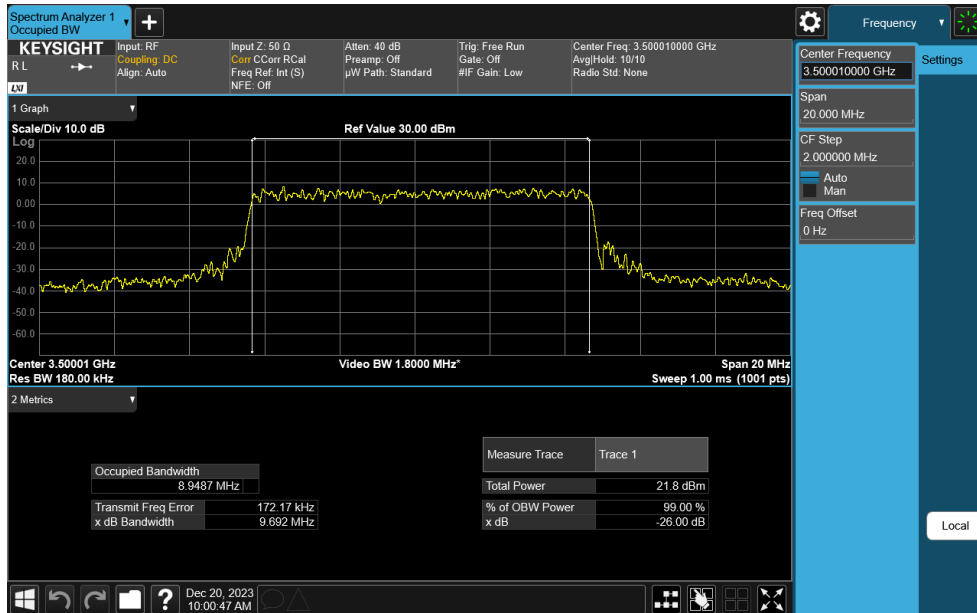


Plot 7-1. Occupied Bandwidth Plot (NR Band n77 - 10MHz DFT-s-OFDM  $\pi/2$  BPSK - Full RB)

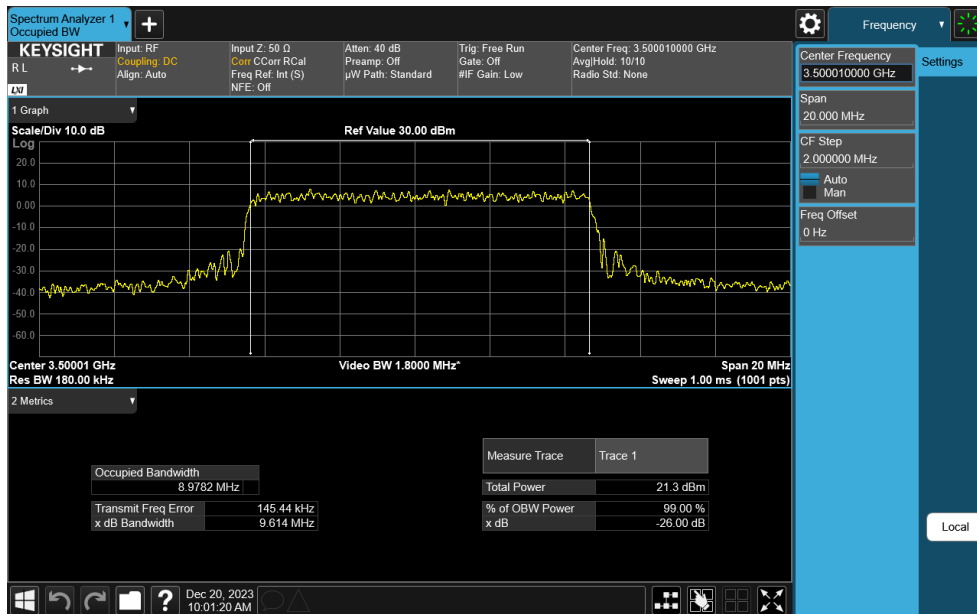


Plot 7-2. Occupied Bandwidth Plot (NR Band n77 - 10MHz CP-OFDM QPSK - Full RB)

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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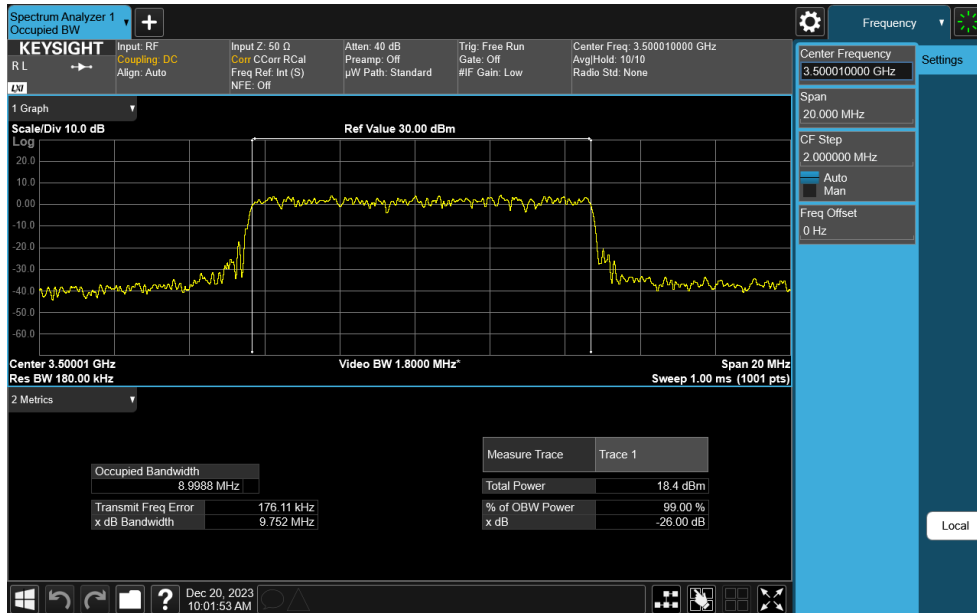


Plot 7-3. Occupied Bandwidth Plot (NR Band n77 - 10MHz CP-OFDM 16-QAM - Full RB)

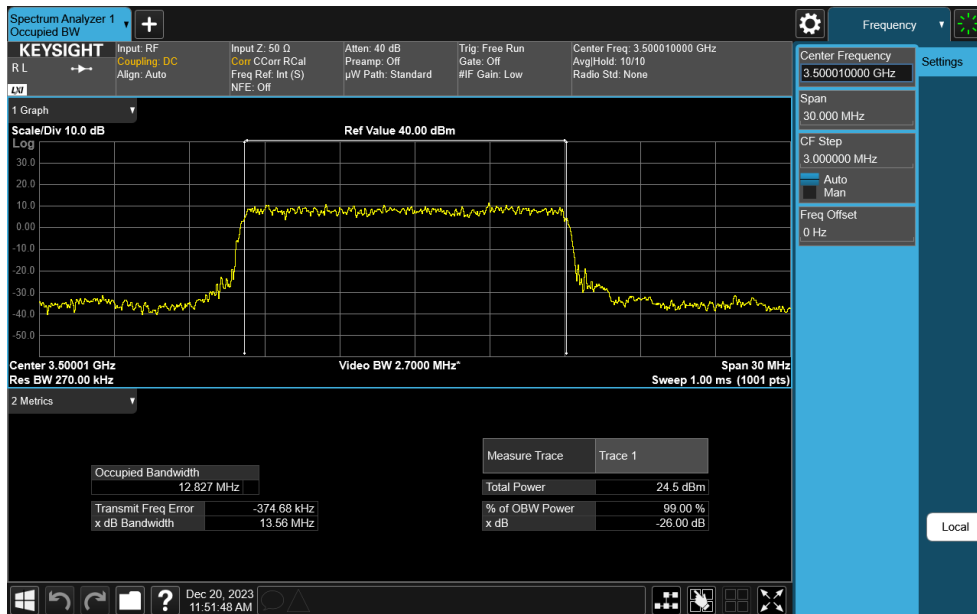


Plot 7-4. Occupied Bandwidth Plot (NR Band n77 - 10MHz CP-OFDM 64-QAM - Full RB)

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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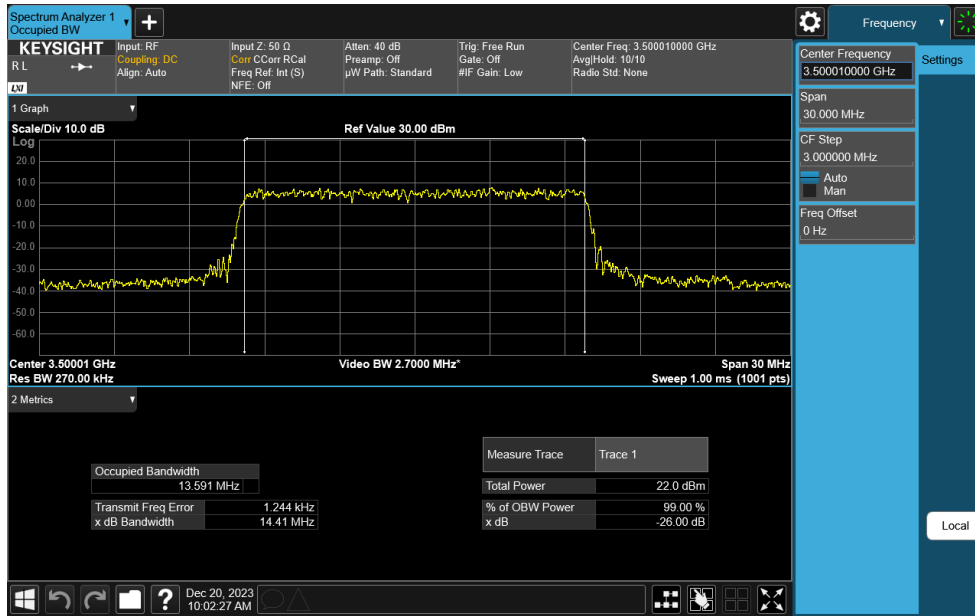
Plot 7-5. Occupied Bandwidth Plot (NR Band n77 - 10MHz CP-OFDM 256-QAM - Full RB)



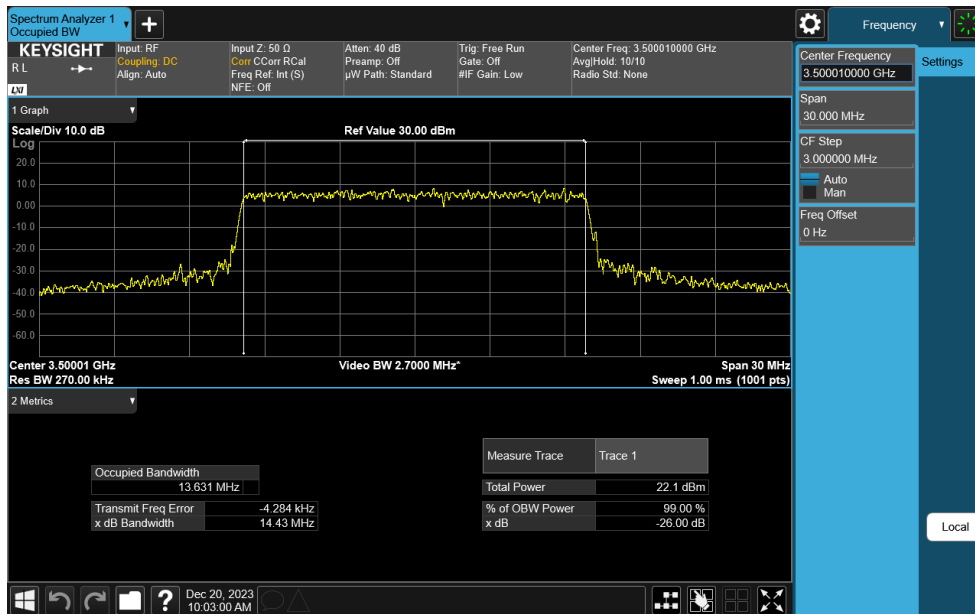
Plot 7-6. Occupied Bandwidth Plot (NR Band n77 - 15MHz DFT-s-OFDM  $\pi/2$  BPSK - Full RB)

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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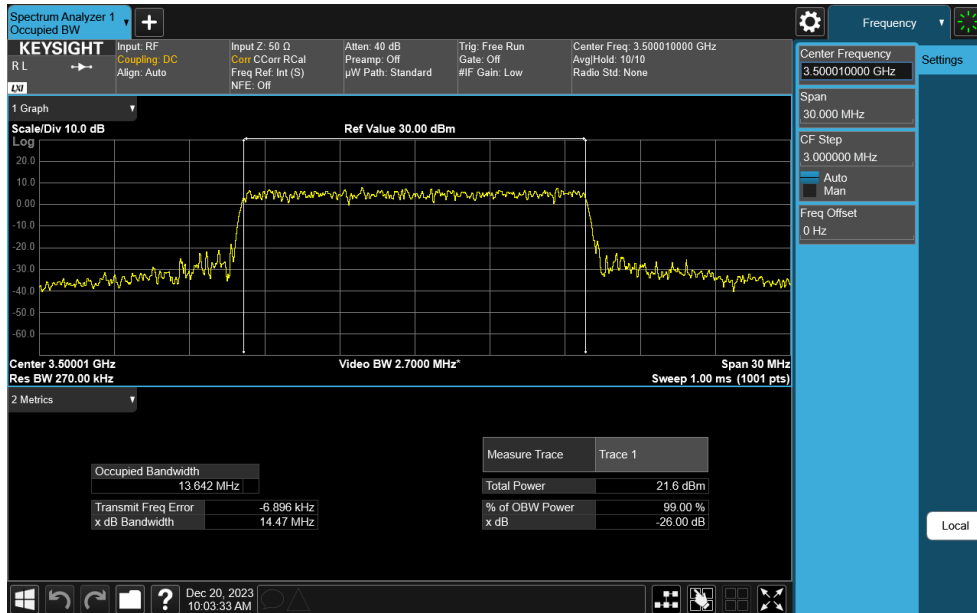


Plot 7-7. Occupied Bandwidth Plot (NR Band n77 - 15MHz CP-OFDM QPSK - Full RB)

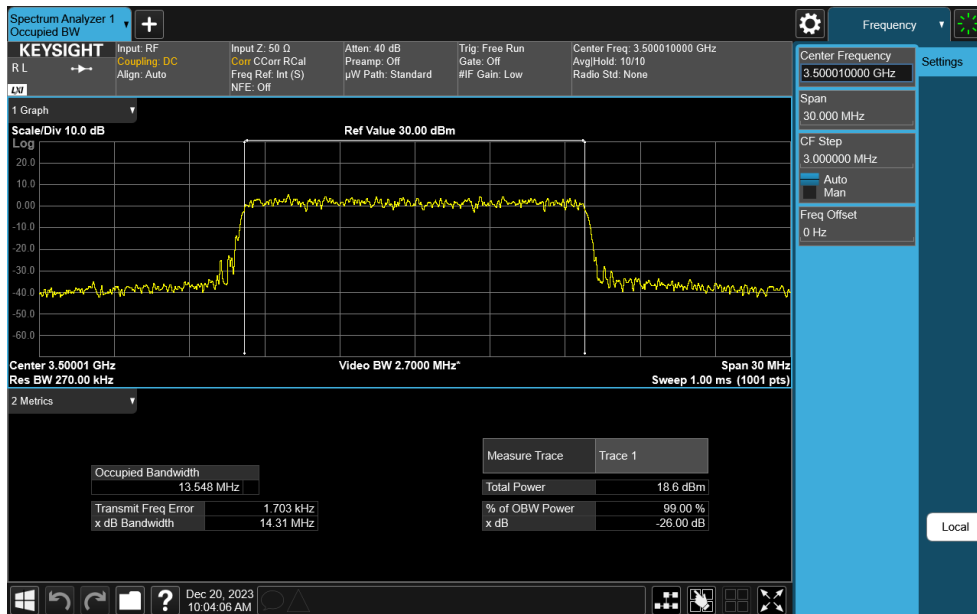


Plot 7-8. Occupied Bandwidth Plot (NR Band n77 - 15MHz CP-OFDM 16-QAM - Full RB)

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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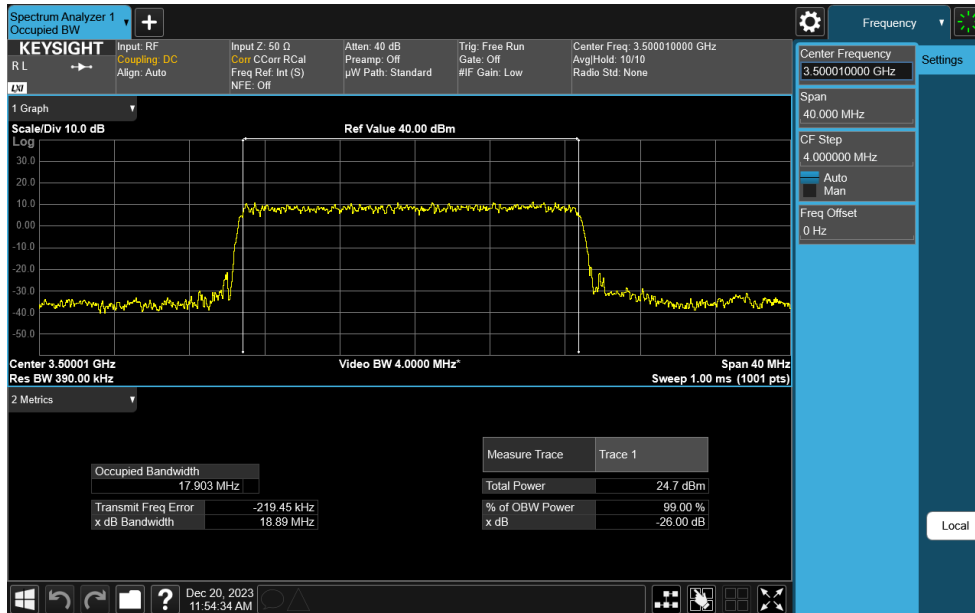


**Plot 7-9. Occupied Bandwidth Plot (NR Band n77 - 15MHz CP-OFDM 64-QAM - Full RB)**

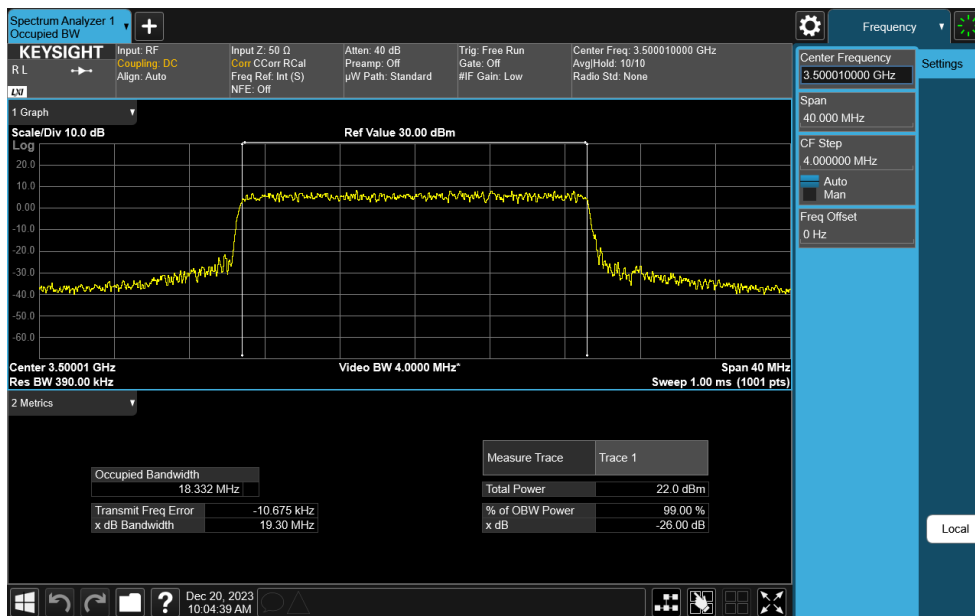


**Plot 7-10. Occupied Bandwidth Plot (NR Band n77 - 15MHz CP-OFDM 256-QAM - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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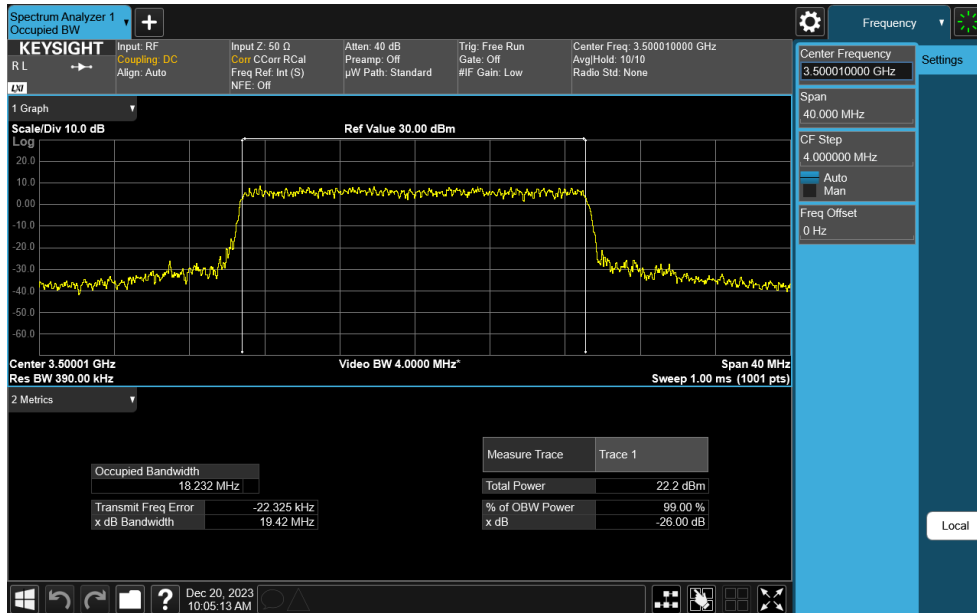


Plot 7-11. Occupied Bandwidth Plot (NR Band n77 - 20MHz DFT-s-OFDM  $\pi/2$  BPSK - Full RB)

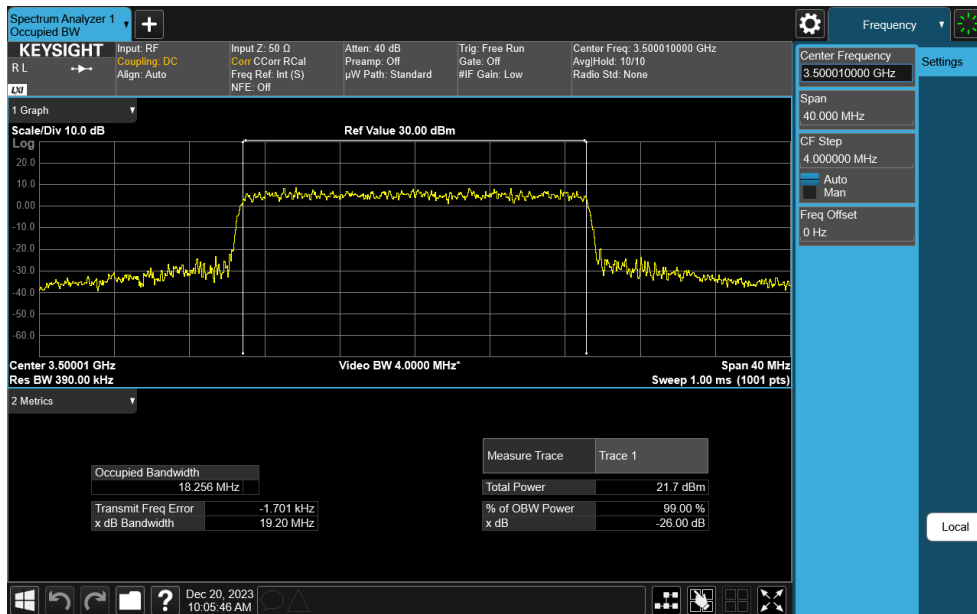


Plot 7-12. Occupied Bandwidth Plot (NR Band n77 - 20MHz CP-OFDM QPSK - Full RB)

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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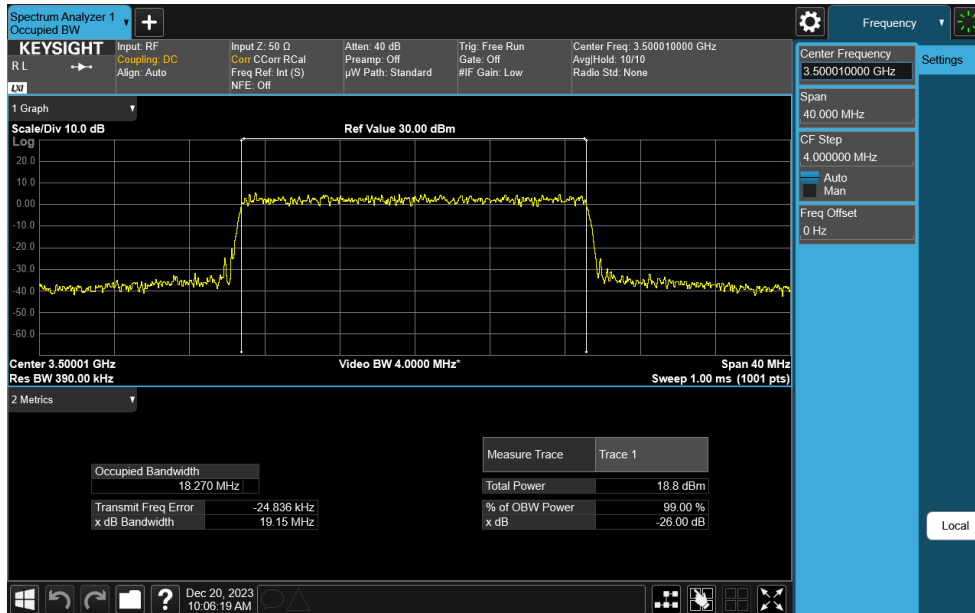


**Plot 7-13. Occupied Bandwidth Plot (NR Band n77 - 20MHz CP-OFDM 16-QAM - Full RB)**

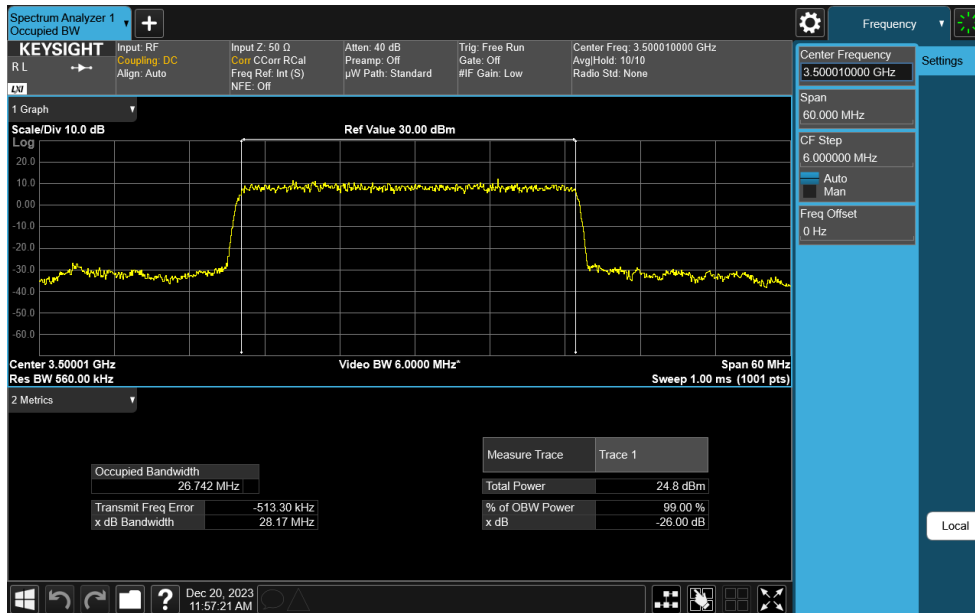


**Plot 7-14. Occupied Bandwidth Plot (NR Band n77 - 20MHz CP-OFDM 64-QAM - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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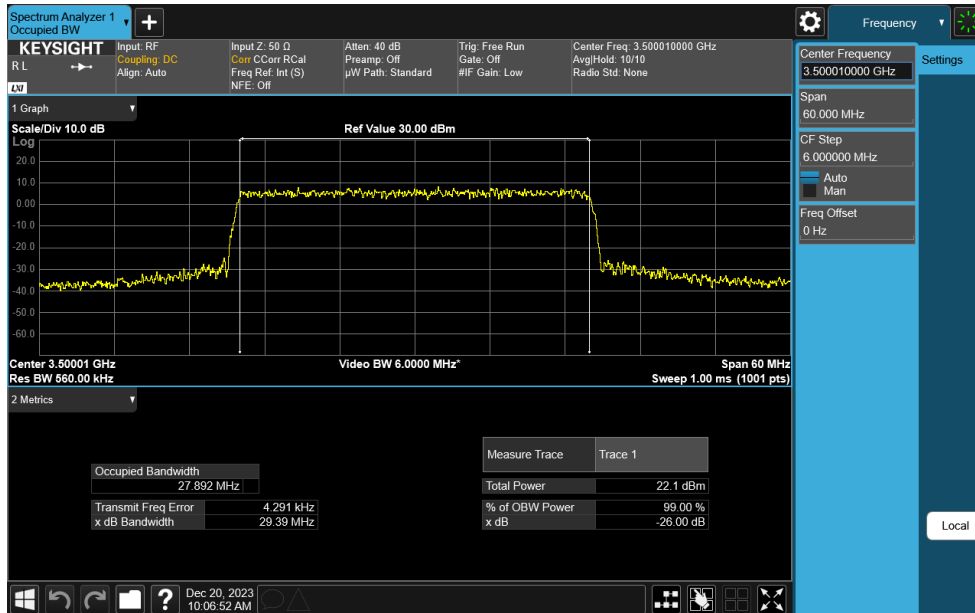


Plot 7-15. Occupied Bandwidth Plot (NR Band n77 - 20MHz CP-OFDM 256-QAM - Full RB)

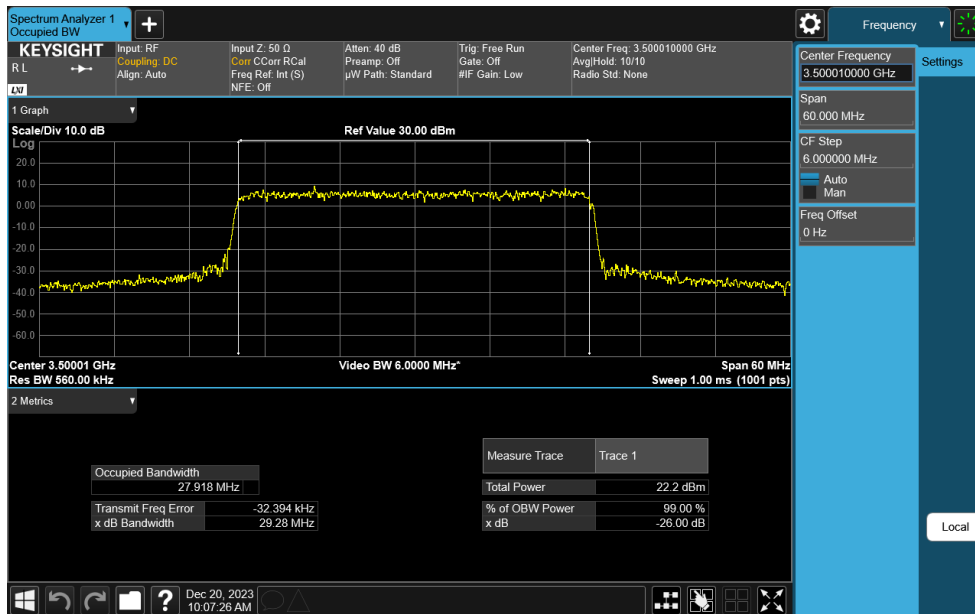


Plot 7-16. Occupied Bandwidth Plot (NR Band n77 - 30MHz DFT-s-OFDM  $\pi/2$  BPSK - Full RB)

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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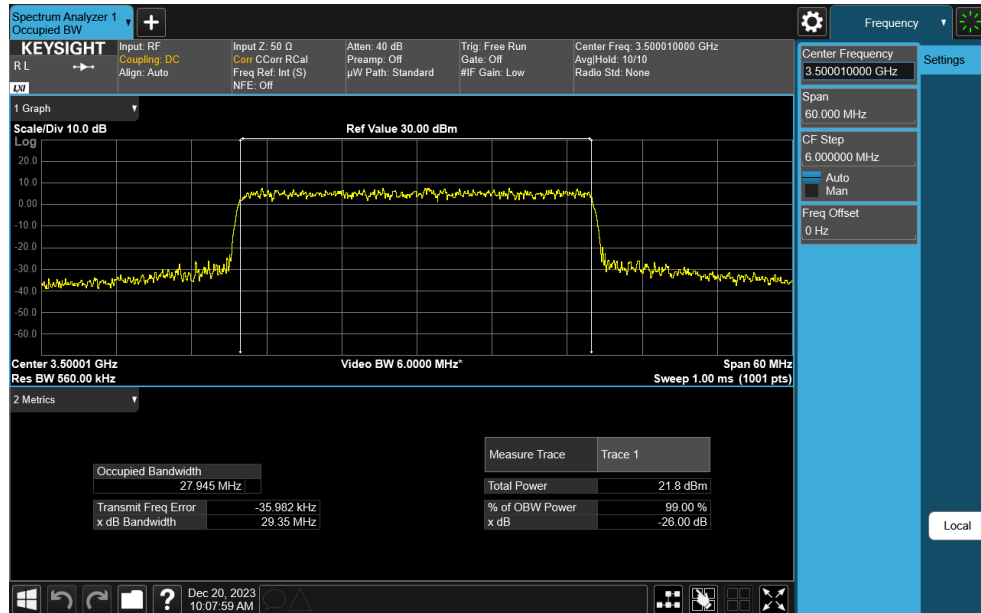
Plot 7-17. Occupied Bandwidth Plot (NR Band n77 - 30MHz CP-OFDM QPSK - Full RB)



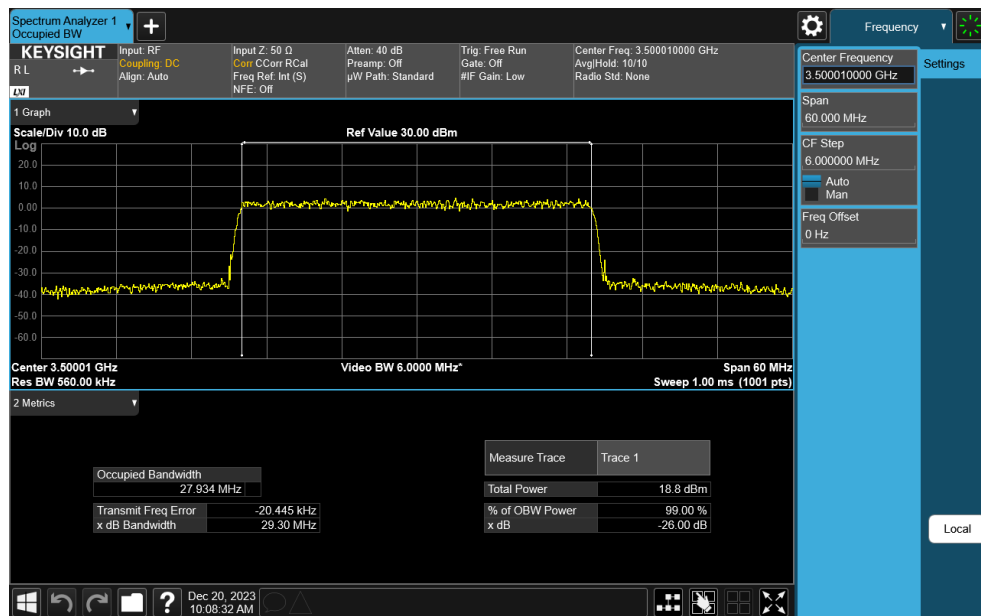
Plot 7-18. Occupied Bandwidth Plot (NR Band n77 - 30MHz CP-OFDM 16-QAM - Full RB)

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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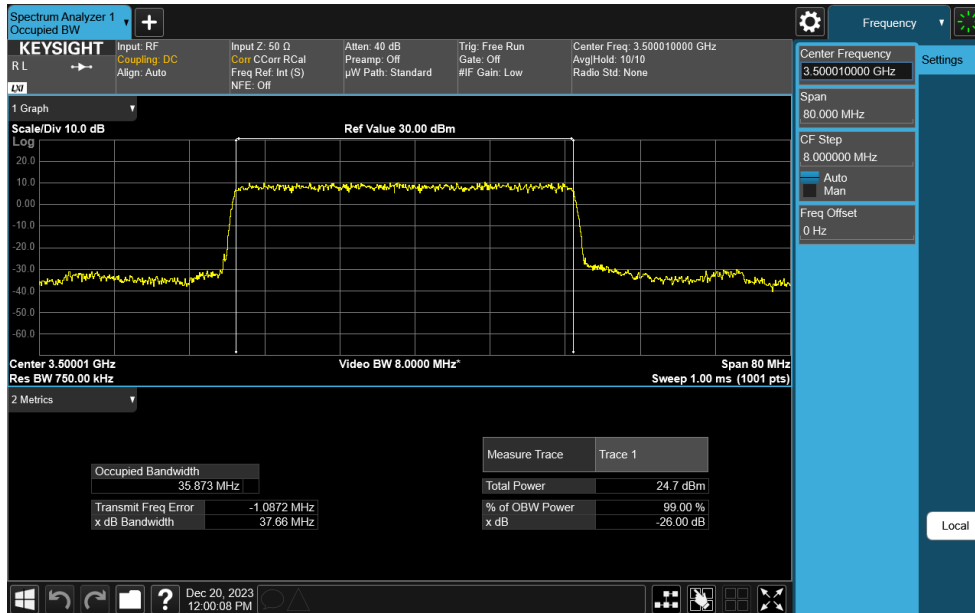


**Plot 7-19. Occupied Bandwidth Plot (NR Band n77 - 30MHz CP-OFDM 64-QAM - Full RB)**

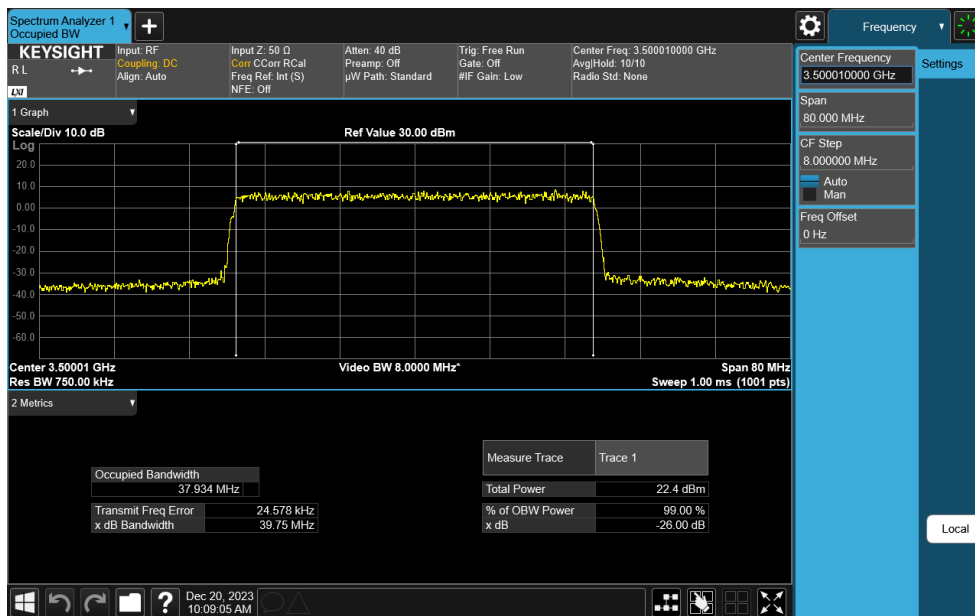


**Plot 7-20. Occupied Bandwidth Plot (NR Band n77 - 30MHz CP-OFDM 256-QAM - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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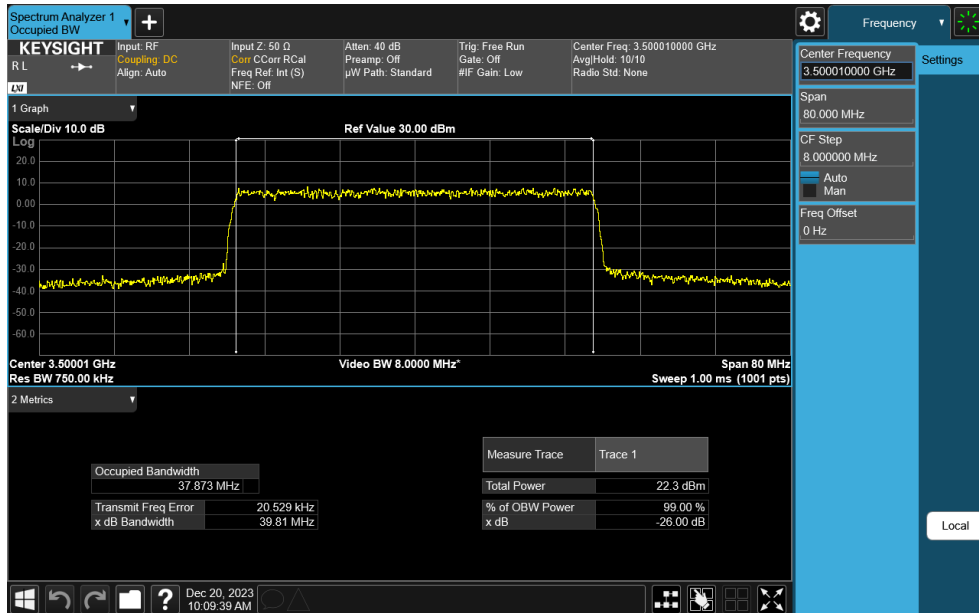


Plot 7-21. Occupied Bandwidth Plot (NR Band n77 - 40MHz DFT-s-OFDM  $\pi/2$  BPSK - Full RB)

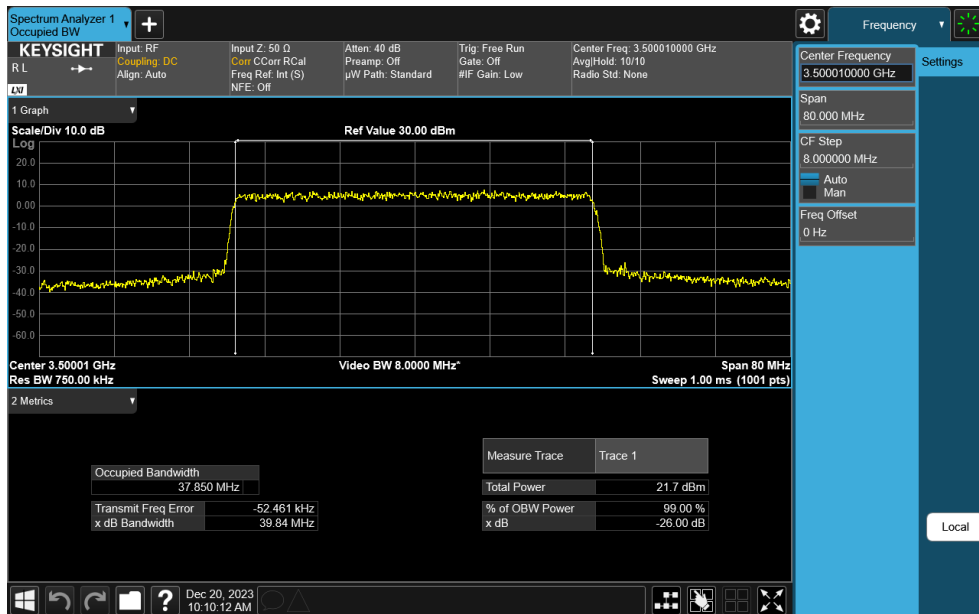


Plot 7-22. Occupied Bandwidth Plot (NR Band n77 - 40MHz CP-OFDM QPSK - Full RB)

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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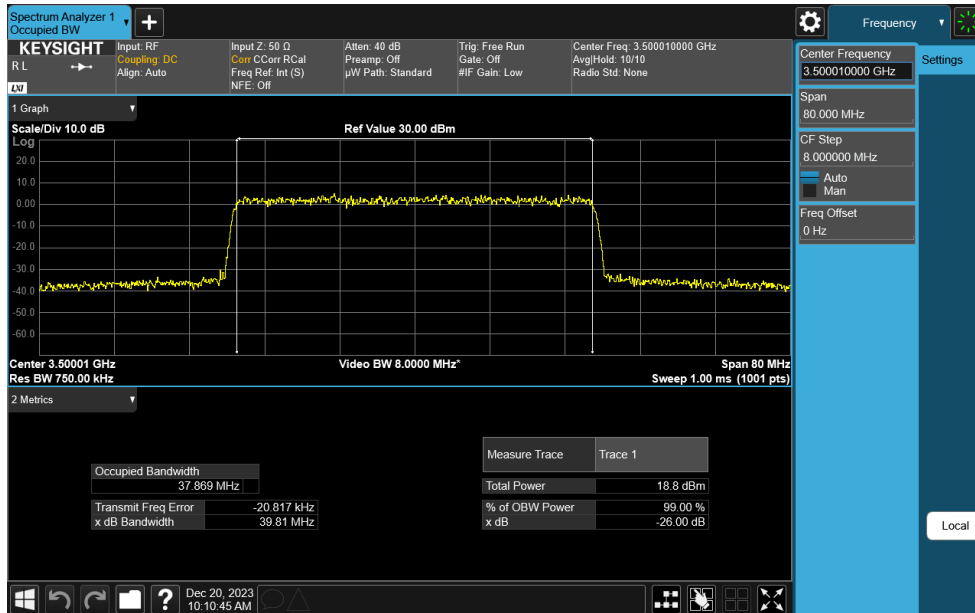


**Plot 7-23. Occupied Bandwidth Plot (NR Band n77 - 40MHz CP-OFDM 16-QAM - Full RB)**

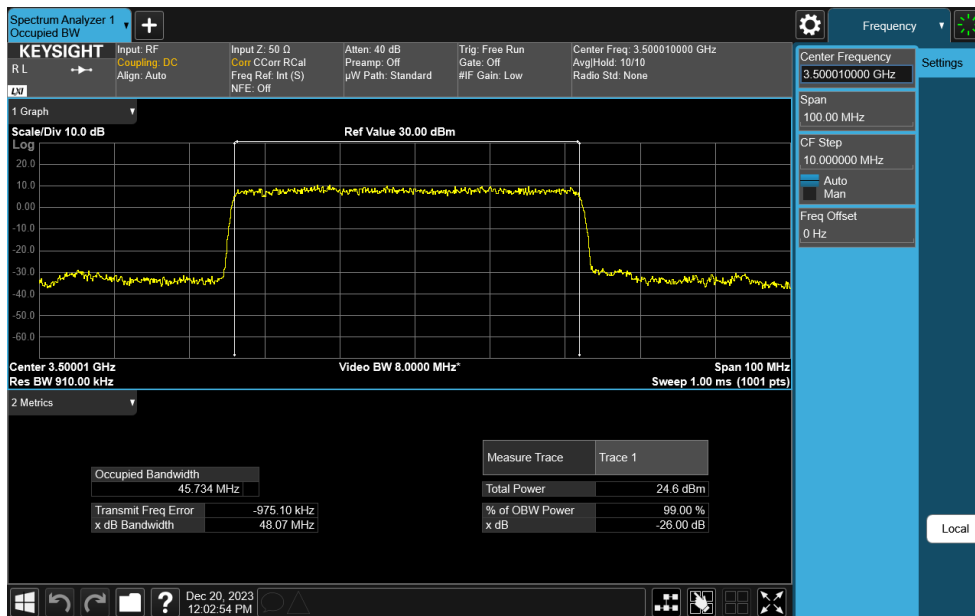


**Plot 7-24. Occupied Bandwidth Plot (NR Band n77 - 40MHz CP-OFDM 64-QAM - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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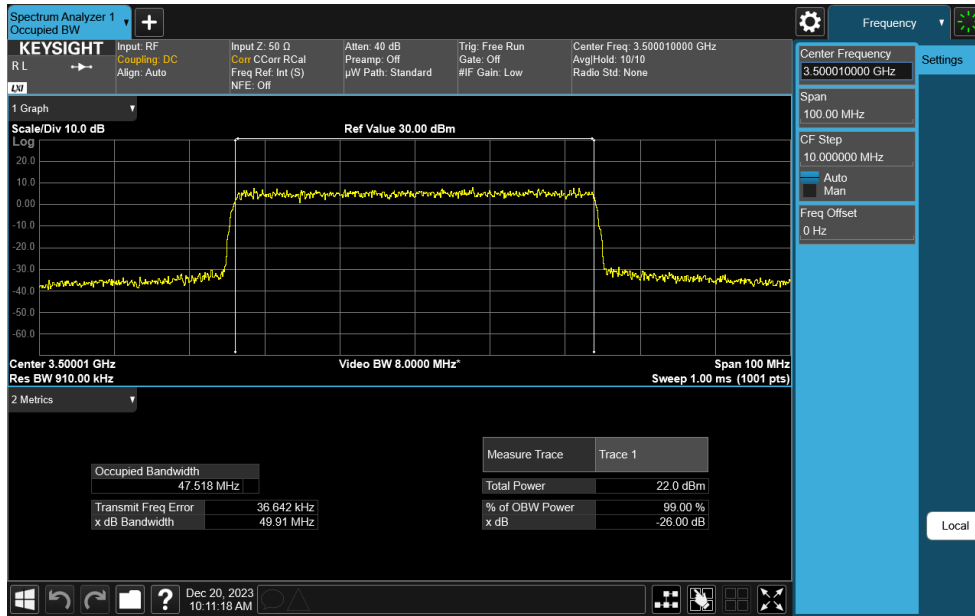


**Plot 7-25. Occupied Bandwidth Plot (NR Band n77 - 40MHz CP-OFDM 256-QAM - Full RB)**

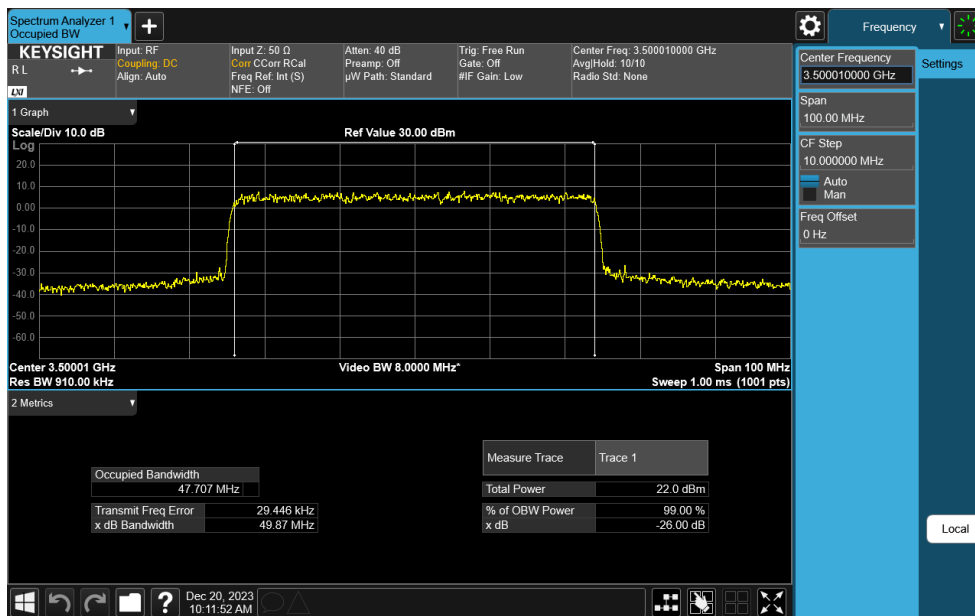


**Plot 7-26. Occupied Bandwidth Plot (NR Band n77 - 50MHz DFT-s-OFDM  $\pi/2$  BPSK - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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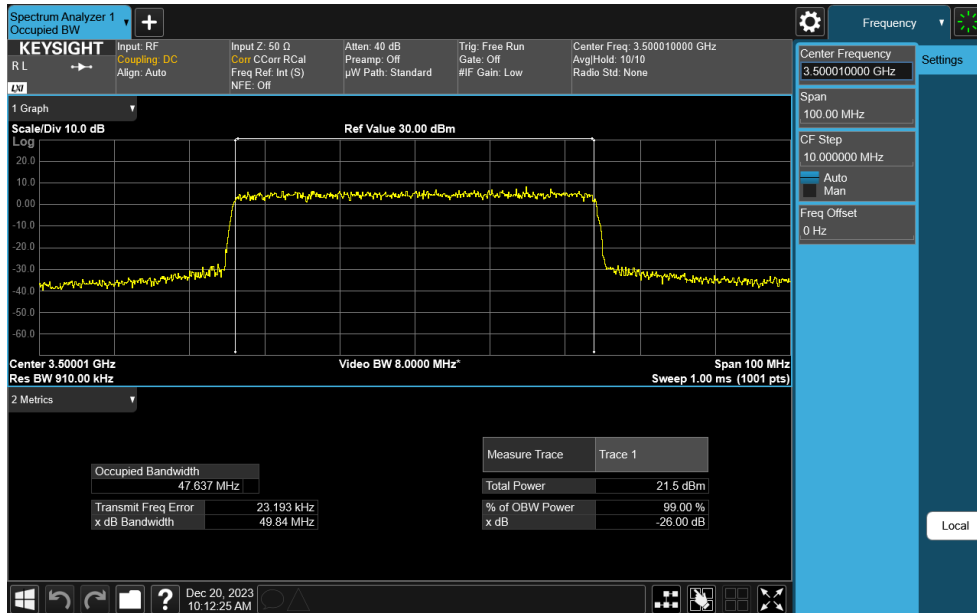


**Plot 7-27. Occupied Bandwidth Plot (NR Band n77 - 50MHz CP-OFDM QPSK - Full RB)**

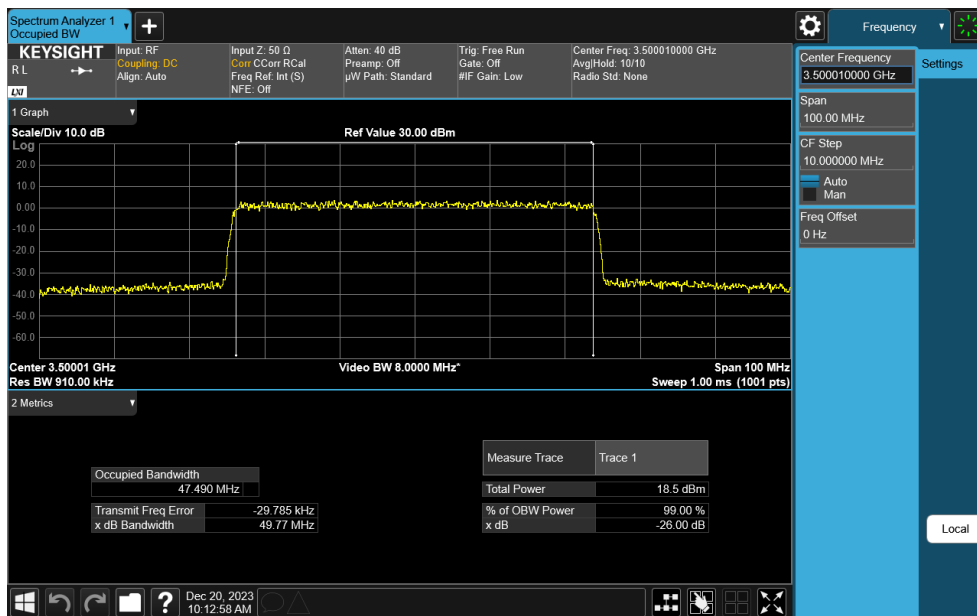


**Plot 7-28. Occupied Bandwidth Plot (NR Band n77 - 50MHz CP-OFDM 16-QAM - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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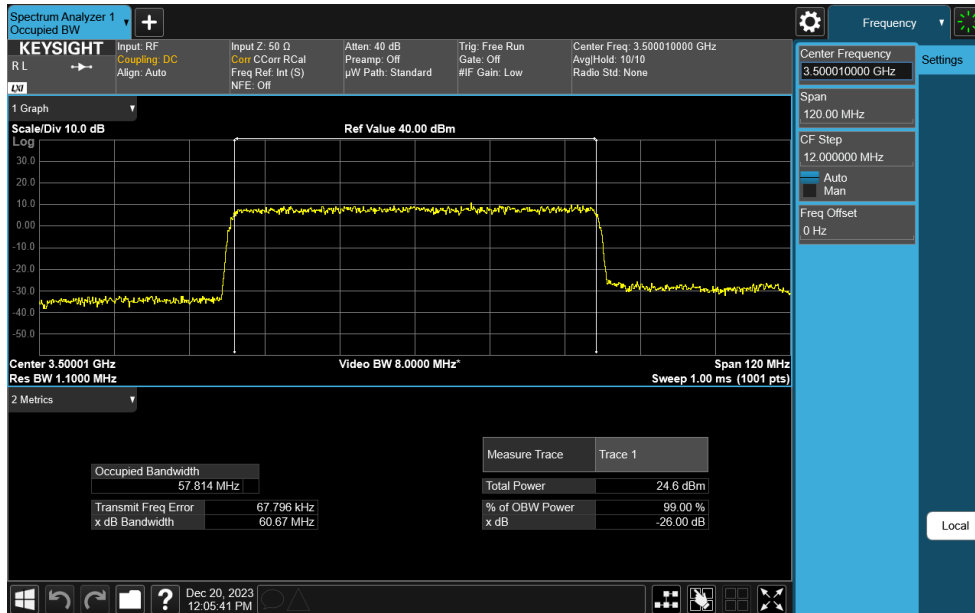
**Plot 7-29. Occupied Bandwidth Plot (NR Band n77 - 50MHz CP-OFDM 64-QAM - Full RB)**



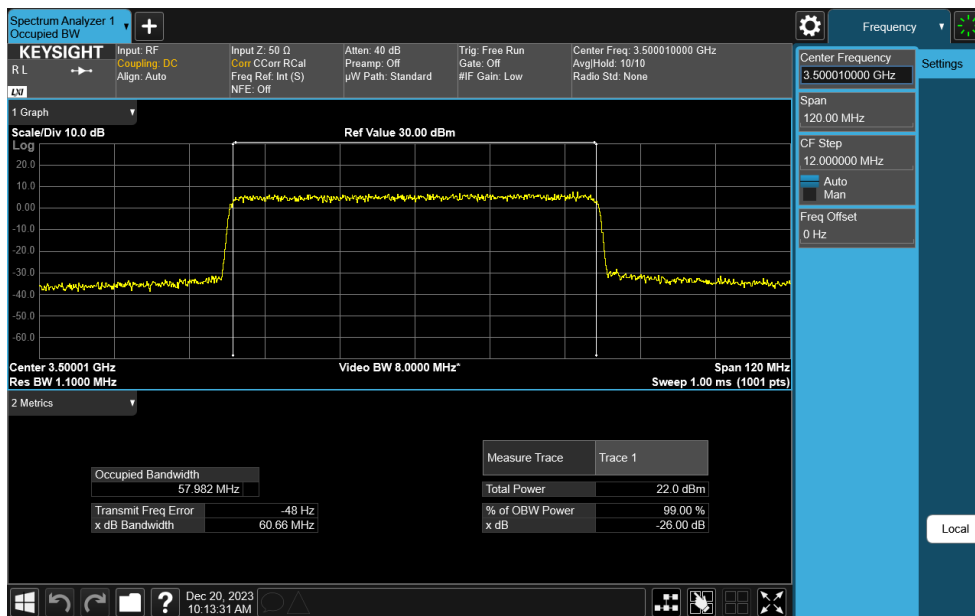
**Plot 7-30. Occupied Bandwidth Plot (NR Band n77 - 50MHz CP-OFDM 256-QAM - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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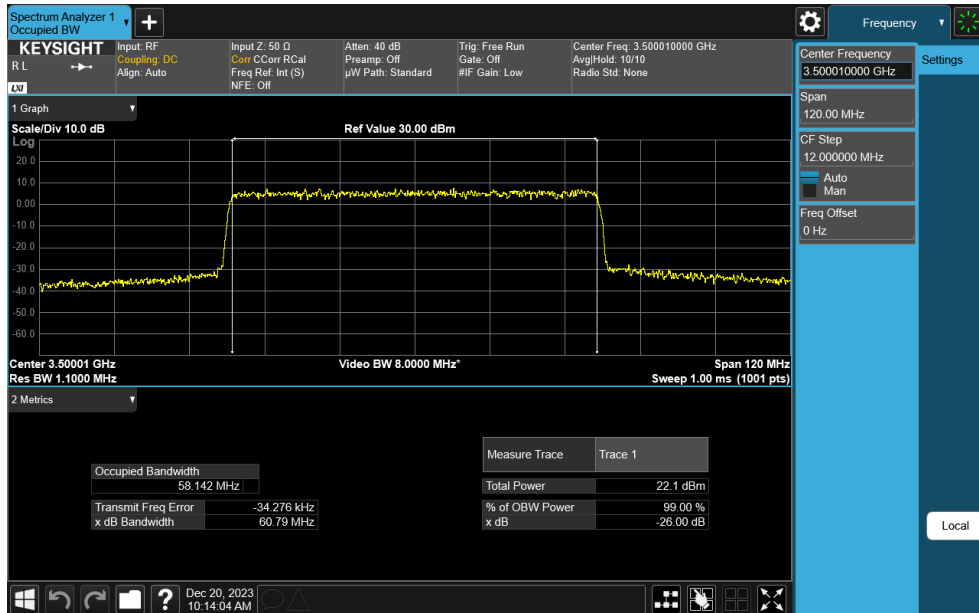


Plot 7-31. Occupied Bandwidth Plot (NR Band n77 - 60MHz DFT-s-OFDM  $\pi/2$  BPSK - Full RB)

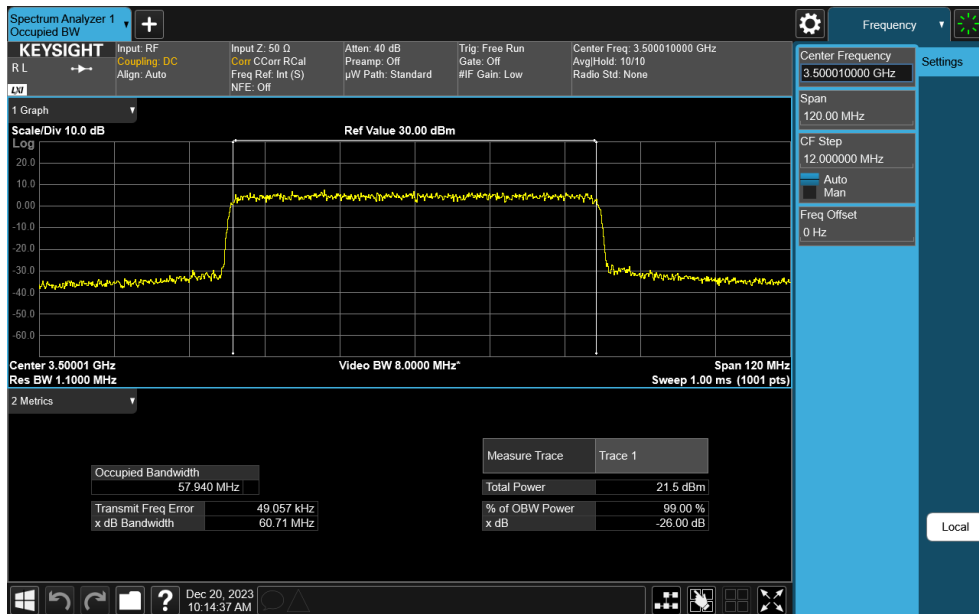


Plot 7-32. Occupied Bandwidth Plot (NR Band n77 - 60MHz CP-OFDM QPSK - Full RB)

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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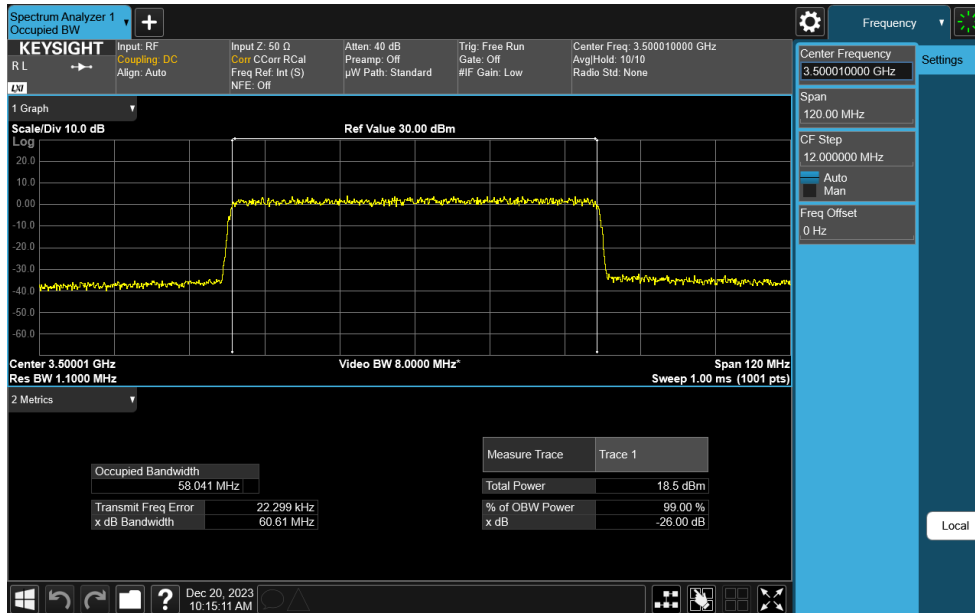


**Plot 7-33. Occupied Bandwidth Plot (NR Band n77 - 60MHz CP-OFDM 16-QAM - Full RB)**

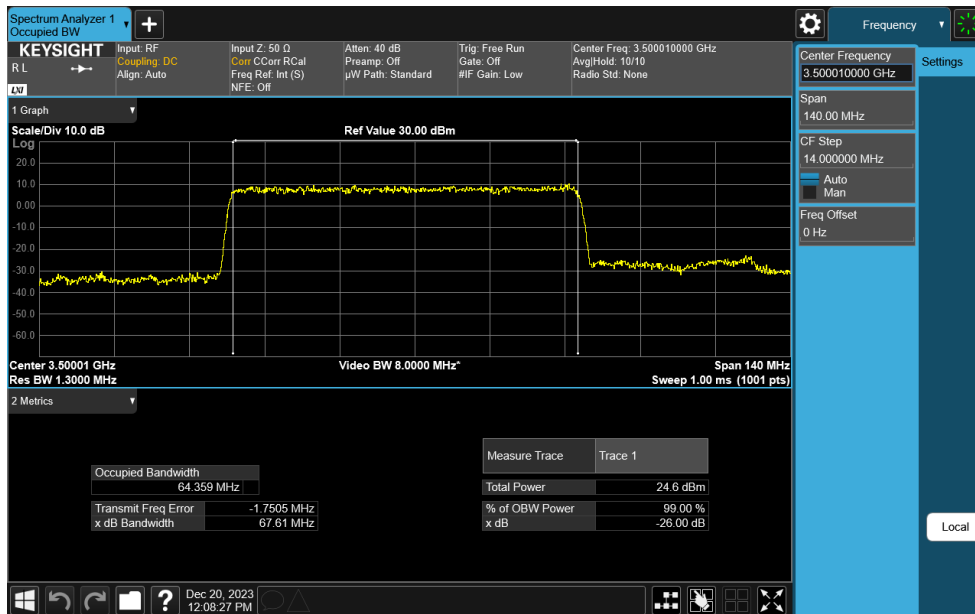


**Plot 7-34. Occupied Bandwidth Plot (NR Band n77 - 60MHz CP-OFDM 64-QAM - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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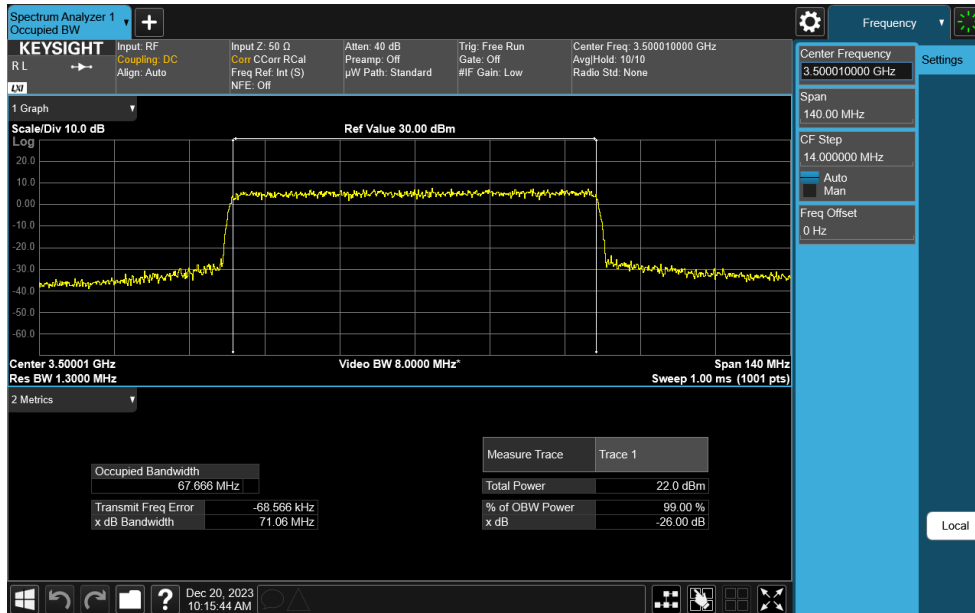


**Plot 7-35. Occupied Bandwidth Plot (NR Band n77 - 60MHz CP-OFDM 256-QAM - Full RB)**

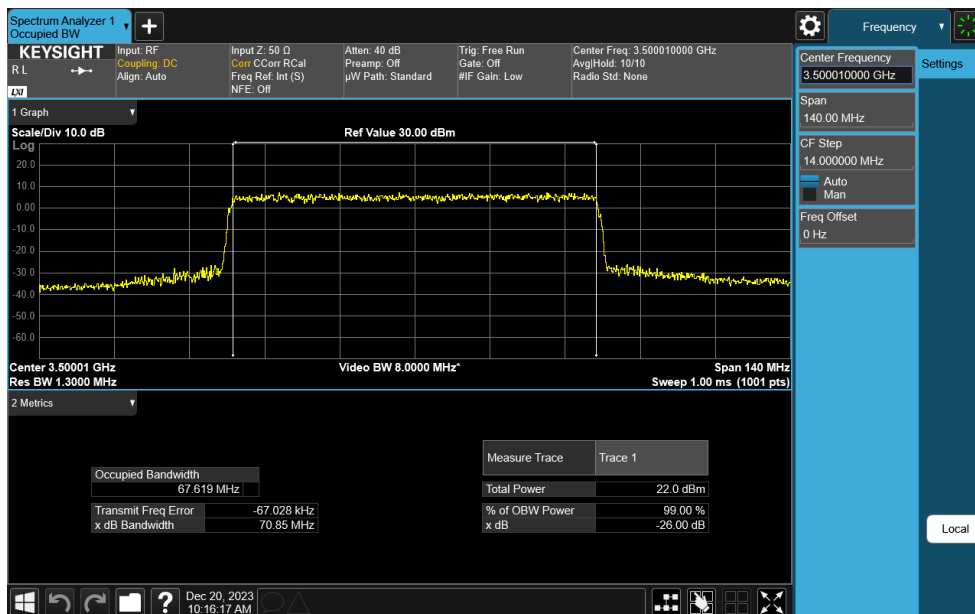


**Plot 7-36. Occupied Bandwidth Plot (NR Band n77 - 70MHz DFT-s-OFDM  $\pi/2$  BPSK - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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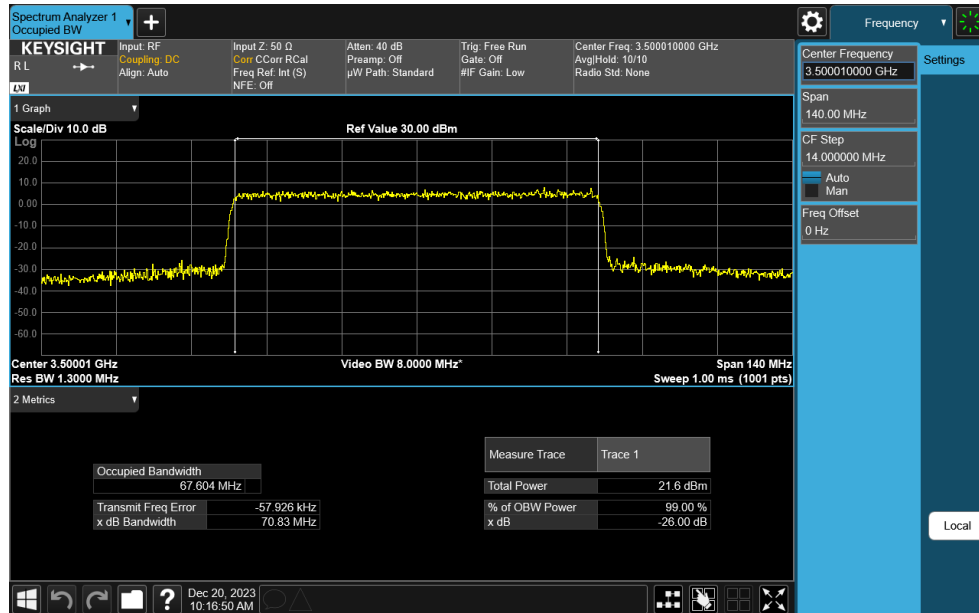


**Plot 7-37. Occupied Bandwidth Plot (NR Band n77 - 70MHz CP-OFDM QPSK - Full RB)**

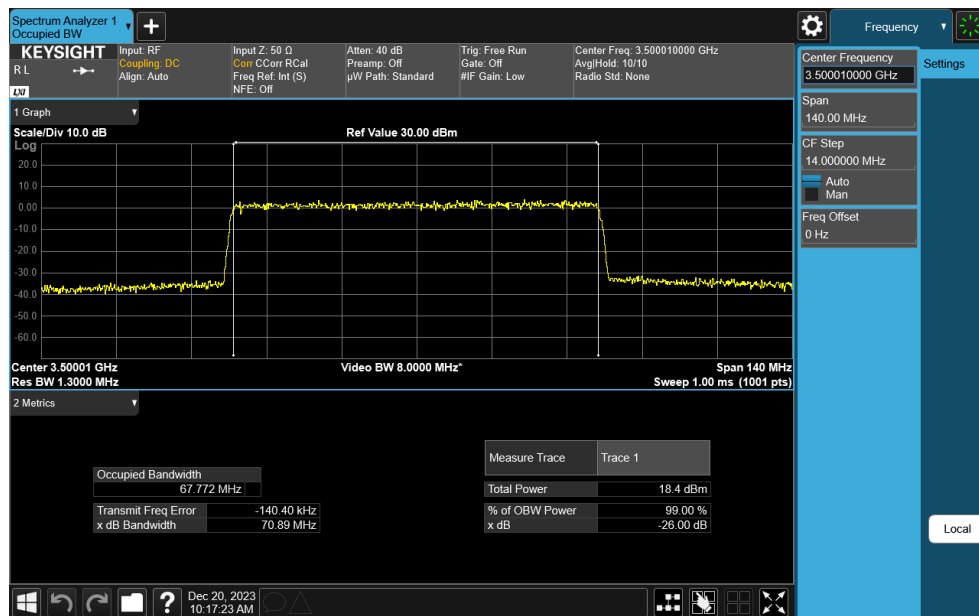


**Plot 7-38. Occupied Bandwidth Plot (NR Band n77 - 70MHz CP-OFDM 16-QAM - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N: 1C2311270064-11-R1.BCG	Test Dates: 10/1/2023 - 3/18/2024	Page 36 of 266
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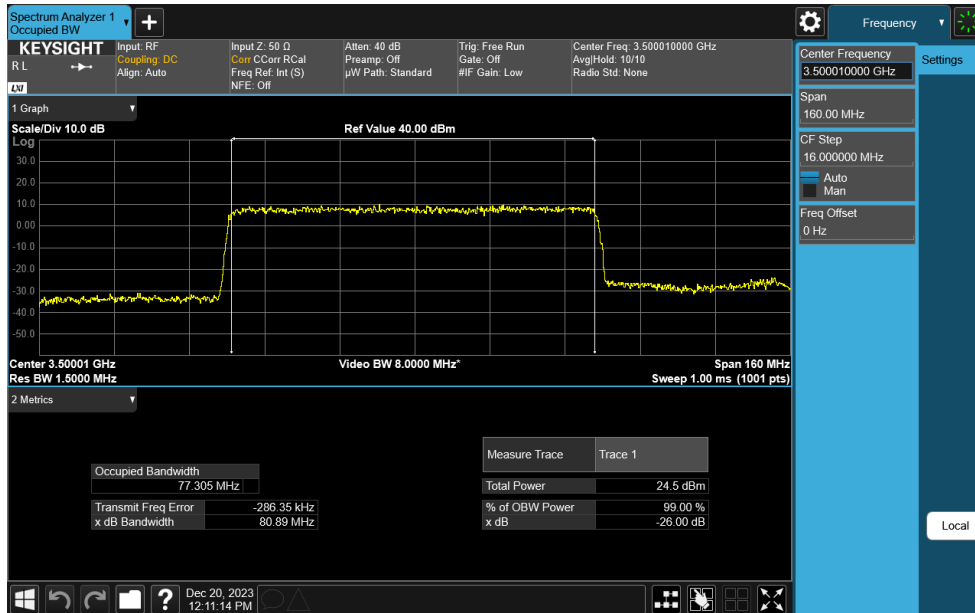


**Plot 7-39. Occupied Bandwidth Plot (NR Band n77 - 70MHz CP-OFDM 64-QAM - Full RB)**

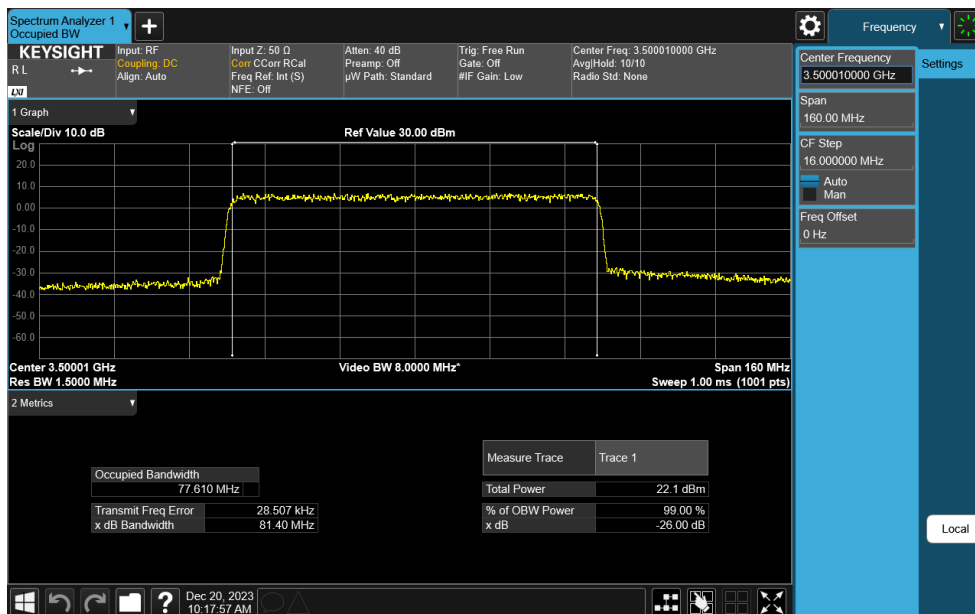


**Plot 7-40. Occupied Bandwidth Plot (NR Band n77 - 70MHz CP-OFDM 256-QAM - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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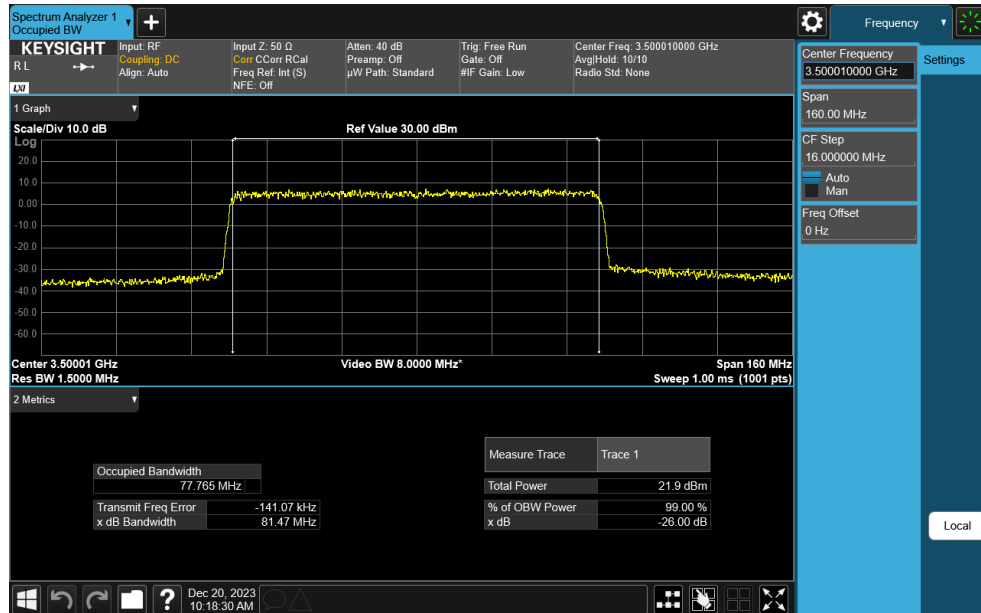


Plot 7-41. Occupied Bandwidth Plot (NR Band n77 - 80MHz DFT-s-OFDM  $\pi/2$  BPSK - Full RB)

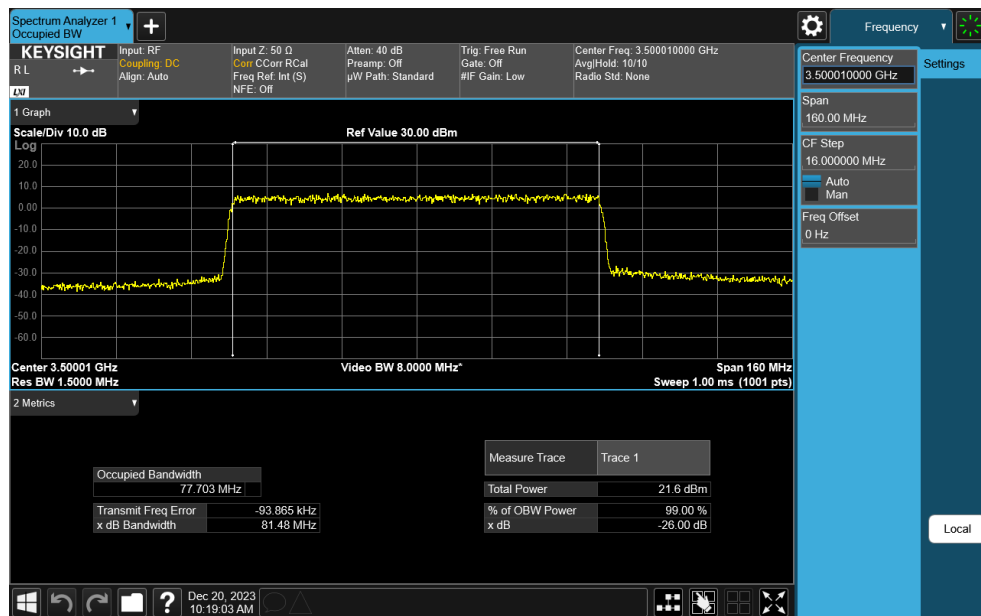


Plot 7-42. Occupied Bandwidth Plot (NR Band n77 - 80MHz CP-OFDM QPSK - Full RB)

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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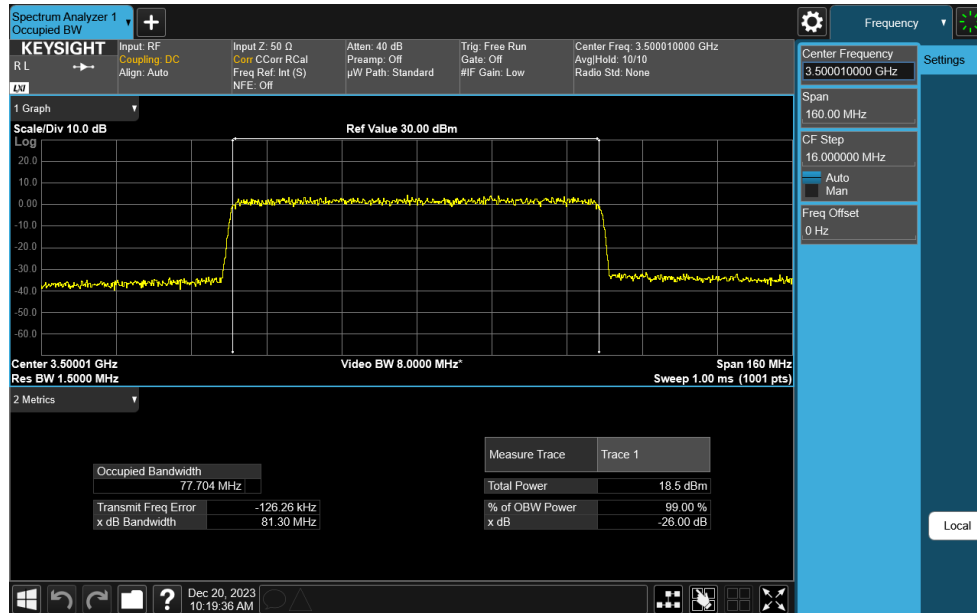


Plot 7-43. Occupied Bandwidth Plot (NR Band n77 - 80MHz CP-OFDM 16-QAM - Full RB)

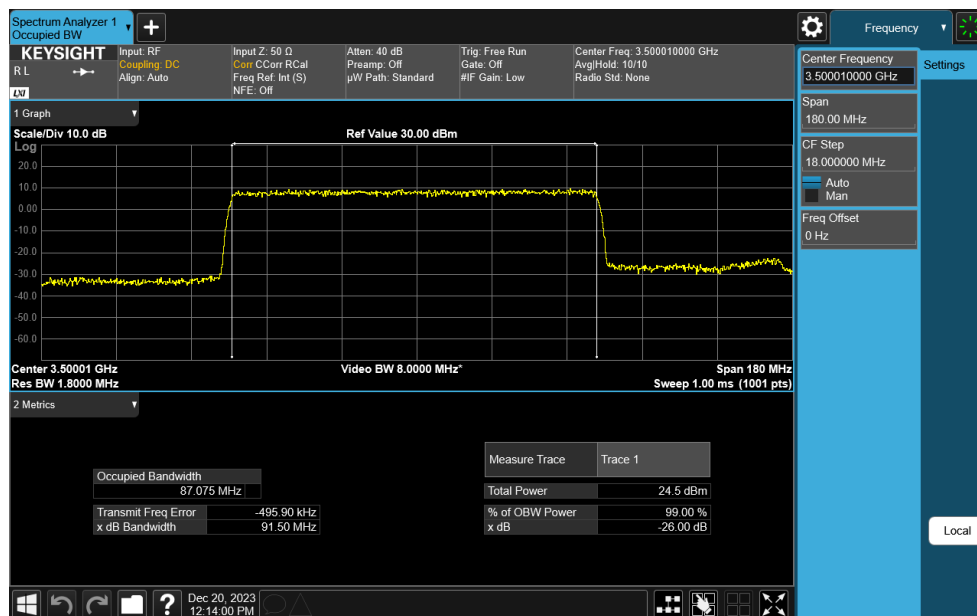


Plot 7-44. Occupied Bandwidth Plot (NR Band n77 - 80MHz CP-OFDM 64-QAM - Full RB)

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N: 1C2311270064-11-R1.BCG	Test Dates: 10/1/2023 - 3/18/2024	EUT Type: Tablet Device
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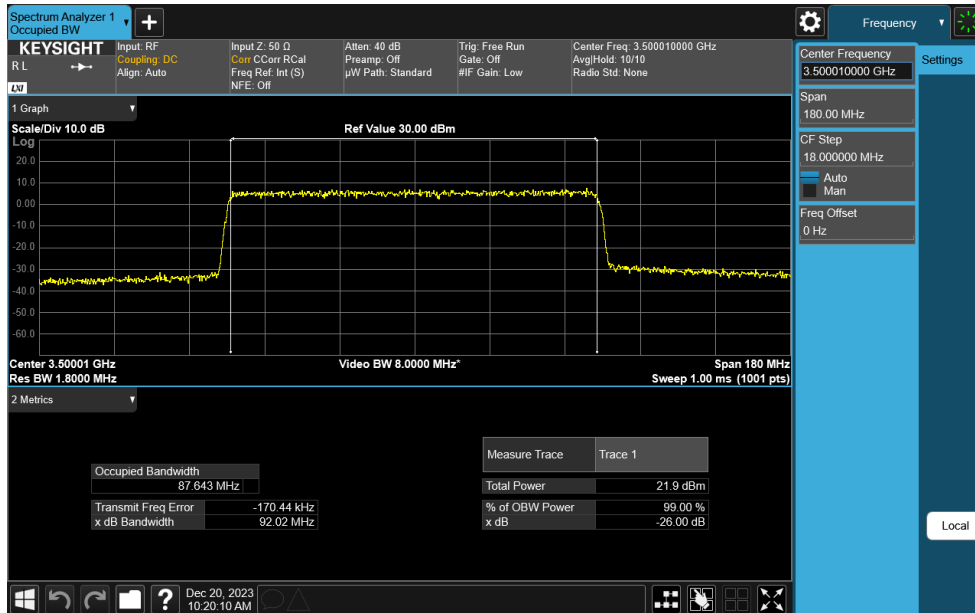
**Plot 7-45. Occupied Bandwidth Plot (NR Band n77 - 80MHz CP-OFDM 256-QAM - Full RB)**



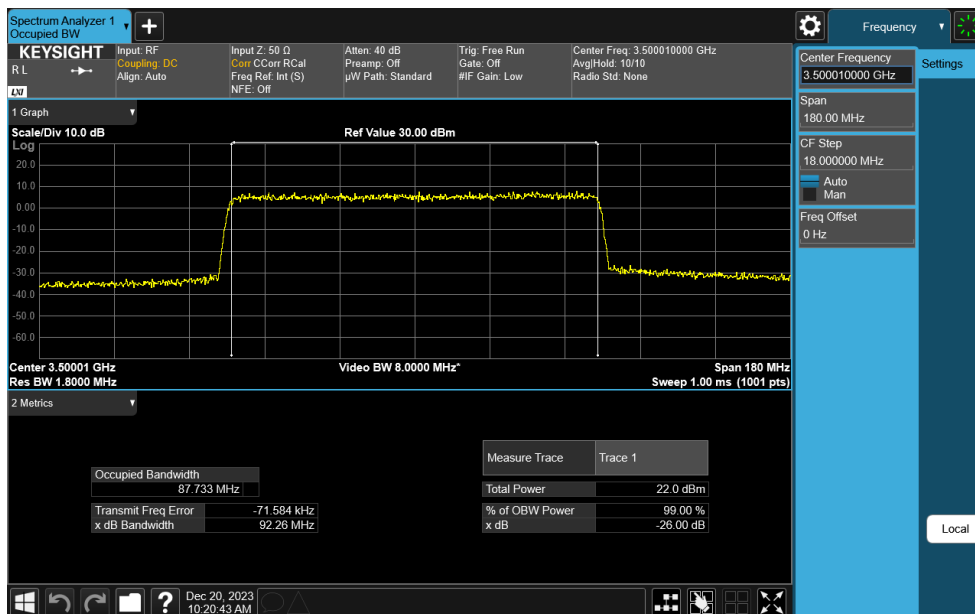
**Plot 7-46. Occupied Bandwidth Plot (NR Band n77 - 90MHz DFT-s-OFDM  $\pi/2$  BPSK - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N: 1C2311270064-11-R1.BCG	Test Dates: 10/1/2023 - 3/18/2024	EUT Type: Tablet Device
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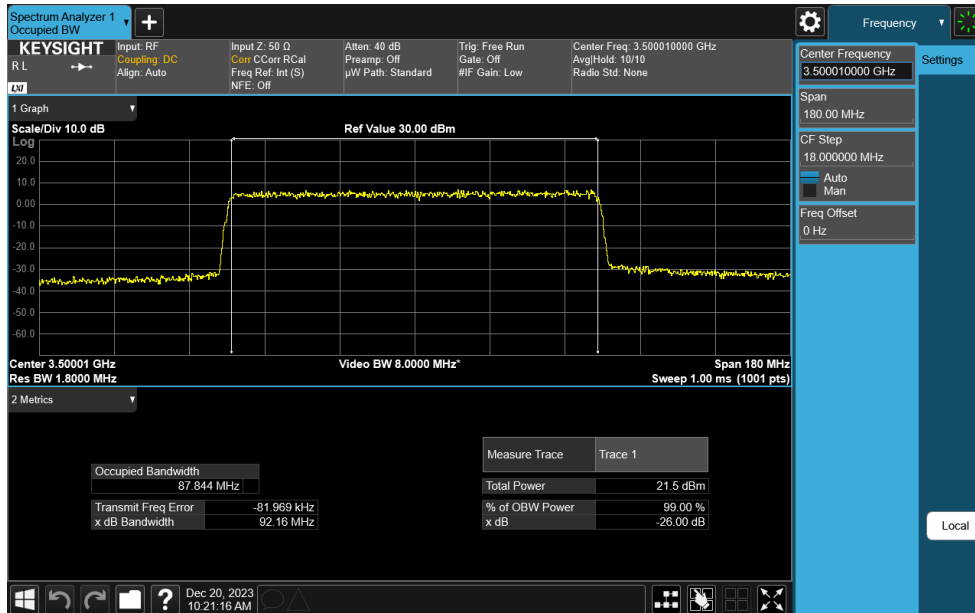


**Plot 7-47. Occupied Bandwidth Plot (NR Band n77 - 90MHz CP-OFDM QPSK - Full RB)**

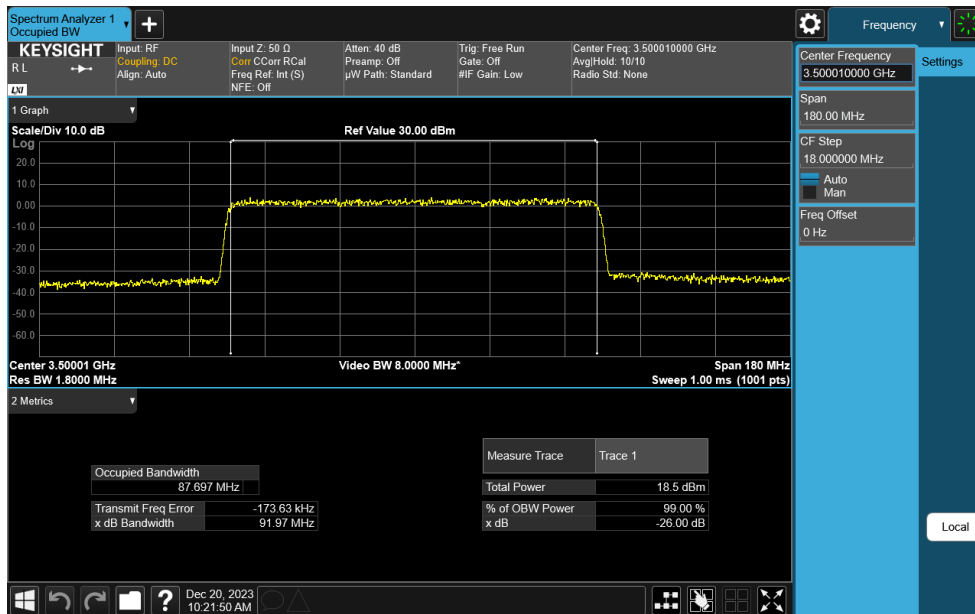


**Plot 7-48. Occupied Bandwidth Plot (NR Band n77 - 90MHz CP-OFDM 16-QAM - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N: 1C2311270064-11-R1.BCG	Test Dates: 10/1/2023 - 3/18/2024	Page 41 of 266
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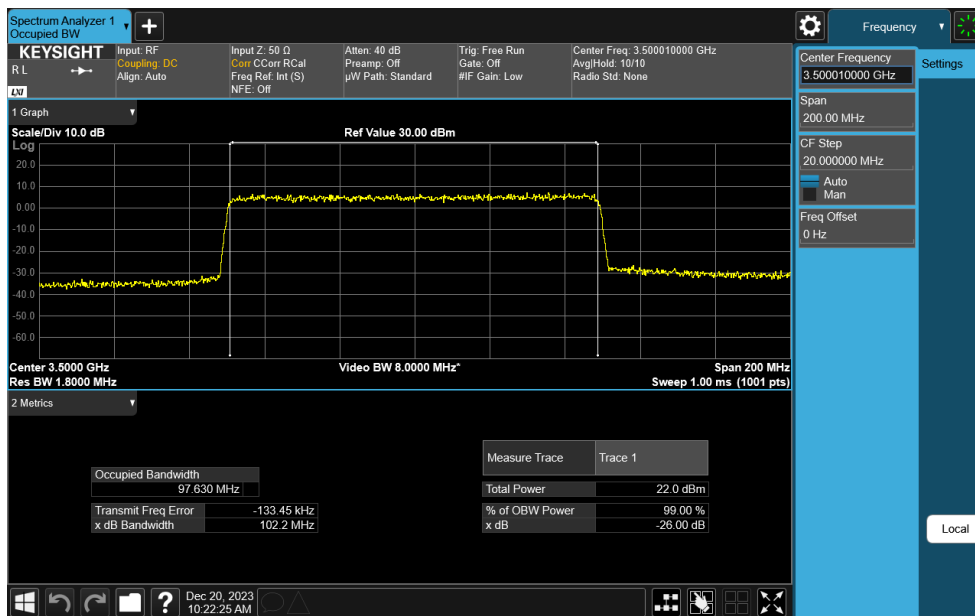
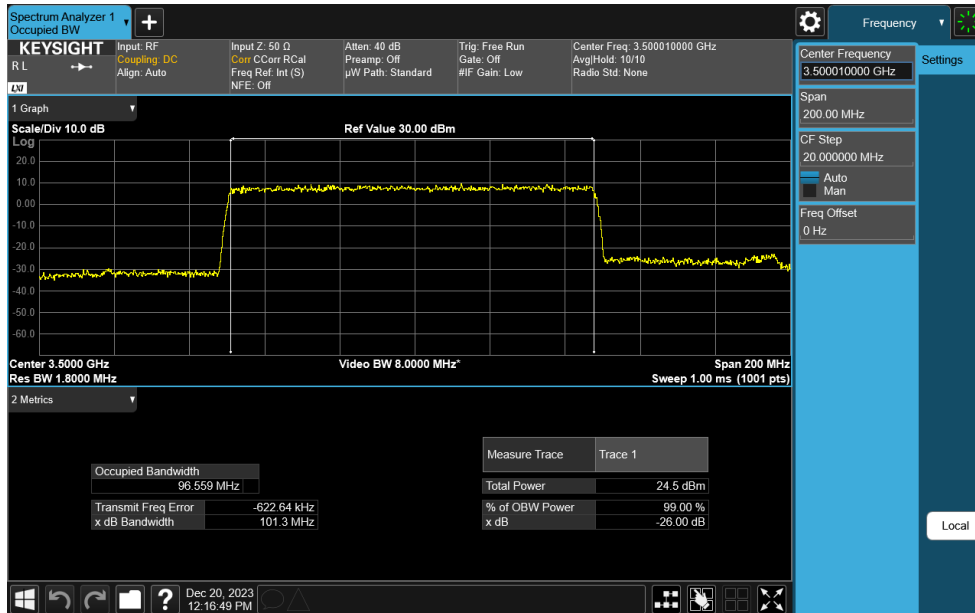


**Plot 7-49. Occupied Bandwidth Plot (NR Band n77 - 90MHz CP-OFDM 64-QAM - Full RB)**

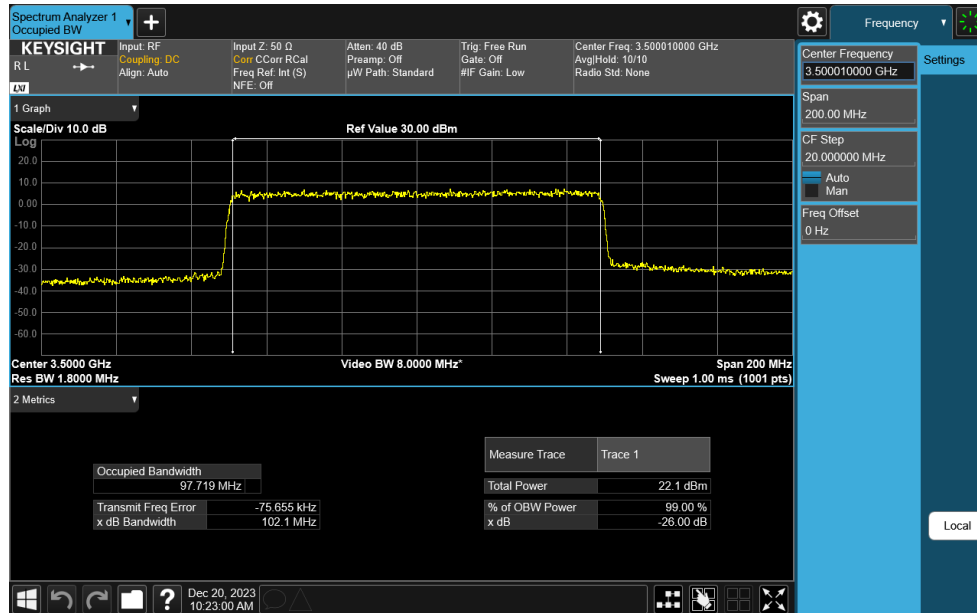


**Plot 7-50. Occupied Bandwidth Plot (NR Band n77 - 90MHz CP-OFDM 256-QAM - Full RB)**

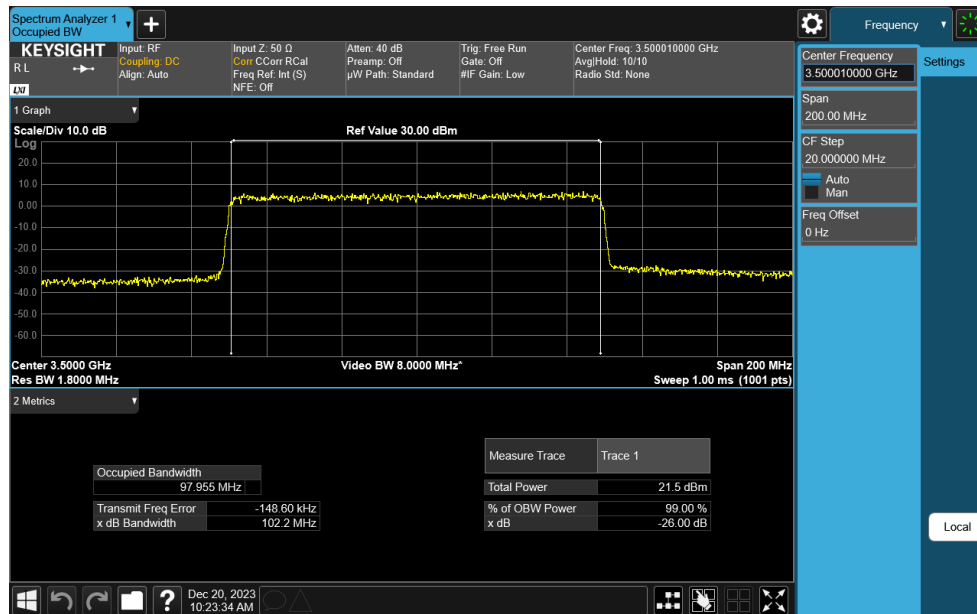
FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N: 1C2311270064-11-R1.BCG	Test Dates: 10/1/2023 - 3/18/2024	Page 42 of 266
	EUT Type: Tablet Device	



FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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	EUT Type: Tablet Device	

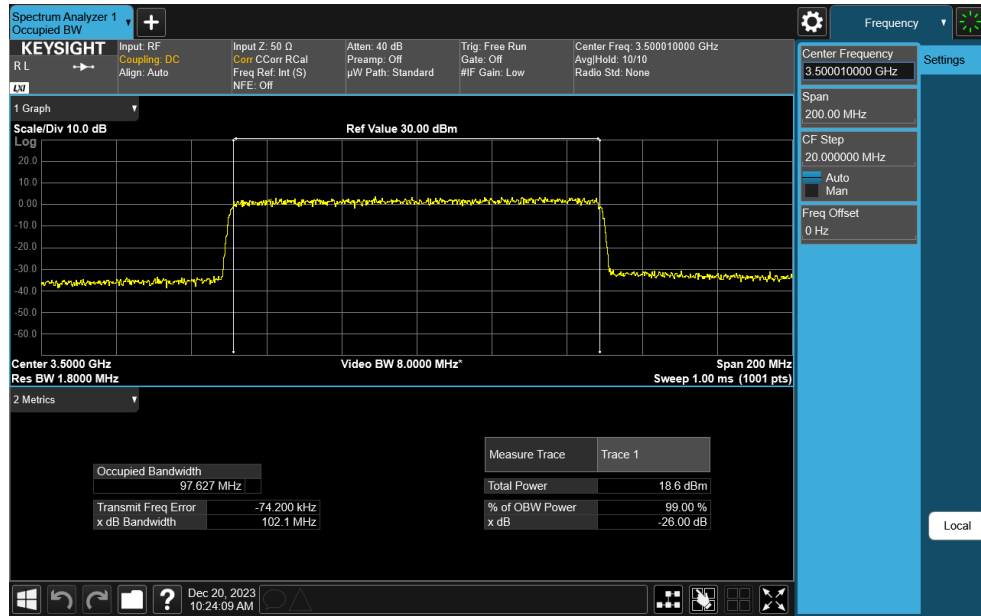


**Plot 7-53. Occupied Bandwidth Plot (NR Band n77 - 100MHz CP-OFDM 16-QAM - Full RB)**



**Plot 7-54. Occupied Bandwidth Plot (NR Band n77 - 100MHz CP-OFDM 64-QAM - Full RB)**

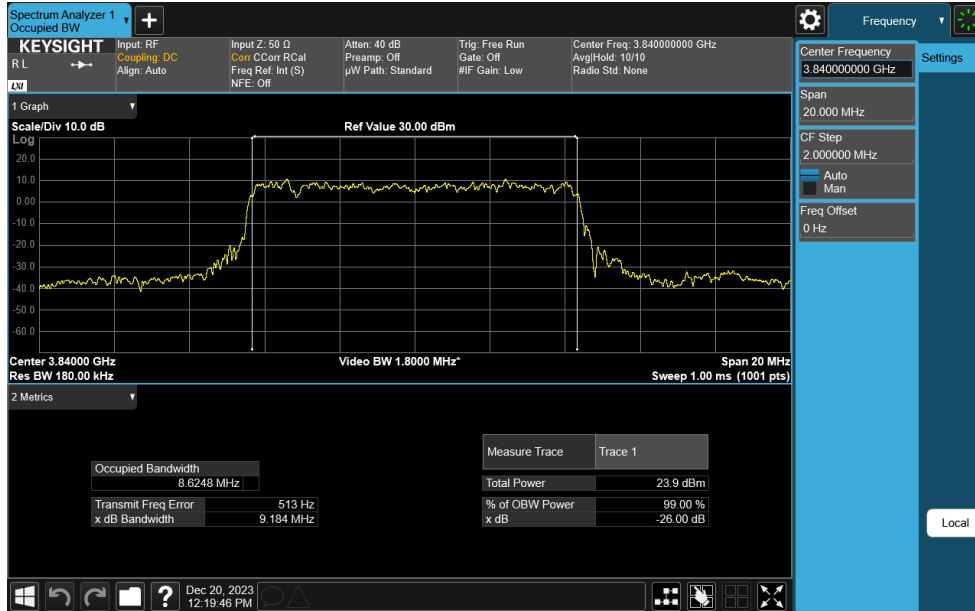
FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N: 1C2311270064-11-R1.BCG	Test Dates: 10/1/2023 - 3/18/2024	Page 44 of 266
	EUT Type: Tablet Device	



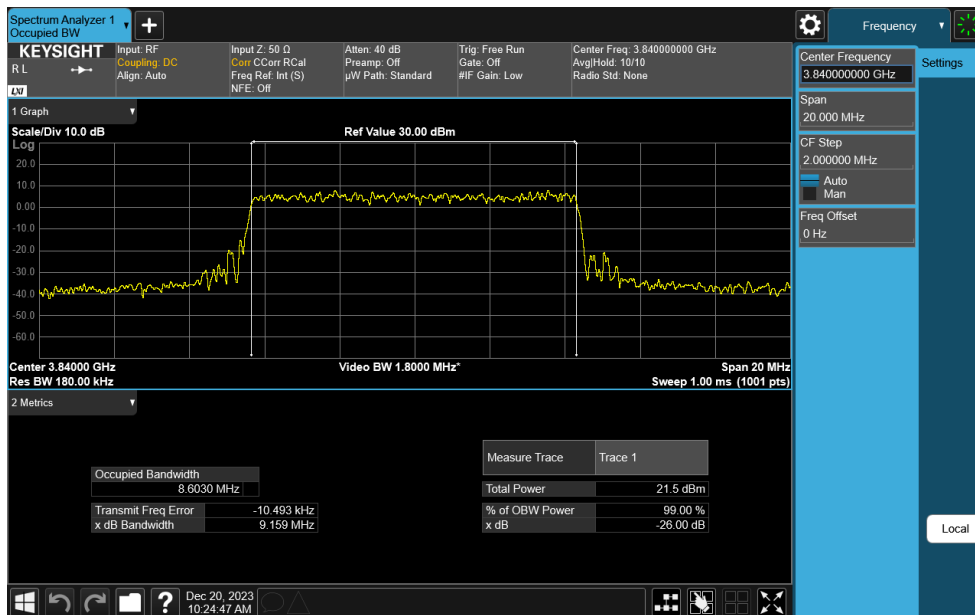
**Plot 7-55. Occupied Bandwidth Plot (NR Band n77 - 100MHz CP-OFDM 256-QAM - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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	EUT Type: Tablet Device	

# NR Band n77 C-Band

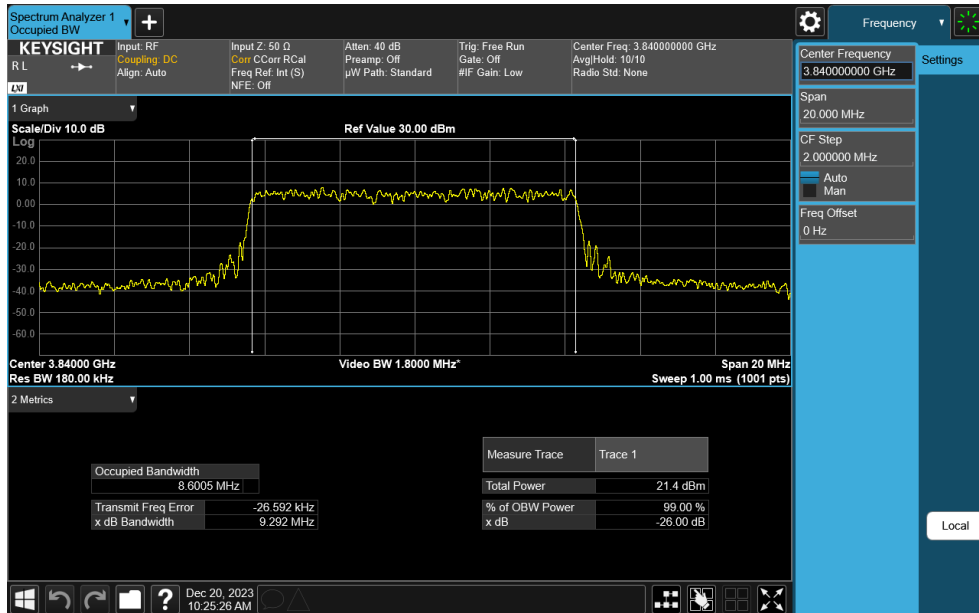


Plot 7-56. Occupied Bandwidth Plot (NR Band n77 - 10MHz DFT-s-OFDM  $\pi/2$  BPSK - Full RB)

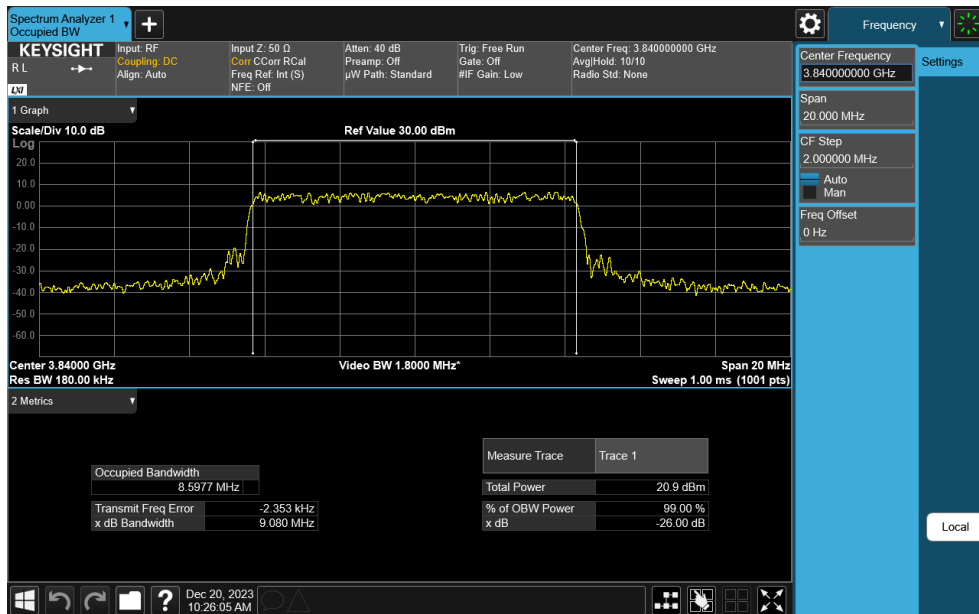


Plot 7-57. Occupied Bandwidth Plot (NR Band n77 - 10MHz CP-OFDM QPSK - Full RB)

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N: 1C2311270064-11-R1.BCG	Test Dates: 10/1/2023 - 3/18/2024	Page 46 of 266
	EUT Type: Tablet Device	

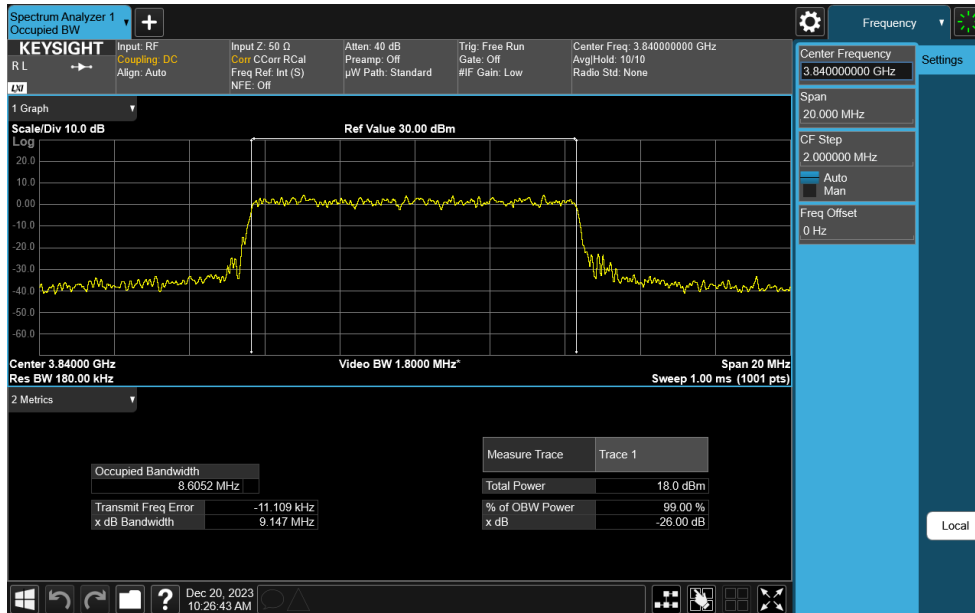


Plot 7-58. Occupied Bandwidth Plot (NR Band n77 - 10MHz CP-OFDM 16-QAM - Full RB)

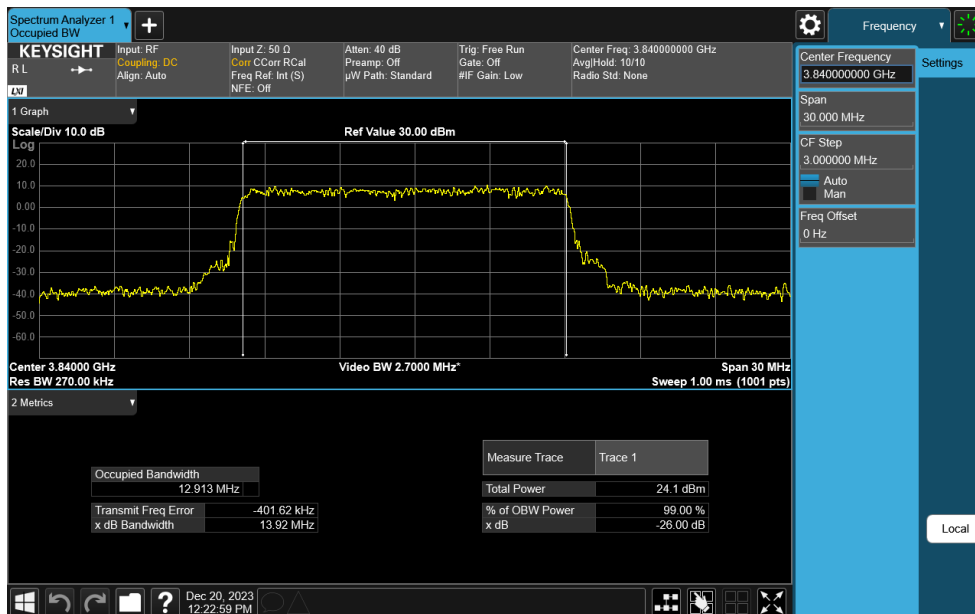


Plot 7-59. Occupied Bandwidth Plot (NR Band n77 - 10MHz CP-OFDM 64-QAM - Full RB)

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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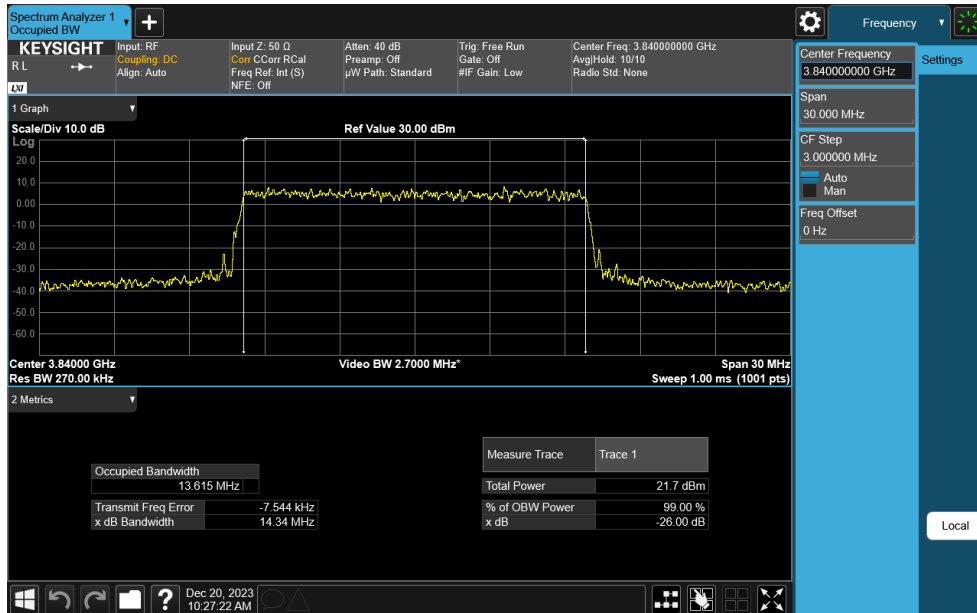
**Plot 7-60. Occupied Bandwidth Plot (NR Band n77 - 10MHz CP-OFDM 256-QAM - Full RB)**



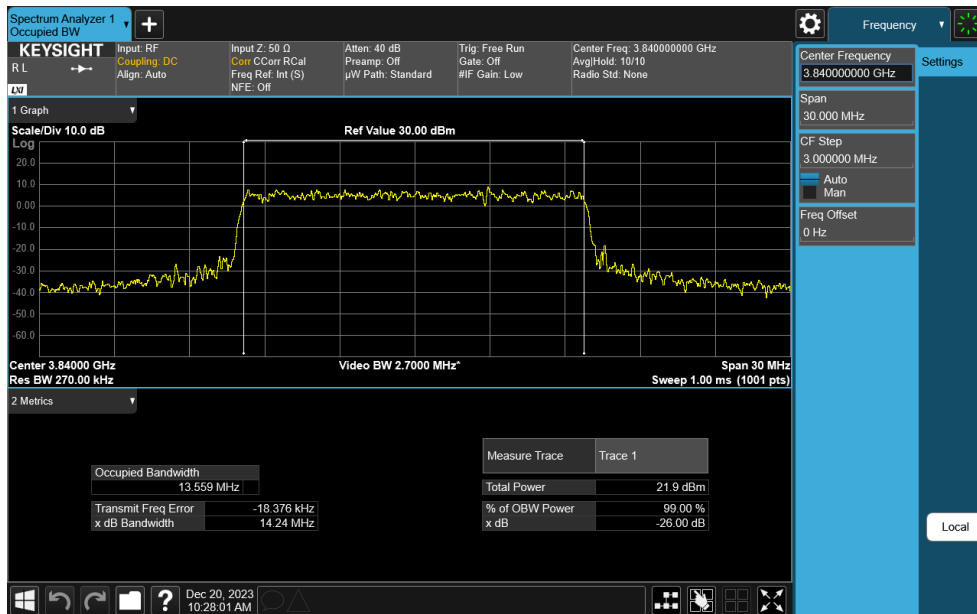
**Plot 7-61. Occupied Bandwidth Plot (NR Band n77 - 15MHz DFT-s-OFDM  $\pi/2$  BPSK - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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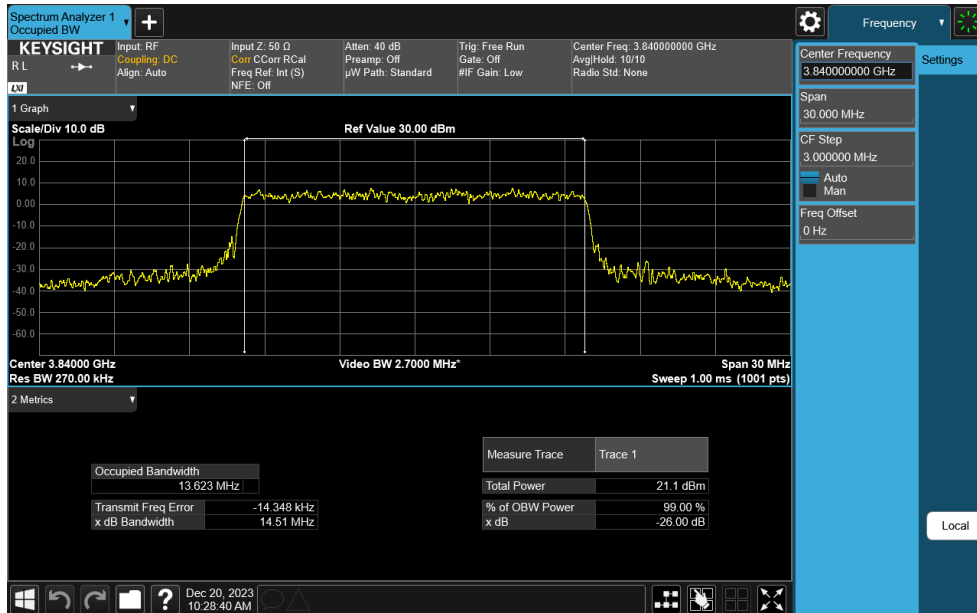


**Plot 7-62. Occupied Bandwidth Plot (NR Band n77 - 15MHz CP-OFDM QPSK - Full RB)**

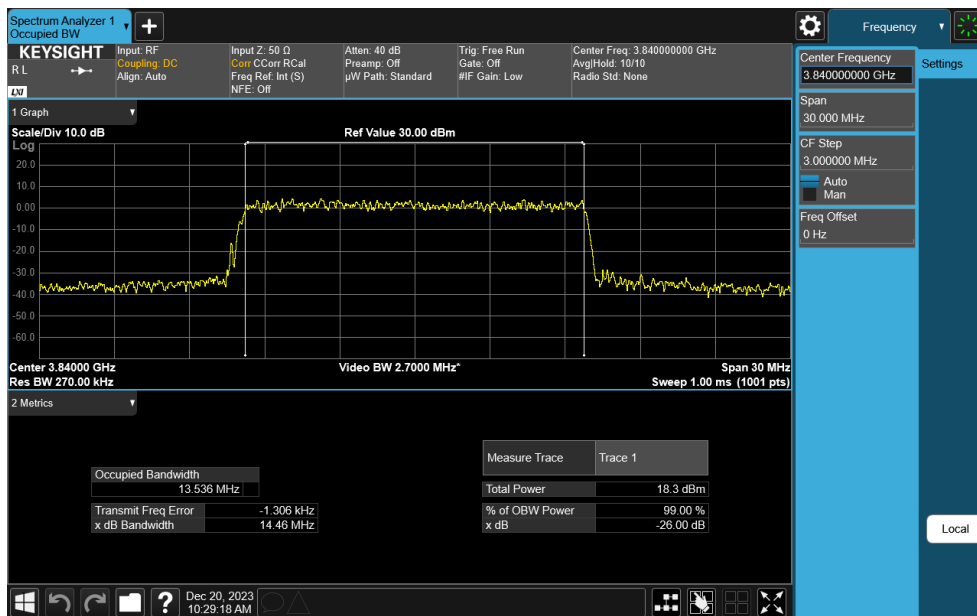


**Plot 7-63. Occupied Bandwidth Plot (NR Band n77 - 15MHz CP-OFDM 16-QAM - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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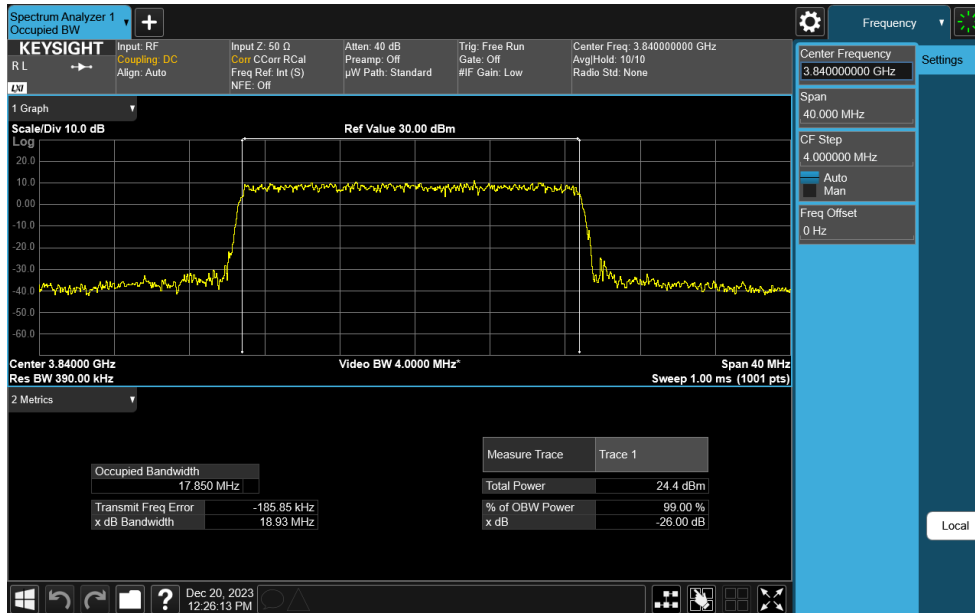


**Plot 7-64. Occupied Bandwidth Plot (NR Band n77 - 15MHz CP-OFDM 64-QAM - Full RB)**

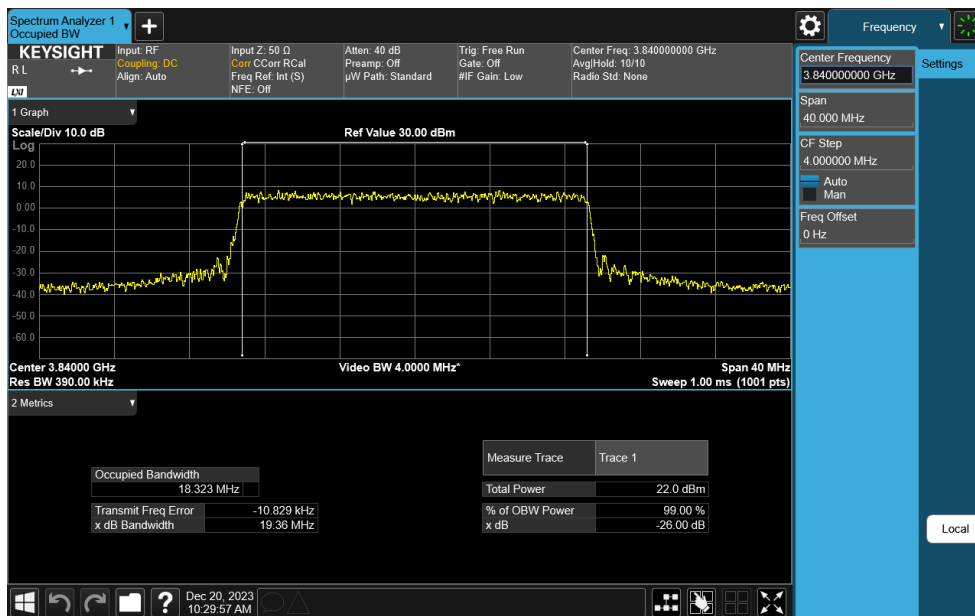


**Plot 7-65. Occupied Bandwidth Plot (NR Band n77 - 15MHz CP-OFDM 256-QAM - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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	EUT Type: Tablet Device	

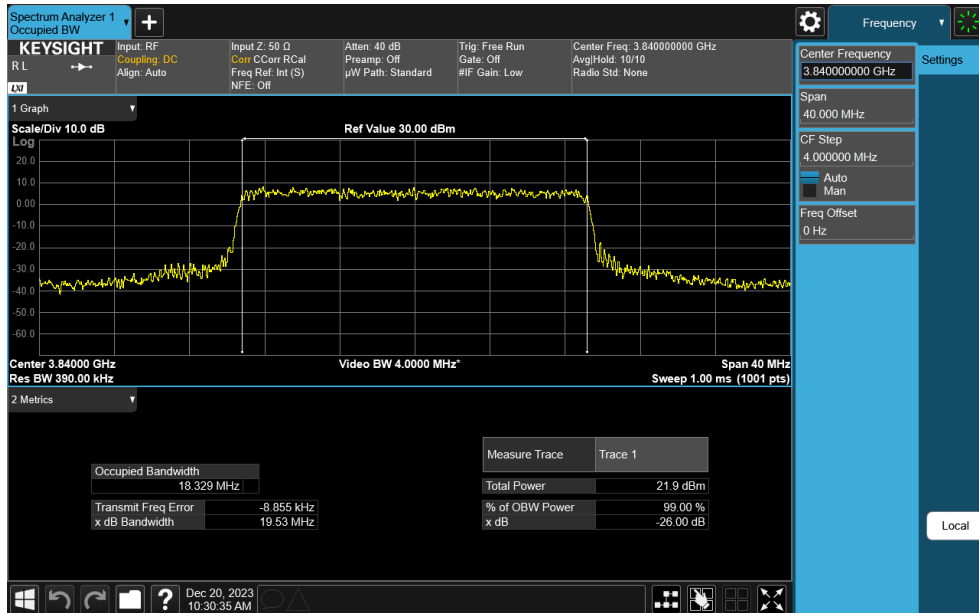


**Plot 7-66. Occupied Bandwidth Plot (NR Band n77 - 20MHz DFT-s-OFDM  $\pi/2$  BPSK - Full RB)**

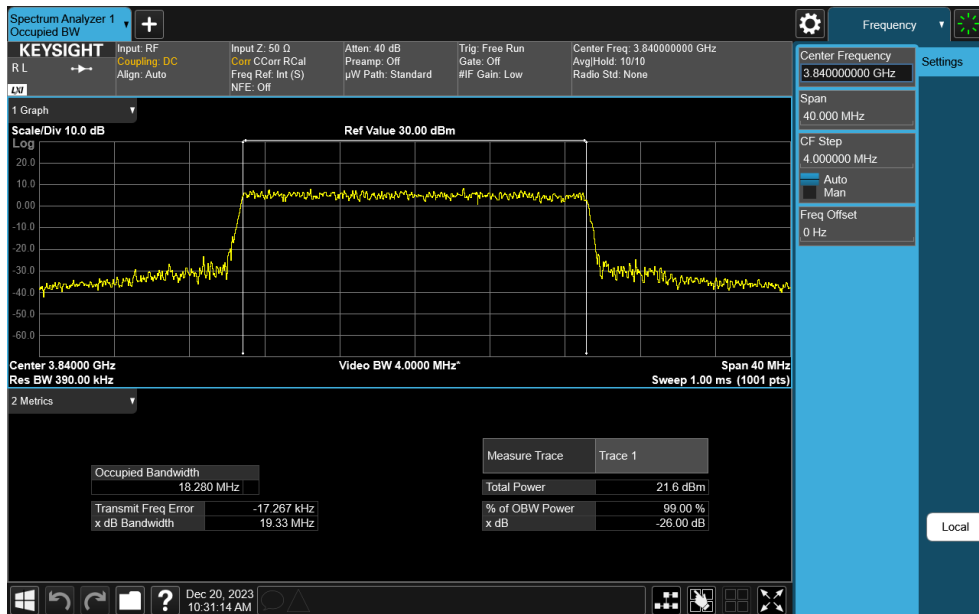


**Plot 7-67. Occupied Bandwidth Plot (NR Band n77 - 20MHz CP-OFDM QPSK - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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	EUT Type: Tablet Device	

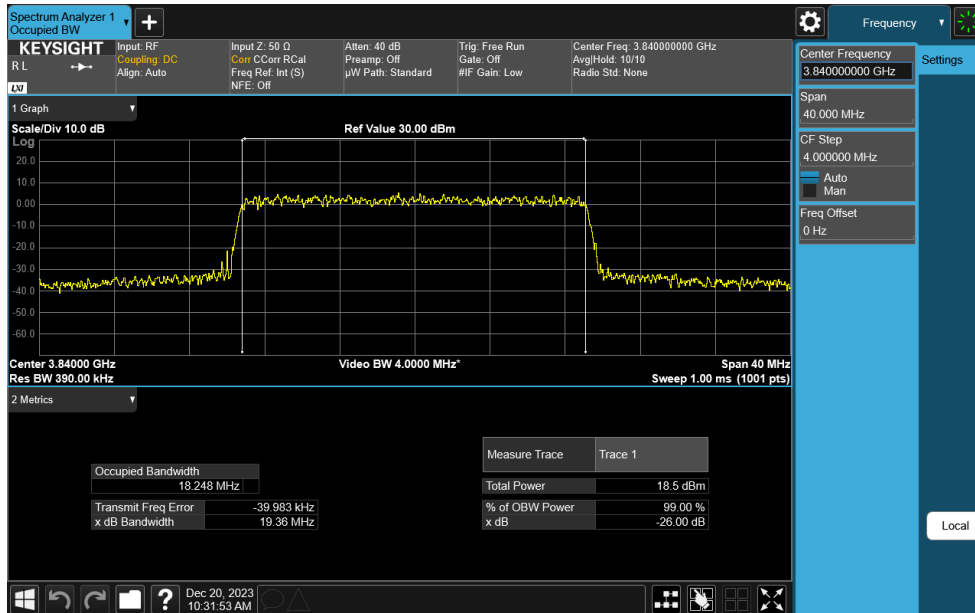


**Plot 7-68. Occupied Bandwidth Plot (NR Band n77 - 20MHz CP-OFDM 16-QAM - Full RB)**

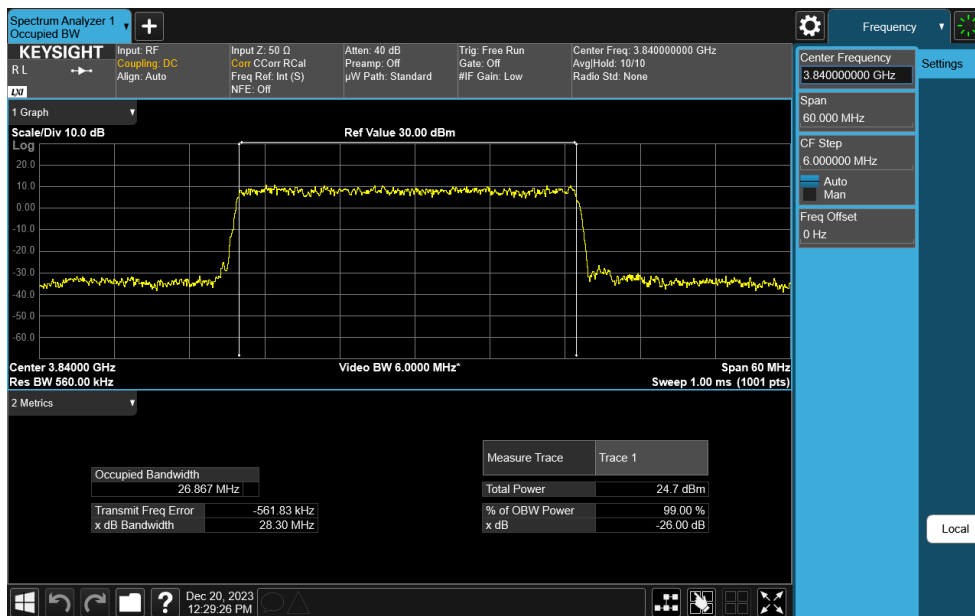


**Plot 7-69. Occupied Bandwidth Plot (NR Band n77 - 20MHz CP-OFDM 64-QAM - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N: 1C2311270064-11-R1.BCG	Test Dates: 10/1/2023 - 3/18/2024	EUT Type: Tablet Device
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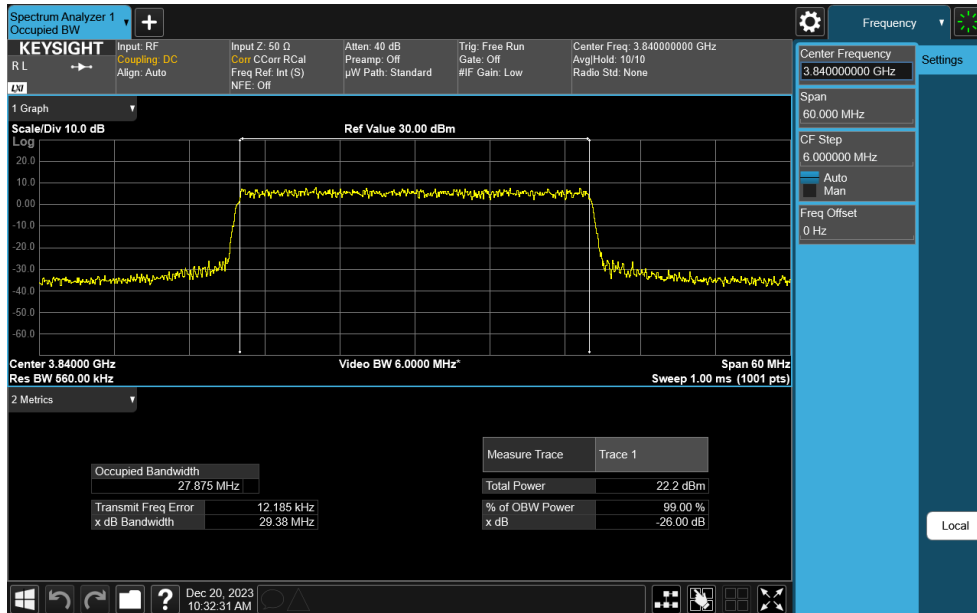


Plot 7-70. Occupied Bandwidth Plot (NR Band n77 - 20MHz CP-OFDM 256-QAM - Full RB)

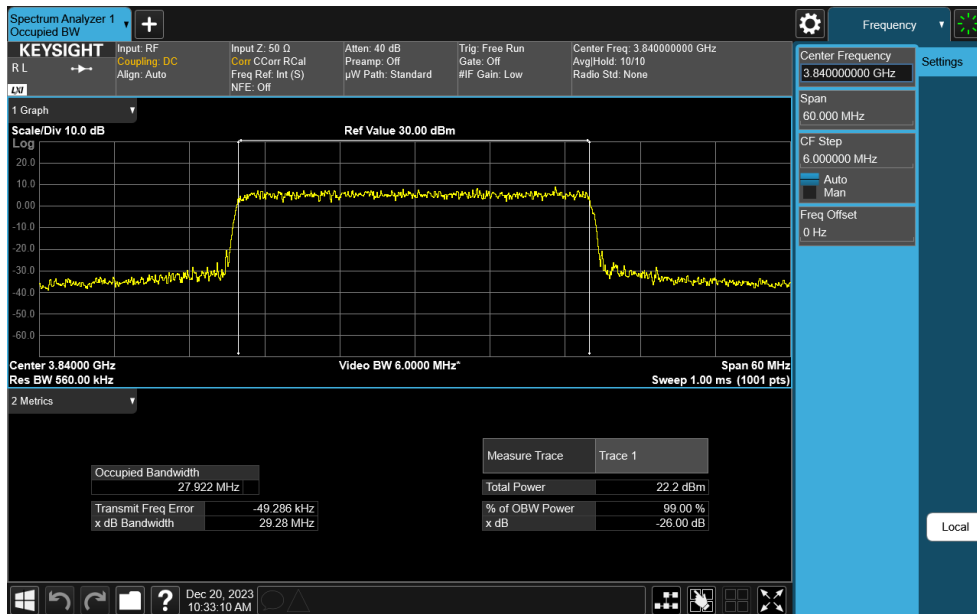


Plot 7-71. Occupied Bandwidth Plot (NR Band n77 - 30MHz DFT-s-OFDM  $\pi/2$  BPSK - Full RB)

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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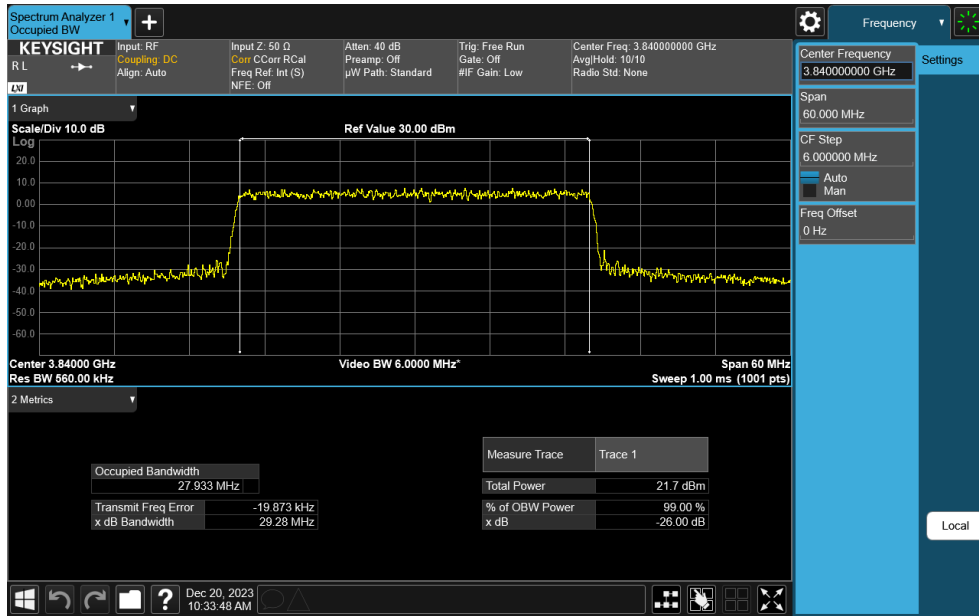


Plot 7-72. Occupied Bandwidth Plot (NR Band n77 - 30MHz CP-OFDM QPSK - Full RB)

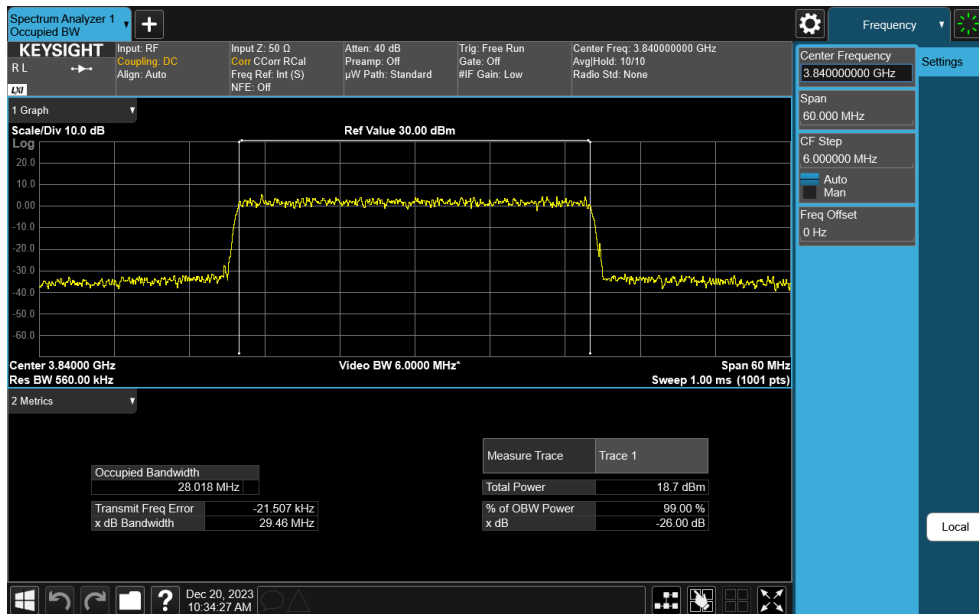


Plot 7-73. Occupied Bandwidth Plot (NR Band n77 - 30MHz CP-OFDM 16-QAM - Full RB)

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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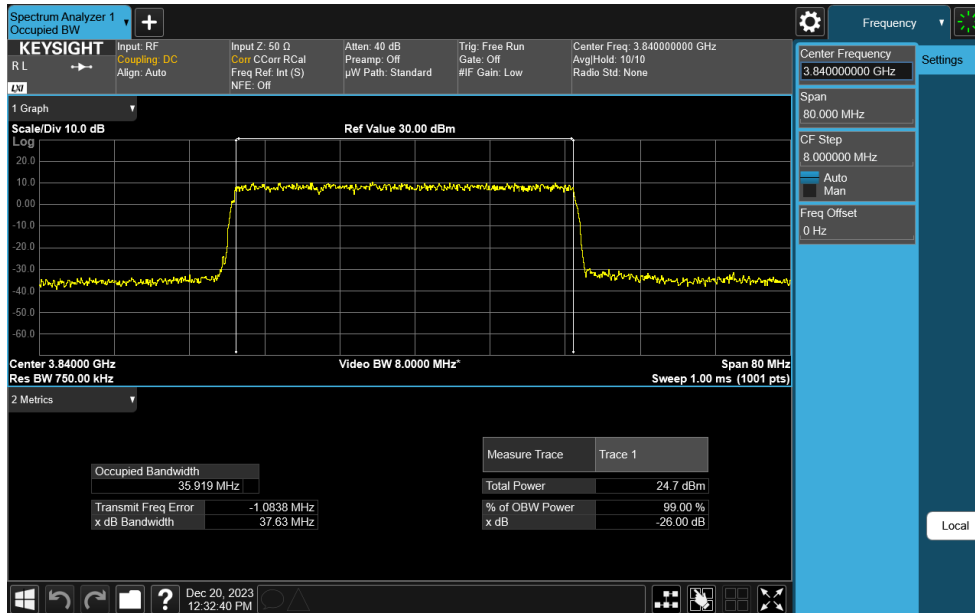


**Plot 7-74. Occupied Bandwidth Plot (NR Band n77 - 30MHz CP-OFDM 64-QAM - Full RB)**

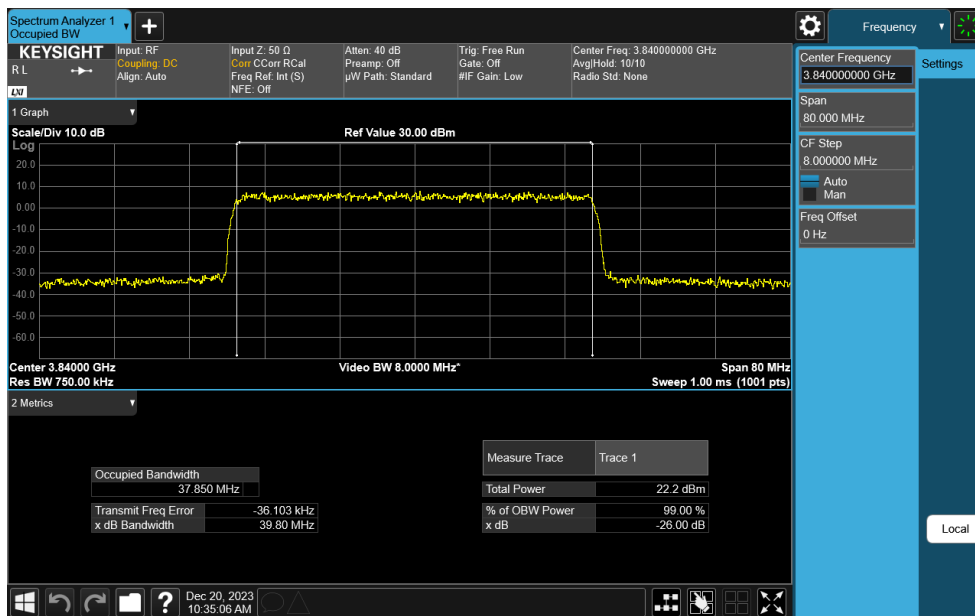


**Plot 7-75. Occupied Bandwidth Plot (NR Band n77 - 30MHz CP-OFDM 256-QAM - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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	EUT Type: Tablet Device	



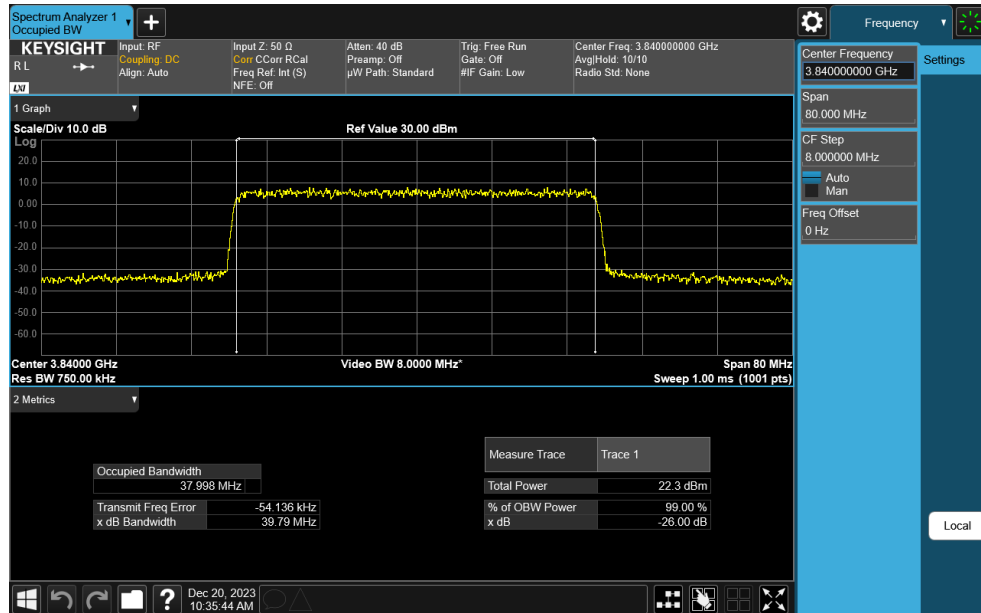
**Plot 7-76. Occupied Bandwidth Plot (NR Band n77 - 40MHz DFT-s-OFDM  $\pi/2$  BPSK - Full RB)**



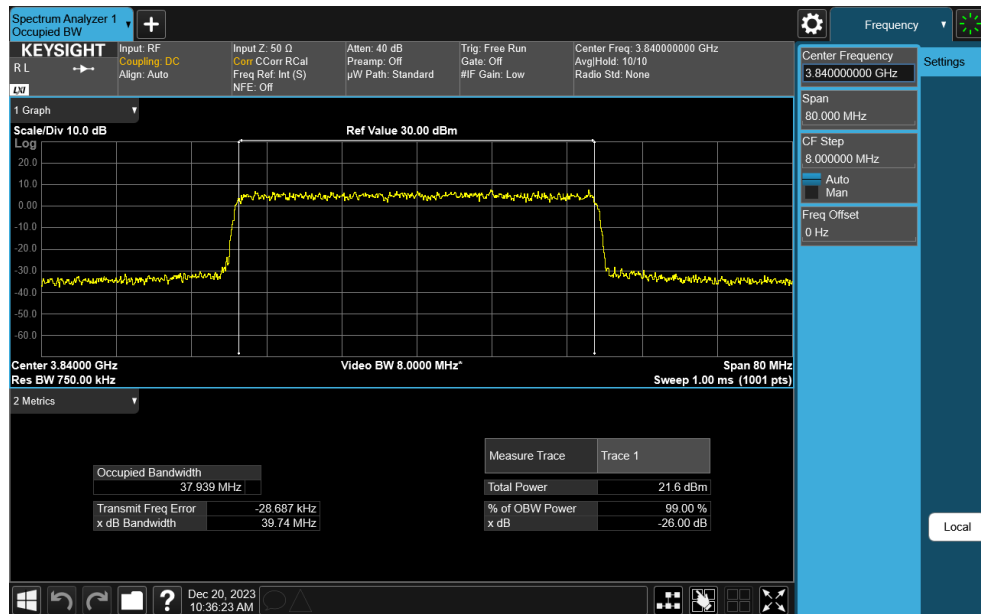
**Plot 7-77. Occupied Bandwidth Plot (NR Band n77 - 40MHz CP-OFDM QPSK - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N: 1C2311270064-11-R1.BCG	Test Dates: 10/1/2023 - 3/18/2024	EUT Type: Tablet Device
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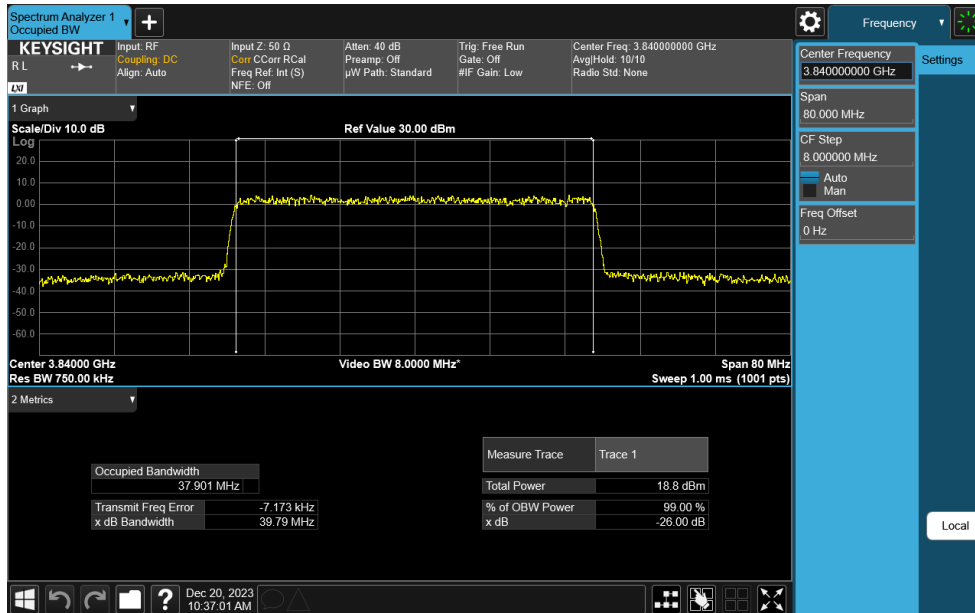


**Plot 7-78. Occupied Bandwidth Plot (NR Band n77 - 40MHz CP-OFDM 16-QAM - Full RB)**

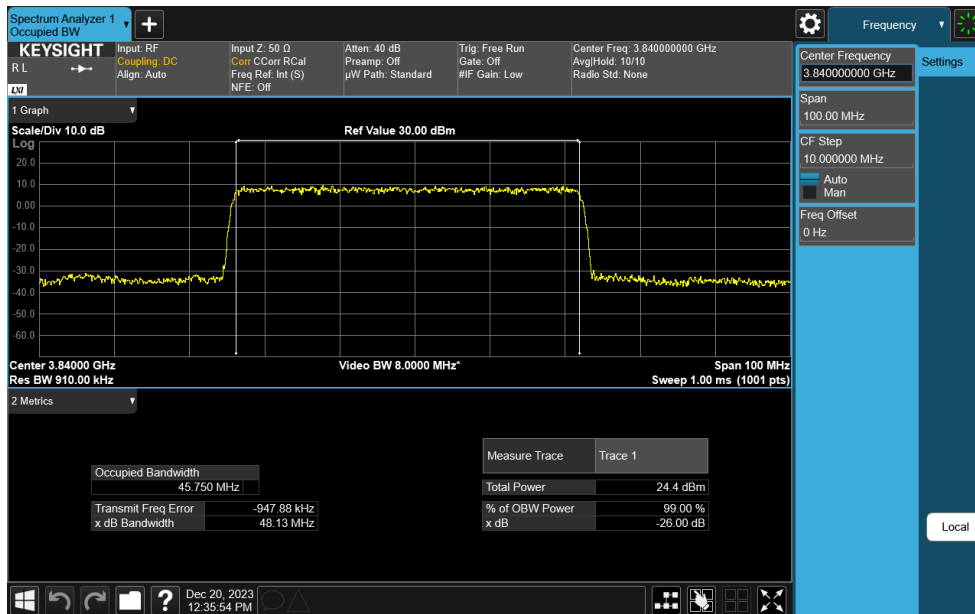


**Plot 7-79. Occupied Bandwidth Plot (NR Band n77 - 40MHz CP-OFDM 64-QAM - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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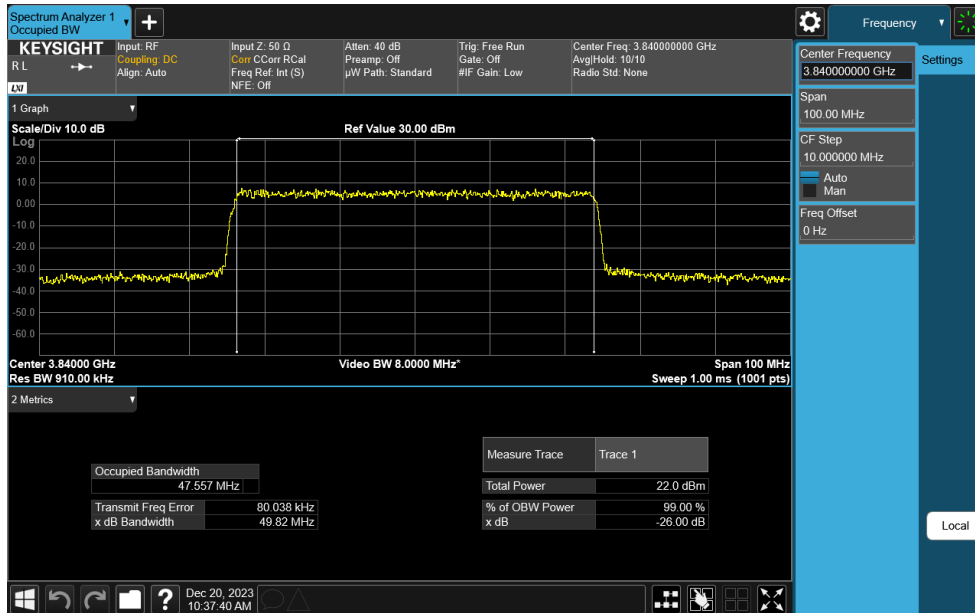


**Plot 7-80. Occupied Bandwidth Plot (NR Band n77 - 40MHz CP-OFDM 256-QAM - Full RB)**

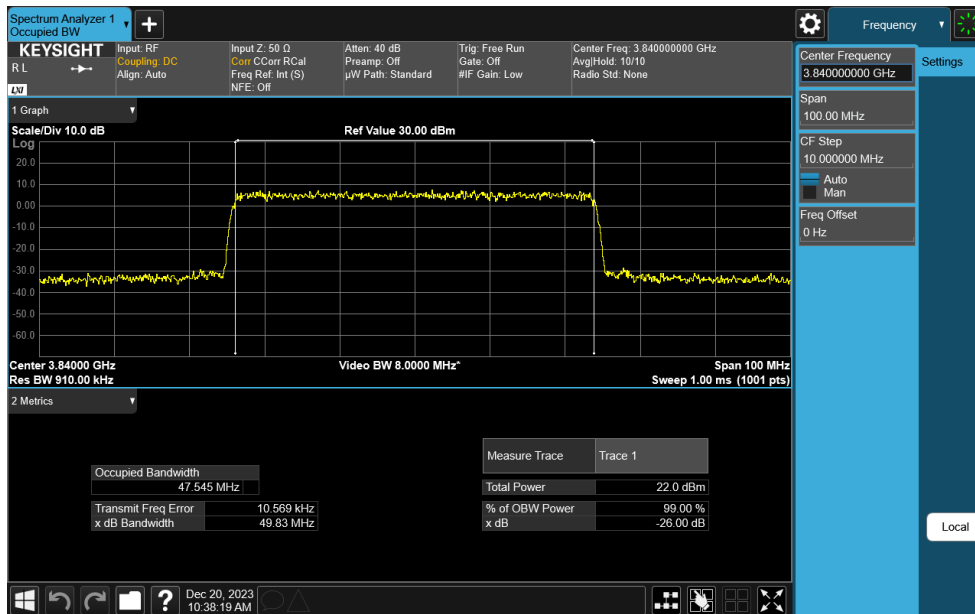


**Plot 7-81. Occupied Bandwidth Plot (NR Band n77 - 50MHz DFT-s-OFDM  $\pi/2$  BPSK - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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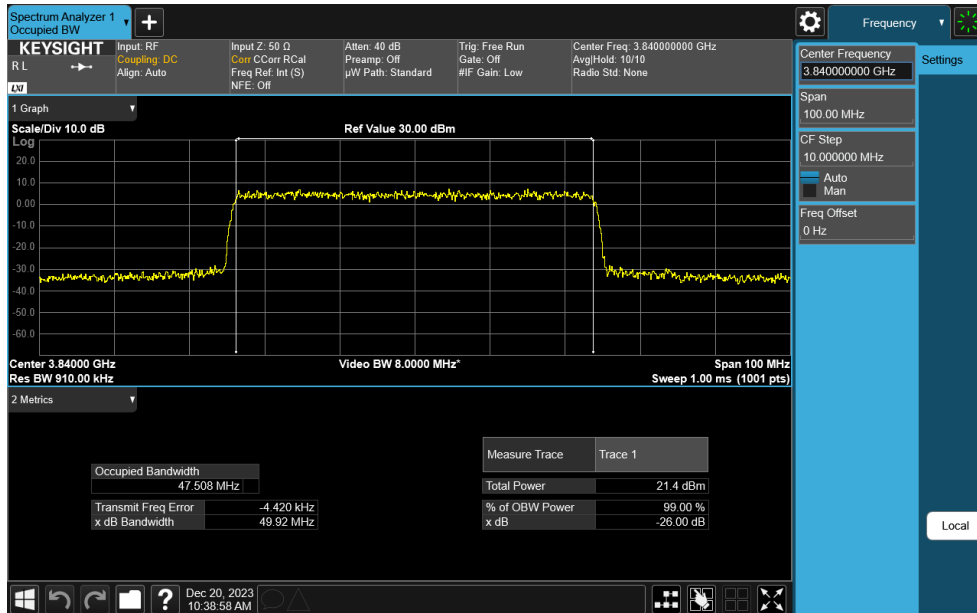


Plot 7-82. Occupied Bandwidth Plot (NR Band n77 - 50MHz CP-OFDM QPSK - Full RB)

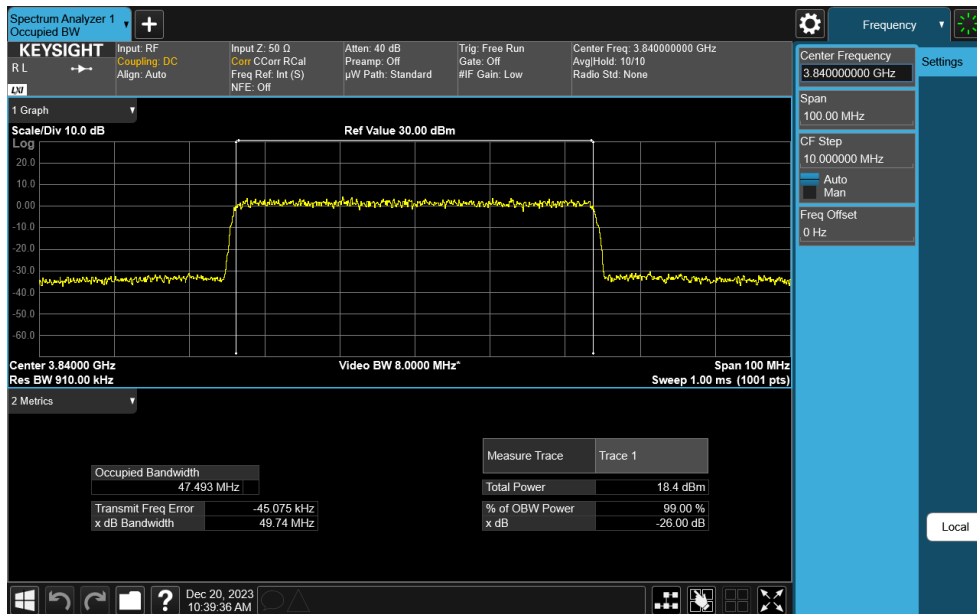


Plot 7-83. Occupied Bandwidth Plot (NR Band n77 - 50MHz CP-OFDM 16-QAM - Full RB)

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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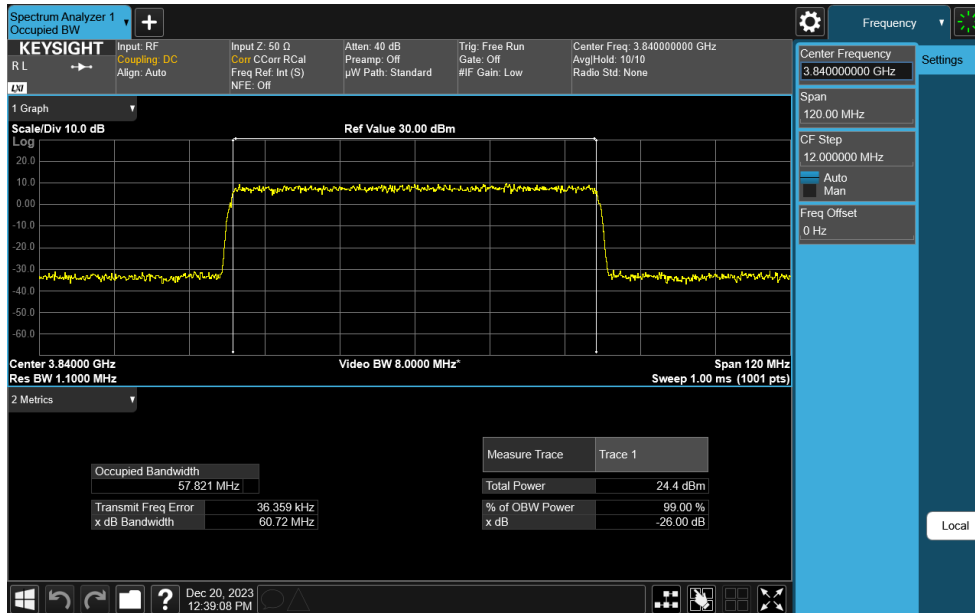


Plot 7-84. Occupied Bandwidth Plot (NR Band n77 - 50MHz CP-OFDM 64-QAM - Full RB)

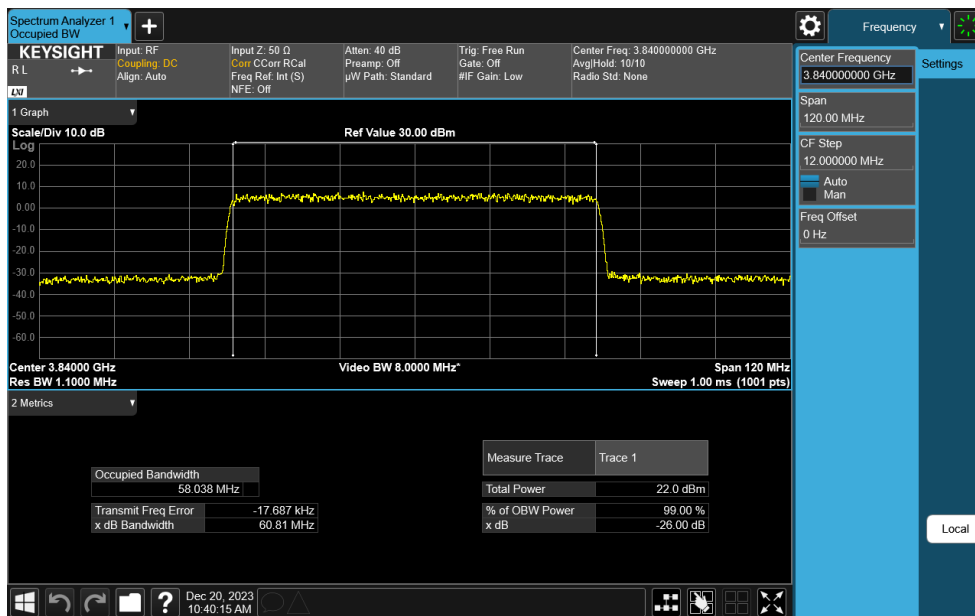


Plot 7-85. Occupied Bandwidth Plot (NR Band n77 - 50MHz CP-OFDM 256-QAM - Full RB)

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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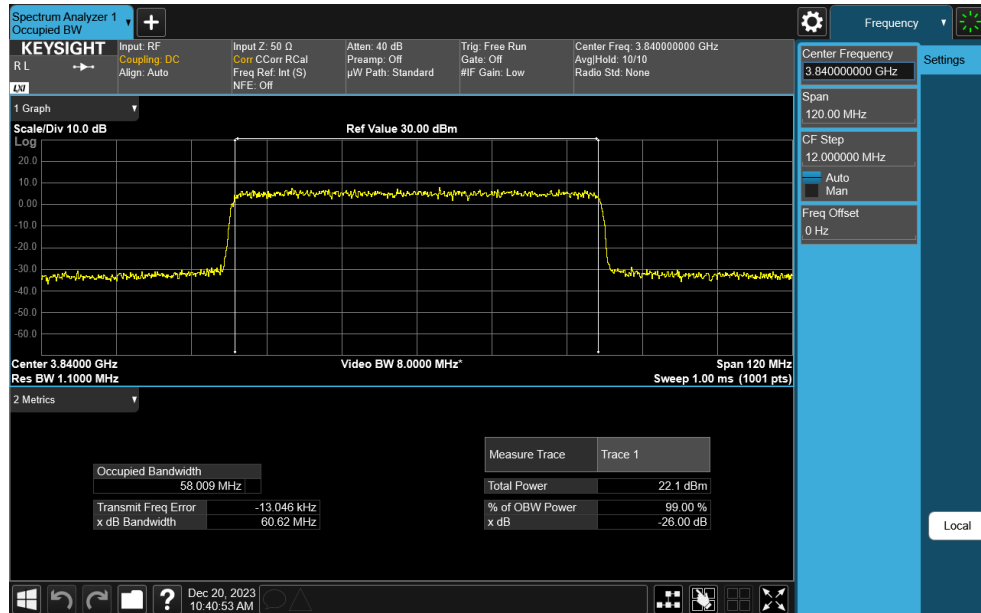


**Plot 7-86. Occupied Bandwidth Plot (NR Band n77 - 60MHz DFT-s-OFDM  $\pi/2$  BPSK - Full RB)**

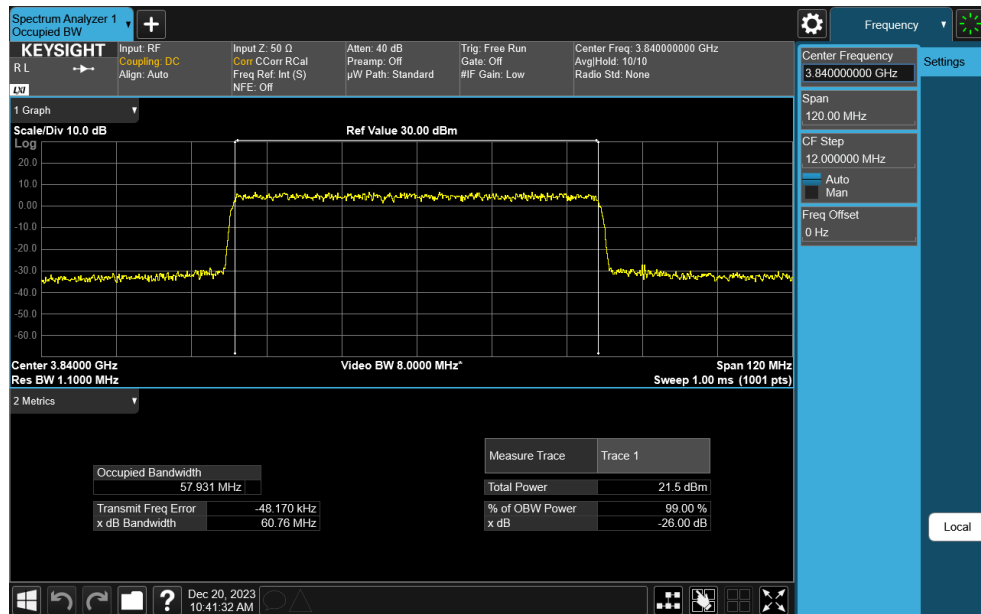


**Plot 7-87. Occupied Bandwidth Plot (NR Band n77 - 60MHz CP-OFDM QPSK - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N: 1C2311270064-11-R1.BCG	Test Dates: 10/1/2023 - 3/18/2024	EUT Type: Tablet Device
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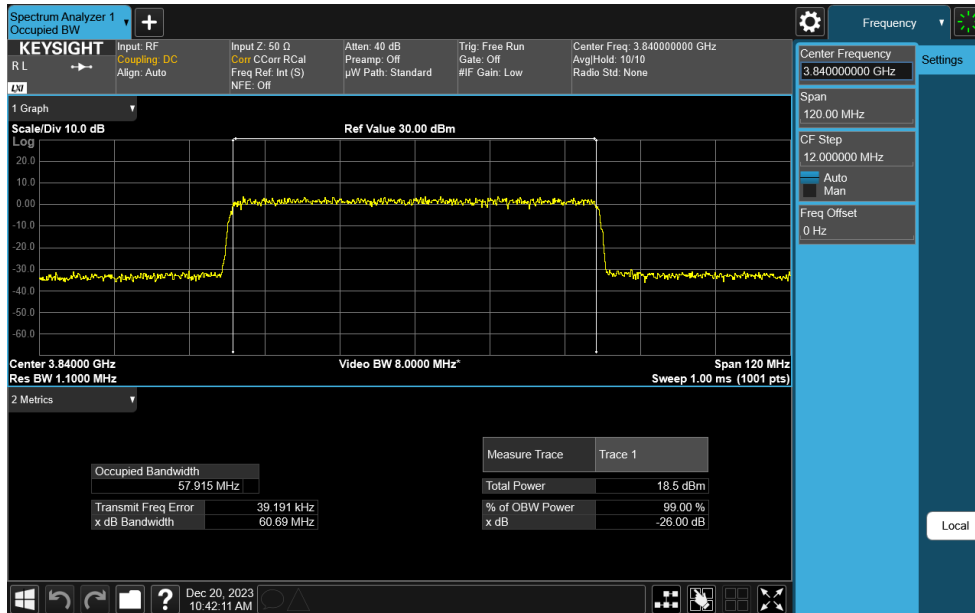


Plot 7-88. Occupied Bandwidth Plot (NR Band n77 - 60MHz CP-OFDM 16-QAM - Full RB)

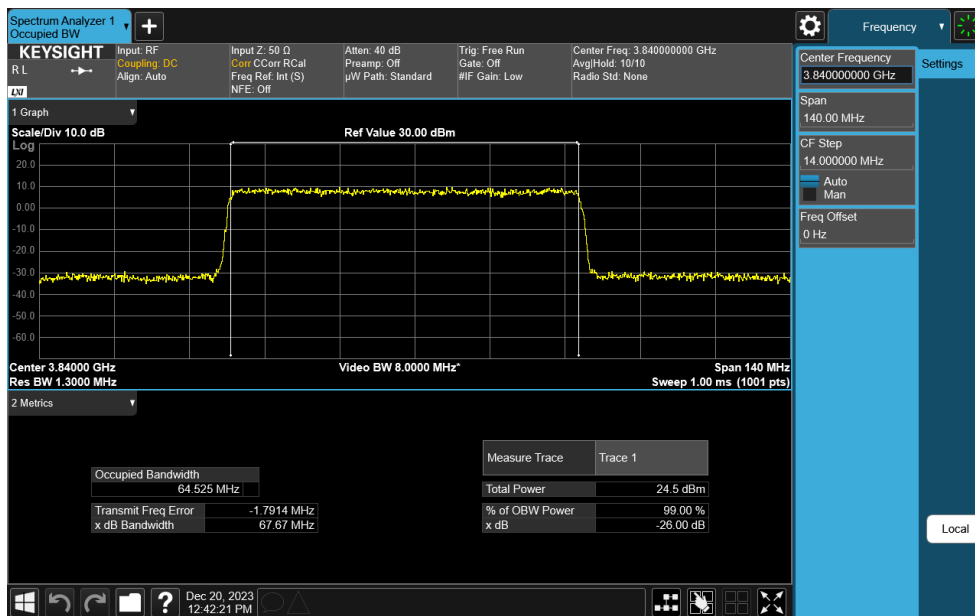


Plot 7-89. Occupied Bandwidth Plot (NR Band n77 - 60MHz CP-OFDM 64-QAM - Full RB)

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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**Plot 7-90. Occupied Bandwidth Plot (NR Band n77 - 60MHz CP-OFDM 256-QAM - Full RB)**



**Plot 7-91. Occupied Bandwidth Plot (NR Band n77 - 70MHz DFT-s-OFDM  $\pi/2$  BPSK - Full RB)**

FCC ID: BCGA2903	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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