PCTEST
18855 Adams Court, Morgan Hill, CA 95037 USA
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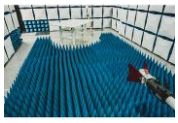

PART 27 MEASUREMENT REPORT

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

Date of Testing:
12/15/2020 - 02/27/2021
Test Site/Location:
PCTEST Lab. Morgan Hill, CA, USA
Test Report Serial No.:
1C2101020005-05-R2.BCG

FCC ID:	**BCGA2379**
Applicant Name:	**Apple Inc.**

Application Type:	Certification
Model:	A2379
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: 1C2101020005-05-R2.BCG Report SNs) 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.

Randy Ortanez
President

ACCREDITED
CERT #2041.02

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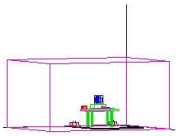
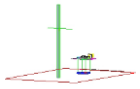


PART 27 MEASUREMENT REPORT



Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	OBW [MHz]	EIRP		Emission Designator
					Max. Power [W]	Max. Power [dBm]	
LTE Band 30	10 MHz	QPSK	2310.0	9.0126	0.184	22.64	9M01G7W
		16QAM	2310.0	9.0184	0.186	22.70	9M02D7W
		64QAM	2310.0	8.9975	0.166	22.20	9M00D7W
		256QAM	2310.0	9.0087	0.103	20.13	9M01D7W
	5 MHz	QPSK	2307.5 - 2312.5	4.5565	0.186	22.70	4M56G7W
		16QAM	2307.5 - 2312.5	4.5260	0.186	22.70	4M53D7W
		64QAM	2307.5 - 2312.5	4.5500	0.195	22.89	4M55D7W
		256QAM	2307.5 - 2312.5	4.5208	0.122	20.87	4M52D7W
LTE Band 7	20 MHz	QPSK	2510.0 - 2560.0	18.0090	0.251	24.00	18M0G7W
		16QAM	2510.0 - 2560.0	17.9920	0.229	23.60	18M0D7W
		64QAM	2510.0 - 2560.0	17.9340	0.198	22.97	17M9D7W
		256QAM	2510.0 - 2560.0	17.9660	0.091	19.61	18M0D7W
	15 MHz	QPSK	2507.5 - 2562.5	13.5140	0.251	24.00	13M5G7W
		16QAM	2507.5 - 2562.5	13.4940	0.214	23.30	13M5D7W
		64QAM	2507.5 - 2562.5	13.4870	0.187	22.72	13M5D7W
		256QAM	2507.5 - 2562.5	13.4830	0.100	19.99	13M5D7W
	10 MHz	QPSK	2505.0 - 2565.0	8.9893	0.251	24.00	8M99G7W
		16QAM	2505.0 - 2565.0	8.9952	0.224	23.50	9M00D7W
		64QAM	2505.0 - 2565.0	8.9986	0.197	22.94	9M00D7W
		256QAM	2505.0 - 2565.0	8.9897	0.100	20.02	8M99D7W
	5 MHz	QPSK	2502.5 - 2567.5	4.5545	0.251	24.00	4M55G7W
		16QAM	2502.5 - 2567.5	4.5181	0.229	23.60	4M52D7W
		64QAM	2502.5 - 2567.5	4.5377	0.200	23.01	4M54D7W
		256QAM	2502.5 - 2567.5	4.5283	0.092	19.63	4M53D7W
LTE Band 41 (PC2)	20 MHz	QPSK	2506.0 - 2680.0	17.9530	0.685	28.36	18M0G7W
		16QAM	2506.0 - 2680.0	17.9610	0.615	27.89	18M0D7W
		64QAM	2506.0 - 2680.0	17.9740	0.478	26.79	18M0D7W
		256QAM	2506.0 - 2680.0	17.9440	0.251	23.99	17M9D7W
	15 MHz	QPSK	2503.5 - 2682.5	13.5370	0.701	28.46	13M5G7W
		16QAM	2503.5 - 2682.5	13.5080	0.600	27.78	13M5D7W
		64QAM	2503.5 - 2682.5	13.4830	0.505	27.03	13M5D7W
		256QAM	2503.5 - 2682.5	13.5450	0.265	24.24	13M5D7W
	10 MHz	QPSK	2501.0 - 2685.0	9.0493	0.706	28.49	9M05G7W
		16QAM	2501.0 - 2685.0	9.0258	0.587	27.69	9M03D7W
		64QAM	2501.0 - 2685.0	9.0209	0.491	26.91	9M02D7W
		256QAM	2501.0 - 2685.0	9.0185	0.239	23.79	9M02D7W
	5 MHz	QPSK	2498.5 - 2687.5	4.5340	0.665	28.23	4M53G7W
		16QAM	2498.5 - 2687.5	4.5147	0.594	27.74	4M51D7W
		64QAM	2498.5 - 2687.5	4.5274	0.522	27.18	4M53D7W
		256QAM	2498.5 - 2687.5	4.5361	0.258	24.12	4M54D7W
LTE Band 41 (PC3)	20 MHz	QPSK	2506.0 - 2680.0	17.9530	0.457	26.60	18M0G7W
		16QAM	2506.0 - 2680.0	17.9610	0.378	25.77	18M0D7W
		64QAM	2506.0 - 2680.0	17.9740	0.295	24.70	18M0D7W
		256QAM	2506.0 - 2680.0	17.9440	0.134	21.27	17M9D7W
	15 MHz	QPSK	2503.5 - 2682.5	13.5370	0.451	26.54	13M5G7W
		16QAM	2503.5 - 2682.5	13.5080	0.342	25.34	13M5D7W
		64QAM	2503.5 - 2682.5	13.4830	0.297	24.73	13M5D7W
		256QAM	2503.5 - 2682.5	13.5450	0.132	21.22	13M5D7W
	10 MHz	QPSK	2501.0 - 2685.0	9.0493	0.457	26.60	9M05G7W
		16QAM	2501.0 - 2685.0	9.0258	0.352	25.46	9M03D7W
		64QAM	2501.0 - 2685.0	9.0209	0.296	24.72	9M02D7W
		256QAM	2501.0 - 2685.0	9.0185	0.135	21.30	9M02D7W
	5 MHz	QPSK	2498.5 - 2687.5	4.5340	0.457	26.60	4M53G7W
		16QAM	2498.5 - 2687.5	4.5147	0.348	25.42	4M51D7W
		64QAM	2498.5 - 2687.5	4.5274	0.312	24.94	4M53D7W
		256QAM	2498.5 - 2687.5	4.5361	0.132	21.19	4M54D7W
ULCA LTE Band 7	20 + 20 MHz	QPSK	2510.0 - 2560.0	37.5560	0.251	24.00	37M6G7W
		16QAM	2510.0 - 2560.0	37.6260	0.149	21.73	37M6D7W
		64QAM	2510.0 - 2560.0	37.5930	0.144	21.58	37M6D7W
		256QAM	2510.0 - 2560.0	37.5850	0.071	18.53	37M6D7W
ULCA LTE Band 41(PC2)	20 +20 MHz	QPSK	2506.0 - 2680.0	37.5670	0.776	28.90	37M6G7W
		16QAM	2506.0 - 2680.0	37.6270	0.461	26.64	37M6D7W
		64QAM	2506.0 - 2680.0	37.5530	0.456	26.59	37M6D7W
		256QAM	2506.0 - 2680.0	37.5840	0.234	23.69	37M6D7W
ULCA LTE Band 41(PC3)	20 + 20 MHz	QPSK	2506.0 - 2680.0	37.5670	0.457	26.60	37M6G7W
		16QAM	2506.0 - 2680.0	37.6270	0.261	24.16	37M6D7W
		64QAM	2506.0 - 2680.0	37.5530	0.258	24.12	37M6D7W
		256QAM	2506.0 - 2680.0	37.5840	0.132	21.22	37M6D7W

EUT Overview

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	OBW [MHz]	EIRP		Emission Designator
					Max. Power [W]	Max. Power [dBm]	
NR Band n41(PC2)	100 MHz	π/2 BPSK	2546.0 - 2640.0	96.7880	0.692	28.40	96M8G7W
		QPSK	2546.0 - 2640.0	97.4706	0.656	28.17	97M5G7W
		16QAM	2546.0 - 2640.0	97.6097	0.580	27.63	97M6D7W
		64QAM	2546.0 - 2640.0	97.6542	0.441	26.45	97M7D7W
		256QAM	2546.0 - 2640.0	97.4480	0.261	24.16	97M4D7W
	90 MHz	π/2 BPSK	2541.0 - 2645.0	85.8540	0.674	28.29	85M9G7W
		QPSK	2541.0 - 2645.0	87.6024	0.692	28.40	87M6G7W
		16QAM	2541.0 - 2645.0	87.5176	0.635	28.03	87M5D7W
		64QAM	2541.0 - 2645.0	87.5349	0.431	26.34	87M5D7W
		256QAM	2541.0 - 2645.0	87.6505	0.256	24.09	87M7D7W
	80 MHz	π/2 BPSK	2536.0 - 2650.0	77.0210	0.692	28.40	77M0G7W
		QPSK	2536.0 - 2650.0	77.5844	0.684	28.35	77M6G7W
		16QAM	2536.0 - 2650.0	77.5581	0.604	27.81	77M6D7W
		64QAM	2536.0 - 2650.0	77.7365	0.432	26.36	77M7D7W
		256QAM	2536.0 - 2650.0	77.1678	0.254	24.04	77M2D7W
	60 MHz	π/2 BPSK	2526.0 - 2660.0	58.1950	0.692	28.40	58M2G7W
		QPSK	2526.0 - 2660.0	58.0536	0.677	28.31	58M1G7W
		16QAM	2526.0 - 2660.0	58.0206	0.620	27.92	58M0D7W
		64QAM	2526.0 - 2660.0	58.1247	0.446	26.49	58M1D7W
		256QAM	2526.0 - 2660.0	58.0295	0.259	24.14	58M0D7W
	50 MHz	π/2 BPSK	2521.0 - 2665.0	46.0090	0.690	28.39	46M0G7W
		QPSK	2521.0 - 2665.0	47.6680	0.692	28.40	47M7G7W
		16QAM	2521.0 - 2665.0	47.7288	0.595	27.75	47M7D7W
		64QAM	2521.0 - 2665.0	47.7900	0.417	26.20	47M8D7W
		256QAM	2521.0 - 2665.0	47.6253	0.250	23.98	47M6D7W
	40 MHz	π/2 BPSK	2516.0 - 2670.0	35.7960	0.688	28.37	35M8G7W
		QPSK	2516.0 - 2670.0	38.0344	0.692	28.40	38M0G7W
		16QAM	2516.0 - 2670.0	37.9245	0.590	27.71	37M9D7W
		64QAM	2516.0 - 2670.0	38.0095	0.438	26.42	38M0D7W
		256QAM	2516.0 - 2670.0	37.9179	0.249	23.96	37M9D7W
	20 MHz	π/2 BPSK	2506.0 - 2680.0	17.9540	0.646	28.10	18M0G7W
		QPSK	2506.0 - 2680.0	18.3739	0.637	28.04	18M4G7W
		16QAM	2506.0 - 2680.0	18.3526	0.576	27.60	18M4D7W
		64QAM	2506.0 - 2680.0	18.3599	0.422	26.26	18M4D7W
		256QAM	2506.0 - 2680.0	18.2832	0.255	24.07	18M3D7W
NR Band n41(PC3)	100 MHz	π/2 BPSK	2546.0 - 2640.0	96.7880	0.454	26.57	96M8G7W
		QPSK	2546.0 - 2640.0	97.4706	0.457	26.60	97M5G7W
		16QAM	2546.0 - 2640.0	97.6097	0.352	25.46	97M6D7W
		64QAM	2546.0 - 2640.0	97.6542	0.290	24.63	97M7D7W
		256QAM	2546.0 - 2640.0	97.4480	0.172	22.36	97M4D7W
	90 MHz	π/2 BPSK	2541.0 - 2645.0	85.8540	0.457	26.60	85M9G7W
		QPSK	2541.0 - 2645.0	87.6024	0.457	26.60	87M6G7W
		16QAM	2541.0 - 2645.0	87.5176	0.405	26.07	87M5D7W
		64QAM	2541.0 - 2645.0	87.5349	0.293	24.66	87M5D7W
		256QAM	2541.0 - 2645.0	87.6505	0.182	22.59	87M7D7W
	80 MHz	π/2 BPSK	2536.0 - 2650.0	77.0210	0.457	26.60	77M0G7W
		QPSK	2536.0 - 2650.0	77.5844	0.447	26.51	77M6G7W
		16QAM	2536.0 - 2650.0	77.5581	0.369	25.68	77M6D7W
		64QAM	2536.0 - 2650.0	77.7365	0.282	24.50	77M7D7W
		256QAM	2536.0 - 2650.0	77.1678	0.171	22.34	77M2D7W
	60 MHz	π/2 BPSK	2526.0 - 2660.0	58.1950	0.457	26.60	58M2G7W
		QPSK	2526.0 - 2660.0	58.0536	0.454	26.57	58M1G7W
		16QAM	2526.0 - 2660.0	58.0206	0.376	25.75	58M0D7W
		64QAM	2526.0 - 2660.0	58.1247	0.275	24.40	58M1D7W
		256QAM	2526.0 - 2660.0	58.0295	0.176	22.46	58M0D7W
	50 MHz	π/2 BPSK	2521.0 - 2665.0	46.0090	0.457	26.60	46M0G7W
		QPSK	2521.0 - 2665.0	47.6680	0.446	26.49	47M7G7W
		16QAM	2521.0 - 2665.0	47.7288	0.359	25.55	47M7D7W
		64QAM	2521.0 - 2665.0	47.7900	0.287	24.58	47M8D7W
		256QAM	2521.0 - 2665.0	47.6253	0.178	22.50	47M6D7W
	40 MHz	π/2 BPSK	2516.0 - 2670.0	35.7960	0.457	26.60	35M8G7W
		QPSK	2516.0 - 2670.0	38.0344	0.457	26.60	38M0G7W
		16QAM	2516.0 - 2670.0	37.9245	0.394	25.95	37M9D7W
		64QAM	2516.0 - 2670.0	38.0095	0.297	24.72	38M0D7W
		256QAM	2516.0 - 2670.0	37.9179	0.170	22.29	37M9D7W
	20 MHz	π/2 BPSK	2506.0 - 2680.0	17.9540	0.412	26.15	18M0G7W
		QPSK	2506.0 - 2680.0	18.3739	0.427	26.30	18M4G7W
		16QAM	2506.0 - 2680.0	18.3526	0.366	25.63	18M4D7W
		64QAM	2506.0 - 2680.0	18.3599	0.264	24.22	18M4D7W
		256QAM	2506.0 - 2680.0	18.2832	0.161	22.08	18M3D7W

EUT Overview

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	OBW [MHz]	EIRP		Emission Designator
					Max. Power [W]	Max. Power [dBm]	
NR Band n77(PC2)	100 MHz	π/2 BPSK	3750.0 - 3930.0	97.0390	0.663	28.22	97M0G7W
		QPSK	3750.0 - 3930.0	98.0530	0.648	28.12	98M1G7W
		16QAM	3750.0 - 3930.0	98.0157	0.562	27.50	98M0D7W
		64QAM	3750.0 - 3930.0	97.9589	0.449	26.52	98M0D7W
		256QAM	3750.0 - 3930.0	98.1624	0.304	24.82	98M2D7W
	90 MHz	π/2 BPSK	3745.0 - 3935.0	86.0410	0.672	28.27	86M0G7W
		QPSK	3745.0 - 3935.0	87.9228	0.656	28.17	87M9G7W
		16QAM	3745.0 - 3935.0	88.0183	0.534	27.28	88M0D7W
		64QAM	3745.0 - 3935.0	88.0493	0.475	26.77	88M0D7W
		256QAM	3745.0 - 3935.0	87.8378	0.316	25.00	87M8D7W
	80 MHz	π/2 BPSK	3740.0 - 3940.0	77.5290	0.682	28.34	77M5G7W
		QPSK	3740.0 - 3940.0	77.8898	0.687	28.37	77M9G7W
		16QAM	3740.0 - 3940.0	77.9693	0.564	27.51	78M0D7W
		64QAM	3740.0 - 3940.0	78.2644	0.462	26.64	78M3D7W
		256QAM	3740.0 - 3940.0	77.6152	0.306	24.86	77M6D7W
	60 MHz	π/2 BPSK	3730.0 - 3950.0	58.2210	0.684	28.35	58M2G7W
		QPSK	3730.0 - 3950.0	58.1542	0.692	28.40	58M2G7W
		16QAM	3730.0 - 3950.0	58.3769	0.569	27.55	58M4D7W
		64QAM	3730.0 - 3950.0	58.2977	0.475	26.77	58M3D7W
		256QAM	3730.0 - 3950.0	58.1900	0.316	24.99	58M2D7W
	50 MHz	π/2 BPSK	3725.0 - 3955.0	45.9860	0.673	28.28	46M0G7W
		QPSK	3725.0 - 3955.0	47.8724	0.675	28.30	47M9G7W
		16QAM	3725.0 - 3955.0	47.9847	0.577	27.61	48M0D7W
		64QAM	3725.0 - 3955.0	47.8859	0.454	26.57	47M9D7W
		256QAM	3725.0 - 3955.0	47.7363	0.312	24.94	47M7D7W
	40 MHz	π/2 BPSK	3720.0 - 3960.0	35.9720	0.674	28.29	36M0G7W
		QPSK	3720.0 - 3960.0	38.1523	0.642	28.08	38M2G7W
		16QAM	3720.0 - 3960.0	38.0732	0.577	27.61	38M1D7W
		64QAM	3720.0 - 3960.0	38.2371	0.457	26.59	38M2D7W
		256QAM	3720.0 - 3960.0	37.9988	0.310	24.91	38M0D7W
	20 MHz	π/2 BPSK	3710.0 - 3970.0	17.9950	0.642	28.08	18M0G7W
		QPSK	3710.0 - 3970.0	18.4324	0.623	27.95	18M4G7W
		16QAM	3710.0 - 3970.0	18.3980	0.531	27.25	18M4D7W
		64QAM	3710.0 - 3970.0	18.4433	0.426	26.29	18M4D7W
		256QAM	3710.0 - 3970.0	18.3291	0.300	24.77	18M3D7W
NR Band n77(PC3)	100 MHz	π/2 BPSK	3750.0 - 3930.0	97.0390	0.511	27.08	97M0G7W
		QPSK	3750.0 - 3930.0	98.0530	0.513	27.10	98M1G7W
		16QAM	3750.0 - 3930.0	98.0157	0.389	25.90	98M0D7W
		64QAM	3750.0 - 3930.0	97.9589	0.280	24.48	98M0D7W
		256QAM	3750.0 - 3930.0	98.1624	0.176	22.46	98M2D7W
	90 MHz	π/2 BPSK	3745.0 - 3935.0	86.0410	0.495	26.95	86M0G7W
		QPSK	3745.0 - 3935.0	87.9228	0.499	26.98	87M9G7W
		16QAM	3745.0 - 3935.0	88.0183	0.389	25.90	88M0D7W
		64QAM	3745.0 - 3935.0	88.0493	0.283	24.52	88M0D7W
		256QAM	3745.0 - 3935.0	87.8378	0.172	22.36	87M8D7W
	80 MHz	π/2 BPSK	3740.0 - 3940.0	77.5290	0.498	26.97	77M5G7W
		QPSK	3740.0 - 3940.0	77.8898	0.509	27.07	77M9G7W
		16QAM	3740.0 - 3940.0	77.9693	0.404	26.07	78M0D7W
		64QAM	3740.0 - 3940.0	78.2644	0.271	24.33	78M3D7W
		256QAM	3740.0 - 3940.0	77.6152	0.171	22.33	77M6D7W
	60 MHz	π/2 BPSK	3730.0 - 3950.0	58.2210	0.513	27.10	58M2G7W
		QPSK	3730.0 - 3950.0	58.1542	0.495	26.94	58M2G7W
		16QAM	3730.0 - 3950.0	58.3769	0.376	25.76	58M4D7W
		64QAM	3730.0 - 3950.0	58.2977	0.267	24.27	58M3D7W
		256QAM	3730.0 - 3950.0	58.1900	0.169	22.28	58M2D7W
	50 MHz	π/2 BPSK	3725.0 - 3955.0	45.9860	0.507	27.05	46M0G7W
		QPSK	3725.0 - 3955.0	47.8724	0.500	26.99	47M9G7W
		16QAM	3725.0 - 3955.0	47.9847	0.383	25.83	48M0D7W
		64QAM	3725.0 - 3955.0	47.8859	0.259	24.13	47M9D7W
		256QAM	3725.0 - 3955.0	47.7363	0.165	22.16	47M7D7W
	40 MHz	π/2 BPSK	3720.0 - 3960.0	35.9720	0.482	26.83	36M0G7W
		QPSK	3720.0 - 3960.0	38.1523	0.481	26.82	38M2G7W
		16QAM	3720.0 - 3960.0	38.0732	0.375	25.74	38M1D7W
		64QAM	3720.0 - 3960.0	38.2371	0.259	24.13	38M2D7W
		256QAM	3720.0 - 3960.0	37.9988	0.169	22.27	38M0D7W
	20 MHz	π/2 BPSK	3710.0 - 3970.0	17.9950	0.479	26.80	18M0G7W
		QPSK	3710.0 - 3970.0	18.4324	0.466	26.68	18M4G7W
		16QAM	3710.0 - 3970.0	18.3980	0.376	25.76	18M4D7W
		64QAM	3710.0 - 3970.0	18.4433	0.267	24.27	18M4D7W
		256QAM	3710.0 - 3970.0	18.3291	0.169	22.28	18M3D7W

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 PCTEST Test Location

These measurement tests were conducted at the PCTEST. 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

- PCTEST 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.

- PCTEST 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).

- PCTEST 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:BCGA2379**. 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.: H4MTX492NT, NN63X069PP

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, 5G NR (FR1/FR2), 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII, Bluetooth (1x, EDR, LE1M, LE2M, HDR4, HDR8), WPT

This device supports BT Beamforming

LTE Band 41 and FR1 Band n41 support NS04 for Antenna 3, Antenna 1, Antenna 4b, and Antenna 2b.

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

Table 2-1. Simultaneous Transmission Configurations

✓ = Support; × = Not Support

2.3 Antenna Description

Following antenna gains provided by manufacturer were used for the testing.

Frequency [MHz]	Antenna Gain (dBi)					
	Antenna 3	Antenna 1	Antenna 4b	Antenna 4a	Antenna 2b	Antenna 2a
LTE Band 30	-2.6	-0.4	-0.5	N/A	-0.9	N/A
LTE Band 7	-1.7	-2.3	-2.0	N/A	-1.9	N/A
LTE Band 41	0.9	1.3	-1.9	N/A	-1.6	N/A
NR Band n41	1.3	0.9	-1.6		-1.9	
NR Band n77	-1.3	1.3	N/A	1.4	N/A	0.4

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:	Chimp	S/N:	420A57
3	USB-C Cable	Model:	A146	S/N:	N/A
	w/ AC Adapter	Model:	A2305	S/N:	N/A
4	Apple Pencil	Model:	N/A	S/N:	GQXYGSXBJKM9
5	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	LTE (Band 41)	UNII (11ax)
Antenna	Antenna 4b	Antenna 4b
Channel	41490	36
Operating Frequency (MHz)	2680	5180
Mode/Modulation	QPSK/1RB/20MHz	11ax/RU26/Index 0

Table 2-4. Worst Case Simultaneous Transmission Configuration

2.6 Software and Firmware

The test was conducted with firmware version 18E20700y 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.

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 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	1.65
Radiated Disturbance (<30MHz)	4.06
Radiated Disturbance (30MHz-1GHz)	4.30
Radiated Disturbance (1-18GHz)	4.78
Radiated Disturbance (>18GHz)	4.79

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	PXA Signal Analyzer (3Hz - 26.5 GHz)	7/24/2020	Annual	7/24/2021	MY55330128
Keysight Technology	N9040B	UXA Signal Analyzer	12/19/2020	Annual	12/19/2021	MY57212015
Keysight Technology	E7515B	UXM 5G Wireless Test Platform	11/14/2020	Annual	11/14/2021	MY60192562
ATM	180-442A-KF	20dB Nominal Gain Horn Antenna	8/11/2020	Annual	8/11/2021	T058701-01
ESPEC	SU-241	Tabletop Temperature Chamber	9/28/2020	Annual	9/28/2021	92009574
ETS-Lindgren	3142E	BiConiLog Antenna (30MHz - 6GHz)	9/15/2020	Annual	9/15/2021	208204
ETS-Lindgren	3117	Double Ridged Guide Antenna (1-18 GHz)	4/21/2020	Annual	4/21/2021	205956
Rohde & Schwarz	TS-PR8	Pre-Amplifier (30MHz - 8GHz)	7/15/2020	Annual	7/15/2021	102356
Rohde & Schwarz	TS-PR18	Pre-Amplifier (1GHz - 18GHz)	12/3/2020	Annual	12/3/2021	101648
Rohde & Schwarz	ESW26	EMI Test Receiver	6/8/2020	Annual	6/8/2021	101299
Rohde & Schwarz	ESW44	EMI Test Receiver	8/6/2020	Annual	8/6/2021	101668
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	10/13/2020	Annual	10/13/2021	161616
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	4/16/2020	Annual	4/16/2021	166869
Rohde & Schwarz	TS-PR1840	Pre-Amplifier (18GHz - 40GHz)	4/23/2020	Annual	4/23/2021	100052
Rohde & Schwarz	TC-TA18	Cross Polarized Vivaldi Antenna (400MHz-18GHz)	10/2/2020	Annual	10/2/2021	101063
Rohde & Schwarz	HFH2-Z2	Loop Antenna	3/12/2020	Annual	3/12/2021	100546

Table 5-1. Test Equipment List

Notes:

1. For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.

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
W = 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: BCGA2379

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
	Conducted Band Edge / Spurious Emissions (NR Band n77)			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
	Effective Radiated Power / Equivalent Isotropic Radiated Power (NR Band n77)			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 are PCTEST 2G/3G Automation Version 4.5 and LTE Automation Version 5.3.

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.

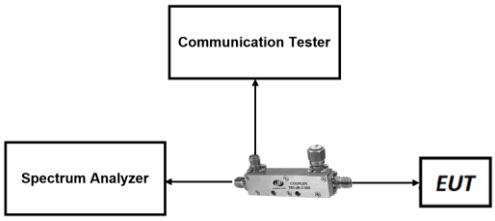
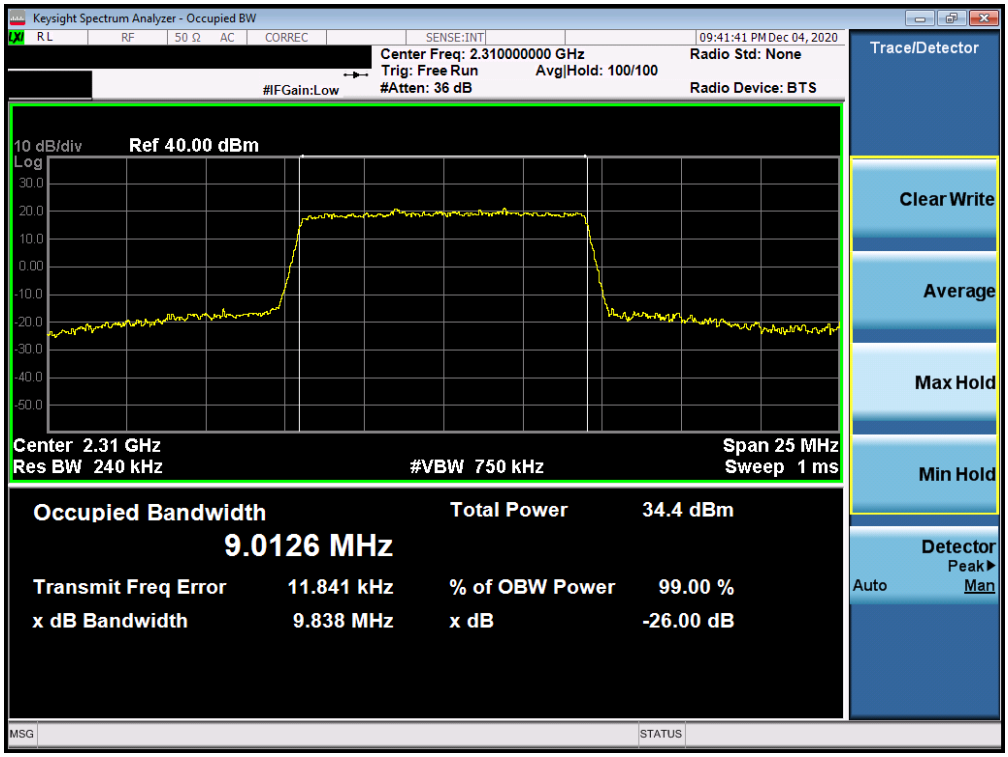


Figure 7-1. Test Instrument & Measurement Setup

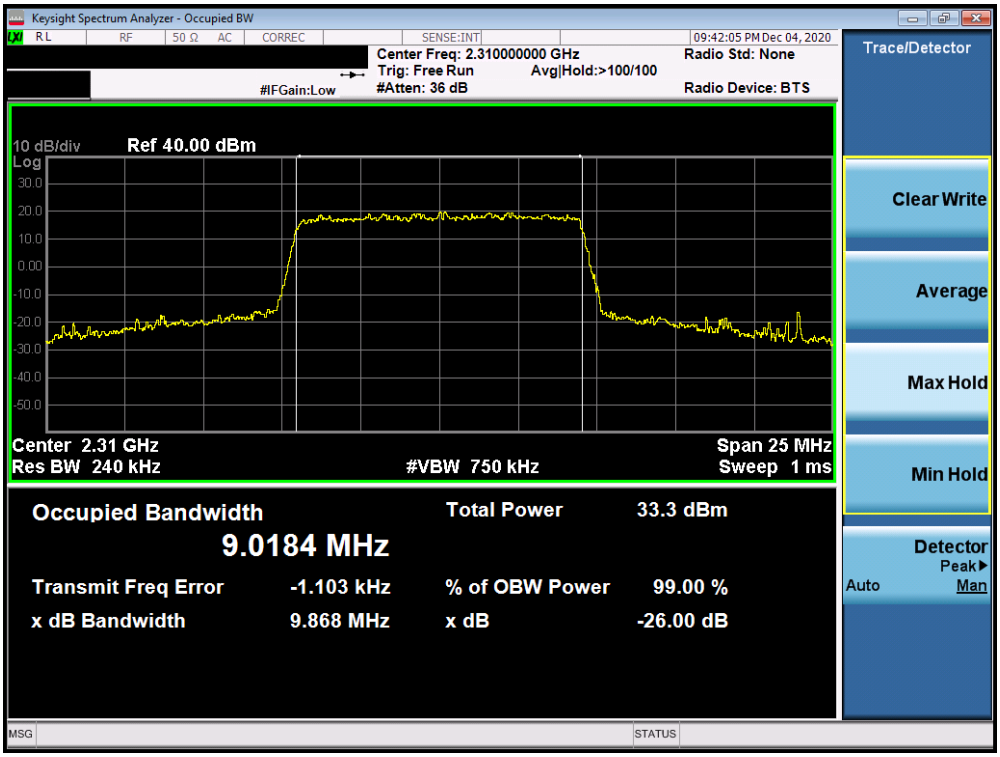
Test Notes

1. Uplink carrier aggregation for LTE Band 7 is only supported in this EUT while operating in Power Class 3.
2. Uplink carrier aggregation for LTE Band 41 is supported in this EUT while operating in Power Class 2 and Power Class 3.

Band 30

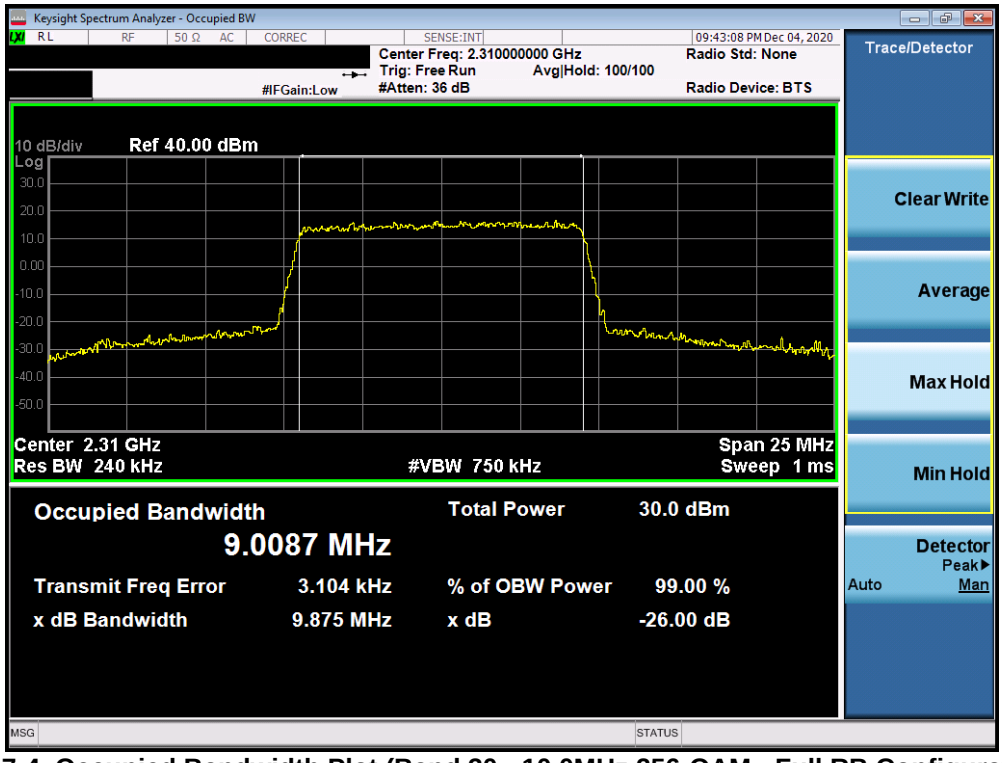


Plot 7-1. Occupied Bandwidth Plot (Band 30 - 10.0MHz QPSK - Full RB Configuration)

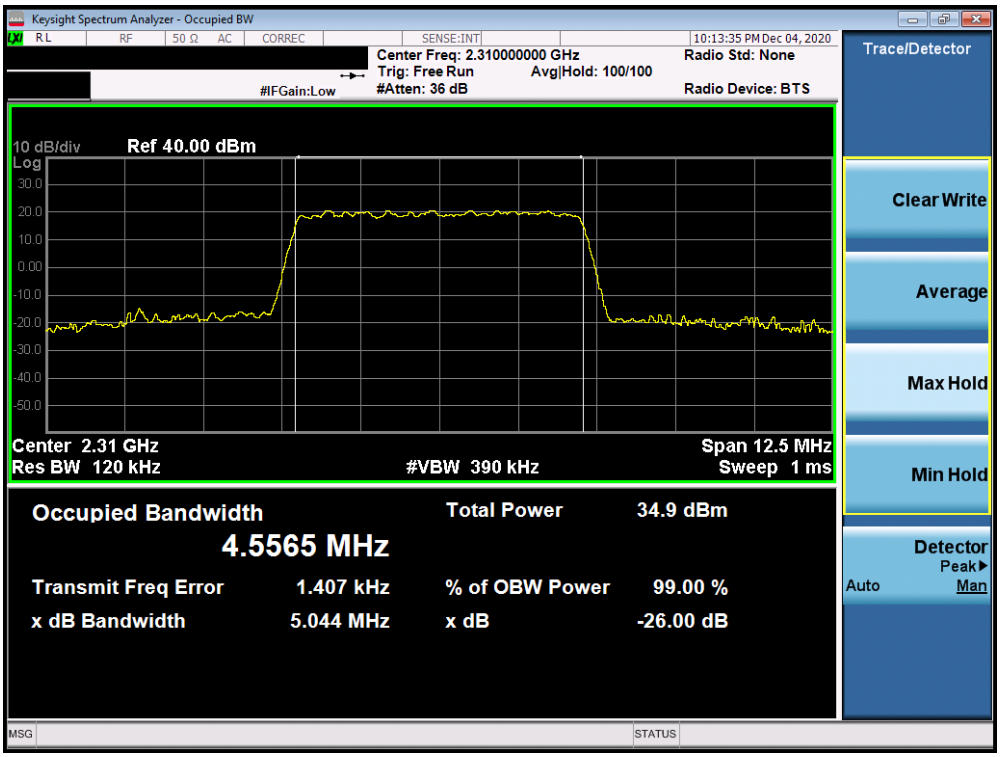


Plot 7-2. Occupied Bandwidth Plot (Band 30 - 10.0MHz 16-QAM - Full RB Configuration)

Plot 7-3. Occupied Bandwidth Plot (Band 30 - 10.0MHz 64-QAM - Full RB Configuration)

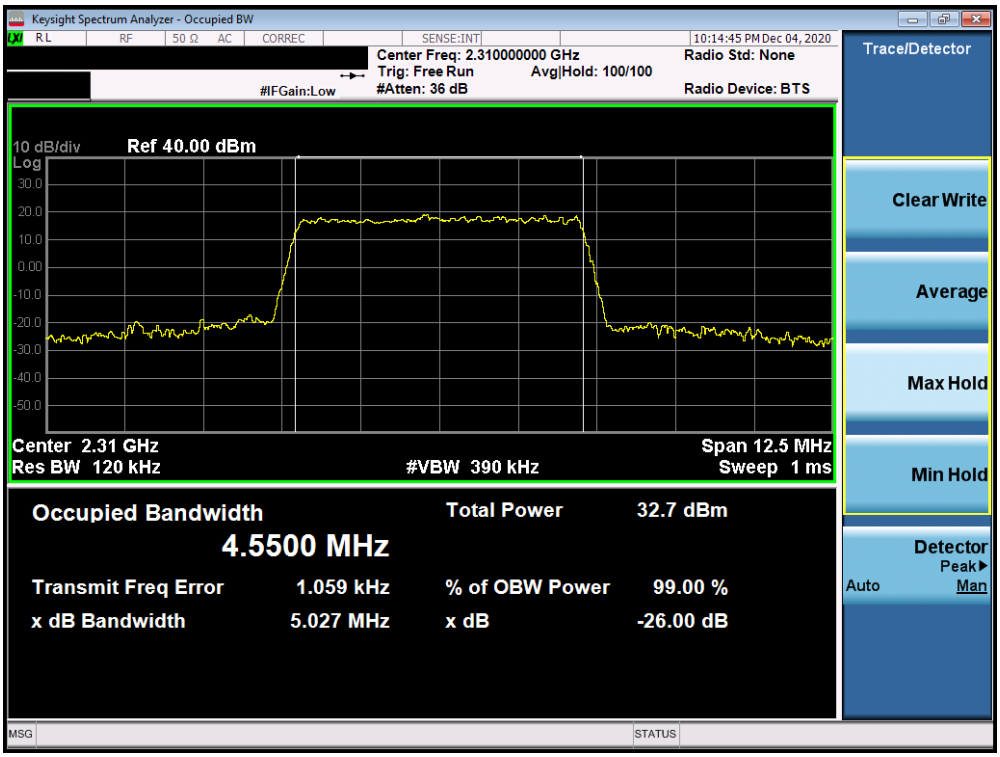


Plot 7-4. Occupied Bandwidth Plot (Band 30 - 10.0MHz 256-QAM - Full RB Configuration)

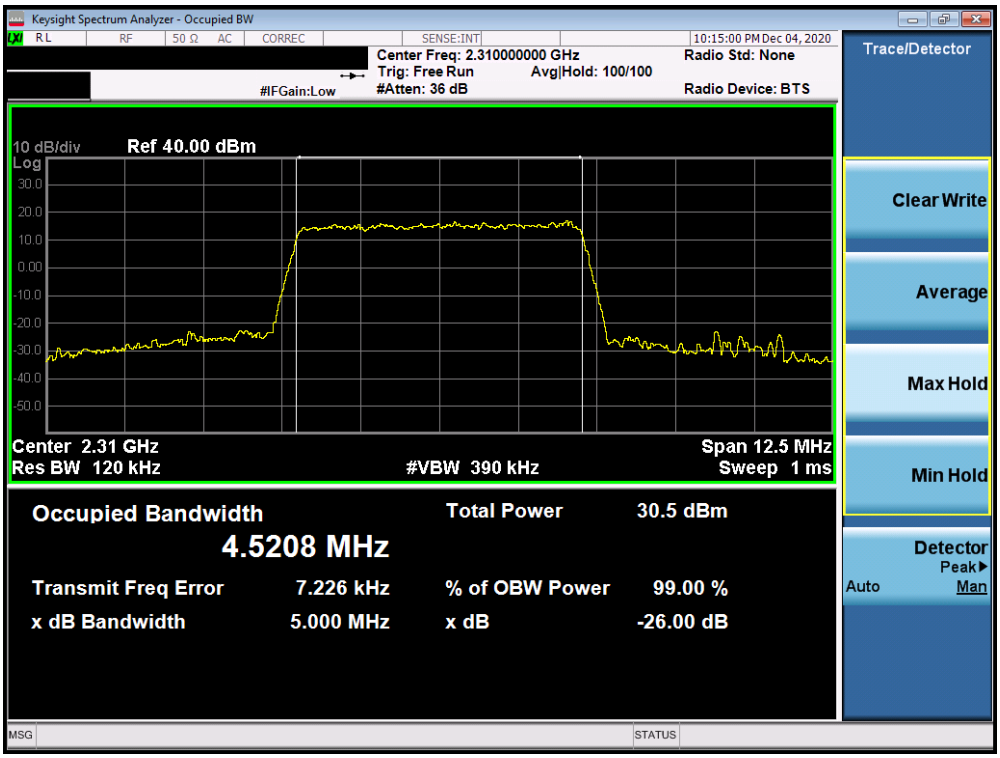


Plot 7-5. Occupied Bandwidth Plot (Band 30 - 5.0MHz QPSK - Full RB Configuration)

Plot 7-6. Occupied Bandwidth Plot (Band 30 - 5.0MHz 16-QAM - Full RB Configuration)

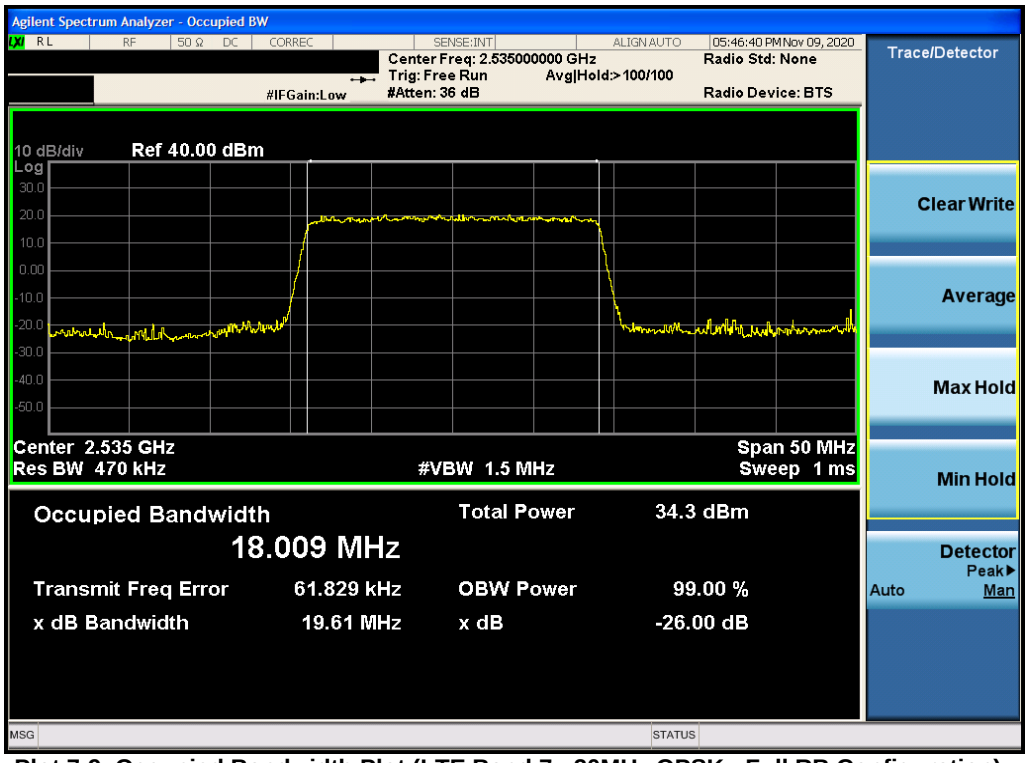


Plot 7-7. Occupied Bandwidth Plot (Band 30 - 5.0MHz 64-QAM - Full RB Configuration)

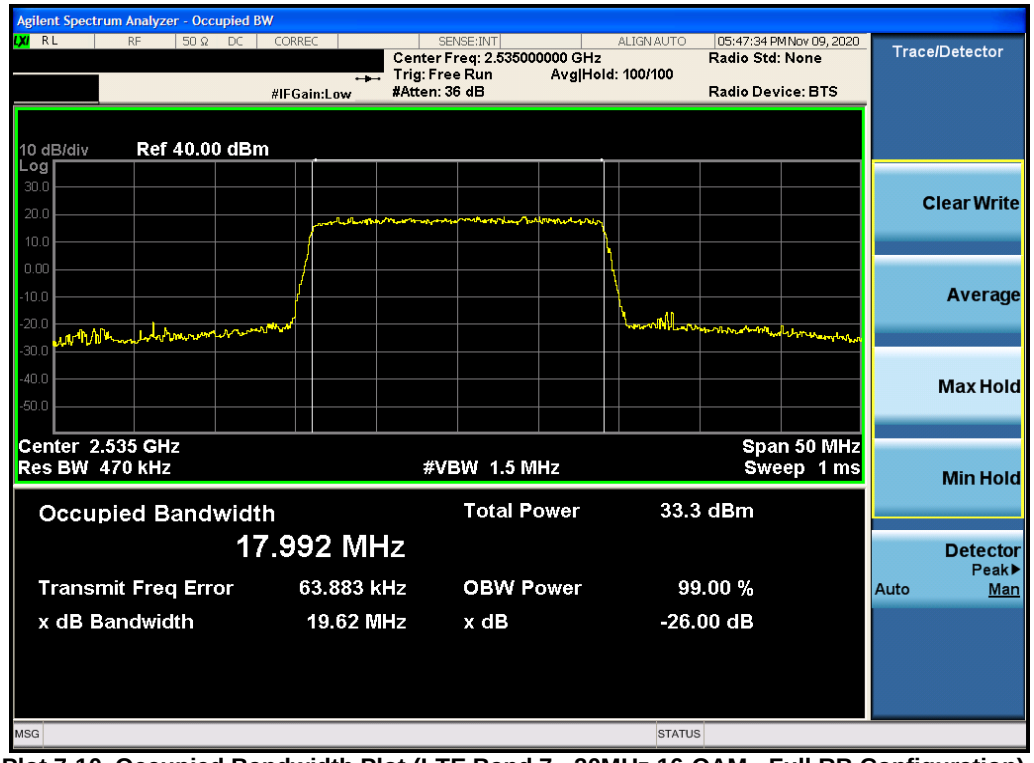


Plot 7-8. Occupied Bandwidth Plot (Band 30 - 5.0MHz 256-QAM - Full RB Configuration)

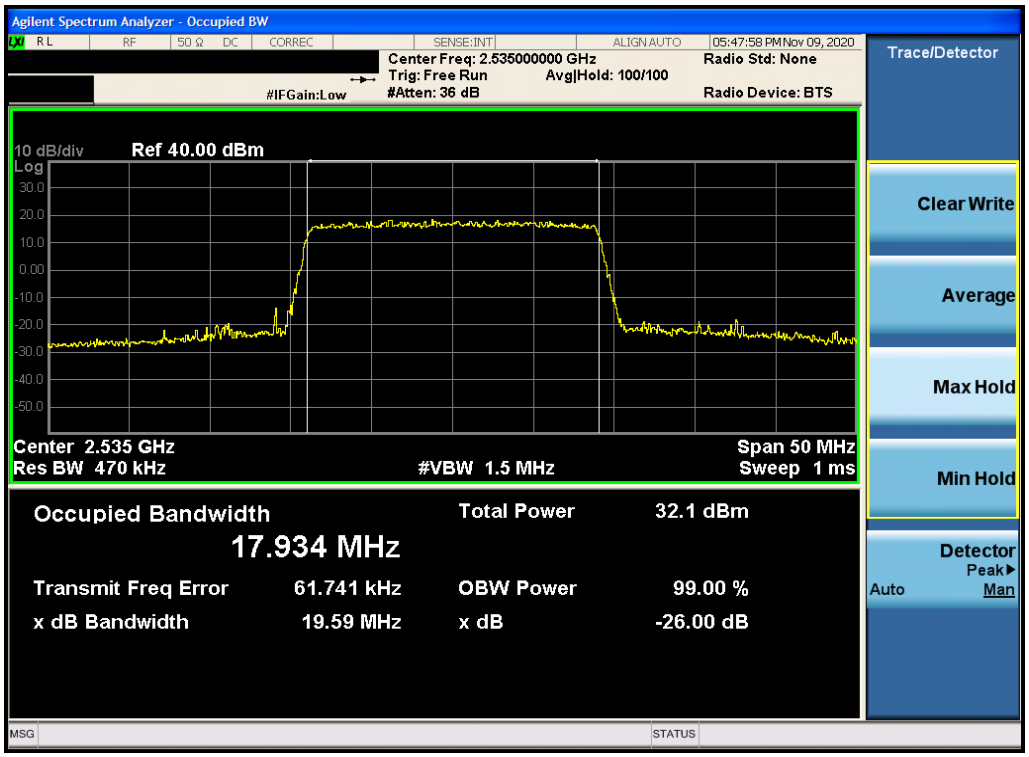
LTE Band 7



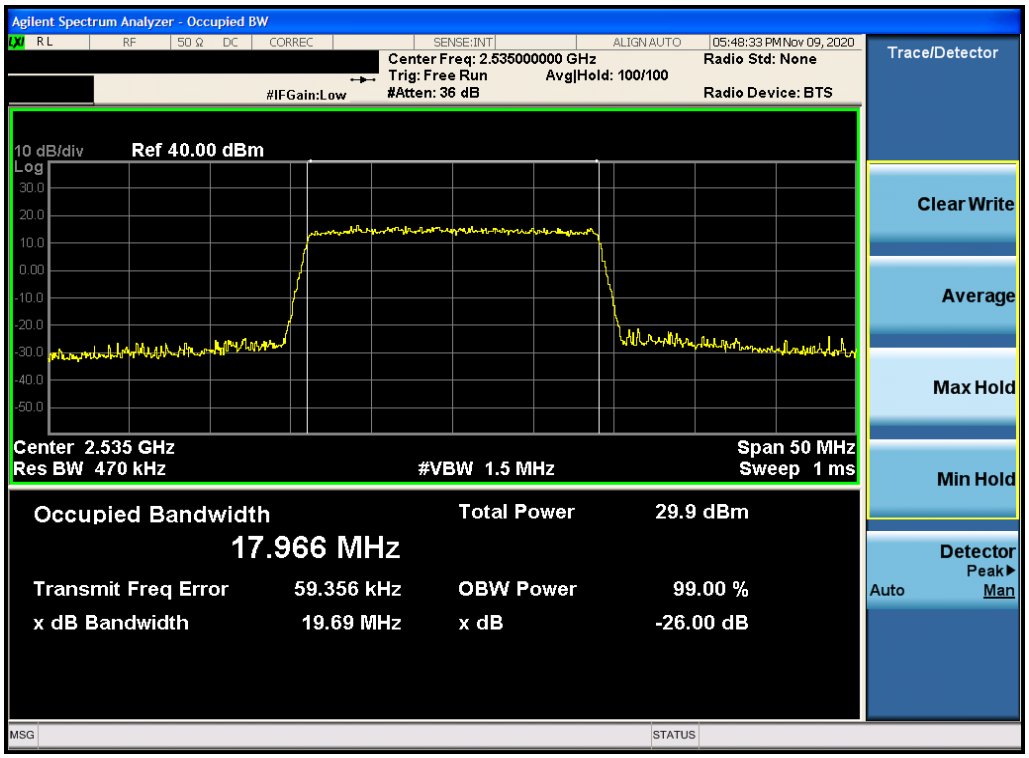
Plot 7-9. Occupied Bandwidth Plot (LTE Band 7 - 20MHz QPSK - Full RB Configuration)



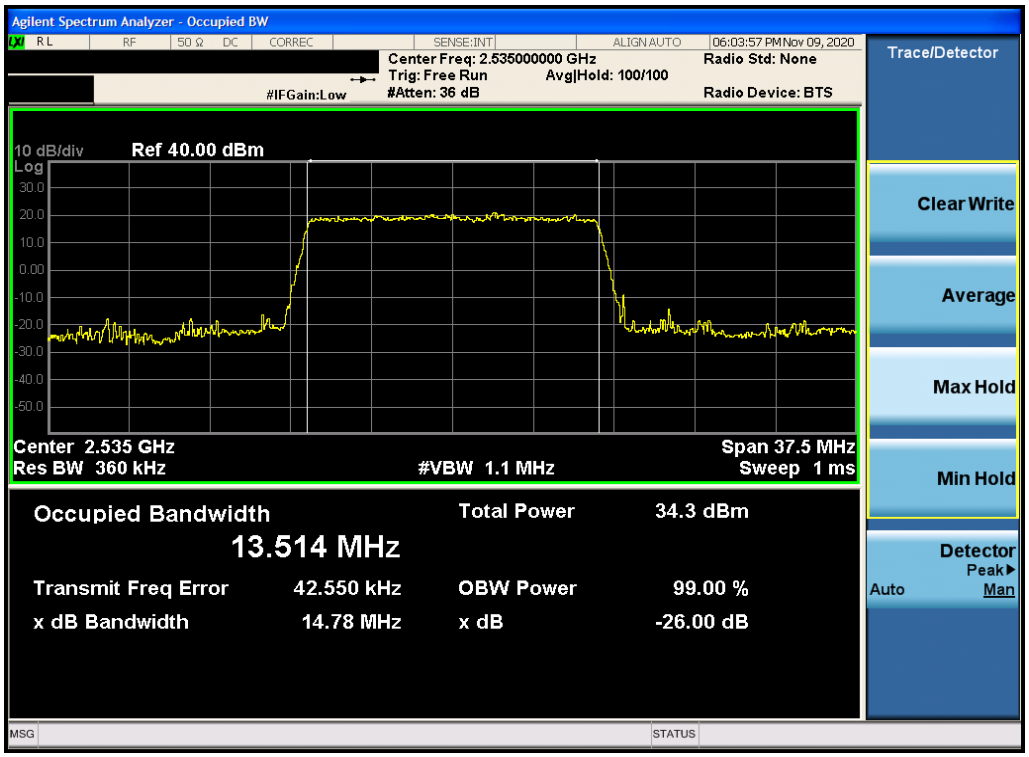
Plot 7-10. Occupied Bandwidth Plot (LTE Band 7 - 20MHz 16-QAM - Full RB Configuration)



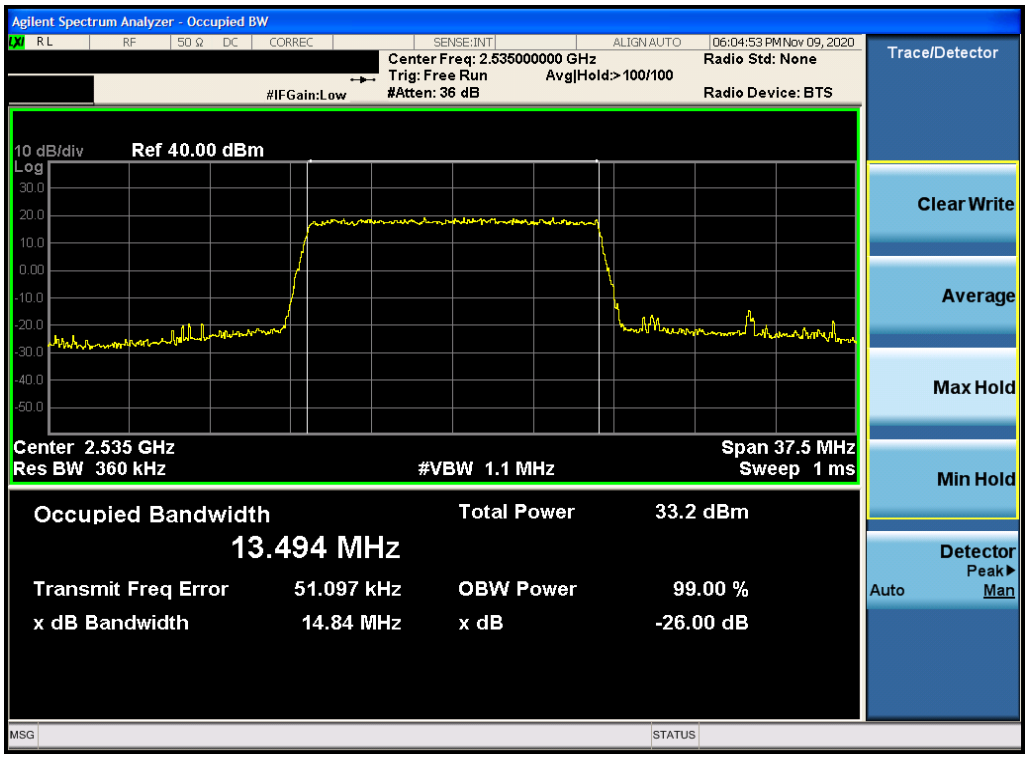
Plot 7-11. Occupied Bandwidth Plot (LTE Band 7 - 20MHz 64-QAM - Full RB Configuration)



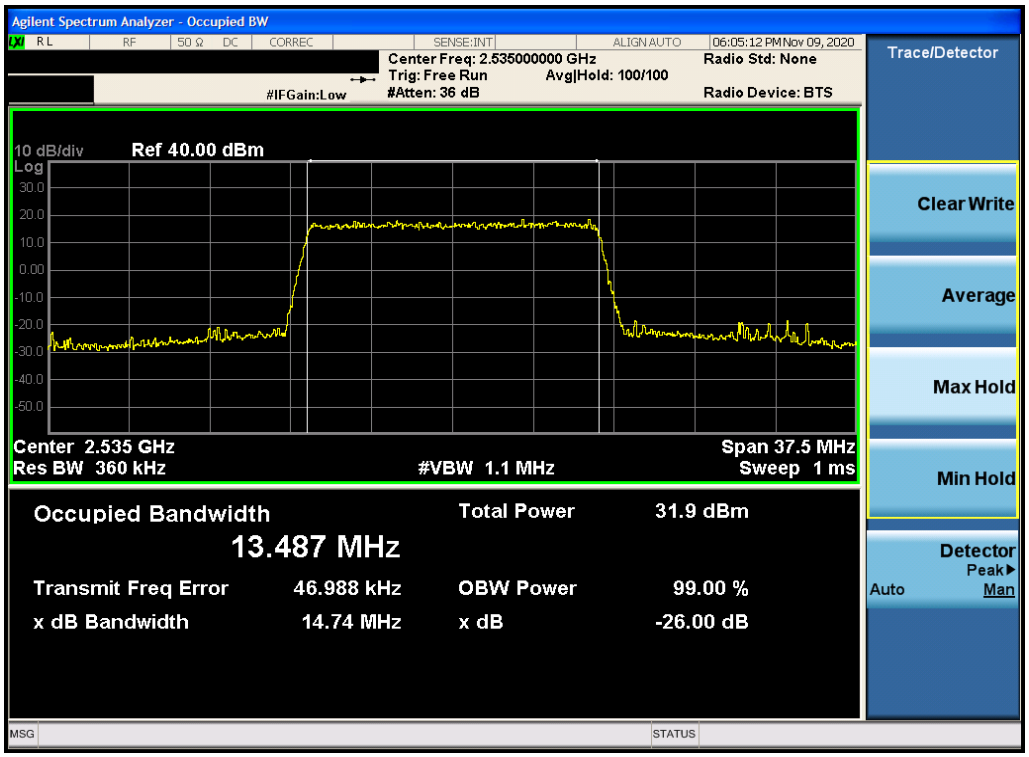
Plot 7-12. Occupied Bandwidth Plot (LTE Band 7 - 20MHz 256-QAM - Full RB Configuration)



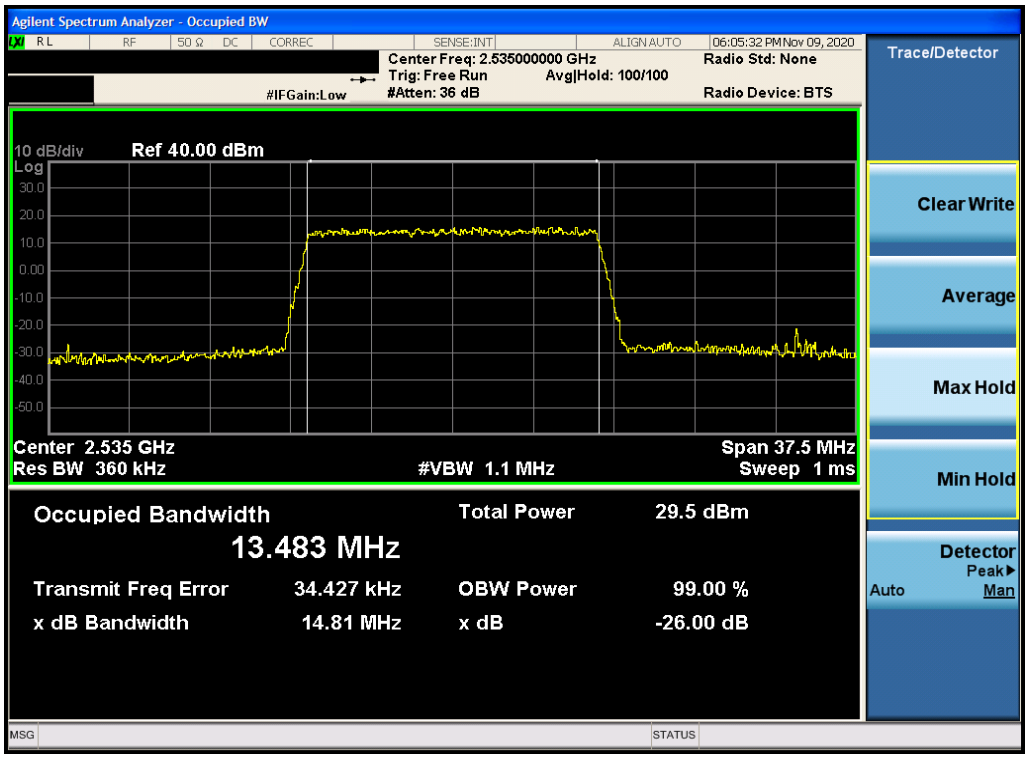
Plot 7-13. Occupied Bandwidth Plot (LTE Band 7 - 15MHz QPSK - Full RB Configuration)



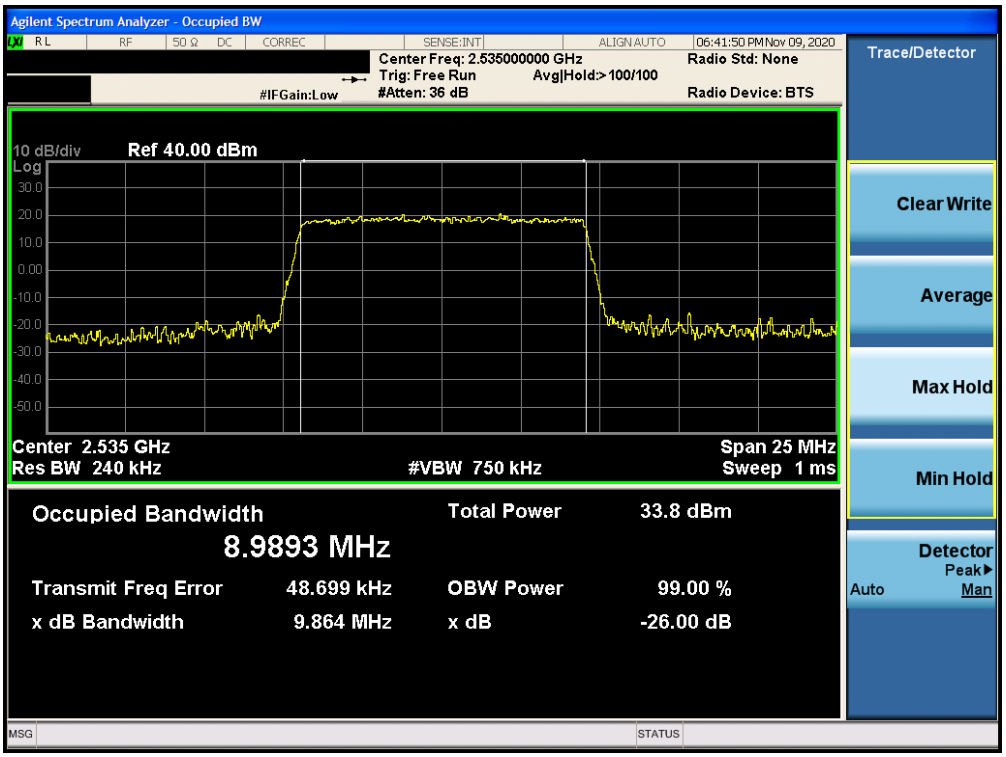
Plot 7-14. Occupied Bandwidth Plot (LTE Band 7 - 15MHz 16-QAM - Full RB Configuration)



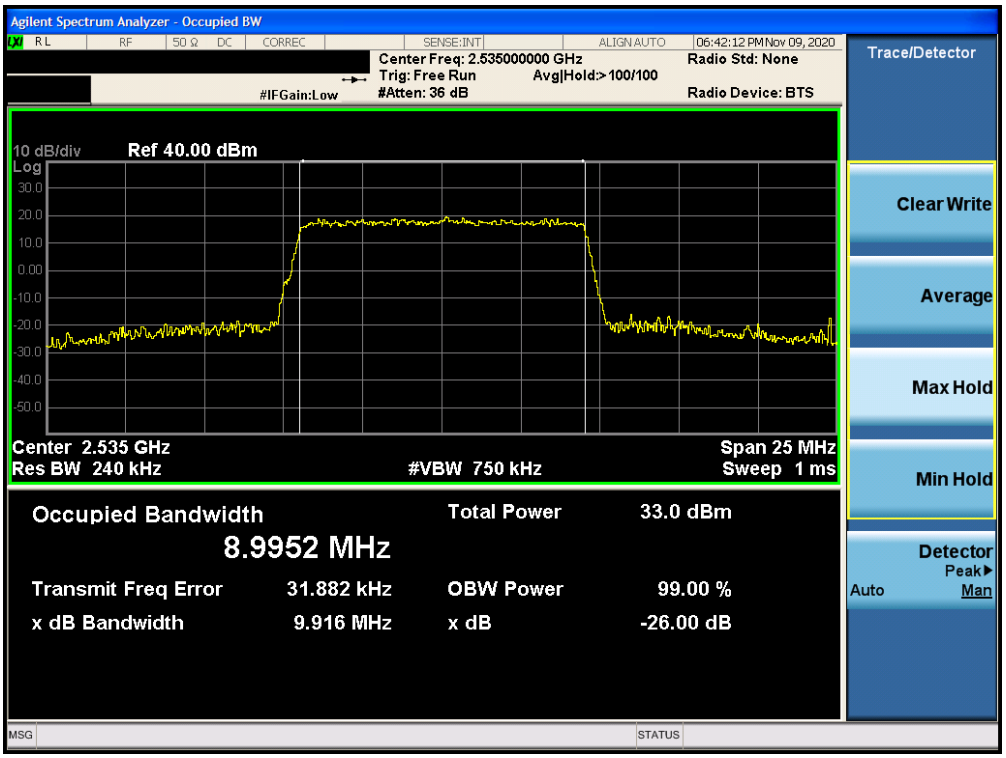
Plot 7-15. Occupied Bandwidth Plot (LTE Band 7 - 15MHz 64-QAM - Full RB Configuration)



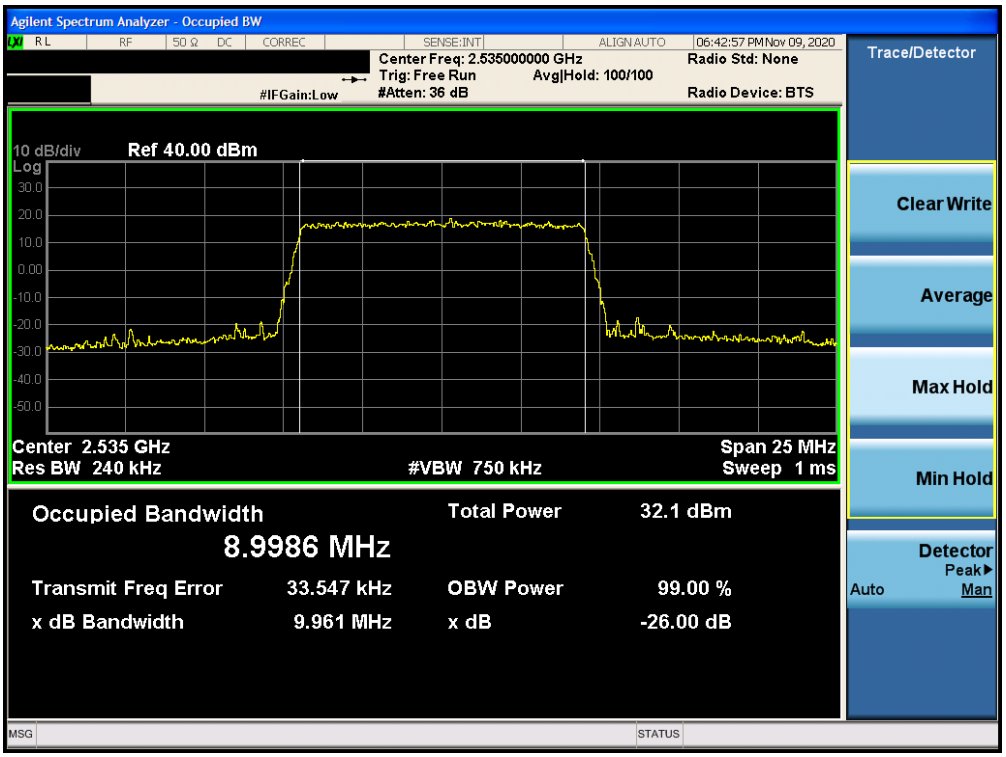
Plot 7-16. Occupied Bandwidth Plot (LTE Band 7 - 15MHz 256-QAM - Full RB Configuration)



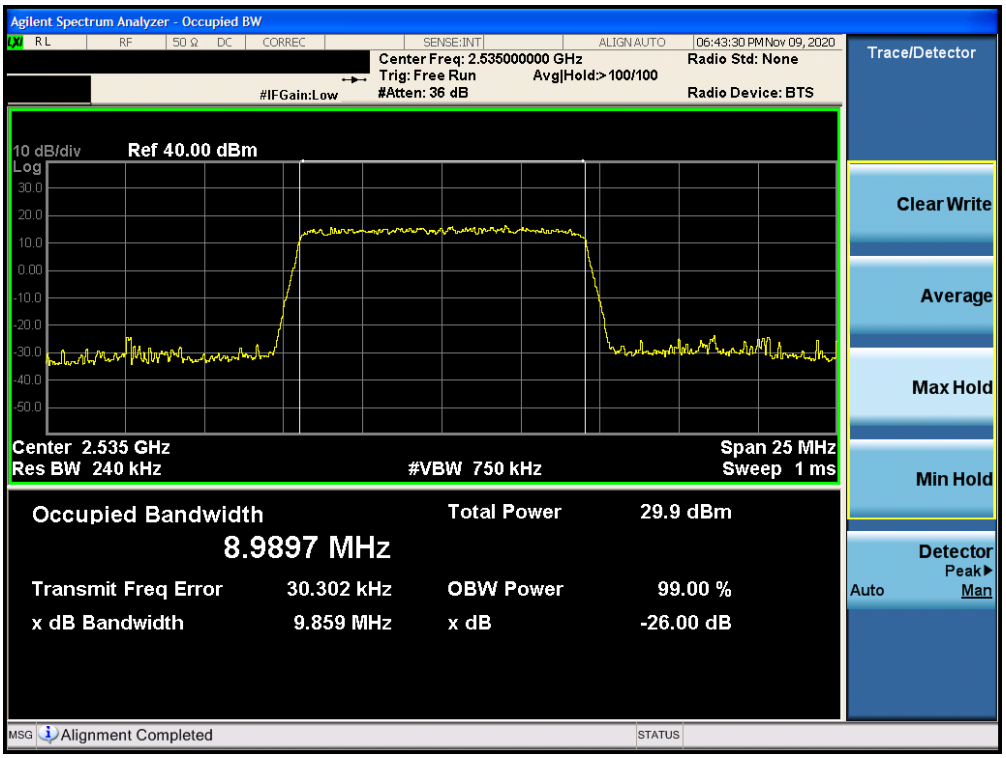
Plot 7-17. Occupied Bandwidth Plot (LTE Band 7 - 10MHz QPSK - Full RB Configuration)



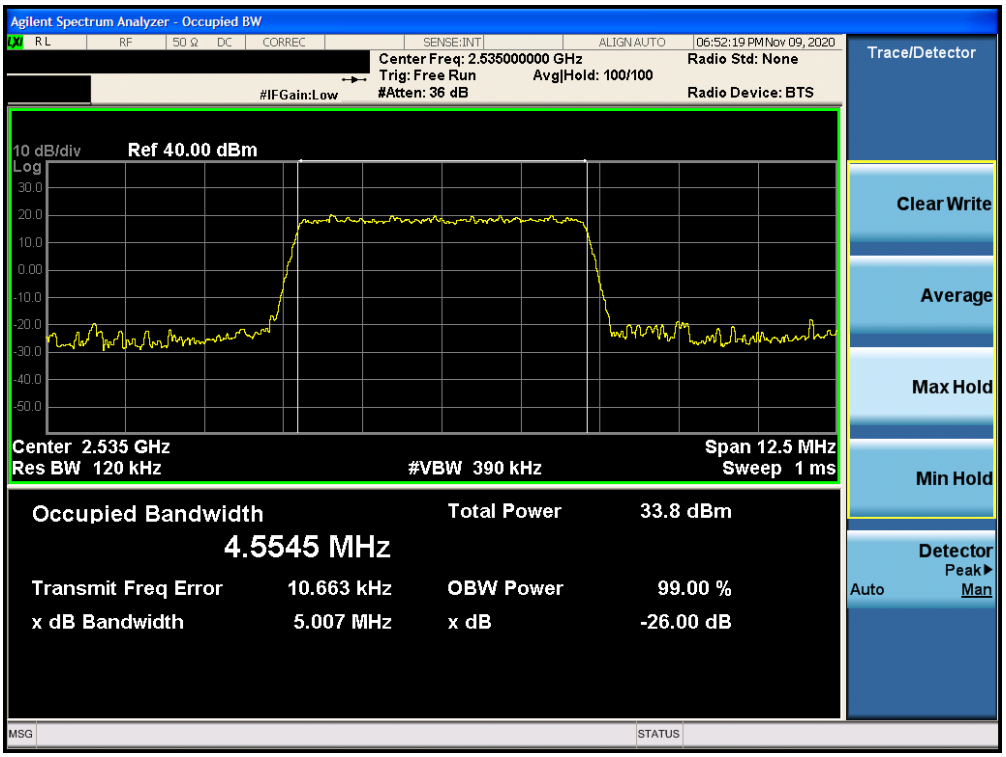
Plot 7-18. Occupied Bandwidth Plot (LTE Band 7 - 10MHz 16-QAM - Full RB Configuration)



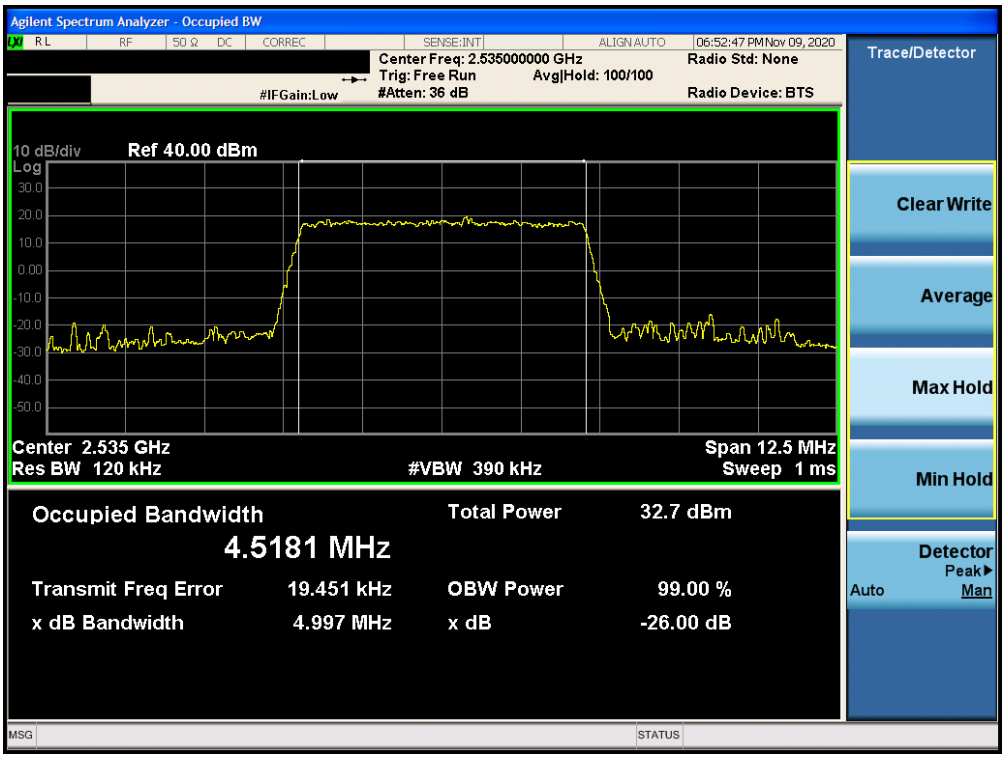
Plot 7-19. Occupied Bandwidth Plot (LTE Band 7 - 10MHz 64-QAM - Full RB Configuration)



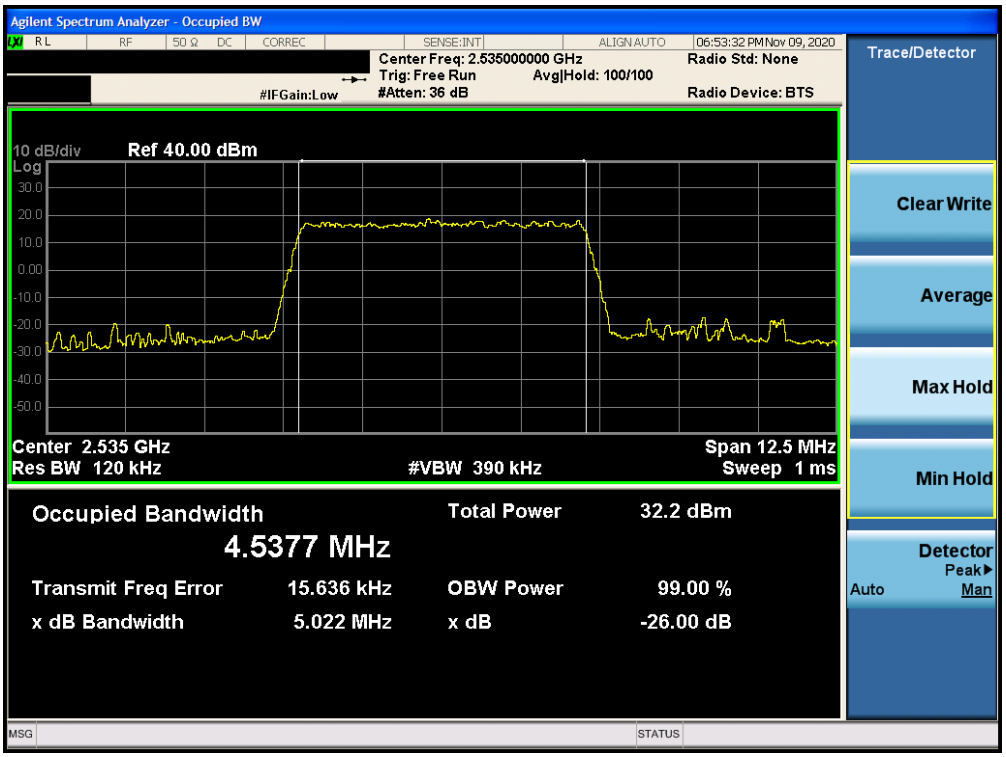
Plot 7-20. Occupied Bandwidth Plot (LTE Band 7 - 10MHz 256-QAM - Full RB Configuration)



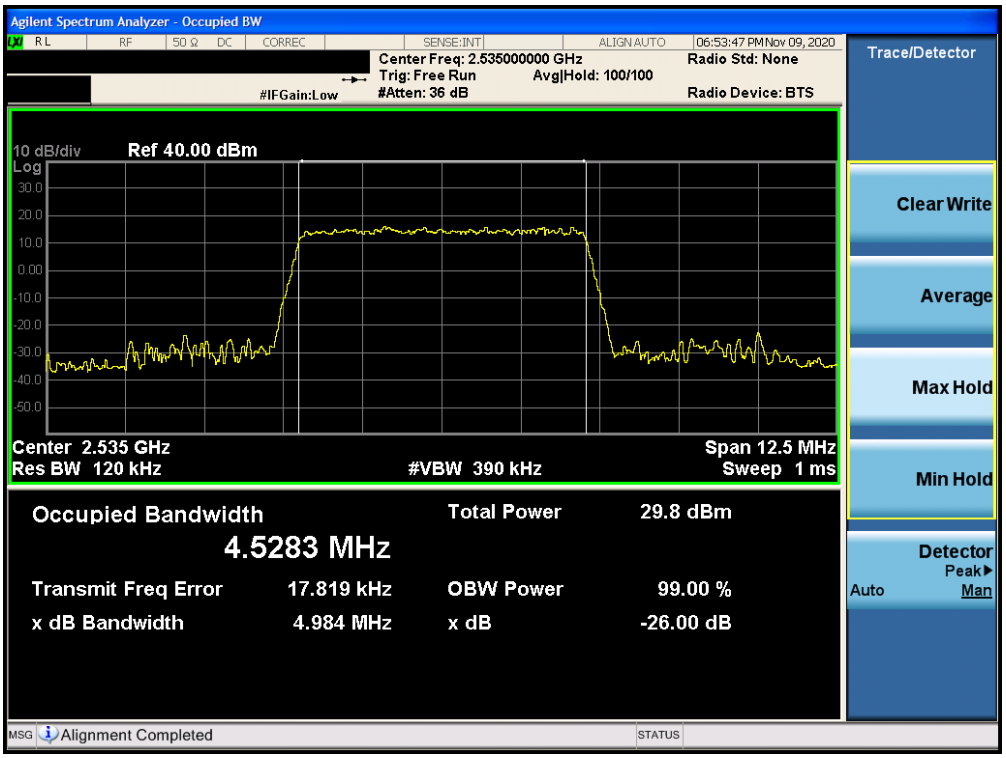
Plot 7-21. Occupied Bandwidth Plot (LTE Band 7 - 5MHz QPSK - Full RB Configuration)



Plot 7-22. Occupied Bandwidth Plot (LTE Band 7 - 5MHz 16-QAM - Full RB Configuration)

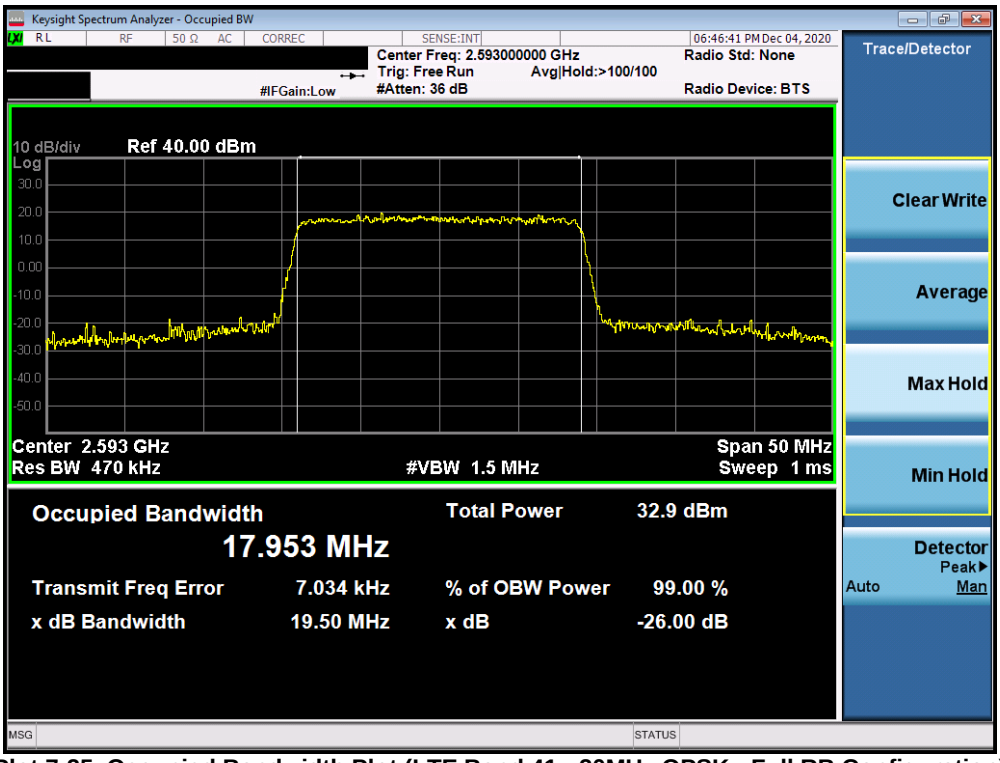


Plot 7-23. Occupied Bandwidth Plot (LTE Band 7 - 5MHz 64-QAM - Full RB Configuration)

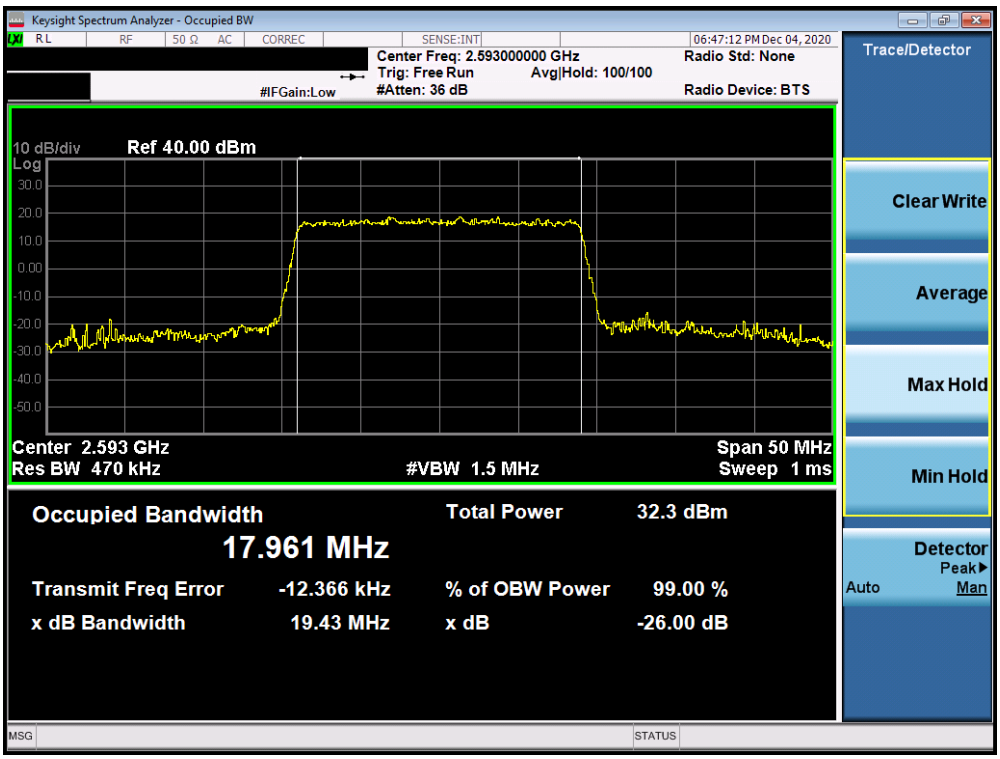


Plot 7-24. Occupied Bandwidth Plot (LTE Band 7 - 5MHz 256-QAM - Full RB Configuration)

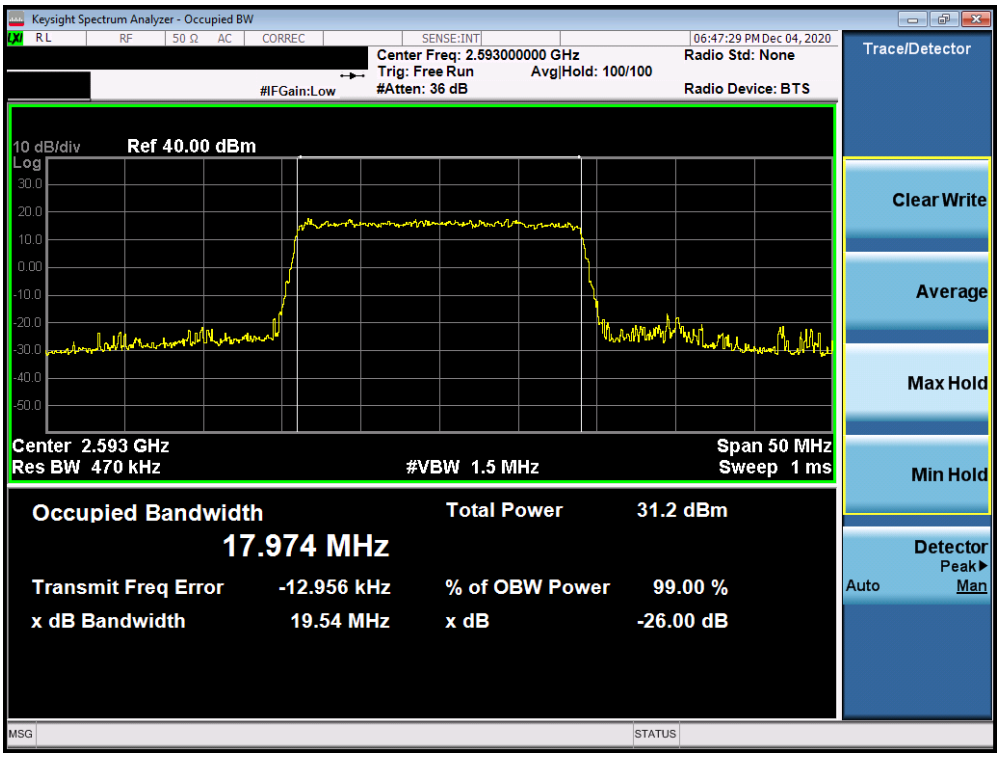
LTE Band 41



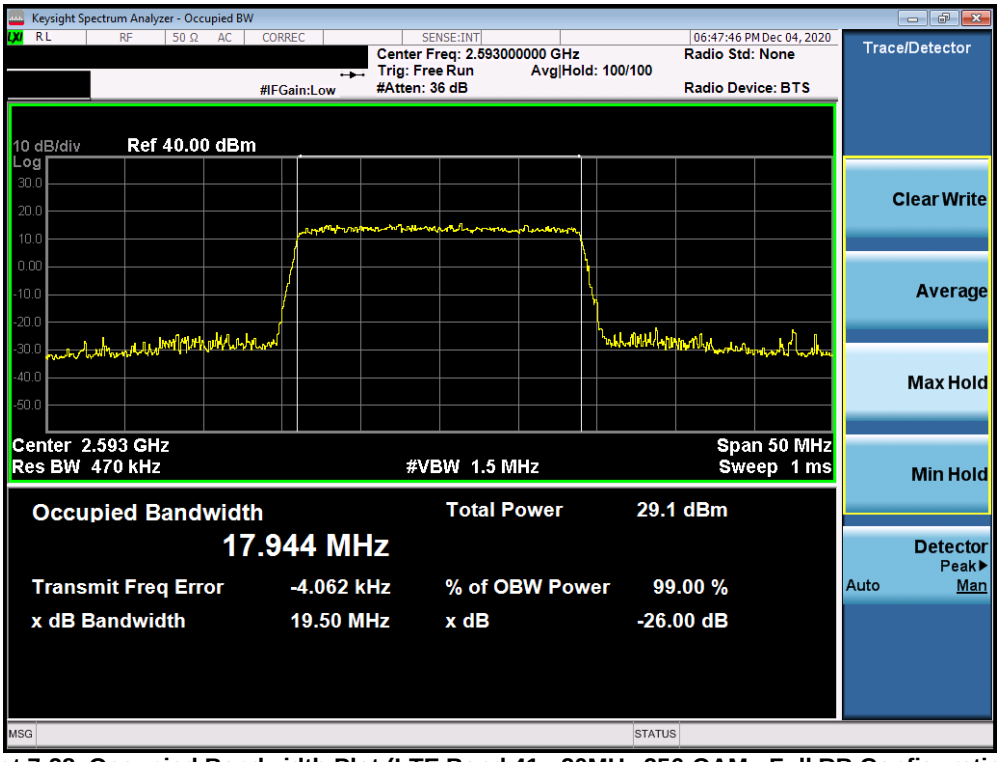
Plot 7-25. Occupied Bandwidth Plot (LTE Band 41 - 20MHz QPSK - Full RB Configuration)



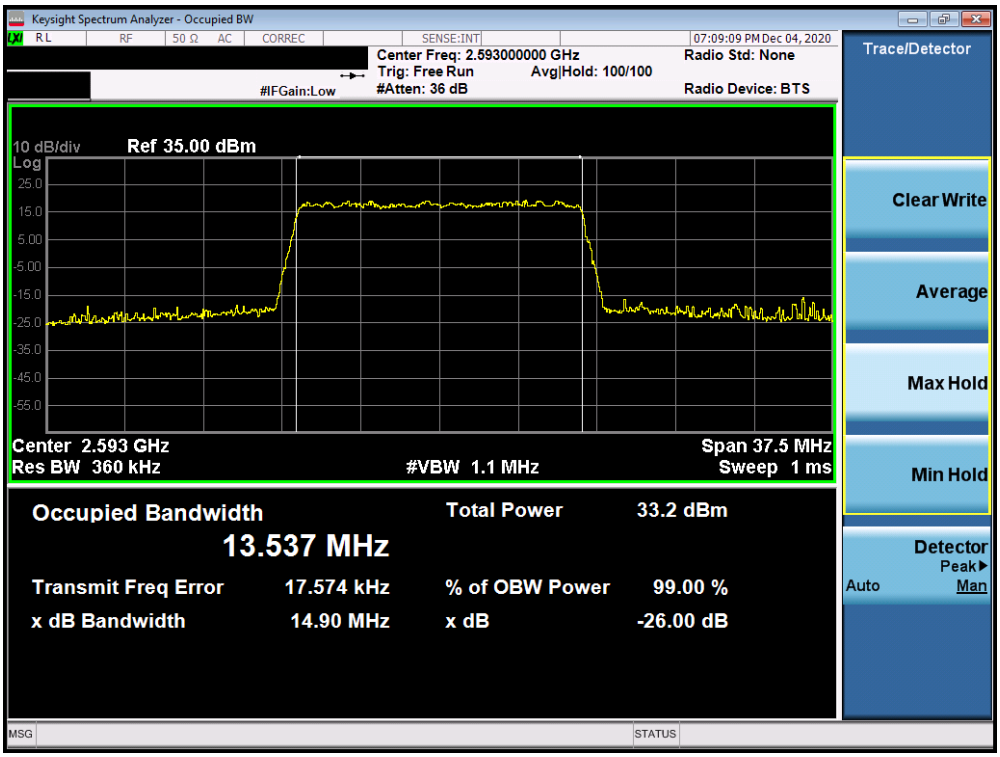
Plot 7-26. Occupied Bandwidth Plot (LTE Band 41 - 20MHz 16-QAM - Full RB Configuration)



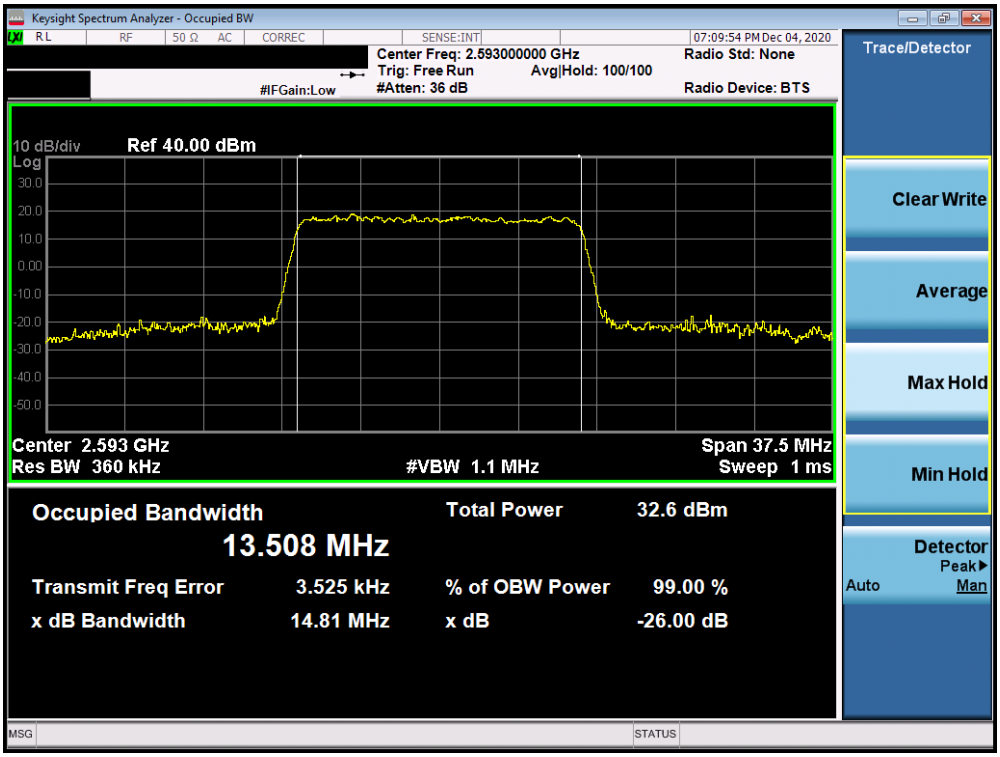
Plot 7-27. Occupied Bandwidth Plot (LTE Band 41 - 20MHz 64-QAM - Full RB Configuration)



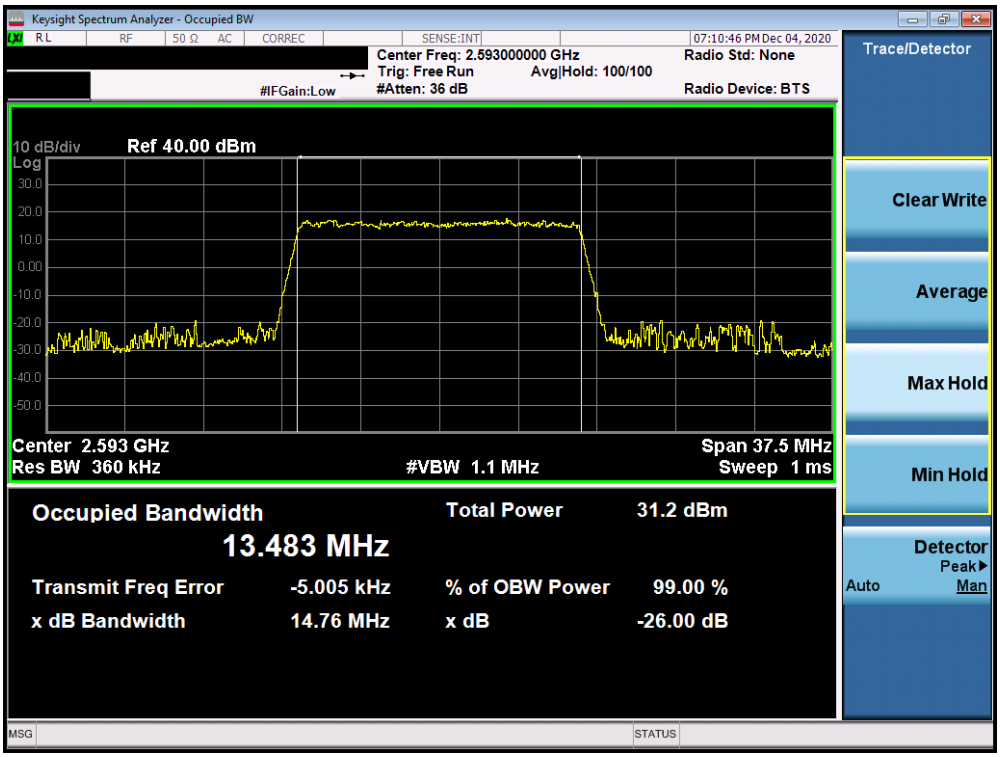
Plot 7-28. Occupied Bandwidth Plot (LTE Band 41 - 20MHz 256-QAM - Full RB Configuration)



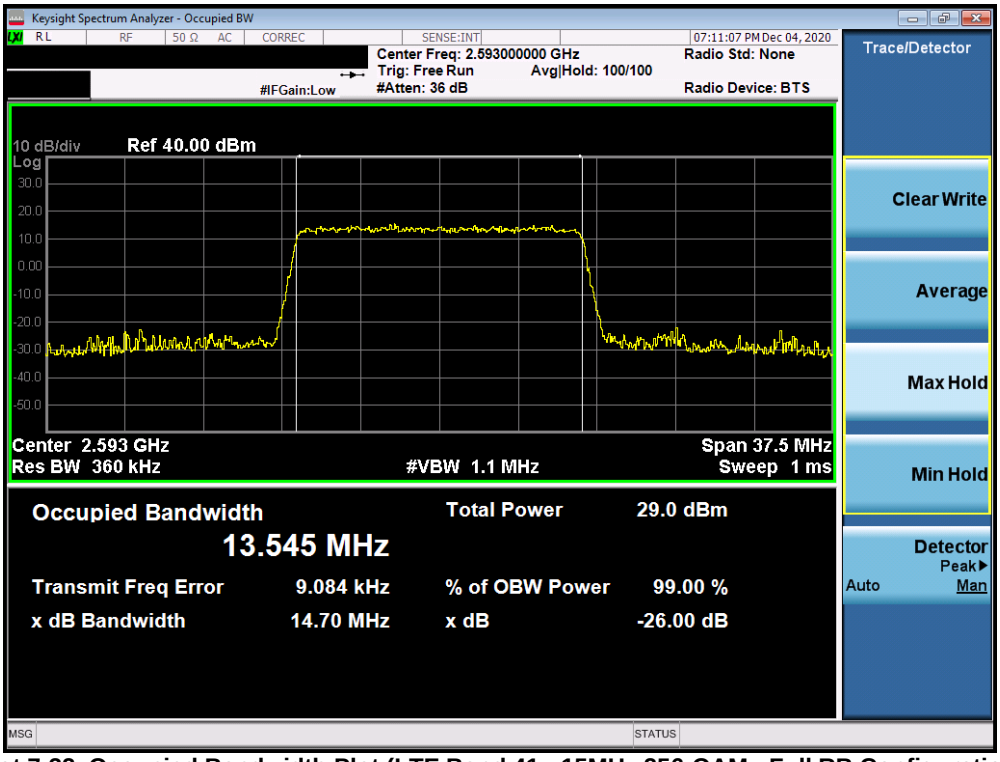
Plot 7-29. Occupied Bandwidth Plot (LTE Band 41 - 15MHz QPSK - Full RB Configuration)



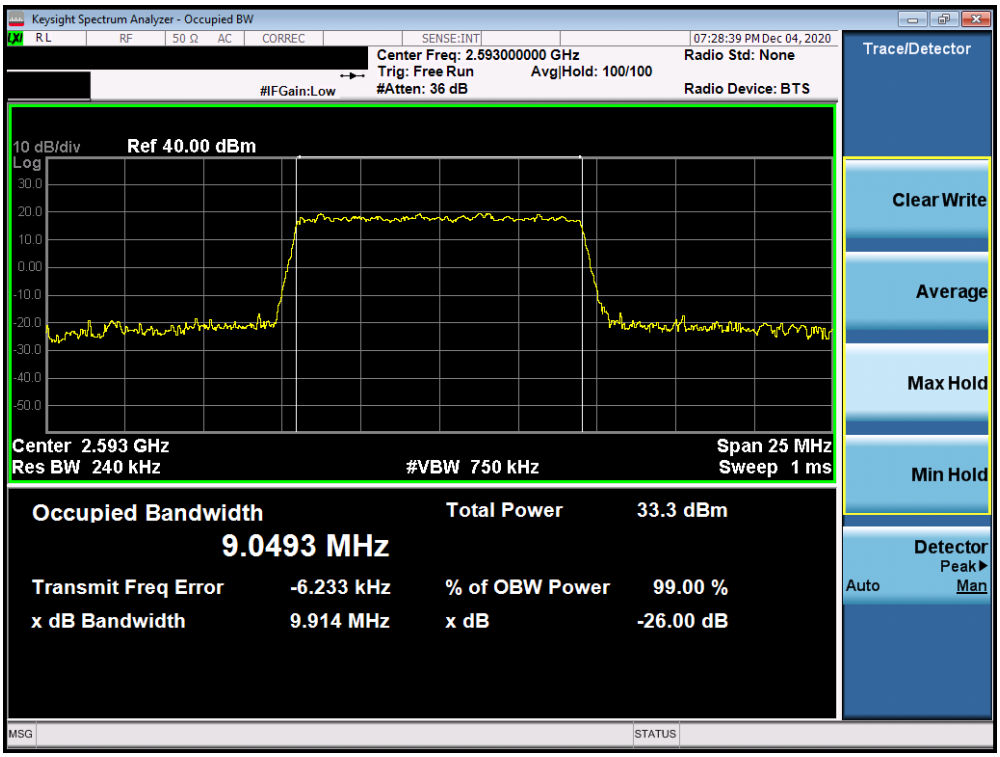
Plot 7-30. Occupied Bandwidth Plot (LTE Band 41 - 15MHz 16-QAM - Full RB Configuration)



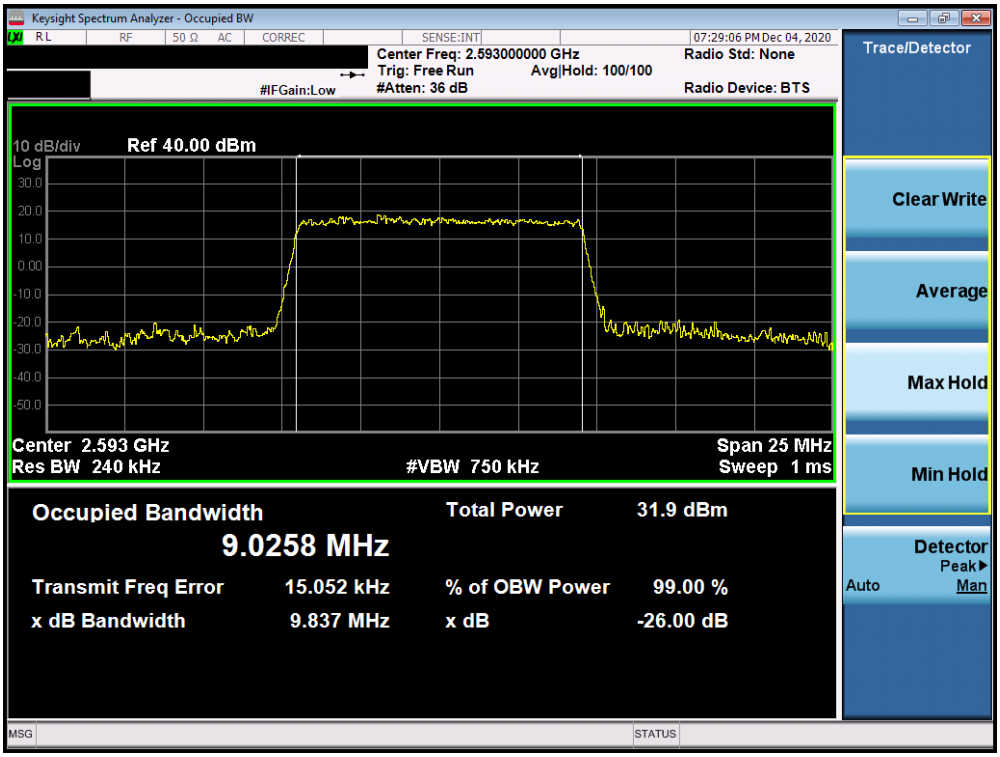
Plot 7-31. Occupied Bandwidth Plot (LTE Band 41 - 15MHz 64-QAM - Full RB Configuration)



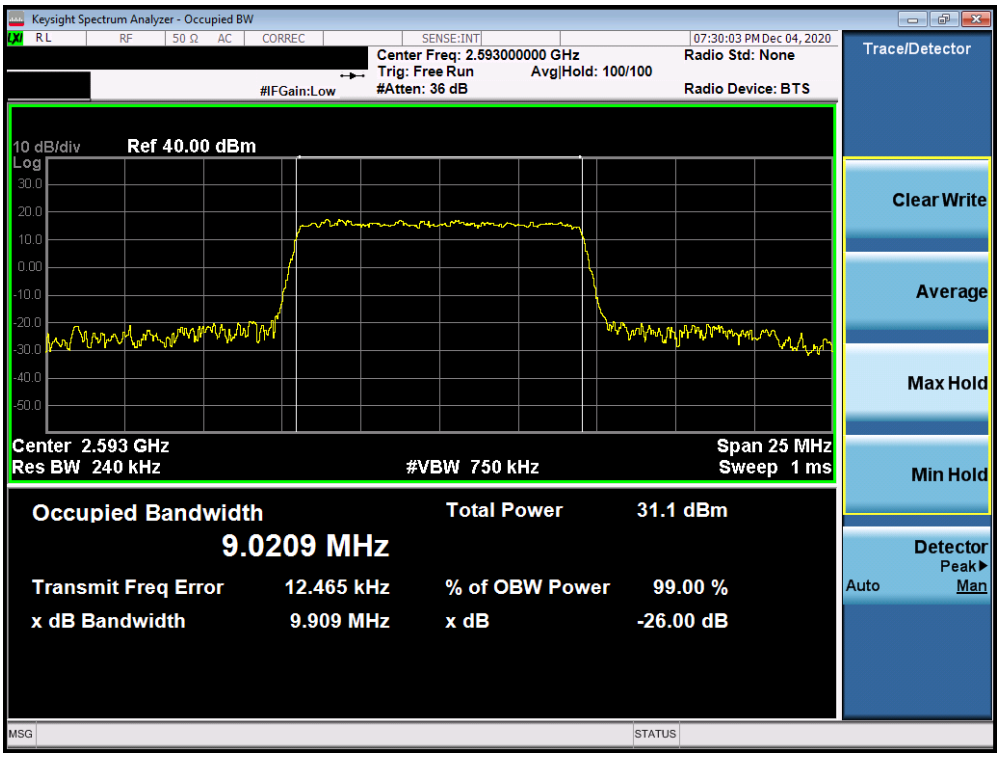
Plot 7-32. Occupied Bandwidth Plot (LTE Band 41 - 15MHz 256-QAM - Full RB Configuration)



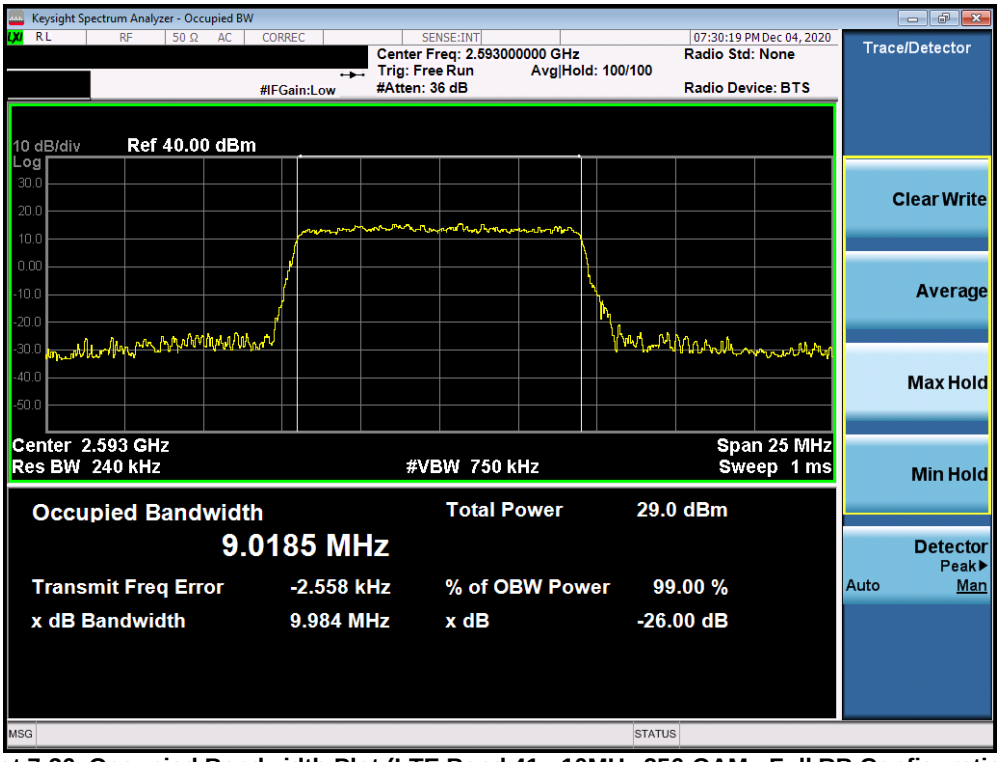
Plot 7-33. Occupied Bandwidth Plot (LTE Band 41 - 10MHz QPSK - Full RB Configuration)



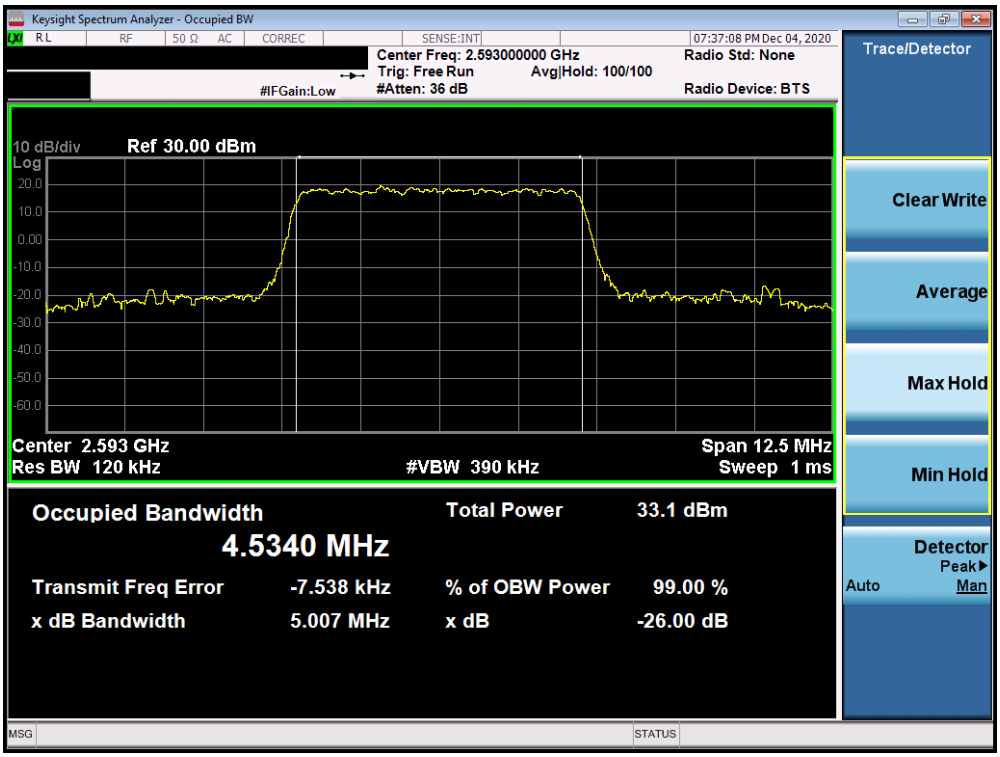
Plot 7-34. Occupied Bandwidth Plot (LTE Band 41 - 10MHz 16-QAM - Full RB Configuration)



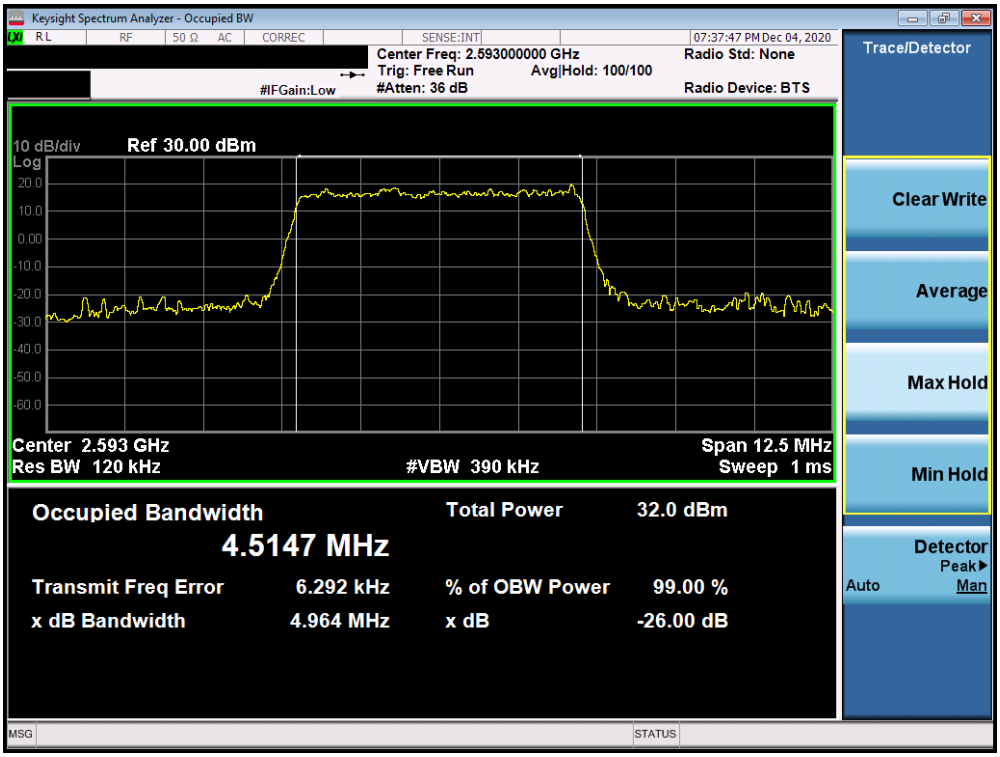
Plot 7-35. Occupied Bandwidth Plot (LTE Band 41 - 10MHz 64-QAM - Full RB Configuration)



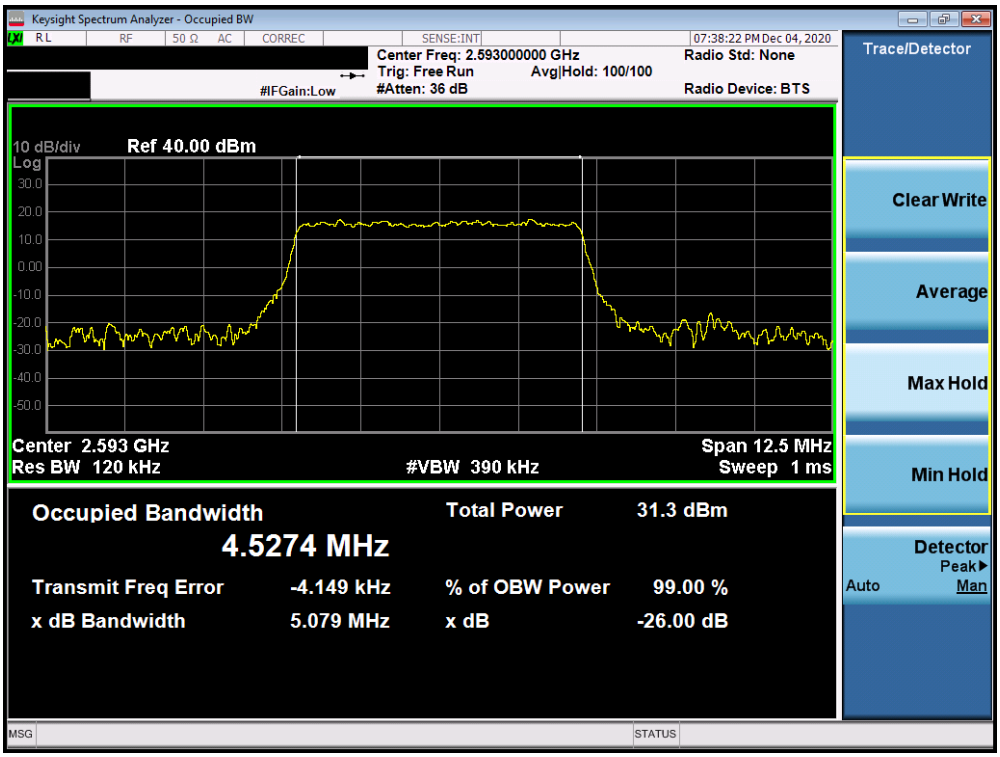
Plot 7-36. Occupied Bandwidth Plot (LTE Band 41 - 10MHz 256-QAM - Full RB Configuration)



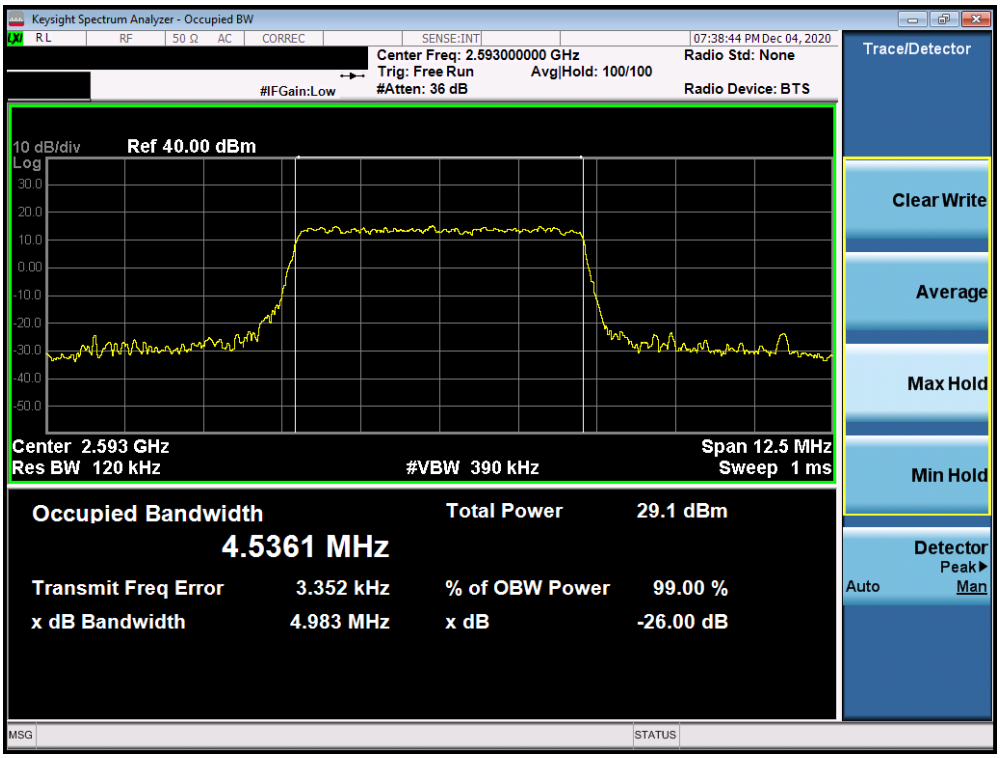
Plot 7-37. Occupied Bandwidth Plot (LTE Band 41 - 5MHz QPSK - Full RB Configuration)



Plot 7-38. Occupied Bandwidth Plot (LTE Band 41 - 5MHz 16-QAM - Full RB Configuration)

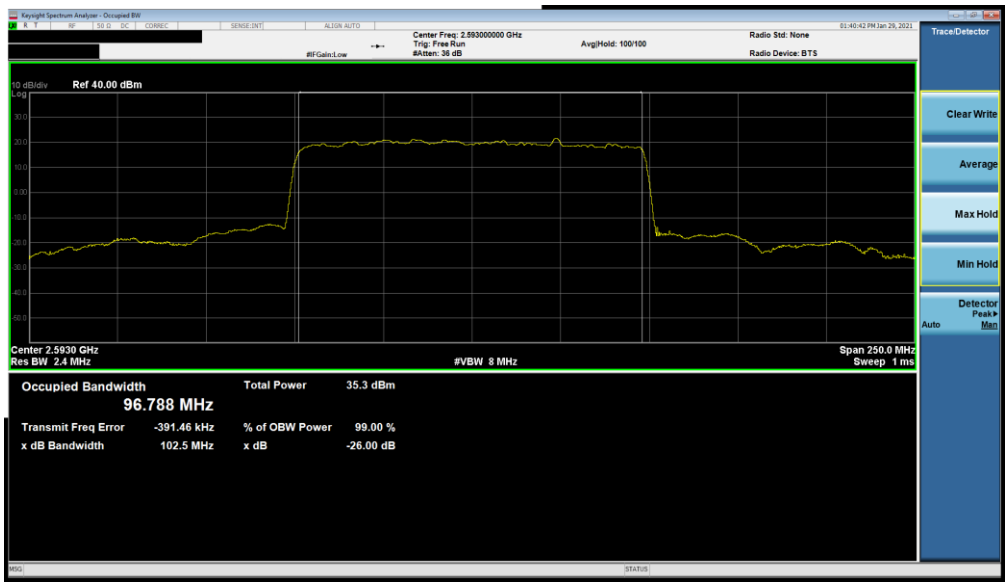


Plot 7-39. Occupied Bandwidth Plot (LTE Band 41 - 5MHz 64-QAM - Full RB Configuration)



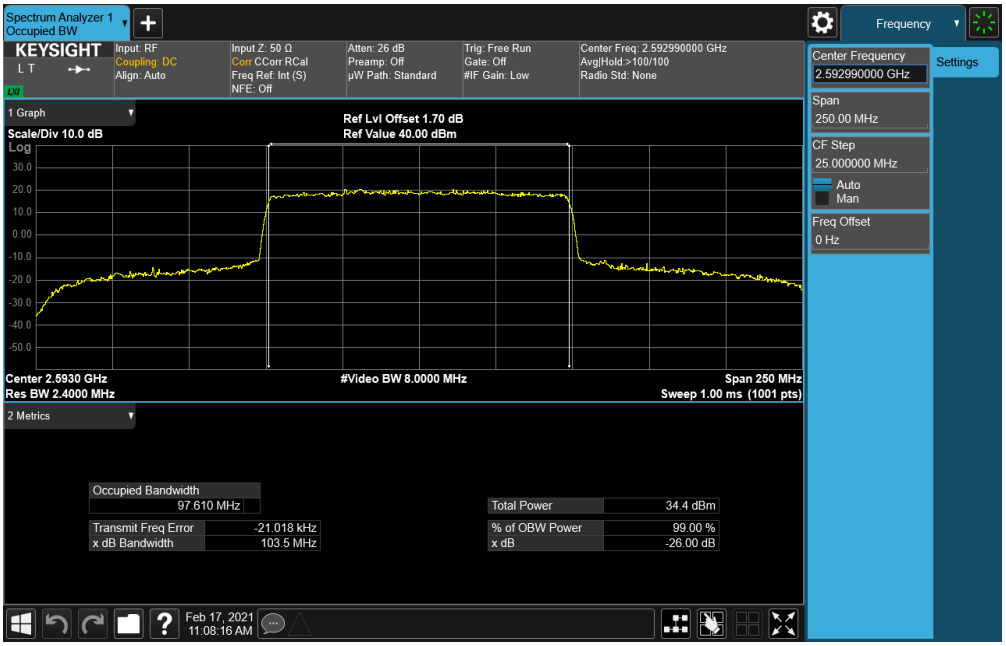
Plot 7-40. Occupied Bandwidth Plot (LTE Band 41 - 5MHz 256-QAM - Full RB Configuration)

NR Band n41



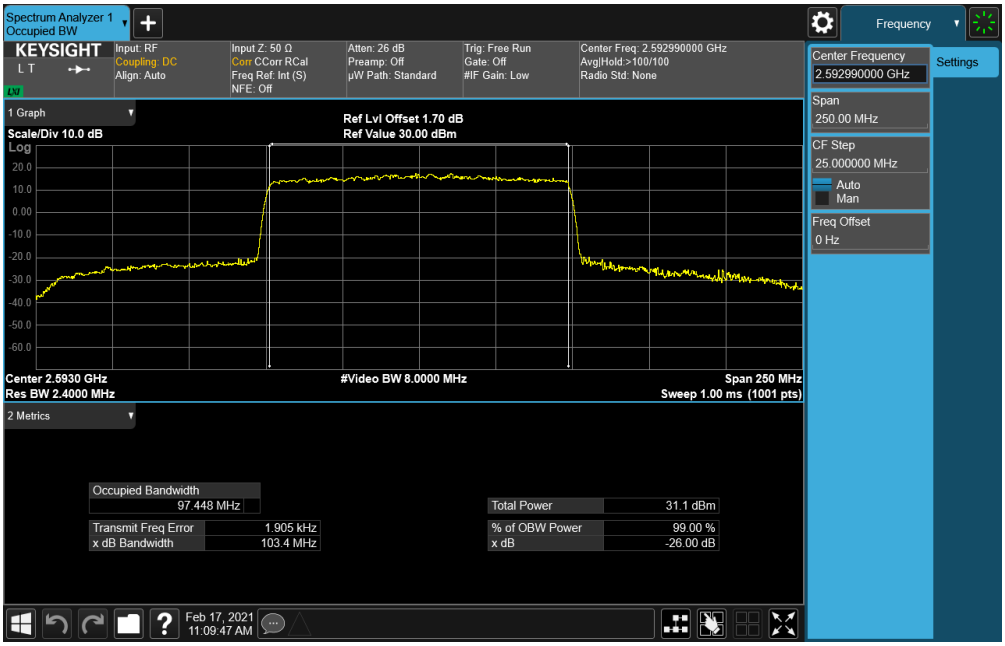
Plot 7-41. Occupied Bandwidth Plot (NR Band n41 - 100MHz DFT-s-OFDM π/2 BPSK - Full RB Configuration)

Plot 7-42. Occupied Bandwidth Plot (NR Band n41 - 100MHz CP-OFDM QPSK - Full RB Configuration)

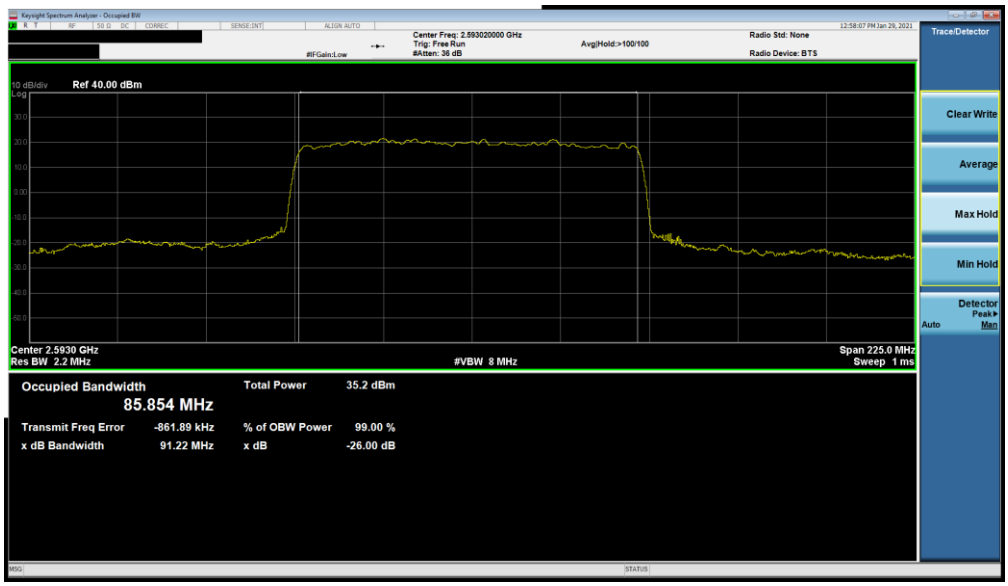


Plot 7-43. Occupied Bandwidth Plot (NR Band n41 - 100MHz CP-OFDM 16-QAM - Full RB Configuration)

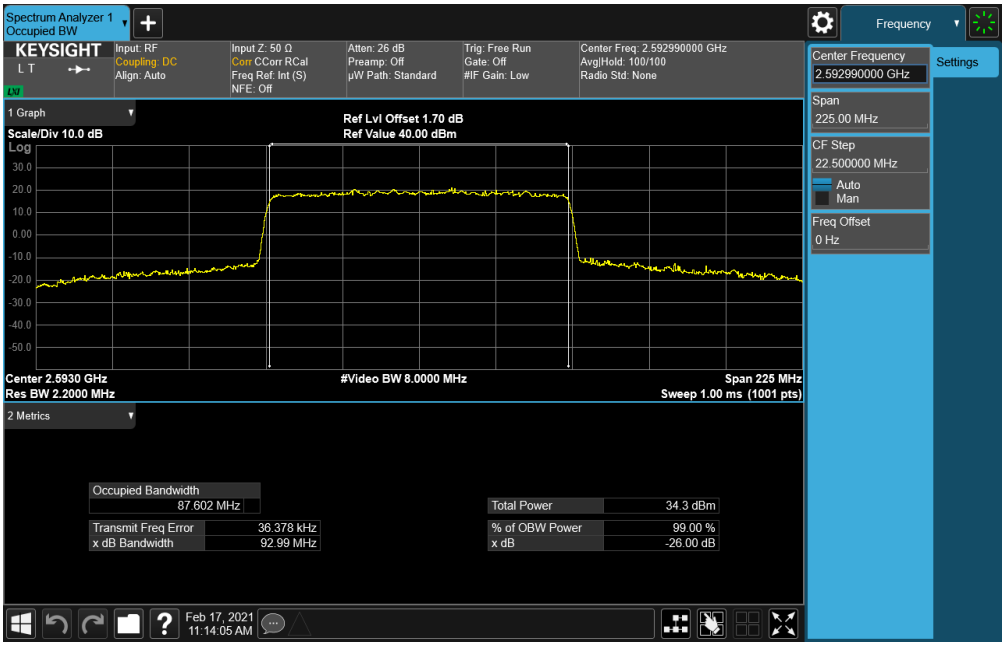
Plot 7-44. Occupied Bandwidth Plot (NR Band n41 - 100MHz CP-OFDM 64-QAM - Full RB Configuration)



Plot 7-45. Occupied Bandwidth Plot (NR Band n41 - 100MHz CP-OFDM 256-QAM - Full RB Configuration)

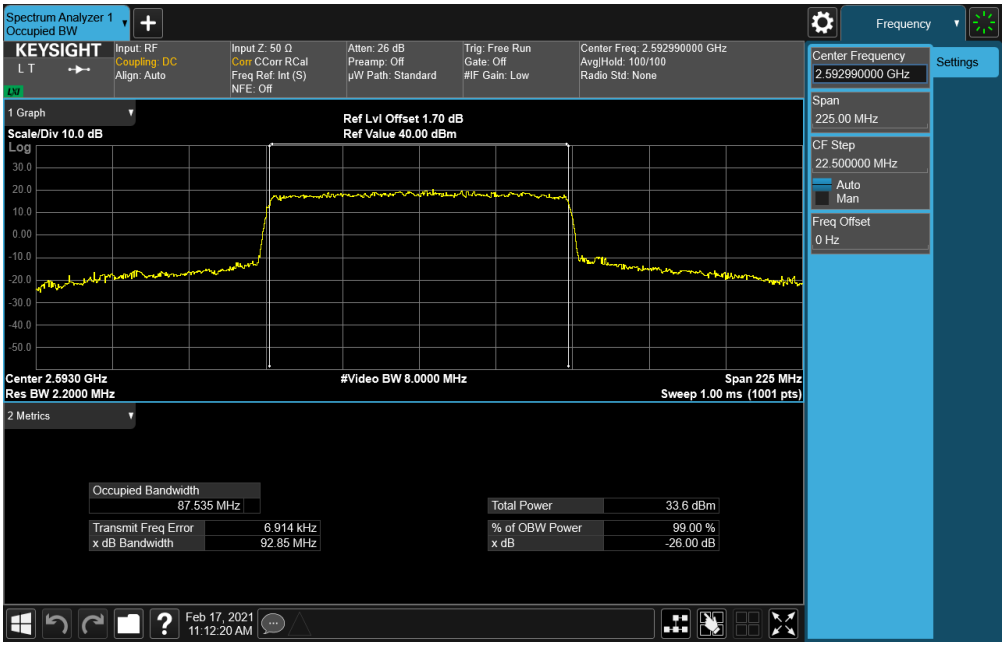


Plot 7-46. Occupied Bandwidth Plot (NR Band n41 - 90MHz DFT-s-OFDM π/2 BPSK - Full RB Configuration)

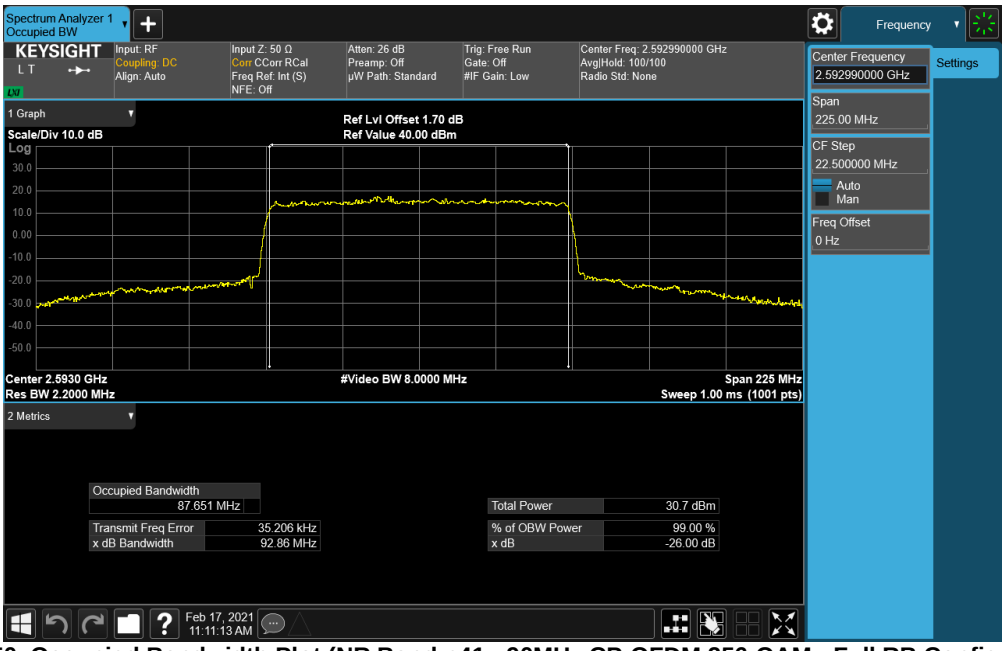


Plot 7-47. Occupied Bandwidth Plot (NR Band n41 - 90MHz CP-OFDM QPSK - Full RB Configuration)

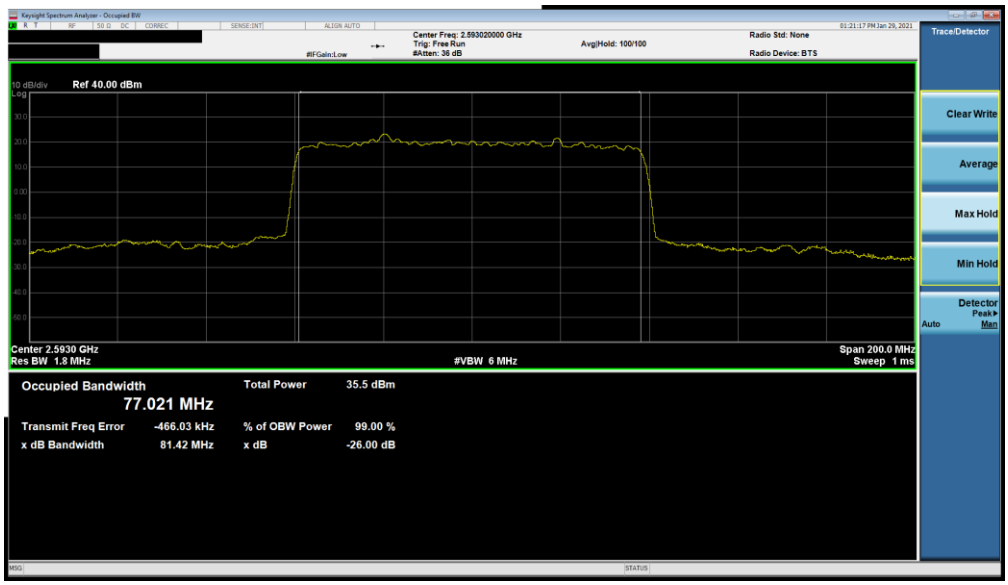
Plot 7-48. Occupied Bandwidth Plot (NR Band n41 - 90MHz CP-OFDM 16-QAM - Full RB Configuration)



Plot 7-49. Occupied Bandwidth Plot (NR Band n41 - 90MHz CP-OFDM 64-QAM - Full RB Configuration)



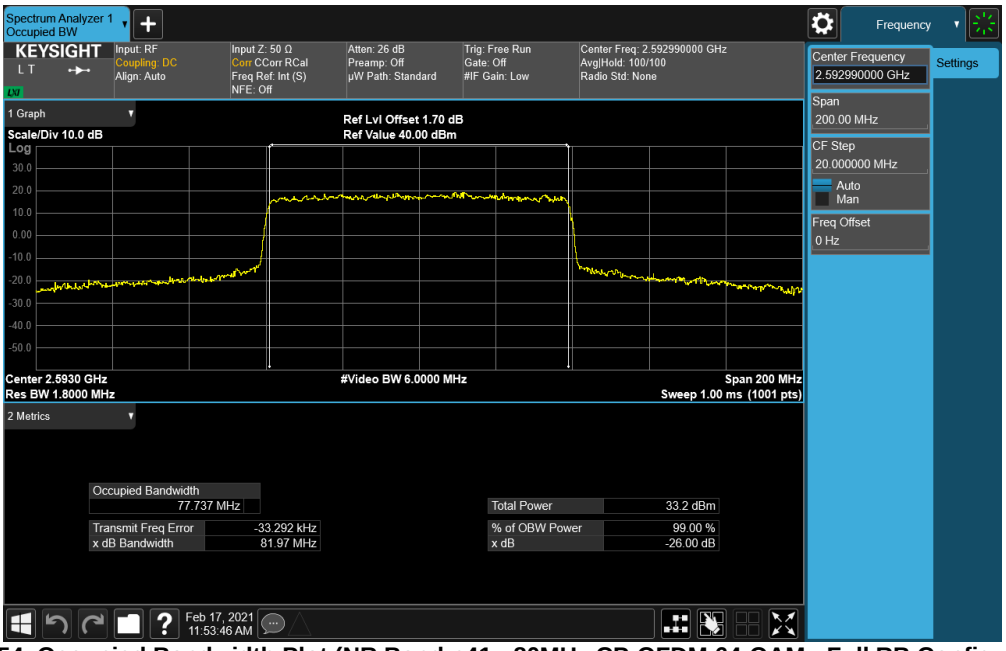
Plot 7-50. Occupied Bandwidth Plot (NR Band n41 - 90MHz CP-OFDM 256-QAM - Full RB Configuration)



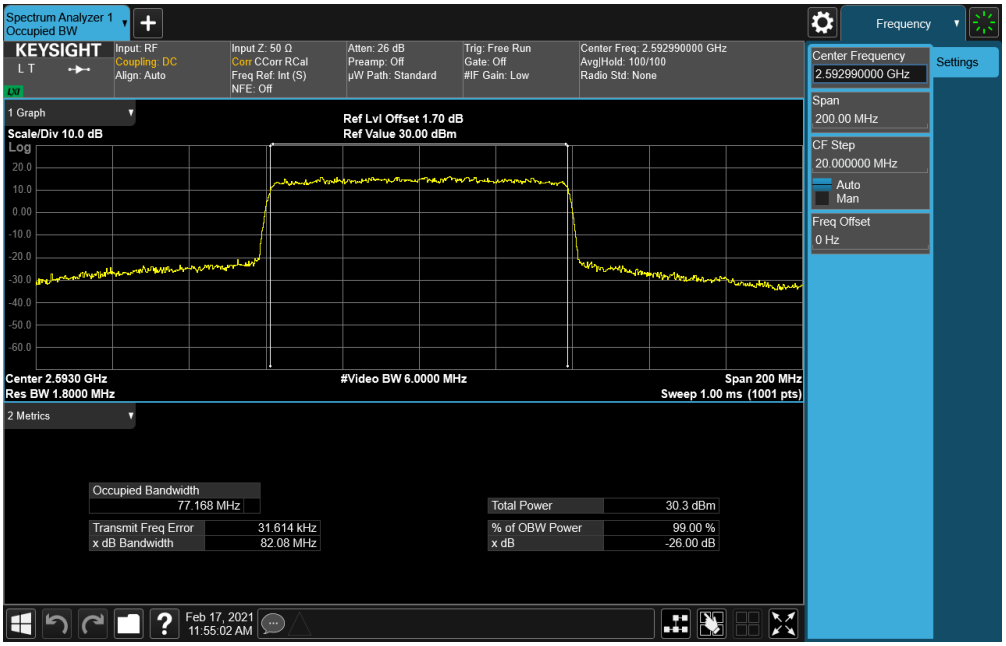
Plot 7-51. Occupied Bandwidth Plot (NR Band n41 - 80MHz DFT-s-OFDM π/2 BPSK - Full RB Configuration)

Plot 7-52. Occupied Bandwidth Plot (NR Band n41 - 80MHz CP-OFDM QPSK - Full RB Configuration)

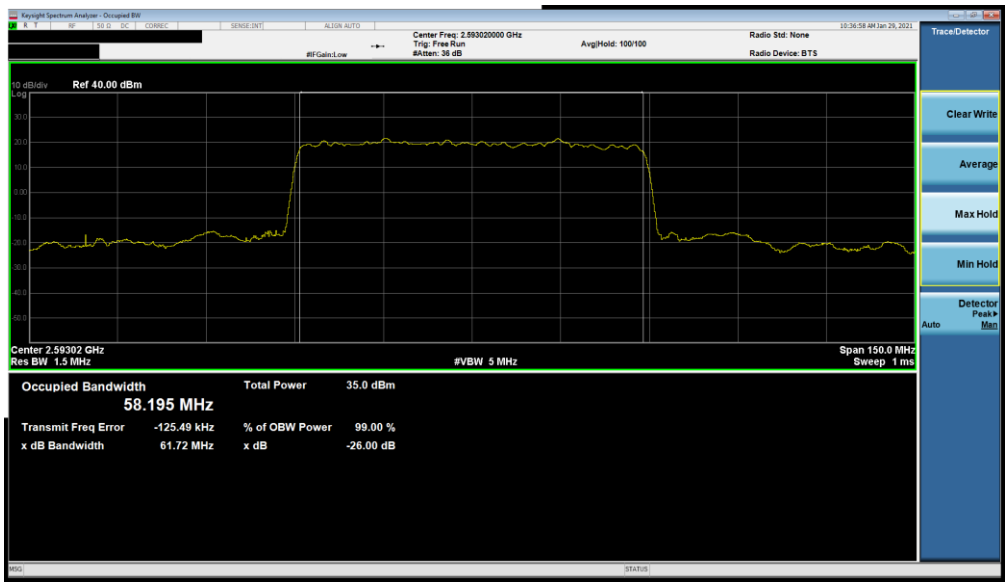
Plot 7-53. Occupied Bandwidth Plot (NR Band n41 - 80MHz CP-OFDM 16-QAM - Full RB Configuration)



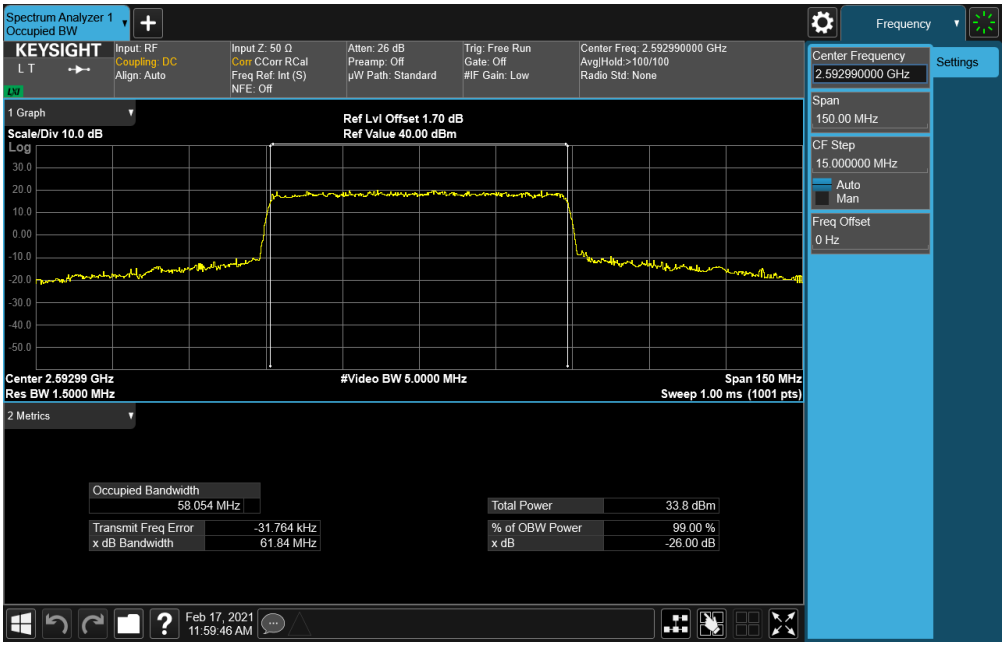
Plot 7-54. Occupied Bandwidth Plot (NR Band n41 - 80MHz CP-OFDM 64-QAM - Full RB Configuration)



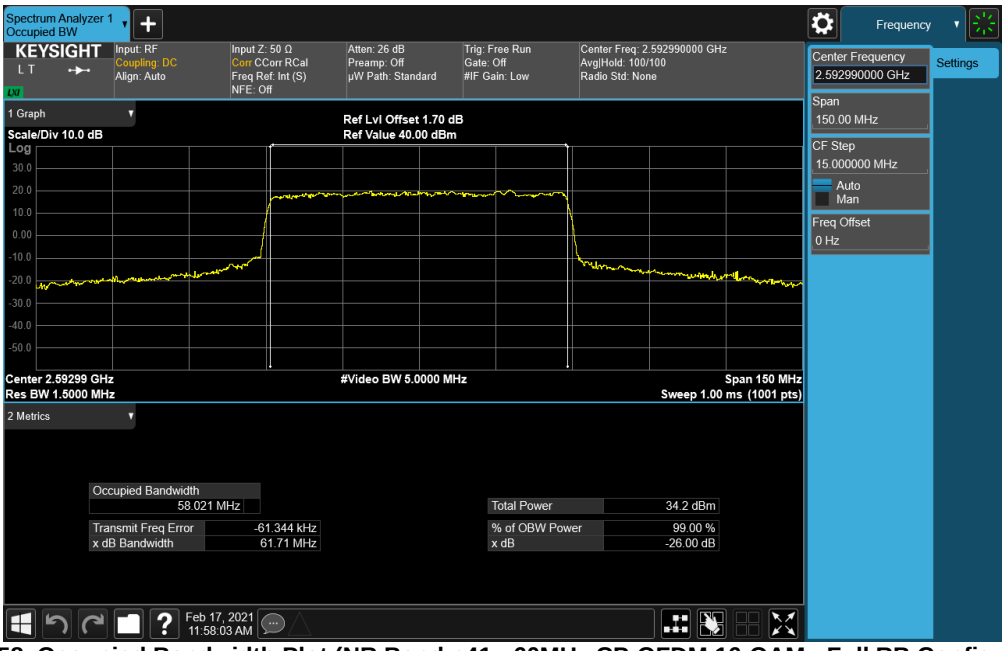
Plot 7-55. Occupied Bandwidth Plot (NR Band n41 - 80MHz CP-OFDM 256-QAM - Full RB Configuration)



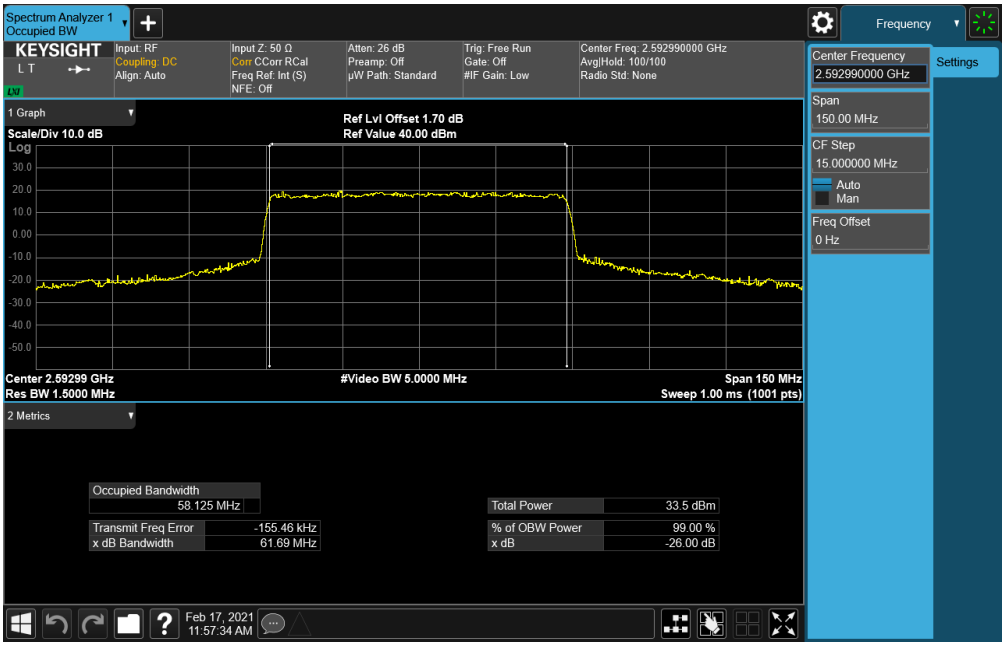
Plot 7-56. Occupied Bandwidth Plot (NR Band n41 - 60MHz DFT-s-OFDM π/2 BPSK - Full RB Configuration)



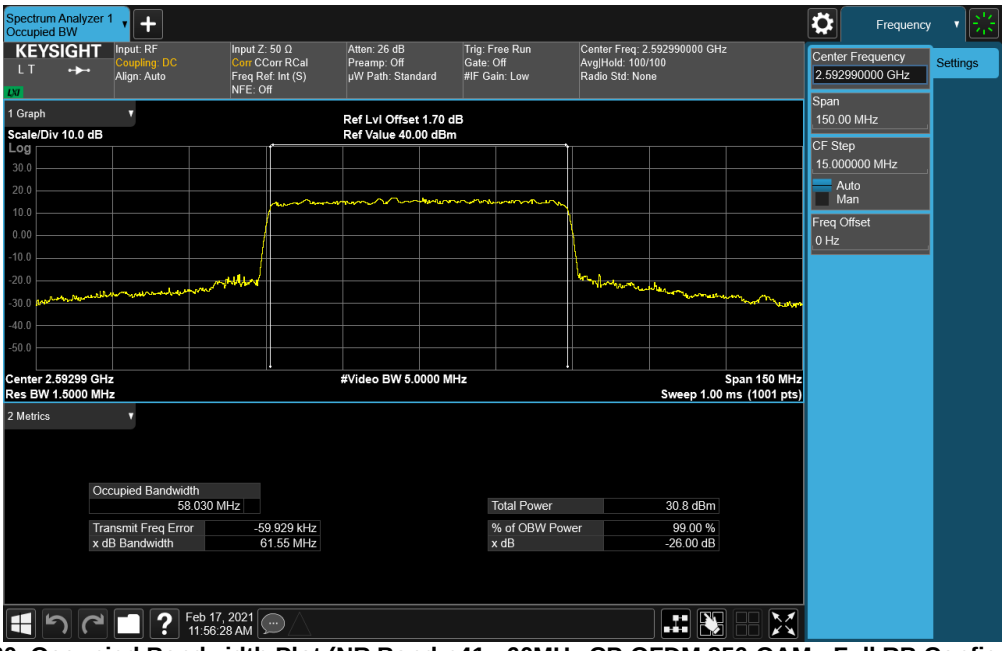
Plot 7-57. Occupied Bandwidth Plot (NR Band n41 - 60MHz CP-OFDM QPSK - Full RB Configuration)



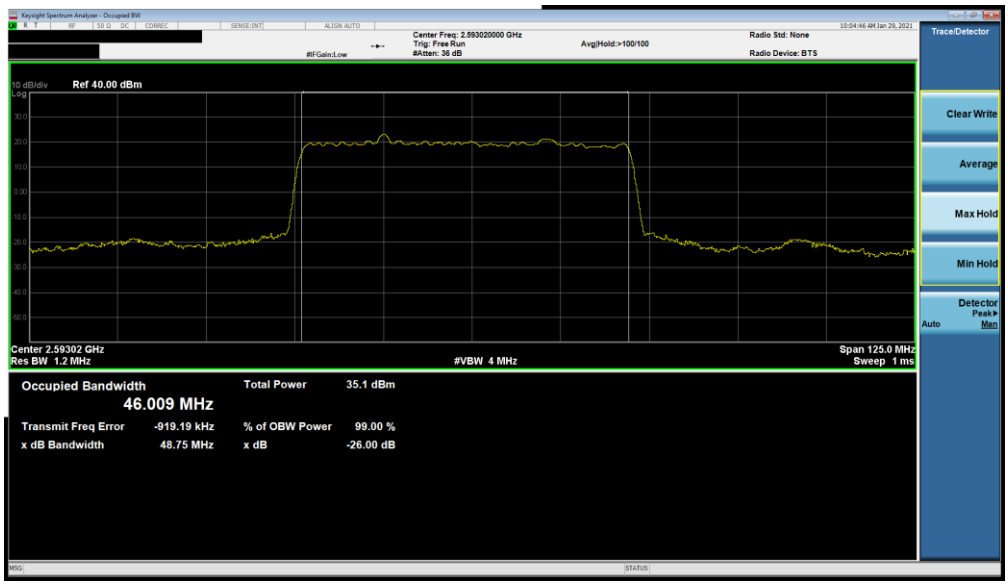
Plot 7-58. Occupied Bandwidth Plot (NR Band n41 - 60MHz CP-OFDM 16-QAM - Full RB Configuration)



Plot 7-59. Occupied Bandwidth Plot (NR Band n41 - 60MHz CP-OFDM 64-QAM - Full RB Configuration)



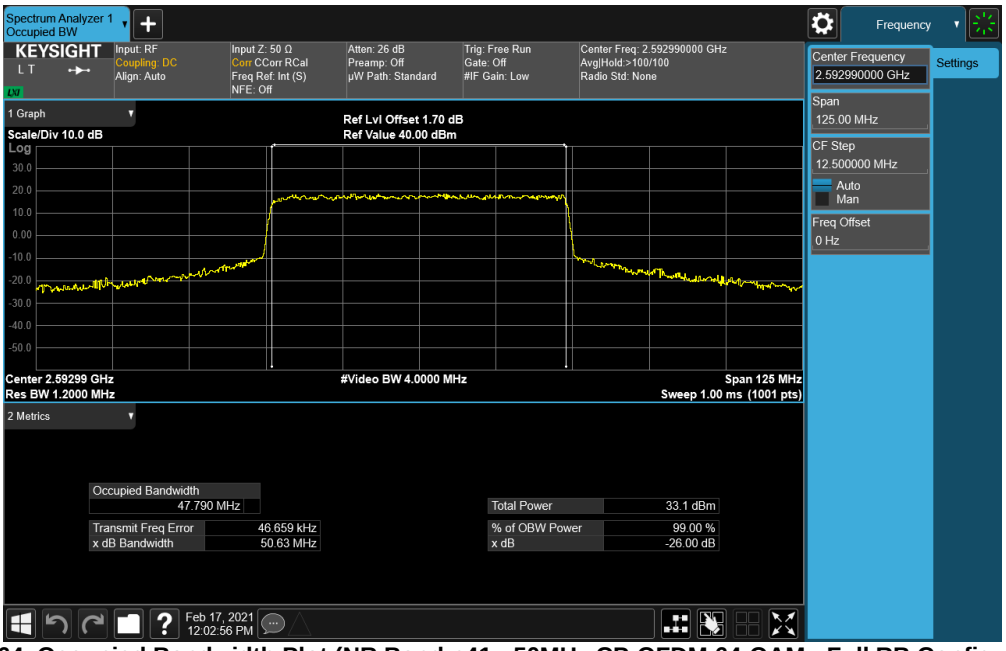
Plot 7-60. Occupied Bandwidth Plot (NR Band n41 - 60MHz CP-OFDM 256-QAM - Full RB Configuration)



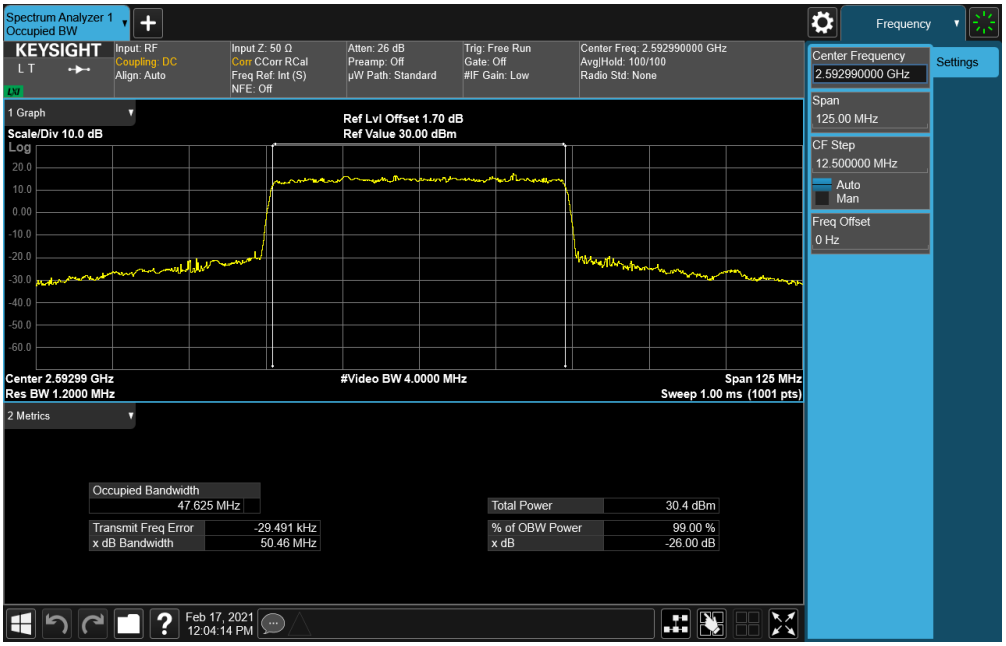
Plot 7-61. Occupied Bandwidth Plot (NR Band n41 - 50MHz DFT-s-OFDM π/2 BPSK - Full RB Configuration)

Plot 7-62. Occupied Bandwidth Plot (NR Band n41 - 50MHz CP-OFDM QPSK - Full RB Configuration)

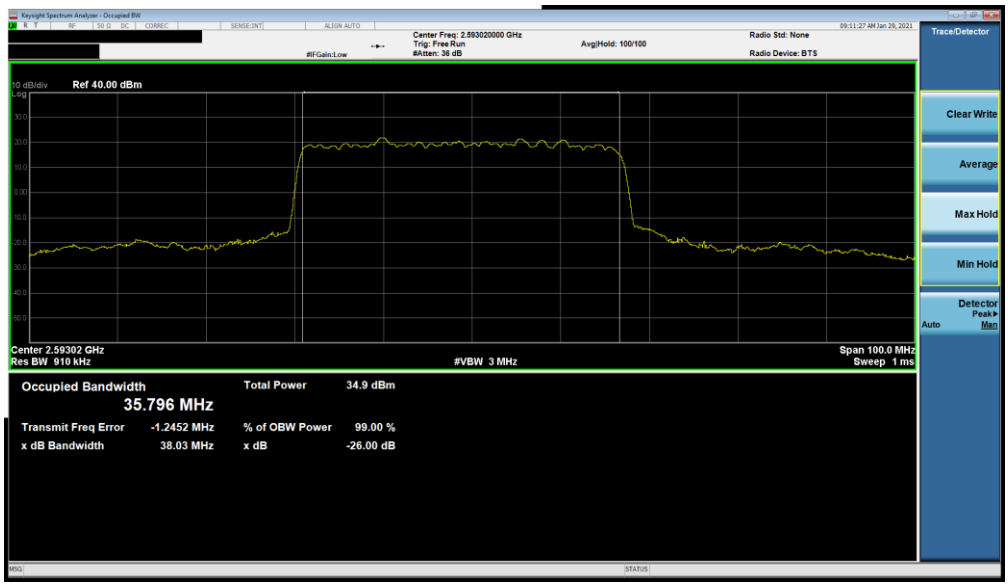
Plot 7-63. Occupied Bandwidth Plot (NR Band n41 - 50MHz CP-OFDM 16-QAM - Full RB Configuration)



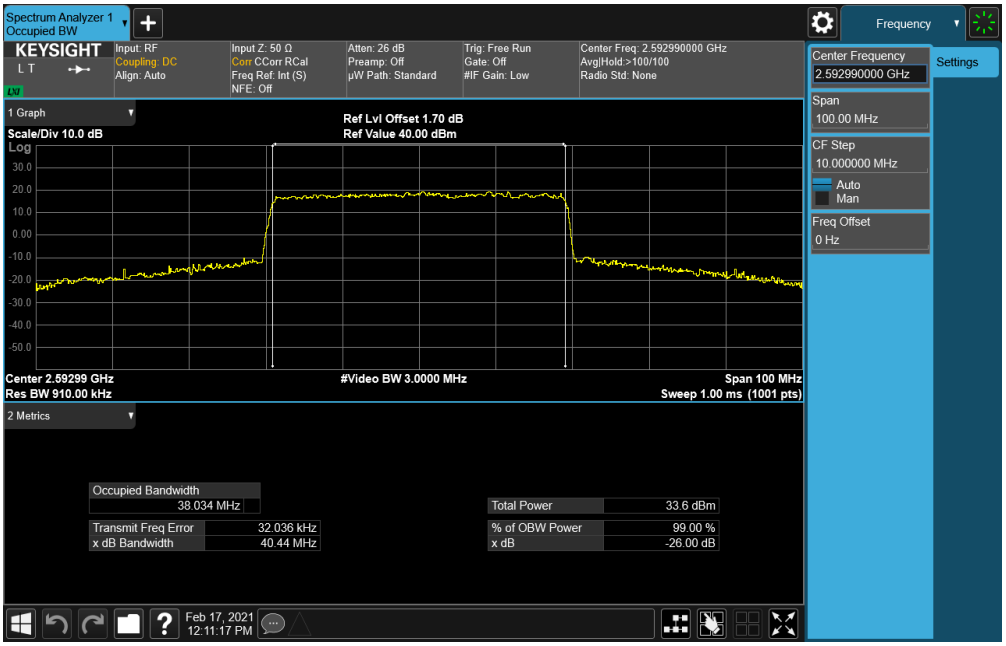
Plot 7-64. Occupied Bandwidth Plot (NR Band n41 - 50MHz CP-OFDM 64-QAM - Full RB Configuration)



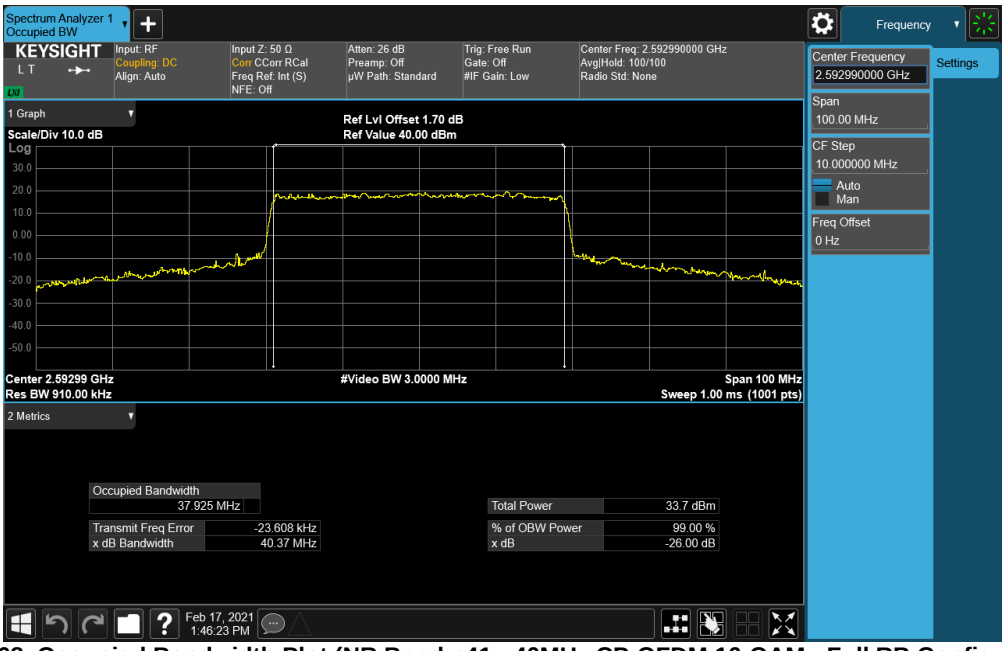
Plot 7-65. Occupied Bandwidth Plot (NR Band n41 - 50MHz CP-OFDM 256-QAM - Full RB Configuration)



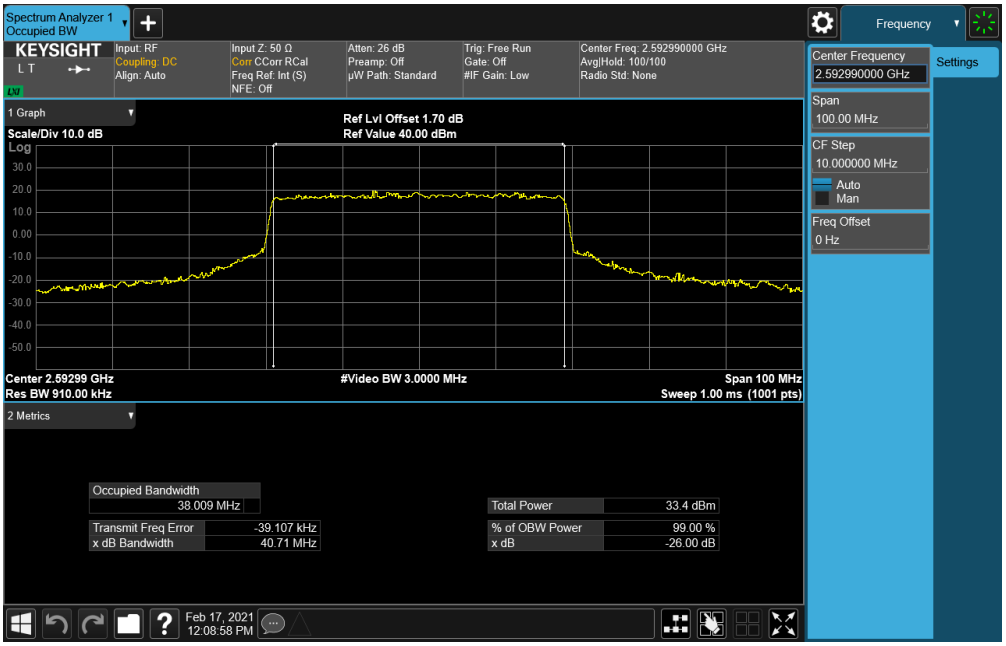
Plot 7-66. Occupied Bandwidth Plot (NR Band n41 - 40MHz DFT-s-OFDM π/2 BPSK - Full RB Configuration)



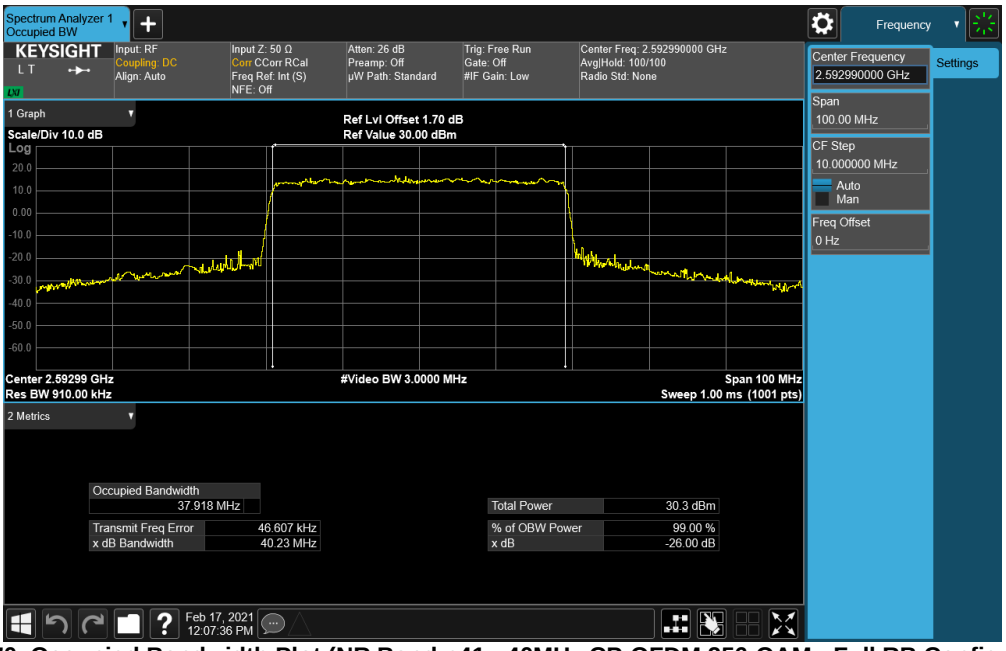
Plot 7-67. Occupied Bandwidth Plot (NR Band n41 - 40MHz CP-OFDM QPSK - Full RB Configuration)



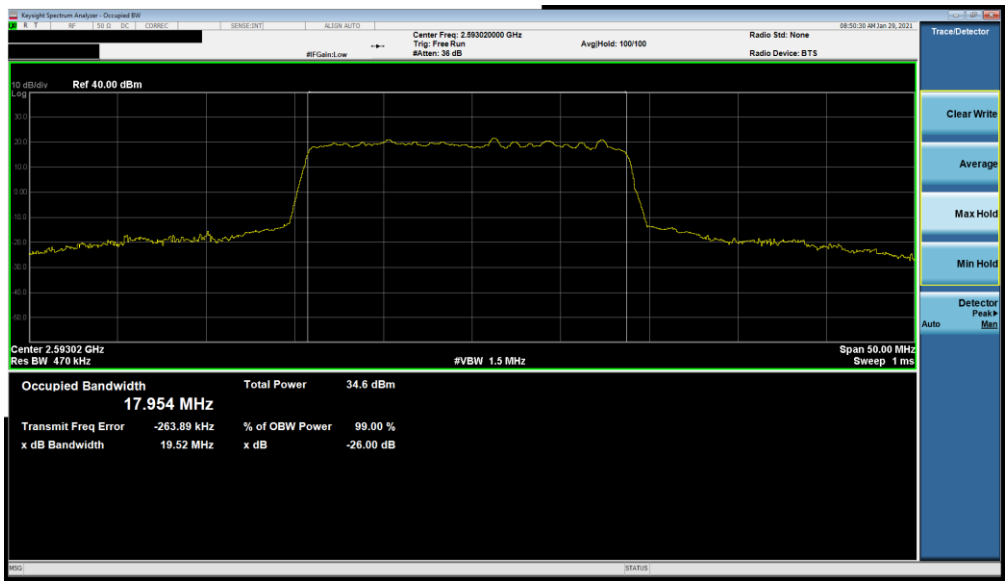
Plot 7-68. Occupied Bandwidth Plot (NR Band n41 - 40MHz CP-OFDM 16-QAM - Full RB Configuration)



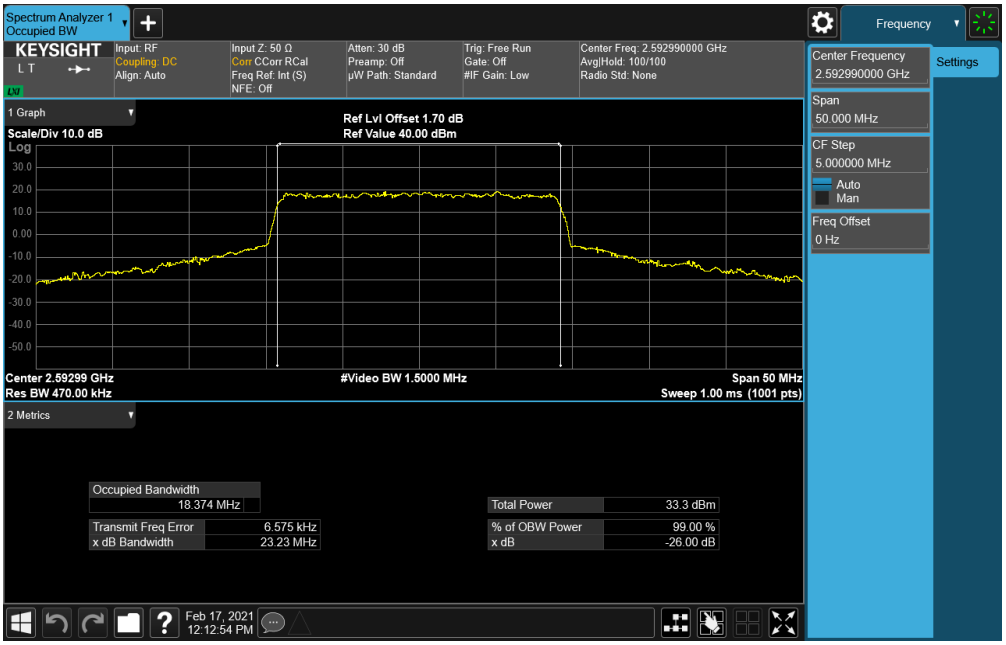
Plot 7-69. Occupied Bandwidth Plot (NR Band n41 - 40MHz CP-OFDM 64-QAM - Full RB Configuration)



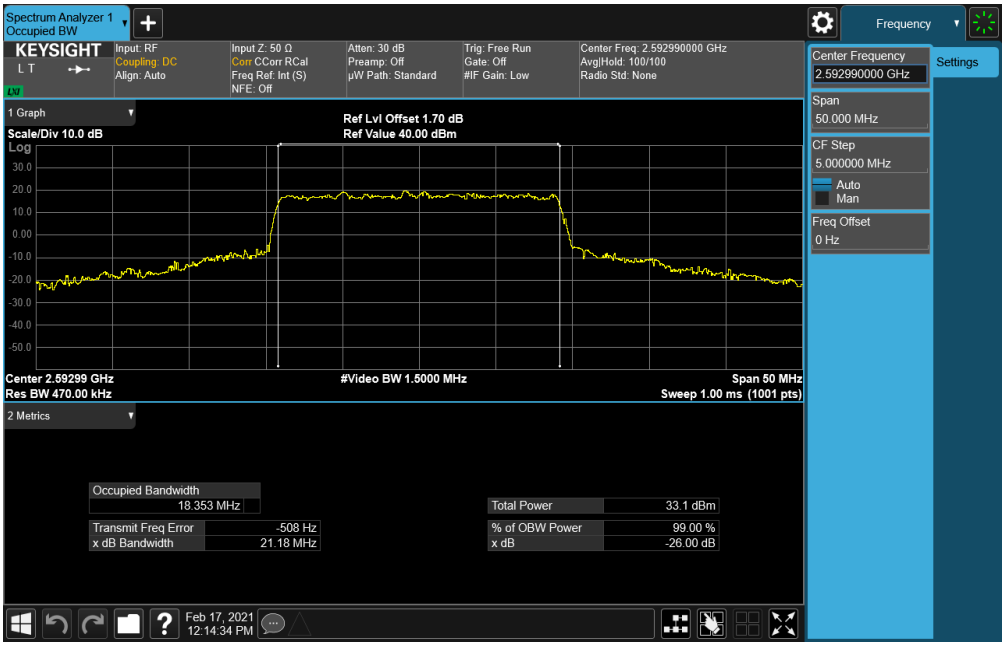
Plot 7-70. Occupied Bandwidth Plot (NR Band n41 - 40MHz CP-OFDM 256-QAM - Full RB Configuration)



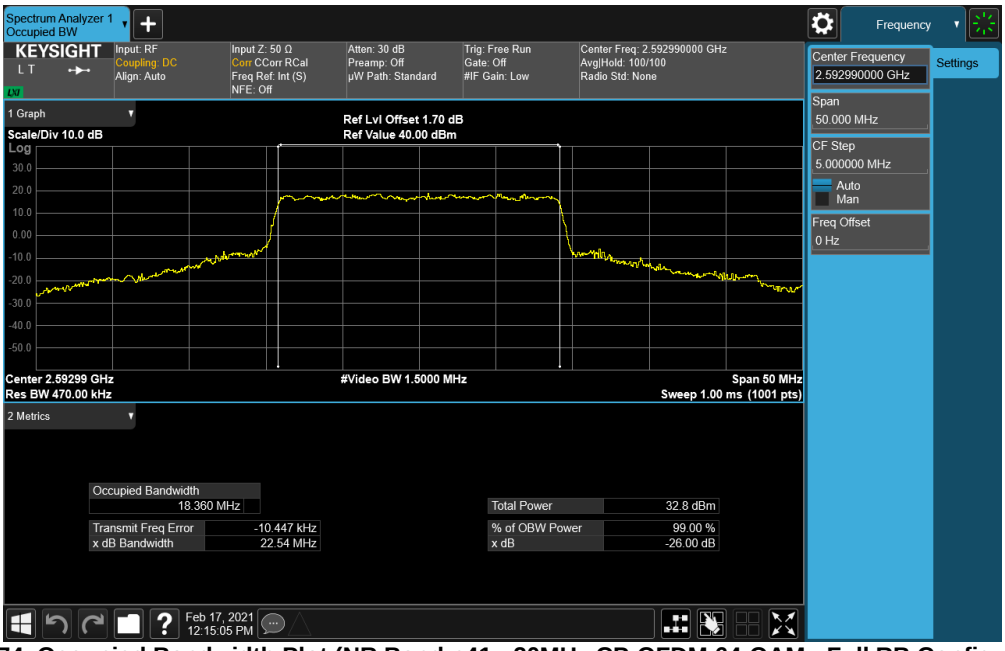
Plot 7-71. Occupied Bandwidth Plot (NR Band n41 - 20MHz DFT-s-OFDM π/2 BPSK - Full RB Configuration)



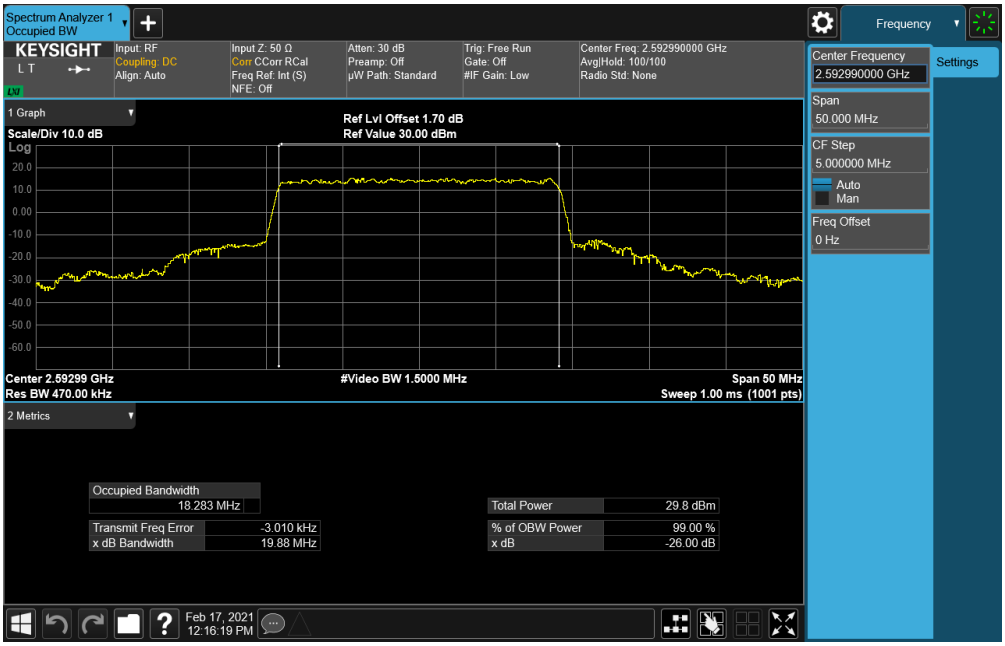
Plot 7-72. Occupied Bandwidth Plot (NR Band n41 - 20MHz CP-OFDM QPSK - Full RB Configuration)



Plot 7-73. Occupied Bandwidth Plot (NR Band n41 - 20MHz CP-OFDM 16-QAM - Full RB Configuration)

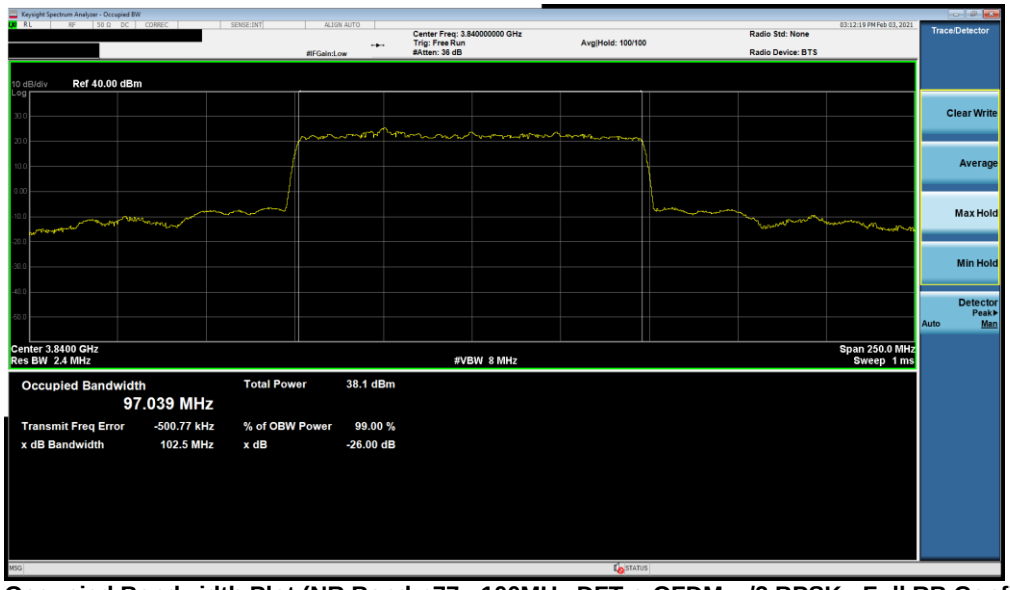


Plot 7-74. Occupied Bandwidth Plot (NR Band n41 - 20MHz CP-OFDM 64-QAM - Full RB Configuration)

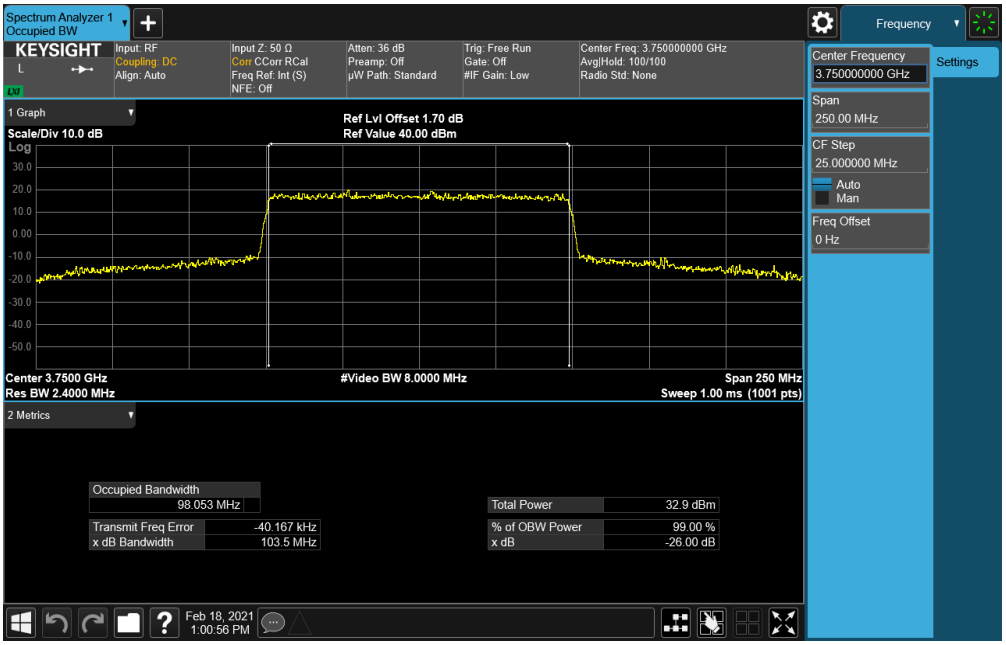


Plot 7-75. Occupied Bandwidth Plot (NR Band n41 - 20MHz CP-OFDM 256-QAM - Full RB Configuration)

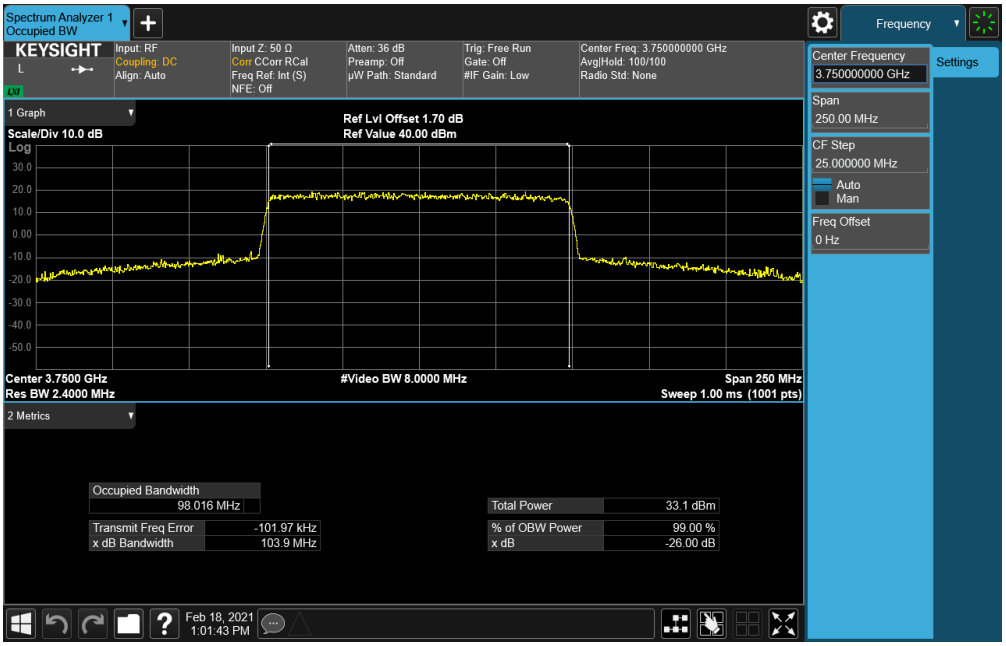
NR Band n77



Plot 7-76. Occupied Bandwidth Plot (NR Band n77 - 100MHz DFT-s-OFDM π/2 BPSK - Full RB Configuration)

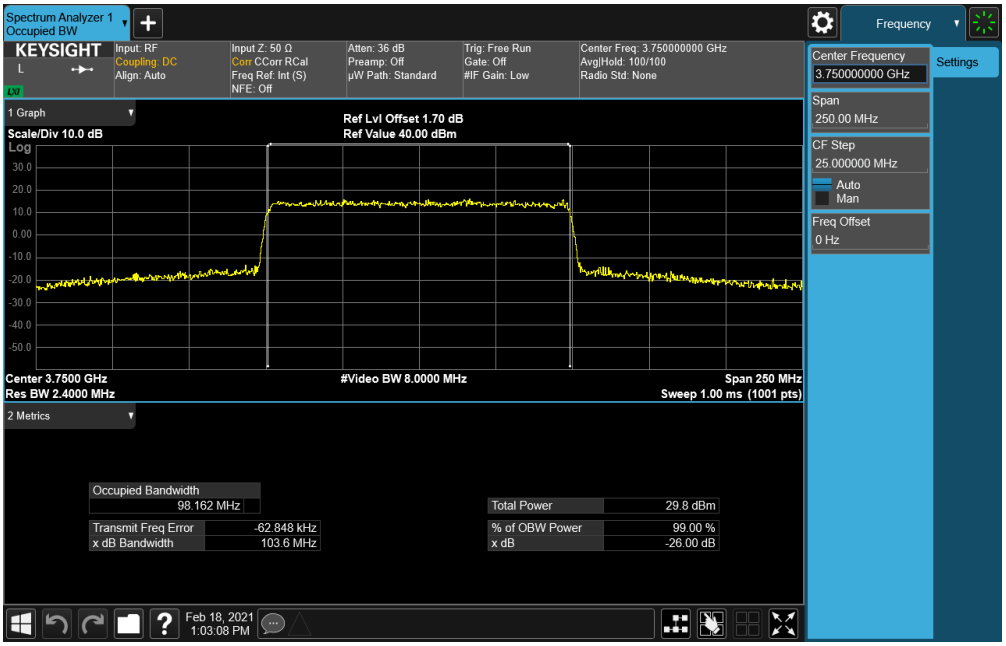


Plot 7-77. Occupied Bandwidth Plot (NR Band n77 - 100MHz CP-OFDM QPSK - Full RB Configuration)

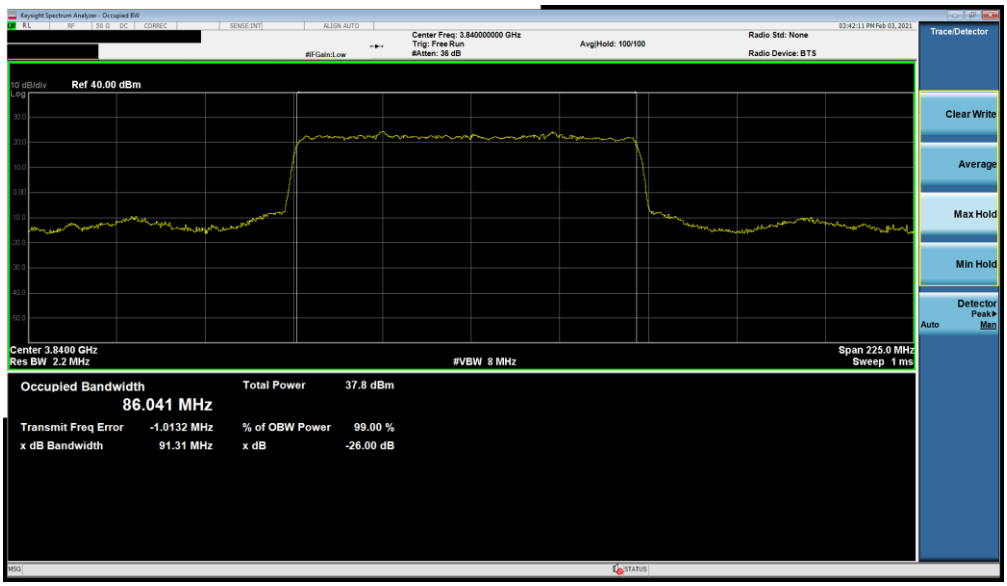


Plot 7-78. Occupied Bandwidth Plot (NR Band n77 - 100MHz CP-OFDM 16-QAM - Full RB Configuration)

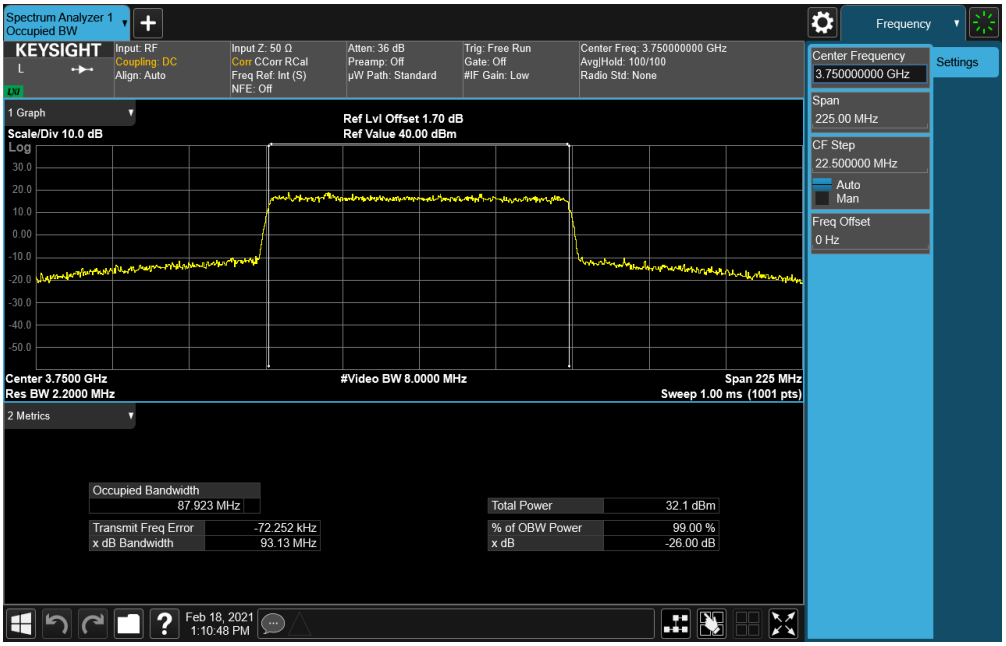
Plot 7-79. Occupied Bandwidth Plot (NR Band n77 - 100MHz CP-OFDM 64-QAM - Full RB Configuration)



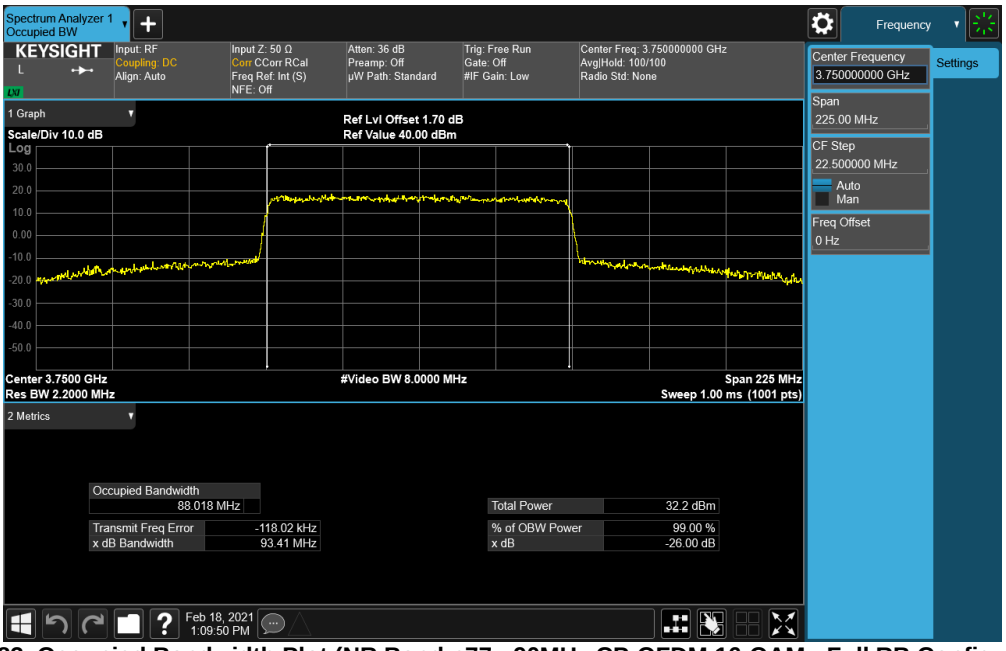
Plot 7-80. Occupied Bandwidth Plot (NR Band n77 - 100MHz CP-OFDM 256-QAM - Full RB Configuration)



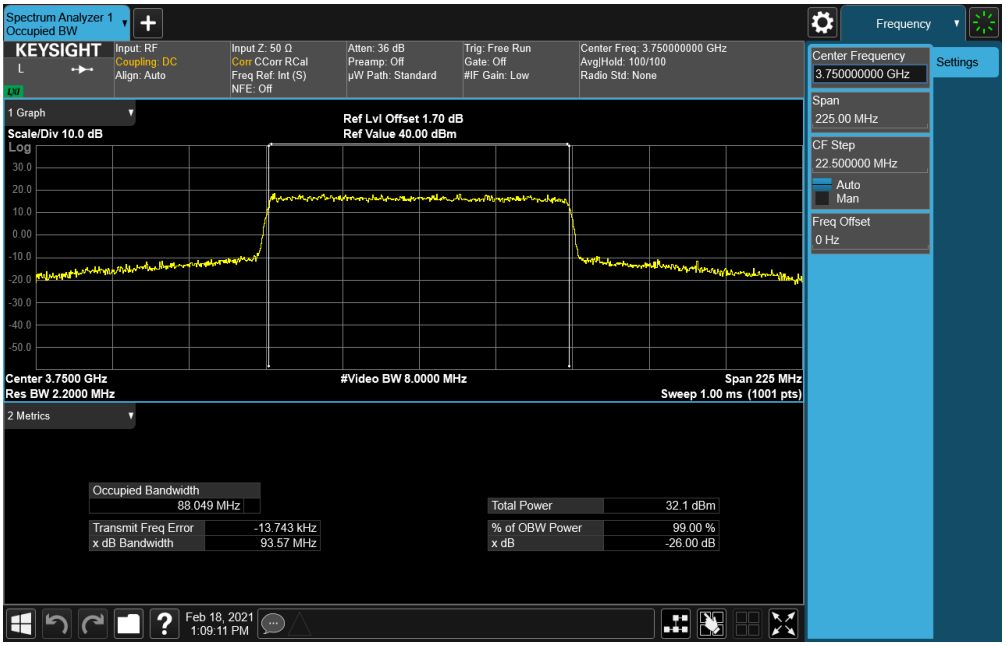
Plot 7-81. Occupied Bandwidth Plot (NR Band n77 - 90MHz DFT-s-OFDM π/2 BPSK - Full RB Configuration)



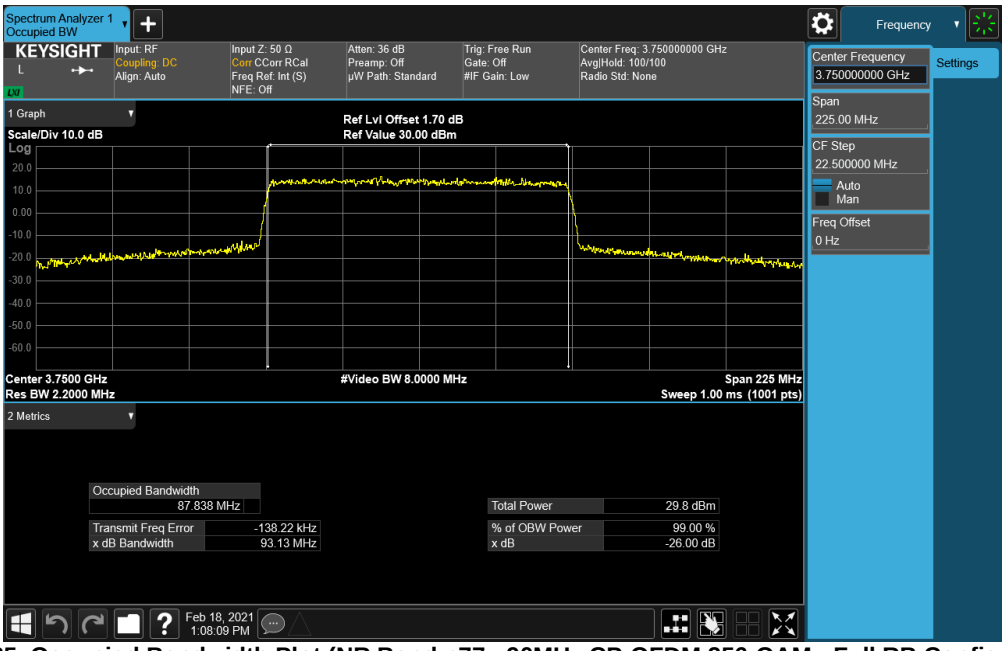
Plot 7-82. Occupied Bandwidth Plot (NR Band n77 - 90MHz CP-OFDM QPSK - Full RB Configuration)



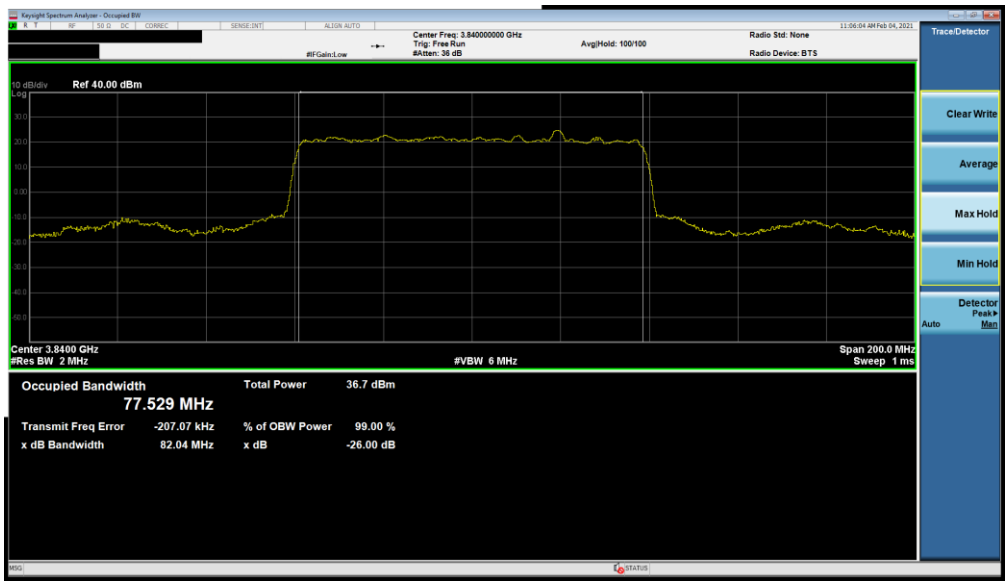
Plot 7-83. Occupied Bandwidth Plot (NR Band n77 - 90MHz CP-OFDM 16-QAM - Full RB Configuration)



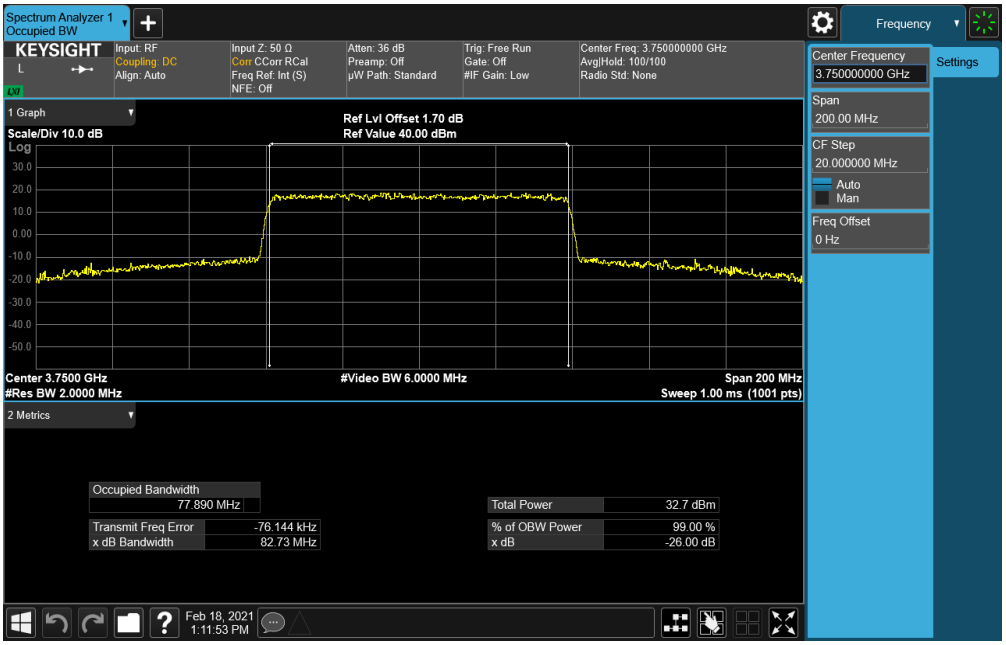
Plot 7-84. Occupied Bandwidth Plot (NR Band n77 - 90MHz CP-OFDM 64-QAM - Full RB Configuration)



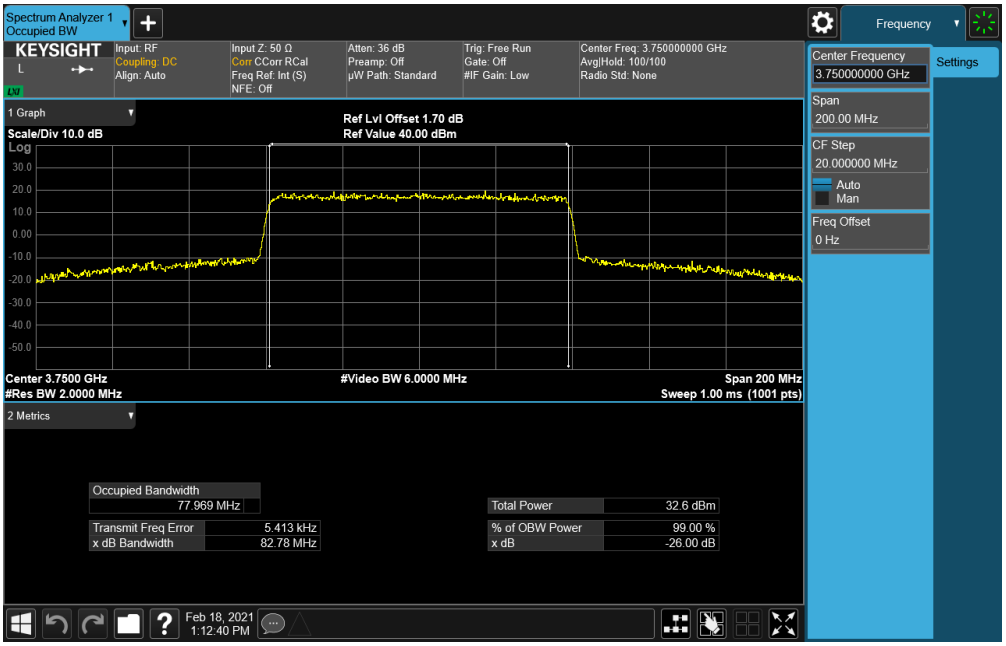
Plot 7-85. Occupied Bandwidth Plot (NR Band n77 - 90MHz CP-OFDM 256-QAM - Full RB Configuration)



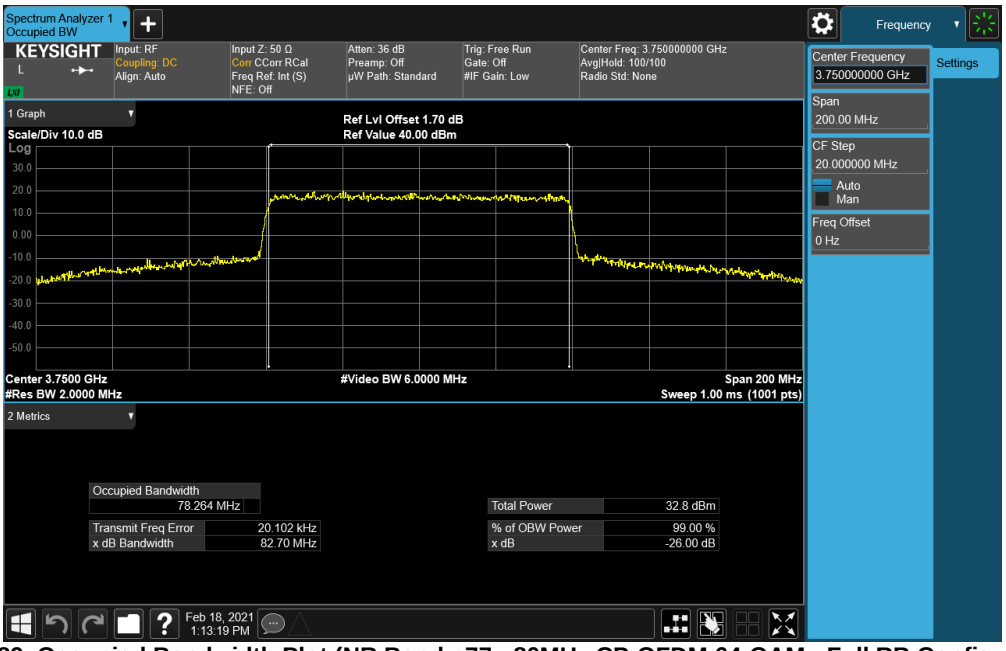
Plot 7-86. Occupied Bandwidth Plot (NR Band n77 - 80MHz DFT-s-OFDM π/2 BPSK - Full RB Configuration)



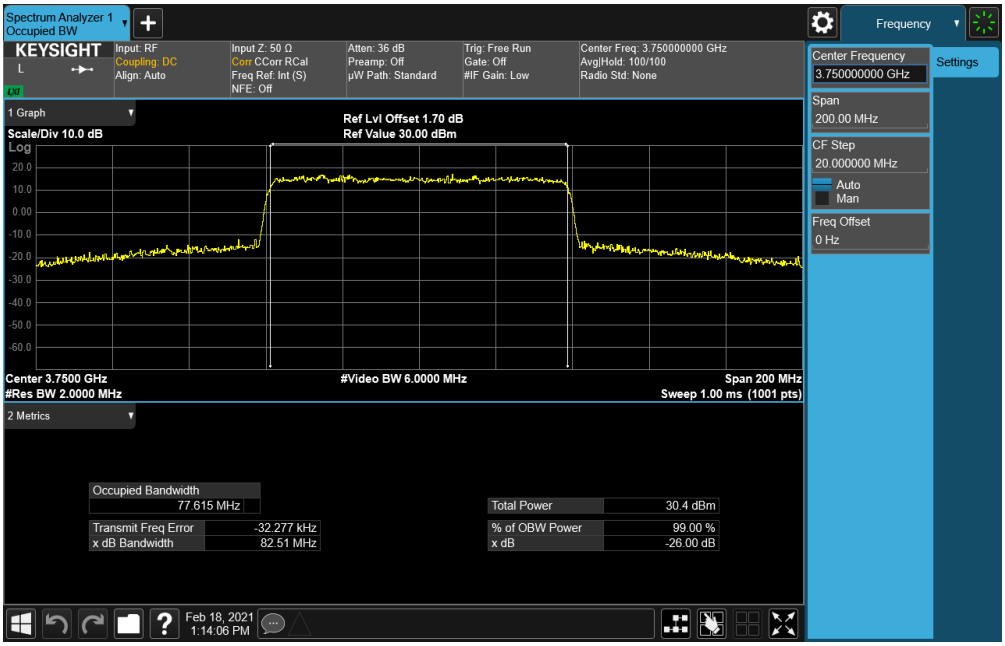
Plot 7-87. Occupied Bandwidth Plot (NR Band n77 - 80MHz CP-OFDM QPSK - Full RB Configuration)



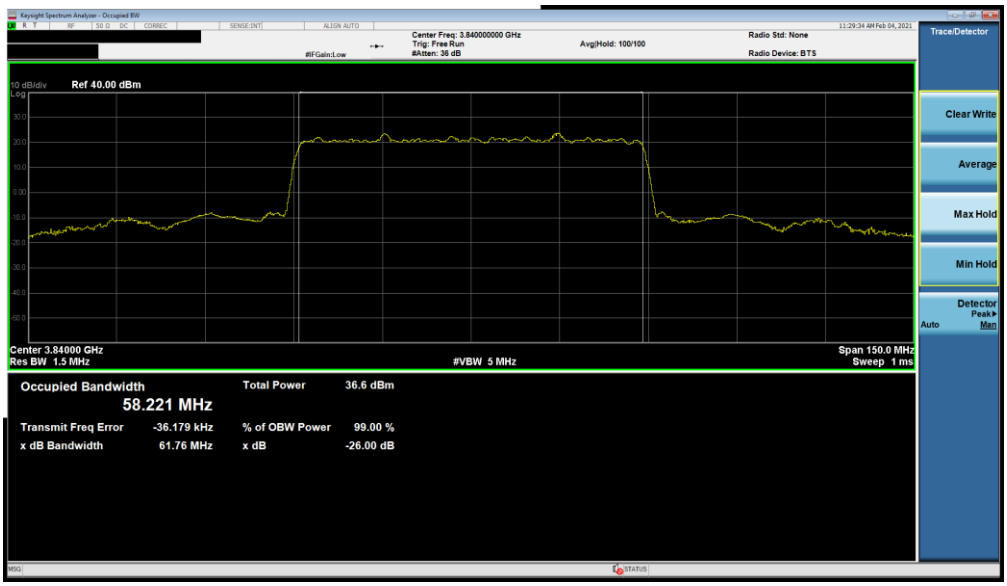
Plot 7-88. Occupied Bandwidth Plot (NR Band n77 - 80MHz CP-OFDM 16-QAM - Full RB Configuration)



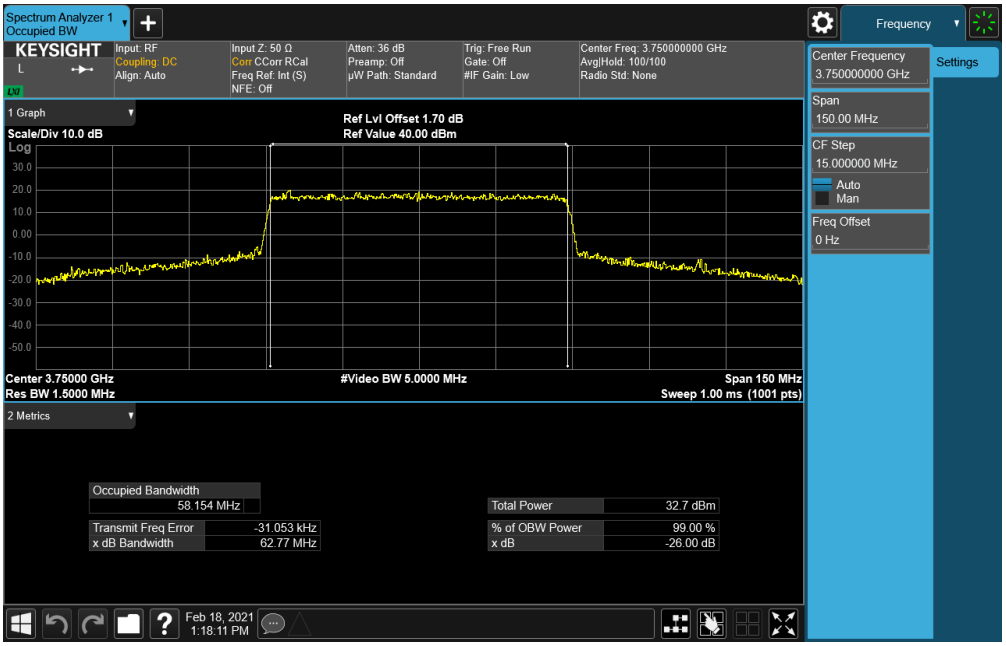
Plot 7-89. Occupied Bandwidth Plot (NR Band n77 - 80MHz CP-OFDM 64-QAM - Full RB Configuration)



Plot 7-90. Occupied Bandwidth Plot (NR Band n77 - 80MHz CP-OFDM 256-QAM - Full RB Configuration)



Plot 7-91. Occupied Bandwidth Plot (NR Band n77 - 60MHz DFT-s-OFDM π/2 BPSK - Full RB Configuration)



Plot 7-92. Occupied Bandwidth Plot (NR Band n77 - 60MHz CP-OFDM QPSK - Full RB Configuration)

Plot 7-93. Occupied Bandwidth Plot (NR Band n77 - 60MHz CP-OFDM 16-QAM - Full RB Configuration)