PCTEST
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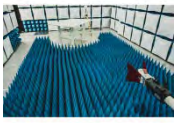

MEASUREMENT REPORT
LTE / Sub 6GHz NR

Applicant Name:
Samsung Electronics Co., Ltd.
129, Samsung-ro,
Yeongtong-gu, Suwon-si
Gyeonggi-do, 16677, Korea

Date of Testing:
10/11/19 – 01/09/20
Test Site/Location:
PCTEST Lab. Columbia, MD, USA
Test Report Serial No.:
1M1911010179-03.A3L

FCC ID:	**A3LSMG986W**
APPLICANT:	**Samsung Electronics Co., Ltd.**

Application Type:	Certification
Model:	SM-G986W
EUT Type:	Portable Handset
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	22, 24, & 27
Test Procedure(s):	ANSI C63.26-2015, ANSI/TIA-603-E-2016, KDB 971168 D01 v03r01, KDB 648474 D03 v01r04

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.

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
TESTING CERT#2041.01

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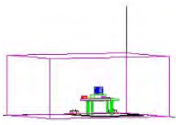
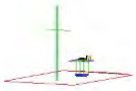


MEASUREMENT REPORT
FCC Part 22, 24, & 27



Mode	FCC Rule Part	Tx Frequency (MHz)	ERP		Emission Designator	Modulation
			Max. Power (W)	Max. Power (dBm)		
LTE Band 71	27	665.5 - 695.5	0.052	17.16	4M52G7D	QPSK
LTE Band 71	27	665.5 - 695.5	0.043	16.34	4M50W7D	16QAM
LTE Band 71	27	665.5 - 695.5	0.030	14.79	4M53W7D	64QAM
LTE Band 71	27	665.5 - 695.5	0.025	13.92	4M51W7D	256QAM
LTE Band 71	27	668 - 693	0.051	17.06	9M03G7D	QPSK
LTE Band 71	27	668 - 693	0.046	16.65	8M98W7D	16QAM
LTE Band 71	27	668 - 693	0.035	15.39	9M01W7D	64QAM
LTE Band 71	27	668 - 693	0.019	12.77	9M00W7D	256QAM
LTE Band 71	27	670.5 - 690.5	0.053	17.21	13M5G7D	QPSK
LTE Band 71	27	670.5 - 690.5	0.044	16.48	13M5W7D	16QAM
LTE Band 71	27	670.5 - 690.5	0.033	15.25	13M5W7D	64QAM
LTE Band 71	27	670.5 - 690.5	0.017	12.38	13M5W7D	256QAM
LTE Band 71	27	673 - 688	0.048	16.77	17M9G7D	QPSK
LTE Band 71	27	673 - 688	0.040	15.99	17M9W7D	16QAM
LTE Band 71	27	673 - 688	0.030	14.71	17M9W7D	64QAM
LTE Band 71	27	673 - 688	0.015	11.89	17M9W7D	256QAM
LTE Band 12	27	699.7 - 715.3	0.063	17.96	1M10G7D	QPSK
LTE Band 12	27	699.7 - 715.3	0.052	17.17	1M10W7D	16QAM
LTE Band 12	27	699.7 - 715.3	0.040	16.01	1M10W7D	64QAM
LTE Band 12	27	699.7 - 715.3	0.020	13.04	1M09W7D	256QAM
LTE Band 12	27	700.5 - 714.5	0.062	17.95	2M70G7D	QPSK
LTE Band 12	27	700.5 - 714.5	0.056	17.52	2M72W7D	16QAM
LTE Band 12	27	700.5 - 714.5	0.043	16.36	2M71W7D	64QAM
LTE Band 12	27	700.5 - 714.5	0.023	13.54	2M71W7D	256QAM
LTE Band 12	27	701.5 - 713.5	0.067	18.28	4M50G7D	QPSK
LTE Band 12	27	701.5 - 713.5	0.058	17.60	4M51W7D	16QAM
LTE Band 12	27	701.5 - 713.5	0.047	16.71	4M52W7D	64QAM
LTE Band 12	27	701.5 - 713.5	0.023	13.65	4M50W7D	256QAM
LTE Band 12	27	704 - 711	0.048	16.84	9M01G7D	QPSK
LTE Band 12	27	704 - 711	0.041	16.14	8M97W7D	16QAM
LTE Band 12	27	704 - 711	0.032	15.09	8M99W7D	64QAM
LTE Band 12	27	704 - 711	0.018	12.59	8M98W7D	256QAM
LTE Band 13	27	779.5 - 784.5	0.064	18.05	4M51G7D	QPSK
LTE Band 13	27	779.5 - 784.5	0.059	17.69	4M50W7D	16QAM
LTE Band 13	27	779.5 - 784.5	0.035	15.39	4M52W7D	64QAM
LTE Band 13	27	779.5 - 784.5	0.029	14.68	4M49W7D	256QAM
LTE Band 13	27	782	0.075	18.76	8M97G7D	QPSK
LTE Band 13	27	782	0.062	17.89	8M99W7D	16QAM
LTE Band 13	27	782	0.052	17.16	8M97W7D	64QAM
LTE Band 13	27	782	0.032	15.02	8M93W7D	256QAM
LTE Band 5	22H	824.7 - 848.3	0.065	18.12	1M10G7D	QPSK
LTE Band 5	22H	824.7 - 848.3	0.058	17.61	1M10W7D	16QAM
LTE Band 5	22H	824.7 - 848.3	0.048	16.84	1M10W7D	64QAM
LTE Band 5	22H	824.7 - 848.3	0.023	13.71	1M09W7D	256QAM
LTE Band 5	22H	825.5 - 847.5	0.066	18.21	2M70G7D	QPSK
LTE Band 5	22H	825.5 - 847.5	0.055	17.42	2M72W7D	16QAM
LTE Band 5	22H	825.5 - 847.5	0.044	16.47	2M71W7D	64QAM
LTE Band 5	22H	825.5 - 847.5	0.027	14.26	2M71W7D	256QAM
LTE Band 5	22H	826.5 - 846.5	0.068	18.33	4M52G7D	QPSK
LTE Band 5	22H	826.5 - 846.5	0.054	17.33	4M50W7D	16QAM
LTE Band 5	22H	826.5 - 846.5	0.043	16.29	4M53W7D	64QAM
LTE Band 5	22H	826.5 - 846.5	0.031	14.86	4M51W7D	256QAM
LTE Band 5	22H	829 - 844	0.069	18.38	8M98G7D	QPSK
LTE Band 5	22H	829 - 844	0.056	17.48	9M00W7D	16QAM
LTE Band 5	22H	829 - 844	0.046	16.60	9M03W7D	64QAM
LTE Band 5	22H	829 - 844	0.033	15.18	8M99W7D	256QAM

EUT Overview (<1 GHz)

Mode	FCC Rule Part	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
			Max. Power (W)	Max. Power (dBm)		
LTE Band 66/4	27	1710.7 - 1779.3	0.211	23.24	1M09G7D	QPSK
LTE Band 66/4	27	1710.7 - 1779.3	0.157	21.95	1M10W7D	16QAM
LTE Band 66/4	27	1710.7 - 1779.3	0.108	20.35	1M10W7D	64QAM
LTE Band 66/4	27	1710.7 - 1779.3	0.072	18.57	1M09W7D	256QAM
LTE Band 66/4	27	1711.5 - 1778.5	0.207	23.16	2M71G7D	QPSK
LTE Band 66/4	27	1711.5 - 1778.5	0.199	22.98	2M71W7D	16QAM
LTE Band 66/4	27	1711.5 - 1778.5	0.063	17.99	2M71W7D	64QAM
LTE Band 66/4	27	1711.5 - 1778.5	0.044	16.42	2M71W7D	256QAM
LTE Band 66/4	27	1712.5 - 1777.5	0.206	23.13	4M51G7D	QPSK
LTE Band 66/4	27	1712.5 - 1777.5	0.179	22.52	4M52W7D	16QAM
LTE Band 66/4	27	1712.5 - 1777.5	0.091	19.59	4M52W7D	64QAM
LTE Band 66/4	27	1712.5 - 1777.5	0.062	17.91	4M51W7D	256QAM
LTE Band 66/4	27	1715 - 1775	0.199	22.99	9M03G7D	QPSK
LTE Band 66/4	27	1715 - 1775	0.156	21.93	8M98W7D	16QAM
LTE Band 66/4	27	1715 - 1775	0.110	20.41	9M00W7D	64QAM
LTE Band 66/4	27	1715 - 1775	0.067	18.26	8M97W7D	256QAM
LTE Band 66/4	27	1717.5 - 1772.5	0.208	23.18	13M5G7D	QPSK
LTE Band 66/4	27	1717.5 - 1772.5	0.184	22.65	13M5W7D	16QAM
LTE Band 66/4	27	1717.5 - 1772.5	0.121	20.81	13M5W7D	64QAM
LTE Band 66/4	27	1717.5 - 1772.5	0.074	18.68	13M5W7D	256QAM
LTE Band 66/4	27	1720 - 1770	0.223	23.47	18M0G7D	QPSK
LTE Band 66/4	27	1720 - 1770	0.180	22.55	18M0W7D	16QAM
LTE Band 66/4	27	1720 - 1770	0.131	21.17	18M0W7D	64QAM
LTE Band 66/4	27	1720 - 1770	0.079	18.96	17M9W7D	256QAM
LTE Band 25/2	24E	1850.7 - 1914.3	0.232	23.66	1M10G7D	QPSK
LTE Band 25/2	24E	1850.7 - 1914.3	0.221	23.44	1M10W7D	16QAM
LTE Band 25/2	24E	1850.7 - 1914.3	0.176	22.47	1M10W7D	64QAM
LTE Band 25/2	24E	1850.7 - 1914.3	0.085	19.31	1M09W7D	256QAM
LTE Band 25/2	24E	1851.5 - 1913.5	0.235	23.71	2M70G7D	QPSK
LTE Band 25/2	24E	1851.5 - 1913.5	0.219	23.40	2M71W7D	16QAM
LTE Band 25/2	24E	1851.5 - 1913.5	0.158	22.00	2M71W7D	64QAM
LTE Band 25/2	24E	1851.5 - 1913.5	0.083	19.22	2M71W7D	256QAM
LTE Band 25/2	24E	1852.5 - 1912.5	0.218	23.38	4M50G7D	QPSK
LTE Band 25/2	24E	1852.5 - 1912.5	0.195	22.91	4M52W7D	16QAM
LTE Band 25/2	24E	1852.5 - 1912.5	0.153	21.86	4M53W7D	64QAM
LTE Band 25/2	24E	1852.5 - 1912.5	0.073	18.66	4M50W7D	256QAM
LTE Band 25/2	24E	1855 - 1910	0.214	23.30	9M03G7D	QPSK
LTE Band 25/2	24E	1855 - 1910	0.183	22.64	8M99W7D	16QAM
LTE Band 25/2	24E	1855 - 1910	0.132	21.22	9M00W7D	64QAM
LTE Band 25/2	24E	1855 - 1910	0.075	18.74	8M98W7D	256QAM
LTE Band 25/2	24E	1857.5 - 1907.5	0.238	23.77	13M5G7D	QPSK
LTE Band 25/2	24E	1857.5 - 1907.5	0.212	23.26	13M5W7D	16QAM
LTE Band 25/2	24E	1857.5 - 1907.5	0.158	21.98	13M5W7D	64QAM
LTE Band 25/2	24E	1857.5 - 1907.5	0.081	19.10	13M5W7D	256QAM
LTE Band 25/2	24E	1860 - 1905	0.206	23.14	18M0G7D	QPSK
LTE Band 25/2	24E	1860 - 1905	0.198	22.98	18M0W7D	16QAM
LTE Band 25/2	24E	1860 - 1905	0.139	21.43	18M0W7D	64QAM
LTE Band 25/2	24E	1860 - 1905	0.085	19.31	18M0W7D	256QAM

EUT Overview (Mid Bands)

Mode	FCC Rule Part	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
			Max. Power (W)	Max. Power (dBm)		
LTE Band 30	27	2307.5 - 2312.5	0.205	23.12	4M52G7D	QPSK
LTE Band 30	27	2307.5 - 2312.5	0.160	22.03	4M52W7D	16QAM
LTE Band 30	27	2307.5 - 2312.5	0.124	20.94	4M52W7D	64QAM
LTE Band 30	27	2307.5 - 2312.5	0.060	17.75	4M51W7D	256QAM
LTE Band 30	27	2310	0.208	23.18	8M98G7D	QPSK
LTE Band 30	27	2310	0.159	22.01	8M95W7D	16QAM
LTE Band 30	27	2310	0.119	20.75	8M99W7D	64QAM
LTE Band 30	27	2310	0.056	17.47	8M97W7D	256QAM
LTE Band 7	27	2502.5 - 2567.5	0.153	21.85	4M51G7D	QPSK
LTE Band 7	27	2502.5 - 2567.5	0.145	21.61	4M52W7D	16QAM
LTE Band 7	27	2502.5 - 2567.5	0.097	19.87	4M53W7D	64QAM
LTE Band 7	27	2502.5 - 2567.5	0.044	16.45	4M51W7D	256QAM
LTE Band 7	27	2505 - 2565	0.160	22.05	9M03G7D	QPSK
LTE Band 7	27	2505 - 2565	0.143	21.54	8M97W7D	16QAM
LTE Band 7	27	2505 - 2565	0.102	20.07	8M98W7D	64QAM
LTE Band 7	27	2505 - 2565	0.053	17.23	8M98W7D	256QAM
LTE Band 7	27	2507.5 - 2562.5	0.161	22.06	13M5G7D	QPSK
LTE Band 7	27	2507.5 - 2562.5	0.153	21.83	13M5W7D	16QAM
LTE Band 7	27	2507.5 - 2562.5	0.108	20.31	13M5W7D	64QAM
LTE Band 7	27	2507.5 - 2562.5	0.057	17.57	13M5W7D	256QAM
LTE Band 7	27	2510 - 2560	0.164	22.15	17M9G7D	QPSK
LTE Band 7	27	2510 - 2560	0.145	21.62	17M9W7D	16QAM
LTE Band 7	27	2510 - 2560	0.115	20.60	17M9W7D	64QAM
LTE Band 7	27	2510 - 2560	0.063	18.01	17M9W7D	256QAM
LTE Band 41 (PC3) /38	27	2498.5 - 2687.5	0.200	23.01	4M52G7D	QPSK
LTE Band 41 (PC3) /38	27	2498.5 - 2687.5	0.173	22.37	4M52W7D	16QAM
LTE Band 41 (PC3) /38	27	2498.5 - 2687.5	0.086	19.36	4M53W7D	64QAM
LTE Band 41 (PC3) /38	27	2498.5 - 2687.5	0.044	16.39	4M50W7D	256QAM
LTE Band 41 (PC3) /38	27	2501 - 2685	0.191	22.80	8M93G7D	QPSK
LTE Band 41 (PC3) /38	27	2501 - 2685	0.150	21.77	8M85W7D	16QAM
LTE Band 41 (PC3) /38	27	2501 - 2685	0.090	19.56	8M99W7D	64QAM
LTE Band 41 (PC3) /38	27	2501 - 2685	0.056	17.48	9M01W7D	256QAM
LTE Band 41 (PC3) /38	27	2503.5 - 2682.5	0.202	23.05	13M5G7D	QPSK
LTE Band 41 (PC3) /38	27	2503.5 - 2682.5	0.143	21.55	13M5W7D	16QAM
LTE Band 41 (PC3) /38	27	2503.5 - 2682.5	0.113	20.52	13M5W7D	64QAM
LTE Band 41 (PC3) /38	27	2503.5 - 2682.5	0.063	18.02	13M5W7D	256QAM
LTE Band 41 (PC3) /38	27	2506 - 2680	0.236	23.72	18M0G7D	QPSK
LTE Band 41 (PC3) /38	27	2506 - 2680	0.196	22.92	18M0W7D	16QAM
LTE Band 41 (PC3) /38	27	2506 - 2680	0.140	21.45	17M9W7D	64QAM
LTE Band 41 (PC3) /38	27	2506 - 2680	0.076	18.79	18M0W7D	256QAM

EUT Overview (High Bands)

Mode	FCC Rule Part	Tx Frequency (MHz)	ERP		Emission Designator	Modulation
			Max. Power (W)	Max. Power (dBm)		
n71	27	665.5 - 695.5	0.024	13.80	4M51G7D	QPSK
n71	27	665.5 - 695.5	0.020	13.04	4M50W7D	16QAM
n71	27	665.5 - 695.5	0.018	12.57	4M56W7D	64QAM
n71	27	665.5 - 695.5	0.011	10.30	4M52W7D	256QAM
n71	27	668 - 693	0.025	14.06	9M34G7D	QPSK
n71	27	668 - 693	0.019	12.83	9M35W7D	16QAM
n71	27	668 - 693	0.015	11.71	9M31W7D	64QAM
n71	27	668 - 693	0.010	10.07	9M31W7D	256QAM
n71	27	670.5 - 690.5	0.025	14.01	14M3G7D	QPSK
n71	27	670.5 - 690.5	0.020	13.03	14M3W7D	16QAM
n71	27	670.5 - 690.5	0.018	12.58	14M3W7D	64QAM
n71	27	670.5 - 690.5	0.012	10.64	14M3W7D	256QAM
n71	27	673 - 688	0.029	14.62	19M0G7D	QPSK
n71	27	673 - 688	0.023	13.64	19M0W7D	16QAM
n71	27	673 - 688	0.020	12.94	19M1W7D	64QAM
n71	27	673 - 688	0.012	10.70	19M0W7D	256QAM

EUT Sub 6GHz Overview (<1 GHz)

Mode	FCC Rule Part	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
			Max. Power (W)	Max. Power (dBm)		
n66	27	1712.5 - 1777.5	0.183	22.63	4M52G7D	QPSK
n66	27	1712.5 - 1777.5	0.144	21.60	4M49W7D	16QAM
n66	27	1712.5 - 1777.5	0.098	19.91	4M51W7D	64QAM
n66	27	1712.5 - 1777.5	0.058	17.61	4M49W7D	256QAM
n66	27	1715 - 1775	0.177	22.48	9M33G7D	QPSK
n66	27	1715 - 1775	0.142	21.53	8M97W7D	16QAM
n66	27	1715 - 1775	0.093	19.68	8M96W7D	64QAM
n66	27	1715 - 1775	0.062	17.92	9M02W7D	256QAM
n66	27	1717.5 - 1772.5	0.170	22.30	14M2G7D	QPSK
n66	27	1717.5 - 1772.5	0.129	21.12	13M5W7D	16QAM
n66	27	1717.5 - 1772.5	0.097	19.88	13M5W7D	64QAM
n66	27	1717.5 - 1772.5	0.070	18.43	13M5W7D	256QAM
n66	27	1720 - 1770	0.187	22.72	19M0G7D	QPSK
n66	27	1720 - 1770	0.150	21.75	18M9W7D	16QAM
n66	27	1720 - 1770	0.112	20.48	19M0W7D	64QAM
n66	27	1720 - 1770	0.071	18.51	19M0W7D	256QAM
n41	27	2506.02 - 2679.99	0.129	21.11	18M3G7D	QPSK
n41	27	2506.02 - 2679.99	0.079	19.00	18M3W7D	16QAM
n41	27	2506.02 - 2679.99	0.062	17.89	18M3W7D	64QAM
n41	27	2506.02 - 2679.99	0.038	15.83	18M3W7D	256QAM
n41	27	2516.01 - 2670	0.120	20.79	37M9G7D	QPSK
n41	27	2516.01 - 2670	0.075	18.76	37M9W7D	16QAM
n41	27	2516.01 - 2670	0.059	17.71	37M9W7D	64QAM
n41	27	2516.01 - 2670	0.042	16.23	37M7W7D	256QAM
n41	27	2521.02 - 2664.99	0.124	20.95	47M6G7D	QPSK
n41	27	2521.02 - 2664.99	0.096	19.83	47M4W7D	16QAM
n41	27	2521.02 - 2664.99	0.081	19.07	47M5W7D	64QAM
n41	27	2521.02 - 2664.99	0.054	17.34	47M4W7D	256QAM
n41	27	2526 - 2659.98	0.086	19.34	58M0G7D	QPSK
n41	27	2526 - 2659.98	0.077	18.87	58M0W7D	16QAM
n41	27	2526 - 2659.98	0.061	17.85	57M9W7D	64QAM
n41	27	2526 - 2659.98	0.044	16.43	57M7W7D	256QAM
n41	27	2536.02 - 2649.99	0.109	20.38	78M4G7D	QPSK
n41	27	2536.02 - 2649.99	0.077	18.88	78M6W7D	16QAM
n41	27	2536.02 - 2649.99	0.061	17.84	78M5W7D	64QAM
n41	27	2536.02 - 2649.99	0.047	16.73	78M2W7D	256QAM
n41	27	2541 - 2644.98	0.143	21.56	87M9G7D	QPSK
n41	27	2541 - 2644.98	0.128	21.06	88M1W7D	16QAM
n41	27	2541 - 2644.98	0.082	19.12	87M8W7D	64QAM
n41	27	2541 - 2644.98	0.051	17.04	87M9W7D	256QAM
n41	27	2546.01 - 2640	0.123	20.90	97M7G7D	QPSK
n41	27	2546.01 - 2640	0.105	20.22	97M5W7D	16QAM
n41	27	2546.01 - 2640	0.090	19.56	97M7W7D	64QAM
n41	27	2546.01 - 2640	0.060	17.78	97M7W7D	256QAM

EUT Sub 6GHz Overview (>1GHz)

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 Engineering Laboratory, Inc. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

1.3 Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab located in Columbia, MD 21046, U.S.A.

- PCTEST is an ISO 17025-2005 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.

- 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 (2451B) 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 **Samsung Portable Handset FCC ID: A3LSMG986W**. The test data contained in this report pertains only to the emissions due to the EUT's LTE and Sub 6GHz NR functions.

Test Device Serial No.: 0923M, 0980H, 0983M, 0342M, 0345M, 1029M, 1019M, 1031M, 0410M

2.2 Device Capabilities

This device contains the following capabilities:

850 CDMA/EvDO Rev0/A, 1x Advanced (BC0), 850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, 5G NR (n71, n66, n41), 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII, Bluetooth (1x, EDR, LE), NFC, ANT+, Wireless Power Transfer

LTE Band 66 (1710 - 1780 MHz) overlaps the entire frequency range of LTE Band 4 (1710 - 1755 MHz). Therefore, test data provided in this report covers Band 4 as well as Band 66.

LTE Band 25 (1850 - 1915 MHz) overlaps the entire frequency range of LTE Band 2 (1850 - 1910 MHz). Therefore, test data provided in this report covers Band 2 as well as Band 25.

Sub 6GHz NR Band n71 (663 – 698 MHz) operates using 15kHz Subcarrier Spacing with both CP-OFDM and DFT-s OFDM waveforms. The band supports QPSK, 16QAM, 64QAM, and 256QAM modulation. The test data provided in this report represents the worst case configuration.
Sub 6GHz NR Band n66 (1710 – 1780 MHz) operates using 15kHz Subcarrier Spacing with both CP-OFDM and DFT-s OFDM waveforms. The band supports QPSK, 16QAM, 64QAM, and 256QAM modulation. The test data provided in this report represents the worst case configurations.
Sub 6GHz NR Band n41 (2496 – 2690 MHz) operates using 30kHz Subcarrier Spacing with both CP-OFDM and DFT-s OFDM waveforms. The band supports QPSK, 16QAM, 64QAM, and 256QAM modulation. The test data provided in this report represents the worst case configurations.

This device uses a tuner circuit that dynamically updates the antenna impedance parameters to optimize antenna performance for certain bands and modes of operation. The tuner for this device was set to simulate a "free space" condition where the transmit antenna is matched to the medium into which it is transmitting and, thus, the power is at its maximum level.

2.3 Test Configuration

The EUT was tested per the guidance of ANSI/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.

This device supports wireless charging capability and, thus, is subject to the test requirements of KDB 648474 D03 v01r04. Additional radiated spurious emission measurements were performed with the EUT lying flat on an authorized wireless charging pad (WCP) Model: EP-N5100 while operating under normal conditions in a simulated call or data transmission configuration. The worst case radiated emissions data is shown in this report.
The device was operated using FTM test software to broadcast Sub 6GHz functions as well as LTE during EN-DC operations.

2.4 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 Measurement Procedure

The measurement procedures described in the document titled "Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards" (ANSI/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**.**

3.2 Radiated Power and 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. Radiated power levels are also investigated with the receive antenna horizontally and vertically polarized. The maximized power level is recorded using the spectrum analyzer "Channel Power" function with the integration band set to the emissions' occupied bandwidth, a RMS detector, RBW = 100kHz, VBW = 300kHz, and a 1 second sweep time over a minimum of 10 sweeps, per the guidelines of KDB 971168 D01 v03r01.

Per the guidance of ANSI/TIA-603-E-2016, a half-wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

$$P_{d\ [dBm]} = P_{g\ [dBm]} - \text{cable loss}_{\ [dB]} + \text{antenna gain}_{\ [dBd/dBi]}$$

Where, P_d is the dipole equivalent power, P_g is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to $P_{g\ [dBm]}$ – cable loss $_{[dB]}$.

The calculated P_d levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of 43 + 10 $\log_{10}$(Power $_{[Watts]}$). For Band 7 and 41, the calculated P_d levels are compared to the absolute spurious emission limit of -25dBm which is equivalent to the required minimum attenuation of 55 + 10 $\log_{10}$(Power $_{[Watts]}$). For Band 30 and 48, the calculated P_d levels are compared to the absolute spurious emission limit of -40dBm which is equivalent to the required minimum attenuation of 70 + 10 $\log_{10}$(Power $_{[Watts]}$).

All radiated measurements are performed in a chamber that meets the site requirements per ANSI C63.4-2014. Additionally, radiated emissions below 30MHz are also validated on an Open Area Test Site to assert correlation with the chamber measurements per the requirements of KDB 474788 D01.

4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty (±dB)
Conducted Bench Top Measurements	1.13
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

5.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	LTx1	Licensed Transmitter Cable Set	6/4/2019	Annual	6/4/2020	LTx1
-	LTx5	LIcensed Transmitter Cable Set	6/5/2019	Annual	6/5/2020	LTx5
Agilent	N9020A	MXA Signal Analyzer	4/20/2019	Annual	4/20/2020	US46470561
Agilent	N9038A	MXE EMI Receiver	7/17/2019	Annual	7/17/2020	MY51210133
Agilent	N9030A	PXA Signal Analyzer (44GHz)	6/12/2019	Annual	6/12/2020	MY52350166
Com-Power	PAM-103	Pre-Amplifier (1-1000MHz)	5/10/2019	Annual	5/10/2020	441112
Emco	3115	Horn Antenna (1-18GHz)	3/28/2018	Biennial	3/28/2020	9704-5182
EMCO	3160-09	Small Horn (18 - 26.5GHz)	8/9/2018	Biennial	8/9/2020	135427
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	2/14/2019	Biennial	2/14/2021	125518
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	2/22/2019	Biennial	2/22/2021	128338
Mini Circuits	TVA-11-422	RF Power Amp	N/A			QA1317001
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11208010032
Mini-Circuits	PWR-SEN-4RMS	USB Power Sensor	4/20/2019	Annual	4/20/2020	11210140001
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11403100002
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A			100976
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	6/5/2019	Annual	6/5/2020	100342
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	7/11/2019	Annual	7/11/2020	102134
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Tx	4/30/2018	Biennial	4/30/2020	9105-2403
Seekonk	NC-100	Torque Wrench (8" lb)	5/10/2018	Biennial	5/10/2020	N/A
Sunol	DRH-118	Horn Antenna (1-18GHz)	10/3/2019	Biennial	10/3/2021	A050307
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	4/19/2018	Biennial	4/19/2020	A051107

Table 5-1. Test Equipment

Notes:

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

2. Equipment with a calibration date of "N/A" shown in this list was not used to make direct calibrated measurements.

6.0 SAMPLE CALCULATIONS

Emission Designator

QPSK Modulation

Emission Designator = 8M62G7D

LTE BW = 8.62 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data transmission, telemetry, telecommand

QAM Modulation

Emission Designator = 8M45W7D

LTE BW = 8.45 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data transmission, telemetry, telecommand

Spurious Radiated Emission – LTE Band

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

The average spectrum analyzer reading at 3 meters with the EUT on the turntable was –81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of –81.0 dBm on the spectrum analzyer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 1564 MHz. So 6.1 dB is added to the signal generator reading of –30.9 dBm yielding –24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm – (-24.80).

7.0 TEST RESULTS

7.1 Summary

Company Name: Samsung Electronics Co., Ltd.

FCC ID: A3LSMG986W

FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)

Mode(s): LTE / Sub 6GHz NR

FCC Part Section(s)	ISED Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1049	RSS-Gen(4.6.1) RSS-133(2.3) RSS-139(2.3)	Occupied Bandwidth	N/A	CONDUCTED	PASS	Section 7.2, 7.12
2.1051 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	RSS-130(4.7) RSS-132(5.5) RSS-133(6.5) RSS-139(6.6)	Out of Band Emissions	> 43 + 10 $\log_{10}$ (P[Watts]) at Band Edge and for all out-of-band emissions			Section 7.3, 7.4, 7.12
27.53(m)	RSS-199(4.5)	Out of Band Emissions	Undesirable emissions must meet the limits detailed in 27.53(m)			Section 7.3, 7.4, 7.12
27.53(a)	RSS-195(5.6)	Out of Band Emissions	Undesirable emissions must meet the limits detailed in 27.53(a)			Section 7.3, 7.4, 7.12
24.232(d) 27.50	RSS-130(4.6) RSS-132(5.4) RSS-133(6.4) RSS-139(6.5)	Peak-Average Ratio	< 13 dB			Section 7.5, 7.12
2.1046	RSS-130(4.6) RSS-132(5.4) RSS-133(4.1) RSS-139(4.1) RSS-199(4.4)	Transmitter Conducted Output Power	N/A			See RF Exposure Report
2.1055 22.355 24.235 27.54	RSS-130(4.5) RSS-132(5.3) RSS-133(6.3) RSS-139(6.4) RSS-199(4.3)	Frequency Stability	< 2.5 ppm (Part 22) and fundamental emissions stay within authorized frequency block (Part 24, 27)			Section 7.8, 7.12

Table 7-1. Summary of Conducted Test Results

FCC Part Section(s)	ISED Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
22.913(a)(5)	RSS-132(5.4)	Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 5)	< 7 Watts max. ERP	RADIATED	PASS	Section 7.8, 7.12
27.50(b)(10) 27.50(c)(10)	RSS-130(4.6)	Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 71, 12, 13)	< 3 Watts max. ERP			Section 7.8, 7.12
24.232(c) 27.50(h)(2)	RSS-133(6.4) RSS-199(4.4)	Equivalent Isotropic Radiated Power (Band 2/25, 7, 41/38)	< 2 Watts max. EIRP			Section 7.8, 7.12
27.50(d)(4)	RSS-139(6.5)	Equivalent Isotropic Radiated Power (Band 4/66)	< 1 Watts max. EIRP			Section 7.8, 7.12
27.50(a)(3)	RSS-195(5.5)	Equivalent Isotropic Radiated Power (Band 30)	< 0.25 Watts max. EIRP			Section 7.8
2.1053 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	RSS-130(4.7) RSS-132(5.5) RSS-133(6.5) RSS-139(6.6)	Undesirable Emissions (Band 12, 13, 5, 66/4, 25/2)	> 43 + 10 $\log_{10}$ (P[Watts]) for all out-of-band emissions			Section 7.7, 7.12
27.53(f)	RSS-130 (4.7.2)	Undesirable Emissions (Band 13)	< -70 dBW/MHz (for wideband signals) < -80 dBW (for discrete emissions less than 700Hz BW) For all emissions in the band 1559 – 1610 MHz			Section 7.7
27.53(a)	RSS-195(5.6)	Undesirable Emissions (Band 30)	> 70 + 10 $\log_{10}$ (P[Watts])			Section 7.7
27.53(m)	RSS-199(4.5)	Undesirable Emissions (Band 7, 41/38)	Undesirable emissions must meet the limits detailed in 27.53(m)			Section 7.7, 7.12

Table 7-2. Summary of Radiated 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 (Sections 7.2, 7.3, 7.4, 7.5, 7.12) 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) For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST "LTE Automation," Version 5.3.

7.2 Occupied Bandwidth

Test Overview

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 4.2

Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5% of the expected OBW
3. VBW ≥ 3 x RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5% of the 99% occupied bandwidth observed in Step 7

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

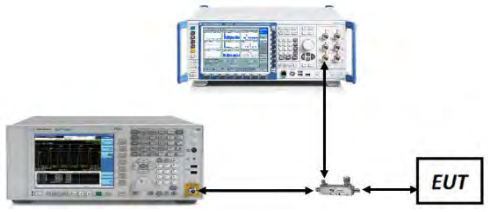
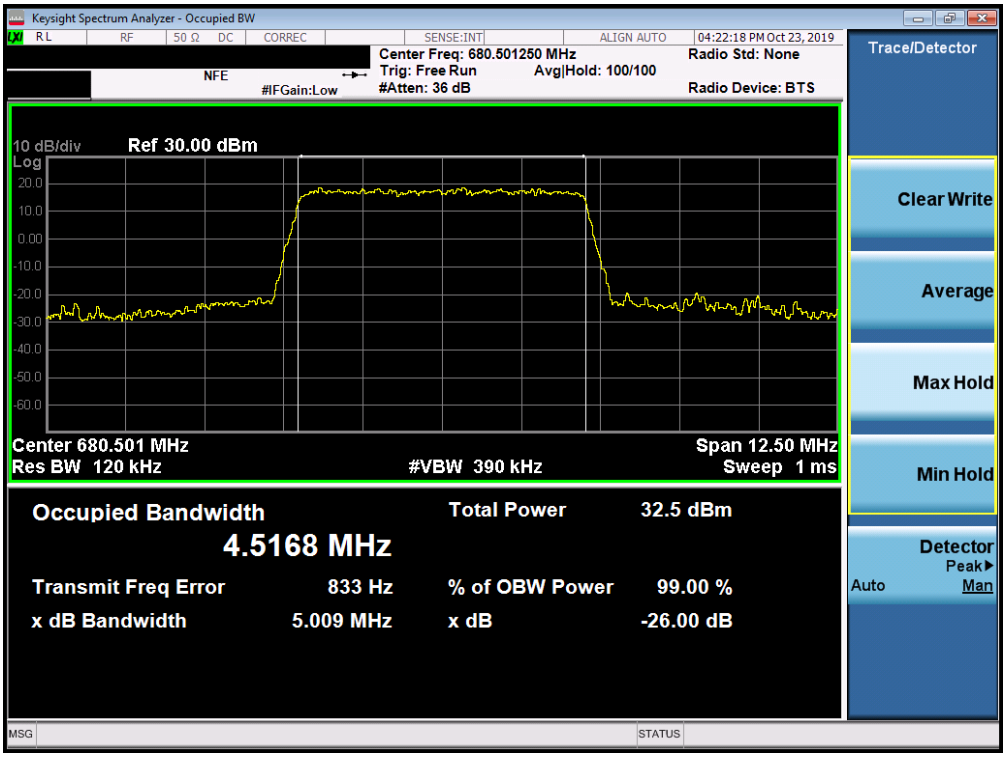


Figure 7-1. Test Instrument & Measurement Setup

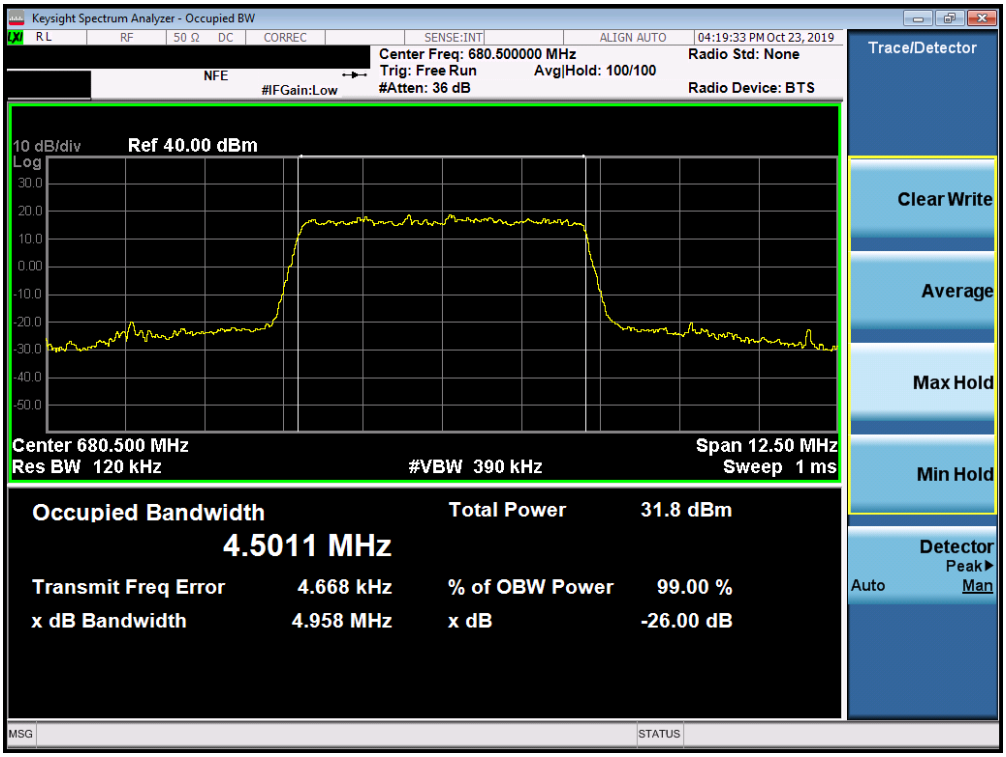
Test Notes

None.

Band 71



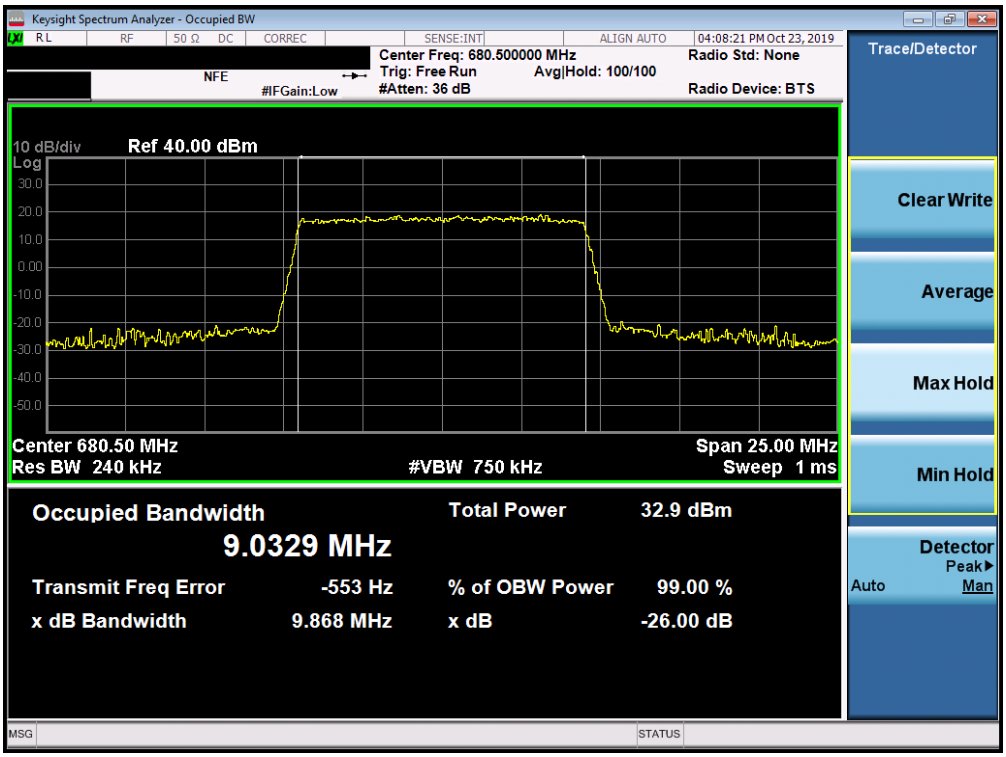
Plot 7-1. Occupied Bandwidth Plot (Band 71 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-2. Occupied Bandwidth Plot (Band 71 - 5.0MHz 16-QAM - Full RB Configuration)

Plot 7-3. Occupied Bandwidth Plot (Band 71 - 5.0MHz 64-QAM - Full RB Configuration)

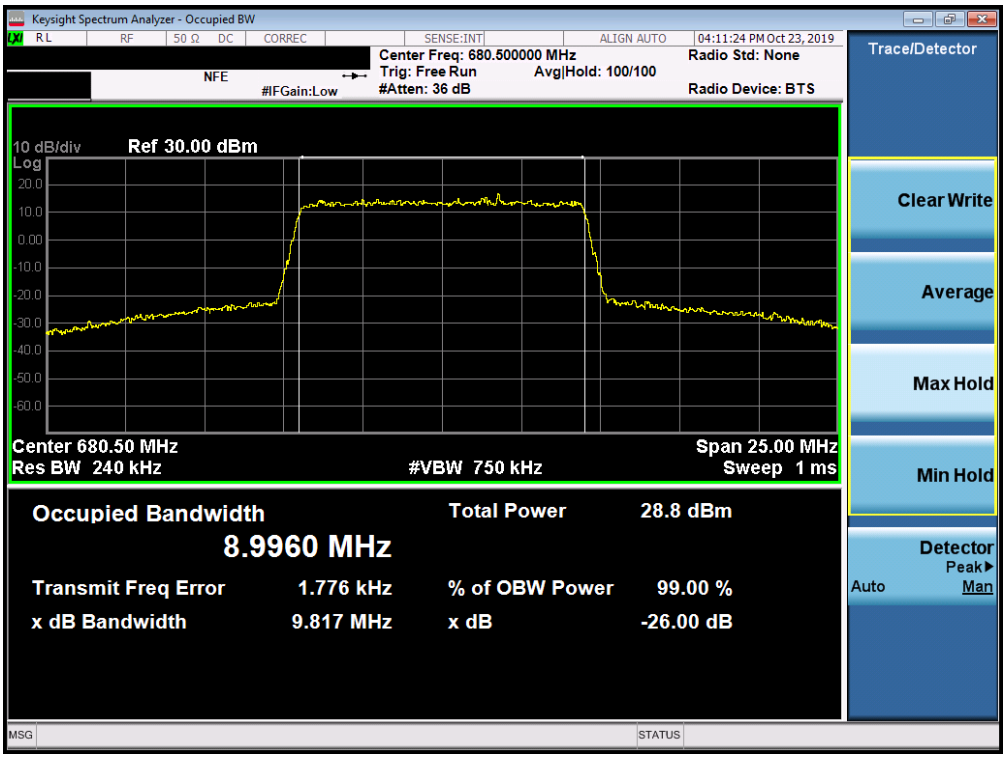
Plot 7-4. Occupied Bandwidth Plot (Band 71 - 5.0MHz 256-QAM - Full RB Configuration)



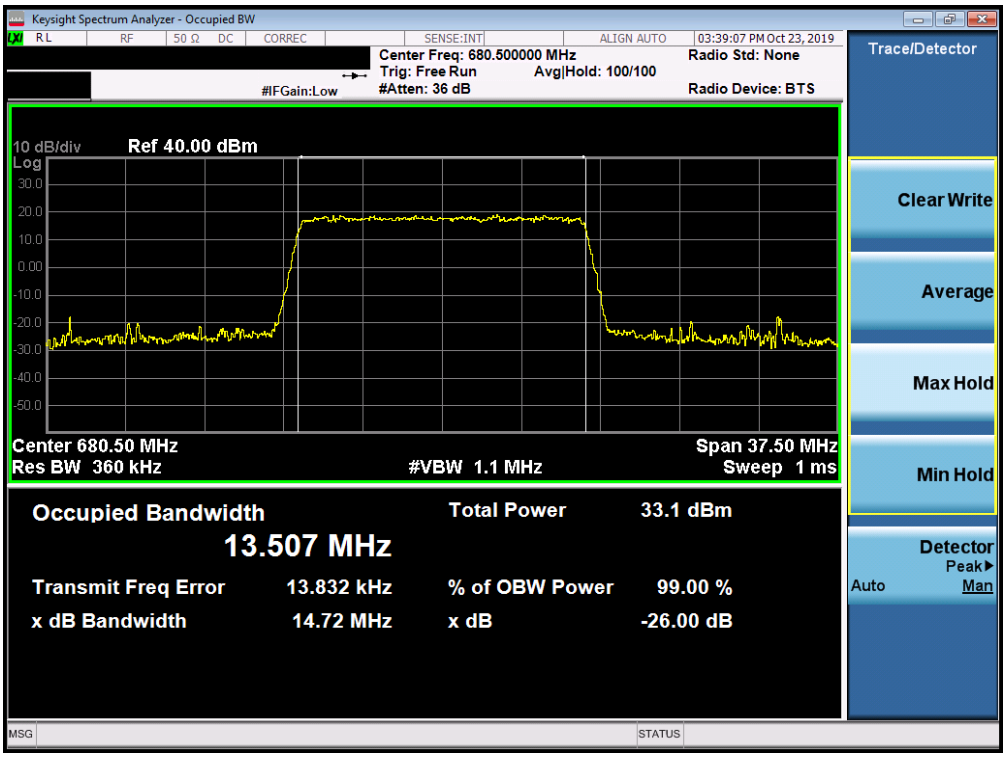
Plot 7-5. Occupied Bandwidth Plot (Band 71 - 10.0MHz QPSK - Full RB Configuration)

Plot 7-6. Occupied Bandwidth Plot (Band 71 - 10.0MHz 16-QAM - Full RB Configuration)

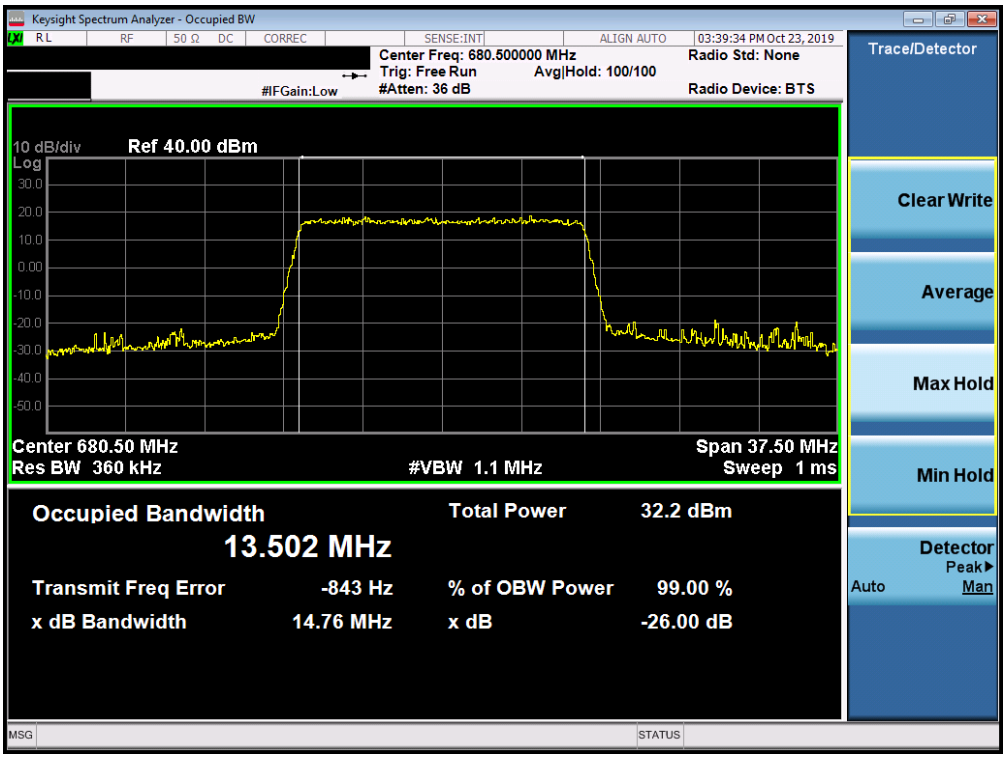
Plot 7-7. Occupied Bandwidth Plot (Band 71 - 10.0MHz 64-QAM - Full RB Configuration)



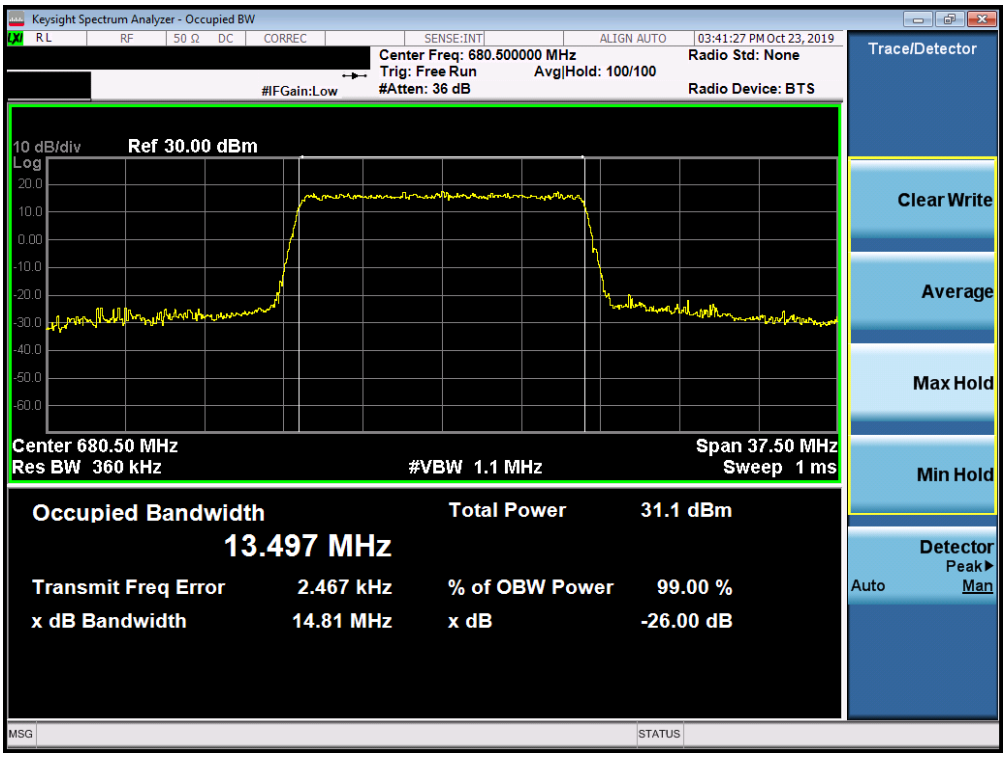
Plot 7-8. Occupied Bandwidth Plot (Band 71 - 10.0MHz 256-QAM - Full RB Configuration)



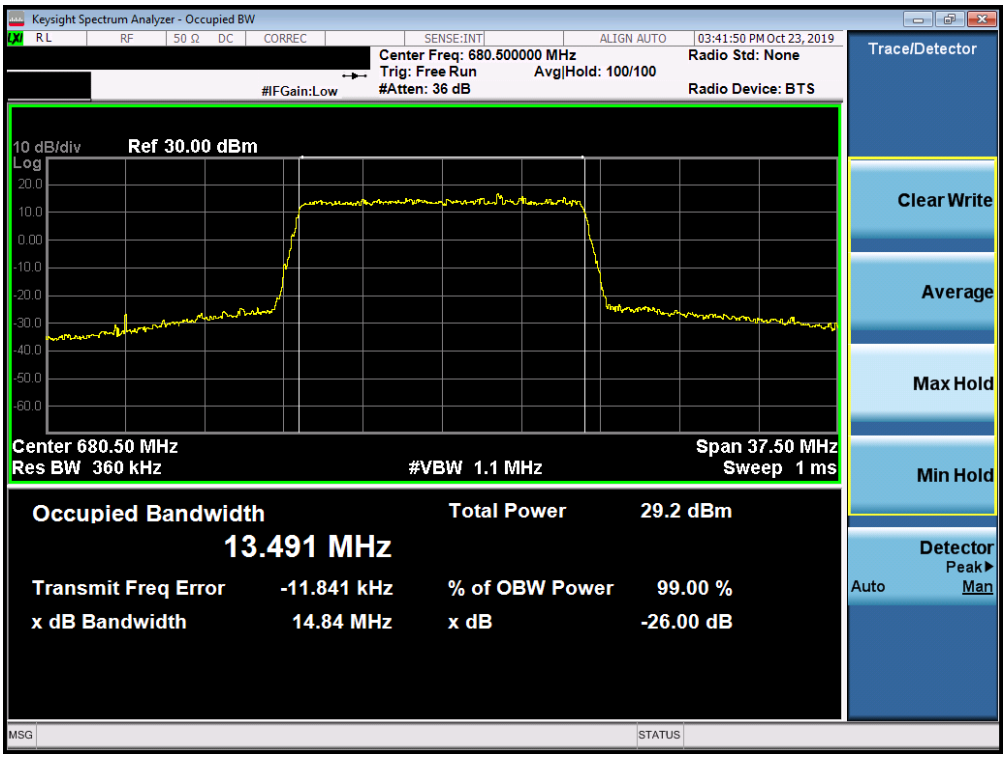
Plot 7-9. Occupied Bandwidth Plot (Band 71 - 15.0MHz QPSK - Full RB Configuration)



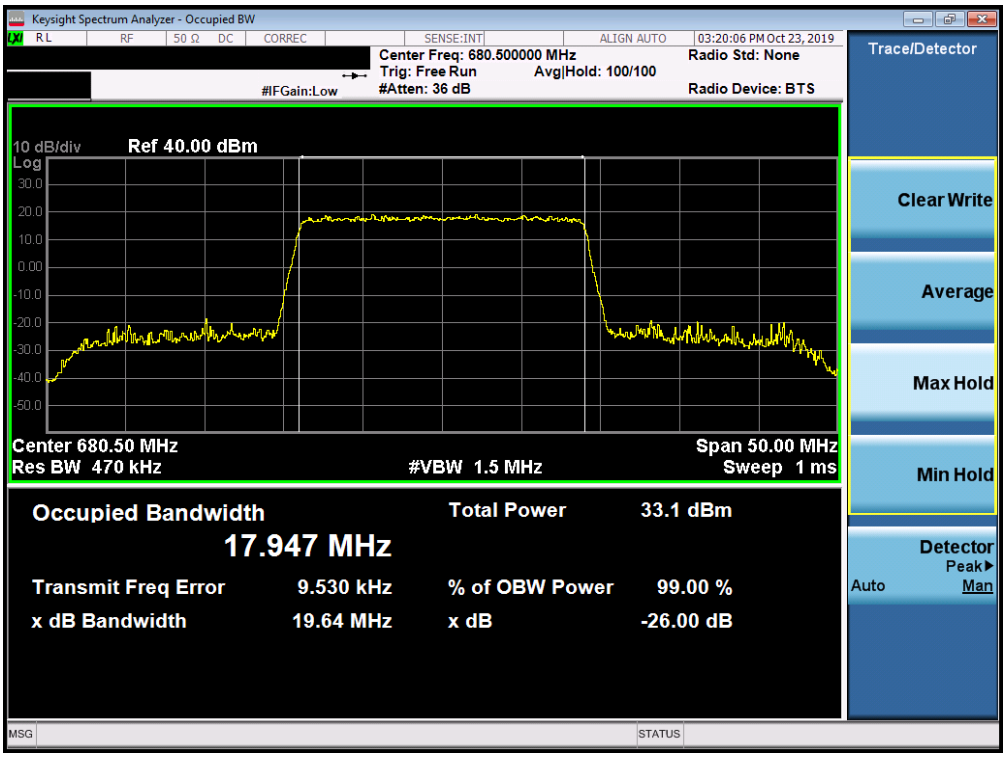
Plot 7-10. Occupied Bandwidth Plot (Band 71 - 15.0MHz 16-QAM - Full RB Configuration)



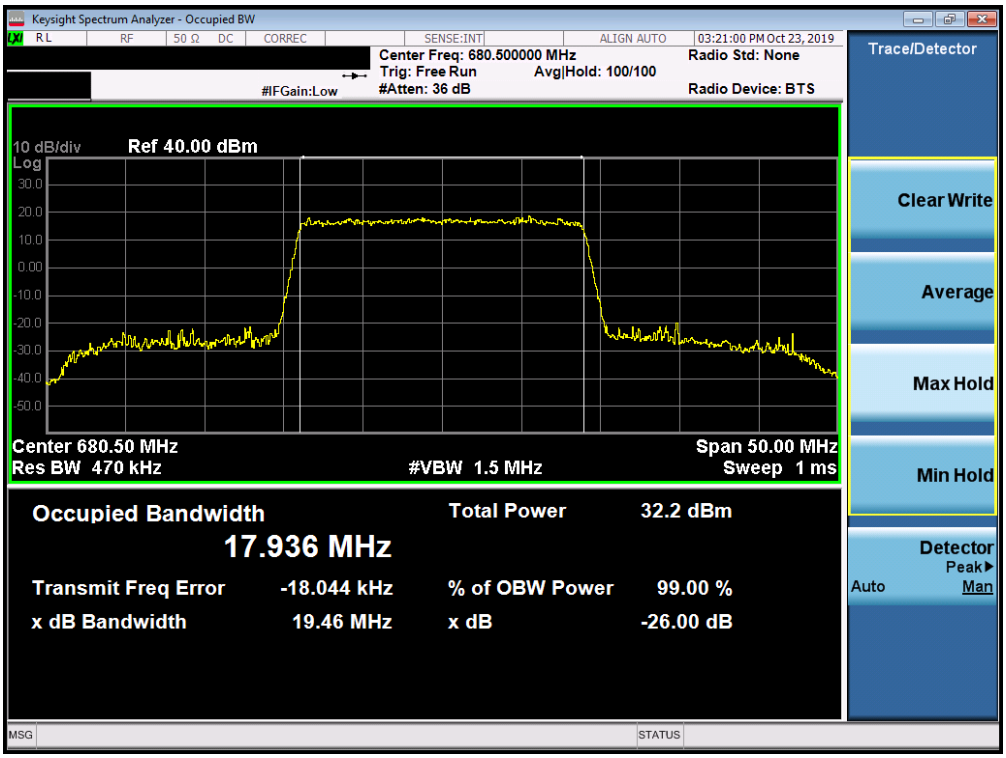
Plot 7-11. Occupied Bandwidth Plot (Band 71 - 15.0MHz 64-QAM - Full RB Configuration)



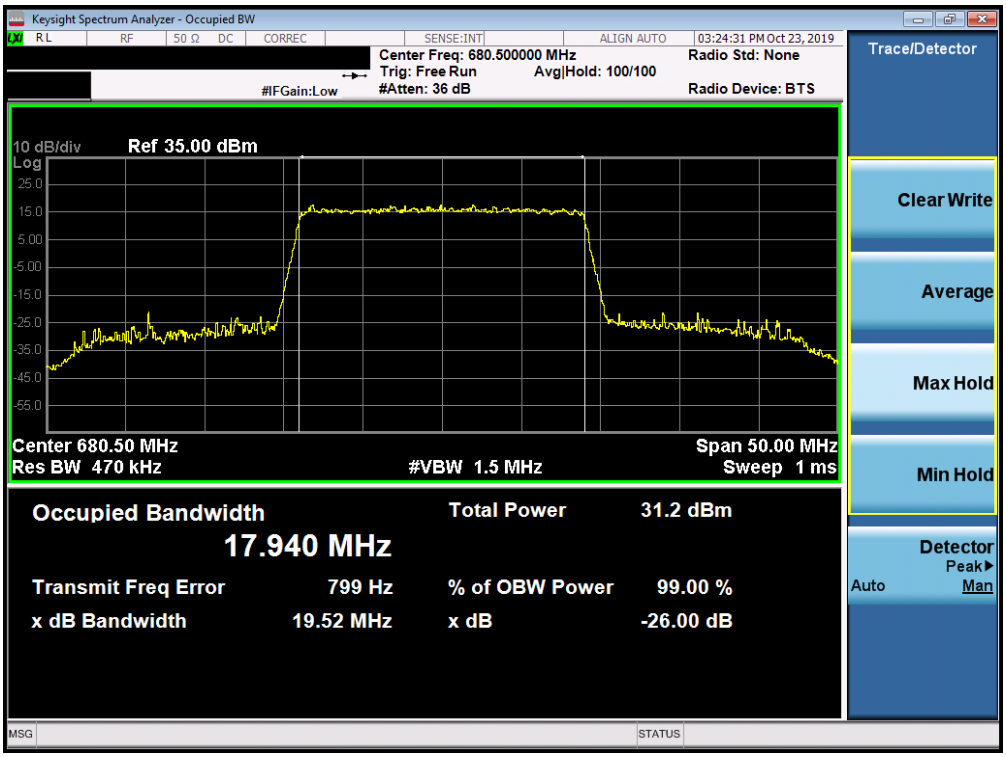
Plot 7-12. Occupied Bandwidth Plot (Band 71 - 15.0MHz 256-QAM - Full RB Configuration)



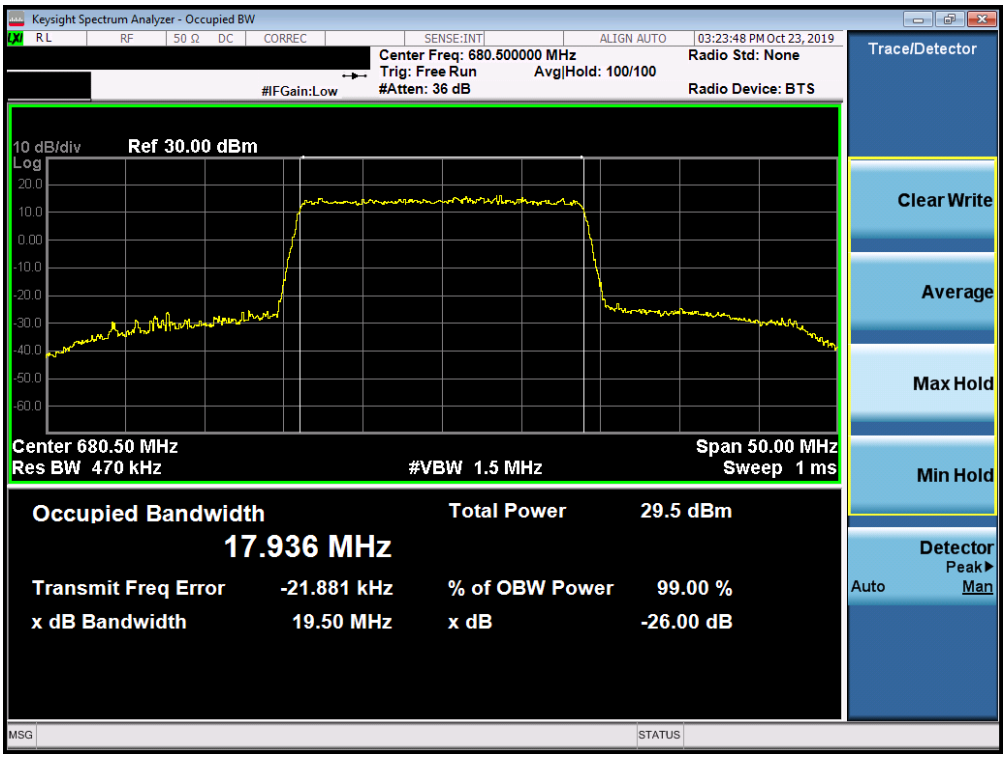
Plot 7-13. Occupied Bandwidth Plot (Band 71 - 20.0MHz QPSK - Full RB Configuration)



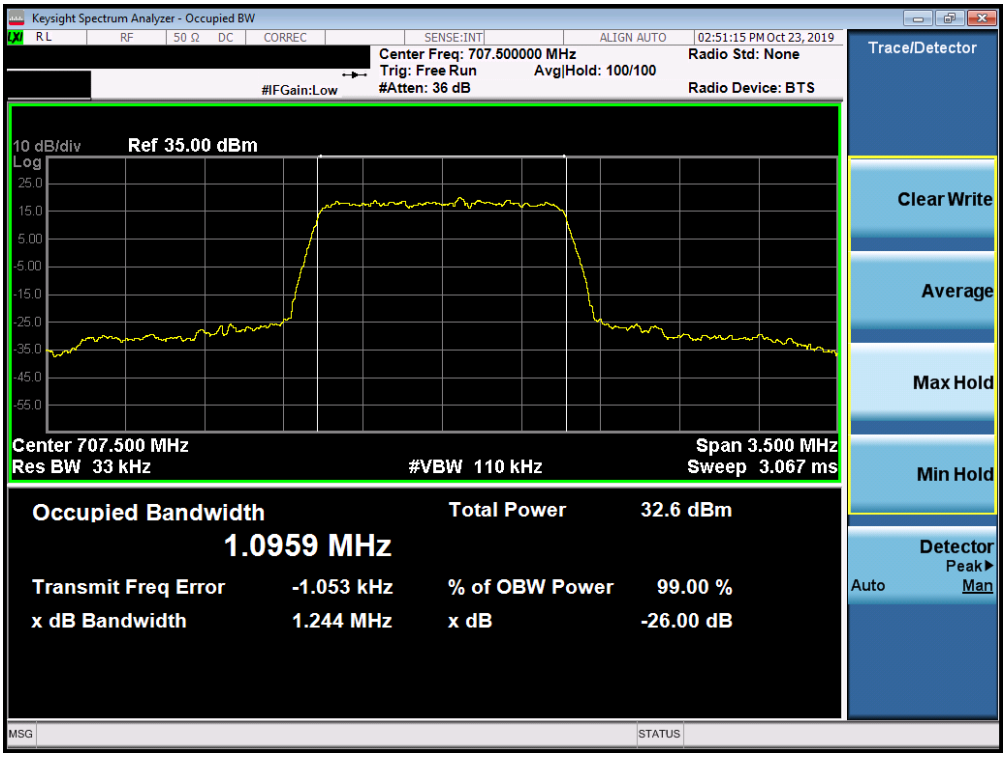
Plot 7-14. Occupied Bandwidth Plot (Band 71 - 20.0MHz 16-QAM - Full RB Configuration)



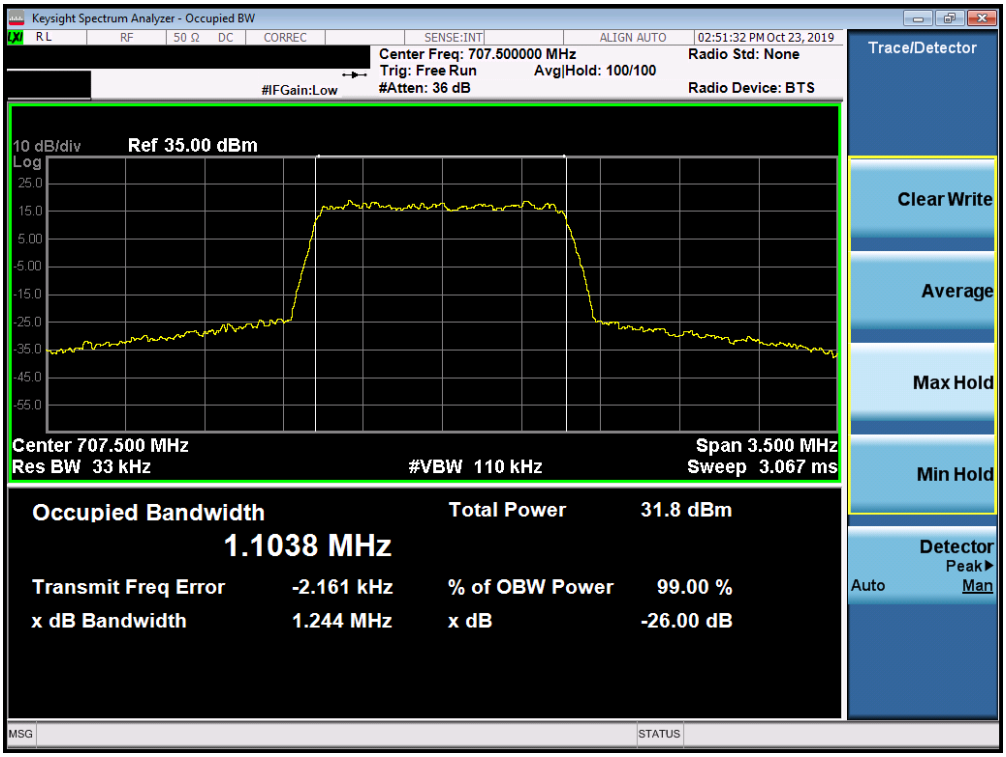
Plot 7-15. Occupied Bandwidth Plot (Band 71 - 20.0MHz 64-QAM - Full RB Configuration)



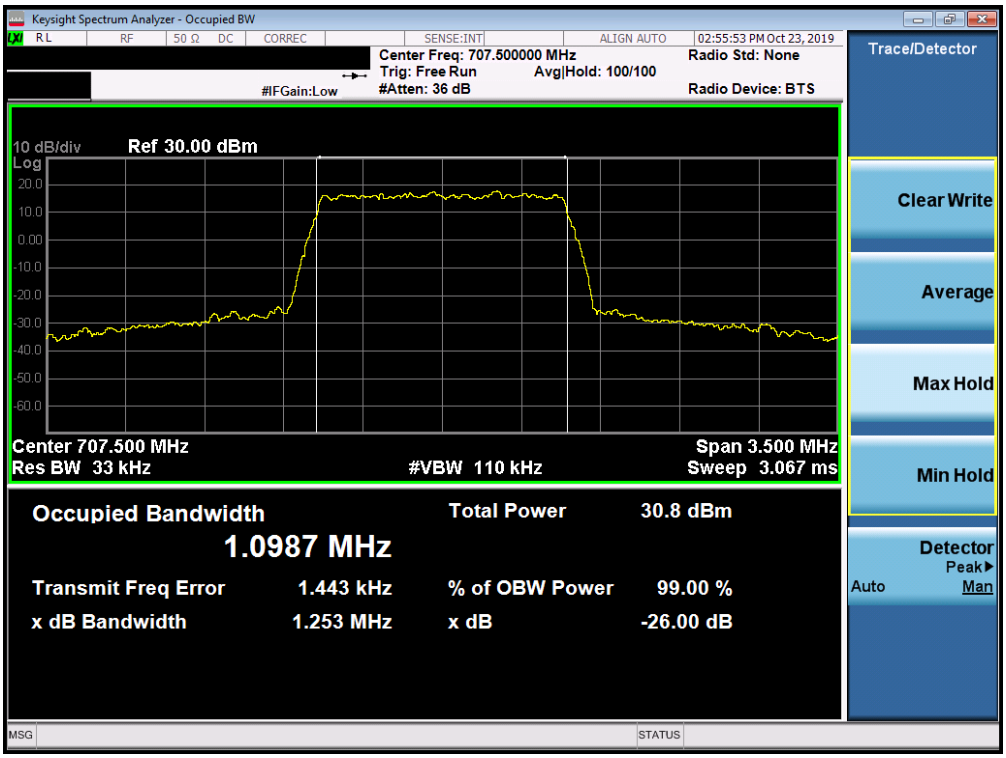
Plot 7-16. Occupied Bandwidth Plot (Band 71 - 20.0MHz 256-QAM - Full RB Configuration)



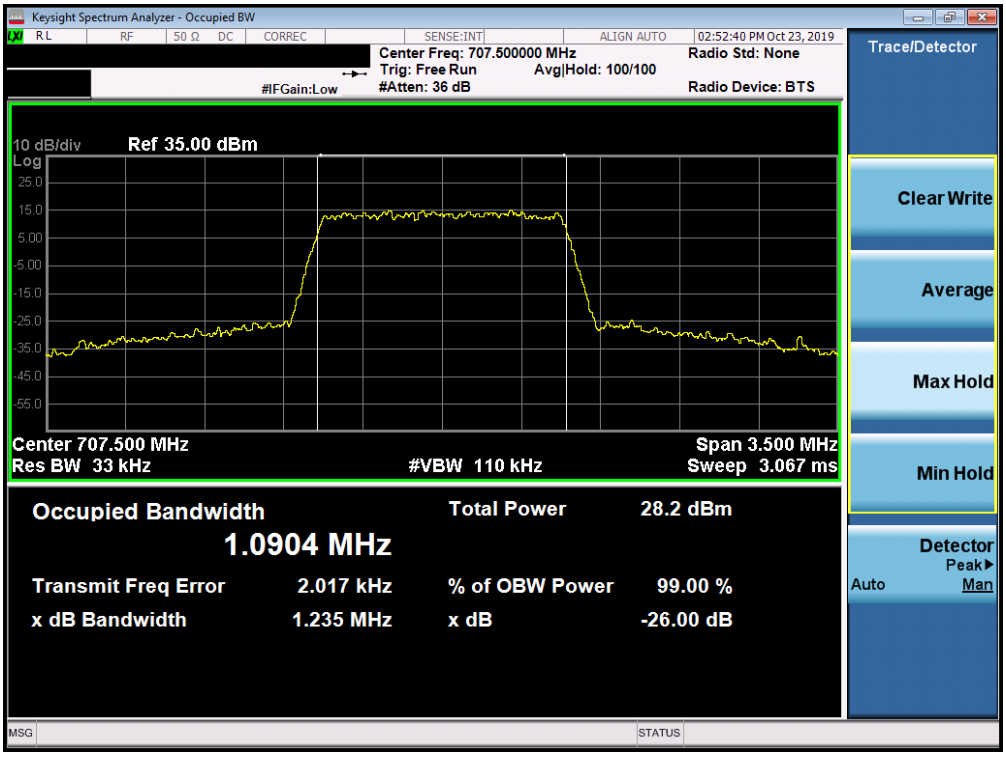
Plot 7-17. Occupied Bandwidth Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)



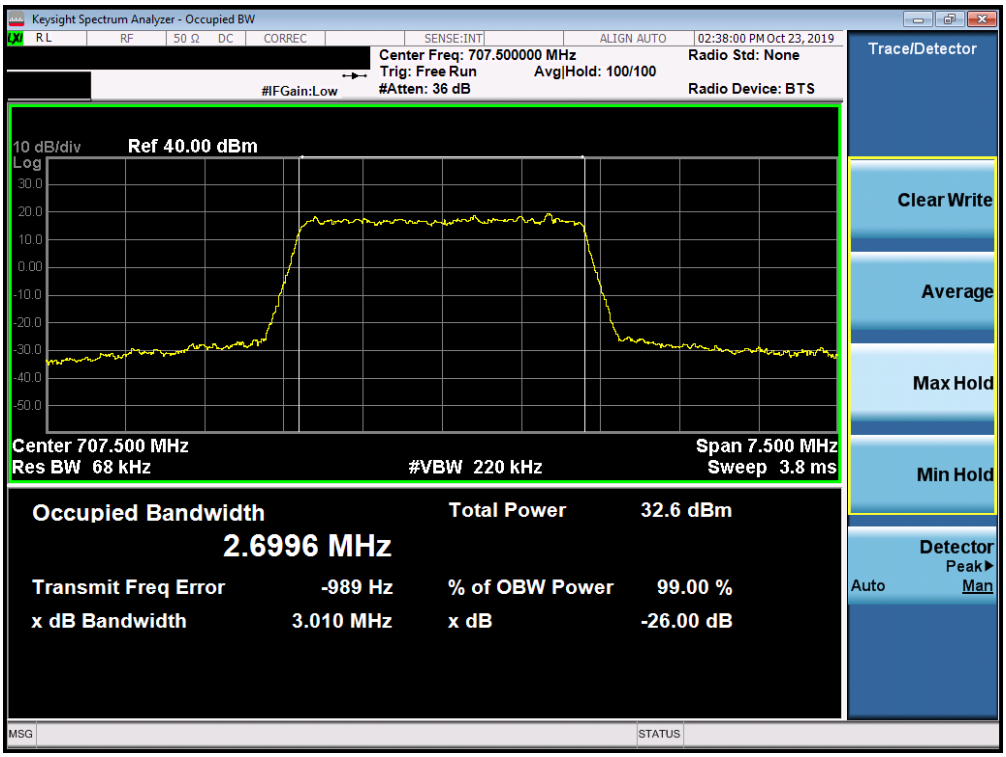
Plot 7-18. Occupied Bandwidth Plot (Band 12 - 1.4MHz 16-QAM - Full RB Configuration)



Plot 7-19. Occupied Bandwidth Plot (Band 12 - 1.4MHz 64-QAM - Full RB Configuration)

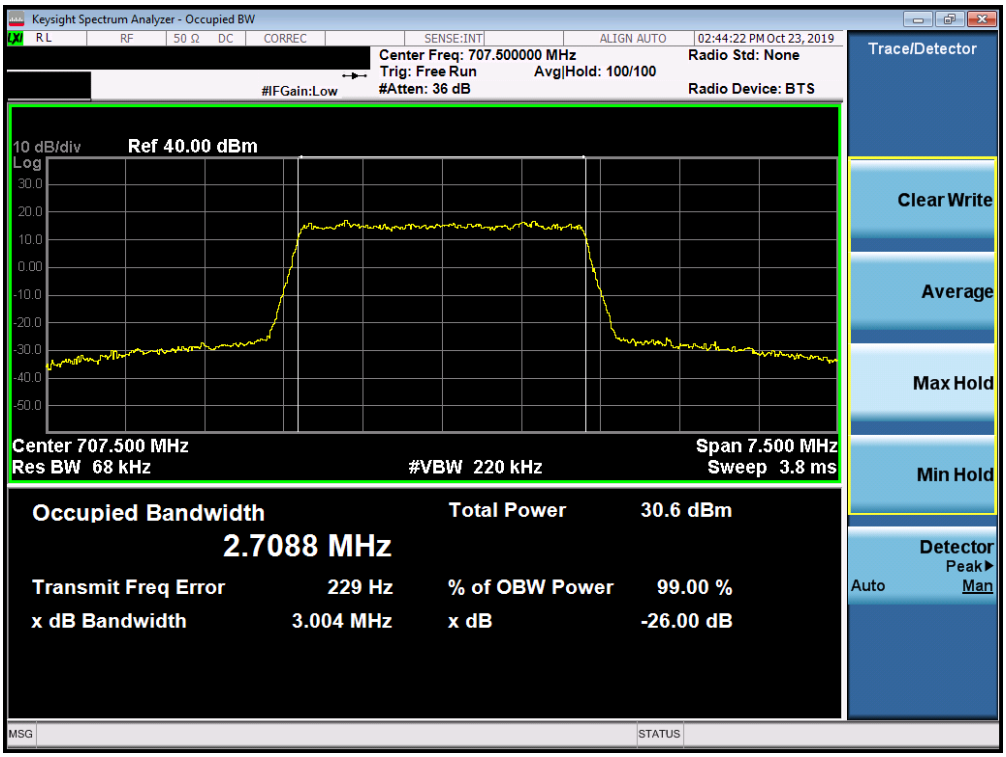


Plot 7-20. Occupied Bandwidth Plot (Band 12 - 1.4MHz 256-QAM - Full RB Configuration)

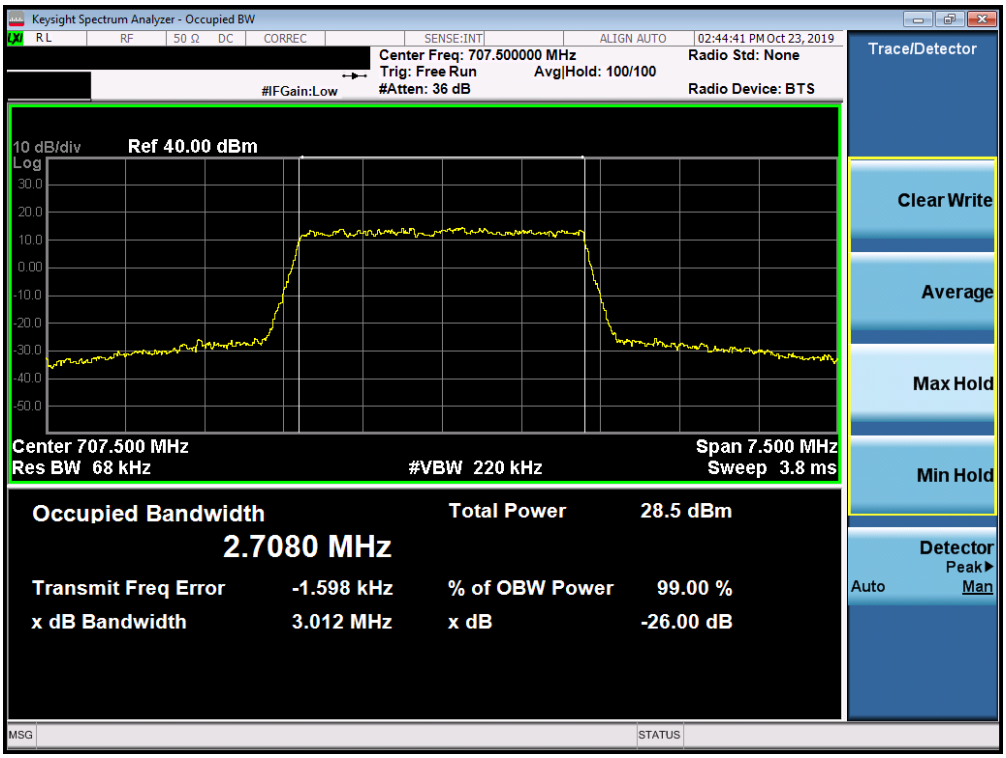


Plot 7-21. Occupied Bandwidth Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)

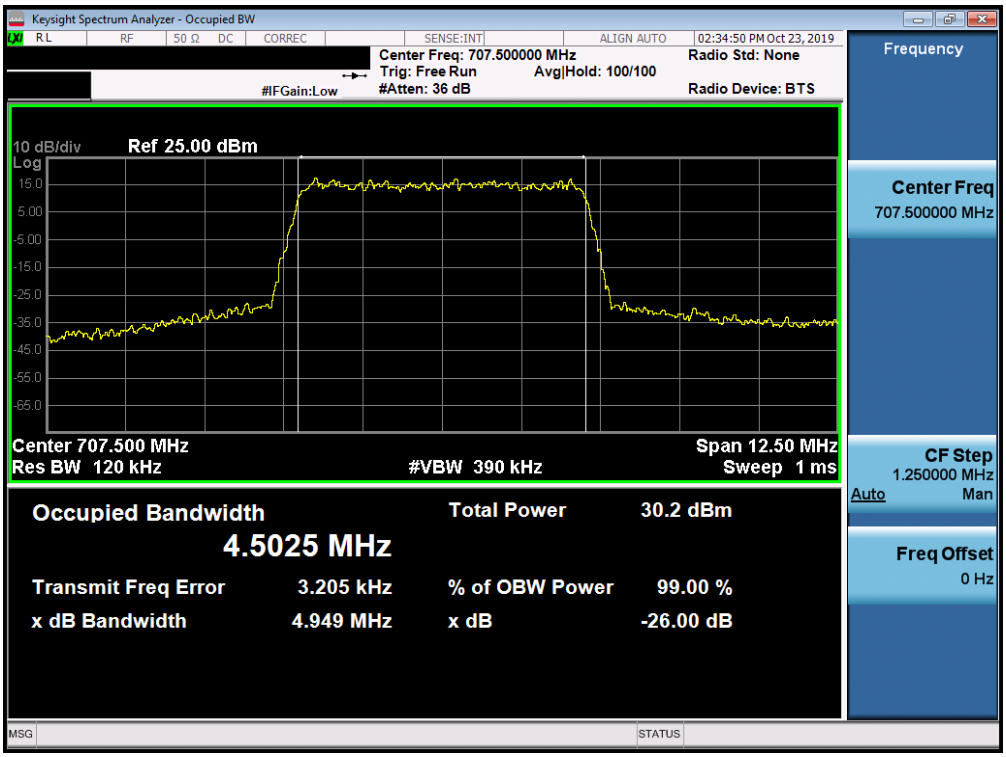
Plot 7-22. Occupied Bandwidth Plot (Band 12 - 3.0MHz 16-QAM - Full RB Configuration)



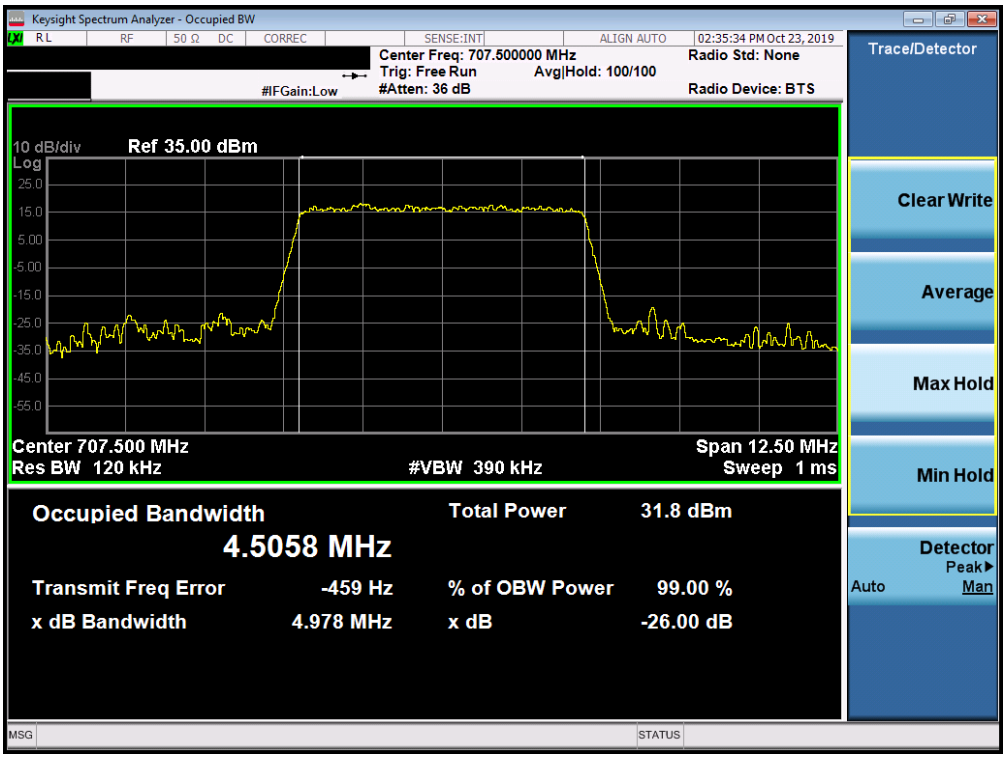
Plot 7-23. Occupied Bandwidth Plot (Band 12 - 3.0MHz 64-QAM - Full RB Configuration)



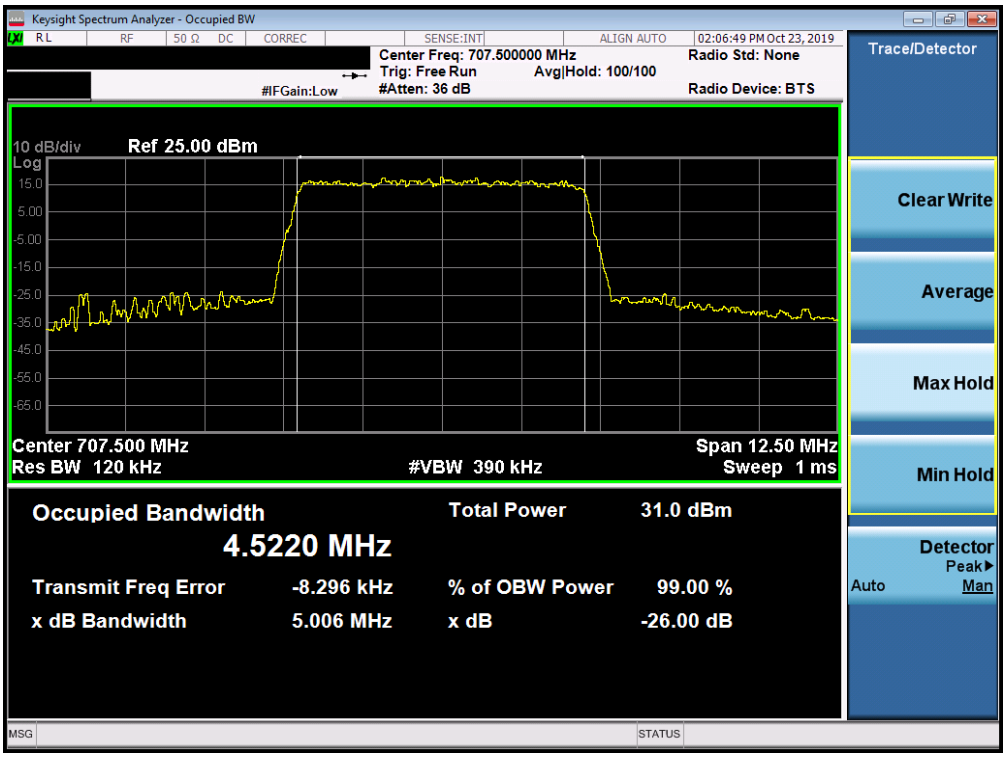
Plot 7-24. Occupied Bandwidth Plot (Band 12 - 3.0MHz 256-QAM - Full RB Configuration)



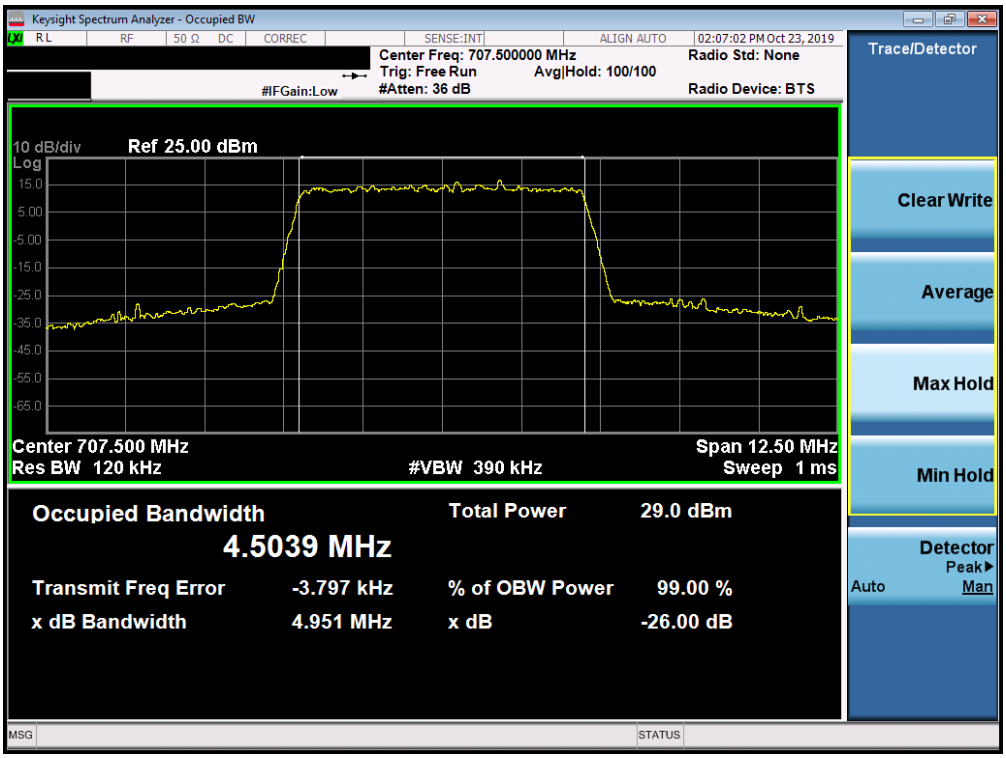
Plot 7-25. Occupied Bandwidth Plot (Band 12 - 5.0MHz QPSK - Full RB Configuration)



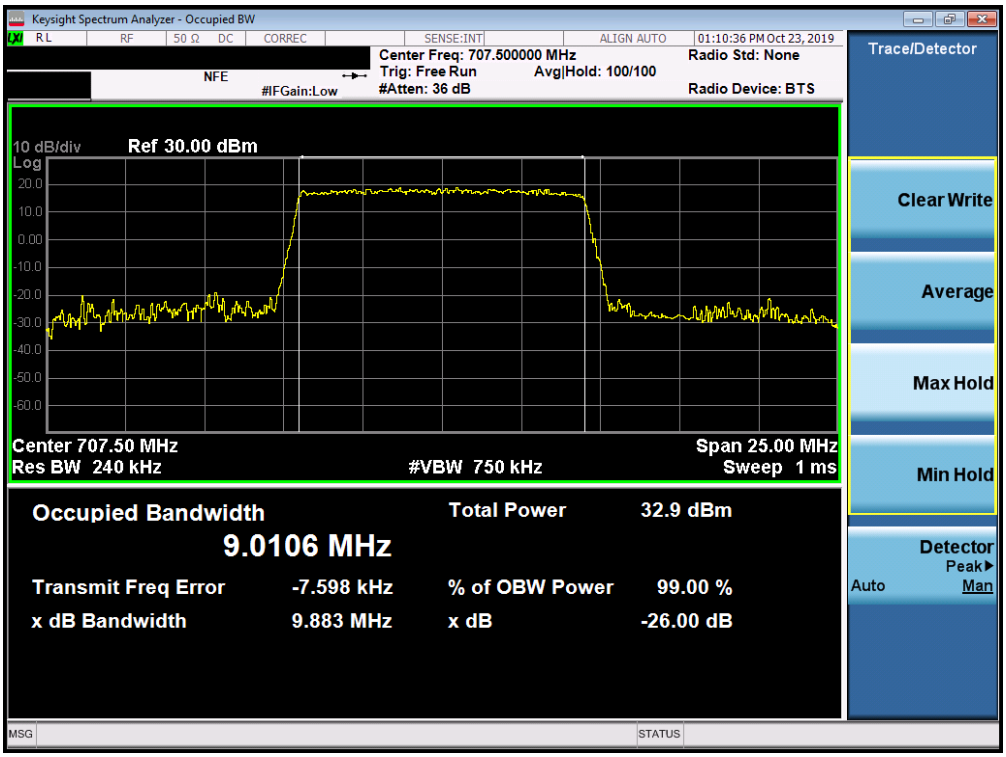
Plot 7-26. Occupied Bandwidth Plot (Band 12 - 5.0MHz 16-QAM - Full RB Configuration)



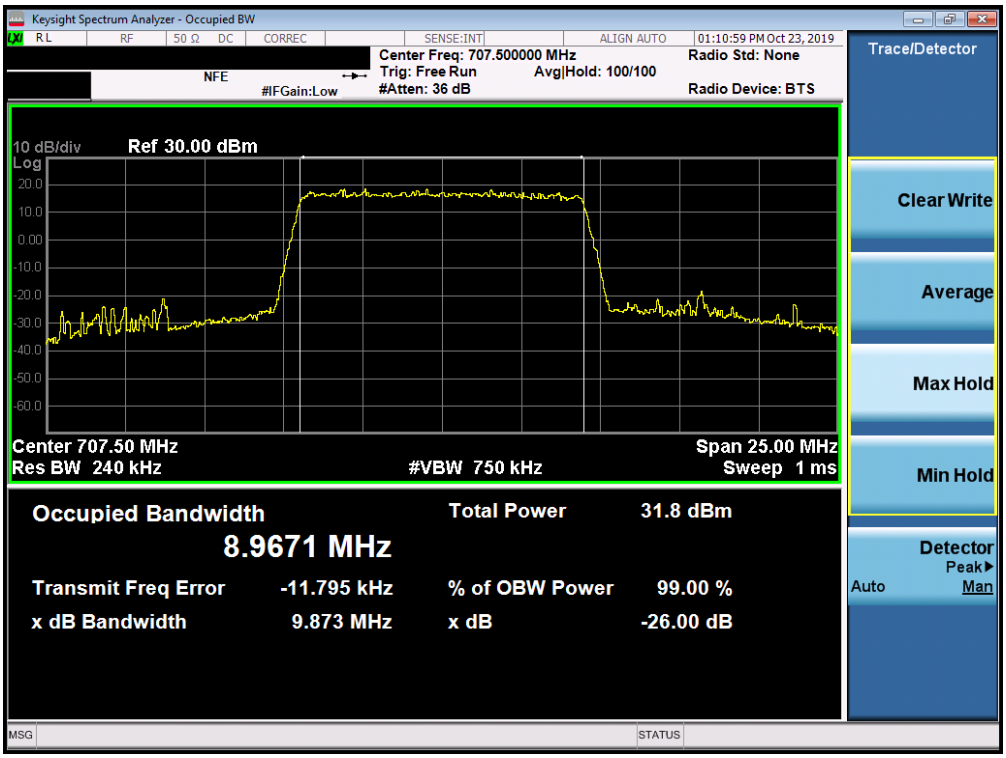
Plot 7-27. Occupied Bandwidth Plot (Band 12 - 5.0MHz 64-QAM - Full RB Configuration)



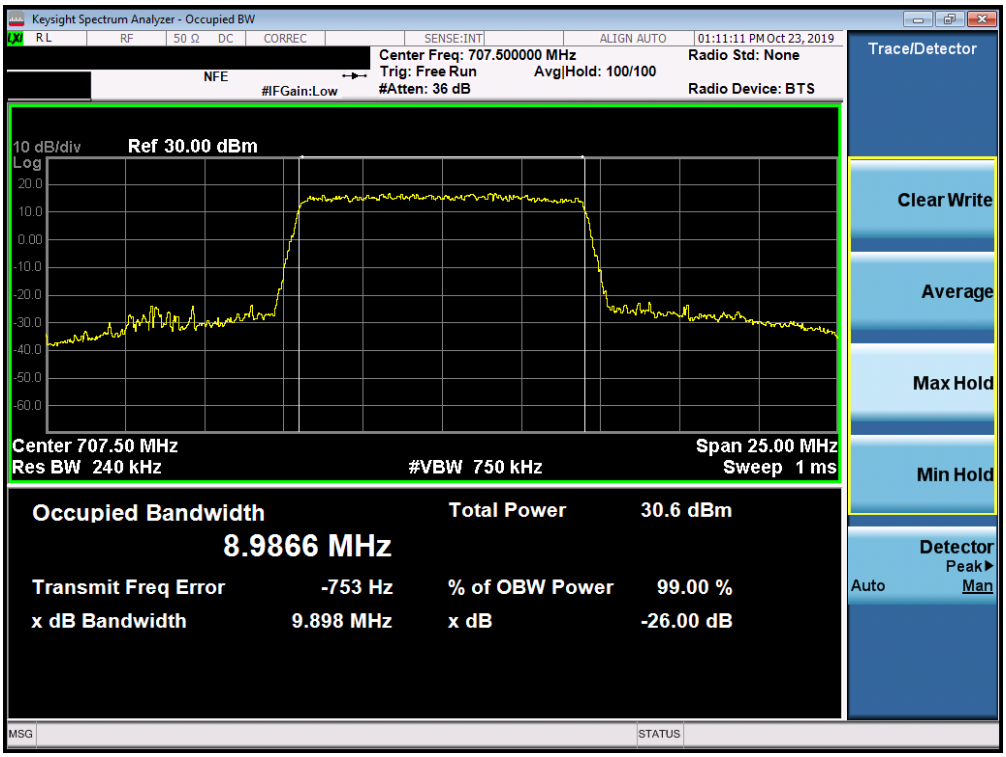
Plot 7-28. Occupied Bandwidth Plot (Band 12 - 5.0MHz 256-QAM - Full RB Configuration)



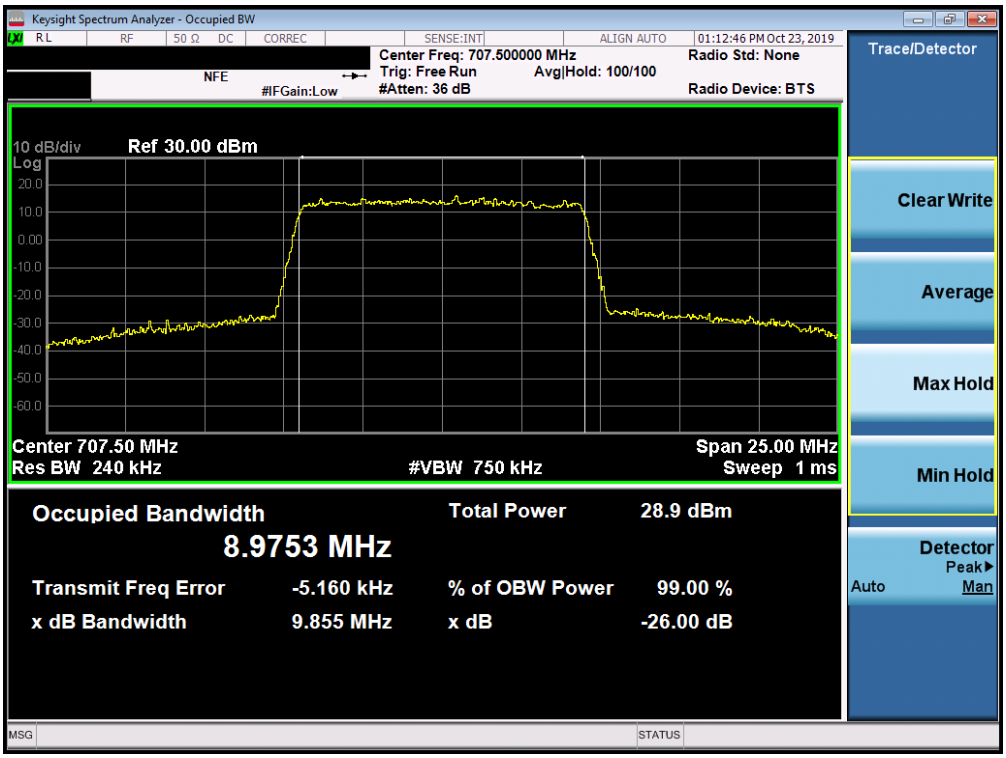
Plot 7-29. Occupied Bandwidth Plot (Band 12 - 10.0MHz QPSK - Full RB Configuration)



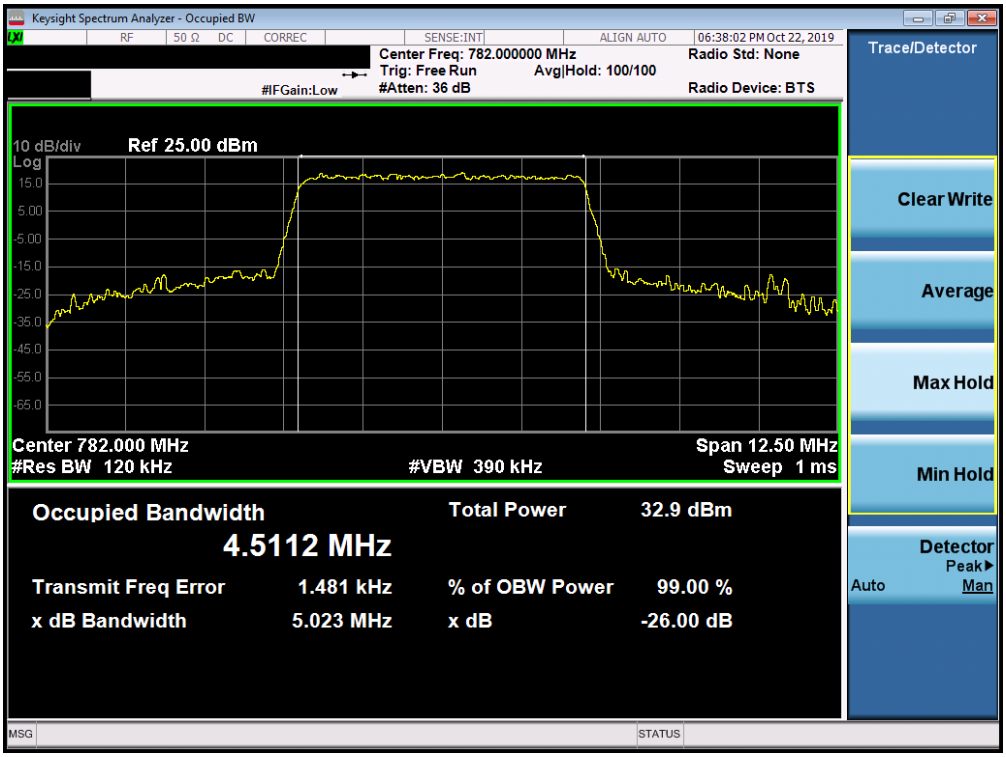
Plot 7-30. Occupied Bandwidth Plot (Band 12 - 10.0MHz 16-QAM - Full RB Configuration)



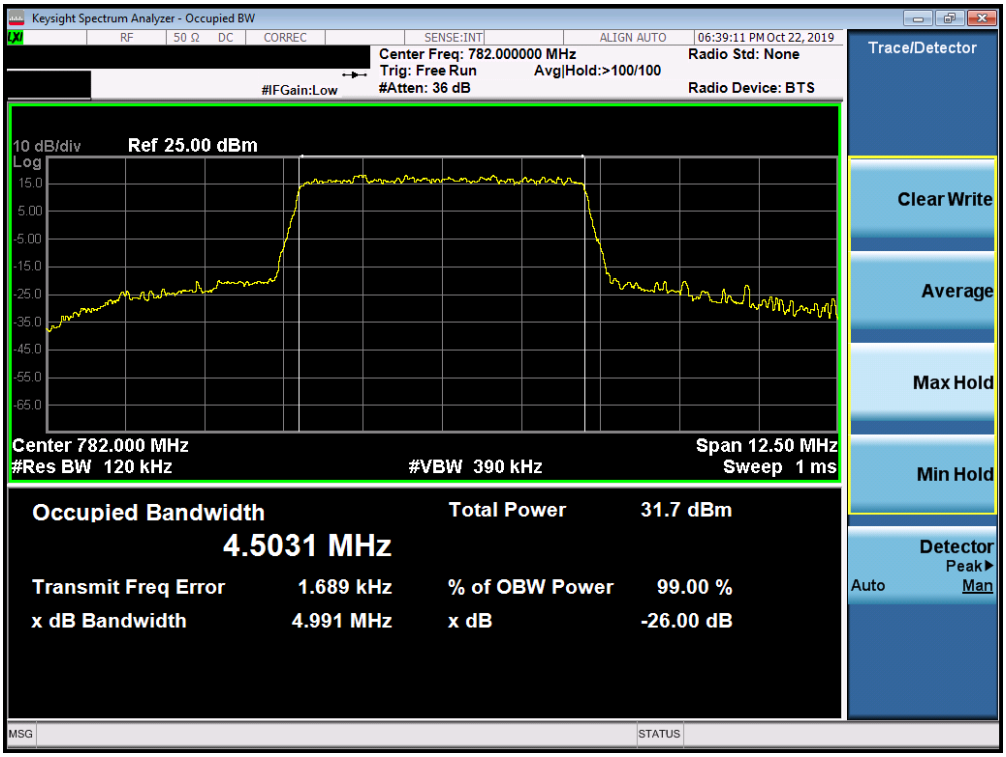
Plot 7-31. Occupied Bandwidth Plot (Band 12 - 10.0MHz 64-QAM - Full RB Configuration)



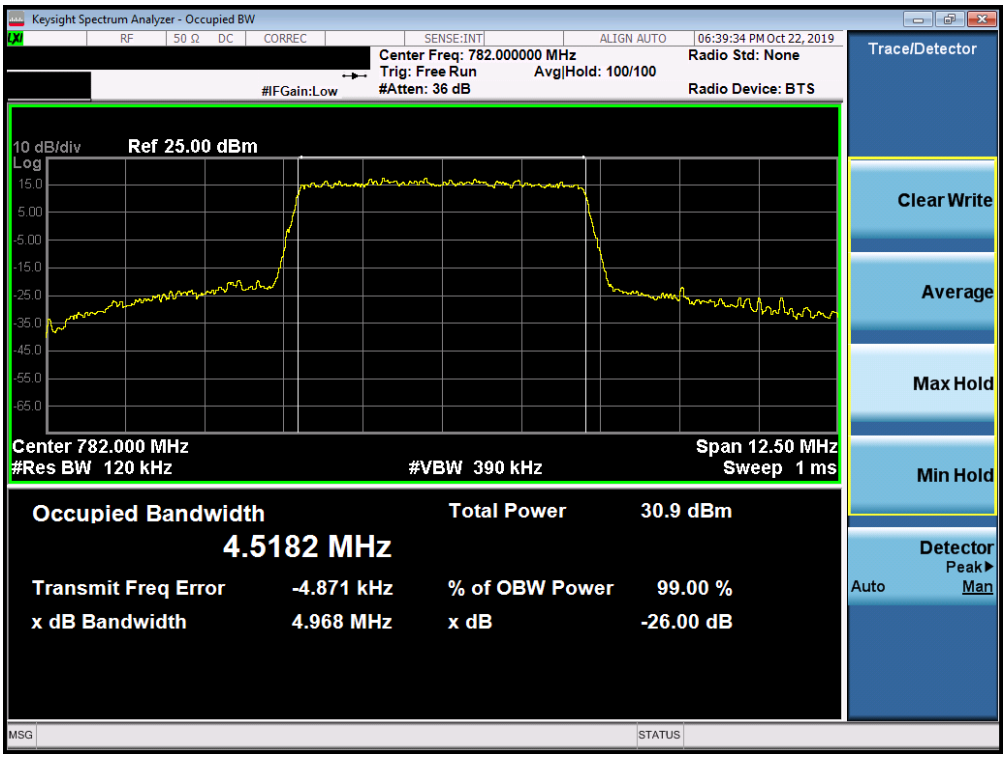
Plot 7-32. Occupied Bandwidth Plot (Band 12 - 10.0MHz 256-QAM - Full RB Configuration)



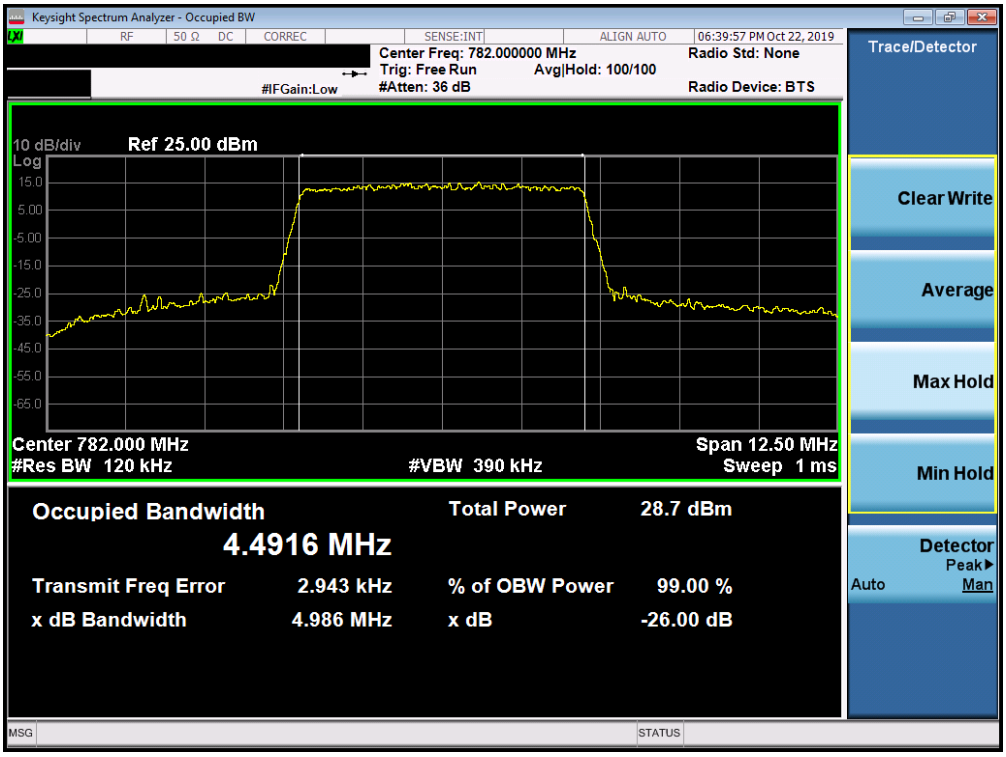
Plot 7-33. Occupied Bandwidth Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)



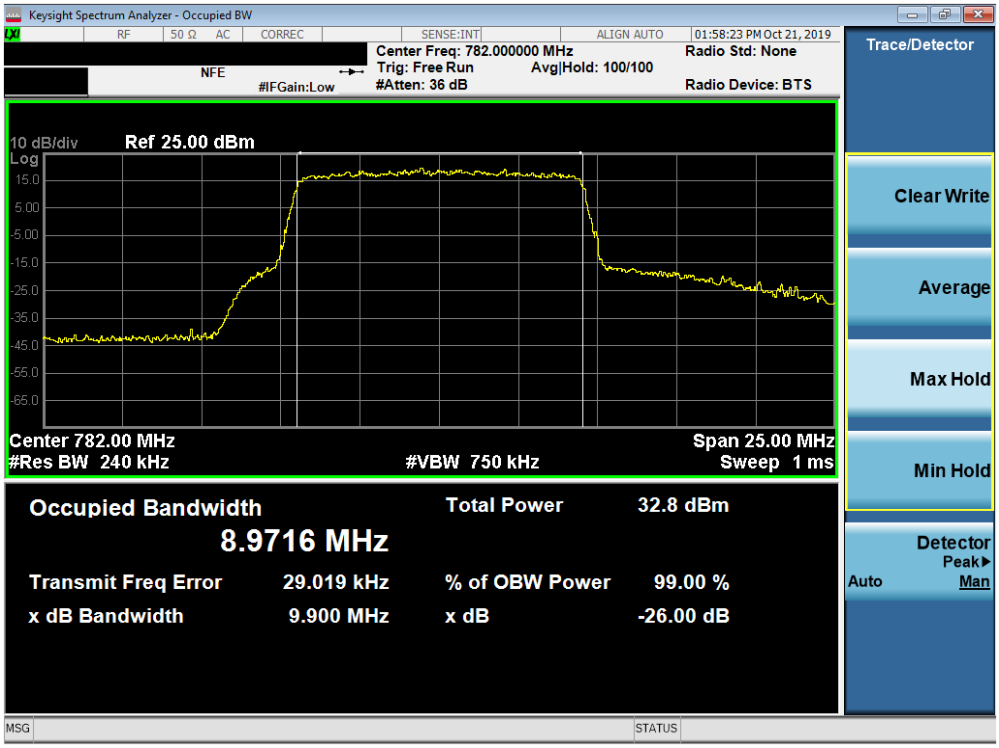
Plot 7-34. Occupied Bandwidth Plot (Band 13 - 5.0MHz 16-QAM - Full RB Configuration)



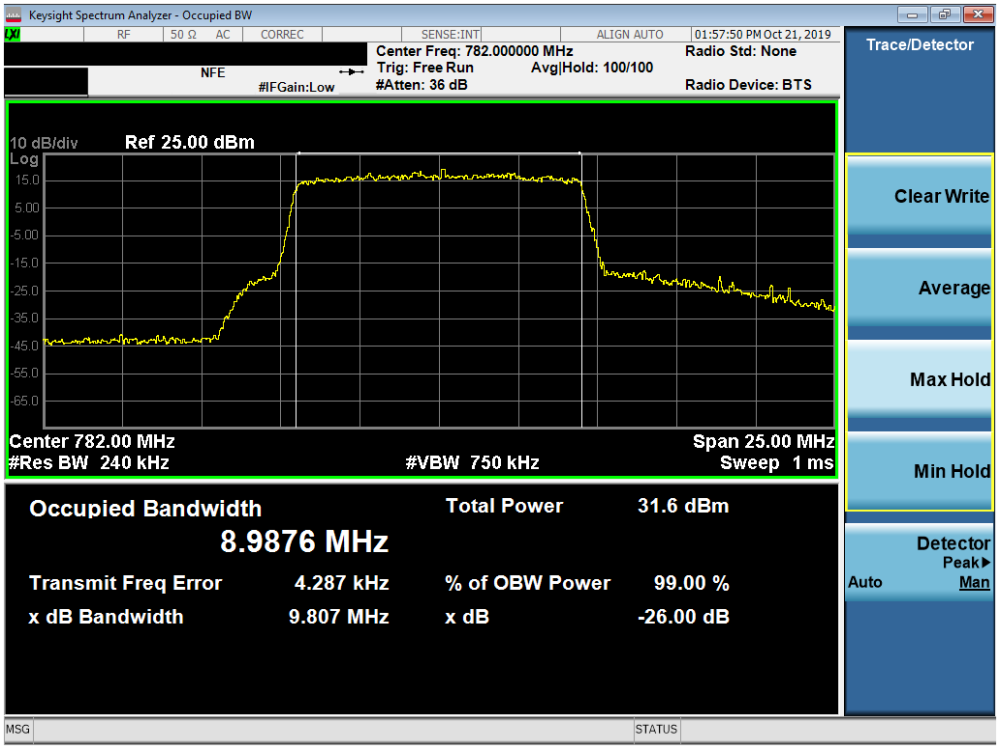
Plot 7-35. Occupied Bandwidth Plot (Band 13 - 5.0MHz 64-QAM - Full RB Configuration)



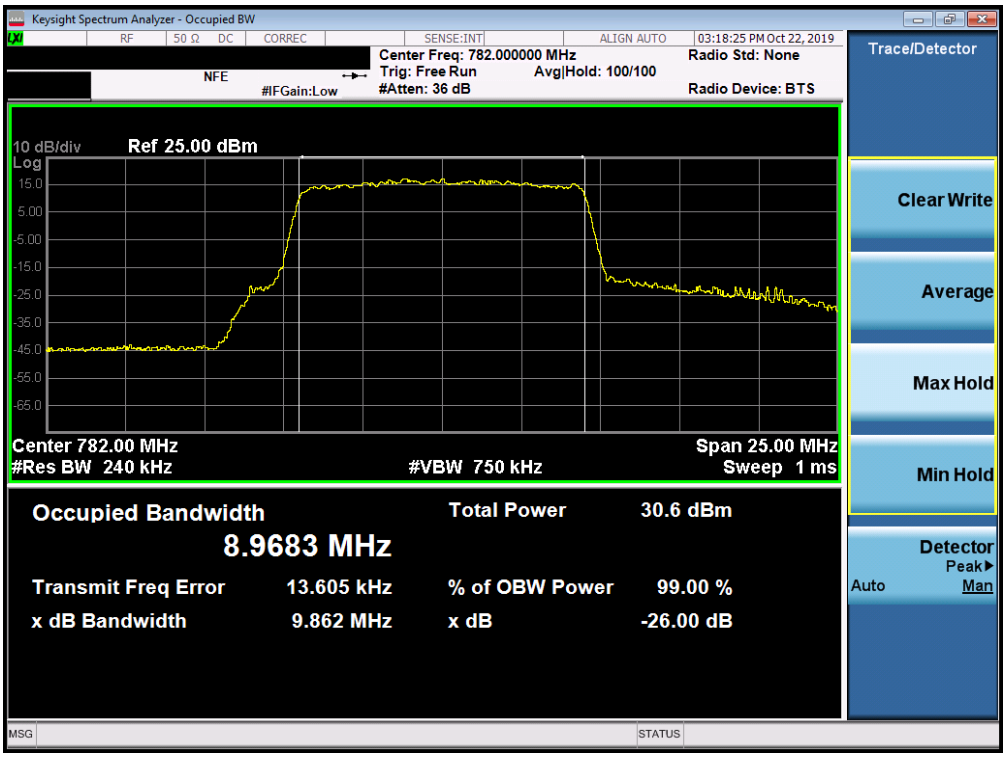
Plot 7-36. Occupied Bandwidth Plot (Band 13 - 5.0MHz 256-QAM - Full RB Configuration)



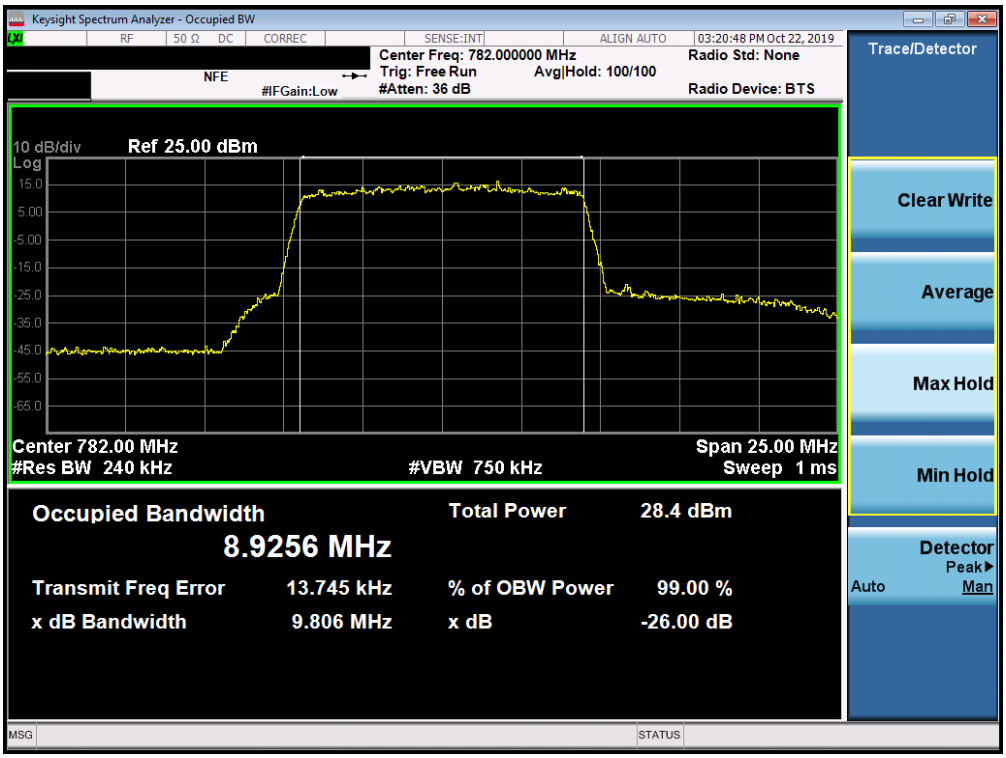
Plot 7-37. Occupied Bandwidth Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)



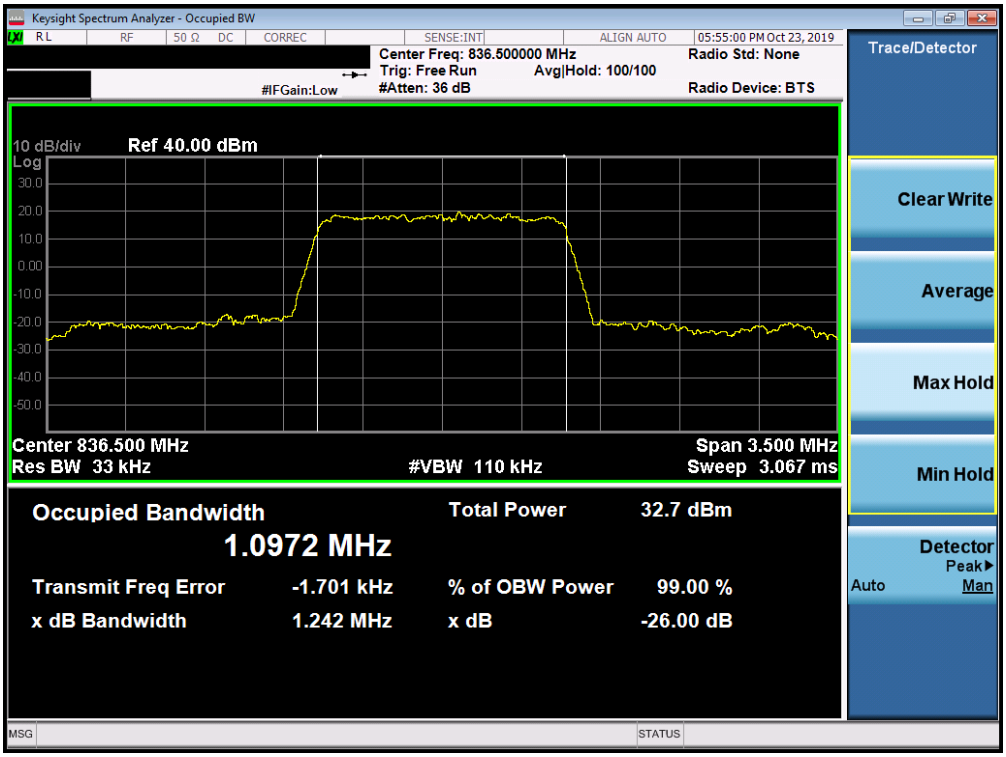
Plot 7-38. Occupied Bandwidth Plot (Band 13 - 10.0MHz 16-QAM - Full RB Configuration)



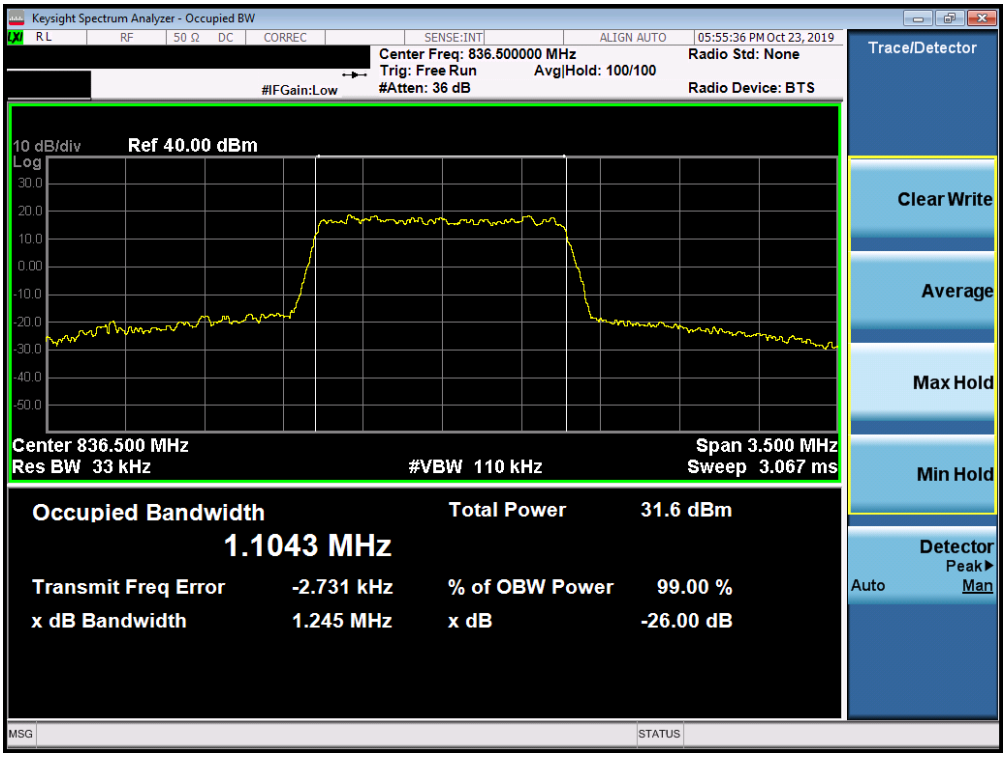
Plot 7-39. Occupied Bandwidth Plot (Band 13 - 10.0MHz 64-QAM - Full RB Configuration)



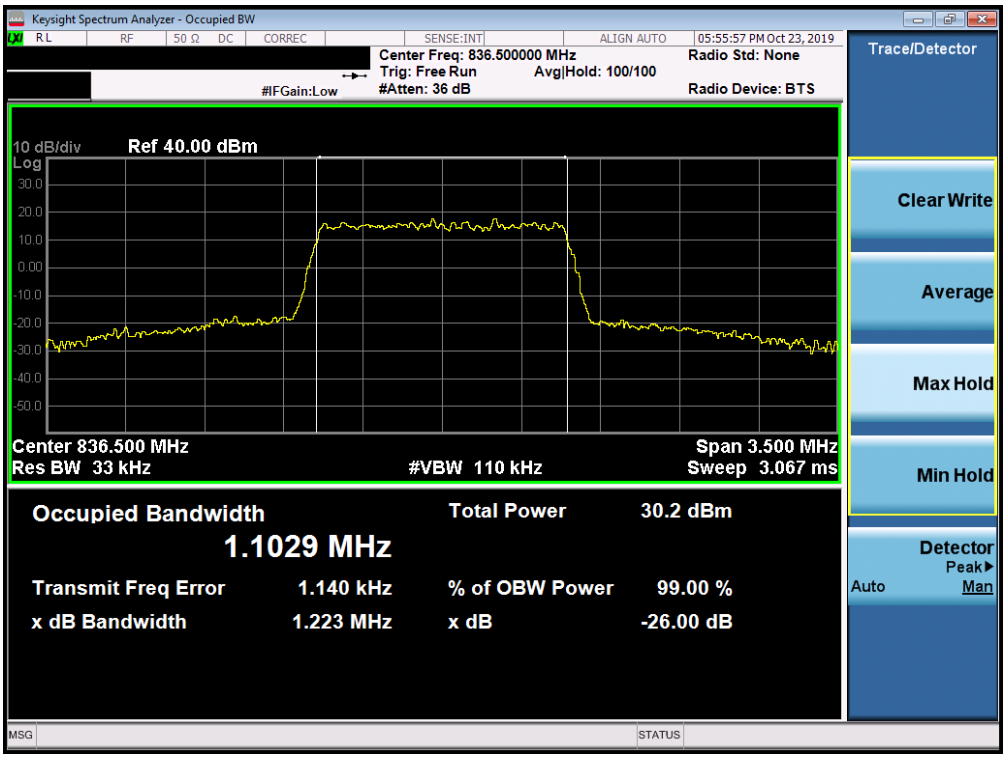
Plot 7-40. Occupied Bandwidth Plot (Band 13 - 10.0MHz 256-QAM - Full RB Configuration)



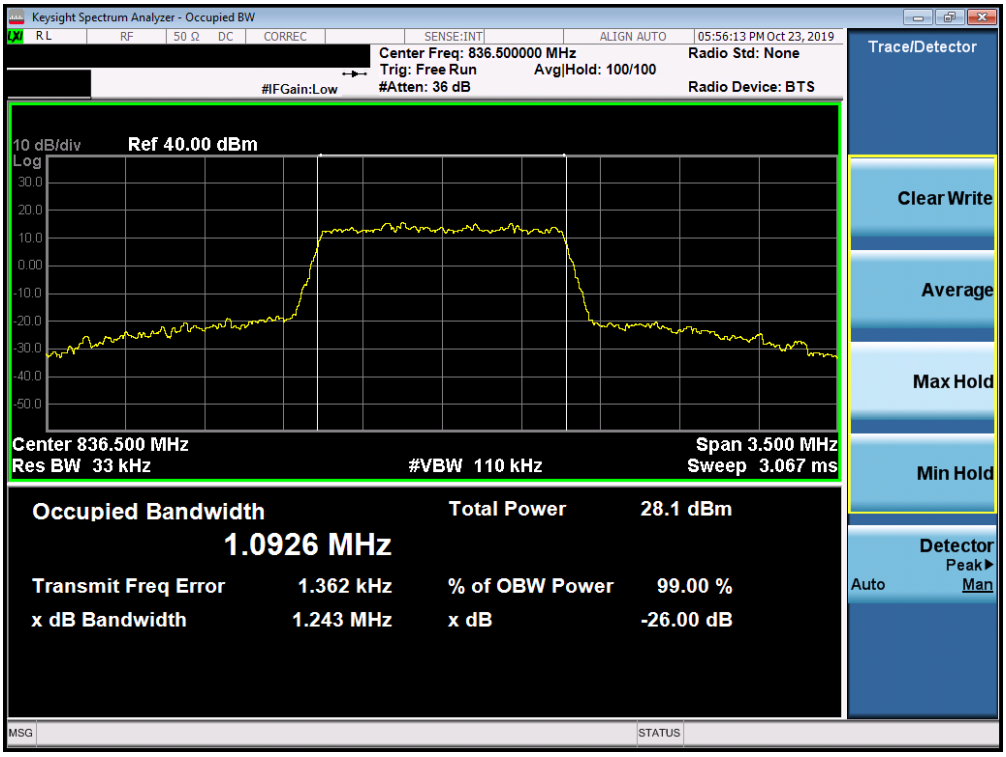
Plot 7-41. Occupied Bandwidth Plot (Band 5 - 1.4MHz QPSK - Full RB Configuration)



Plot 7-42. Occupied Bandwidth Plot (Band 5 - 1.4MHz 16-QAM - Full RB Configuration)

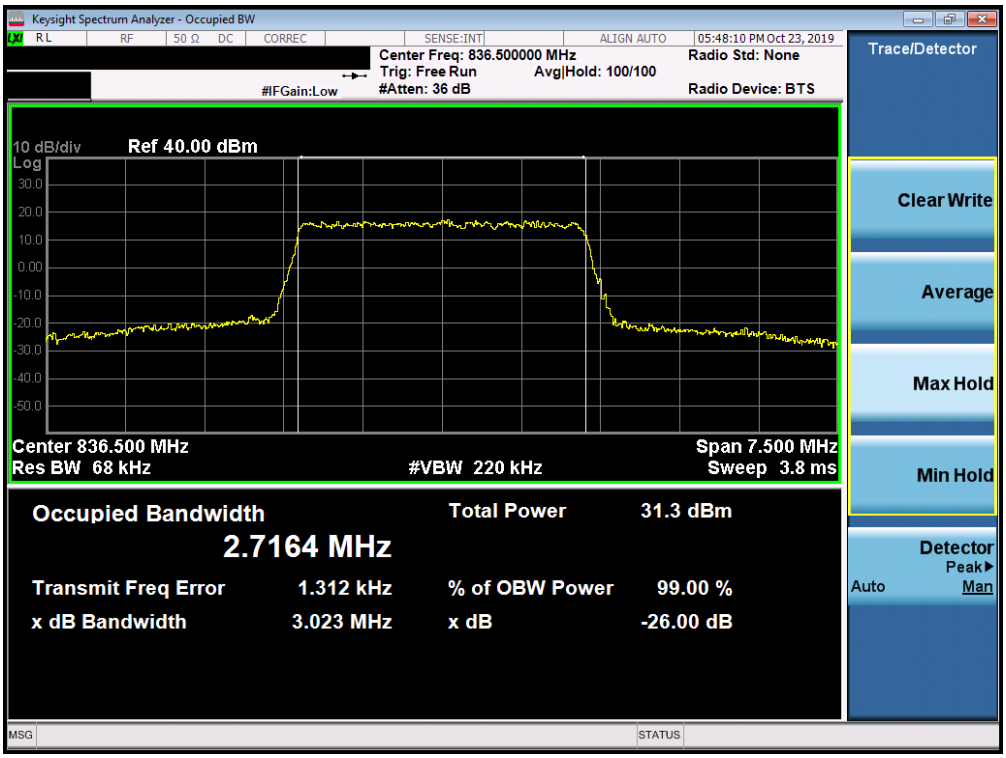


Plot 7-43. Occupied Bandwidth Plot (Band 5 - 1.4MHz 64-QAM - Full RB Configuration)



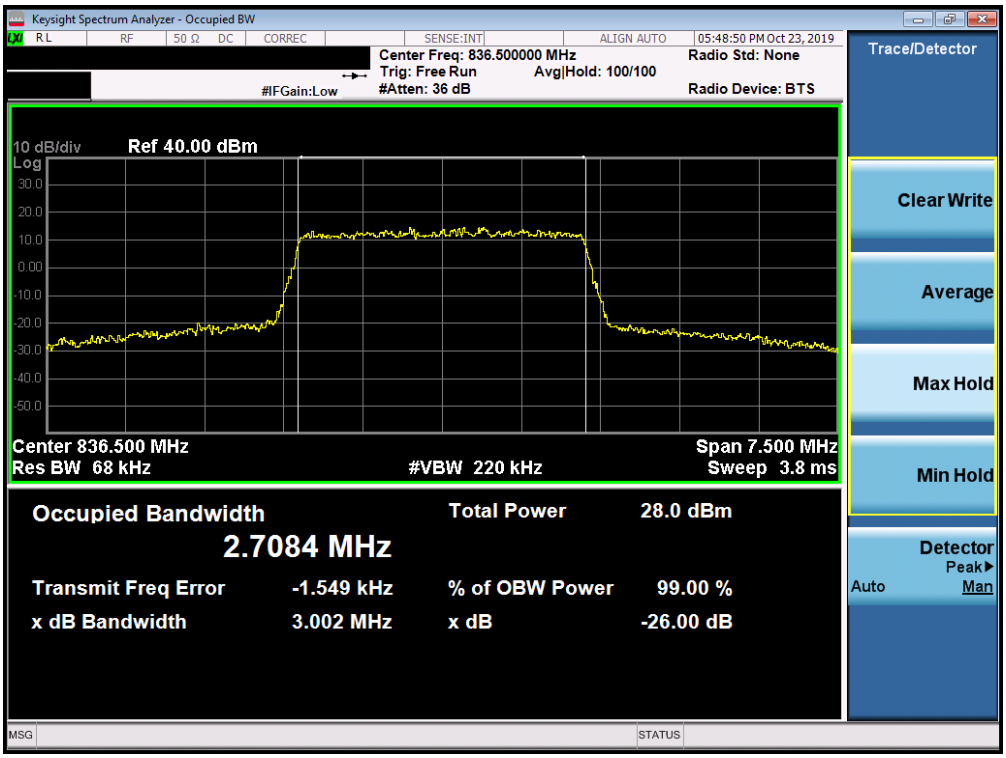
Plot 7-44. Occupied Bandwidth Plot (Band 5 - 1.4MHz 256-QAM - Full RB Configuration)

Plot 7-45. Occupied Bandwidth Plot (Band 5 - 3.0MHz QPSK - Full RB Configuration)

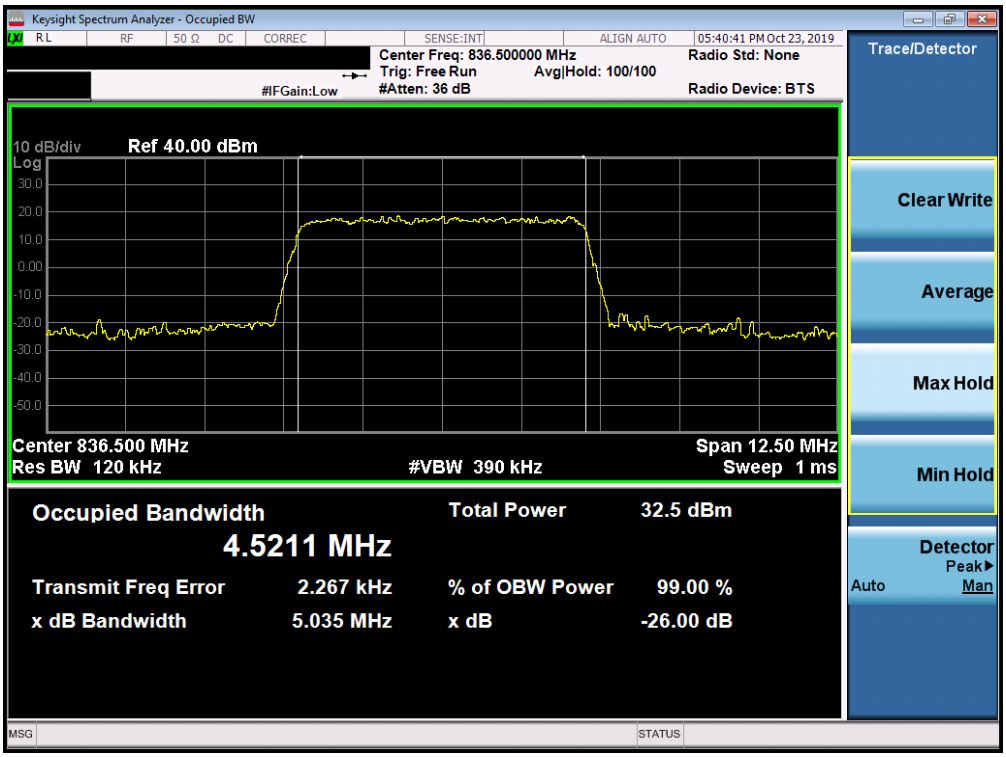


Plot 7-46. Occupied Bandwidth Plot (Band 5 - 3.0MHz 16-QAM - Full RB Configuration)

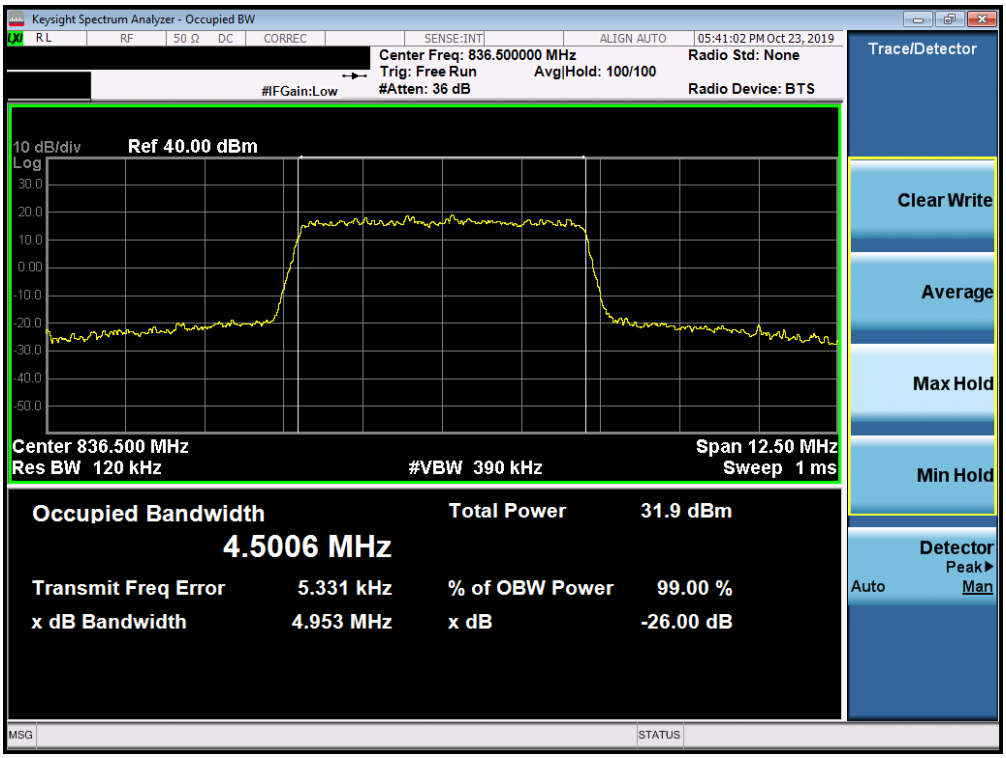
Plot 7-47. Occupied Bandwidth Plot (Band 5 - 3.0MHz 64-QAM - Full RB Configuration)



Plot 7-48. Occupied Bandwidth Plot (Band 5 - 3.0MHz 256-QAM - Full RB Configuration)



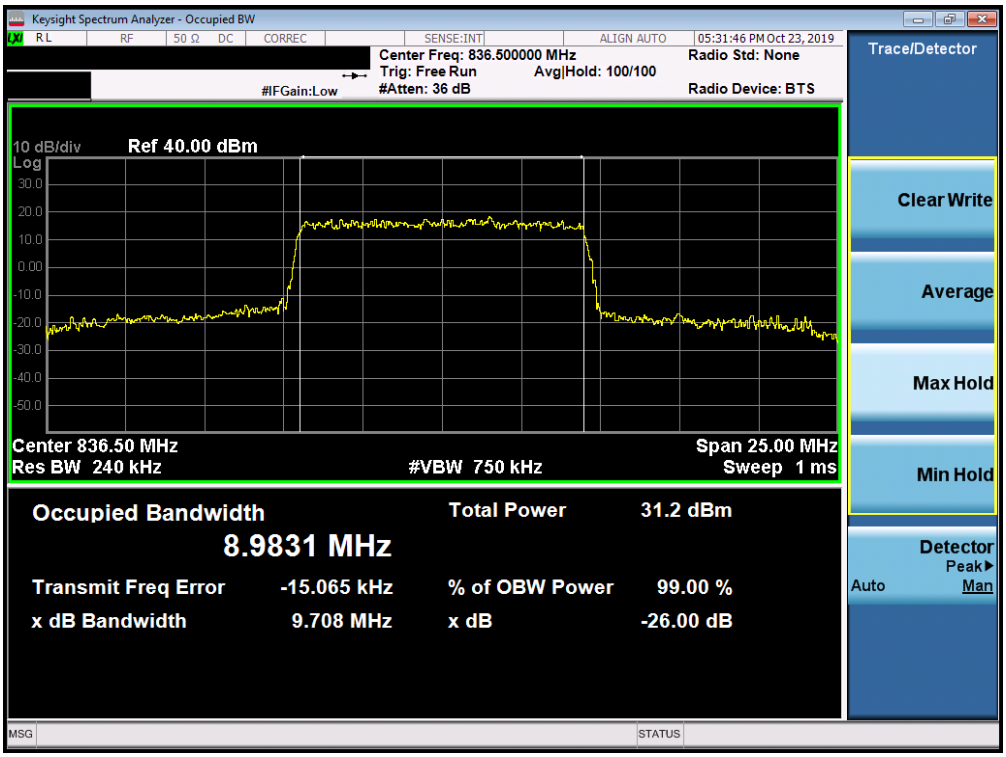
Plot 7-49. Occupied Bandwidth Plot (Band 5 - 5.0MHz QPSK - Full RB Configuration)



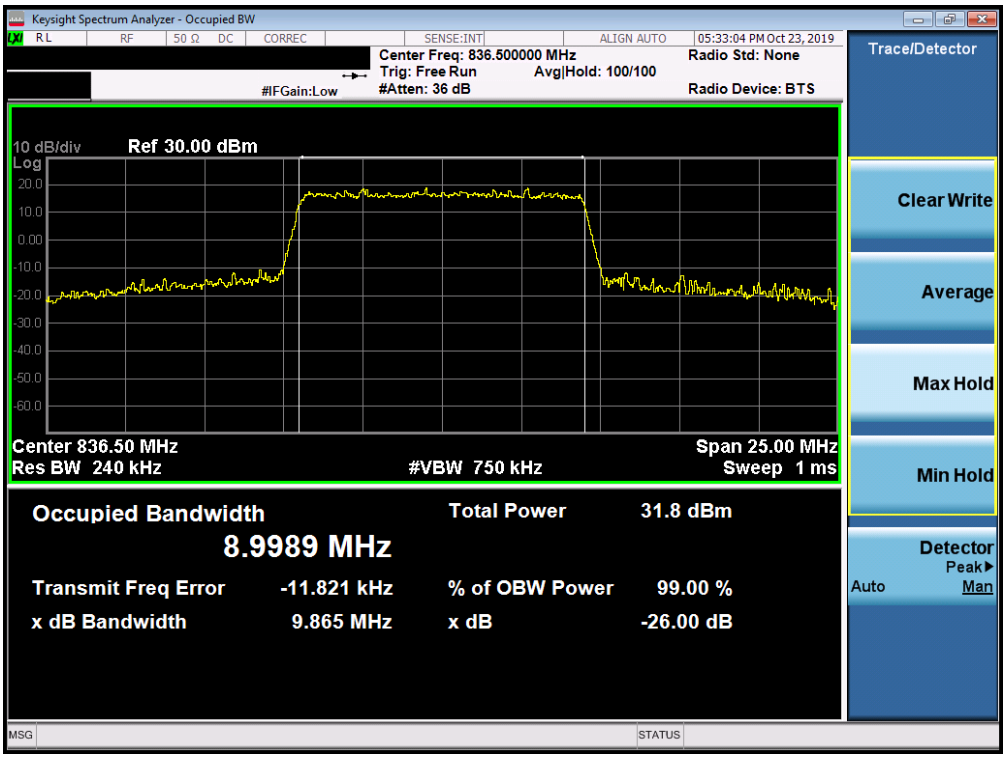
Plot 7-50. Occupied Bandwidth Plot (Band 5 - 5.0MHz 16-QAM - Full RB Configuration)

Plot 7-51. Occupied Bandwidth Plot (Band 5 - 5.0MHz 64-QAM - Full RB Configuration)

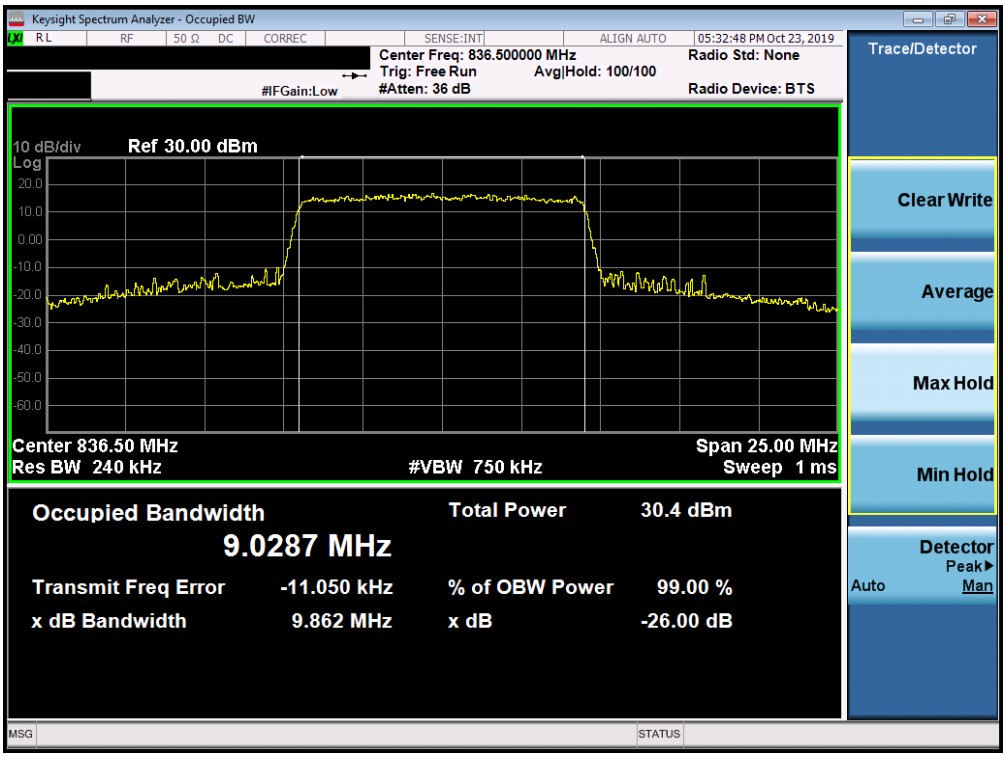
Plot 7-52. Occupied Bandwidth Plot (Band 5 - 5.0MHz 256-QAM - Full RB Configuration)



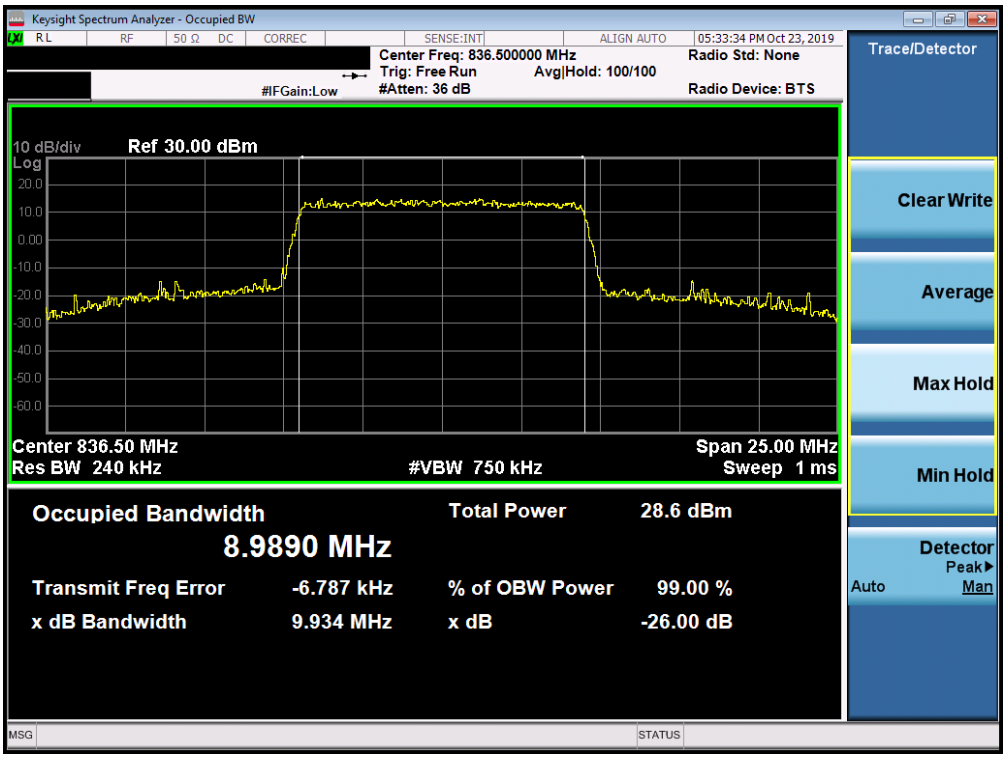
Plot 7-53. Occupied Bandwidth Plot (Band 5 - 10.0MHz QPSK - Full RB Configuration)



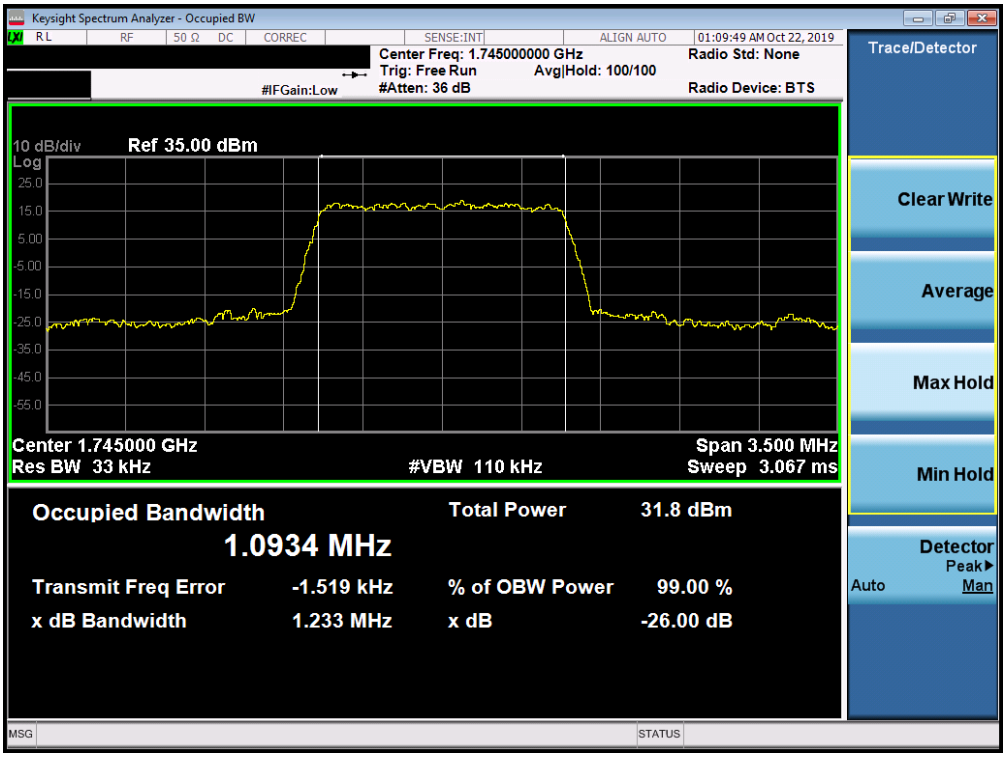
Plot 7-54. Occupied Bandwidth Plot (Band 5 - 10.0MHz 16-QAM - Full RB Configuration)



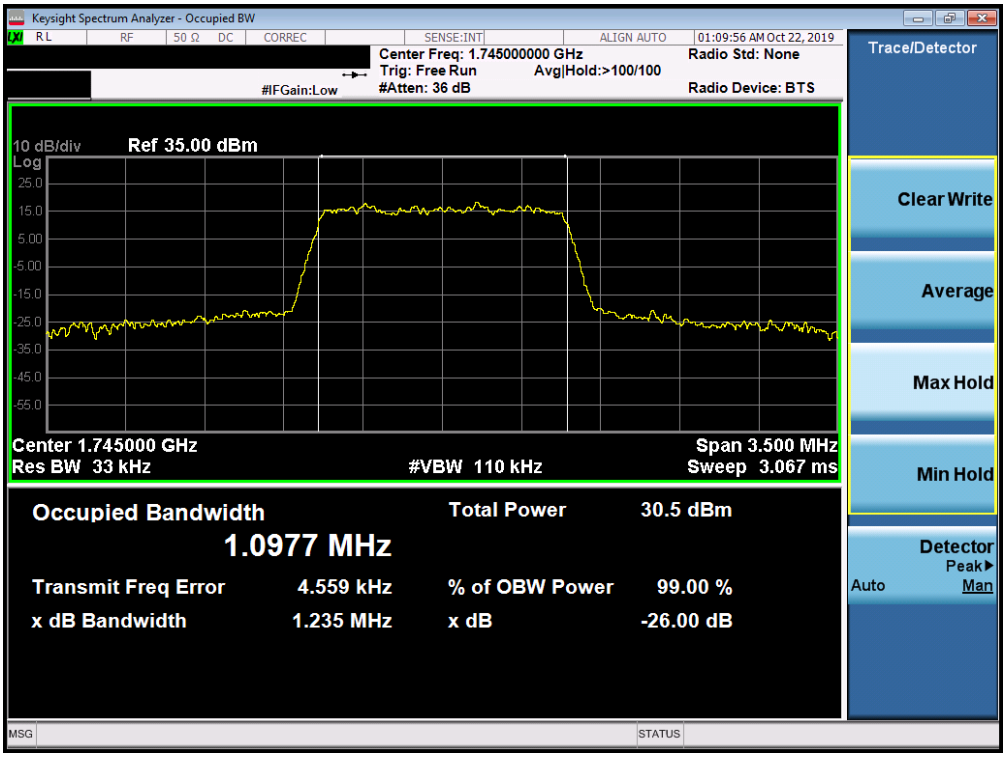
Plot 7-55. Occupied Bandwidth Plot (Band 5 - 10.0MHz 64-QAM - Full RB Configuration)



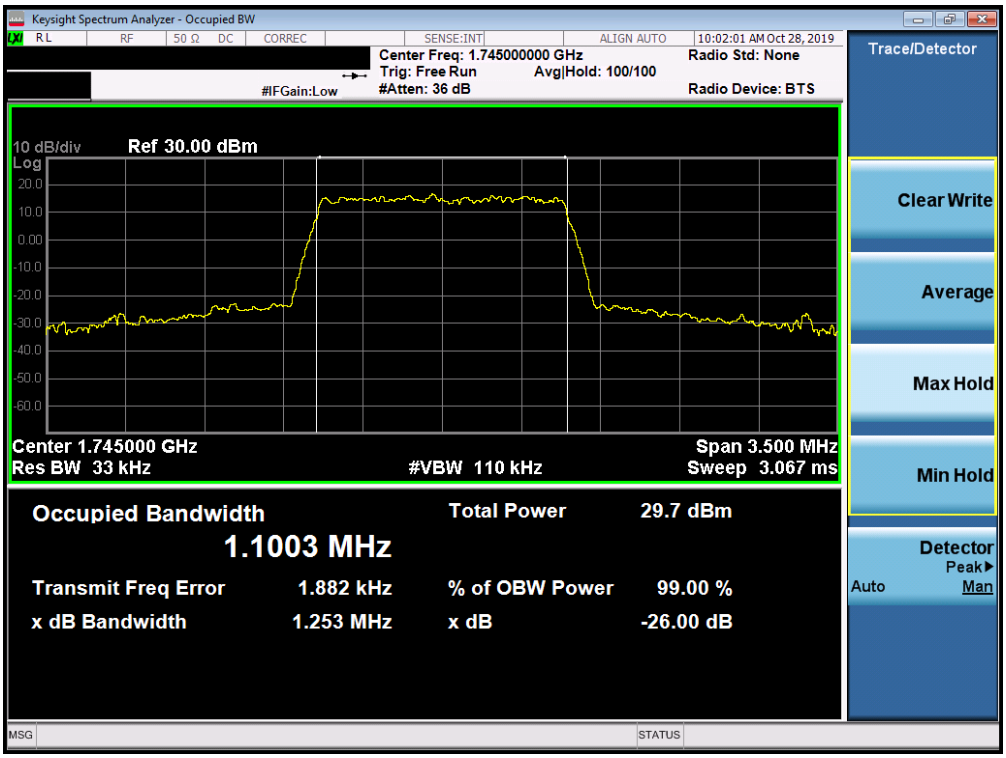
Plot 7-56. Occupied Bandwidth Plot (Band 5 - 10.0MHz 256-QAM - Full RB Configuration)



Plot 7-57. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)

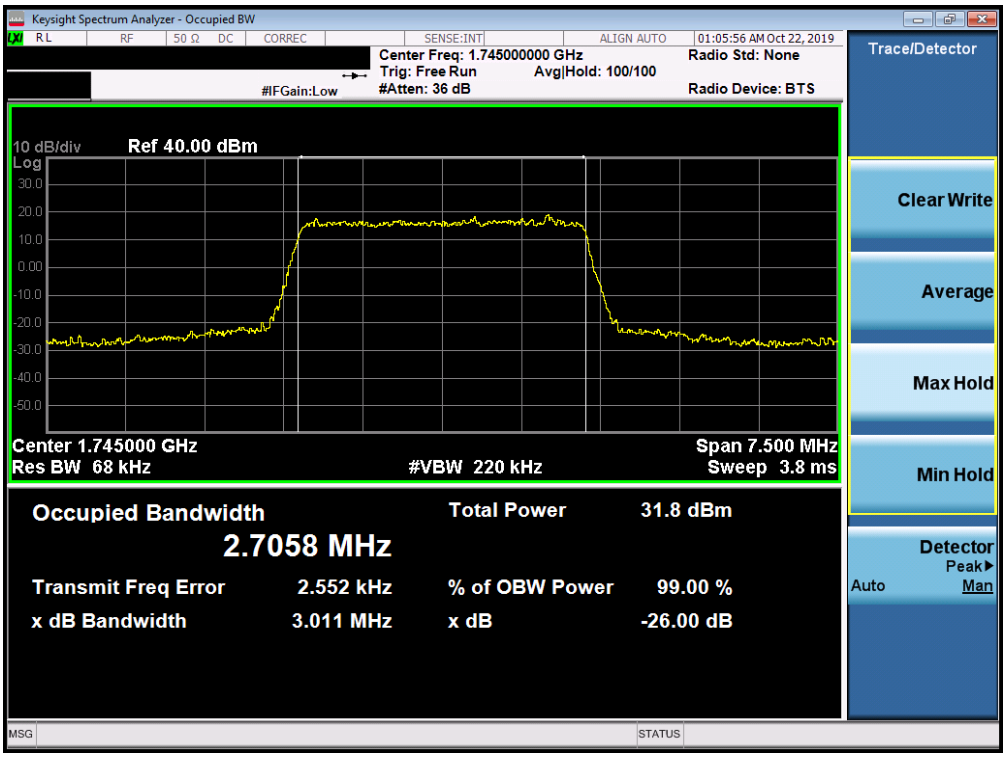


Plot 7-58. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz 16-QAM - Full RB Configuration)

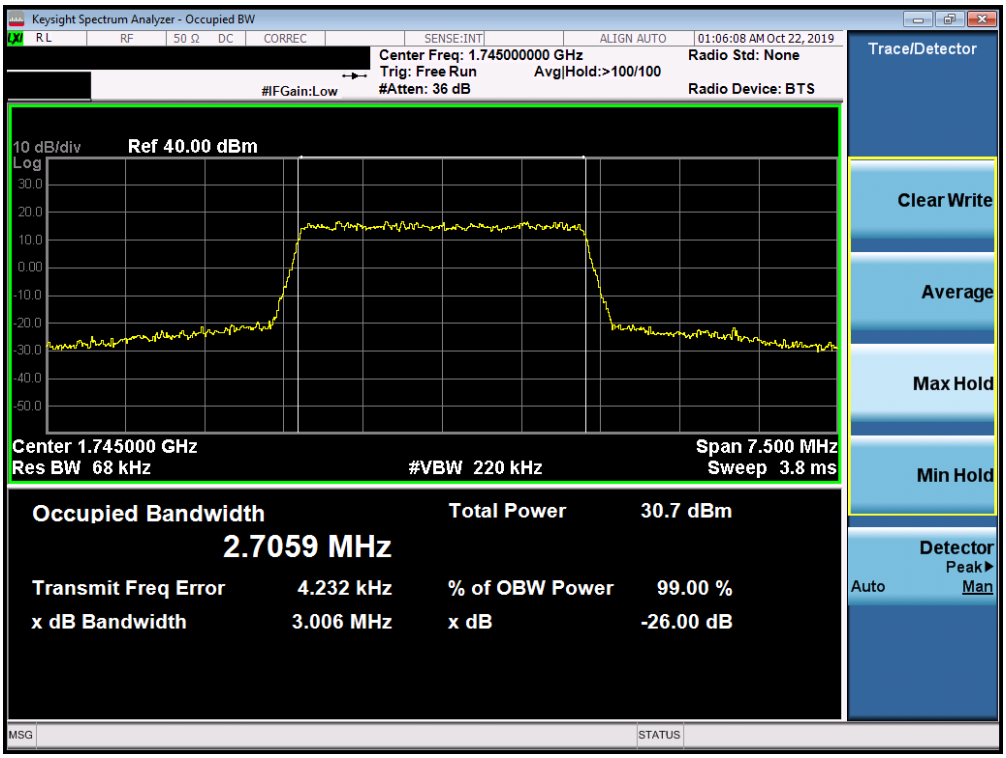


Plot 7-59. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz 64-QAM - Full RB Configuration)

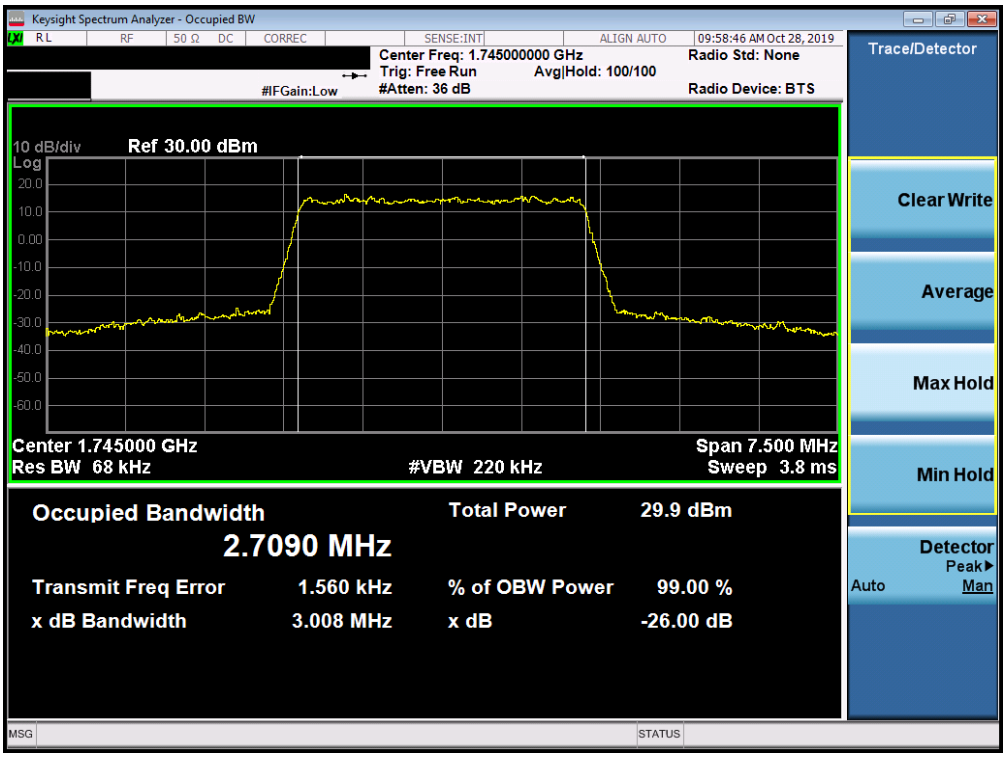
Plot 7-60. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz 256-QAM - Full RB Configuration)



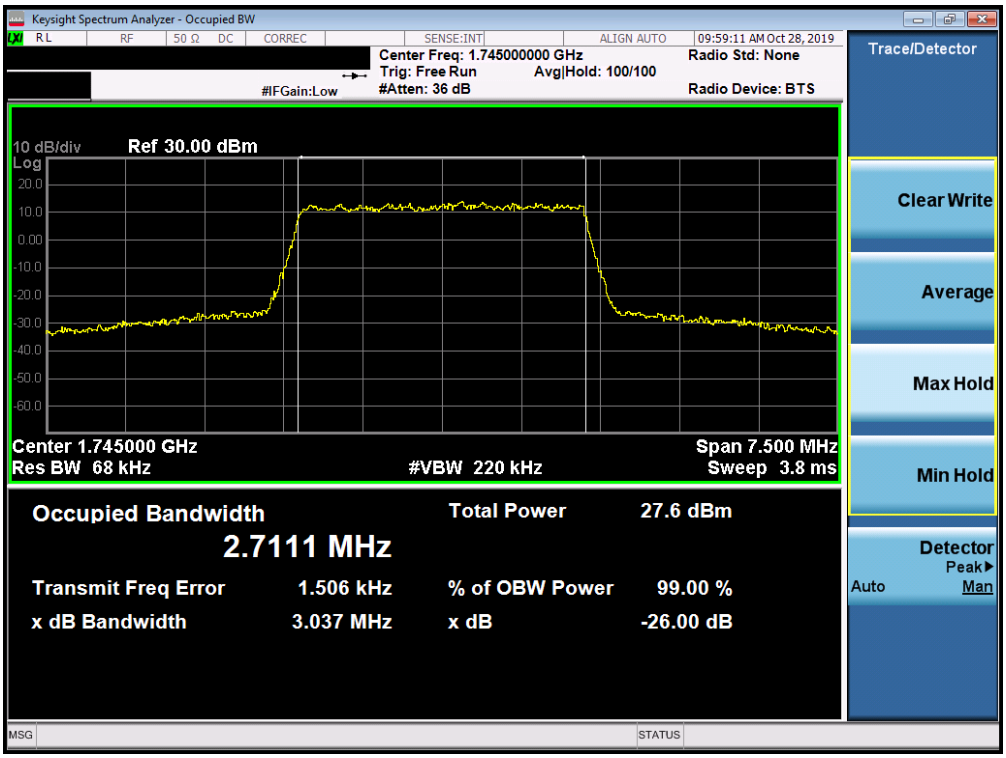
Plot 7-61. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)



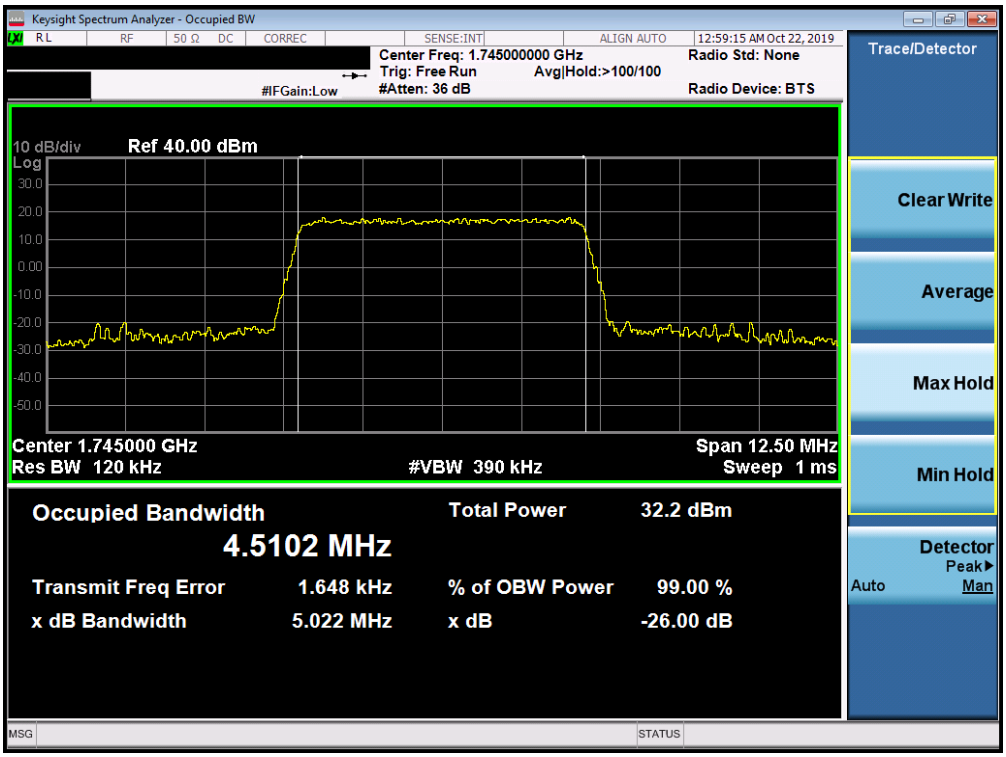
Plot 7-62. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz 16-QAM - Full RB Configuration)



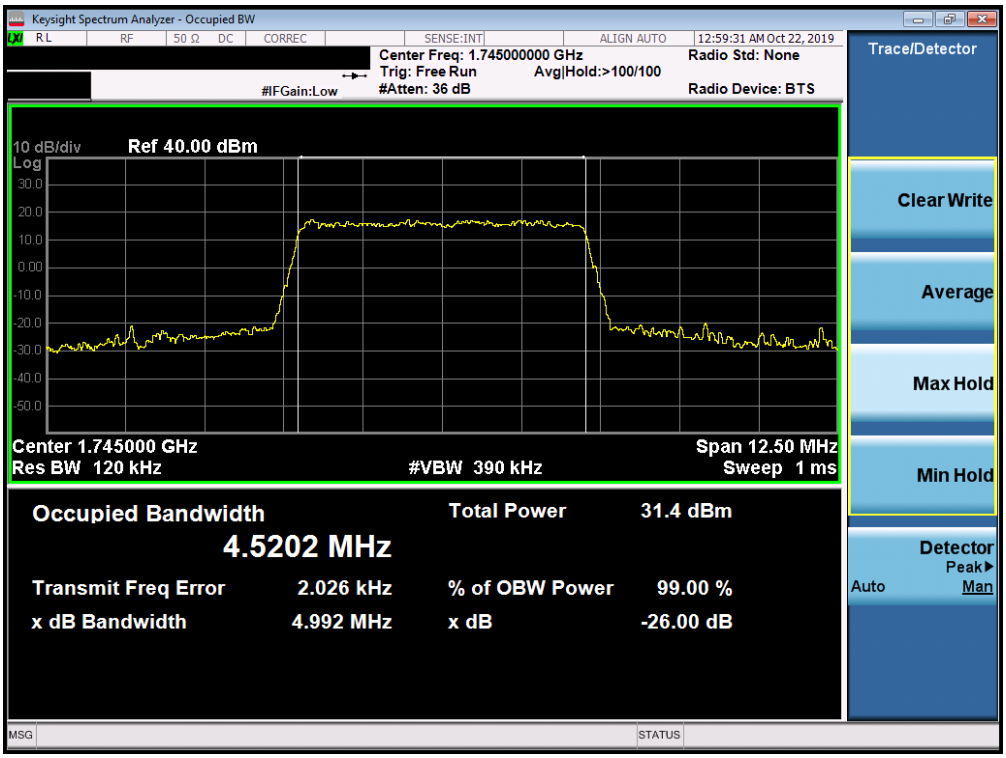
Plot 7-63. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz 64-QAM - Full RB Configuration)



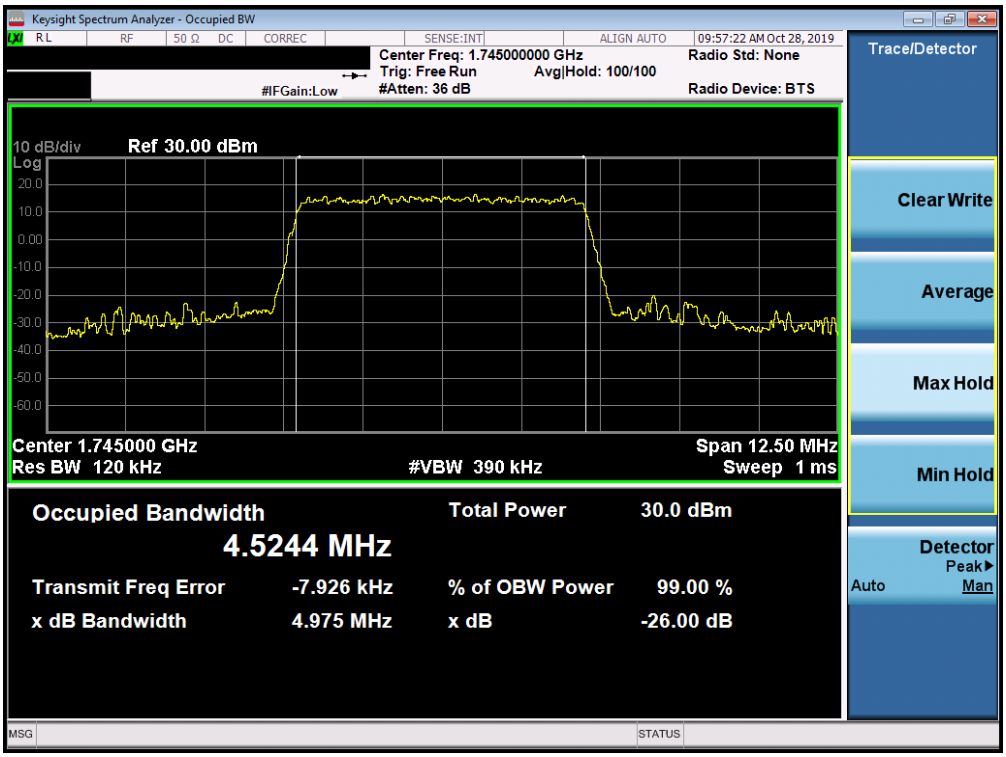
Plot 7-64. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz 256-QAM - Full RB Configuration)



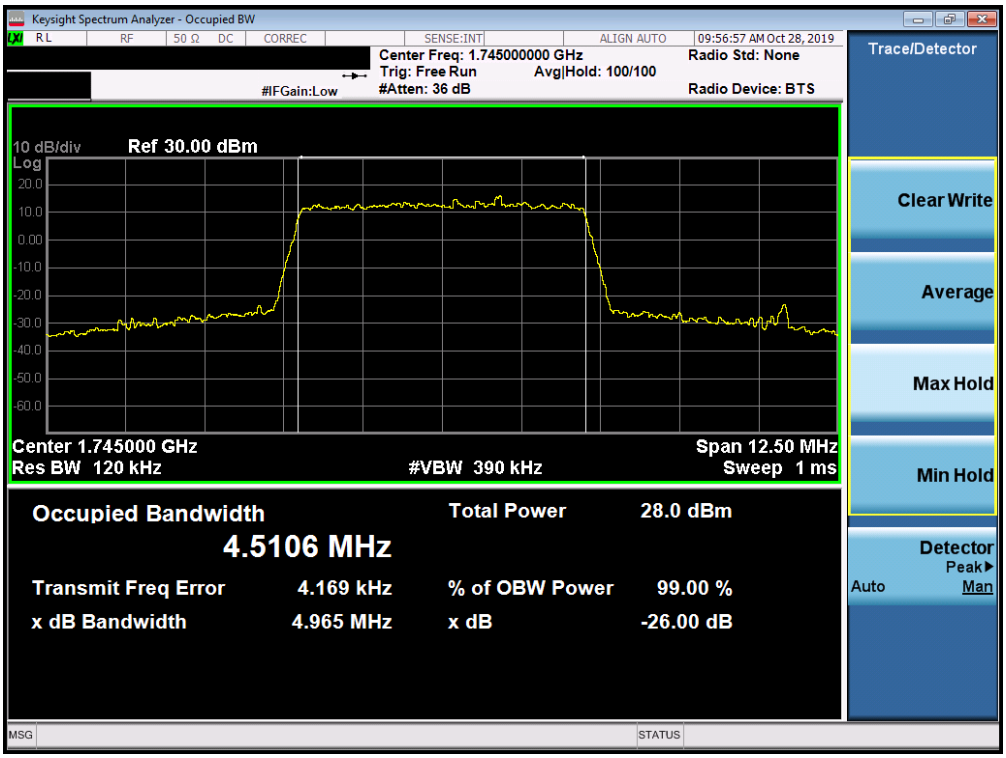
Plot 7-65. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)



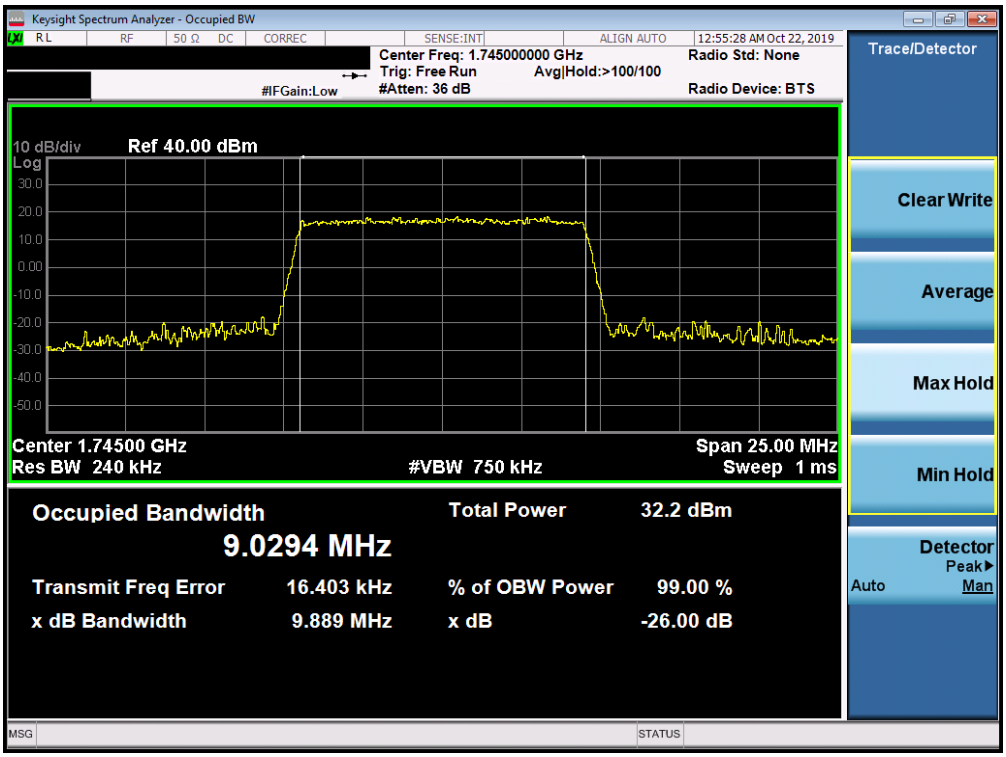
Plot 7-66. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz 16-QAM - Full RB Configuration)



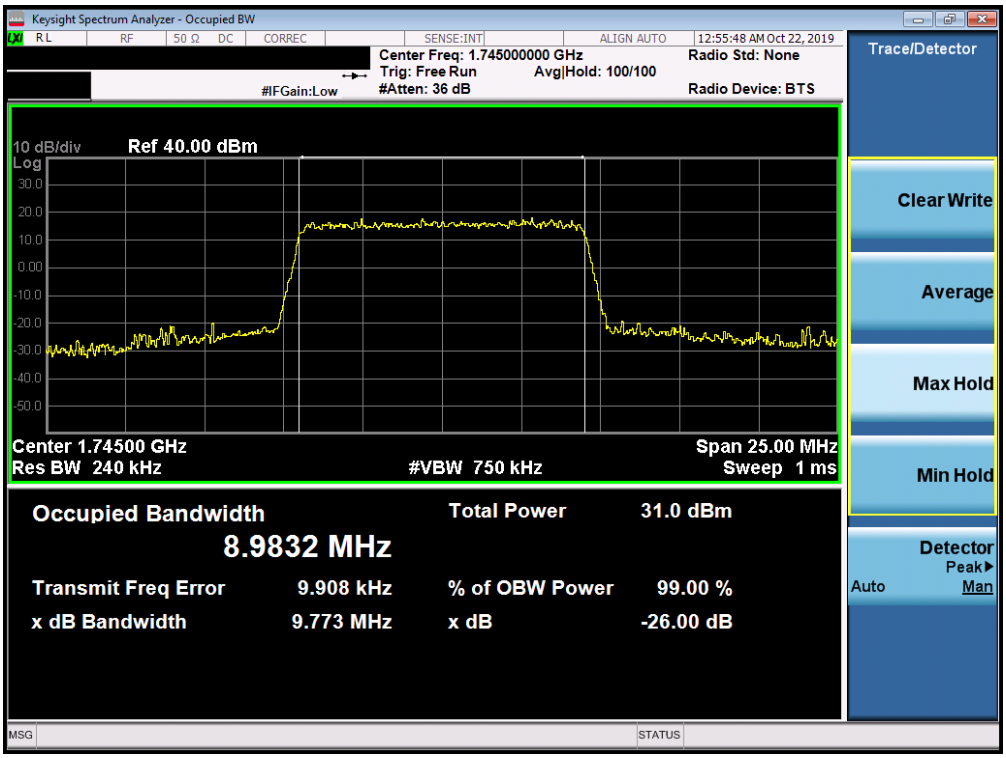
Plot 7-67. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz 64-QAM - Full RB Configuration)



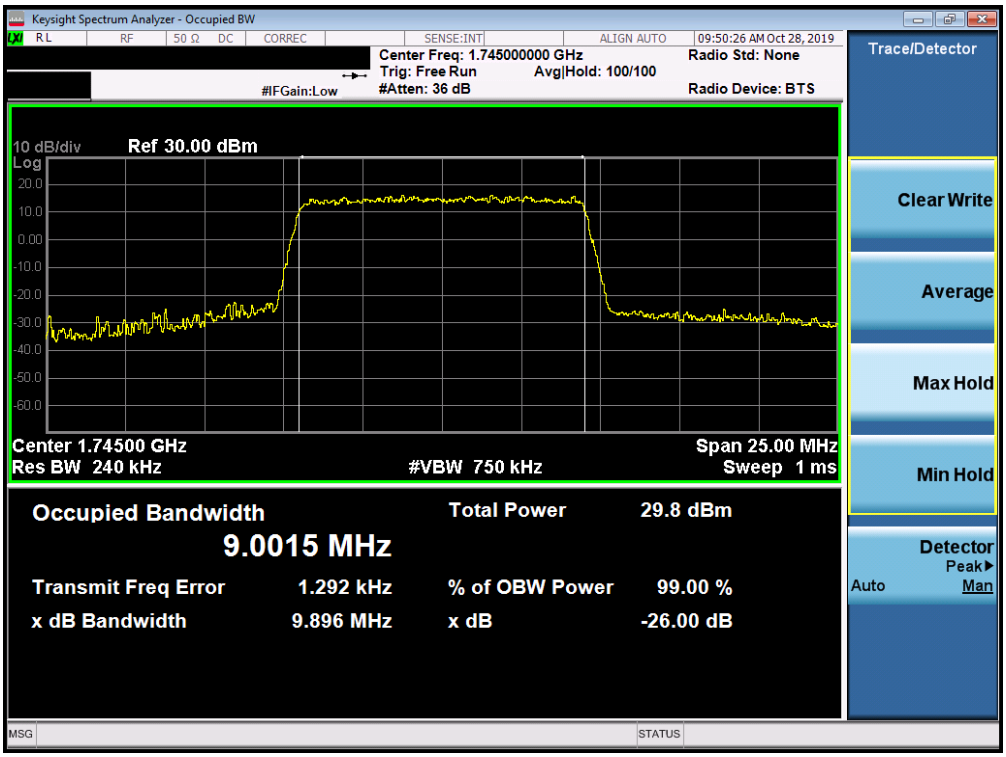
Plot 7-68. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz 256-QAM - Full RB Configuration)



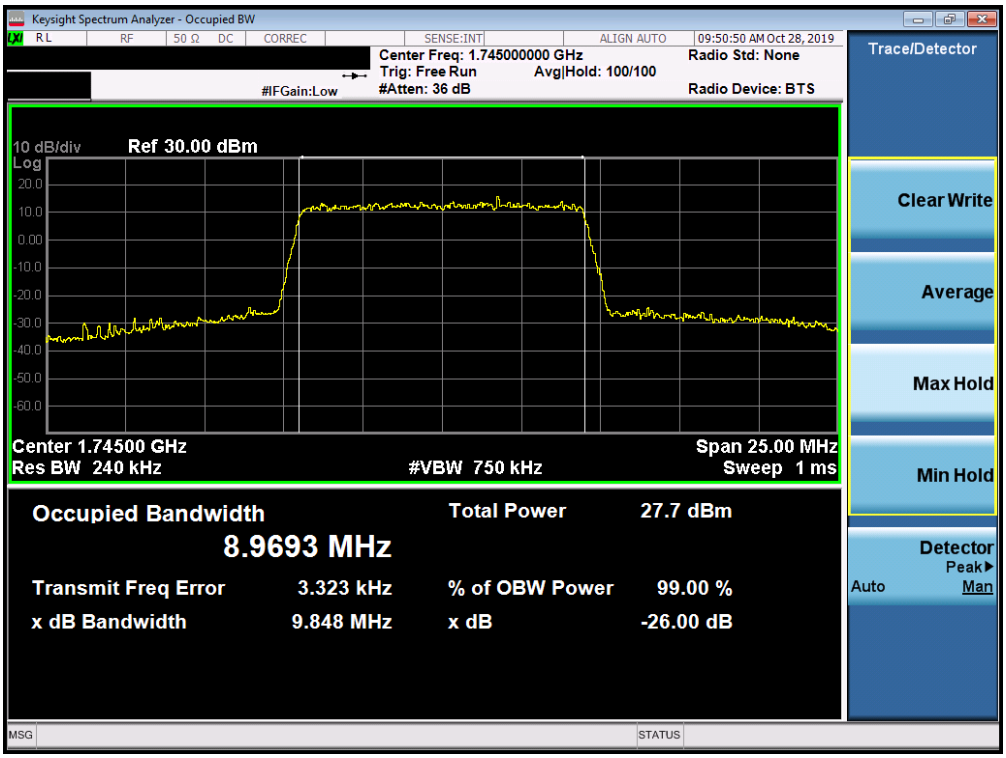
Plot 7-69. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)



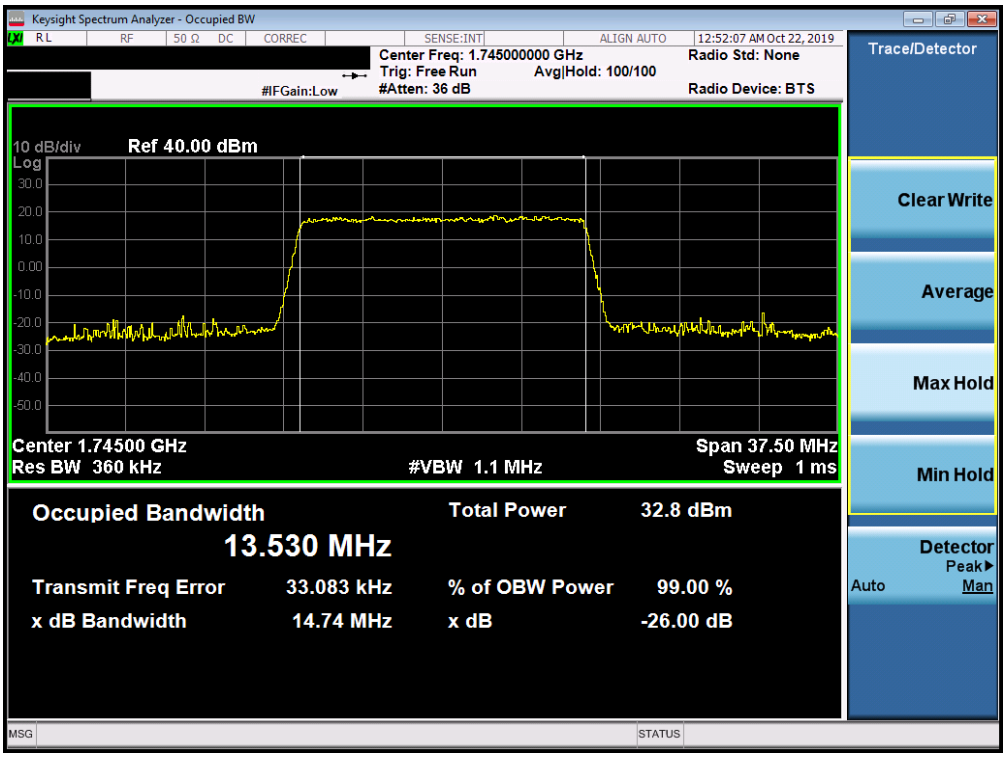
Plot 7-70. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz 16-QAM - Full RB Configuration)



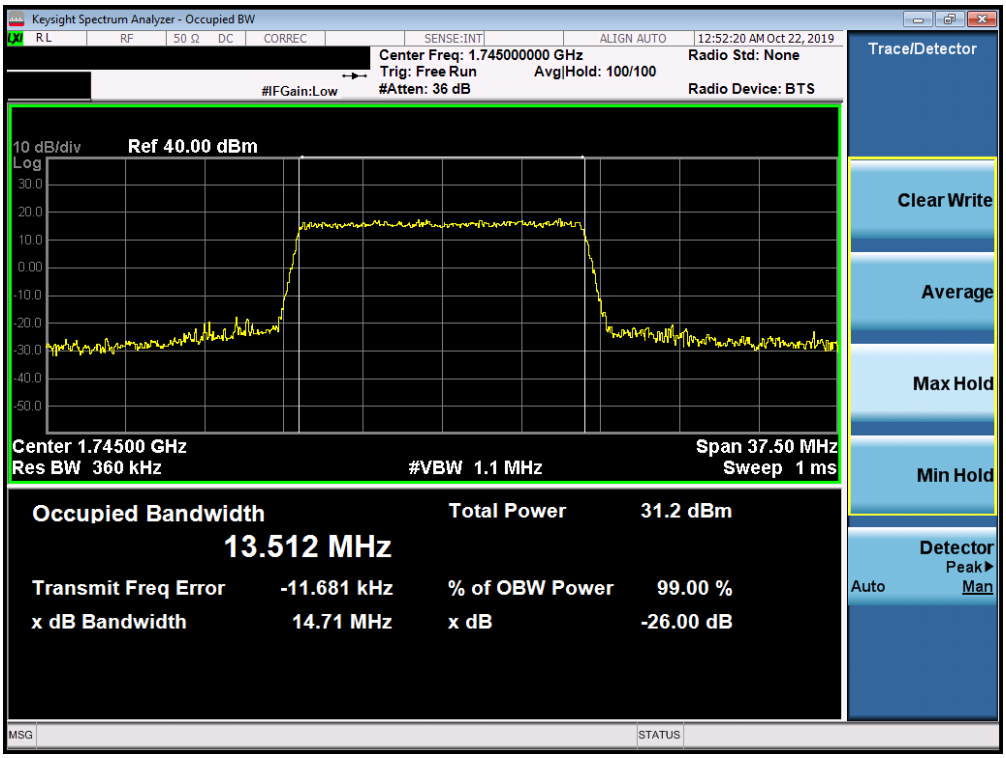
Plot 7-71. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz 64-QAM - Full RB Configuration)



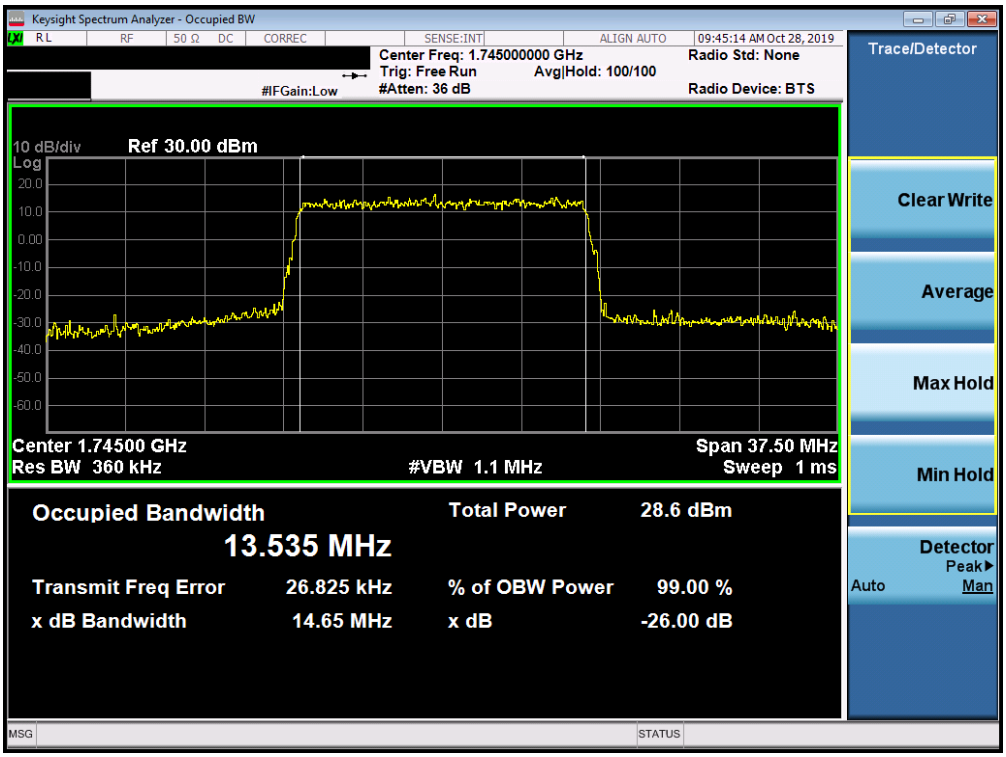
Plot 7-72. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz 256-QAM - Full RB Configuration)



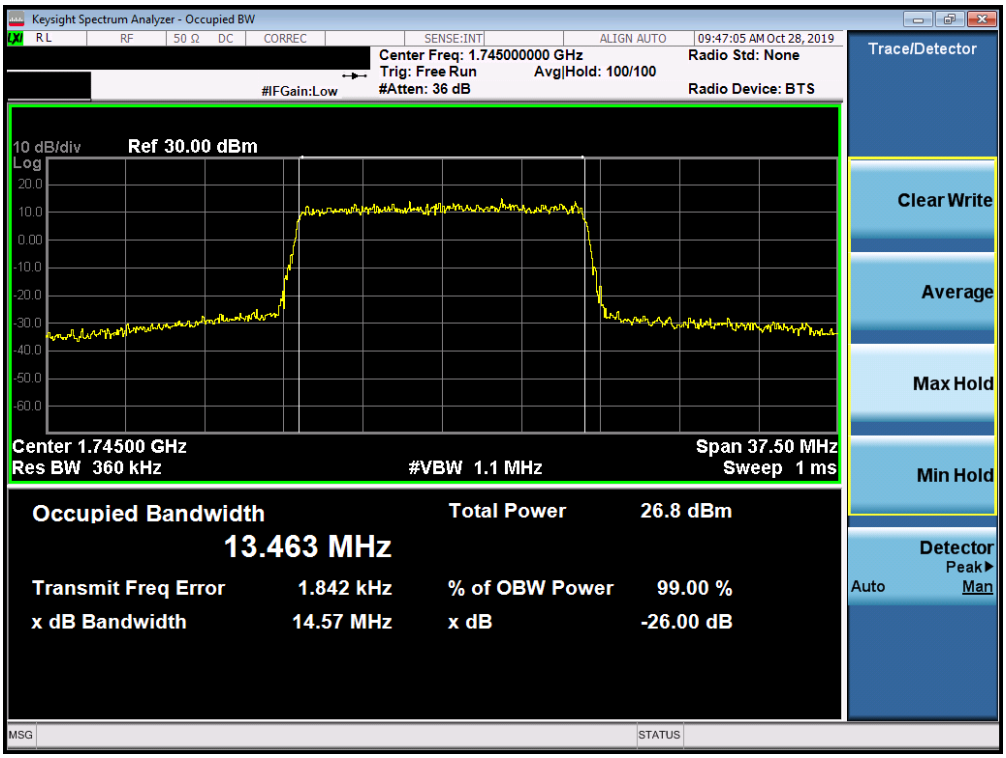
Plot 7-73. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)



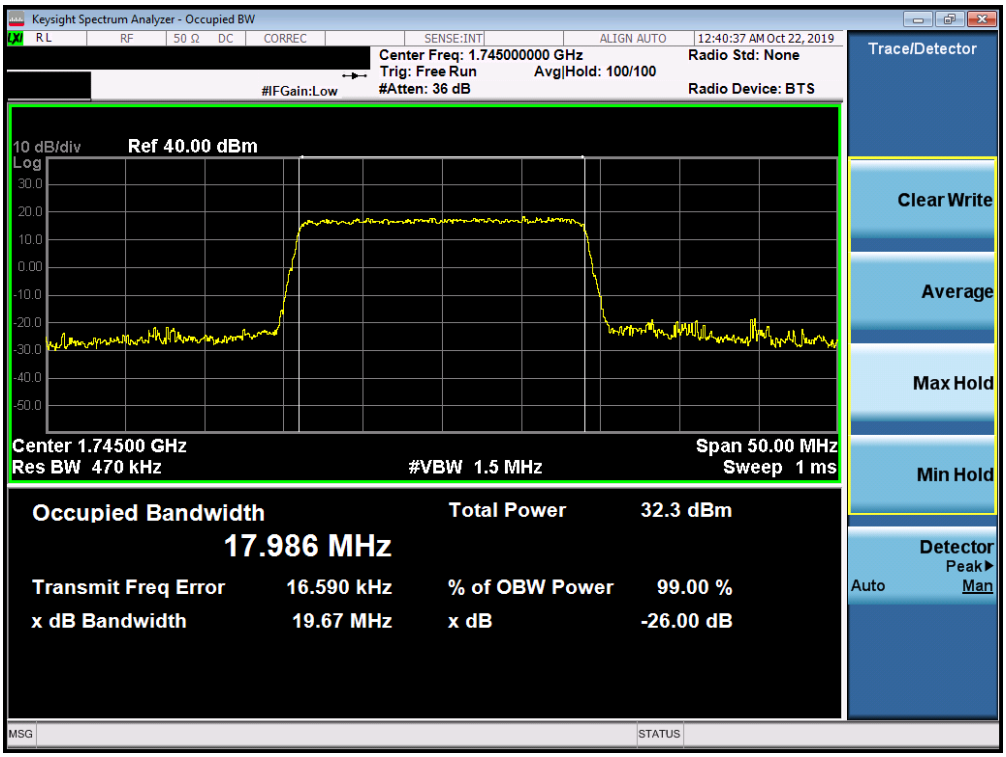
Plot 7-74. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz 16-QAM - Full RB Configuration)



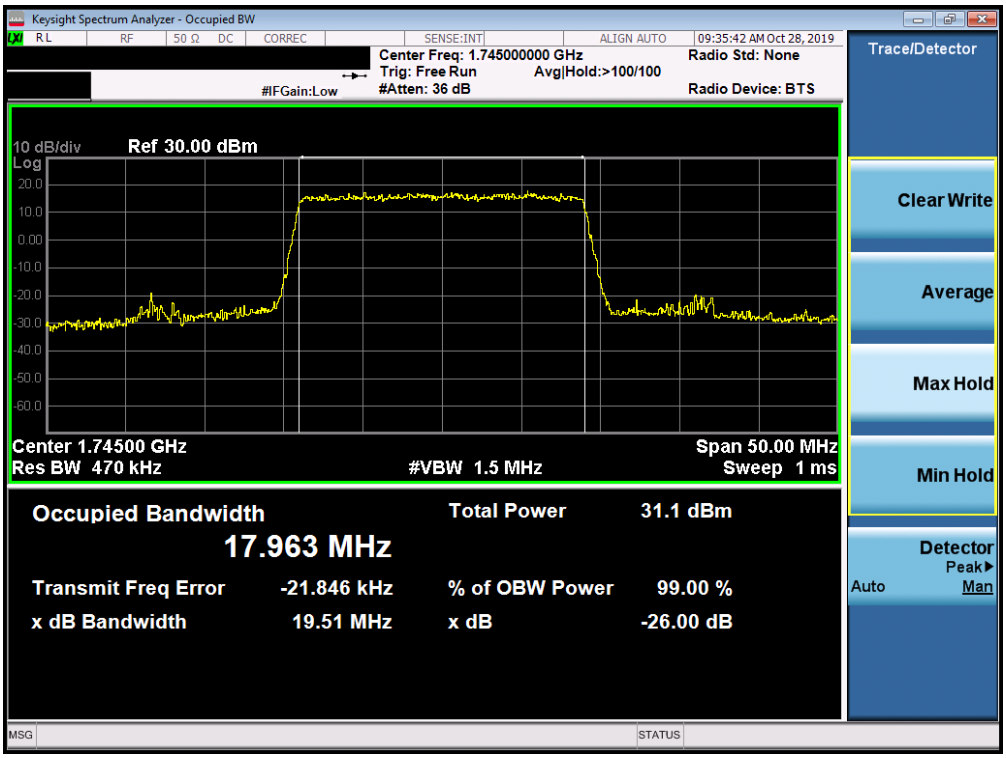
Plot 7-75. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz 64-QAM - Full RB Configuration)



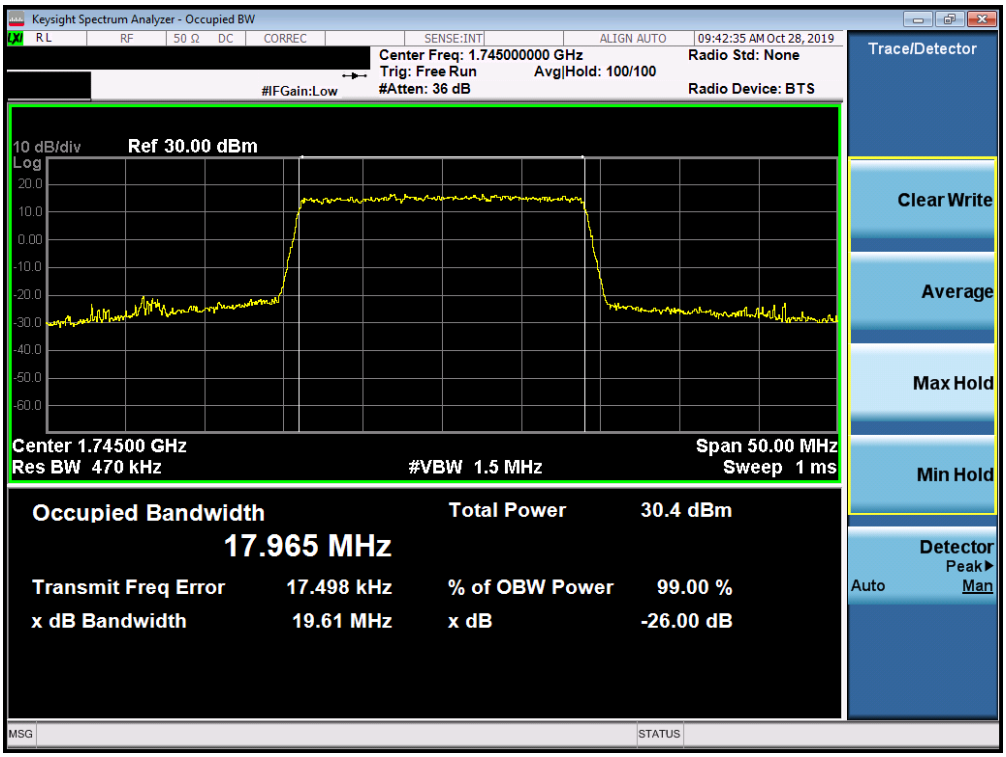
Plot 7-76. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz 256-QAM - Full RB Configuration)



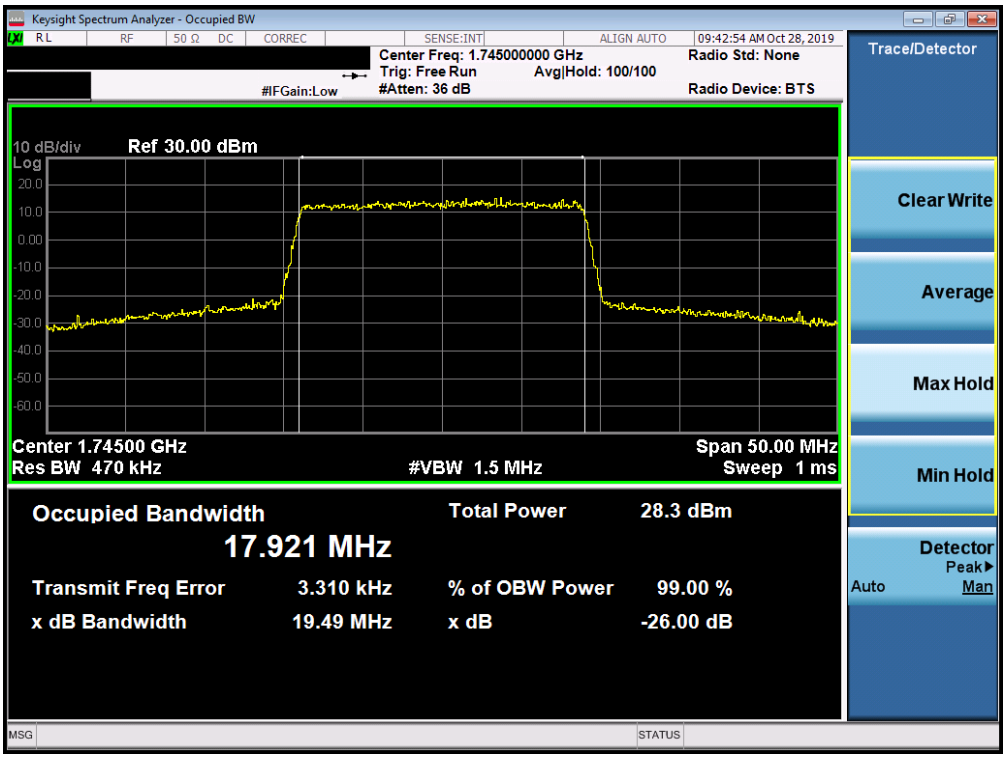
Plot 7-77. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)



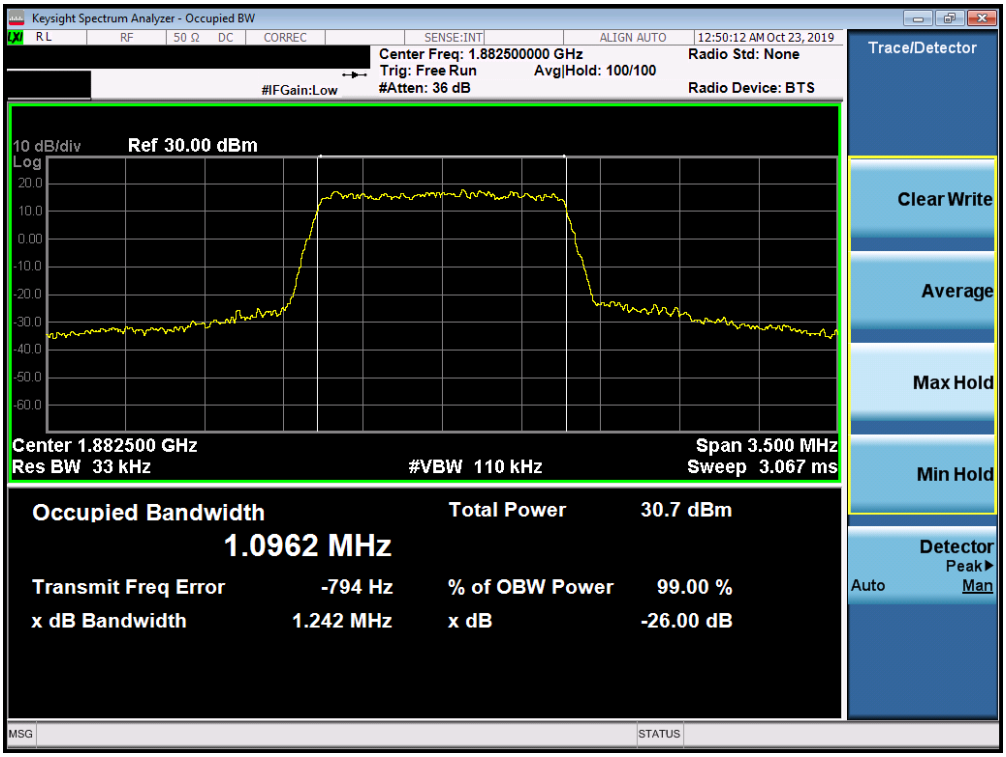
Plot 7-78. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz 16-QAM - Full RB Configuration)



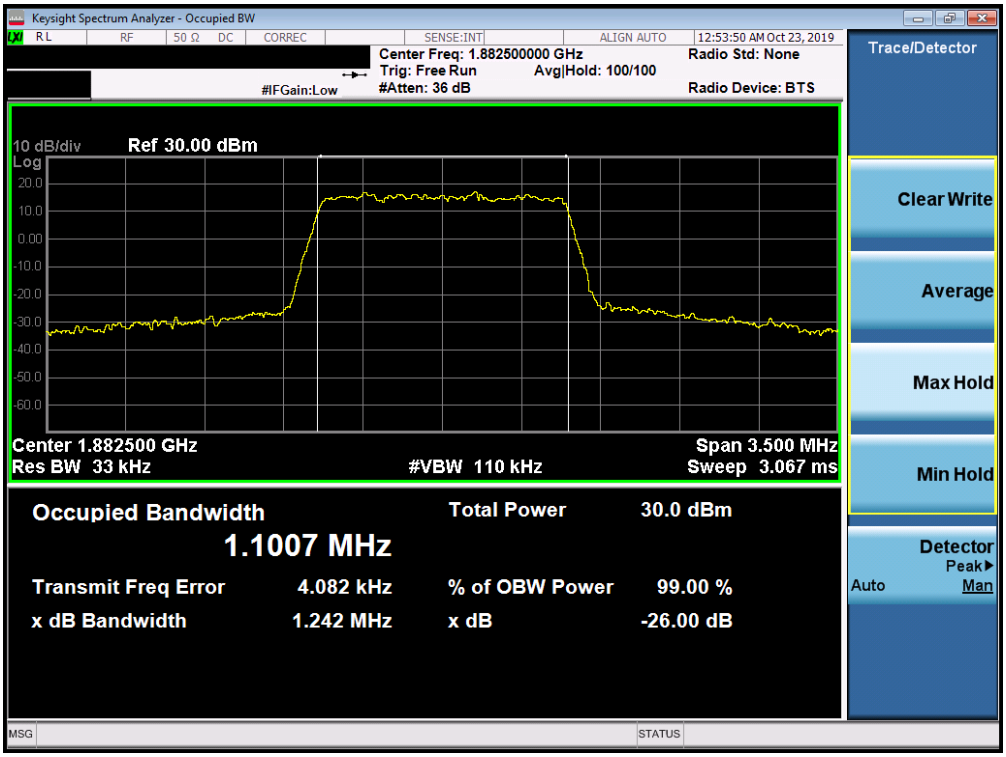
Plot 7-79. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz 64-QAM - Full RB Configuration)



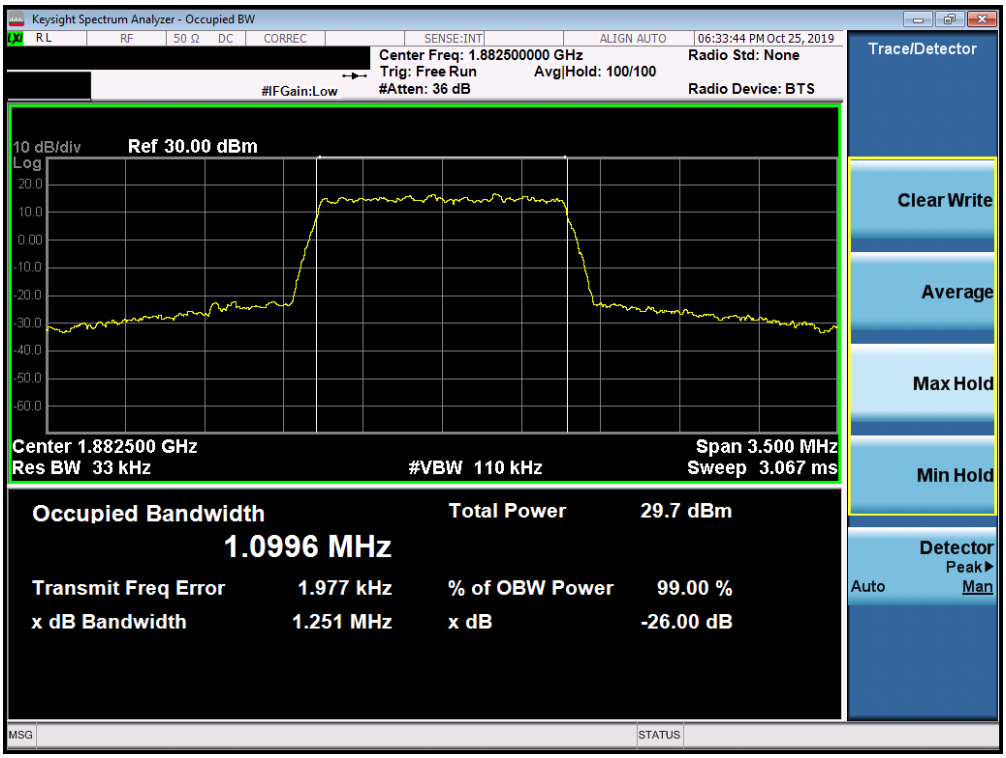
Plot 7-80. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz 256-QAM - Full RB Configuration)



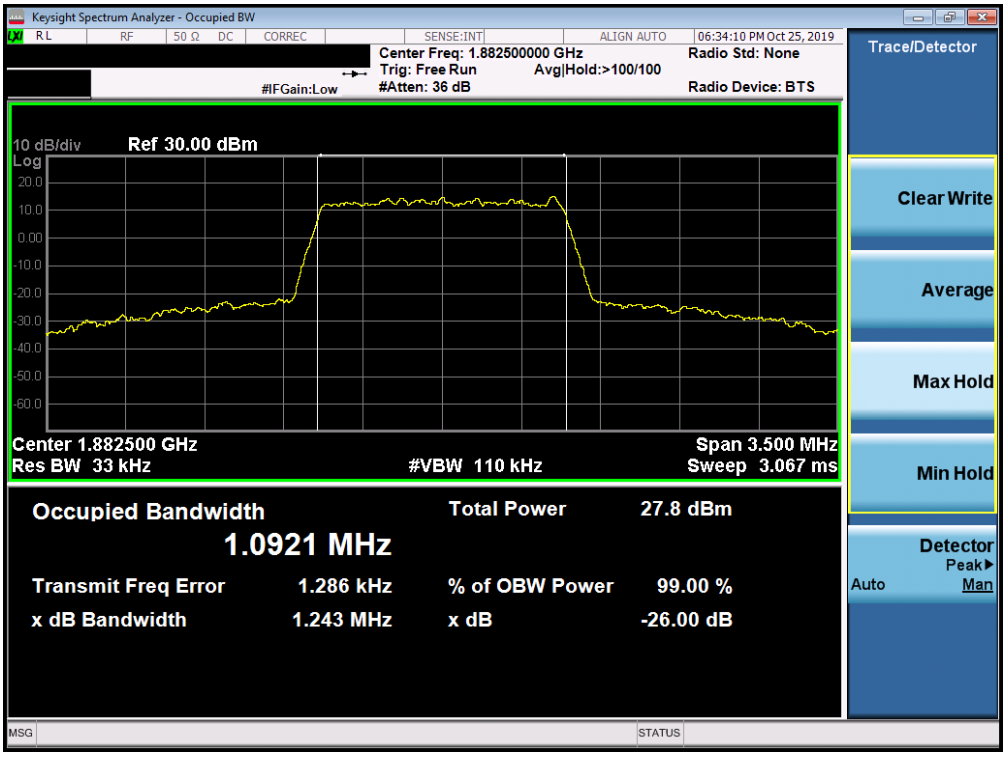
Plot 7-81. Occupied Bandwidth Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)



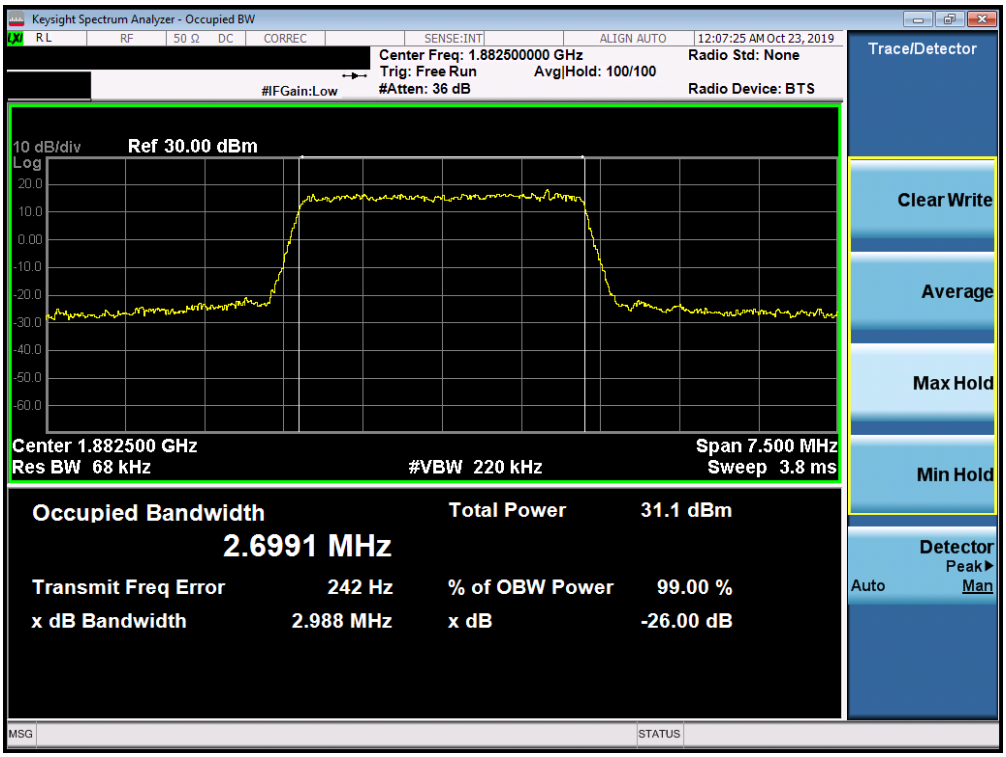
Plot 7-82. Occupied Bandwidth Plot (Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)



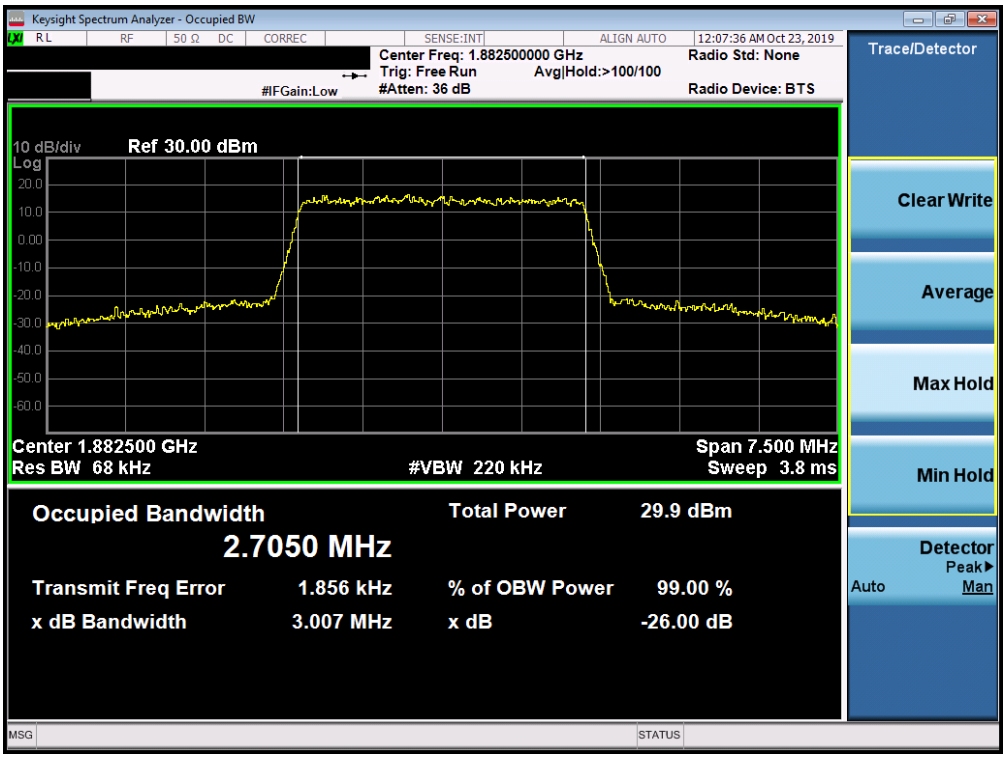
Plot 7-83. Occupied Bandwidth Plot (Band 25/2 - 1.4MHz 64-QAM - Full RB Configuration)



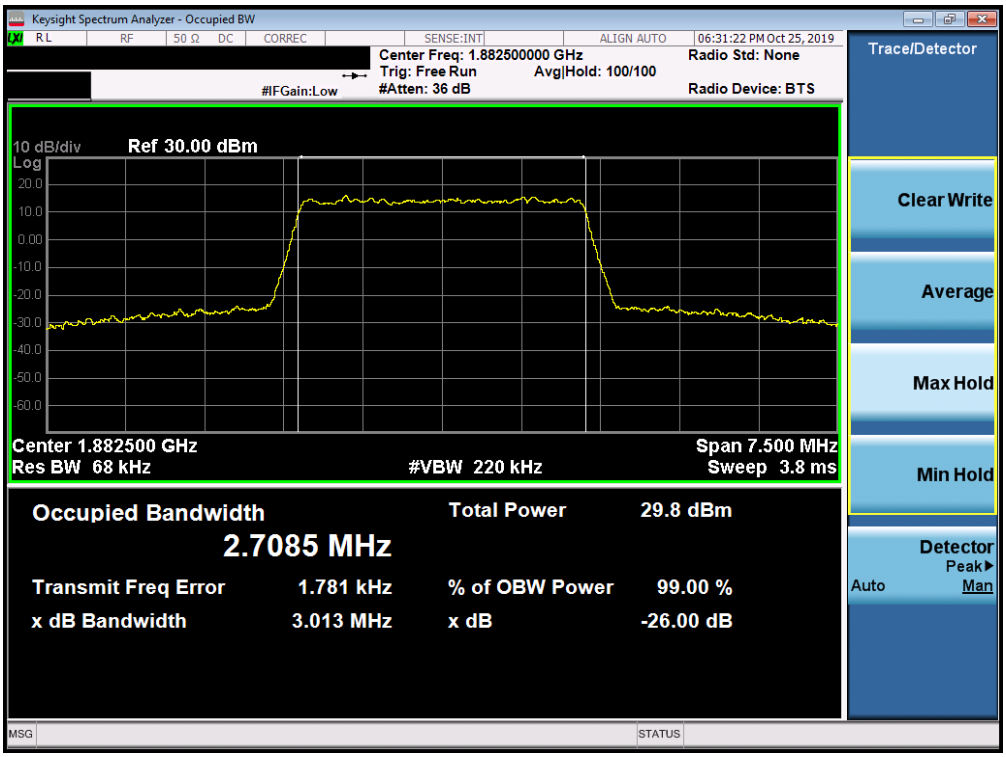
Plot 7-84. Occupied Bandwidth Plot (Band 25/2 - 1.4MHz 256-QAM - Full RB Configuration)



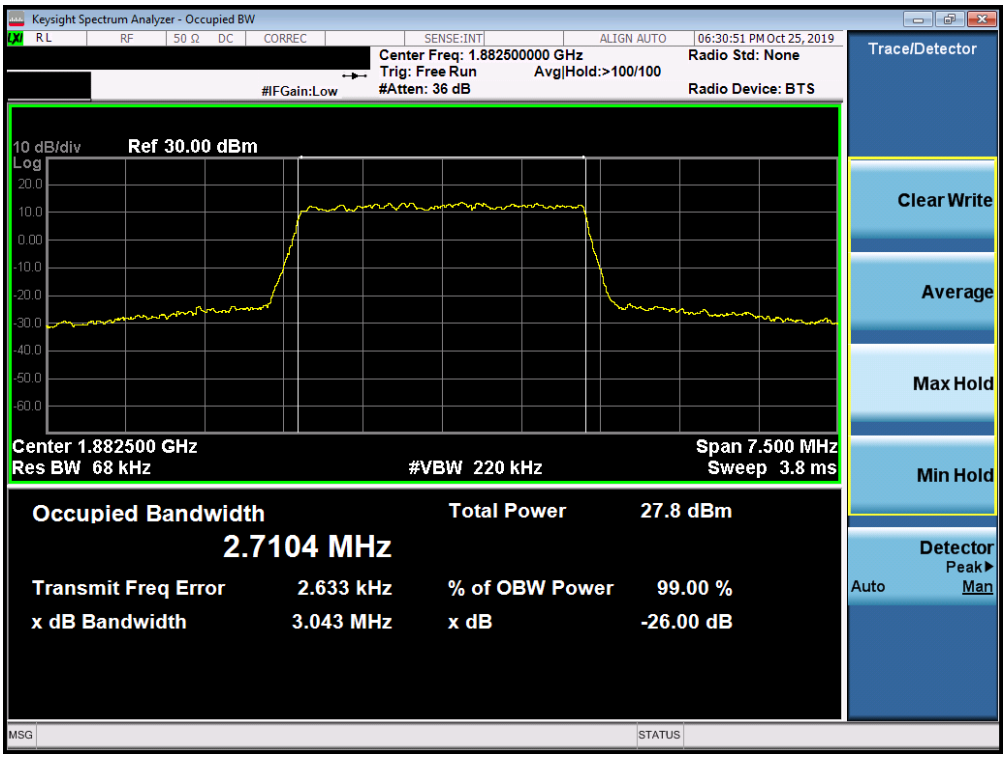
Plot 7-85. Occupied Bandwidth Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)



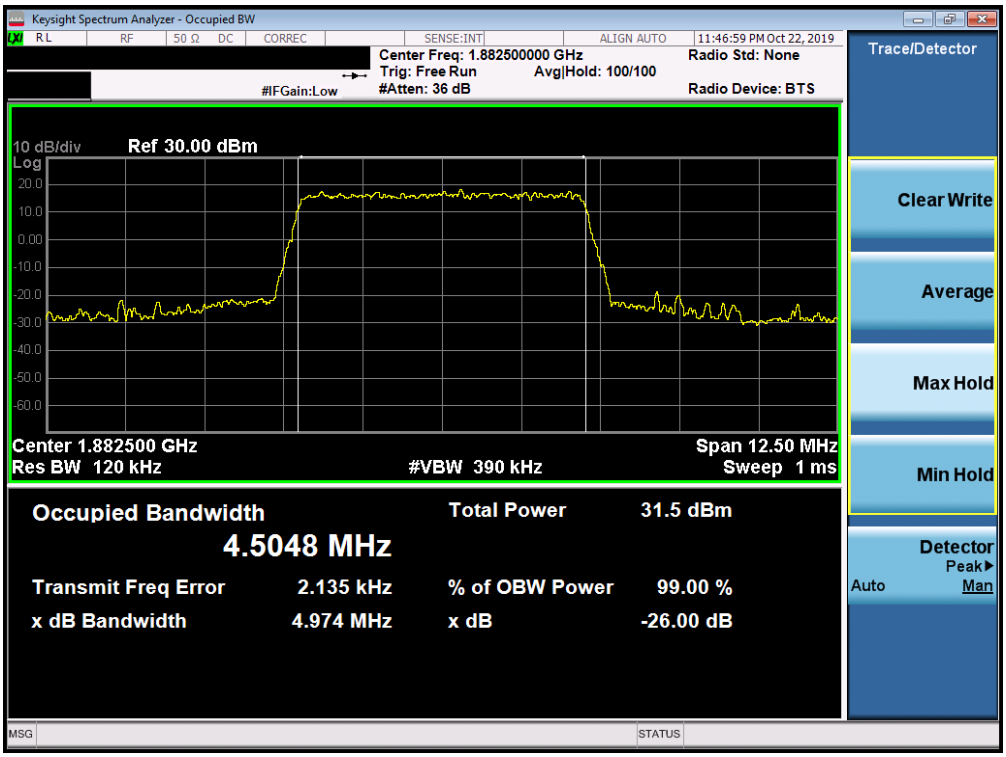
Plot 7-86. Occupied Bandwidth Plot (Band 25/2 - 3.0MHz 16-QAM - Full RB Configuration)



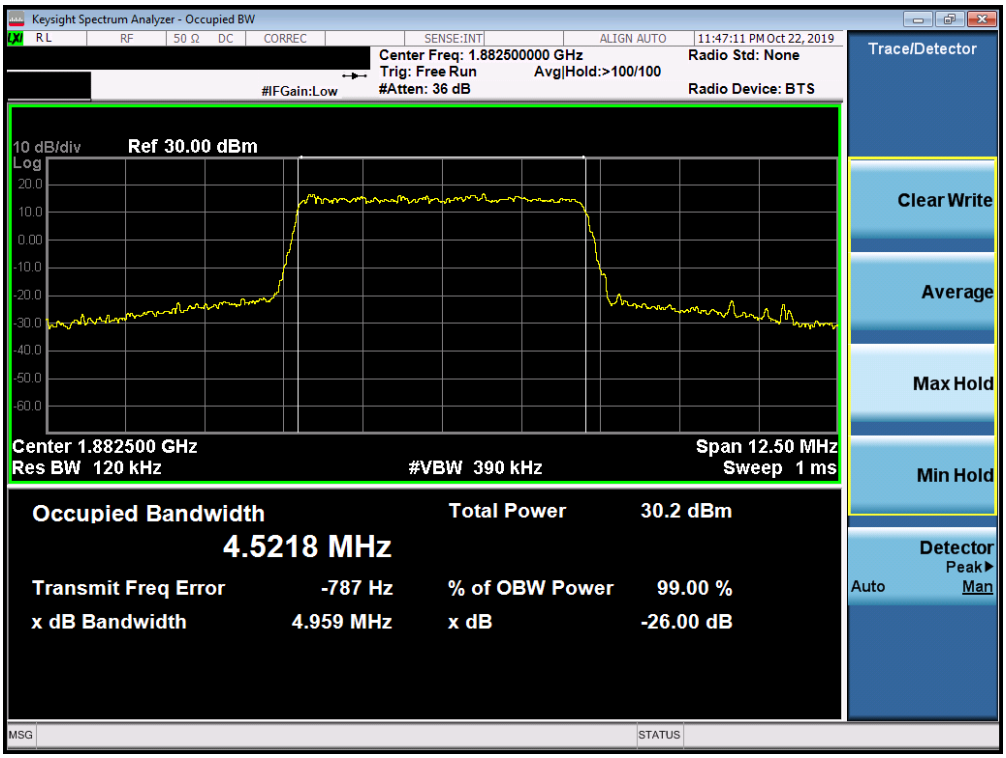
Plot 7-87. Occupied Bandwidth Plot (Band 25/2 - 3.0MHz 64-QAM - Full RB Configuration)



Plot 7-88. Occupied Bandwidth Plot (Band 25/2 - 3.0MHz 256-QAM - Full RB Configuration)



Plot 7-89. Occupied Bandwidth Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-90. Occupied Bandwidth Plot (Band 25/2 - 5.0MHz 16-QAM - Full RB Configuration)