

MEASUREMENT REPORT LTE / NR SUB6

Applicant Name:

LG Electronics USA, Inc.
111 Sylvan Avenue, North Building
Englewood Cliffs, NJ 07632
United States

Date of Testing:

05/29 - 07/16/2020

Test Site/Location:

PCTEST Lab. Columbia, MD, USA

Test Report Serial No.:

1M2005180086-03.ZNF

FCC ID:

ZNFG900TM

APPLICANT:

LG Electronics USA, Inc.

Application Type:

Certification

Model:

LM-G900TM

Additional Model(s):

LMG900TM, G900TM

EUT Type:

Portable Handset

FCC Classification:

PCS Licensed Transmitter Held to Ear (PCE)

FCC Rule Part(s):

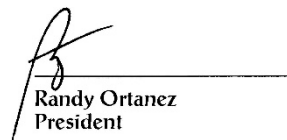
22, 24, & 27

Test Procedure(s):

ANSI C63.26-2015, ANSI/TIA-603-E-2016, KDB 971168 D01 v03r01

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

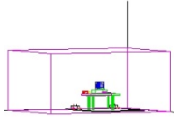


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T A B L E O F C O N T E N T S

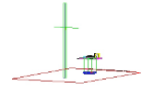
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FCC Part 22, 24, & 27



Mode	FCC Rule Part	Tx Frequency (MHz)	ERP		EIRP		Emission Designator	Modulation
			Max. Power (W)	Max. Power (dBm)	Max. Power (W)	Max. Power (dBm)		
LTE Band 71	27	665.5 - 695.5	0.037	15.65			4M52G7D	QPSK
LTE Band 71	27	665.5 - 695.5	0.032	15.02			4M51W7D	16QAM
LTE Band 71	27	665.5 - 695.5	0.031	14.88			4M53W7D	64QAM
LTE Band 71	27	668 - 693	0.036	15.53			8M99G7D	QPSK
LTE Band 71	27	668 - 693	0.027	14.25			9M01W7D	16QAM
LTE Band 71	27	668 - 693	0.029	14.68			8M99W7D	64QAM
LTE Band 71	27	670.5 - 690.5	0.035	15.44			13M5G7D	QPSK
LTE Band 71	27	670.5 - 690.5	0.029	14.63			13M5W7D	16QAM
LTE Band 71	27	670.5 - 690.5	0.027	14.37			13M5W7D	64QAM
LTE Band 71	27	673 - 688	0.037	15.70			18M0G7D	QPSK
LTE Band 71	27	673 - 688	0.028	14.54			18M0W7D	16QAM
LTE Band 71	27	673 - 688	0.030	14.72			17M9W7D	64QAM
LTE Band 12	27	699.7 - 715.3	0.034	15.27	0.055	17.42	1M10G7D	QPSK
LTE Band 12	27	699.7 - 715.3	0.028	14.51	0.046	16.66	1M10W7D	16QAM
LTE Band 12	27	699.7 - 715.3	0.022	13.42	0.036	15.57	1M10W7D	64QAM
LTE Band 12	27	700.5 - 714.5	0.034	15.28	0.055	17.43	2M70G7D	QPSK
LTE Band 12	27	700.5 - 714.5	0.028	14.41	0.045	16.56	2M70W7D	16QAM
LTE Band 12	27	700.5 - 714.5	0.022	13.44	0.036	15.59	2M71W7D	64QAM
LTE Band 12/17	27	701.5 - 713.5	0.033	15.24	0.055	17.39	4M52G7D	QPSK
LTE Band 12/17	27	701.5 - 713.5	0.028	14.41	0.045	16.56	4M51W7D	16QAM
LTE Band 12/17	27	701.5 - 713.5	0.023	13.53	0.037	15.68	4M51W7D	64QAM
LTE Band 12/17	27	704 - 711	0.034	15.29	0.056	17.44	9M01G7D	QPSK
LTE Band 12/17	27	704 - 711	0.029	14.59	0.047	16.74	9M02W7D	16QAM
LTE Band 12/17	27	704 - 711	0.022	13.47	0.037	15.62	9M00W7D	64QAM
LTE Band 13	27	779.5 - 784.5	0.042	16.23	0.069	18.38	4M51G7D	QPSK
LTE Band 13	27	779.5 - 784.5	0.033	15.12	0.053	17.27	4M52W7D	16QAM
LTE Band 13	27	779.5 - 784.5	0.030	14.73	0.049	16.88	4M53W7D	64QAM
LTE Band 13	27	782	0.044	16.40	0.072	18.55	9M02G7D	QPSK
LTE Band 13	27	782	0.035	15.41	0.057	17.56	9M05W7D	16QAM
LTE Band 13	27	782	0.027	14.33	0.044	16.48	9M01W7D	64QAM
LTE Band 26/5	22H	824.7 - 848.3	0.043	16.35	0.071	18.50	1M08G7D	QPSK
LTE Band 26/5	22H	824.7 - 848.3	0.035	15.41	0.057	17.56	1M08W7D	16QAM
LTE Band 26/5	22H	824.7 - 848.3	0.028	14.51	0.046	16.66	1M08W7D	64QAM
LTE Band 26/5	22H	825.5 - 847.5	0.042	16.24	0.069	18.39	2M69G7D	QPSK
LTE Band 26/5	22H	825.5 - 847.5	0.038	15.77	0.062	17.92	2M68W7D	16QAM
LTE Band 26/5	22H	825.5 - 847.5	0.027	14.36	0.045	16.51	2M71W7D	64QAM
LTE Band 26/5	22H	826.5 - 846.5	0.042	16.20	0.068	18.35	4M51G7D	QPSK
LTE Band 26/5	22H	826.5 - 846.5	0.035	15.38	0.057	17.53	4M52W7D	16QAM
LTE Band 26/5	22H	826.5 - 846.5	0.028	14.43	0.046	16.58	4M51W7D	64QAM
LTE Band 26/5	22H	829 - 844	0.044	16.43	0.072	18.58	9M03G7D	QPSK
LTE Band 26/5	22H	829 - 844	0.035	15.43	0.057	17.58	9M03W7D	16QAM
LTE Band 26/5	22H	829 - 844	0.028	14.40	0.045	16.55	9M00W7D	64QAM
LTE Band 26	22H	831.5 - 841.5	0.043	16.31	0.070	18.46	13M5G7D	QPSK
LTE Band 26	22H	831.5 - 841.5	0.034	15.26	0.055	17.41	13M5W7D	16QAM
LTE Band 26	22H	831.5 - 841.5	0.029	14.57	0.047	16.72	13M5W7D	64QAM

EUT Overview (<1 GHz)

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Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	ERP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
NR Band n71	20 MHz	$\pi/2$ BPSK	673.0 - 688.0	0.044	16.39	18M1G7D
		QPSK	673.0 - 688.0	0.045	16.50	18M1G7D
		16QAM	673.0 - 688.0	0.036	15.53	18M0W7D
		64QAM	673.0 - 688.0	0.029	14.65	18M0W7D
		256QAM	673.0 - 688.0	0.019	12.89	18M0W7D
	15 MHz	$\pi/2$ BPSK	670.5 - 690.5	0.041	16.16	13M5G7D
		QPSK	670.5 - 690.5	0.045	16.58	13M5G7D
		16QAM	670.5 - 690.5	0.036	15.54	13M5W7D
		64QAM	670.5 - 690.5	0.029	14.62	13M5W7D
		256QAM	670.5 - 690.5	0.019	12.86	13M5W7D
	10 MHz	$\pi/2$ BPSK	668.0 - 693.0	0.042	16.22	9M00G7D
		QPSK	668.0 - 693.0	0.046	16.65	9M03G7D
		16QAM	668.0 - 693.0	0.036	15.58	9M02W7D
		64QAM	668.0 - 693.0	0.029	14.68	9M01W7D
		256QAM	668.0 - 693.0	0.019	12.88	9M05W7D
	5 MHz	$\pi/2$ BPSK	665.5 - 695.5	0.042	16.26	4M49G7D
		QPSK	665.5 - 695.5	0.046	16.65	4M51G7D
		16QAM	665.5 - 695.5	0.036	15.62	4M49W7D
		64QAM	665.5 - 695.5	0.030	14.70	4M50W7D
		256QAM	665.5 - 695.5	0.020	12.92	4M48W7D

EUT Overview (n71)

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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	0.157	21.96	1M10G7D	QPSK
LTE Band 66/4	27	1710.7 - 1779.3	0.139	21.44	1M09W7D	16QAM
LTE Band 66/4	27	1710.7 - 1779.3	0.098	19.92	1M10W7D	64QAM
LTE Band 66/4	27	1711.5 - 1778.5	0.158	21.98	2M70G7D	QPSK
LTE Band 66/4	27	1711.5 - 1778.5	0.139	21.44	2M71W7D	16QAM
LTE Band 66/4	27	1711.5 - 1778.5	0.098	19.89	2M70W7D	64QAM
LTE Band 66/4	27	1712.5 - 1777.5	0.161	22.08	4M51G7D	QPSK
LTE Band 66/4	27	1712.5 - 1777.5	0.148	21.71	4M52W7D	16QAM
LTE Band 66/4	27	1712.5 - 1777.5	0.108	20.33	4M51W7D	64QAM
LTE Band 66/4	27	1715 - 1775	0.167	22.22	9M01G7D	QPSK
LTE Band 66/4	27	1715 - 1775	0.123	20.90	9M01W7D	16QAM
LTE Band 66/4	27	1715 - 1775	0.103	20.13	8M99W7D	64QAM
LTE Band 66/4	27	1717.5 - 1772.5	0.167	22.23	13M5G7D	QPSK
LTE Band 66/4	27	1717.5 - 1772.5	0.136	21.32	13M5W7D	16QAM
LTE Band 66/4	27	1717.5 - 1772.5	0.096	19.82	13M5W7D	64QAM
LTE Band 66/4	27	1720 - 1770	0.170	22.31	18M0G7D	QPSK
LTE Band 66/4	27	1720 - 1770	0.132	21.21	18M0W7D	16QAM
LTE Band 66/4	27	1720 - 1770	0.101	20.04	17M9W7D	64QAM
LTE Band 25/2	24E	1850.7 - 1914.3	0.163	22.12	1M10G7D	QPSK
LTE Band 25/2	24E	1850.7 - 1914.3	0.124	20.95	1M10W7D	16QAM
LTE Band 25/2	24E	1850.7 - 1914.3	0.103	20.13	1M10W7D	64QAM
LTE Band 25/2	24E	1851.5 - 1913.5	0.162	22.09	2M70G7D	QPSK
LTE Band 25/2	24E	1851.5 - 1913.5	0.120	20.80	2M70W7D	16QAM
LTE Band 25/2	24E	1851.5 - 1913.5	0.101	20.04	2M71W7D	64QAM
LTE Band 25/2	24E	1852.5 - 1912.5	0.166	22.21	4M51G7D	QPSK
LTE Band 25/2	24E	1852.5 - 1912.5	0.133	21.23	4M51W7D	16QAM
LTE Band 25/2	24E	1852.5 - 1912.5	0.109	20.36	4M52W7D	64QAM
LTE Band 25/2	24E	1855 - 1910	0.165	22.17	8M96G7D	QPSK
LTE Band 25/2	24E	1855 - 1910	0.133	21.22	8M98W7D	16QAM
LTE Band 25/2	24E	1855 - 1910	0.103	20.11	8M98W7D	64QAM
LTE Band 25/2	24E	1857.5 - 1907.5	0.162	22.08	13M5G7D	QPSK
LTE Band 25/2	24E	1857.5 - 1907.5	0.123	20.89	13M5W7D	16QAM
LTE Band 25/2	24E	1857.5 - 1907.5	0.098	19.92	13M5W7D	64QAM
LTE Band 25/2	24E	1860 - 1905	0.158	21.98	17M9G7D	QPSK
LTE Band 25/2	24E	1860 - 1905	0.127	21.04	17M9W7D	16QAM
LTE Band 25/2	24E	1860 - 1905	0.100	19.98	17M9W7D	64QAM

EUT Overview (Mid Bands)

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Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
NR Band n66	40 MHz	$\pi/2$ BPSK	1720.0 - 1770.0	0.210	23.23	38M9G7D
		QPSK	1720.0 - 1770.0	0.199	22.99	38M7G7D
		16QAM	1720.0 - 1770.0	0.166	22.19	38M7W7D
		64QAM	1720.0 - 1770.0	0.142	21.51	38M7W7D
		256QAM	1717.5 - 1772.5	0.115	20.59	38M7W7D
	20 MHz	$\pi/2$ BPSK	1717.5 - 1772.5	0.171	22.33	18M0G7D
		QPSK	1717.5 - 1772.5	0.142	21.51	18M0G7D
		16QAM	1717.5 - 1772.5	0.133	21.23	18M0W7D
		64QAM	1715.0 - 1775.0	0.159	22.00	17M9W7D
		256QAM	1715.0 - 1775.0	0.167	22.23	18M0W7D
	15 MHz	$\pi/2$ BPSK	1715.0 - 1775.0	0.167	22.23	13M5G7D
		QPSK	1715.0 - 1775.0	0.155	21.90	13M5G7D
		16QAM	1712.5 - 1777.5	0.161	22.07	13M5W7D
		64QAM	1712.5 - 1777.5	0.141	21.48	13M5W7D
		256QAM	1712.5 - 1777.5	0.105	20.19	13M5W7D
	10 MHz	$\pi/2$ BPSK	1712.5 - 1777.5	0.158	21.99	9M01G7D
		QPSK	1711.5 - 1778.5	0.148	21.69	9M03G7D
		16QAM	1711.5 - 1778.5	0.161	22.07	9M03W7D
		64QAM	1711.5 - 1778.5	0.138	21.39	9M03W7D
		256QAM	1711.5 - 1778.5	0.107	20.30	9M06W7D
	5 MHz	$\pi/2$ BPSK	1710.7 - 1779.3	0.151	21.80	4M50G7D
		QPSK	1710.7 - 1779.3	0.143	21.56	4M50G7D
		16QAM	1710.7 - 1779.3	0.143	21.55	4M50W7D
		64QAM	1710.7 - 1779.3	0.140	21.46	4M51W7D
		256QAM	1710.7 - 1779.3	0.106	20.24	4M50W7D

EUT Overview (n66)

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Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
NR Band n25	40 MHz	$\pi/2$ BPSK	1860 - 1900	0.155	21.90	38M8G7D
		QPSK	1860 - 1900	0.138	21.39	38M7G7D
		16QAM	1860 - 1900	0.112	20.50	38M8W7D
		64QAM	1860 - 1900	0.086	19.37	38M7W7D
		256QAM	1860 - 1900	0.072	18.58	38M6W7D
	30 MHz	$\pi/2$ BPSK	1855 - 1905	0.172	22.35	28M7G7D
		QPSK	1855 - 1905	0.144	21.57	28M7G7D
		16QAM	1855 - 1905	0.113	20.52	28M7W7D
		64QAM	1855 - 1905	0.088	19.44	28M7W7D
		256QAM	1855 - 1905	0.080	19.05	28M8W7D
	25 MHz	$\pi/2$ BPSK	1852.5 - 1907.5	0.172	22.35	23M0G7D
		QPSK	1852.5 - 1907.5	0.142	21.53	23M0G7D
		16QAM	1852.5 - 1907.5	0.117	20.67	23M0W7D
		64QAM	1852.5 - 1907.5	0.084	19.24	22M9W7D
		256QAM	1852.5 - 1907.5	0.081	19.09	23M0W7D
	20 MHz	$\pi/2$ BPSK	1860 - 1905	0.176	22.45	18M0G7D
		QPSK	1860 - 1905	0.161	22.02	17M9G7D
		16QAM	1860 - 1905	0.124	20.83	17M9W7D
		64QAM	1860 - 1905	0.113	20.38	18M0W7D
		256QAM	1860 - 1905	0.085	18.84	17M9W7D
	15 MHz	$\pi/2$ BPSK	1857.5 - 1907.5	0.176	22.46	13M5G7D
		QPSK	1857.5 - 1907.5	0.161	22.06	13M5G7D
		16QAM	1857.5 - 1907.5	0.124	20.92	13M5W7D
		64QAM	1857.5 - 1907.5	0.113	20.54	13M5W7D
		256QAM	1857.5 - 1907.5	0.085	19.28	13M5W7D
	10 MHz	$\pi/2$ BPSK	1855 - 1910	0.195	22.90	9M01G7D
		QPSK	1855 - 1910	0.166	22.20	8M96G7D
		16QAM	1855 - 1910	0.125	20.97	8M98W7D
		64QAM	1855 - 1910	0.123	20.90	8M98W7D
		256QAM	1855 - 1910	0.086	19.35	9M02W7D
	5 MHz	$\pi/2$ BPSK	1852.5 - 1912.5	0.170	22.30	4M49G7D
		QPSK	1852.5 - 1912.5	0.172	22.36	4M51G7D
		16QAM	1852.5 - 1912.5	0.120	20.78	4M51W7D
		64QAM	1852.5 - 1912.5	0.116	20.64	4M52W7D
		256QAM	1852.5 - 1912.5	0.083	19.19	4M50W7D

EUT Overview (n25)

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Mode	FCC Rule Part	Tx Frequency (MHz)	EIRP		Emission Designator	Modulation
			Max. Power (W)	Max. Power (dBm)		
LTE Band 41 (PC2)	27	2498.5 - 2687.5	0.256	24.09	4M55G7D	QPSK
LTE Band 41 (PC2)	27	2498.5 - 2687.5	0.201	23.04	4M51W7D	16QAM
LTE Band 41 (PC2)	27	2498.5 - 2687.5	0.172	22.35	4M52W7D	64QAM
LTE Band 41 (PC2)	27	2501 - 2685	0.252	24.02	9M05G7D	QPSK
LTE Band 41 (PC2)	27	2501 - 2685	0.190	22.80	9M02W7D	16QAM
LTE Band 41 (PC2)	27	2501 - 2685	0.155	21.90	9M01W7D	64QAM
LTE Band 41 (PC2)	27	2503.5 - 2682.5	0.248	23.94	13M5G7D	QPSK
LTE Band 41 (PC2)	27	2503.5 - 2682.5	0.190	22.78	13M5W7D	16QAM
LTE Band 41 (PC2)	27	2503.5 - 2682.5	0.154	21.87	13M5W7D	64QAM
LTE Band 41 (PC2)	27	2506 - 2680	0.257	24.09	18M0G7D	QPSK
LTE Band 41 (PC2)	27	2506 - 2680	0.199	22.99	18M0W7D	16QAM
LTE Band 41 (PC2)	27	2506 - 2680	0.155	21.90	18M0W7D	64QAM

EUT Overview (High Bands)

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Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
NR Band n41	100 MHz	$\pi/2$ BPSK	2546.0 - 2640.0	0.239	23.78	96M6G7D
		QPSK	2546.0 - 2640.0	0.222	23.46	96M6G7D
		16QAM	2546.0 - 2640.0	0.186	22.69	96M7W7D
		64QAM	2546.0 - 2640.0	0.140	21.47	96M6W7D
		256QAM	2546.0 - 2640.0	0.088	19.43	96M6W7D
	90 MHz	$\pi/2$ BPSK	2541.0 - 2645.0	0.237	23.75	86M3G7D
		QPSK	2541.0 - 2645.0	0.197	22.93	86M1G7D
		16QAM	2541.0 - 2645.0	0.161	22.07	85M9W7D
		64QAM	2541.0 - 2645.0	0.137	21.38	86M2W7D
		256QAM	2541.0 - 2645.0	0.080	19.05	85M9W7D
	80 MHz	$\pi/2$ BPSK	2536.0 - 2650.0	0.226	23.55	77M7G7D
		QPSK	2536.0 - 2650.0	0.227	23.55	77M6G7D
		16QAM	2536.0 - 2650.0	0.164	22.15	77M4W7D
		64QAM	2536.0 - 2650.0	0.134	21.27	77M4W7D
		256QAM	2536.0 - 2650.0	0.087	19.40	77M3W7D
	60 MHz	$\pi/2$ BPSK	2526.0 - 2660.0	0.223	23.48	58M2G7D
		QPSK	2526.0 - 2660.0	0.241	23.81	58M3G7D
		16QAM	2526.0 - 2660.0	0.178	22.51	58M2W7D
		64QAM	2526.0 - 2660.0	0.140	21.45	58M2W7D
		256QAM	2526.0 - 2660.0	0.088	19.43	58M2W7D
	50 MHz	$\pi/2$ BPSK	2521.0 - 2665.0	0.237	23.74	46M0G7D
		QPSK	2521.0 - 2665.0	0.247	23.92	46M0G7D
		16QAM	2521.0 - 2665.0	0.186	22.69	46M0W7D
		64QAM	2521.0 - 2665.0	0.141	21.50	45M8W7D
		256QAM	2521.0 - 2665.0	0.081	19.08	46M0W7D
	40 MHz	$\pi/2$ BPSK	2516.0 - 2670.0	0.222	23.46	35M9G7D
		QPSK	2516.0 - 2670.0	0.246	23.90	35M9G7D
		16QAM	2516.0 - 2670.0	0.175	22.44	35M8W7D
		64QAM	2516.0 - 2670.0	0.162	22.09	35M8W7D
		256QAM	2516.0 - 2670.0	0.086	19.33	35M7W7D
	20 MHz	$\pi/2$ BPSK	2506.0 - 2680.0	0.249	23.96	18M0G7D
		QPSK	2506.0 - 2680.0	0.242	23.84	17M9G7D
		16QAM	2506.0 - 2680.0	0.193	22.85	17M9W7D
		64QAM	2506.0 - 2680.0	0.149	21.73	17M9W7D
		256QAM	2506.0 - 2680.0	0.092	19.65	18M0W7D

EUT Overview (n41)

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1.0 INTRODUCTION

1.1 Scope

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

1.2 PCTEST Test Location

These measurement tests were conducted at the PCTEST 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 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 ISSED Standards (RSS).
- PCTEST facility is a registered (2451B) test laboratory with the site description on file with ISSED.

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **LG Portable Handset FCC ID: ZNFG900TM**. The test data contained in this report pertains only to the emissions due to the EUT's LTE function.

Test Device Serial No.: 00193, 00987, 00144, 00425, 00151, 00177

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 CDMA/EvDO Rev0/A, BC0, BC1, BC10, 850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, Multi-Band 5G NR, 802.11b/g/n WLAN, 802.11a/n/ac UNII, Bluetooth (1x, EDR, LE), NFC

LTE Band 12 (698 - 716 MHz) overlaps the entire frequency range of LTE Band 17 (704 - 716 MHz). Therefore, test data provided in this report covers Band 17 as well as Band 12.

LTE Band 26 (814.7 – 849 MHz) overlaps the entire frequency range of LTE Band 5 (824 – 849 MHz). Therefore, test data provided in this report covers Band 5 and the portion of Band 26 subject to Part 22.

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.

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.

2.4 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

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3.0 DESCRIPTION OF TESTS

3.1 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:

$$P_d \text{ [dBm]} = P_g \text{ [dBm]} - \text{cable loss [dB]} + \text{antenna gain [dBd/dBi]}$$

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 $P_g \text{ [dBm]} - \text{cable loss [dB]}$.

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 $43 + 10 \log_{10}(\text{Power [Watts]})$. For Band 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 $55 + 10 \log_{10}(\text{Power [Watts]})$.

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.

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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 ($\pm$ dB)
Conducted Bench Top Measurements	1.13
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

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5.0 TEST EQUIPMENT CALIBRATION DATA

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

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	LTx2	Licensed Transmitter Cable Set	10/30/2019	Annual	10/30/2020	LTx2
-	LTx3	Licensed Transmitter Cable Set	10/30/2019	Annual	10/30/2020	LTx3
Com-Power	AL-130	9kHz - 30MHz Loop Antenna	10/10/2019	Biennial	10/10/2021	121034
Espec	ESX-2CA	Environmental Chamber	6/13/2019	Annual	7/13/2020	17620
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	PWR-4GHS	USB Power Sensor	6/18/2020	Annual	6/18/2021	12001070013
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11208010032
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A			100976
Rohde & Schwarz	TS-PR26	18-26.5 GHz Pre-Amplifier	11/1/2019	Annual	11/1/2020	100040
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	9/23/2019	Annual	9/23/2020	100348
Rohde & Schwarz	SFUNIT-Rx	Shielded Filter Unit	7/11/2019	Annual	7/11/2020	102134
Sunol	DRH-118	Horn Antenna (1-18GHz)	10/3/2019	Biennial	10/3/2021	A050307
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	7/19/2019	Biennial	7/19/2020	A051107
Sunol	DRH-118	Horn Antenna (1-18 GHz)	8/27/2019	Biennial	8/27/2021	A042511
Rohde & Schwarz	TS-PR40	26.5-40 GHz Pre-Amplifier	11/1/2019	Annual	11/1/2020	100037
Emco	3116	Horn Antenna (18 - 40GHz)	8/7/2018	Biennial	8/7/2020	9203-2178
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	2/14/2019	Biennial	2/14/2021	125518
Rohde & Schwarz	CMU200	Base Station Simulator	N/A			836371/0079
Rohde & Schwarz	CMU200	Base Station Simulator	N/A			833855/0010

Table 5-1. Test Equipment

Notes:

- For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.
- Equipment with a calibration date of "N/A" shown in this list was not used to make direct calibrated measurements.

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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 analyzer. 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).

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7.0 TEST RESULTS

7.1 Summary

Company Name: LG Electronics USA, Inc.
FCC ID: ZNFG900TM
FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
Mode(s): LTE / NR SUB6

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1049	Occupied Bandwidth	N/A	CONDUCTED	PASS	Section 7.2
2.1051 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	Out of Band Emissions	$> 43 + 10 \log_{10}(P[\text{Watts}])$ at Band Edge and for all out-of-band emissions			Section 7.3, 7.4
27.53(m)	Out of Band Emissions	Undesirable emissions must meet the limits detailed in 27.53(m)			Section 7.3, 7.4
27.53(a)	Out of Band Emissions	Undesirable emissions must meet the limits detailed in 27.53(a)			Section 7.3, 7.4
24.232(d)	Peak-Average Ratio	$< 13 \text{ dB}$			Section 7.5
2.1046	Transmitter Conducted Output Power	N/A			See RF Exposure Report
22.917(a) 24.238 (a) 27.53 (m) 27.53(h)	Uplink Carrier Aggregation	$> 43 + 10 \log(P[\text{Watts}])$ at Band Edge and for all out-of-band emissions			Section 7.6
2.1055 22.355 24.235 27.54	Frequency Stability	$< 2.5 \text{ ppm}$ (Part 22) and fundamental emissions stay within authorized frequency block (Part 24, 27)			Section 7.9

Table 7-1. Summary of Conducted Test Results

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FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
22.913(a)(5)	Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 5/26)	< 7 Watts max. ERP	RADIATED	PASS	Section 7.6
27.50(b)(10) 27.50(c)(10)	Effective Radiated Power / Equivalent Isotropic Radiated Power (Band 71, 12/13)	< 3 Watts max. ERP			Section 7.6
24.232(c) 27.50(h)(2)	Equivalent Isotropic Radiated Power (Band 2/25, 7, 41)	< 2 Watts max. EIRP			Section 7.6
27.50(d)(4)	Equivalent Isotropic Radiated Power (Band 4/66)	< 1 Watts max. EIRP			Section 7.6
2.1053 22.917(a) 24.238(a) 27.53(c) 27.53(g) 27.53(h)	Undesirable Emissions (Band 12, 13, 26/5, 66/4, 25/2)	> 43 + 10 log ₁₀ (P[Watts]) for all out-of-band emissions			Section 7.8
27.53(f)	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 7.8
27.53(m)	Undesirable Emissions (Band 41)	Undesirable emissions must meet the limits detailed in 27.53(m)			Section 7.8
22.917(a) 24.238 (a) 27.53 (m) 27.53(h)	Uplink Carrier Aggregation	Undesirable emissions must meet the limits detailed in 27.53(m)			Section 7.8

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) 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.

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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 $\geq 3 \times$ RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5% of the 99% occupied bandwidth observed in Step 7

Test Setup

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

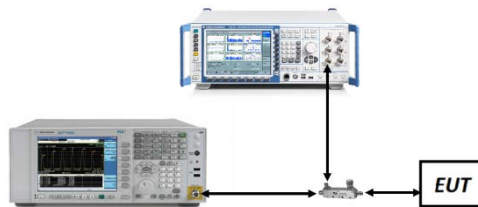


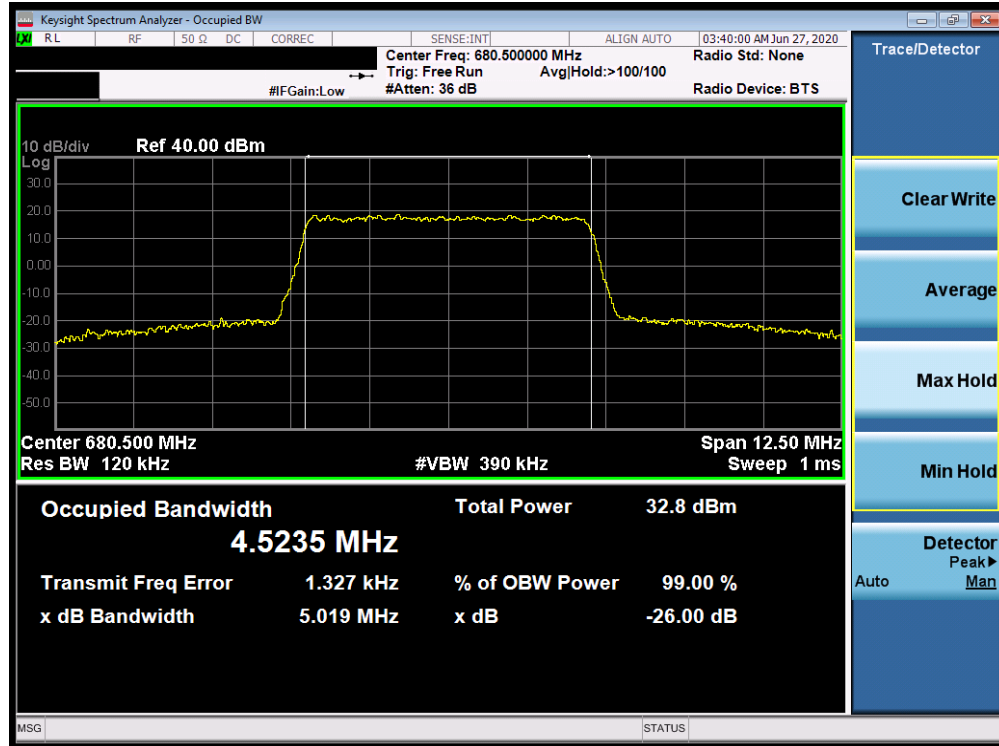
Figure 7-1. Test Instrument & Measurement Setup

Test Notes

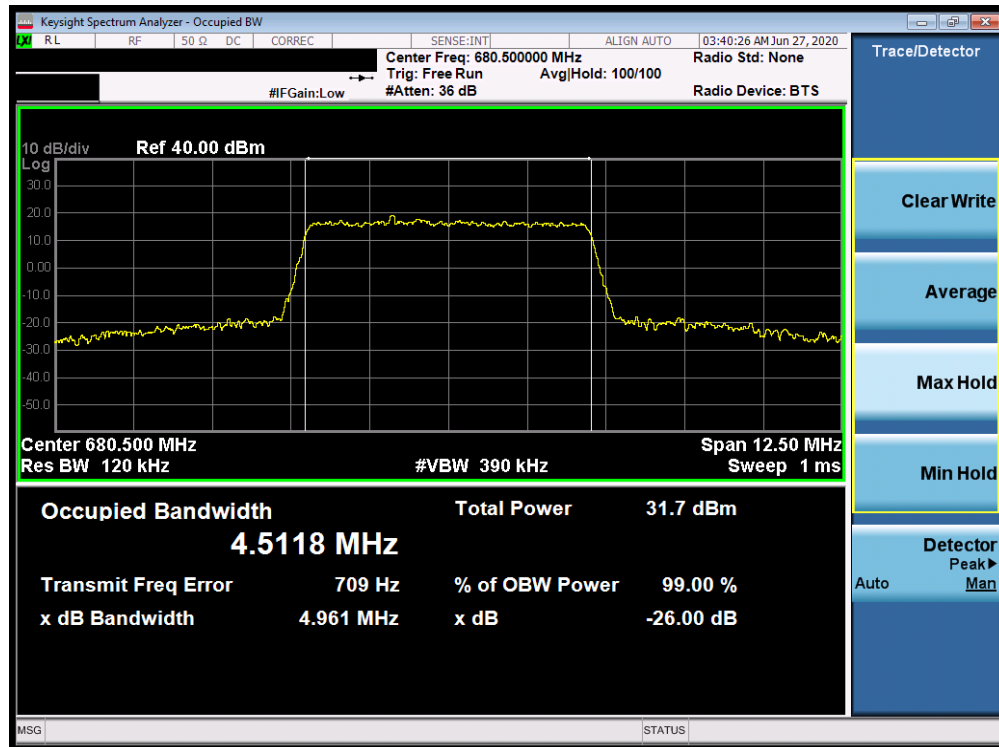
None.

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Band 71

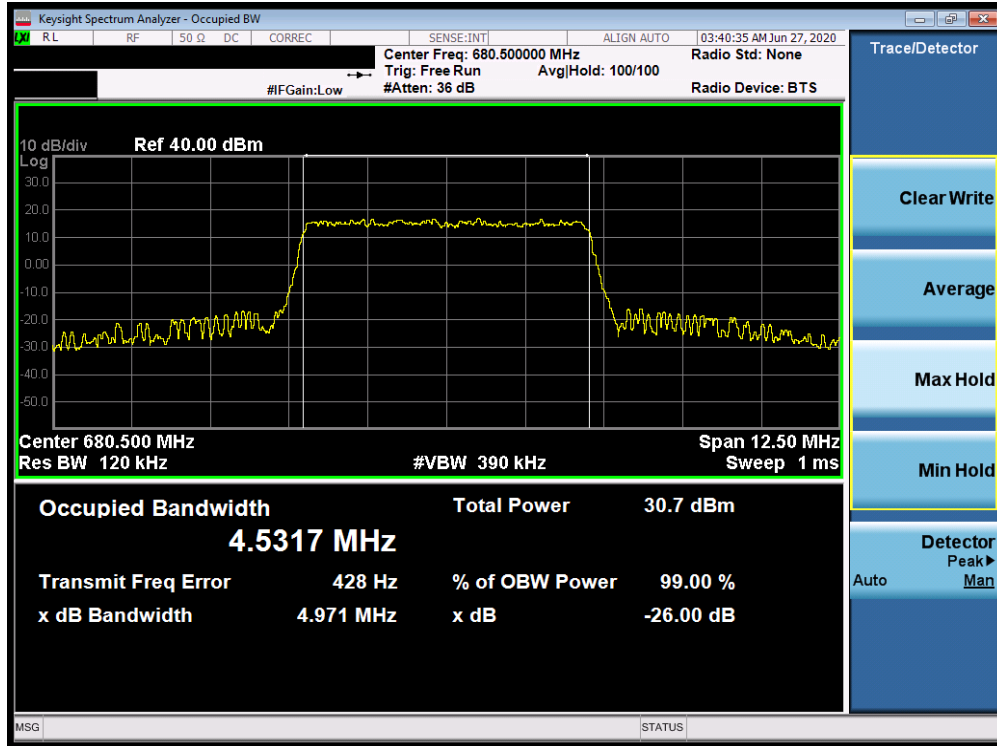


Plot 7-1. Occupied Bandwidth Plot (Band 71 - 5.0MHz QPSK - Full RB Configuration)

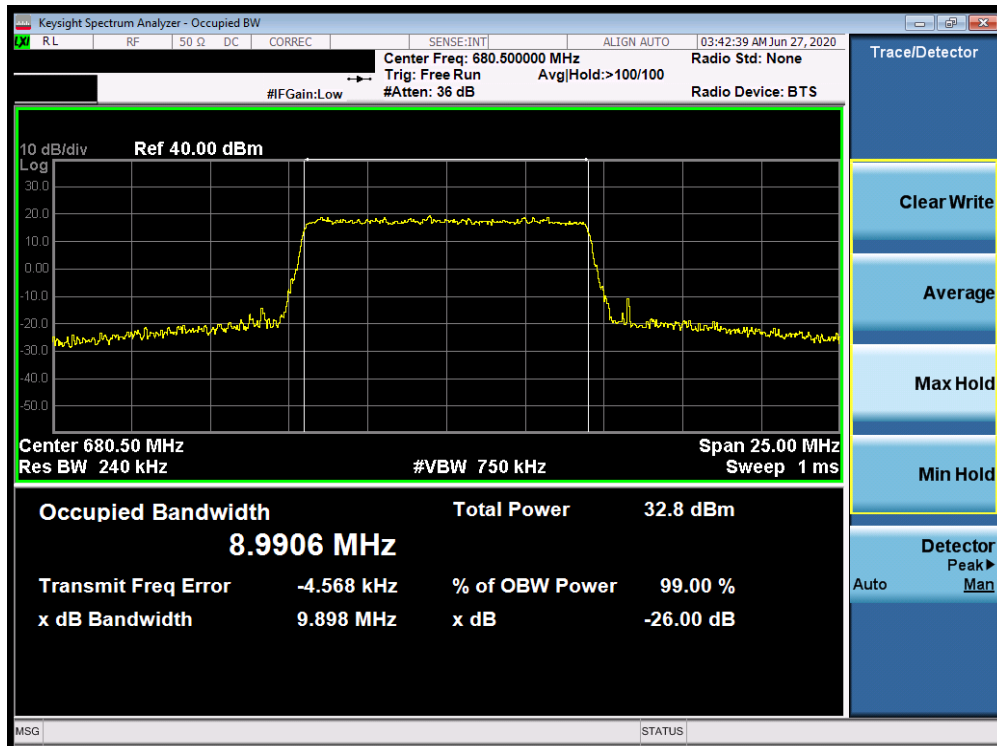


Plot 7-2. Occupied Bandwidth Plot (Band 71 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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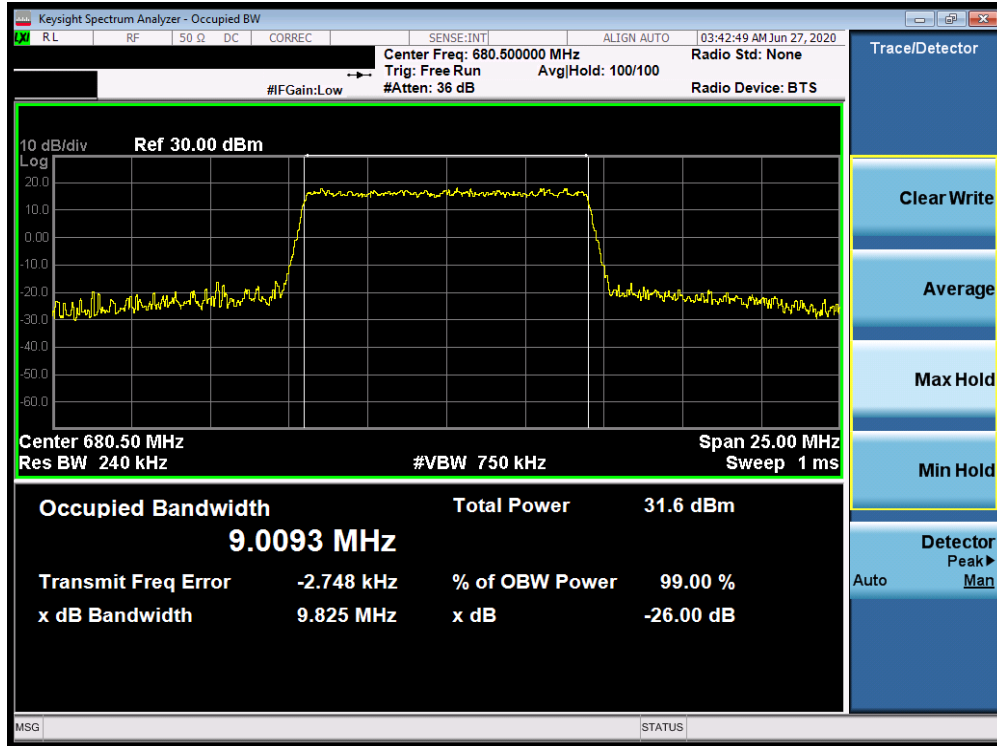


Plot 7-3. Occupied Bandwidth Plot (Band 71 - 5.0MHz 64-QAM - Full RB Configuration)

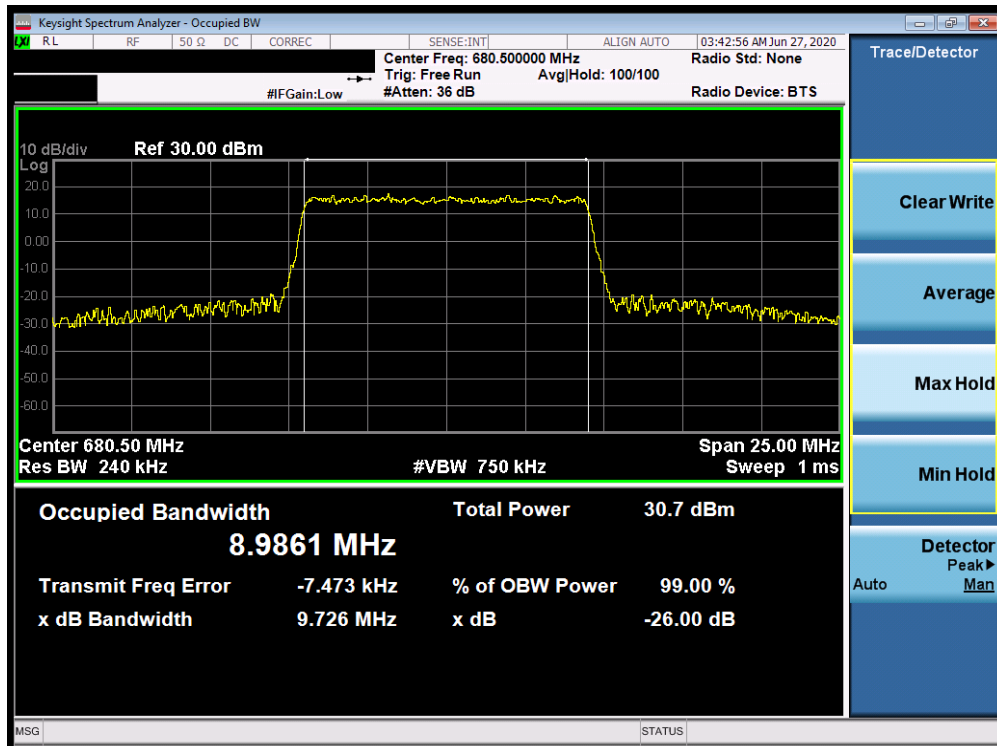


Plot 7-4. Occupied Bandwidth Plot (Band 71 - 10.0MHz QPSK - Full RB Configuration)

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Plot 7-5. Occupied Bandwidth Plot (Band 71 - 10.0MHz 16-QAM - Full RB Configuration)

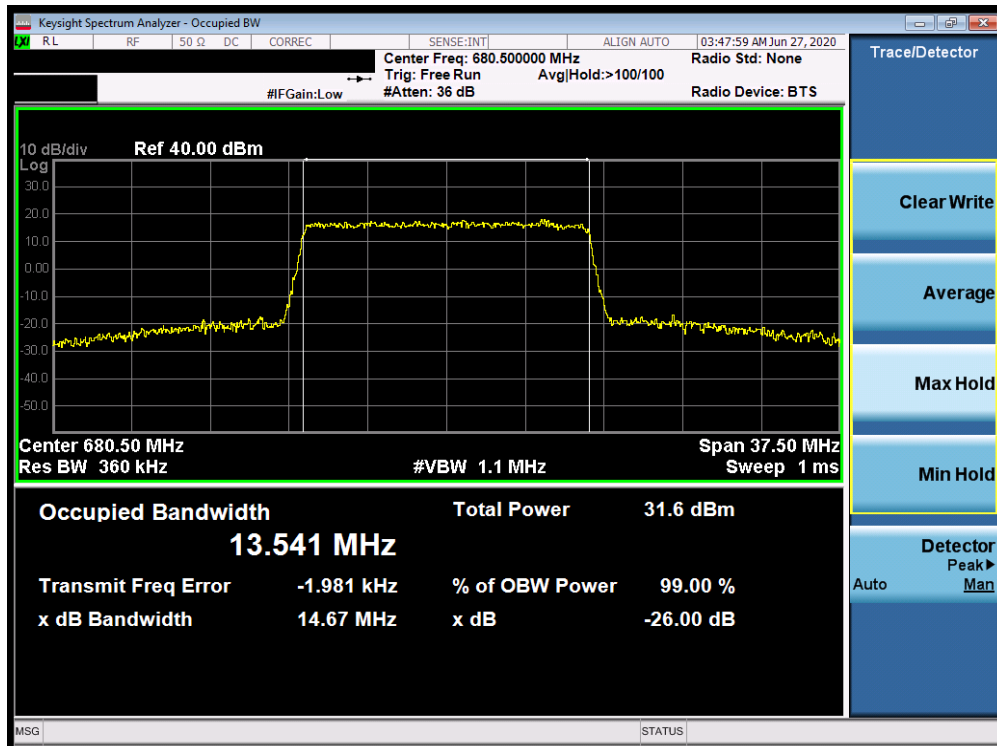


Plot 7-6. Occupied Bandwidth Plot (Band 71 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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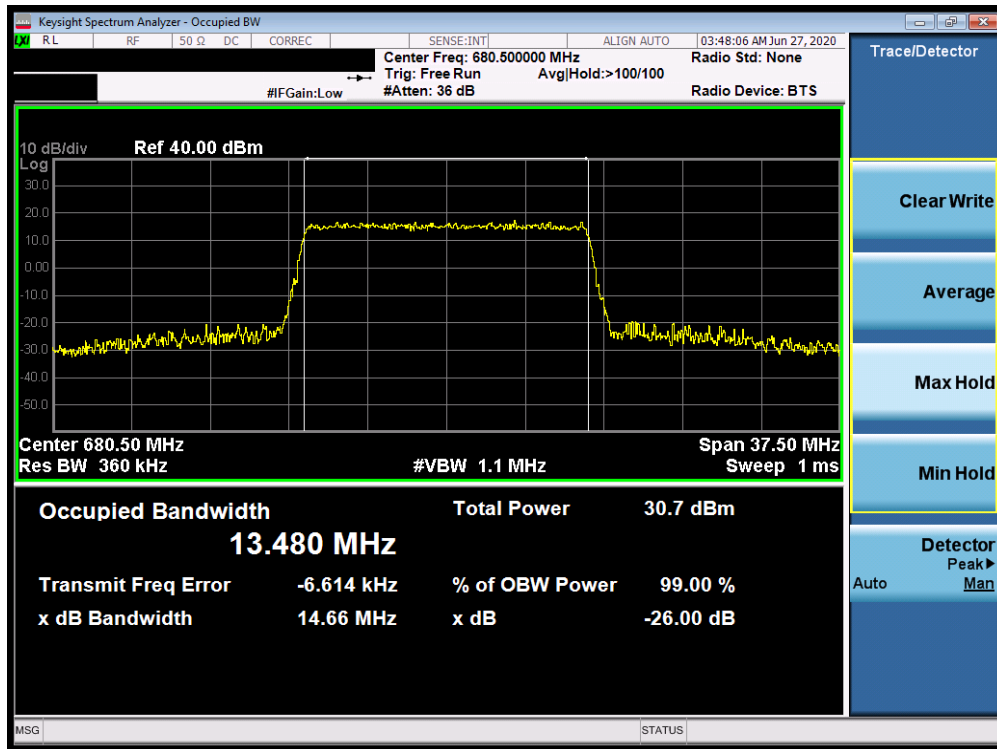


Plot 7-7. Occupied Bandwidth Plot (Band 71 - 15.0MHz QPSK - Full RB Configuration)

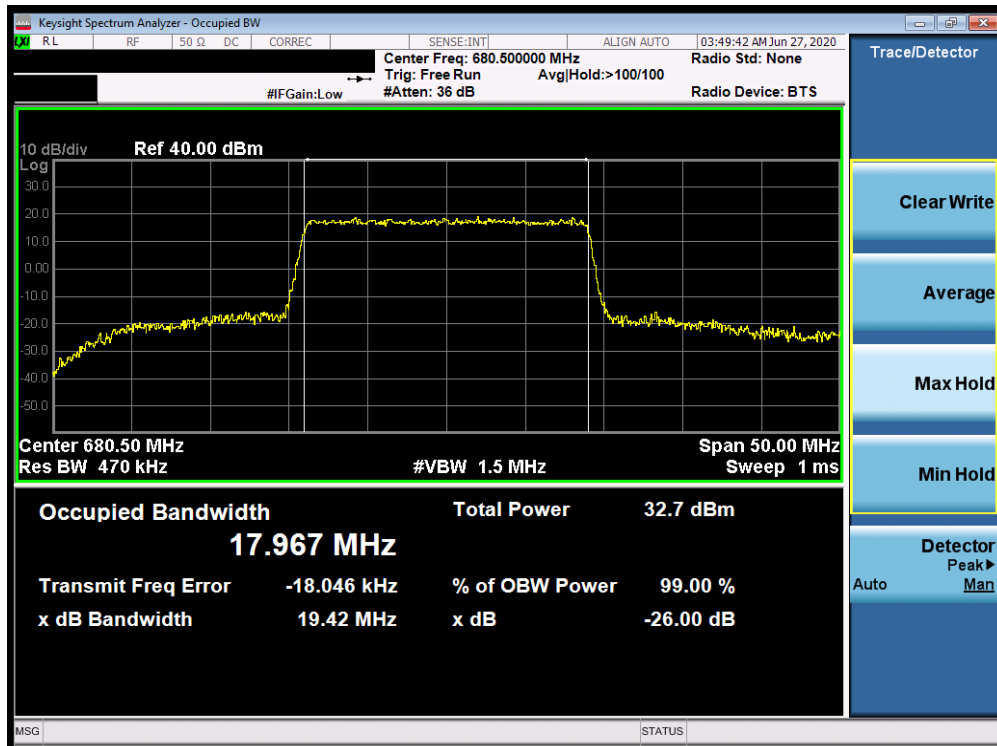


Plot 7-8. Occupied Bandwidth Plot (Band 71 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 22 of 509

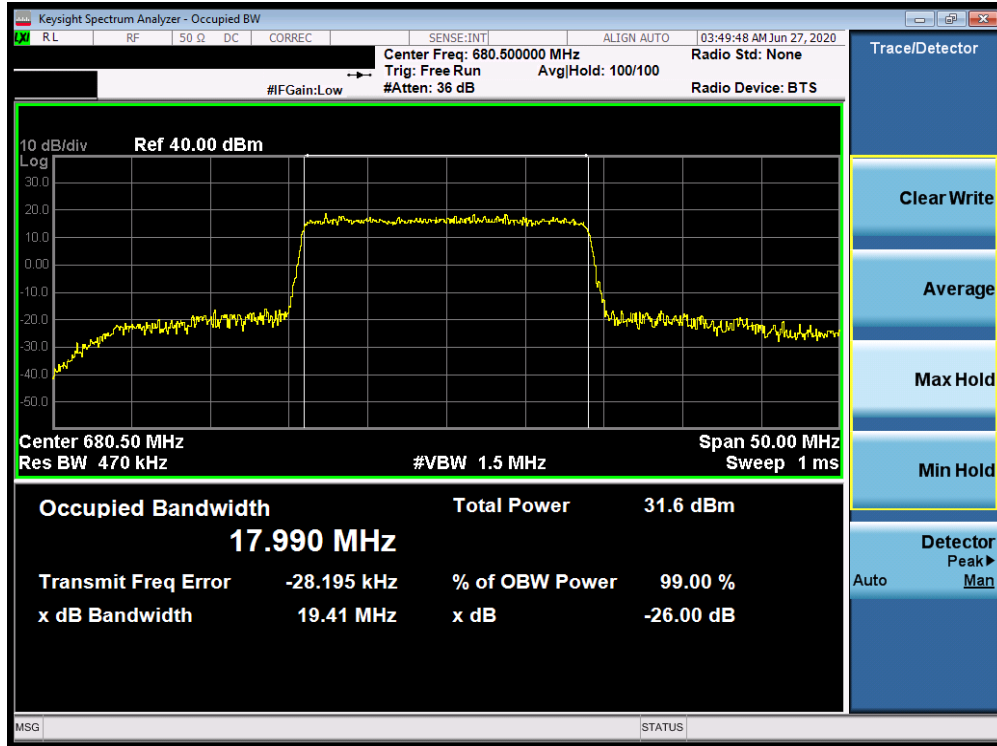


Plot 7-9. Occupied Bandwidth Plot (Band 71 - 15.0MHz 64-QAM - Full RB Configuration)

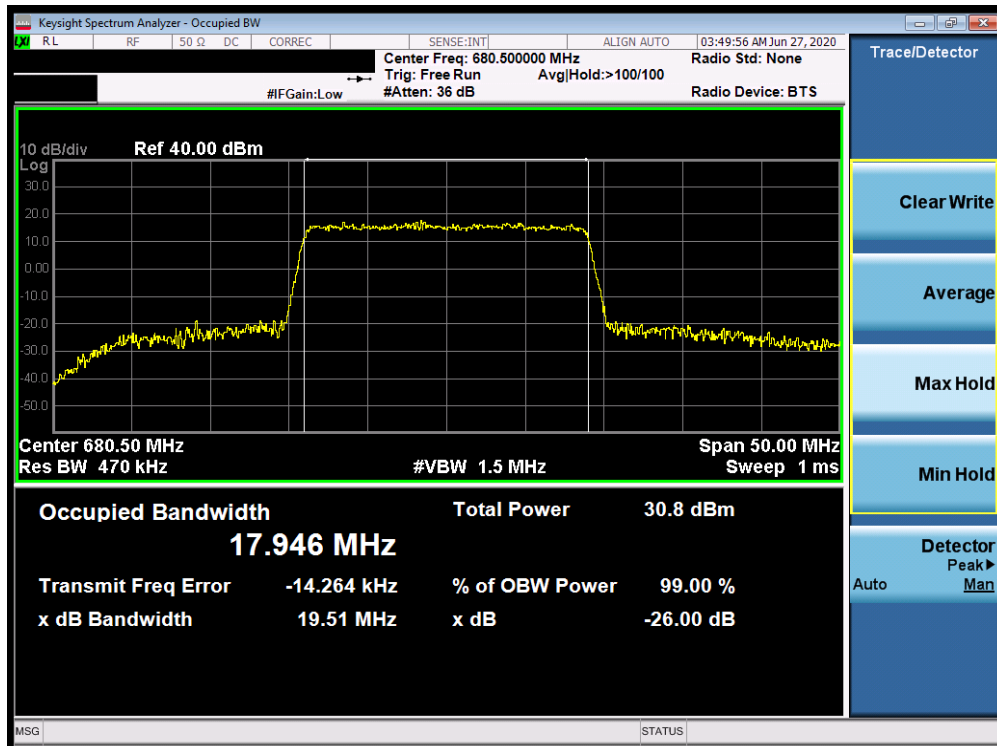


Plot 7-10. Occupied Bandwidth Plot (Band 71 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 23 of 509



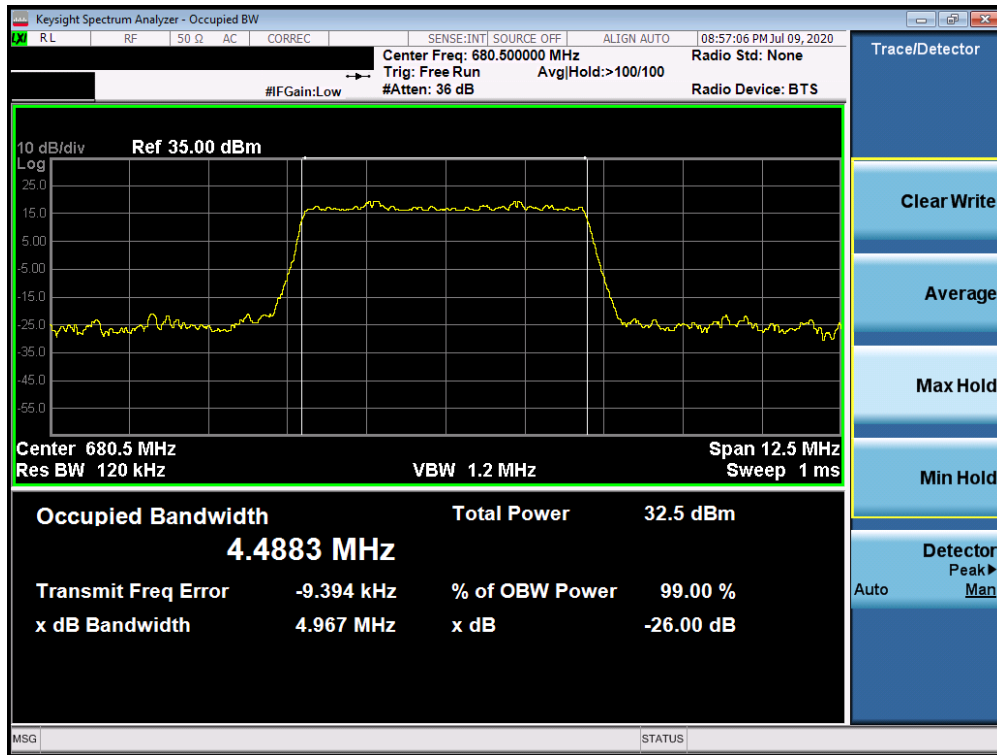
Plot 7-11. Occupied Bandwidth Plot (Band 71 - 20.0MHz 16-QAM - Full RB Configuration)



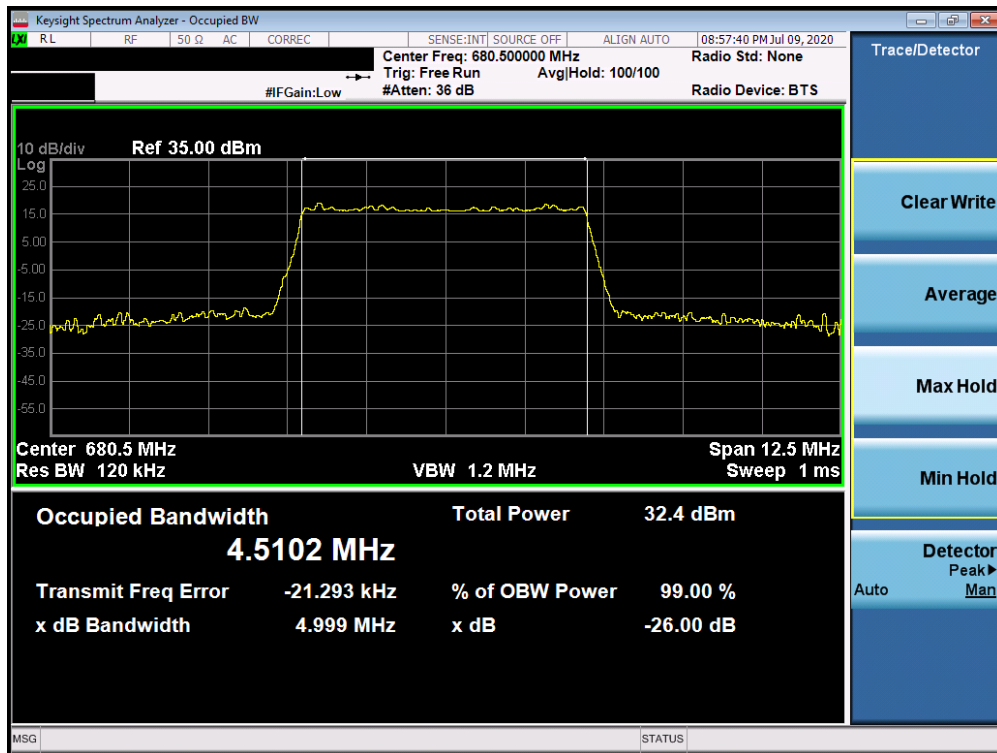
Plot 7-12. Occupied Bandwidth Plot (Band 71 - 20.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 24 of 509

NR Band n71

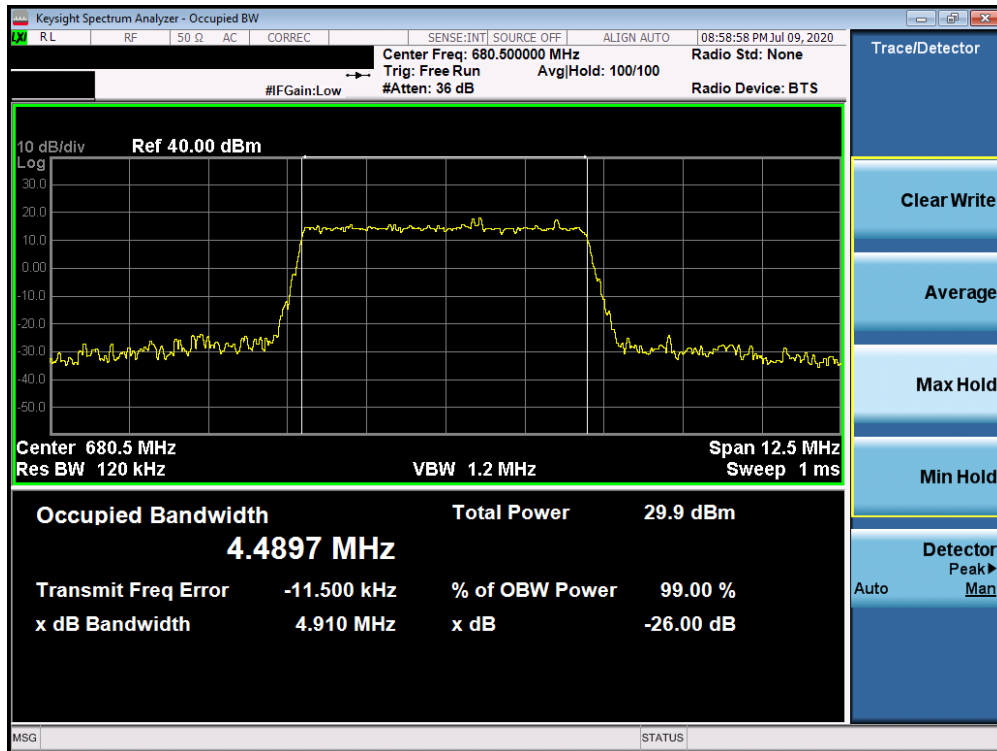


Plot 7-13. Occupied Bandwidth Plot (n71 5MHz BPSK-DFT-s-OFDM- Full RB Configuration)

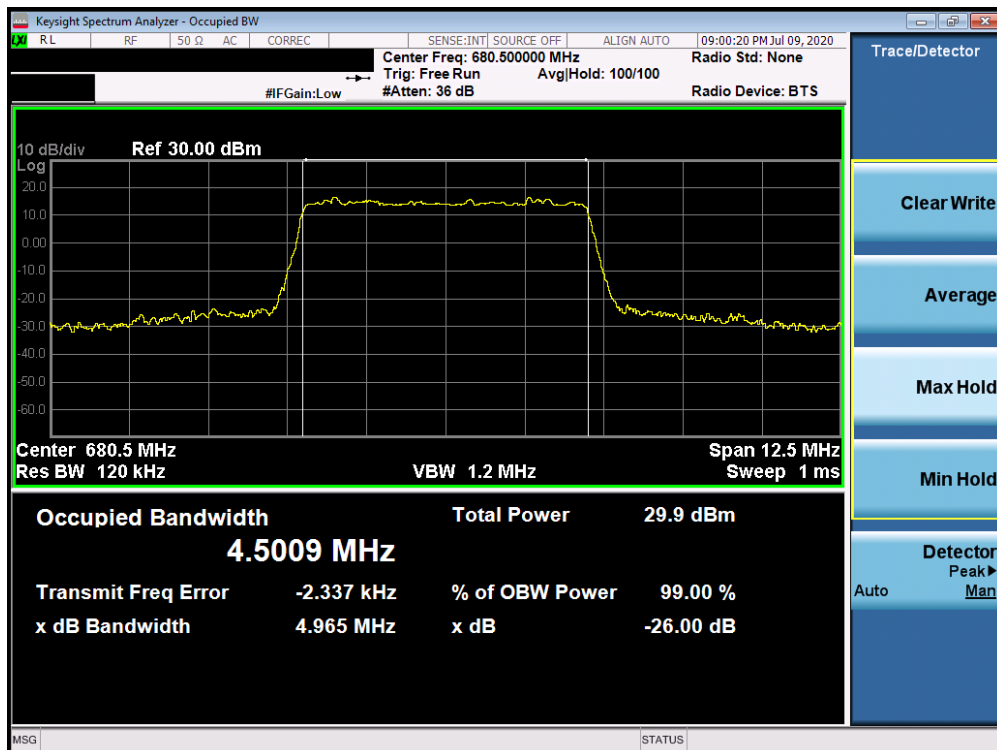


Plot 7-14. Occupied Bandwidth Plot (n71 5MHz QPSK-CP-OFDM - Full RB Configuration)

FCC ID: ZNFG900TM	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset	Page 25 of 509

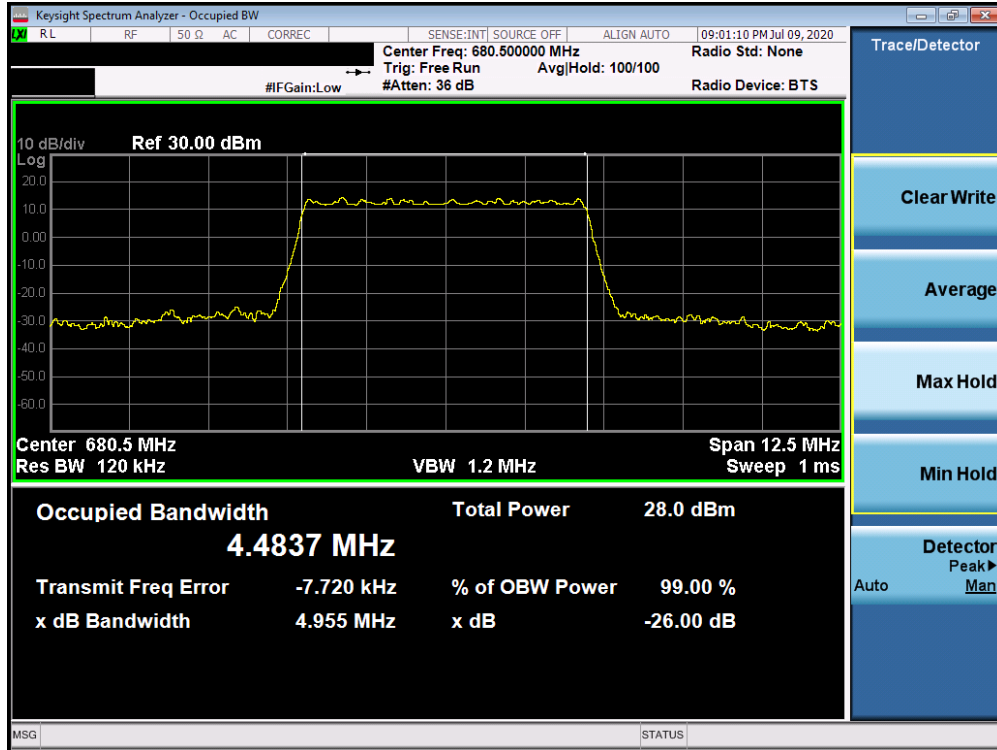


Plot 7-15. Occupied Bandwidth Plot (n71 5MHz 16QAM-CP-OFDM - Full RB Configuration)

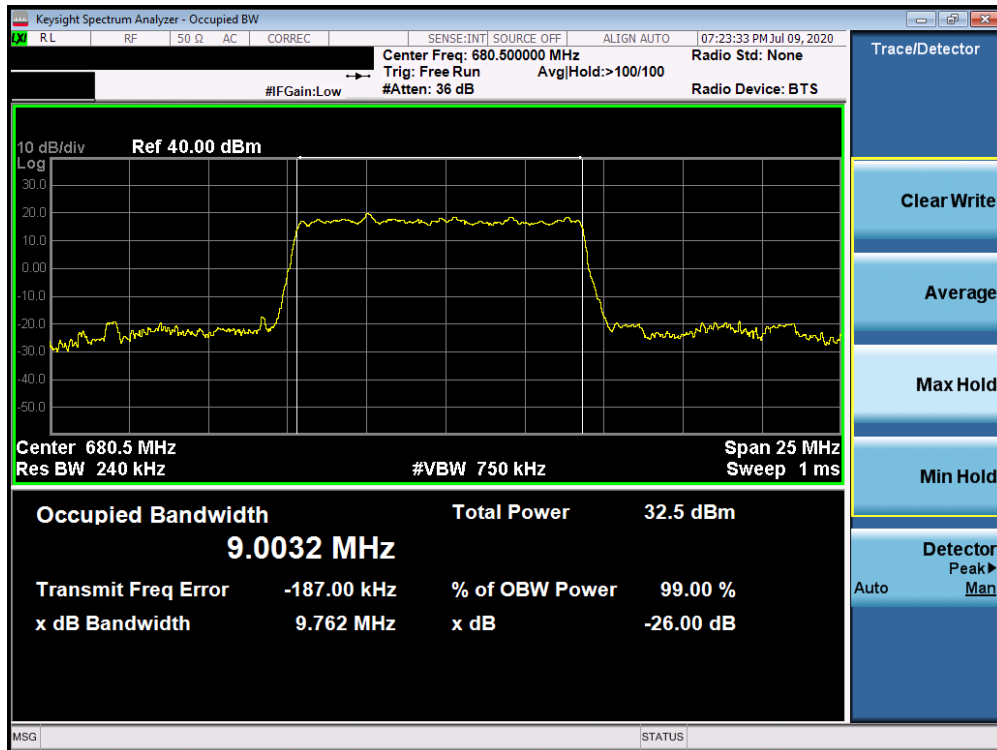


Plot 7-16. Occupied Bandwidth Plot (n71 5MHz 64QAM-CP-OFDM- Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 26 of 509

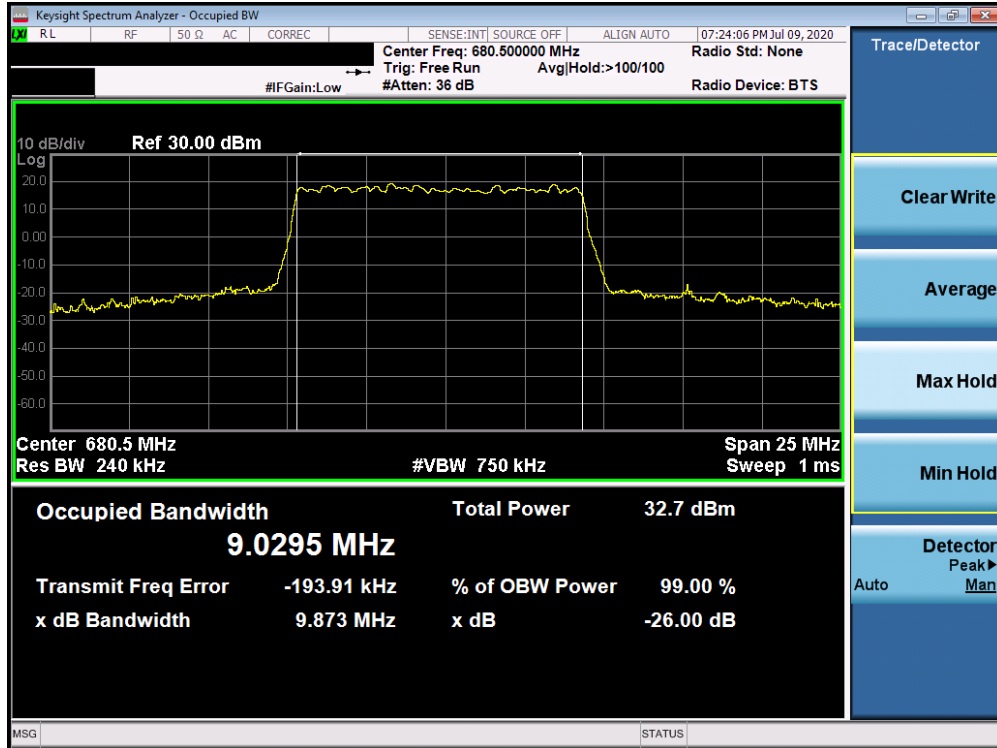


Plot 7-17. Occupied Bandwidth Plot (n71 5MHz 256QAM-CP-OFDM- Full RB Configuration)

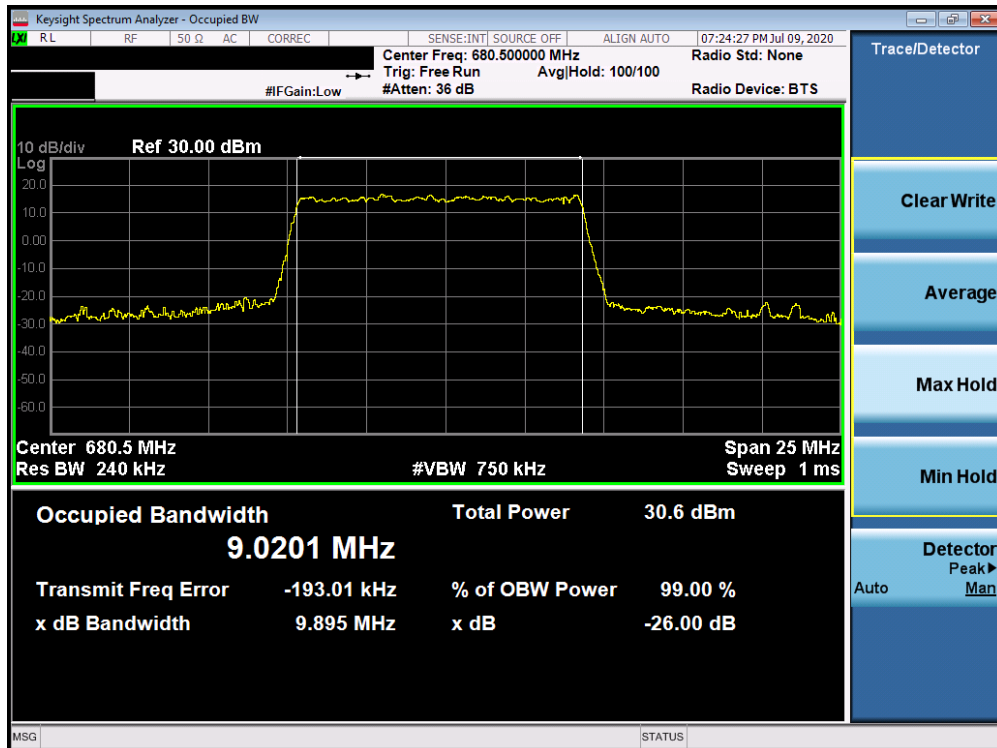


Plot 7-18. Occupied Bandwidth Plot (n71 10MHz BPSK-DFT-s-OFDM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 27 of 509

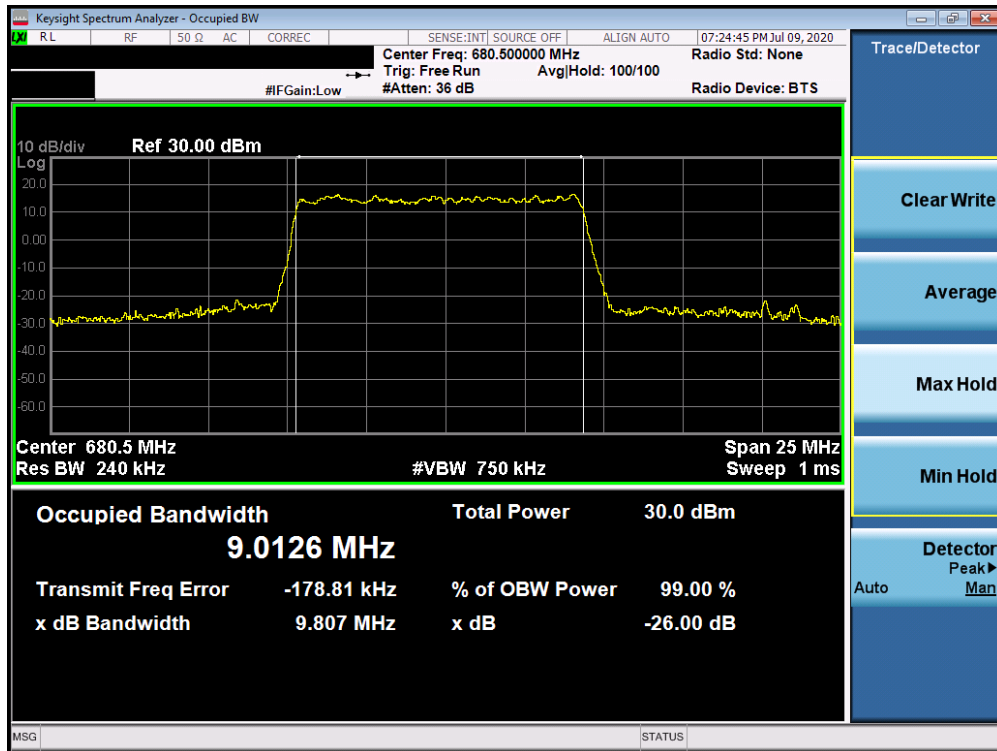


Plot 7-19. Occupied Bandwidth Plot (n71 10MHz QPSK-CP-OFDM - Full RB Configuration)

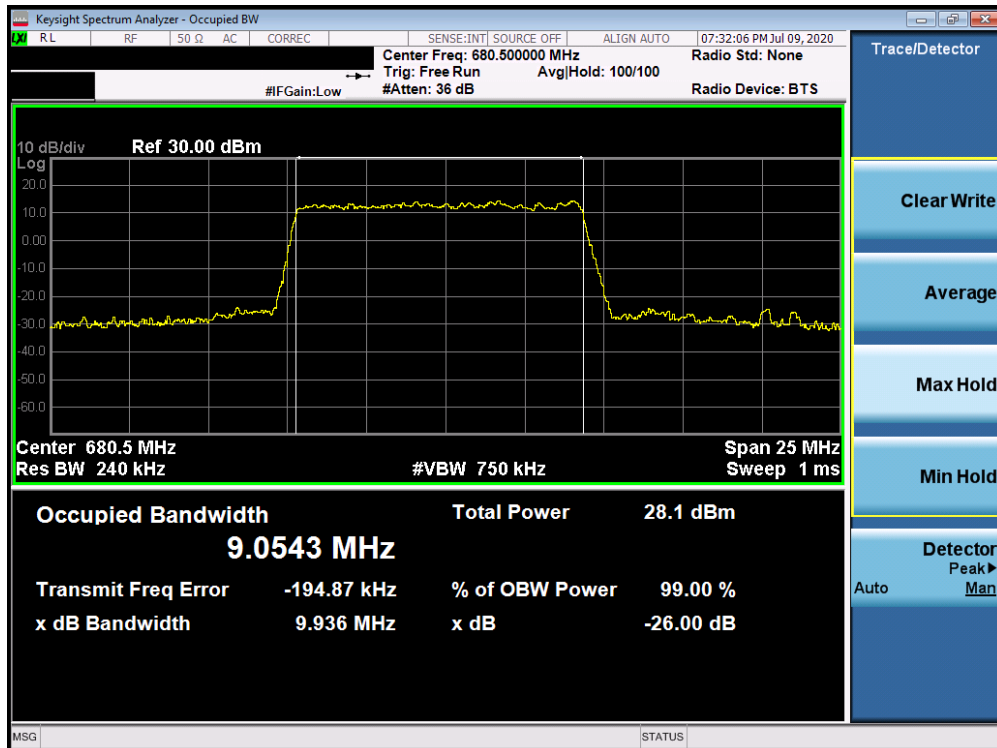


Plot 7-20. Occupied Bandwidth Plot (n71 10MHz 16QAM-CP-OFDM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 28 of 509

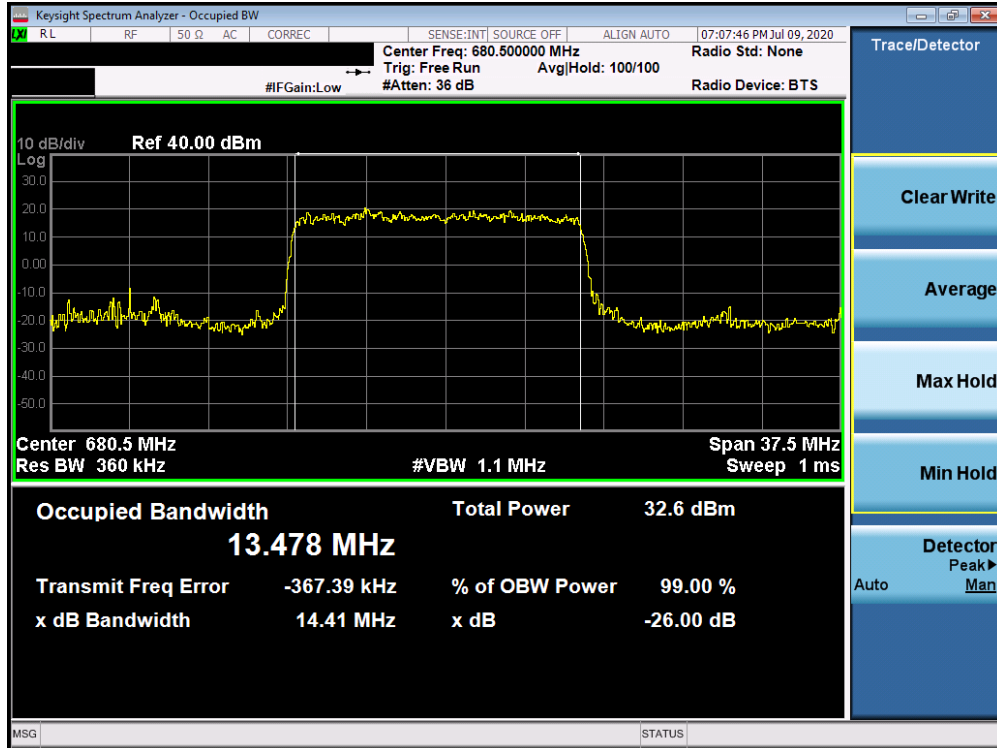


Plot 7-21. Occupied Bandwidth Plot (n71 10MHz 64QAM-CP-OFDM- Full RB Configuration)

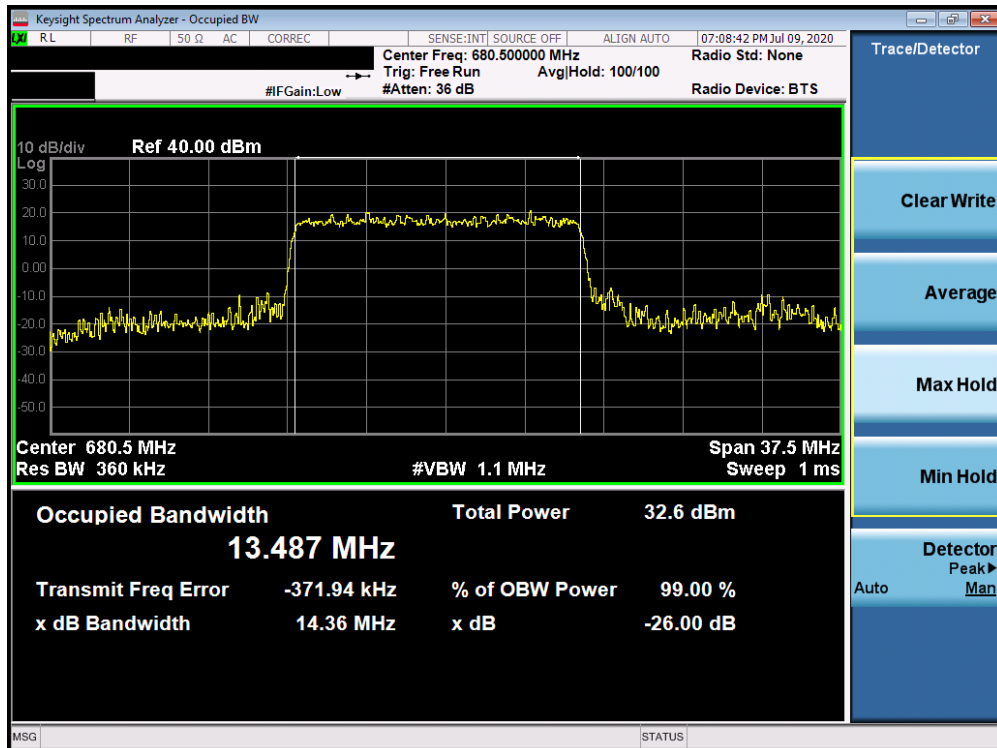


Plot 7-22. Occupied Bandwidth Plot (n71 10MHz 256QAM-CP-OFDM- Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 29 of 509

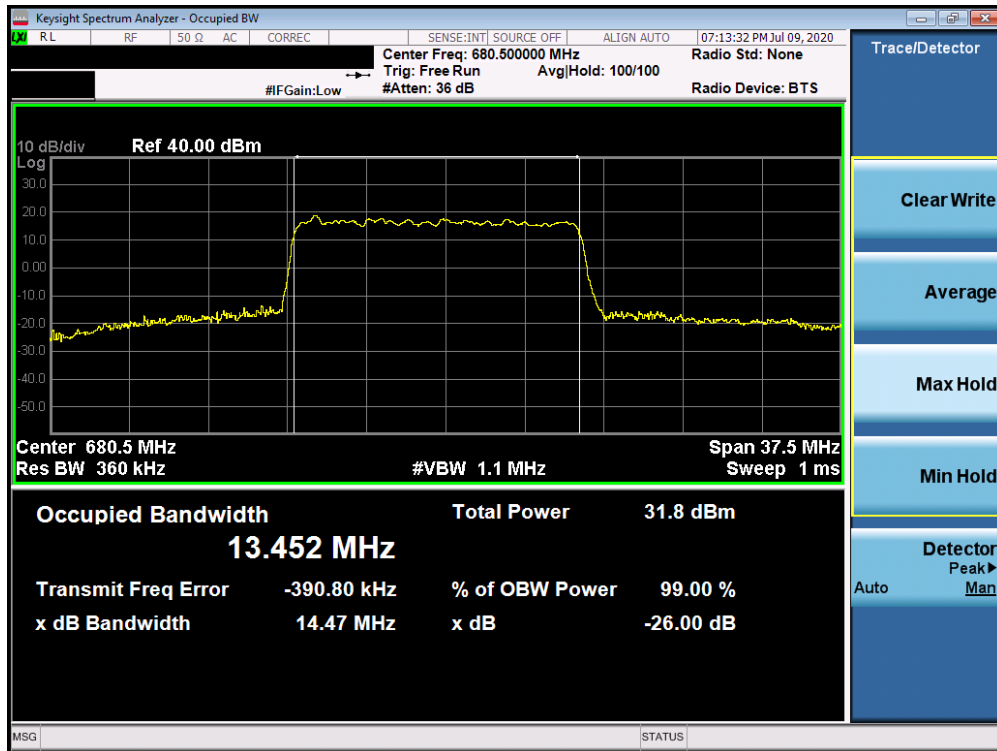


Plot 7-23. Occupied Bandwidth Plot (n71 15MHz BPSK-DFT-s-OFDM - Full RB Configuration)

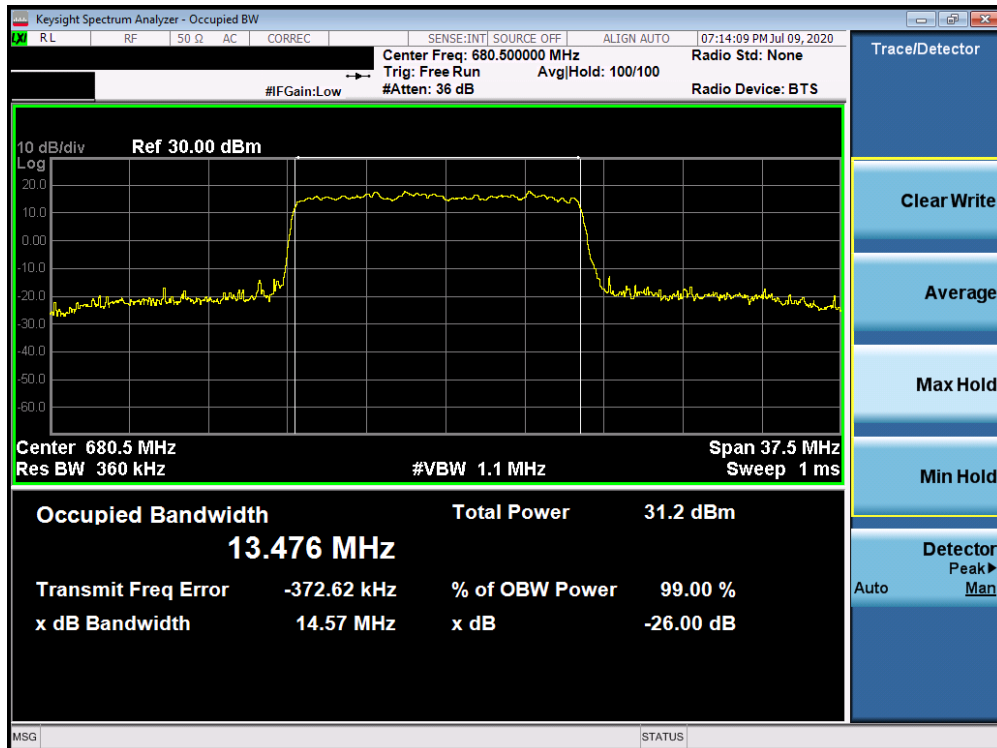


Plot 7-24. Occupied Bandwidth Plot (n71 15MHz QPSK-CP-OFDM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 30 of 509

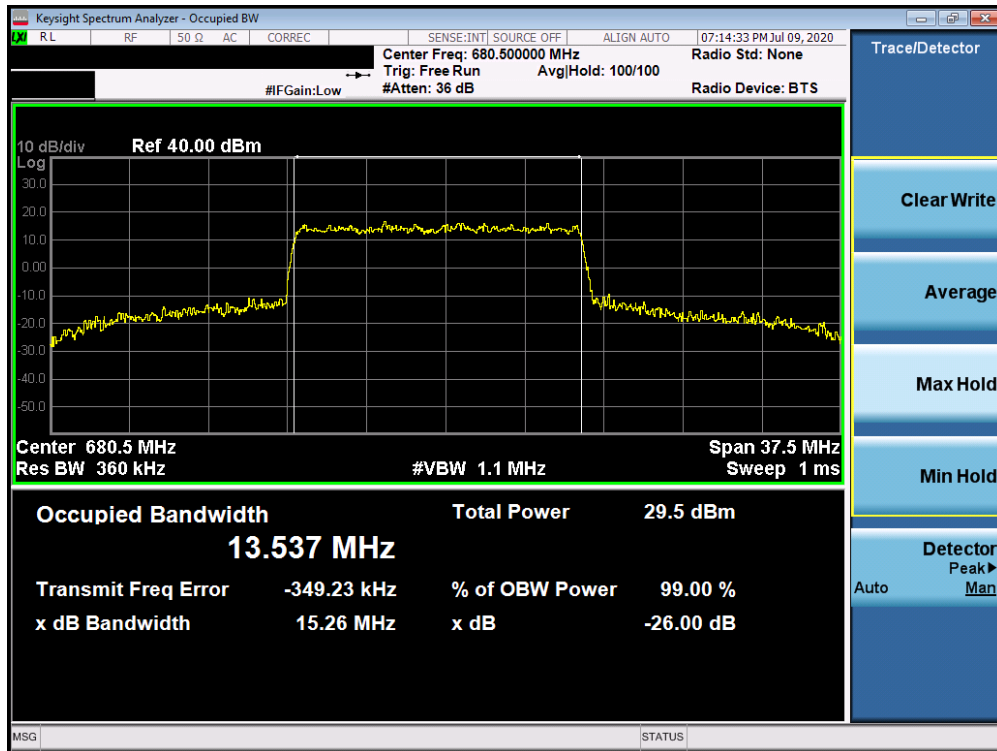


Plot 7-25. Occupied Bandwidth Plot (n71 15MHz 16QAM-CP-OFDM - Full RB Configuration)

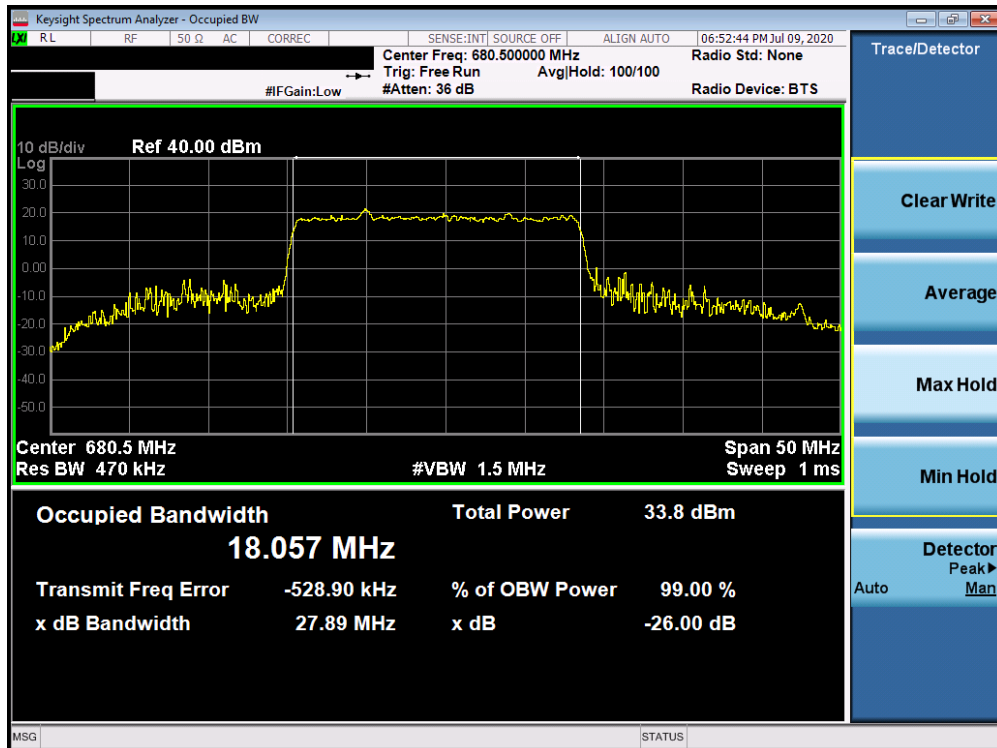


Plot 7-26. Occupied Bandwidth Plot (n71 15MHz 64QAM-CP-OFDM- Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 31 of 509

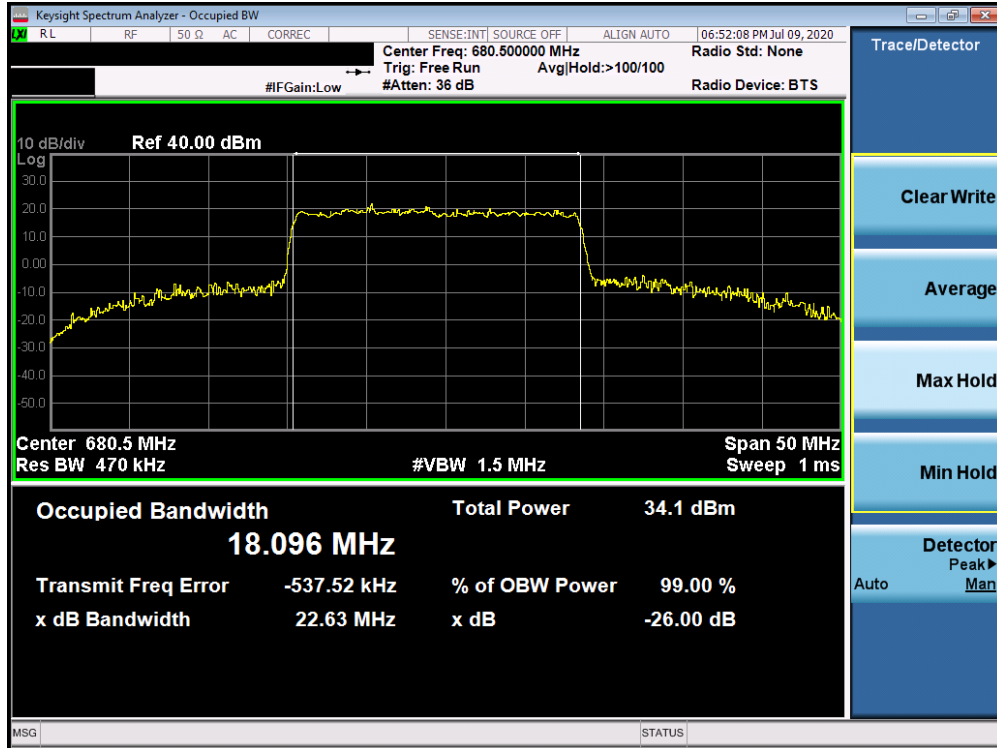


Plot 7-27. Occupied Bandwidth Plot (n71 15MHz 256QAM-CP-OFDM- Full RB Configuration)

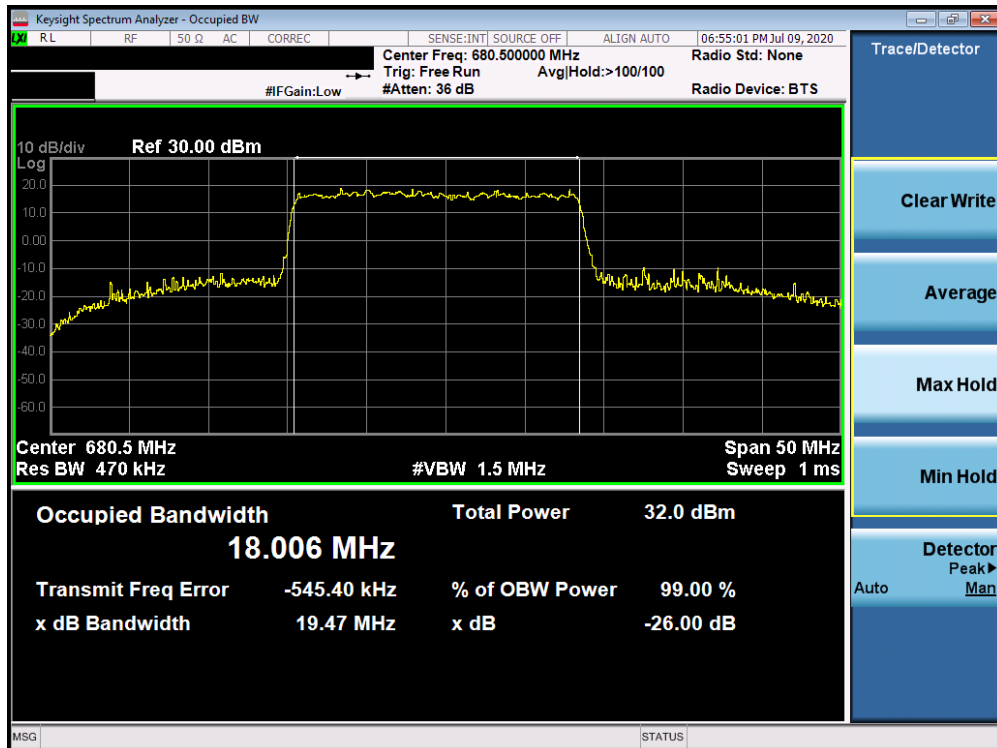


Plot 7-28. Occupied Bandwidth Plot (n71 20MHz BPSK-DFT-s-OFDM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 32 of 509

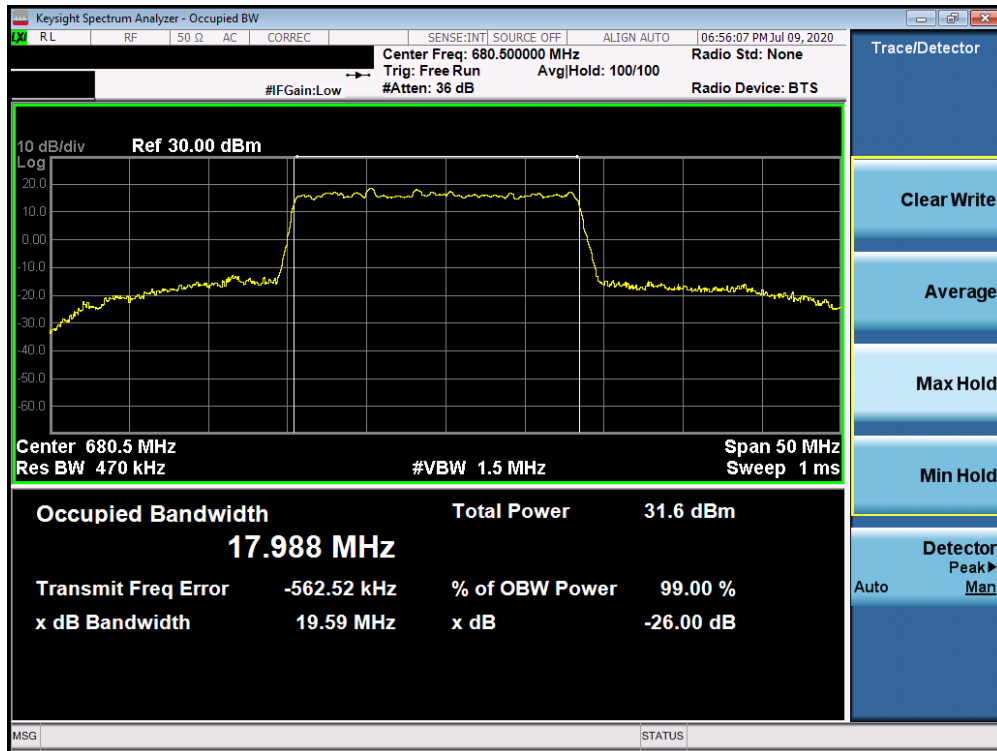


Plot 7-29. Occupied Bandwidth Plot (n71 20MHz QPSK-CP-OFDM - Full RB Configuration)

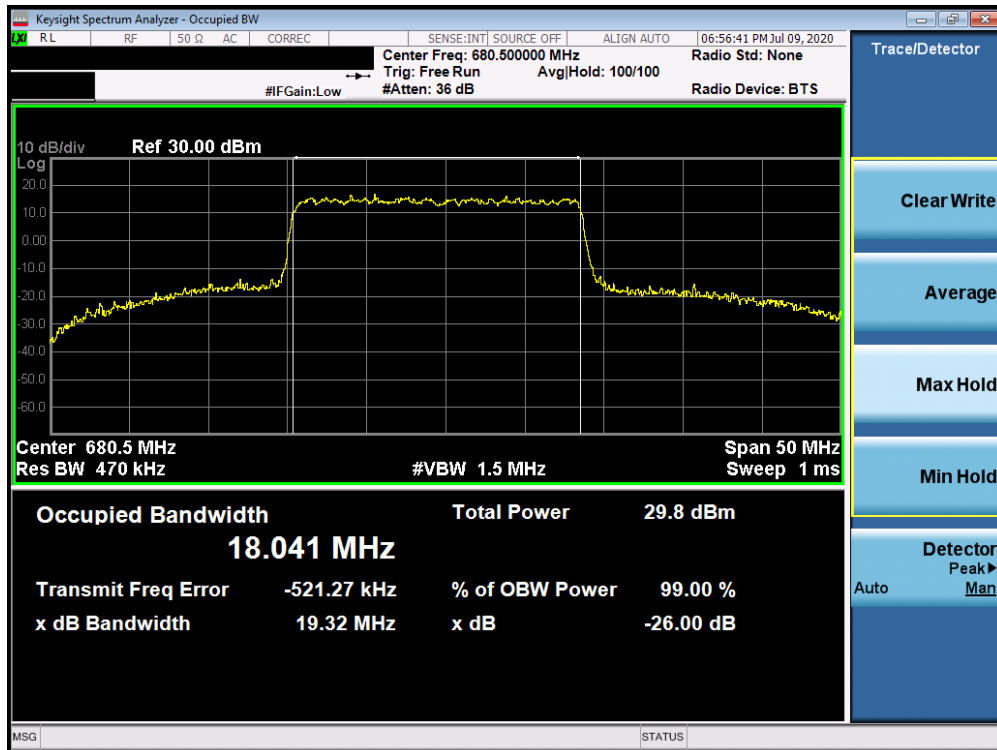


Plot 7-30. Occupied Bandwidth Plot (n71 20MHz 16QAM-CP-OFDM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 33 of 509



Plot 7-31. Occupied Bandwidth Plot (n71 20MHz 64QAM-CP-OFDM- Full RB Configuration)



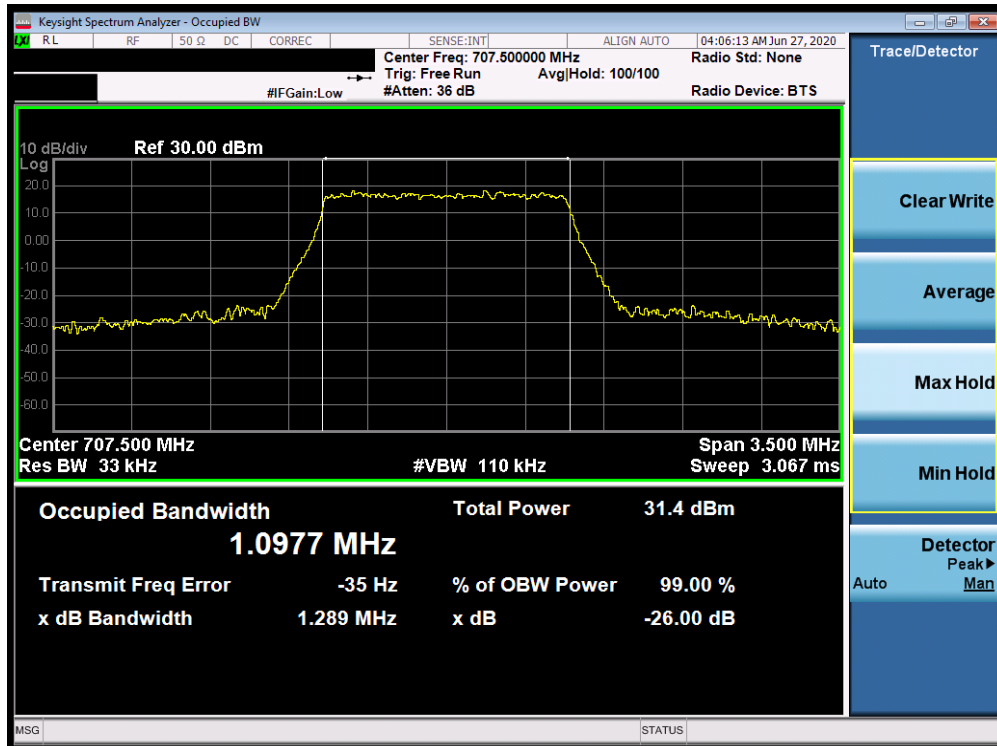
Plot 7-32. Occupied Bandwidth Plot (n71 20MHz 256QAM-CP-OFDM- Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 34 of 509

Band 12/17

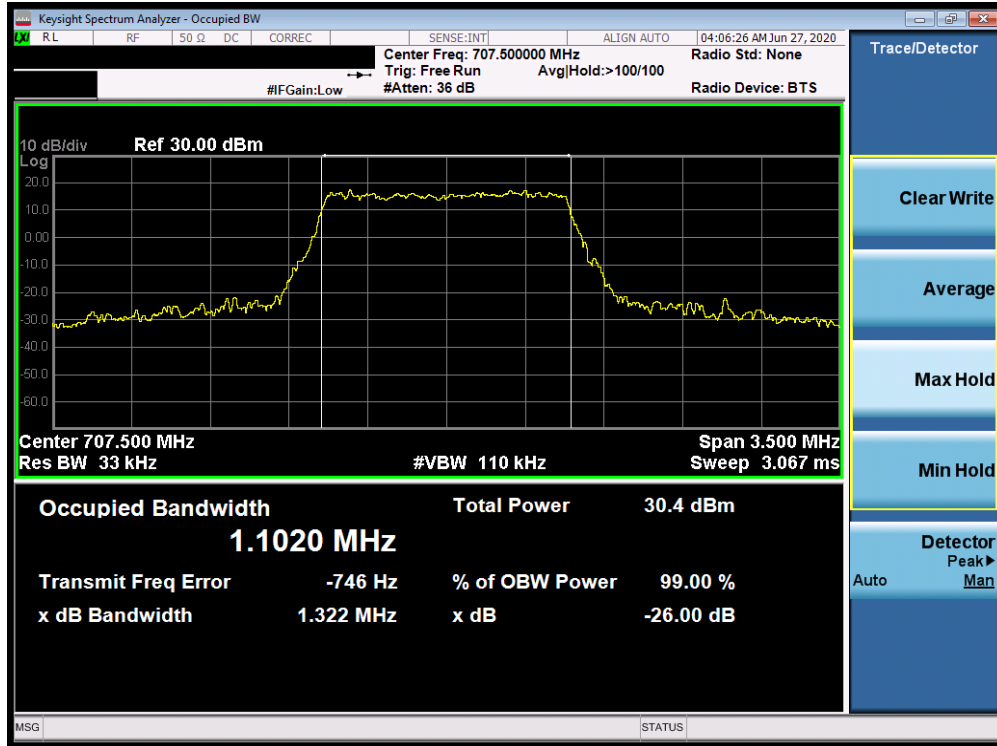


Plot 7-33. Occupied Bandwidth Plot (Band 12 - 1.4MHz QPSK - Full RB Configuration)

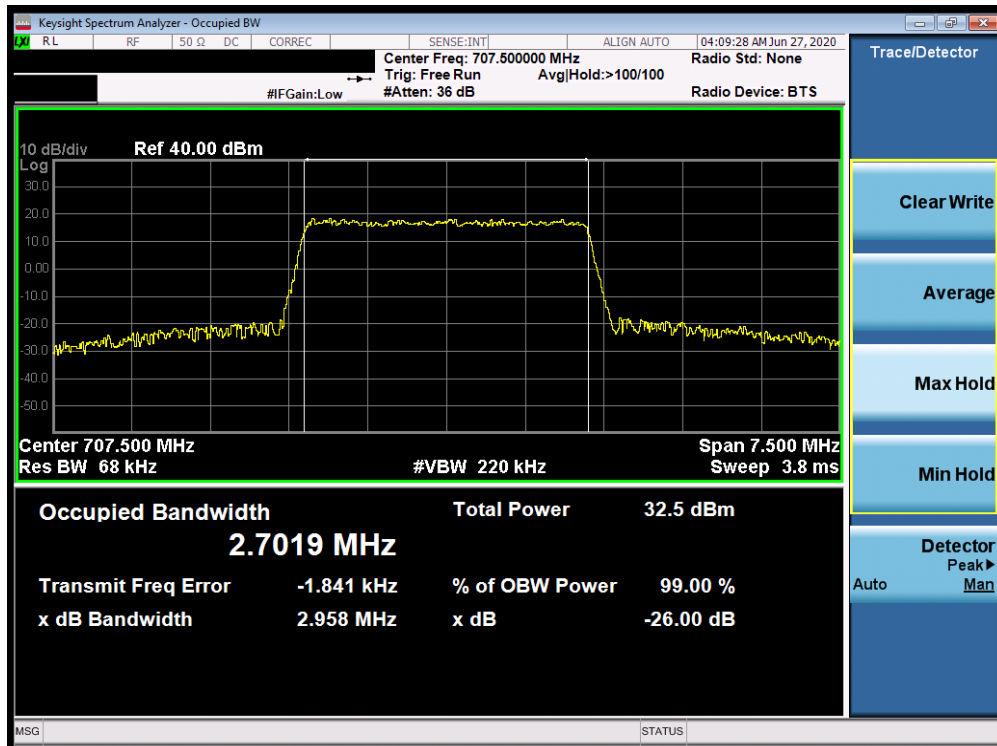


Plot 7-34. Occupied Bandwidth Plot (Band 12 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 35 of 509

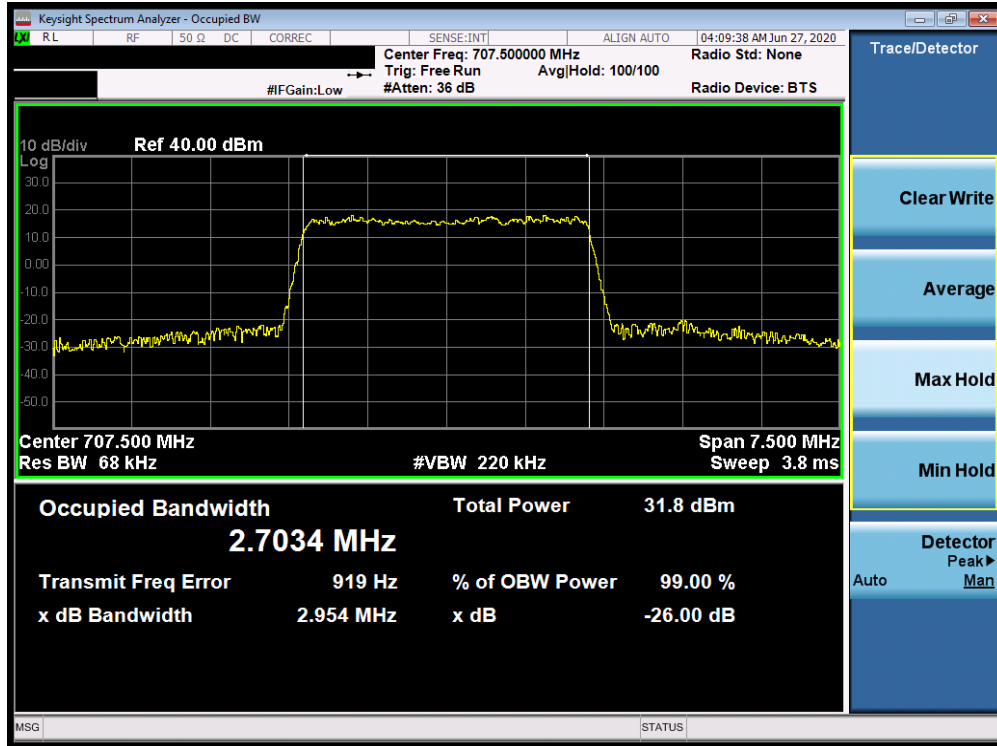


Plot 7-35. Occupied Bandwidth Plot (Band 12 - 1.4MHz 64-QAM - Full RB Configuration)

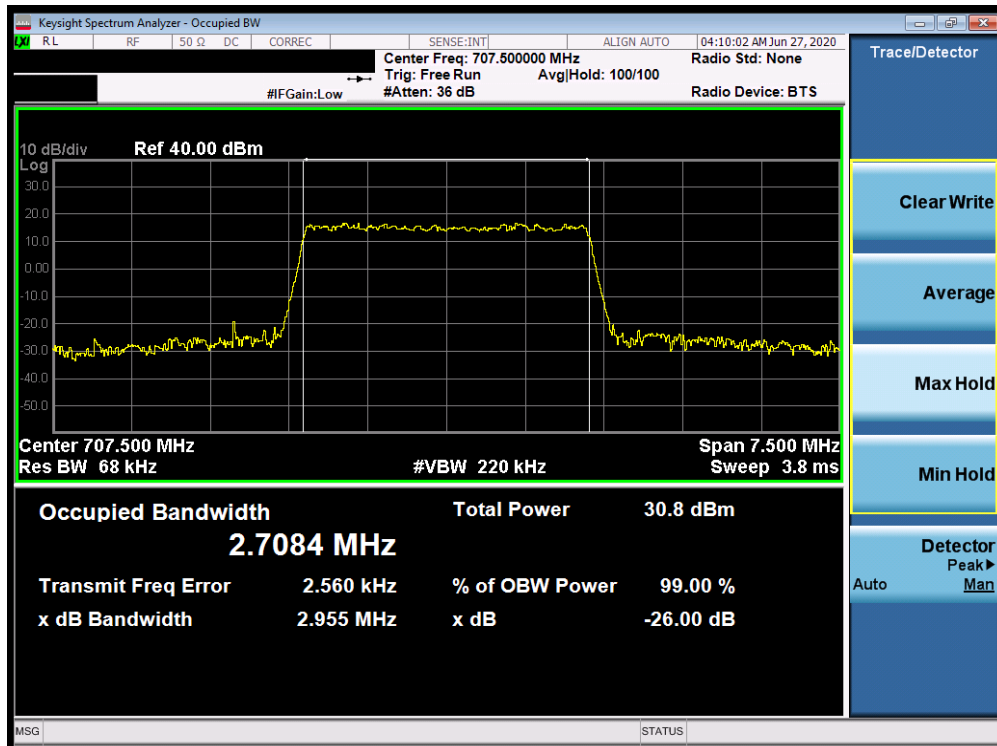


Plot 7-36. Occupied Bandwidth Plot (Band 12 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 36 of 509

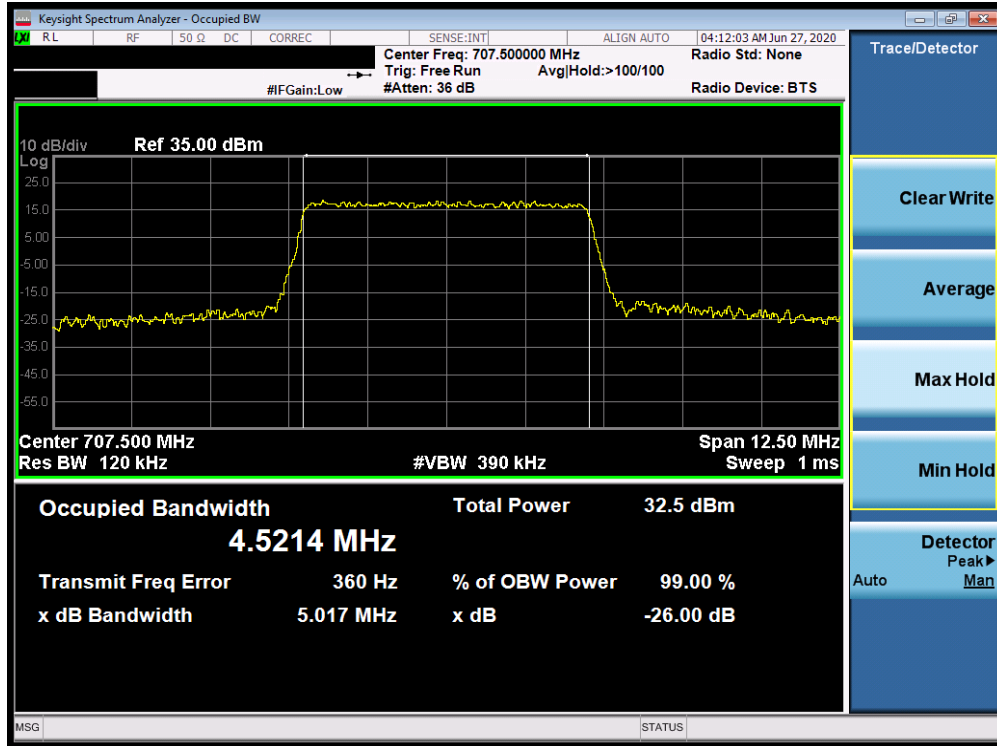


Plot 7-37. Occupied Bandwidth Plot (Band 12 - 3.0MHz 16-QAM - Full RB Configuration)

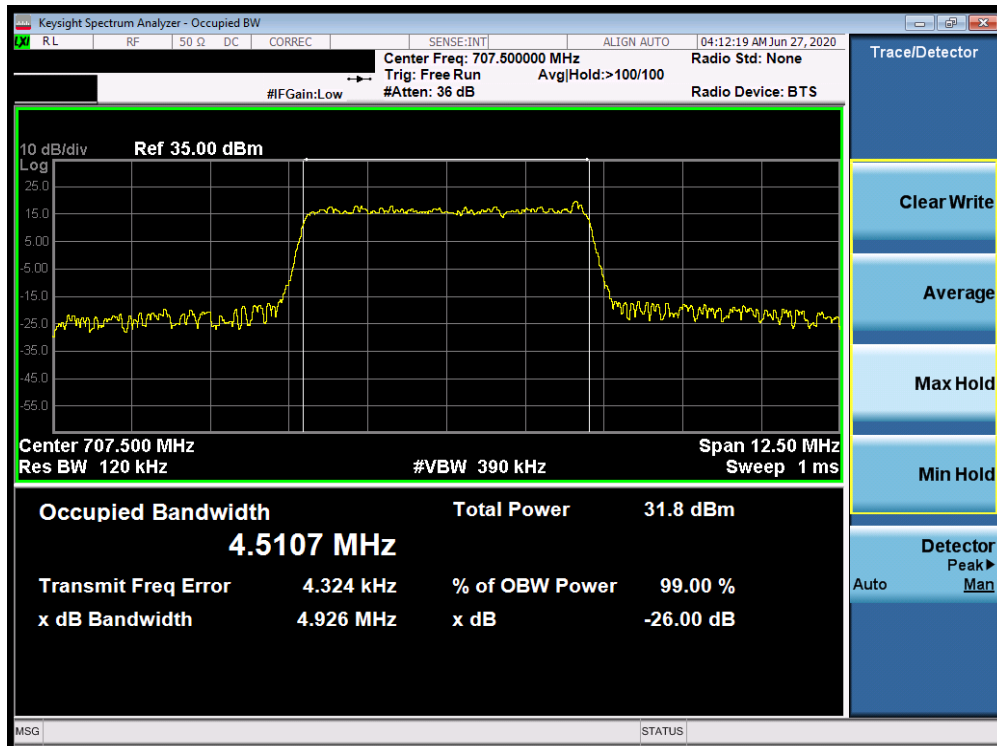


Plot 7-38. Occupied Bandwidth Plot (Band 12 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 37 of 509

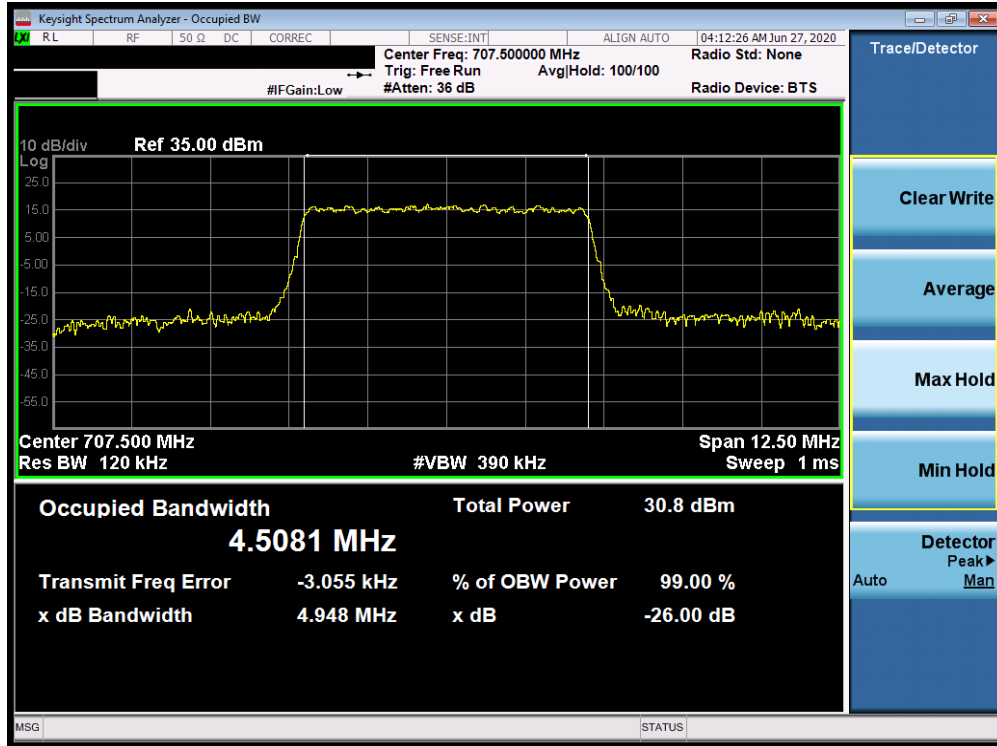


Plot 7-39. Occupied Bandwidth Plot (Band 12/17 - 5.0MHz QPSK - Full RB Configuration)

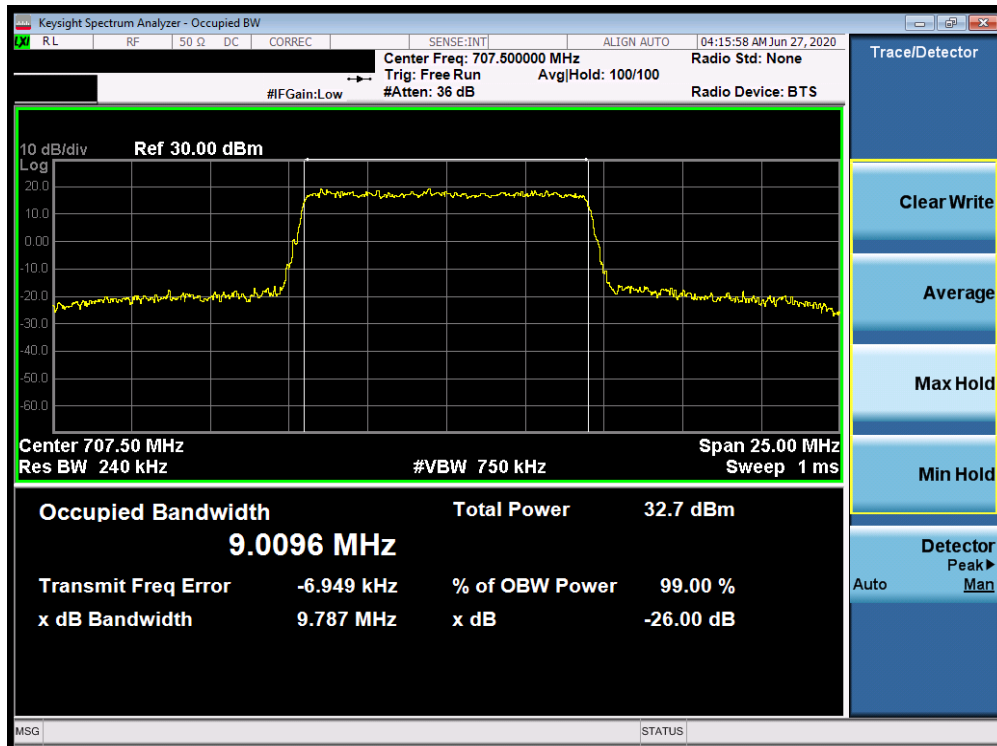


Plot 7-40. Occupied Bandwidth Plot (Band 12/17 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 38 of 509

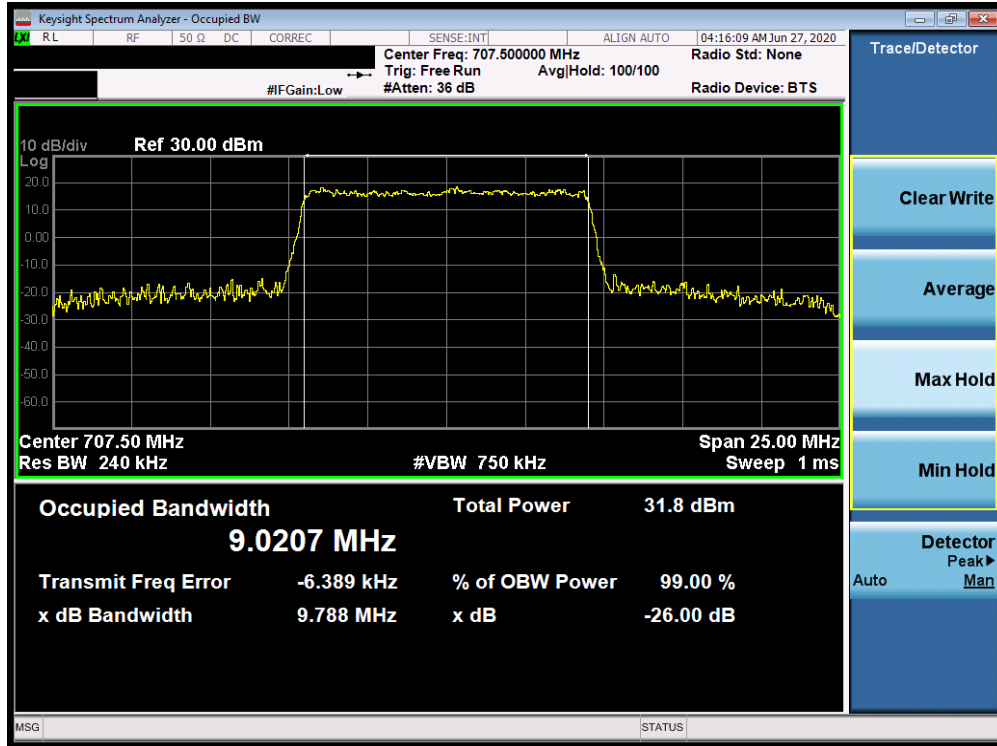


Plot 7-41. Occupied Bandwidth Plot (Band 12/17 - 5.0MHz 64-QAM - Full RB Configuration)



Plot 7-42. Occupied Bandwidth Plot (Band 12/17 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG900TM	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset	Page 39 of 509



Plot 7-43. Occupied Bandwidth Plot (Band 12/17 - 10.0MHz 16-QAM - Full RB Configuration)



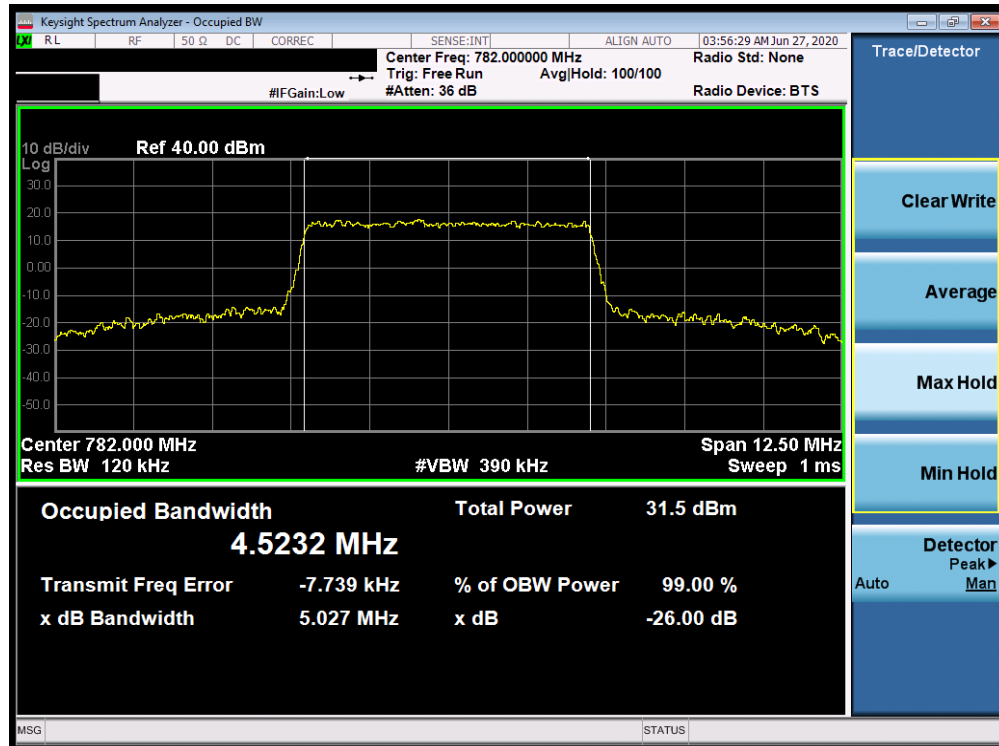
Plot 7-44. Occupied Bandwidth Plot (Band 12/17 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 40 of 509

Band 13

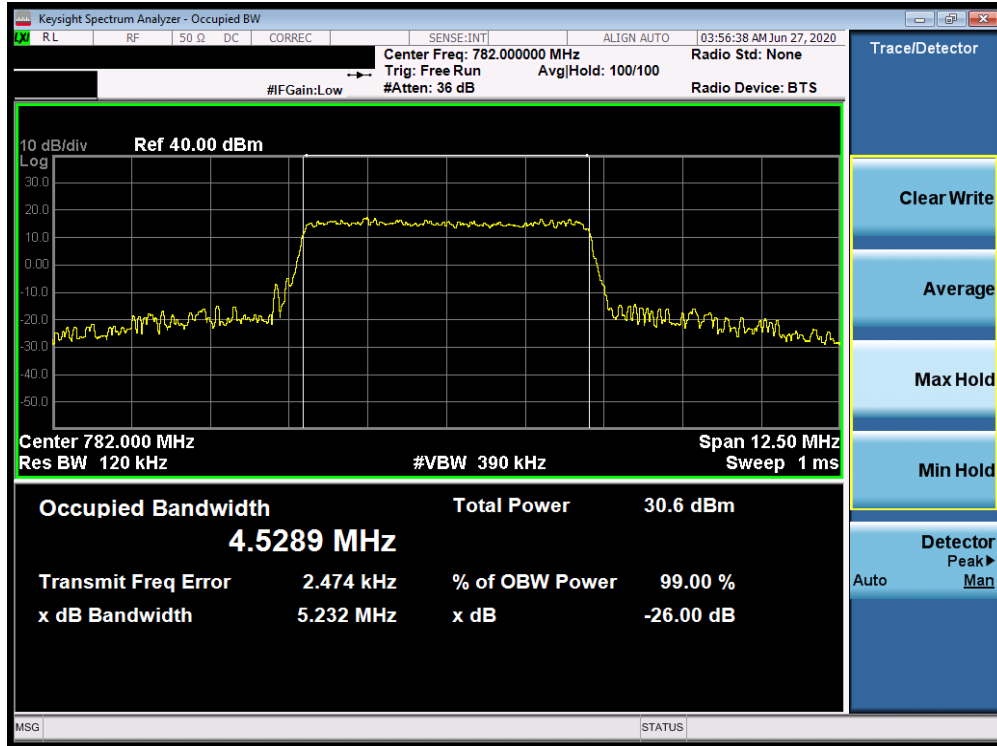


Plot 7-45. Occupied Bandwidth Plot (Band 13 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-46. Occupied Bandwidth Plot (Band 13 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 41 of 509



Plot 7-47. Occupied Bandwidth Plot (Band 13 - 5.0MHz 64-QAM - Full RB Configuration)

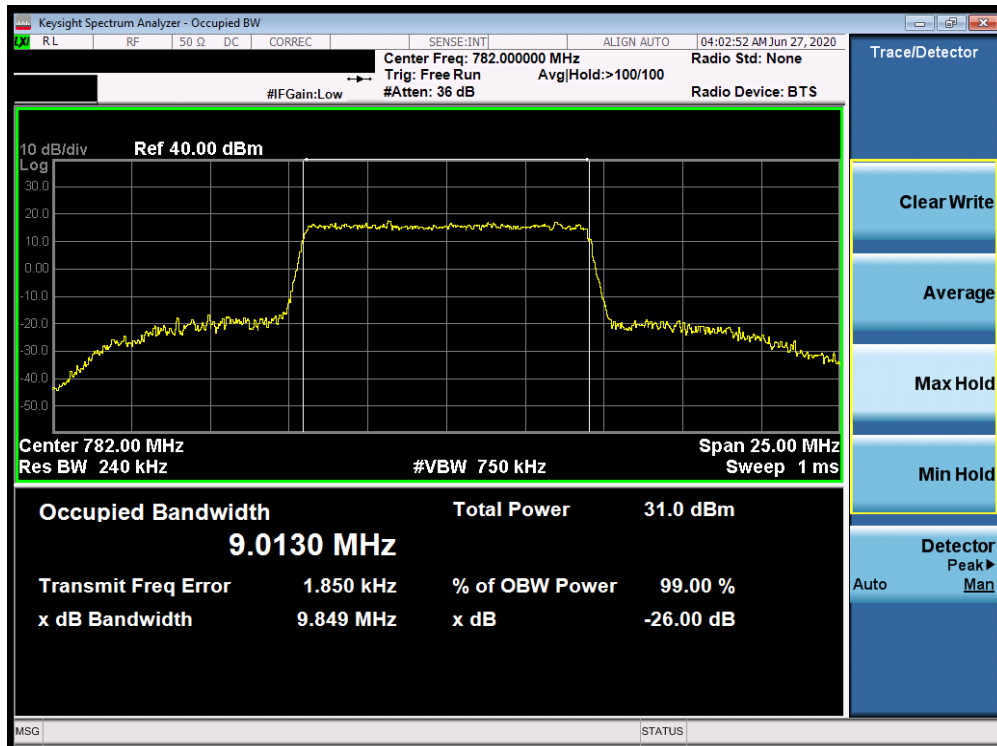


Plot 7-48. Occupied Bandwidth Plot (Band 13 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG900TM	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset	Page 42 of 509



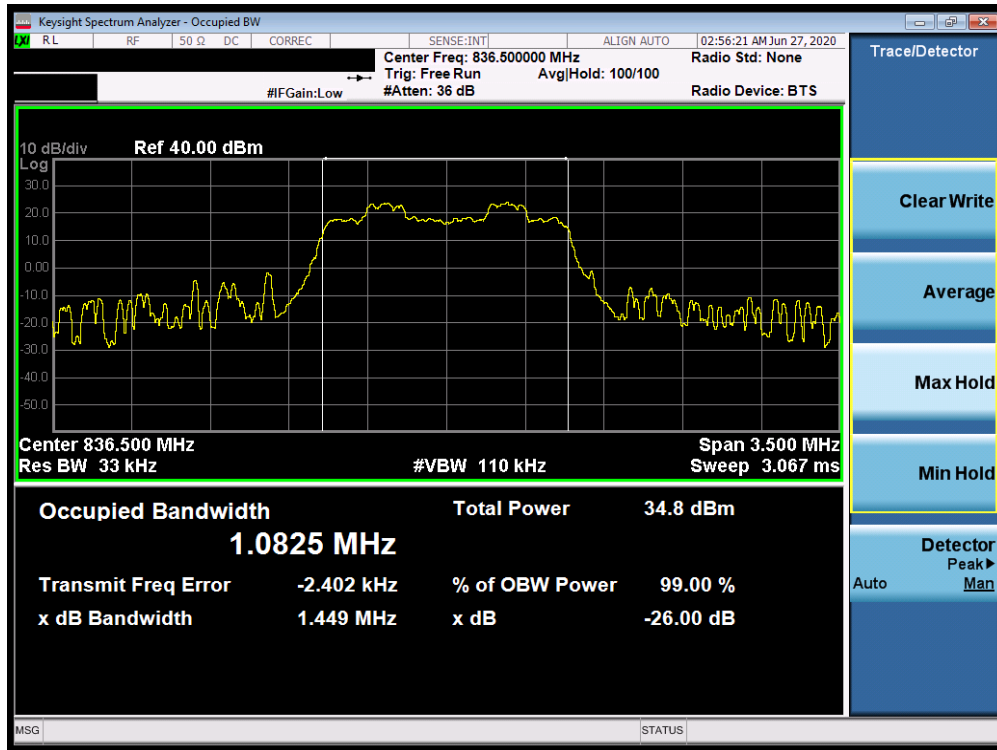
Plot 7-49. Occupied Bandwidth Plot (Band 13 - 10.0MHz 16-QAM - Full RB Configuration)



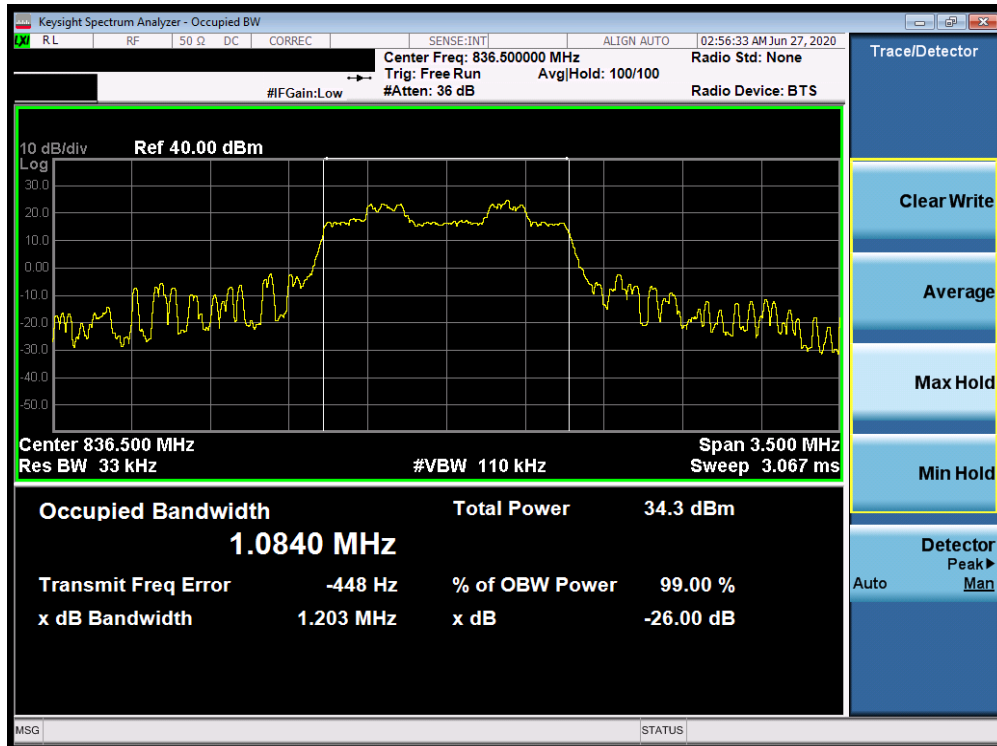
Plot 7-50. Occupied Bandwidth Plot (Band 13 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset	Page 43 of 509

Band 26/5

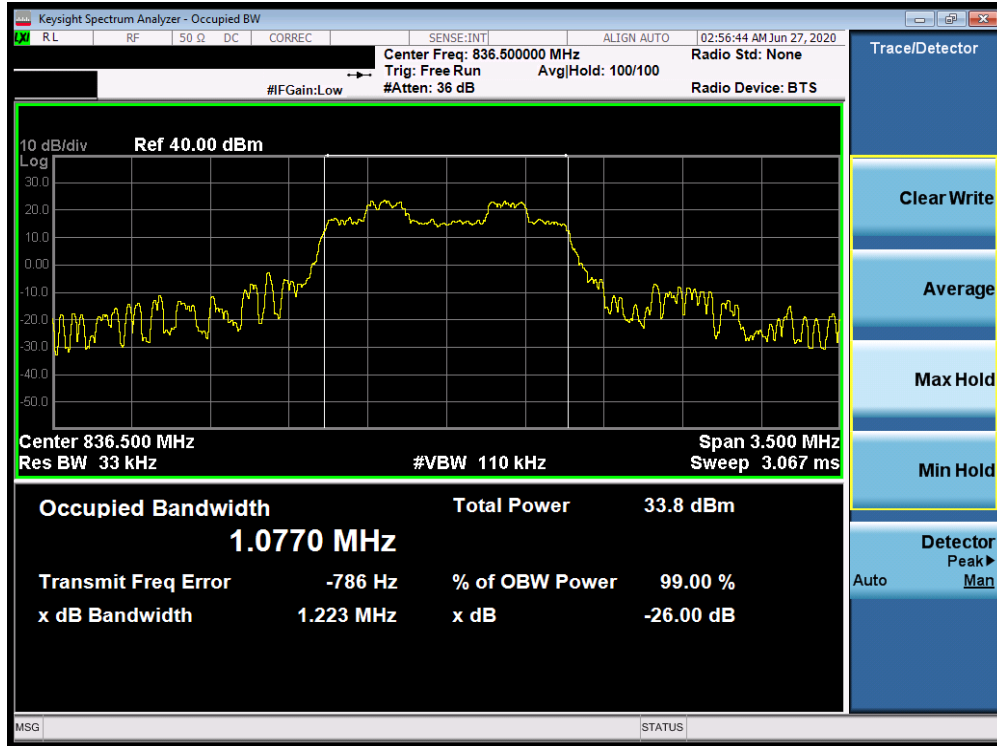


Plot 7-51. Occupied Bandwidth Plot (Band 26/5 - 1.4MHz QPSK - Full RB Configuration)

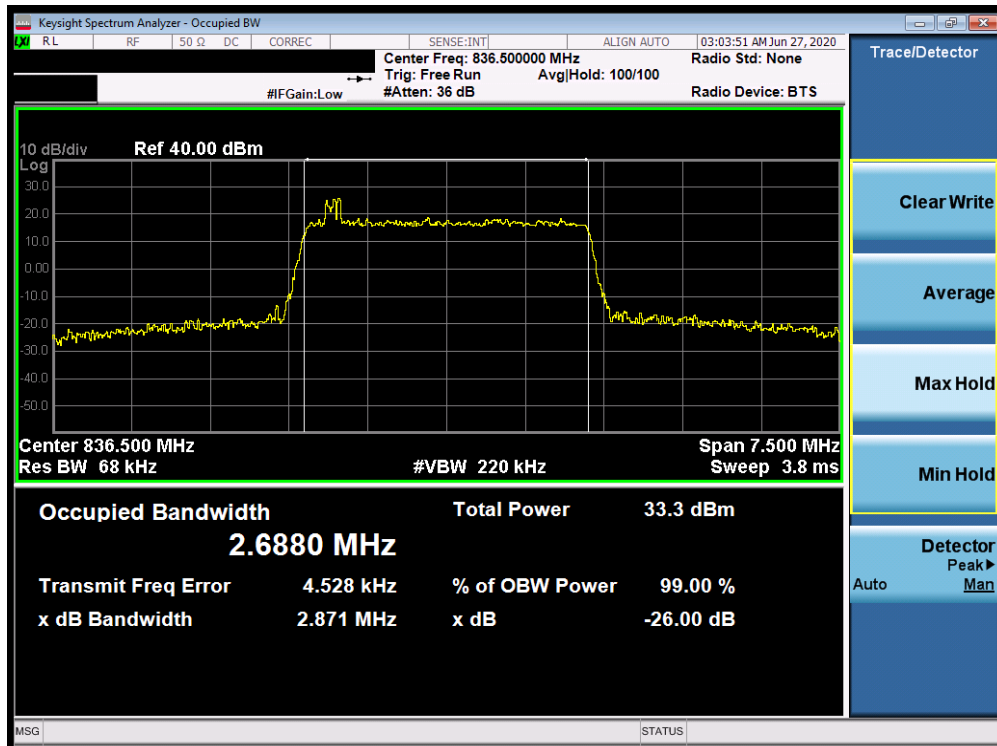


Plot 7-52. Occupied Bandwidth Plot (Band 26/5 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 44 of 509

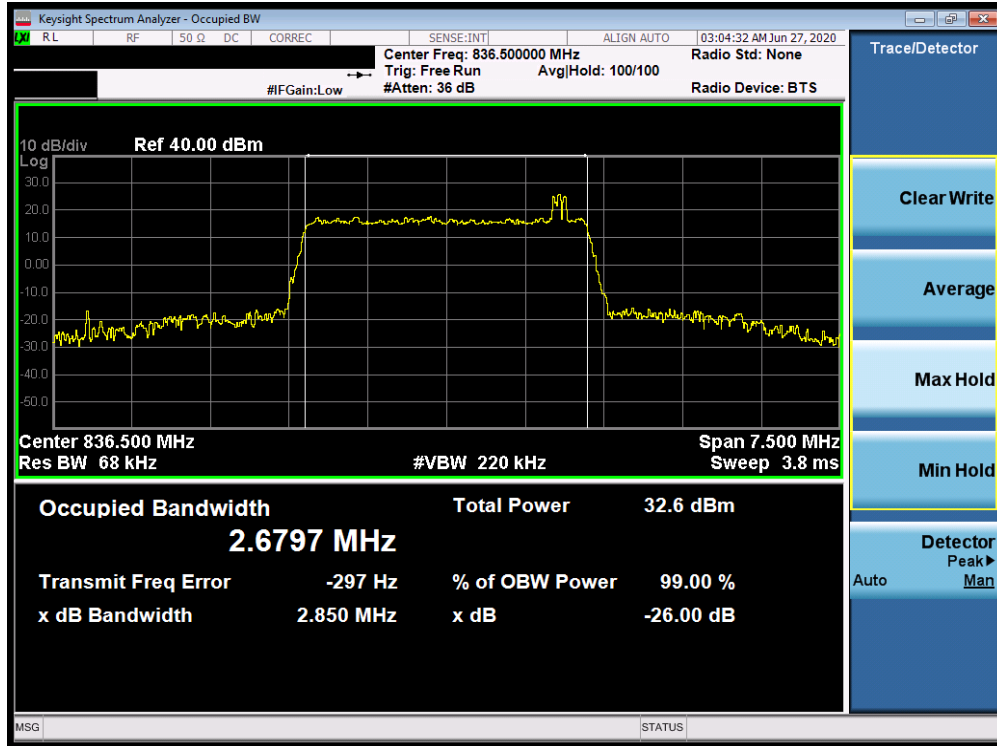


Plot 7-53. Occupied Bandwidth Plot (Band 26/5 - 1.4MHz 64-QAM - Full RB Configuration)

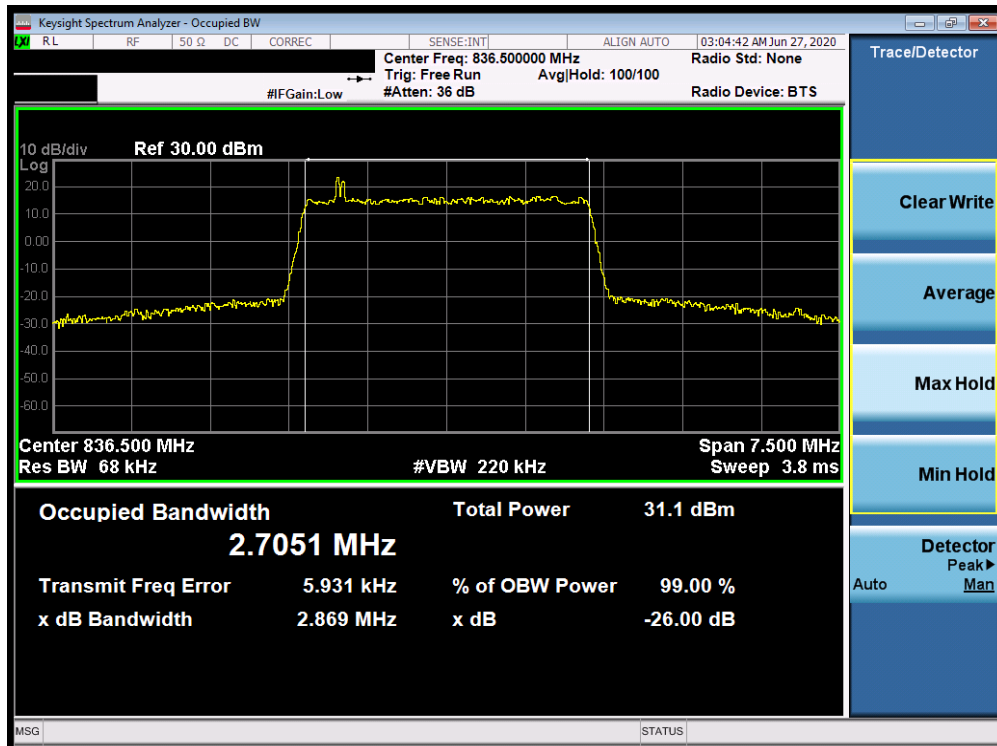


Plot 7-54. Occupied Bandwidth Plot (Band 26/5 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 45 of 509



Plot 7-55. Occupied Bandwidth Plot (Band 26/5 - 3.0MHz 16-QAM - Full RB Configuration)

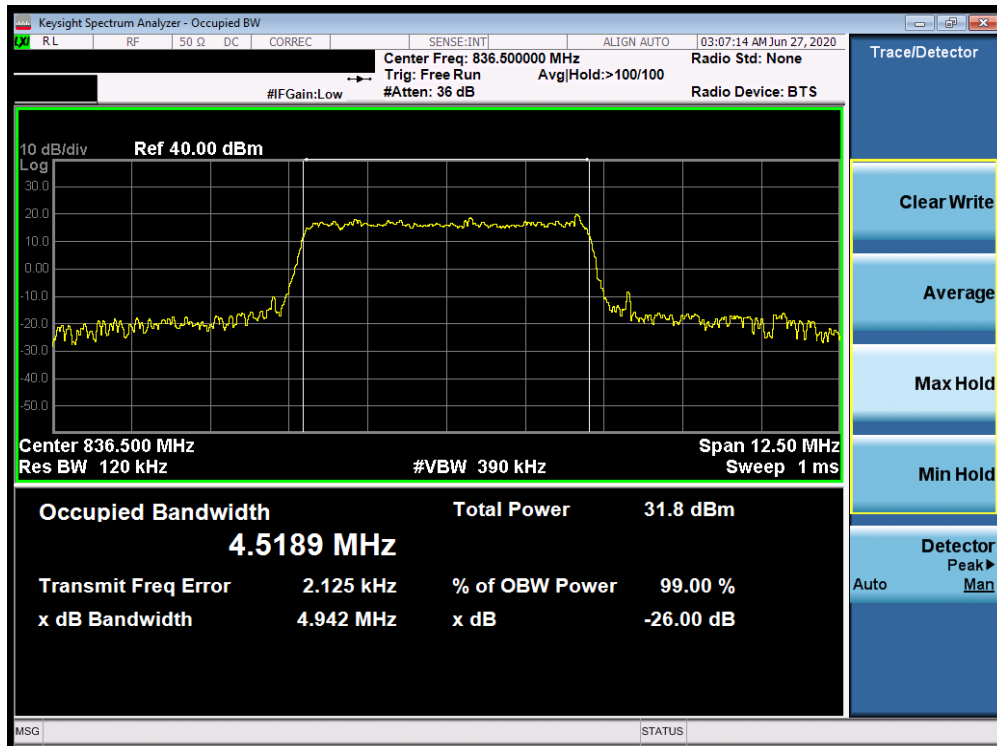


Plot 7-56. Occupied Bandwidth Plot (Band 26/5 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset	Page 46 of 509

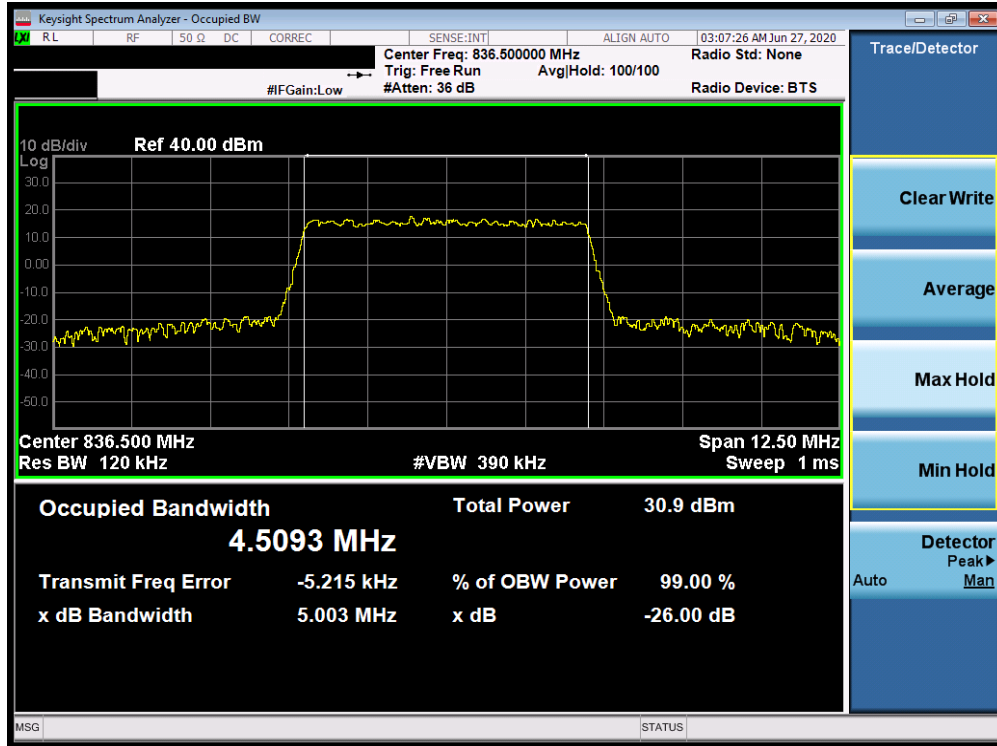


Plot 7-57. Occupied Bandwidth Plot (Band 26/5 - 5.0MHz QPSK - Full RB Configuration)



Plot 7-58. Occupied Bandwidth Plot (Band 26/5 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset	Page 47 of 509

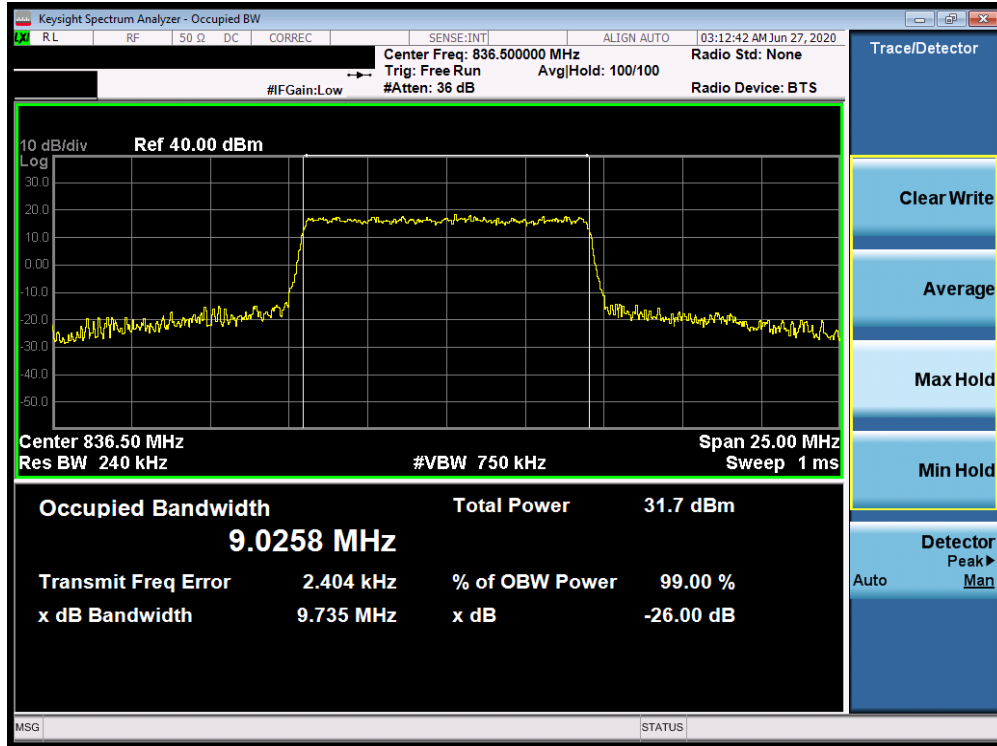


Plot 7-59. Occupied Bandwidth Plot (Band 26/5 - 5.0MHz 64-QAM - Full RB Configuration)

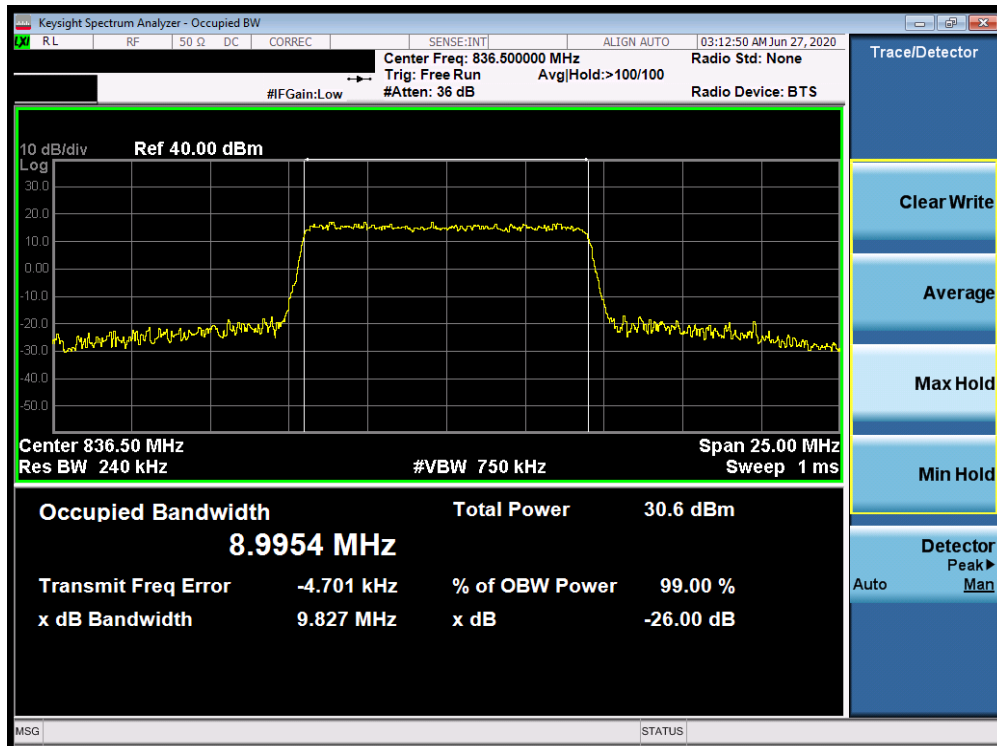


Plot 7-60. Occupied Bandwidth Plot (Band 26/5 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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Plot 7-61. Occupied Bandwidth Plot (Band 26/5 - 10.0MHz 16-QAM - Full RB Configuration)

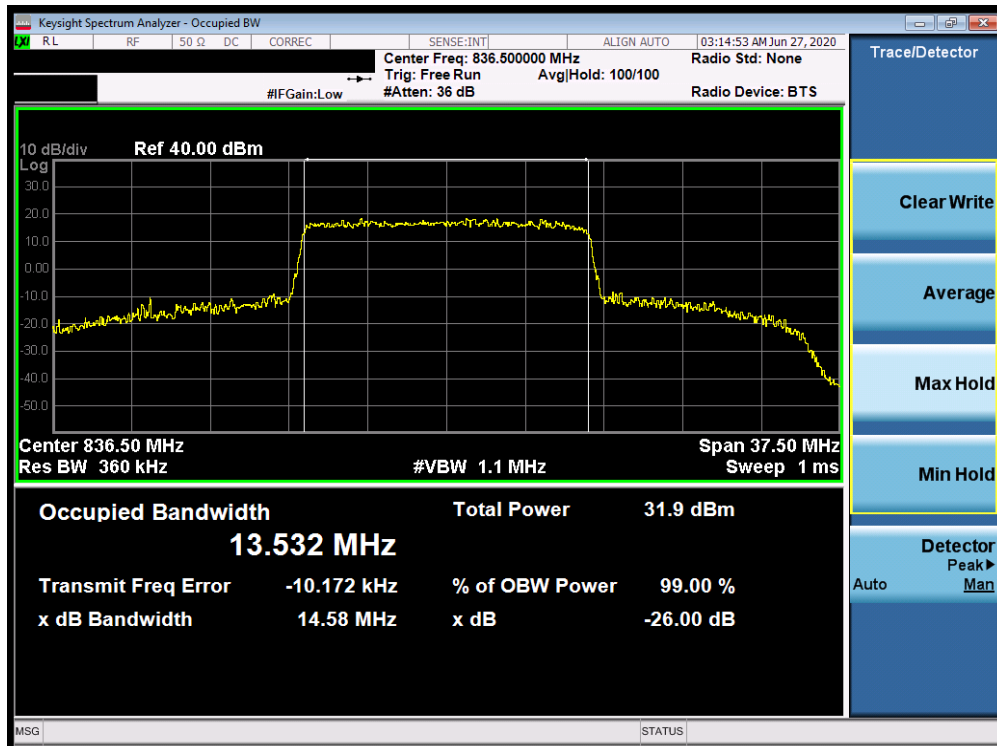


Plot 7-62. Occupied Bandwidth Plot (Band 26/5 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
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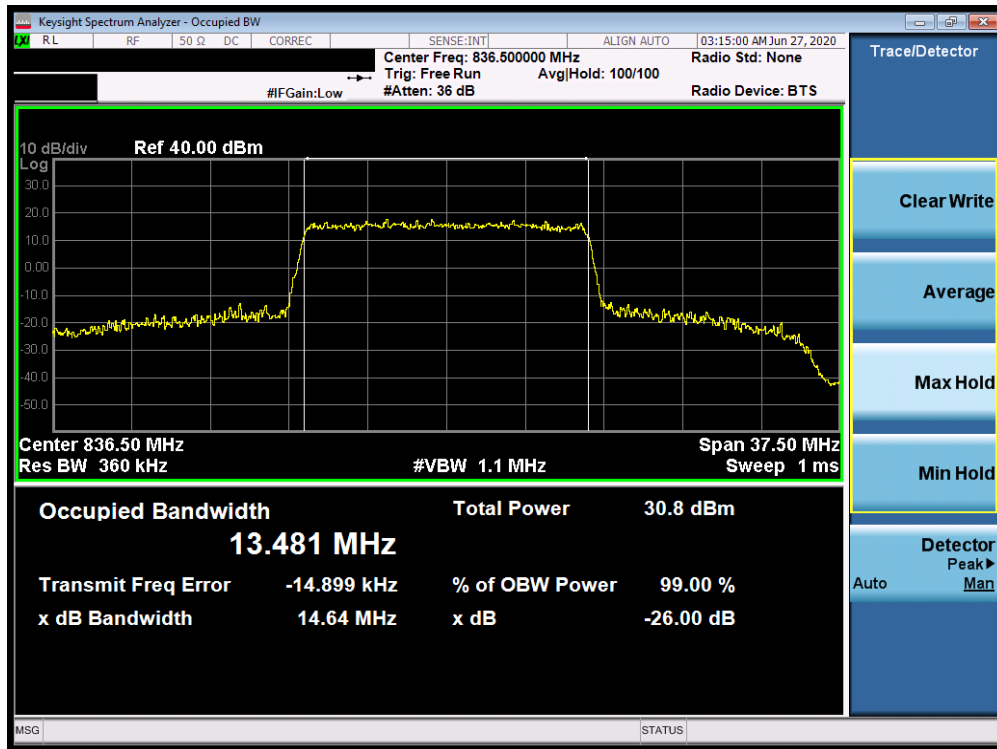


Plot 7-63. Occupied Bandwidth Plot (Band 26 - 15.0MHz QPSK - Full RB Configuration)



Plot 7-64. Occupied Bandwidth Plot (Band 26 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 50 of 509



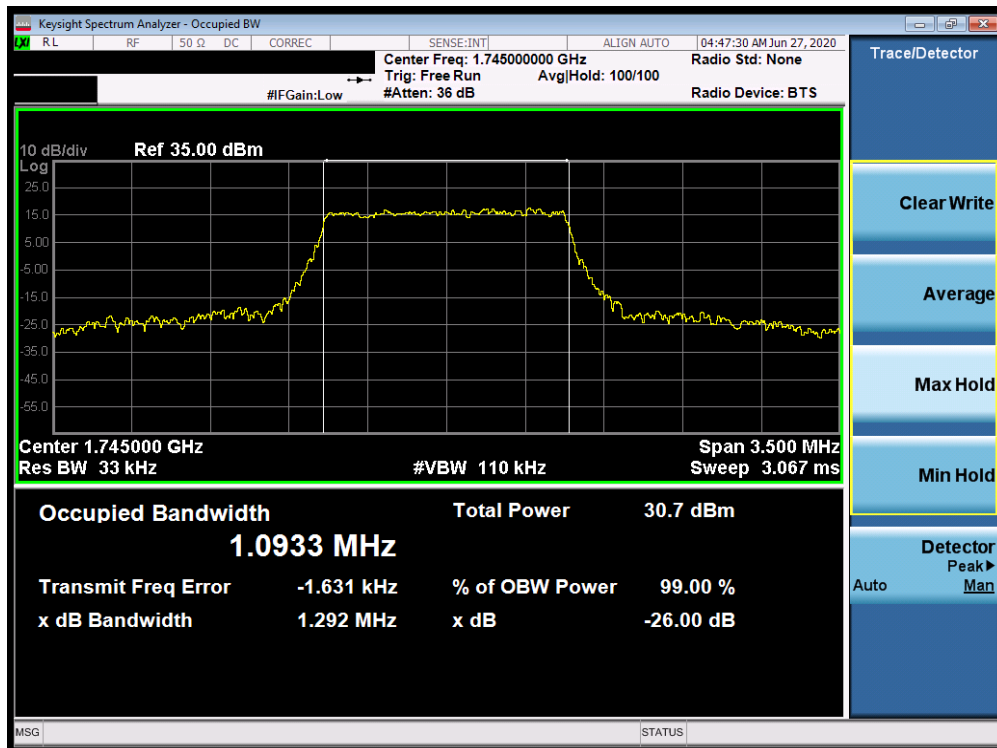
Plot 7-65. Occupied Bandwidth Plot (Band 26 - 15.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset	Page 51 of 509

Band 66/4

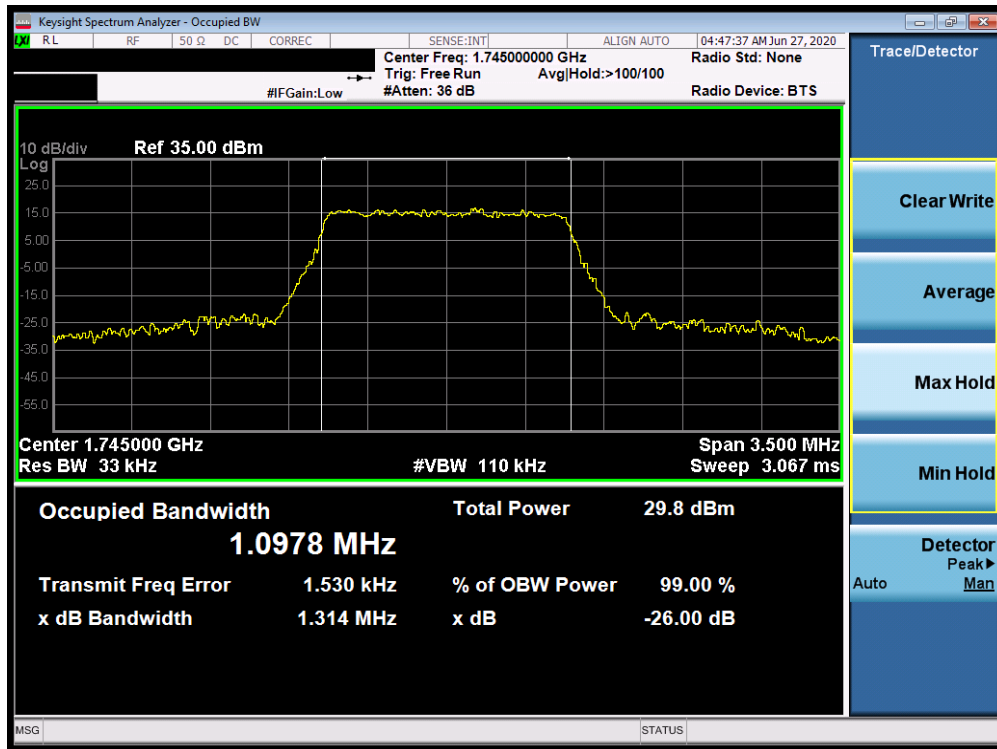


Plot 7-66. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz QPSK - Full RB Configuration)

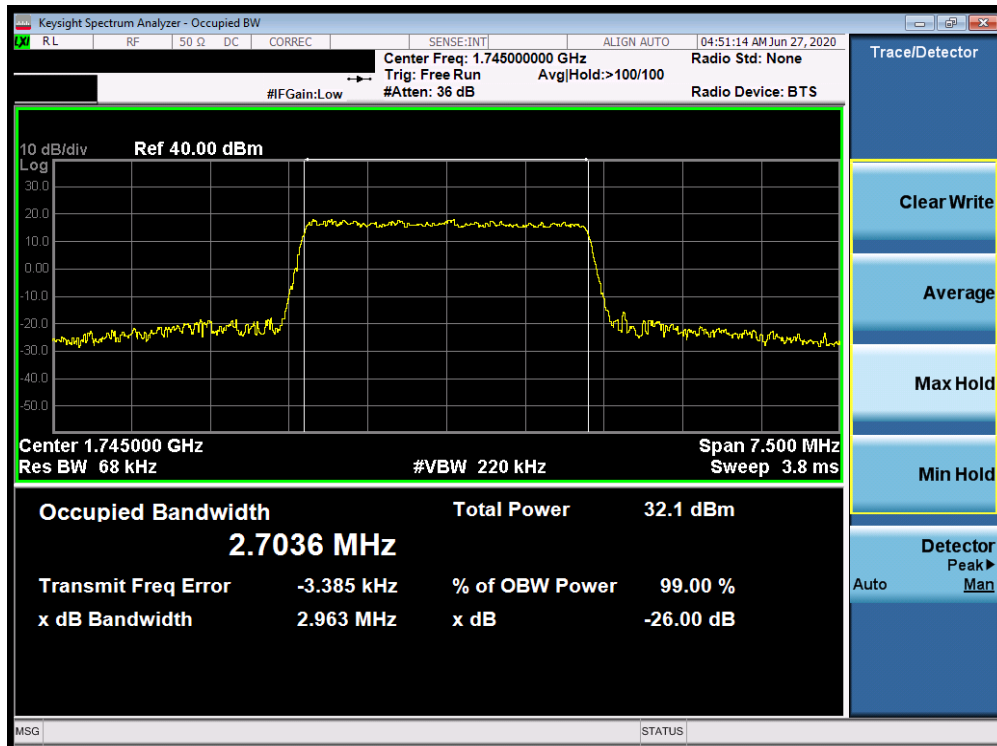


Plot 7-67. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 52 of 509

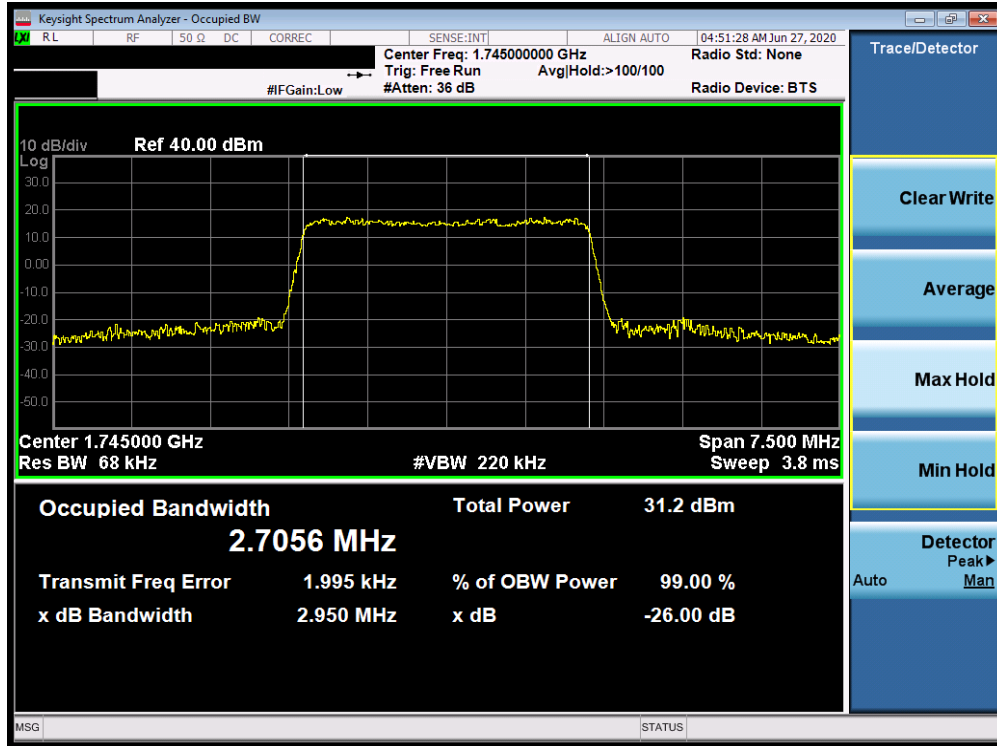


Plot 7-68. Occupied Bandwidth Plot (Band 66/4 - 1.4MHz 64-QAM - Full RB Configuration)

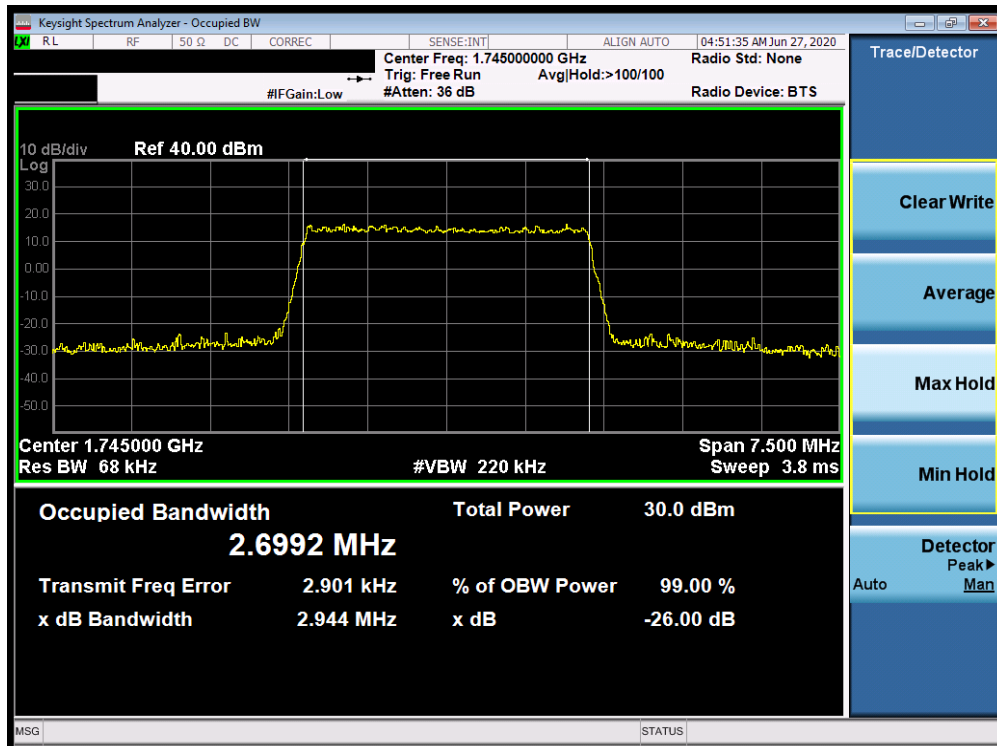


Plot 7-69. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 53 of 509

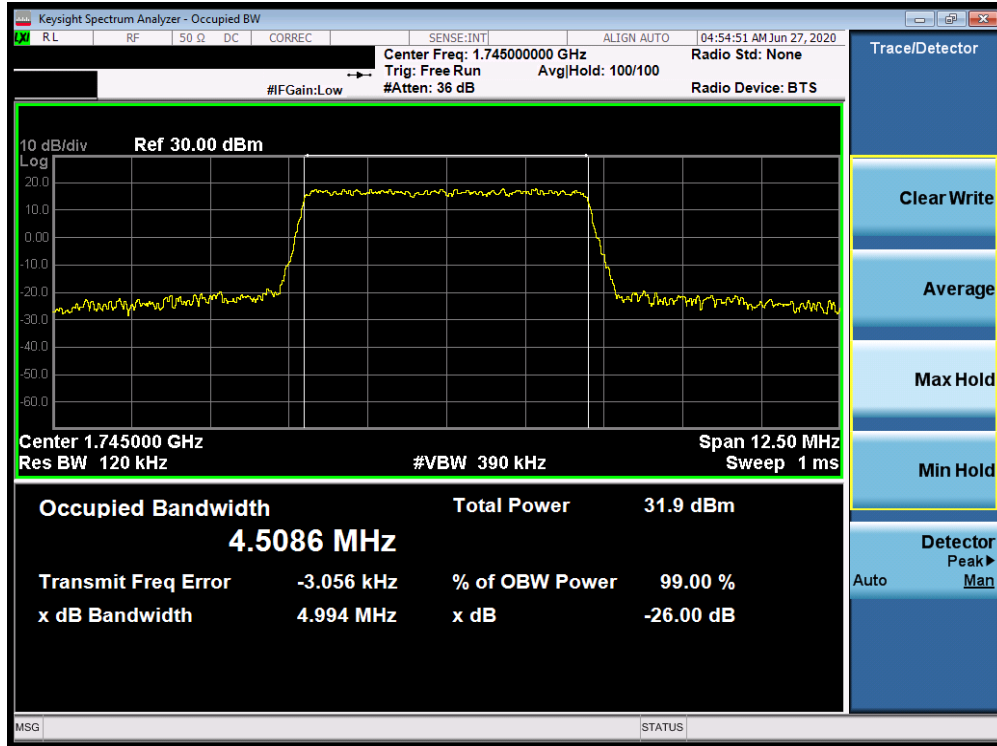


Plot 7-70. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz 16-QAM - Full RB Configuration)

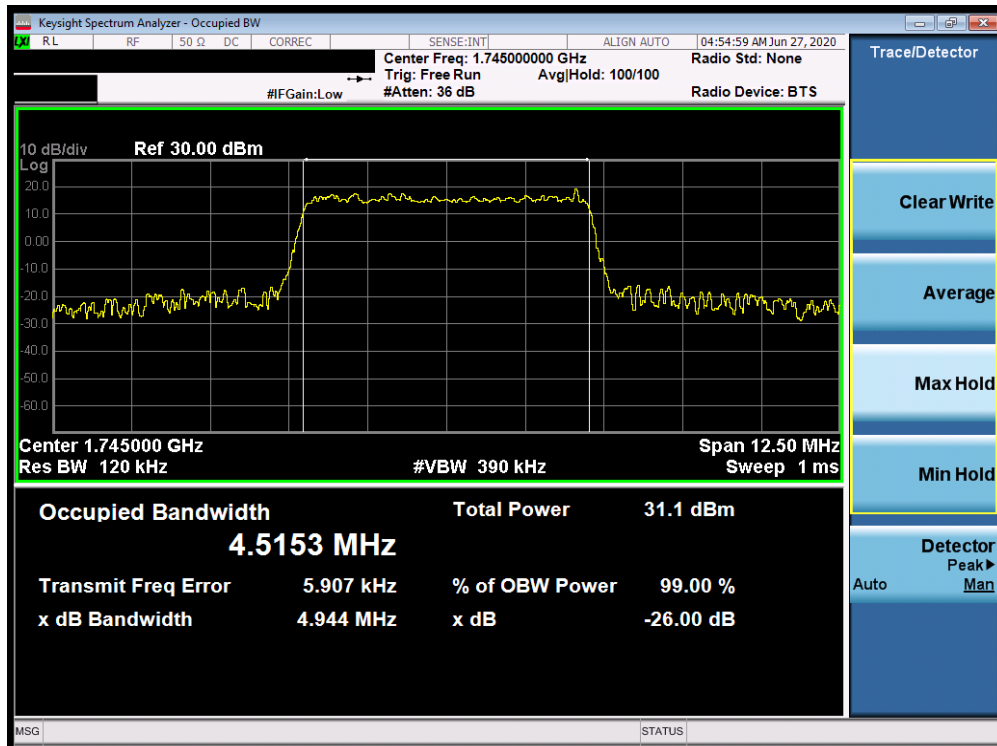


Plot 7-71. Occupied Bandwidth Plot (Band 66/4 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 54 of 509

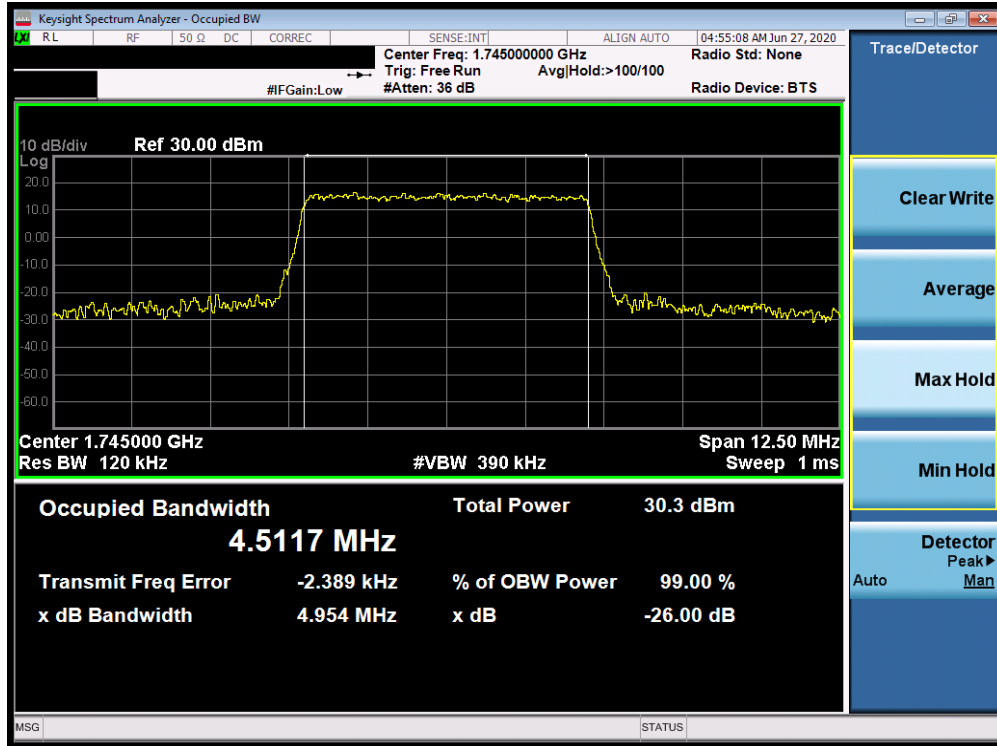


Plot 7-72. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz QPSK - Full RB Configuration)

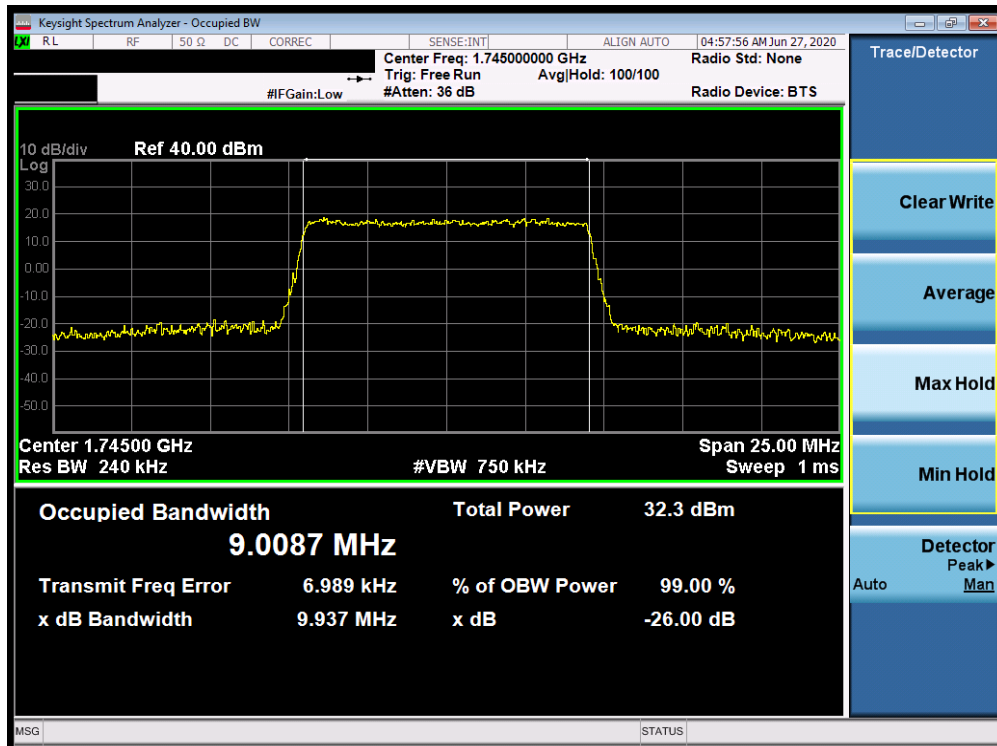


Plot 7-73. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 55 of 509

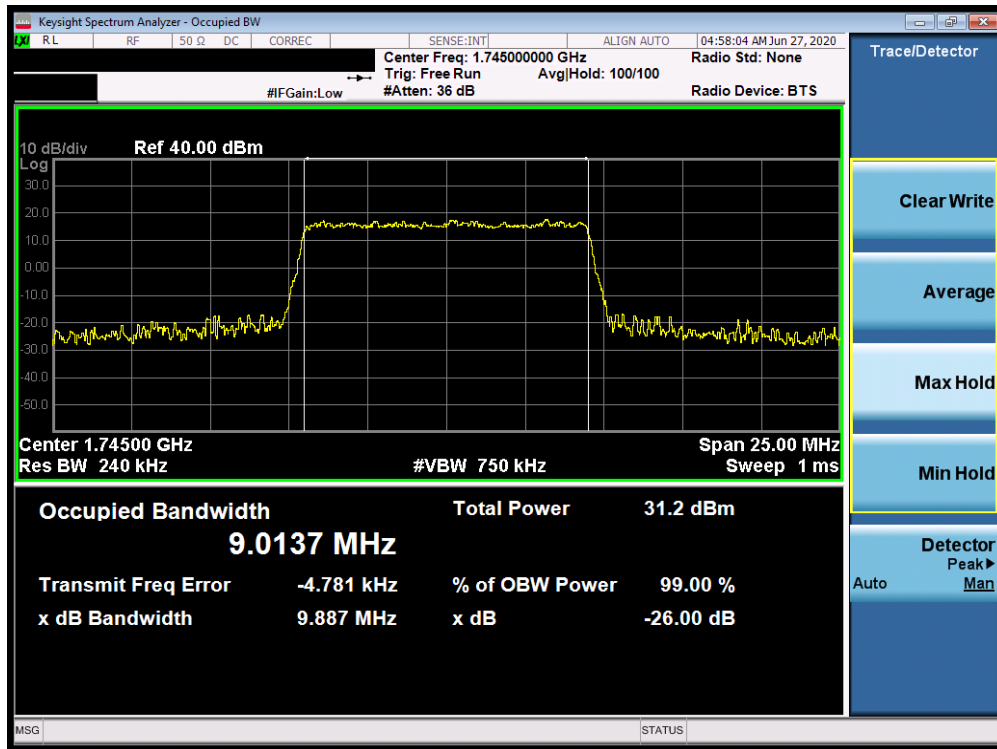


Plot 7-74. Occupied Bandwidth Plot (Band 66/4 - 5.0MHz 64-QAM - Full RB Configuration)

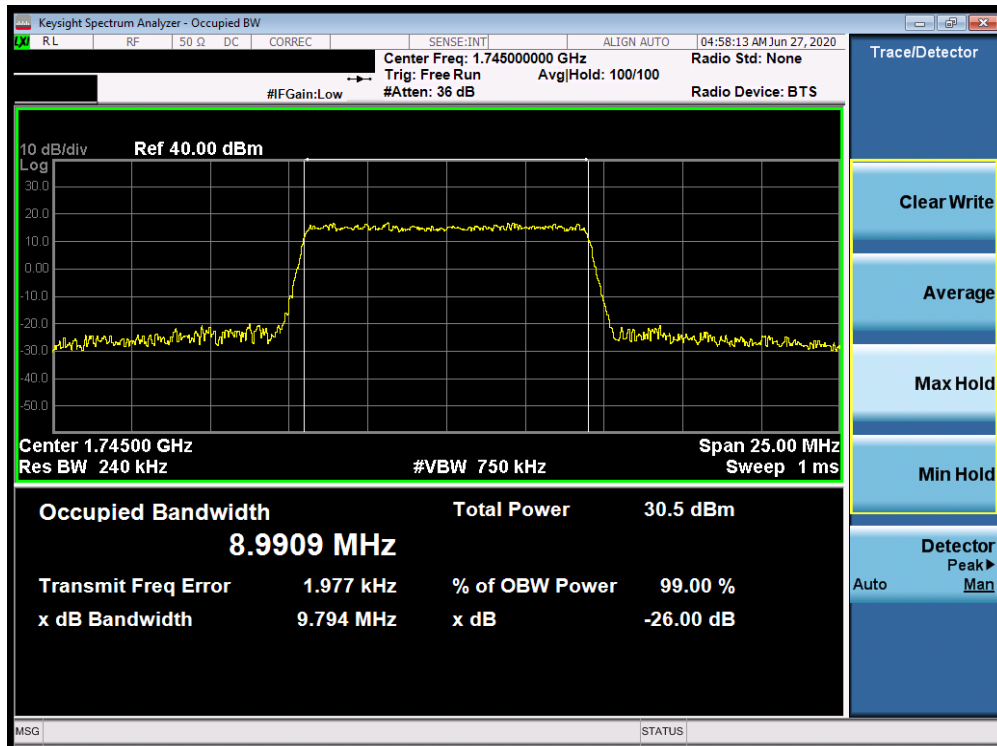


Plot 7-75. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG900TM	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset	Page 56 of 509

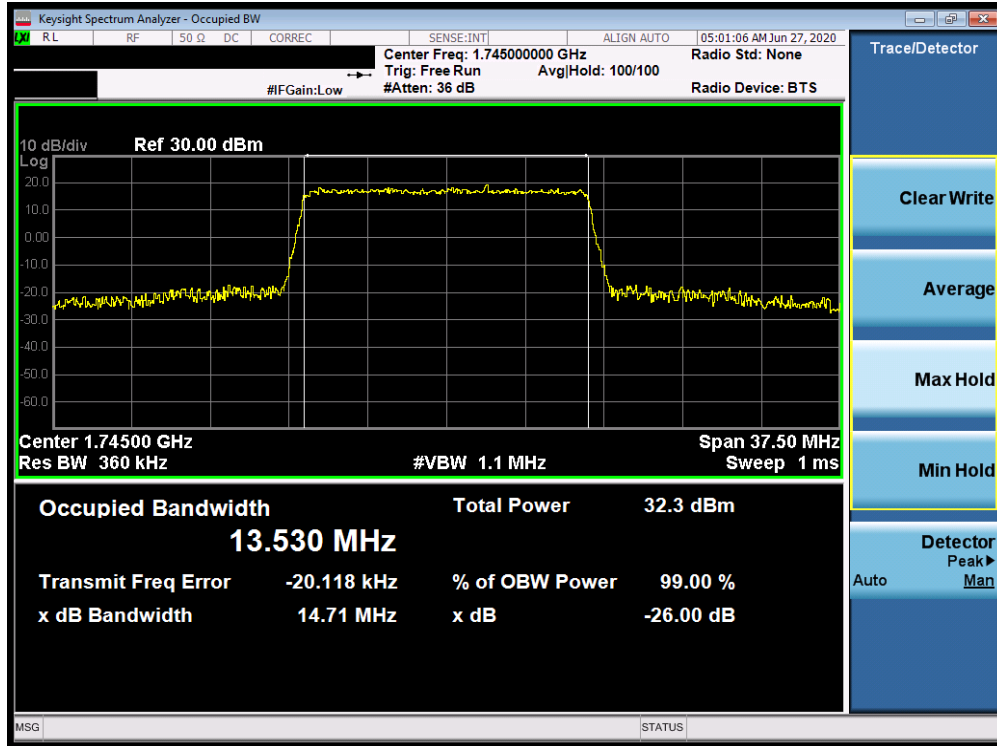


Plot 7-76. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz 16-QAM - Full RB Configuration)

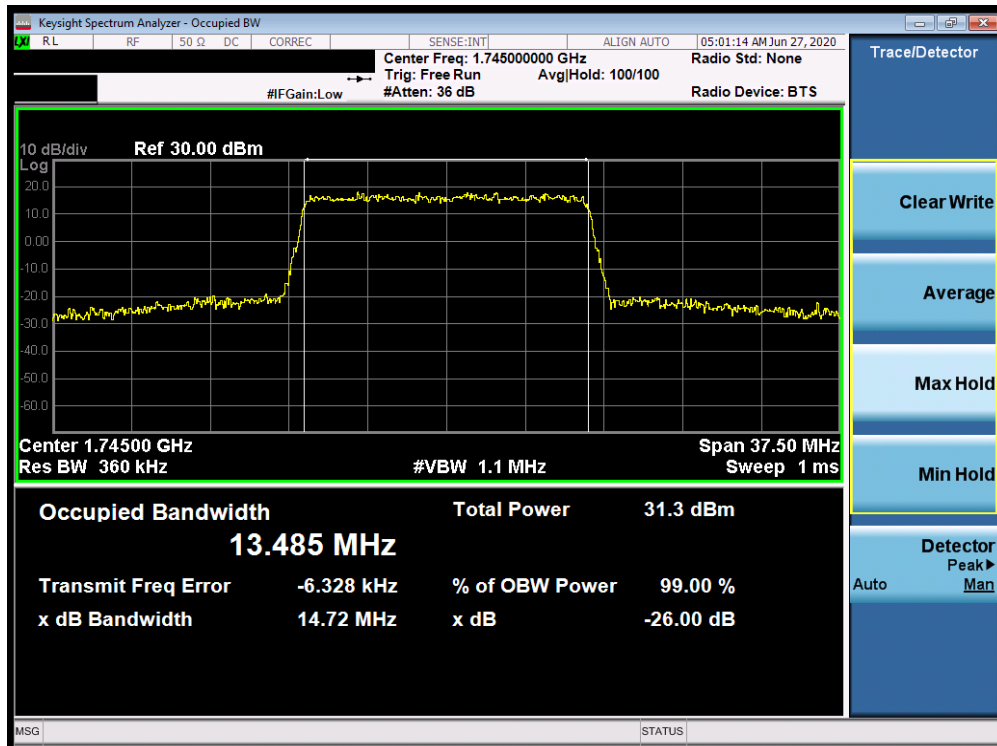


Plot 7-77. Occupied Bandwidth Plot (Band 66/4 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset	Page 57 of 509

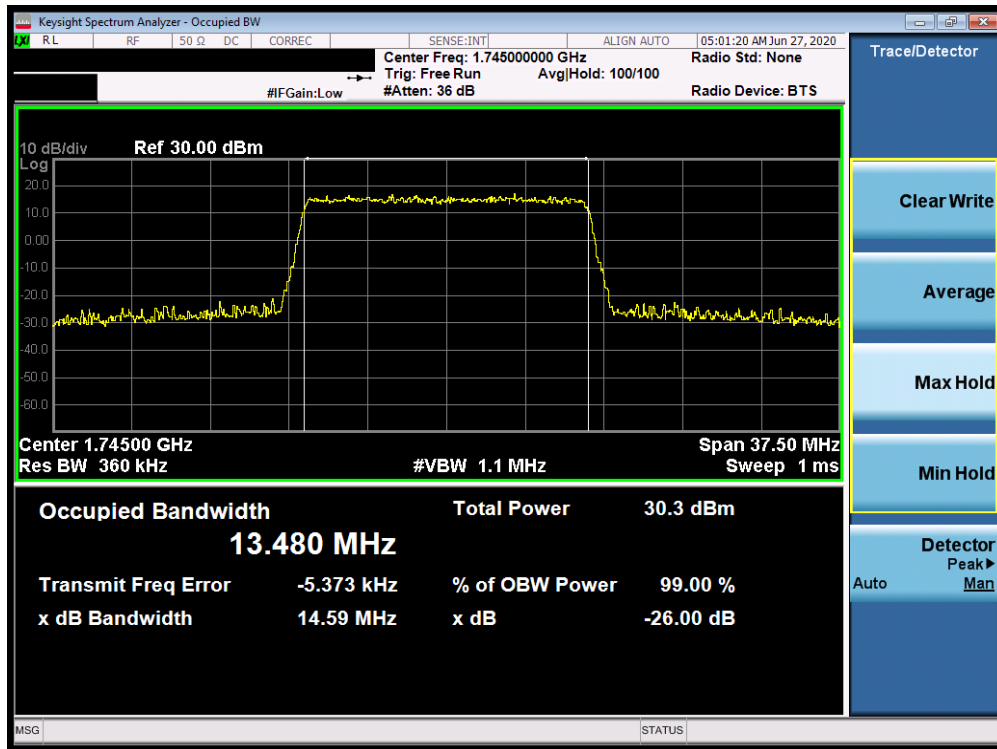


Plot 7-78. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz QPSK - Full RB Configuration)

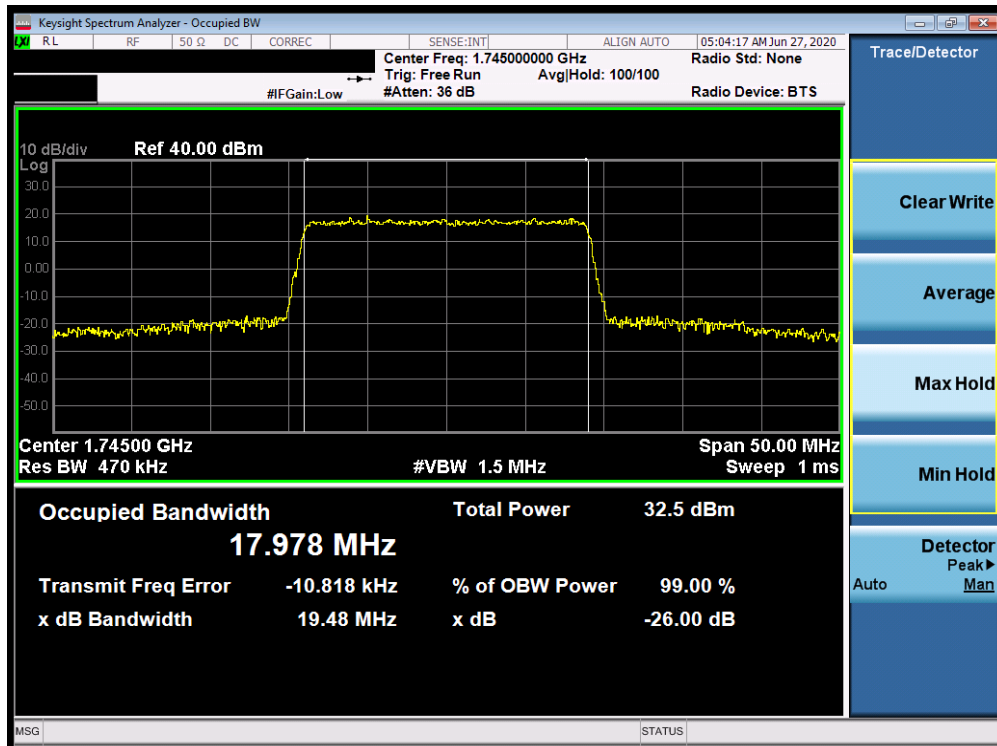


Plot 7-79. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset	Page 58 of 509

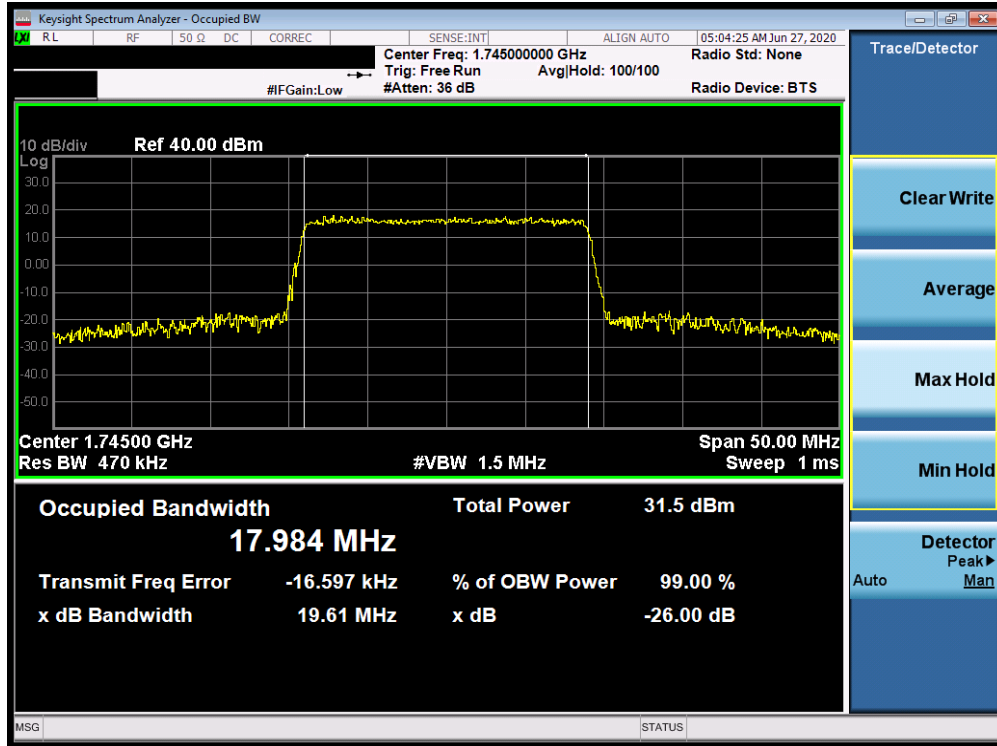


Plot 7-80. Occupied Bandwidth Plot (Band 66/4 - 15.0MHz 64-QAM - Full RB Configuration)

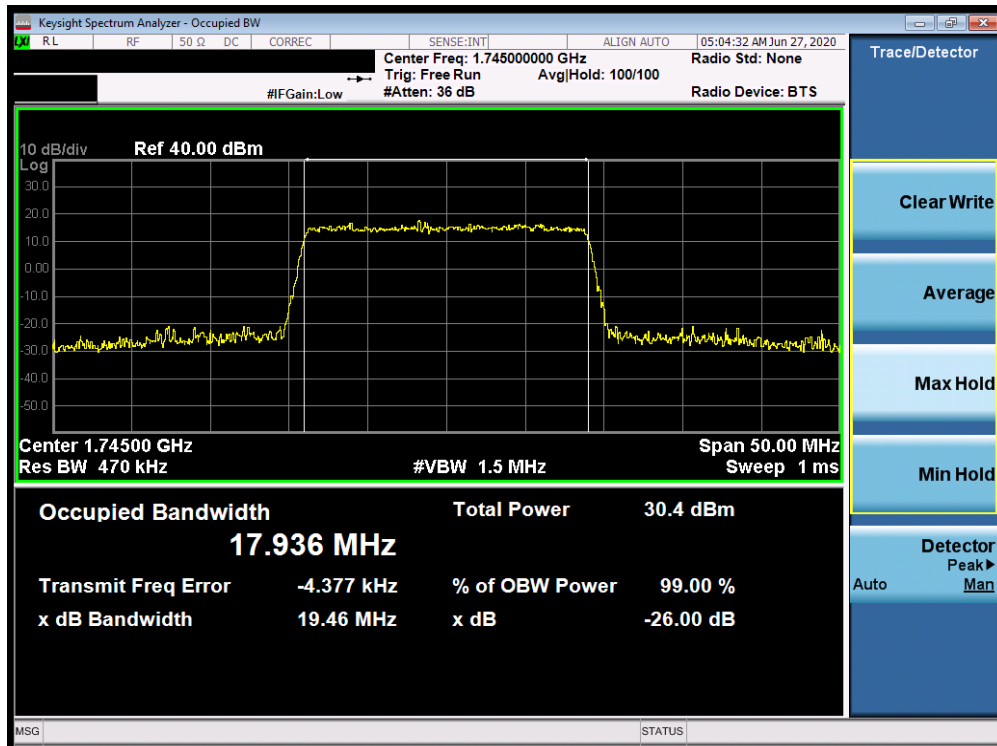


Plot 7-81. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 59 of 509



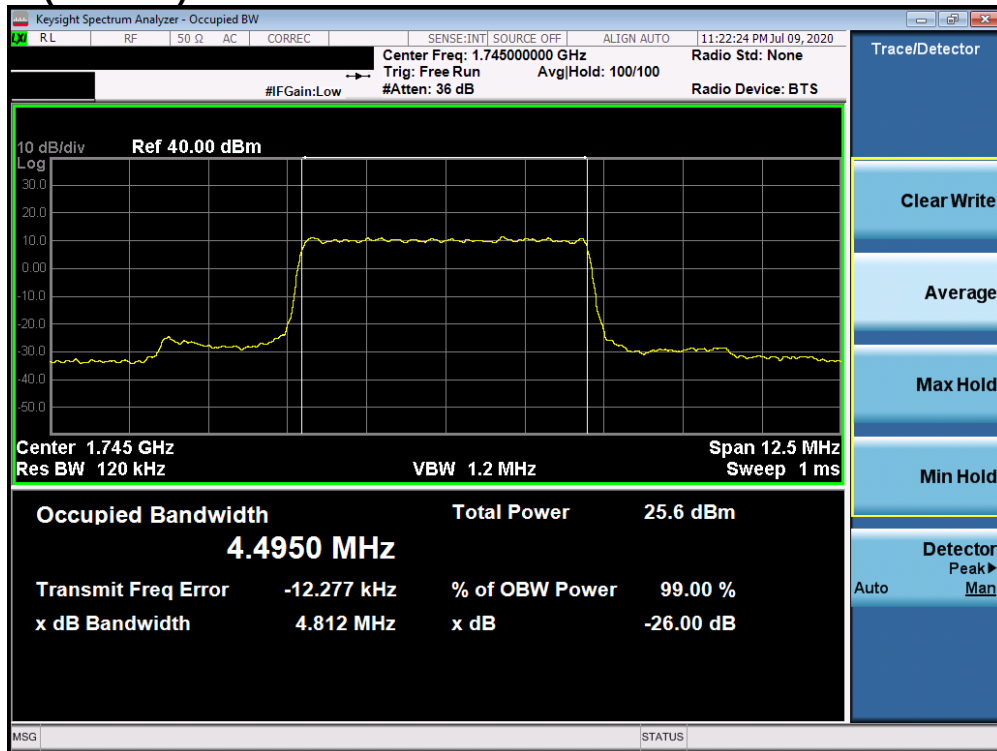
Plot 7-82. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz 16-QAM - Full RB Configuration)



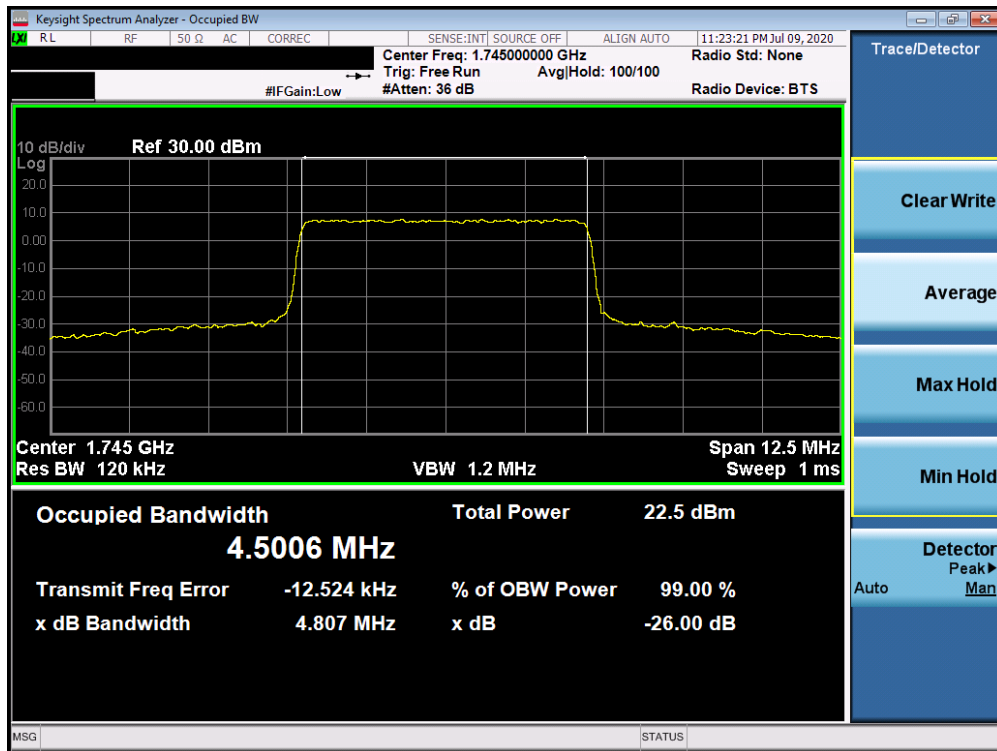
Plot 7-83. Occupied Bandwidth Plot (Band 66/4 - 20.0MHz 64-QAM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 60 of 509

NR Band n66 (SA Ant2)

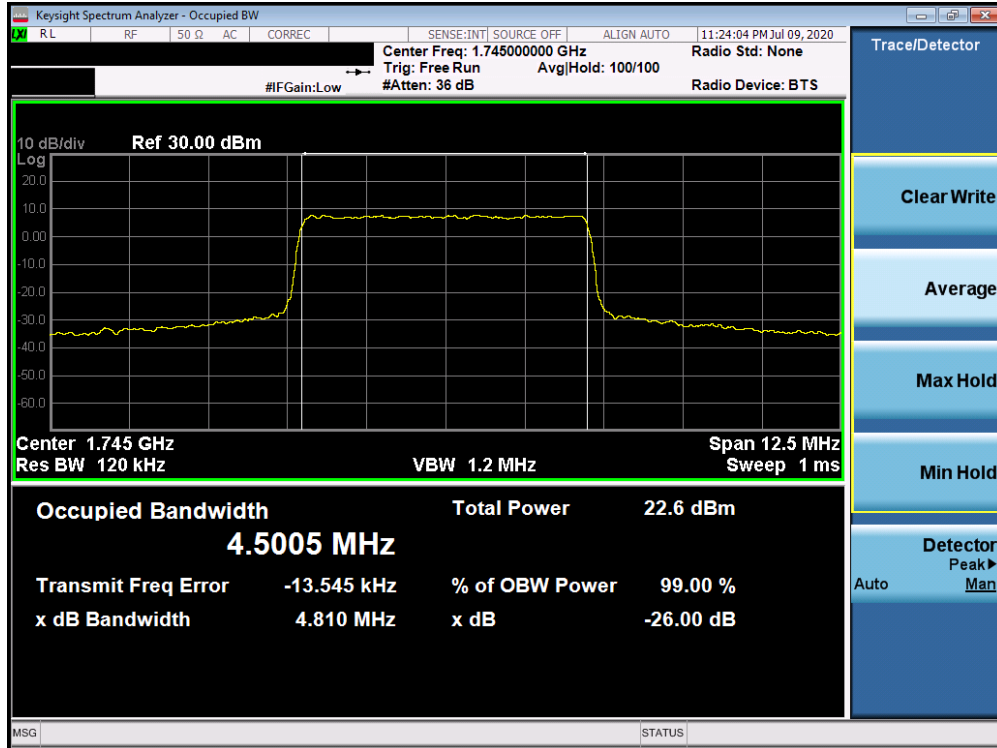


Plot 7-84. Occupied Bandwidth Plot (n66 5MHz BPSK-DFT-s-OFDM - Full RB Configuration)

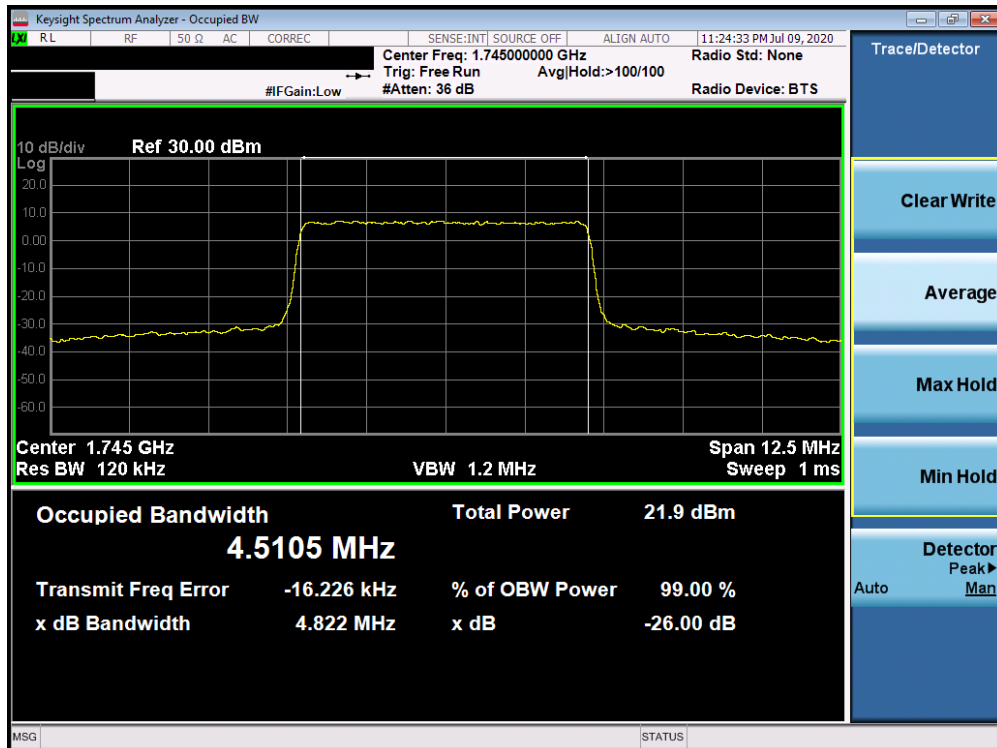


Plot 7-85. Occupied Bandwidth Plot (n66 5MHz QPSK-CP-OFDM - Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 61 of 509



Plot 7-86. Occupied Bandwidth Plot (n66 5MHz 16QAM-CP-OFDM - Full RB Configuration)



Plot 7-87. Occupied Bandwidth Plot (n66 5MHz 64QAM-CP-OFDM- Full RB Configuration)

FCC ID: ZNFG900TM	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	LG	Approved by: Quality Manager
Test Report S/N: 1M2005180086-03.ZNF	Test Dates: 05/29 - 07/16/2020	EUT Type: Portable Handset		Page 62 of 509