



PART 27 MEASUREMENT REPORT

Applicant Name:

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

Date of Testing:

6/2/2021 - 8/15/2021

Test Site/Location:

PCTEST Morgan Hill, CA, USA

Test Report Serial No.:

1C2106080049-05-R1.BCG

FCC ID:

BCGA2568

Applicant Name:

Apple Inc.

Application Type:

Certification

Model:

A2568(A2569)

EUT Type:

Tablet Device

FCC Classification:

PCS Licensed Transmitter (PCB)

FCC Rule Part:

27

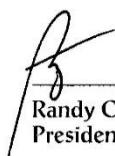
Test Procedure(s):

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

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

This revised Test Report (S/N: 1C2106080049-05-R1.BCG Report SNs) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.



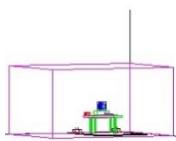
 Randy Ortanez
 President


FCC ID: BCGA2568	PCTEST <small>Proud to be part of element</small>		PART 27 MEASUREMENT REPORT	Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device		Page 1 of 171

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Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	OBW [MHz]	PAR at 0.1% [dB]	EIRP		Emission Designator
						Max. Power [W]	Max. Power [dBm]	
NR Band n77 (PC2) (3450 - 3550MHz)	20 MHz	T12-PSK	3460.0 - 3540.0	18.120	4.24	0.759	28.80	18MIG7W
		QPSK	3460.0 - 3540.0	18.444	4.31	0.759	28.80	18MIG7W
		16QAM	3460.0 - 3540.0	18.445	5.20	0.656	28.17	18MD7W
		64QAM	3460.0 - 3540.0	18.416	5.57	0.510	27.07	18MD7W
		256QAM	3460.0 - 3540.0	18.329	6.46	0.397	25.98	18MD7W
	30MHz	T12-BPSK	3465.0 - 3535.0	26.929	3.42	0.755	28.78	26MBG7W
		QPSK	3465.0 - 3535.0	28.114	4.42	0.759	28.80	28MIG7W
		16QAM	3465.0 - 3535.0	28.149	5.31	0.673	28.28	28MD7W
		64QAM	3465.0 - 3535.0	28.052	5.49	0.471	26.73	28MD7W
		256QAM	3465.0 - 3535.0	28.061	6.38	0.315	24.98	28MD7W
	40 MHz	T12-BPSK	3470.0 - 3530.0	35.824	3.33	0.759	28.80	35MBG7W
		QPSK	3470.0 - 3530.0	38.108	4.41	0.756	28.79	38MIG7W
		16QAM	3470.0 - 3530.0	38.110	5.21	0.656	28.17	38MD7W
		64QAM	3470.0 - 3530.0	38.211	5.57	0.497	26.96	38MD7W
		256QAM	3470.0 - 3530.0	37.990	6.52	0.316	25.00	38MD7W
	50 MHz	T12-BPSK	3475.0 - 3525.0	45.849	3.50	0.754	28.78	45MBG7W
		QPSK	3475.0 - 3525.0	47.916	4.46	0.759	28.80	47MIG7W
		16QAM	3475.0 - 3525.0	47.910	5.20	0.665	28.23	47MD7W
		64QAM	3475.0 - 3525.0	47.831	5.67	0.478	26.80	47MD7W
		256QAM	3475.0 - 3525.0	47.701	6.46	0.310	24.91	47MD7W
	60 MHz	T12-BPSK	3480.0 - 3520.0	58.146	3.66	0.745	28.72	58MIG7W
		QPSK	3480.0 - 3520.0	58.083	4.55	0.759	28.80	58MIG7W
		16QAM	3480.0 - 3520.0	58.496	5.36	0.647	28.11	58MD7W
		64QAM	3480.0 - 3520.0	58.082	5.75	0.497	26.96	58MD7W
		256QAM	3480.0 - 3520.0	58.262	6.58	0.320	25.06	58MD7W
	70 MHz	T12-BPSK	3485.0 - 3515.0	64.745	3.66	0.757	28.79	64MIG7W
		QPSK	3485.0 - 3515.0	68.003	4.56	0.759	28.80	68MDG7W
		16QAM	3485.0 - 3515.0	67.815	5.38	0.644	28.09	67MD7W
		64QAM	3485.0 - 3515.0	68.071	5.74	0.467	26.69	68MD7W
		256QAM	3485.0 - 3515.0	67.730	6.58	0.301	24.78	67MD7W
	80 MHz	T12-BPSK	3490.0 - 3510.0	77.491	3.81	0.759	28.80	77MBG7W
		QPSK	3490.0 - 3510.0	77.971	4.61	0.738	28.68	78MDG7W
		16QAM	3490.0 - 3510.0	77.944	5.44	0.691	28.39	77MD7W
		64QAM	3490.0 - 3510.0	77.915	5.77	0.534	27.27	77MD7W
		256QAM	3490.0 - 3510.0	77.964	6.62	0.330	25.19	78MD7W
	90 MHz	T12-BPSK	3495.0 - 3505.0	85.922	3.54	0.759	28.80	85MBG7W
		QPSK	3495.0 - 3505.0	88.024	4.43	0.753	28.77	88MDG7W
		16QAM	3495.0 - 3505.0	87.972	5.40	0.643	28.08	88MD7W
		64QAM	3495.0 - 3505.0	88.018	5.73	0.498	26.97	88MD7W
		256QAM	3495.0 - 3505.0	87.854	6.57	0.294	24.68	87MD7W
	100 MHz	T12-BPSK	3500	96.948	3.62	0.754	28.78	96MBG7W
		QPSK	3500	98.081	4.68	0.759	28.80	98MIG7W
		16QAM	3500	98.263	5.42	0.670	28.26	98MD7W
		64QAM	3500	98.132	5.83	0.466	26.68	98MD7W
		256QAM	3500	97.925	6.65	0.297	24.72	97MD7W
NR Band n77 (PC3) (3450 - 3550MHz)	20 MHz	T12-BPSK	3460.0 - 3540.0	18.120	3.83	0.676	28.30	18MIG7W
		QPSK	3460.0 - 3540.0	18.444	5.14	0.643	28.09	18MIG7W
		16QAM	3460.0 - 3540.0	18.445	6.12	0.479	26.81	18MD7W
		64QAM	3460.0 - 3540.0	18.416	6.36	0.449	26.53	18MD7W
		256QAM	3460.0 - 3540.0	18.329	6.75	0.284	24.54	18MD7W
	30MHz	T12-BPSK	3465.0 - 3535.0	26.929	4.36	0.676	28.30	26MBG7W
		QPSK	3465.0 - 3535.0	28.114	5.26	0.663	28.21	28MIG7W
		16QAM	3465.0 - 3535.0	28.149	6.06	0.556	27.45	28MD7W
		64QAM	3465.0 - 3535.0	28.052	6.37	0.370	25.68	28MD7W
		256QAM	3465.0 - 3535.0	28.061	6.78	0.226	23.54	28MD7W
	40 MHz	T12-BPSK	3470.0 - 3530.0	35.824	3.90	0.671	28.27	35MBG7W
		QPSK	3470.0 - 3530.0	38.108	5.05	0.676	28.30	38MIG7W
		16QAM	3470.0 - 3530.0	38.110	6.06	0.556	27.45	38MD7W
		64QAM	3470.0 - 3530.0	38.211	6.33	0.429	26.33	38MD7W
		256QAM	3470.0 - 3530.0	37.990	6.74	0.233	23.66	38MD7W
	50 MHz	T12-BPSK	3475.0 - 3525.0	45.849	4.13	0.676	28.30	45MBG7W
		QPSK	3475.0 - 3525.0	47.916	5.31	0.643	28.09	47MIG7W
		16QAM	3475.0 - 3525.0	47.910	6.03	0.479	26.81	47MD7W
		64QAM	3475.0 - 3525.0	47.831	6.53	0.374	25.73	47MD7W
		256QAM	3475.0 - 3525.0	47.701	6.85	0.206	23.14	47MD7W
	60 MHz	T12-BPSK	3480.0 - 3520.0	58.146	4.31	0.650	28.13	58MIG7W
		QPSK	3480.0 - 3520.0	58.083	5.34	0.676	28.30	58MIG7W
		16QAM	3480.0 - 3520.0	58.496	6.21	0.519	27.15	58MD7W
		64QAM	3480.0 - 3520.0	58.052	6.50	0.463	26.66	58MD7W
		256QAM	3480.0 - 3520.0	58.262	6.75	0.291	24.64	58MD7W
	70 MHz	T12-BPSK	3485.0 - 3515.0	64.745	4.18	0.655	28.16	64MIG7W
		QPSK	3485.0 - 3515.0	68.003	5.13	0.676	28.30	68MDG7W
		16QAM	3485.0 - 3515.0	67.815	6.03	0.522	27.17	67MD7W
		64QAM	3485.0 - 3515.0	68.071	6.48	0.452	26.55	68MD7W
		256QAM	3485.0 - 3515.0	67.730	6.74	0.281	24.48	67MD7W
	80 MHz	T12-BPSK	3490.0 - 3510.0	77.491	3.88	0.676	28.30	77MBG7W
		QPSK	3490.0 - 3510.0	77.971	5.12	0.672	28.28	78MDG7W
		16QAM	3490.0 - 3510.0	77.944	6.06	0.492	26.92	77MD7W
		64QAM	3490.0 - 3510.0	77.915	6.46	0.438	26.42	77MD7W
		256QAM	3490.0 - 3510.0	77.964	6.72	0.278	24.44	78MD7W
	90 MHz	T12-BPSK	3495.0 - 3505.0	85.922	4.21	0.676	28.30	85MBG7W
		QPSK	3495.0 - 3505.0	88.024	5.25	0.650	28.13	88MDG7W
		16QAM	3495.0 - 3505.0	87.972	6.18	0.502	27.00	88MD7W
		64QAM	3495.0 - 3505.0	88.018	6.41	0.449	26.53	88MD7W
		256QAM	3495.0 - 3505.0	87.854	6.73	0.284	24.54	87MD7W
	100 MHz	T12-BPSK	3500	96.948	4.27	0.645	28.10	96MBG7W
		QPSK	3500	98.081	5.29	0.676	28.30	98MIG7W
		16QAM	3500	98.263	6.04	0.535	27.29	98MD7W
		64QAM	3500	98.132	6.40	0.477	26.78	98MD7W
		256QAM	3500	97.925	6.77	0.304	24.83	97MD7W

EUT Overview

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Test Report S/N: 1C210608049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 3 of 171	

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Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	OBW [MHz]	PAR at 0.1% [dB]	EIRP		Emission Designator
						Max. Power [W]	Max. Power [dBm]	
NR Band n77 (PC2) (3700 - 3980MHz)	20 MHz	1/2 BPSK	3710.0 - 3970.0	17.984	4.17	0.753	28.77	18M0G7W
		QPSK	3710.0 - 3970.0	18.369	5.31	0.759	28.80	18M4G7W
		16QAM	3710.0 - 3970.0	18.354	5.56	0.711	28.52	18M4D7W
		64QAM	3710.0 - 3970.0	18.351	5.85	0.566	27.53	18M4D7W
		256QAM	3710.0 - 3970.0	18.334	6.47	0.365	25.63	18M0D7W
	30MHz	1/2 BPSK	3715.0 - 3965.0	27.014	4.76	0.759	28.80	27M0G7W
		QPSK	3715.0 - 3965.0	27.945	5.33	0.757	28.79	27M0G7W
		16QAM	3715.0 - 3965.0	28.042	6.17	0.655	28.16	28M0D7W
		64QAM	3715.0 - 3965.0	28.022	6.35	0.543	27.35	28M0D7W
		256QAM	3715.0 - 3965.0	27.997	6.99	0.343	25.36	28M0D7W
NR Band n77 (PC2) (3700 - 3980MHz)	40 MHz	1/2 BPSK	3720.0 - 3960.0	36.005	4.14	0.758	28.80	36M0G7W
		QPSK	3720.0 - 3960.0	38.020	6.04	0.759	28.80	38M0G7W
		16QAM	3720.0 - 3960.0	38.080	6.22	0.638	28.05	38M1D7W
		64QAM	3720.0 - 3960.0	37.957	6.77	0.497	26.96	38M0D7W
		256QAM	3720.0 - 3960.0	38.005	6.77	0.374	25.73	38M0D7W
	50 MHz	1/2 BPSK	3725.0 - 3955.0	45.937	3.99	0.757	28.79	45M0G7W
		QPSK	3725.0 - 3955.0	47.843	5.38	0.759	28.80	47M0G7W
		16QAM	3725.0 - 3955.0	47.854	5.95	0.680	28.33	47M0D7W
		64QAM	3725.0 - 3955.0	47.566	6.45	0.545	27.36	47M0D7W
		256QAM	3725.0 - 3955.0	47.736	6.72	0.313	24.98	47M0D7W
NR Band n77 (PC2) (3700 - 3980MHz)	60 MHz	1/2 BPSK	3730.0 - 3950.0	58.196	4.47	0.751	28.76	58M2G7W
		QPSK	3730.0 - 3950.0	58.382	4.91	0.759	28.80	58M4G7W
		16QAM	3730.0 - 3950.0	58.402	6.02	0.664	28.22	58M4D7W
		64QAM	3730.0 - 3950.0	58.224	6.29	0.620	27.92	58M2D7W
		256QAM	3730.0 - 3950.0	58.054	6.68	0.319	25.04	58M1D7W
	70 MHz	1/2 BPSK	3735.0 - 3945.0	64.699	4.24	0.750	28.75	64M0G7W
		QPSK	3735.0 - 3945.0	67.881	4.64	0.759	28.80	67M0G7W
		16QAM	3735.0 - 3945.0	67.785	5.98	0.637	28.04	67M0D7W
		64QAM	3735.0 - 3945.0	67.864	6.36	0.510	27.07	67M0D7W
		256QAM	3735.0 - 3945.0	67.828	6.53	0.278	24.43	67M0D7W
NR Band n77 (PC2) (3700 - 3980MHz)	80 MHz	1/2 BPSK	3740.0 - 3940.0	77.364	3.82	0.752	28.76	77M0G7W
		QPSK	3740.0 - 3940.0	77.819	4.65	0.759	28.80	77M0G7W
		16QAM	3740.0 - 3940.0	78.075	5.91	0.678	28.31	78M1D7W
		64QAM	3740.0 - 3940.0	77.920	6.25	0.636	28.04	77M0D7W
		256QAM	3740.0 - 3940.0	77.666	6.39	0.335	25.25	77M0D7W
	90 MHz	1/2 BPSK	3745.0 - 3935.0	87.535	3.73	0.757	28.79	87M0G7W
		QPSK	3745.0 - 3935.0	88.146	5.04	0.759	28.80	88M1G7W
		16QAM	3745.0 - 3935.0	88.029	6.23	0.636	28.03	88M0D7W
		64QAM	3745.0 - 3935.0	88.101	6.51	0.468	26.70	88M1D7W
		256QAM	3745.0 - 3935.0	87.740	6.53	0.278	24.44	87M0D7W
NR Band n77 (PC3) (3700 - 3980MHz)	100 MHz	1/2 BPSK	3750.0 - 3930.0	97.165	4.15	0.745	28.72	97M2G7W
		QPSK	3750.0 - 3930.0	98.165	5.33	0.759	28.80	98M2G7W
		16QAM	3750.0 - 3930.0	97.819	6.48	0.637	28.04	97M0D7W
		64QAM	3750.0 - 3930.0	97.809	6.56	0.505	27.03	97M0D7W
		256QAM	3750.0 - 3930.0	97.910	6.78	0.365	25.63	97M0D7W
	20 MHz	1/2 BPSK	3710.0 - 3970.0	17.984	4.17	0.676	28.30	18M0G7W
		QPSK	3710.0 - 3970.0	18.369	5.31	0.674	28.28	18M4G7W
		16QAM	3710.0 - 3970.0	18.354	5.56	0.638	28.05	18M4D7W
		64QAM	3710.0 - 3970.0	18.353	5.85	0.421	26.24	18M4D7W
		256QAM	3710.0 - 3970.0	18.330	6.47	0.264	24.22	18M0D7W
NR Band n77 (PC3) (3700 - 3980MHz)	30MHz	1/2 BPSK	3715.0 - 3965.0	27.014	4.76	0.676	28.30	27M0G7W
		QPSK	3715.0 - 3965.0	27.945	5.33	0.668	28.25	27M0G7W
		16QAM	3715.0 - 3965.0	28.042	6.17	0.541	27.33	28M0D7W
		64QAM	3715.0 - 3965.0	28.022	6.35	0.434	26.38	28M0D7W
		256QAM	3715.0 - 3965.0	27.997	6.99	0.269	24.30	28M0D7W
	40 MHz	1/2 BPSK	3720.0 - 3960.0	36.005	4.14	0.667	28.24	36M0G7W
		QPSK	3720.0 - 3960.0	38.020	6.04	0.676	28.30	38M0G7W
		16QAM	3720.0 - 3960.0	38.082	6.22	0.655	27.52	38M1D7W
		64QAM	3720.0 - 3960.0	37.952	6.77	0.420	26.23	38M0D7W
		256QAM	3720.0 - 3960.0	38.005	6.77	0.249	23.97	38M0D7W
NR Band n77 (PC3) (3700 - 3980MHz)	50 MHz	1/2 BPSK	3725.0 - 3955.0	45.937	3.99	0.676	28.30	45M0G7W
		QPSK	3725.0 - 3955.0	47.843	5.38	0.674	28.29	47M0G7W
		16QAM	3725.0 - 3955.0	47.854	5.95	0.540	27.32	47M0D7W
		64QAM	3725.0 - 3955.0	47.566	6.45	0.414	26.17	47M0D7W
		256QAM	3725.0 - 3955.0	47.736	6.72	0.231	23.64	47M0D7W
	60 MHz	1/2 BPSK	3730.0 - 3950.0	58.196	4.47	0.640	28.06	58M2G7W
		QPSK	3730.0 - 3950.0	58.382	4.91	0.676	28.30	58M0G7W
		16QAM	3730.0 - 3950.0	58.402	6.02	0.650	27.48	58M4D7W
		64QAM	3730.0 - 3950.0	58.224	6.29	0.393	25.95	58M2D7W
		256QAM	3730.0 - 3950.0	58.054	6.68	0.246	23.90	58M1D7W
NR Band n77 (PC3) (3700 - 3980MHz)	70 MHz	1/2 BPSK	3735.0 - 3945.0	64.690	4.24	0.666	28.23	64M0G7W
		QPSK	3735.0 - 3945.0	67.881	4.64	0.676	28.30	67M0G7W
		16QAM	3735.0 - 3945.0	67.785	5.98	0.570	27.56	67M0D7W
		64QAM	3735.0 - 3945.0	67.864	6.36	0.390	25.91	67M0D7W
		256QAM	3735.0 - 3945.0	67.828	6.53	0.238	23.77	67M0D7W
	80 MHz	1/2 BPSK	3740.0 - 3940.0	77.364	3.82	0.676	28.30	77M0G7W
		QPSK	3740.0 - 3940.0	77.819	4.65	0.674	28.28	77M0G7W
		16QAM	3740.0 - 3940.0	78.075	5.91	0.550	27.40	78M1D7W
		64QAM	3740.0 - 3940.0	77.920	6.25	0.400	26.02	77M0D7W
		256QAM	3740.0 - 3940.0	77.666	6.39	0.235	23.71	77M0D7W
NR Band n77 (PC3) (3700 - 3980MHz)	90 MHz	1/2 BPSK	3745.0 - 3935.0	87.535	3.73	0.666	28.23	87M0G7W
		QPSK	3745.0 - 3935.0	88.146	5.04	0.672	28.27	88M1G7W
		16QAM	3745.0 - 3935.0	88.029	6.23	0.614	27.88	88M0D7W
		64QAM	3745.0 - 3935.0	88.101	6.51	0.414	26.17	88M1D7W
		256QAM	3745.0 - 3935.0	87.740	6.53	0.238	23.76	87M0D7W
	100 MHz	1/2 BPSK	3750.0 - 3930.0	97.165	4.15	0.676	28.30	97M2G7W
		QPSK	3750.0 - 3930.0	98.165	5.33	0.674	28.29	98M2G7W
		16QAM	3750.0 - 3930.0	97.819	6.48	0.440	26.43	97M0D7W
		64QAM	3750.0 - 3930.0	97.809	6.56	0.420	26.23	97M0D7W
		256QAM	3750.0 - 3930.0	97.910	6.78	0.238	23.77	97M0D7W

EUT Overview

1.0 INTRODUCTION

1.1 Scope

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

1.2 PCTEST Test Location

These measurement tests were conducted at the PCTEST facility located at 18855 Adams Court, Morgan Hill, CA 95037. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014 and KDB 414788 D01 v01r01.

1.3 Test Facility / Accreditations

Measurements were performed at PCTEST located in Morgan Hill, CA 95037, U.S.A.

- PCTEST is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.02 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).
- PCTEST facility is a registered (22831) test laboratory with the site description on file with ISED.

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Apple Tablet Device FCC ID:BCGA2568**. The test data contained in this report pertains only to the emissions due to the EUT's licensed transmitters that operate under the provisions of Part 27.

Test Device Serial No.: DG7QPQX0RY, GL6FX203DX, DLX121200630NC43Y

2.2 Device Capabilities

This device contains the following capabilities:

WCDMA/HSPA, Multi-band LTE, Multi-band 5G NR (FR1), 802.11b/g/n/ax WLAN, 802.11a/n/ax UNII, Bluetooth (1x, EDR, LE1M, LE2M, HDR4, HDR8), WPT

This device supports BT Beamforming

This device supports simultaneous transmission operations, which allows for multiple transmitters to transmit simultaneously on the same antenna. The table below shows all configurations possible.

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

Table 2-1. Simultaneous Transmission Configurations

✓ = Support; ✗ = Not Support

Note:

All the above simultaneous transmission configurations have been tested and the worst case configuration was found to be Config 2 and reported in Bluetooth and Part 96 test reports.

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2.3 Antenna Description

Following antenna gains provided by manufacturer were used for testing.

Band	Antennas			
	Antenna 3a	Antenna 2	Antenna 4	Antenna 1a
NR Band n77	2.6	-1	1.1	0.1

Table 2-2. Highest Antenna Gain

2.4 Test Support Equipment

1	Apple MacBook Pro w/AC/DC Adapter	Model: A2141 Model: A2166	S/N: C02DV7VKMD6T S/N: N/A
2	Apple USB-C Cable	Model: Chimp	S/N: 420A57
3	USB-C Cable w/ AC/DC Adapter	Model: A146 Model: A2305	S/N: N/A S/N: N/A
4	Apple Pencil	Model: N/A	S/N: GQXYGSXBJKM9
5	DC Power Supply	Model: KPS3010D	S/N: N/A

Table 2-3. Test Support Equipment

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2.5 Test Configuration

The EUT was tested per the guidance of ANSI C63.26 2015, TIA-603-E-2016 and KDB 971168 D01 v03r01. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

For emissions from 1GHz – 18GHz, low, mid, and high channels were tested with highest power and worst case configuration. The emissions below 1GHz and above 18GHz were tested with the highest transmitting power and the worst case channel.

The EUT was manipulated through three orthogonal planes of X-orientation (flatbed), Y-orientation (landscape), and Z-orientation (portrait) during the testing. Only the worst case emissions were reported in this test report.

2.6 Software and Firmware

The test was conducted with firmware version 19A310b installed on the EUT.

2.7 EMI Suppression Device(s)/Modifications

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

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3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedures described in the “Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards” (ANSI C63.26 2015, TIA-603-E-2016) and “Measurement Guidance for Certification of Licensed Digital Transmitters” (KDB 971168 D01 v03r01) were used in the measurement of the EUT.

Deviation from Measurement Procedure.....None

3.2 Radiated Spurious Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. For measurements below 1GHz, the absorbers are removed. A raised turntable is used for radiated measurement. The turn table is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm tall test table made of Styrodur is placed on top of the turn table. A Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable 3 meters from the receive antenna. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer.

For radiated spurious emissions measurements and calculations, conversion method is used per the formulas in KDB 971168 Section 5.8.4. Field Strength (EIRP) is calculated using the following formulas:

$$E_{\text{dB}\mu\text{V/m}} = \text{Measured amplitude level}_{\text{dBm}} + 107 + \text{Cable Loss}_{\text{dB}} + \text{Antenna Factor}_{\text{dB/m}}$$

And

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

All radiated measurements are performed in a chamber that meets the site requirements per ANSI C63.4-2014.

Per KDB 414788 D01 v01r01, radiated emission test sites other than open-field test sites (e.g., shielded anechoic chambers), may be employed for emission measurements below 30MHz if characterized so that the measurements correspond to those obtained at an open-field test site. To determine test site equivalency, a reference sample transmitting at 149kHz was measured on an open field test site (asphalt with no ground plane) and then measured in the 3m semi-anechoic chamber. A calibrated 60cm loop antenna was used while the reference device was rotated through the X, Y and Z axis in order to capture the worst case level. A maximum deviation of 2.77dB at 149kHz was measured when comparing the 3 meter semi-anechoic chamber to the open field site.

Radiated spurious emission levels are investigated with the receive antenna horizontally and vertically polarized per ANSI C63.26-2015 and TIA-603-E-2016.

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4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.23-2012. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty (\pm dB)
Conducted Bench Top Measurements	1.65
Radiated Disturbance (<30MHz)	4.06
Radiated Disturbance (30MHz-1GHz)	4.30
Radiated Disturbance (1-18GHz)	4.78
Radiated Disturbance (>18GHz)	4.79

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5.0 TEST EQUIPMENT CALIBRATION DATA

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

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent Technologies	N9030A	3Hz-44GHz PXA Signal Analyzer	3/31/2021	Annual	3/31/2022	MY49430244
ATM	180-442A-KF	20dB Nominal Gain Horn Antenna	12/1/2020	Annual	12/1/2021	T058701-02
ETS-Lindgren	3142E	BiConiLog Antenna (30MHz - 6GHz)	9/15/2020	Annual	9/15/2021	208204
ETS-Lindgren	3117	Double Ridged Guide Antenna (1-18 GHz)	11/4/2020	Annual	11/4/2021	227597
ESPEC	SU-241	Tabletop Temperature Chamber	9/28/2020	Annual	9/28/2021	92009574
ETS-Lindgren	3142E	BiConiLog Antenna (30MHz - 6GHz)	9/15/2020	Annual	9/15/2021	208204
ETS-Lindgren	3117	Double Ridged Guide Antenna (1-18 GHz)	11/4/2020	Annual	11/4/2021	227597
Keysight Technology	N9040B	UXA Signal Analyzer	12/19/2020	Annual	12/19/2021	MY57212015
Rohde & Schwarz	TS-PR8	Pre-Amplifier (30MHz - 8GHz)	12/3/2020	Annual	12/3/2021	102327
Rohde & Schwarz	TS-PR18	Pre-Amplifier (1GHz - 18GHz)	12/3/2020	Annual	12/3/2021	101648
Rohde & Schwarz	FSV40	Signal Analyzer (10Hz-40GHz)	3/16/2021	Annual	3/16/2022	101619
Rohde & Schwarz	ESW26	EMI Test Receiver	6/11/2021	Annual	6/11/2022	101299
Rohde & Schwarz	ESW44	EMI Test Receiver	12/14/2020	Annual	12/14/2021	101867
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	10/13/2020	Annual	10/13/2021	161616
Rohde & Schwarz	CMW500	Wideband Radio Communication Tester	9/24/2020	Annual	9/24/2021	151888
Rohde & Schwarz	TS-PR1840	Pre-Amplifier (18GHz - 40GHz)	4/29/2021	Annual	4/29/2022	100051
Rohde & Schwarz	TC-TA18	Cross Polarized Vivaldi Antenna (400MHz-18GHz)	10/2/2020	Annual	10/2/2021	101063
Rohde & Schwarz	HFH2-Z2	Loop Antenna	4/5/2021	Annual	4/5/2022	100519

Table 5-1. Test Equipment

Notes:

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

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6.0 SAMPLE CALCULATIONS

Emission Designator

$\pi/2$ BPSK / QPSK Modulation

Emission Designator = 8M62G7W

BW = 8.62 MHz

G = Phase Modulation

7 = Quantized/Digital Info

W = Combination of Any

QAM Modulation

Emission Designator = 8M45D7W

BW = 8.45 MHz

D = Amplitude/Angle Modulated

7 = Quantized/Digital Info

W = Combination of Any

Spurious Radiated Emission

Example: Spurious emission at 3700.40 MHz

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

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7.0 TEST RESULTS

7.1 Summary

Company Name: Apple Inc.
 FCC ID: BCGA2568
 FCC Classification: PCS Licensed Transmitter (PCB)
 Mode(s): NR

Test Condition	Test Description	FCC Part Section(s)	Test Limit	Test Result	Reference
CONDUCTED	Occupied Bandwidth	2.1049	N/A	N/A	Section 7.2
	Conducted Band Edge / Spurious Emissions (NR Band n77 - 3450-3550MHz)	2.1051, 27.53(n)(2)	-13 dBm at Band Edge and for all out-of-band emissions	PASS	Sections 7.3, 7.4
	Conducted Band Edge / Spurious Emissions (NR Band n77 - 3700-3980MHz)	2.1051, 27.53(l)(2)		PASS	Sections 7.3, 7.4
	Peak-Average Ratio (NR Band n77 - 3450-3550MHz)	27.50(k)(4)	< 13 dB	PASS	Sections 7.5
	Peak-Average Ratio (NR Band n77 - 3700-3980MHz)	27.50(j)(4)		PASS	Sections 7.5
	Transmitter Conducted Output Power	2.1046	N/A	N/A	See RF Exposure Report
	Frequency Stability	2.1055, 27.54	Fundamental emissions stay within authorized frequency block	PASS	Section 7.8
RADIATED	Effective Radiated Power / Equivalent Isotropic Radiated Power (NR Band n77 - 3450-3550MHz)	27.50(k)(3)	< 1 Watts max. EIRP	PASS	Section 7.6
	Effective Radiated Power / Equivalent Isotropic Radiated Power (NR Band n77 - 3700-3980MHz)	27.50(j)(3)		PASS	Section 7.6
	Radiated Spurious Emissions (NR Band n77 - 3450-3550MHz)	2.1051, 27.53(n)(2)	-13 for all out-of-band emissions	PASS	Section 7.7
	Radiated Spurious Emissions (NR Band n77 - 3700-3980MHz)	2.1051, 27.53(l)(2)		PASS	Section 7.7

Table 7-1. Summary of Test Results

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Notes:

1. All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
2. The analyzer plots were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
3. All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.
4. All conducted emissions measurements are performed with automated test software to capture the corresponding plots necessary to show compliance. The measurement software utilized was PCTEST EMC Software Tool 1.0.

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7.2 Occupied Bandwidth

§2.1049

Test Overview

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

Test Procedure Used

KDB 971168 D01 v03r01 – Section 4.2

Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5% of the expected OBW
3. VBW \geq 3 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.

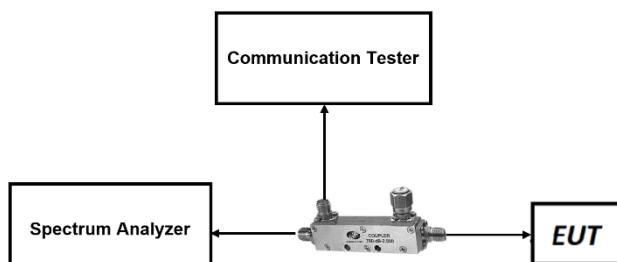
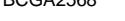


Figure 7-1. Test Instrument & Measurement Setup

Test Notes

None.

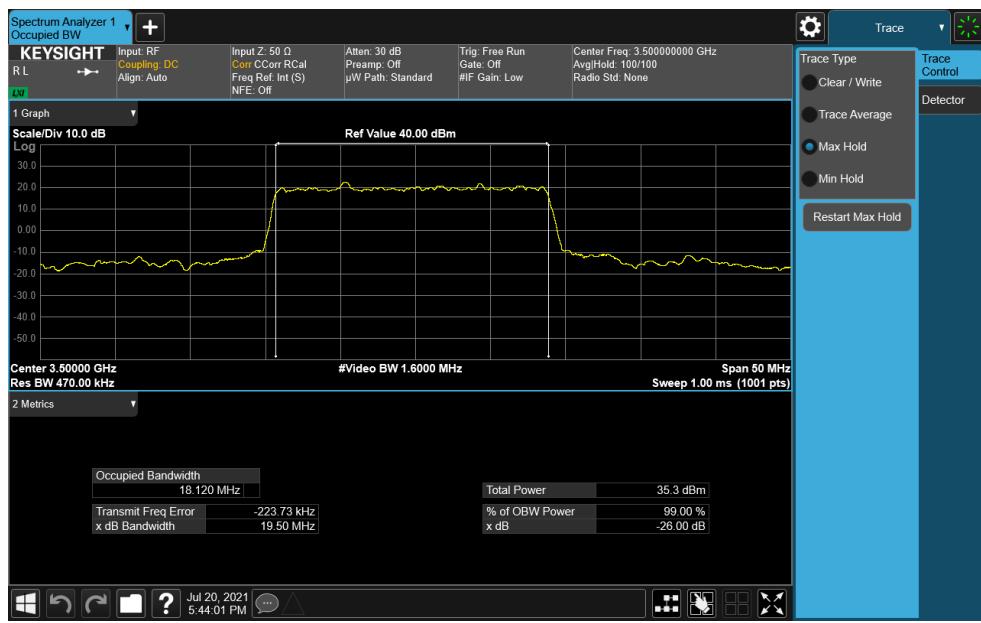
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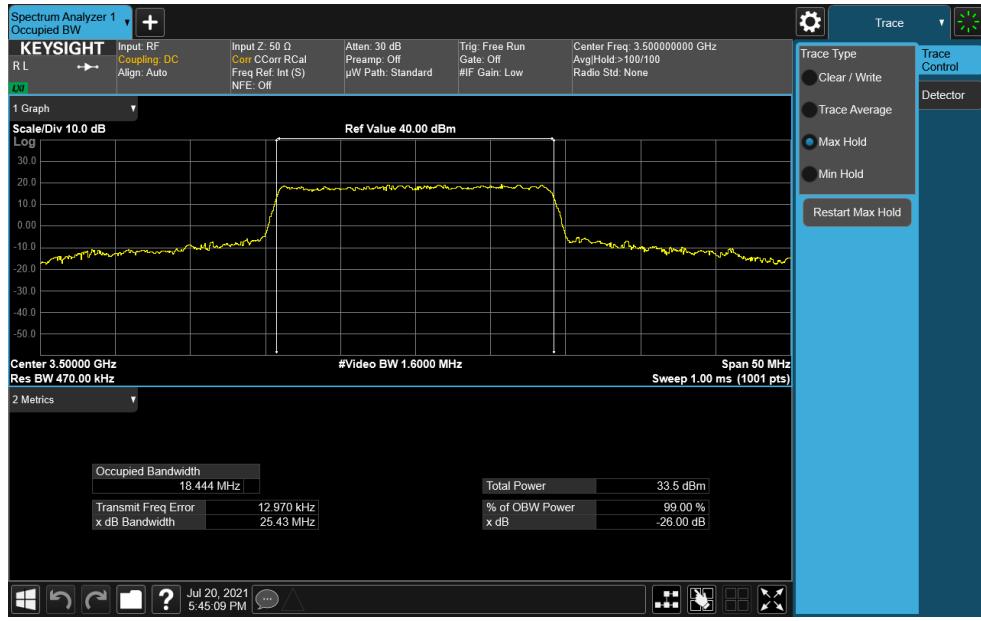
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NR Band n77 DoD-Band

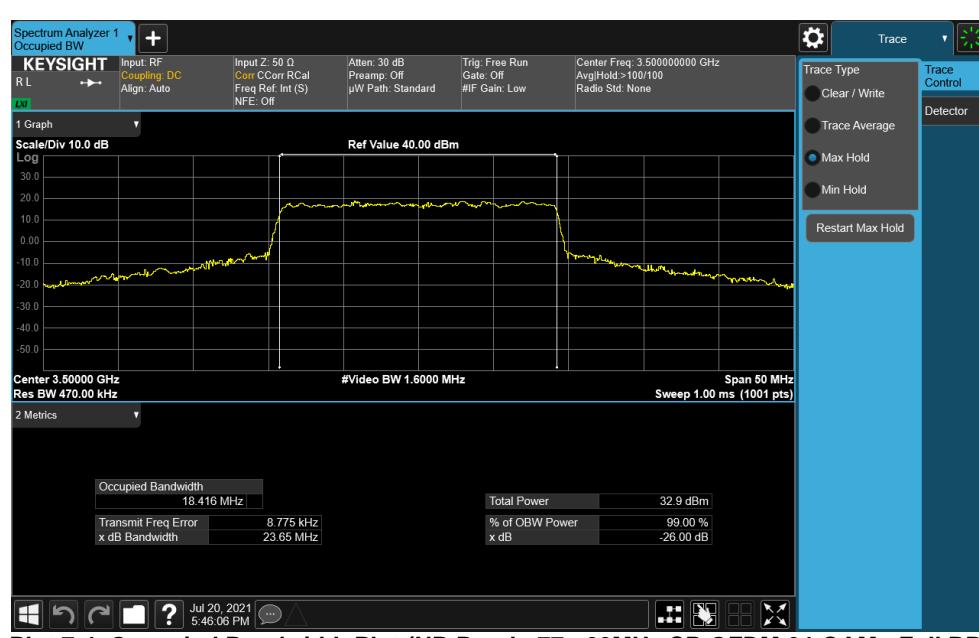
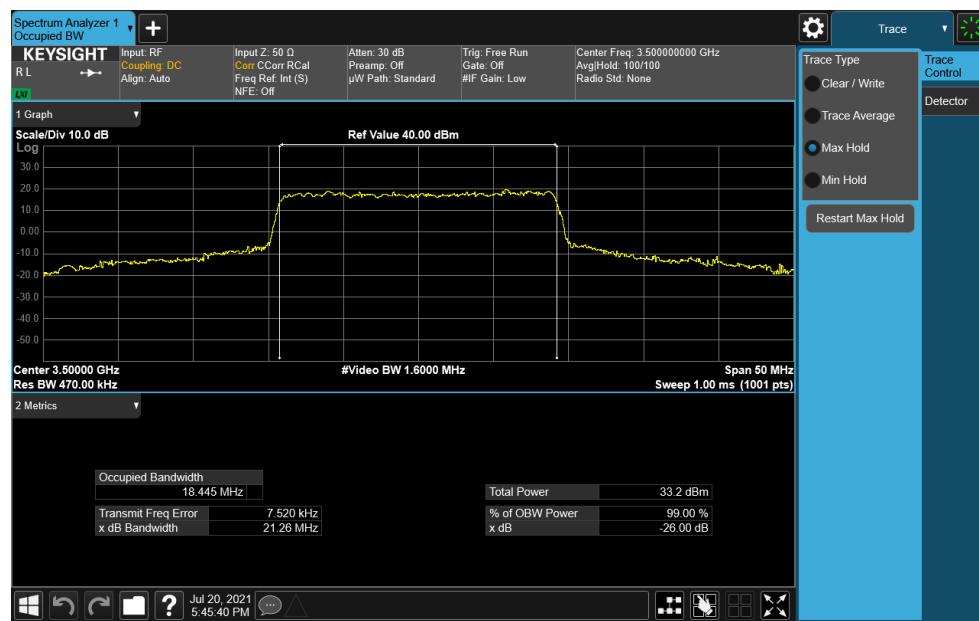


Plot 7-1. Occupied Bandwidth Plot (NR Band n77 - 20MHz DFT-s-OFDM π/2 BPSK - Full RB)

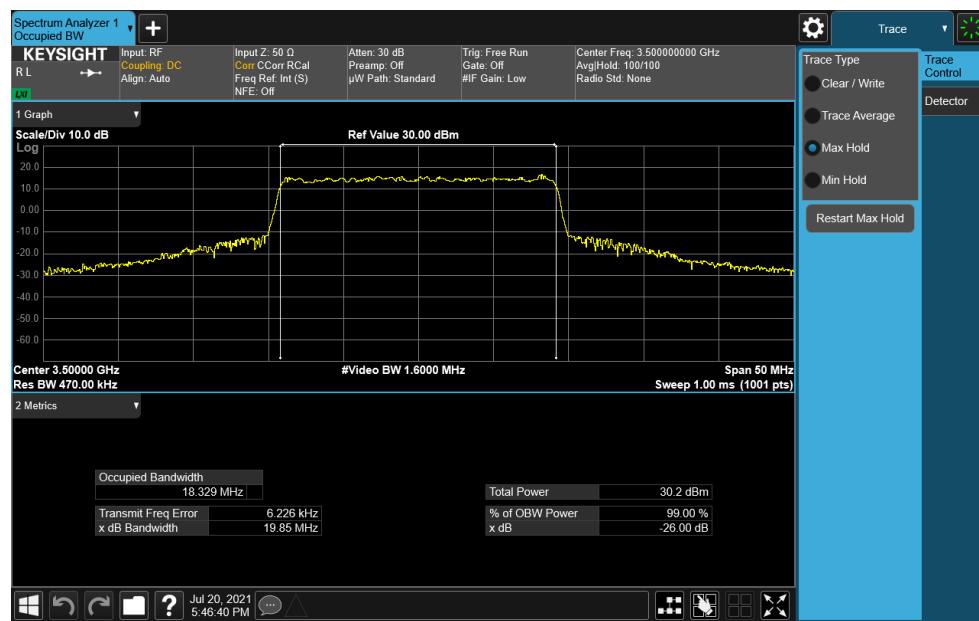


Plot 7-2. Occupied Bandwidth Plot (NR Band n77 - 20MHz CP-OFDM QPSK - Full RB)

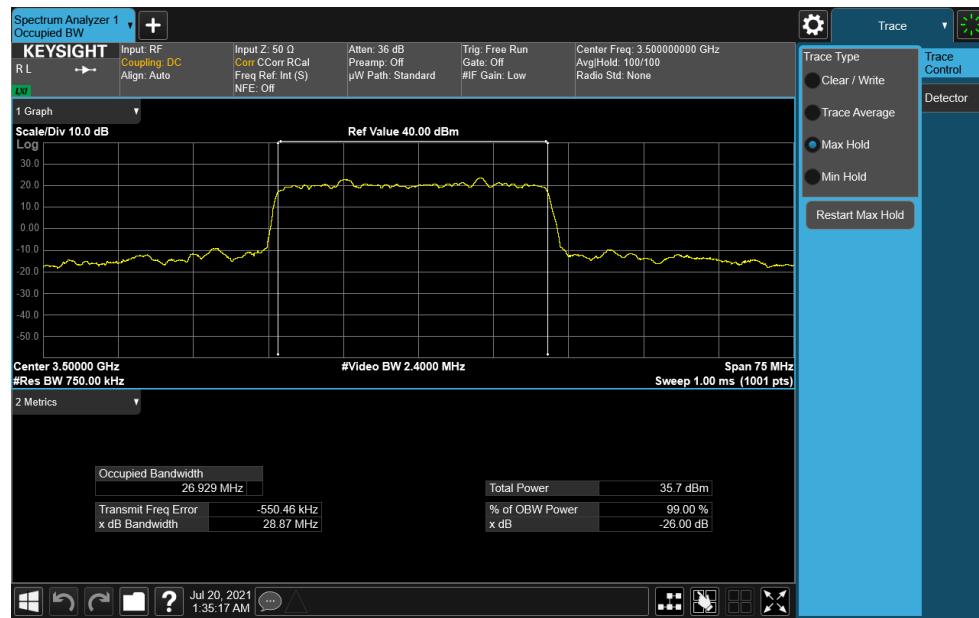
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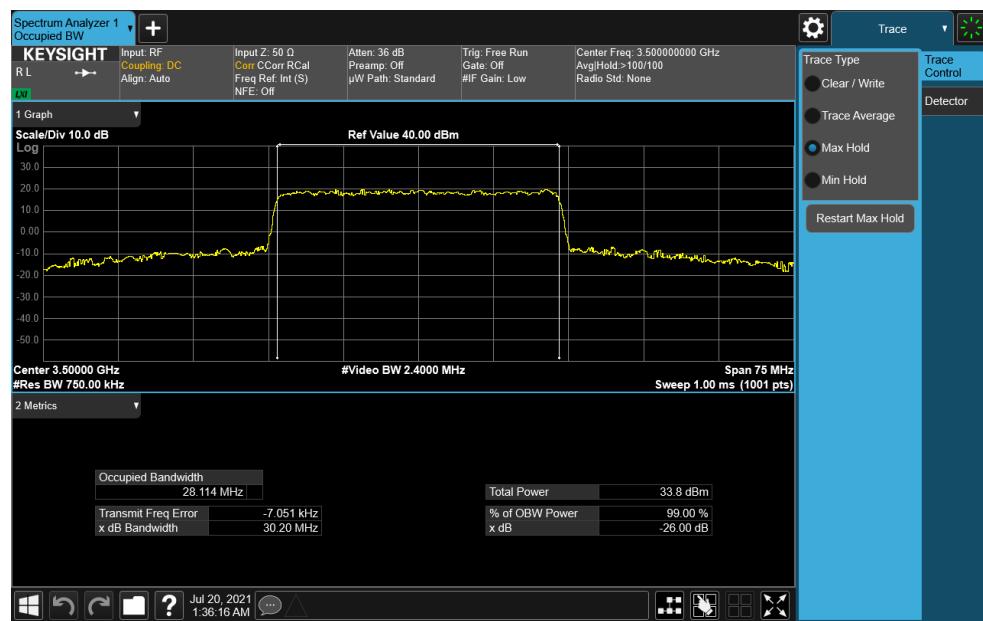


Plot 7-5. Occupied Bandwidth Plot (NR Band n77 - 20MHz CP-OFDM 256-QAM - Full RB)

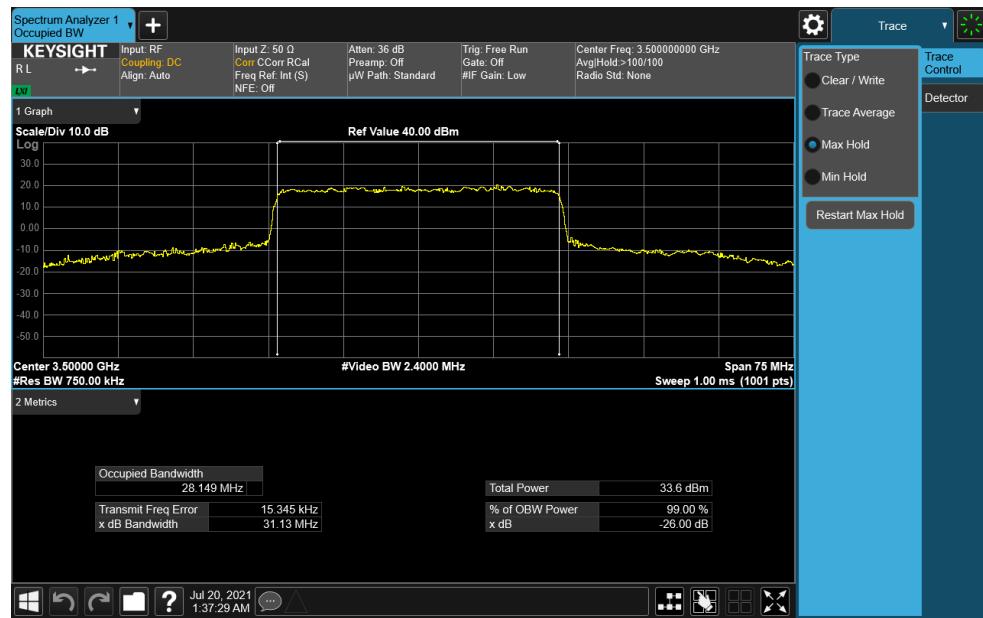


Plot 7-6. Occupied Bandwidth Plot (NR Band n77 - 30MHz DFT-s-OFDM π/2 BPSK - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 18 of 171

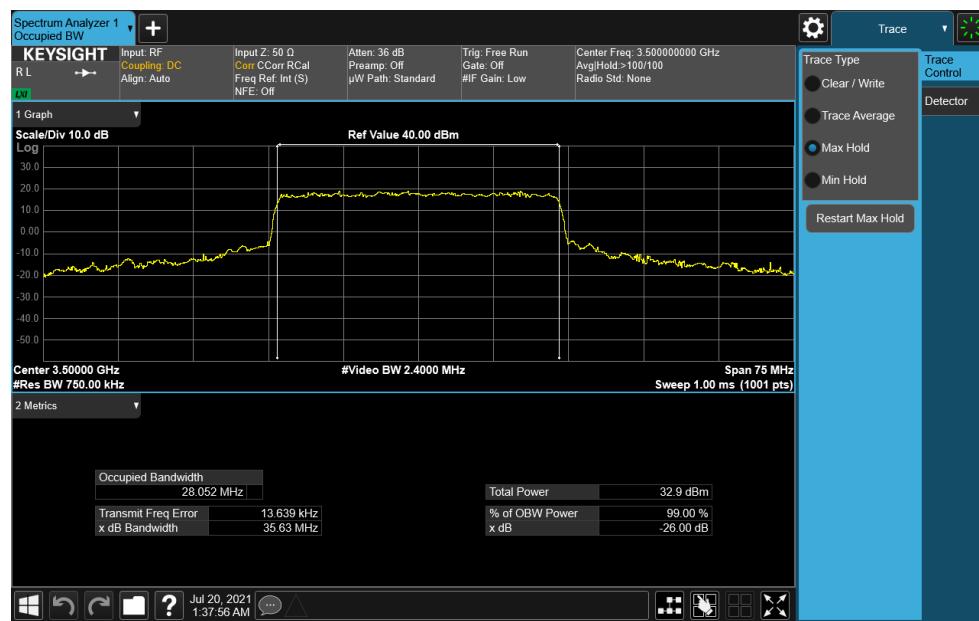


Plot 7-7. Occupied Bandwidth Plot (NR Band n77 - 30MHz CP-OFDM QPSK - Full RB)

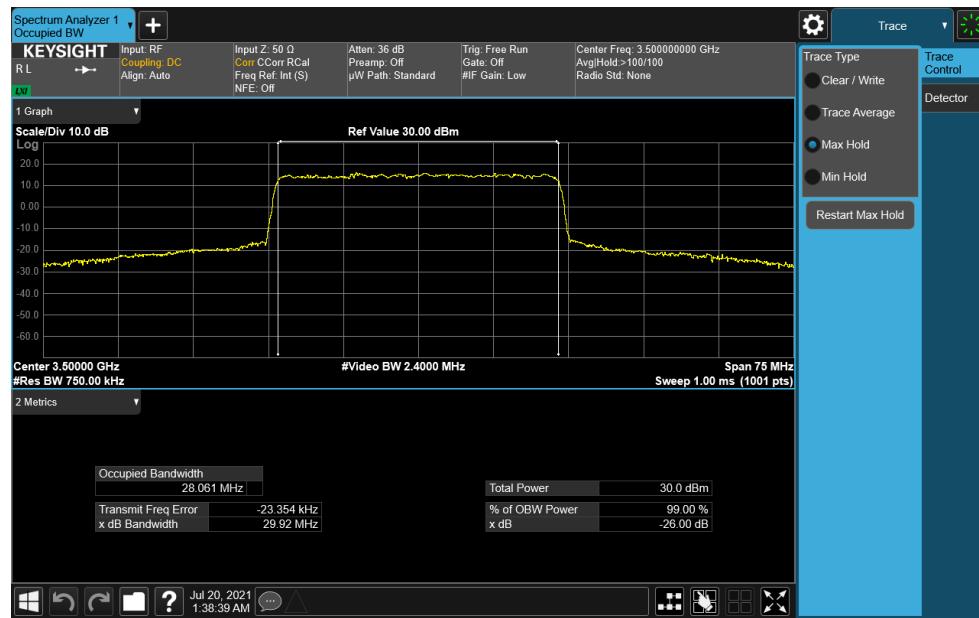


Plot 7-8. Occupied Bandwidth Plot (NR Band n77 - 30MHz CP-OFDM 16-QAM - Full RB)

FCC ID: BCGA2568	PCTEST Proud to be part of 		PART 27 MEASUREMENT REPORT	Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device		Page 19 of 171

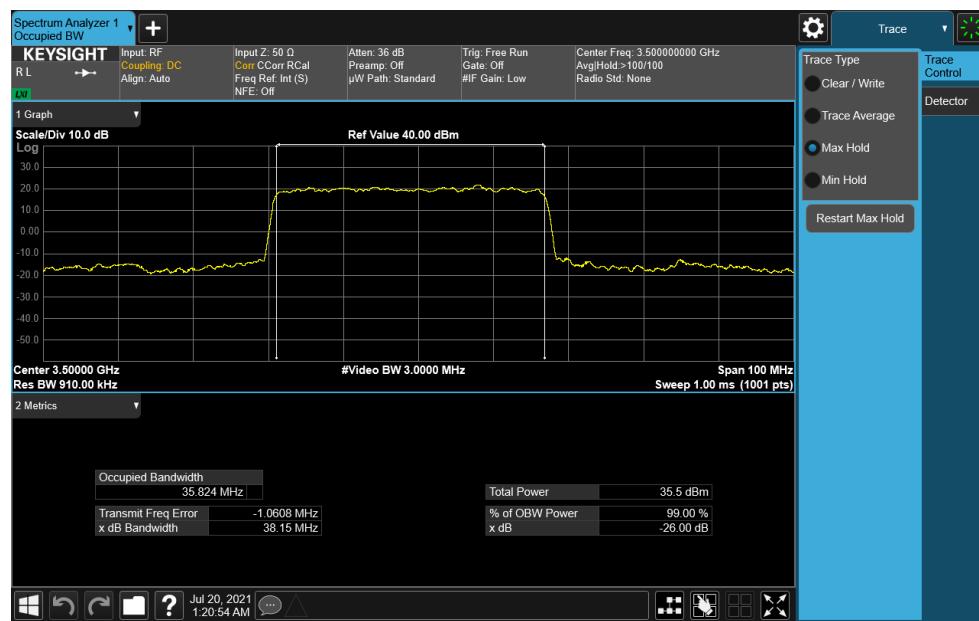


Plot 7-9. Occupied Bandwidth Plot (NR Band n77 - 30MHz CP-OFDM 64-QAM - Full RB)

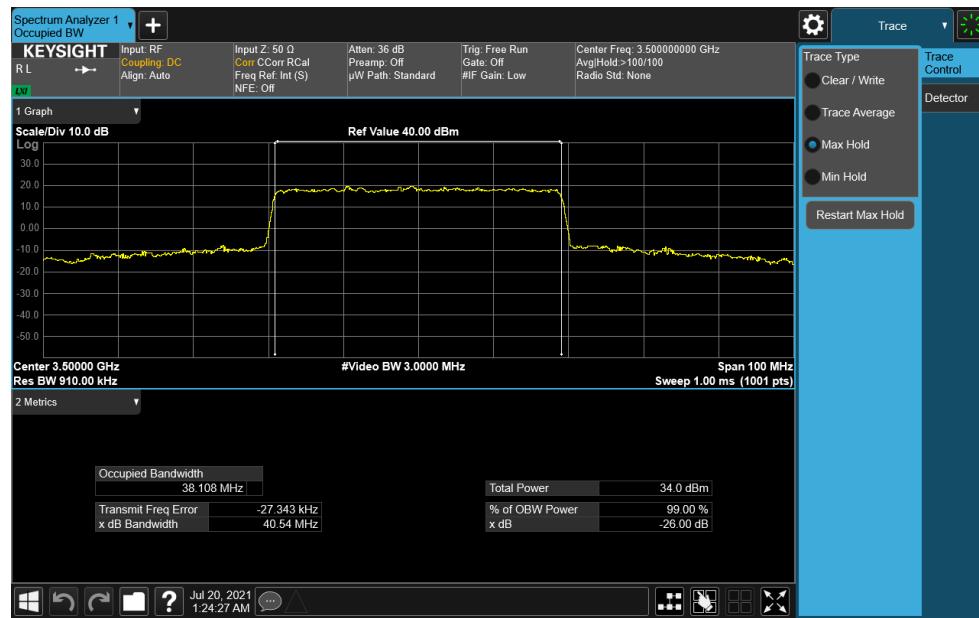


Plot 7-10. Occupied Bandwidth Plot (NR Band n77 - 30MHz CP-OFDM 256-QAM - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 20 of 171

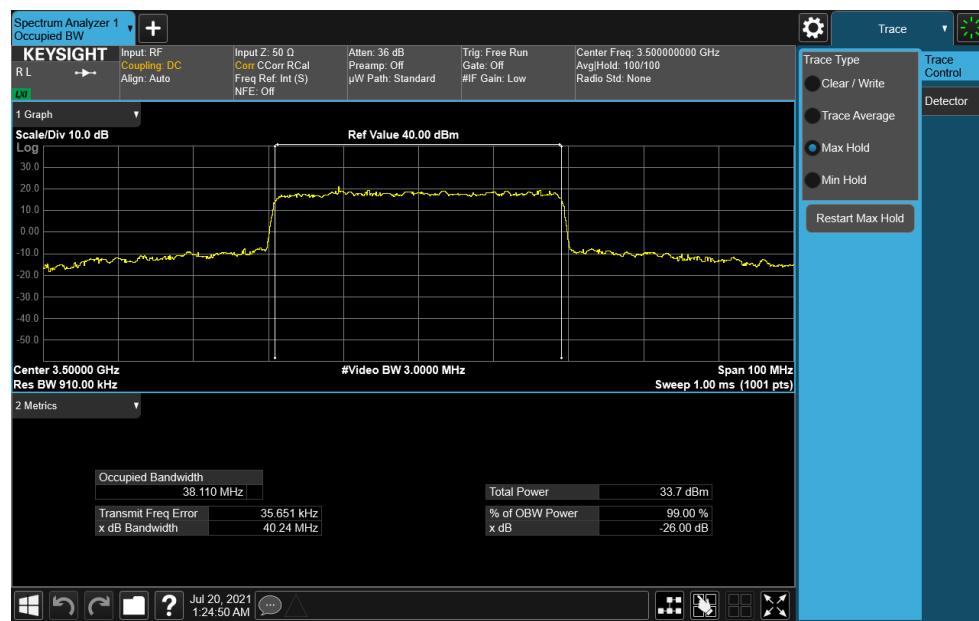


Plot 7-11. Occupied Bandwidth Plot (NR Band n77 - 40MHz DFT-s-OFDM π/2 BPSK - Full RB)

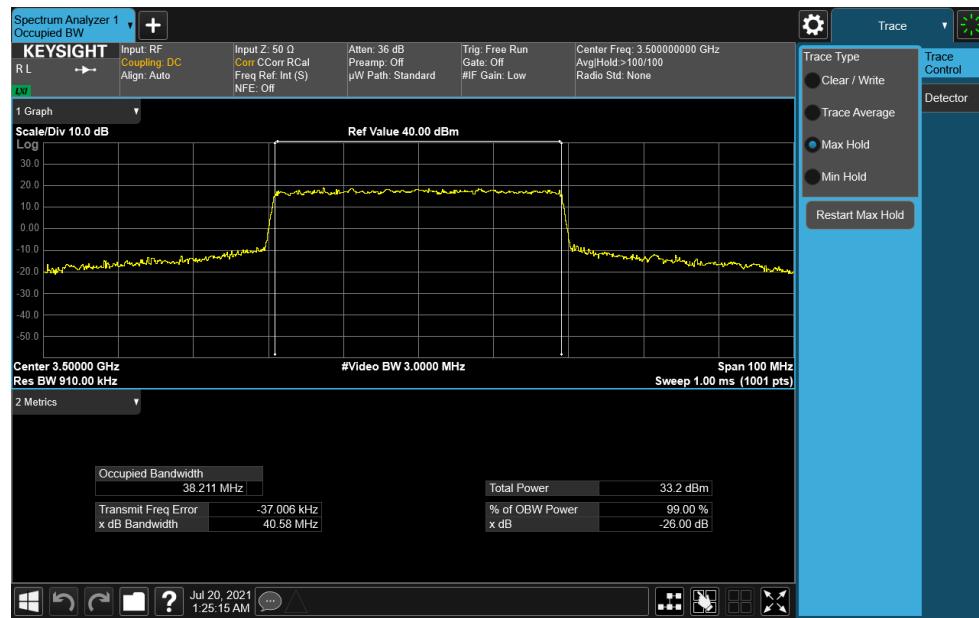


Plot 7-12. Occupied Bandwidth Plot (NR Band n77 - 40MHz CP-OFDM QPSK - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 21 of 171

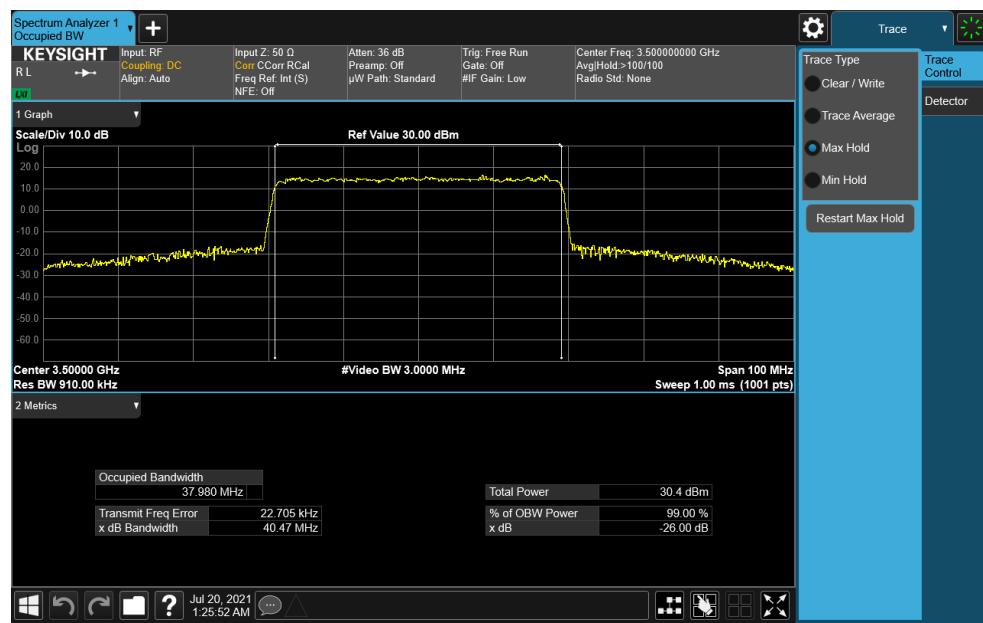


Plot 7-13. Occupied Bandwidth Plot (NR Band n77 - 40MHz CP-OFDM 16-QAM - Full RB)

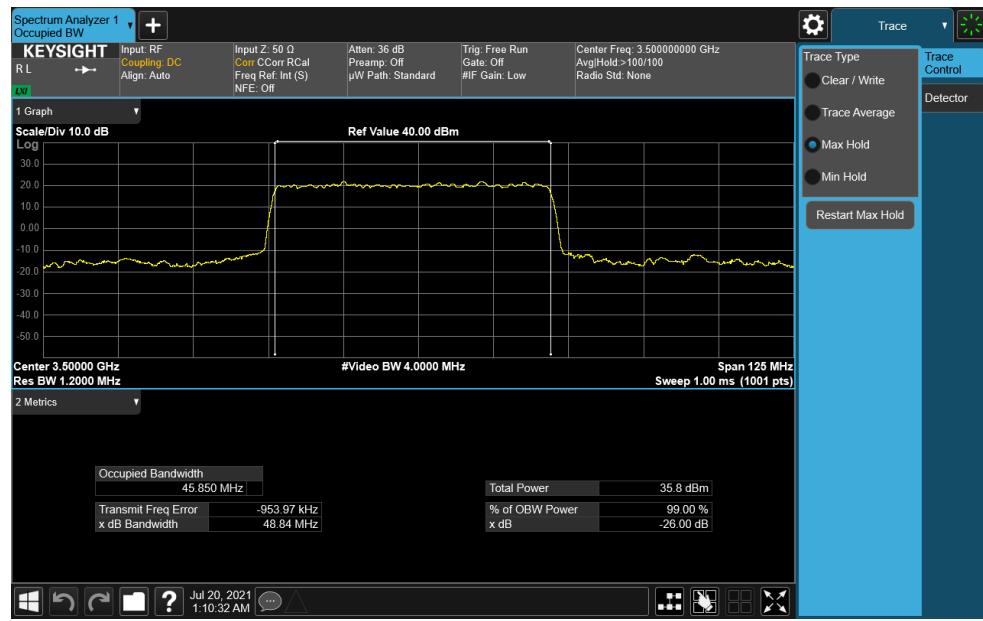


Plot 7-14. Occupied Bandwidth Plot (NR Band n77 - 40MHz CP-OFDM 64-QAM - Full RB)

FCC ID: BCGA2568	PCTEST Proud to be part of Element		PART 27 MEASUREMENT REPORT	Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device		Page 22 of 171

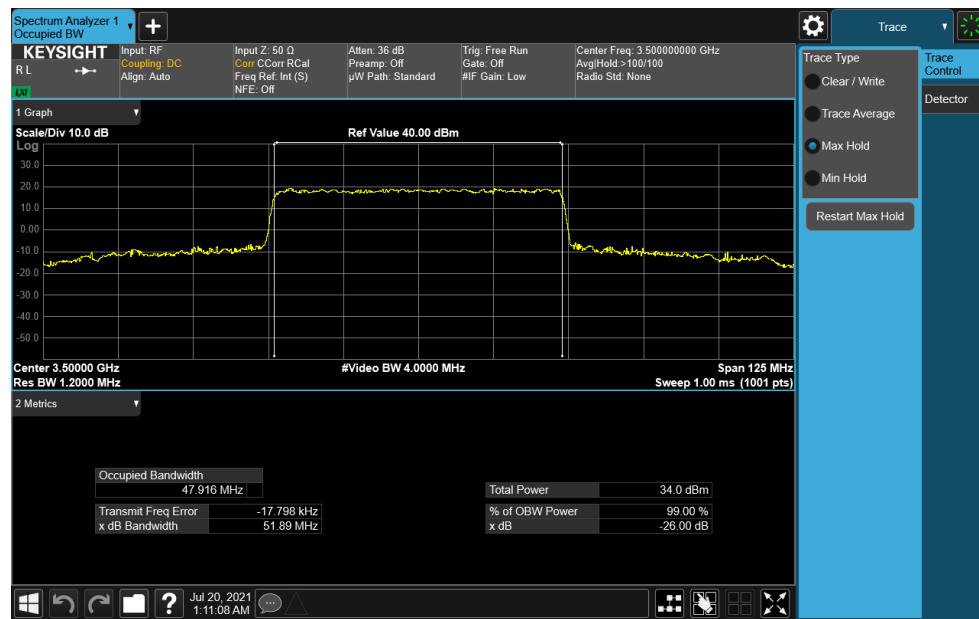


Plot 7-15. Occupied Bandwidth Plot (NR Band n77 - 40MHz CP-OFDM 256-QAM - Full RB)

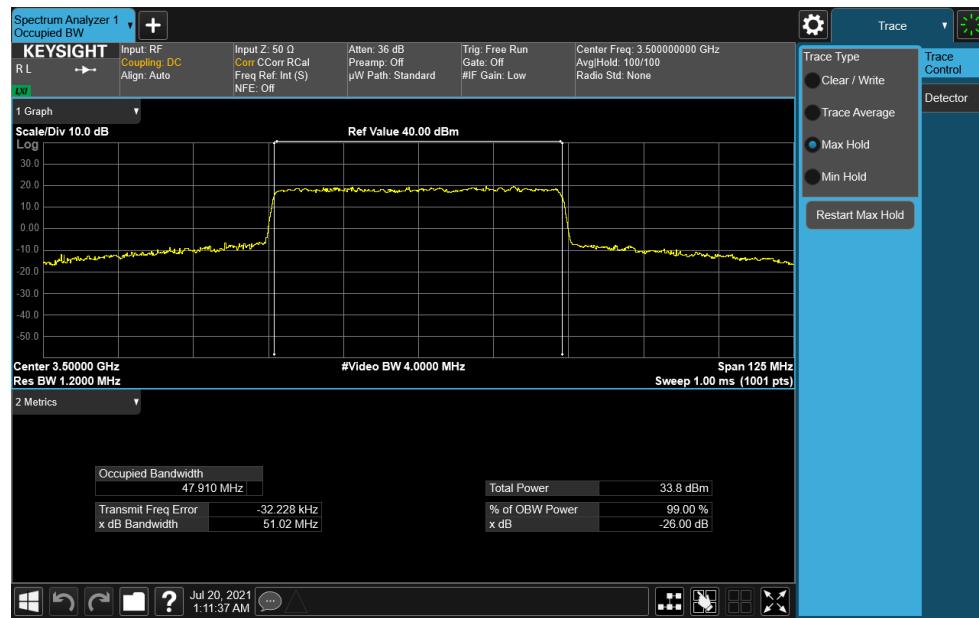


Plot 7-16. Occupied Bandwidth Plot (NR Band n77 - 50MHz DFT-s-OFDM π/2 BPSK - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 23 of 171

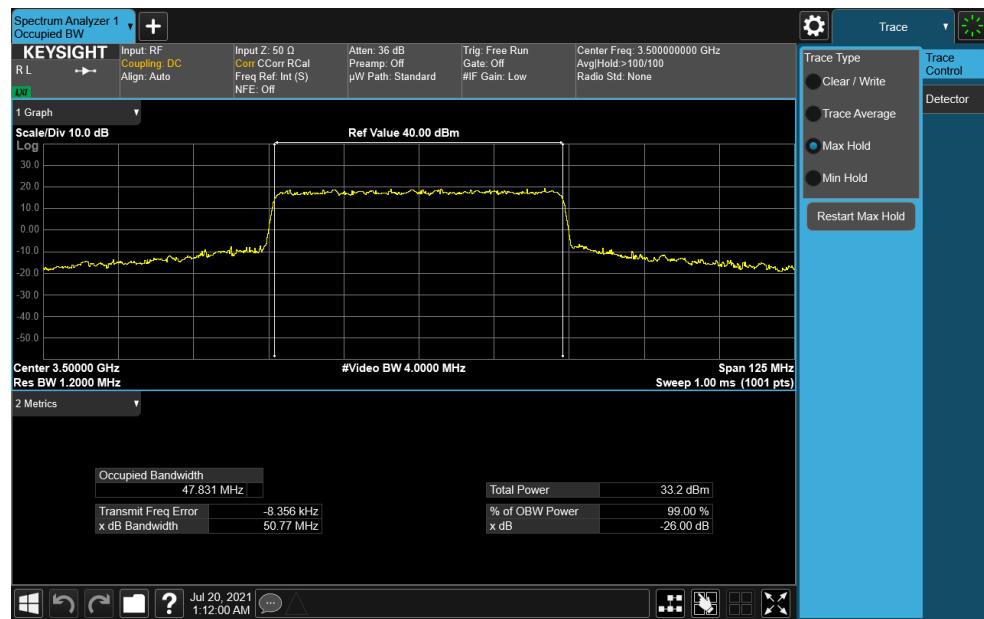


Plot 7-17. Occupied Bandwidth Plot (NR Band n77 - 50MHz CP-OFDM QPSK - Full RB)

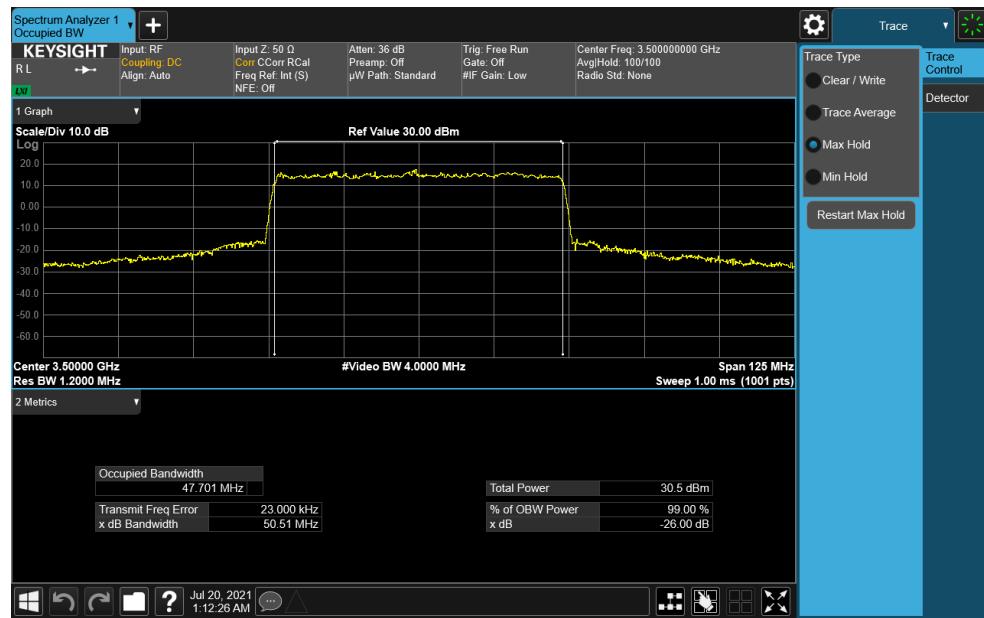


Plot 7-18. Occupied Bandwidth Plot (NR Band n77 - 50MHz CP-OFDM 16-QAM - Full RB)

FCC ID: BCGA2568	PCTEST Proud to be part of Element		PART 27 MEASUREMENT REPORT	Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 24 of 171	



Plot 7-19. Occupied Bandwidth Plot (NR Band n77 - 50MHz CP-OFDM 64-QAM - Full RB)



Plot 7-20. Occupied Bandwidth Plot (NR Band n77 - 50MHz CP-OFDM 256-QAM - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 25 of 171



Plot 7-21. Occupied Bandwidth Plot (NR Band n77 - 60MHz DFT-s-OFDM $\pi/2$ BPSK - Full RB)

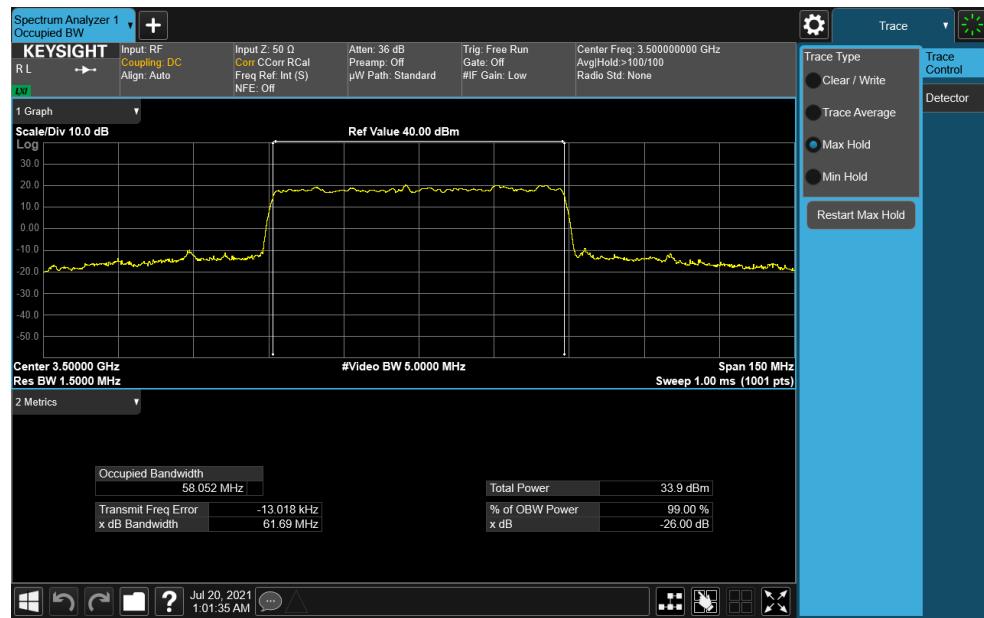


Plot 7-22. Occupied Bandwidth Plot (NR Band n77 - 60MHz CP-OFDM QPSK - Full RB)

FCC ID: BCGA2568	 PCTEST <small> Proud to be part of Element</small>	PART 27 MEASUREMENT REPORT	Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 26 of 171

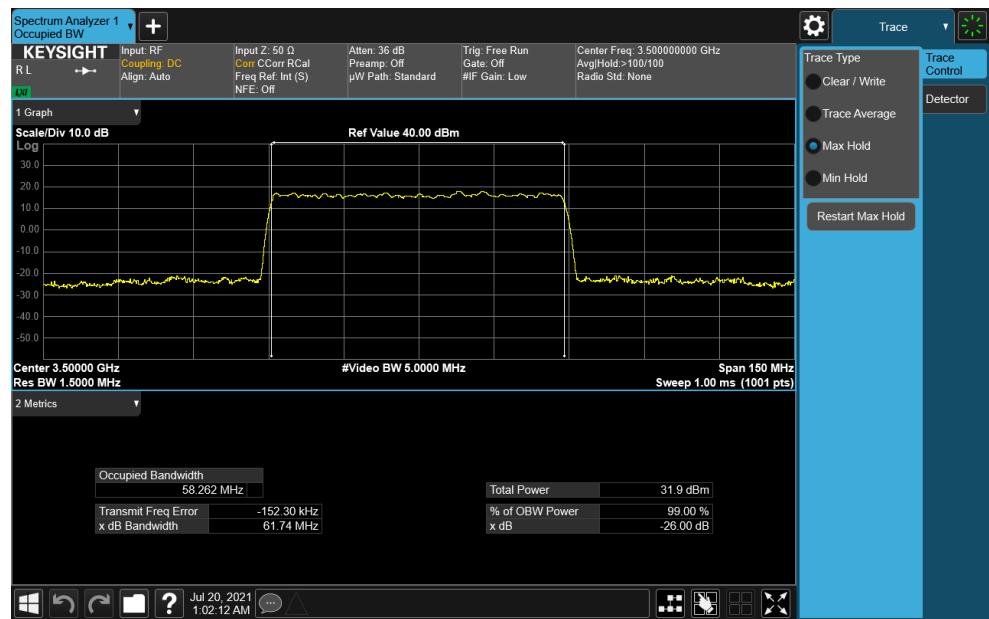


Plot 7-23. Occupied Bandwidth Plot (NR Band n77 - 60MHz CP-OFDM 16-QAM - Full RB)

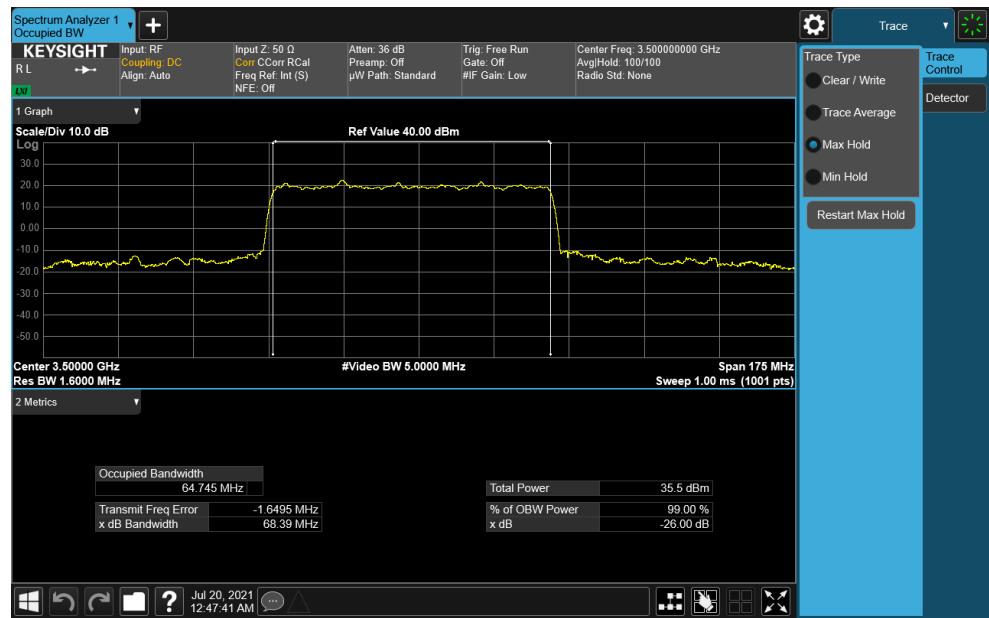


Plot 7-24. Occupied Bandwidth Plot (NR Band n77 - 60MHz CP-OFDM 64-QAM - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 27 of 171

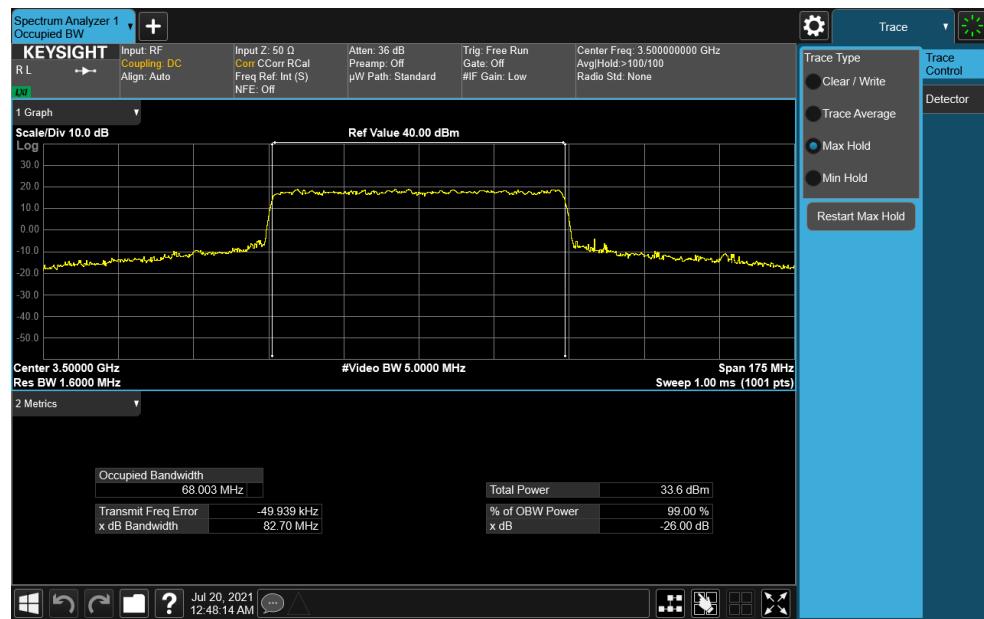


Plot 7-25. Occupied Bandwidth Plot (NR Band n77 - 60MHz CP-OFDM 256-QAM - Full RB)

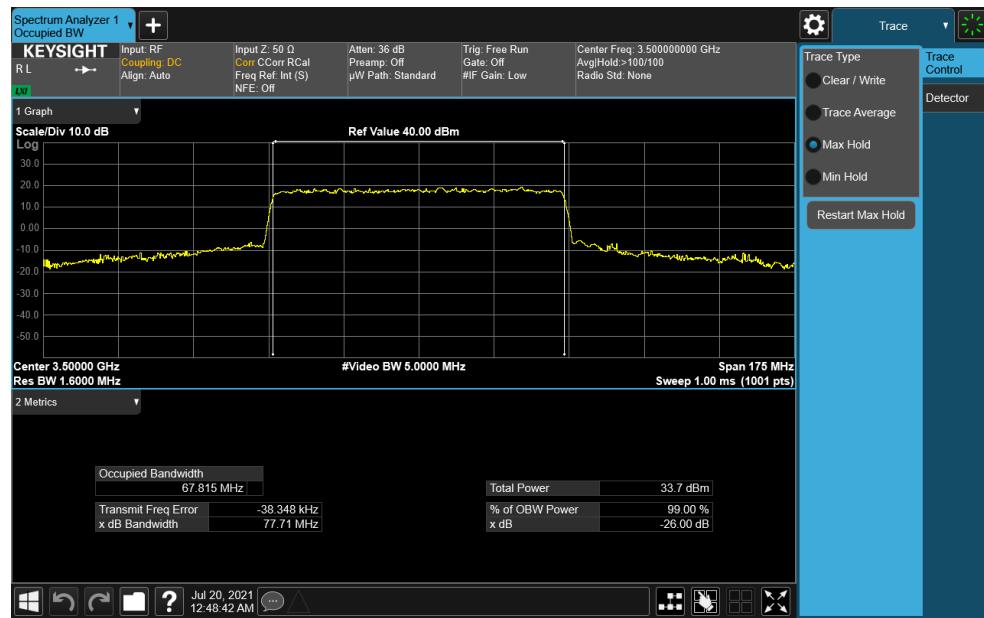


Plot 7-26. Occupied Bandwidth Plot (NR Band n77 - 70MHz DFT-s-OFDM π/2 BPSK - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 28 of 171

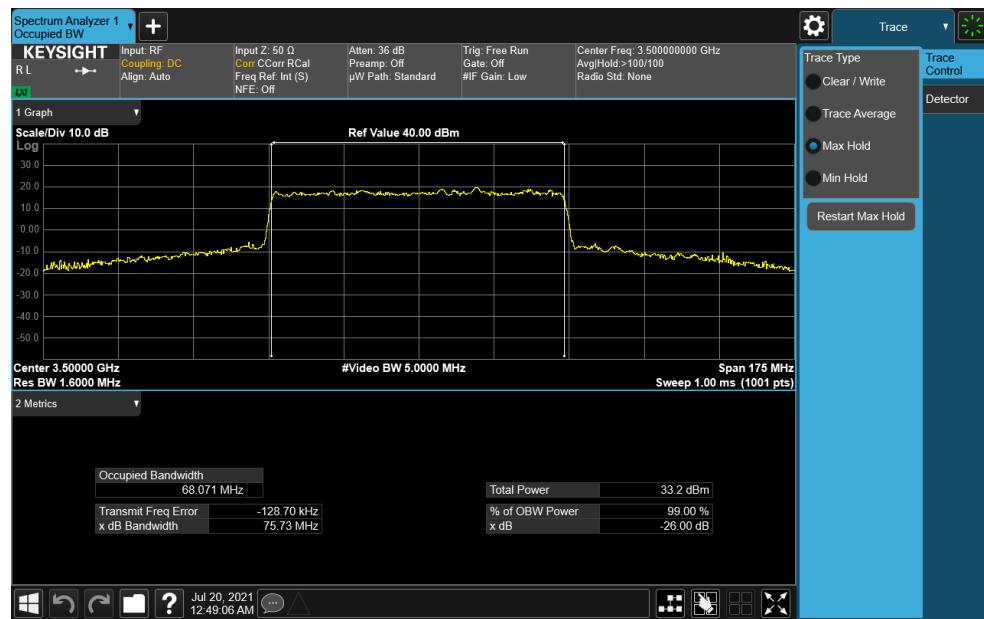


Plot 7-27. Occupied Bandwidth Plot (NR Band n77 - 70MHz CP-OFDM QPSK - Full RB)

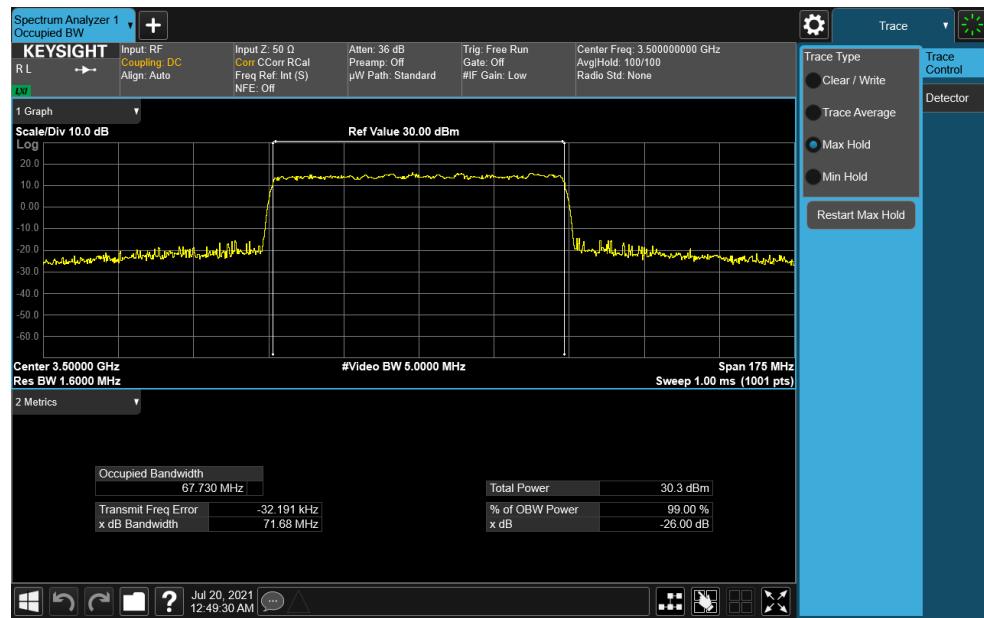


Plot 7-28. Occupied Bandwidth Plot (NR Band n77 - 70MHz CP-OFDM 16-QAM - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 29 of 171

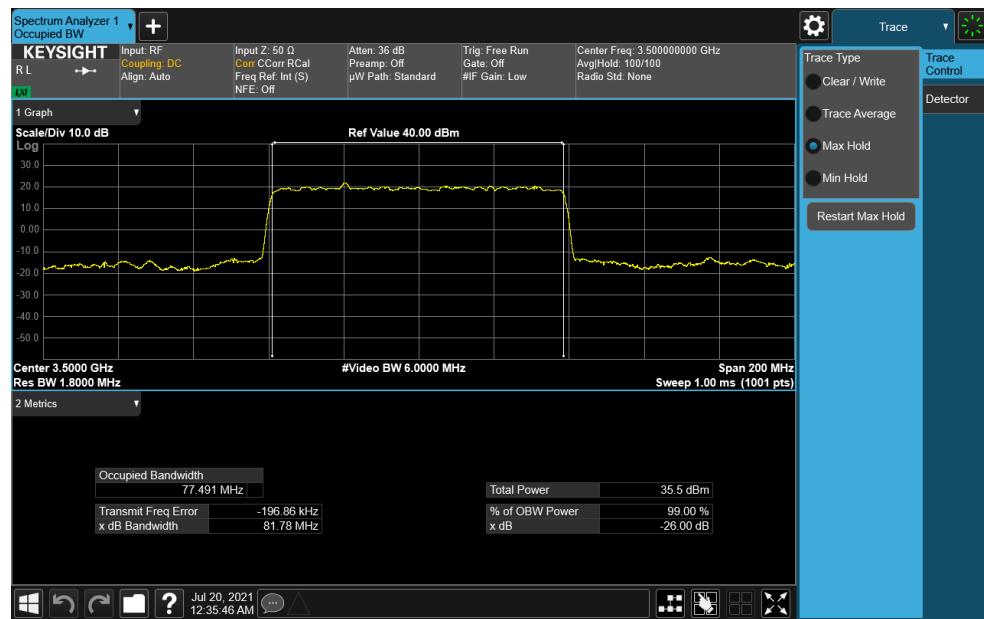


Plot 7-29. Occupied Bandwidth Plot (NR Band n77 - 70MHz CP-OFDM 64-QAM - Full RB)

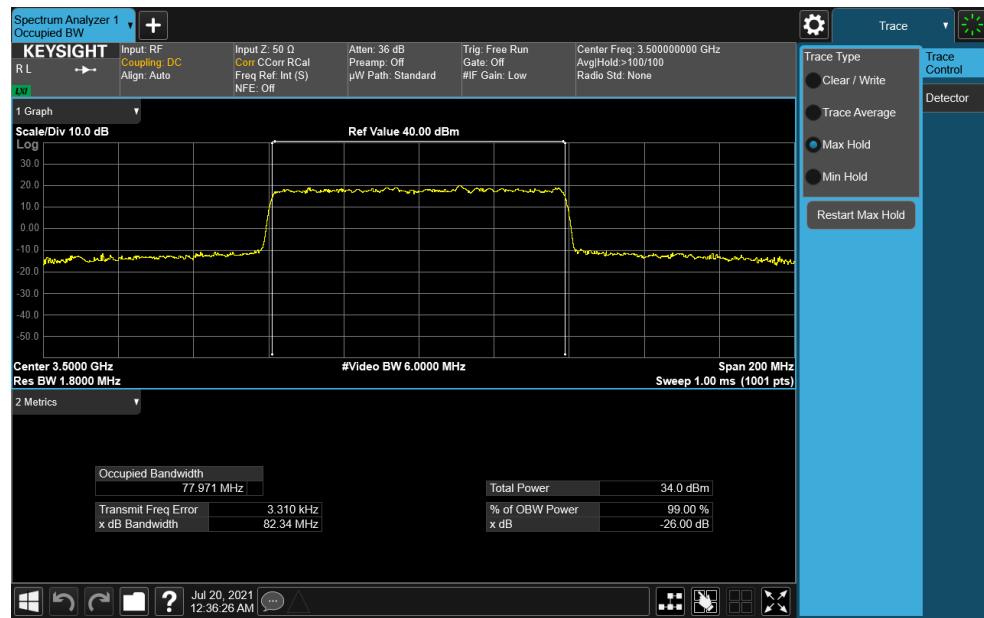


Plot 7-30. Occupied Bandwidth Plot (NR Band n77 - 70MHz CP-OFDM 256-QAM - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 30 of 171

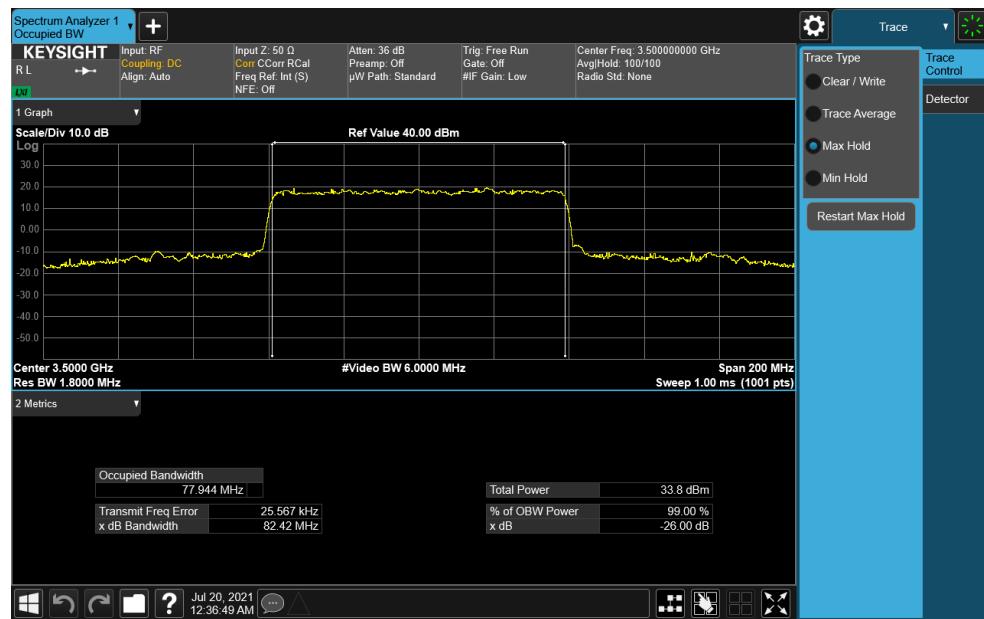


Plot 7-31. Occupied Bandwidth Plot (NR Band n77 - 80MHz DFT-s-OFDM $\pi/2$ BPSK - Full RB)

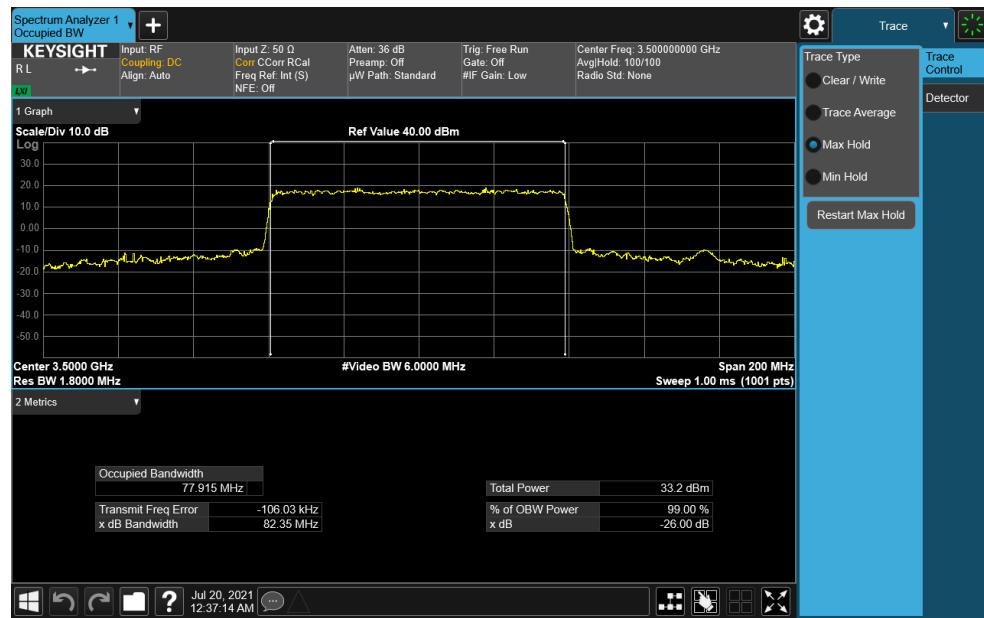


Plot 7-32. Occupied Bandwidth Plot (NR Band n77 - 80MHz CP-OFDM QPSK - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 31 of 171

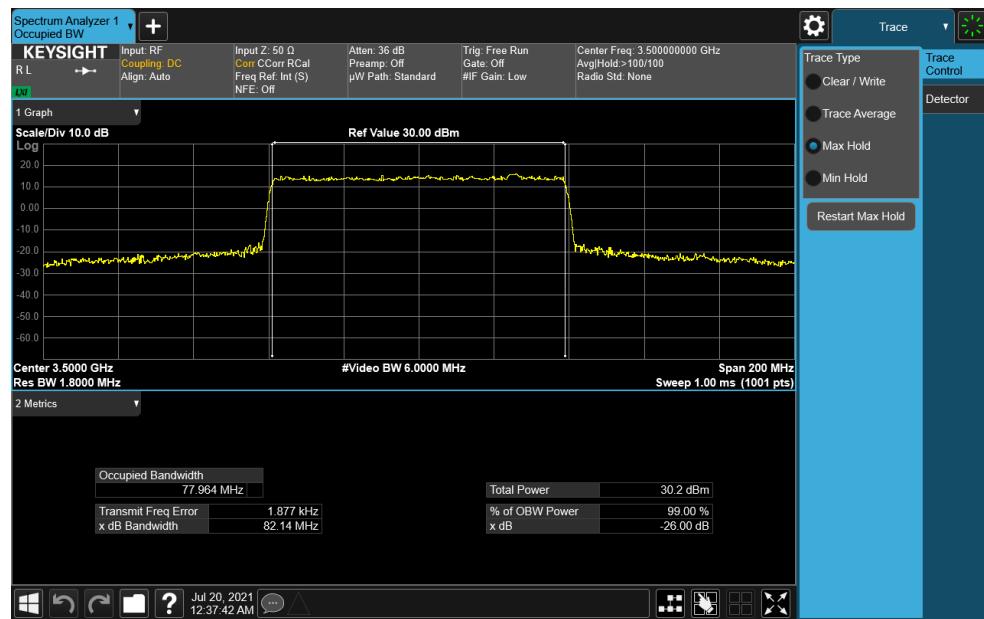


Plot 7-33. Occupied Bandwidth Plot (NR Band n77 - 80MHz CP-OFDM 16-QAM - Full RB)

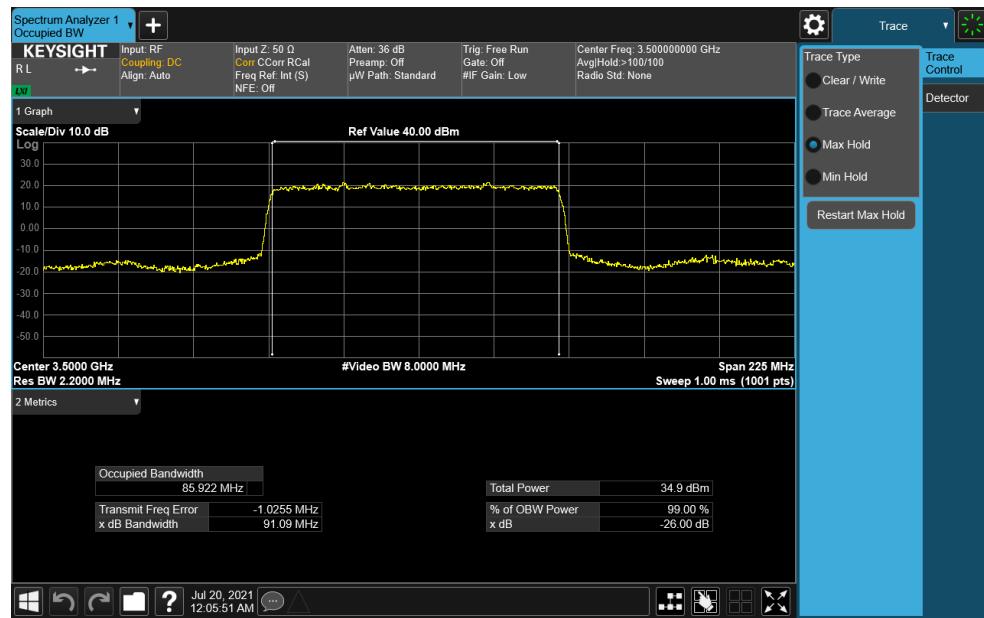


Plot 7-34. Occupied Bandwidth Plot (NR Band n77 - 80MHz CP-OFDM 64-QAM - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 32 of 171

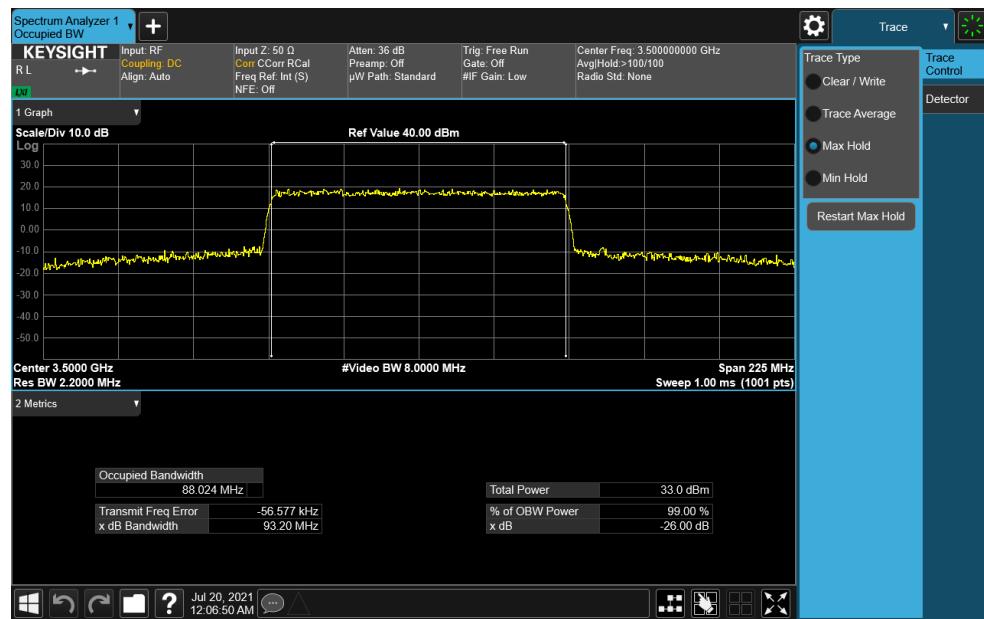


Plot 7-35. Occupied Bandwidth Plot (NR Band n77 - 80MHz CP-OFDM 256-QAM - Full RB)

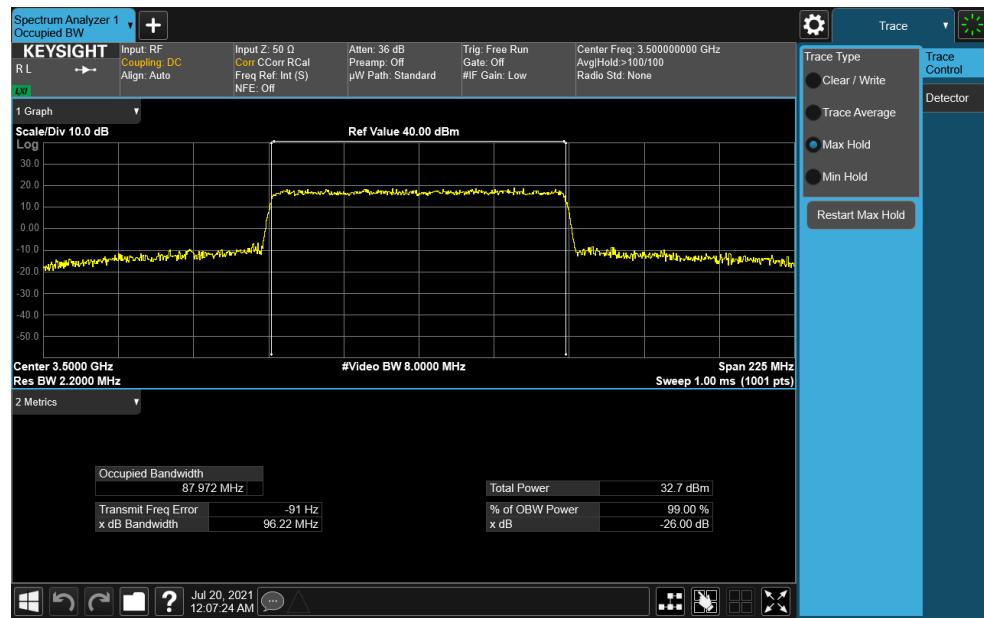


Plot 7-36. Occupied Bandwidth Plot (NR Band n77 - 90MHz DFT-s-OFDM π/2 BPSK - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 33 of 171

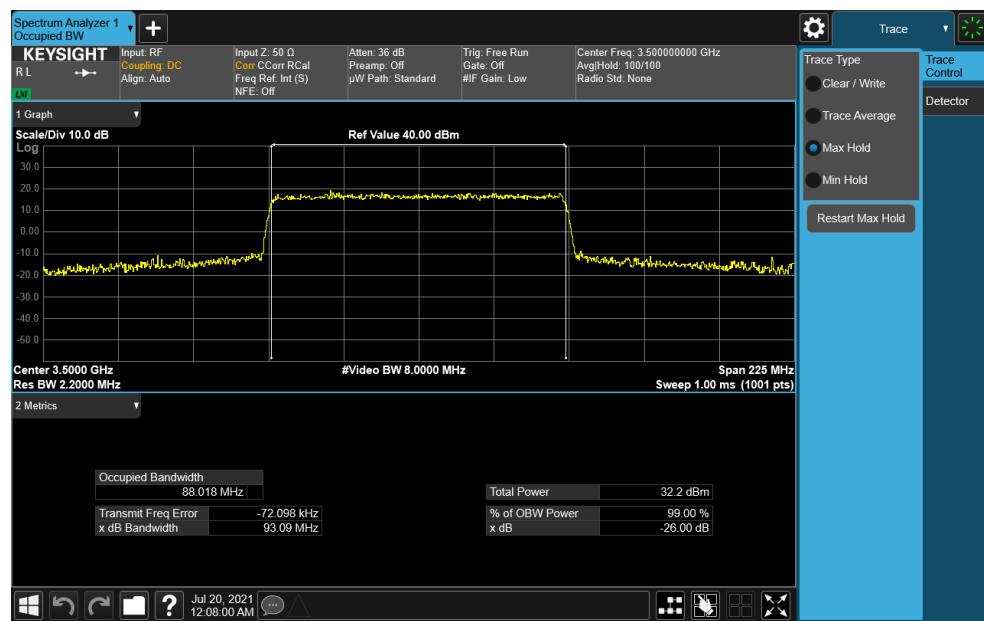


Plot 7-37. Occupied Bandwidth Plot (NR Band n77 - 90MHz CP-OFDM QPSK - Full RB)



Plot 7-38. Occupied Bandwidth Plot (NR Band n77 - 90MHz CP-OFDM 16-QAM - Full RB)

FCC ID: BCGA2568	PCTEST Proud to be part of Element		PART 27 MEASUREMENT REPORT	Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 34 of 171	

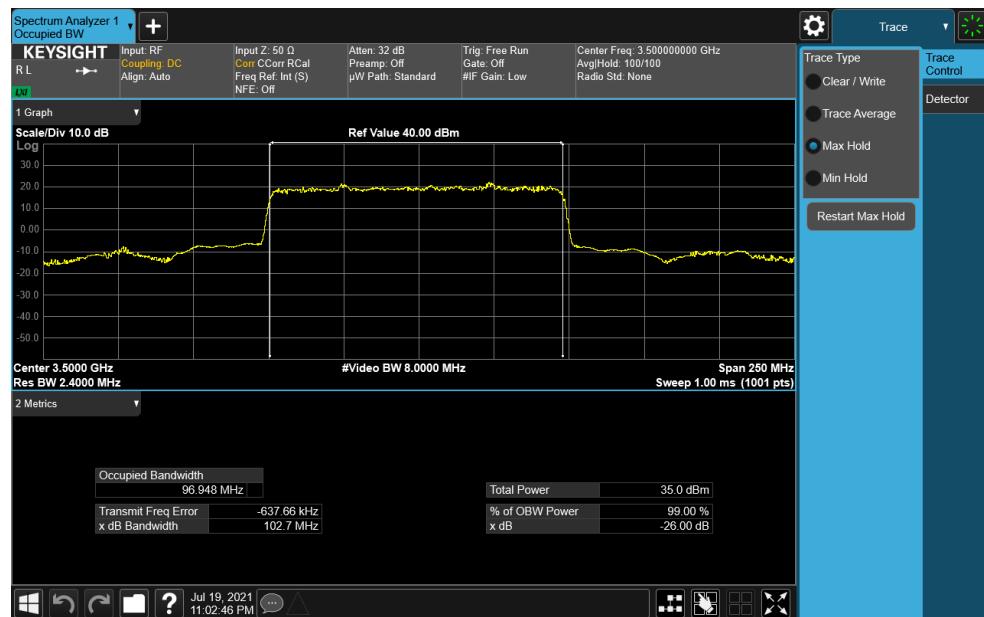


Plot 7-39. Occupied Bandwidth Plot (NR Band n77 - 90MHz CP-OFDM 64-QAM - Full RB)

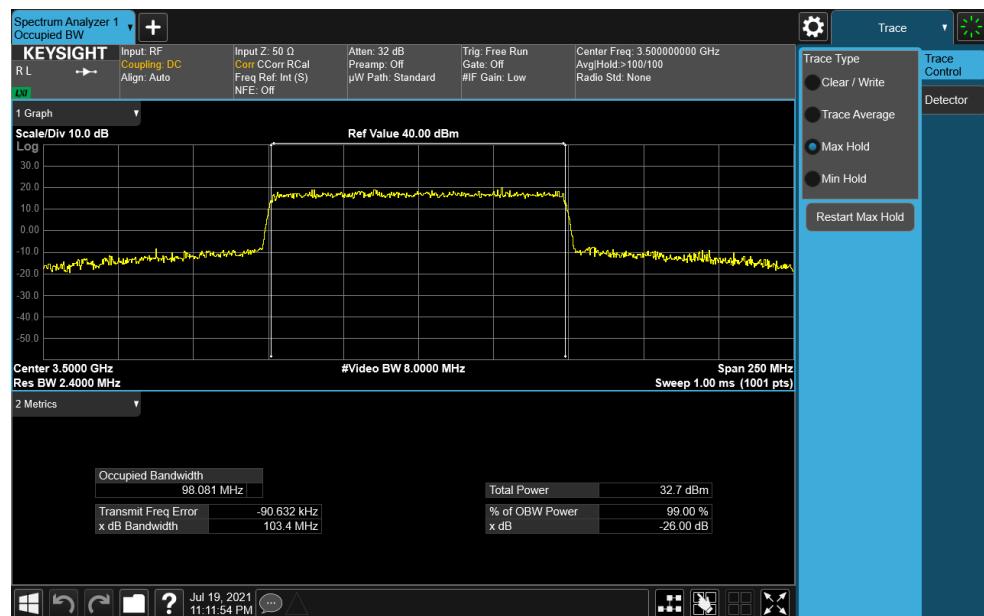


Plot 7-40. Occupied Bandwidth Plot (NR Band n77 - 90MHz CP-OFDM 256-QAM - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 35 of 171

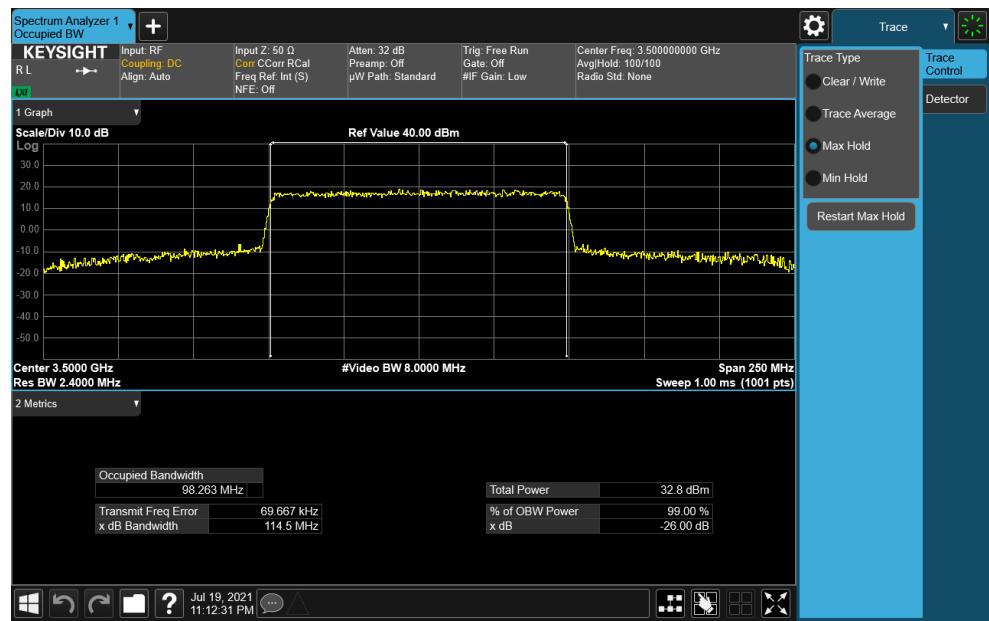


Plot 7-41. Occupied Bandwidth Plot (NR Band n77 - 100MHz DFT-s-OFDM π/2 BPSK - Full RB)

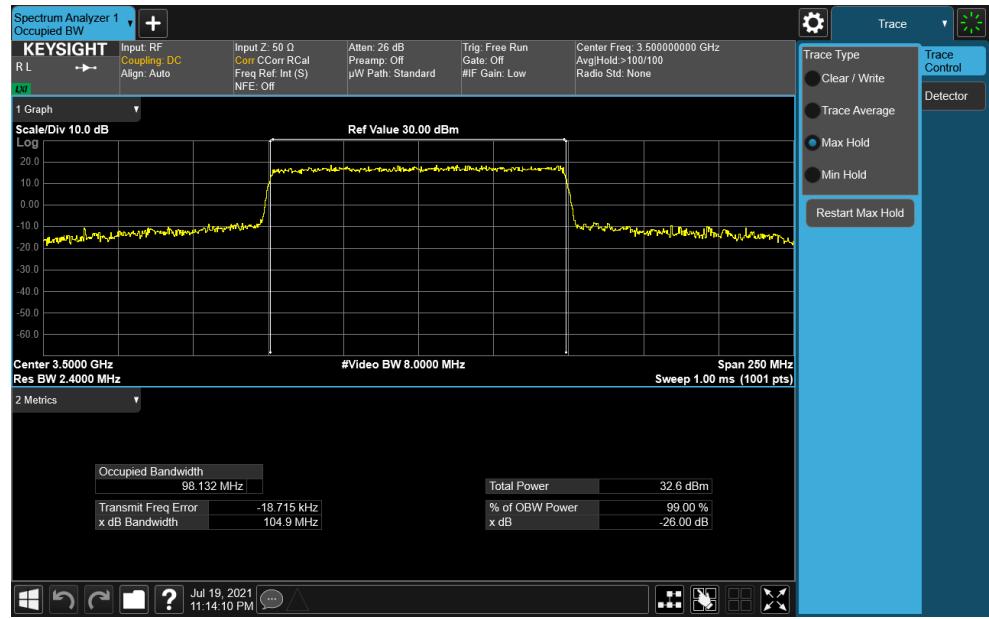


Plot 7-42. Occupied Bandwidth Plot (NR Band n77 - 100MHz CP-OFDM QPSK - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 36 of 171

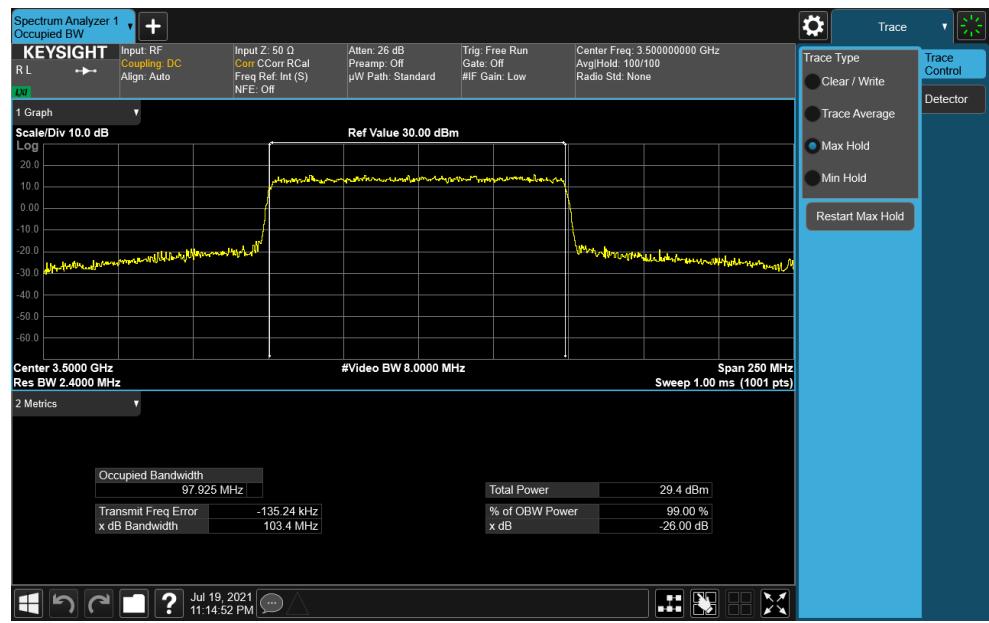


Plot 7-43. Occupied Bandwidth Plot (NR Band n77 - 100MHz CP-OFDM 16-QAM - Full RB)



Plot 7-44. Occupied Bandwidth Plot (NR Band n77 - 100MHz CP-OFDM 64-QAM - Full RB)

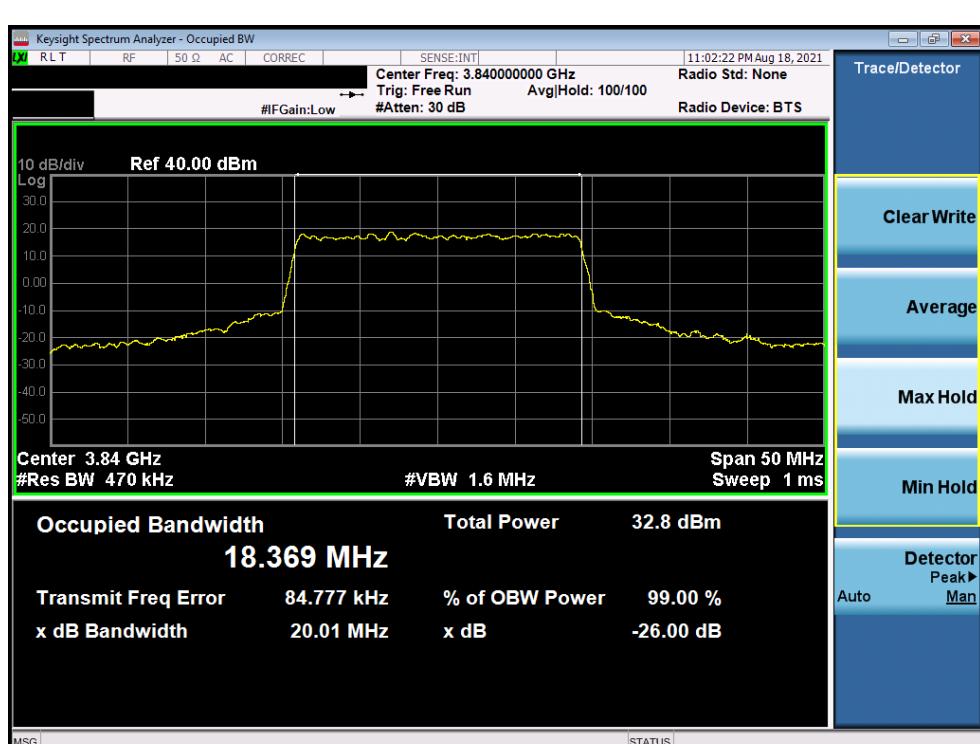
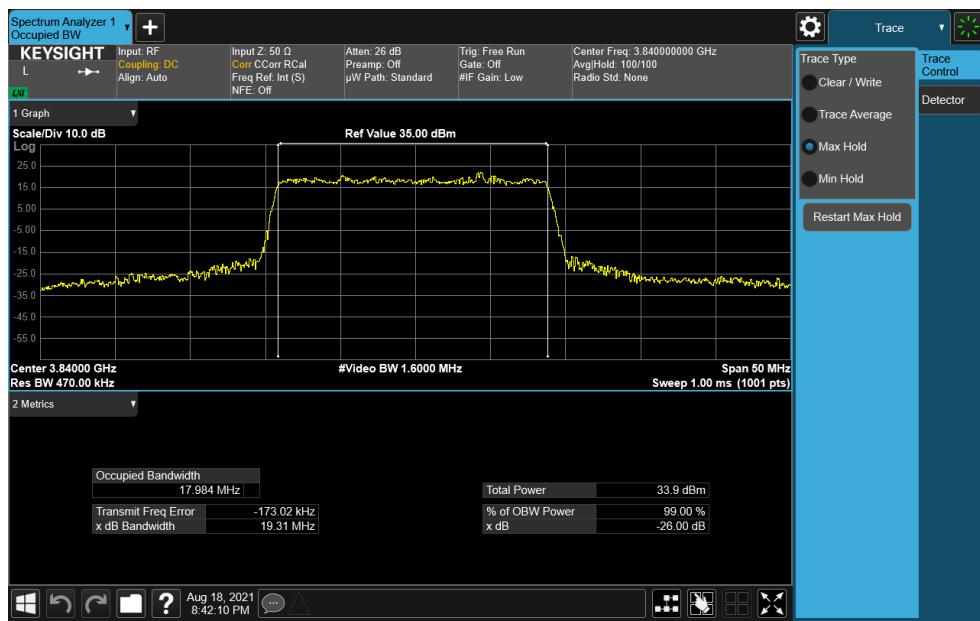
FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 37 of 171



Plot 7-45. Occupied Bandwidth Plot (NR Band n77 - 100MHz CP-OFDM 256-QAM - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 38 of 171

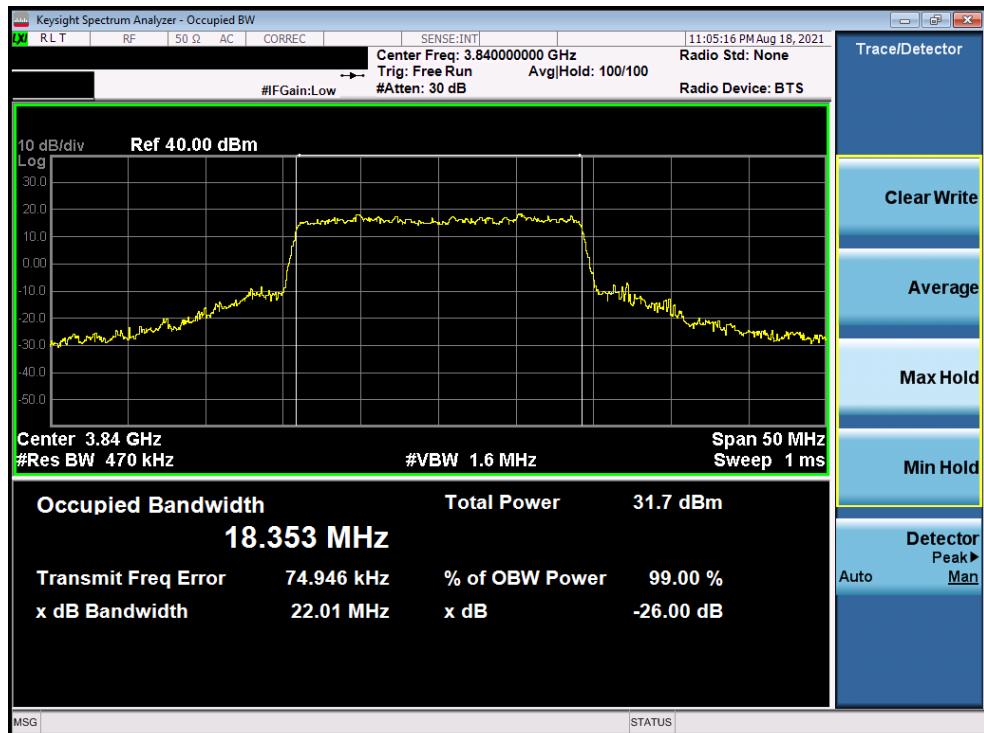
NR Band n77 C-Band



FCC ID: BCGA2568	 PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 39 of 171

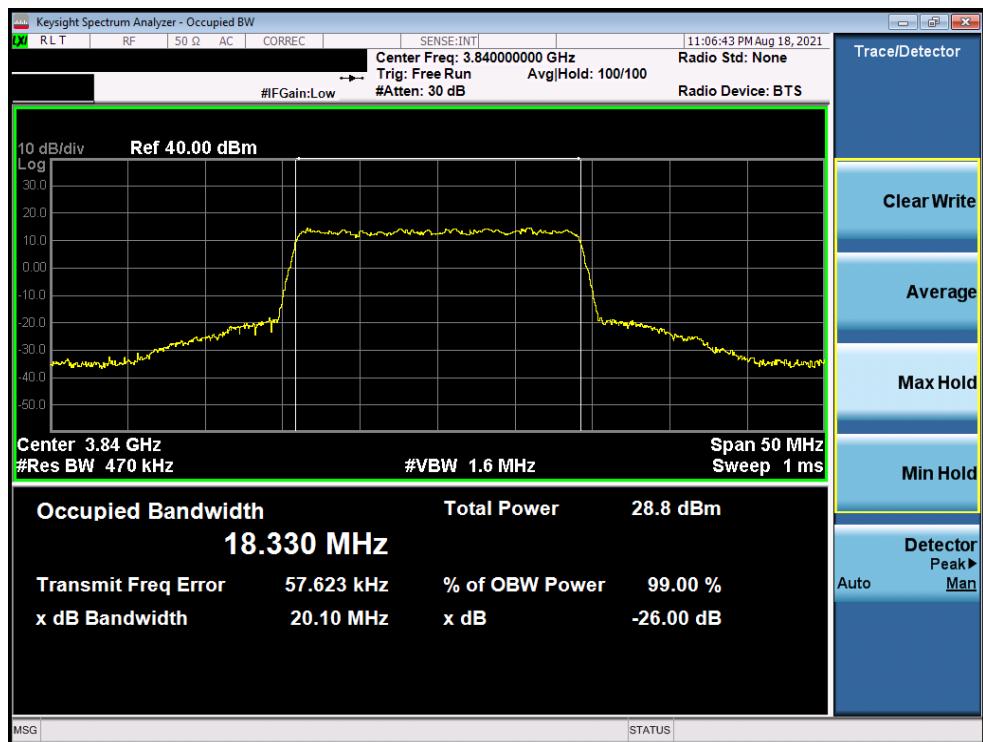


Plot 7-48. Occupied Bandwidth Plot (NR Band n77 - 20MHz CP-OFDM 16-QAM - Full RB)

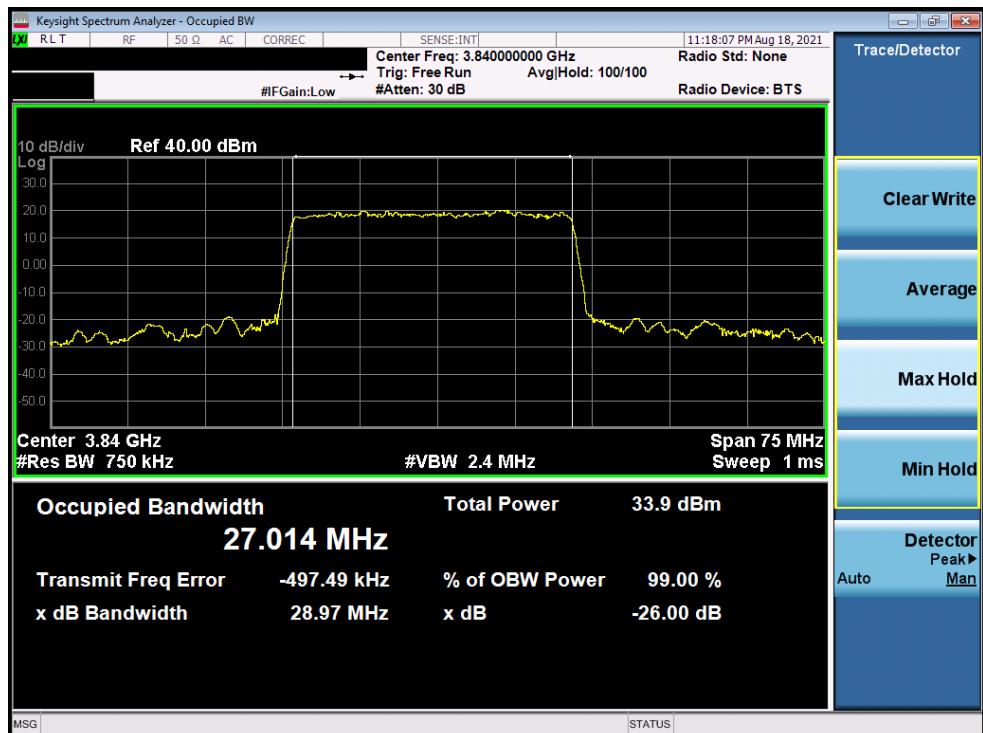


Plot 7-49. Occupied Bandwidth Plot (NR Band n77 - 20MHz CP-OFDM 64-QAM - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT			Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device		Page 40 of 171

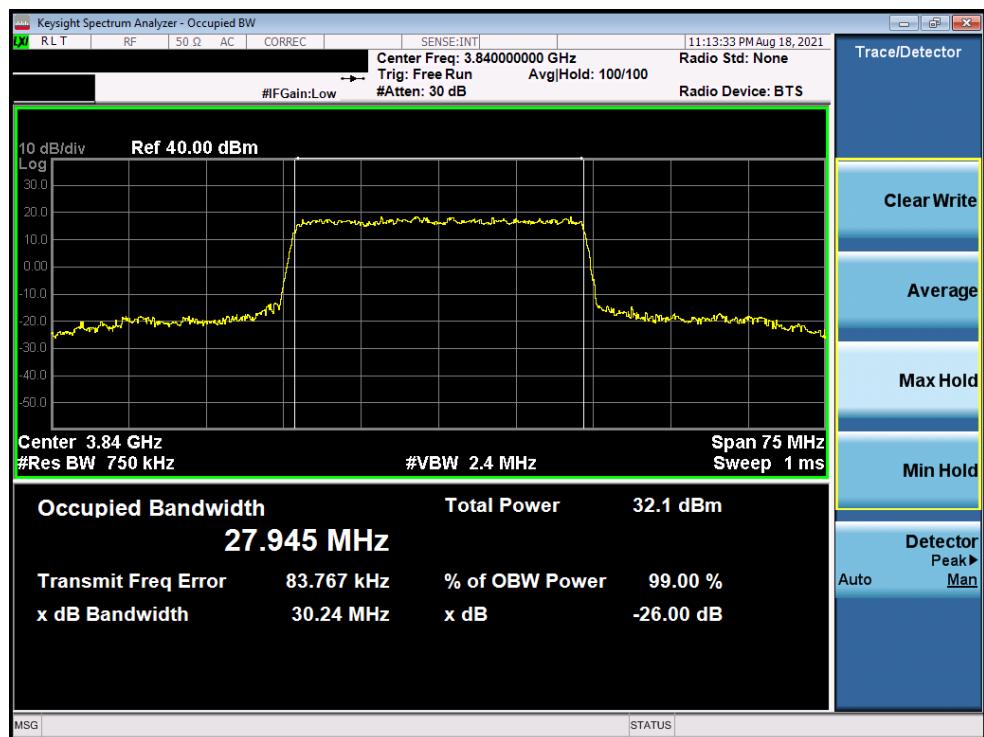


Plot 7-50. Occupied Bandwidth Plot (NR Band n77 - 20MHz CP-OFDM 256-QAM - Full RB)

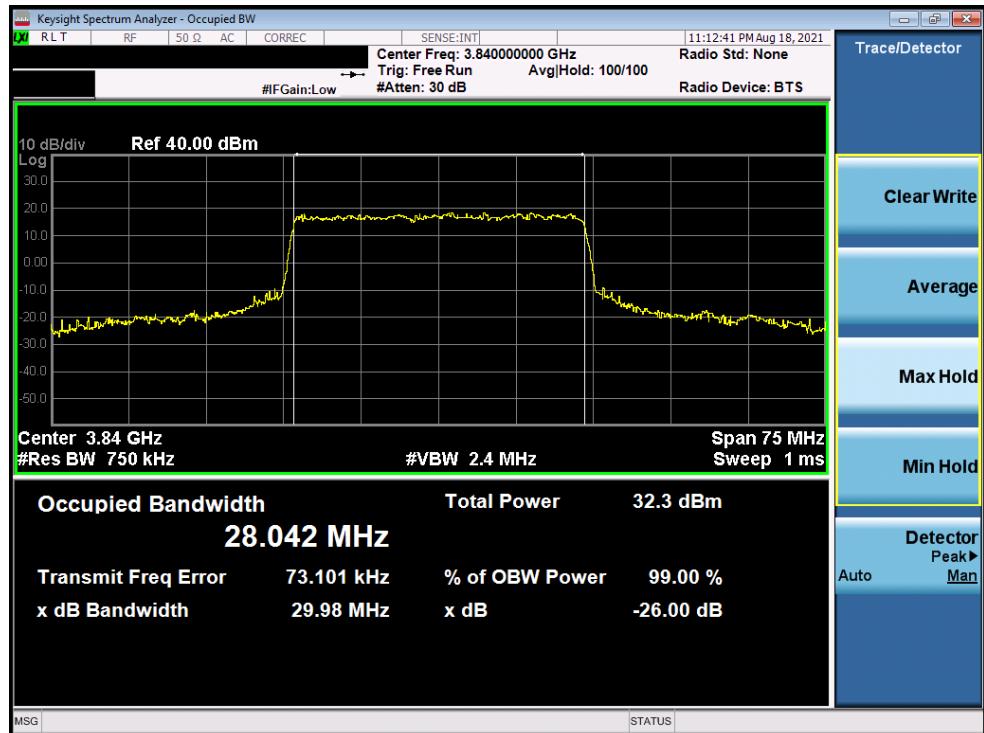


Plot 7-51. Occupied Bandwidth Plot (NR Band n77 - 30MHz DFT-s-OFDM $\pi/2$ BPSK - Full RB)

FCC ID: BCGA2568	PCTEST Proud to be part of Element			PART 27 MEASUREMENT REPORT	Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device			Page 41 of 171

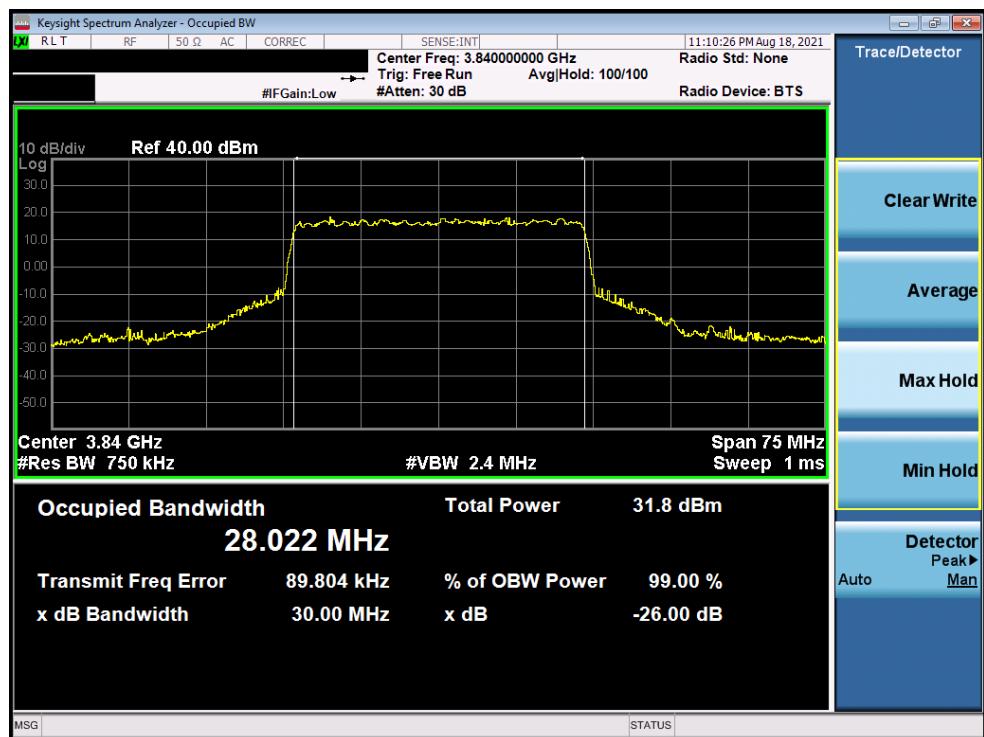


Plot 7-52. Occupied Bandwidth Plot (NR Band n77 - 30MHz CP-OFDM QPSK - Full RB)

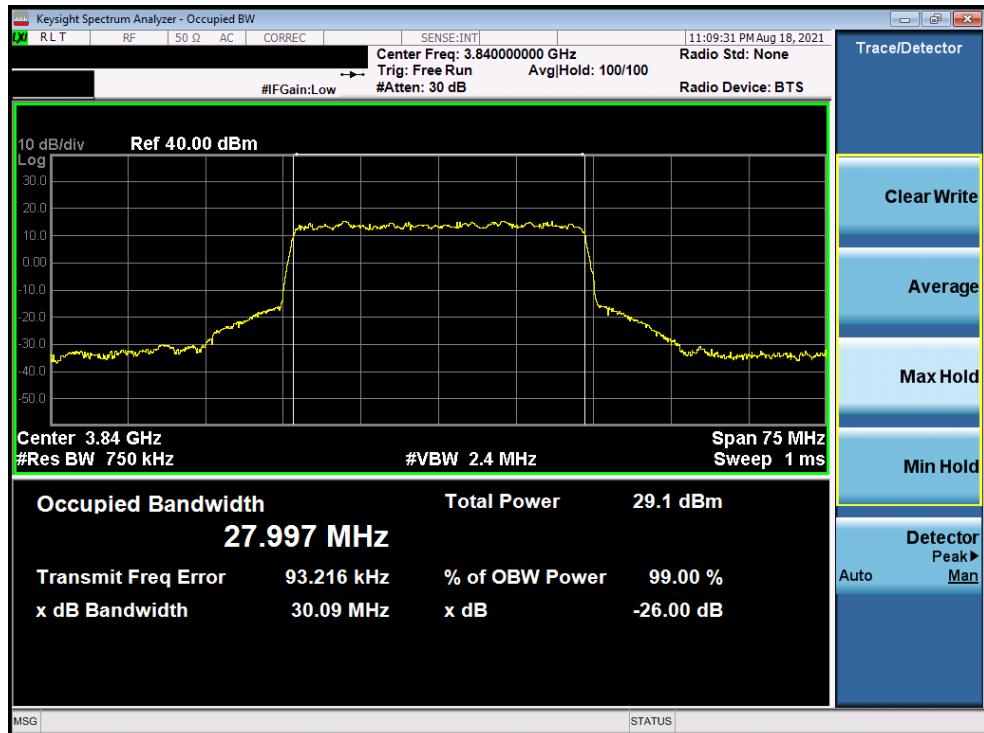


Plot 7-53. Occupied Bandwidth Plot (NR Band n77 - 30MHz CP-OFDM 16-QAM - Full RB)

FCC ID: BCGA2568	PCTEST Proud to be part of Element			PART 27 MEASUREMENT REPORT	Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device			

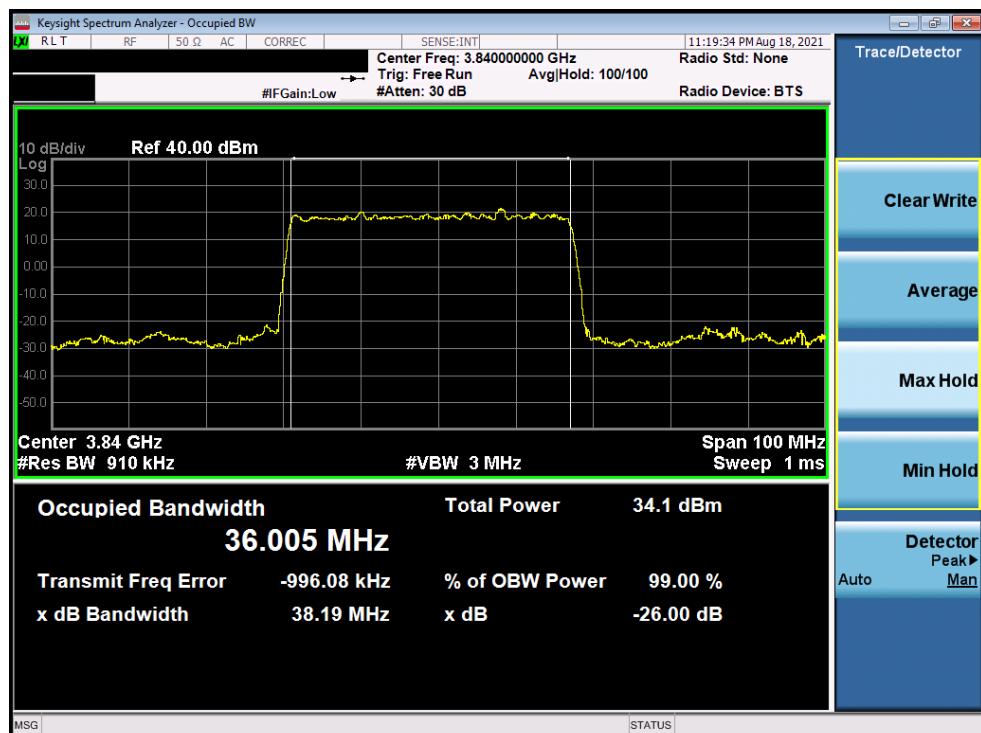


Plot 7-54. Occupied Bandwidth Plot (NR Band n77 - 30MHz CP-OFDM 64-QAM - Full RB)

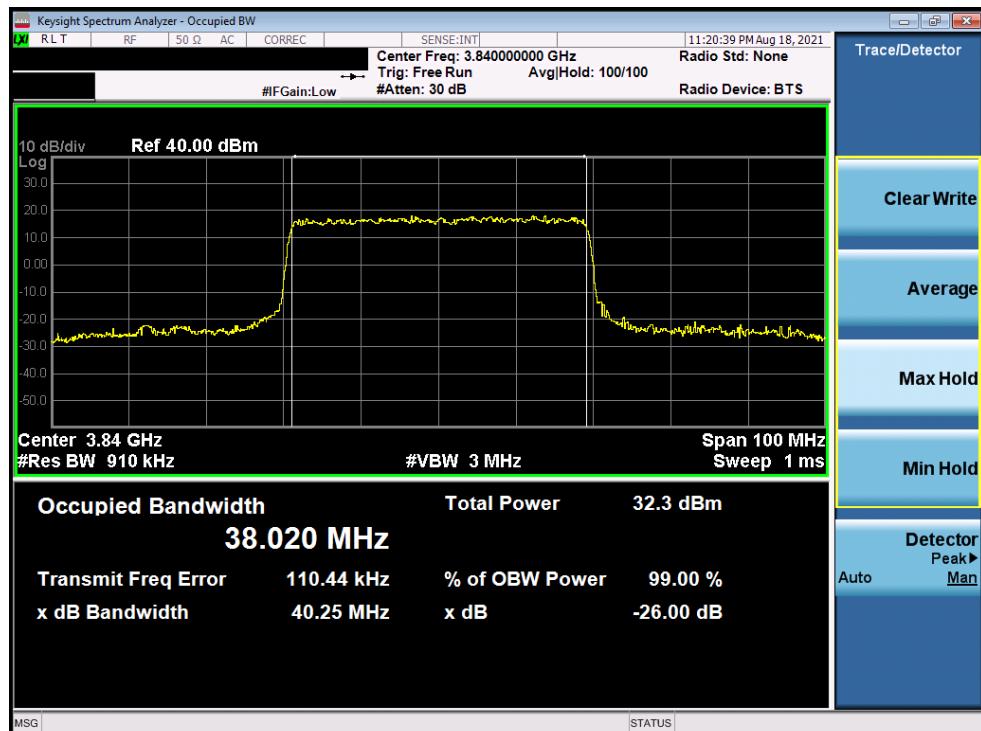


Plot 7-55. Occupied Bandwidth Plot (NR Band n77 - 30MHz CP-OFDM 256-QAM - Full RB)

FCC ID: BCGA2568	PCTEST Proud to be part of 			PART 27 MEASUREMENT REPORT	Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device			

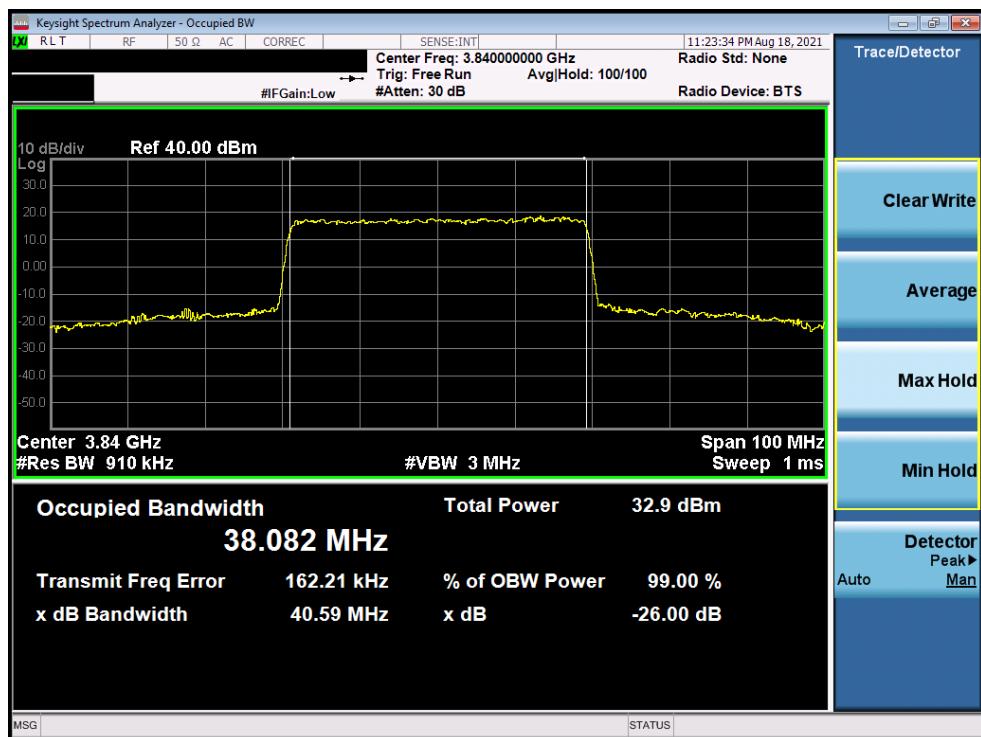


Plot 7-56. Occupied Bandwidth Plot (NR Band n77 - 40MHz DFT-s-OFDM $\pi/2$ BPSK - Full RB)

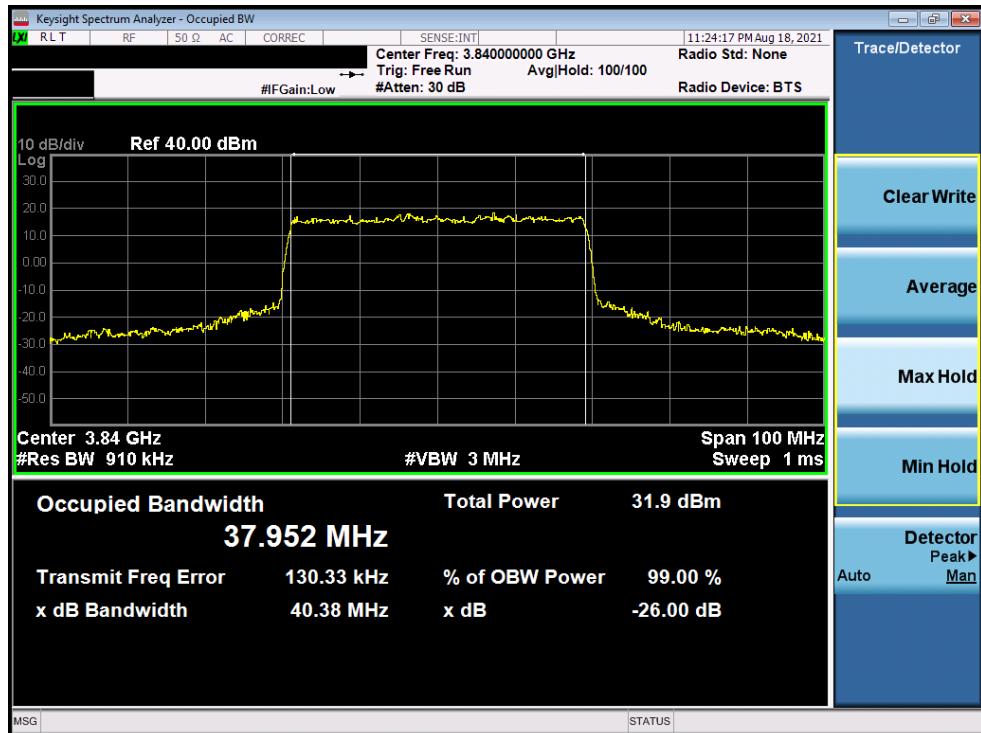


Plot 7-57. Occupied Bandwidth Plot (NR Band n77 - 40MHz CP-OFDM QPSK - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT			Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device		Page 44 of 171

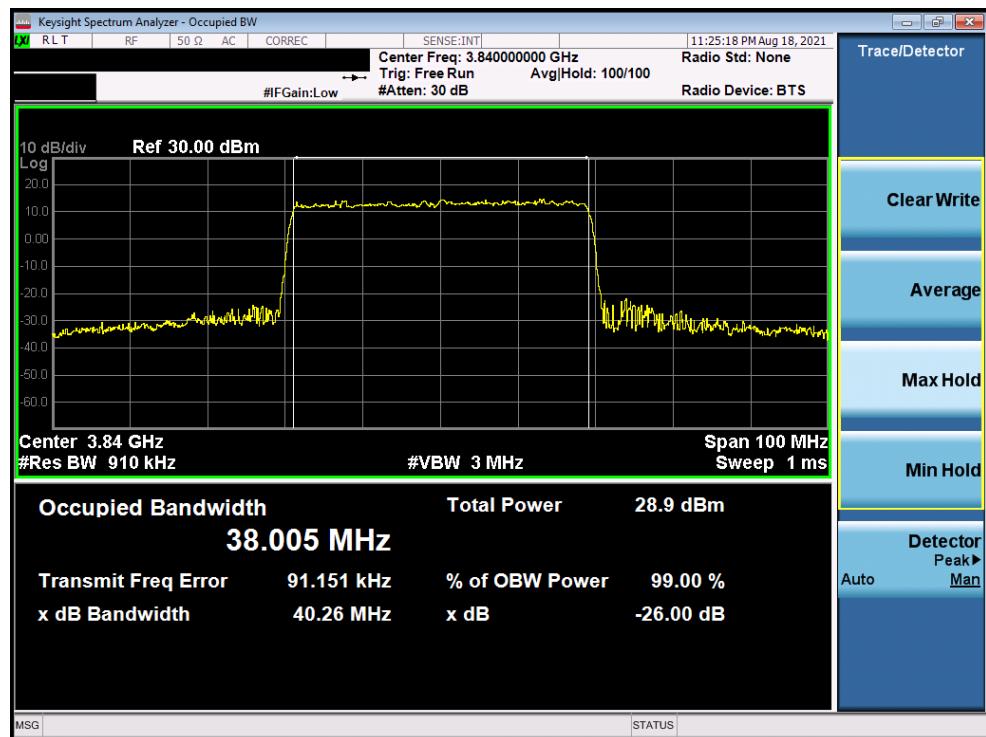


Plot 7-58. Occupied Bandwidth Plot (NR Band n77 - 40MHz CP-OFDM 16-QAM - Full RB)

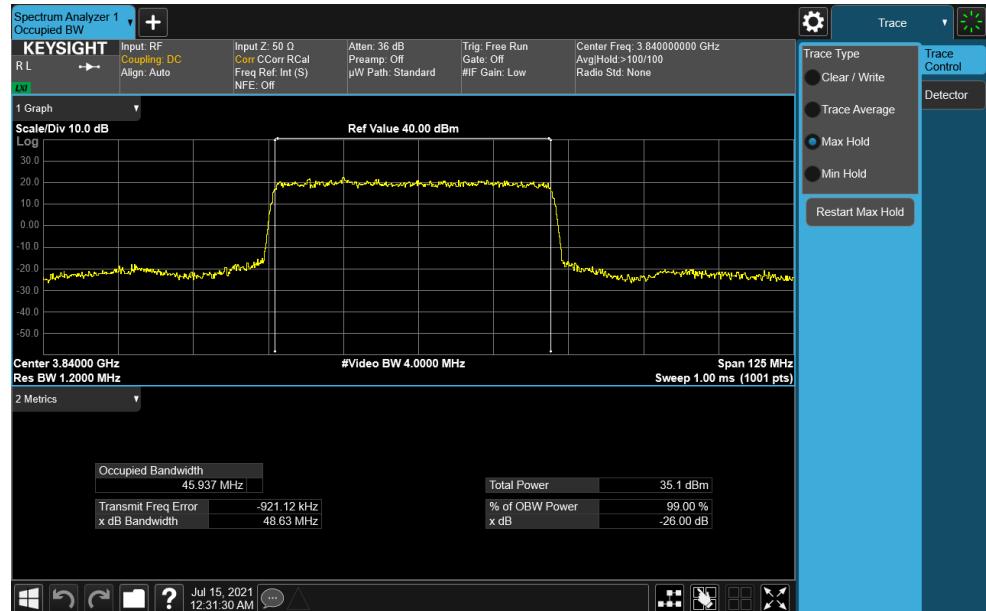


Plot 7-59. Occupied Bandwidth Plot (NR Band n77 - 40MHz CP-OFDM 64-QAM - Full RB)

FCC ID: BCGA2568	PCTEST Proud to be part of 			PART 27 MEASUREMENT REPORT	Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device			

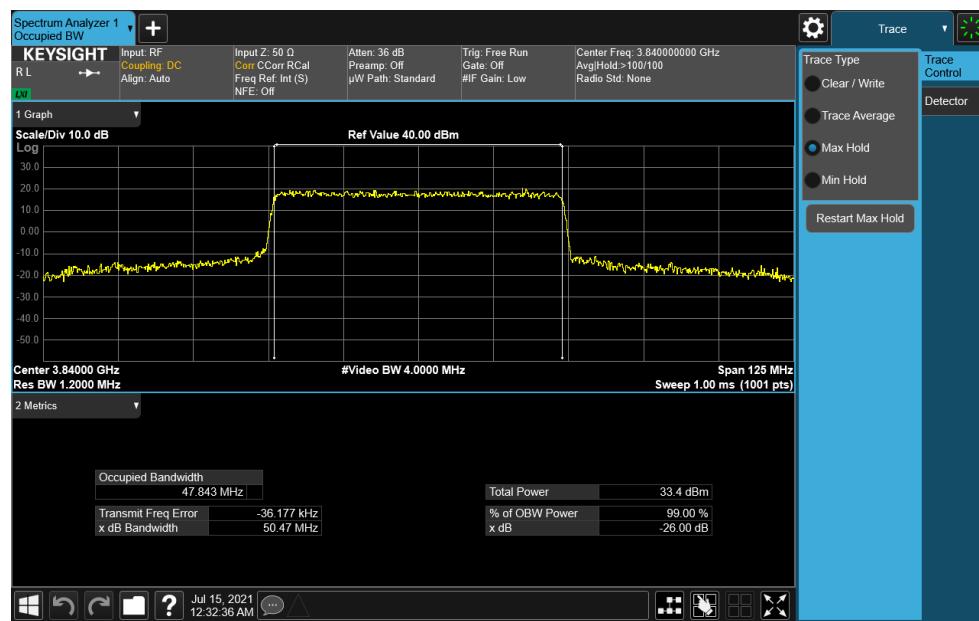


Plot 7-60. Occupied Bandwidth Plot (NR Band n77 - 40MHz CP-OFDM 256-QAM - Full RB)

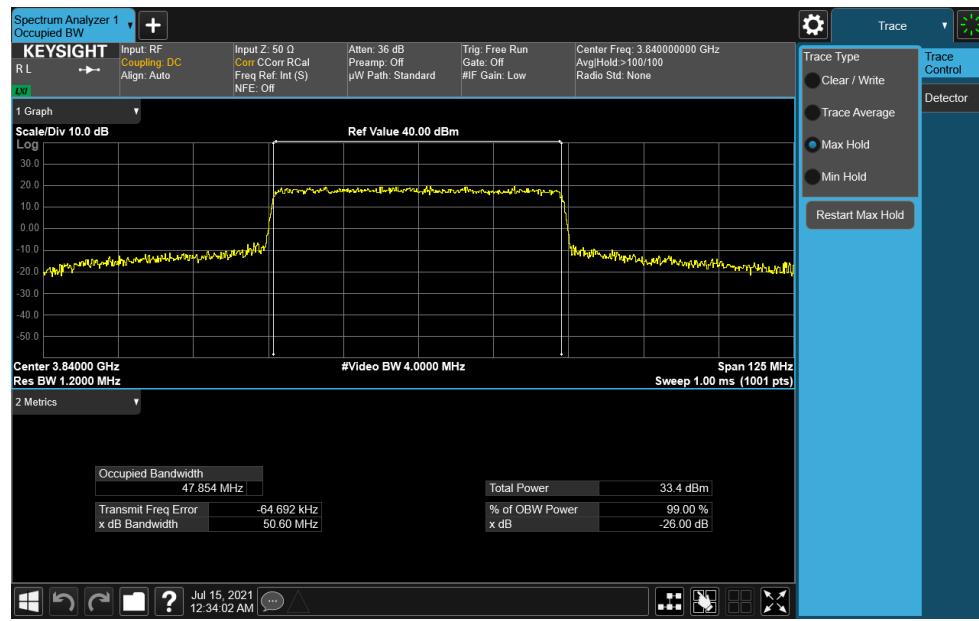


Plot 7-61. Occupied Bandwidth Plot (NR Band n77 - 50MHz DFT-s-OFDM π/2 BPSK - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 46 of 171

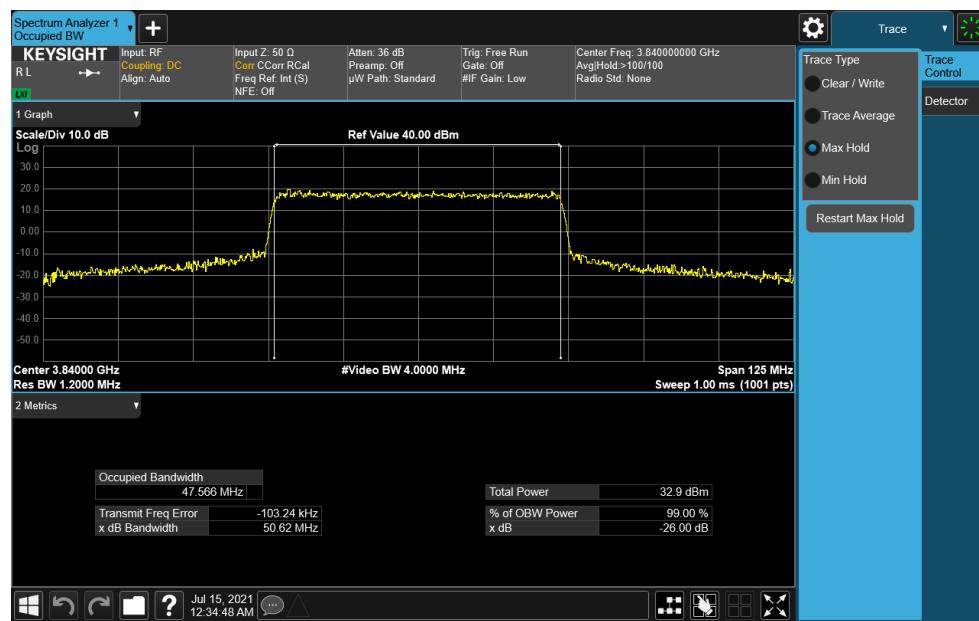


Plot 7-62. Occupied Bandwidth Plot (NR Band n77 - 50MHz CP-OFDM QPSK - Full RB)

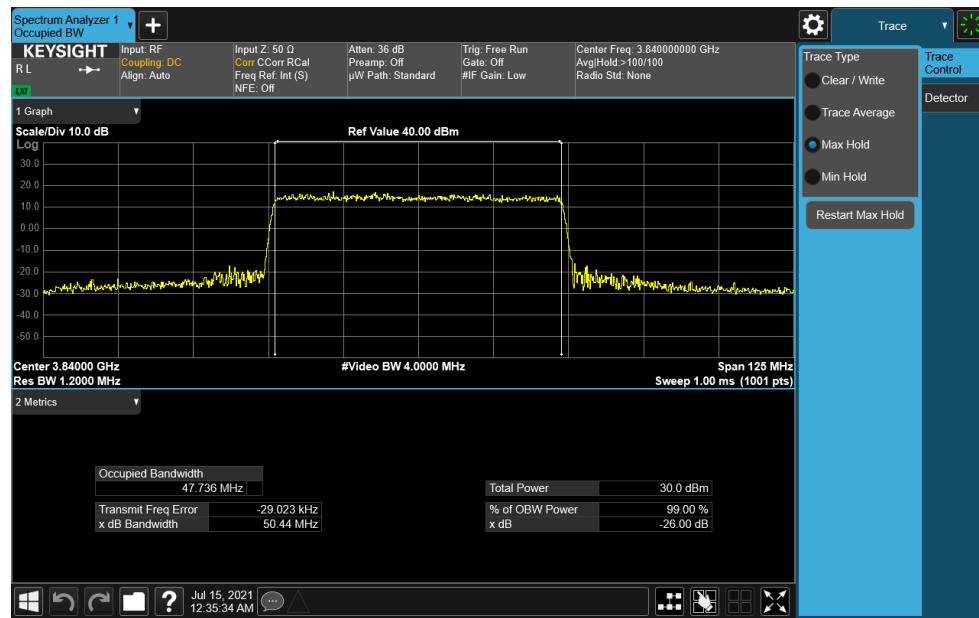


Plot 7-63. Occupied Bandwidth Plot (NR Band n77 - 50MHz CP-OFDM 16-QAM - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 47 of 171

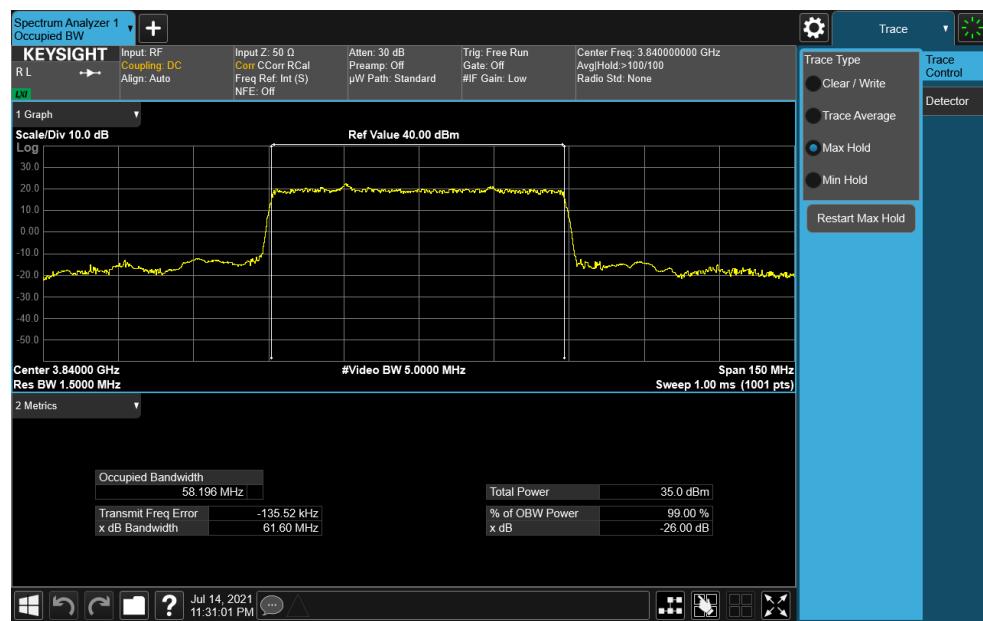


Plot 7-64. Occupied Bandwidth Plot (NR Band n77 - 50MHz CP-OFDM 64-QAM - Full RB)

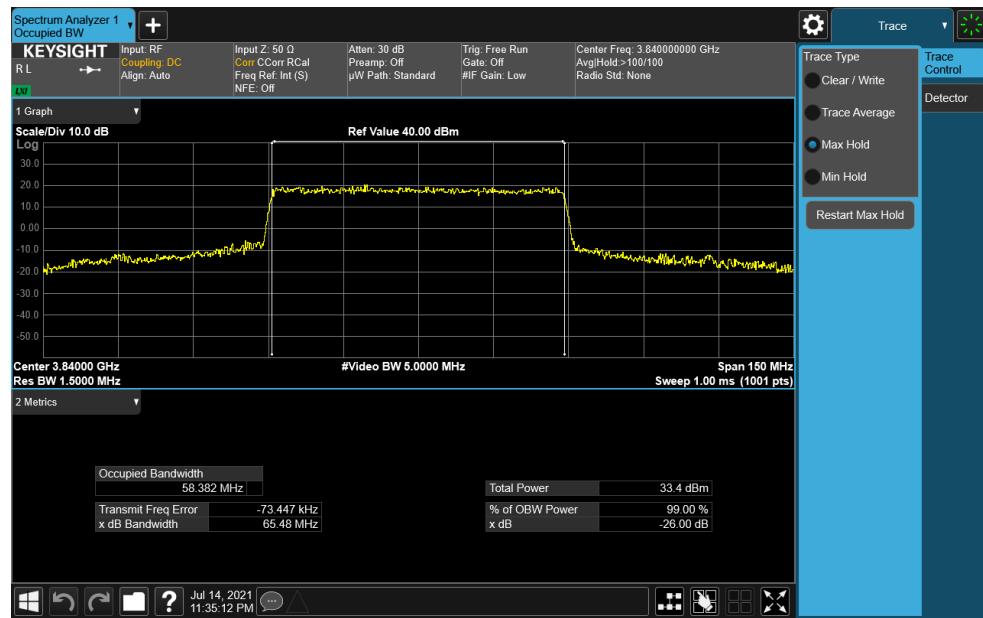


Plot 7-65. Occupied Bandwidth Plot (NR Band n77 - 50MHz CP-OFDM 256-QAM - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 48 of 171

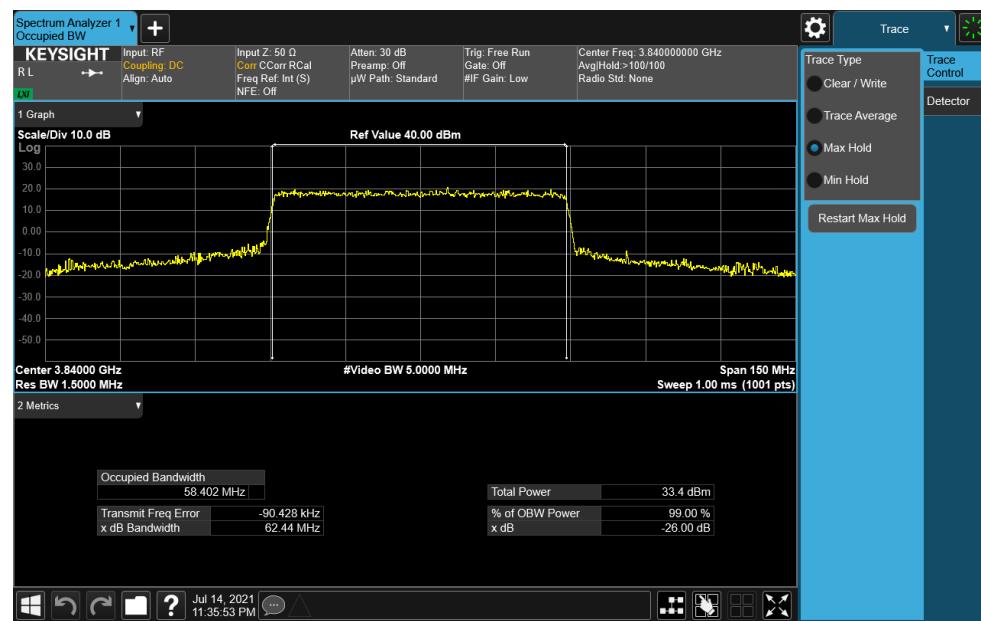


Plot 7-66. Occupied Bandwidth Plot (NR Band n77 - 60MHz DFT-s-OFDM π/2 BPSK - Full RB)

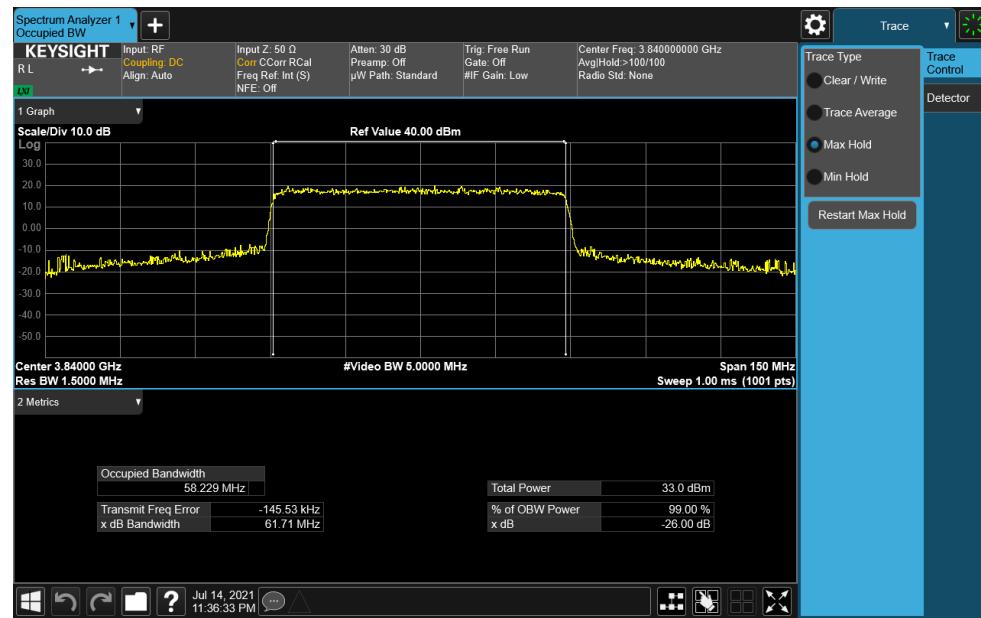


Plot 7-67. Occupied Bandwidth Plot (NR Band n77 - 60MHz CP-OFDM QPSK - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 49 of 171

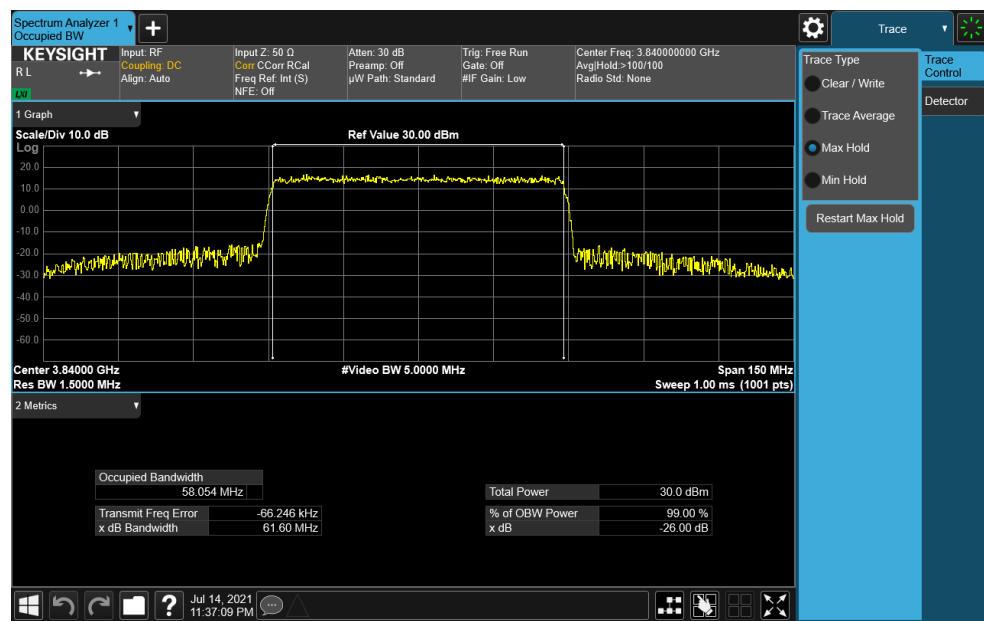


Plot 7-68. Occupied Bandwidth Plot (NR Band n77 - 60MHz CP-OFDM 16-QAM - Full RB)



Plot 7-69. Occupied Bandwidth Plot (NR Band n77 - 60MHz CP-OFDM 64-QAM - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 50 of 171

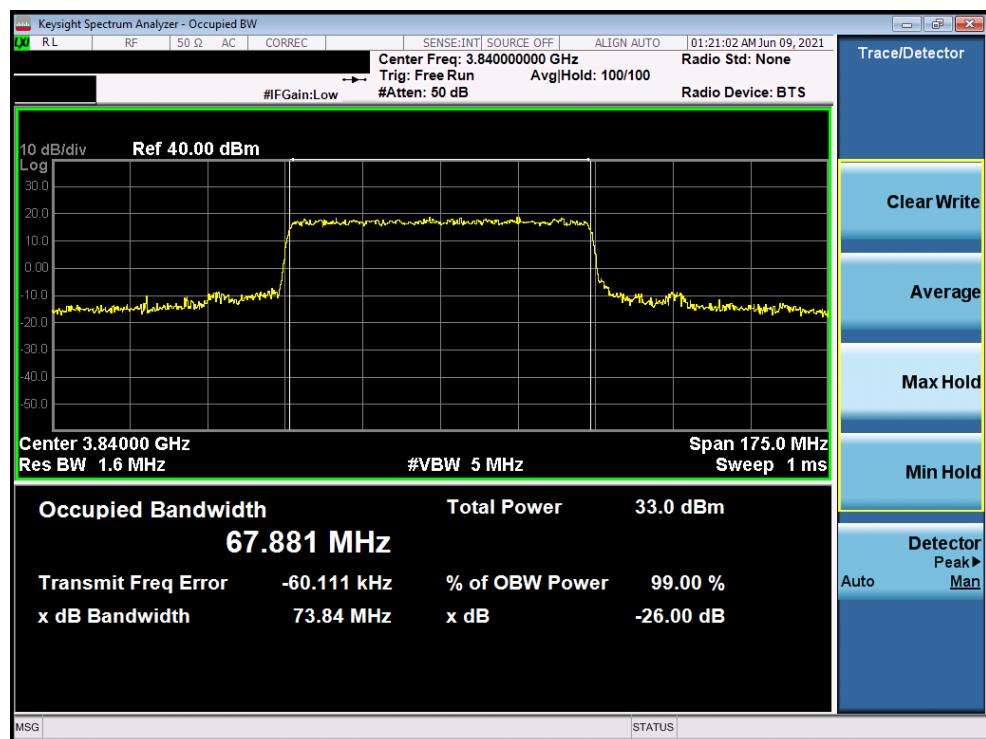


Plot 7-70. Occupied Bandwidth Plot (NR Band n77 - 60MHz CP-OFDM 256-QAM - Full RB)

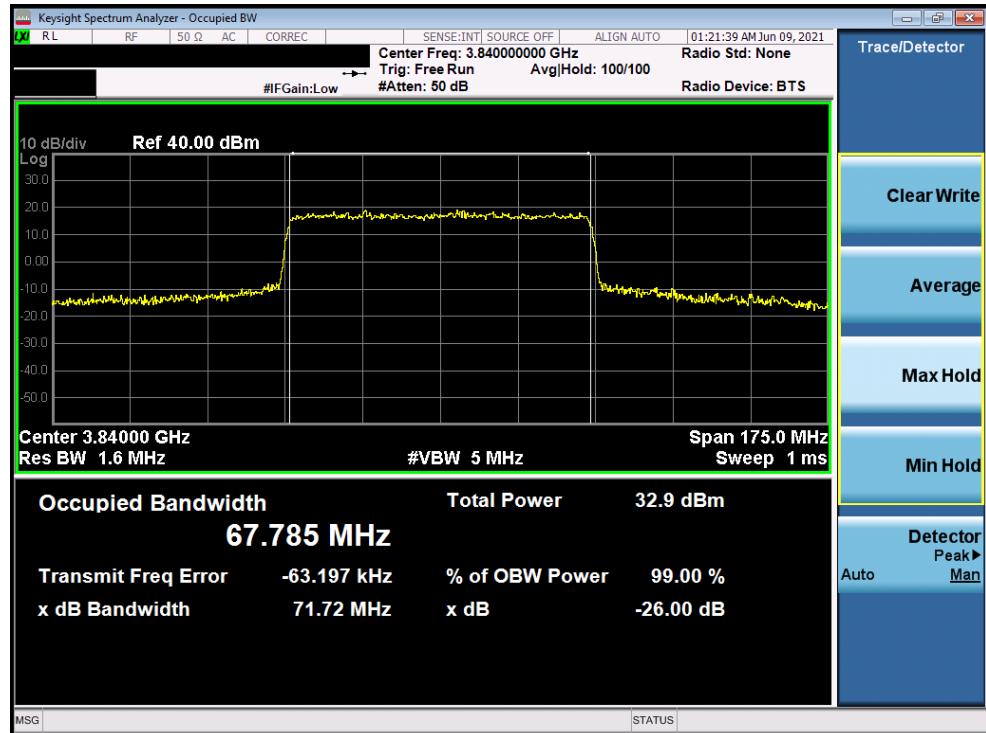


Plot 7-71. Occupied Bandwidth Plot (NR Band n77 - 70MHz DFT-s-OFDM $\pi/2$ BPSK - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 51 of 171



Plot 7-72. Occupied Bandwidth Plot (NR Band n77 - 70MHz CP-OFDM QPSK - Full RB)

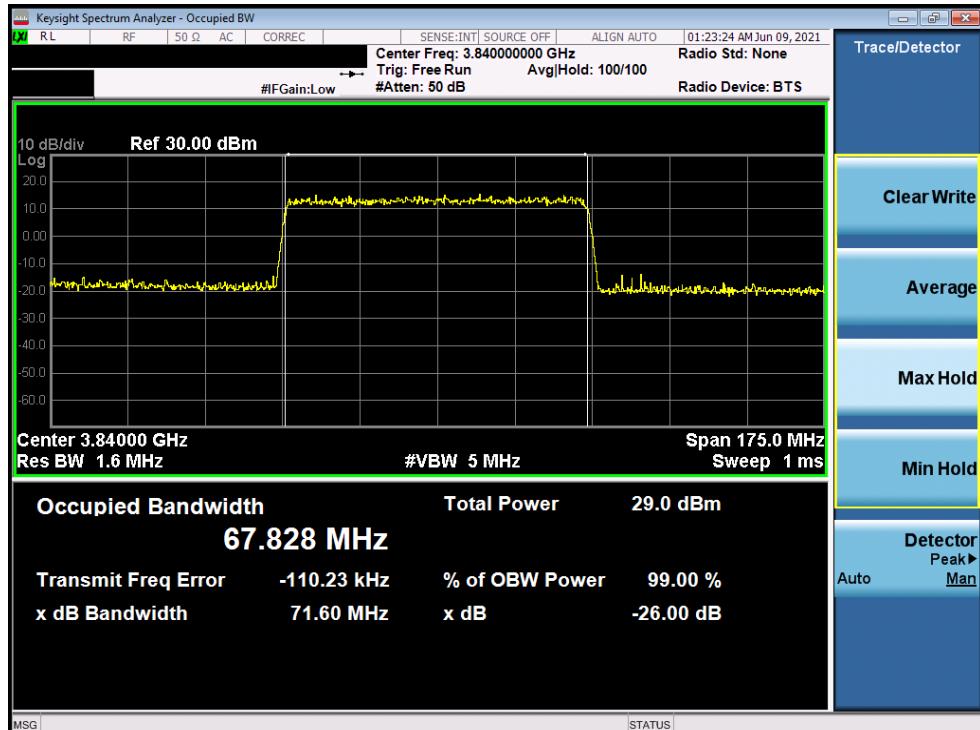


Plot 7-73. Occupied Bandwidth Plot (NR Band n77 - 70MHz CP-OFDM 16-QAM - Full RB)

FCC ID: BCGA2568	 PART 27 MEASUREMENT REPORT			Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device		Page 52 of 171

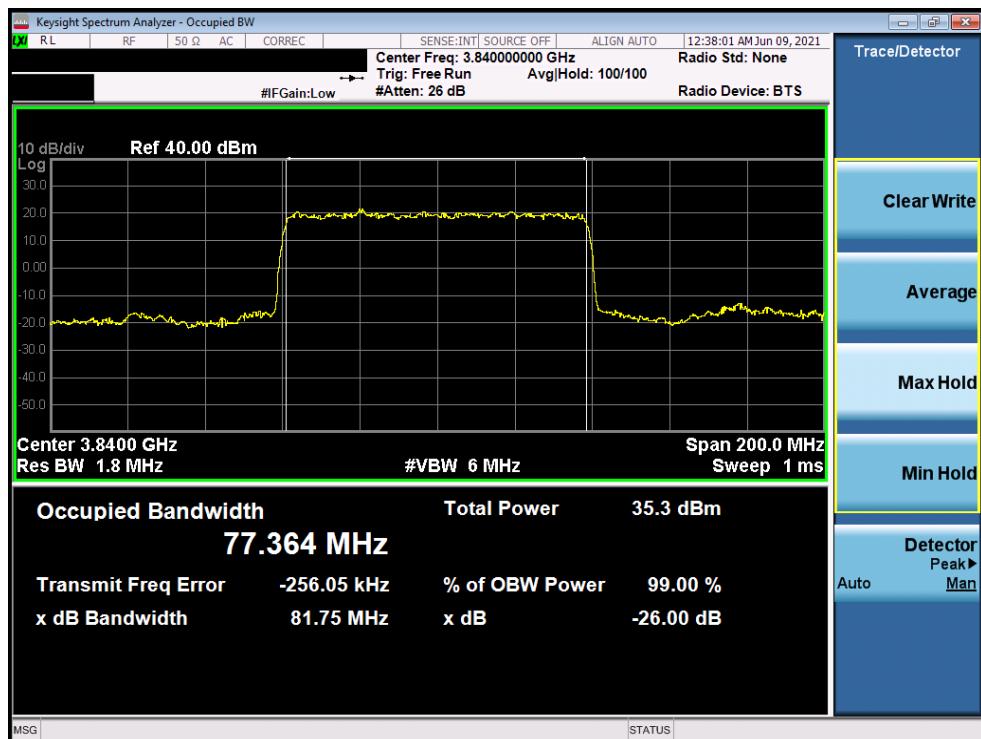


Plot 7-74. Occupied Bandwidth Plot (NR Band n77 - 70MHz CP-OFDM 64-QAM - Full RB)

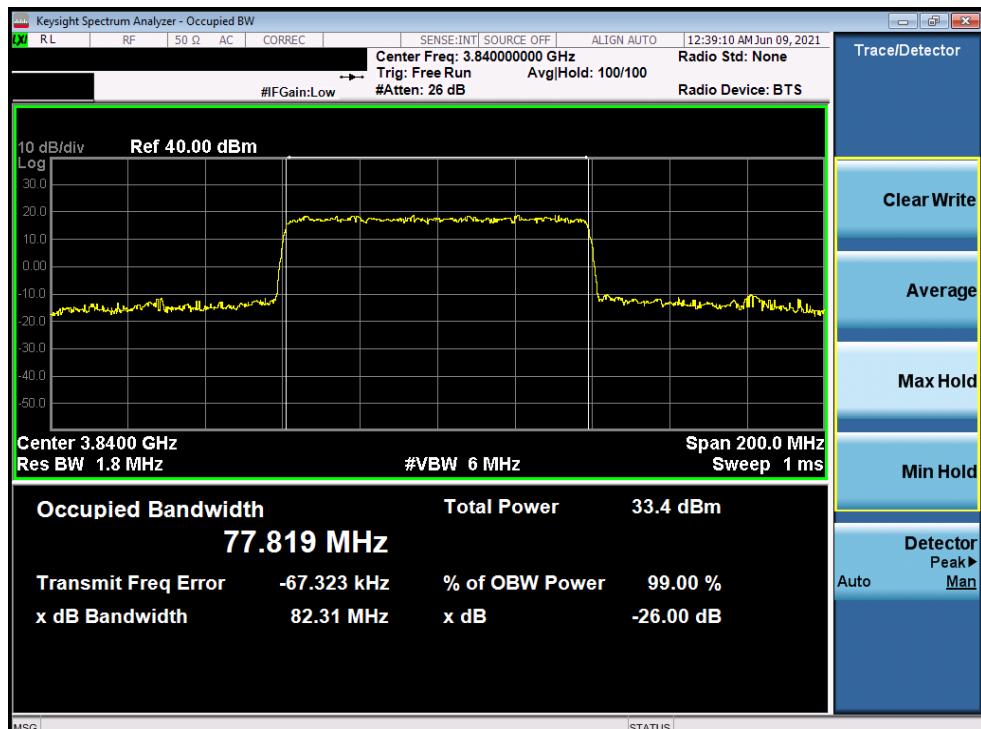


Plot 7-75. Occupied Bandwidth Plot (NR Band n77 - 70MHz CP-OFDM 256-QAM - Full RB)

FCC ID: BCGA2568	PCTEST Proud to be part of 		PART 27 MEASUREMENT REPORT	Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device		Page 53 of 171

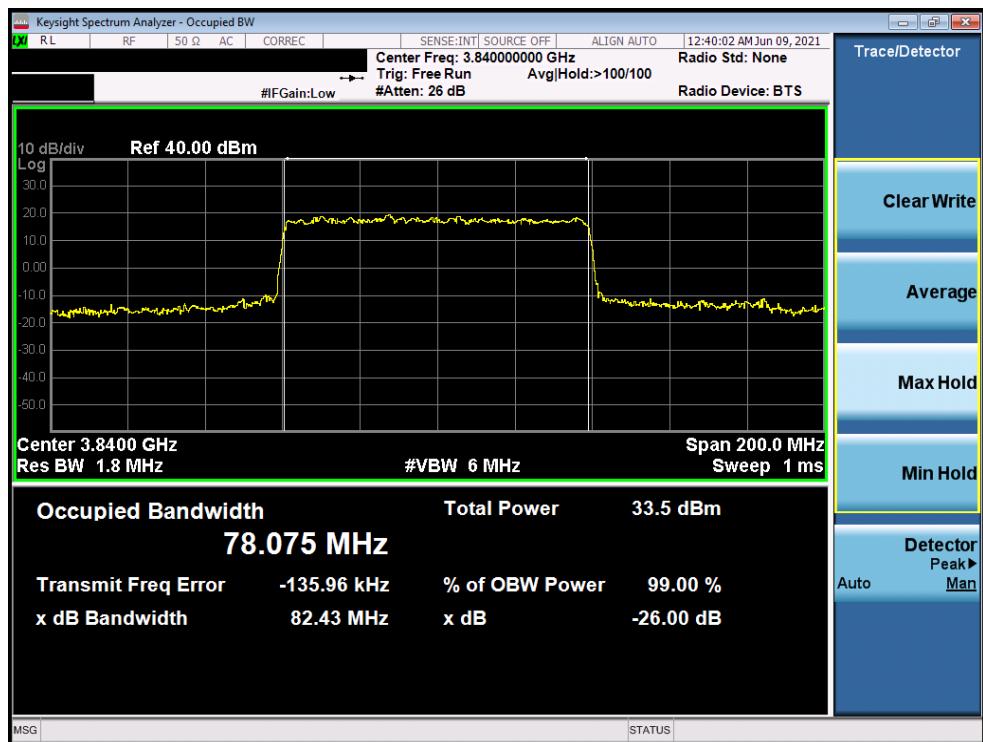


Plot 7-76. Occupied Bandwidth Plot (NR Band n77 - 80MHz DFT-s-OFDM π/2 BPSK - Full RB)



Plot 7-77. Occupied Bandwidth Plot (NR Band n77 - 80MHz CP-OFDM QPSK - Full RB)

FCC ID: BCGA2568	PART 27 MEASUREMENT REPORT		Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device	Page 54 of 171

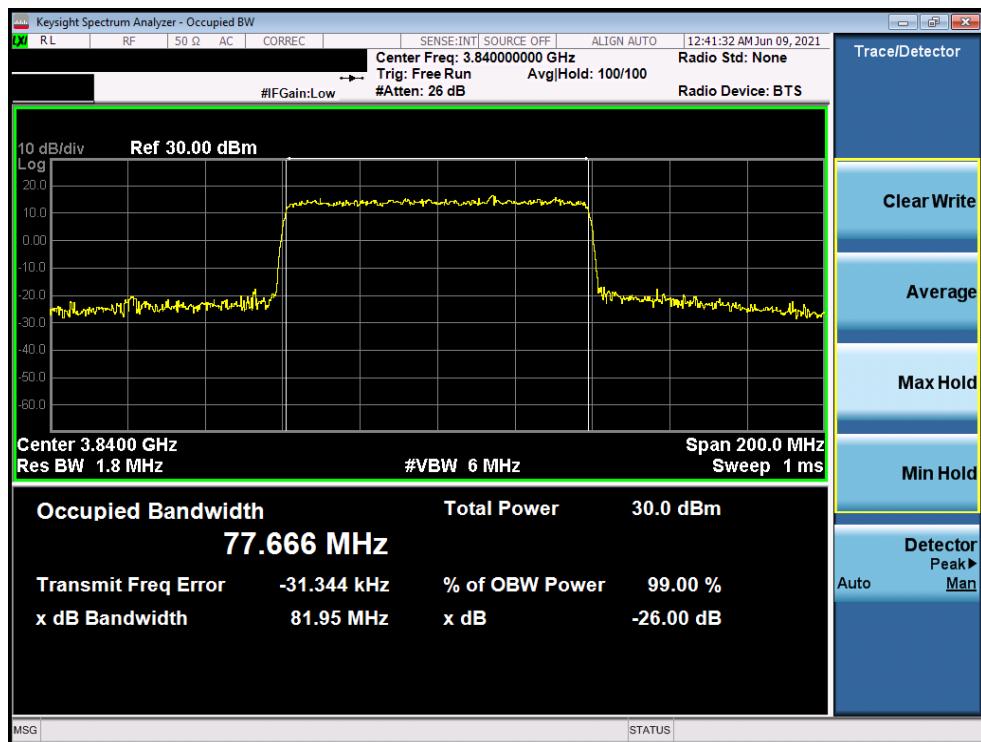


Plot 7-78. Occupied Bandwidth Plot (NR Band n77 - 80MHz CP-OFDM 16-QAM - Full RB)

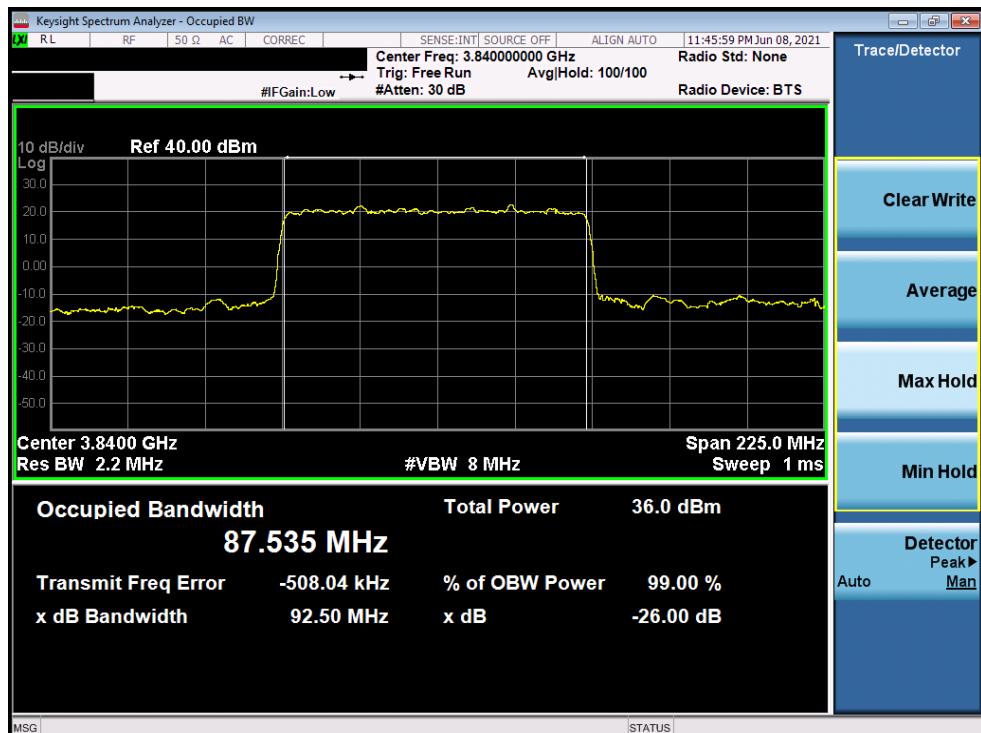


Plot 7-79. Occupied Bandwidth Plot (NR Band n77 - 80MHz CP-OFDM 64-QAM - Full RB)

FCC ID: BCGA2568	PCTEST Proud to be part of Element		PART 27 MEASUREMENT REPORT	Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device		



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



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

FCC ID: BCGA2568	PCTEST Proud to be part of 		PART 27 MEASUREMENT REPORT	Approved by: Quality Manager
Test Report S/N: 1C2106080049-05-R1.BCG	Test Dates: 6/2/2021 - 8/15/2021	EUT Type: Tablet Device		