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PART 27 MEASUREMENT REPORT

Applicant Name:
Samsung Electronics Co., Ltd.
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Gyeonggi-do, 16677, Korea

Date of Testing:
4/4/2022 - 6/21/2022
Test Report Issue Date:
6/21/2022
Test Site/Location:
Element Lab., Columbia, MD, USA
Test Report Serial No.:
1M2204010046-05.A3L

FCC ID:	**A3LSMF936U**
APPLICANT:	**Samsung Electronics Co., Ltd.**

Application Type:	Certification
Model:	SM-F936U
Additional Model(s):	SM-F936U1
EUT Type:	Portable Handset
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part:	27
Test Procedure(s):	ANSI C63.26-2015, KDB 648474 D03 v01r04

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

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

RJ Ortanez
Executive Vice President

ACCREDITED
CERT #2041.01

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Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	ERP		EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	Max. Power [W]	Max. Power [dBm]	
LTE Band 71 Ant A	20 MHz	QPSK	673.0 - 688.0	0.059	17.72	0.097	19.87	17M9G7D
		16QAM	673.0 - 688.0	0.052	17.18	0.086	19.33	17M9W7D
	15 MHz	QPSK	670.5 - 690.5	0.060	17.81	0.099	19.96	13M5G7D
		16QAM	670.5 - 690.5	0.052	17.18	0.086	19.33	13M5W7D
	10 MHz	QPSK	668.0 - 693.0	0.064	18.04	0.104	20.19	9M00G7D
		16QAM	668.0 - 693.0	0.051	17.11	0.084	19.26	9M01W7D
	5 MHz	QPSK	665.5 - 695.5	0.061	17.87	0.100	20.02	4M53G7D
		16QAM	665.5 - 695.5	0.058	17.65	0.095	19.80	4M53W7D
LTE Band 12 Ant A	10 MHz	QPSK	704.0 - 711.0	0.068	18.31	0.111	20.46	9M04G7D
		16QAM	704.0 - 711.0	0.056	17.47	0.092	19.62	9M01W7D
	5 MHz	QPSK	701.5 - 713.5	0.069	18.40	0.114	20.55	4M53G7D
		16QAM	701.5 - 713.5	0.056	17.47	0.092	19.62	4M53W7D
	3 MHz	QPSK	700.5 - 714.5	0.070	18.44	0.114	20.59	2M72G7D
		16QAM	700.5 - 714.5	0.054	17.33	0.089	19.48	2M72W7D
	1.4 MHz	QPSK	699.7 - 715.3	0.065	18.11	0.106	20.26	1M11G7D
		16QAM	699.7 - 715.3	0.053	17.26	0.087	19.41	1M10W7D
LTE Band 13 Ant A	10 MHz	QPSK	782.0	0.078	18.90	0.127	21.05	8M98G7D
		16QAM	782.0	0.064	18.06	0.105	20.21	9M01W7D
	5 MHz	QPSK	779.5 - 784.5	0.078	18.95	0.129	21.10	4M52G7D
		16QAM	779.5 - 784.5	0.065	18.14	0.107	20.29	4M53W7D
NR Band n71 Ant A	20 MHz	π/2 BPSK	673.0 - 688.0	0.059	17.68	0.096	19.83	17M9G7D
		QPSK	673.0 - 688.0	0.060	17.78	0.098	19.93	18M9G7D
		16QAM	673.0 - 688.0	0.047	16.68	0.076	18.83	18M9W7D
	15 MHz	π/2 BPSK	670.5 - 690.5	0.058	17.63	0.095	19.78	13M5G7D
		QPSK	670.5 - 690.5	0.060	17.79	0.099	19.94	14M2G7D
		16QAM	670.5 - 690.5	0.045	16.52	0.074	18.67	14M1W7D
	10 MHz	π/2 BPSK	668.0 - 693.0	0.058	17.64	0.095	19.79	9M01G7D
		QPSK	668.0 - 693.0	0.058	17.65	0.096	19.80	9M33G7D
		16QAM	668.0 - 693.0	0.044	16.48	0.073	18.63	9M34W7D
	5 MHz	π/2 BPSK	665.5 - 695.5	0.057	17.56	0.094	19.71	4M54G7D
		QPSK	665.5 - 695.5	0.056	17.52	0.093	19.67	4M52G7D
		16QAM	665.5 - 695.5	0.043	16.33	0.070	18.48	4M50W7D
NR Band n12 Ant A	15 MHz	π/2 BPSK	706.5 - 708.5	0.035	15.47	0.058	17.62	13M5G7D
		QPSK	706.5 - 708.5	0.036	15.50	0.058	17.65	14M2G7D
		16QAM	706.5 - 708.5	0.027	14.26	0.044	16.41	14M2W7D
	10 MHz	π/2 BPSK	704.0 - 711.0	0.035	15.42	0.057	17.57	9M03G7D
		QPSK	704.0 - 711.0	0.036	15.56	0.059	17.71	9M33G7D
		16QAM	704.0 - 711.0	0.027	14.36	0.045	16.51	9M33W7D
	5 MHz	π/2 BPSK	701.5 - 713.5	0.036	15.60	0.060	17.75	4M54G7D
		QPSK	701.5 - 713.5	0.038	15.82	0.063	17.97	4M52G7D
		16QAM	701.5 - 713.5	0.029	14.64	0.048	16.79	4M53W7D

Overview Table (<1GHz Bands)

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Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
WCDMA1700	N/A	Spread Spectrum	1712.4 - 1752.6	0.259	24.13	4M17F9W
LTE Band 66/4 Ant B	20 MHz	QPSK	1720.0 - 1770.0	0.246	23.91	18M1G7D
		16QAM	1720.0 - 1770.0	0.209	23.20	18M0W7D
	15 MHz	QPSK	1717.5 - 1772.5	0.233	23.68	13M5G7D
		16QAM	1717.5 - 1772.5	0.201	23.03	13M6W7D
	10 MHz	QPSK	1715.0 - 1775.0	0.242	23.84	9M06G7D
		16QAM	1715.0 - 1775.0	0.207	23.17	9M05W7D
	5 MHz	QPSK	1712.5 - 1777.5	0.258	24.11	4M54G7D
		16QAM	1712.5 - 1777.5	0.220	23.43	4M53W7D
	3 MHz	QPSK	1711.5 - 1778.5	0.250	23.99	2M72G7D
		16QAM	1711.5 - 1778.5	0.221	23.45	2M73W7D
	1.4 MHz	QPSK	1710.7 - 1779.3	0.241	23.81	1M10G7D
		16QAM	1710.7 - 1779.3	0.210	23.21	1M11W7D
NR Band n66 Ant B	40 MHz	π/2 BPSK	1730.0 - 1760.0	0.199	22.99	38M8G7D
		QPSK	1730.0 - 1760.0	0.196	22.92	38M9G7D
		16QAM	1730.0 - 1760.0	0.167	22.23	38M7W7D
	30 MHz	π/2 BPSK	1725.0 - 1765.0	0.188	22.75	28M8G7D
		QPSK	1725.0 - 1765.0	0.192	22.82	28M8G7D
		16QAM	1725.0 - 1765.0	0.158	21.99	28M8W7D
	20 MHz	π/2 BPSK	1720.0 - 1770.0	0.191	22.81	18M0G7D
		QPSK	1720.0 - 1770.0	0.189	22.76	19M0G7D
		16QAM	1720.0 - 1770.0	0.160	22.05	19M1W7D
	15 MHz	π/2 BPSK	1717.5 - 1772.5	0.190	22.80	13M5G7D
		QPSK	1717.5 - 1772.5	0.193	22.86	14M2G7D
		16QAM	1717.5 - 1772.5	0.159	22.03	14M2W7D
	10 MHz	π/2 BPSK	1715.0 - 1775.0	0.176	22.45	9M04G7D
		QPSK	1715.0 - 1775.0	0.177	22.49	9M36G7D
		16QAM	1715.0 - 1775.0	0.155	21.90	9M34W7D
	5 MHz	π/2 BPSK	1712.5 - 1777.5	0.183	22.63	4M54G7D
		QPSK	1712.5 - 1777.5	0.183	22.63	4M53G7D
		16QAM	1712.5 - 1777.5	0.164	22.15	4M50W7D

Overview Table (>1GHz Bands)

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
LTE Band 66/4 Ant F	20 MHz	QPSK	1720.0 - 1770.0	0.288	24.60	18M0G7D
		16QAM	1720.0 - 1770.0	0.234	23.69	18M0W7D
	15 MHz	QPSK	1717.5 - 1772.5	0.282	24.51	13M5G7D
		16QAM	1717.5 - 1772.5	0.232	23.66	13M5W7D
	10 MHz	QPSK	1715.0 - 1775.0	0.291	24.64	9M07G7D
		16QAM	1715.0 - 1775.0	0.231	23.63	9M04W7D
	5 MHz	QPSK	1712.5 - 1777.5	0.291	24.64	4M55G7D
		16QAM	1712.5 - 1777.5	0.236	23.72	4M55W7D
	3 MHz	QPSK	1711.5 - 1778.5	0.289	24.61	2M73G7D
		16QAM	1711.5 - 1778.5	0.247	23.92	2M73W7D
	1.4 MHz	QPSK	1710.7 - 1779.3	0.289	24.61	1M10G7D
		16QAM	1710.7 - 1779.3	0.251	24.00	1M11W7D
NR Band n66 Ant F	40 MHz	π/2 BPSK	1730.0 - 1760.0	0.237	23.75	38M7G7D
		QPSK	1730.0 - 1760.0	0.230	23.61	38M8G7D
		16QAM	1730.0 - 1760.0	0.165	22.18	38M7W7D
	30 MHz	π/2 BPSK	1725.0 - 1765.0	0.243	23.85	28M8G7D
		QPSK	1725.0 - 1765.0	0.232	23.66	28M6G7D
		16QAM	1725.0 - 1765.0	0.164	22.14	28M7W7D
	20 MHz	π/2 BPSK	1720.0 - 1770.0	0.237	23.76	18M0G7D
		QPSK	1720.0 - 1770.0	0.233	23.68	19M0G7D
		16QAM	1720.0 - 1770.0	0.157	21.95	19M1W7D
	15 MHz	π/2 BPSK	1717.5 - 1772.5	0.250	23.97	13M5G7D
		QPSK	1717.5 - 1772.5	0.235	23.71	14M2G7D
		16QAM	1717.5 - 1772.5	0.163	22.13	14M2W7D
	10 MHz	π/2 BPSK	1715.0 - 1775.0	0.232	23.66	9M03G7D
		QPSK	1715.0 - 1775.0	0.226	23.54	9M35G7D
		16QAM	1715.0 - 1775.0	0.159	22.02	9M34W7D
	5 MHz	π/2 BPSK	1712.5 - 1777.5	0.234	23.70	4M54G7D
		QPSK	1712.5 - 1777.5	0.227	23.56	4M53G7D
		16QAM	1712.5 - 1777.5	0.153	21.86	4M51W7D

Overview Table (>1GHz Bands)

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1.0 INTRODUCTION

1.1 Scope

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

1.2 Element Test Location

These measurement tests were conducted at the Element laboratory 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 Element Lab located in Columbia, MD 21046, U.S.A.

- Element Washington DC LLC is an ISO 17025-2017 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.

- Element Washington DC LLC TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).

- Element Washington DC LLC facility is a registered (2451B) test laboratory with the site description on file with ISED.

- Element Washington DC LLC is a Recognized U.S. Certification Assessment Body (CAB # US0110) for ISED Canada as designated by NIST under the U.S. and Canada Mutual Recognition Agreement.

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Handset FCC ID: A3LSMF936U**. 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.: 0072M, 0061M, 0047M, 0060M, 1777M, 1817M, 1781M, 1774M

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850/1700/1900 WCDMA/HSPA, Multi-band LTE, Multi-band 5G NR (FR1 and FR2), 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII (5,6GHz), Bluetooth (1x, EDR, LE), NFC, UWB, Wireless Power Transfer.

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 C63.26-2015. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

This device supports three configurations: one is with screen open, one is with the screen at 90 degrees, and one is with screen closed. All configurations are tested, and the worst case radiated emissions data is shown in this report.

This device supports two additional antenna configurations for LTE Low bands [AFS operation]: one is with two antennas transmitting from one feed (Ant A + Ant B), and one is with a singular antenna transmitting (Ant A). Both configurations are tested, and the worst case radiated emissions data is shown in this report.

This device supports wireless charging capability and, thus, is subject to the test requirements of KDB 648474 D03 v01r04. Additional radiated spurious emission measurements were performed with the EUT lying flat on an authorized wireless charging pad (WCP) Model: EP-N5100 while operating under normal conditions in a simulated call or data transmission configuration. The worst case radiated emissions data is shown in this report.

2.4 Software and Firmware

Testing was performed on device(s) using software/firmware version F936USQU0AVEC installed on the EUT.

2.5 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 "American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services" (ANSI C63.26-2015) were used in the measurement of the EUT**.**

Deviation from Measurement Procedure……..None

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.

For radiated power measurements, substitution method is used per the guidance of ANSI C63.26-2015. For emissions below 1GHz, a half-wave dipole is substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

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

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

For radiated spurious emissions measurements, the field strength conversion method is used per the formulas in Section 5.2.7 of ANSI C63.26-2015. Field Strength (EIRP) is calculated using the following formulas:

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

And

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

All radiated measurements are performed in a chamber that meets the site requirements per ANSI C63.4-2014. 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 414788 D01 v01r01.

Radiated power and radiated spurious emission levels are investigated with the receive antenna horizontally and vertically polarized per ANSI C63.26-2015.

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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 (±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
-	LTx1	Licensed Transmitter Cable Set	12/9/2021	Annual	12/9/2022	LTx1
-	LTx2	Licensed Transmitter Cable Set	12/19/2021	Annual	12/19/2022	LTx2
-	LTx3	LIcensed Transmitter Cable Set	8/18/2021	Annual	8/18/2022	LTx3
-	LTx4	Licensed Transmitter Cable Set	12/19/2021	Annual	12/19/2022	LTx4
-	LTx5	LIcensed Transmitter Cable Set	12/19/2021	Annual	12/19/2022	LTx5
Agilent	N9020A	MXA Signal Analyzer	3/4/2022	Annual	3/4/2023	US46470561
Agilent	N9038A	MXE EMI Receiver	1/21/2022	Annual	1/21/2023	MY51210133
Anritsu	MT8820C	Radio Communication Analyzer	N/A			6201300731
Anritsu	MT8821C	Radio Communication Analyzer	N/A			6201381794
Anritsu	MT8821C	Radio Communication Analyzer	N/A			6200901190
Emco	3115	Horn Antenna (1-18GHz)	6/18/2020	Biennial	6/18/2022	9704-5182
Espec	ESX-2CA	Environmental Chamber	5/25/2022	Annual	5/25/2023	17620
Keysight Technologies	N9030A	PXA Signal Analyzer (3Hz-26.5GHz)	2/14/2022	Annual	2/14/2023	MY54490576
Keysight Technologies	N9020A	MXA Signal Analyzer	3/15/2022	Annual	3/15/2023	MY54500644
Mini Circuits	TVA-11-422	RF Power Amp	N/A			QA1317001
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11208010032
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11403100002
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A			100976
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A			112347
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A			102060
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	5/25/2021	Annual	5/25/2022	100348
Rohde & Schwarz	FSW67	Signal / Spectrum Analyzer	8/25/2021	Annual	8/25/2022	103200
Sunol	DRH-118	Horn Antenna (1-18GHz)	2/14/2022	Biennial	2/14/2024	A050307
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	7/27/2020	Biennial	7/27/2022	A051107

Table 5-1. Test Equipment

Notes:

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

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

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6.0 SAMPLE CALCULATIONS

Emission Designator

WCDMA Emission Designator

Emission Designator = 4M16F9W

WCDMA BW = 4.16 MHz
F = Frequency Modulation
9 = Composite Digital Info
W = Combination (Audio/Data)

QPSK Modulation

Emission Designator = 8M62G7D

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

QAM Modulation

Emission Designator = 8M45W7D

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

Spurious Radiated Emission – LTE Band

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

The average spectrum analyzer reading at 3 meters with the EUT on the turntable was –81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of –81.0 dBm on the spectrum analzyer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 1564 MHz. So, 6.1 dB is added to the signal generator reading of –30.9 dBm yielding –24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm – (-24.80) = 50.3 dBc.

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7.0 TEST RESULTS

7.1 Summary

Company Name: Samsung Electronics Co., Ltd.

FCC ID: A3LSMF936U

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

Mode(s): WCDMA/LTE/NR/UL-CA

Test Condition	Test Description	FCC Part Section(s)	Test Limit	Test Result	Reference
CONDUCTED	Transmitter Conducted Output Power*	2.1046(a), 2.1046(c)	N/A	PASS	Section 7.2
	Occupied Bandwidth	2.1049(h)	N/A	PASS	Section 7.3
	Conducted Band Edge / Spurious Emissions (LTE Band 13)	2.1051, 27.53(c), 27.53(f)	Undesirable emissions must meet the limits detailed in sections 27.53(c) and 27.53(f)	PASS	Sections 7.4, 7.5
	Conducted Band Edge / Spurious Emissions (LTE Band 12, 17, 71; NR Band n12, n71)	2.1051, 27.53(g)	≥ 43 + 10 log (P[Watts]) dB of attenuation below transmitter power	PASS	Sections 7.4, 7.5
	Conducted Band Edge / Spurious Emissions (WCDMA AWS; LTE Band 4, 66; NR Band n66)	2.1051, 27.53(h)	≥ 43 + 10 log (P[Watts]) dB of attenuation below transmitter power	PASS	Sections 7.4, 7.5
	Peak-to-Average Ratio (WCDMA AWS; LTE Band 4, 66; NR Band n66)	27.50(d)(5)	≤ 13 dB	PASS	Section 7.6
	Frequency Stability	2.1055, 27.54	Fundamental emissions stay within authorized frequency block	PASS	Section 7.9
RADIATED	Effective Radiated Power (LTE Band 13)	27.50(b)(10)	≤ 3 Watts max. ERP	PASS	Section 7.7
	Effective Radiated Power (LTE Band 12, 17, 71; NR Band n12, n71)	27.50(c)(10)	≤ 3 Watts max. ERP	PASS	Section 7.7
	Equivalent Isotropic Radiated Power (WCDMA AWS; LTE Band 4, 66; NR Band n66)	27.50(d)(4)	≤ 1 Watt max. EIRP	PASS	Section 7.7
	Radiated Spurious Emissions (LTE Band 13)	2.1053, 27.53(c), 27.53(f)	Undesirable emissions must meet the limits detailed in sections 27.53(c) and 27.53(f)	PASS	Section 7.8
	Radiated Spurious Emissions (LTE Band 12, 17, 71; NR Band n12, n71)	2.1053, 27.53(g)	≥ 43 + 10 log (P[Watts]) dB of attenuation below transmitter power	PASS	Section 7.8
	Radiated Spurious Emissions (WCDMA AWS; LTE Band 4, 66; NR Band n66)	2.1053, 27.53(h)(1)	≥ 43 + 10 log (P[Watts]) dB of attenuation below transmitter power	PASS	Section 7.8

* The only transmitter output conducted powers included in this report are those where the Pmax value, per the tune-up document, is higher than any of the DSI power levels. For the remaining conducted power measurements, see the **RF Exposure Report**.

Table 7-1. Summary of Test Results (FCC)

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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 shown in Section 7.0 were 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 EMC Software Tool v1.1.

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7.2 Conducted Output Power Data

Test Overview

All emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

Test Procedure Used

ANSI C63.26-2015 – Section 5.2

Test Settings

1. Detector = RMS
2. Trace mode = trace average for continuous emissions, max hold for pulse emissions
3. Sweep time = auto couple
4. The trace was allowed to stabilize
5. Please see test notes below for RBW and VBW settings

Test Setup

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

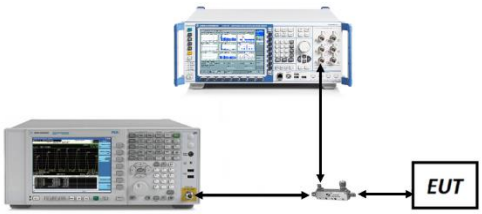

Figure 7-1. Test Instrument & Measurement Setup

Test Notes

1. Uplink carrier aggregation is only supported in this EUT while operating in Power Class 3.

2. Conducted power measurements were evaluated using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device.

3. All other conducted power measurements are contained in the RF exposure report for this filing.

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Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
20 MHz	QPSK	132072	1720.0	1 / 50	24.92
		132322	1745.0	1 / 50	24.93
		132572	1770.0	1 / 0	24.67
	16-QAM	132322	1745.0	1 / 50	24.25
15 MHz	QPSK	132047	1717.5	1 / 37	24.85
		132322	1745.0	1 / 37	24.84
		132597	1772.5	1 / 0	24.75
	16-QAM	132322	1745.0	1 / 37	24.22
10 MHz	QPSK	132022	1715.0	1 / 25	24.98
		132322	1745.0	1 / 25	24.97
		132622	1775.0	1 / 25	24.66
	16-QAM	132322	1745.0	1 / 25	24.20
5 MHz	QPSK	131997	1712.5	1 / 12	24.95
		132322	1745.0	1 / 12	24.97
		132647	1777.5	1 / 0	24.91
	16-QAM	132322	1745.0	1 / 12	24.29
3 MHz	QPSK	131987	1711.5	1 / 7	24.98
		132322	1745.0	1 / 7	24.94
		132657	1778.5	1 / 14	24.76
	16-QAM	132322	1745.0	1 / 0	24.49
1.4 MHz	QPSK	131979	1710.7	1 / 0	24.97
		132322	1745.0	1 / 0	24.95
		132665	1779.3	1 / 3	24.84
	16-QAM	132322	1745.0	1 / 0	24.57

Table 7-2. Conducted Max Powers (LTE Band B66/4 – Ant F)

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Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
40 MHz	π/2 BPSK	346000	1730.0	1 / 161	24.15
		349000	1745.0	1 / 108	24.24
		352000	1760.0	1 / 54	24.28
	QPSK	346000	1730.0	1 / 161	23.98
		349000	1745.0	1 / 161	24.04
		352000	1760.0	1 / 54	23.93
	16-QAM	346000	1730.0	1 / 108	23.35
30 MHz	π/2 BPSK	345000	1725.0	1 / 119	24.25
		349000	1745.0	1 / 40	24.11
		353000	1765.0	1 / 119	24.10
	QPSK	345000	1725.0	1 / 119	24.03
		349000	1745.0	1 / 80	24.18
		353000	1765.0	1 / 119	24.00
	16-QAM	345000	1725.0	1 / 40	23.31
20 MHz	π/2 BPSK	344000	1720.0	1 / 79	24.15
		349000	1745.0	1 / 79	24.26
		354000	1770.0	1 / 26	24.20
	QPSK	344000	1720.0	1 / 79	24.04
		349000	1745.0	1 / 26	24.11
		354000	1770.0	1 / 26	24.04
	16-QAM	344000	1720.0	1 / 79	23.12
15 MHz	π/2 BPSK	343500	1717.5	1 / 58	24.37
		349000	1745.0	1 / 58	24.30
		354500	1772.5	1 / 58	24.10
	QPSK	343500	1717.5	1 / 58	24.07
		349000	1745.0	1 / 58	24.10
		354500	1772.5	1 / 58	24.07
	16-QAM	349000	1745.0	1 / 58	23.58
10 MHz	π/2 BPSK	343000	1715.0	1 / 26	24.06
		349000	1745.0	1 / 26	24.13
		355000	1775.0	1 / 26	24.03
	QPSK	343000	1715.0	1 / 38	23.91
		349000	1745.0	1 / 26	24.03
		355000	1775.0	1 / 26	23.84
	16-QAM	349000	1745.0	1 / 13	23.47
5 MHz	π/2 BPSK	342500	1712.5	1 / 18	24.10
		349000	1745.0	1 / 12	24.03
		355500	1777.5	1 / 12	24.01
	QPSK	342500	1712.5	1 / 6	23.93
		349000	1745.0	1 / 6	23.97
		355500	1777.5	1 / 18	23.80
	16-QAM	342500	1712.5	1 / 18	23.02

Table 7-3. Conducted Max Powers (NR n66/4 – Ant F)

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Power State	Band	Bandwidth (PCC + SCC)	PCC					SCC					ULCA Tx. Power [dBm]
			Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	Modulation	UL Channel	UL Frequency	UL # RB	UL RB Offset	
Max	LTE B66	20MHz + 20MHz	QPSK	132072	1720.0	1	99	QPSK	132270	1739.8	1	0	24.62
				132322	1745.0	1	99		132520	1764.8	1	0	24.52
				132572	1770.0	1	0		132374	1750.2	1	99	24.26
			QPSK	132072	1720	100	0	QPSK	132270	1739.8	100	0	22.59
			16-QAM	132072	1720	100	0	16-QAM	132270	1739.8	100	0	21.68
			64-QAM	132072	1720	100	0	64-QAM	132270	1739.8	100	0	21.61
			256-QAM	132072	1720	100	0	256-QAM	132270	1739.8	100	0	19.53

Table 7-4. Conducted Powers (Uplink CA LTE Band 66B/C – Ant B)

NR (SCS 15kHz)						LTE						NR Conducted Power [dBm]	LTE Conducted Power [dBm]	EN-DC Total Tx. Power [dBm]
NR Band	NR Bandwidth [MHz]	NR Channel	NR Frequency [MHz]	Mod.	NR RB#/Offset	LTE Band	LTE Bandwidth [MHz]	LTE Channel	LTE Frequency [MHz]	Mod.	LTE RB#/Offset			
n71	20	Mid	680.5	QPSK	100/0	B2	20	Mid	1880	QPSK	100/0	19.36	22.51	24.22
				QPSK	100/0					QPSK	1/50	19.41	22.69	24.36
				QPSK	1/53					QPSK	100/0	19.31	22.59	24.26
				QPSK	1/53					QPSK	1/50	19.36	22.66	24.33
				16Q	100/0					16Q	1/50	18.35	22.94	24.24

Table 7-5. Conducted Max Powers (EN-DC Combo n71 – B2)

NR (SCS 15kHz)						LTE						NR Conducted Power [dBm]	LTE Conducted Power [dBm]	EN-DC Total Tx. Power [dBm]
NR Band	NR Bandwidth [MHz]	NR Channel	NR Frequency [MHz]	Mod.	NR RB#/Offset	LTE Band	LTE Bandwidth [MHz]	LTE Channel	LTE Frequency [MHz]	Mod.	LTE RB#/Offset			
n71	20	Mid	680.5	QPSK	100/0	48	20	Mid	3625	QPSK	100/0	20.05	19.01	22.57
				QPSK	100/0					QPSK	1/50	19.89	19.59	22.75
				QPSK	1/53					QPSK	100/0	20.21	19.11	22.71
				QPSK	1/53					QPSK	1/50	20.34	19.19	22.81
				16Q						16Q	1/50	20.01	19.01	22.55

Table 7-6. Conducted Max Powers (EN-DC Combo n71 – B48)

NR (SCS 15kHz)						LTE						NR Conducted Power [dBm]	LTE Conducted Power [dBm]	EN-DC Total Tx. Power [dBm]
NR Band	NR Bandwidth [MHz]	NR Channel	NR Frequency [MHz]	Mod.	NR RB#/Offset	LTE Band	LTE Bandwidth [MHz]	LTE Channel	LTE Frequency [MHz]	Mod.	LTE RB#/Offset			
n12	15	Mid	707.5	QPSK	75/0	B2	20	Mid	1880	QPSK	100/0	18.78	22.62	24.12
				QPSK	75/0					QPSK	1/50	18.93	23.07	24.49
				QPSK	1/39					QPSK	100/0	18.77	22.63	24.13
				QPSK	1/39					QPSK	1/50	18.77	22.86	24.29
				16Q	75/0					16Q	1/50	18.84	22.88	24.32

Table 7-7. Conducted Max Powers (EN-DC Combo n12 – B2)

NR (SCS 15kHz)						LTE						NR Conducted Power [dBm]	LTE Conducted Power [dBm]	EN-DC Total Tx. Power [dBm]
NR Band	NR Bandwidth [MHz]	NR Channel	NR Frequency [MHz]	Mod.	NR RB#/Offset	LTE Band	LTE Bandwidth [MHz]	LTE Channel	LTE Frequency [MHz]	Mod.	LTE RB#/Offset			
n66	40	Mid	1745	QPSK	216/0	13	10	Mid	782	QPSK	50/0	18.46	22.70	24.09
				QPSK	216/0					QPSK	1/25	18.50	22.68	24.08
				QPSK	1/108					QPSK	50/0	18.40	22.68	24.06
				QPSK	1/108					QPSK	1/25	18.56	22.72	24.13
				16Q	1/108					16Q	1/25	18.27	22.81	24.12

Table 7-8. Conducted Max Powers (EN-DC Combo n66 – B13)

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NR (SCS 15kHz)						LTE						NR Conducted Power [dBm]	LTE Conducted Power [dBm]	EN-DC Total Tx. Power [dBm]
NR Band	NR Bandwidth [MHz]	NR Channel	NR Frequency [MHz]	Mod.	NR RB#/Offset	LTE Band	LTE Bandwidth [MHz]	LTE Channel	LTE Frequency [MHz]	Mod.	LTE RB#/Offset			
n66	40	Mid	1745	QPSK	216/0	B2	20	Mid	1880	QPSK	100/0	14.01	19.50	20.58
				QPSK	216/0					QPSK	1/50	14.45	20.66	21.59
				QPSK	1/108					QPSK	100/0	14.27	20.54	21.46
				QPSK	1/108					QPSK	1/50	14.53	21.71	22.47
				16Q	1/108					16Q	1/50	14.41	21.09	21.93

Table 7-9. Conducted Max Powers (EN-DC Combo n66 – B2)

NR (SCS 15kHz)						LTE						NR Conducted Power [dBm]	LTE Conducted Power [dBm]	EN-DC Total Tx. Power [dBm]
NR Band	NR Bandwidth [MHz]	NR Channel	NR Frequency [MHz]	Mod.	NR RB#/Offset	LTE Band	LTE Bandwidth [MHz]	LTE Channel	LTE Frequency [MHz]	Mod.	LTE RB#/Offset			
n66	40	Mid	1745	QPSK	216/0	B30	10	Mid	2310	QPSK	50/0	13.92	18.99	20.17
				QPSK	216/0					QPSK	1/25	14.01	20.49	21.37
				QPSK	1/108					QPSK	50/0	14.45	20.52	21.48
				QPSK	1/108					QPSK	1/25	14.49	20.61	21.56
				16Q	1/108					16Q	1/25	14.30	20.47	21.41

Table 7-10. Conducted Max Powers (EN-DC Combo n66 – B30)

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7.3 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

ANSI C63.26-2015 – Section 5.4.4

Test Settings

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

Test Setup

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

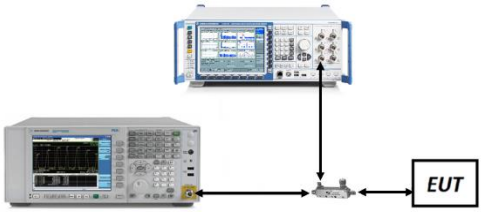

Figure 7-2. Test Instrument & Measurement Setup

Test Notes

None.

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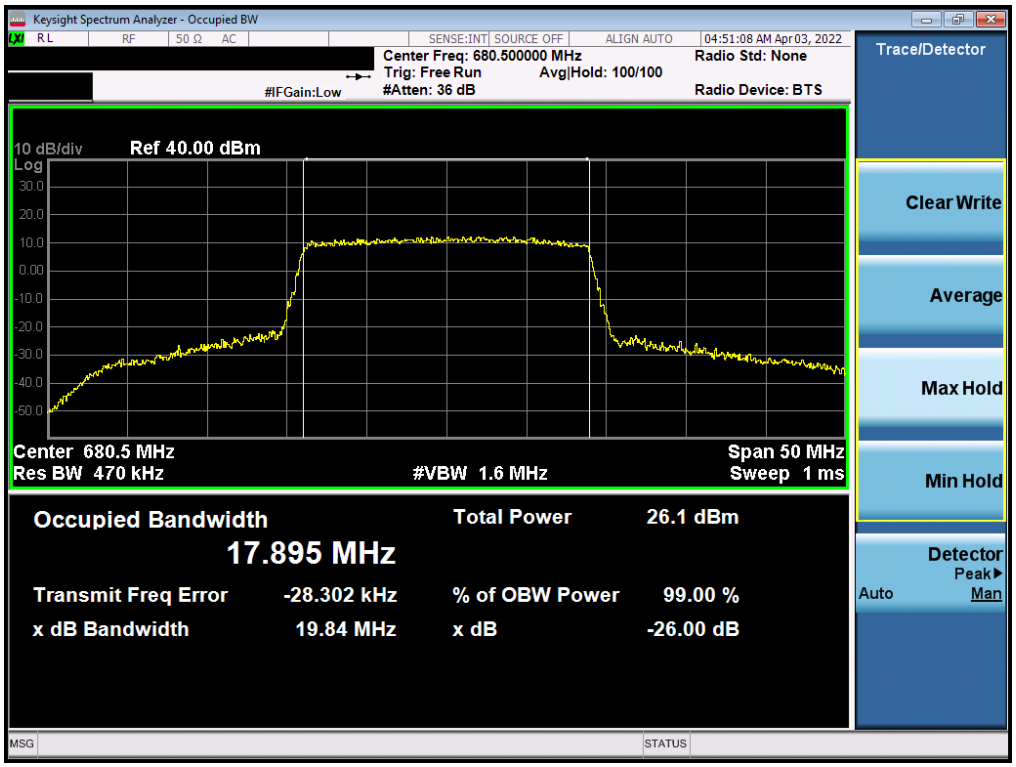
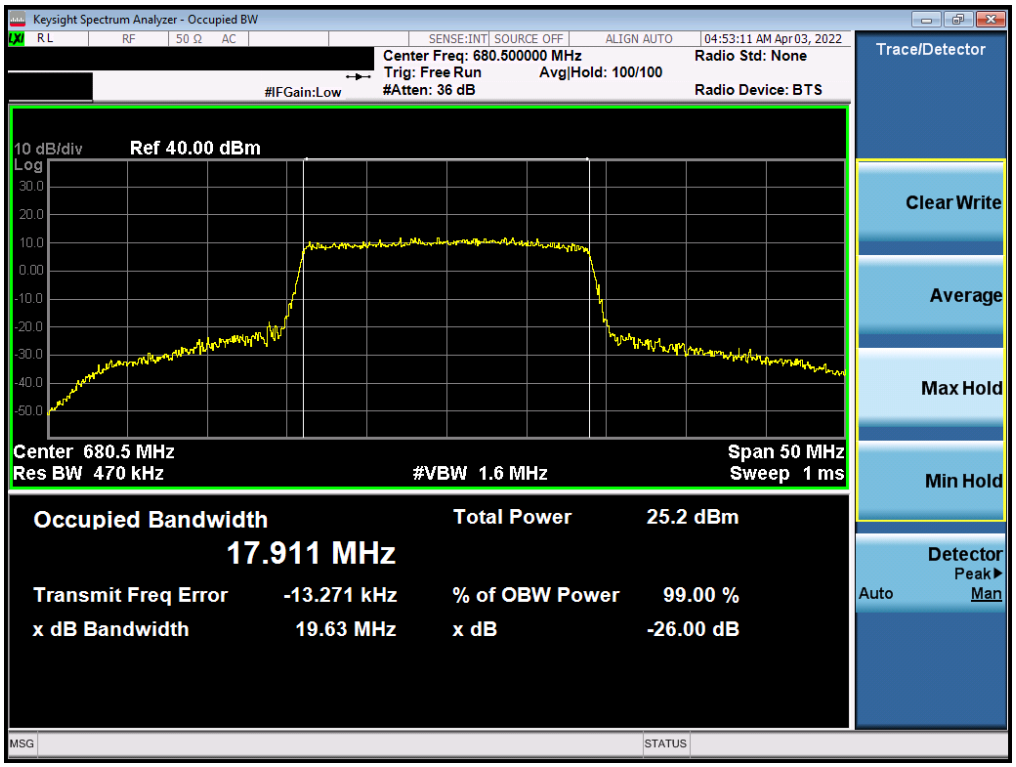
LTE Band 71 – Ant A



Plot 7-1. Occupied Bandwidth Plot (LTE Band 71 - 20MHz QPSK - Full RB – Ant A)



Plot 7-2. Occupied Bandwidth Plot (LTE Band 71 - 20MHz 16-QAM - Full RB – Ant A)

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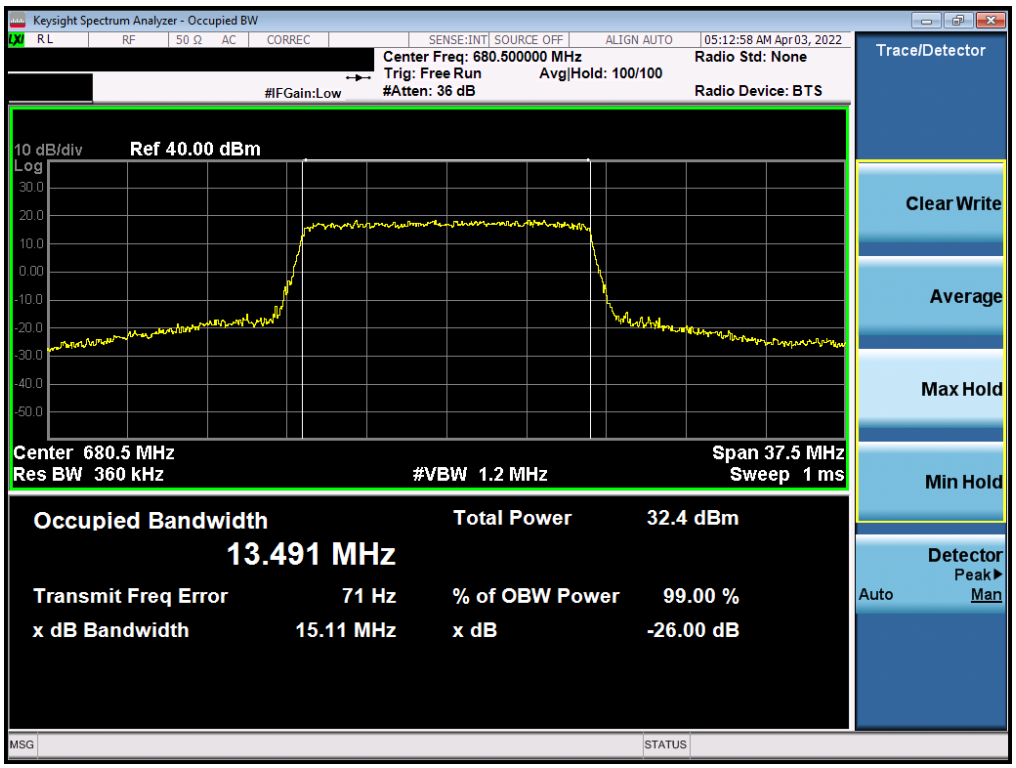
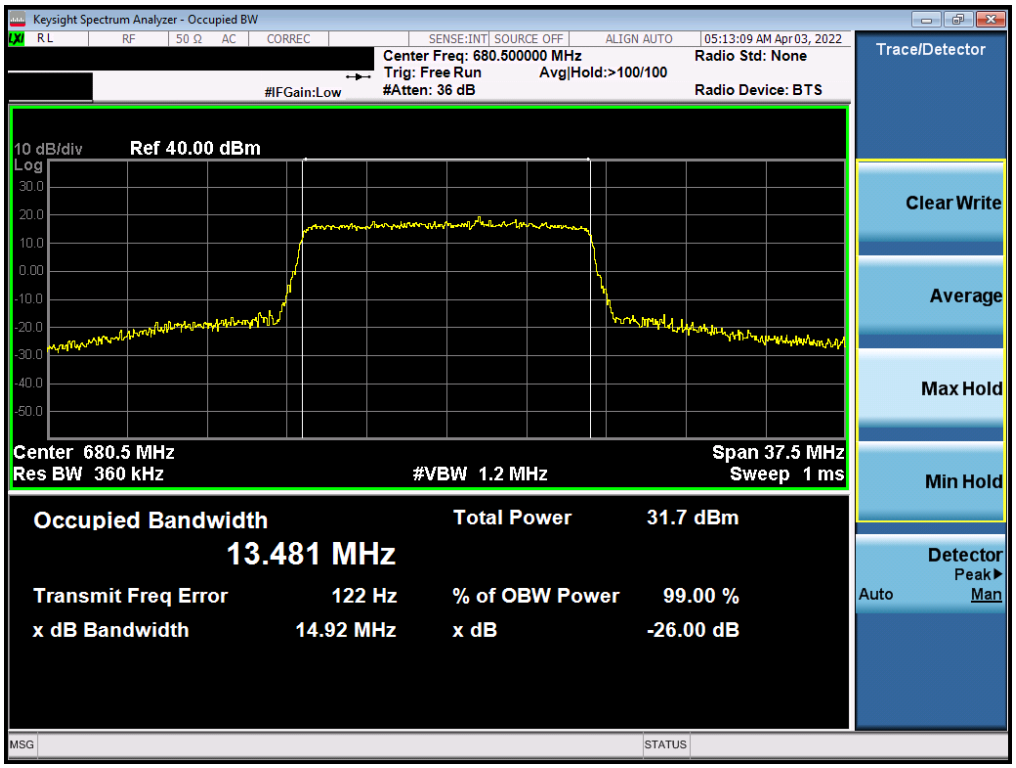


Plot 7-3. Occupied Bandwidth Plot (LTE Band 71 - 15MHz QPSK - Full RB – Ant A)



Plot 7-4. Occupied Bandwidth Plot (LTE Band 71 - 15MHz 16-QAM - Full RB – Ant A)

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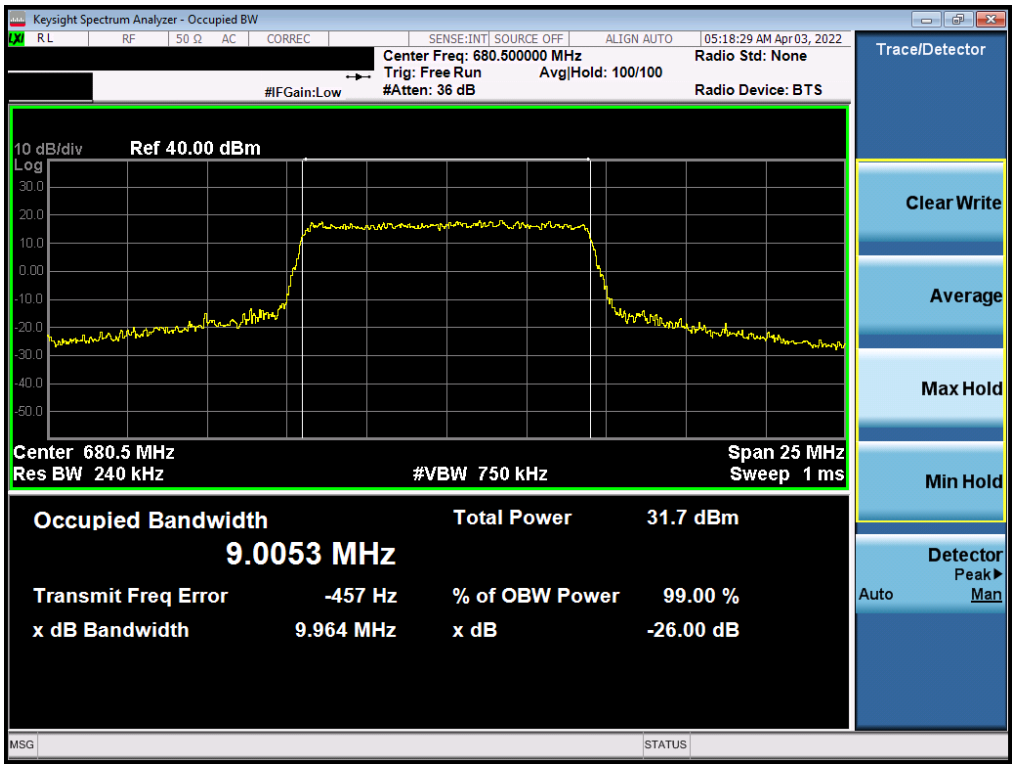
Plot 7-5. Occupied Bandwidth Plot (LTE Band 71 - 10MHz QPSK - Full RB – Ant A)



Plot 7-6. Occupied Bandwidth Plot (LTE Band 71 - 10MHz 16-QAM - Full RB – Ant A)

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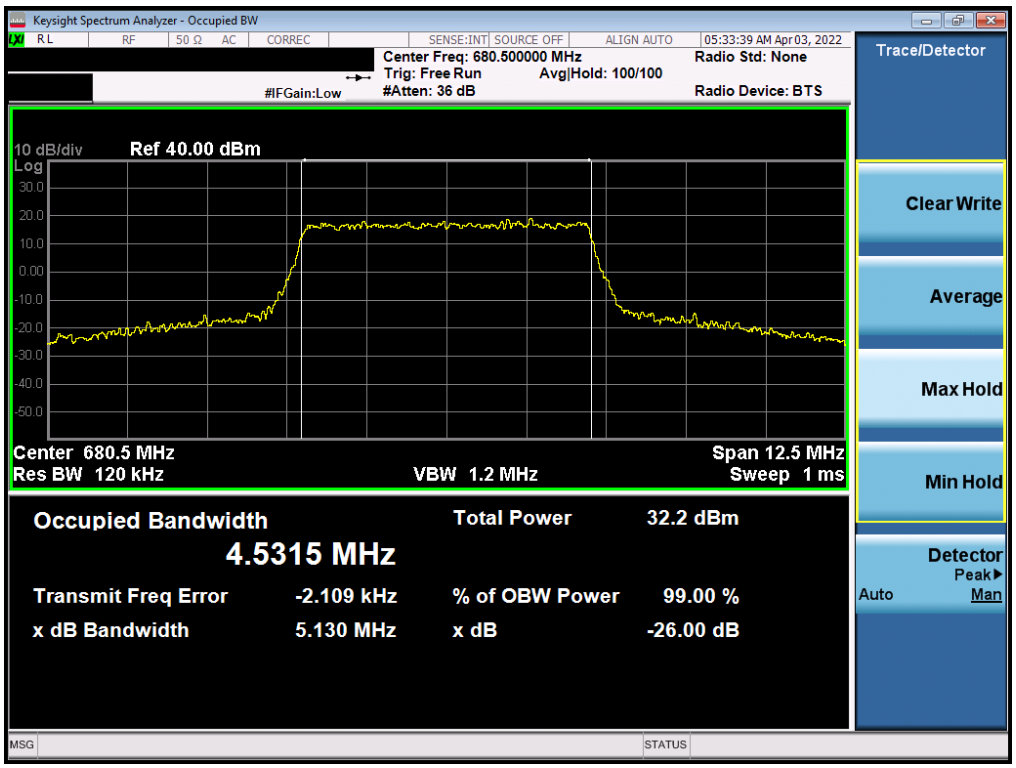
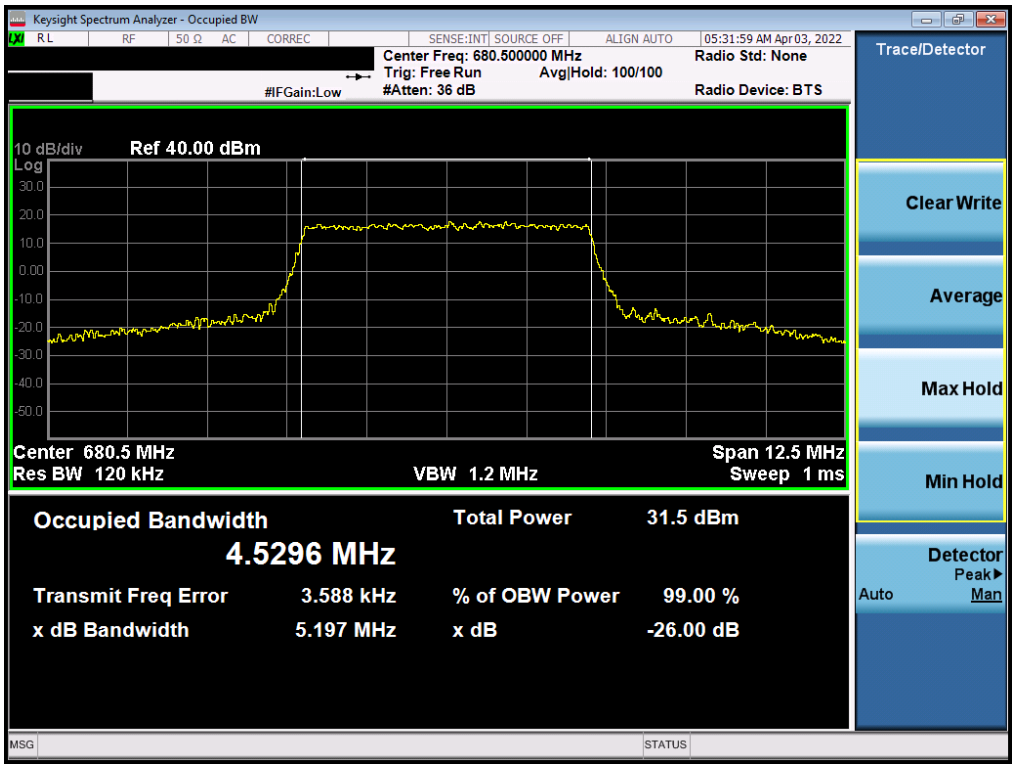


Plot 7-7. Occupied Bandwidth Plot (LTE Band 71 - 5MHz QPSK - Full RB – Ant A)



Plot 7-8. Occupied Bandwidth Plot (LTE Band 71 - 5MHz 16-QAM - Full RB – Ant A)

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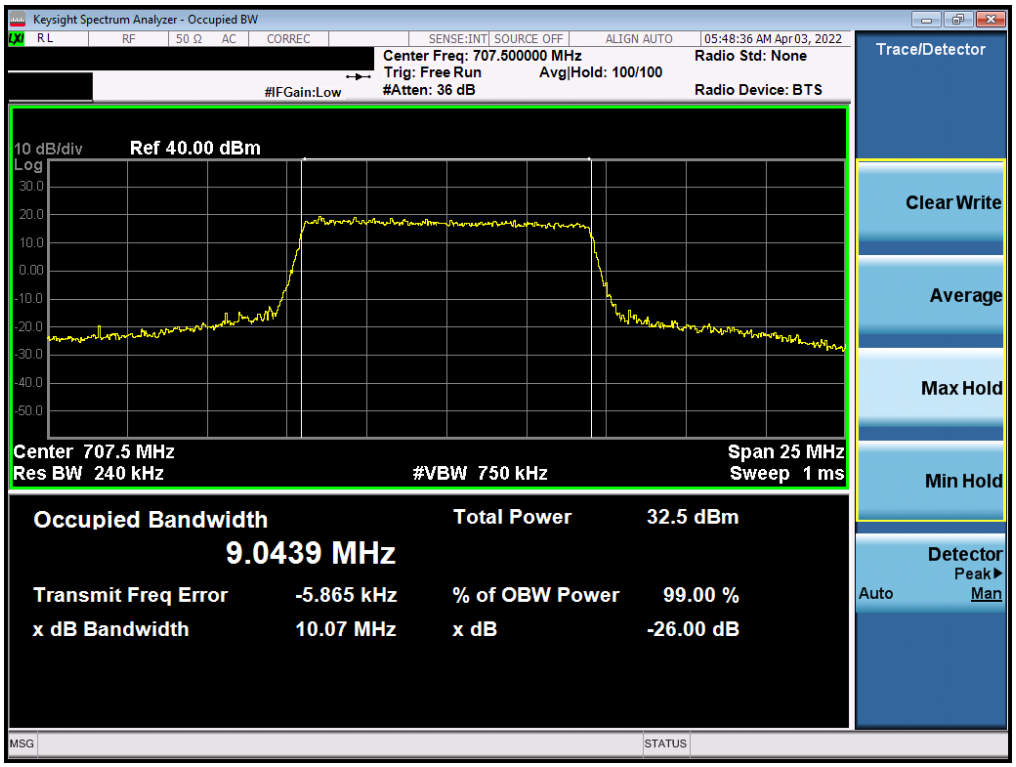
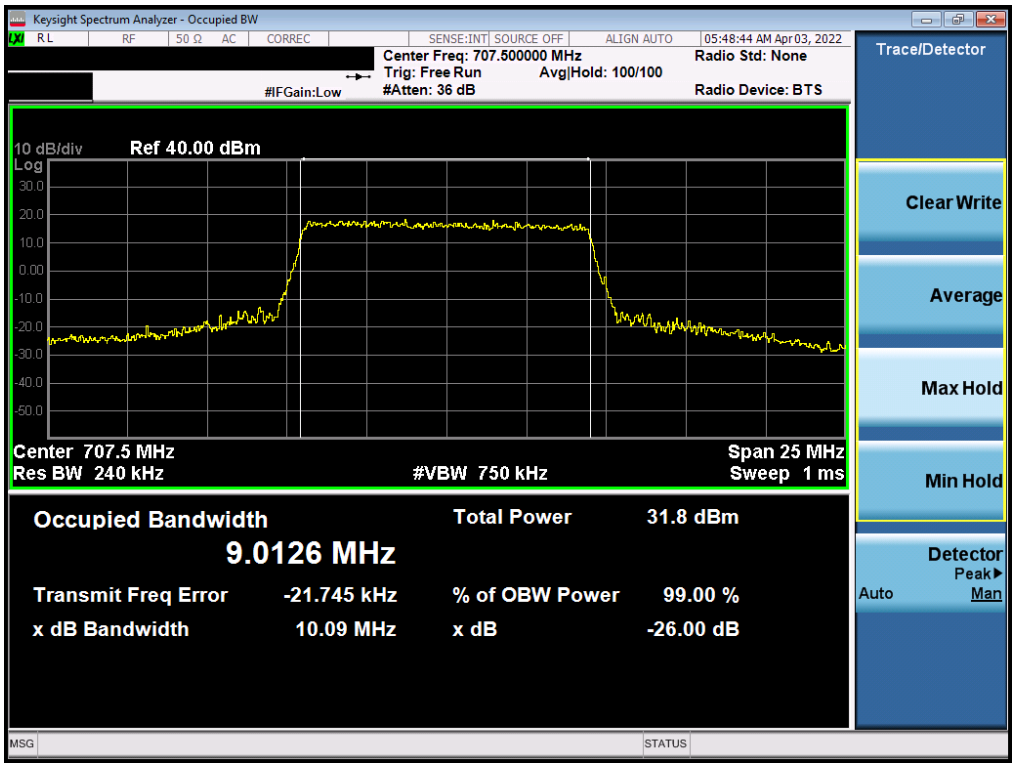
LTE Band 12 – Ant A



Plot 7-9. Occupied Bandwidth Plot (LTE Band 12 - 10MHz QPSK - Full RB – Ant A)



Plot 7-10. Occupied Bandwidth Plot (LTE Band 12 - 10MHz 16-QAM - Full RB – Ant A)

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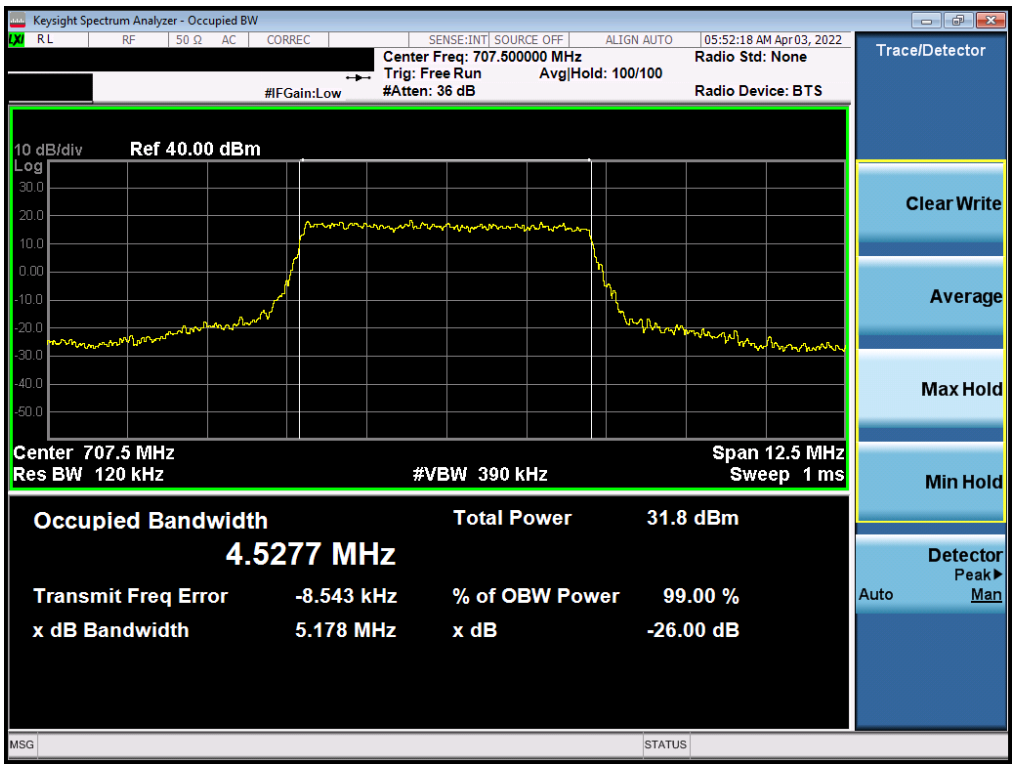
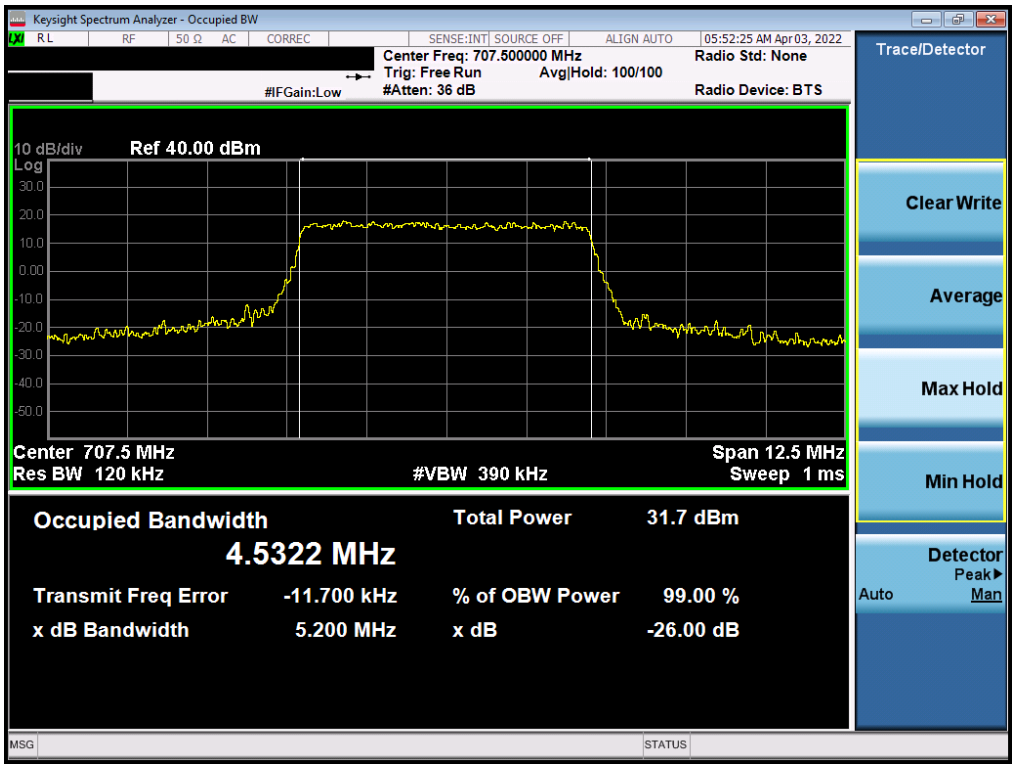


Plot 7-11. Occupied Bandwidth Plot (LTE Band 12 - 5MHz QPSK - Full RB – Ant A)



Plot 7-12. Occupied Bandwidth Plot (LTE Band 12 - 5MHz 16-QAM - Full RB – Ant A)

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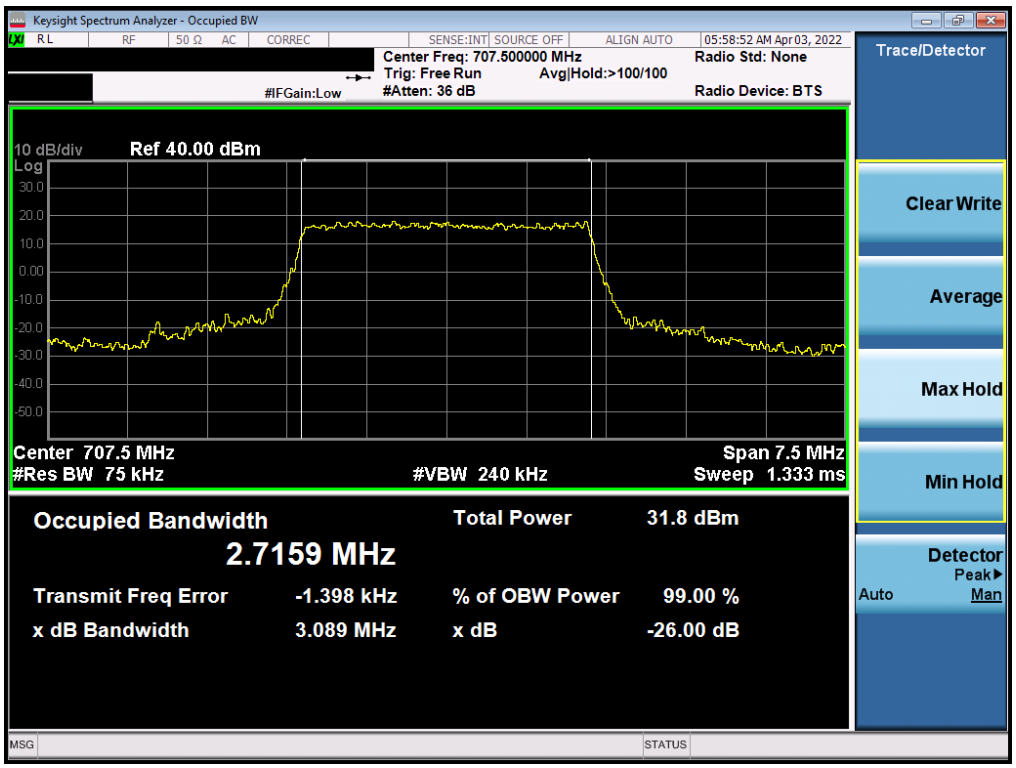
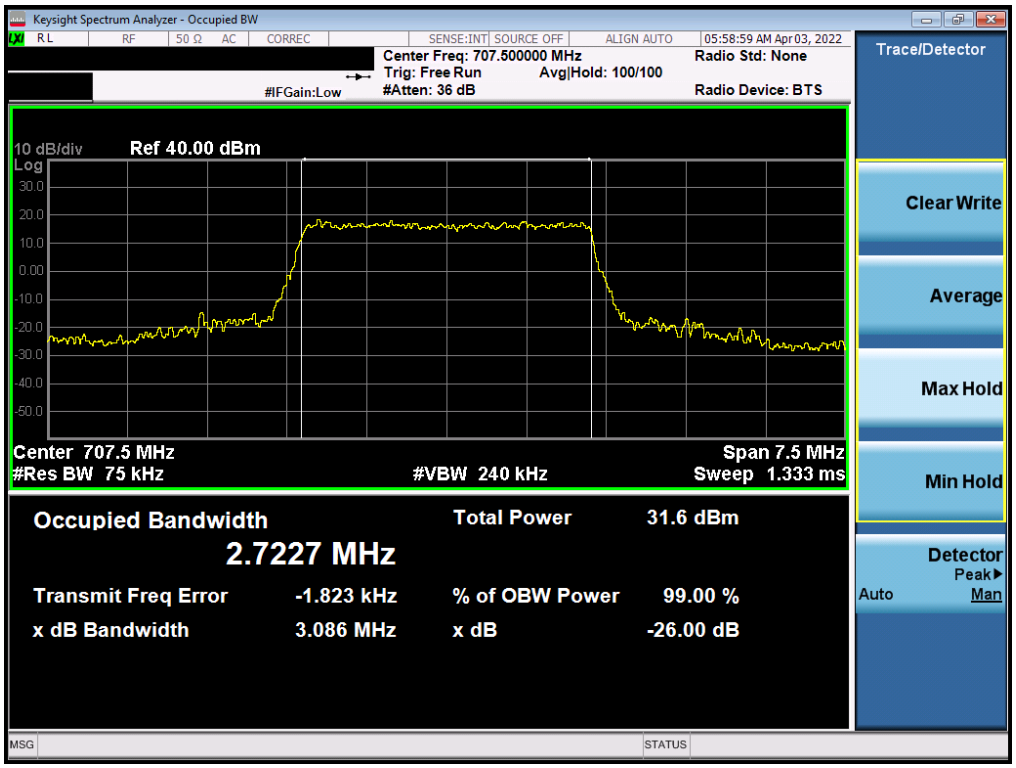


Plot 7-13. Occupied Bandwidth Plot (LTE Band 12 - 3MHz QPSK - Full RB – Ant1)



Plot 7-14. Occupied Bandwidth Plot (LTE Band 12 - 3MHz 16-QAM - Full RB – Ant1)

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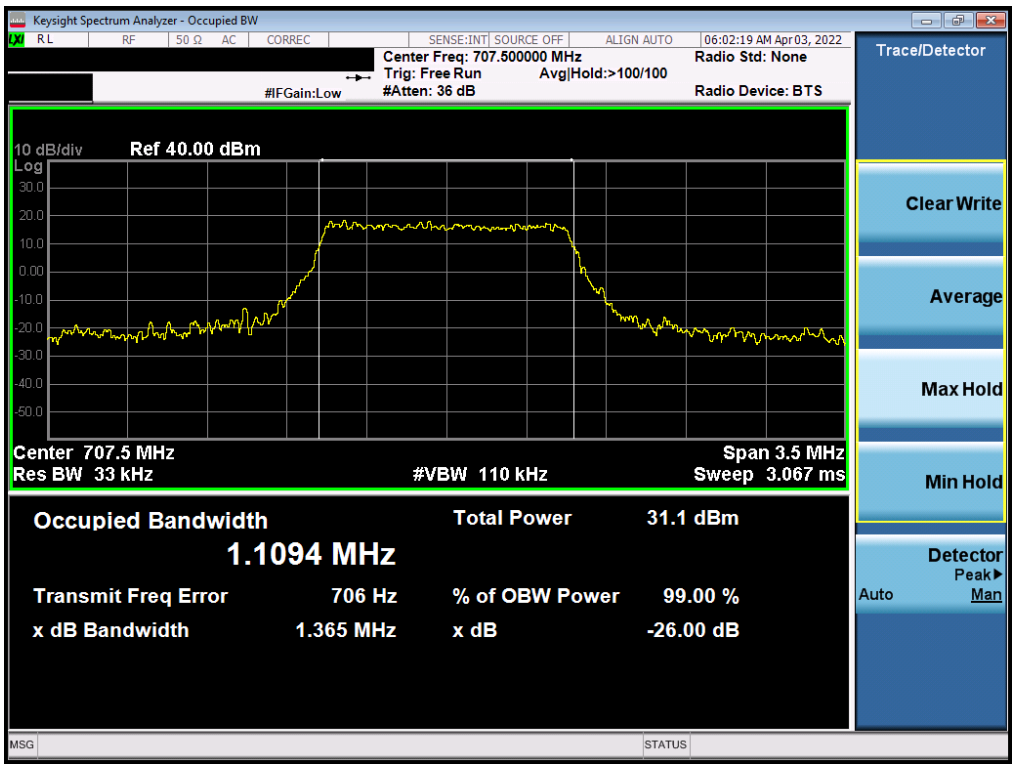
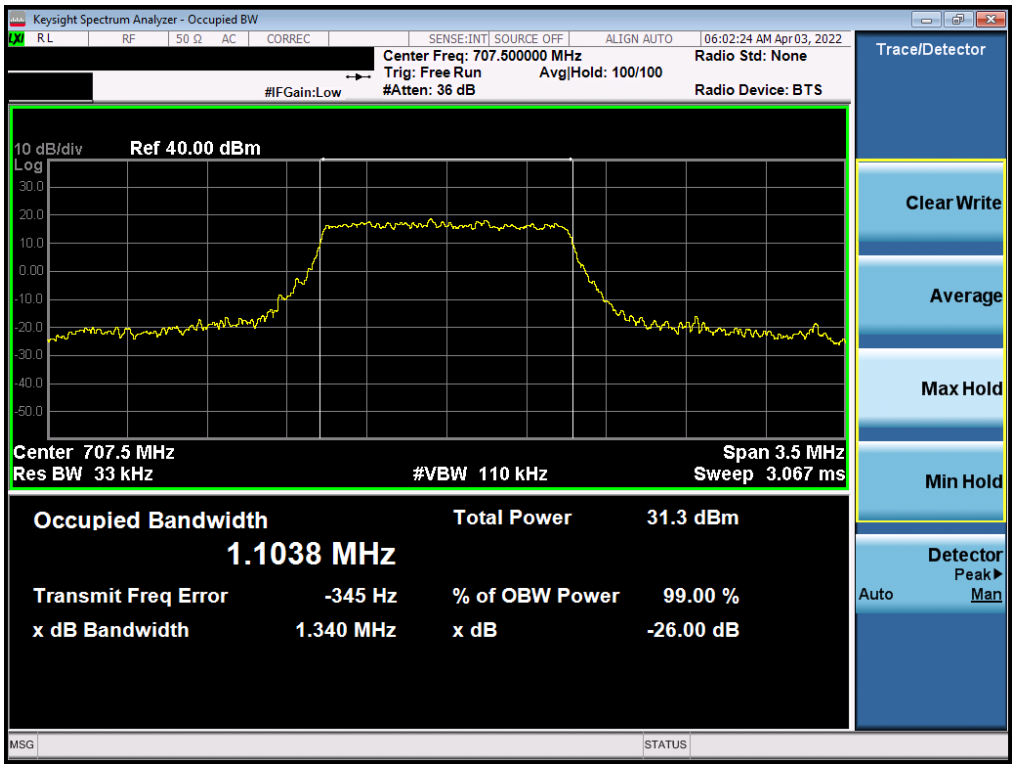


Plot 7-15. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz QPSK - Full RB – Ant1)



Plot 7-16. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz 16-QAM - Full RB – Ant1)

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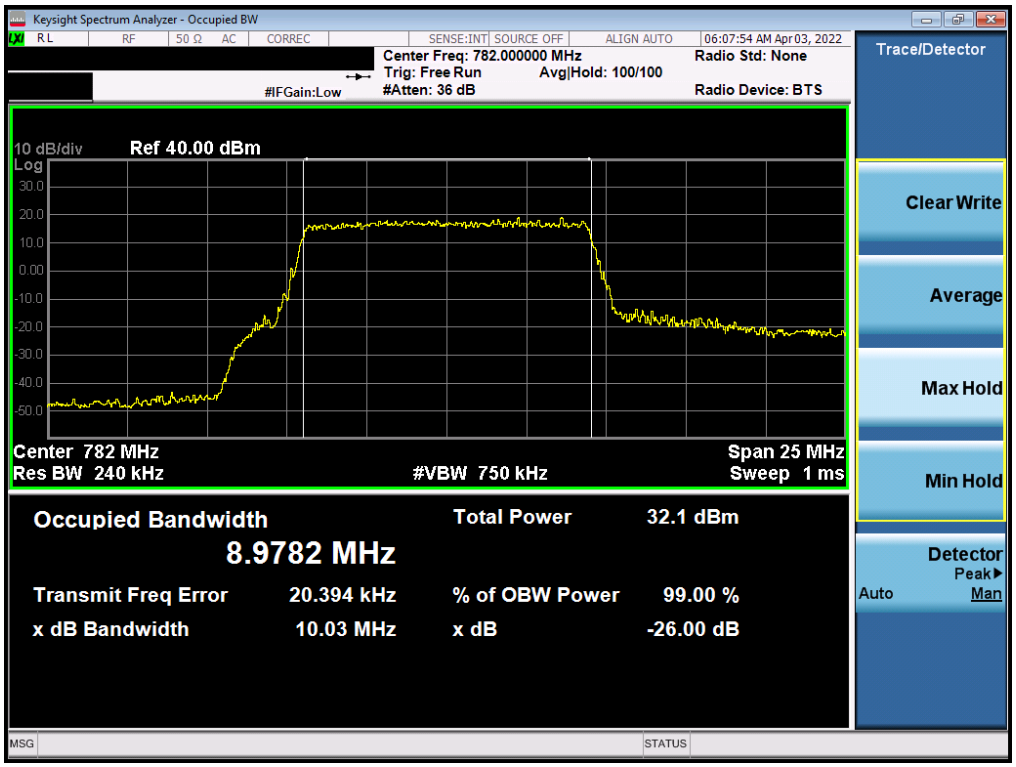
LTE Band 13 – Ant A



Plot 7-17. Occupied Bandwidth Plot (LTE Band 13 - 10MHz QPSK - Full RB – Ant A)

Plot 7-18. Occupied Bandwidth Plot (LTE Band 13 - 10MHz 16-QAM - Full RB – Ant A)

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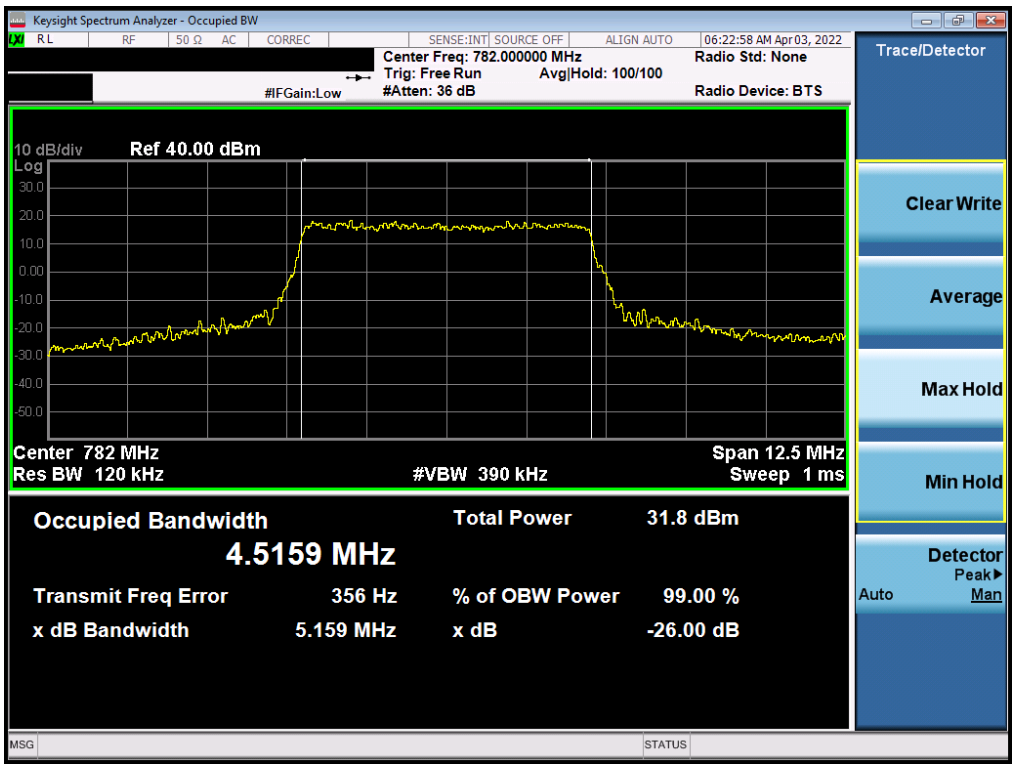
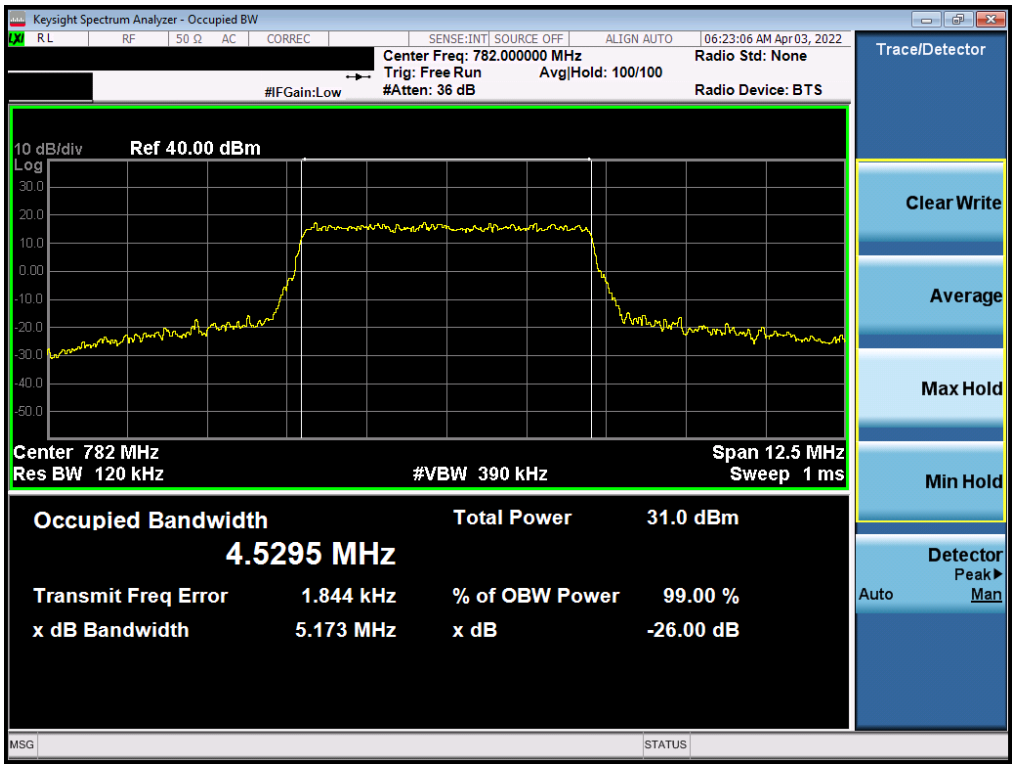


Plot 7-19. Occupied Bandwidth Plot (LTE Band 13 - 5MHz QPSK - Full RB – Ant A)



Plot 7-20. Occupied Bandwidth Plot (LTE Band 13 - 5MHz 16-QAM - Full RB – Ant A)

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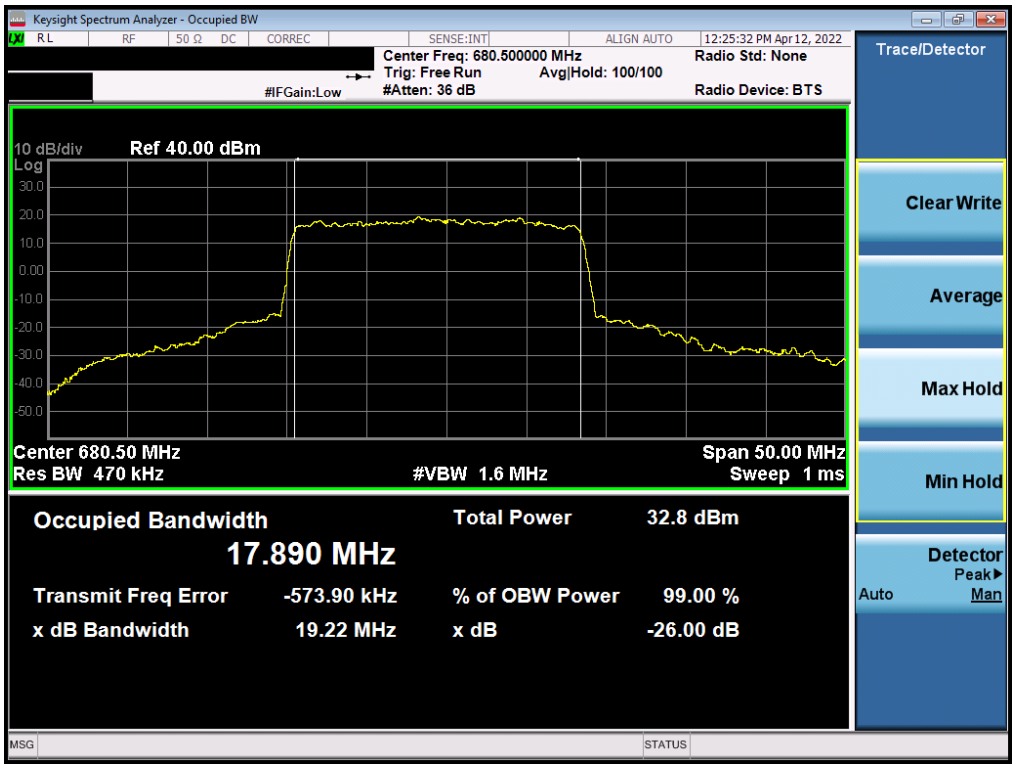
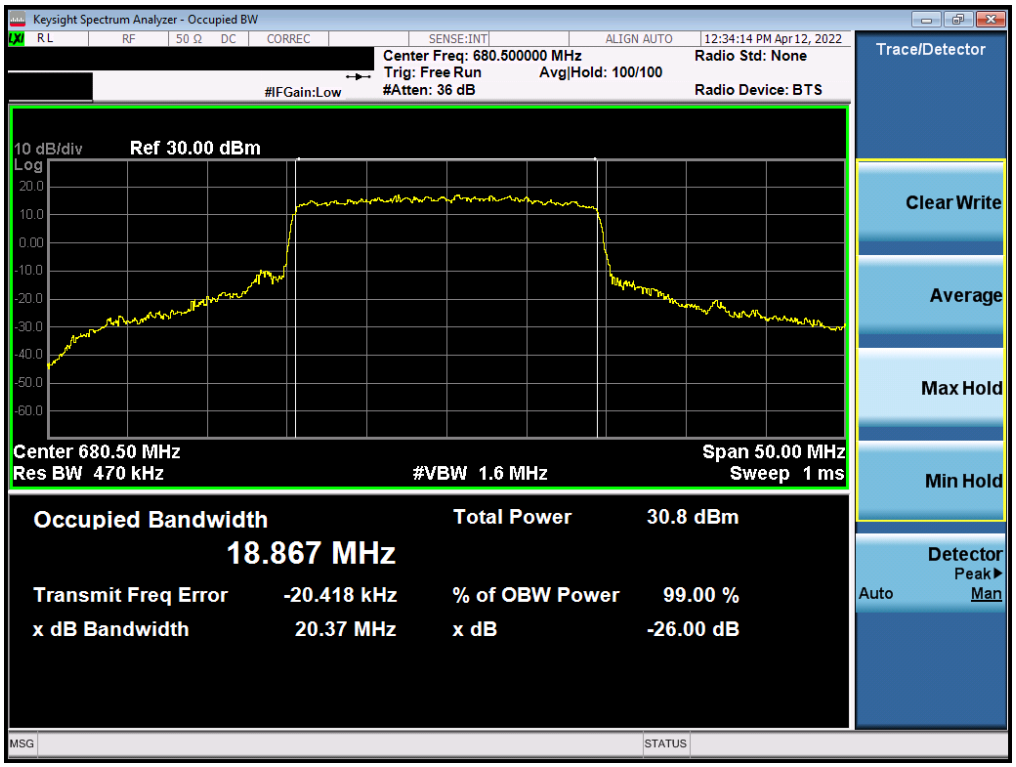
NR Band n71 – Ant A



Plot 7-21. Occupied Bandwidth Plot (NR Band n71 - 20MHz DFT-S-OFDM BPSK - Full RB – Ant A)



Plot 7-22. Occupied Bandwidth Plot (NR Band n71 - 20MHz CP-OFDM QPSK - Full RB – Ant A)

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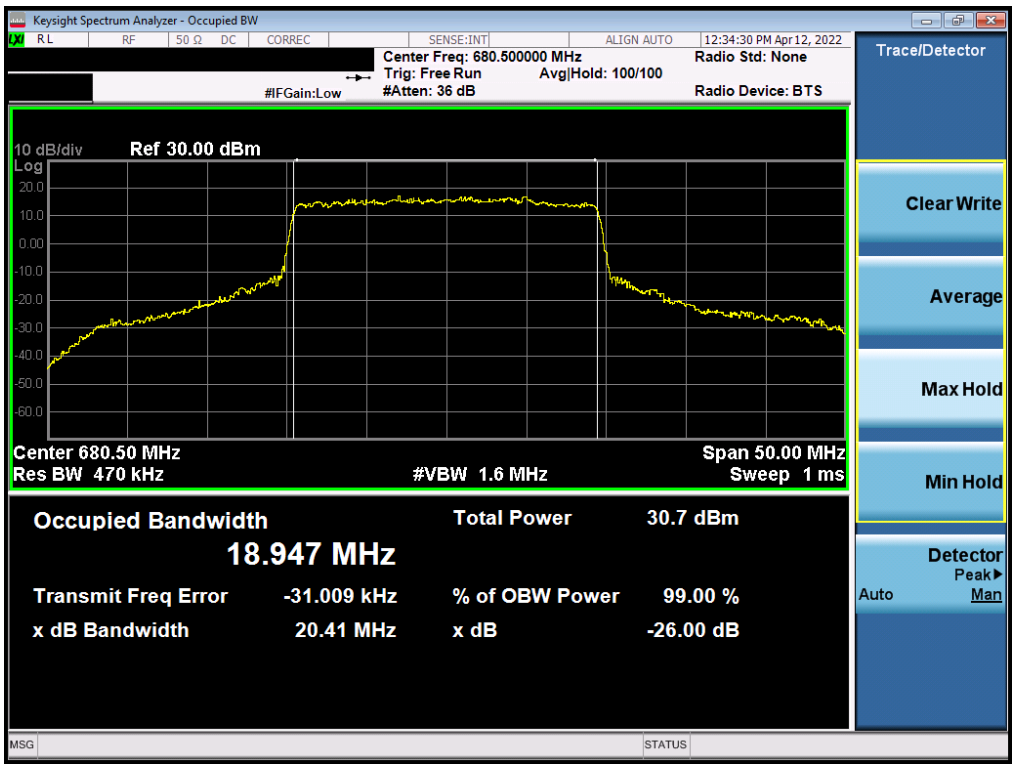
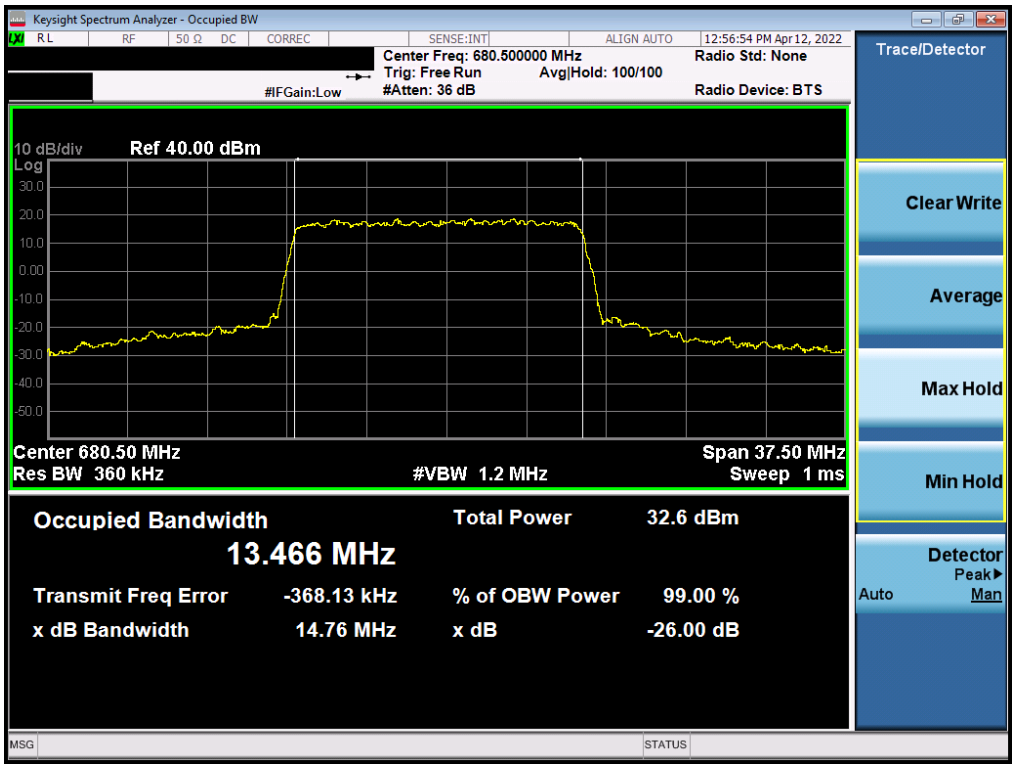


Plot 7-23. Occupied Bandwidth Plot (NR Band n71 - 20MHz CP-OFDM 16-QAM - Full RB – Ant A)



Plot 7-24. Occupied Bandwidth Plot (NR Band n71 - 15MHz DFT-S-OFDM BPSK - Full RB – Ant A)

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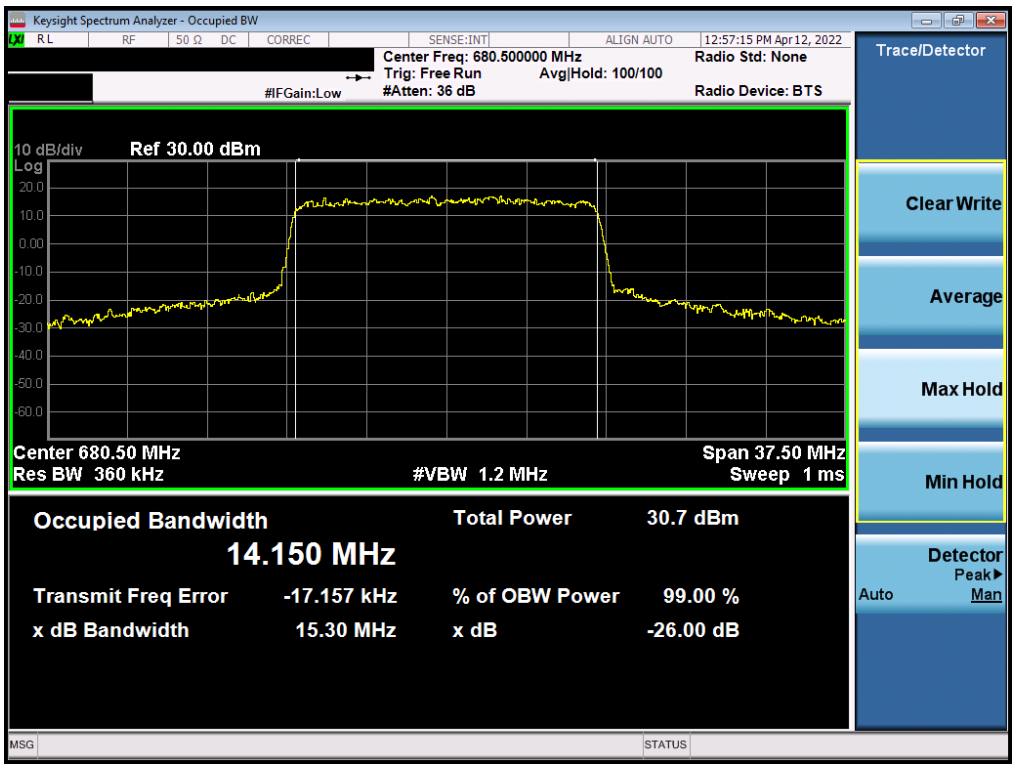
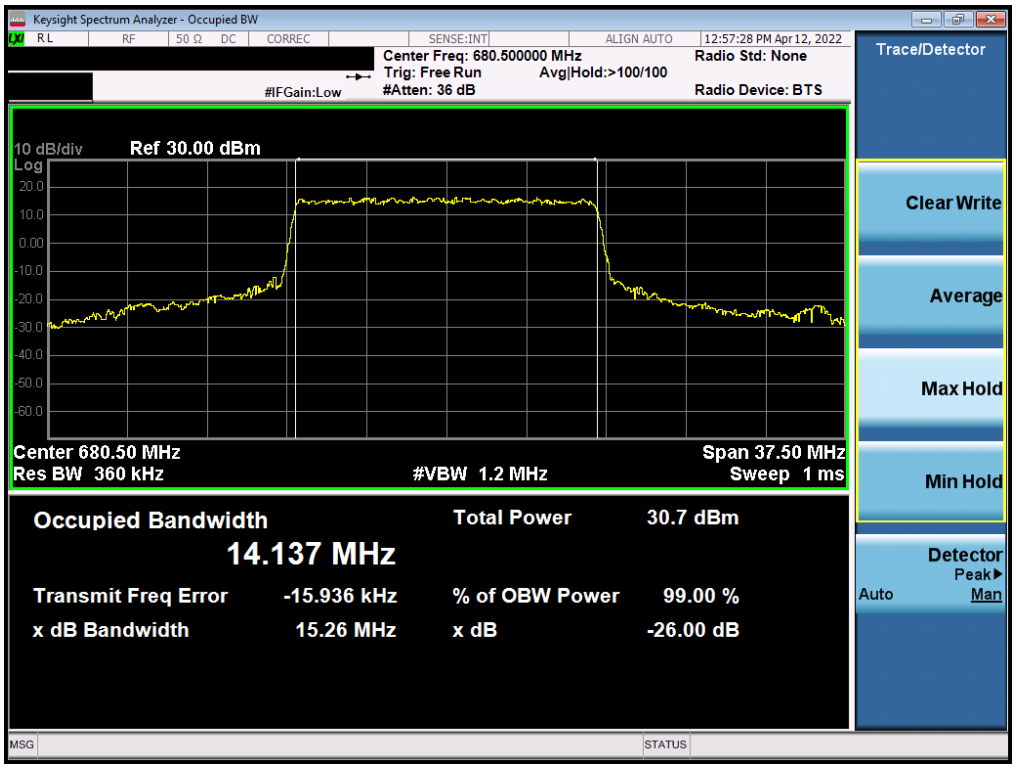


Plot 7-25. Occupied Bandwidth Plot (NR Band n71 - 15MHz QPSK - Full RB – Ant A)



Plot 7-26. Occupied Bandwidth Plot (NR Band n71 - 15MHz CP-OFDM 16-QAM - Full RB – Ant A)

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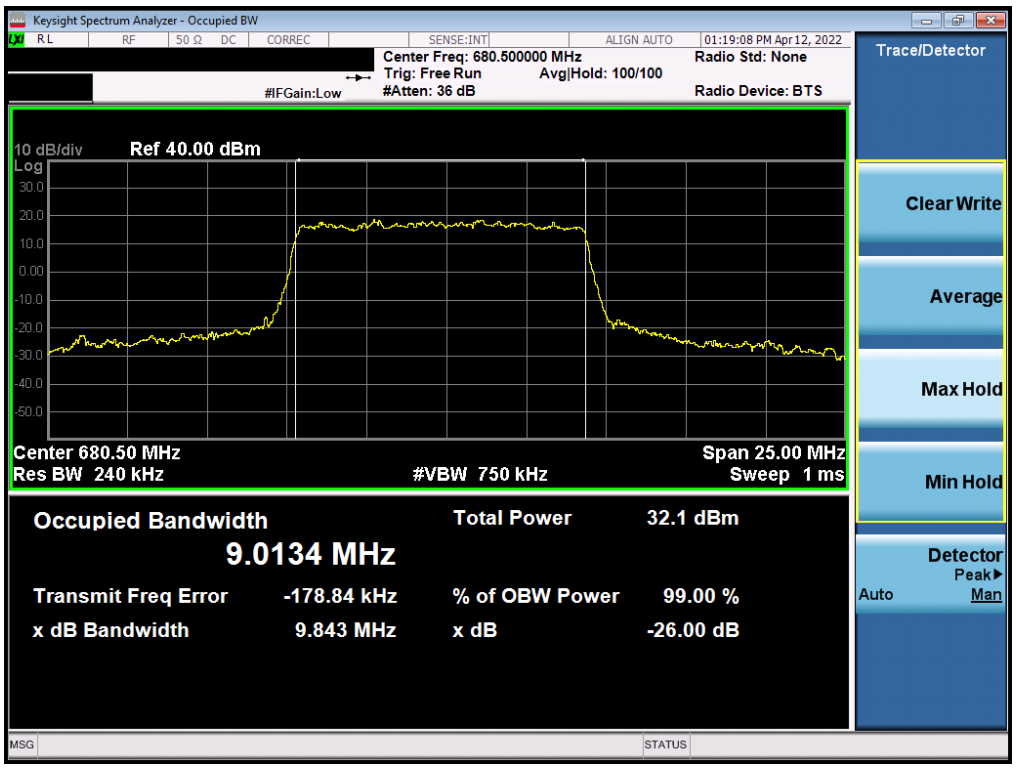
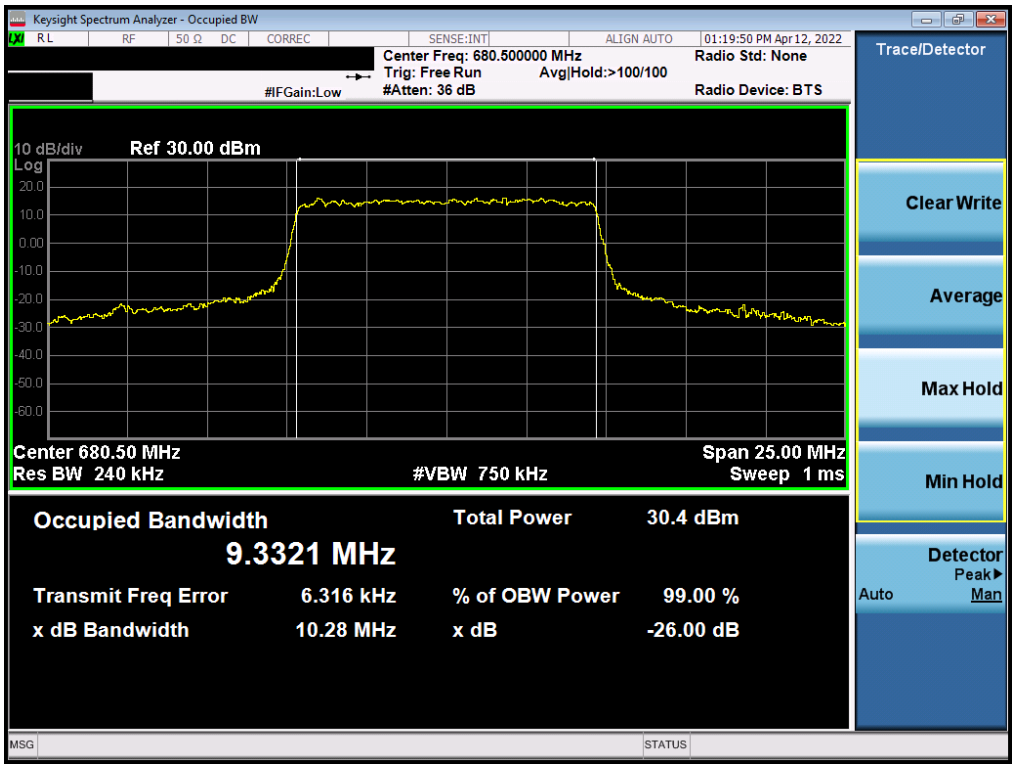


Plot 7-27. Occupied Bandwidth Plot (NR Band n71 - 10MHz DFT-S-OFDM BPSK - Full RB – Ant A)



Plot 7-28. Occupied Bandwidth Plot (NR Band n71 - 10MHz CP-OFDM QPSK - Full RB – Ant A)

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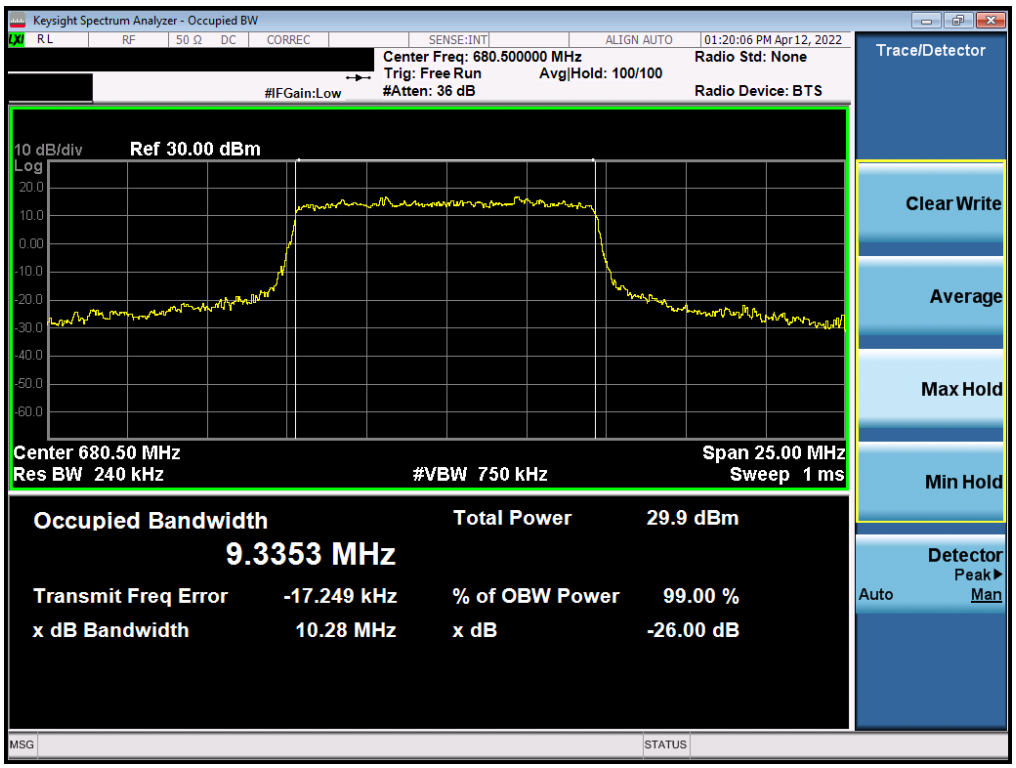
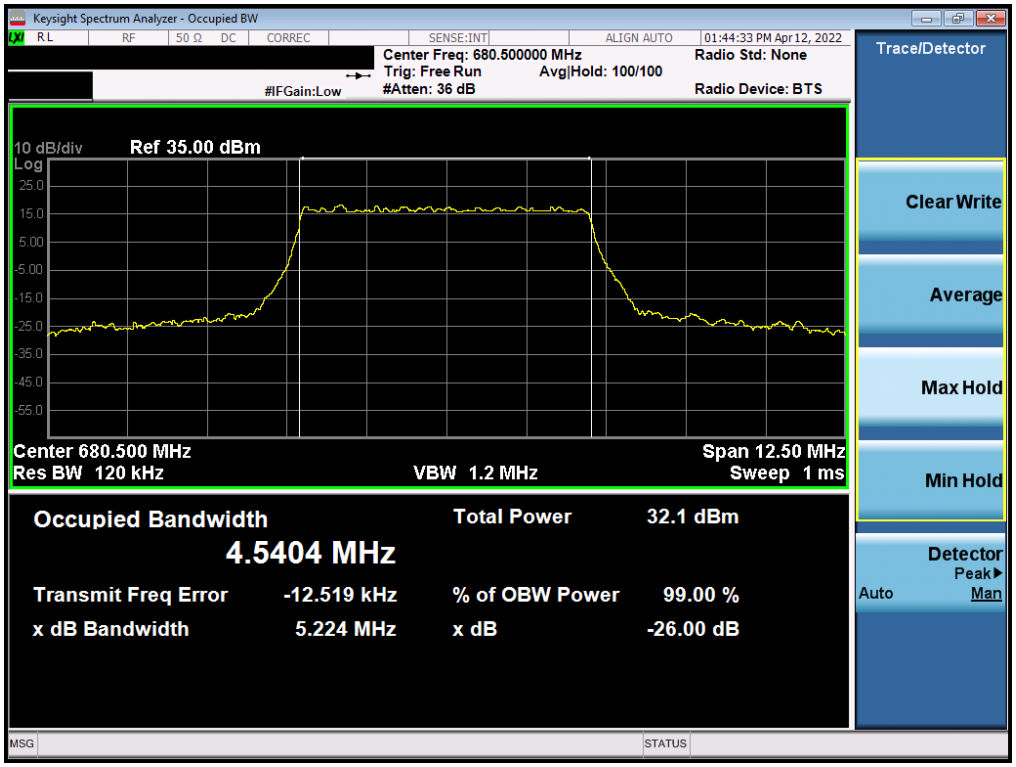


Plot 7-29. Occupied Bandwidth Plot (NR Band n71 - 10MHz CP-OFDM 16-QAM - Full RB – Ant A)



Plot 7-30. Occupied Bandwidth Plot (NR Band n71 - 5MHz DFT-S-OFDM BPSK - Full RB – Ant A)

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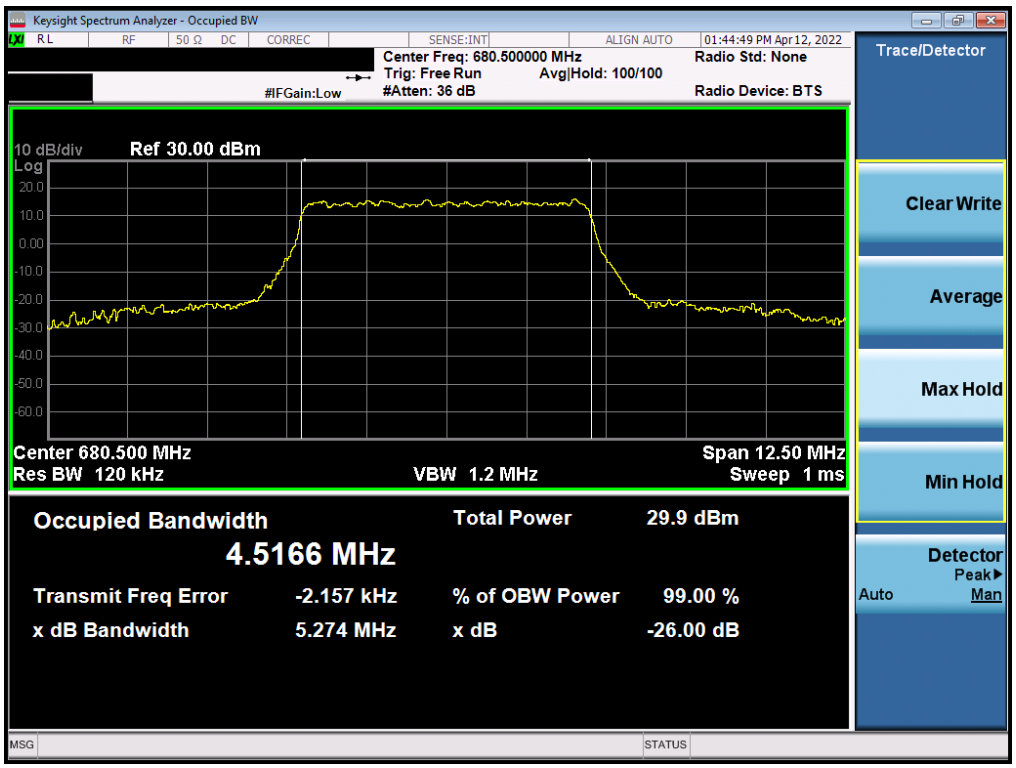
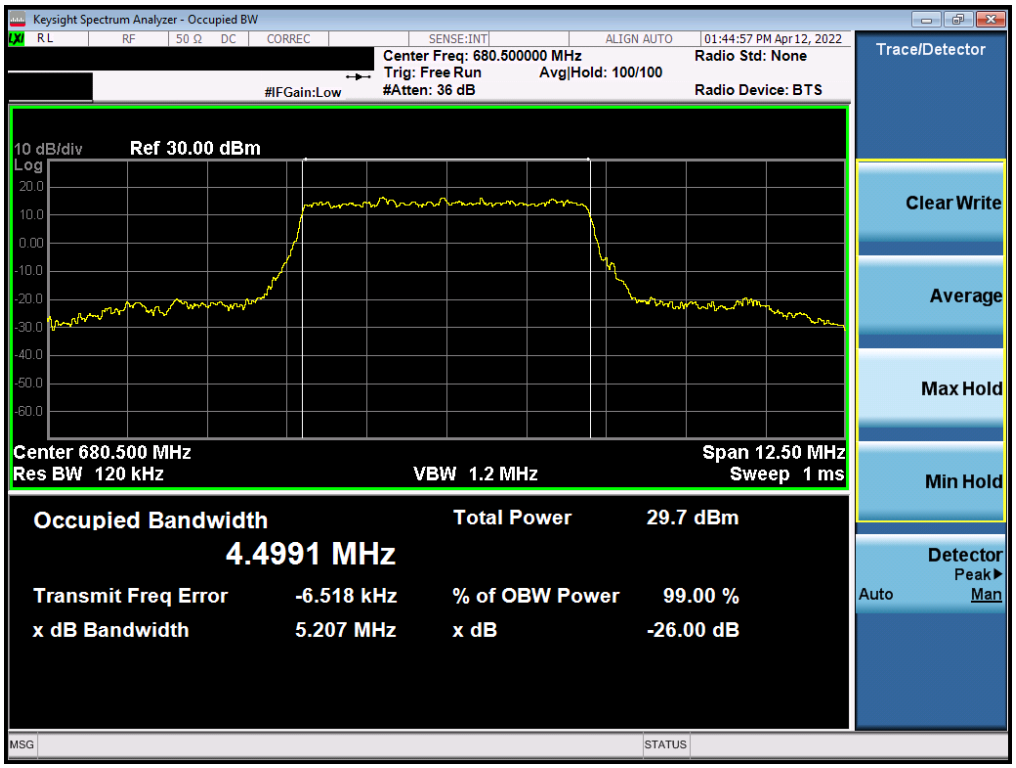


Plot 7-31. Occupied Bandwidth Plot (NR Band n71 - 5MHz CP-OFDM QPSK - Full RB – Ant A)



Plot 7-32. Occupied Bandwidth Plot (NR Band n71 - 5MHz CP-OFDM 16-QAM - Full RB – Ant A)

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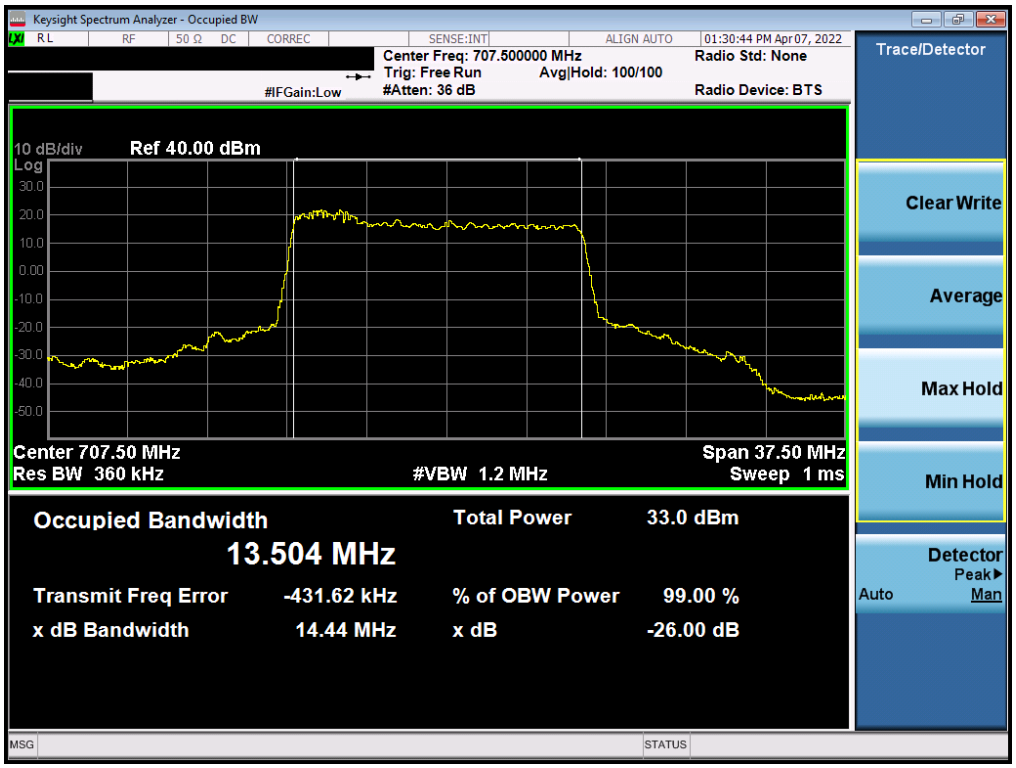
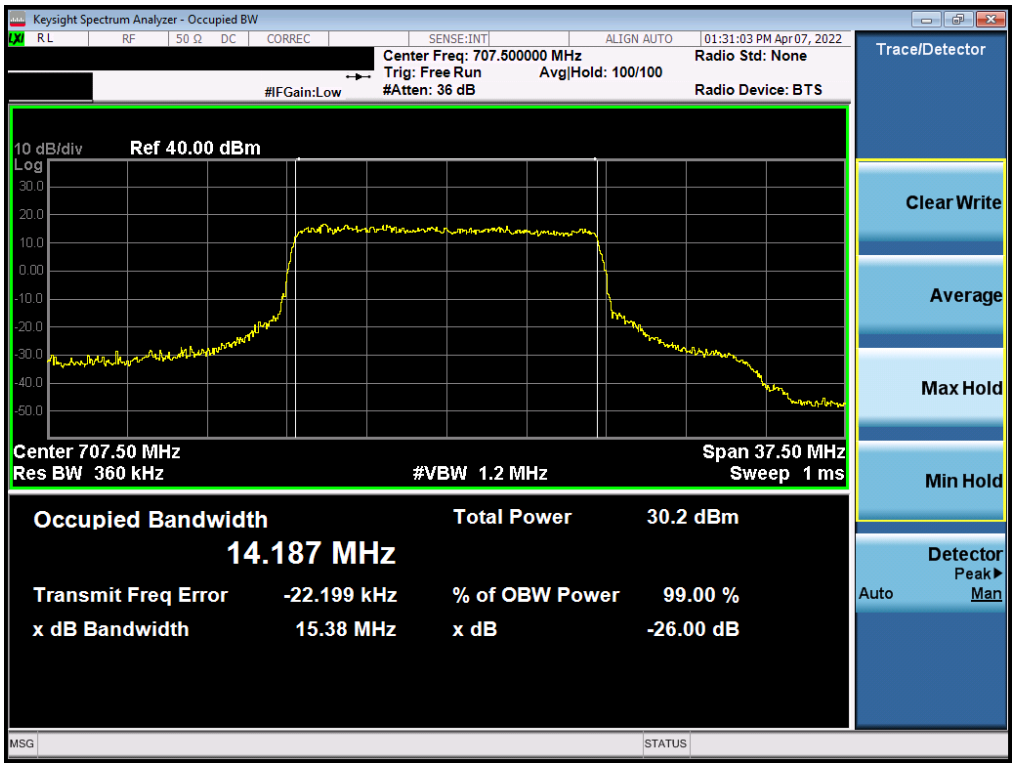
NR Band n12 – Ant A



Plot 7-33. Occupied Bandwidth Plot (NR Band n12 - 15MHz DFT-S-OFDM BPSK - Full RB – Ant A)



Plot 7-34. Occupied Bandwidth Plot (NR Band n12 - 15MHz CP-OFDM QPSK - Full RB – Ant A)

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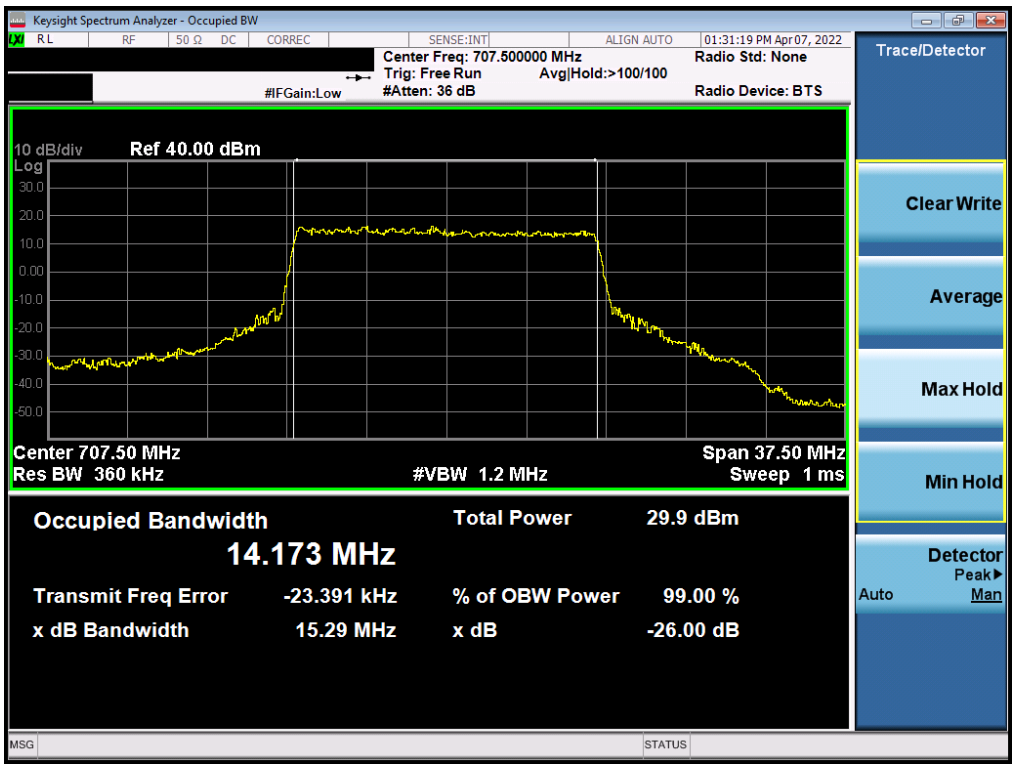
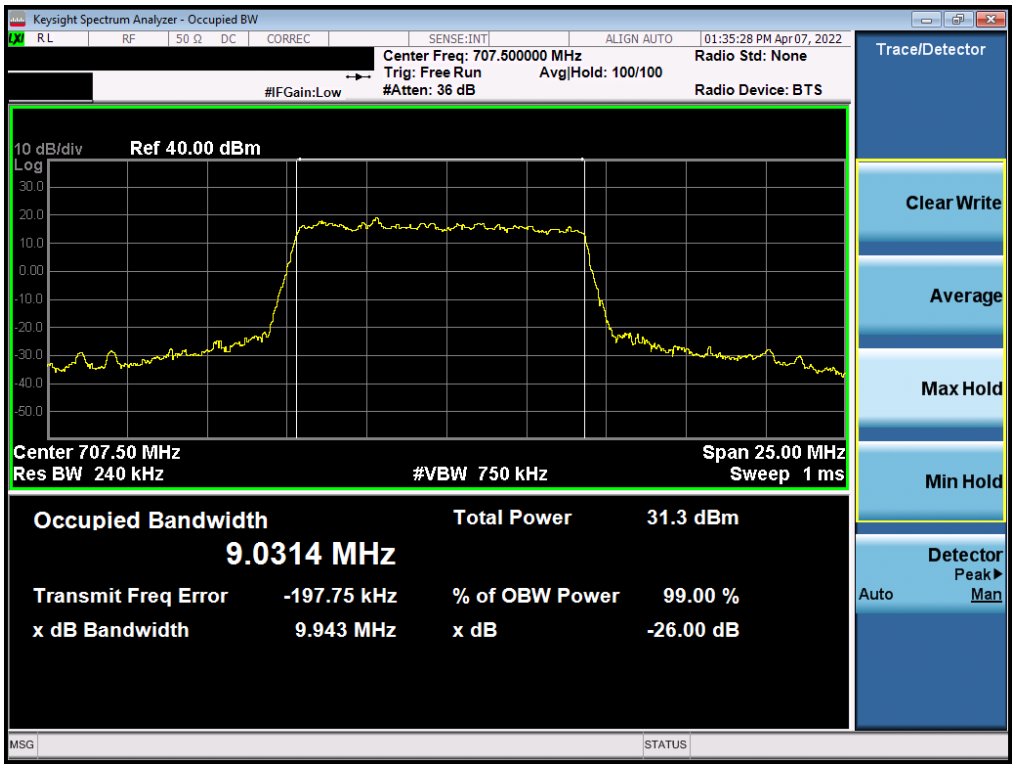


Plot 7-35. Occupied Bandwidth Plot (NR Band n12 - 15MHz CP-OFDM 16-QAM - Full RB – Ant A)



Plot 7-36. Occupied Bandwidth Plot (NR Band n12 - 10MHz DFT-S-OFDM BPSK - Full RB – Ant A)

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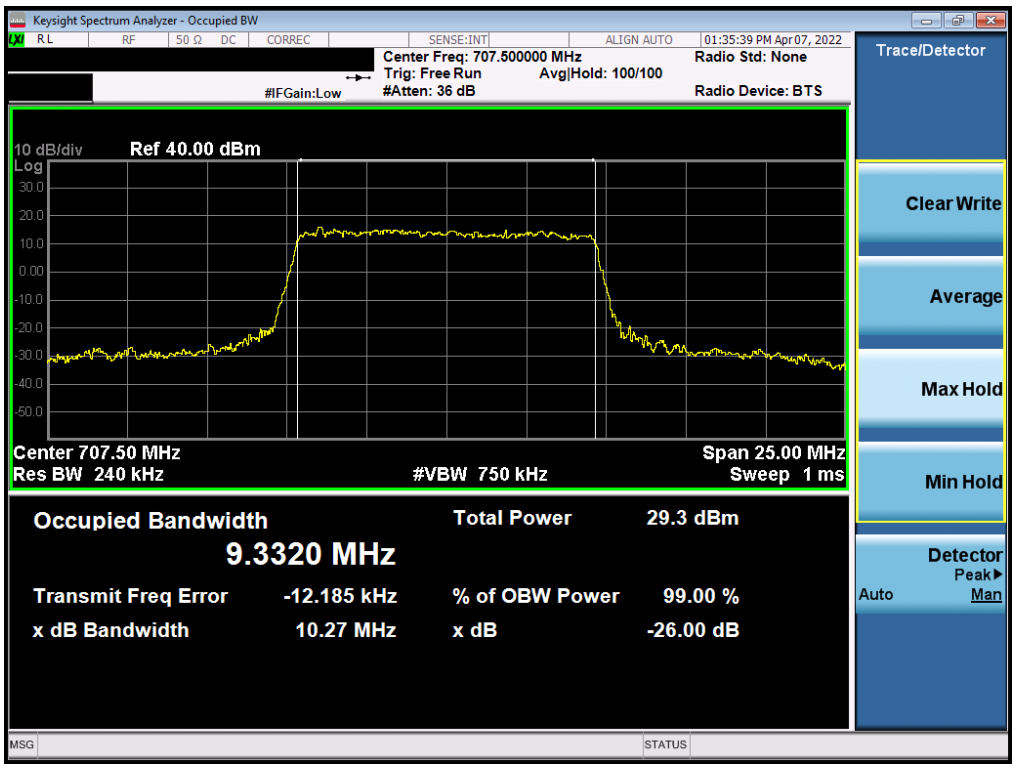
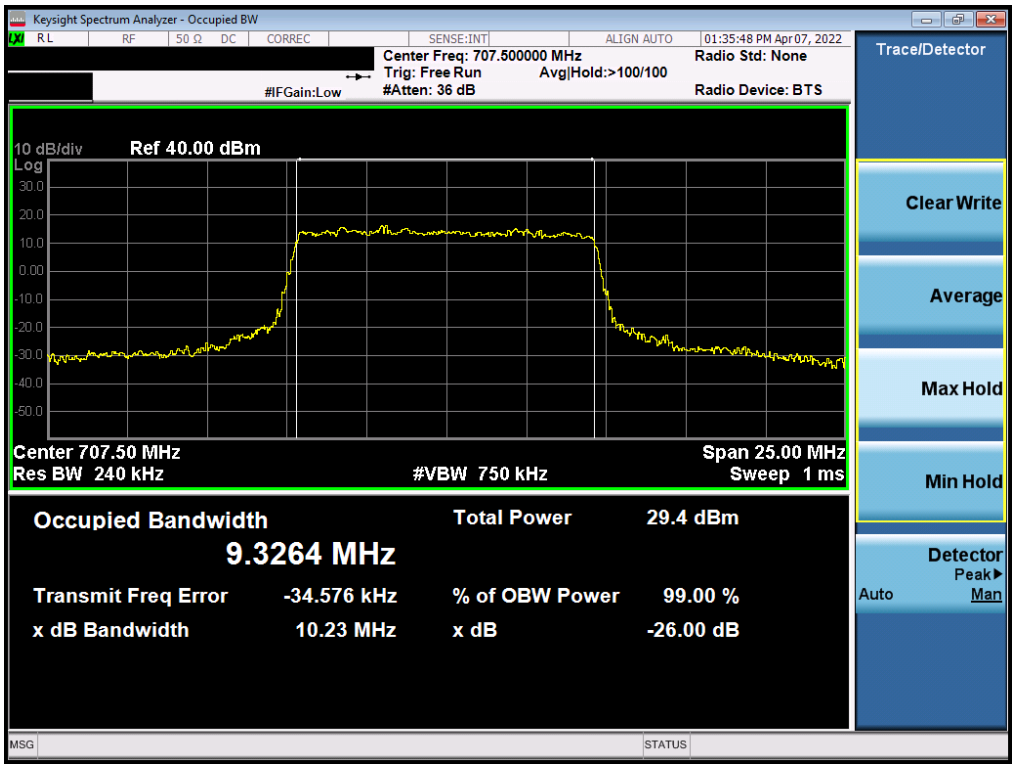


Plot 7-37. Occupied Bandwidth Plot (NR Band n12 - 10MHz CP-OFDM QPSK - Full RB – Ant A)



Plot 7-38. Occupied Bandwidth Plot (NR Band n12 - 10MHz CP-OFDM 16-QAM - Full RB – Ant A)

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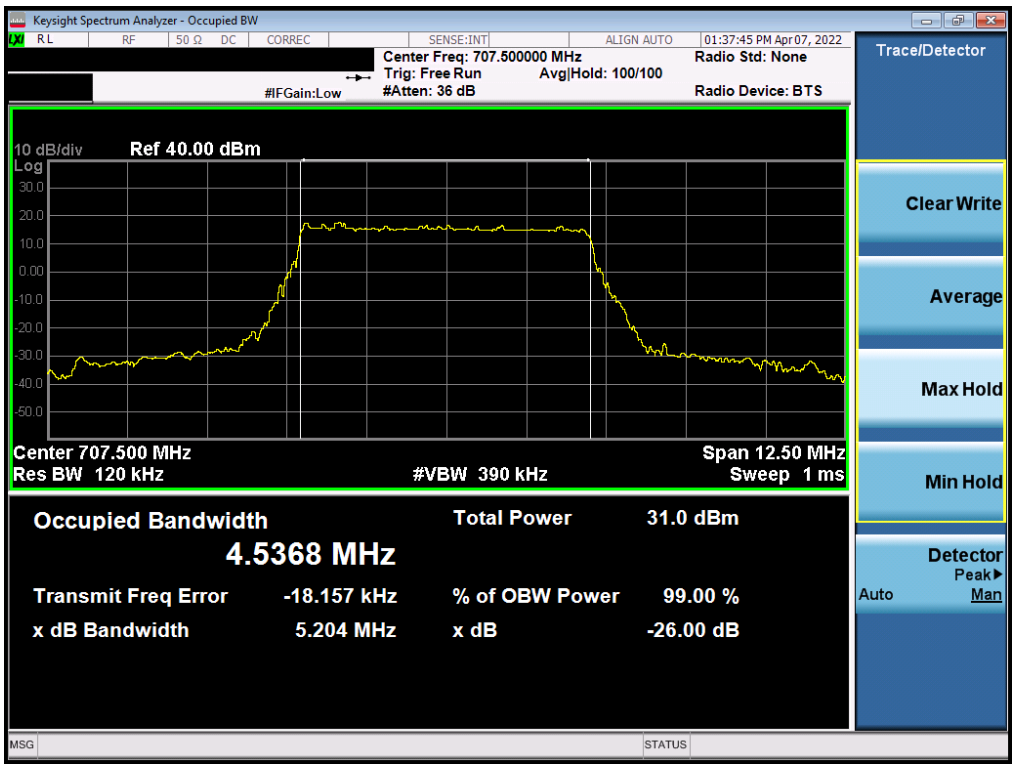
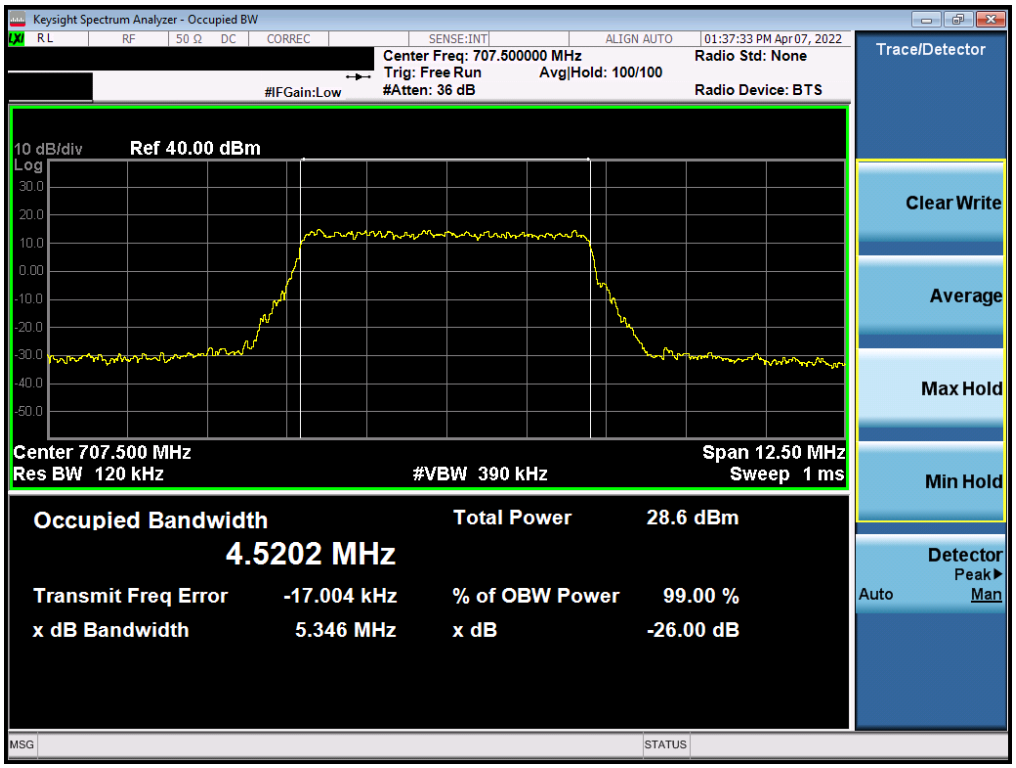


Plot 7-39. Occupied Bandwidth Plot (NR Band n12 - 5MHz DFT-S-OFDM BPSK - Full RB – Ant A)



Plot 7-40. Occupied Bandwidth Plot (NR Band n12 - 5MHz CP-OFDM QPSK - Full RB – Ant A)

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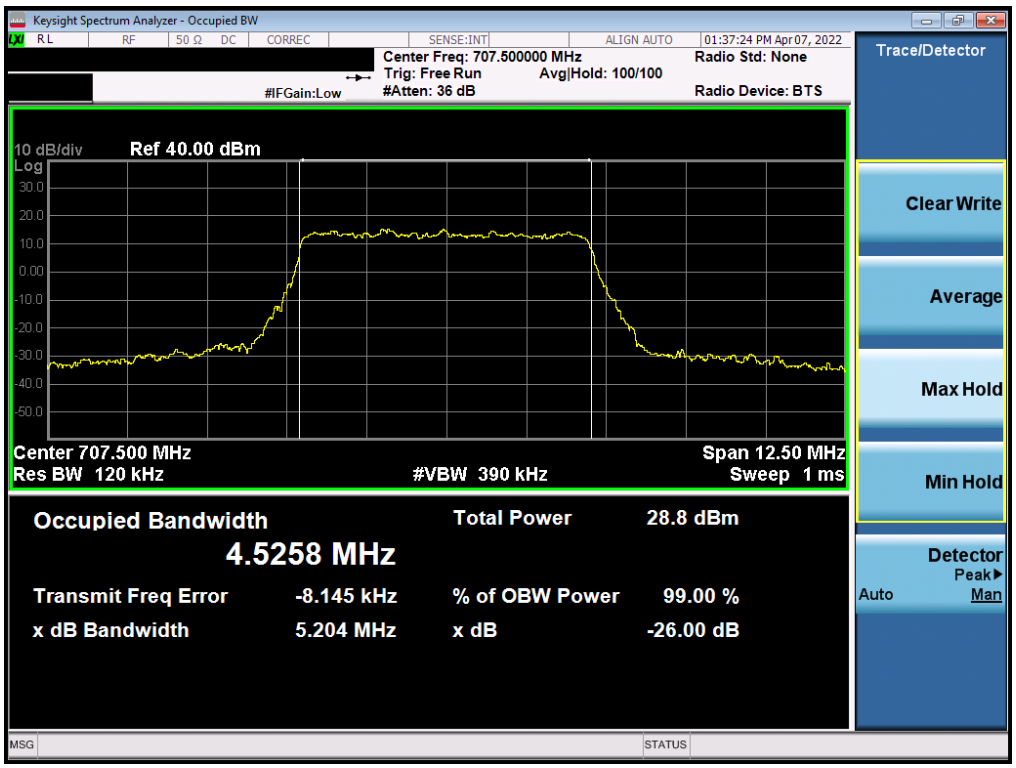

Plot 7-41. Occupied Bandwidth Plot (NR Band n12 - 5MHz CP-OFDM 16-QAM - Full RB – Ant A)

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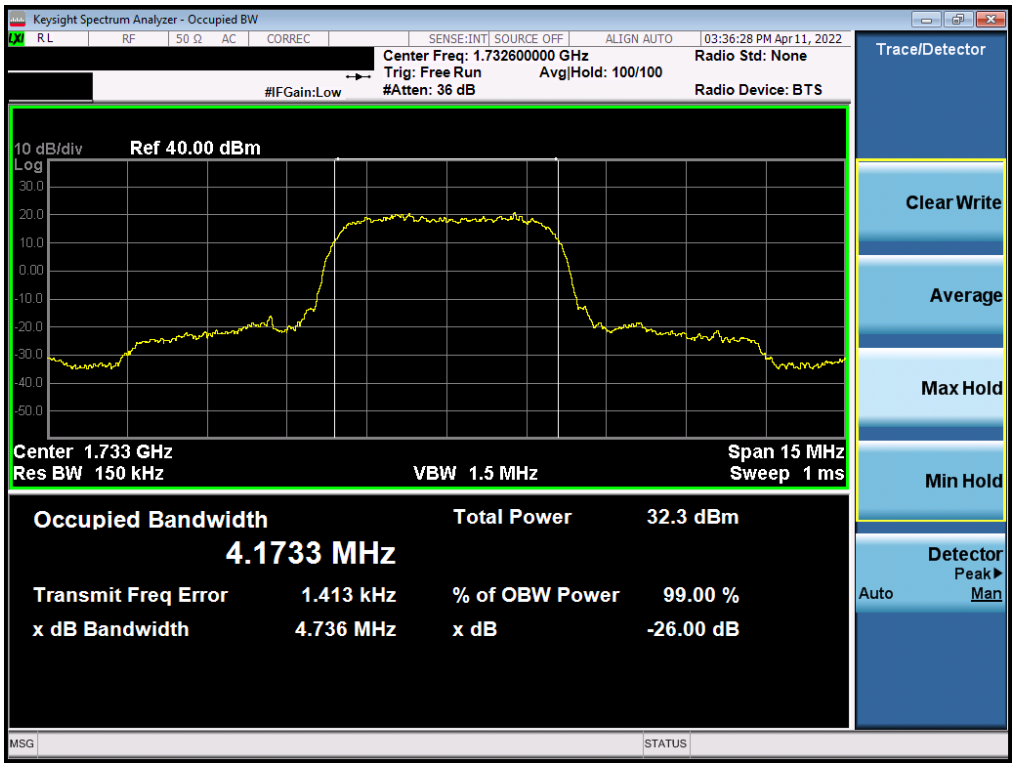
WCDMA AWS – Ant A



Plot 7-42. Occupied Bandwidth Plot (WCDMA, Ch. 1413 – Ant A)

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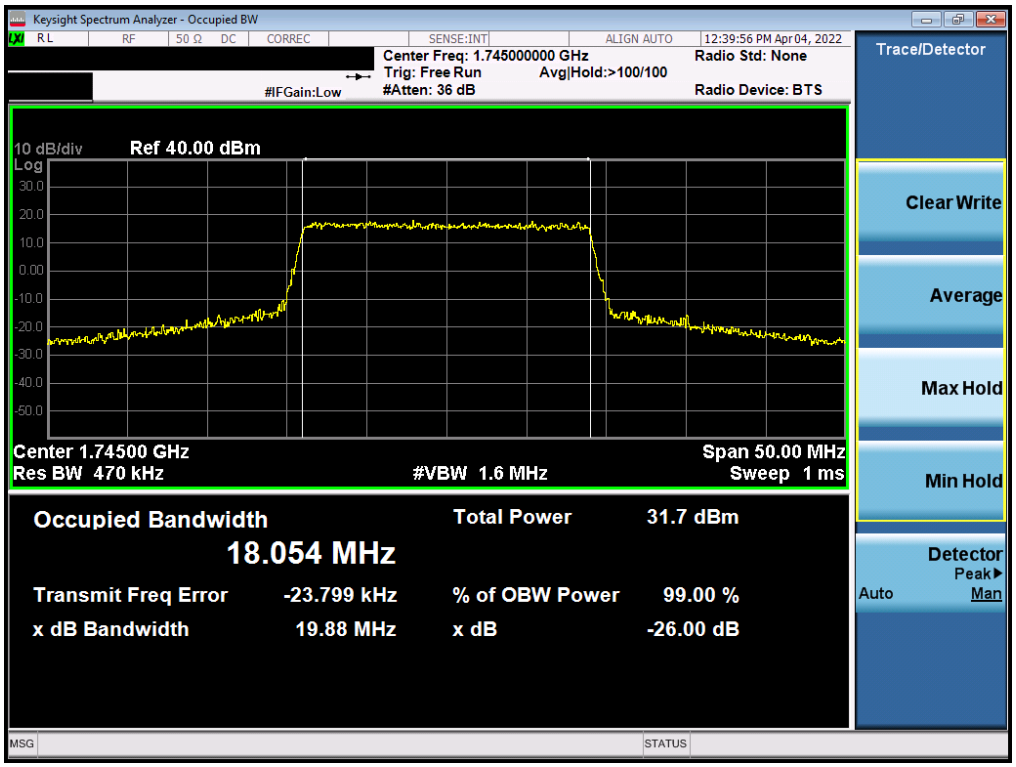
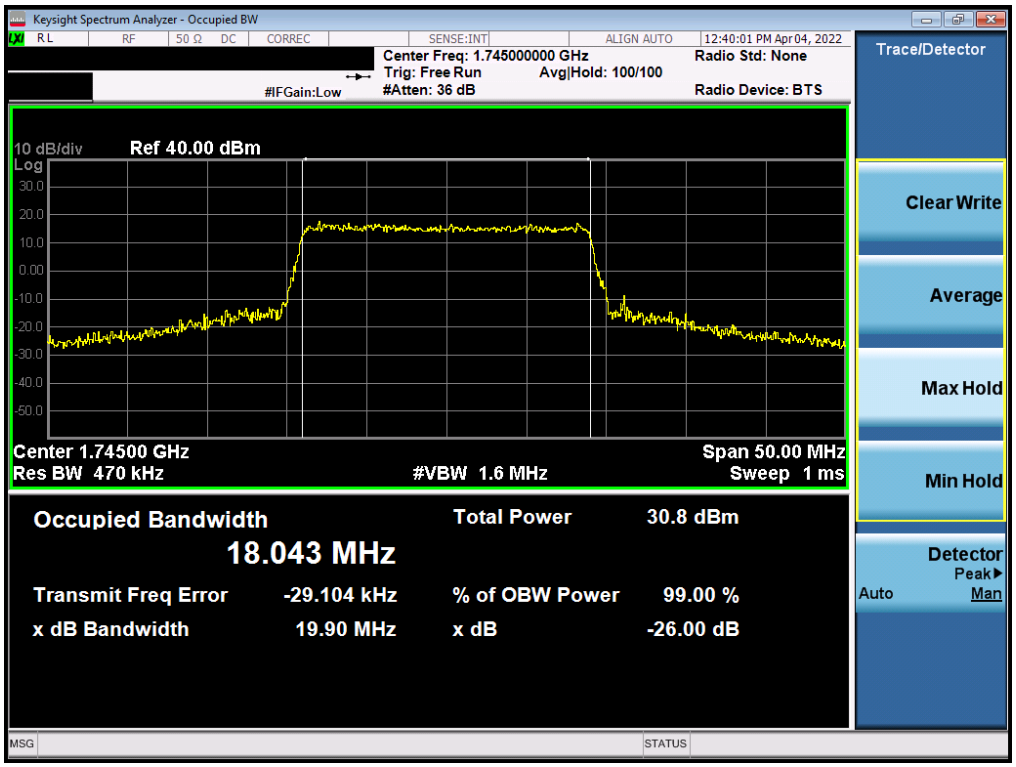
LTE Band 66/4 - Ant B



Plot 7-43. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz QPSK - Full RB - Ant B)



Plot 7-44. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz 16-QAM - Full RB - Ant B)

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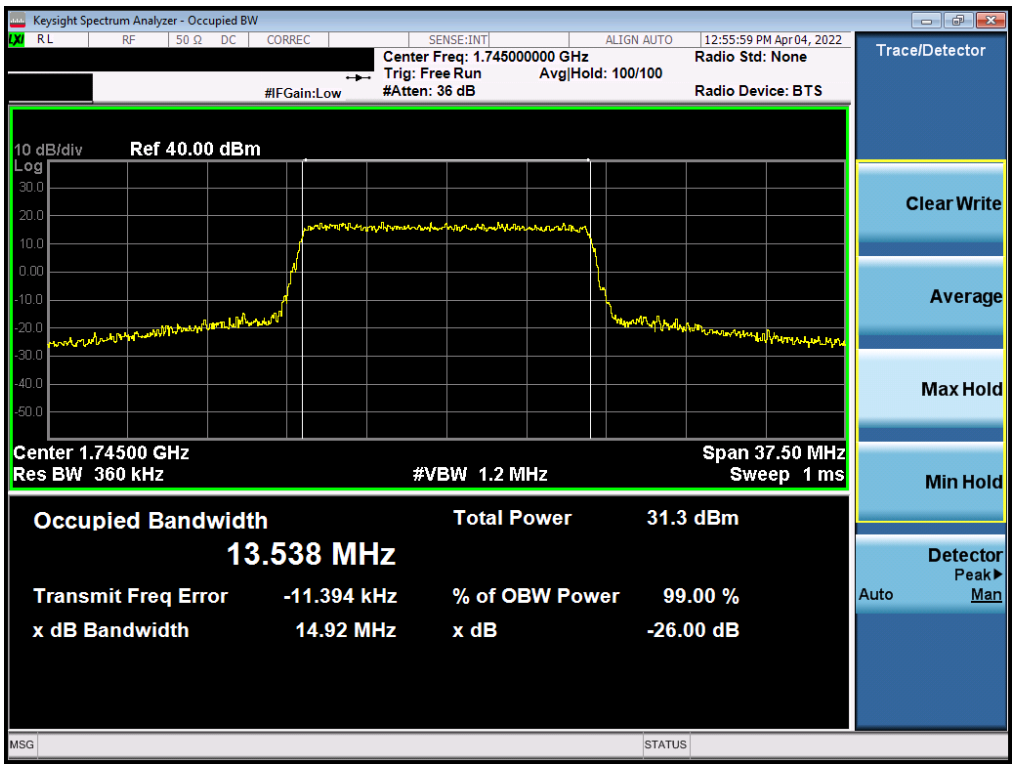
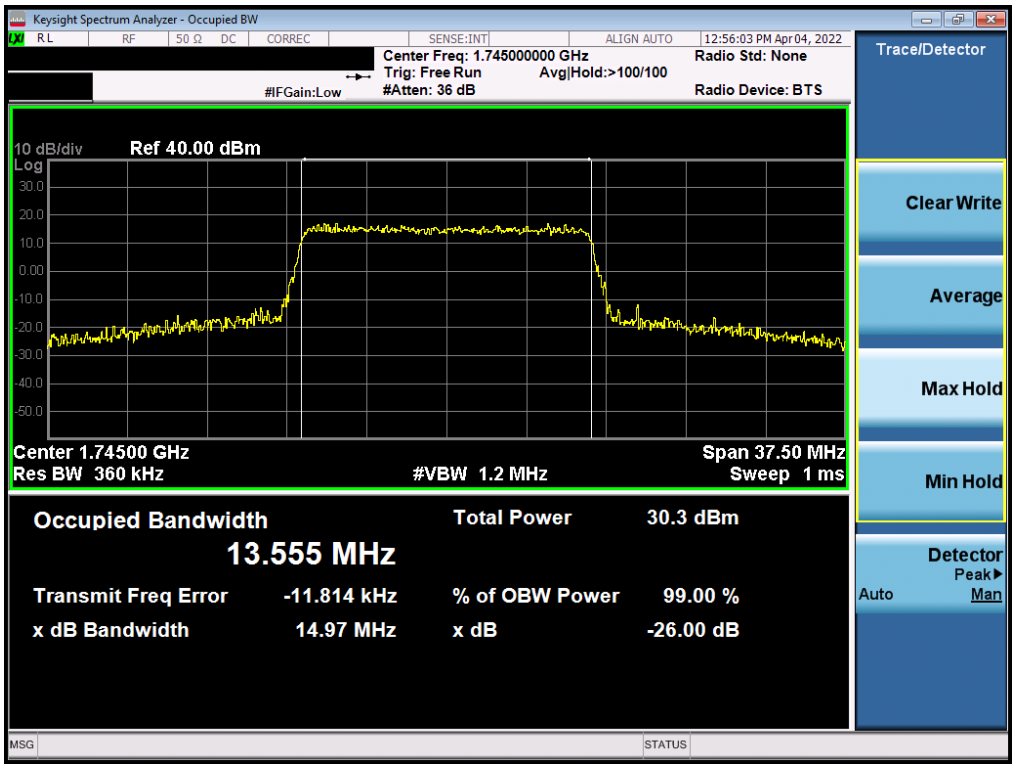


Plot 7-45. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz QPSK - Full RB - Ant B)



Plot 7-46. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz 16-QAM - Full RB - Ant B)

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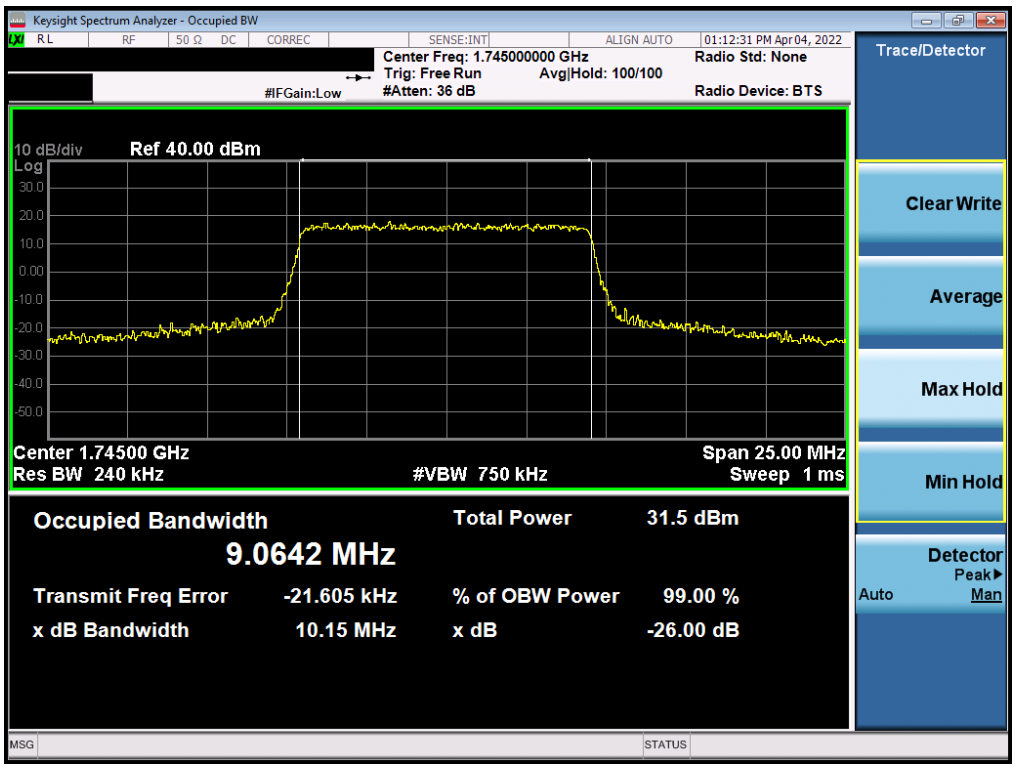
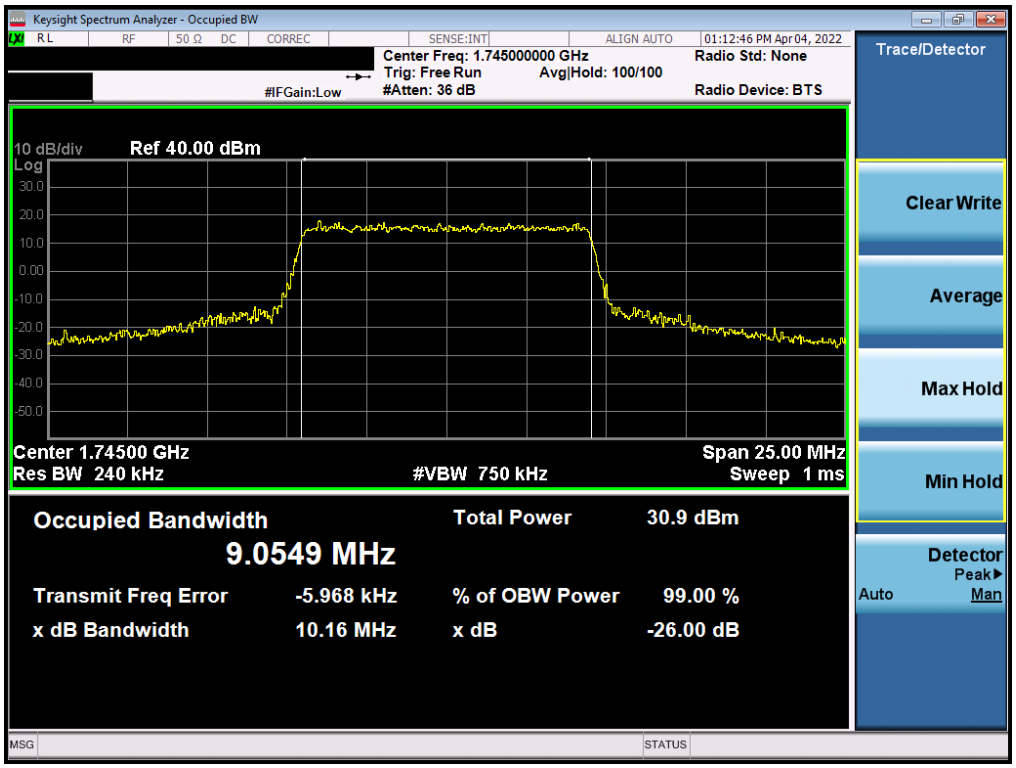


Plot 7-47. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz QPSK - Full RB - Ant B)



Plot 7-48. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz 16-QAM - Full RB - Ant B)

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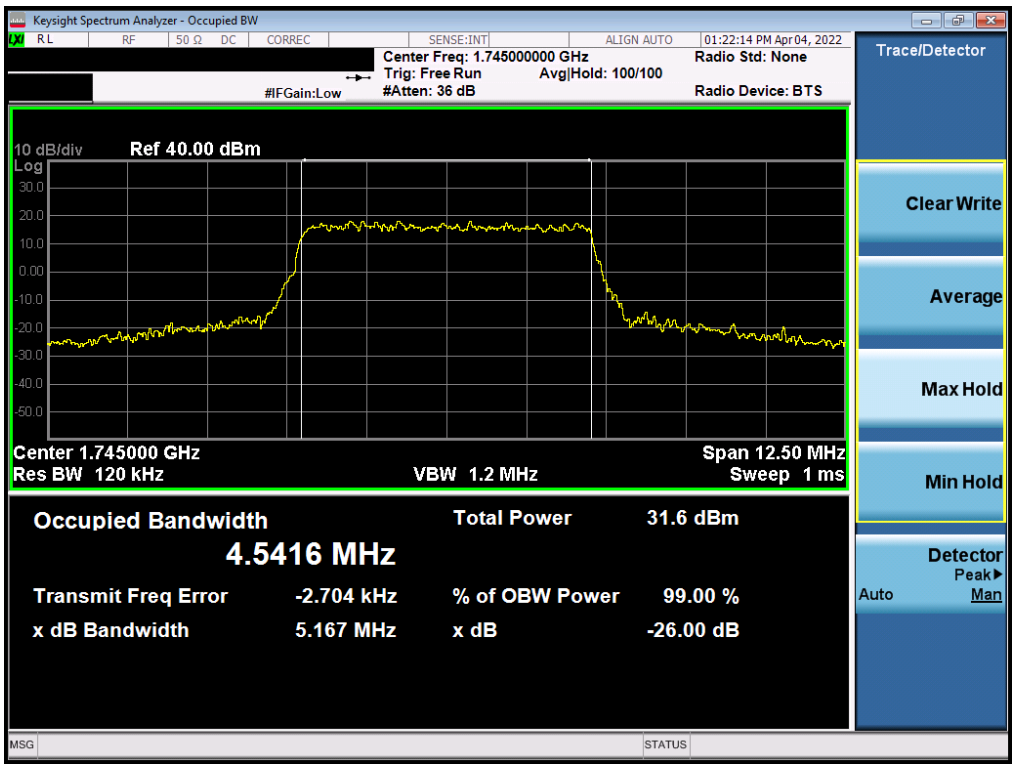
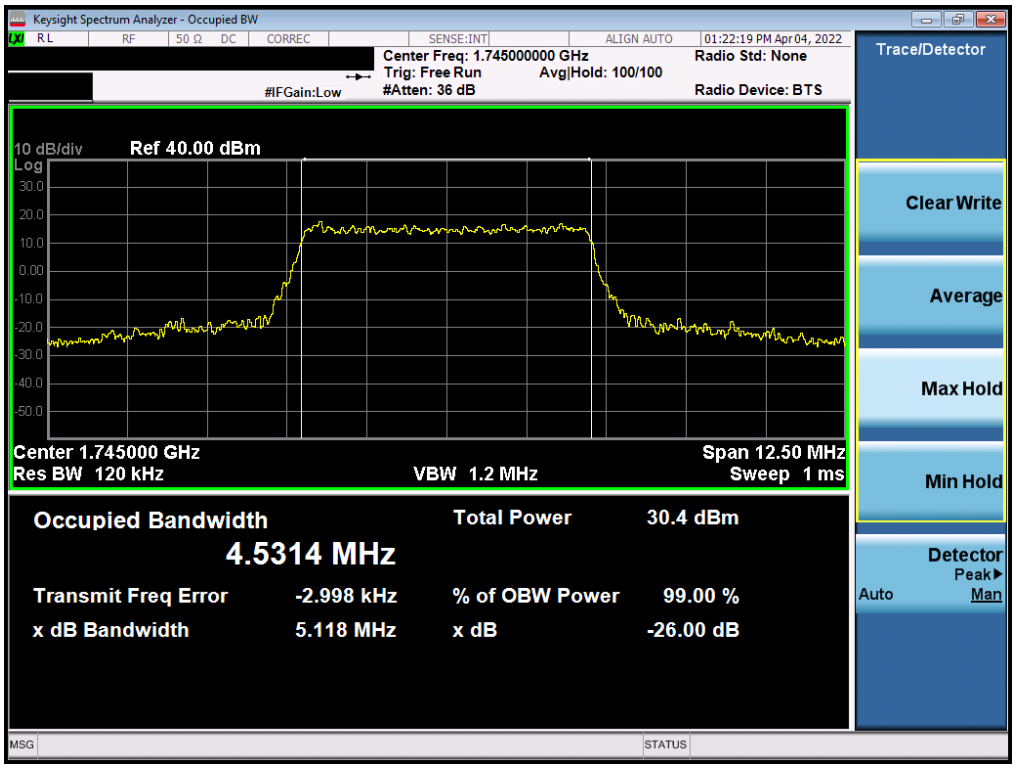


Plot 7-49. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz QPSK - Full RB - Ant B)



Plot 7-50. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz 16-QAM - Full RB - Ant B)

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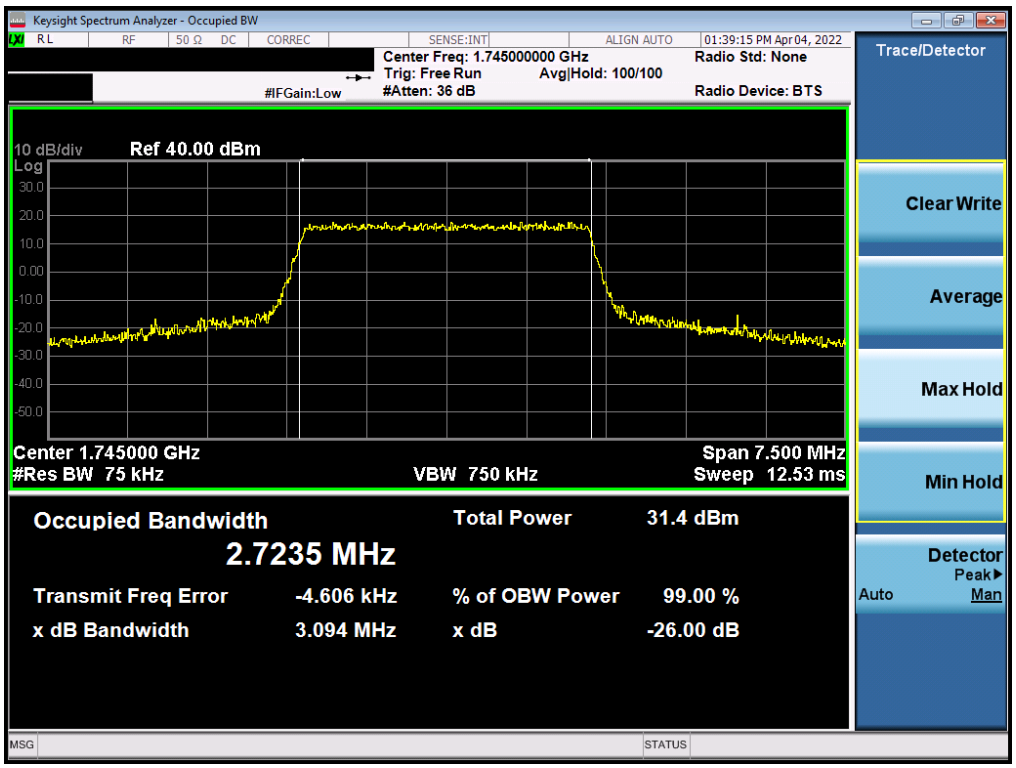
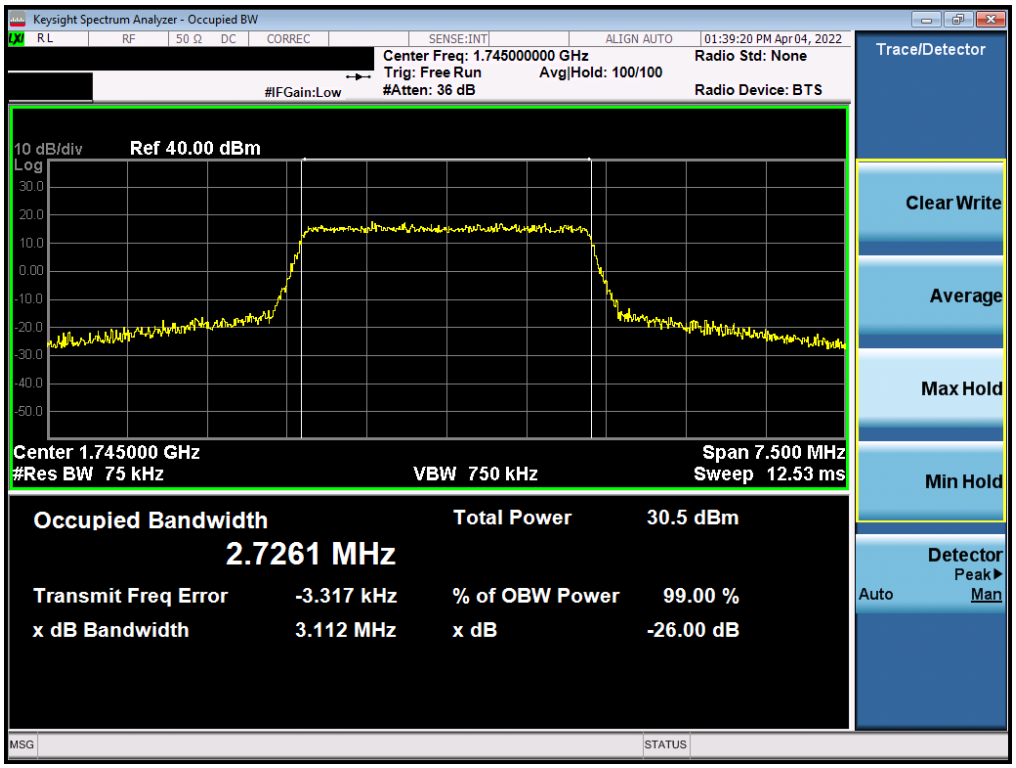


Plot 7-51. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz QPSK - Full RB - Ant B)



Plot 7-52. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz 16-QAM - Full RB - Ant B)

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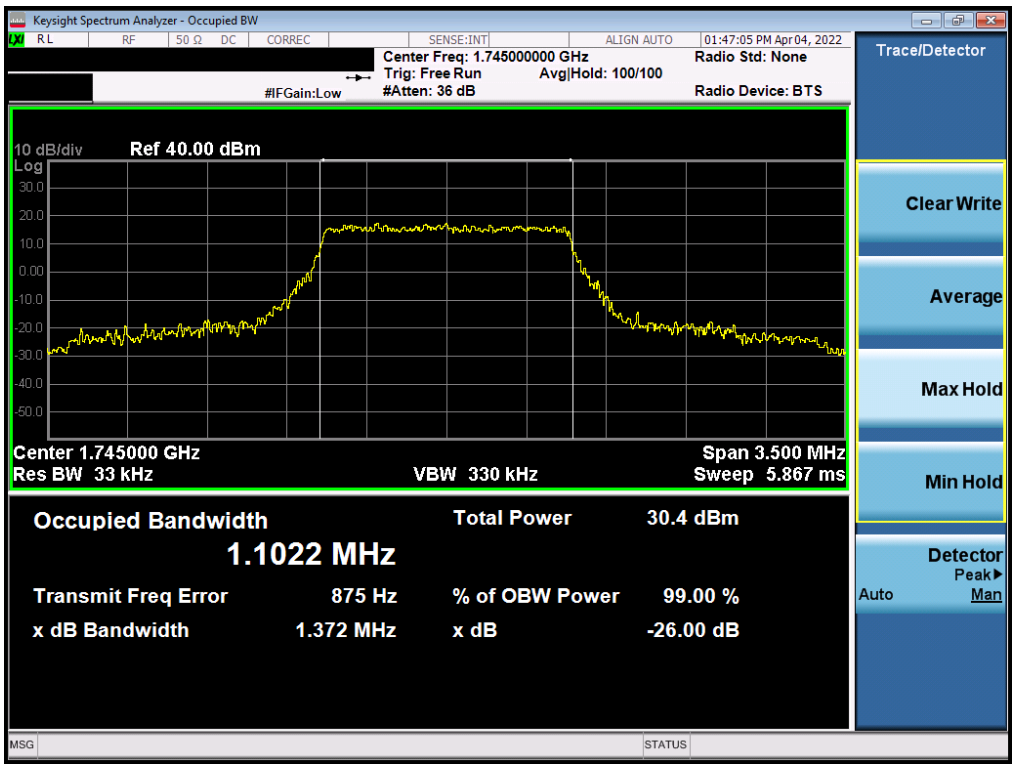
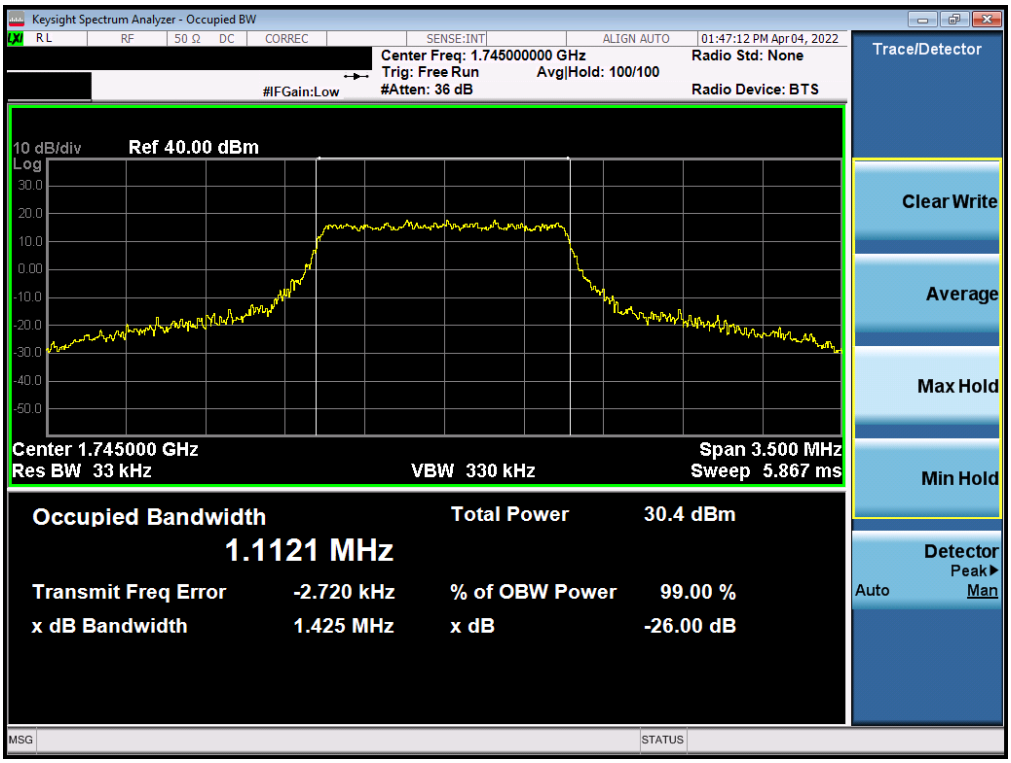


Plot 7-53. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz QPSK - Full RB - Ant B)



Plot 7-54. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz 16-QAM - Full RB - Ant B)

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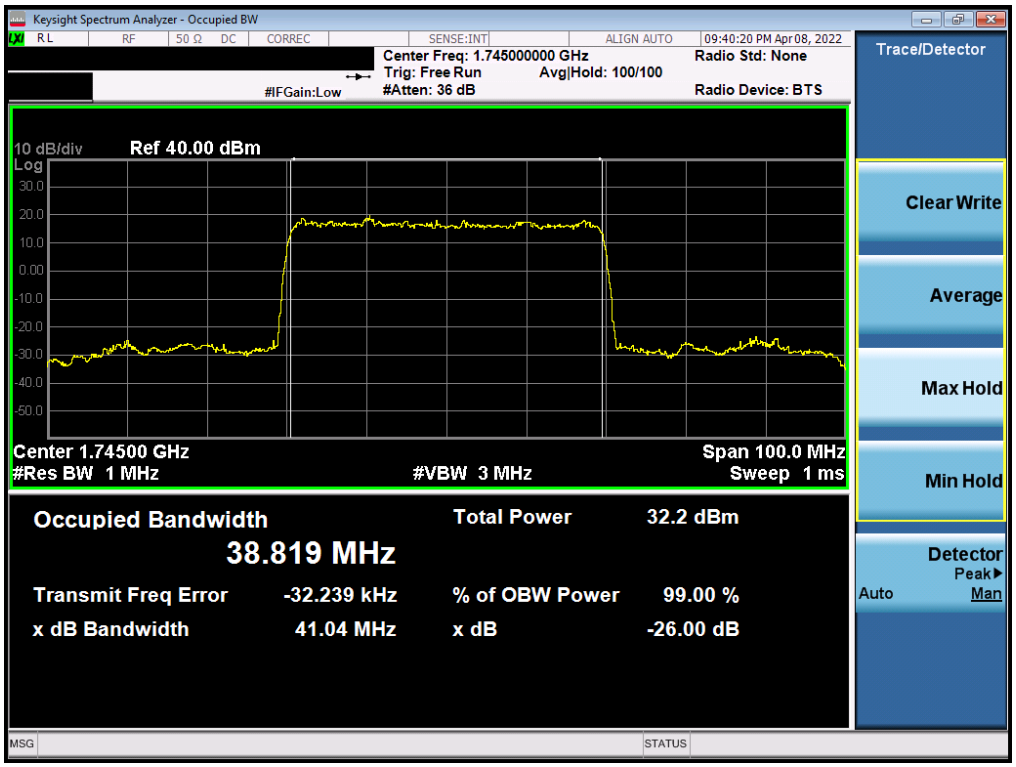
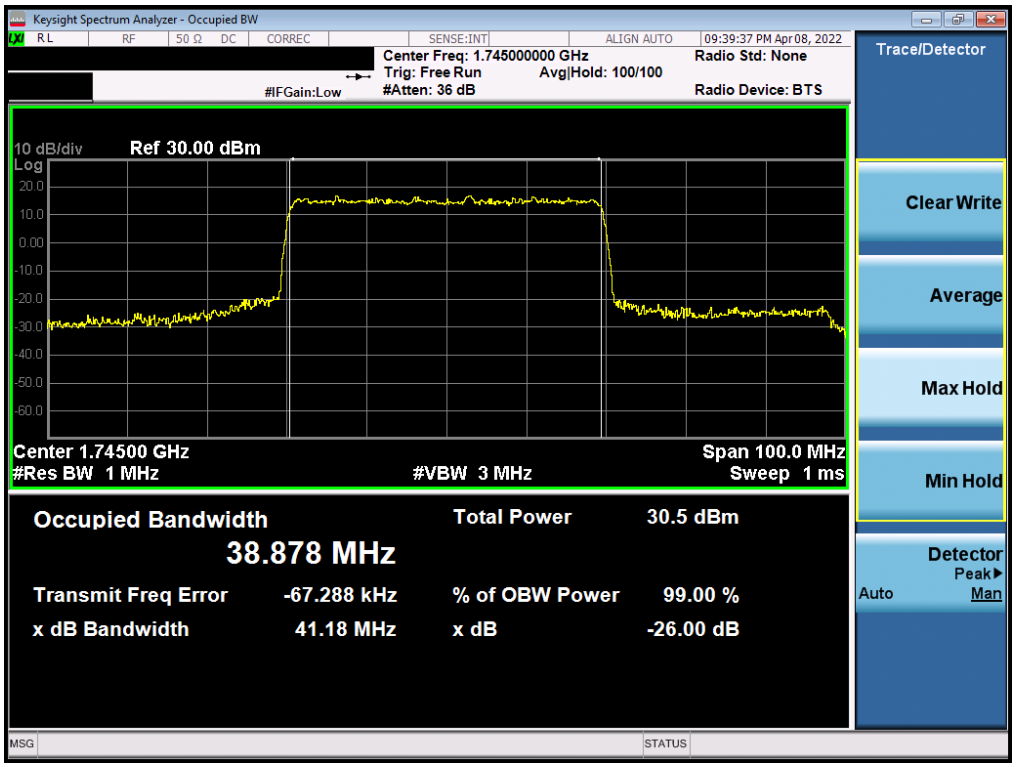
NR Band n66 – Ant B



Plot 7-55. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz DFT-s-OFDM BPSK - Full RB – Ant B)



Plot 7-56. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz CP-OFDM QPSK - Full RB – Ant B)

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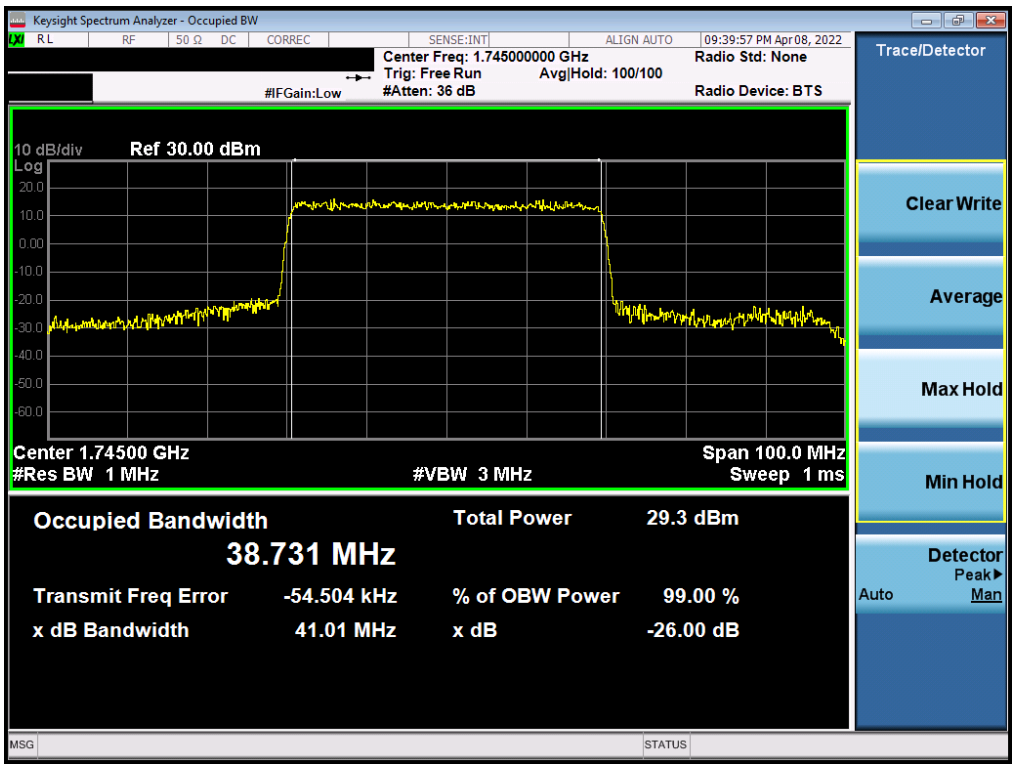
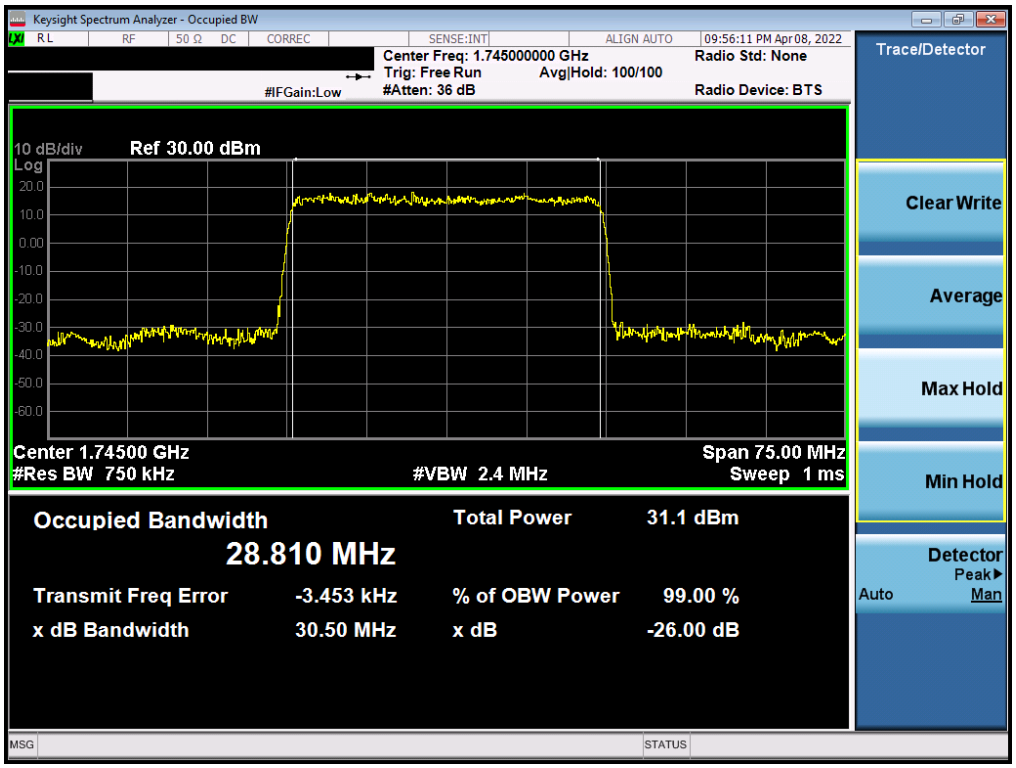


Plot 7-57. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz CP-OFDM 16QAM - Full RB – Ant B)



Plot 7-58. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz DFT-s-OFDM BPSK - Full RB – Ant B)

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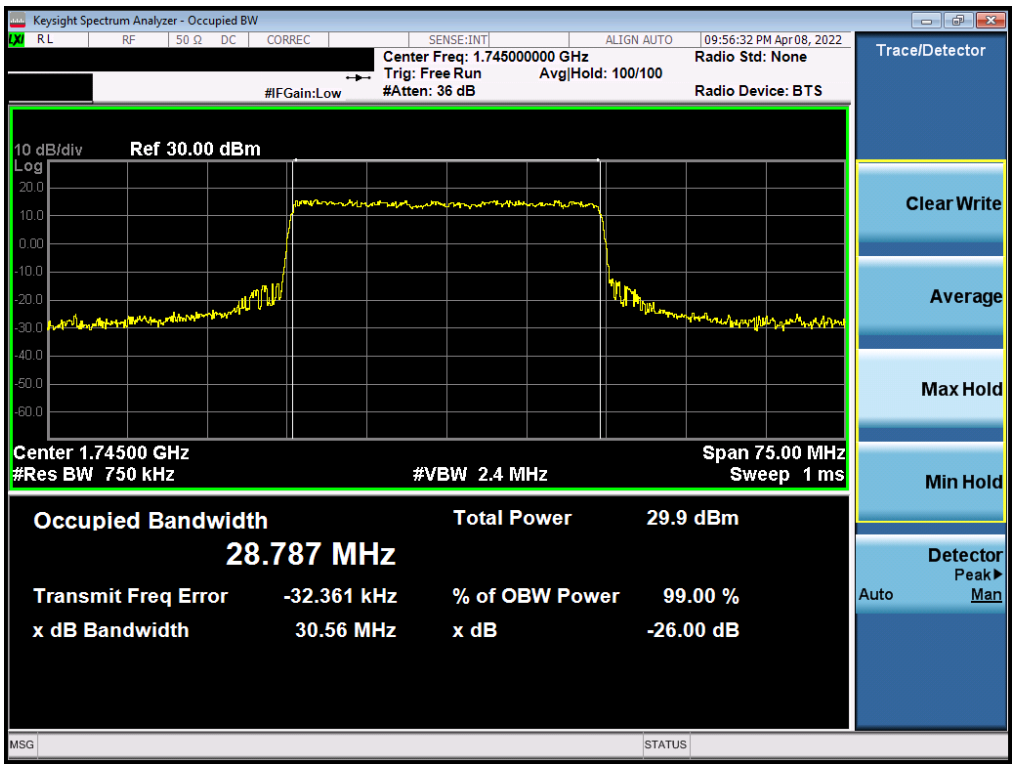
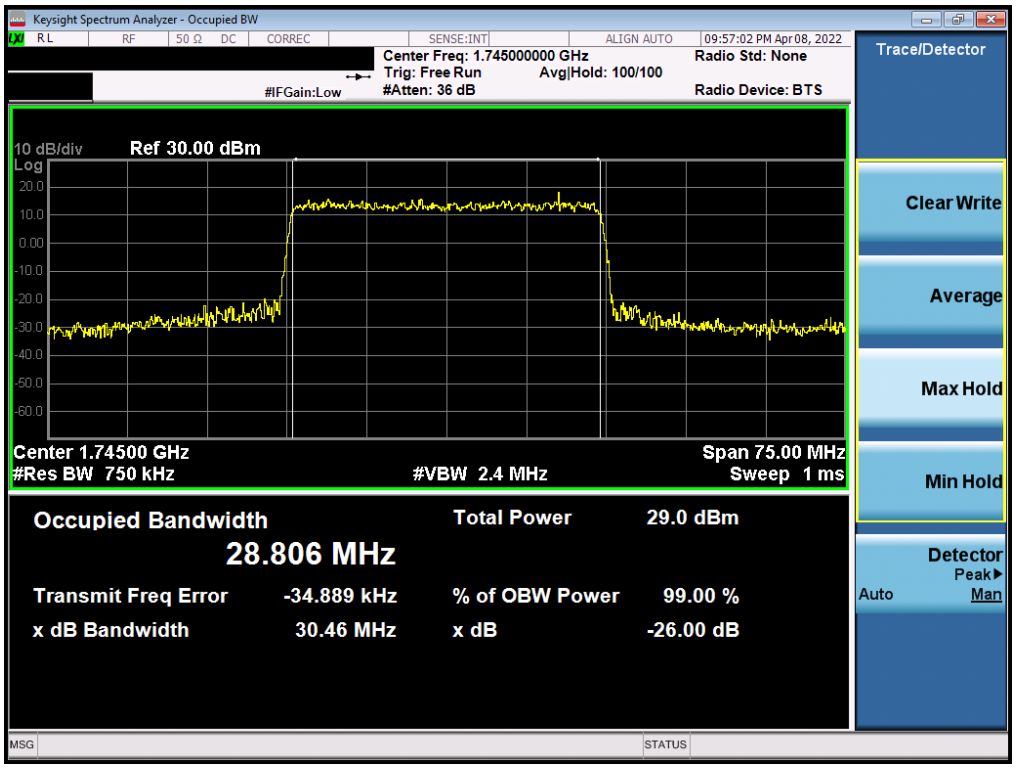


Plot 7-59. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz CP-OFDM QPSK - Full RB – Ant B)



Plot 7-60. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz CP-OFDM 16QAM - Full RB – Ant B)

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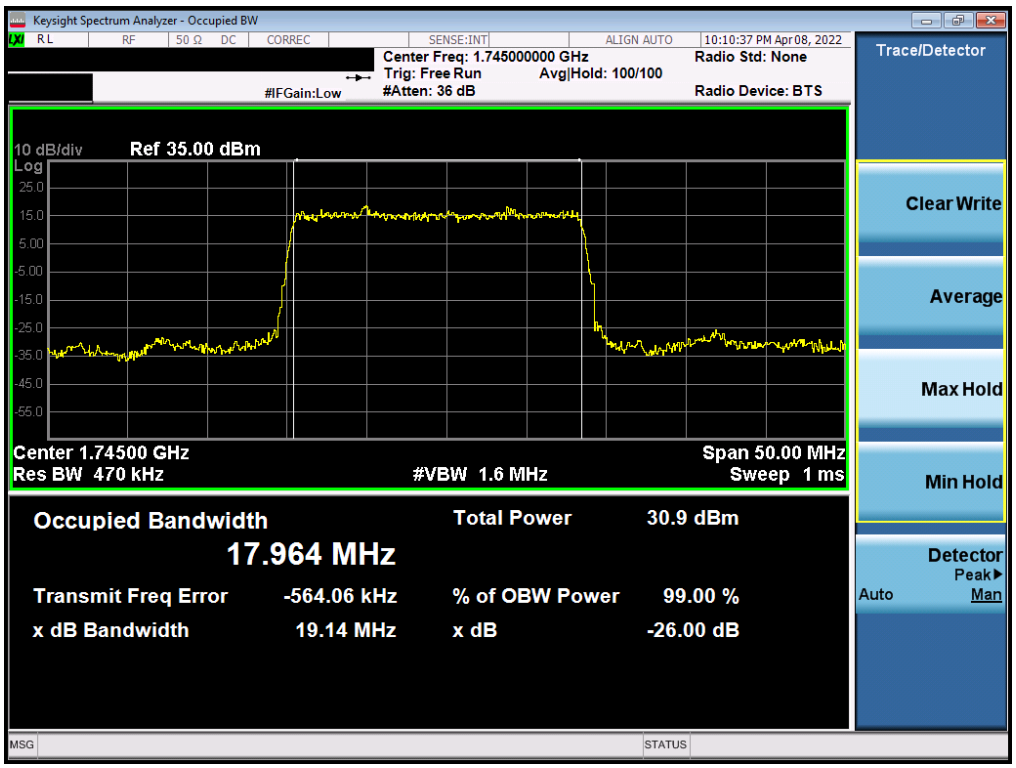
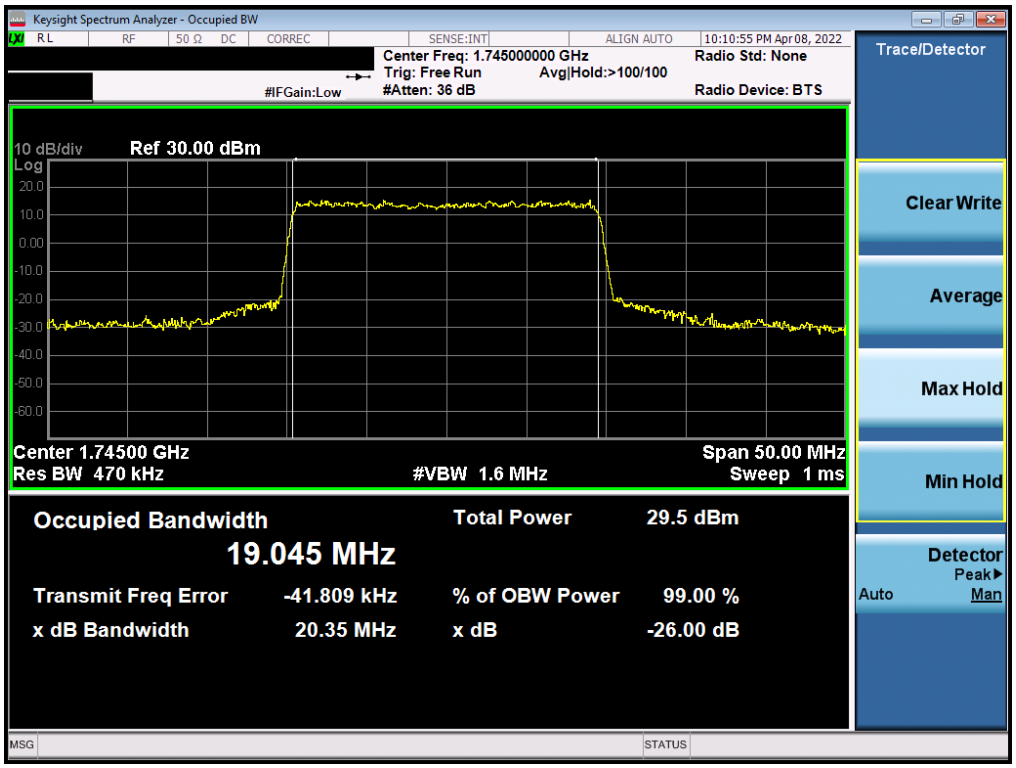


Plot 7-61. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz DFT-s-OFDM BPSK - Full RB – Ant B)



Plot 7-62. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz CP-OFDM QPSK - Full RB – Ant B)

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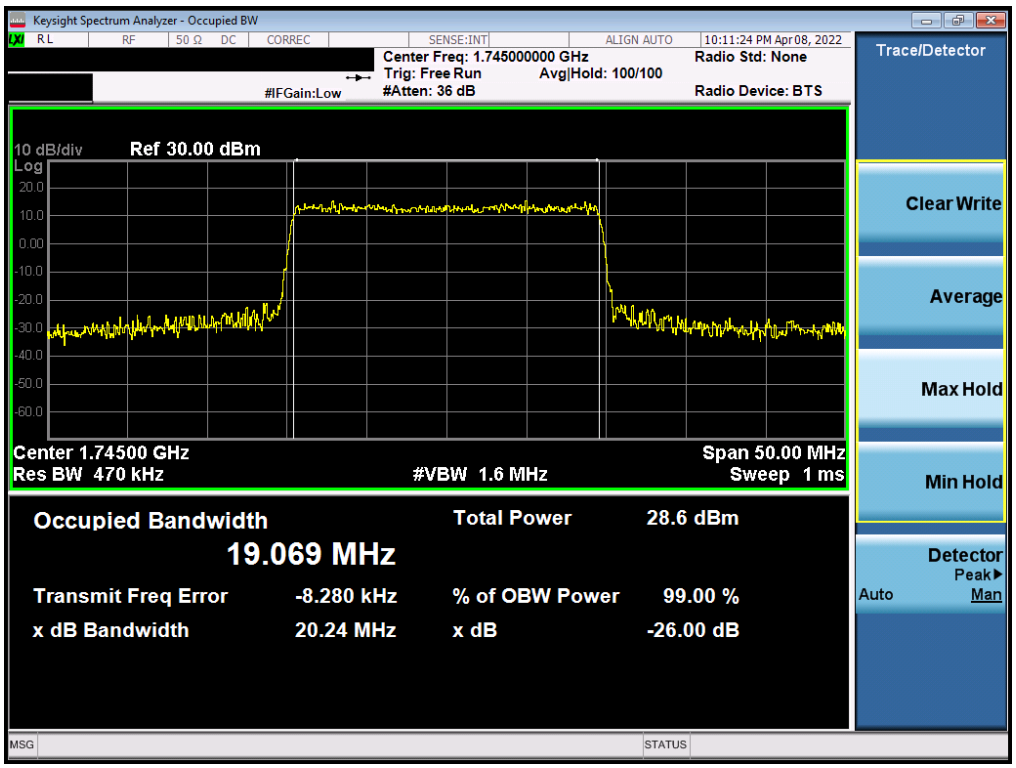
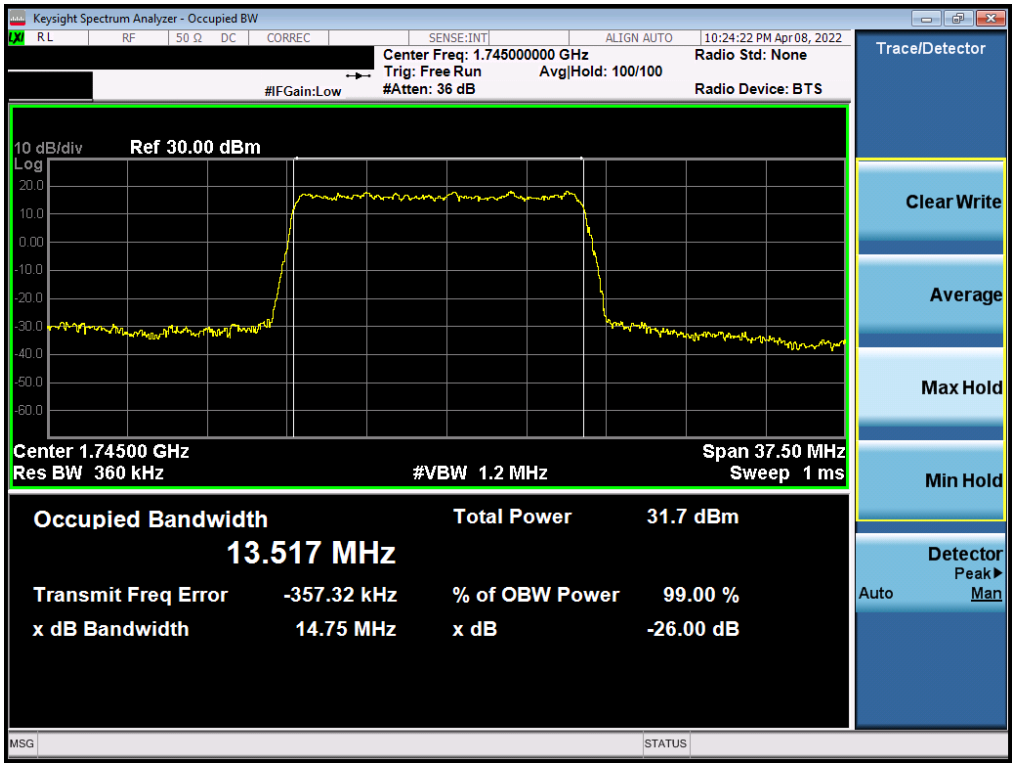


Plot 7-63. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz CP-OFDM 16QAM - Full RB – Ant B)



Plot 7-64. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz DFT-s-OFDM BPSK - Full RB – Ant B)

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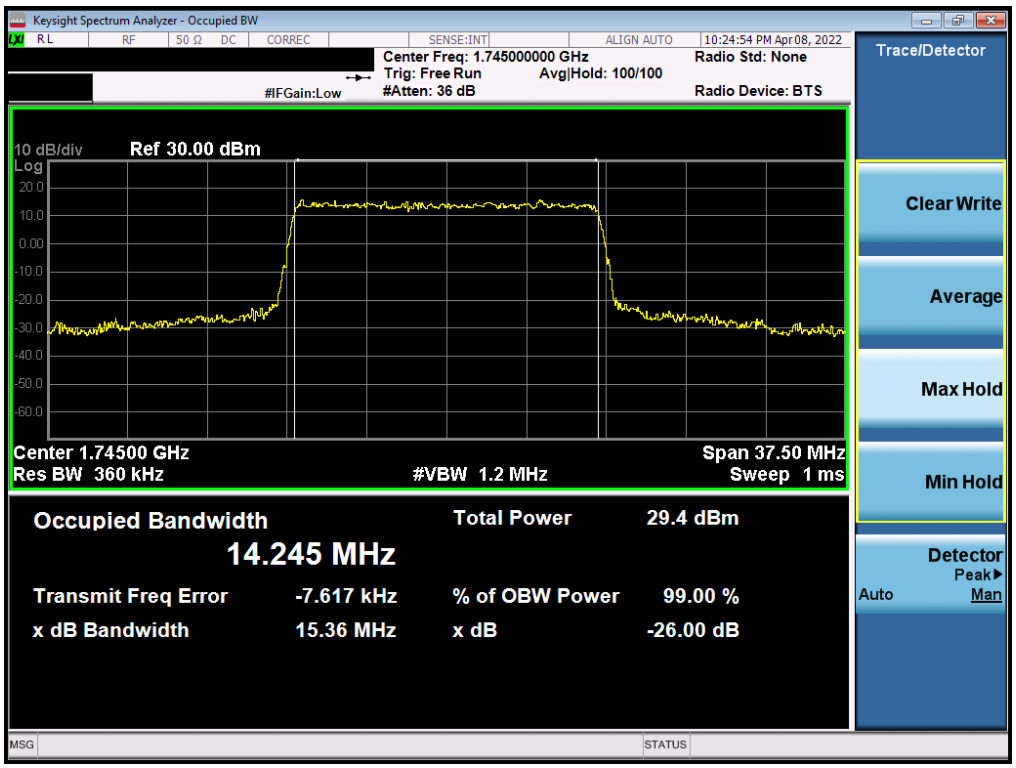
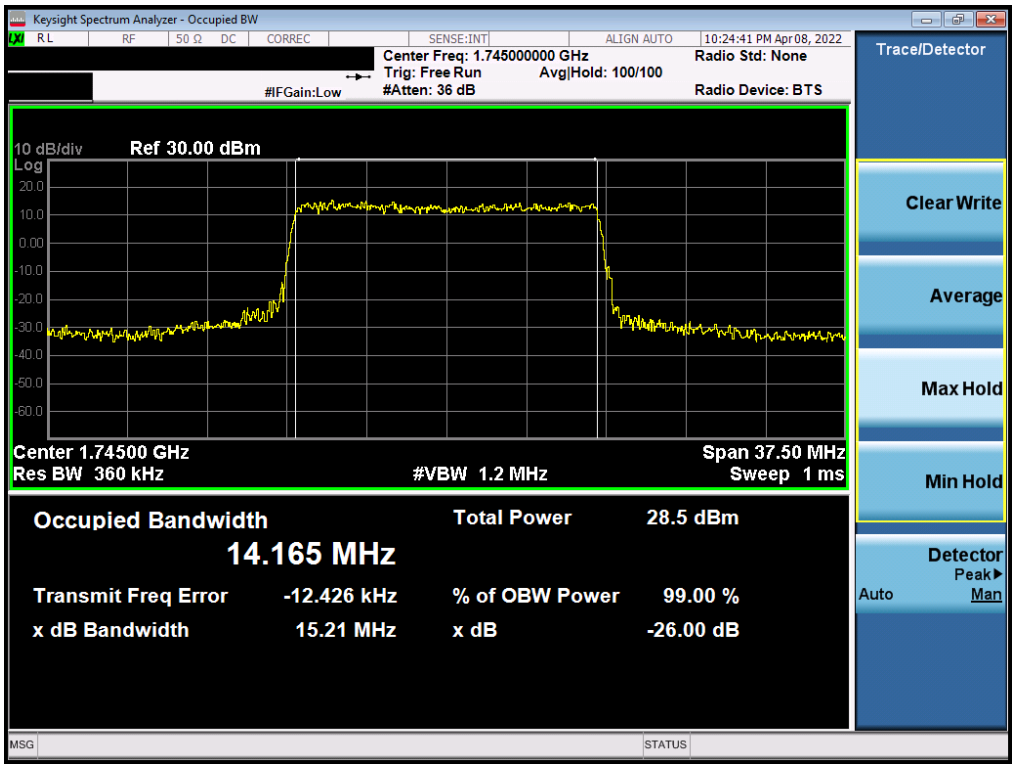


Plot 7-65. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz CP-OFDM QPSK - Full RB – Ant B)



Plot 7-66. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz CP-OFDM 16QAM - Full RB – Ant B)

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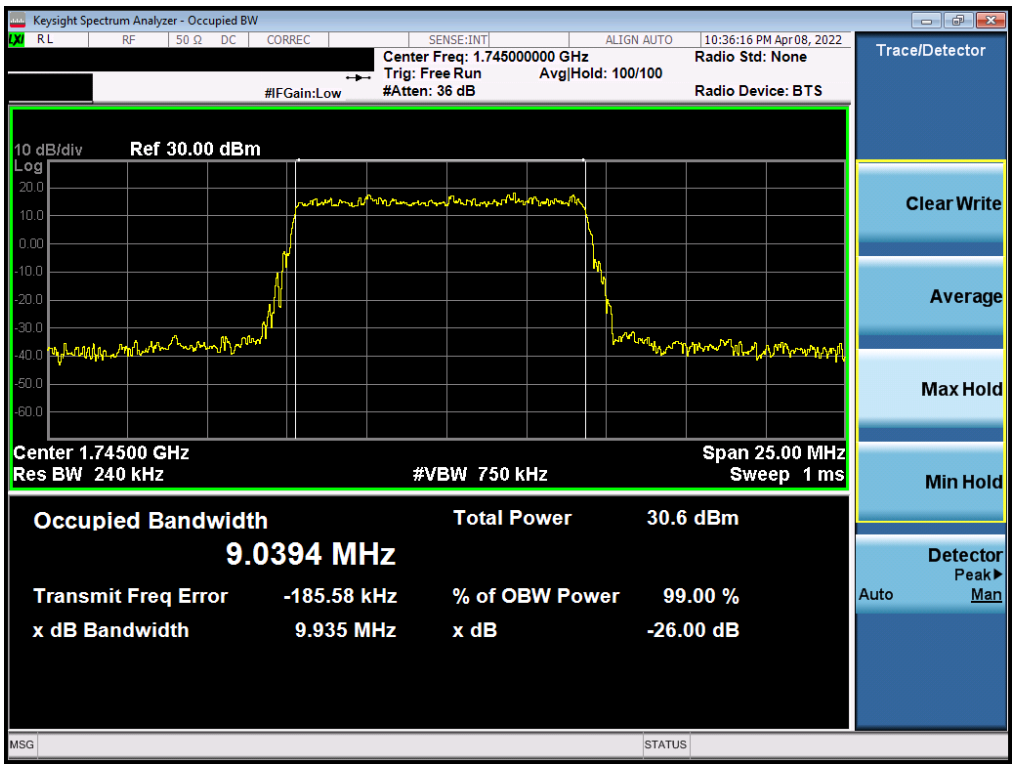
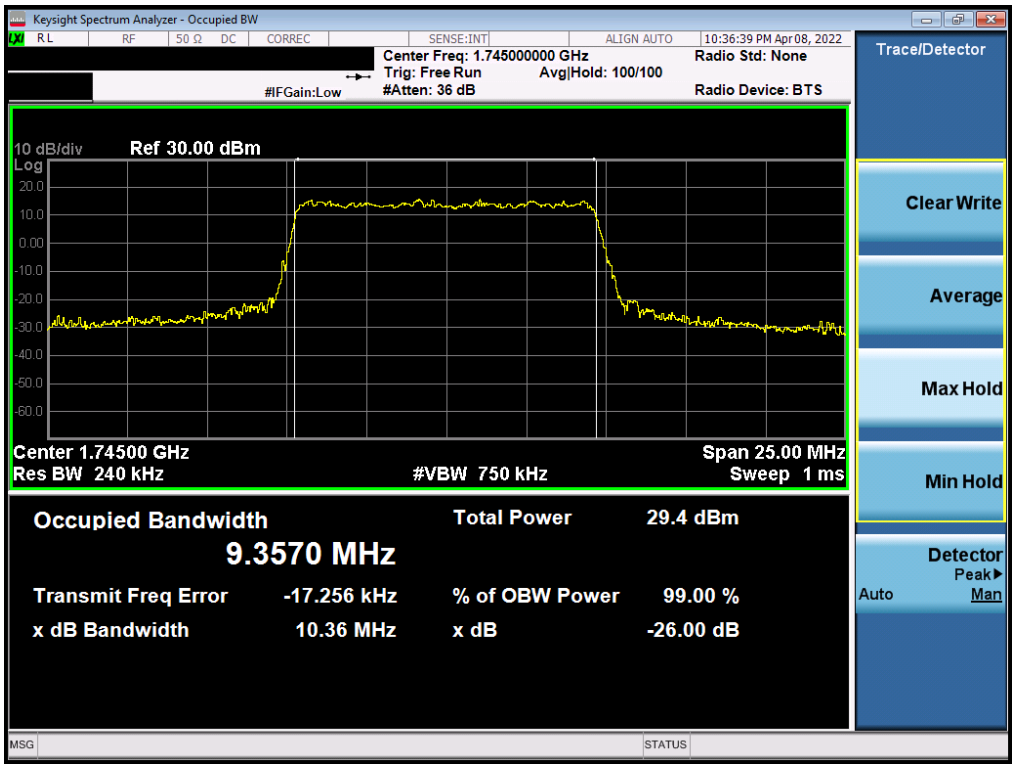


Plot 7-67. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz DFT-s-OFDM BPSK - Full RB – Ant B)



Plot 7-68. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz CP-OFDM QPSK - Full RB – Ant B)

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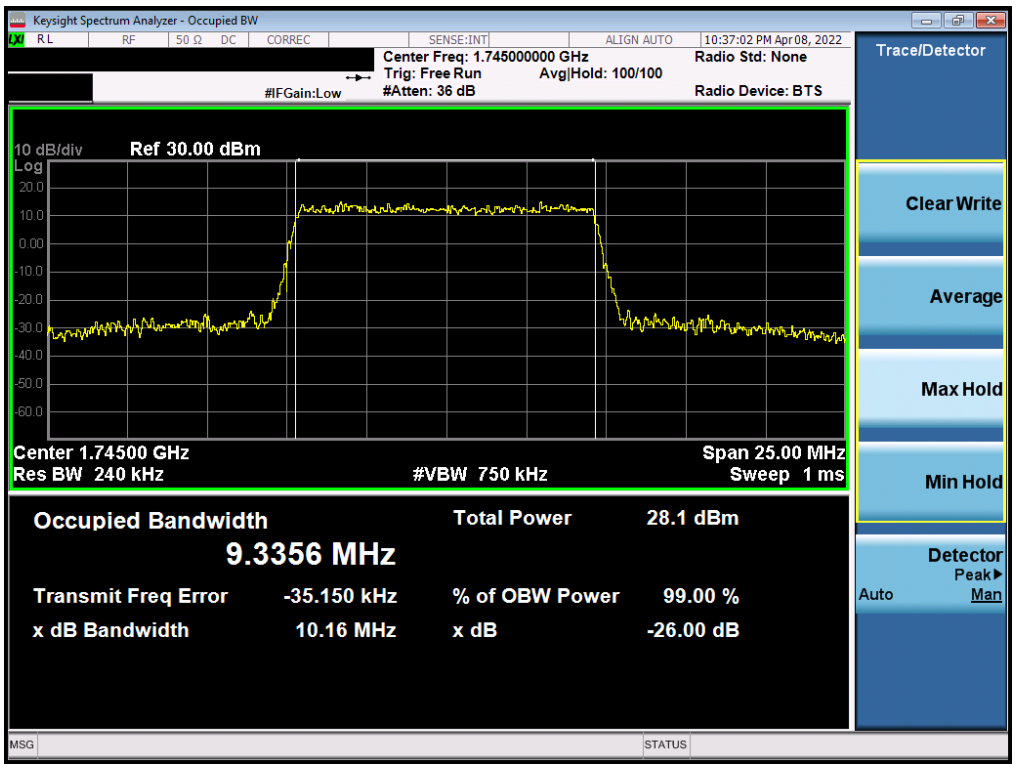
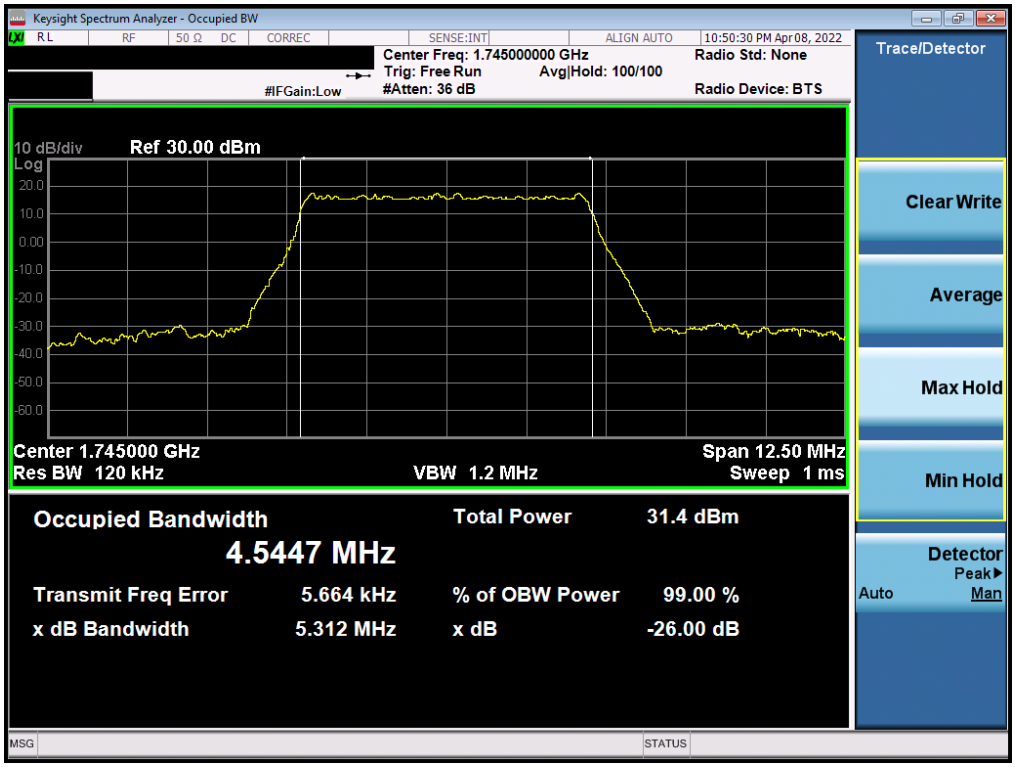


Plot 7-69. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz CP-OFDM 16QAM - Full RB – Ant B)



Plot 7-70. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz DFT-s-OFDM BPSK - Full RB – Ant B)

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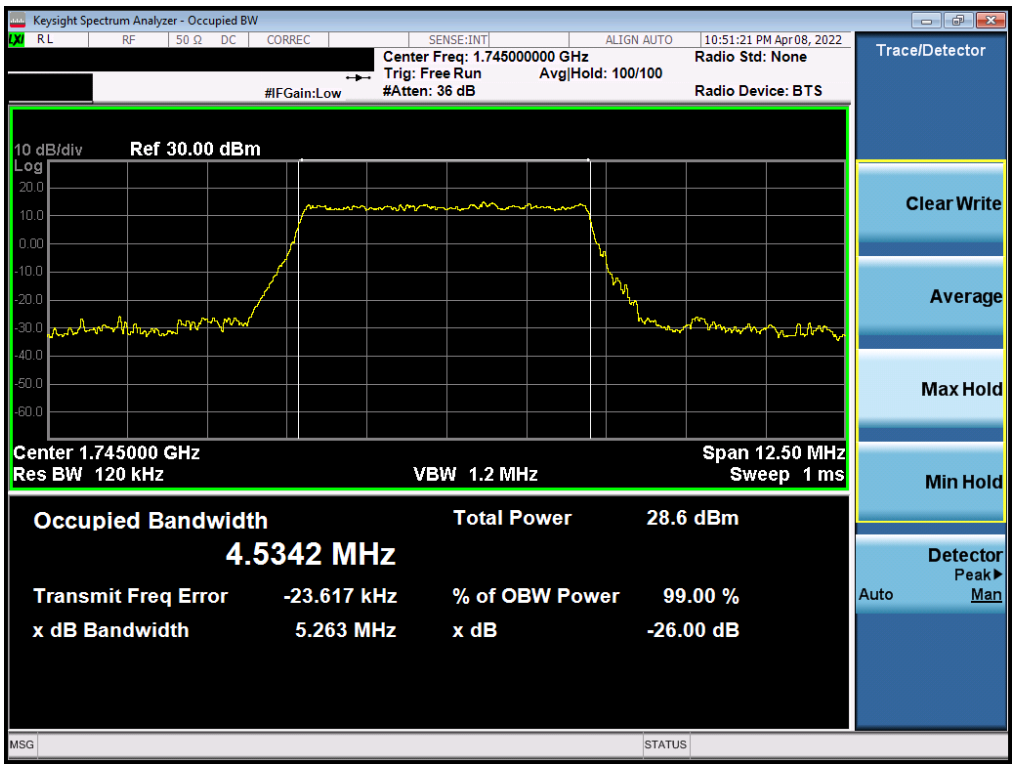
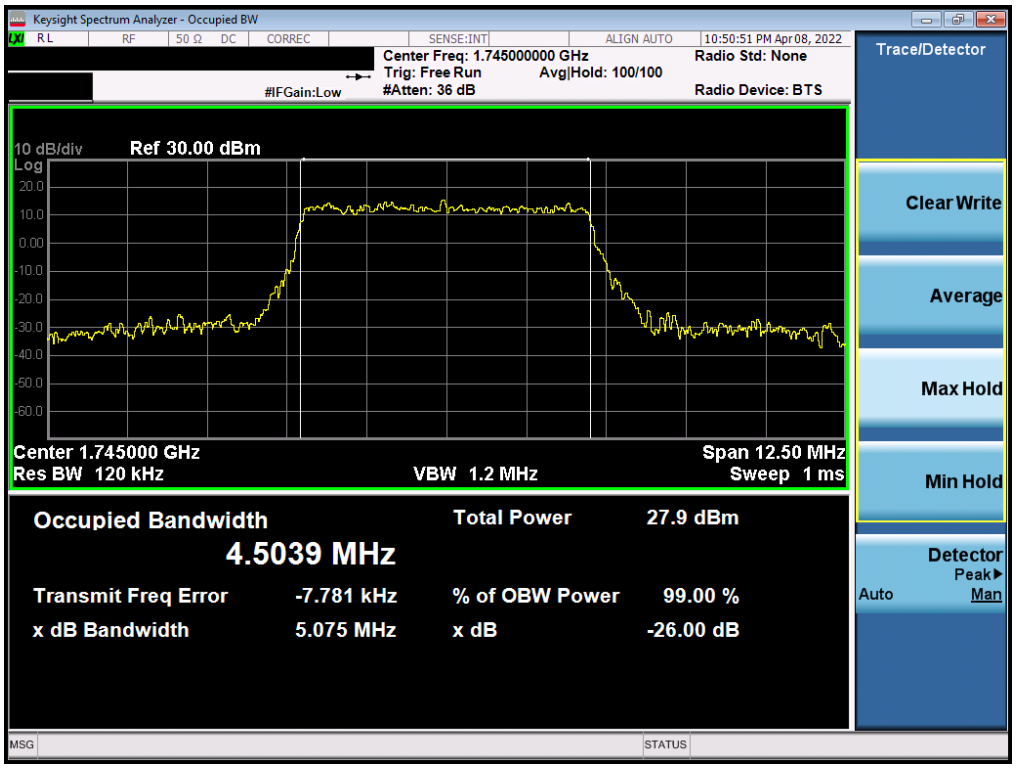


Plot 7-71. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz CP-OFDM QPSK - Full RB – Ant B)



Plot 7-72. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz CP-OFDM 16QAM - Full RB – Ant B)

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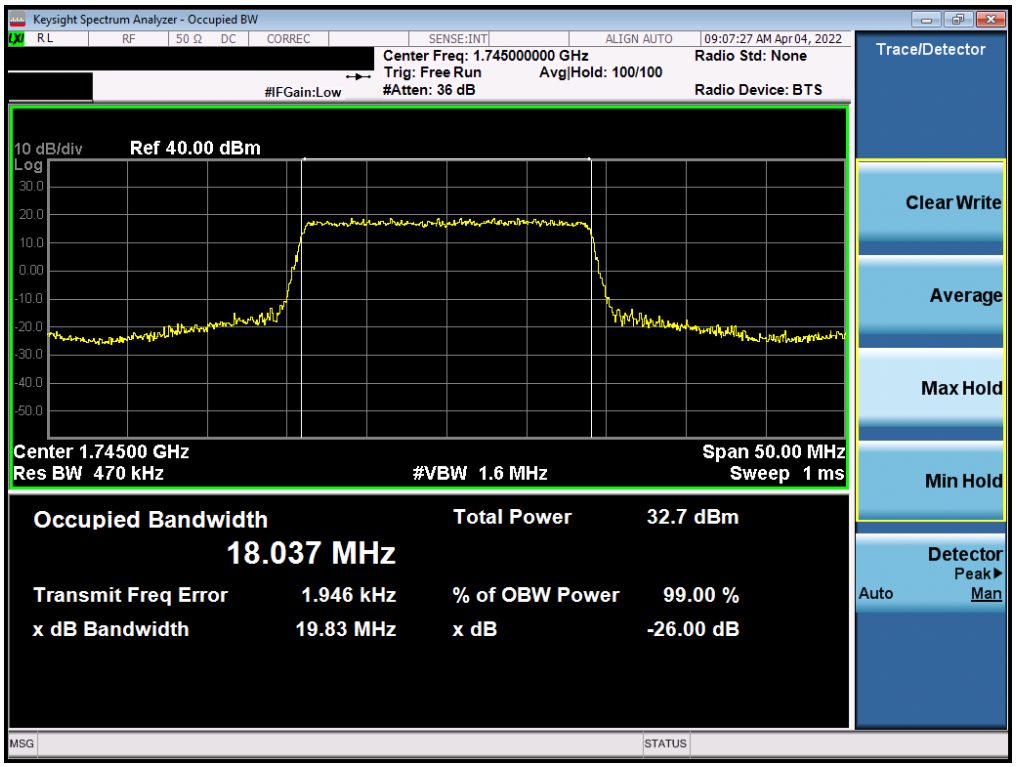
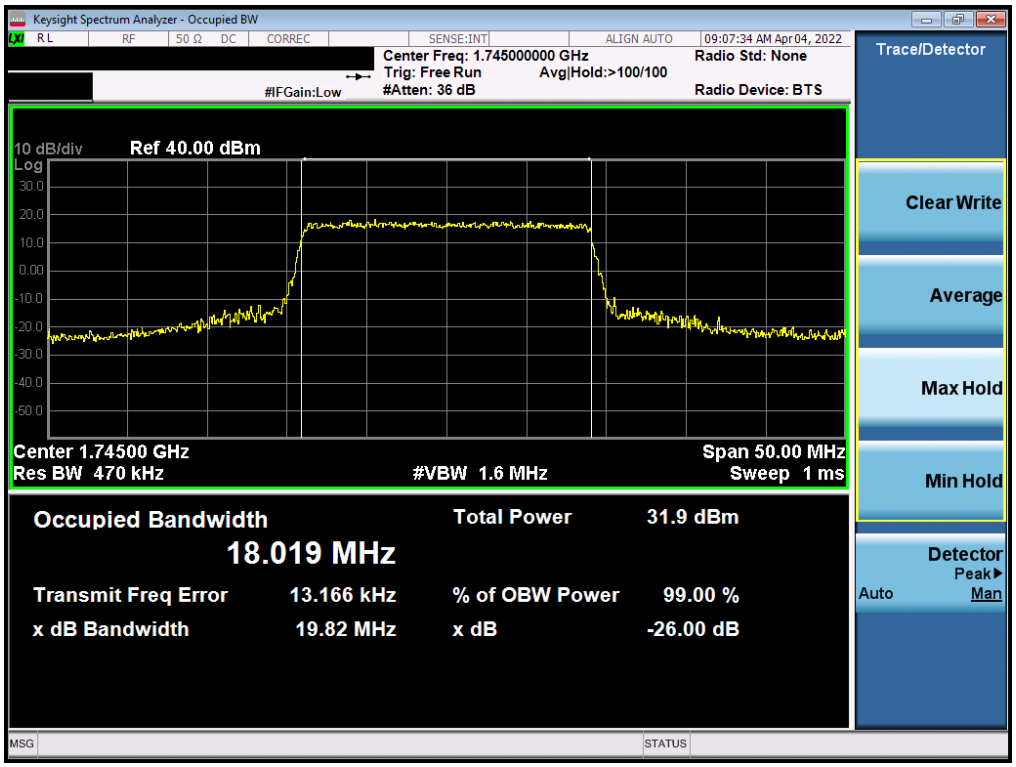
LTE Band 66/4 - Ant F



Plot 7-73. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz QPSK - Full RB - Ant F)



Plot 7-74. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz 16-QAM - Full RB - Ant F)

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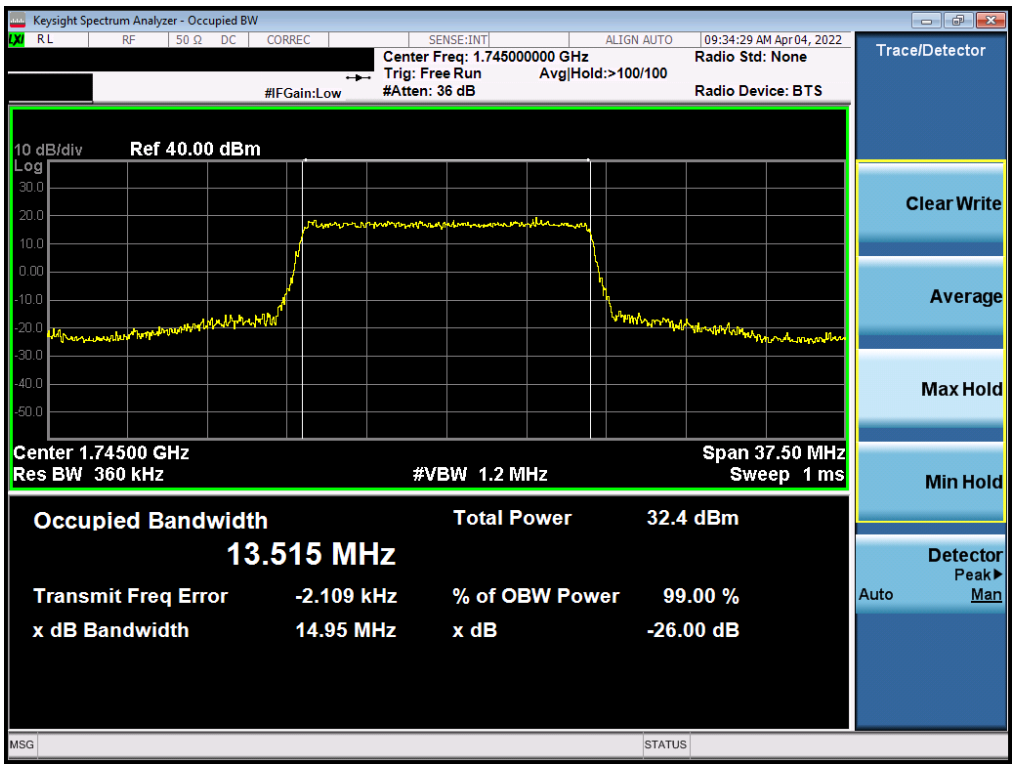
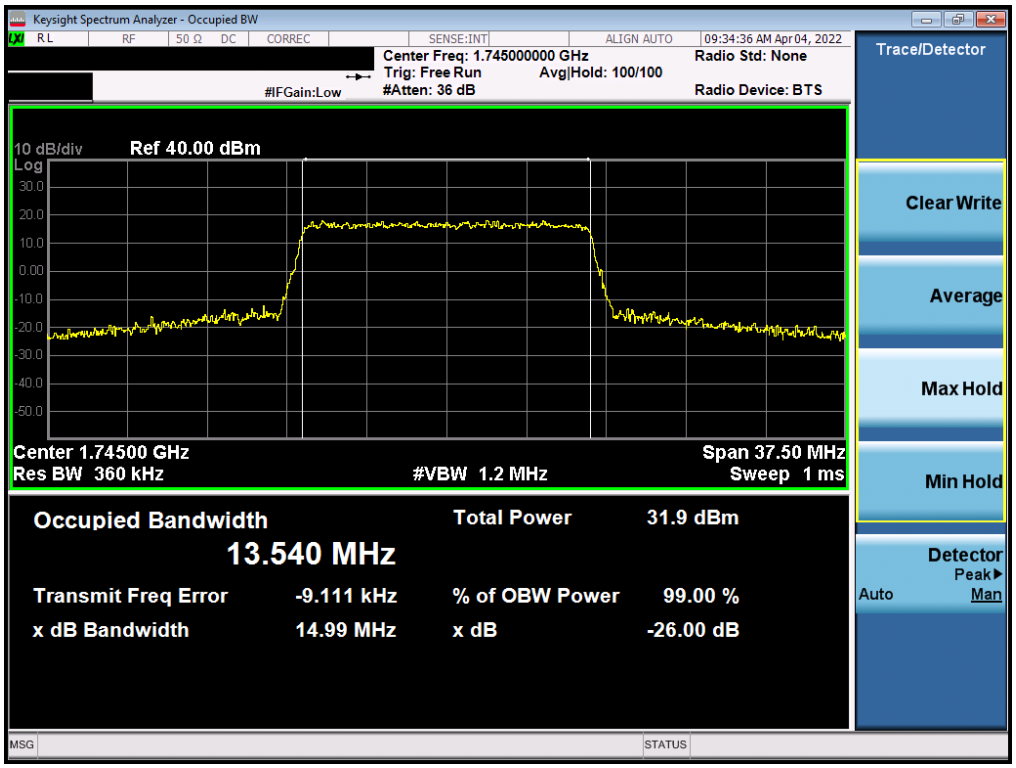


Plot 7-75. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz QPSK - Full RB - Ant F)



Plot 7-76. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz 16-QAM - Full RB - Ant F)

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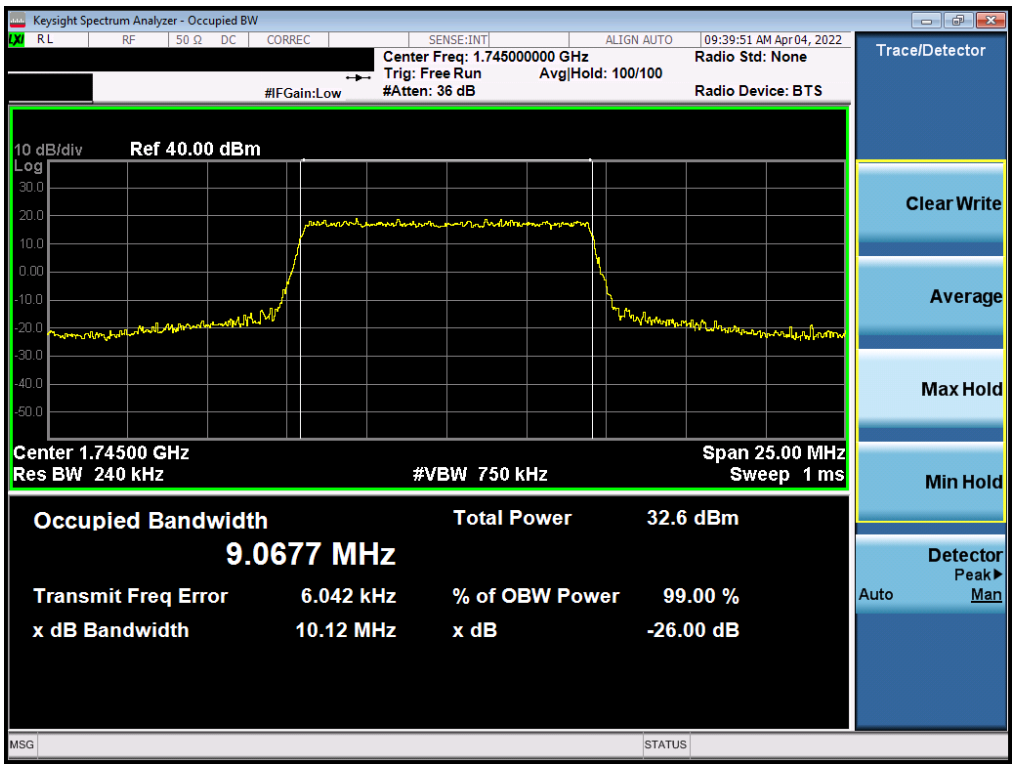

Plot 7-77. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz QPSK - Full RB - Ant F)

Plot 7-78. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz 16-QAM - Full RB - Ant F)

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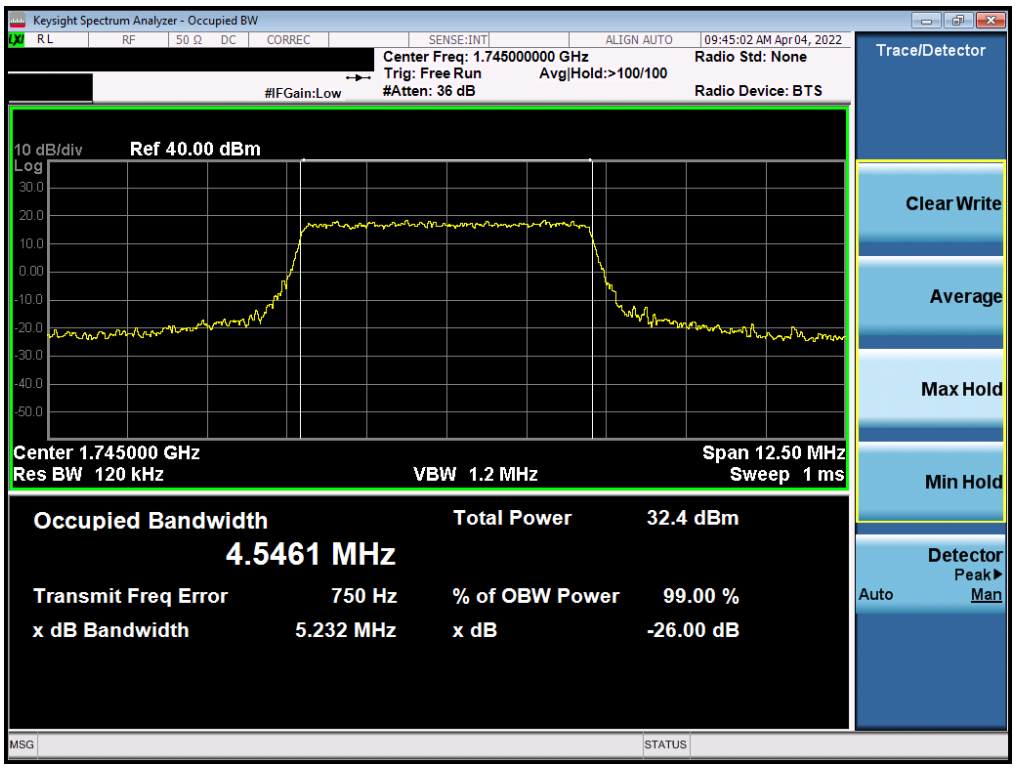
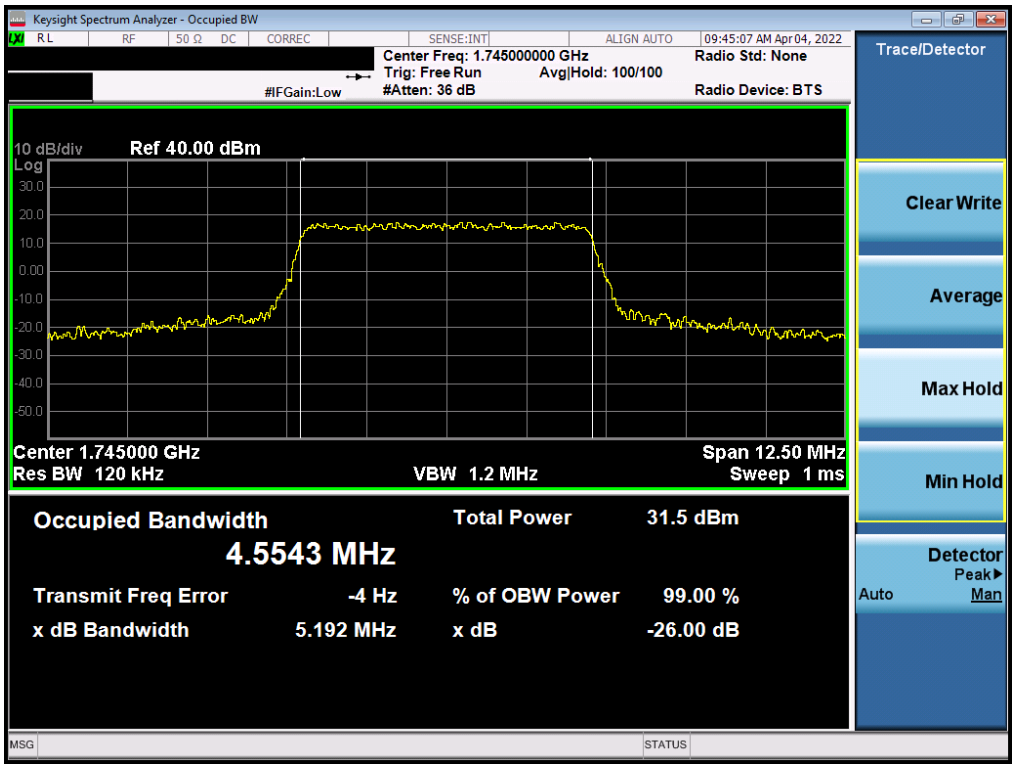


Plot 7-79. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz QPSK - Full RB - Ant F)



Plot 7-80. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz 16-QAM - Full RB - Ant F)

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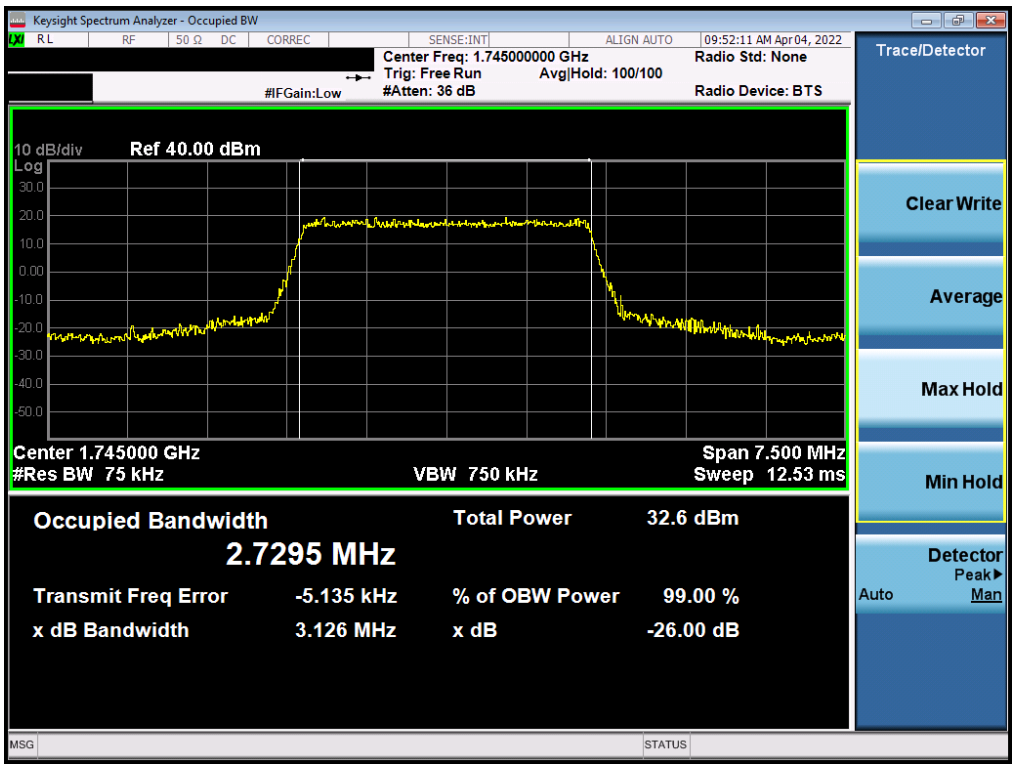
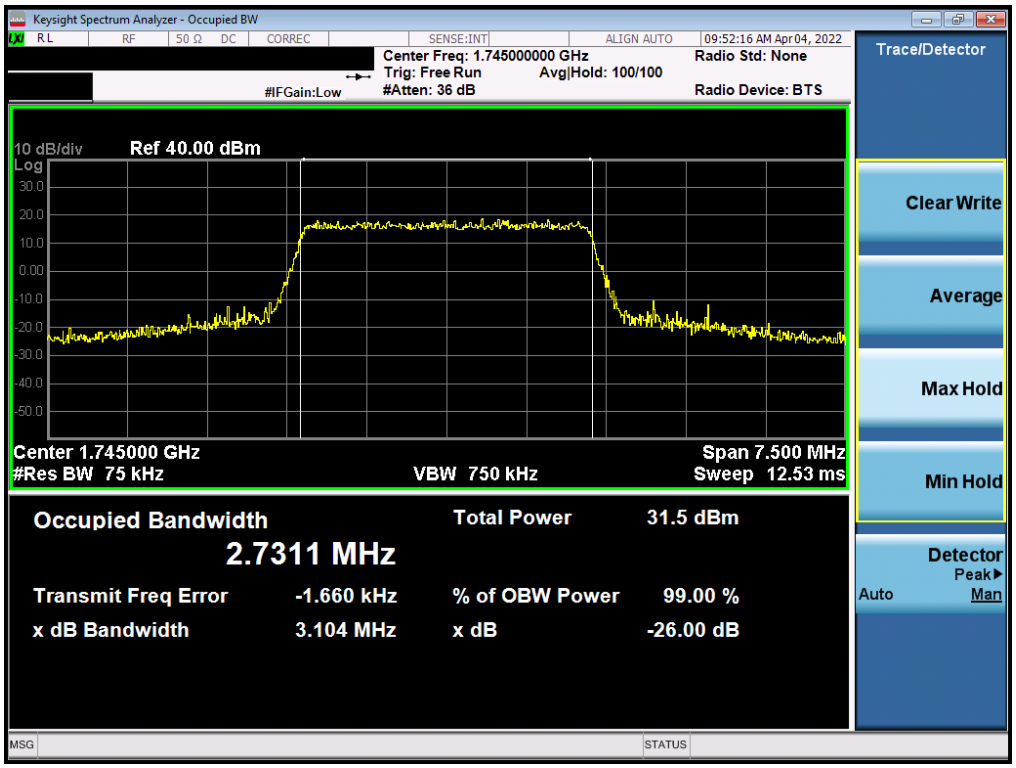


Plot 7-81. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz QPSK - Full RB - Ant F)



Plot 7-82. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz 16-QAM - Full RB - Ant F)

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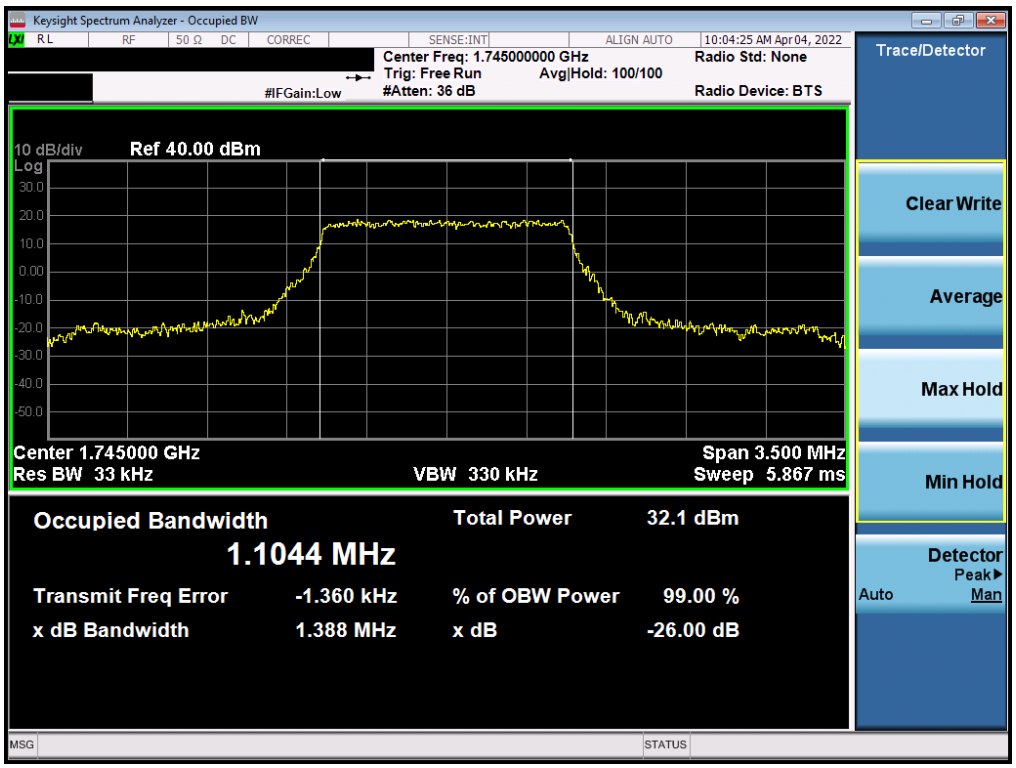
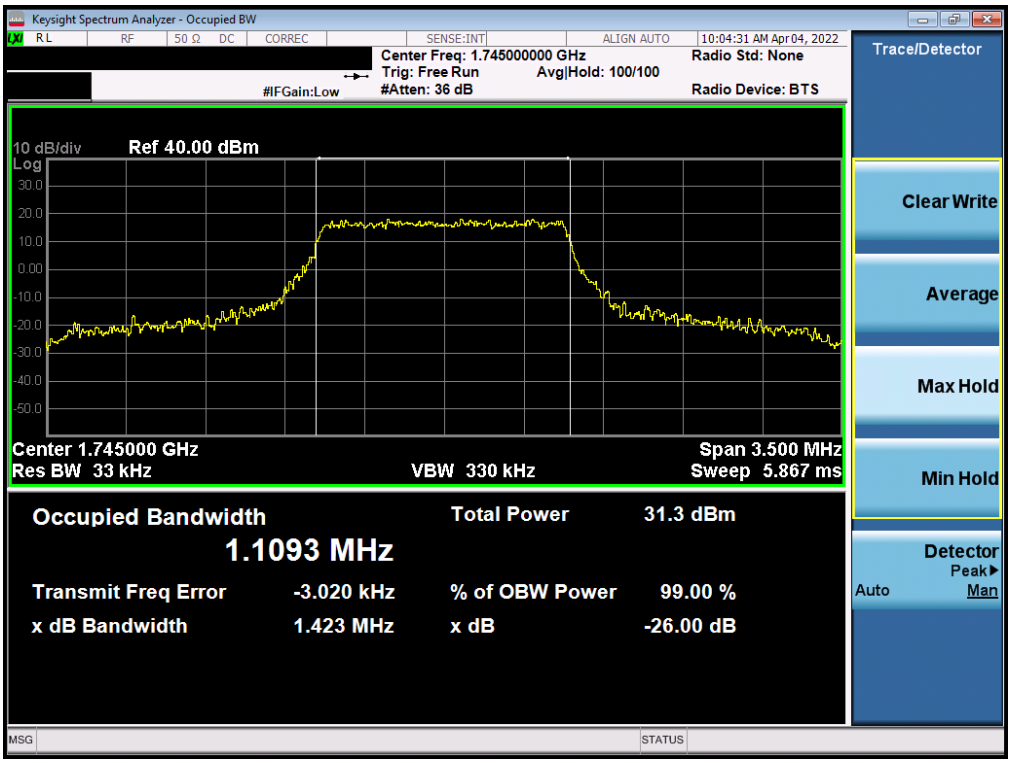


Plot 7-83. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz QPSK - Full RB - Ant F)



Plot 7-84. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz 16-QAM - Full RB - Ant F)

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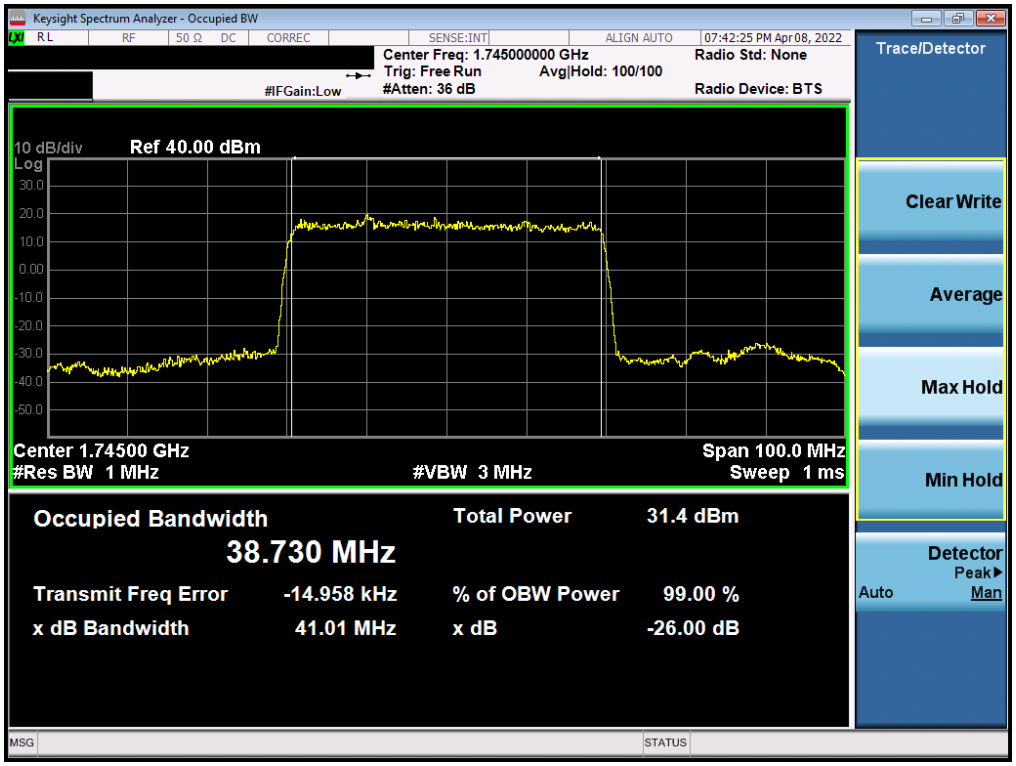
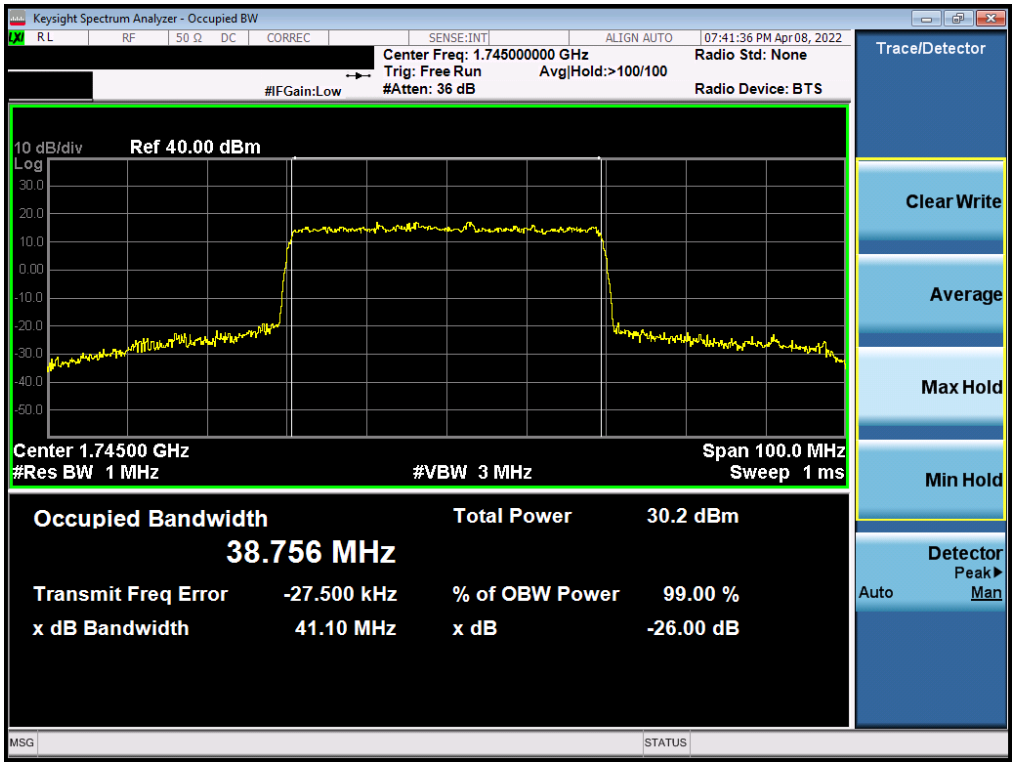
NR Band n66 – Ant F



Plot 7-85. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz DFT-S-OFDM BPSK - Full RB – Ant F)



Plot 7-86. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz CP-OFDM QPSK - Full RB – Ant F)

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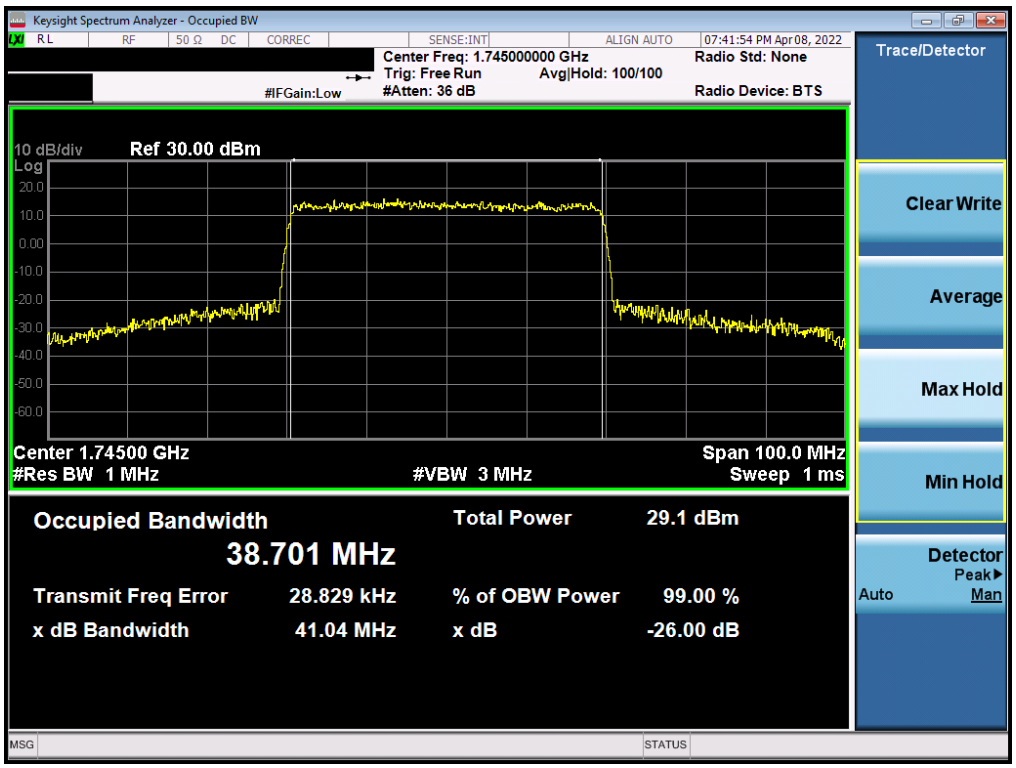
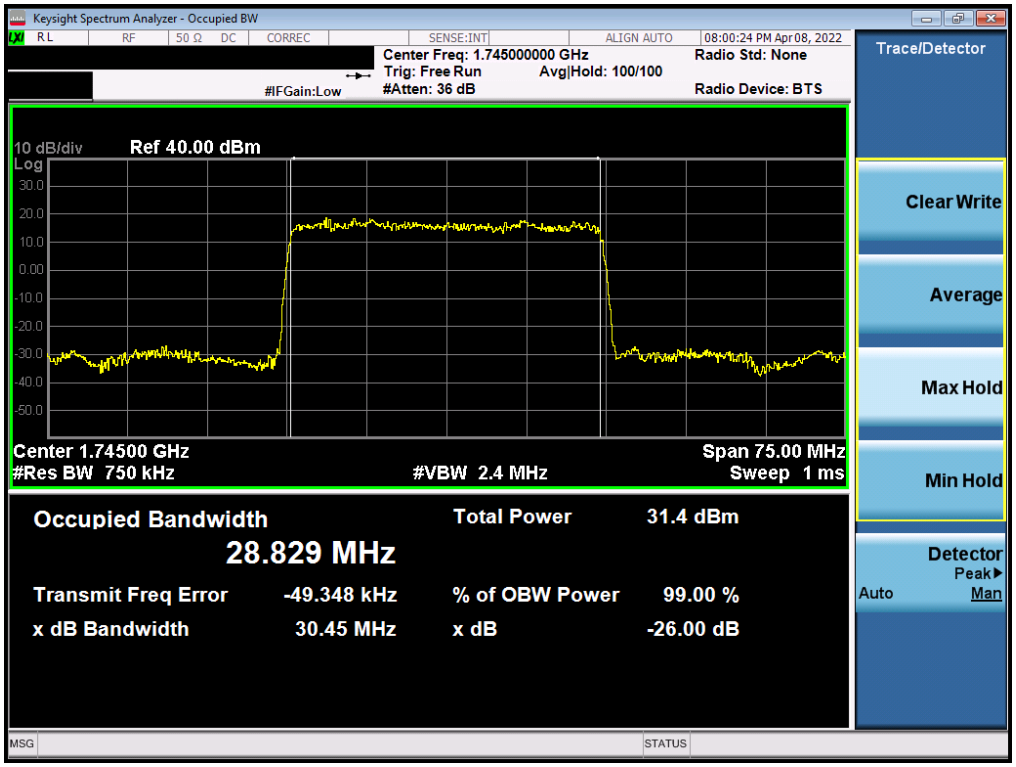


Plot 7-87. Occupied Bandwidth Plot (NR Band n66 - 40.0MHz CP-OFDM 16QAM - Full RB – Ant F)



Plot 7-88. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz DFT-S-OFDM BPSK - Full RB – Ant F)

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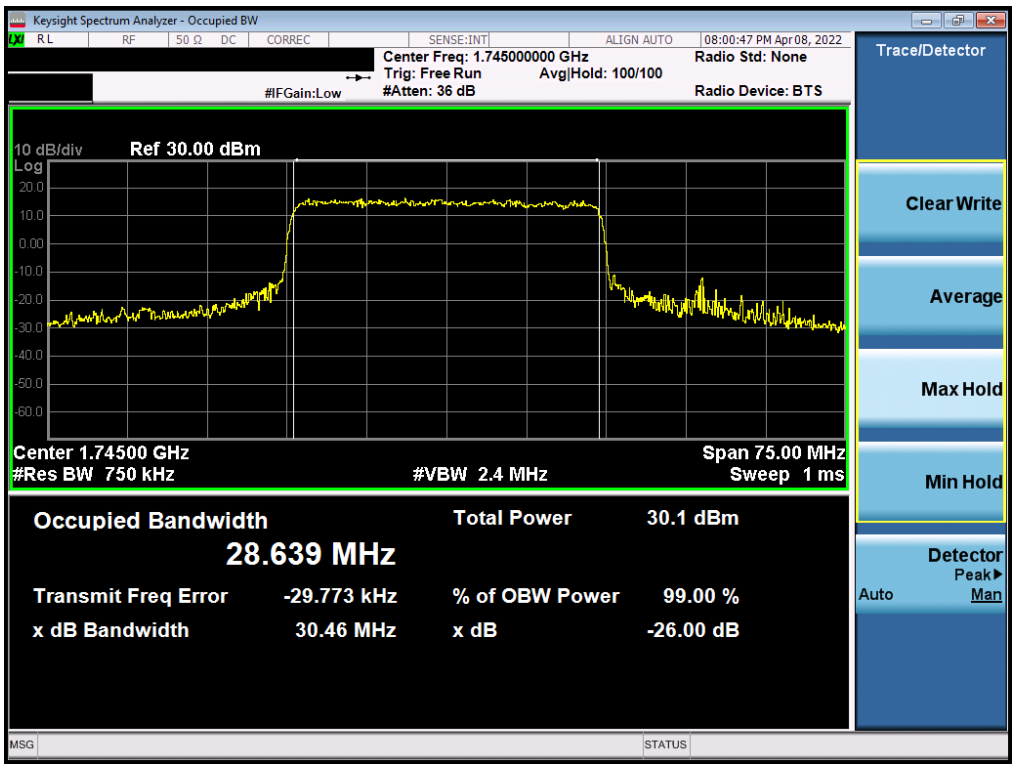
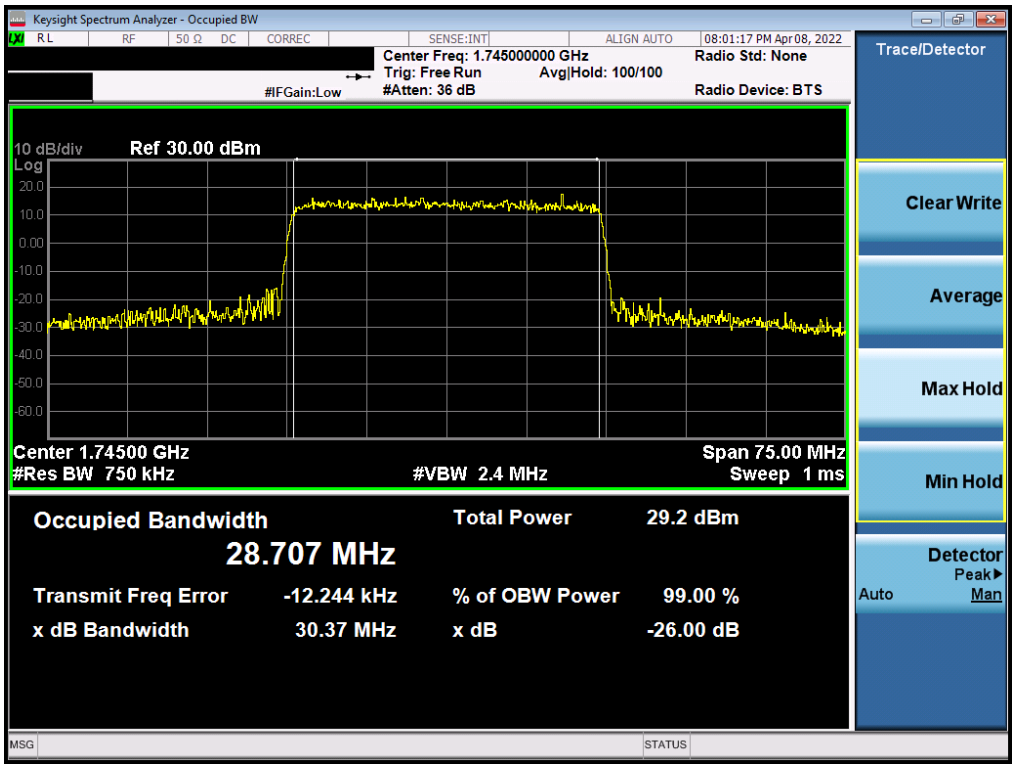


Plot 7-89. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz CP-OFDM QPSK - Full RB – Ant F)



Plot 7-90. Occupied Bandwidth Plot (NR Band n66 - 30.0MHz CP-OFDM 16QAM - Full RB – Ant F)

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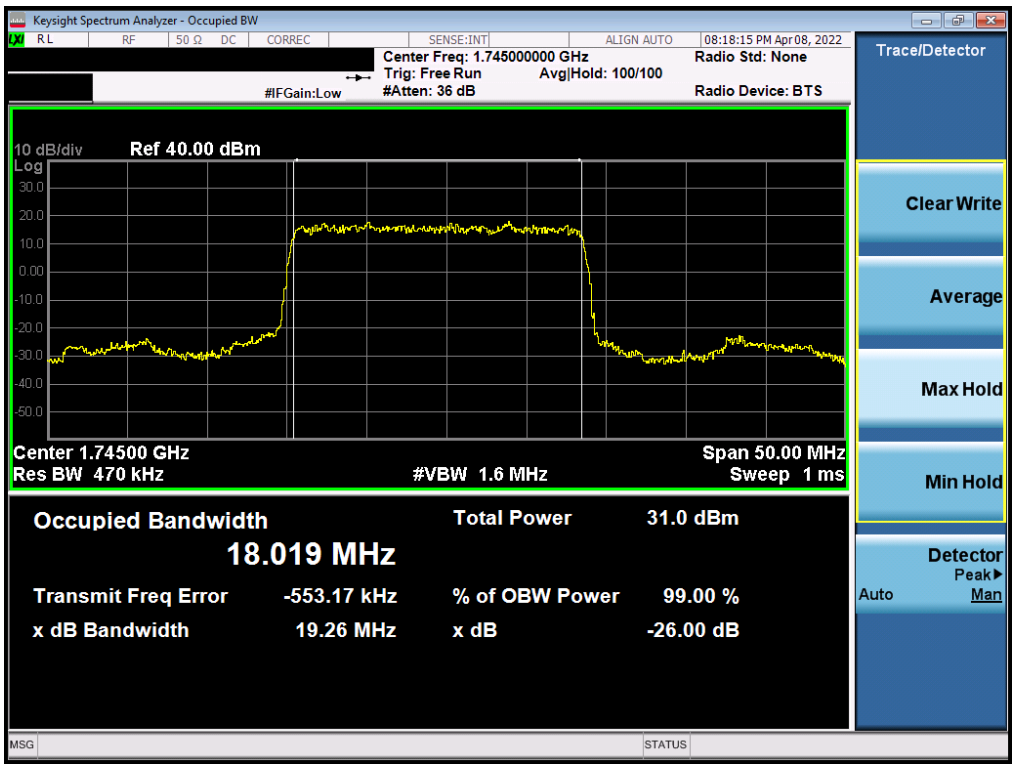
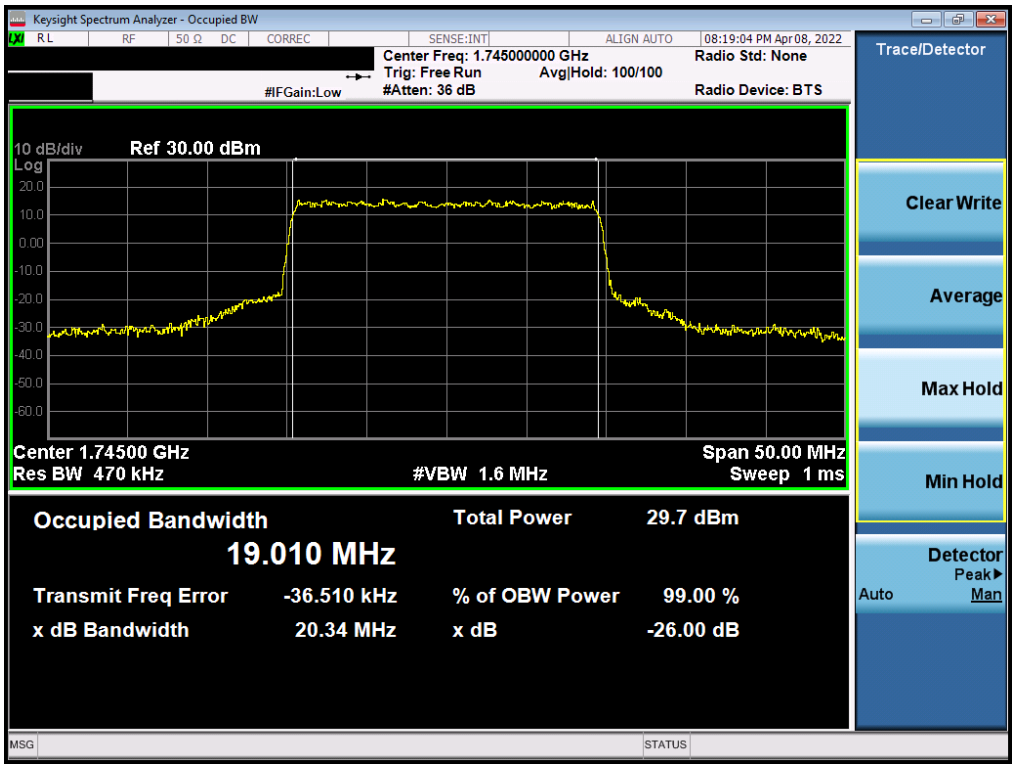


Plot 7-91. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz DFT-S-OFDM BPSK - Full RB – Ant F)



Plot 7-92. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz CP-OFDM QPSK - Full RB – Ant F)

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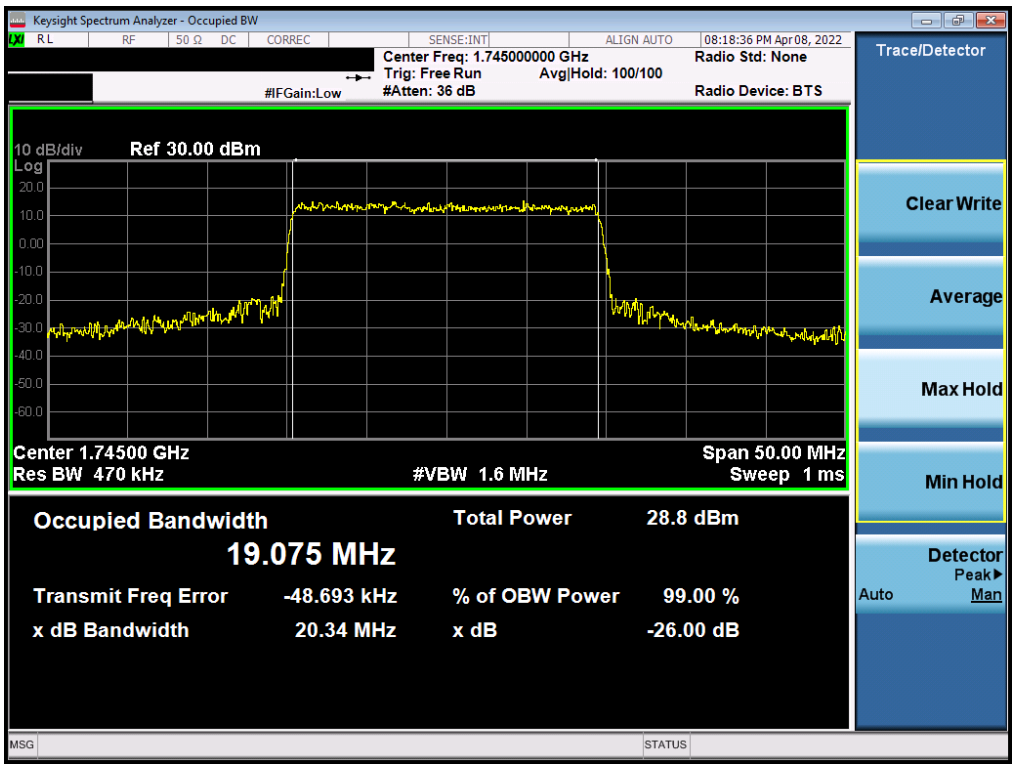
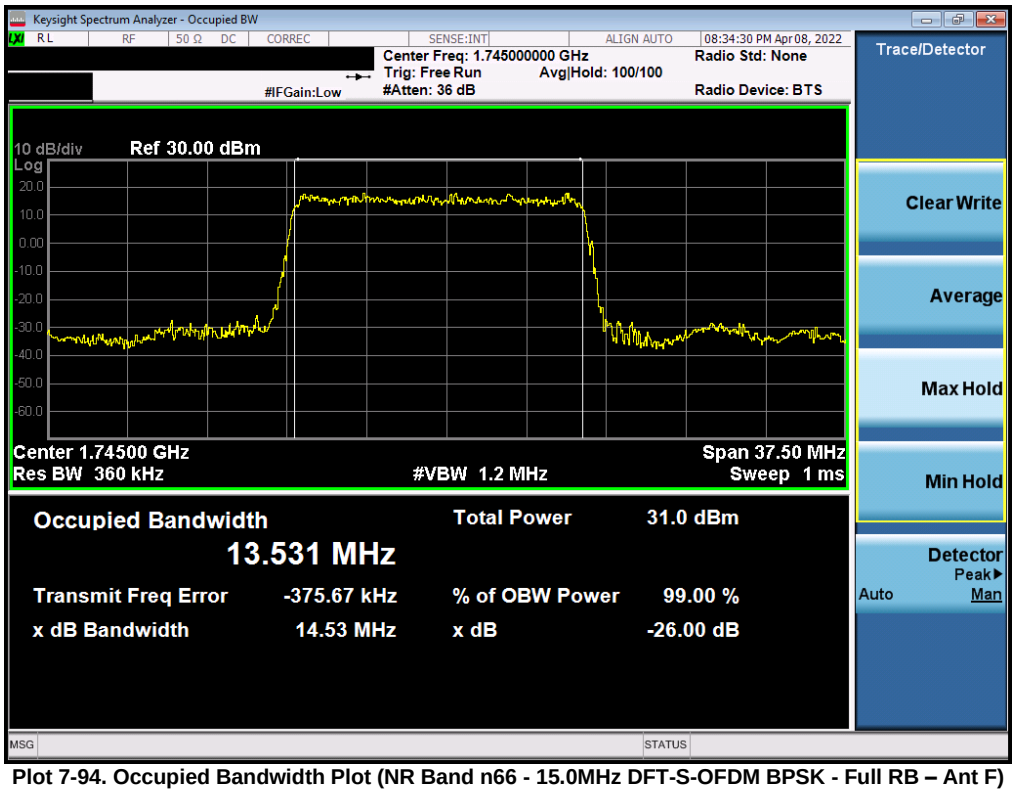


Plot 7-93. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz CP-OFDM 16QAM - Full RB – Ant F)



Plot 7-94. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz DFT-S-OFDM BPSK - Full RB – Ant F)

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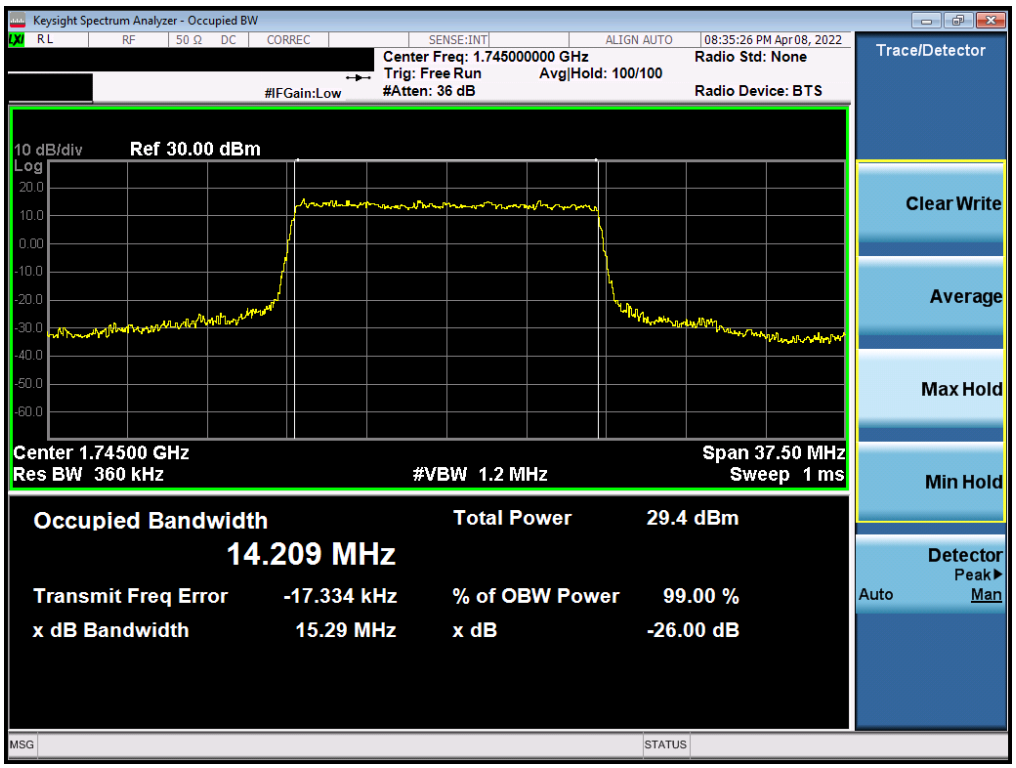
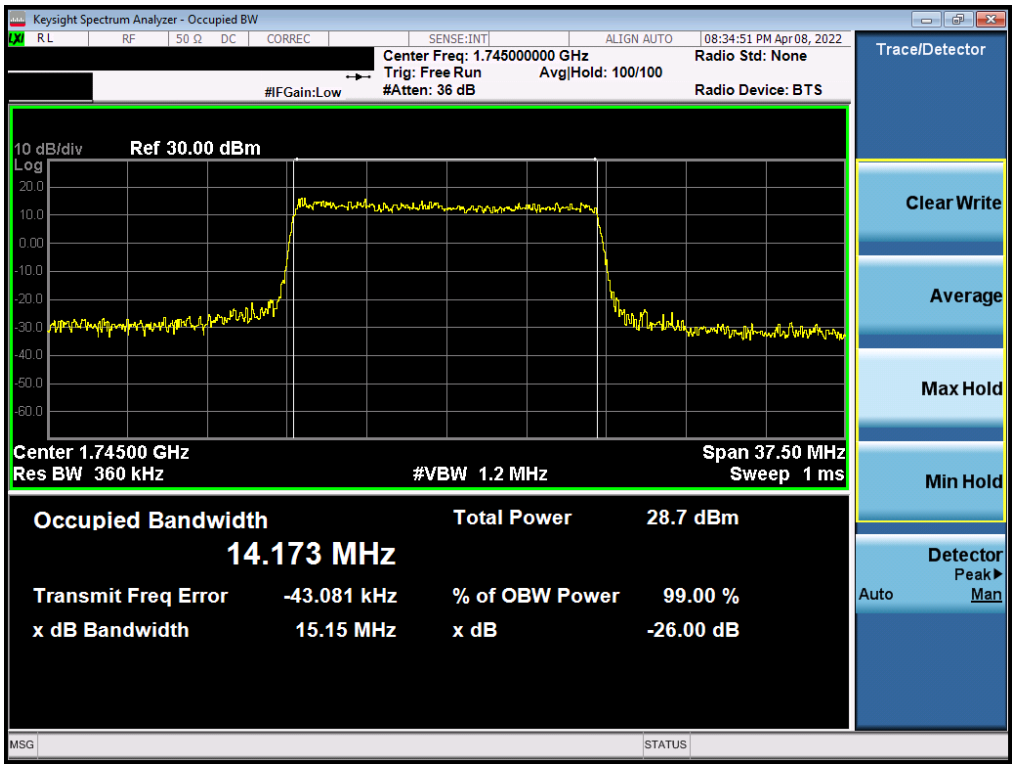


Plot 7-95. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz CP-OFDM QPSK - Full RB – Ant F)



Plot 7-96. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz CP-OFDM 16QAM - Full RB – Ant F)

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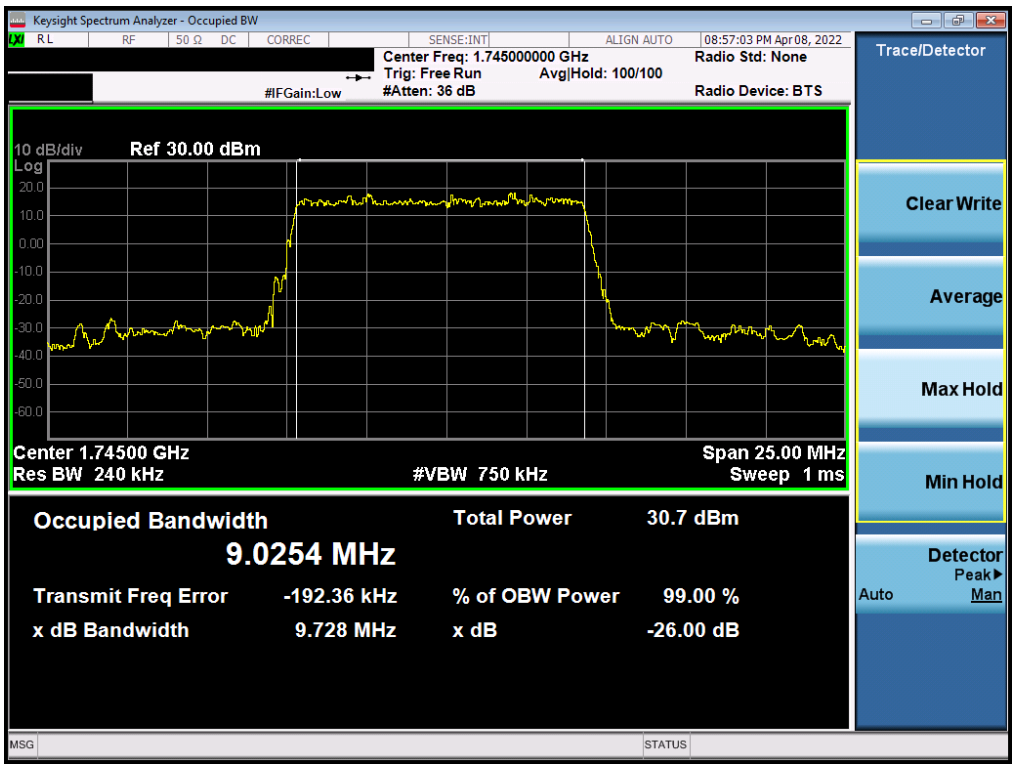
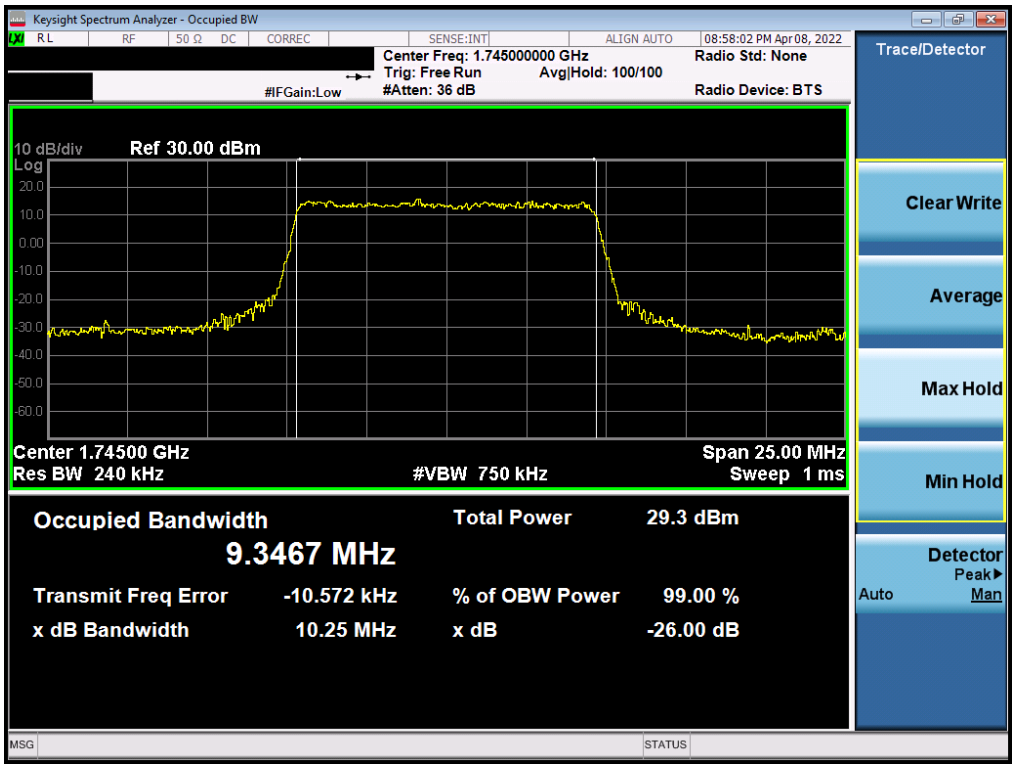


Plot 7-97. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz DFT-S-OFDM BPSK - Full RB – Ant F)



Plot 7-98. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz CP-OFDM QPSK - Full RB – Ant F)

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