



ELEMENT WASHINGTON DC LLC

7185 Oakland Mills Road, Columbia, MD 21046 USA
Tel. 410.290.6652 / Fax 410.290.6654
<http://www.element.com>

PART 27 MEASUREMENT REPORT

Applicant Name:

Sony Corporation
1-7-1 Konan Minato-ku
Tokyo, 108-0075
Japan

Date of Testing:

02/14/2023 - 04/05/2023

Test Report Issue Date:

4/11/2023

Test Site/Location:

Element lab., Columbia, MD, USA

Test Report Serial No.:

1M2302060006-03-R1.PY7

FCC ID:

PY7-84558E

APPLICANT:

Sony Corporation

Application Type:

Certification

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

Note: This revised Test Report (S/N: 1M2302060006-03-R1.PY7) 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.

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



FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 1 of 232

TABLE OF CONTENTS

1.0	INTRODUCTION	5
1.1	Scope	5
1.2	Element Test Location.....	5
1.3	Test Facility / Accreditations.....	5
2.0	PRODUCT INFORMATION.....	6
2.1	Equipment Description	6
2.2	Device Capabilities.....	6
2.3	Test Configuration	6
2.4	Software and Firmware	6
2.5	EMI Suppression Device(s)/Modifications	6
3.0	DESCRIPTION OF TESTS	7
3.1	Evaluation Procedure	7
3.2	Radiated Power and Radiated Spurious Emissions	7
4.0	MEASUREMENT UNCERTAINTY	8
5.0	TEST EQUIPMENT CALIBRATION DATA	9
6.0	SAMPLE CALCULATIONS	10
7.0	TEST RESULTS	11
7.1	Summary	11
7.2	Conducted Output Power Data	13
7.3	Occupied Bandwidth	16
7.4	Spurious and Harmonic Emissions at Antenna Terminal	58
7.5	Band Edge Emissions at Antenna Terminal	103
7.6	Peak-Average Ratio	171
7.7	Radiated Power (ERP/EIRP).....	191
7.8	Radiated Spurious Emissions Measurements.....	198
7.9	Frequency Stability / Temperature Variation	224
8.0	CONCLUSION.....	232

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 2 of 232

MEASUREMENT REPORT

FCC Part 27

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 Main1	20 MHz	QPSK	673.0 - 688.0	0.044	16.42	0.072	18.57	18M0G7D
		16QAM	673.0 - 688.0	0.037	15.72	0.061	17.87	18M1W7D
	15 MHz	QPSK	670.5 - 690.5	0.044	16.43	0.072	18.58	13M6G7D
		16QAM	670.5 - 690.5	0.037	15.64	0.060	17.79	13M5W7D
	10 MHz	QPSK	668.0 - 693.0	0.046	16.59	0.075	18.74	9M03G7D
		16QAM	668.0 - 693.0	0.040	15.97	0.065	18.12	9M04W7D
5 MHz	QPSK	665.5 - 695.5	0.048	16.83	0.079	18.98	4M54G7D	
	16QAM	665.5 - 695.5	0.040	16.03	0.066	18.18	4M54W7D	
LTE Band 12/17 Main1	10 MHz	QPSK	704.0 - 711.0	0.053	17.22	0.087	19.37	9M03G7D
		16QAM	704.0 - 711.0	0.046	16.60	0.075	18.75	9M02W7D
	5 MHz	QPSK	701.5 - 713.5	0.054	17.34	0.089	19.49	4M53G7D
		16QAM	701.5 - 713.5	0.048	16.77	0.078	18.92	4M53W7D
	3 MHz	QPSK	700.5 - 714.5	0.053	17.28	0.088	19.43	2M71G7D
		16QAM	700.5 - 714.5	0.045	16.49	0.073	18.64	2M72W7D
	1.4 MHz	QPSK	699.7 - 715.3	0.053	17.25	0.087	19.40	1M10G7D
		16QAM	699.7 - 715.3	0.043	16.37	0.071	18.52	1M11W7D
	LTE Band 13 Main1	10 MHz	QPSK	782.0	0.097	19.85	0.159	22.00
16QAM			782.0	0.083	19.17	0.136	21.32	9M02W7D
5 MHz		QPSK	779.5 - 784.5	0.099	19.94	0.162	22.09	4M54G7D
		16QAM	779.5 - 784.5	0.084	19.27	0.139	21.42	4M53W7D
NR Band n71 Main1	20 MHz	π/2 BPSK	673.0 - 688.0	0.048	16.83	0.079	18.98	18M0G7D
		QPSK	673.0 - 688.0	0.046	16.60	0.075	18.75	19M0G7D
		16QAM	673.0 - 688.0	0.040	15.99	0.065	18.14	19M0W7D
	15 MHz	π/2 BPSK	670.5 - 690.5	0.049	16.87	0.080	19.02	13M6G7D
		QPSK	670.5 - 690.5	0.047	16.76	0.078	18.91	14M2G7D
		16QAM	670.5 - 690.5	0.043	16.29	0.070	18.44	14M2W7D
	10 MHz	π/2 BPSK	668.0 - 693.0	0.048	16.83	0.079	18.98	9M00G7D
		QPSK	668.0 - 693.0	0.047	16.75	0.078	18.90	9M34G7D
		16QAM	668.0 - 693.0	0.042	16.19	0.068	18.34	9M33W7D
	5 MHz	π/2 BPSK	665.5 - 695.5	0.048	16.85	0.079	19.00	4M52G7D
		QPSK	665.5 - 695.5	0.046	16.62	0.075	18.77	4M51G7D
		16QAM	665.5 - 695.5	0.042	16.25	0.069	18.40	4M50W7D

Overview Table (<1GHz Bands)

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	0.094	19.71	4M15F9W
LTE Band 66/4 Main2	20 MHz	QPSK	1720.0 - 1770.0	0.142	21.51	18M0G7D
		16QAM	1720.0 - 1770.0	0.115	20.62	18M1W7D
	15 MHz	QPSK	1717.5 - 1772.5	0.144	21.57	13M5G7D
		16QAM	1717.5 - 1772.5	0.115	20.61	13M5W7D
	10 MHz	QPSK	1715.0 - 1775.0	0.150	21.77	9M03G7D
		16QAM	1715.0 - 1775.0	0.117	20.67	9M06W7D
	5 MHz	QPSK	1712.5 - 1777.5	0.152	21.81	4M54G7D
		16QAM	1712.5 - 1777.5	0.118	20.71	4M54W7D
	3 MHz	QPSK	1711.5 - 1778.5	0.147	21.67	2M72G7D
		16QAM	1711.5 - 1778.5	0.121	20.84	2M73W7D
1.4 MHz	QPSK	1710.7 - 1779.3	0.151	21.80	1M10G7D	
	16QAM	1710.7 - 1779.3	0.119	20.74	1M11W7D	
NR Band n66 Main2	20 MHz	π/2 BPSK	1720.0 - 1770.0	0.106	20.26	18M0G7D
		QPSK	1720.0 - 1770.0	0.103	20.13	19M0G7D
		16QAM	1720.0 - 1770.0	0.089	19.49	19M1W7D
	15 MHz	π/2 BPSK	1717.5 - 1772.5	0.108	20.33	13M5G7D
		QPSK	1717.5 - 1772.5	0.102	20.10	14M2G7D
		16QAM	1717.5 - 1772.5	0.089	19.51	14M2W7D
	10 MHz	π/2 BPSK	1715.0 - 1775.0	0.106	20.27	9M03G7D
		QPSK	1715.0 - 1775.0	0.101	20.06	9M35G7D
		16QAM	1715.0 - 1775.0	0.091	19.57	9M36W7D
	5 MHz	π/2 BPSK	1712.5 - 1777.5	0.104	20.15	4M55G7D
		QPSK	1712.5 - 1777.5	0.097	19.85	4M53G7D
		16QAM	1712.5 - 1777.5	0.083	19.17	4M50W7D

Overview Table (>1GHz Bands)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1-PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 3 of 232

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 12/17 Sub	10 MHz	QPSK	704.0 - 711.0	0.050	17.01	0.082	19.16	9M03G7D
		16QAM	704.0 - 711.0	0.043	16.36	0.071	18.51	9M02W7D
	5 MHz	QPSK	701.5 - 713.5	0.051	17.04	0.083	19.19	4M54G7D
		16QAM	701.5 - 713.5	0.043	16.38	0.071	18.53	4M55W7D
	3 MHz	QPSK	700.5 - 714.5	0.050	17.01	0.082	19.16	2M72G7D
		16QAM	700.5 - 714.5	0.042	16.22	0.069	18.37	2M74W7D
	1.4 MHz	QPSK	699.7 - 715.3	0.050	17.02	0.083	19.17	1M11G7D
		16QAM	699.7 - 715.3	0.043	16.29	0.069	18.37	1M11W7D
LTE Band 13 Sub	10 MHz	QPSK	782.0	0.062	17.94	0.102	20.09	8M99G7D
		16QAM	782.0	0.054	17.30	0.088	19.45	9M00W7D
	5 MHz	QPSK	779.5 - 784.5	0.062	17.94	0.102	20.09	4M53G7D
		16QAM	779.5 - 784.5	0.053	17.20	0.086	19.35	4M52W7D

Overview Table (<1GHz Bands)

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
LTE Band 66 Sub	20 MHz	QPSK	1720.0 - 1770.0	0.107	20.31	18M1G7D
		16QAM	1720.0 - 1770.0	0.089	19.49	18M4W7D
	15 MHz	QPSK	1717.5 - 1772.5	0.107	20.28	13M5G7D
		16QAM	1717.5 - 1772.5	0.090	19.56	13M5W7D
	10 MHz	QPSK	1715.0 - 1775.0	0.113	20.54	9M06G7D
		16QAM	1715.0 - 1775.0	0.092	19.62	9M05W7D
	5 MHz	QPSK	1712.5 - 1777.5	0.111	20.46	4M55G7D
		16QAM	1712.5 - 1777.5	0.090	19.54	4M55W7D
	3 MHz	QPSK	1711.5 - 1778.5	0.111	20.45	2M73G7D
		16QAM	1711.5 - 1778.5	0.090	19.53	2M73W7D
	1.4 MHz	QPSK	1710.7 - 1779.3	0.107	20.29	1M11G7D
		16QAM	1710.7 - 1779.3	0.088	19.43	1M09W7D

Overview Table (>1GHz Bands)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 4 of 232

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.

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 5 of 232

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Sony Portable Handset FCC ID: PY7-84558E**. 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.: 01443, 02904, 02227

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, 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII (5 and 6 GHz), Bluetooth (1x, EDR, LE), NFC, Wireless Power Transfer

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 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: Belkin F7U050 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 0.621 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.

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 6 of 232

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:

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

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

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:

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

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. 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.

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 7 of 232

4.0 MEASUREMENT UNCERTAINTY

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

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

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 8 of 232

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
-	AP1-002	EMC Cable and Switch System	1/11/2023	Annual	1/11/2024	AP1-001
-	ETS-001	EMC Cable and Switch System	1/11/2023	Annual	1/11/2024	ETS-001
-	ETS-002	EMC Cable and Switch System	1/11/2023	Annual	1/11/2024	ETS-002
-	LTx1	Licensed Transmitter Cable Set	1/12/2023	Annual	1/12/2024	LTx1
-	LTx2	Licensed Transmitter Cable Set	1/12/2023	Annual	1/12/2024	LTx2
-	LTx3	Licensed Transmitter Cable Set	1/12/2023	Annual	1/12/2024	LTx3
-	LTx4	Licensed Transmitter Cable Set	1/12/2023	Annual	1/12/2024	LTx4
-	LTx5	Licensed Transmitter Cable Set	1/12/2023	Annual	1/12/2024	LTx5
Anritsu	MT8821C	Radio Communication Analyzer	N/A			6201525694
Emco	3115	Horn Antenna (1-18GHz)	8/8/2022	Biennial	8/8/2023	9704-5182
Emco	3116	Horn Antenna (18 - 40GHz)	7/20/2021	Biennial	7/20/2023	9203-2178
Espec	SCP-220	Environmental Chamber	5/25/2022	Annual	5/25/2023	OCP55H0612K05
ETS Lindgren	3164-10	Quad Ridge Horn 400MHz - 10000MHz	5/10/2021	Biennial	5/10/2023	00166283
Keysight Technologies	N9030A	PXA Signal Analyzer	9/6/2022	Annual	9/6/2023	MY54490576
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A			112347
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	8/25/2022	Annual	8/25/2023	100348
Rohde & Schwarz	FSW26	2Hz-26.5GHz Signal and Spectrum Analyzer	11/6/2022	Annual	11/6/2023	103187
Sunol Sciences	JB5	Bi-Log Antenna (30M - 5GHz)	8/30/2022	Biennial	8/30/2024	A051107

Table 5-1. Test Equipment

Notes:

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

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 9 of 232

6.0 SAMPLE CALCULATIONS

Emission Designator

QPSK Modulation

Emission Designator = 8M62G7D

LTE BW = 8.62 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data transmission, telemetry, telecommand

QAM Modulation

Emission Designator = 8M45W7D

LTE BW = 8.45 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data transmission, telemetry, telecommand

Spurious Radiated Emission – LTE Band

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

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

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 10 of 232

7.0 TEST RESULTS

7.1 Summary

Company Name: Sony Corporation
 FCC ID: PY7-84558E
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
 Mode(s): WCDMA/LTE/NR

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 n71)	2.1051, 27.53(g)	$\geq 43 + 10 \log (P[\text{Watts}])$ 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)	$\geq 43 + 10 \log (P[\text{Watts}])$ 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 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. ERP	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 n71)	2.1053, 27.53(g)	$\geq 43 + 10 \log (P[\text{Watts}])$ 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)	$\geq 43 + 10 \log (P[\text{Watts}])$ dB of attenuation below transmitter power	PASS	Section 7.8

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

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 11 of 232

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.

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 12 of 232

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.

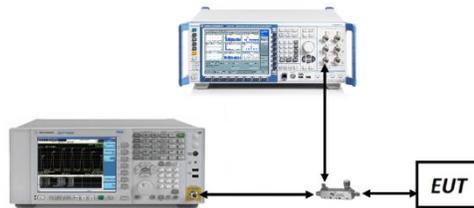


Figure 7-1. Test Instrument & Measurement Setup

Test Notes

1. 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.
2. All other conducted power measurements are contained in the RF exposure report for this filing.

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 13 of 232

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
10 MHz	QPSK	23060	704.0	1 / 49	23.51
		23095	707.5	1 / 25	23.65
		23130	711.0	1 / 25	23.63
	16-QAM	23060	704.0	1 / 49	22.82
5 MHz	QPSK	23035	701.5	1 / 24	23.54
		23095	707.5	1 / 0	23.69
		23155	713.5	1 / 12	23.69
	16-QAM	23035	701.5	1 / 24	22.84
3 MHz	QPSK	23025	700.5	1 / 7	23.51
		23095	707.5	1 / 7	23.67
		23165	714.5	1 / 14	23.53
	16-QAM	23025	700.5	1 / 7	22.68
1.4 MHz	QPSK	23017	699.7	1 / 3	23.46
		23095	707.5	1 / 5	23.59
		23173	715.3	1 / 3	23.69
	16-QAM	23017	699.7	1 / 3	22.75

Table 7-2. Conducted Power Output Data (LTE Band 12/17 Sub)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
10 MHz	QPSK	23230	782.0	1 / 0	23.69
	16-QAM	23230	782.0	1 / 25	23.08
5 MHz	QPSK	23205	779.5	1 / 12	23.68
		23230	782.0	1 / 12	23.69
		23255	784.5	1 / 12	23.62
	16-QAM	23205	779.5	1 / 12	22.95

Table 7-3. Conducted Power Output Data (LTE Band 13 Sub)

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
20 MHz	QPSK	132072	1720.0	1 / 0	23.25
		132322	1745.0	1 / 99	23.20
		132572	1770.0	1 / 0	23.42
	16-QAM	132322	1745.0	1 / 99	22.39
15 MHz	QPSK	132047	1717.5	1 / 0	23.15
		132322	1745.0	1 / 0	23.17
	16-QAM	132597	1772.5	1 / 37	23.13
10 MHz	QPSK	132022	1715.0	1 / 25	23.40
		132322	1745.0	1 / 25	23.43
		132622	1775.0	1 / 25	23.41
	16-QAM	132322	1745.0	1 / 25	22.52
5 MHz	QPSK	131997	1712.5	1 / 24	23.33
		132322	1745.0	1 / 12	23.35
		132647	1777.5	1 / 24	23.17
	16-QAM	132322	1745.0	1 / 12	22.44
3 MHz	QPSK	131987	1711.5	1 / 0	23.44
		132322	1745.0	1 / 7	23.34
		132657	1778.5	1 / 0	23.30
	16-QAM	131987	1711.5	1 / 0	22.49
1.4 MHz	QPSK	131979	1710.7	1 / 5	23.37
		132322	1745.0	1 / 0	23.18
		132665	1779.3	1 / 3	23.10
	16-QAM	131979	1710.7	1 / 5	22.40

Table 7-4. Conducted Power Output Data (LTE Band 66 Sub)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 14 of 232

NR							LTE							NR Conducted Power [dBm]	LTE Conducted Power [dBm]	EN-DC Total Tx. Power [dBm]
NR Band	Antenna	NR Bandwidth [MHz]	NR Channel	NR Frequency [MHz]	Mod.	NR RB# / Offset	LTE Band	Antenna	LTE Bandwidth [MHz]	LTE Channel	LTE Frequency [MHz]	Mod.	LTE RB# / Offset			
n71	Main1	20	136100	680.5	QPSK	100/0	2	Main2	20	18900	1880	QPSK	100/0	20.16	21.91	24.13
					QPSK	100/0						17.67	22.99	24.11		
					QPSK	1/53						20.14	21.93	24.14		
					QPSK	1/53						17.64	22.94	24.06		
					16QAM	1/53						21.37	20.93	24.17		

Table 7-5. Conducted Power Output Data (EN-DC: NR Band n71)

NR							LTE							NR Conducted Power [dBm]	LTE Conducted Power [dBm]	EN-DC Total Tx. Power [dBm]
NR Band	Antenna	NR Bandwidth [MHz]	NR Channel	NR Frequency [MHz]	Mod.	NR RB# / Offset	LTE Band	Antenna	LTE Bandwidth [MHz]	LTE Channel	LTE Frequency [MHz]	Mod.	LTE RB# / Offset			
n66	Main2	20	349000	1745	QPSK	100/0	2	Sub	20	18900	1880	QPSK	100/0	19.07	22.09	23.85
					QPSK	100/0						16.33	23.11	23.94		
					QPSK	1/53						18.81	22.14	23.80		
					QPSK	1/53						16.32	23.10	23.93		
					16QAM	100/0						18.72	22.45	23.98		
n66	Main2	20	349000	1745	QPSK	100/0	30	Sub	10	27710	2310	QPSK	50/0	18.83	21.94	23.67
					QPSK	100/0						16.30	22.71	23.60		
					QPSK	1/53						18.81	21.99	23.70		
					QPSK	1/53						16.33	22.69	23.59		
					16QAM	1/53						20.03	20.95	23.52		
n66	Main2	20	349000	1745	QPSK	100/0	5	Main1	10	20525	836.5	QPSK	50/0	17.81	22.96	24.12
					QPSK	100/0						16.94	23.31	24.21		
					QPSK	1/53						17.83	22.96	24.12		
					QPSK	1/53						16.90	23.29	24.19		
					16QAM	100/0						17.81	23.36	24.43		
n66	Main2	20	349000	1745	QPSK	100/0	5	Sub	10	20525	836.5	QPSK	50/0	16.42	22.12	23.16
					QPSK	100/0						16.42	22.14	23.17		
					QPSK	1/53						16.49	22.10	23.15		
					QPSK	1/53						16.52	22.17	23.22		
					16QAM	1/53						16.55	22.46	23.45		

Table 7-6. Conducted Power Output Data (EN-DC: NR Band n66)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 15 of 232

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 \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.

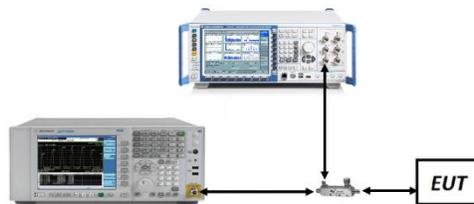


Figure 7-2. Test Instrument & Measurement Setup

Test Notes

None.

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 16 of 232

LTE Band 71 – Main1

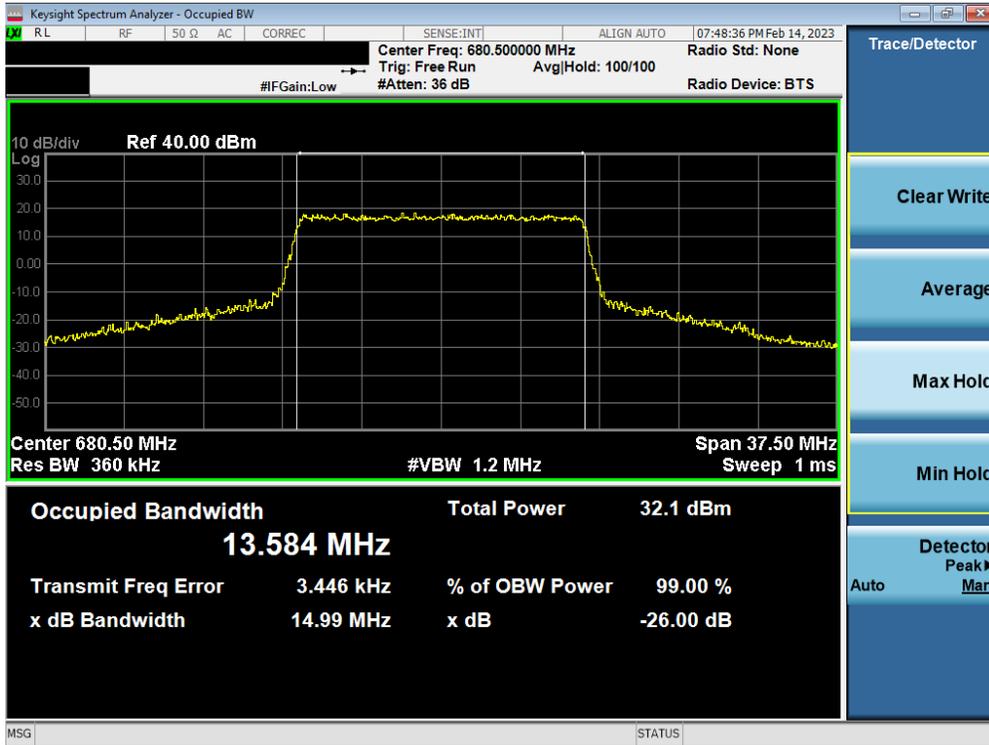


Plot 7-1. Occupied Bandwidth Plot (LTE Band 71 - 20MHz QPSK - Full RB – Main1)

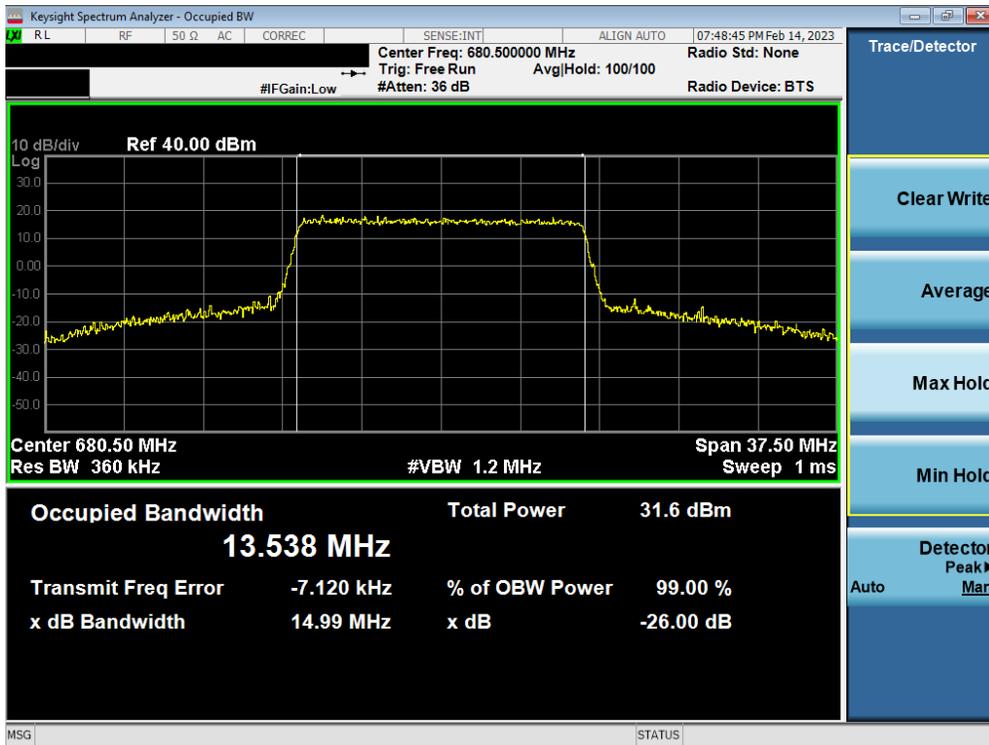


Plot 7-2. Occupied Bandwidth Plot (LTE Band 71 - 20MHz 16-QAM - Full RB – Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 17 of 232

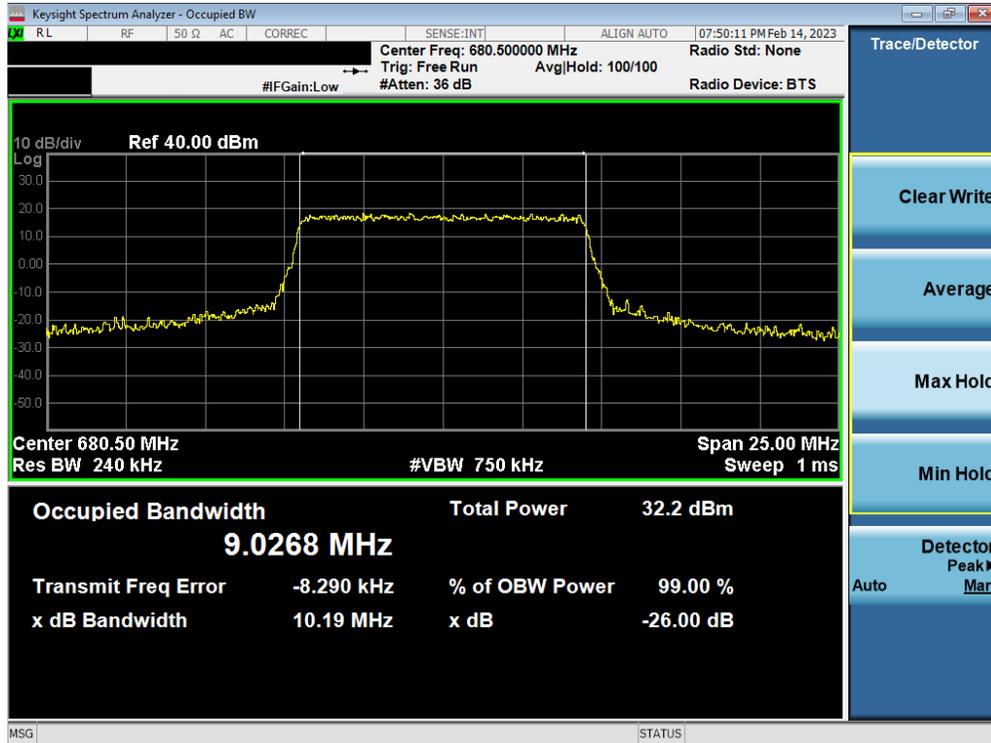


Plot 7-3. Occupied Bandwidth Plot (LTE Band 71 - 15MHz QPSK - Full RB – Main1)

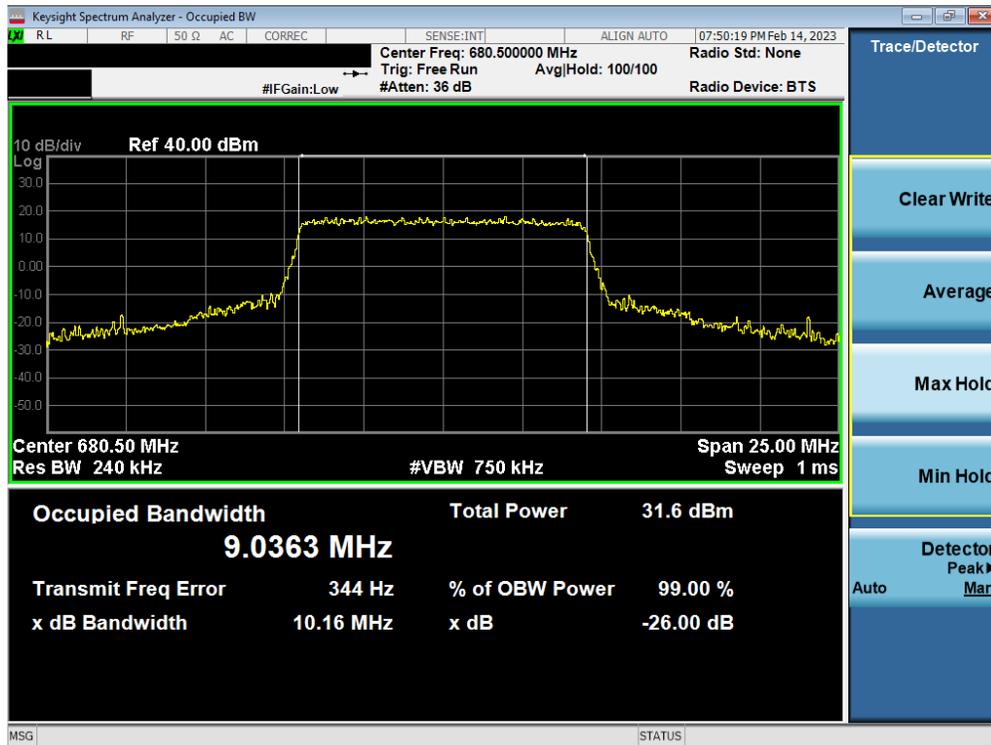


Plot 7-4. Occupied Bandwidth Plot (LTE Band 71 - 15MHz 16-QAM - Full RB – Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 18 of 232

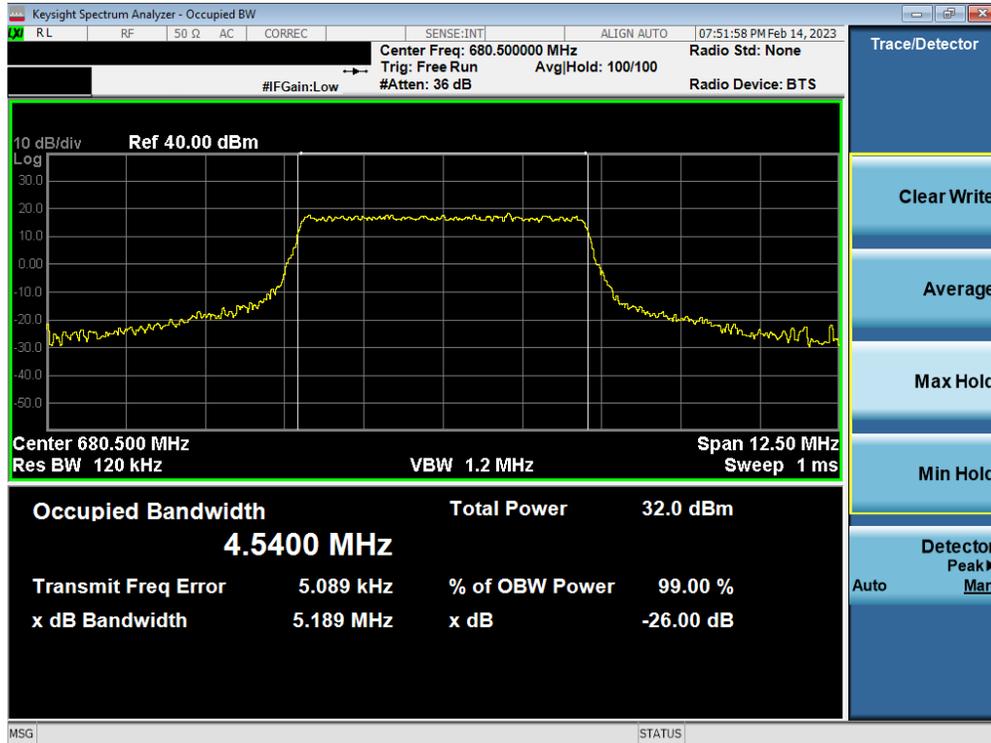


Plot 7-5. Occupied Bandwidth Plot (LTE Band 71 - 10MHz QPSK - Full RB - Main1)

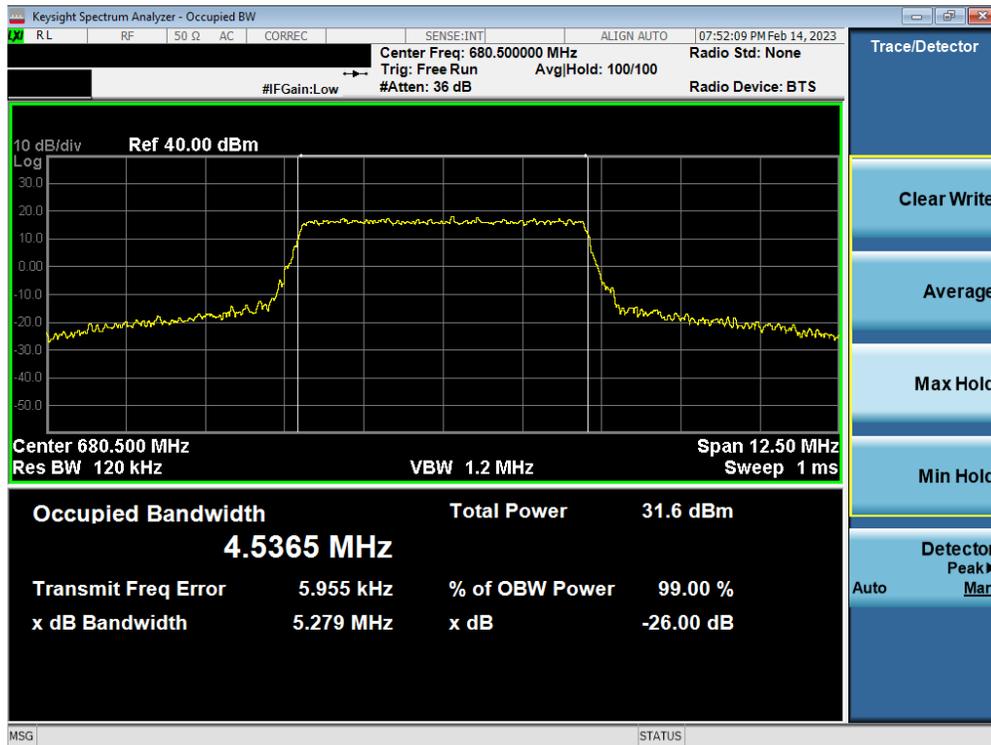


Plot 7-6. Occupied Bandwidth Plot (LTE Band 71 - 10MHz 16-QAM - Full RB - Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 19 of 232



Plot 7-7. Occupied Bandwidth Plot (LTE Band 71 - 5MHz QPSK - Full RB - Main1)



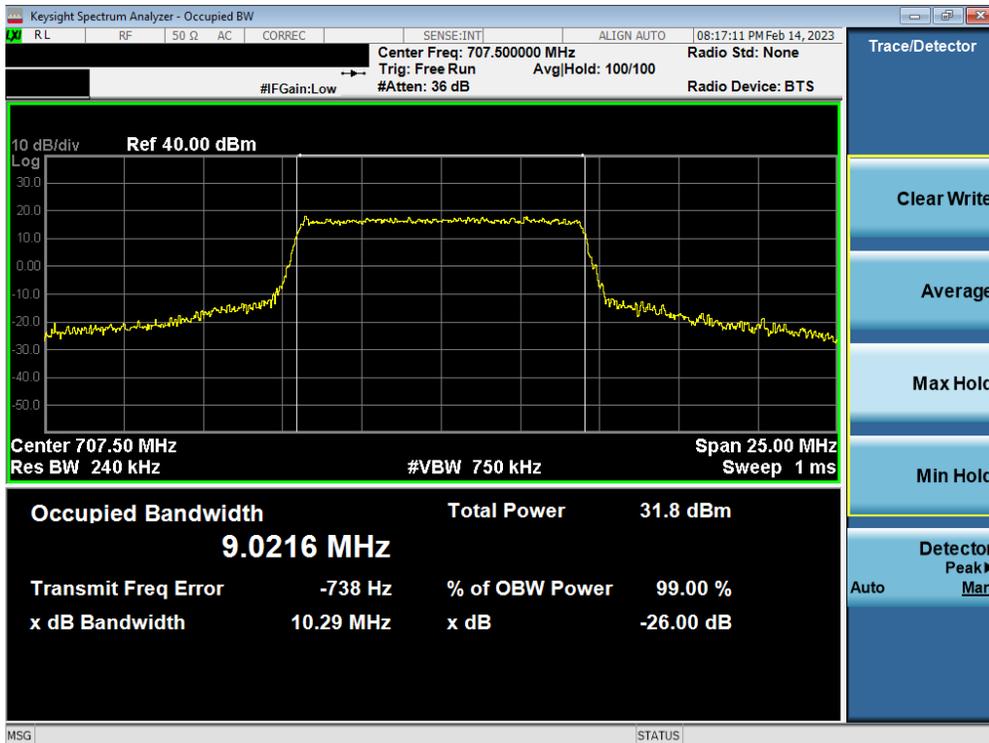
Plot 7-8. Occupied Bandwidth Plot (LTE Band 71 - 5MHz 16-QAM - Full RB - Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 20 of 232

LTE Band 12/17 – Main1



Plot 7-9. Occupied Bandwidth Plot (LTE Band 12/17 - 10MHz QPSK - Full RB – Main1)



Plot 7-10. Occupied Bandwidth Plot (LTE Band 12/17 - 10MHz 16-QAM - Full RB – Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 21 of 232

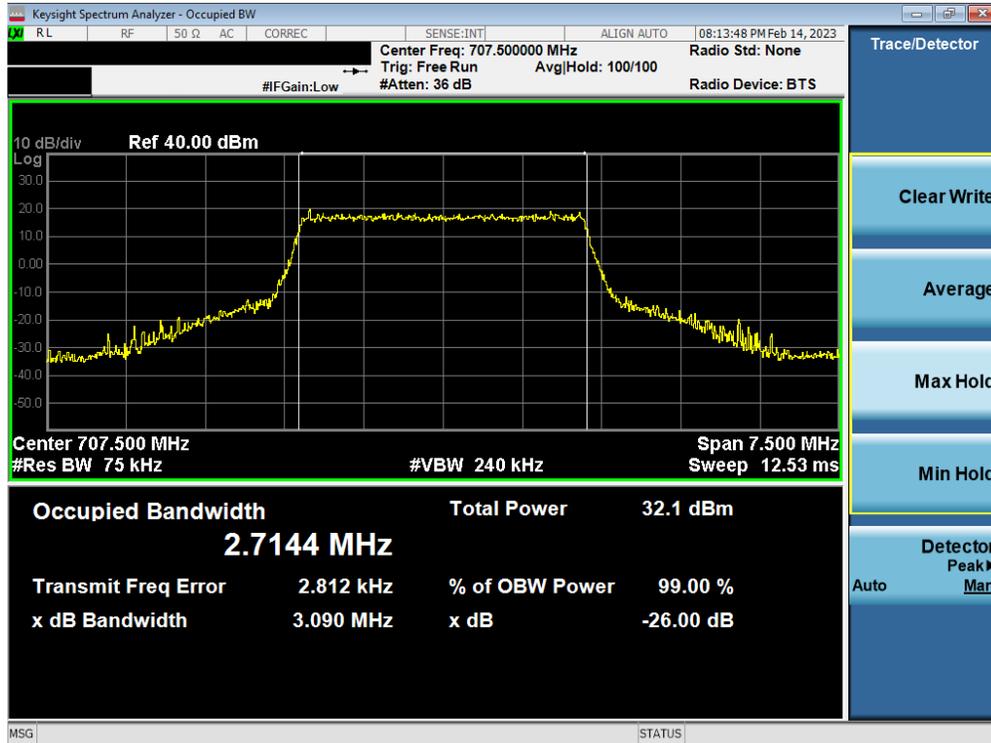


Plot 7-11. Occupied Bandwidth Plot (LTE Band 12/17 - 5MHz QPSK - Full RB – Main1)



Plot 7-12. Occupied Bandwidth Plot (LTE Band 12/17 - 5MHz 16-QAM - Full RB – Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 22 of 232

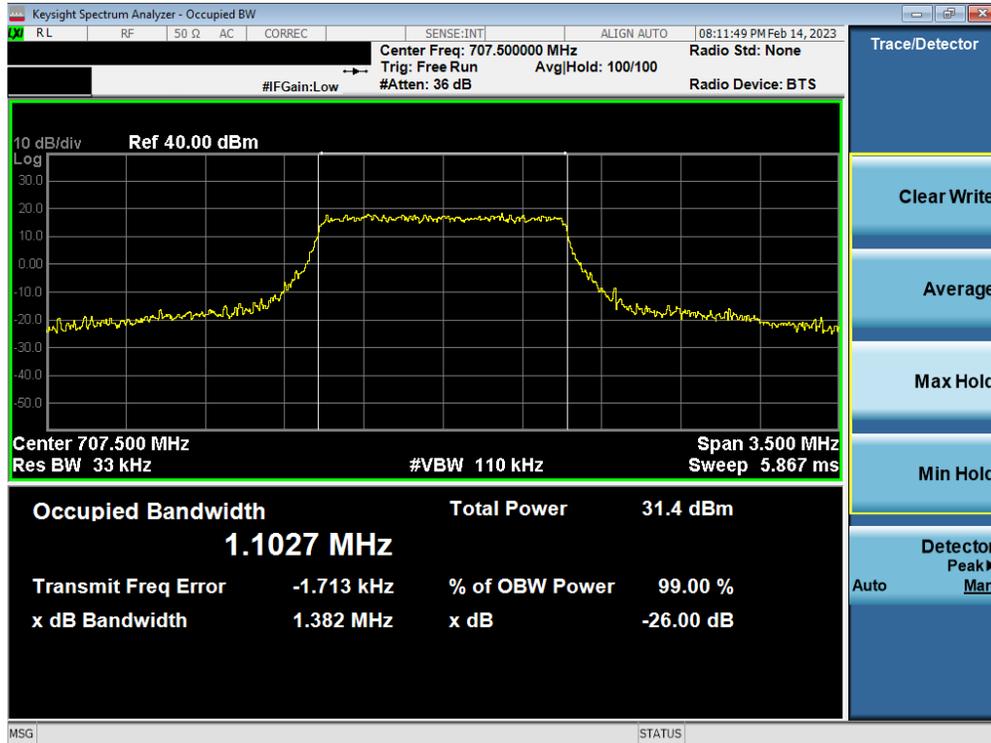


Plot 7-13. Occupied Bandwidth Plot (LTE Band 12 - 3MHz QPSK - Full RB - Main1)

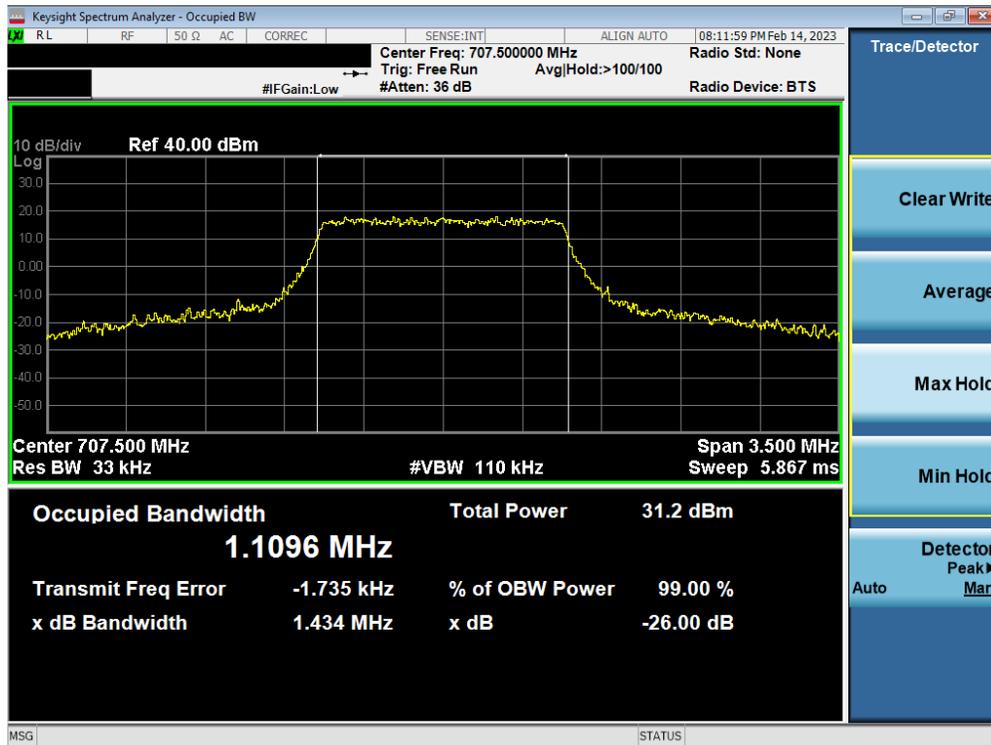


Plot 7-14. Occupied Bandwidth Plot (LTE Band 12 - 3MHz 16-QAM - Full RB - Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 23 of 232



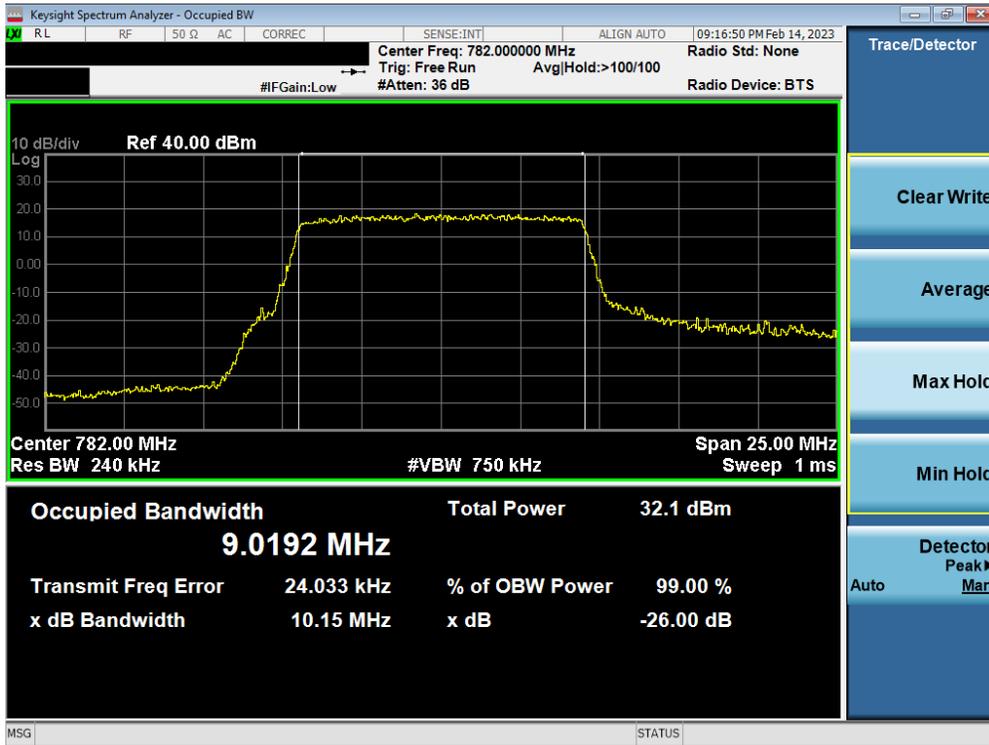
Plot 7-15. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz QPSK - Full RB – Main1)



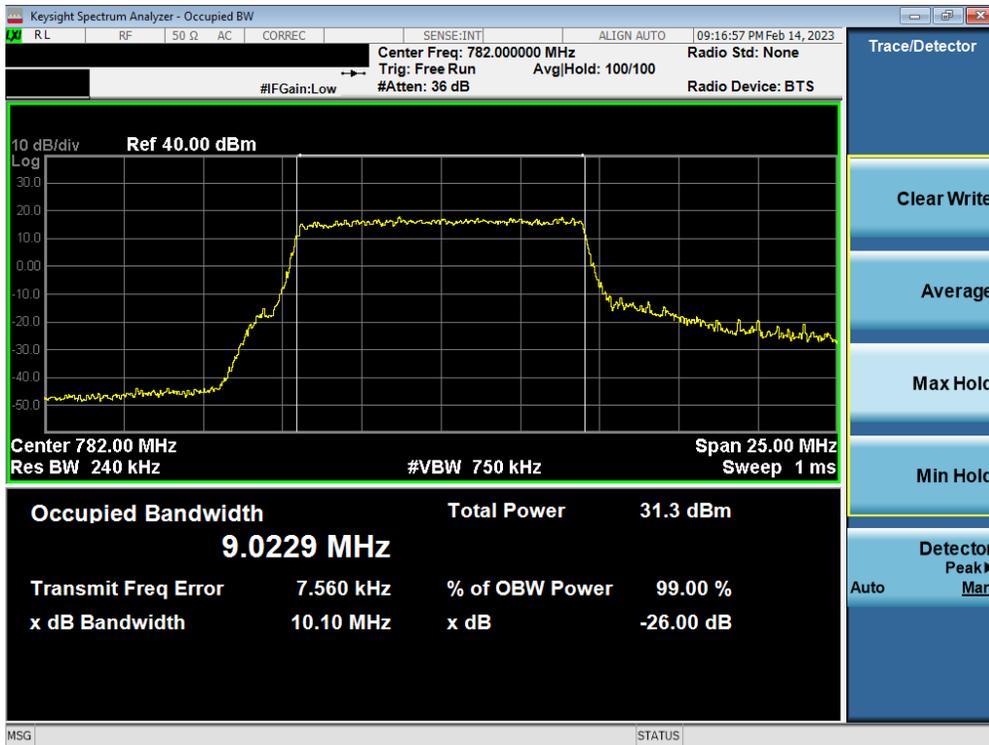
Plot 7-16. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz 16-QAM - Full RB – Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 24 of 232

LTE Band 13 – Main1

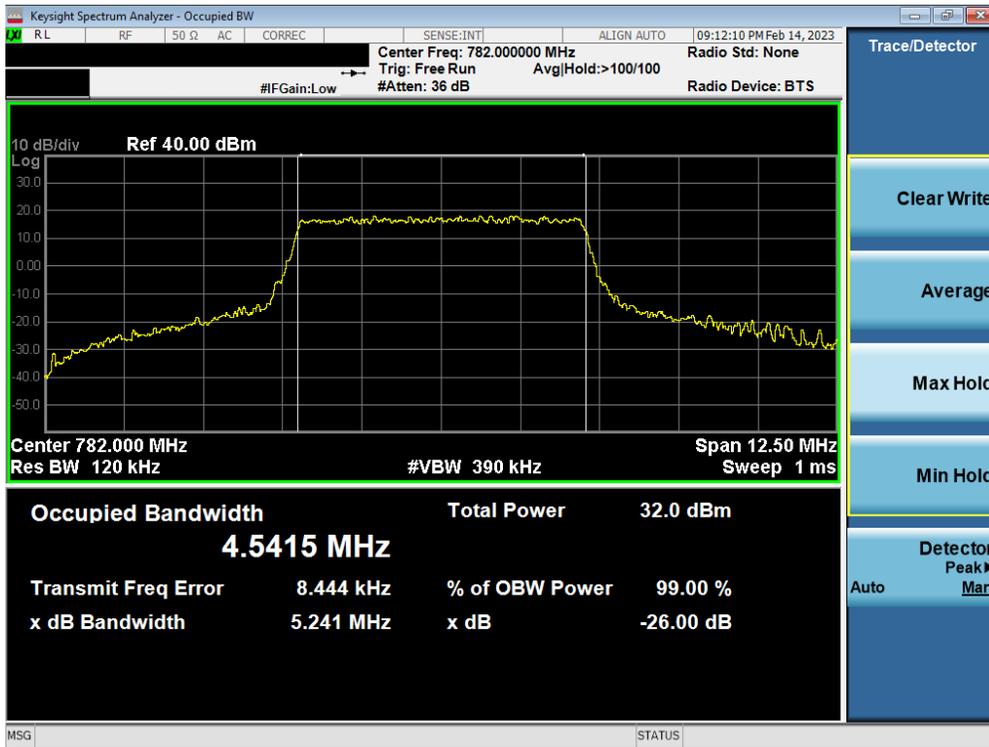


Plot 7-17. Occupied Bandwidth Plot (LTE Band 13 - 10MHz QPSK - Full RB – Main1)

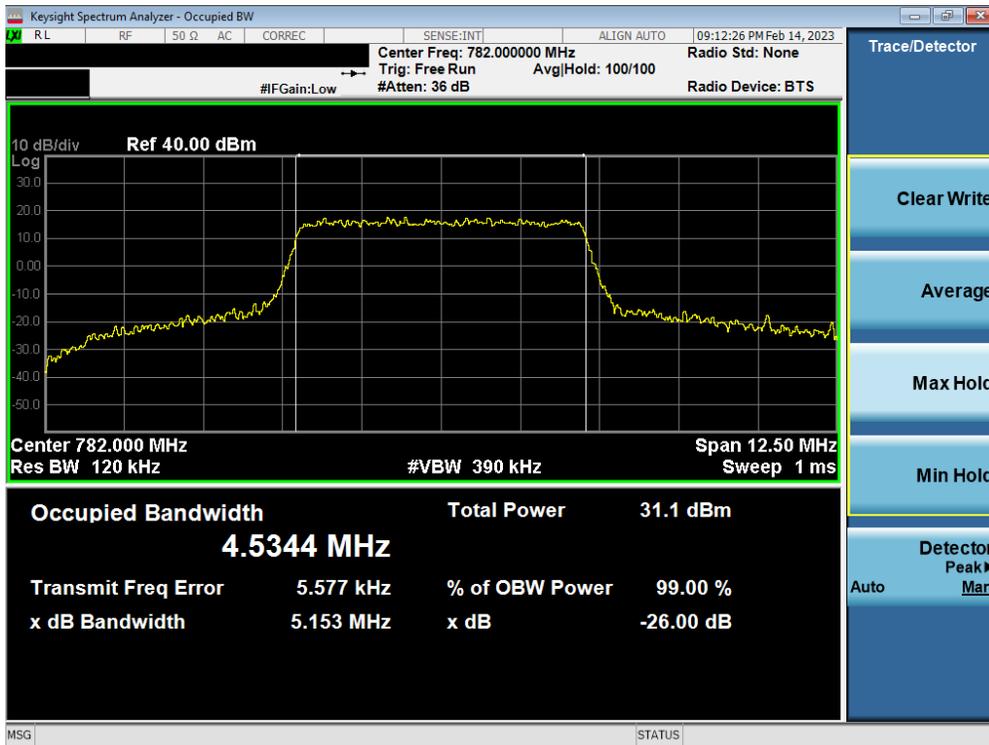


Plot 7-18. Occupied Bandwidth Plot (LTE Band 13 - 10MHz 16-QAM - Full RB – Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 25 of 232



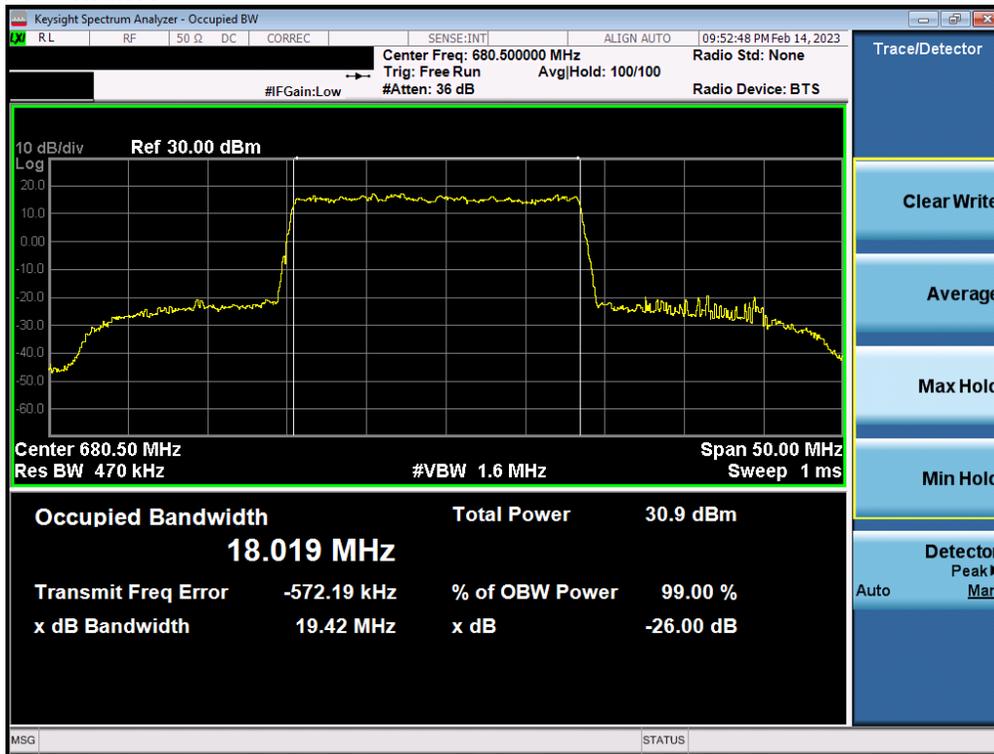
Plot 7-19. Occupied Bandwidth Plot (LTE Band 13 - 5MHz QPSK - Full RB – Main1)



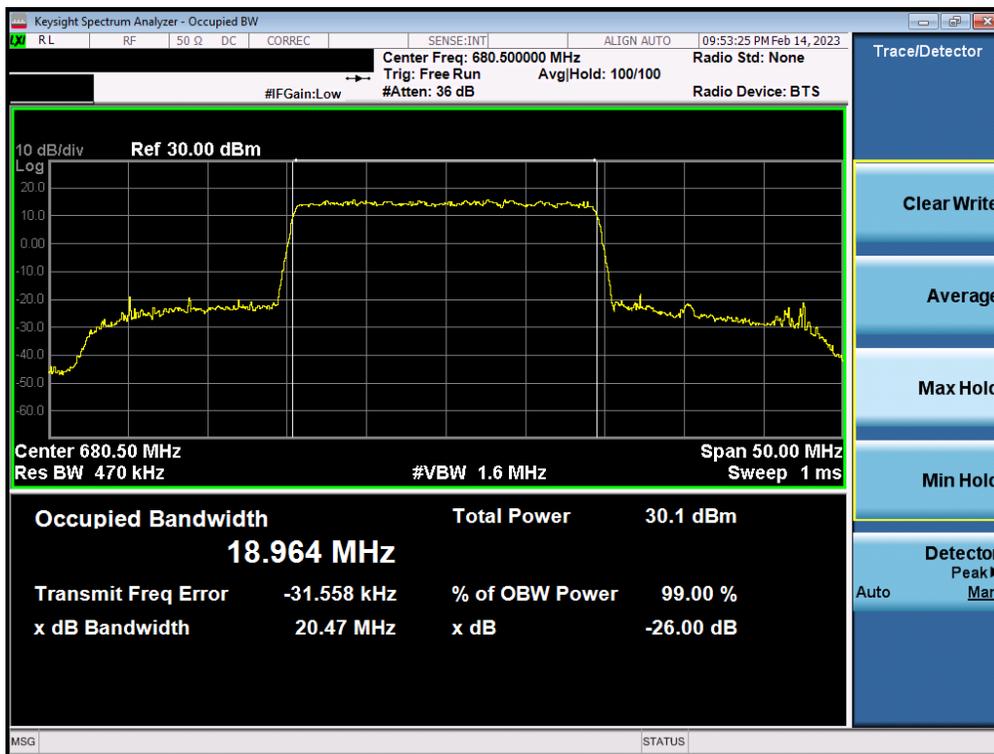
Plot 7-20. Occupied Bandwidth Plot (LTE Band 13 - 5MHz 16-QAM - Full RB – Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 26 of 232

NR Band n71 – Main1

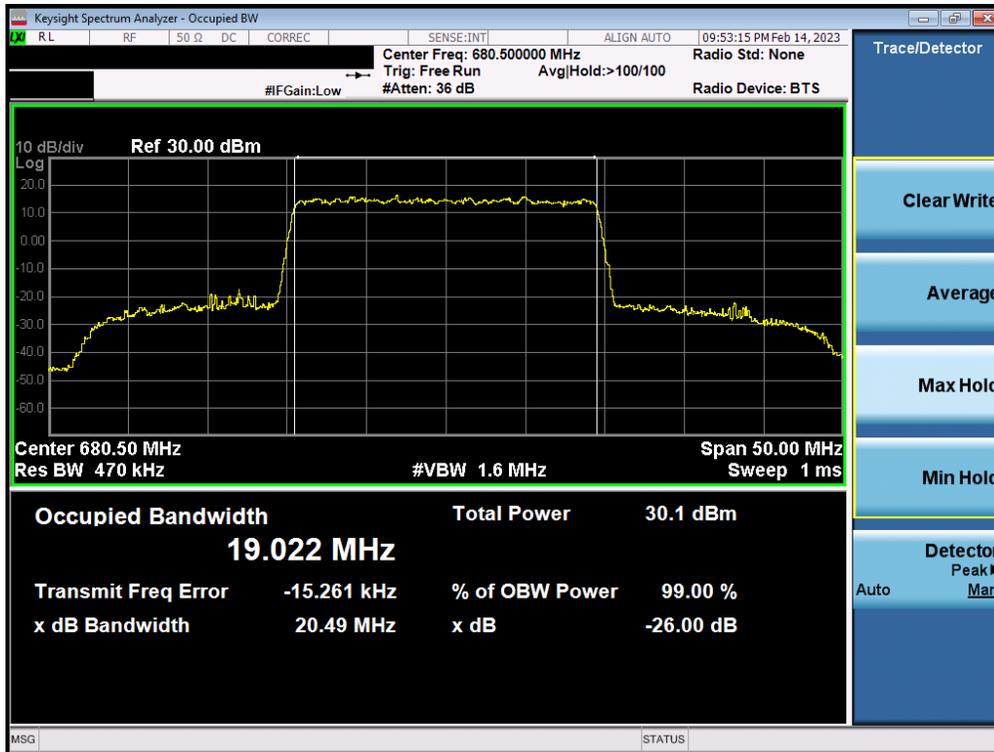


Plot 7-21. Occupied Bandwidth Plot (NR Band n71 - 20MHz DFT-s-OFDM BPSK - Full RB – Main1)

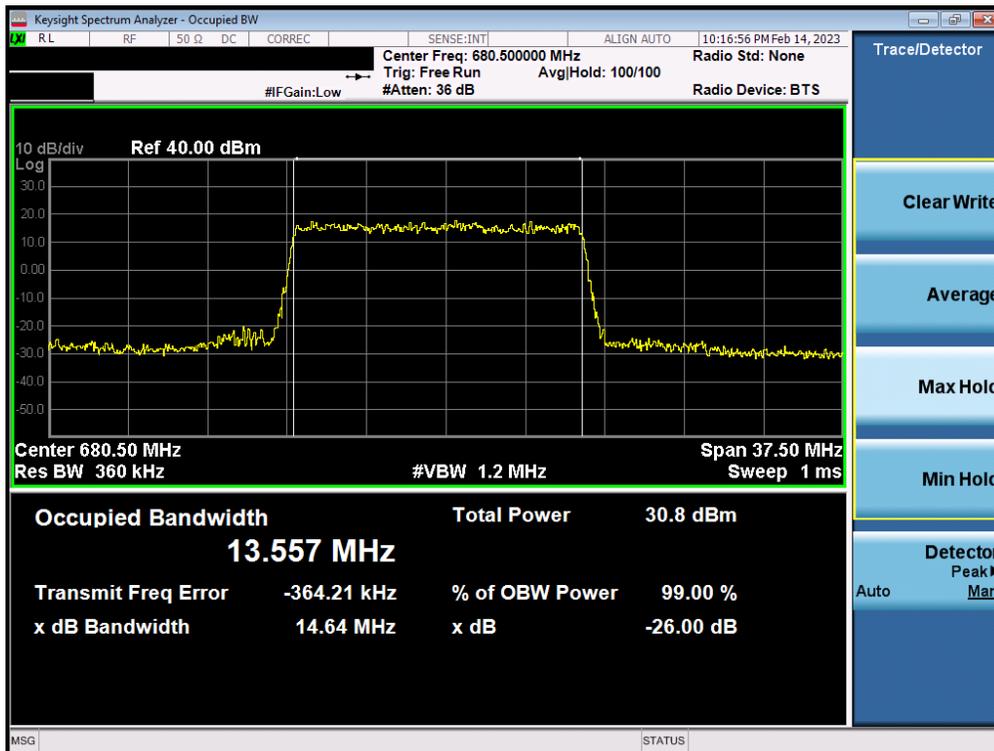


Plot 7-22. Occupied Bandwidth Plot (NR Band n71 - 20MHz CP-OFDM QPSK - Full RB – Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 27 of 232

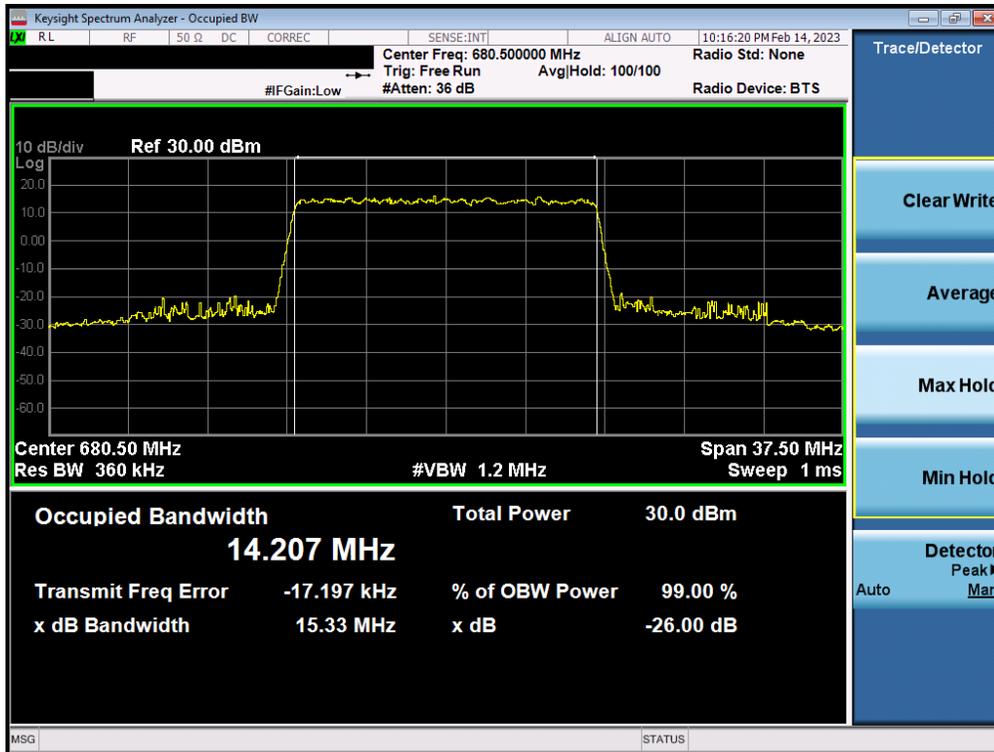


Plot 7-23. Occupied Bandwidth Plot (NR Band n71 - 20MHz CP-OFDM 16-QAM - Full RB - Main1)

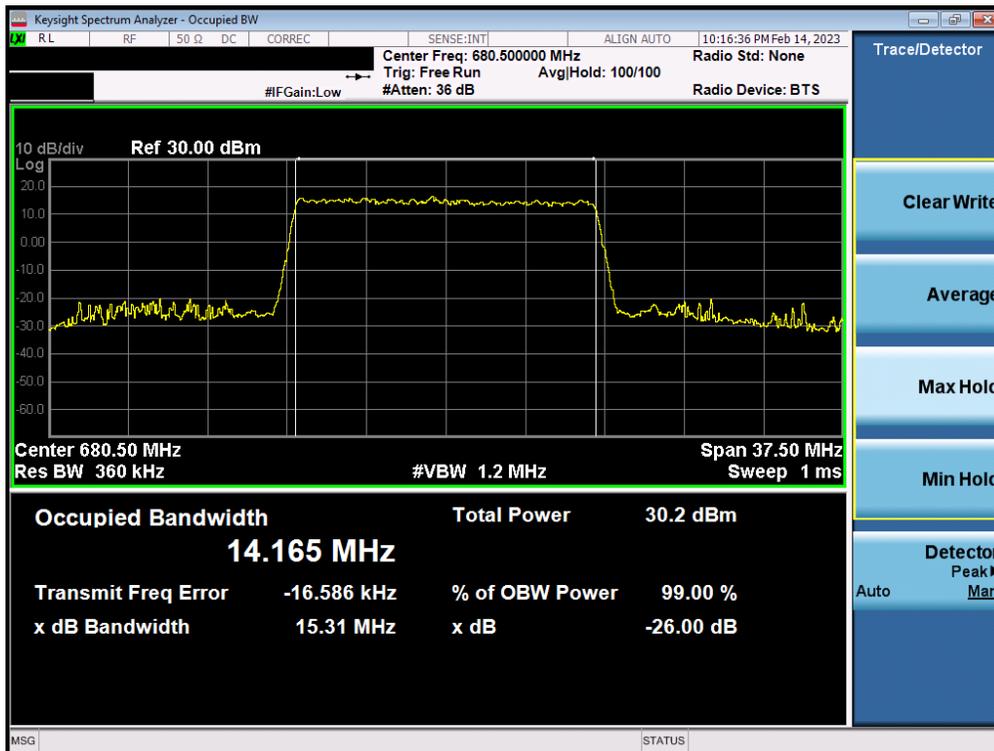


Plot 7-24. Occupied Bandwidth Plot (NR Band n71 - 15MHz DFT-s-OFDM BPSK - Full RB - Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 28 of 232

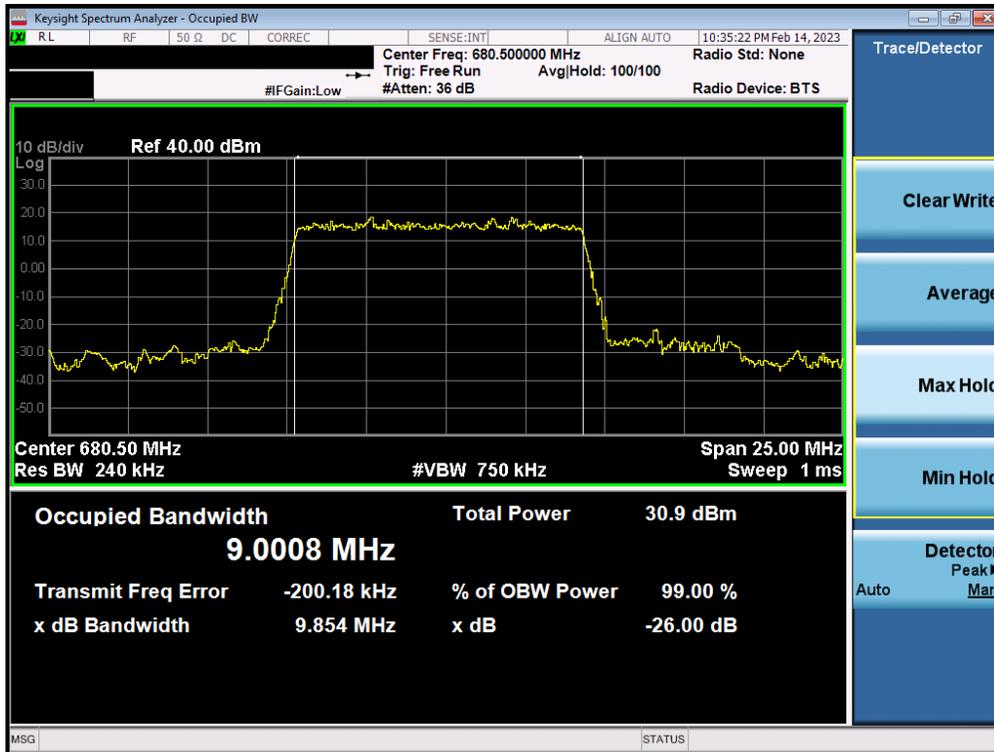


Plot 7-25. Occupied Bandwidth Plot (NR Band n71 - 15MHz CP-OFDM QPSK - Full RB - Main1)

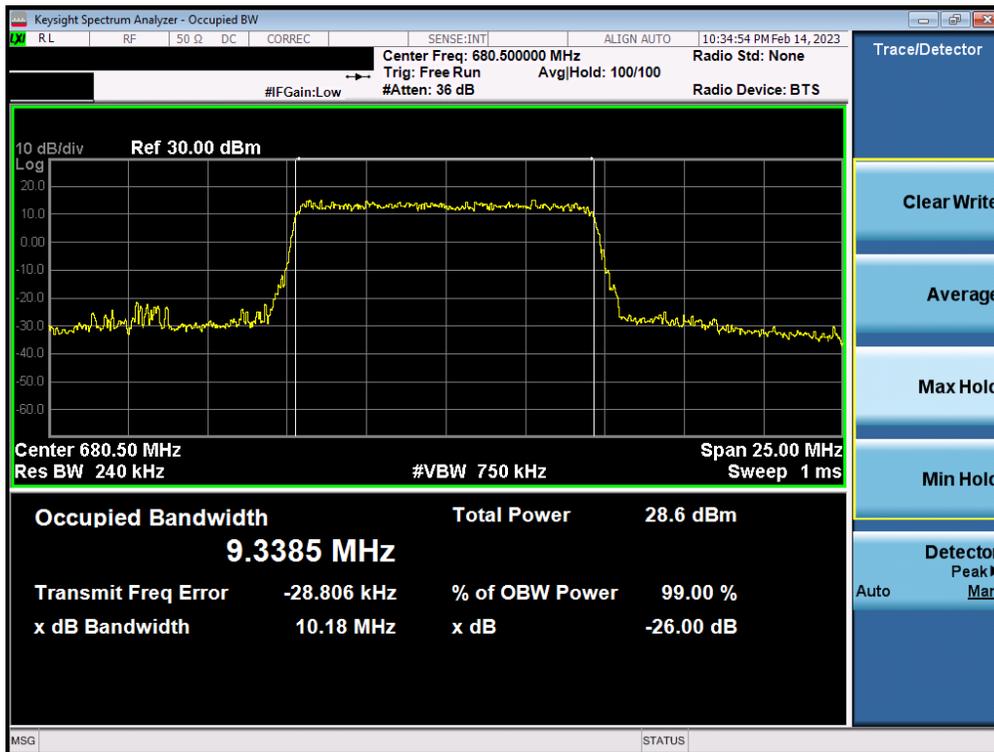


Plot 7-26. Occupied Bandwidth Plot (NR Band n71 - 15MHz CP-OFDM 16-QAM - Full RB - Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 29 of 232

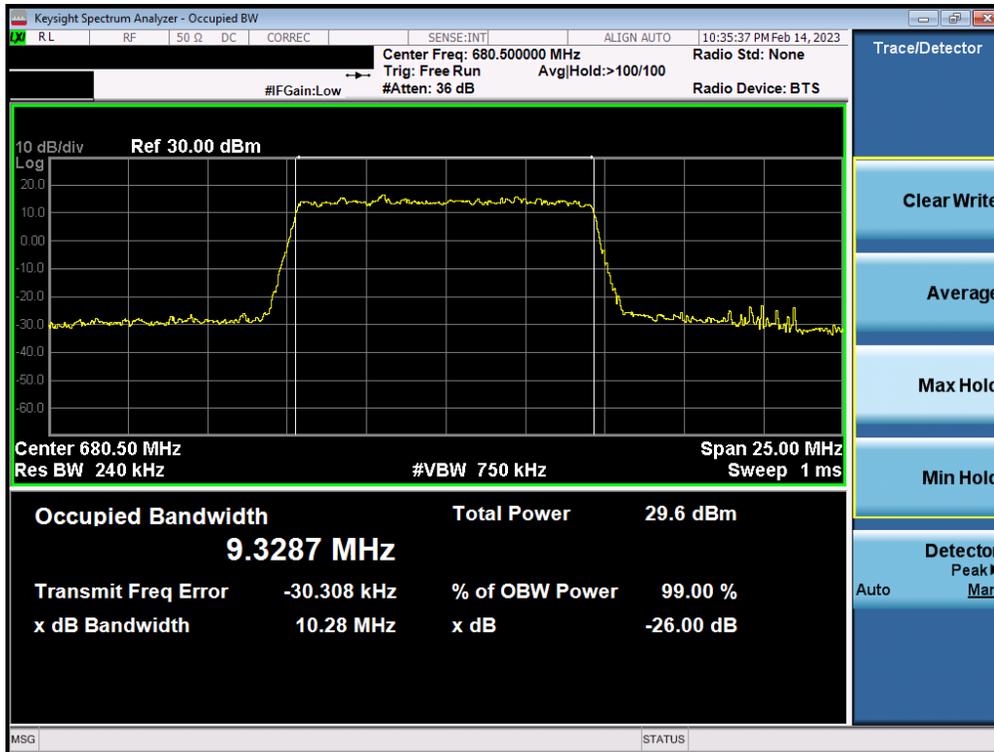


Plot 7-27. Occupied Bandwidth Plot (NR Band n71 - 10MHz DFT-s-OFDM BPSK - Full RB - Main1)

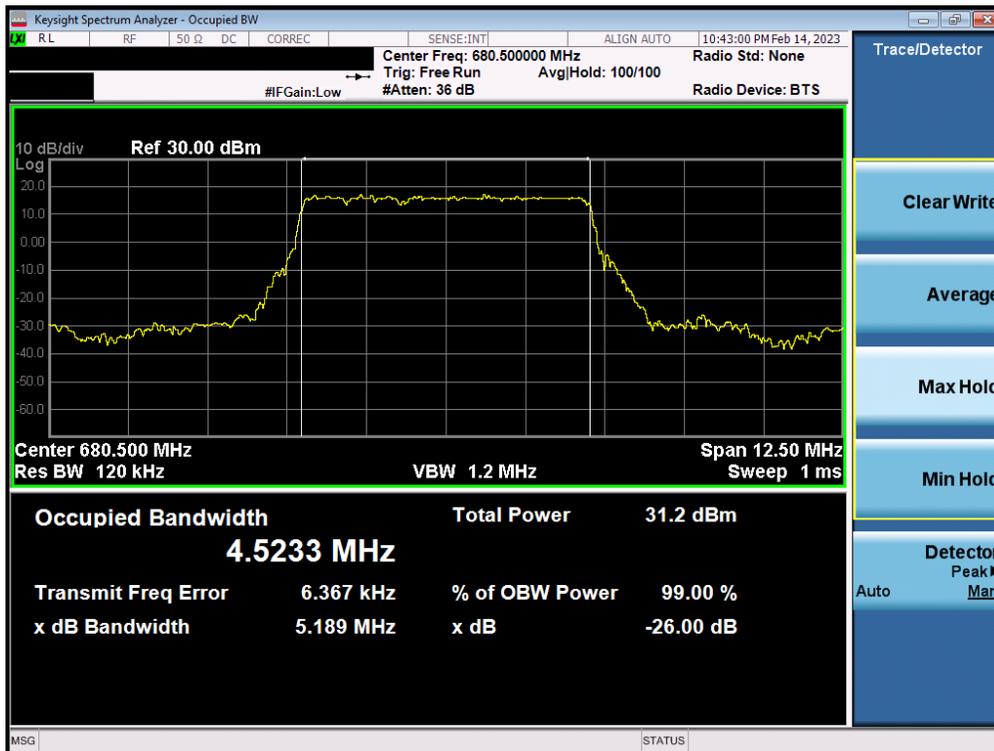


Plot 7-28. Occupied Bandwidth Plot (NR Band n71 - 10MHz CP-OFDM QPSK - Full RB - Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 30 of 232

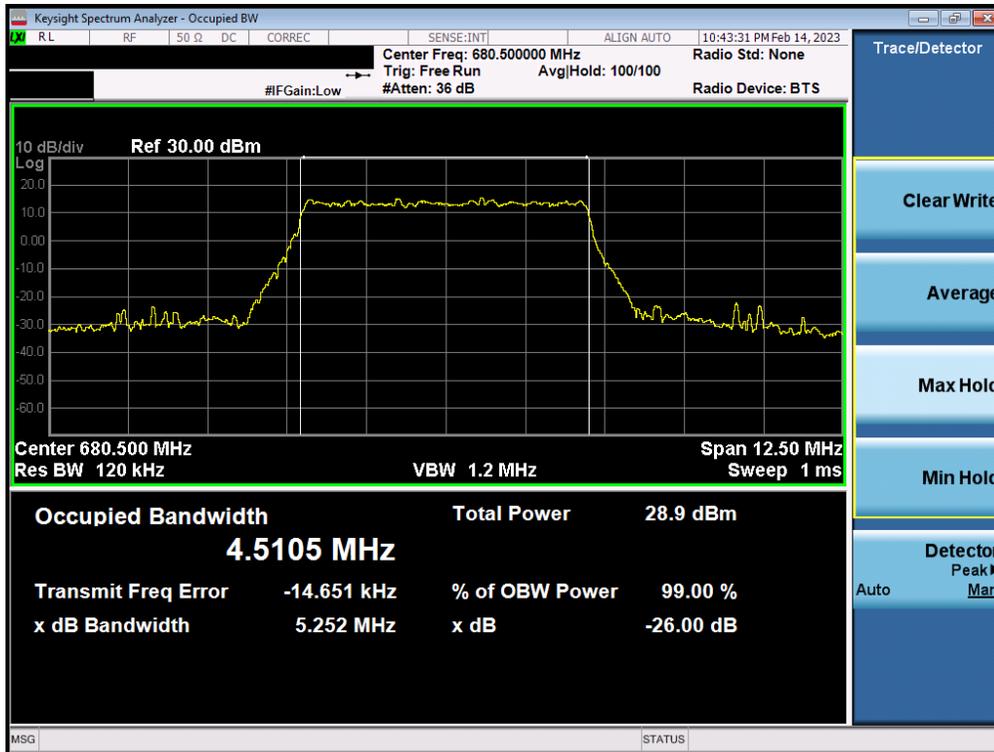


Plot 7-29. Occupied Bandwidth Plot (NR Band n71 - 10MHz CP-OFDM 16-QAM - Full RB – Main1)

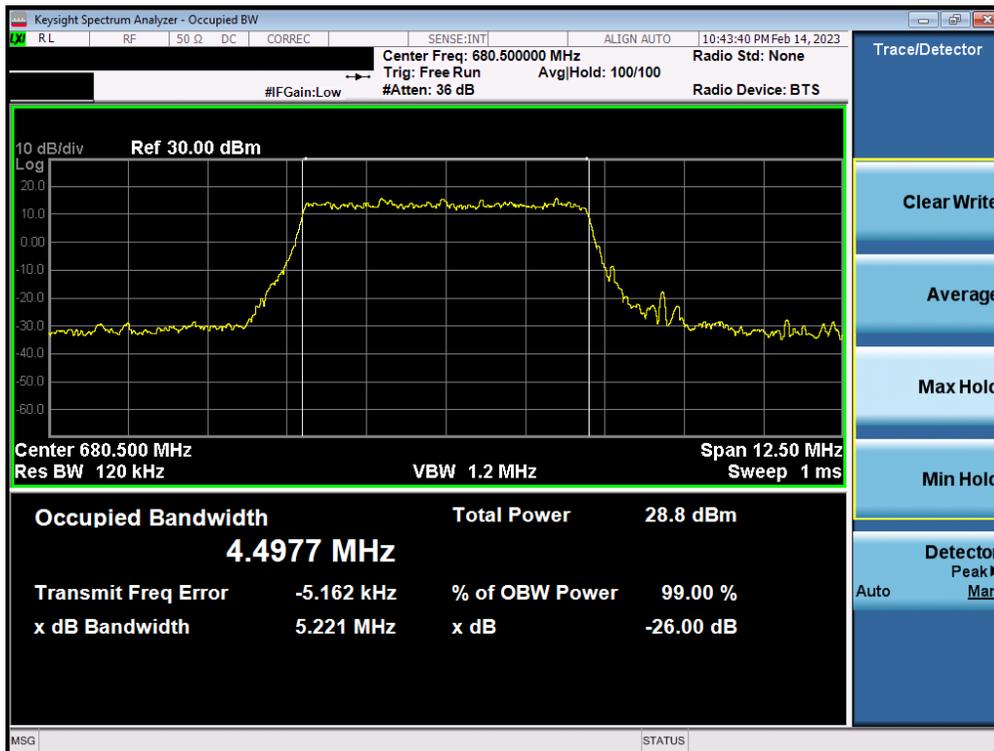


Plot 7-30. Occupied Bandwidth Plot (NR Band n71 - 5MHz DFT-s-OFDM BPSK - Full RB – Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 31 of 232



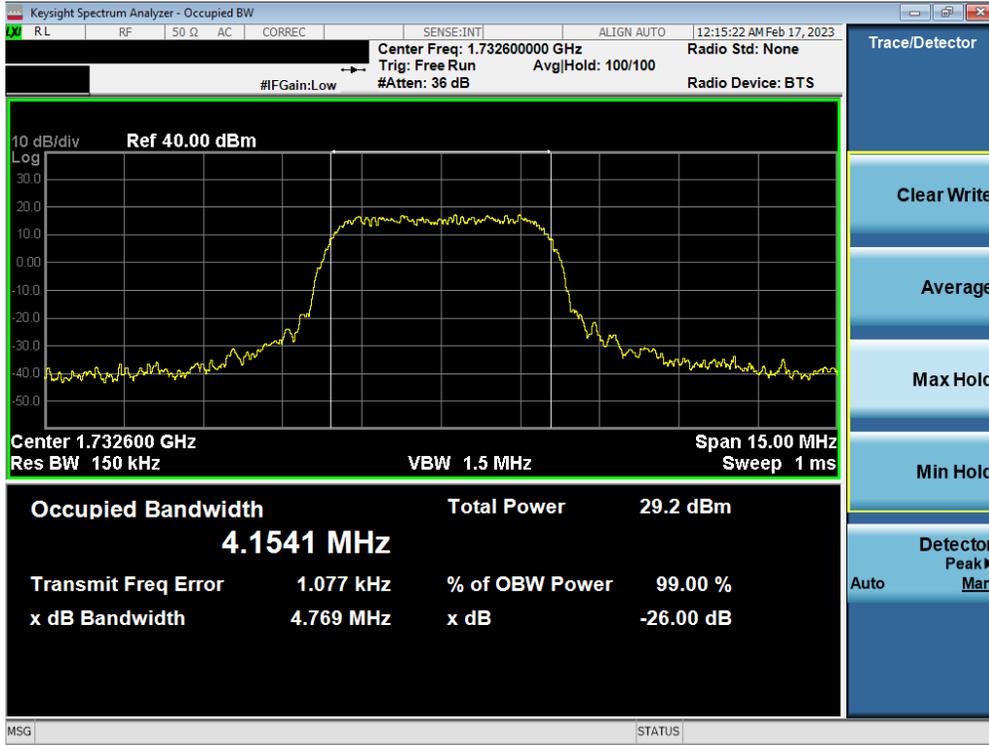
Plot 7-31. Occupied Bandwidth Plot (NR Band n71 - 5MHz CP-OFDM QPSK - Full RB – Main1)



Plot 7-32. Occupied Bandwidth Plot (NR Band n71 - 5MHz CP-OFDM 16-QAM - Full RB – Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 32 of 232

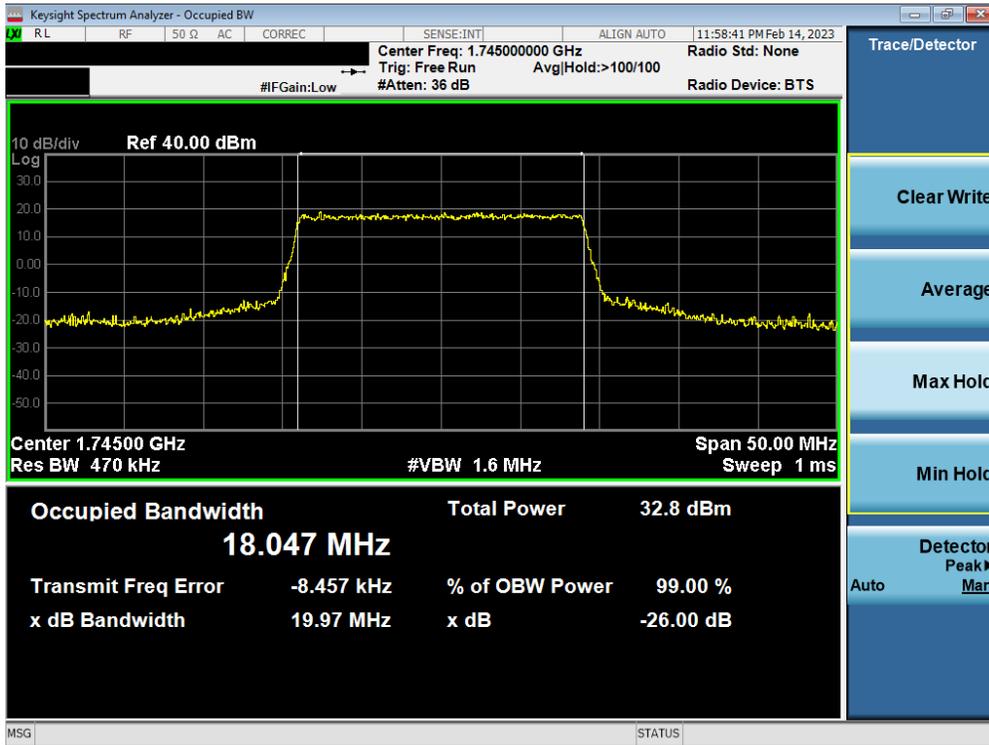
WCDMA AWS – Main2



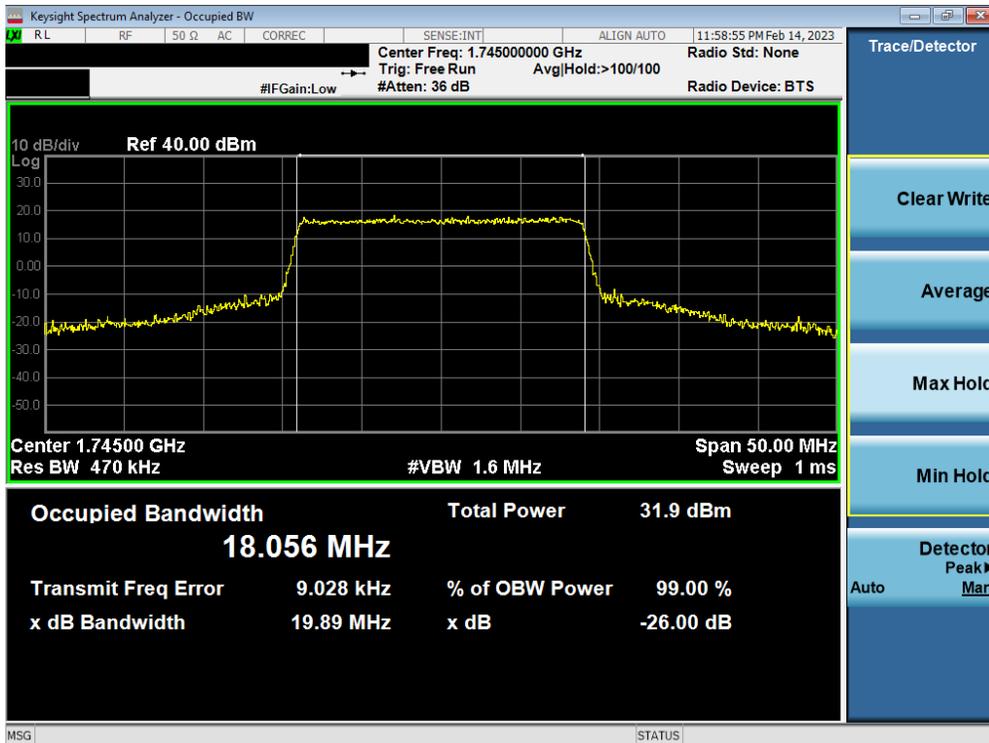
Plot 7-33. Occupied Bandwidth Plot (WCDMA, Ch. 1413 – Main2)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 33 of 232

LTE Band 66/4 – Main2

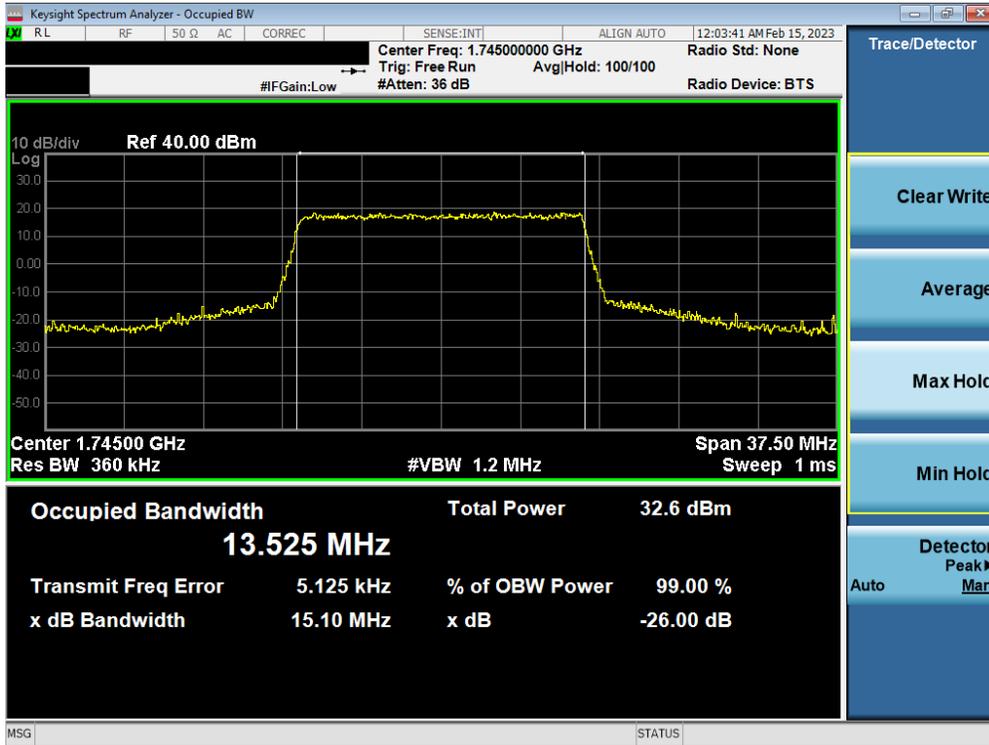


Plot 7-34. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz QPSK - Full RB – Main2)

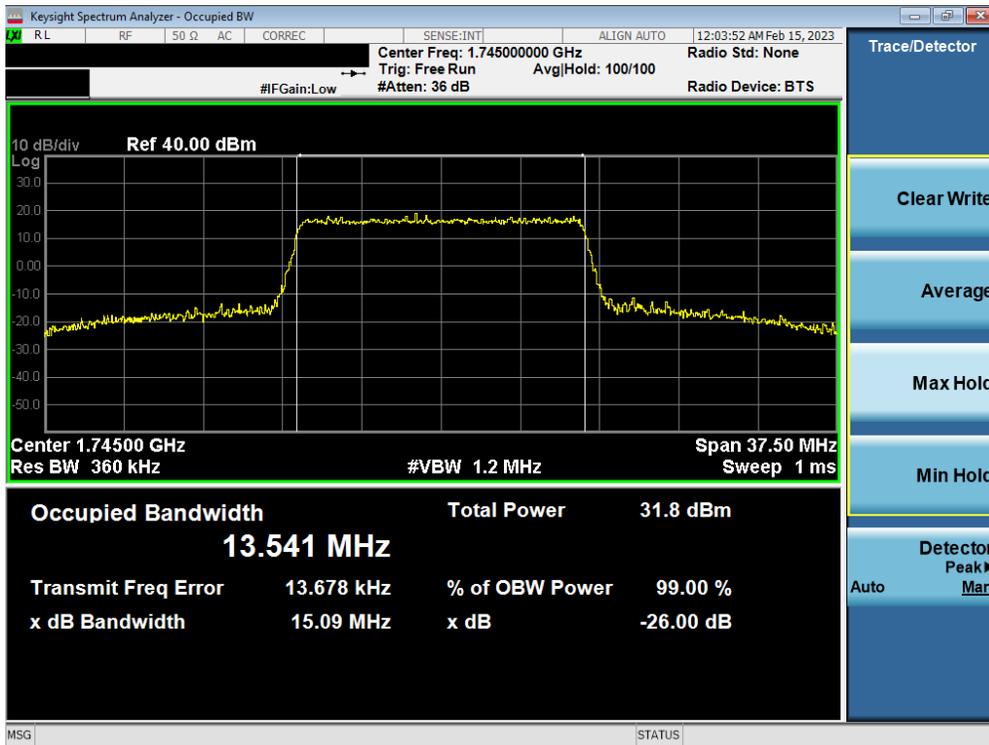


Plot 7-35. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz 16-QAM - Full RB – Main2)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 34 of 232



Plot 7-36. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz QPSK - Full RB – Main2)



Plot 7-37. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz 16-QAM - Full RB – Main2)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 35 of 232

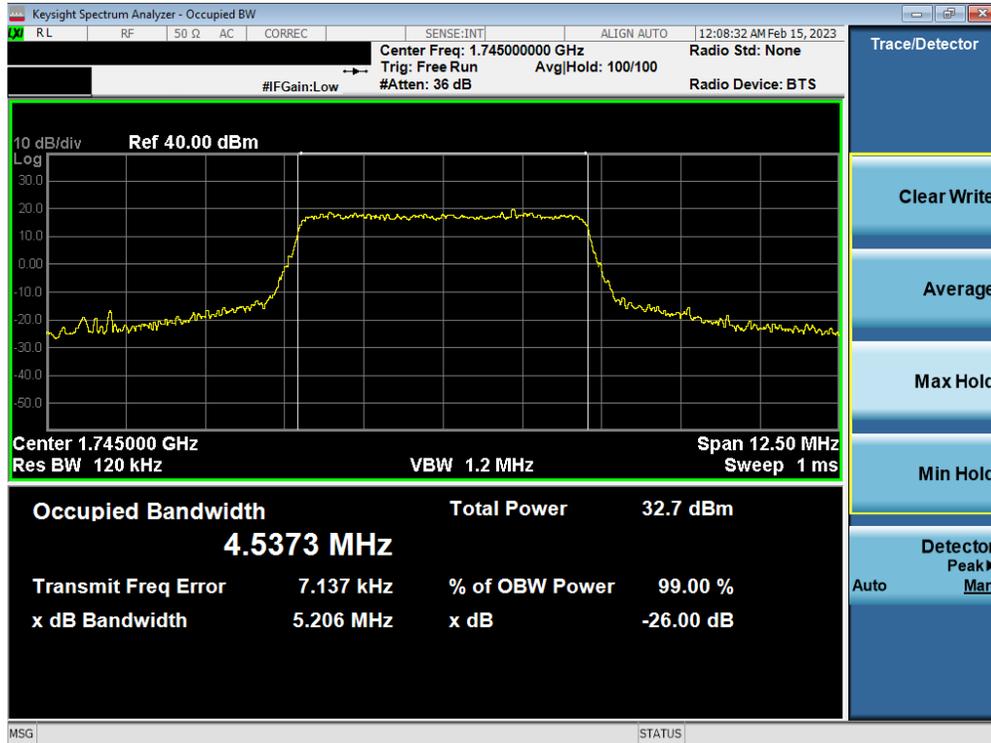


Plot 7-38. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz QPSK - Full RB – Main2)

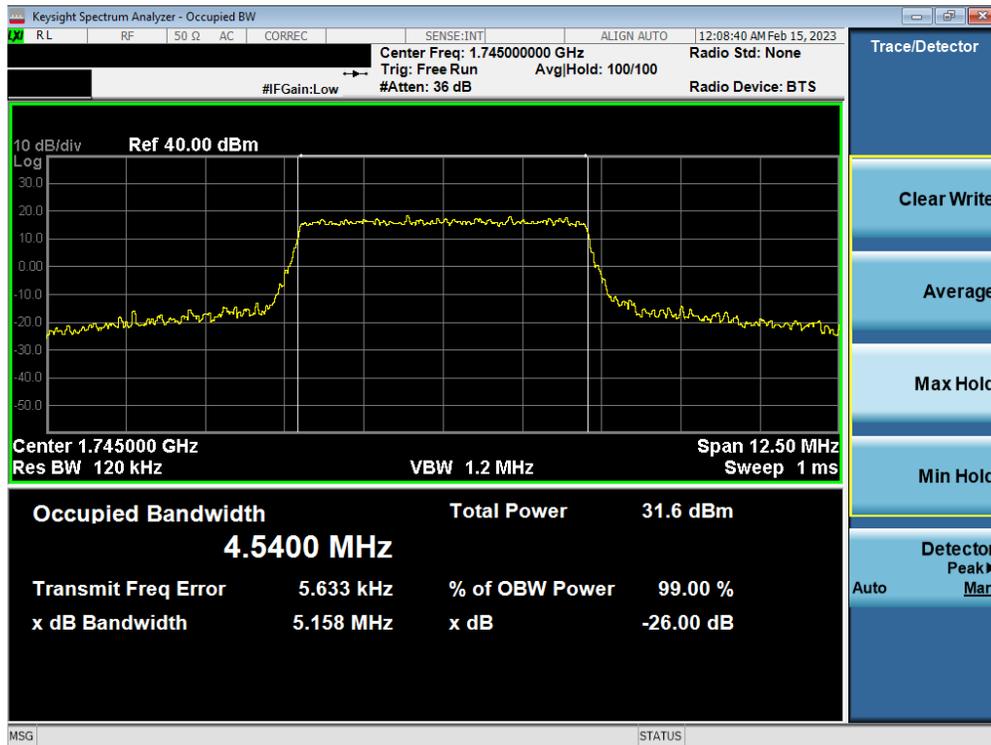


Plot 7-39. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz 16-QAM - Full RB – Main2)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 36 of 232

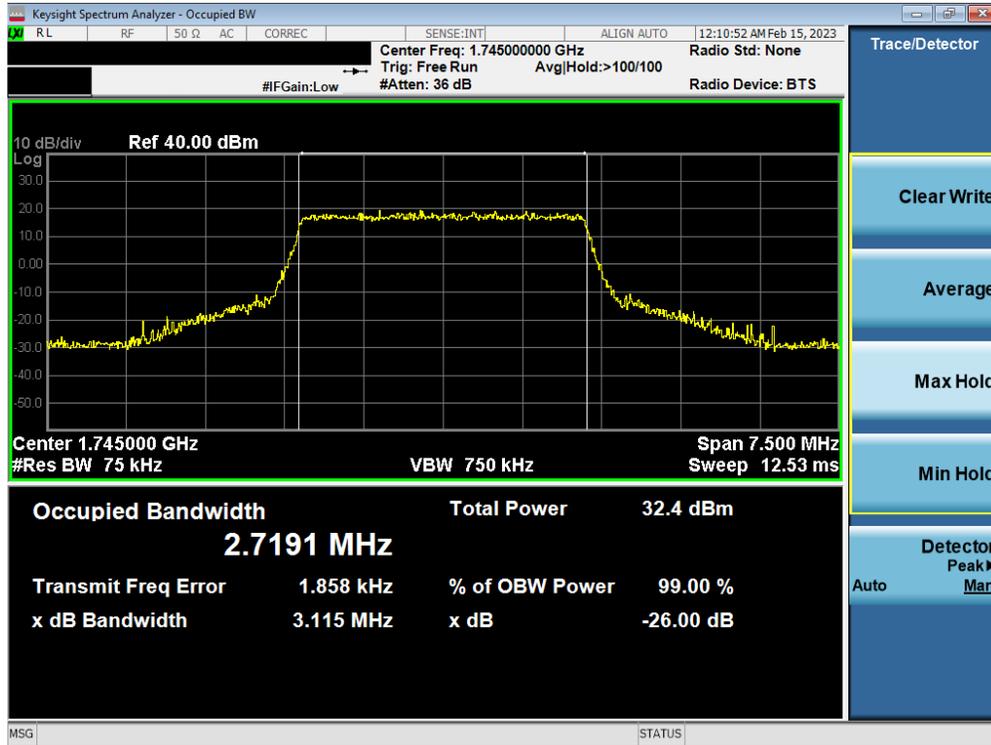


Plot 7-40. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz QPSK - Full RB – Main2)

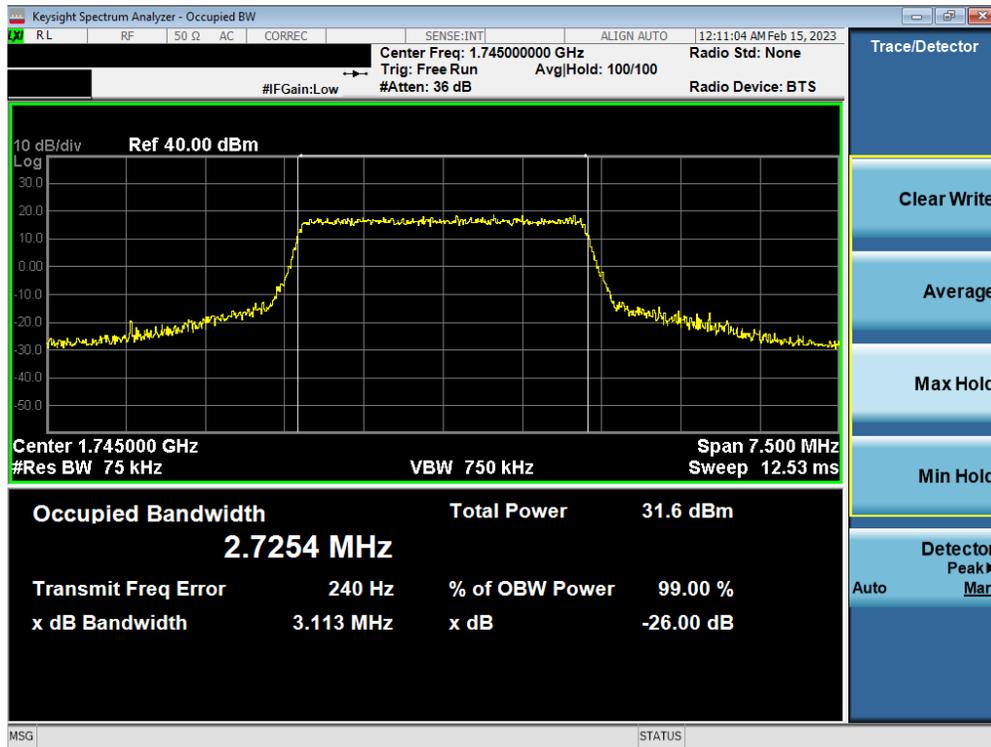


Plot 7-41. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz 16-QAM - Full RB – Main2)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 37 of 232

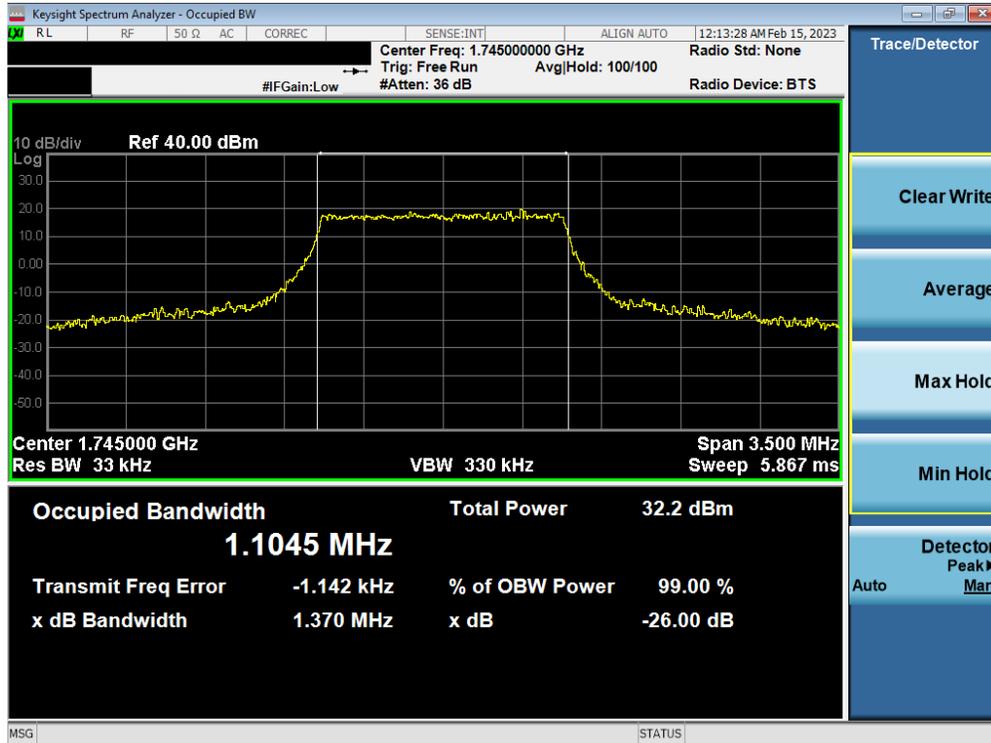


Plot 7-42. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz QPSK - Full RB – Main2)



Plot 7-43. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz 16-QAM - Full RB – Main2)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 38 of 232



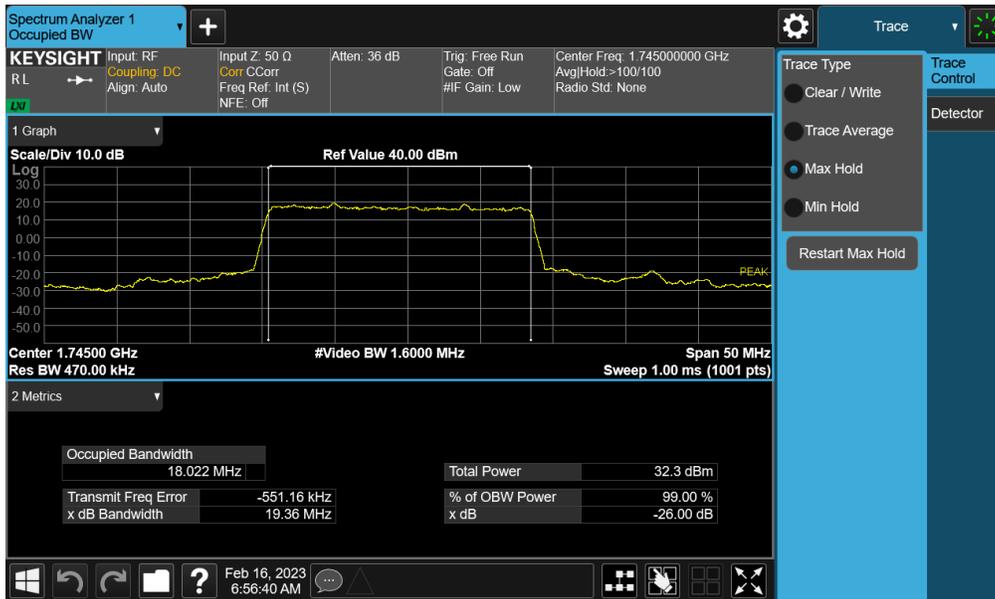
Plot 7-44. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz QPSK - Full RB – Main2)



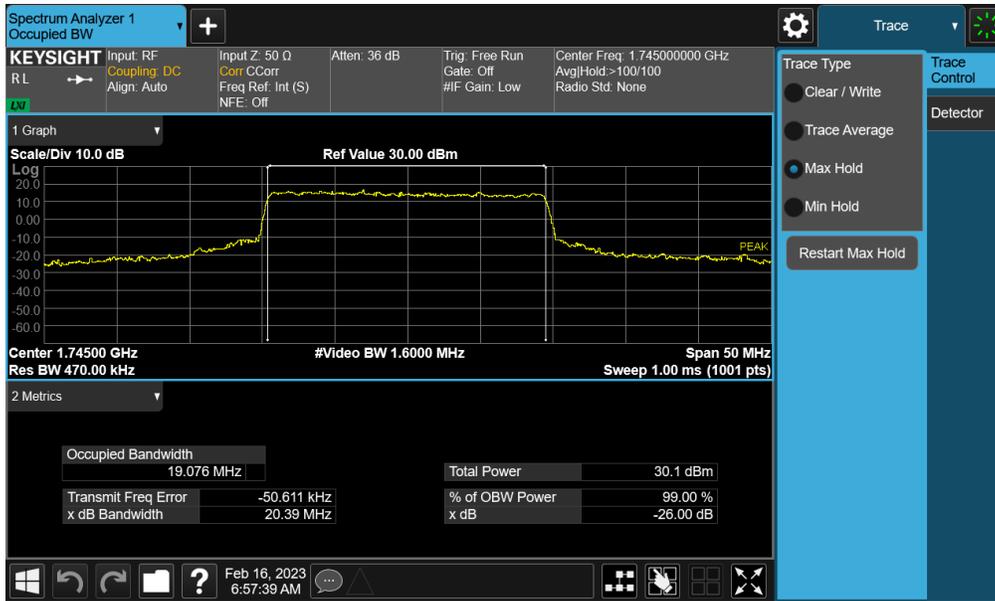
Plot 7-45. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz 16-QAM - Full RB – Main2)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 39 of 232

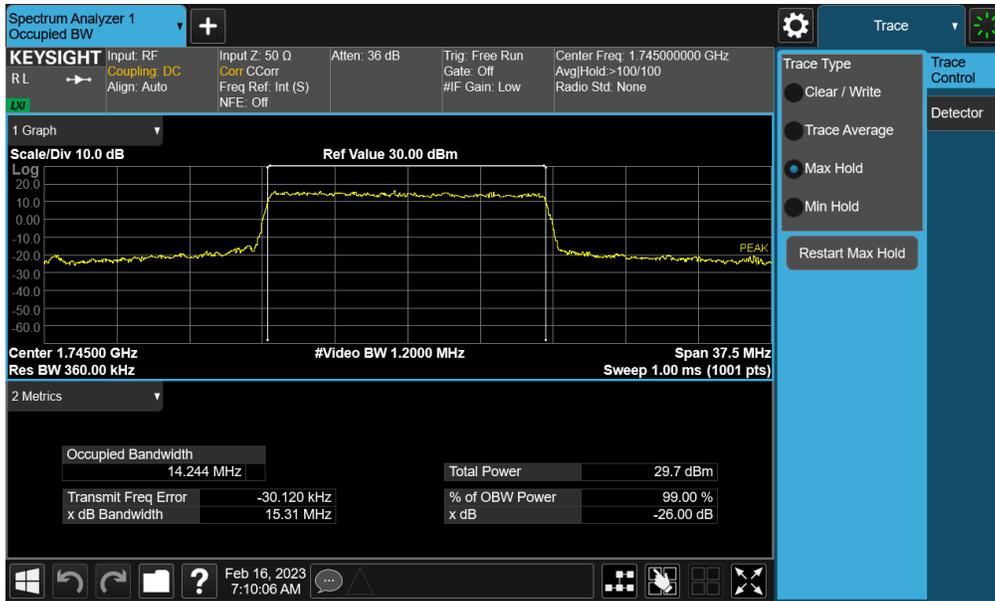
NR Band n66 – Main2



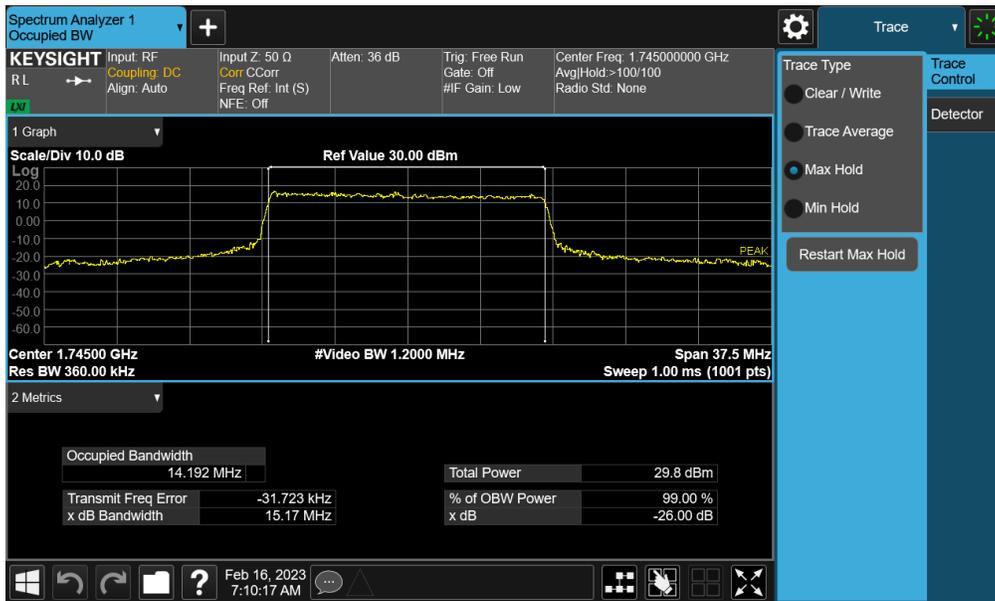
FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 40 of 232



FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 41 of 232

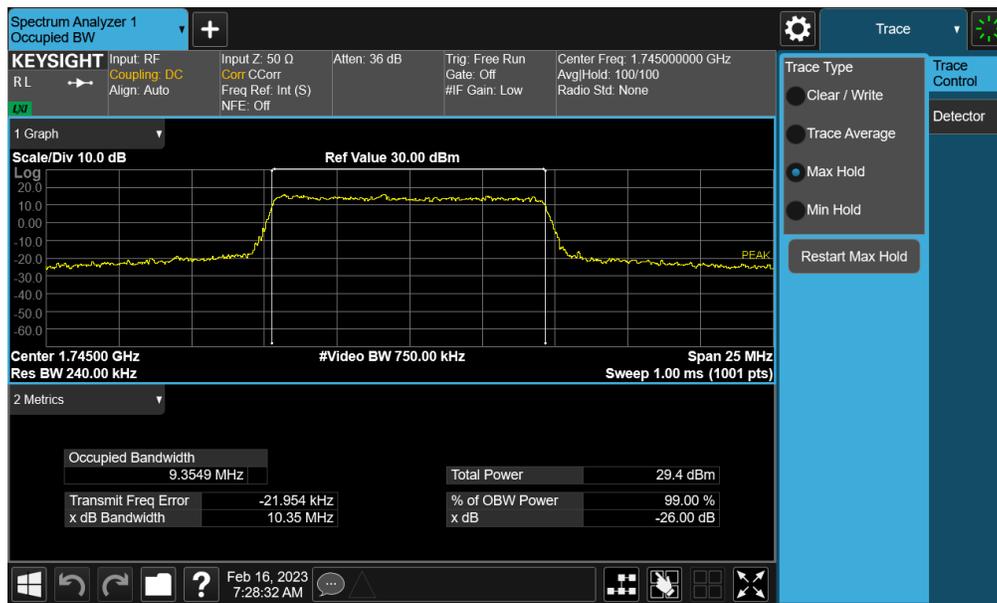


Plot 7-50. Occupied Bandwidth Plot (NR Band n66 - 15MHz CP-OFDM QPSK - Full RB – Main2)



Plot 7-51. Occupied Bandwidth Plot (NR Band n66 - 15MHz CP-OFDM 16QAM - Full RB – Main2)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 42 of 232



FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 43 of 232



FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 44 of 232



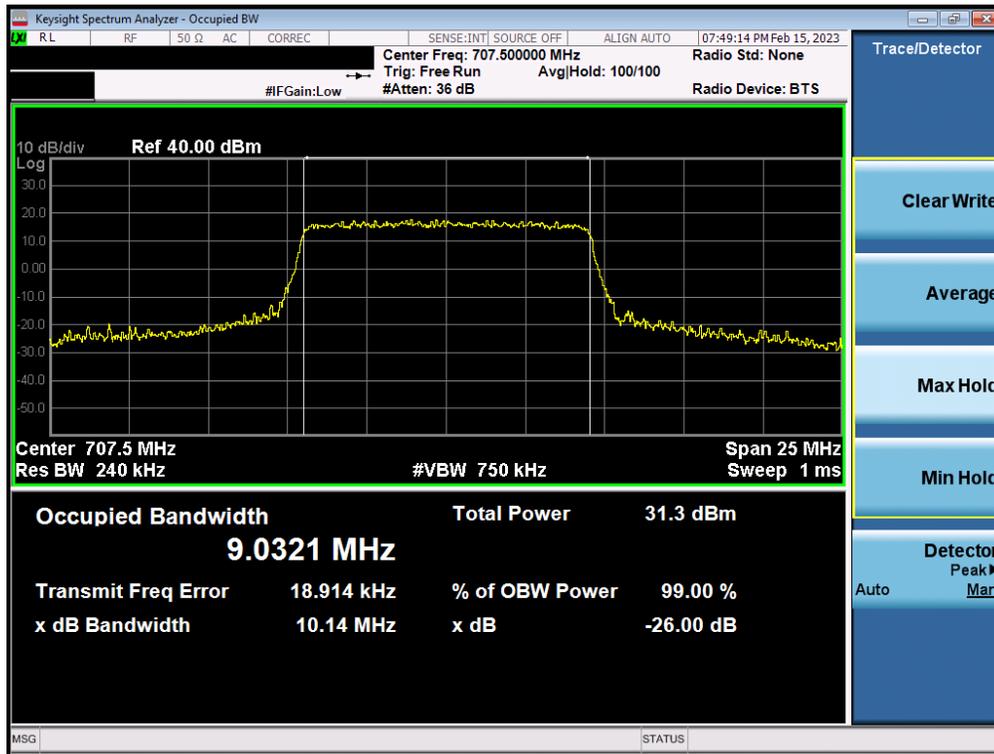
Plot 7-56. Occupied Bandwidth Plot (NR Band n66 - 5MHz CP-OFDM QPSK - Full RB – Main2)



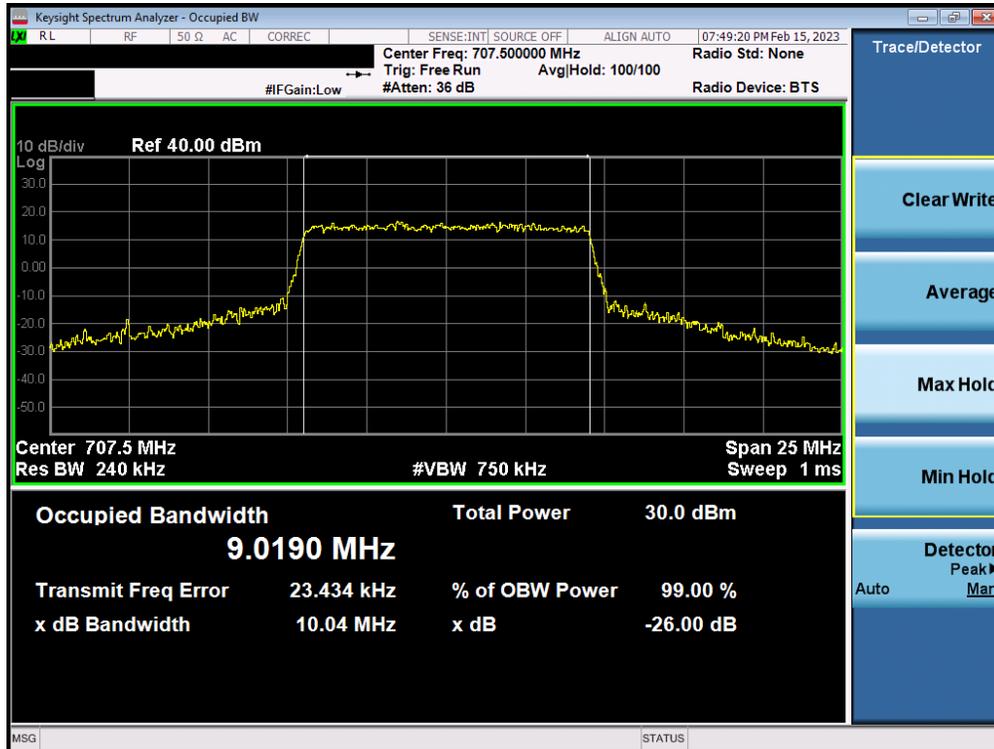
Plot 7-57. Occupied Bandwidth Plot (NR Band n66 - 5MHz CP-OFDM 16QAM - Full RB – Main2)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 45 of 232

LTE Band 12/17 – Sub

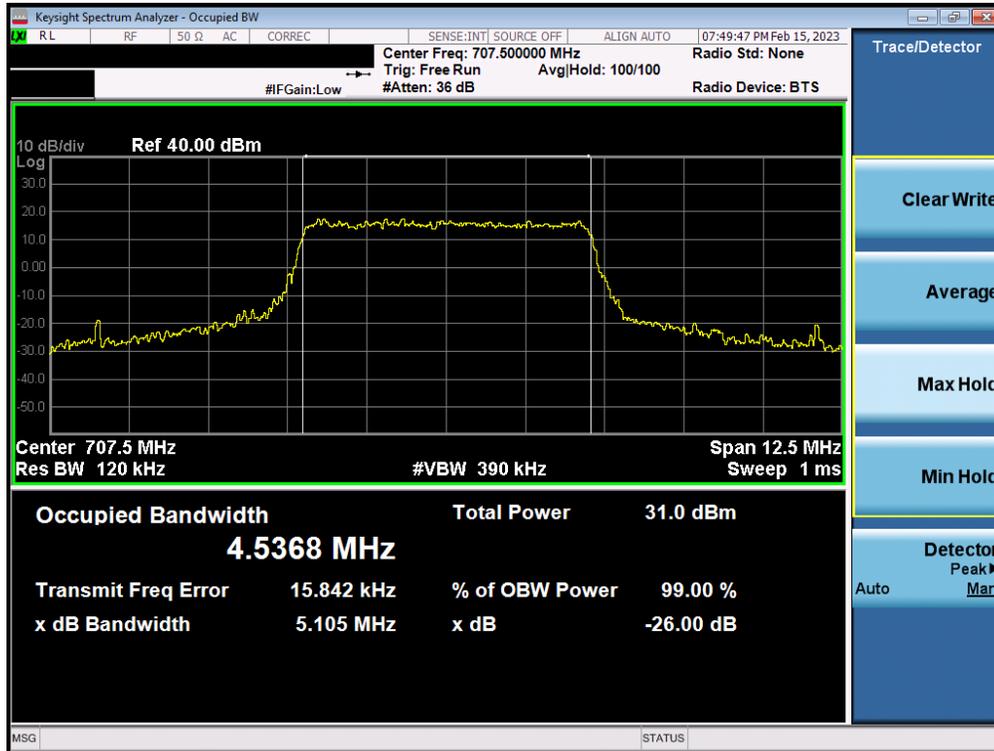


Plot 7-58. Occupied Bandwidth Plot (LTE Band 12/17 - 10MHz QPSK - Full RB – Sub)



Plot 7-59. Occupied Bandwidth Plot (LTE Band 12/17 - 10MHz 16-QAM - Full RB – Sub)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 46 of 232

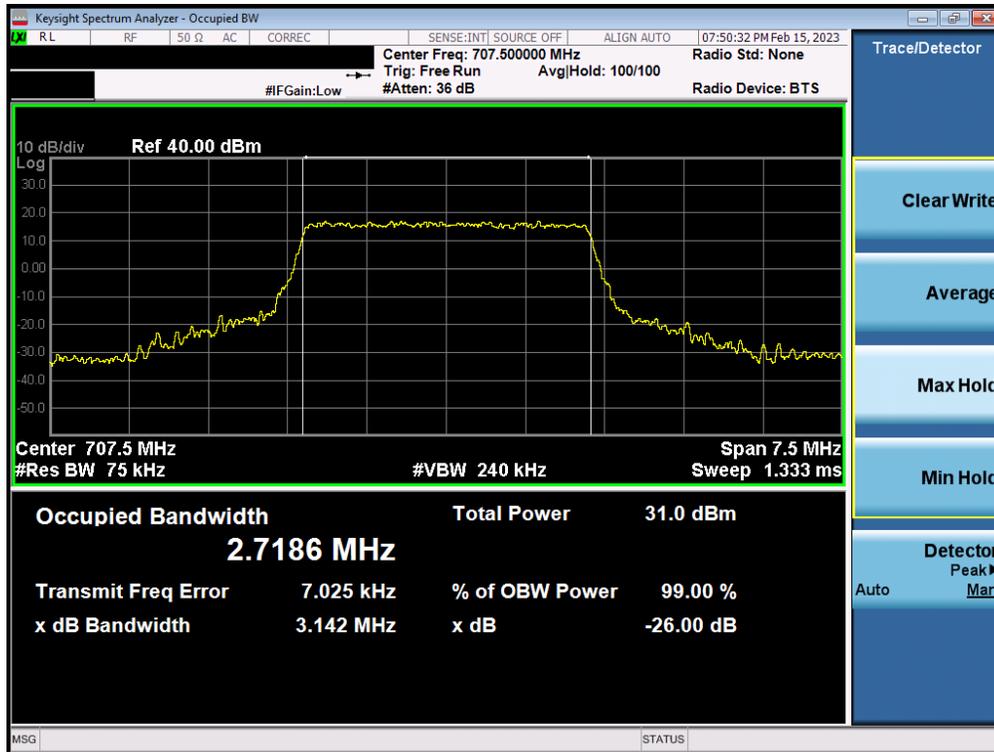


Plot 7-60. Occupied Bandwidth Plot (LTE Band 12/17 - 5MHz QPSK - Full RB – Sub)

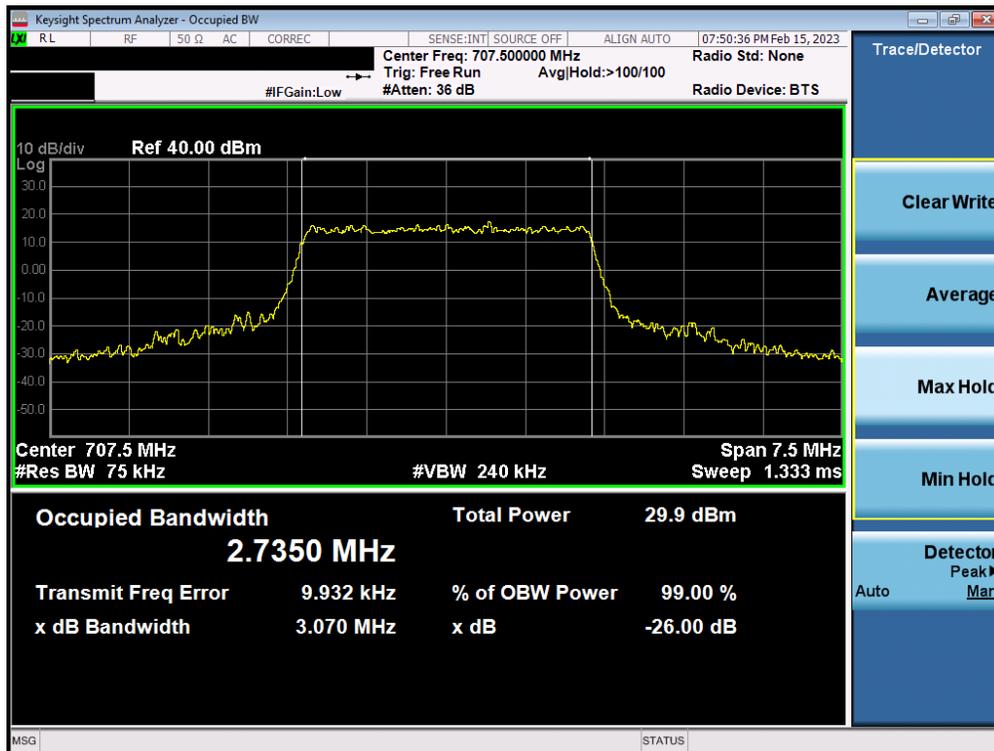


Plot 7-61. Occupied Bandwidth Plot (LTE Band 12/17 - 5MHz 16-QAM - Full RB – Sub)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 47 of 232

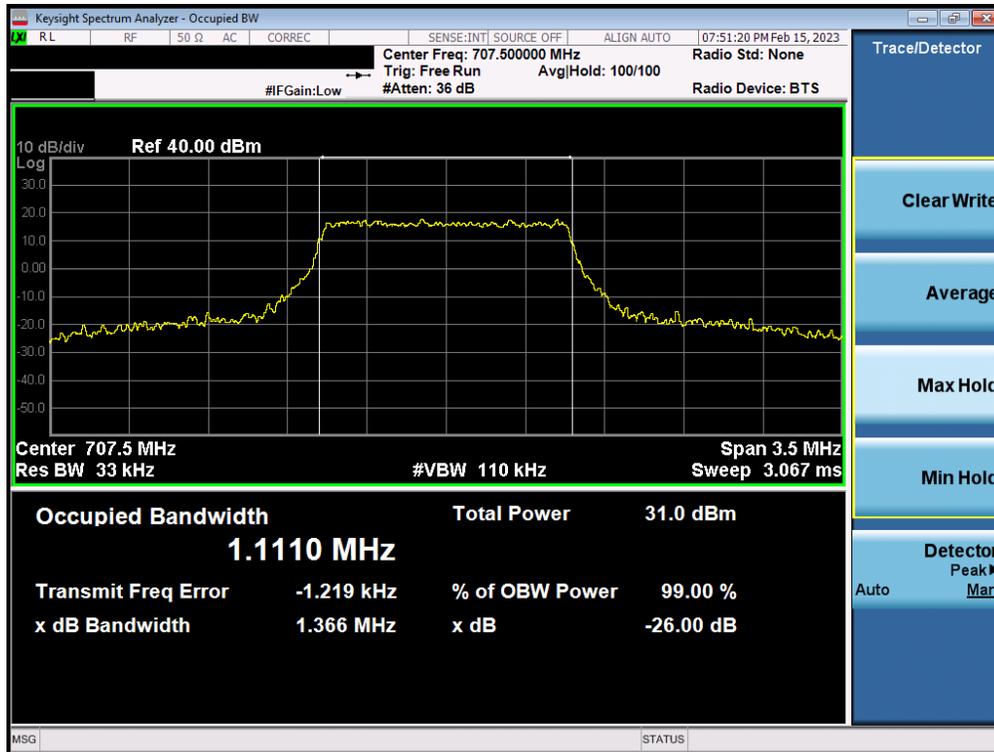


Plot 7-62. Occupied Bandwidth Plot (LTE Band 12 - 3MHz QPSK - Full RB - Sub)



Plot 7-63. Occupied Bandwidth Plot (LTE Band 12 - 3MHz 16-QAM - Full RB - Sub)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 48 of 232



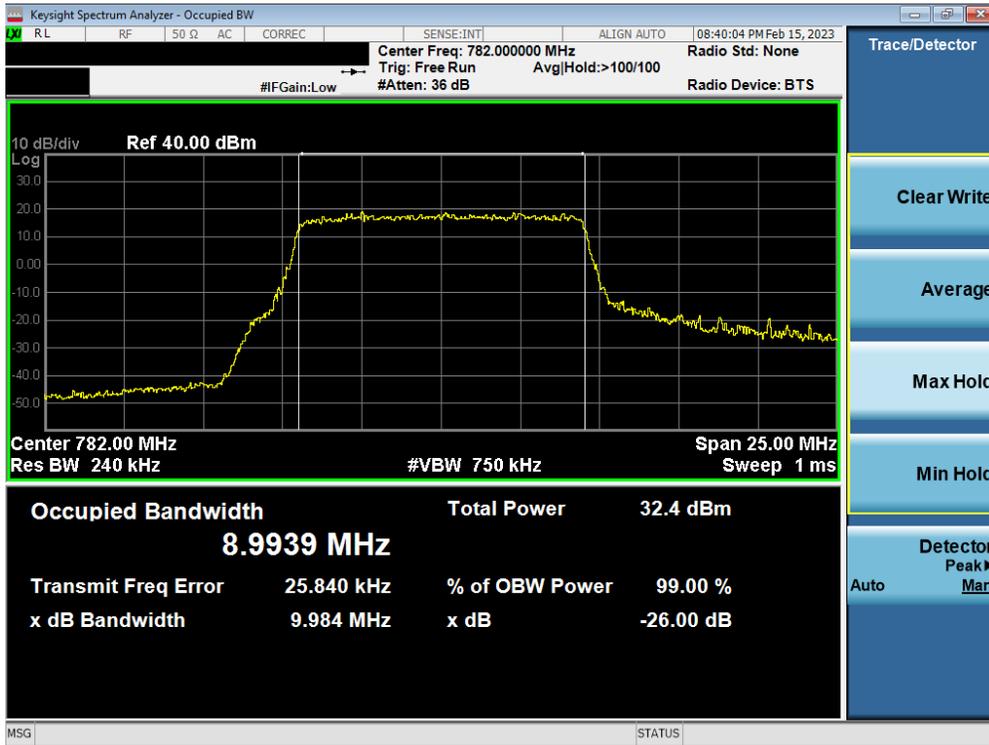
Plot 7-64. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz QPSK - Full RB – Sub)



Plot 7-65. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz 16-QAM - Full RB – Sub)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 49 of 232

LTE Band 13 – Sub

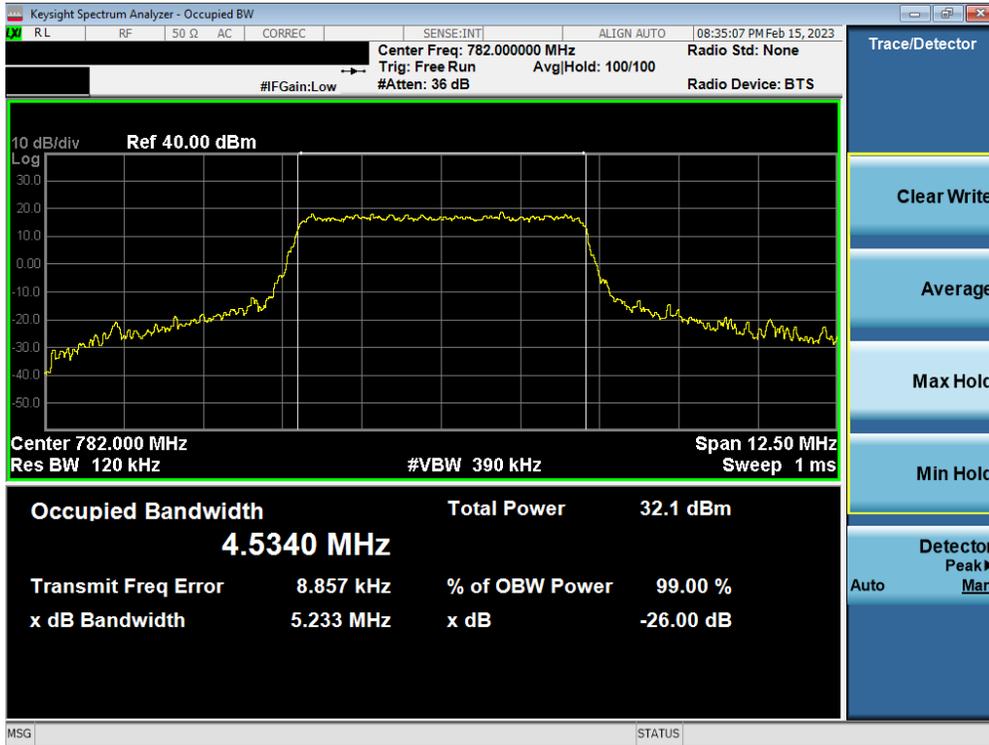


Plot 7-66. Occupied Bandwidth Plot (LTE Band 13 - 10MHz QPSK - Full RB – Sub)



Plot 7-67. Occupied Bandwidth Plot (LTE Band 13 - 10MHz 16-QAM - Full RB – Sub)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 50 of 232



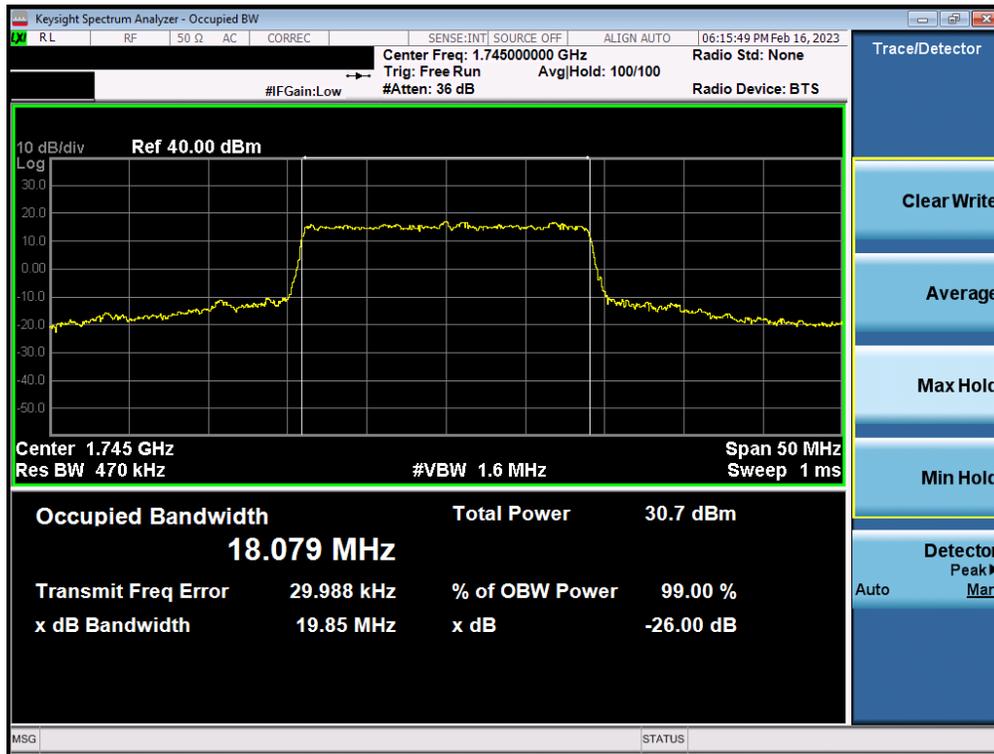
Plot 7-68. Occupied Bandwidth Plot (LTE Band 13 - 5MHz QPSK - Full RB – Sub)



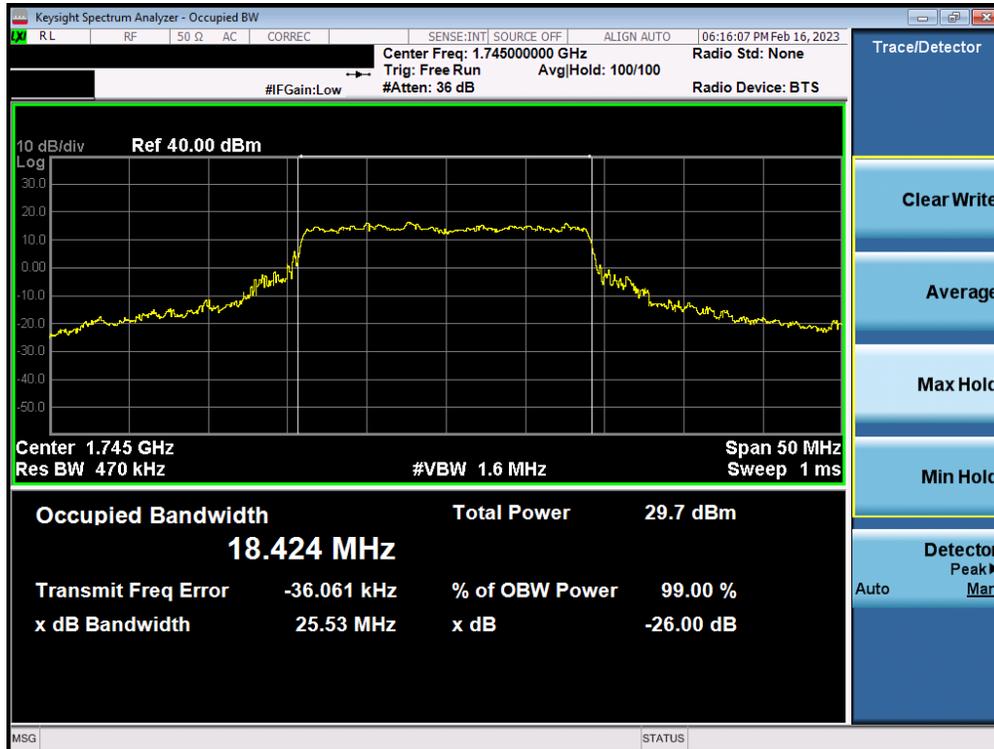
Plot 7-69. Occupied Bandwidth Plot (LTE Band 13 - 5MHz 16-QAM - Full RB – Sub)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 51 of 232

LTE Band 66 – Sub

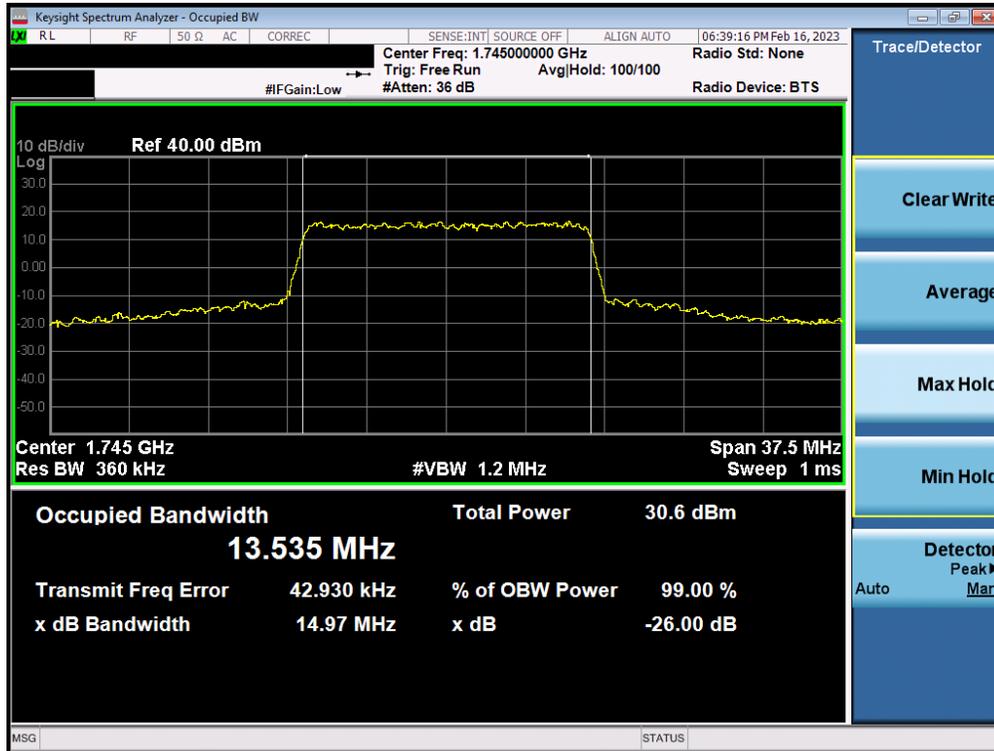


Plot 7-70. Occupied Bandwidth Plot (LTE Band 66 - 20MHz QPSK - Full RB – Sub)

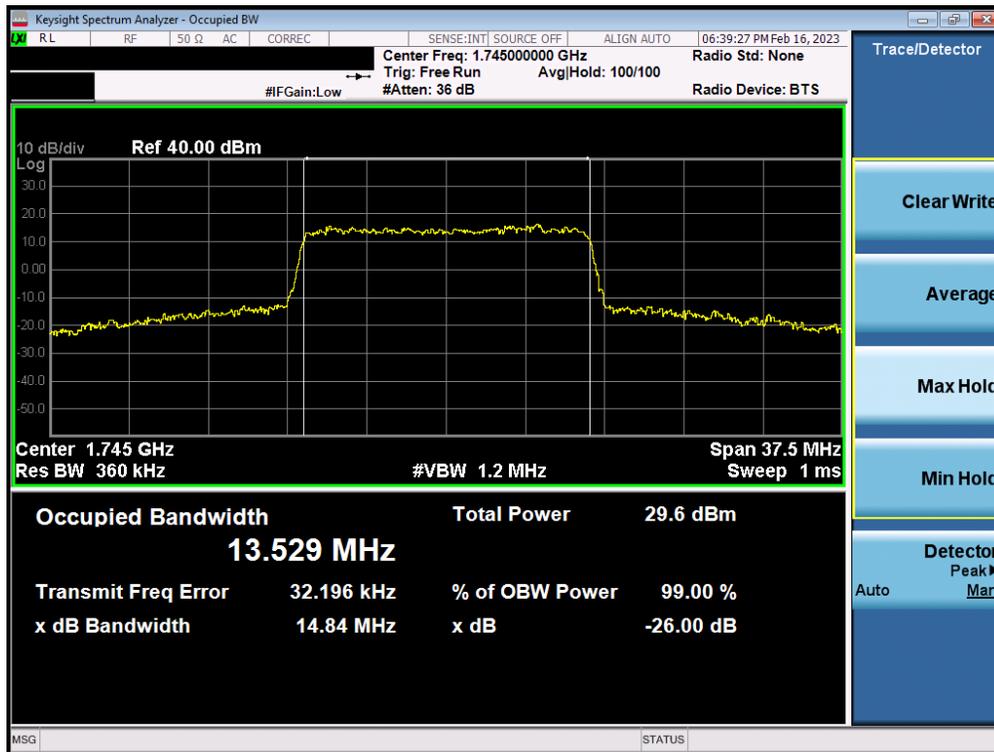


Plot 7-71. Occupied Bandwidth Plot (LTE Band 66 - 20MHz 16-QAM - Full RB – Sub)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 52 of 232

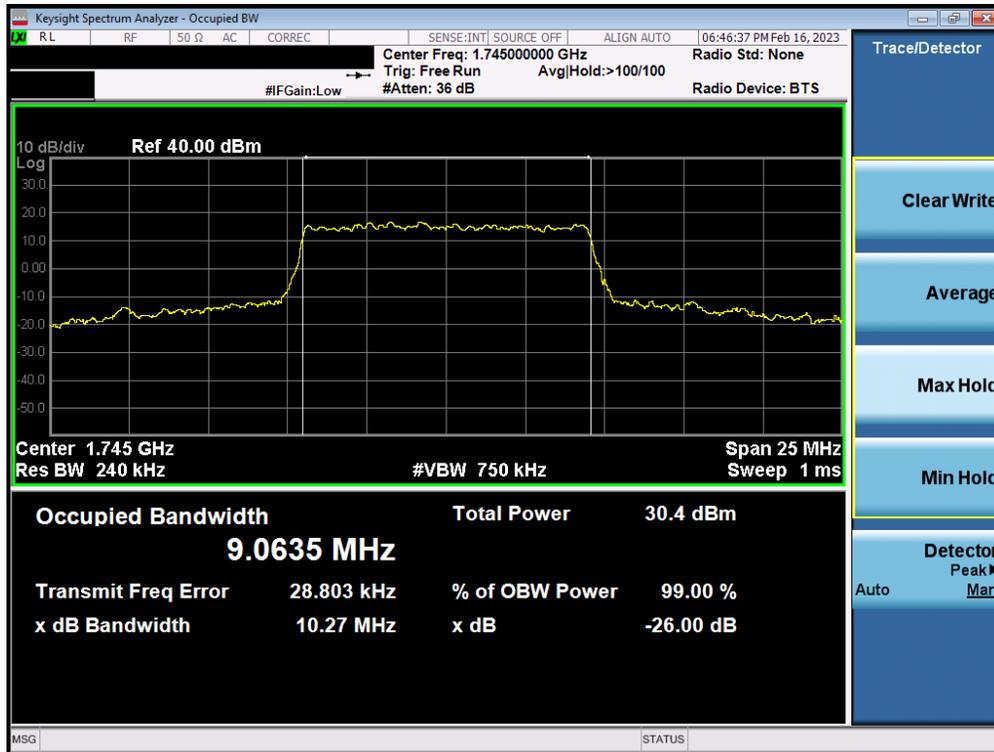


Plot 7-72. Occupied Bandwidth Plot (LTE Band 66 - 15MHz QPSK - Full RB – Sub)



Plot 7-73. Occupied Bandwidth Plot (LTE Band 66 - 15MHz 16-QAM - Full RB – Sub)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 53 of 232

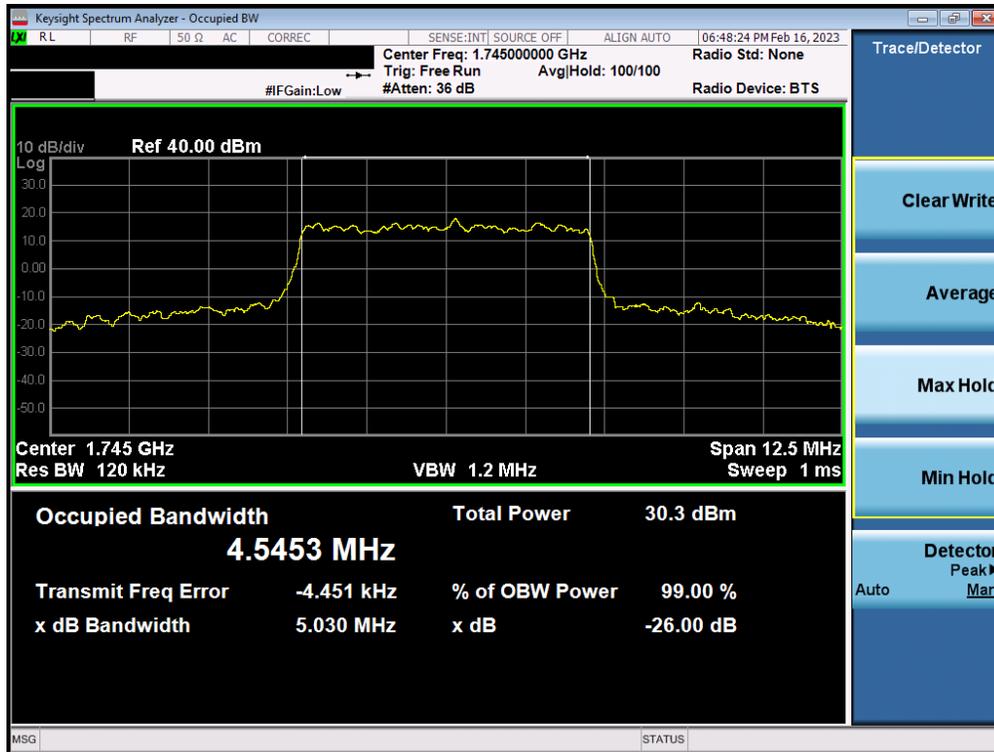


Plot 7-74. Occupied Bandwidth Plot (LTE Band 66 - 10MHz QPSK - Full RB - Sub)

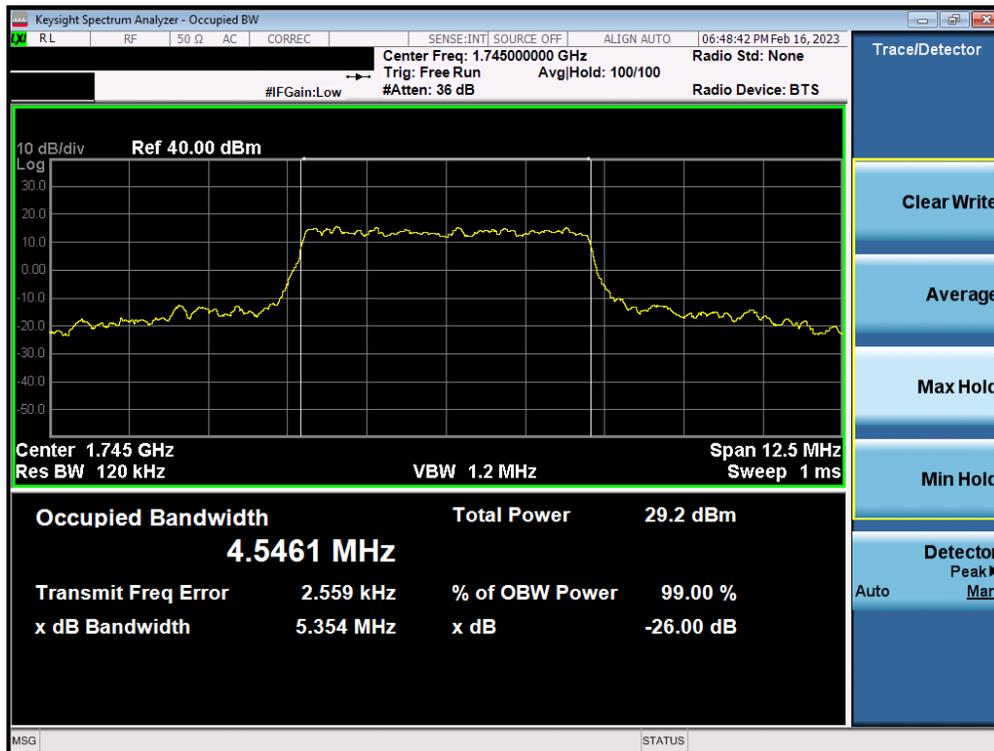


Plot 7-75. Occupied Bandwidth Plot (LTE Band 66 - 10MHz 16-QAM - Full RB - Sub)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 54 of 232

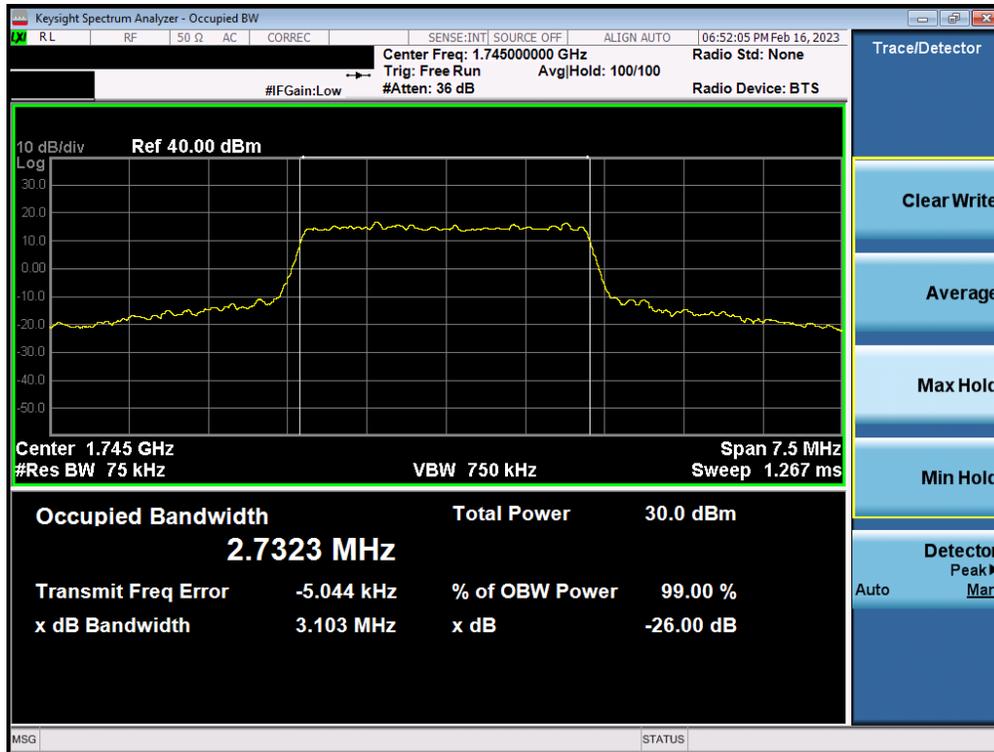


Plot 7-76. Occupied Bandwidth Plot (LTE Band 66 - 5MHz QPSK - Full RB - Sub)

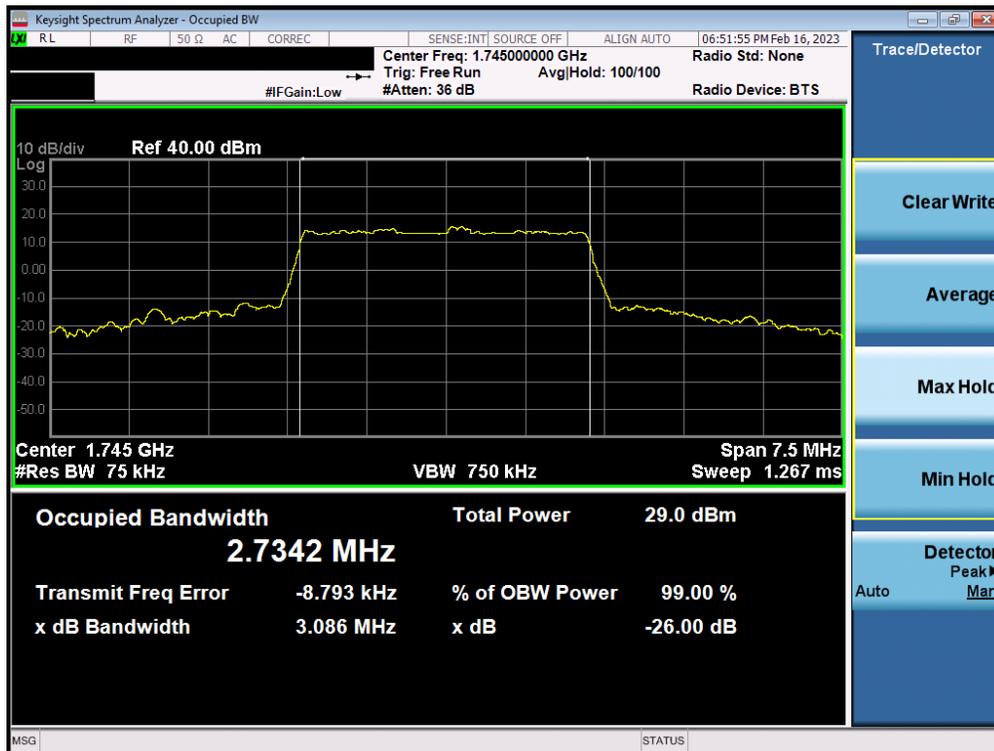


Plot 7-77. Occupied Bandwidth Plot (LTE Band 66 - 5MHz 16-QAM - Full RB - Sub)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 55 of 232

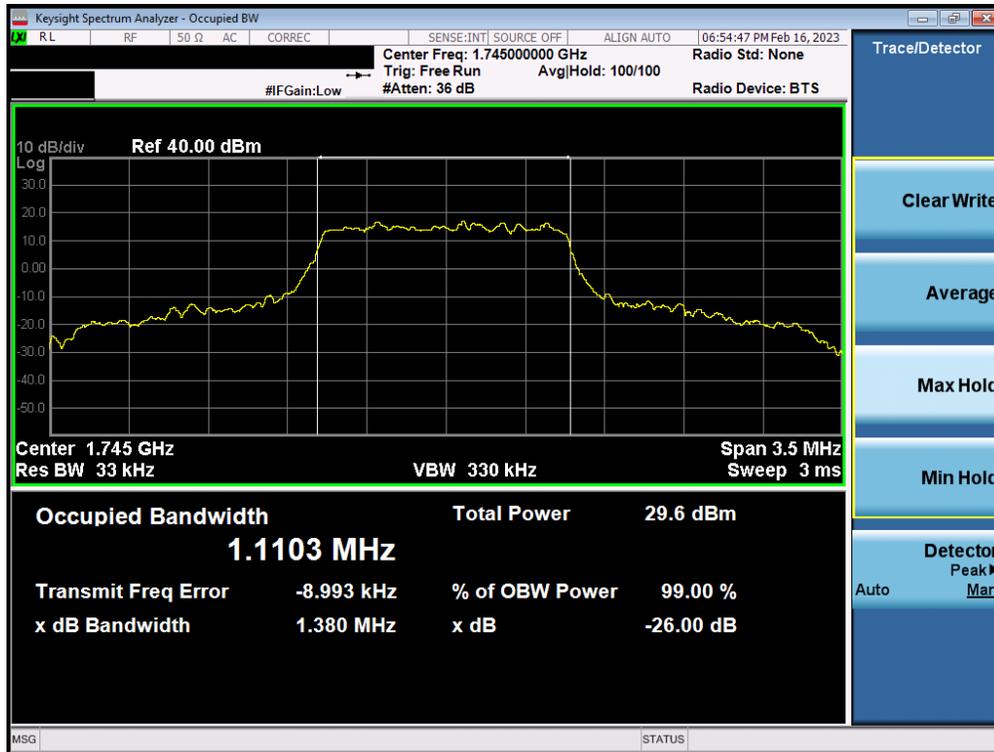


Plot 7-78. Occupied Bandwidth Plot (LTE Band 66 - 3MHz QPSK - Full RB - Sub)

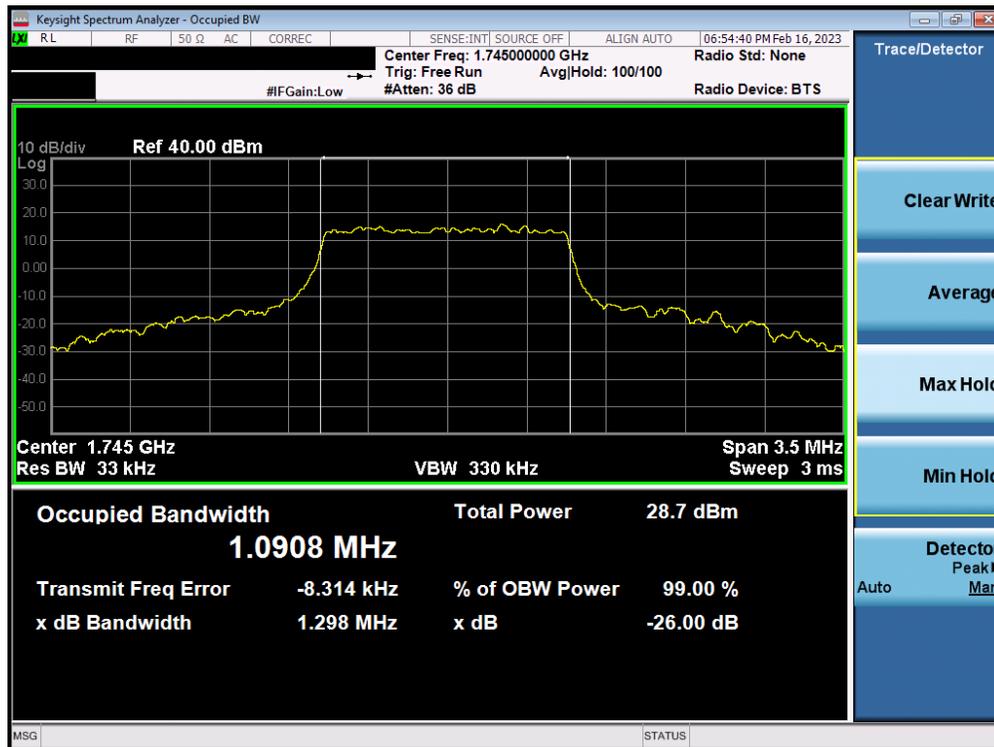


Plot 7-79. Occupied Bandwidth Plot (LTE Band 66 - 3MHz 16-QAM - Full RB - Sub)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 56 of 232



Plot 7-80. Occupied Bandwidth Plot (LTE Band 66 - 1.4MHz QPSK - Full RB – Sub)



Plot 7-81. Occupied Bandwidth Plot (LTE Band 66 - 1.4MHz 16-QAM - Full RB – Sub)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 57 of 232

7.4 Spurious and Harmonic Emissions at Antenna Terminal

Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating 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.

The minimum permissible attenuation level of any spurious emission is $43 + 10 \log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

Test Procedure Used

ANSI C63.26-2015 – Section 5.7.4

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to 18GHz (separated into at least two plots per channel)
2. RBW \geq 100kHz
3. VBW \geq 3 x RBW
4. Detector = RMS
5. Trace mode = max hold
6. Sweep time = auto couple
7. The trace was allowed to stabilize.

Test Setup

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

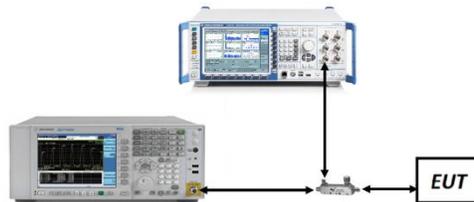


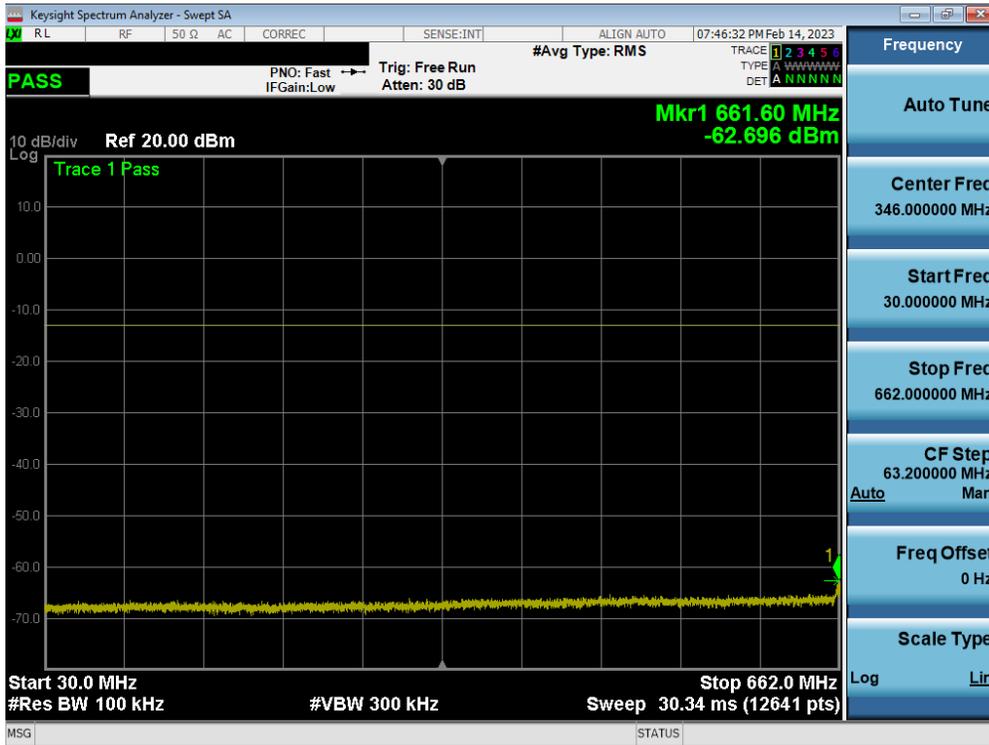
Figure 7-3. Test Instrument & Measurement Setup

Test Notes

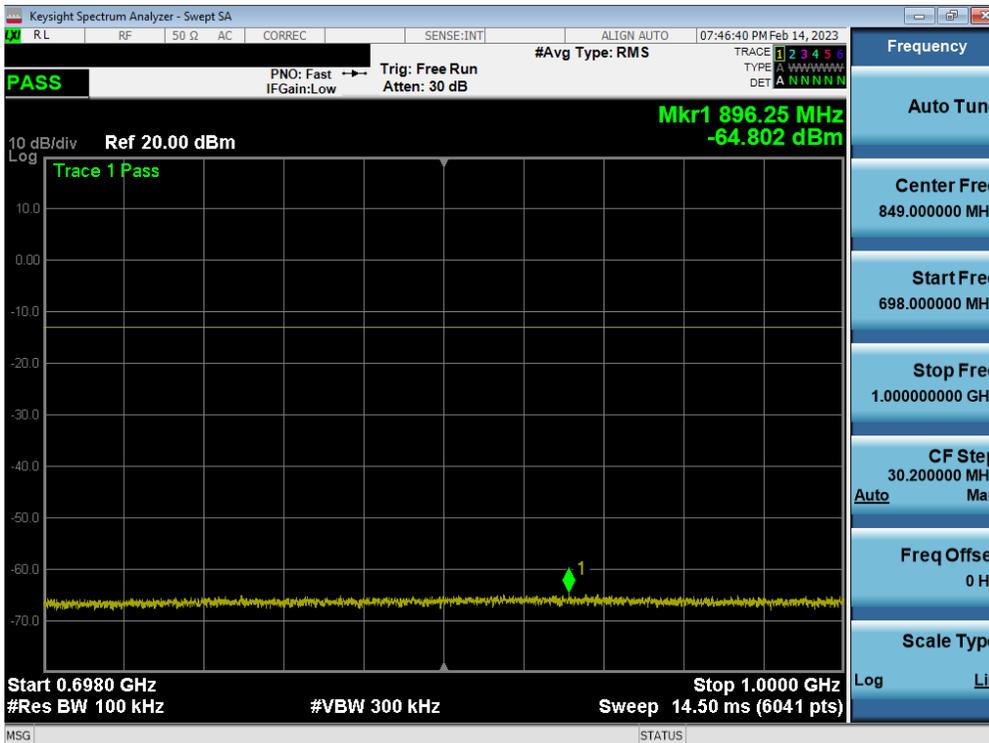
1. Per Part 27, compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth 100 kHz or greater for measurements below 1GHz.
2. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g., CP-OFDM and DFT-s-OFDM) were investigated to determine the worst-case configuration. All modes of operation were investigated, and the worst-case configuration results are reported in this section.

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 58 of 232

LTE Band 71 – Main1

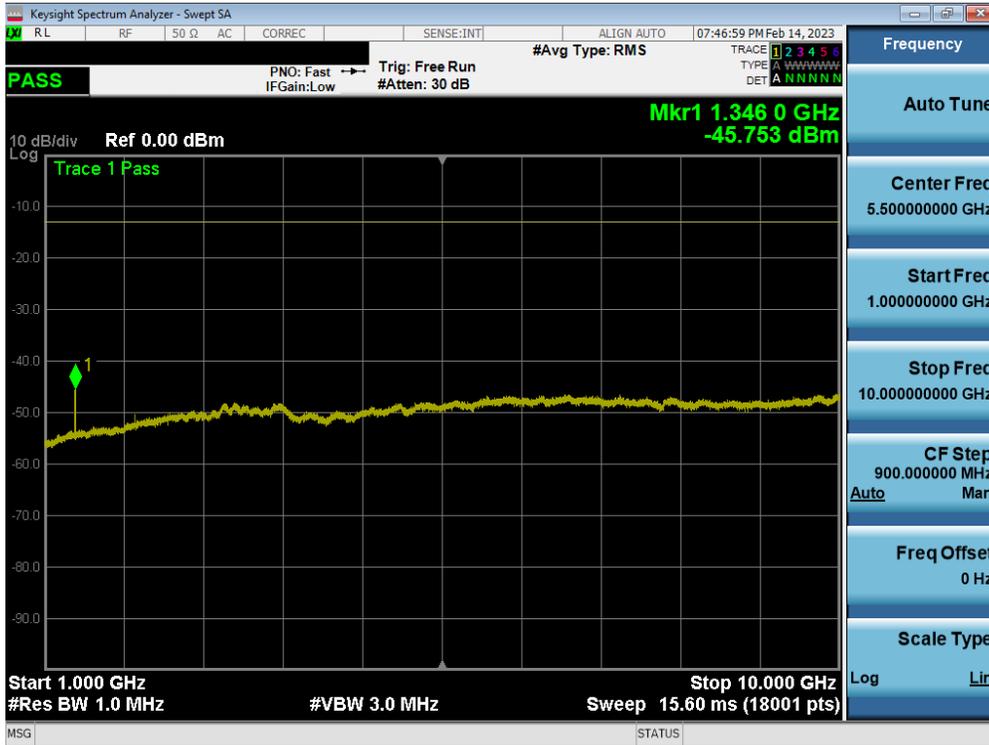


Plot 7-82. Conducted Spurious Plot (LTE Band 71 - 20MHz QPSK - 1 RB - Low Channel – Main1)

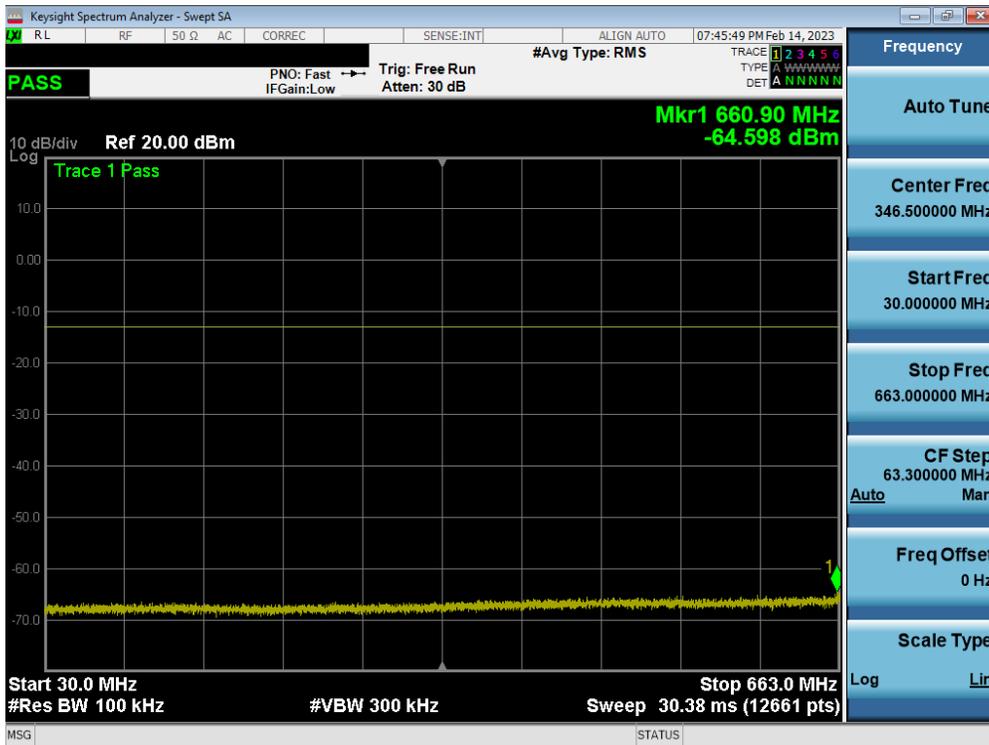


Plot 7-83. Conducted Spurious Plot (LTE Band 71 - 20MHz QPSK - 1 RB - Low Channel – Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 59 of 232

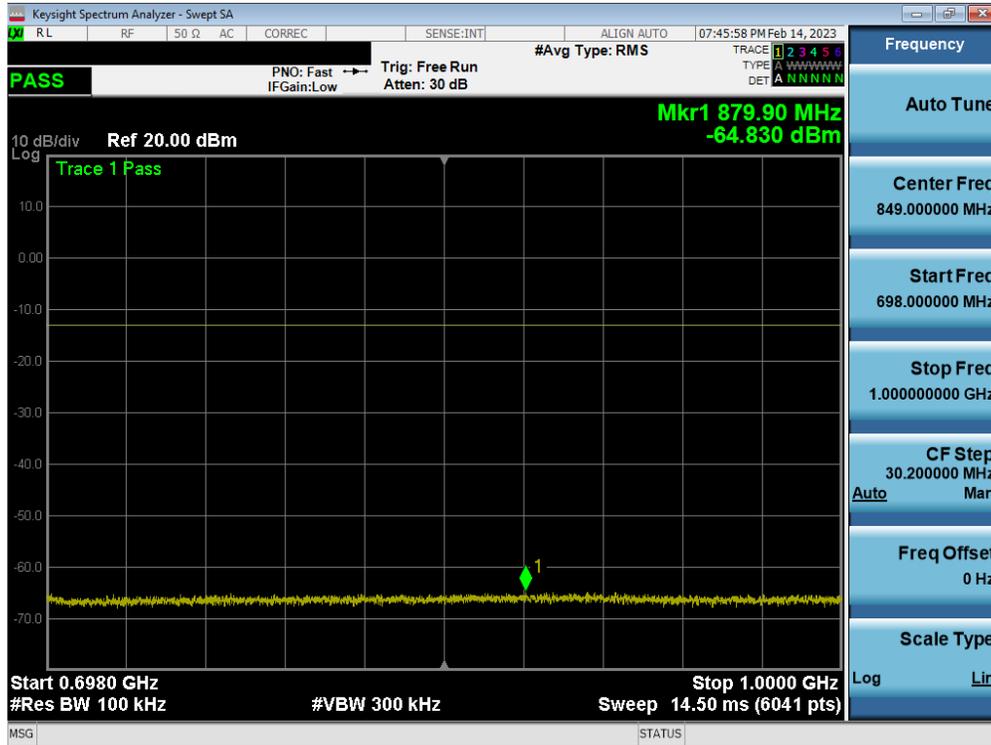


Plot 7-84. Conducted Spurious Plot (LTE Band 71 - 20MHz QPSK - 1 RB - Low Channel – Main1)

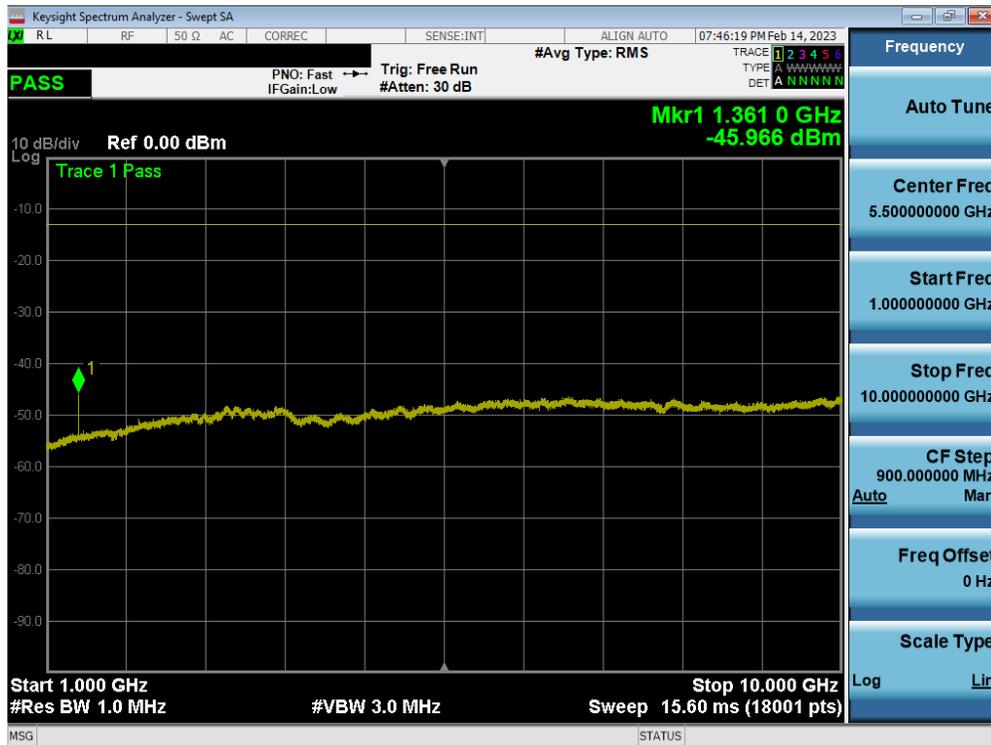


Plot 7-85. Conducted Spurious Plot (LTE Band 71 - 20MHz QPSK - 1 RB - Mid Channel – Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 60 of 232



Plot 7-86. Conducted Spurious Plot (LTE Band 71 - 20MHz QPSK - 1 RB - Mid Channel – Main1)



Plot 7-87. Conducted Spurious Plot (LTE Band 71 - 20MHz QPSK - 1 RB - Mid Channel – Main1)

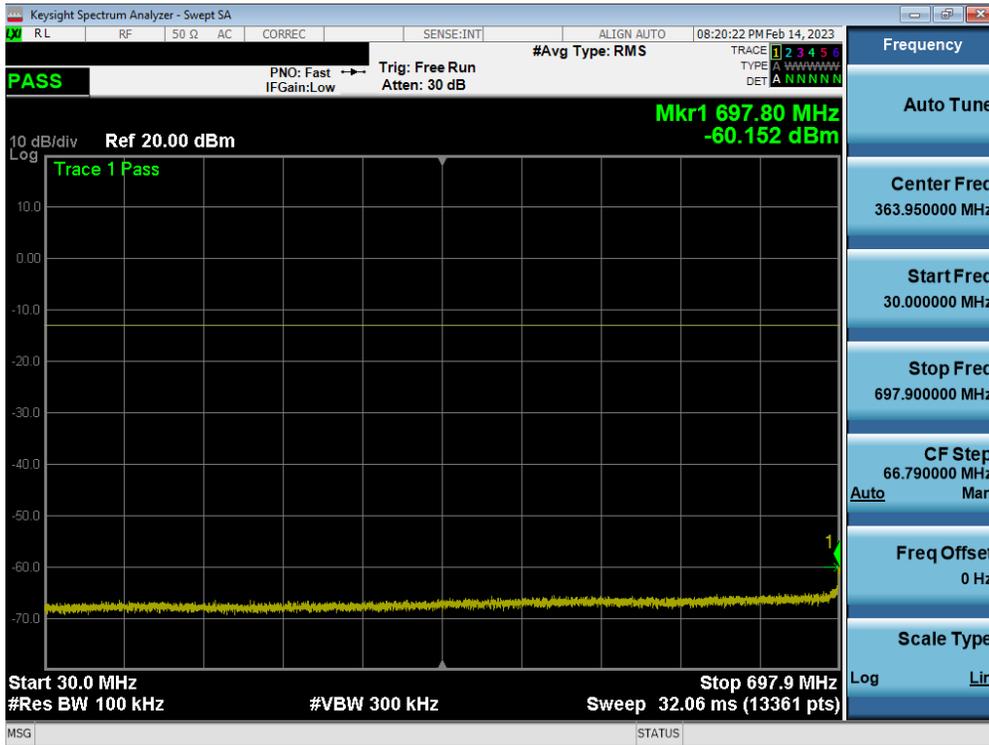
FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 61 of 232



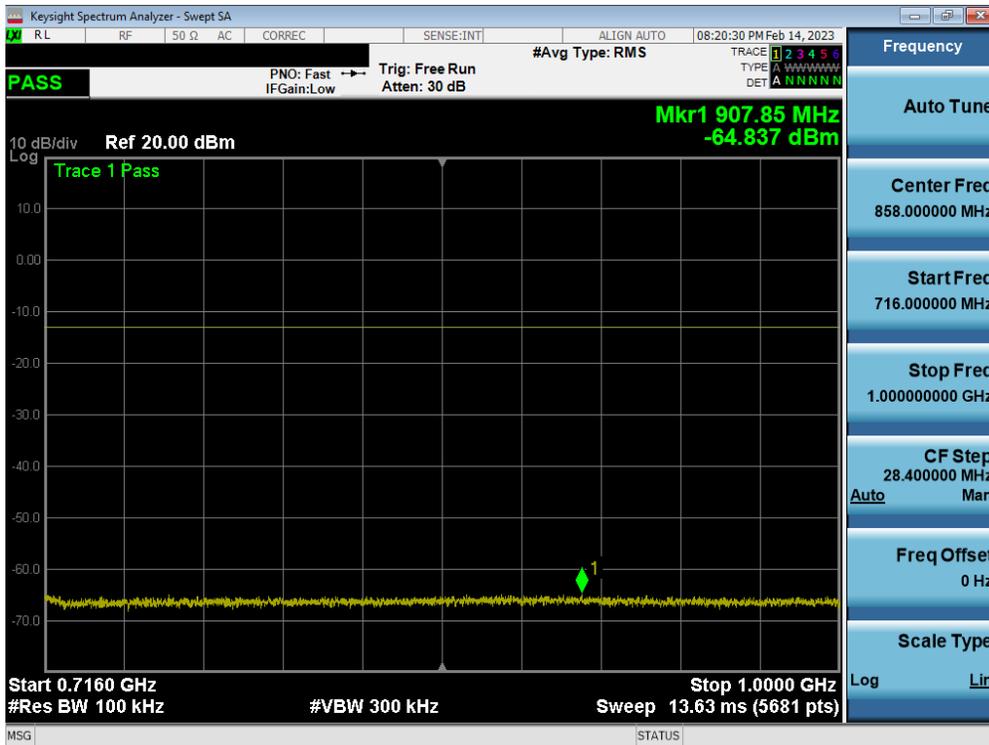
Plot 7-90. Conducted Spurious Plot (LTE Band 71 - 20MHz QPSK - 1 RB - High Channel – Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 63 of 232

LTE Band 12/17 – Main1

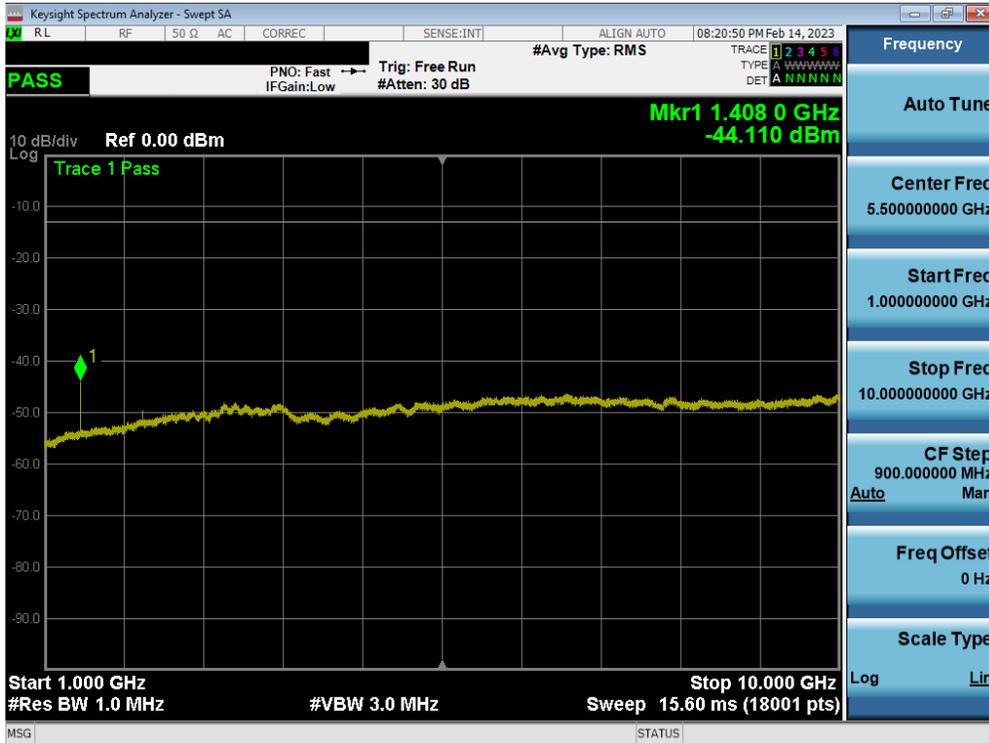


Plot 7-91. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - Low Channel – Main1)

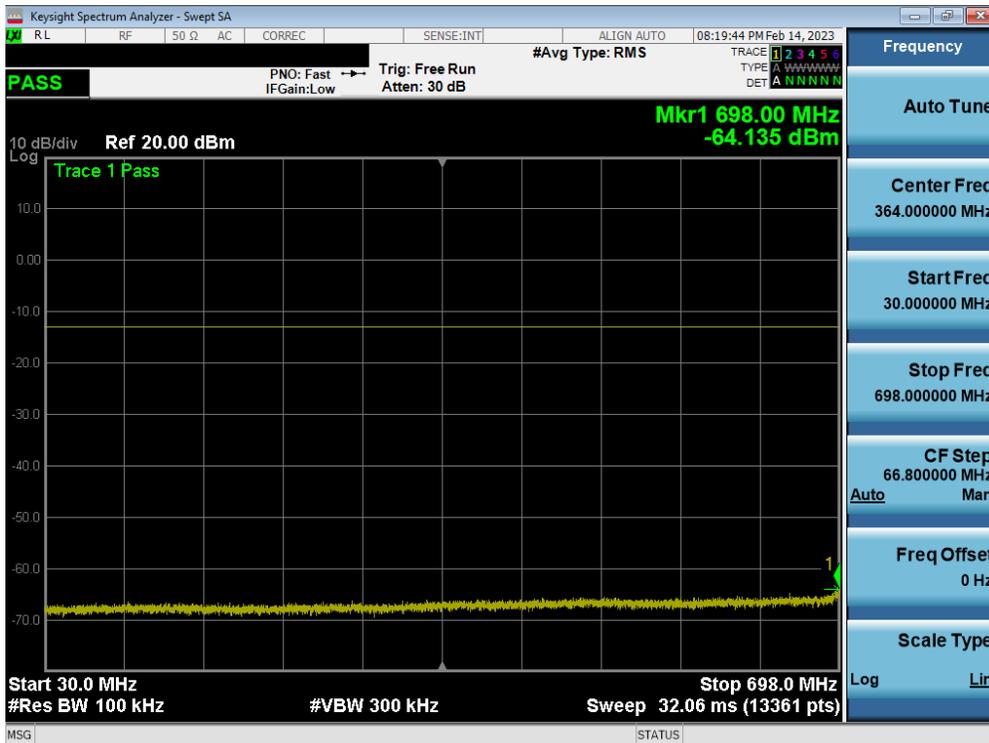


Plot 7-92. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - Low Channel - Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 64 of 232

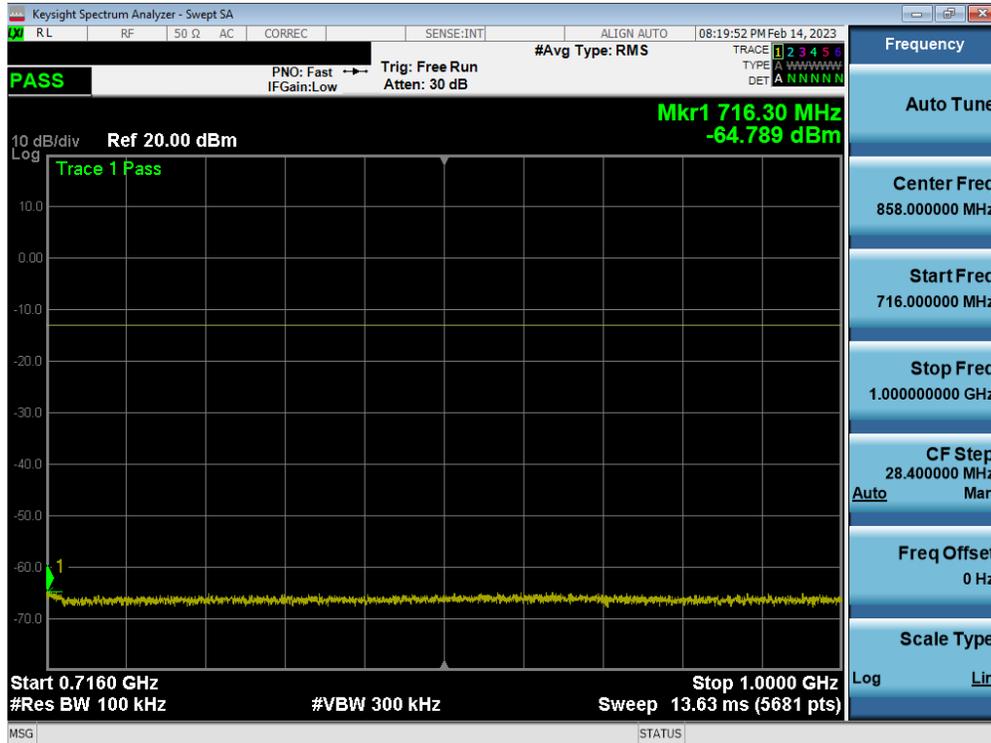


Plot 7-93. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - Low Channel - Main1)

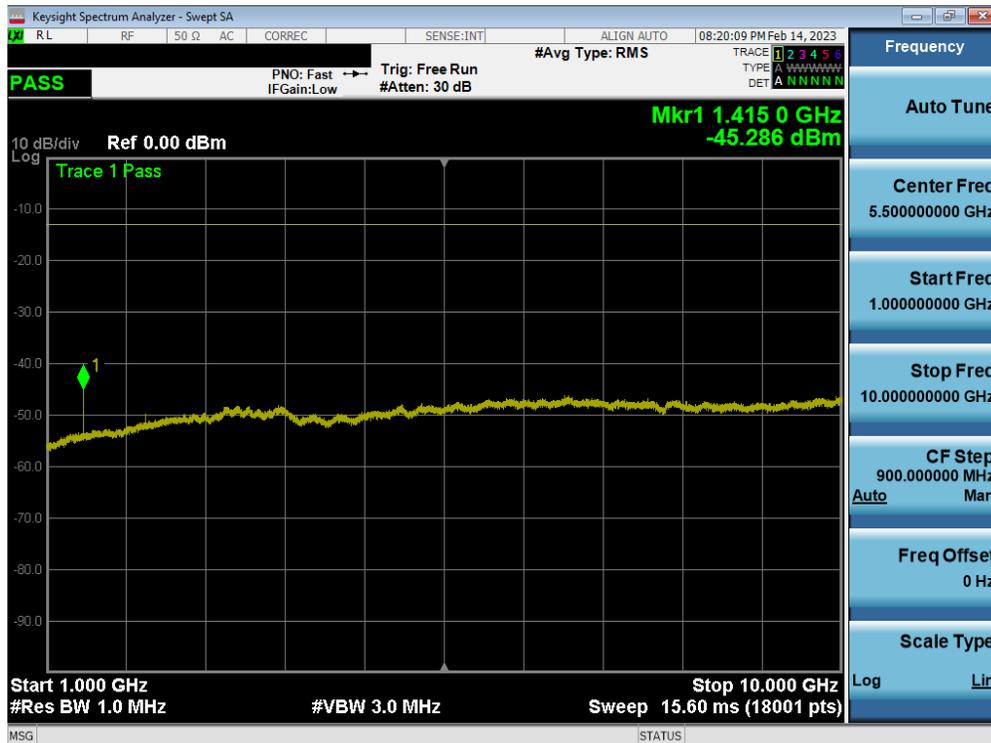


Plot 7-94. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - Mid Channel - Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 65 of 232

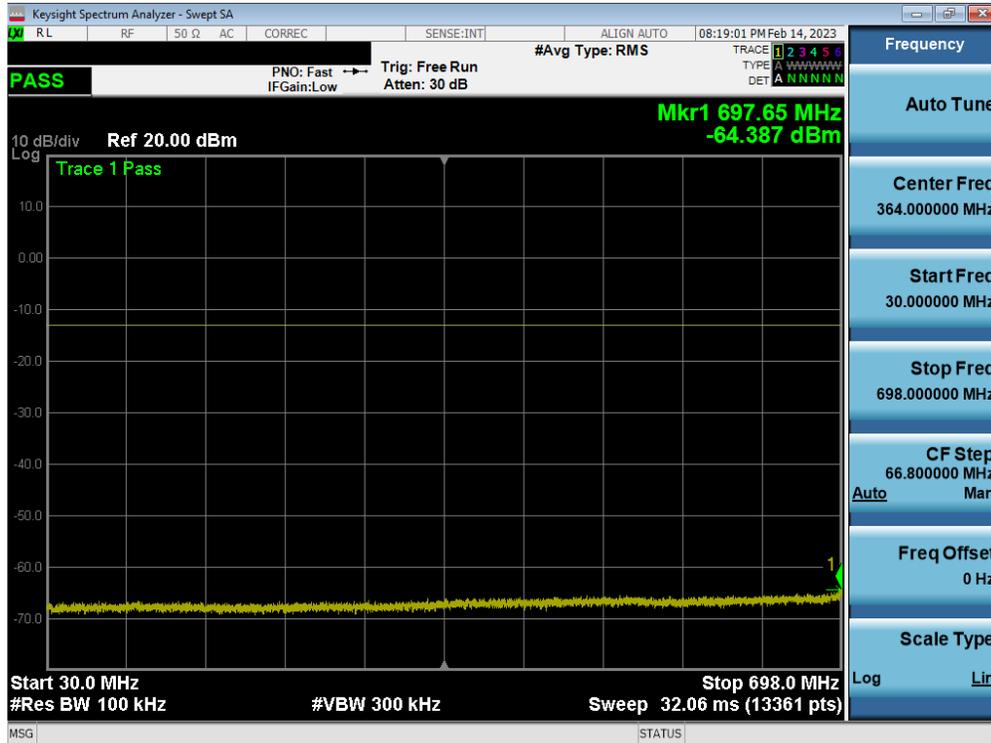


Plot 7-95. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - Mid Channel - Main1)

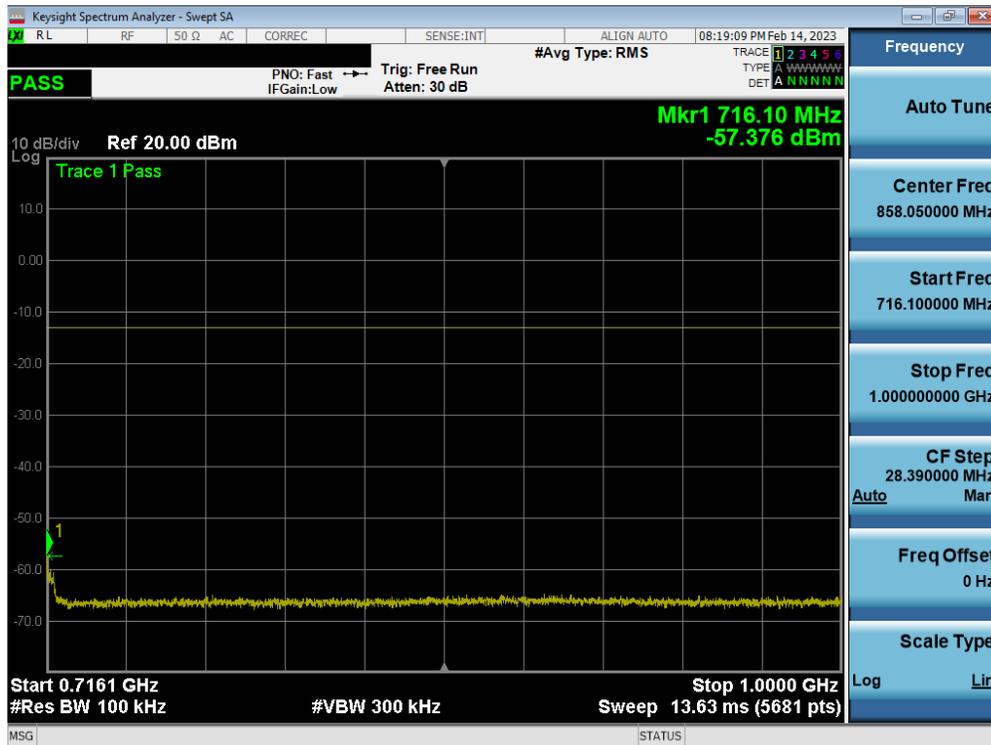


Plot 7-96. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - Mid Channel - Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 66 of 232



Plot 7-97. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - High Channel - Main1)



Plot 7-98. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - High Channel - Main1)

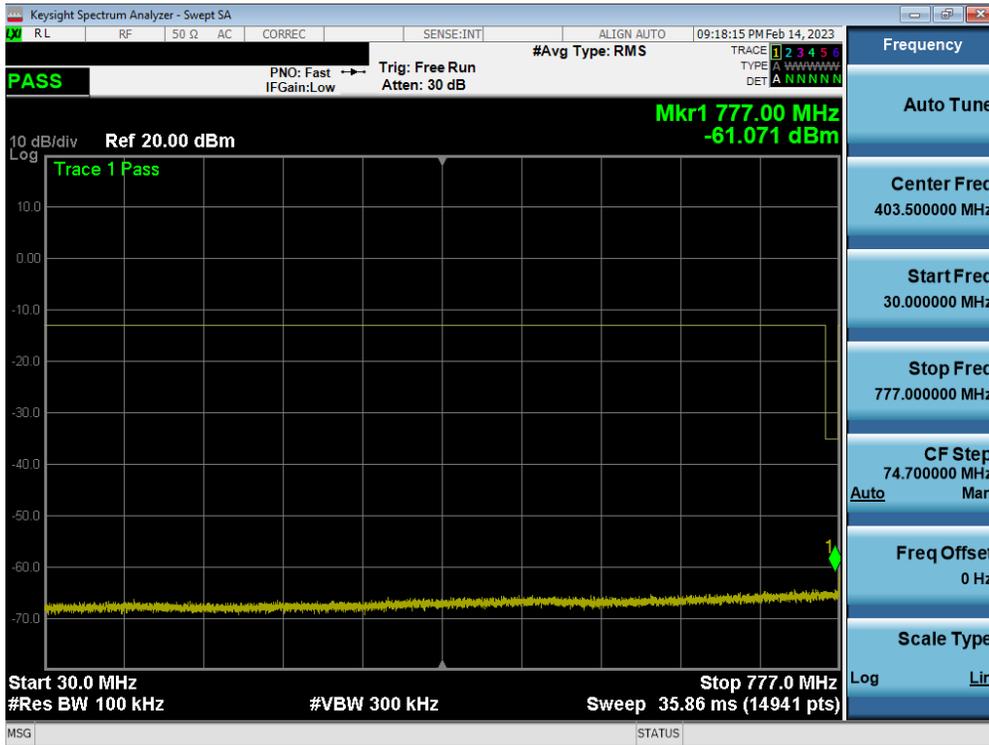
FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 67 of 232



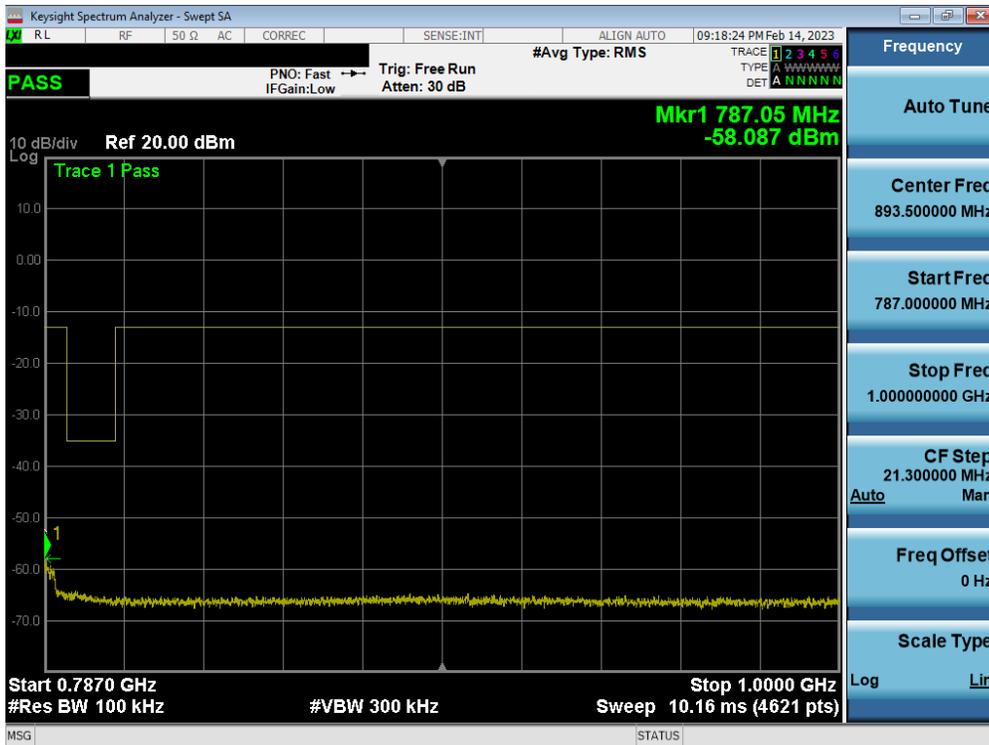
Plot 7-99. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - High Channel - Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 68 of 232

LTE Band 13 – Main1



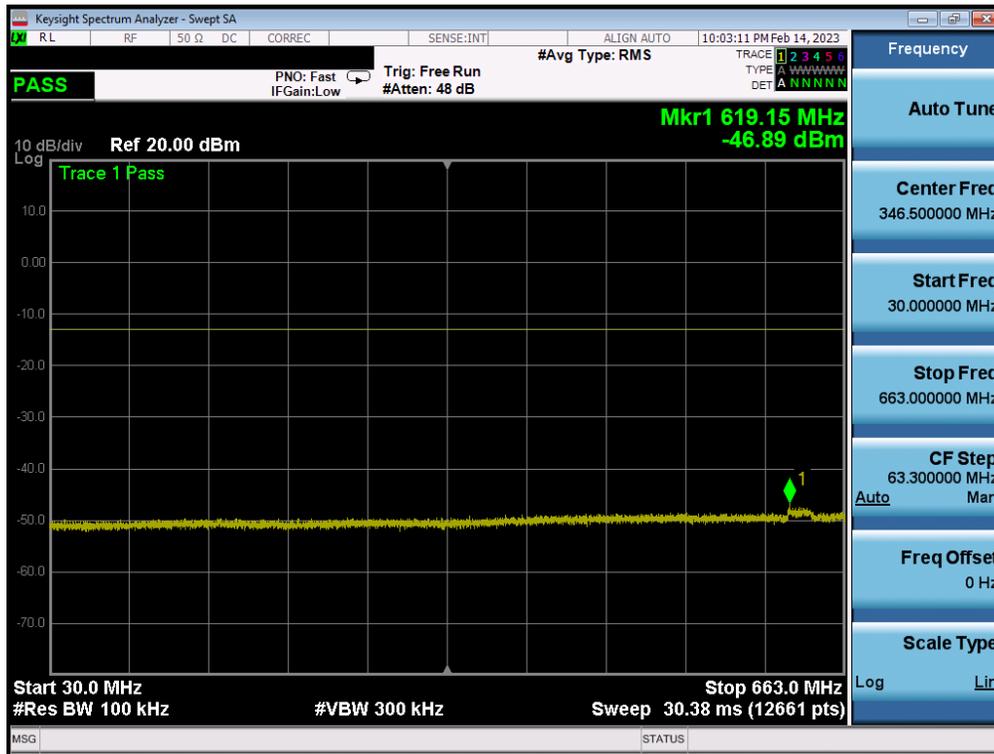
Plot 7-100. Conducted Spurious Plot (LTE Band 13 - 10MHz QPSK - 1 RB – Main1)



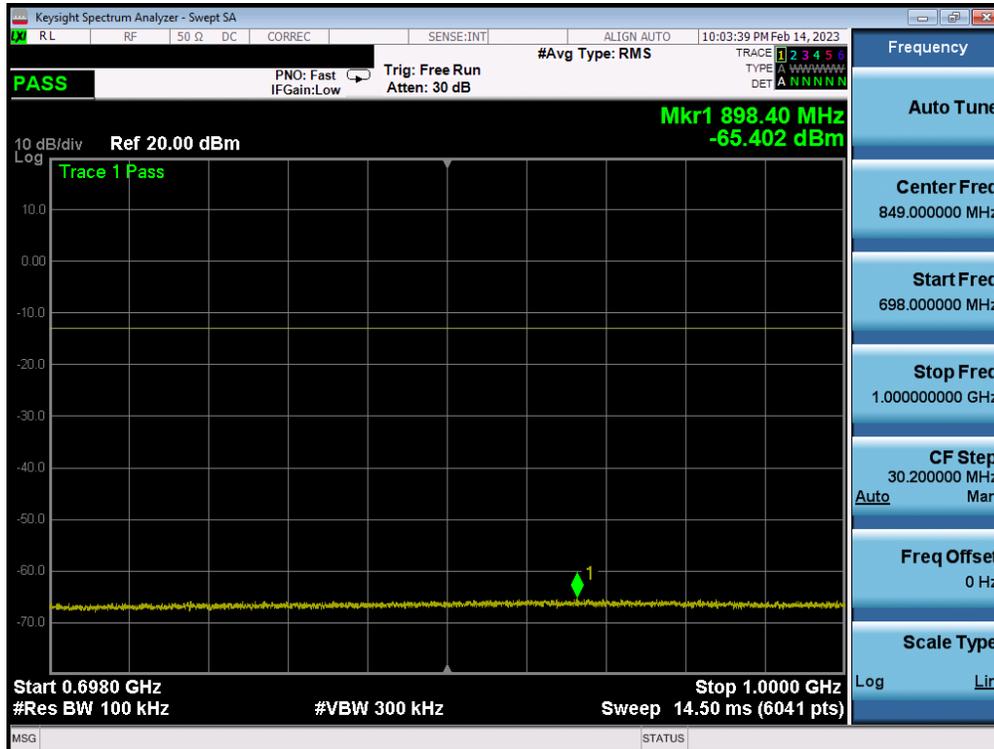
Plot 7-101. Conducted Spurious Plot (LTE Band 13 - 10MHz QPSK - 1 RB– Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 69 of 232

NR Band n71 – Main1



Plot 7-103. Conducted Spurious Plot (NR Band n71 -20.0MHz - 1 RB - Low Channel – Main1)



Plot 7-104. Conducted Spurious Plot (NR Band n71 - 20.0MHz - 1 RB - Low Channel – Main1)

FCC ID: PY7-84558E	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2302060006-03-R1.PY7	Test Dates: 02/14/2023 - 04/05/2023	EUT Type: Portable Handset	Page 71 of 232