



# ELEMENT WASHINGTON DC LLC

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## PART 27 MEASUREMENT REPORT

**Applicant Name:**  
SONY Corporation  
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Minato-ku  
Tokyo, 108-0075, Japan

**Date of Testing:**  
03/25/2022 - 05/19/2022  
**Test Report Issue Date:**  
05/26/2022  
**Test Site/Location:**  
Element Lab., Columbia, MD, USA  
**Test Report Serial No.:**  
1M2201200003-10.PY7

<b>FCC ID:</b>	<b>PY7-57325M</b>
<b>Applicant Name:</b>	<b>SONY Corporation</b>

**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

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



<b>FCC ID:</b> PY7-57325M	<b>PART 27 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2201200003-10.PY7	<b>Test Dates:</b> 03/25/2022 - 05/19/2022	<b>EUT Type:</b> Portable Handset	Page 1 of 102

V3.0 1/6/2022



## 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 .....	12
7.3	Occupied Bandwidth .....	14
7.4	Spurious and Harmonic Emissions at Antenna Terminal .....	43
7.5	Band Edge Emissions at Antenna Terminal .....	59
7.6	Radiated Power (EIRP) .....	80
7.7	Radiated Spurious Emissions Measurements.....	85
7.8	Frequency Stability / Temperature Variation .....	99
8.0	CONCLUSION.....	102

<b>FCC ID:</b> PY7-57325M	<b>PART 27 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2201200003-10.PY7	<b>Test Dates:</b> 03/25/2022 - 05/19/2022	<b>EUT Type:</b> Portable Handset	Page 2 of 102

V3.0 1/6/2022

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## PART 27 MEASUREMENT REPORT

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
LTE Band 41(PC3)	20 MHz	QPSK	2506.0 - 2680.0	0.121	20.83	18M0G7D
		16QAM	2506.0 - 2680.0	0.087	19.38	18M0W7D
	15 MHz	QPSK	2503.5 - 2682.5	0.124	20.94	13M6G7D
		16QAM	2503.5 - 2682.5	0.089	19.50	13M6W7D
	10 MHz	QPSK	2501.0 - 2685.0	0.116	20.65	9M04G7D
		16QAM	2501.0 - 2685.0	0.084	19.26	9M05W7D
5 MHz	QPSK	2498.5 - 2687.5	0.100	20.02	4M54G7D	
	16QAM	2498.5 - 2687.5	0.070	18.46	4M54W7D	
NR Band n41 (PC2)	100 MHz	$\pi/2$ BPSK	2546.0 - 2640.0	0.164	22.15	97M2G7D
		QPSK	2546.0 - 2640.0	0.165	22.17	98M1G7D
		16QAM	2546.0 - 2640.0	0.130	21.14	98M3W7D
	90 MHz	$\pi/2$ BPSK	2541.0 - 2645.0	0.171	22.33	87M5G7D
		QPSK	2541.0 - 2645.0	0.177	22.49	88M2G7D
		16QAM	2541.0 - 2645.0	0.143	21.56	88M1W7D
	80 MHz	$\pi/2$ BPSK	2536.0 - 2650.0	0.197	22.94	77M6G7D
		QPSK	2536.0 - 2650.0	0.202	23.05	78M1G7D
		16QAM	2536.0 - 2650.0	0.162	22.10	77M9W7D
	60 MHz	$\pi/2$ BPSK	2526.0 - 2660.0	0.201	23.04	58M3G7D
		QPSK	2526.0 - 2660.0	0.207	23.17	58M3G7D
		16QAM	2526.0 - 2660.0	0.169	22.29	58M3W7D
	50 MHz	$\pi/2$ BPSK	2521.0 - 2665.0	0.173	22.39	46M2G7D
		QPSK	2521.0 - 2665.0	0.179	22.52	48M0G7D
		16QAM	2521.0 - 2665.0	0.145	21.62	47M9W7D
	40 MHz	$\pi/2$ BPSK	2516.0 - 2670.0	0.168	22.26	36M1G7D
		QPSK	2516.0 - 2670.0	0.175	22.42	38M1G7D
		16QAM	2516.0 - 2670.0	0.134	21.28	38M0W7D
	30 MHz	$\pi/2$ BPSK	2511.0 - 2675.0	0.169	22.29	27M0G7D
		QPSK	2511.0 - 2675.0	0.172	22.37	28M1G7D
		16QAM	2511.0 - 2675.0	0.139	21.43	28M2W7D
	20 MHz	$\pi/2$ BPSK	2506.0 - 2680.0	0.171	22.32	18M1G7D
		QPSK	2506.0 - 2680.0	0.173	22.39	18M5G7D
		16QAM	2506.0 - 2680.0	0.138	21.40	18M4W7D

EUT Overview

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 3 of 102

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
NR Band n41 (PC3)	100 MHz	$\pi/2$ BPSK	2546.0 - 2640.0	0.104	20.17	97M0G7D
		QPSK	2546.0 - 2640.0	0.104	20.16	98M0G7D
		16QAM	2546.0 - 2640.0	0.086	19.34	98M0W7D
	90 MHz	$\pi/2$ BPSK	2541.0 - 2645.0	0.106	20.25	87M3G7D
		QPSK	2541.0 - 2645.0	0.105	20.22	88M2G7D
		16QAM	2541.0 - 2645.0	0.090	19.56	88M3W7D
	80 MHz	$\pi/2$ BPSK	2536.0 - 2650.0	0.105	20.21	77M5G7D
		QPSK	2536.0 - 2650.0	0.107	20.28	77M9G7D
		16QAM	2536.0 - 2650.0	0.089	19.51	78M0W7D
	60 MHz	$\pi/2$ BPSK	2526.0 - 2660.0	0.111	20.45	58M3G7D
		QPSK	2526.0 - 2660.0	0.110	20.40	58M3G7D
		16QAM	2526.0 - 2660.0	0.095	19.78	58M3W7D
	50 MHz	$\pi/2$ BPSK	2521.0 - 2665.0	0.111	20.44	46M1G7D
		QPSK	2521.0 - 2665.0	0.115	20.60	47M8G7D
		16QAM	2521.0 - 2665.0	0.095	19.77	47M9W7D
	40 MHz	$\pi/2$ BPSK	2516.0 - 2670.0	0.113	20.52	36M0G7D
		QPSK	2516.0 - 2670.0	0.117	20.68	38M1G7D
		16QAM	2516.0 - 2670.0	0.096	19.81	38M0W7D
	30 MHz	$\pi/2$ BPSK	2511.0 - 2675.0	0.113	20.55	27M0G7D
		QPSK	2511.0 - 2675.0	0.118	20.71	28M2G7D
		16QAM	2511.0 - 2675.0	0.095	19.80	28M1W7D
	20 MHz	$\pi/2$ BPSK	2506.0 - 2680.0	0.114	20.58	18M0G7D
		QPSK	2506.0 - 2680.0	0.115	20.61	18M4G7D
		16QAM	2506.0 - 2680.0	0.094	19.73	18M4W7D

EUT Overview

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 4 of 102

# 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: PY7-57325M	<b>PART 27 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2201200003-10.PY7	<b>Test Dates:</b> 03/25/2022 - 05/19/2022	<b>EUT Type:</b> Portable Handset	Page 5 of 102

## 2.0 PRODUCT INFORMATION

### 2.1 Equipment Description

The Equipment Under Test (EUT) is the **SONY Portable Handset FCC ID: PY7-57325M**. 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.:** 09823, 10086, 09690, 01286, 01286, 09682, 03JC5, 00KC5, 04QAZ

### 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 and 6 GHz), Bluetooth (1x, EDR, LE), NFC

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 3.2 of this test report for a description of the radiated and antenna port conducted emissions tests.

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

### 2.4 Software and Firmware

Testing was performed on device(s) using software/firmware version 0.1309 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: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 6 of 102

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

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:

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

And

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

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.

<b>FCC ID:</b> PY7-57325M	<b>PART 27 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M220120003-10.PY7	<b>Test Dates:</b> 03/25/2022 - 05/19/2022	<b>EUT Type:</b> Portable Handset	Page 7 of 102

## 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  $U_{\text{CISPR}}$  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: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 8 of 102

V3.0 1/6/2022

## 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
-	AP2	EMC Cable and Switch System	1/4/2022	Annual	1/4/2023	AP2
-	AP1	EMC Cable and Switch System	12/12/2021	Annual	12/12/2022	AP1
-	ETS	EMC Cable and Switch System	12/9/2021	Annual	12/9/2022	ETS
-	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
Anritsu	MT8821C	Radio Communication Analyzer	N/A			6201525694
Emco	3115	Horn Antenna (1-18GHz)	6/18/2020	Biennial	6/18/2022	9704-5182
Emco	3116	Horn Antenna (18 - 40GHz)	7/20/2021	Biennial	7/20/2023	9203-2178
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	4/20/2021	Biennial	4/20/2023	00125518
Keysight Technologies	N9020A	MXA Signal Analyzer	3/15/2022	Annual	3/15/2023	MY54500644
Keysight Technologies	N9030A	PXA Signal Analyzer (44GHz)	7/21/2021	Annual	7/21/2022	MY49430494
Keysight Technologies	N9038A	MXE EMI Receiver	1/21/2022	Annual	1/21/2023	MY51210133
Keysight Technologies	E7515B	UXM 5G Wireless Test Platform	1/12/2022	Annual	1/12/2023	MY59150289
Rohde & Schwarz	CMW500	Radio Communication Tester	N/A			112347
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	8/3/2021	Annual	8/3/2022	100342
Rohde & Schwarz	ESU40	EMI Test Receiver (40GHz)	5/25/2021	Annual	5/25/2022	100348
Rohde & Schwarz	ESW44	EMI Test Receiver 2Hz to 44 GHz	3/28/2022	Annual	3/28/2023	101716
Rohde & Schwarz	FSW26	2Hz-26.5GHz Signal and Spectrum Analyzer	4/14/2022	Annual	4/14/2023	103187
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	7/27/2020	Biennial	7/27/2022	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: PY7-57325M	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 9 of 102

## 6.0 SAMPLE CALCULATIONS

### 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

#### **Example: Spurious emission at 3700.40 MHz**

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

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 10 of 102

V3.0 1/6/2022

## 7.0 TEST RESULTS

### 7.1 Summary

Company Name: SONY Corporation  
 FCC ID: PY7-57325M  
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)  
 Mode(s): LTE/NR

Test Condition	Test Description	FCC Part Section(s)	Test Limit	Test Result	Reference
<b>CONDUCTED</b>	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 41; NR Band n41)	2.1051, 27.53(m)(4)	Undesirable emissions must meet the limits detailed in 27.53(m)(4)	PASS	Sections 7.4, 7.5
	Frequency Stability	2.1055, 27.54	Fundamental emissions stay within authorized frequency block	PASS	Section 7.8
<b>RADIATED</b>	Equivalent Isotropic Radiated Power (LTE Band 41; NR Band n41)	27.50(h)(2)	≤ 2 Watts max. EIRP	PASS	Section 7.6
	Radiated Spurious Emissions (LTE Band 41; NR Band n41)	2.1053, 27.53(m)	Undesirable emissions must meet the limits detailed in 27.53(m)	PASS	Section 7.7

\* 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**.

#### Notes:

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.
- 4) All conducted emissions measurements are performed with automated test software to capture the corresponding plots necessary to show compliance. The measurement software utilized is EMC Software Tool v1.0.

FCC ID: PY7-57325M	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 11 of 102

## 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.

A-MPR is implemented in this device when operating at Power Class 2 in NR n41 per the A-MPR specification in 3GPP TS 36.101. The conducted powers are shown herein to cover the different A-MPR levels specified in the standard. Measurement equipment was set up with triggering/gating on the spectrum analyzer such that powers were measured only during the on-time of the signal.

### Test Procedure Used

ANSI C63.26-2015 – Section 5.2

### Test Settings

1. Span = 2 x OBW to 3 x OBW
2. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. 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: PY7-57325M	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 12 of 102

V3.0 1/6/2022

Test Case	Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
A-MPR (MCC/MNC) 310-160	60 MHz	π/2 BPSK	506000	2530.0	162/0	21.89
			506000	2530.0	1/40	22.81
		QPSK	506000	2530.0	1/40	23.09
			16-QAM	506000	2530.0	1/40
A-MPR (MCC/MNC) 310-160	40 MHz	π/2 BPSK	504000	2520.0	100/0	22.87
			504000	2520.0	1/79	22.54
		QPSK	518598	2593.0	1/79	22.45
			16-QAM	504000	2520.0	1/79
A-MPR (MCC/MNC) 310-160	30 MHz	π/2 BPSK	503000	2515.0	75/0	22.73
			503000	2515.0	1/19	23.21
		QPSK	503000	2515.0	1/19	23.53
			16-QAM	503000	2515.0	1/19
A-MPR (MCC/MNC) 310-160	20 MHz	π/2 BPSK	502000	2510.0	50/0	22.04
			502000	2510.0	1/13	23.23
		QPSK	502000	2510.0	1/13	23.19
			16-QAM	502000	2510.0	1/13
Conducted Power (NS01)	60 MHz	π/2 BPSK	505200	2526.0	162/0	25.99
			518598	2593.0	1/40	26.71
		QPSK	518598	2593.0	1/40	26.72
			16-QAM	505200	2526.0	1/40
Conducted Power (NS01)	40 MHz	π/2 BPSK	503202	2516.0	100/0	25.43
			518598	2593.0	1/79	26.05
		QPSK	518598	2593.0	1/79	26.01
			16-QAM	503202	2516.0	1/79
Conducted Power (NS01)	30 MHz	π/2 BPSK	502203	2511.0	75/0	25.40
			518598	2593.0	1/19	25.99
		QPSK	518598	2593.0	1/19	25.84
			16-QAM	502203	2511.0	1/19
Conducted Power (NS01)	20 MHz	π/2 BPSK	501204	2506.0	50/0	25.34
			518598	2593.0	1/13	26.29
		QPSK	518598	2593.0	1/13	25.87
			16-QAM	501204	2506.0	1/13

Table 7-1. NR n41 (PC2) A-MPR Conducted Output Power

NR (SCS 30kHz)						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			
n41 (PC3)	100	Mid	2593	QPSK	270/0	B2 (Sub)	20	Mid	1880	QPSK	100/0	22.42	23.02	25.74
				QPSK	270/0					QPSK	1/50	22.37	23.04	25.73
				QPSK	1/136					QPSK	100/0	23.19	23.04	26.13
				QPSK	1/136					QPSK	1/50	23.11	23.02	26.08
				16Q	1/136					16Q	100/0	23.20	22.41	25.83

Table 7-2. ENDC: NR Band n41(PC3) – LTE Band 2 (Sub Ant) Conducted Output Power

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 13 of 102

## 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

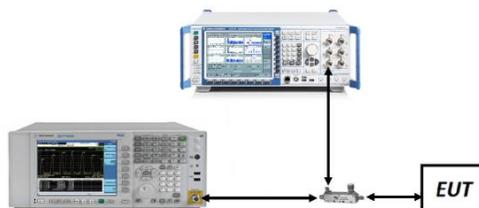
ANSI C63.26-2015 – Section 5.4.4

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

### Test Setup

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



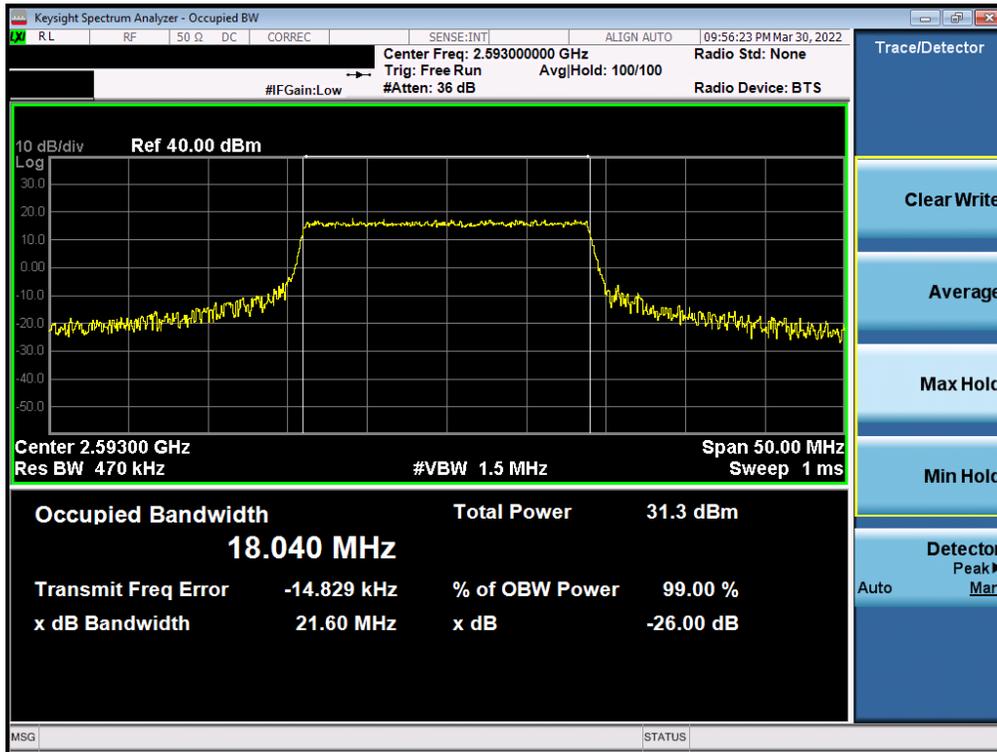
**Figure 7-2. Test Instrument & Measurement Setup**

### Test Notes

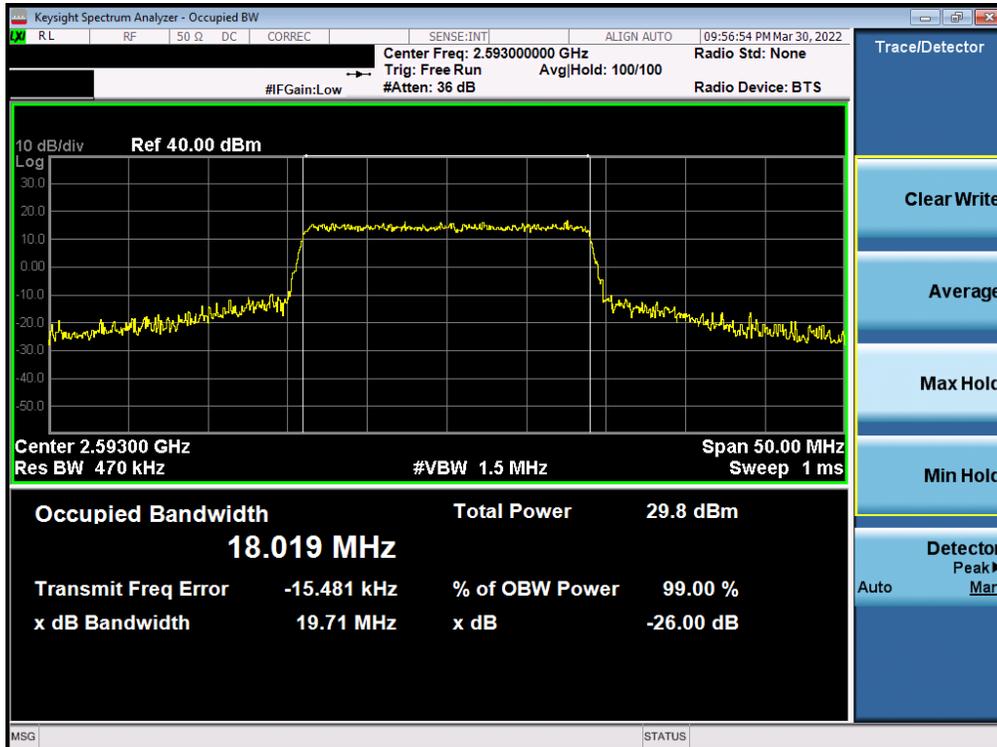
None.

FCC ID: PY7-57325M	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 14 of 102

# LTE Band 41(PC3)

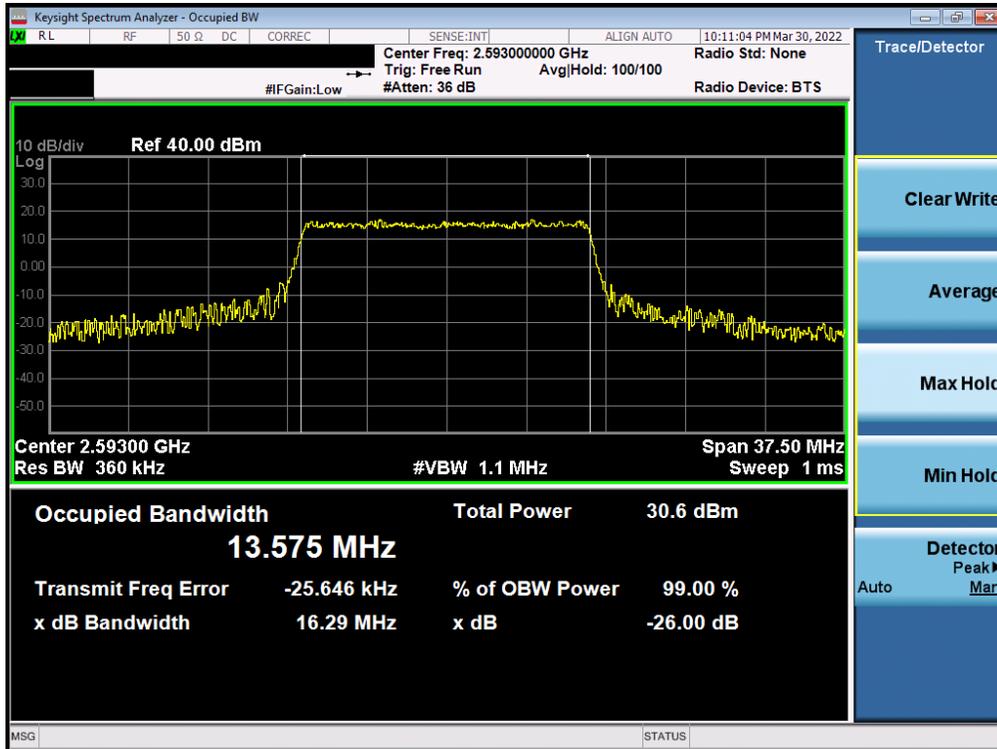


Plot 7-1. Occupied Bandwidth Plot (LTE Band 41(PC3) - 20MHz QPSK - Full RB)

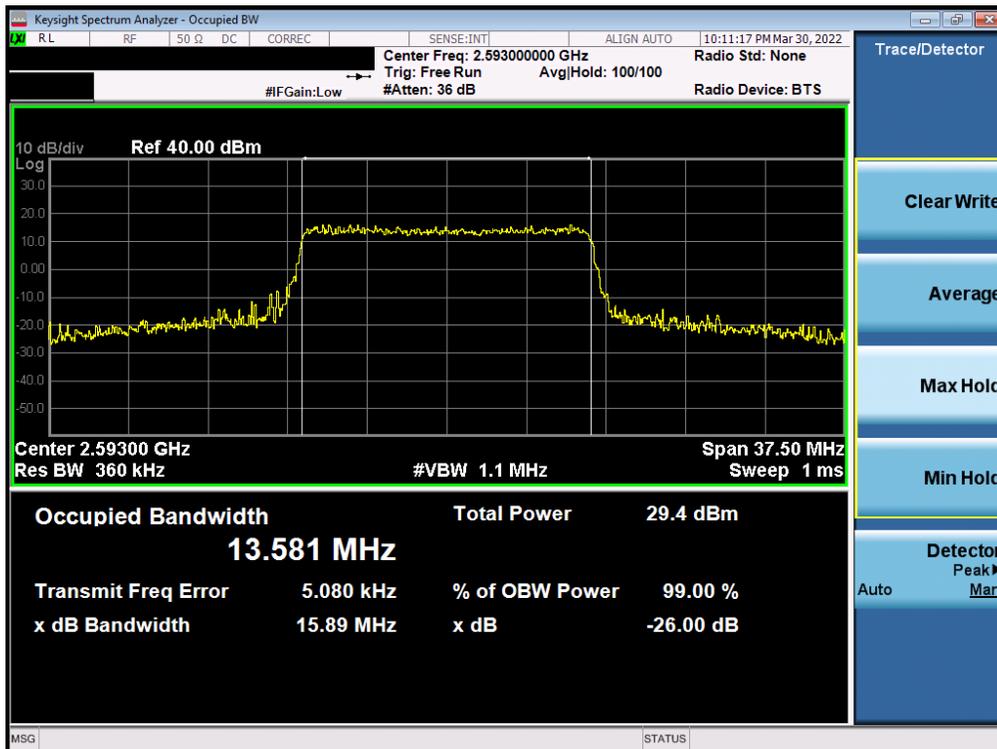


Plot 7-2. Occupied Bandwidth Plot (LTE Band 41(PC3) - 20MHz 16-QAM - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 15 of 102

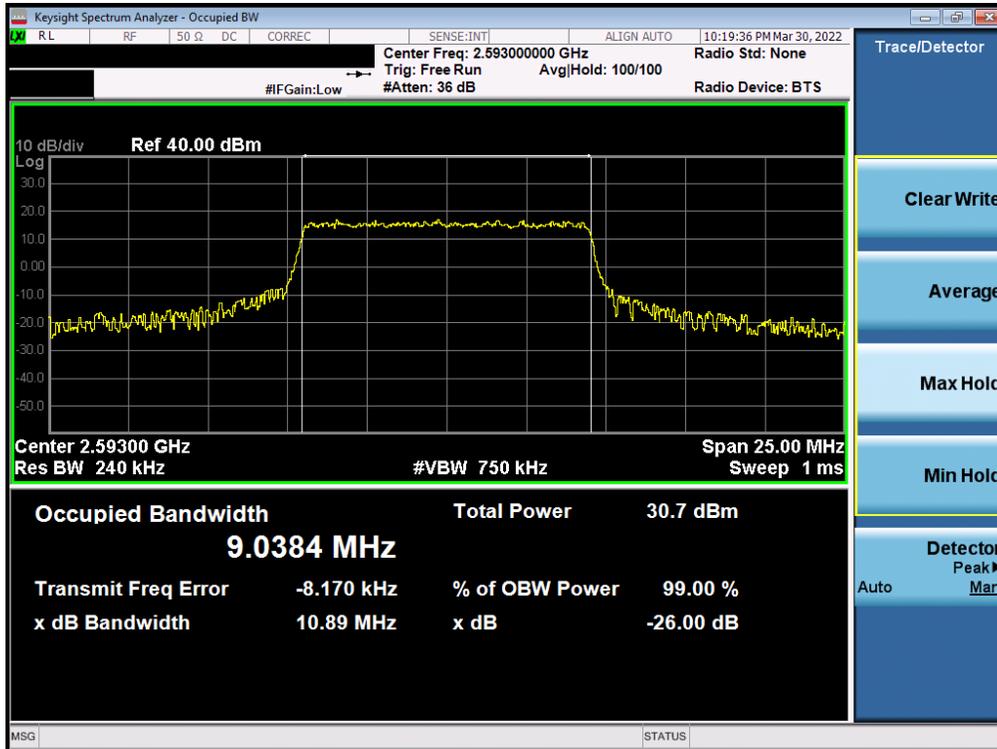


Plot 7-3. Occupied Bandwidth Plot (LTE Band 41(PC3) - 15MHz QPSK - Full RB)

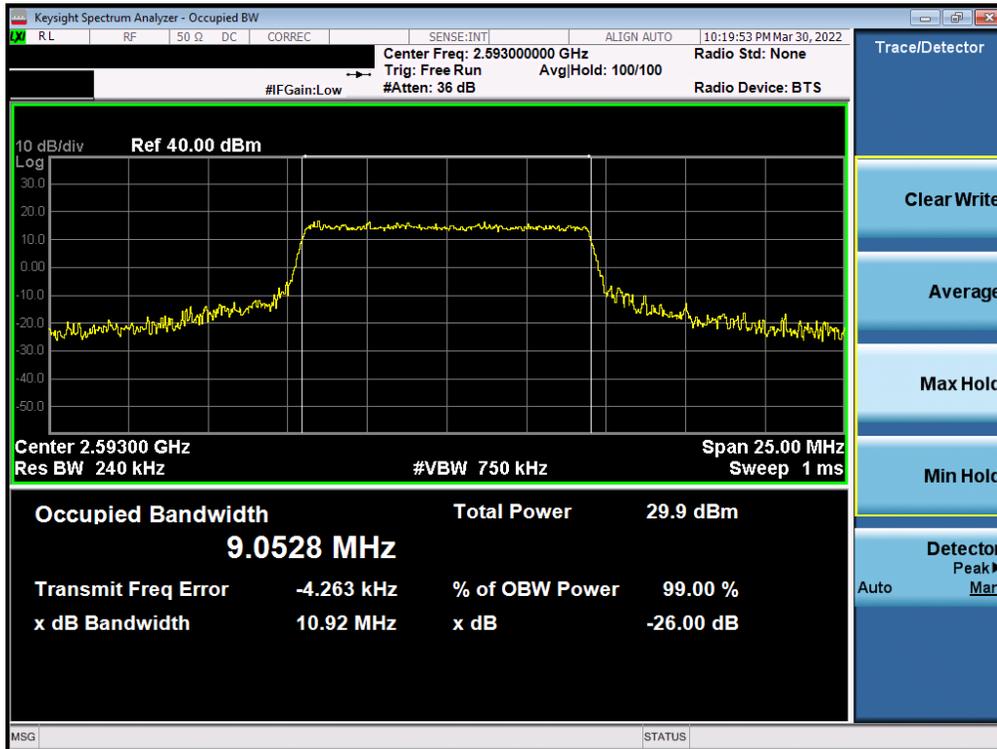


Plot 7-4. Occupied Bandwidth Plot (LTE Band 41(PC3) - 15MHz 16-QAM - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 16 of 102

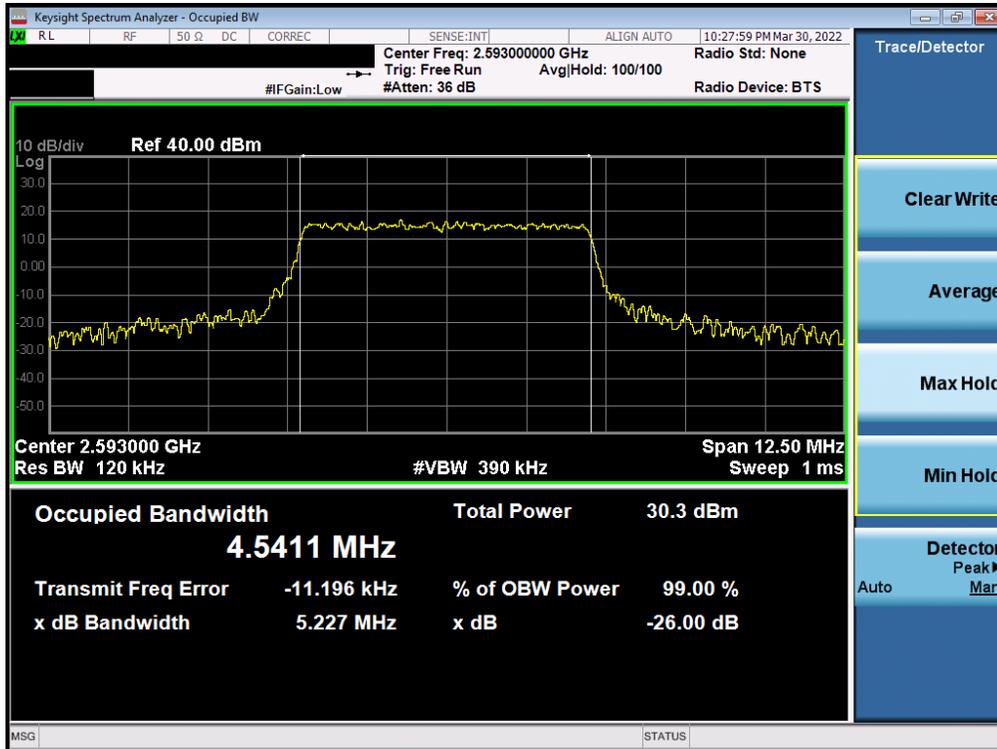


Plot 7-5. Occupied Bandwidth Plot (LTE Band 41(PC3) - 10MHz QPSK - Full RB)

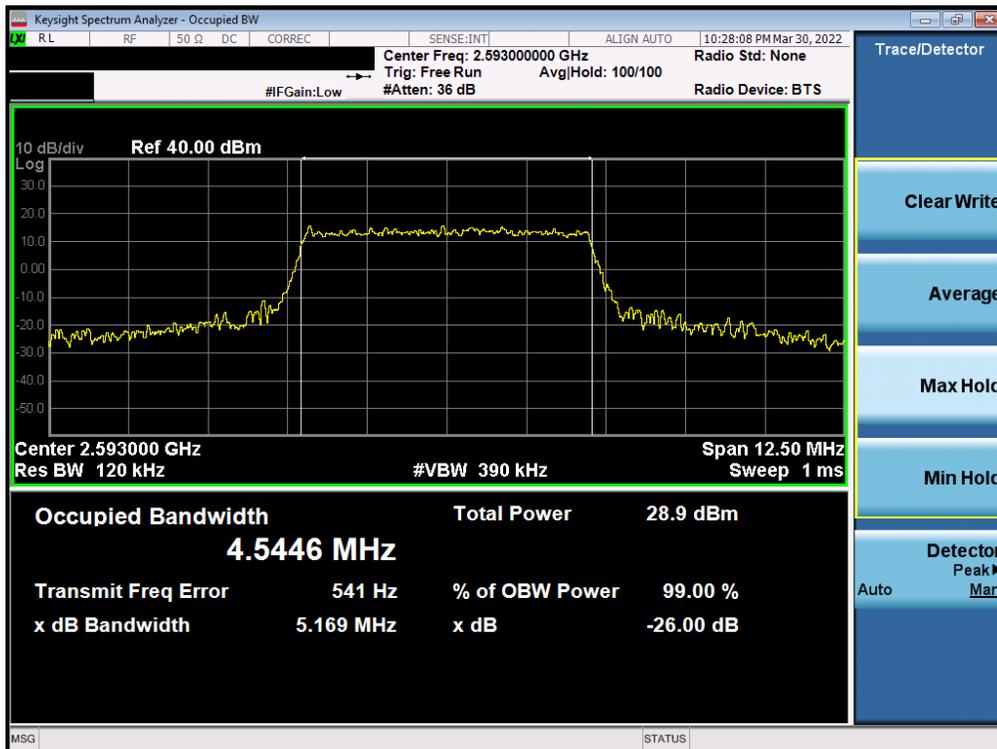


Plot 7-6. Occupied Bandwidth Plot (LTE Band 41(PC3) - 10MHz 16-QAM - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 17 of 102



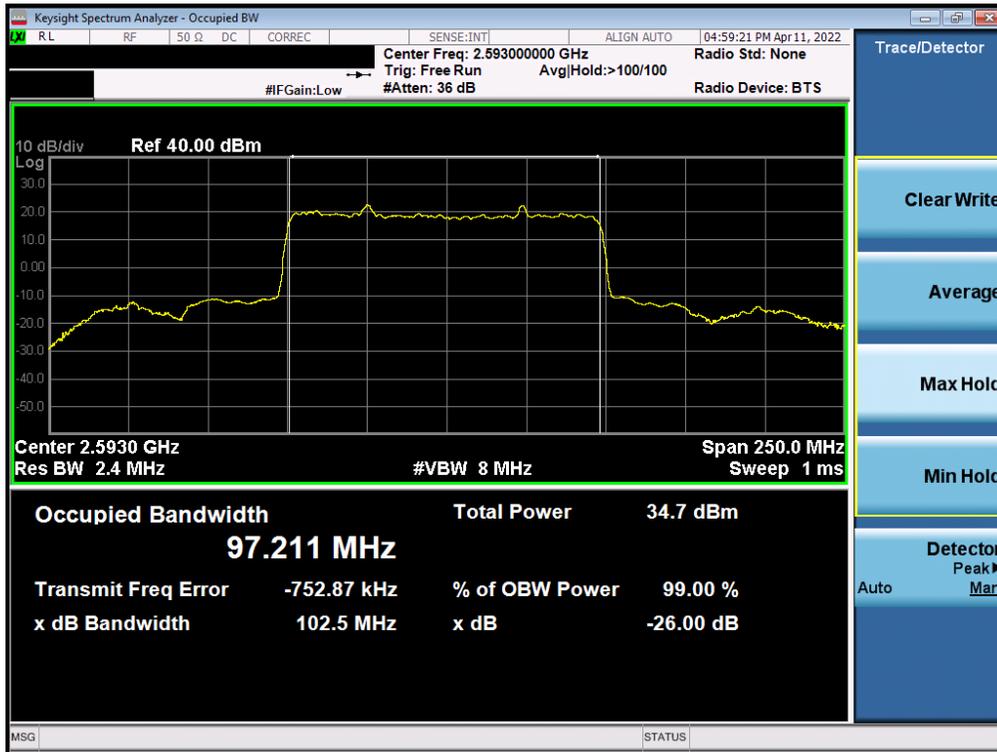
Plot 7-7. Occupied Bandwidth Plot (LTE Band 41(PC3) - 5MHz QPSK - Full RB)



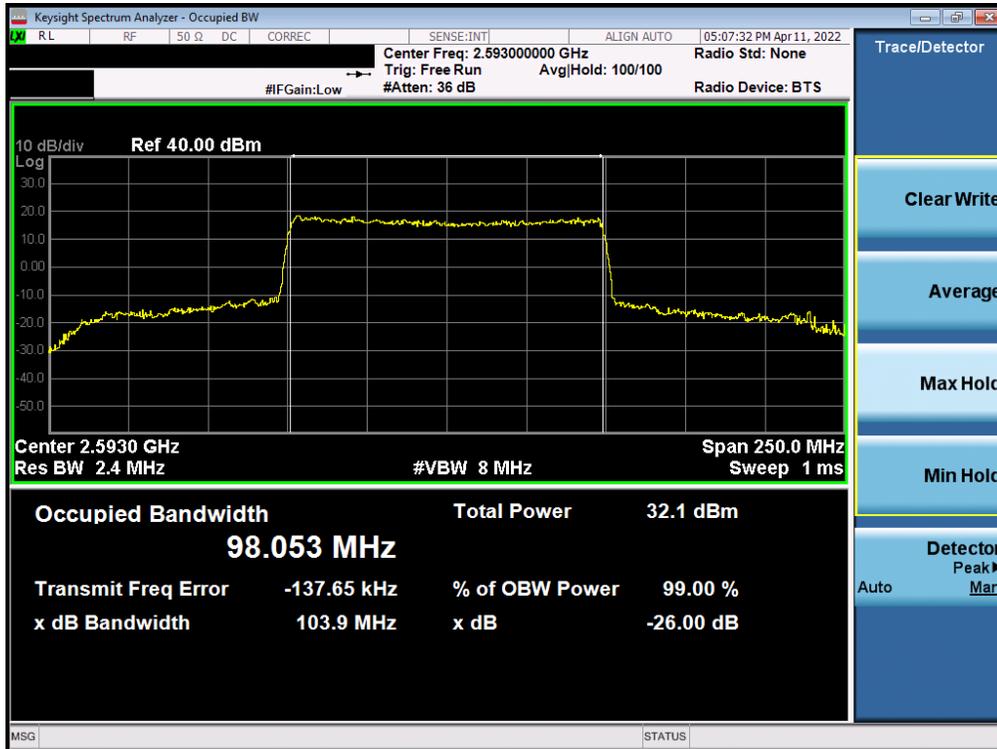
Plot 7-8. Occupied Bandwidth Plot (LTE Band 41(PC3) - 5MHz 16-QAM - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 18 of 102

# NR Band n41

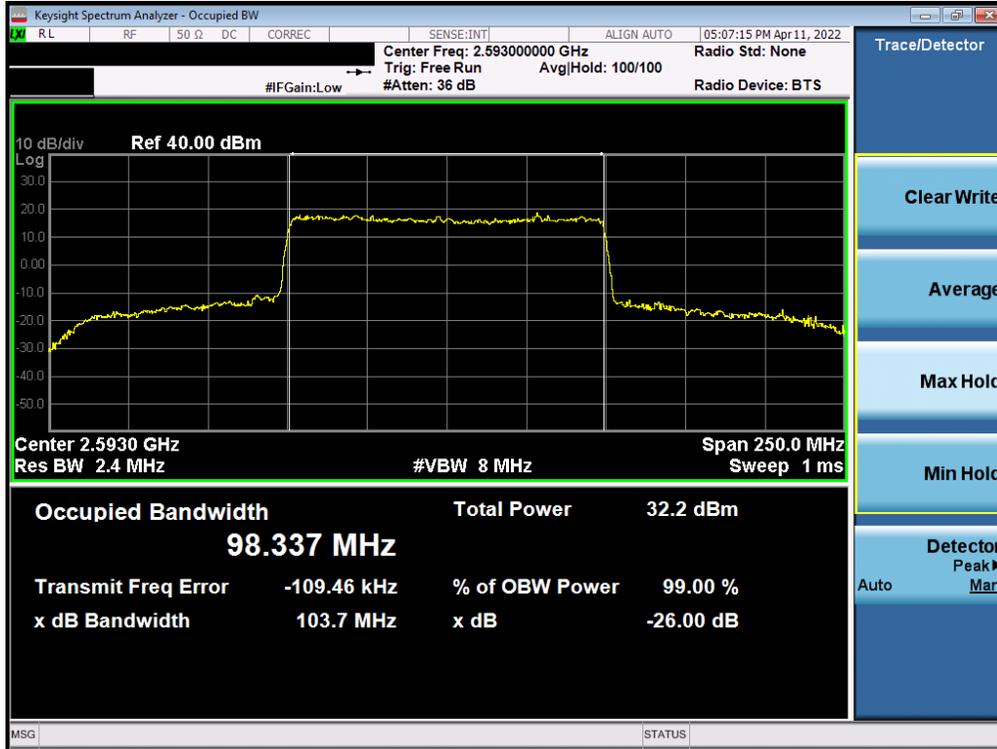


Plot 7-9. Occupied Bandwidth Plot (NR Band n41 - 100MHz  $\pi/2$  BPSK - Full RB)

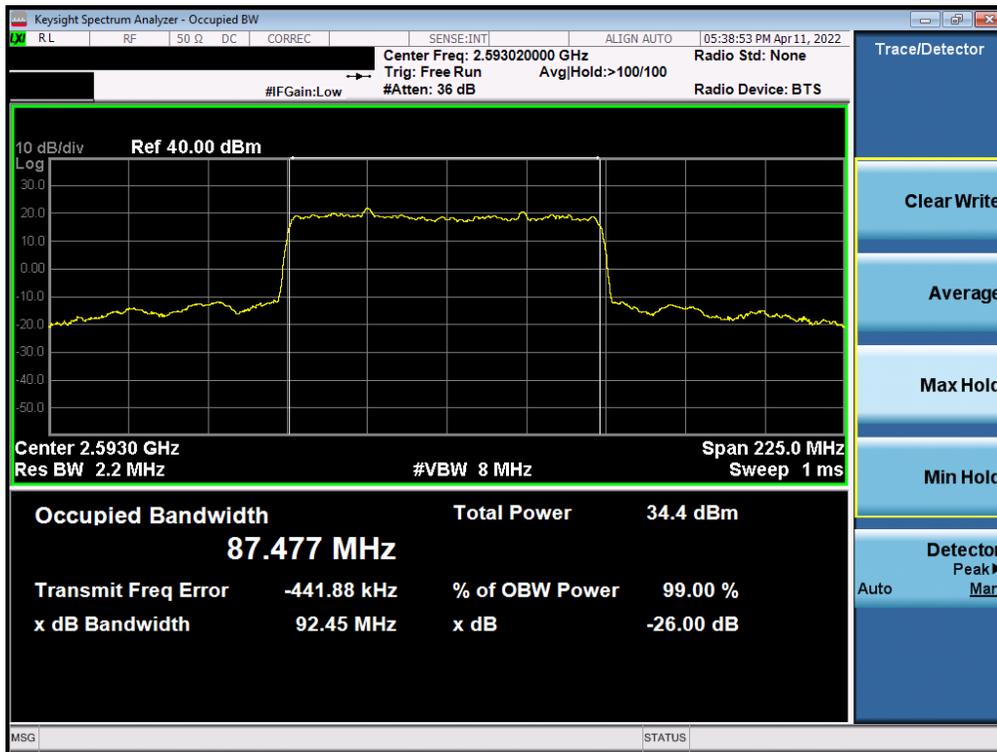


Plot 7-10. Occupied Bandwidth Plot (NR Band n41 - 100MHz QPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 19 of 102

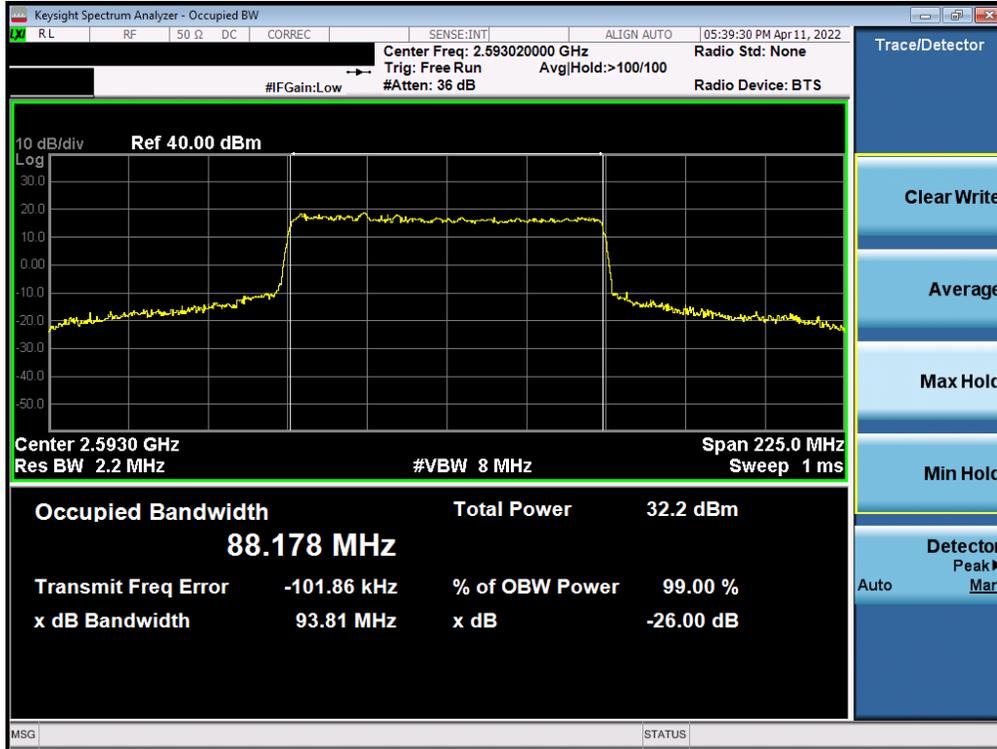


Plot 7-11. Occupied Bandwidth Plot (NR Band n41 - 100MHz 16-QAM - Full RB)

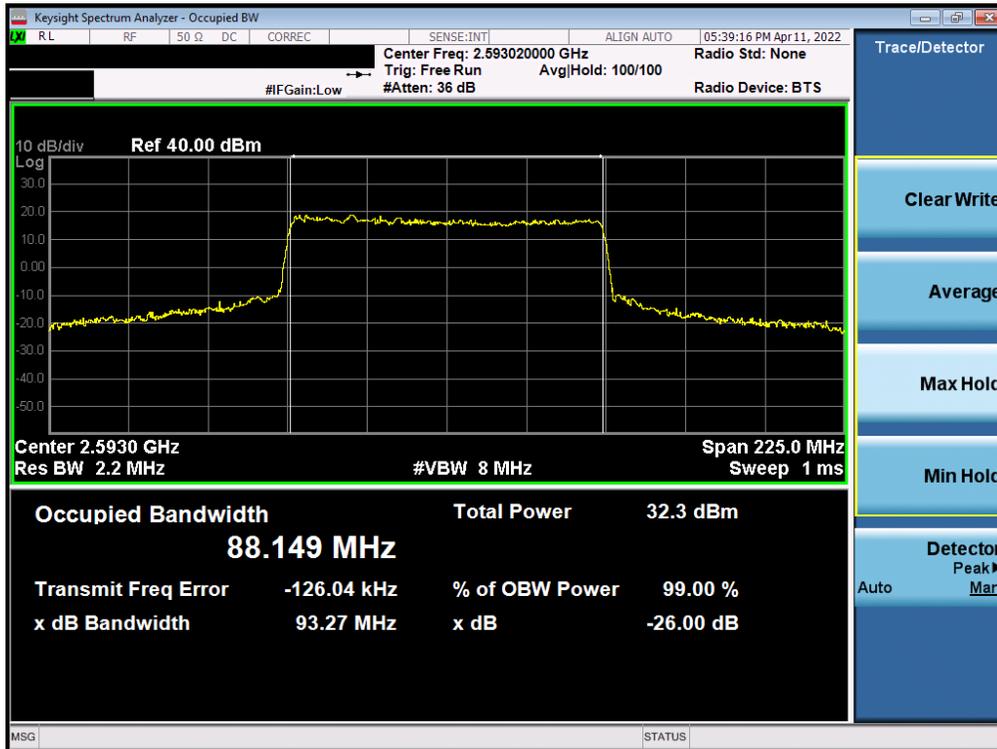


Plot 7-12. Occupied Bandwidth Plot (NR Band n41 - 90MHz  $\pi/2$  BPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 20 of 102

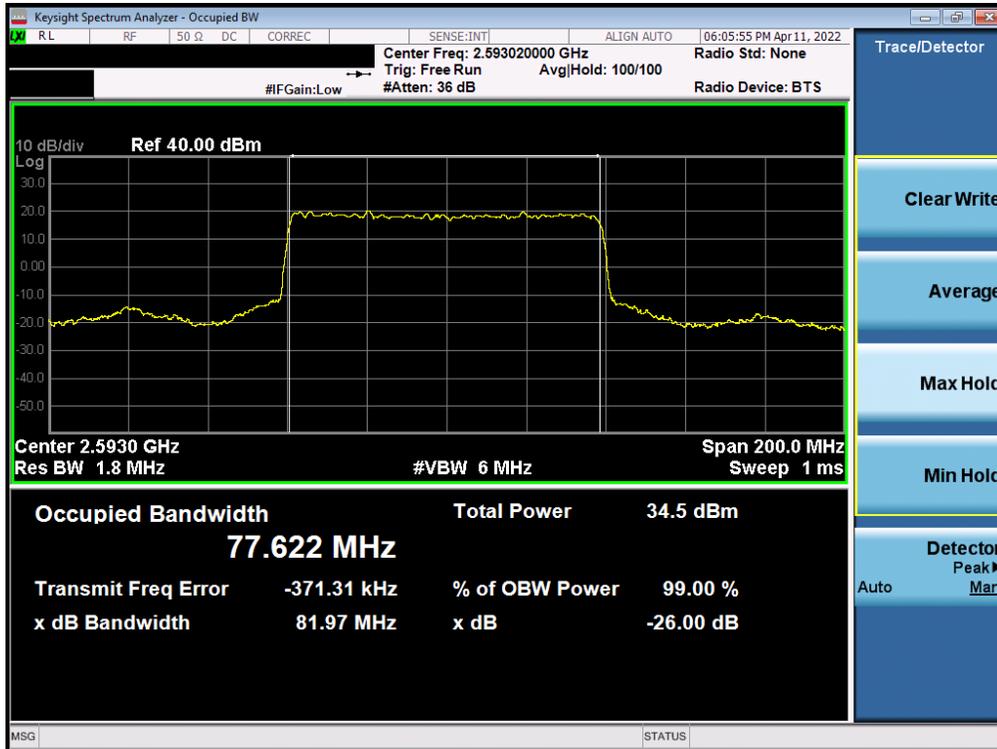


Plot 7-13. Occupied Bandwidth Plot (NR Band n41 - 90MHz QPSK - Full RB)

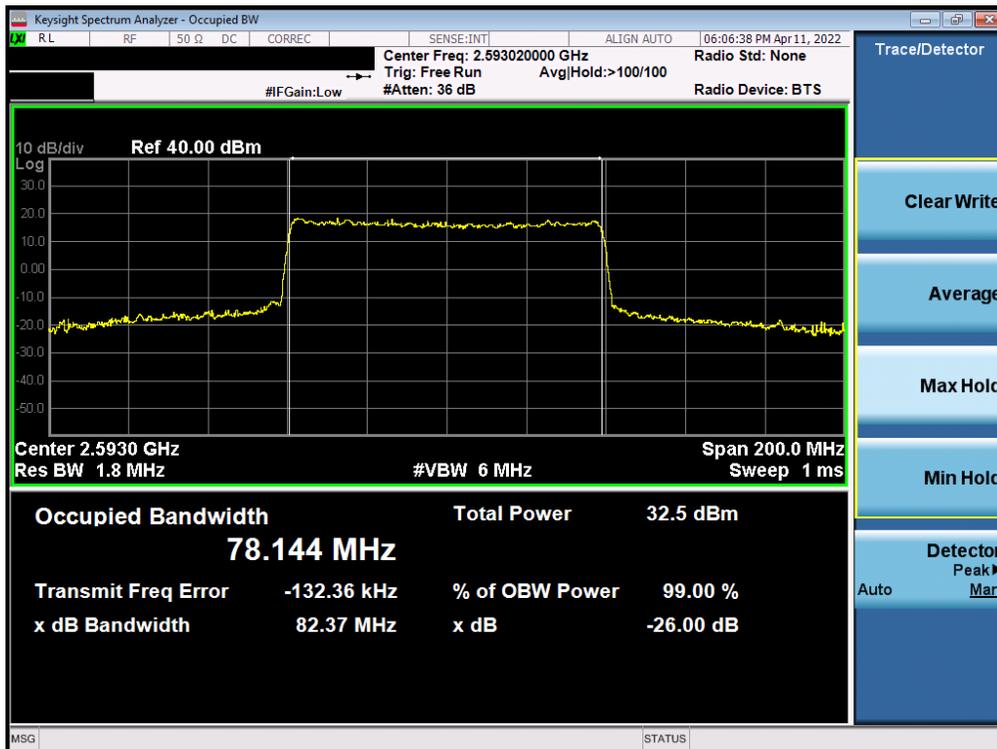


Plot 7-14. Occupied Bandwidth Plot (NR Band n41 - 90MHz 16-QAM - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 21 of 102

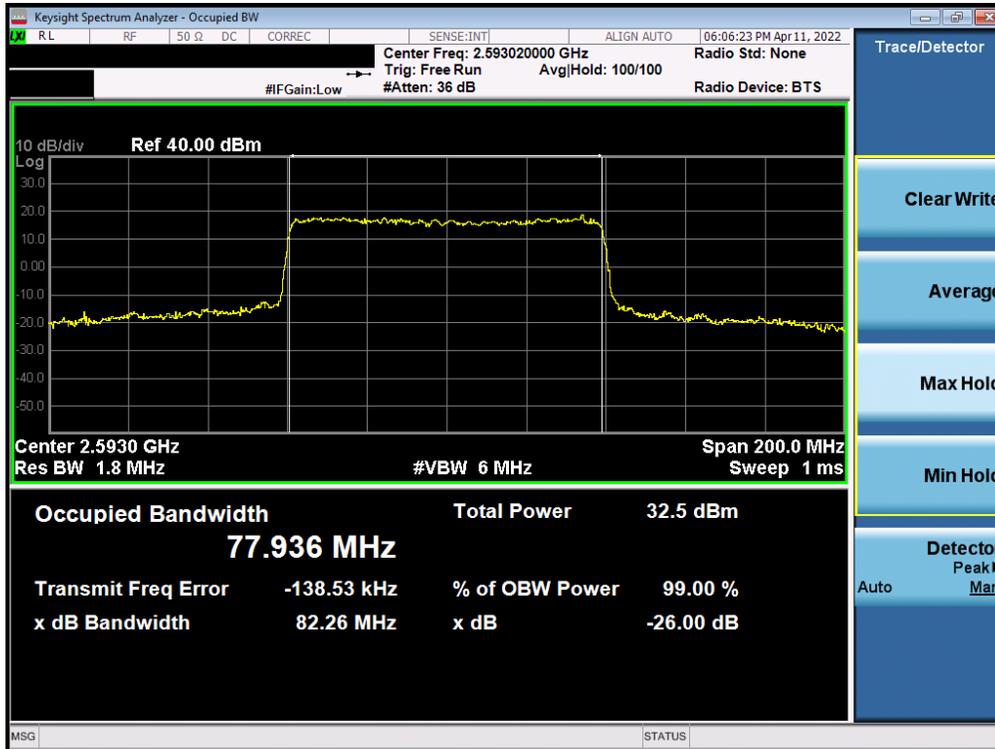


Plot 7-15. Occupied Bandwidth Plot (NR Band n41 - 80MHz  $\pi/2$  BPSK - Full RB)

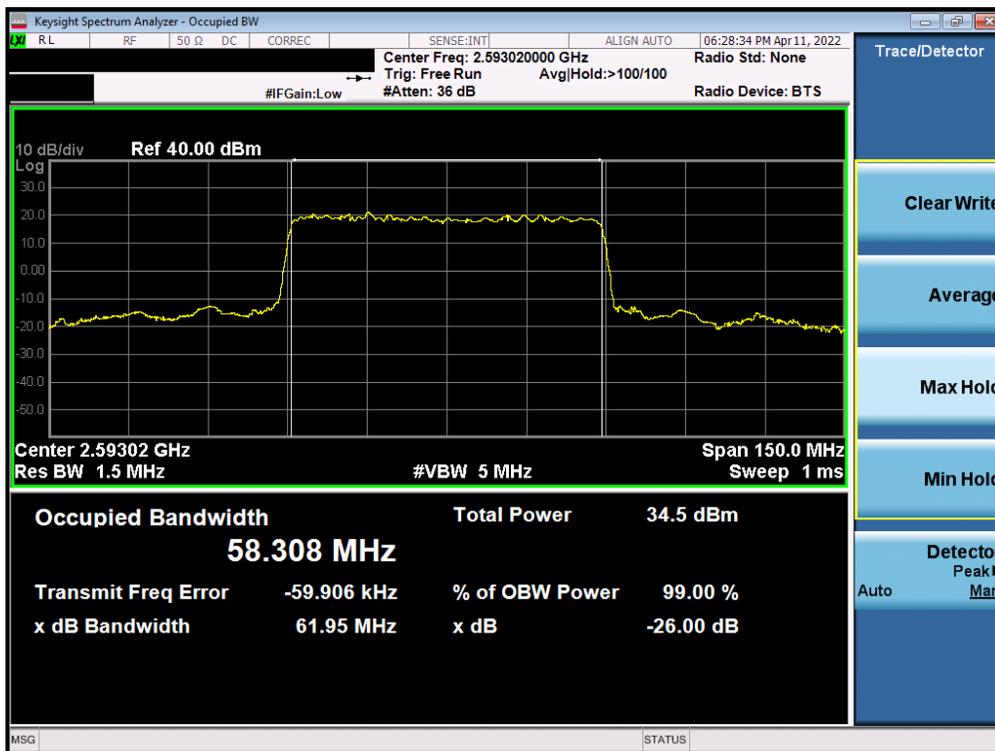


Plot 7-16. Occupied Bandwidth Plot (NR Band n41 - 80MHz QPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 22 of 102

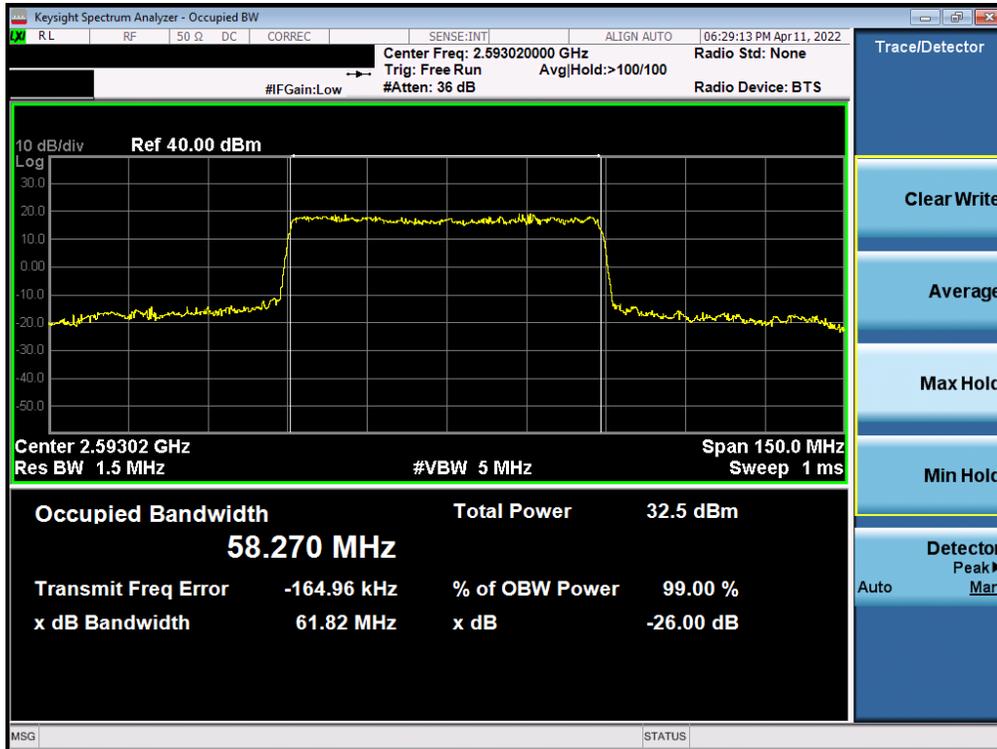


Plot 7-17. Occupied Bandwidth Plot (NR Band n41 - 80MHz 16-QAM - Full RB)

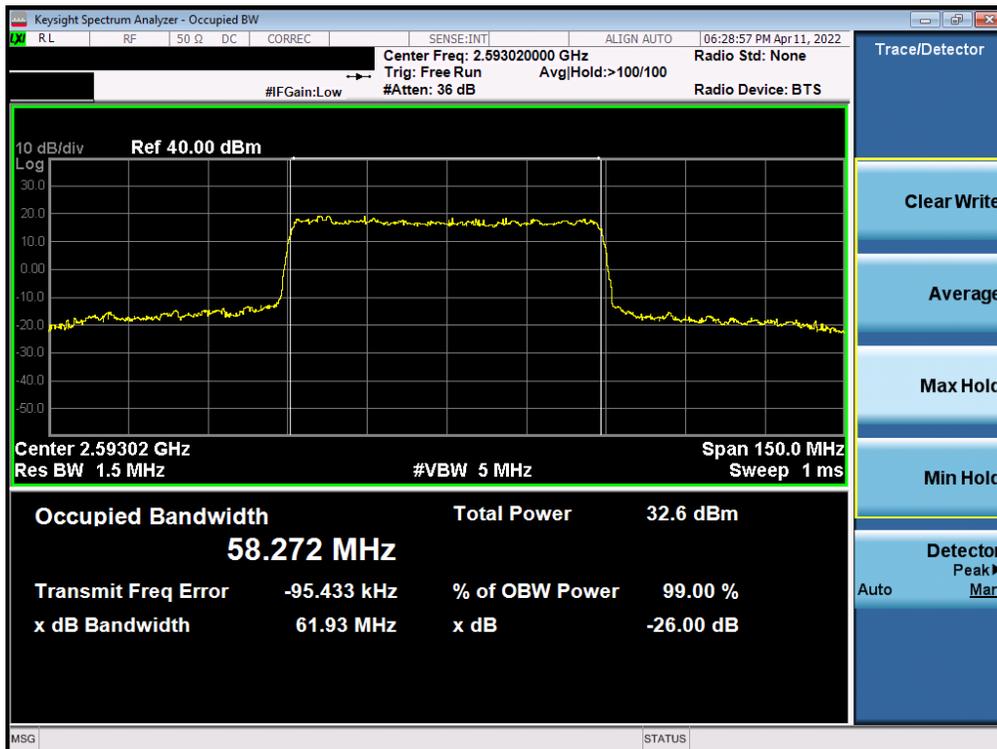


Plot 7-18. Occupied Bandwidth Plot (NR Band n41 - 60MHz  $\pi/2$  BPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 23 of 102

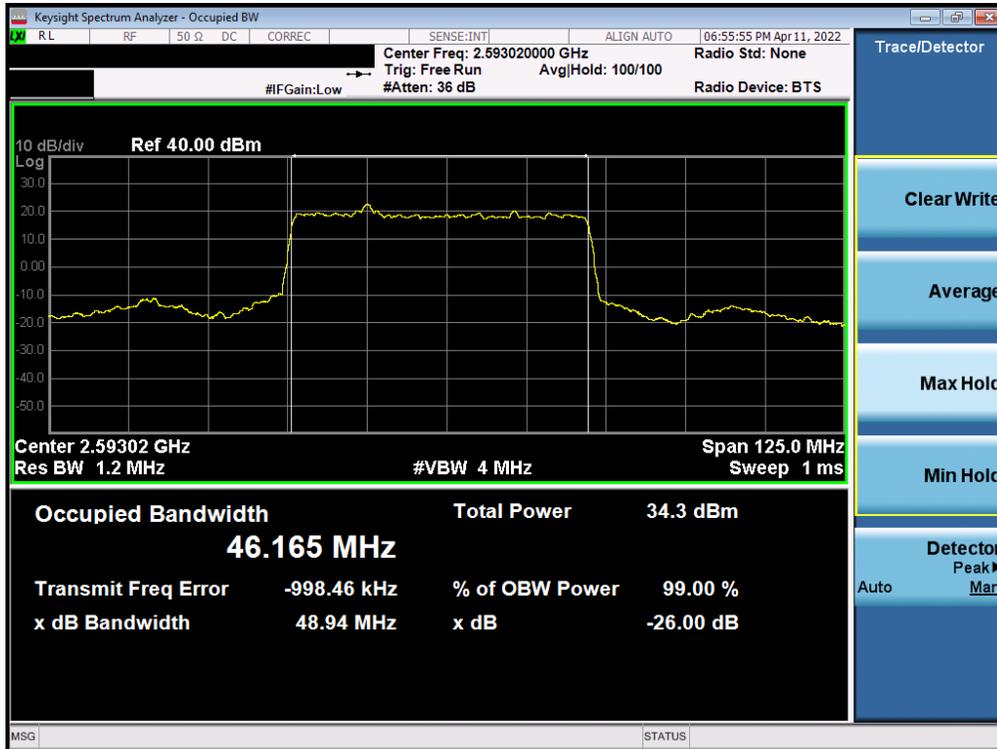


Plot 7-19. Occupied Bandwidth Plot (NR Band n41 - 60MHz QPSK - Full RB)

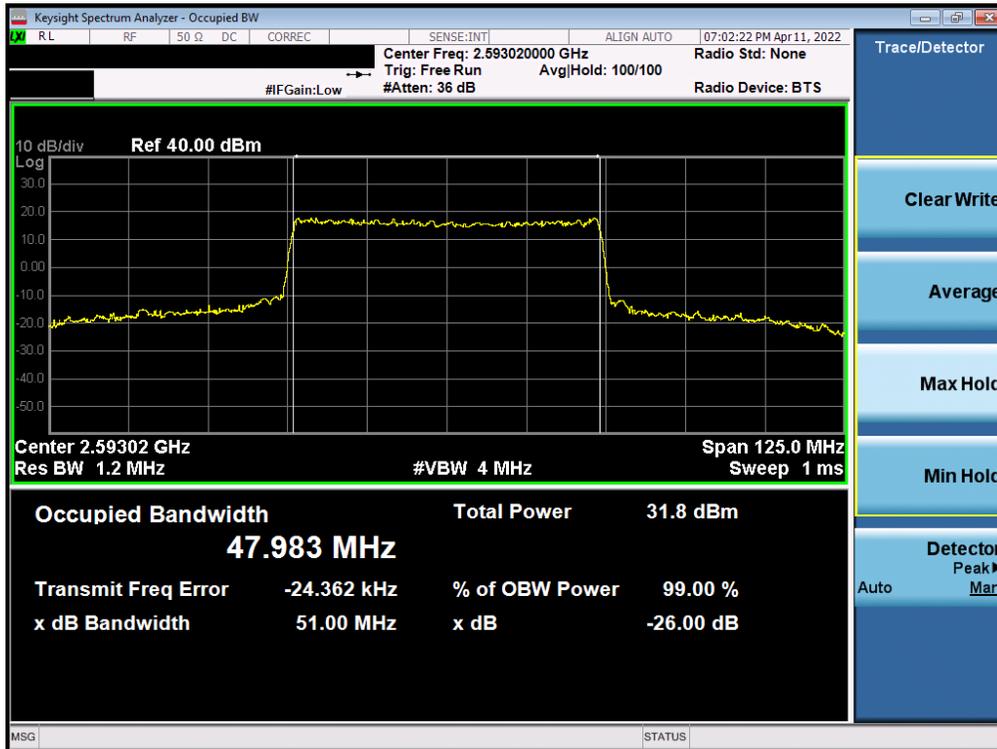


Plot 7-20. Occupied Bandwidth Plot (NR Band n41 - 60MHz 16-QAM - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 24 of 102

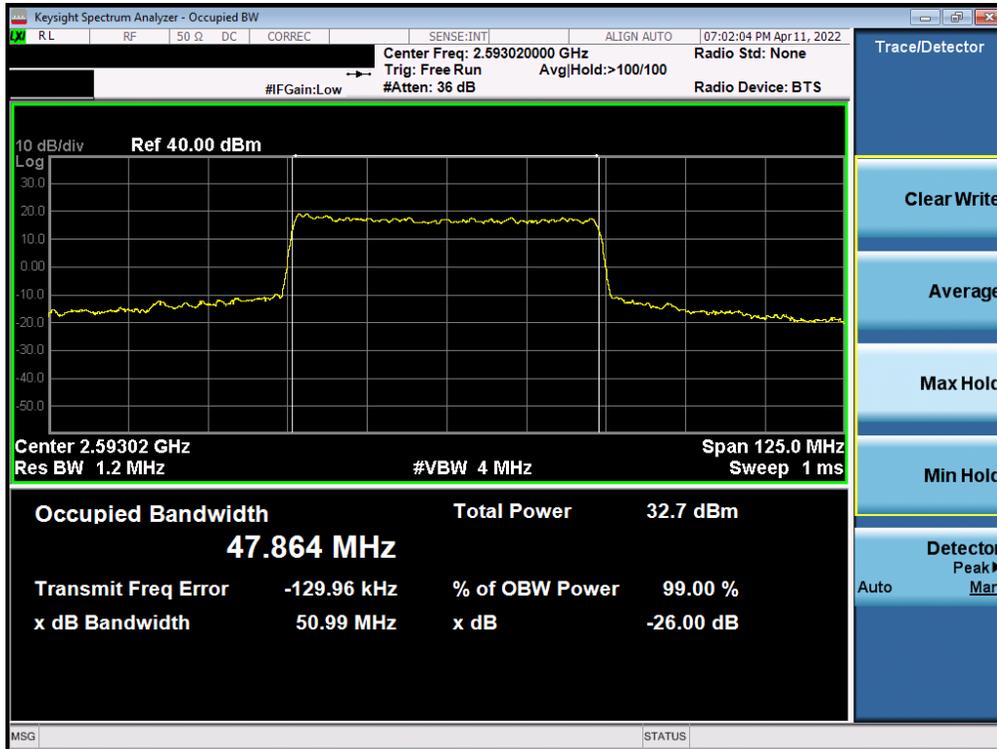


Plot 7-21. Occupied Bandwidth Plot (NR Band n41 - 50MHz  $\pi/2$  BPSK - Full RB)

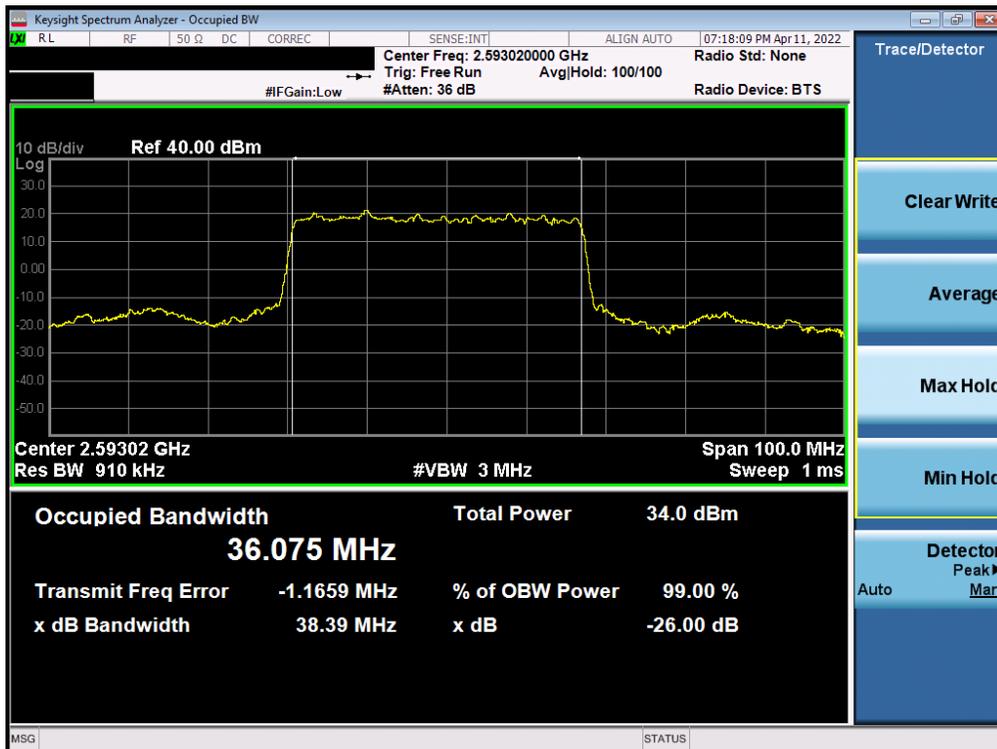


Plot 7-22. Occupied Bandwidth Plot (NR Band n41 - 50MHz QPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 25 of 102

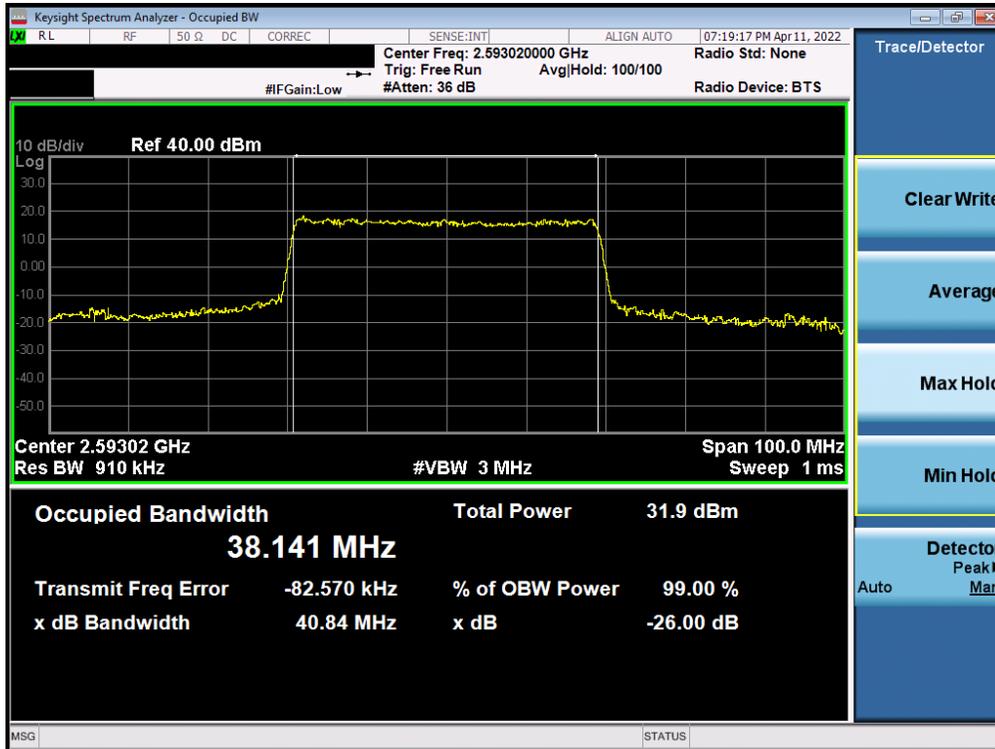


Plot 7-23. Occupied Bandwidth Plot (NR Band n41 - 50MHz 16-QAM - Full RB)



Plot 7-24. Occupied Bandwidth Plot (NR Band n41 - 40MHz  $\pi/2$  BPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 26 of 102

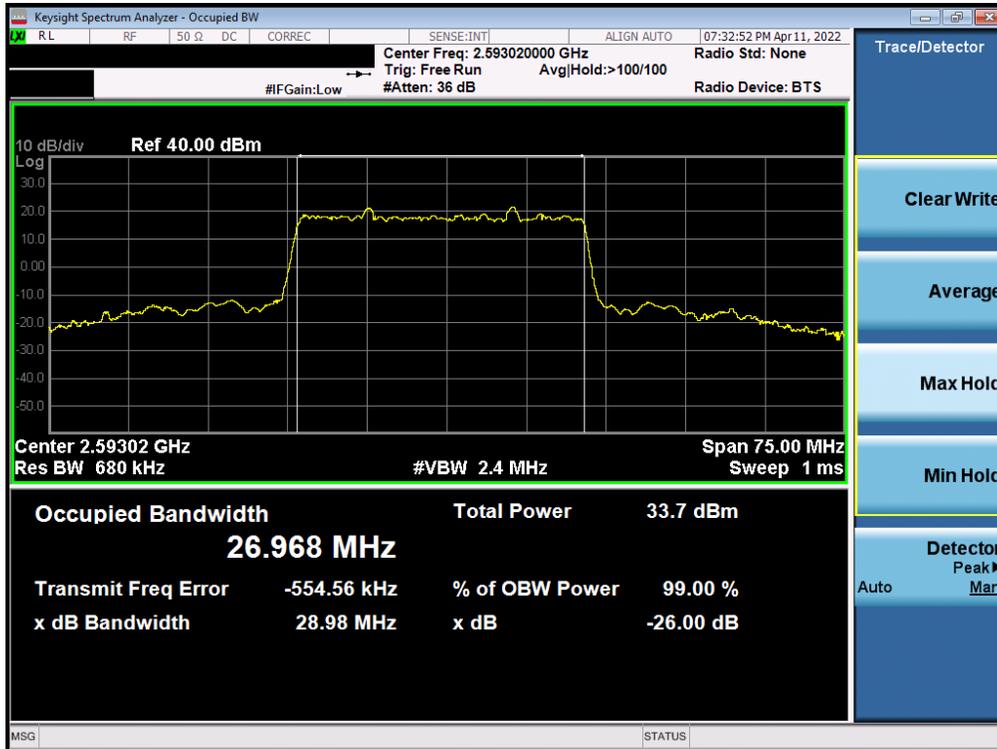


Plot 7-25. Occupied Bandwidth Plot (NR Band n41 - 40MHz QPSK - Full RB)



Plot 7-26. Occupied Bandwidth Plot (NR Band n41 - 40MHz 16-QAM - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 27 of 102

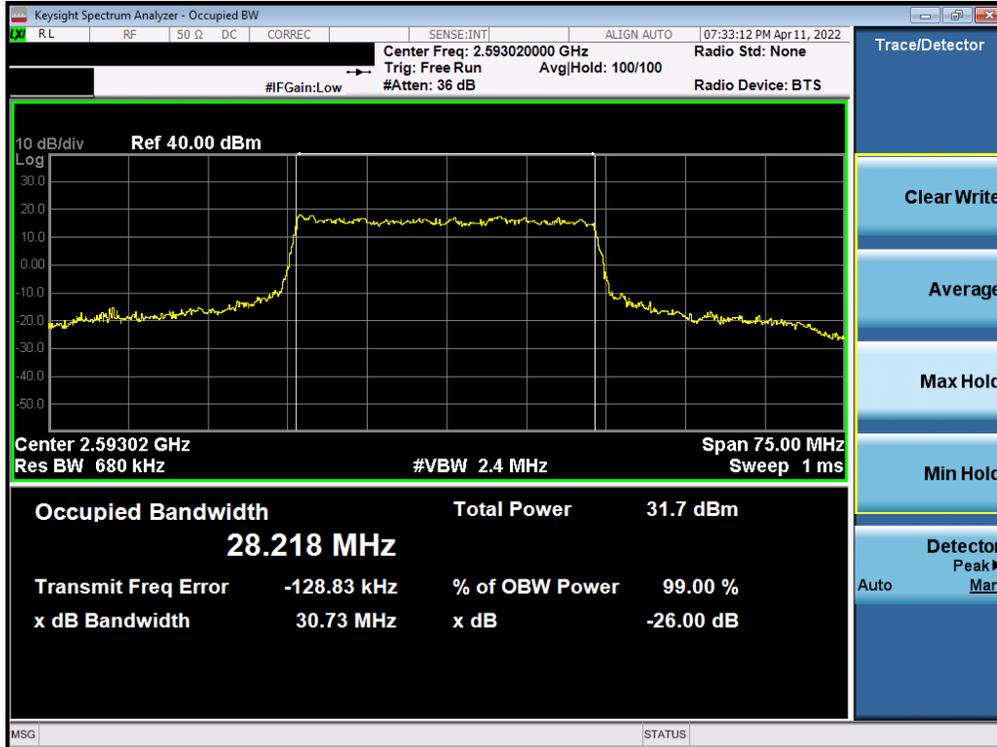


Plot 7-27. Occupied Bandwidth Plot (NR Band n41 - 30MHz  $\pi/2$  BPSK - Full RB)

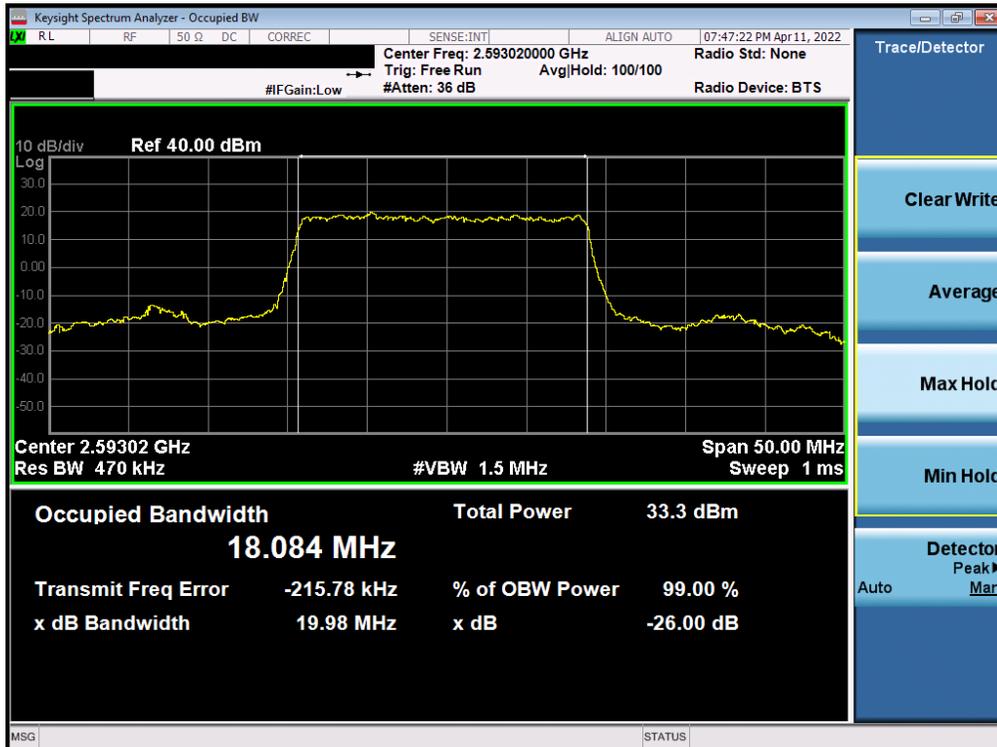


Plot 7-28. Occupied Bandwidth Plot (NR Band n41 - 30MHz QPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 28 of 102



Plot 7-29. Occupied Bandwidth Plot (NR Band n41 - 30MHz 16-QAM - Full RB)

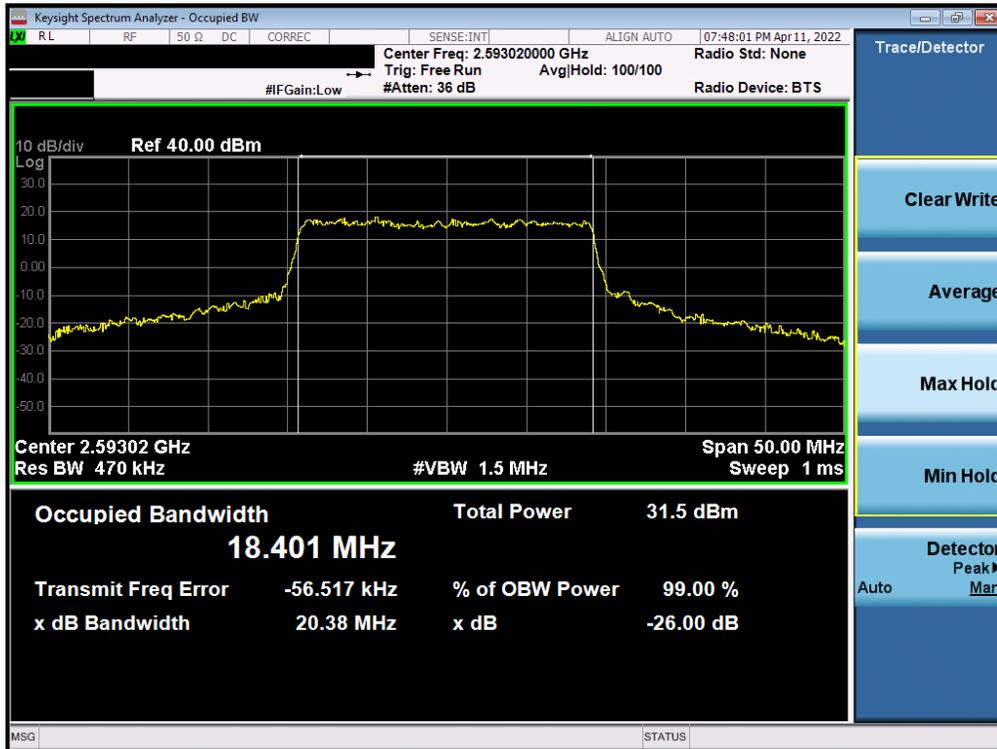


Plot 7-30. Occupied Bandwidth Plot (NR Band n41 - 20MHz  $\pi/2$  BPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 29 of 102



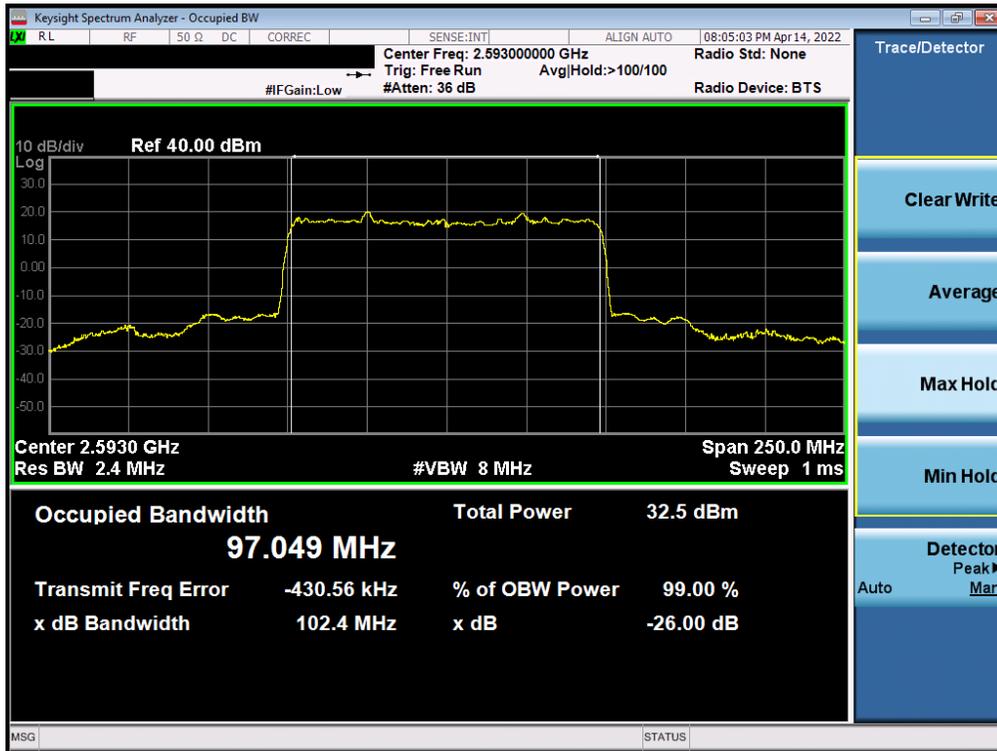
Plot 7-31. Occupied Bandwidth Plot (NR Band n41 - 20MHz QPSK - Full RB)



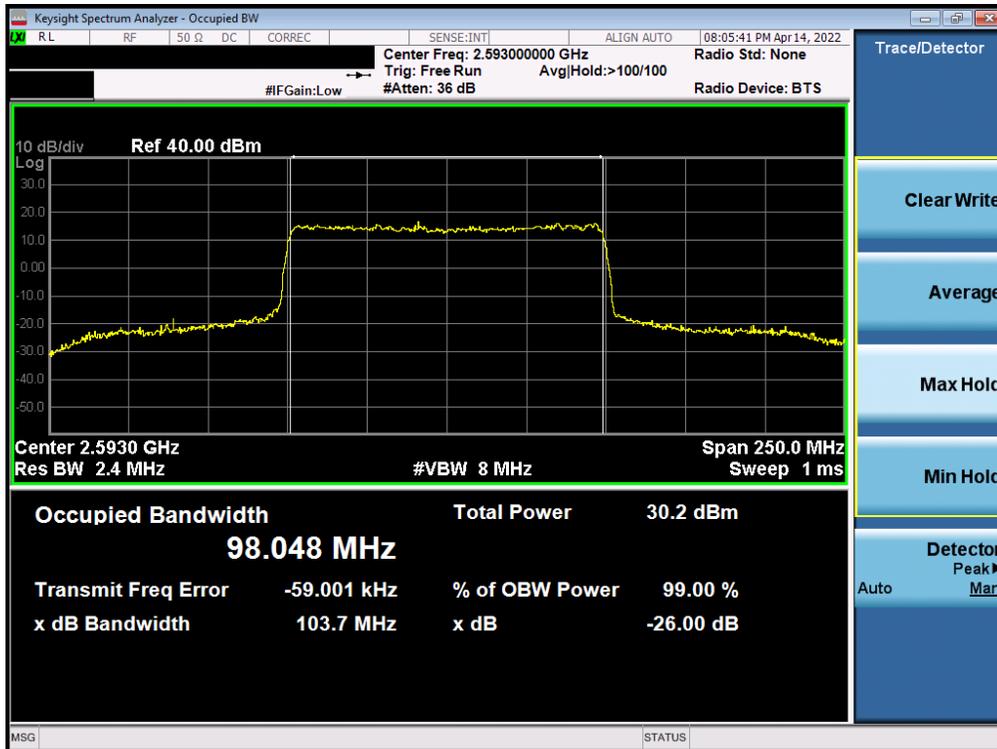
Plot 7-32. Occupied Bandwidth Plot (NR Band n41 - 20MHz 16-QAM - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 30 of 102

# NR Band n41 (PC3)

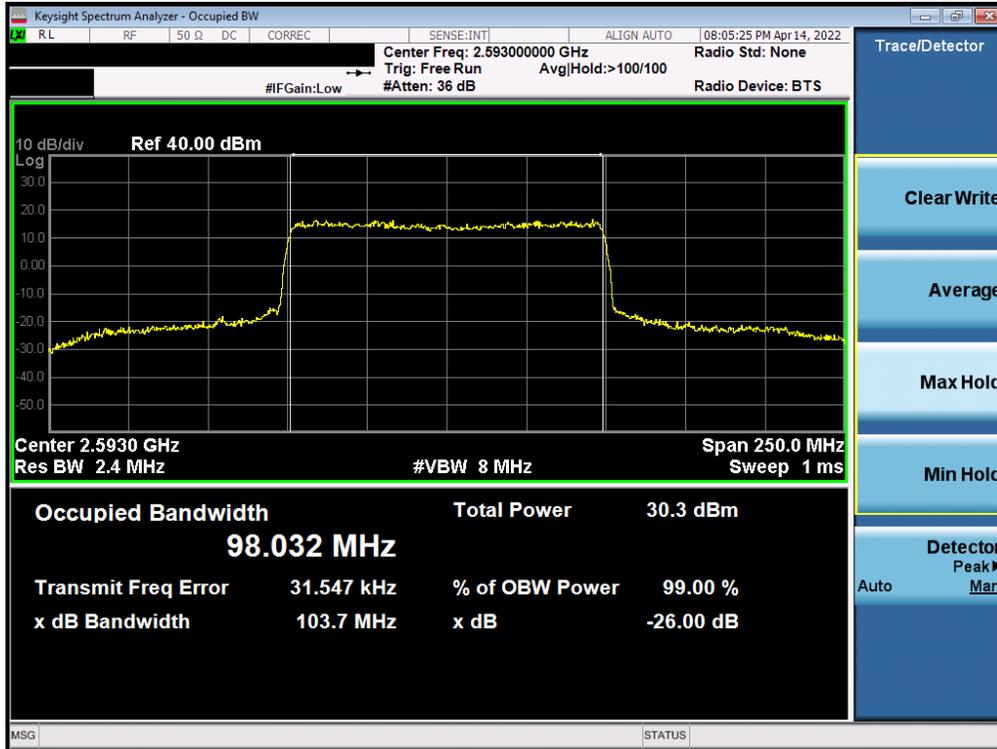


Plot 7-33. Occupied Bandwidth Plot (NR Band n41 - 100MHz  $\pi/2$  BPSK - Full RB)

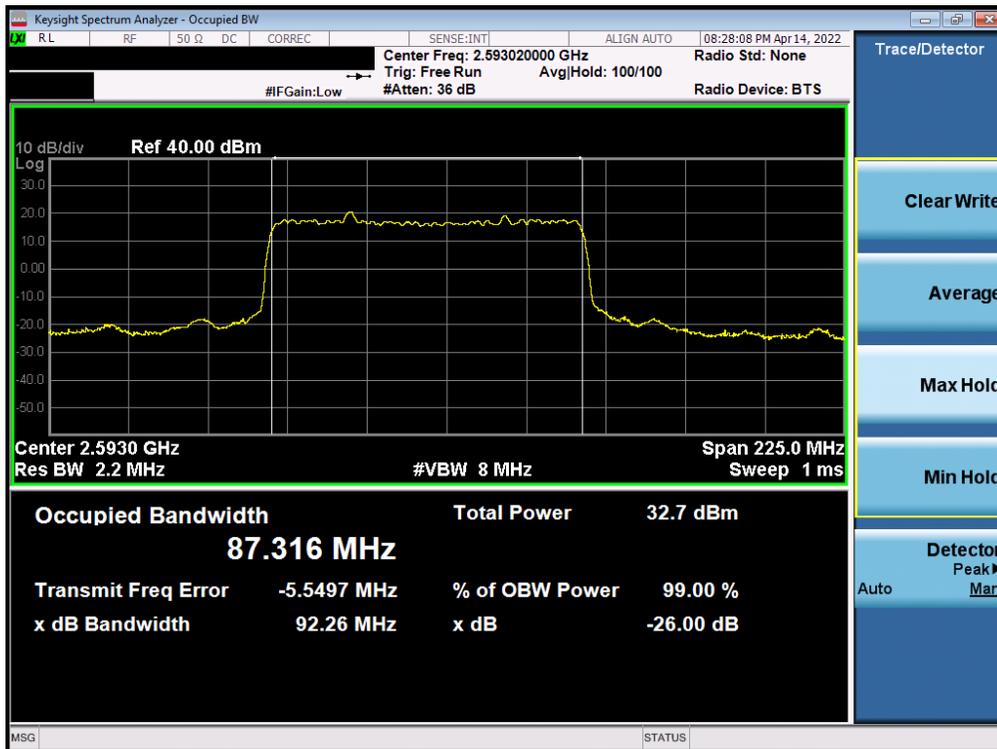


Plot 7-34. Occupied Bandwidth Plot (NR Band n41 - 100MHz QPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 31 of 102

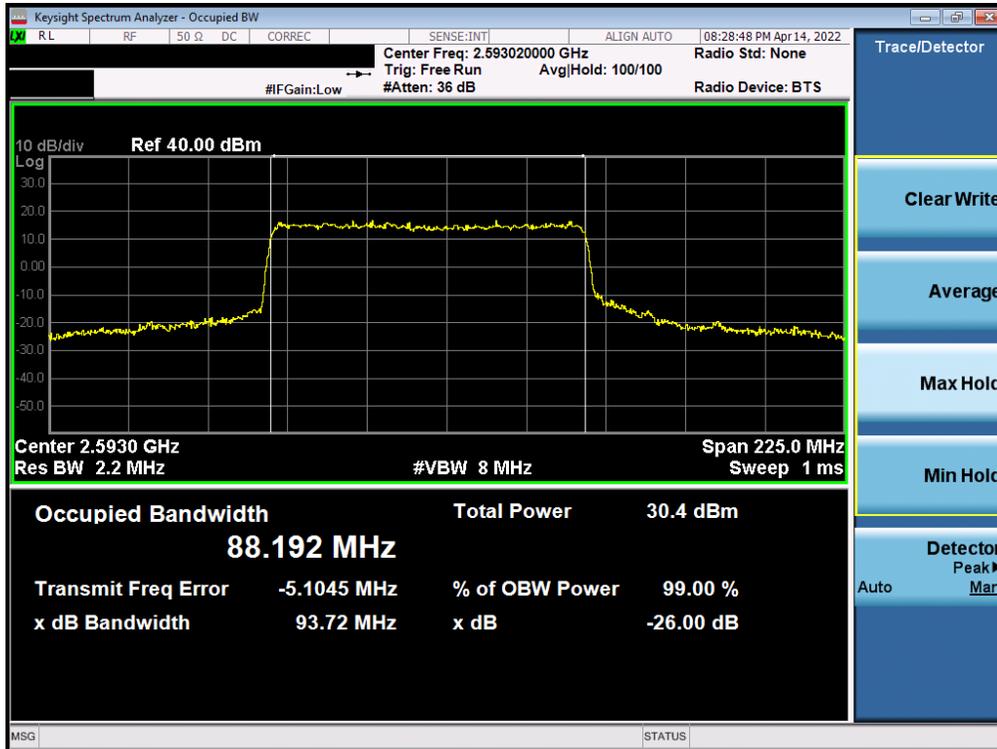


Plot 7-35. Occupied Bandwidth Plot (NR Band n41 - 100MHz 16-QAM - Full RB)

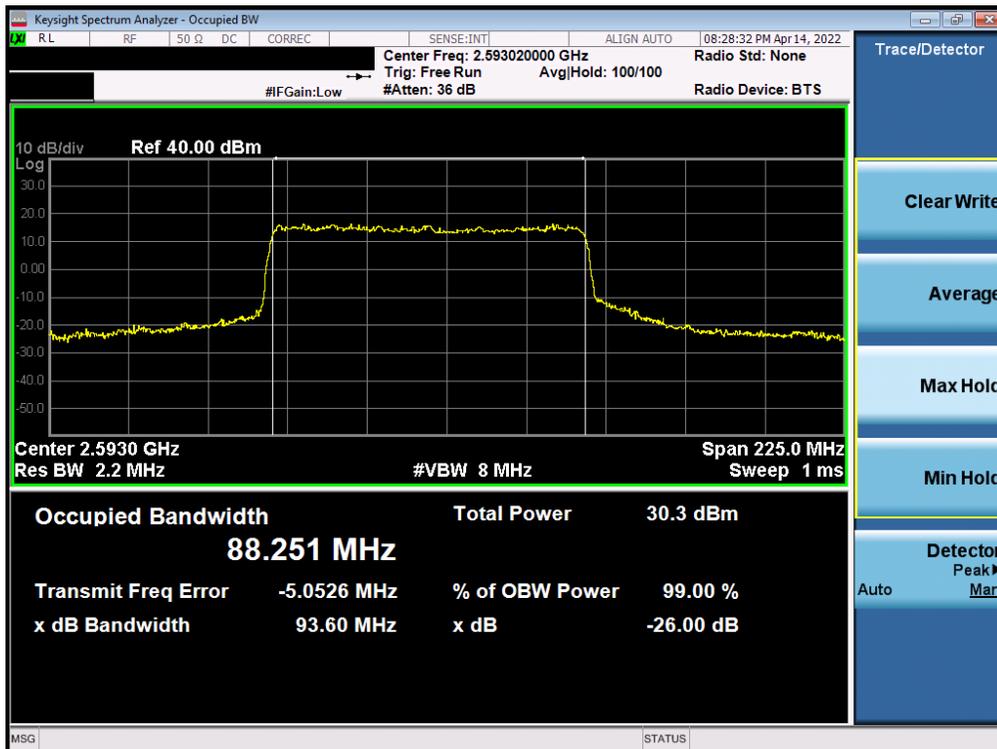


Plot 7-36. Occupied Bandwidth Plot (NR Band n41 - 90MHz  $\pi/2$  BPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 32 of 102

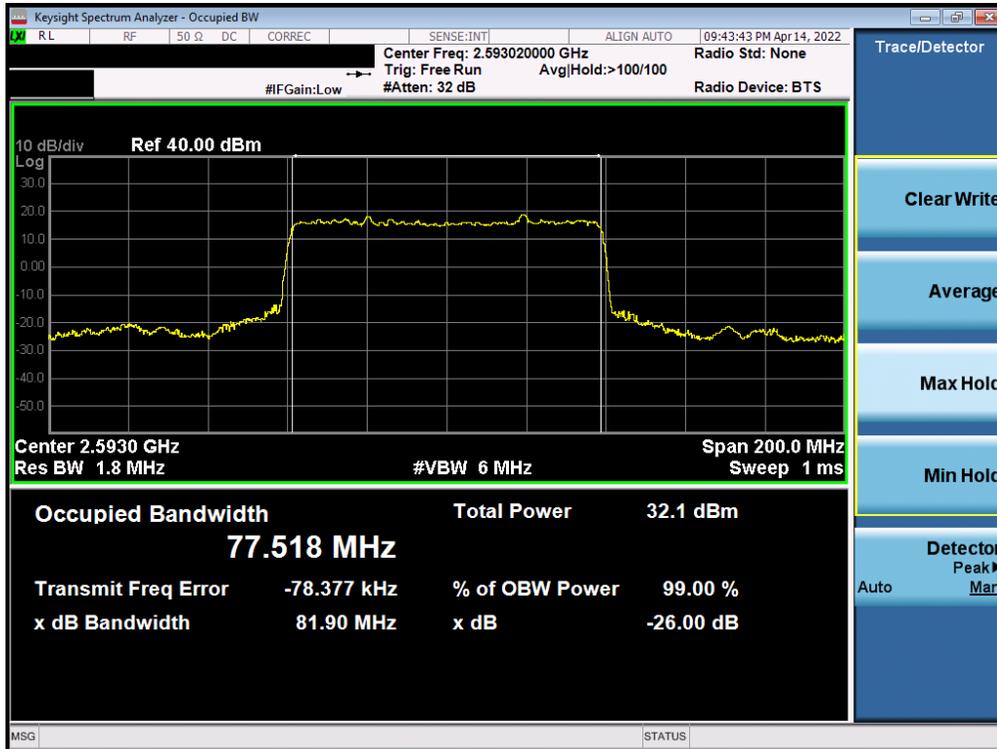


Plot 7-37. Occupied Bandwidth Plot (NR Band n41 - 90MHz QPSK - Full RB)

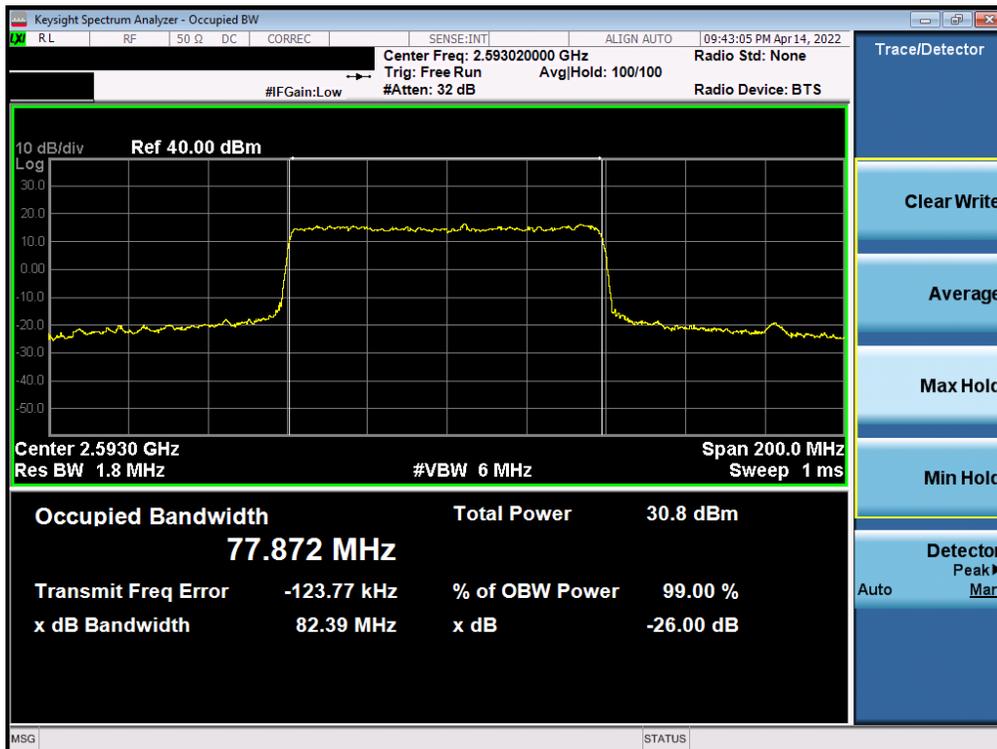


Plot 7-38. Occupied Bandwidth Plot (NR Band n41 - 90MHz 16-QAM - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 33 of 102

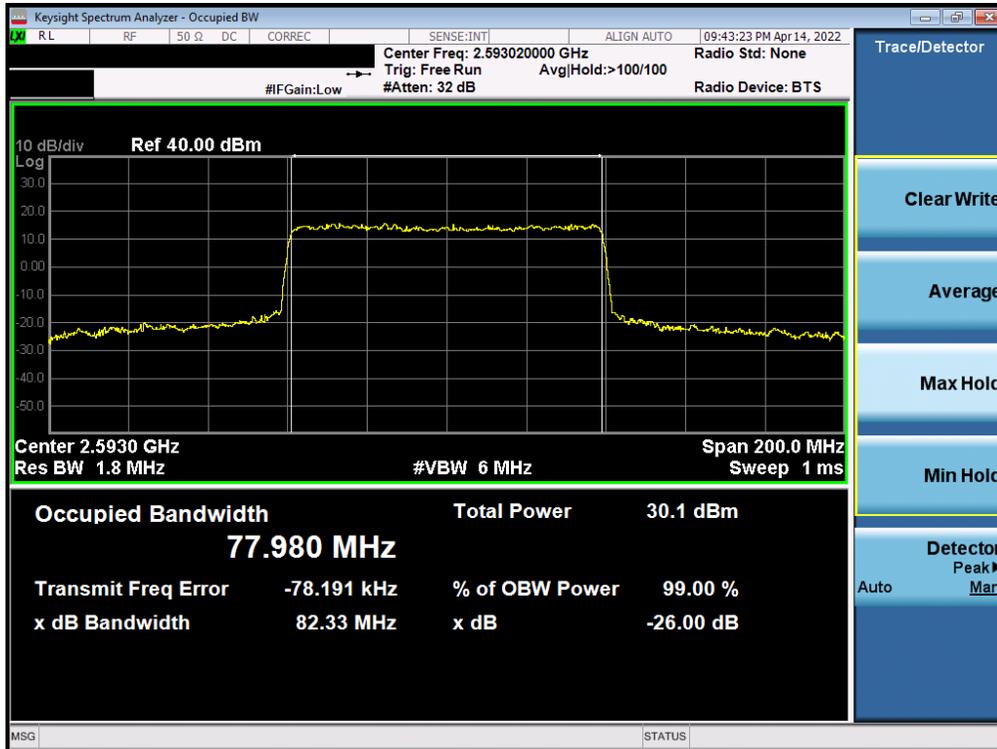


Plot 7-39. Occupied Bandwidth Plot (NR Band n41 - 80MHz  $\pi/2$  BPSK - Full RB)

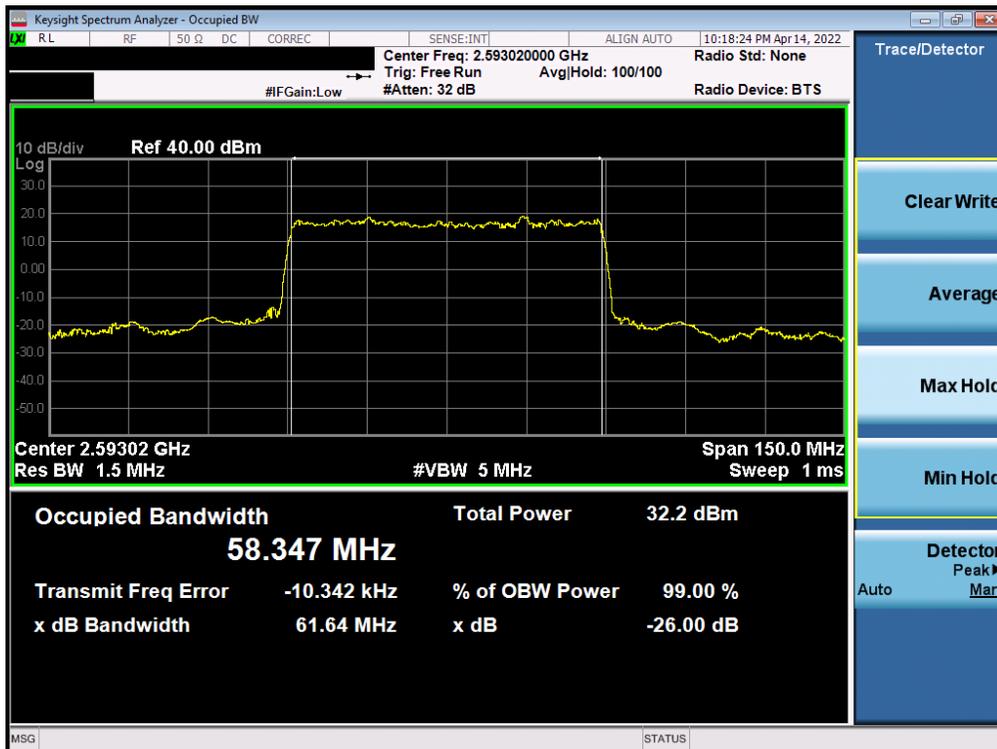


Plot 7-40. Occupied Bandwidth Plot (NR Band n41 - 80MHz QPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 34 of 102

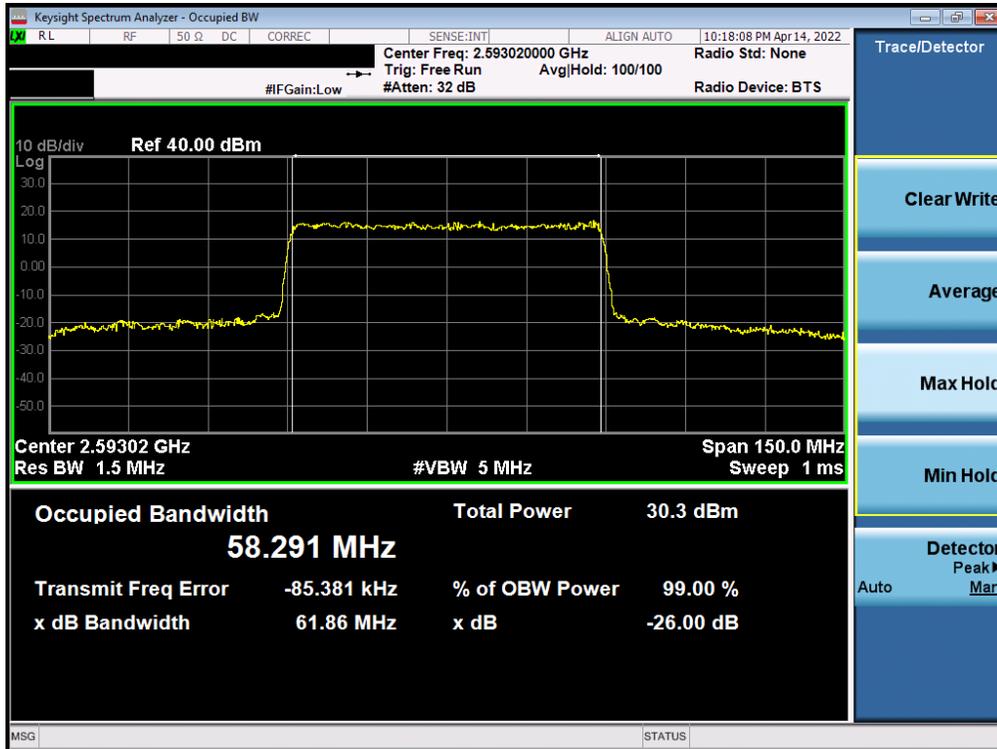


Plot 7-41. Occupied Bandwidth Plot (NR Band n41 - 80MHz 16-QAM - Full RB)

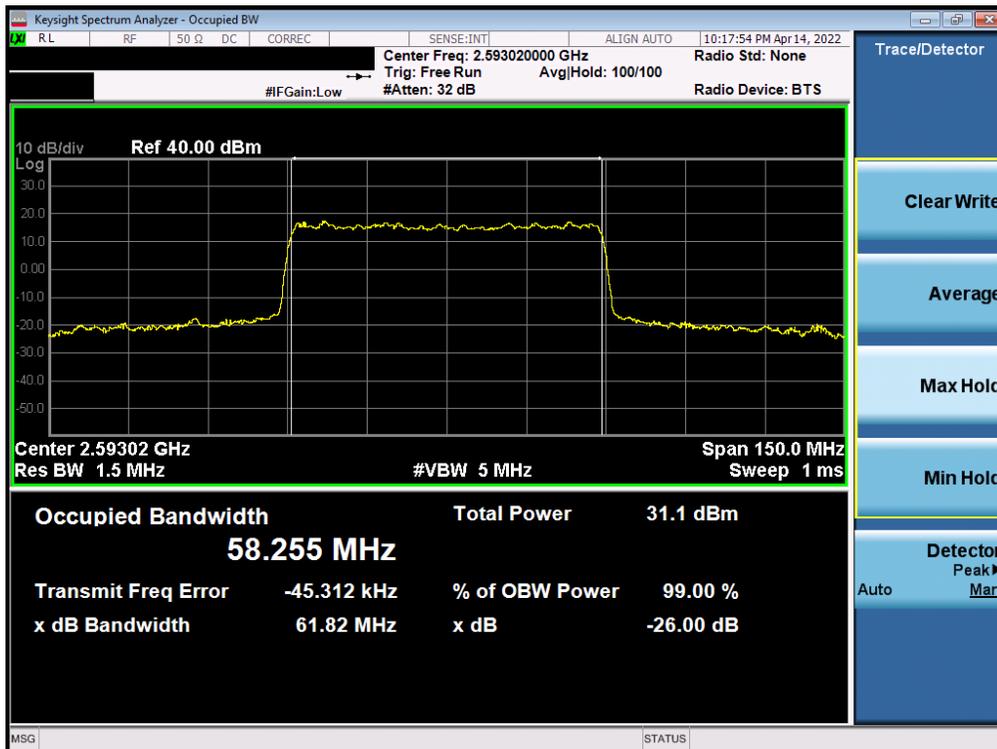


Plot 7-42. Occupied Bandwidth Plot (NR Band n41 - 60MHz  $\pi/2$  BPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 35 of 102

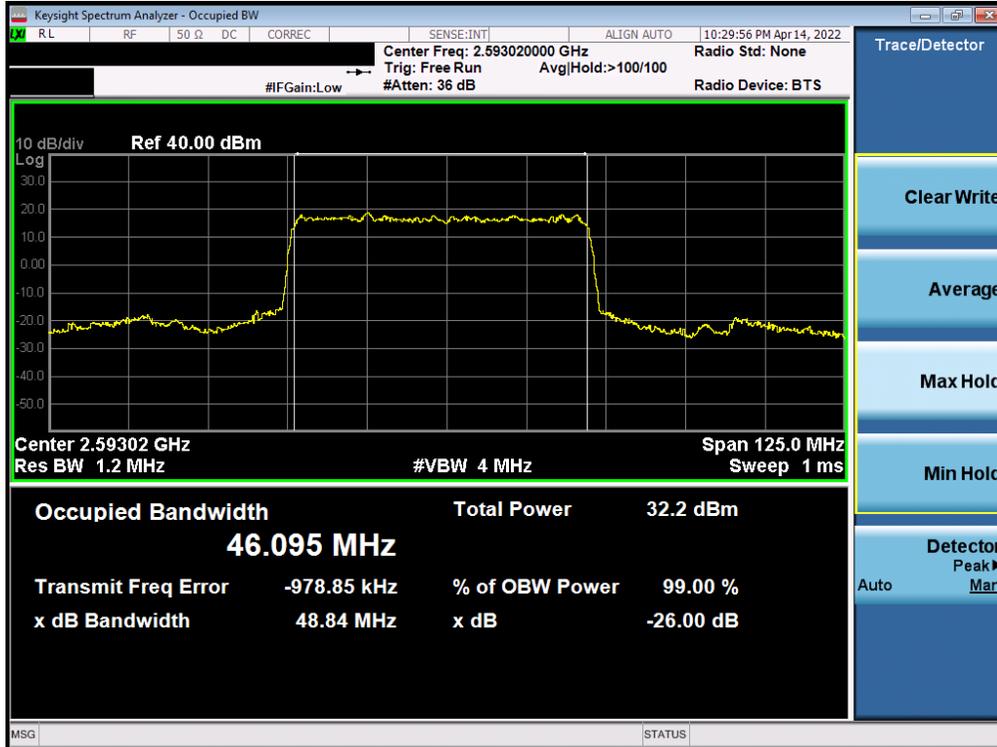


Plot 7-43. Occupied Bandwidth Plot (NR Band n41 - 60MHz QPSK - Full RB)

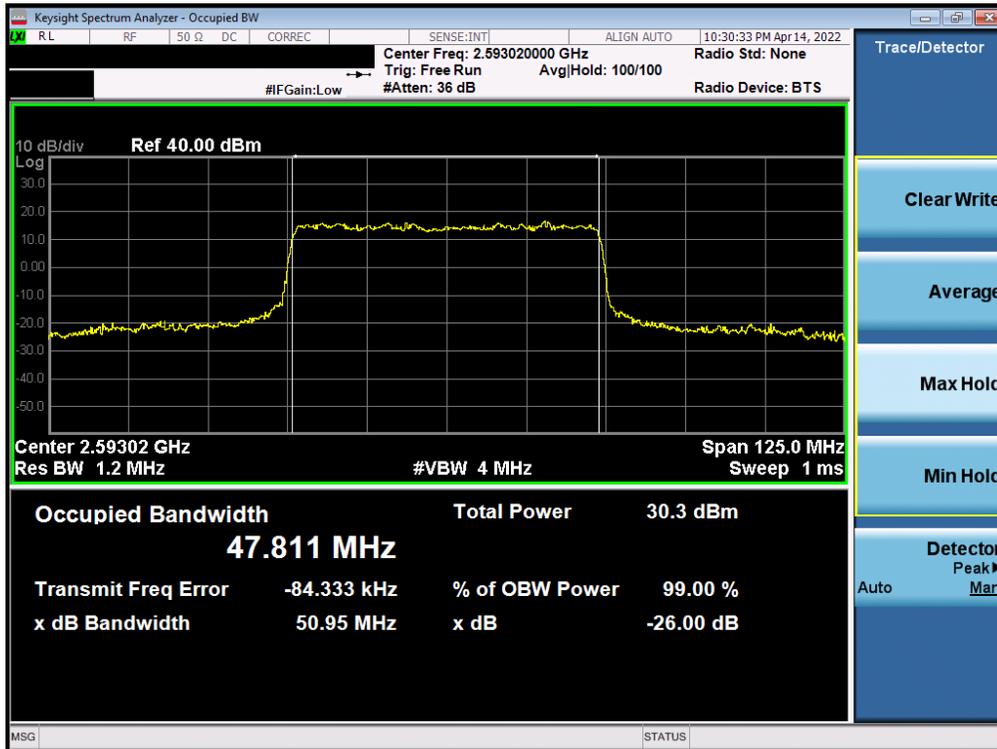


Plot 7-44. Occupied Bandwidth Plot (NR Band n41 - 60MHz 16-QAM - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 36 of 102

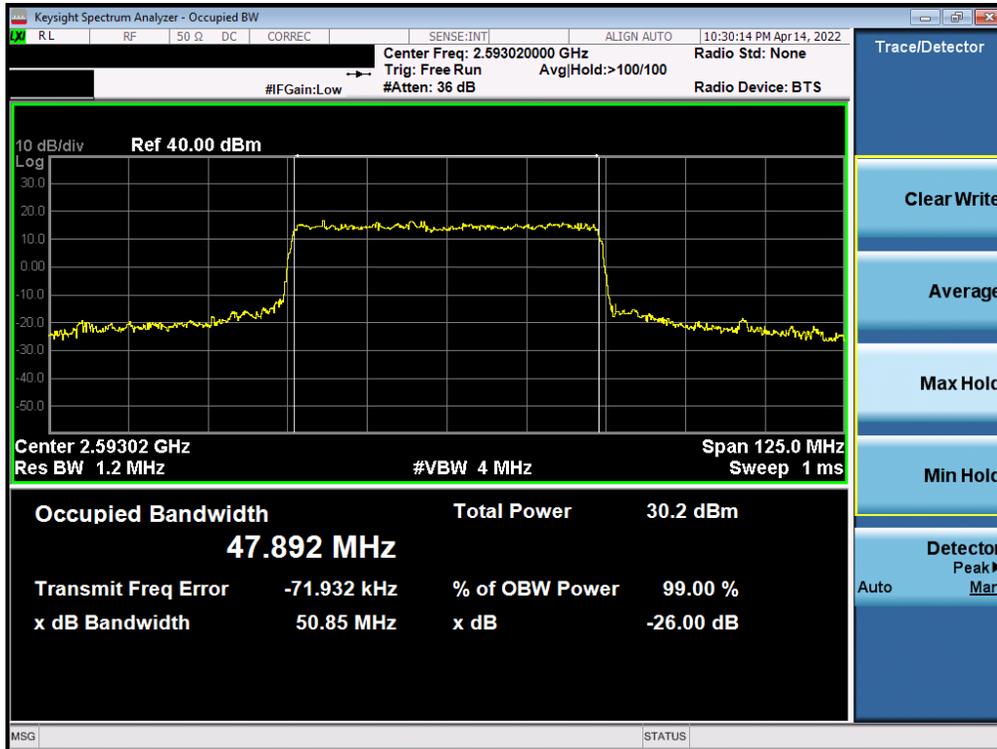


Plot 7-45. Occupied Bandwidth Plot (NR Band n41 - 50MHz  $\pi/2$  BPSK - Full RB)

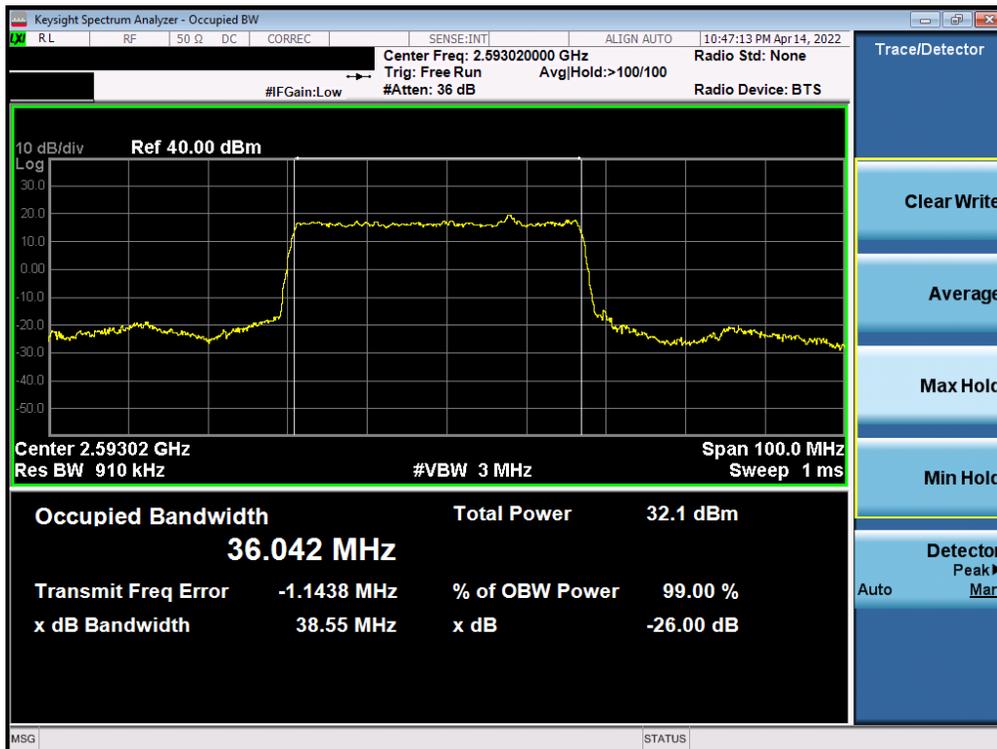


Plot 7-46. Occupied Bandwidth Plot (NR Band n41 - 50MHz QPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 37 of 102

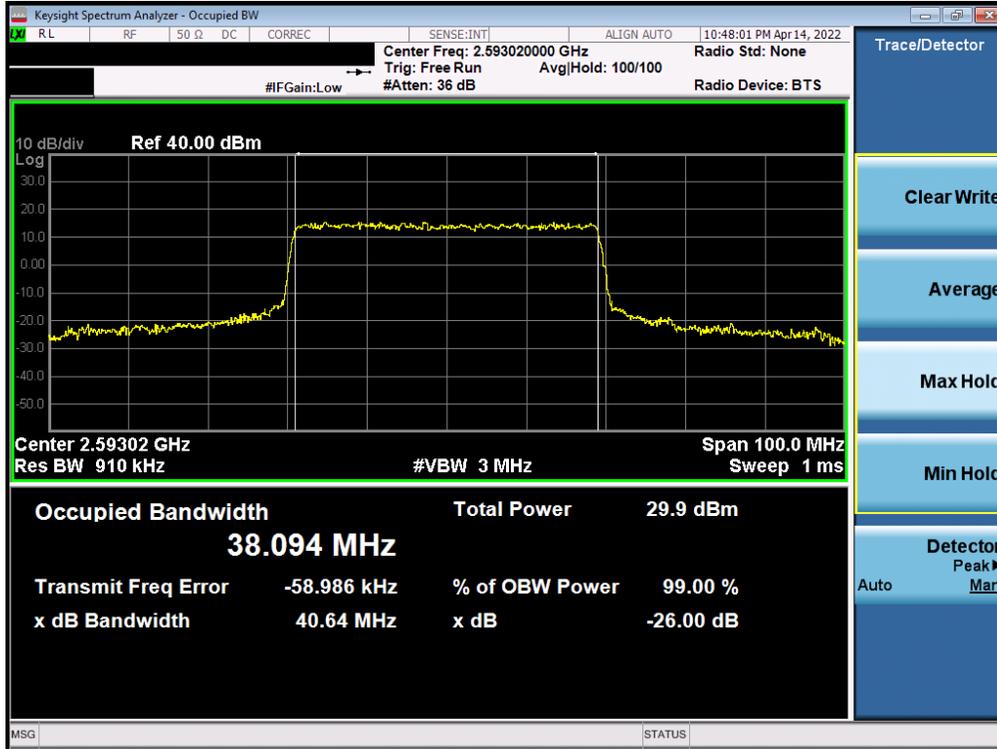


Plot 7-47. Occupied Bandwidth Plot (NR Band n41 - 50MHz 16-QAM - Full RB)

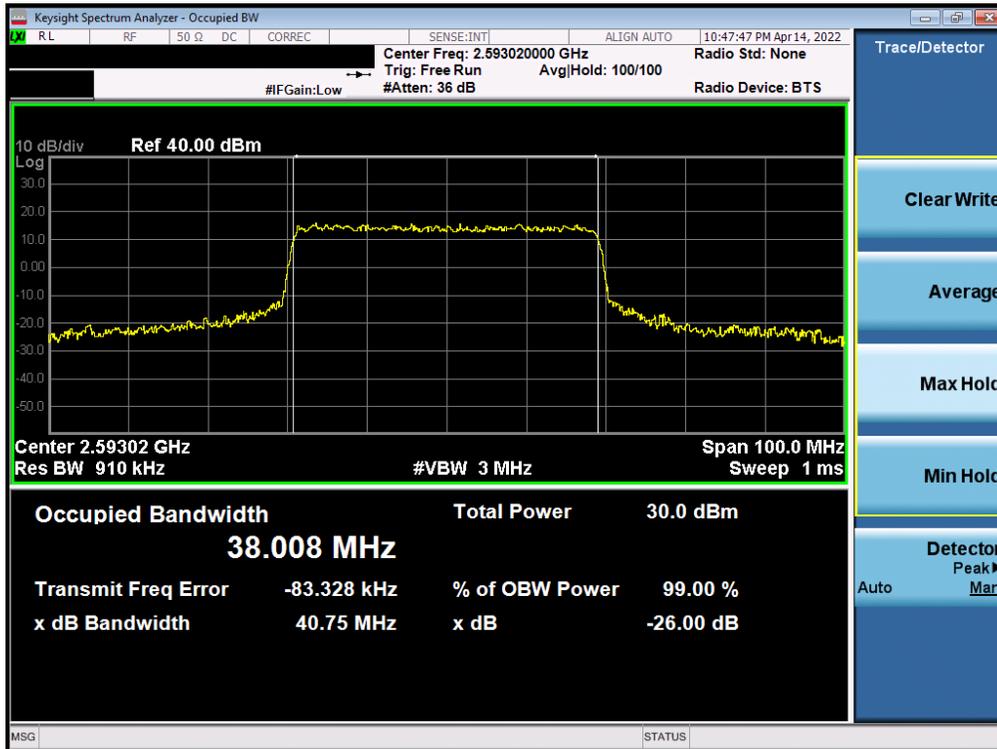


Plot 7-48. Occupied Bandwidth Plot (NR Band n41 - 40MHz  $\pi/2$  BPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 38 of 102

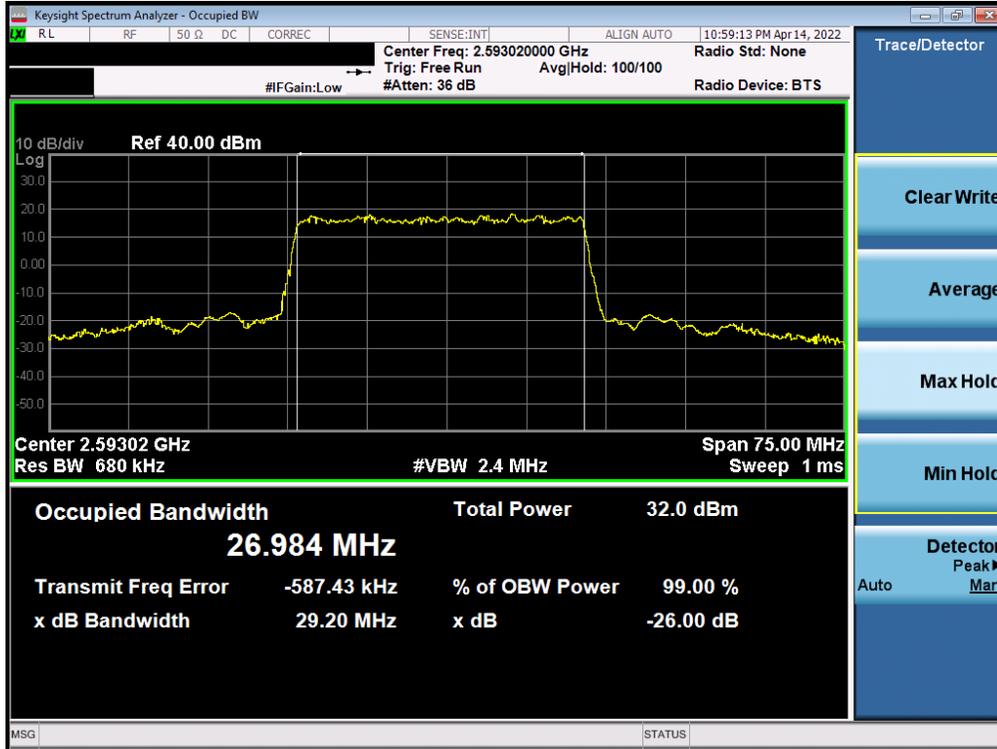


Plot 7-49. Occupied Bandwidth Plot (NR Band n41 - 40MHz QPSK - Full RB)

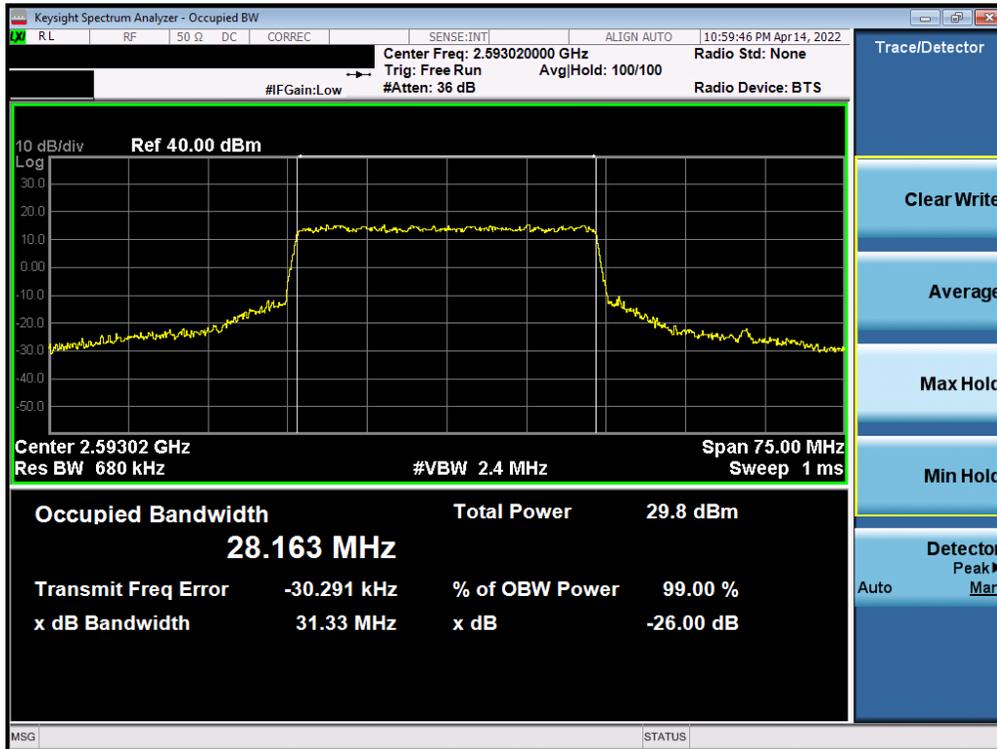


Plot 7-50. Occupied Bandwidth Plot (NR Band n41 - 40MHz 16-QAM - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 39 of 102

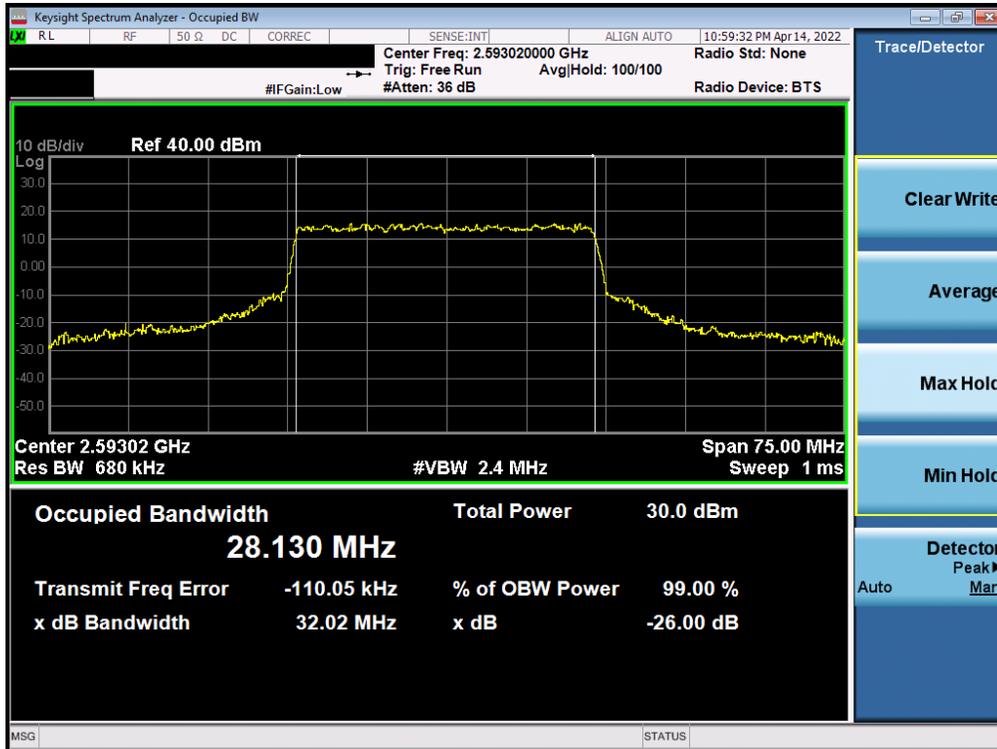


Plot 7-51. Occupied Bandwidth Plot (NR Band n41 - 30MHz  $\pi/2$  BPSK - Full RB)



Plot 7-52. Occupied Bandwidth Plot (NR Band n41 - 30MHz QPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 40 of 102

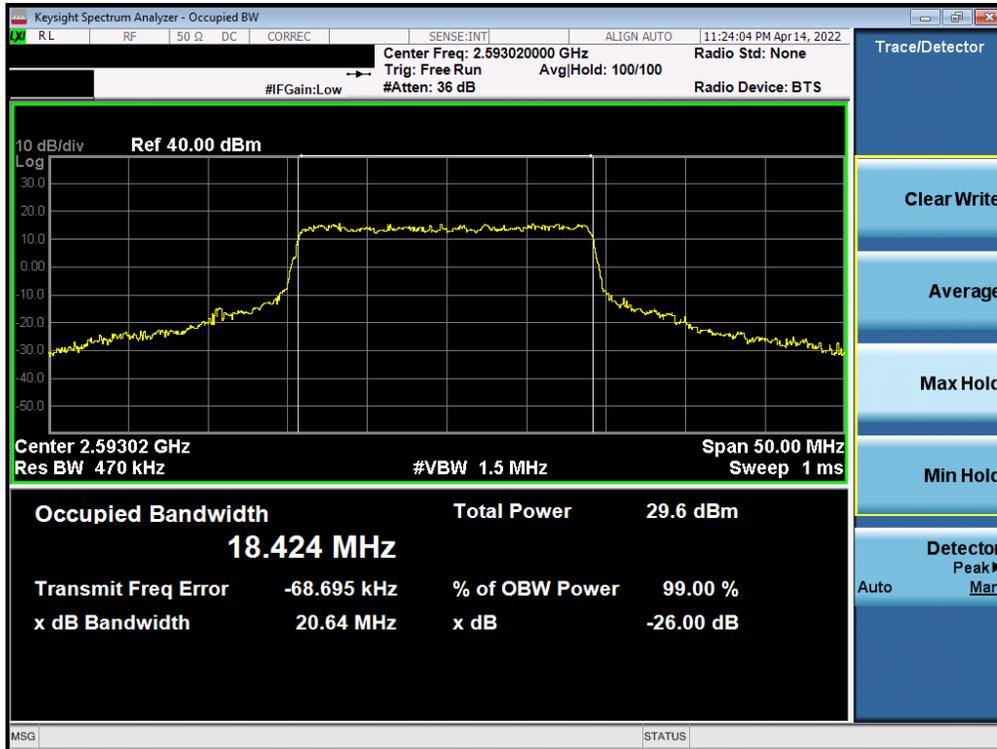


Plot 7-53. Occupied Bandwidth Plot (NR Band n41 - 30MHz 16-QAM - Full RB)



Plot 7-54. Occupied Bandwidth Plot (NR Band n41 - 20MHz  $\pi/2$  BPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 41 of 102



Plot 7-55. Occupied Bandwidth Plot (NR Band n41 - 20MHz QPSK - Full RB)



Plot 7-56. Occupied Bandwidth Plot (NR Band n41 - 20MHz 16-QAM - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 42 of 102

## 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 10<sup>th</sup> 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.**

**For Band 41, the minimum permissible attenuation level of any spurious emission is  $55 + 10 \log_{10}(P_{[Watts]})$ .**

### Test Procedure Used

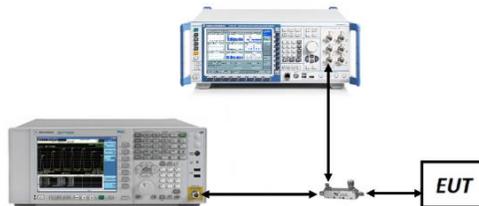
ANSI C63.26-2015 – Section 5.7.4

### Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to 10GHz (separated into at least two plots per channel)
2. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. 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 7-3. Test Instrument & Measurement Setup**

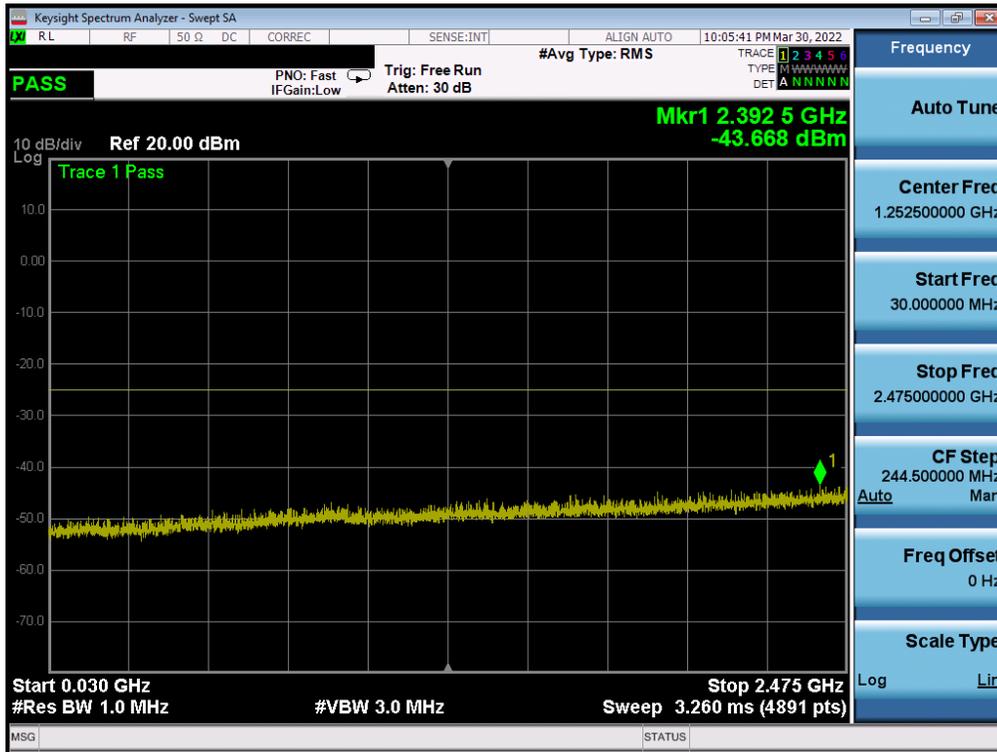
### Test Notes

1. Per Part 27, RSS-195 and RSS-199, compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz.
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.

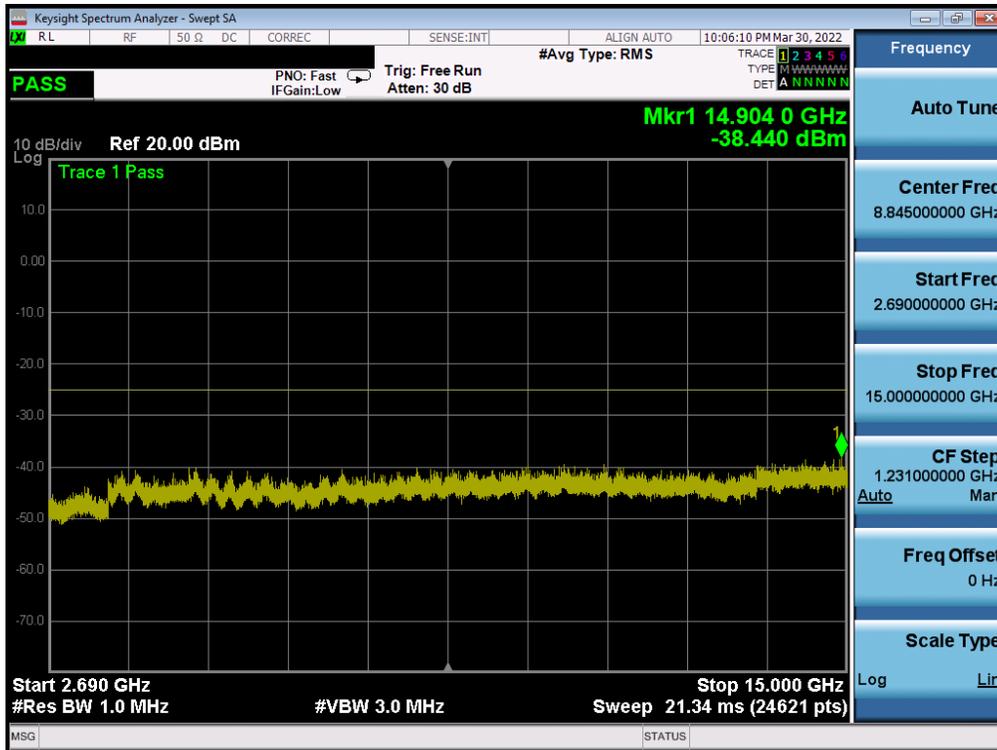
FCC ID: PY7-57325M	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 43 of 102

V3.0 1/6/2022

# LTE Band 41(PC3)

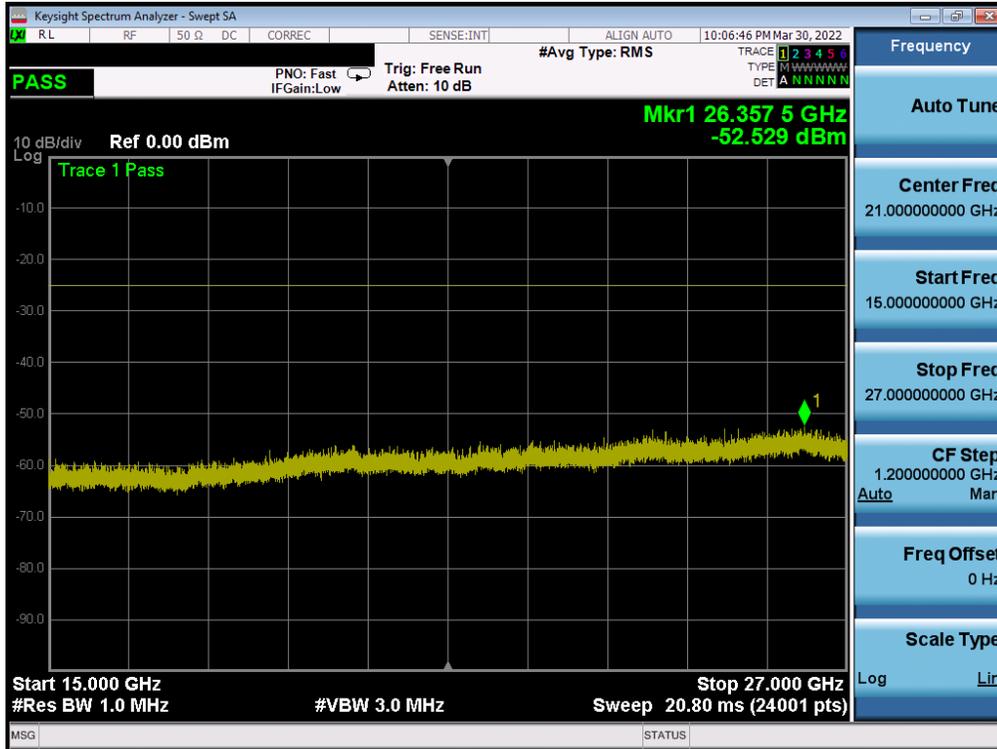


Plot 7-57. Conducted Spurious Plot (LTE Band 41(PC3) - 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

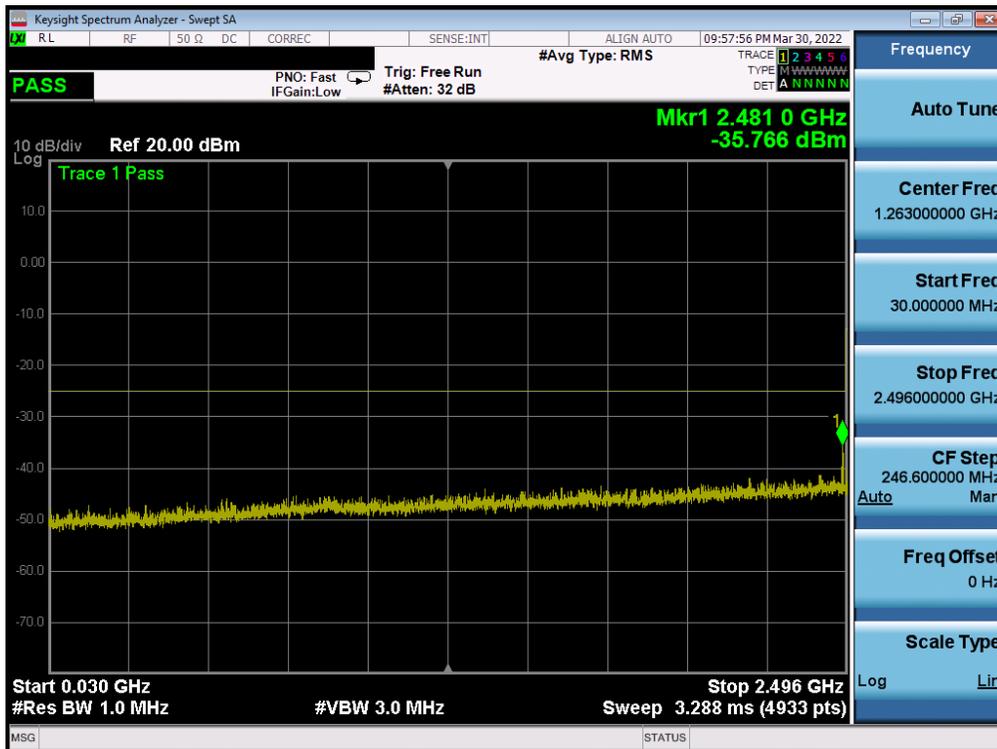


Plot 7-58. Conducted Spurious Plot (LTE Band 41(PC3) - 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 44 of 102

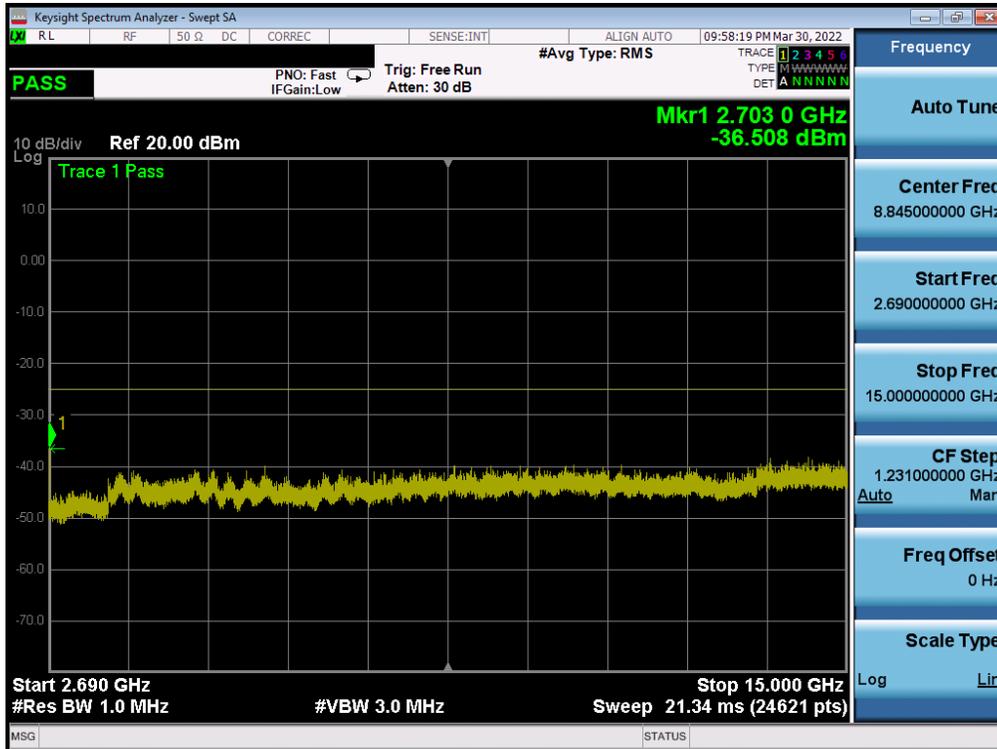


Plot 7-59. Conducted Spurious Plot (LTE Band 41(PC3) - 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

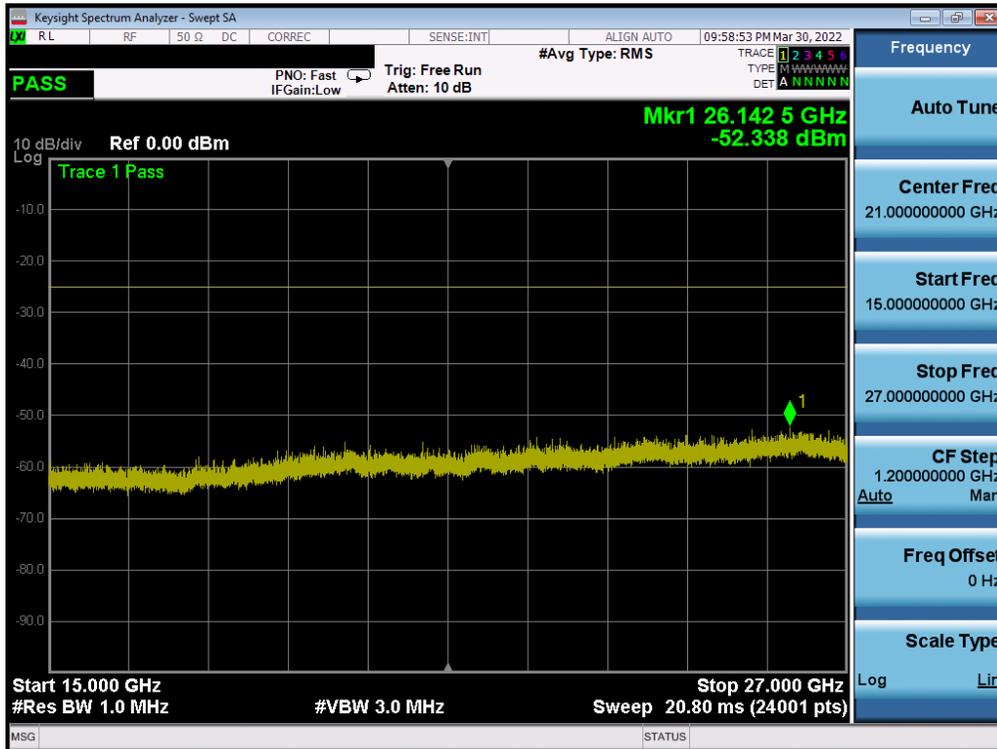


Plot 7-60. Conducted Spurious Plot (LTE Band 41(PC3) - 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 45 of 102

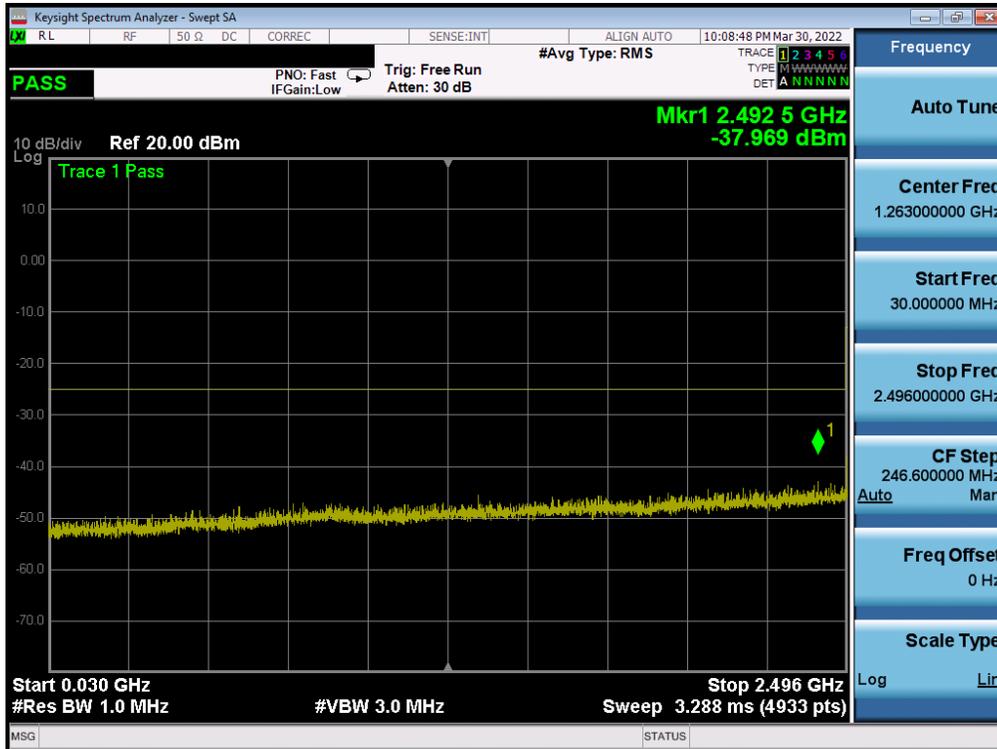


Plot 7-61. Conducted Spurious Plot (LTE Band 41(PC3) - 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

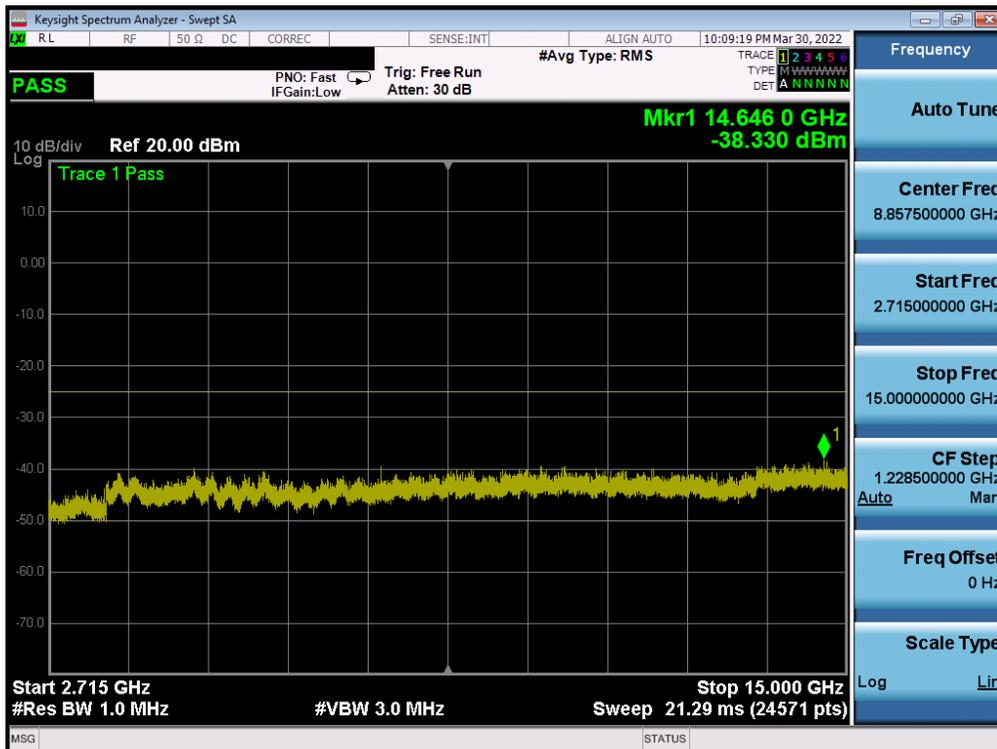


Plot 7-62. Conducted Spurious Plot (LTE Band 41(PC3) - 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 46 of 102

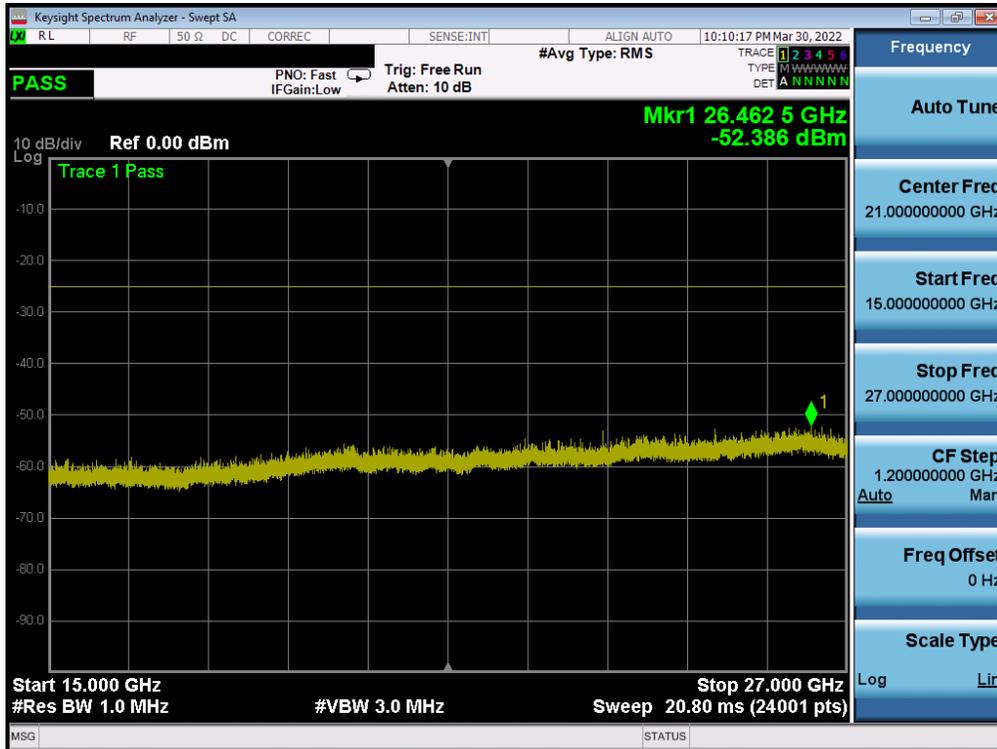


Plot 7-63. Conducted Spurious Plot (LTE Band 41(PC3) - 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-64. Conducted Spurious Plot (LTE Band 41(PC3) - 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

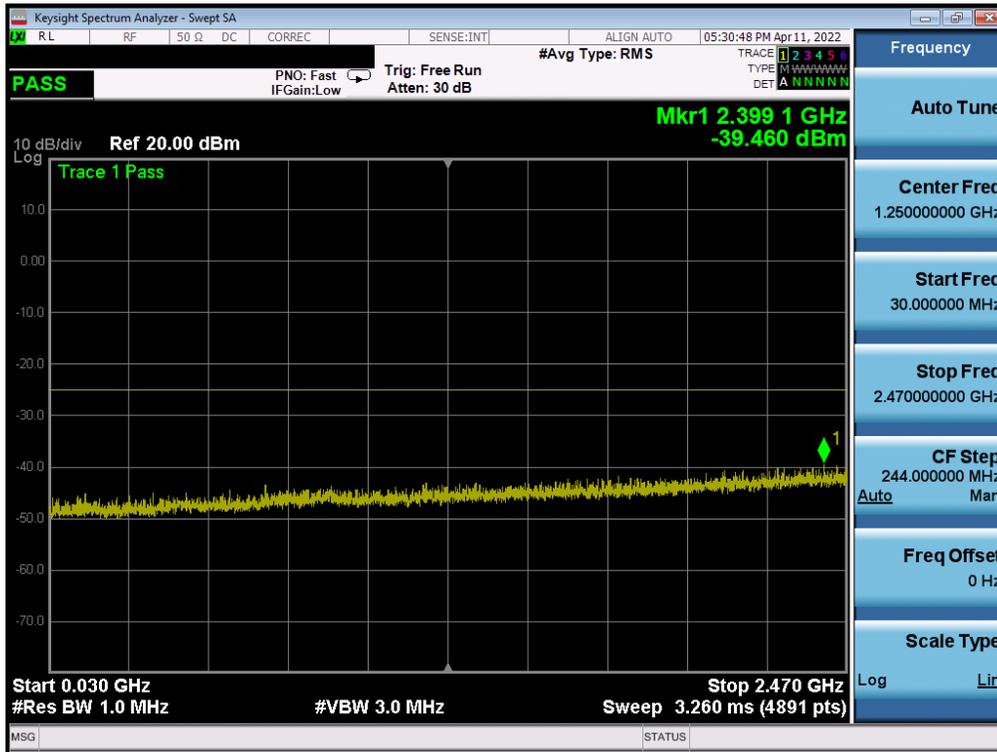
FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 47 of 102



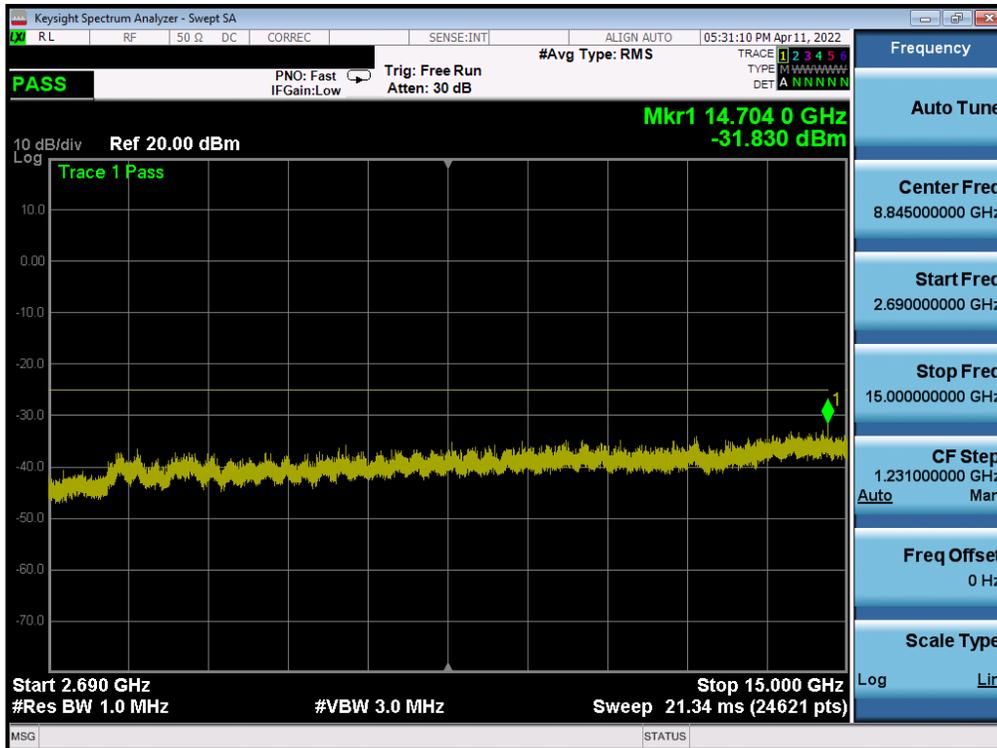
Plot 7-65. Conducted Spurious Plot (LTE Band 41(PC3) - 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 48 of 102

# NR Band n41 (PC2)

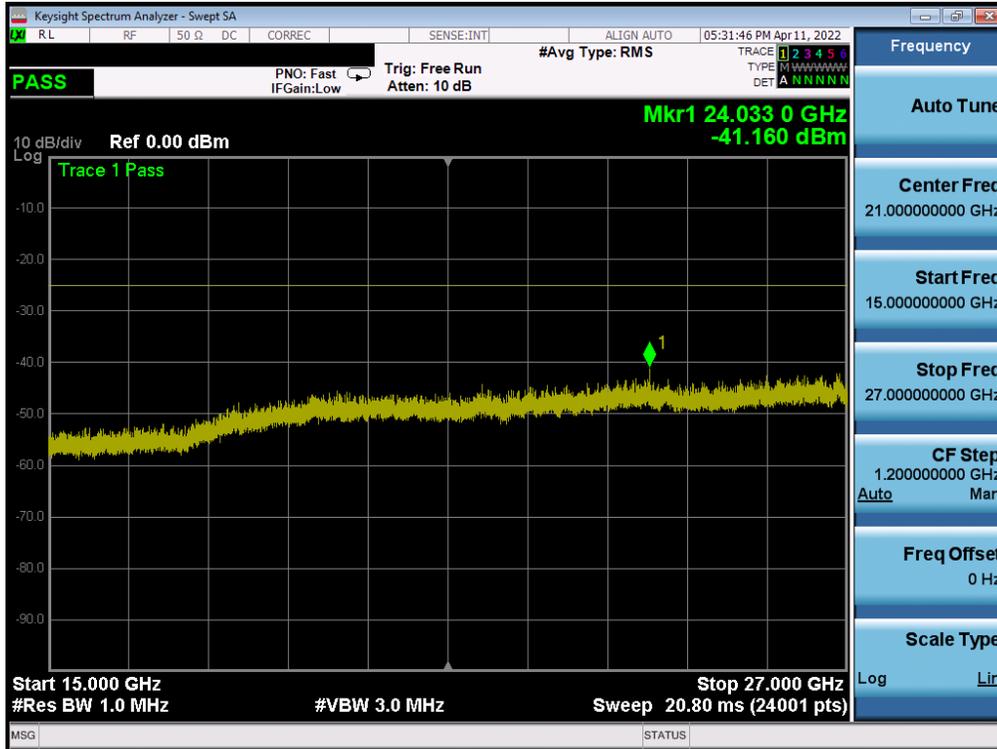


Plot 7-66. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

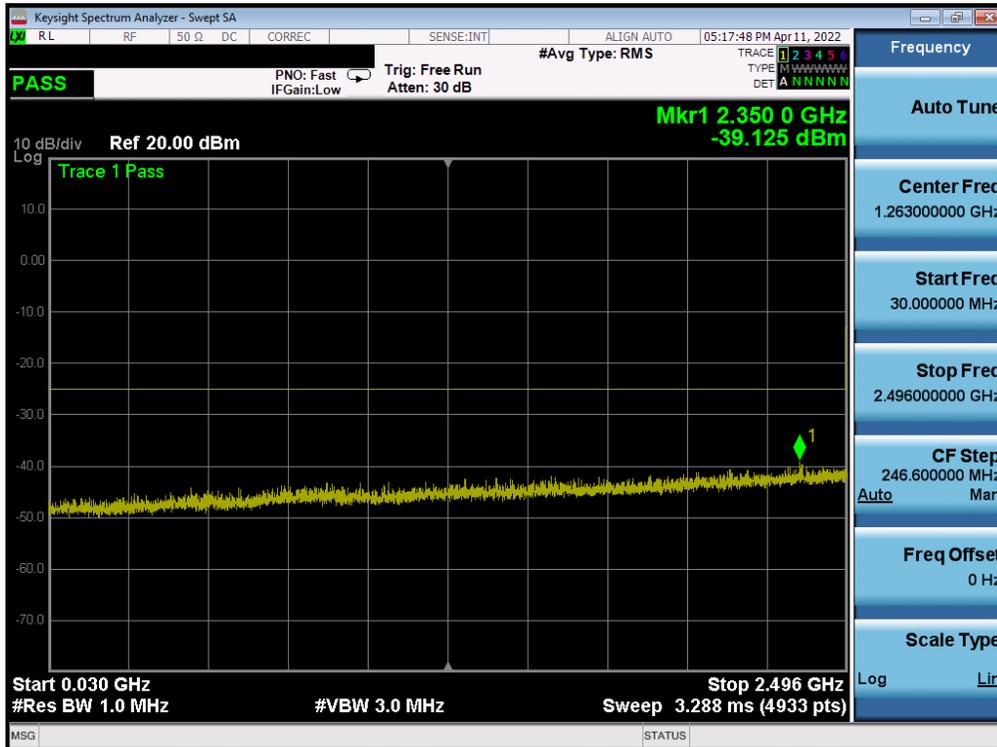


Plot 7-67. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 49 of 102

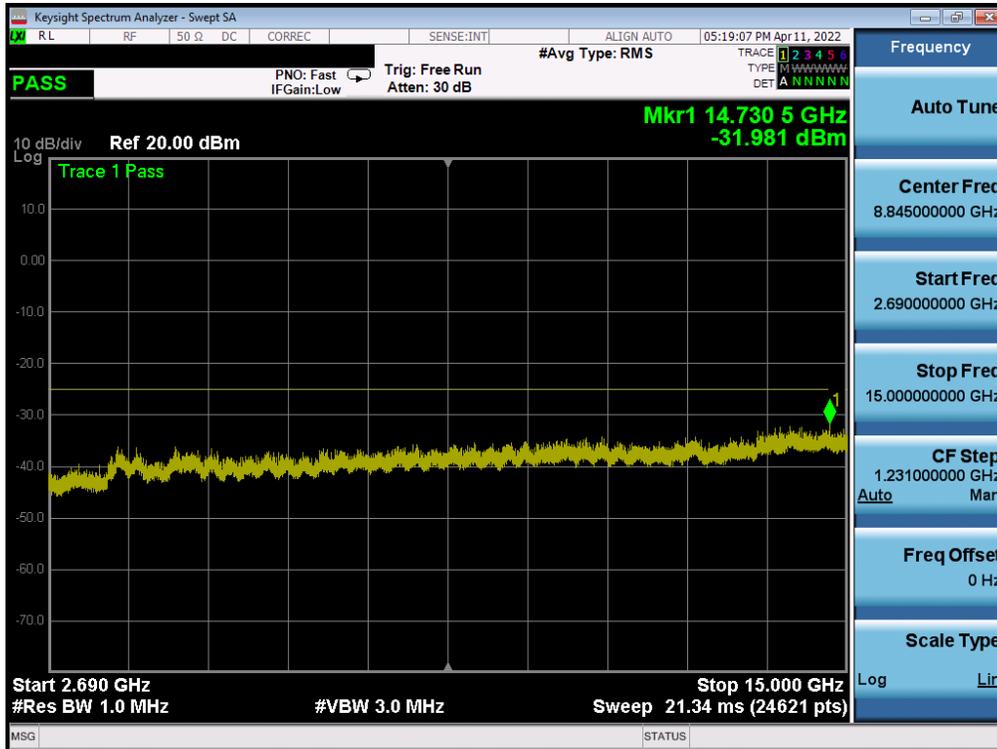


Plot 7-68. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

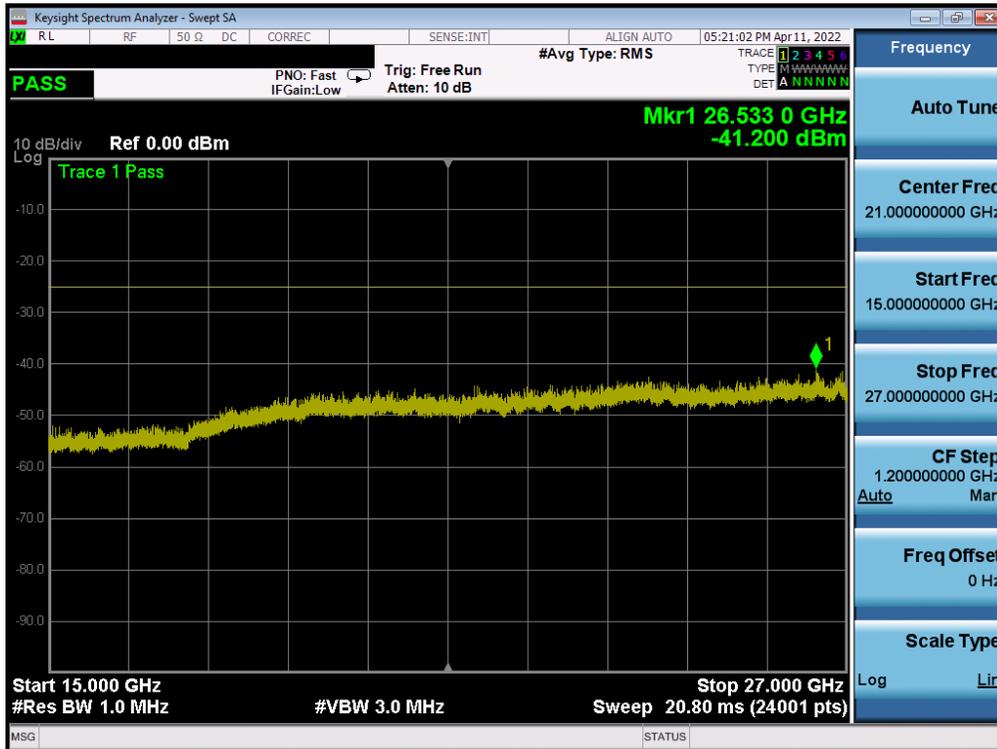


Plot 7-69. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 50 of 102

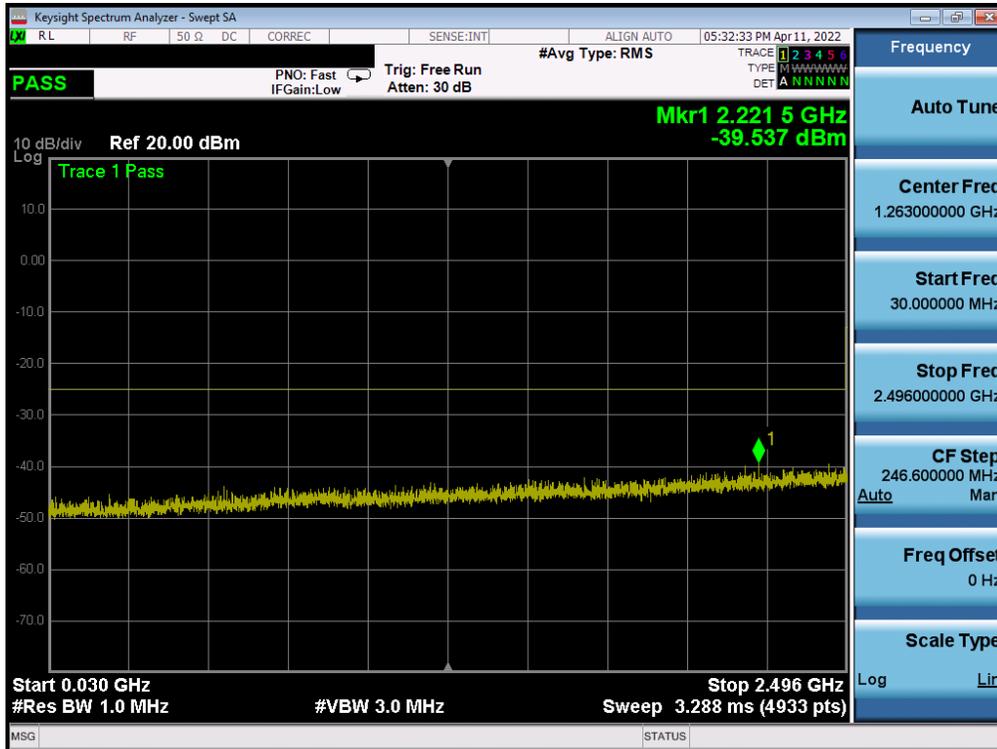


Plot 7-70. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

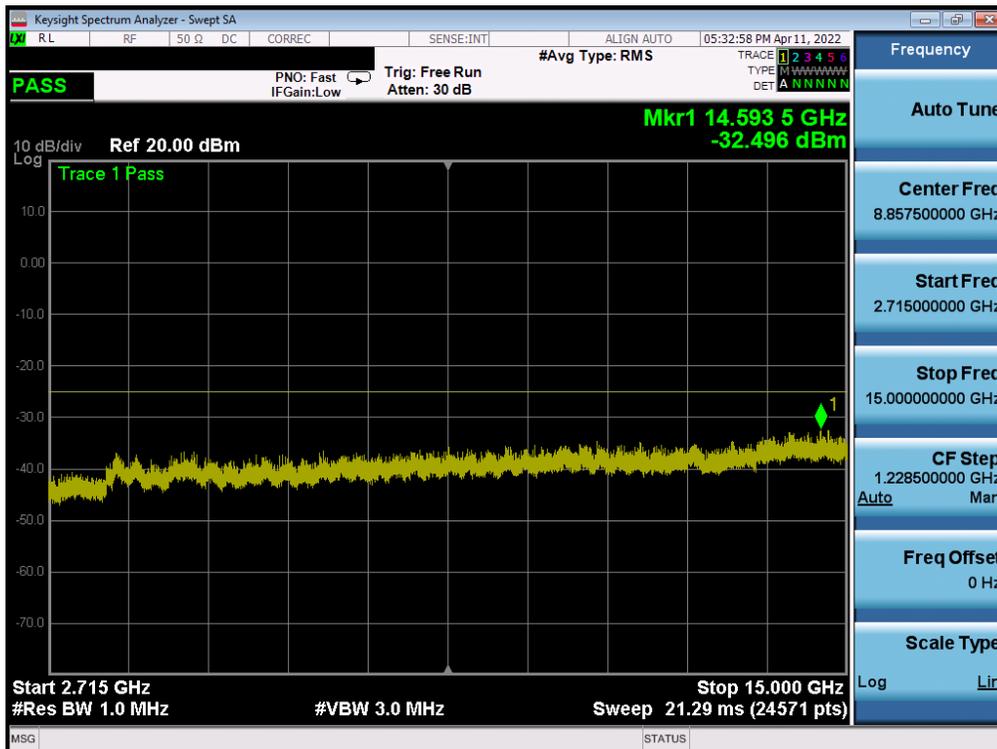


Plot 7-71. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 51 of 102

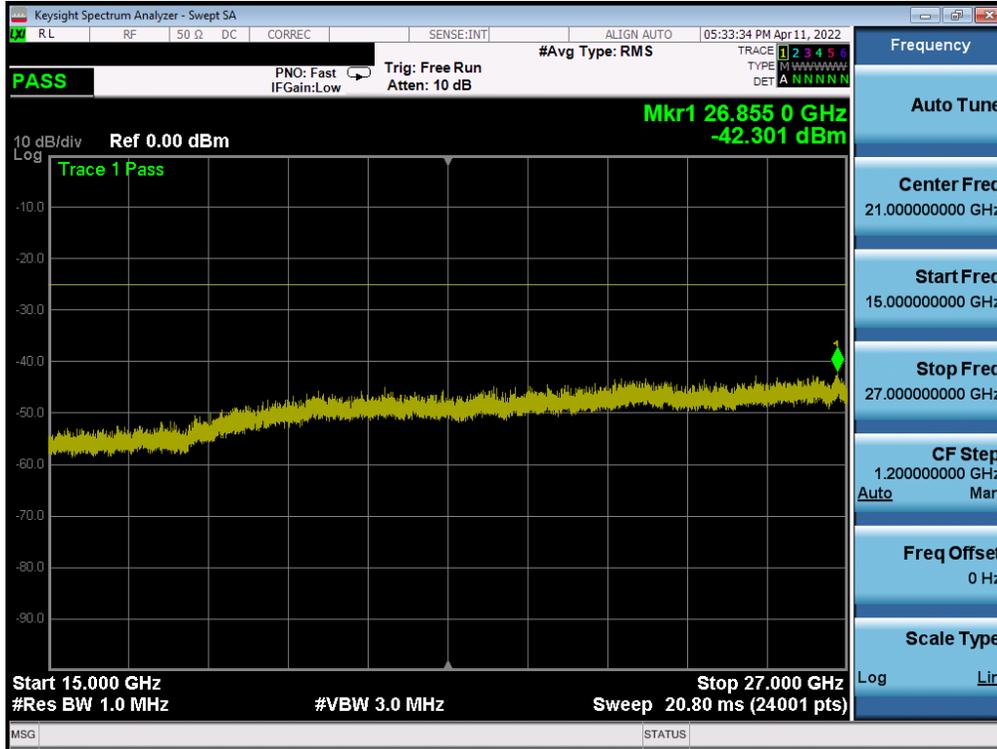


Plot 7-72. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-73. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

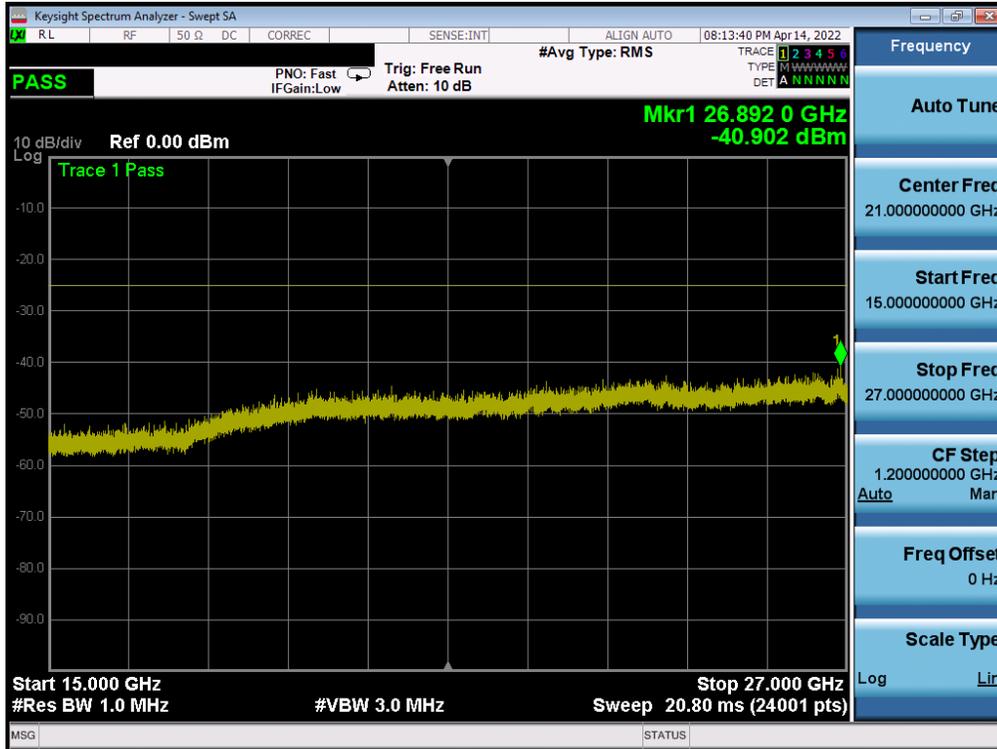
FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 52 of 102



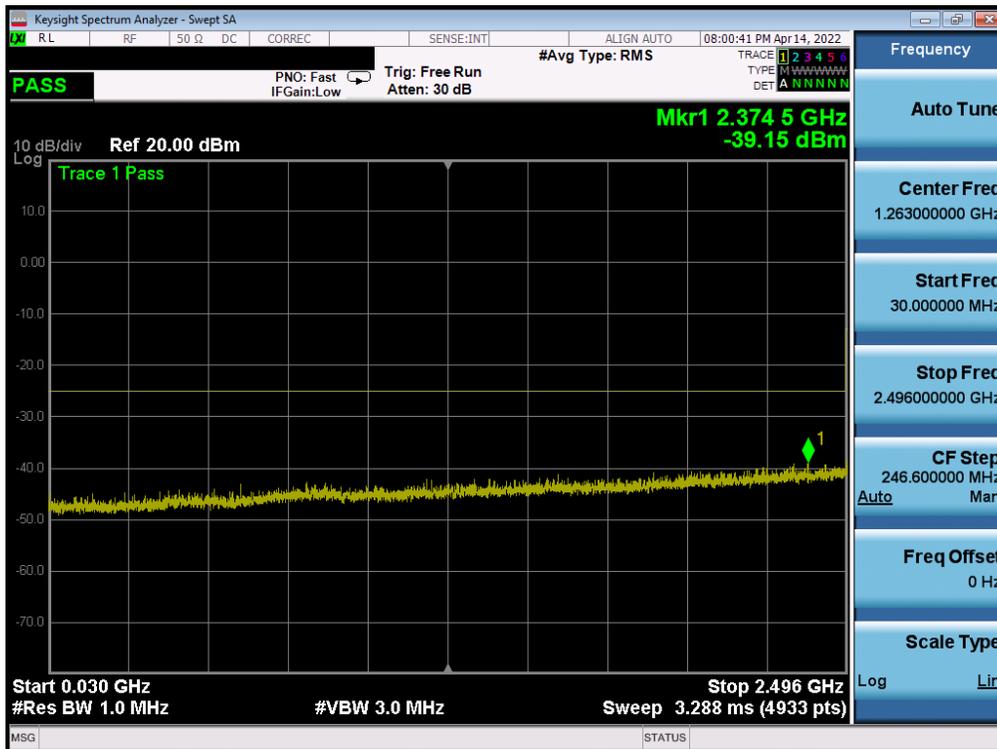
Plot 7-74. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 53 of 102



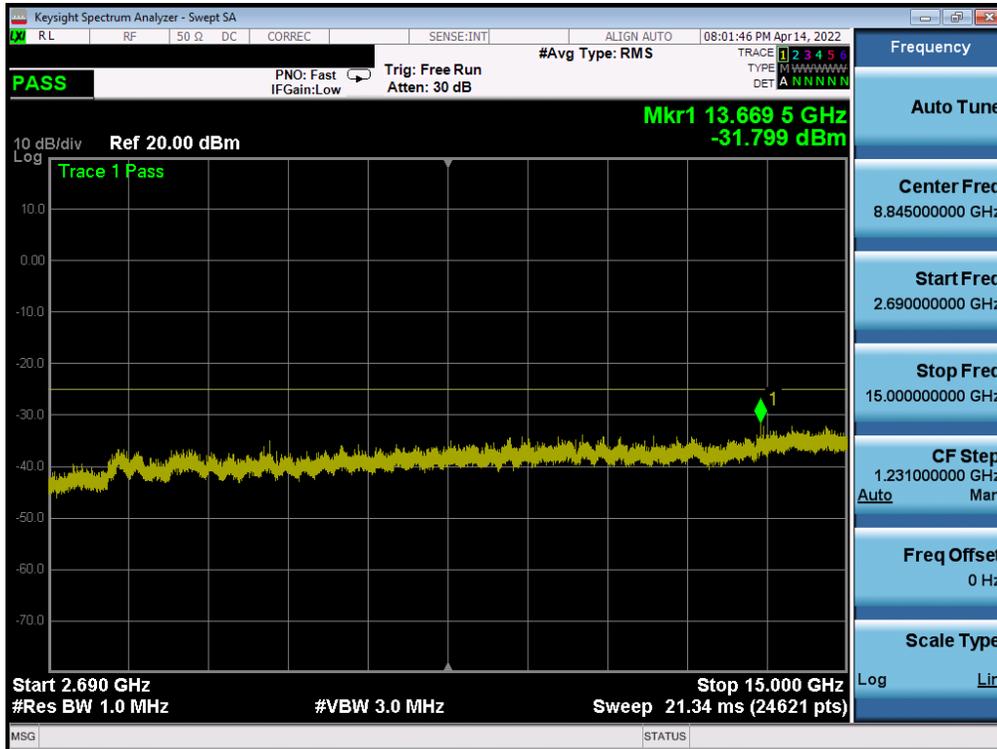


Plot 7-77. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)

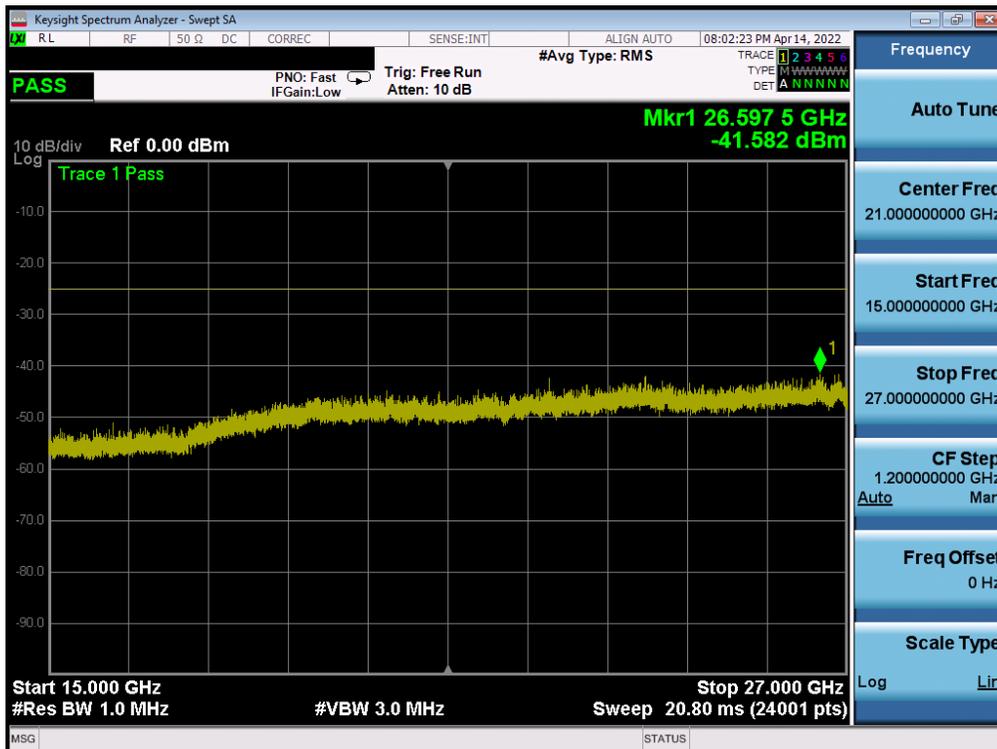


Plot 7-78. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 55 of 102

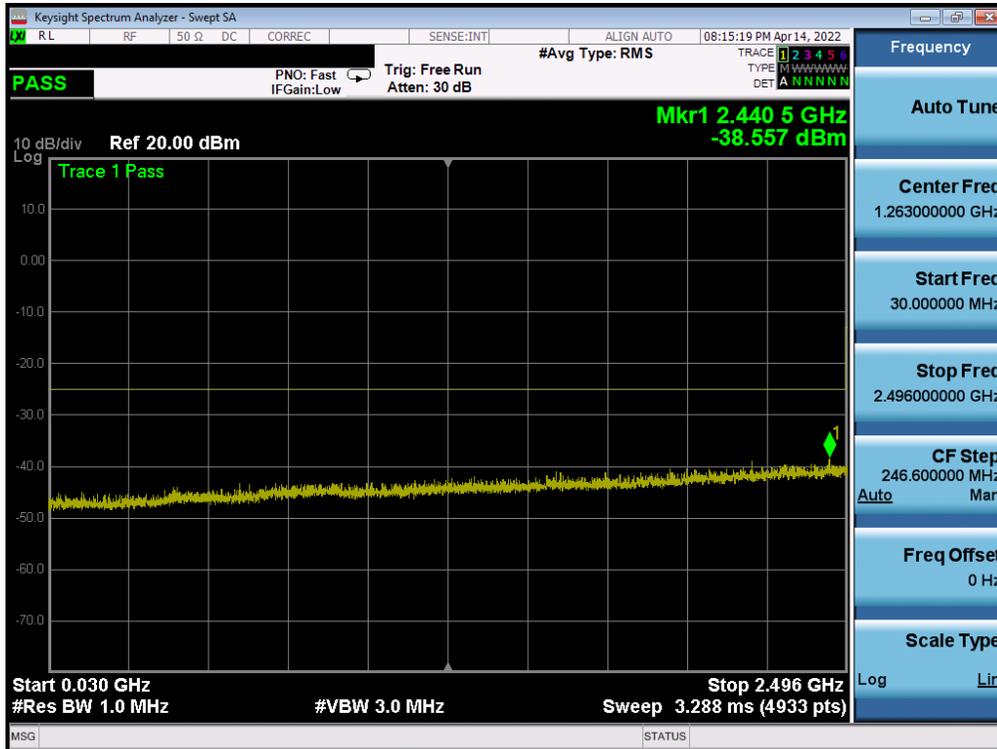


Plot 7-79. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

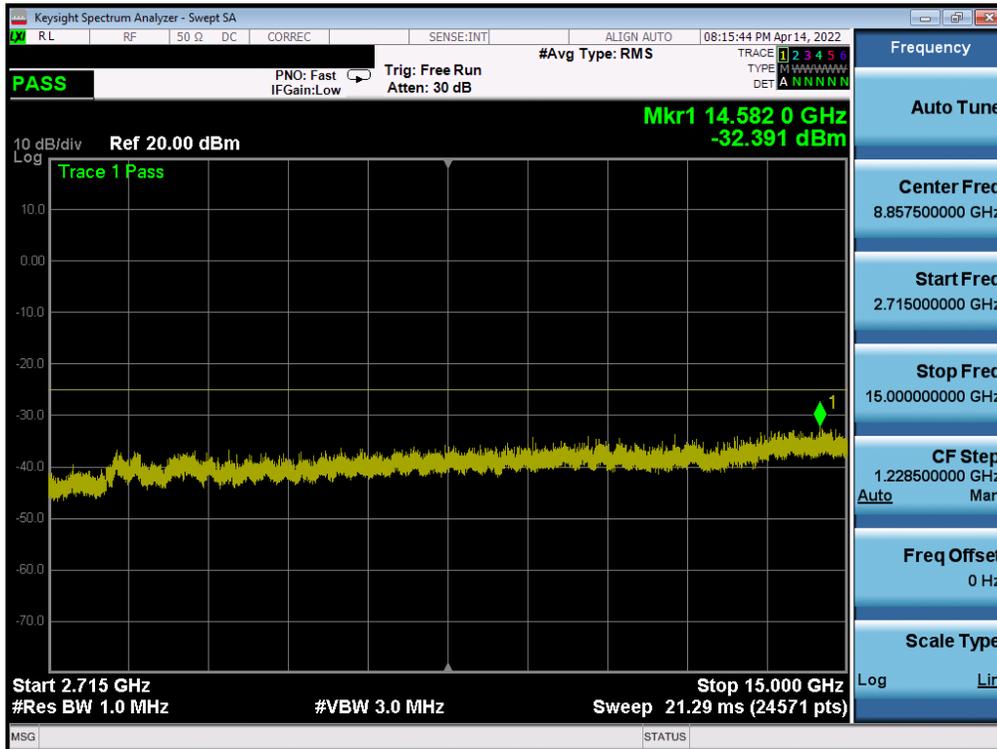


Plot 7-80. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 56 of 102

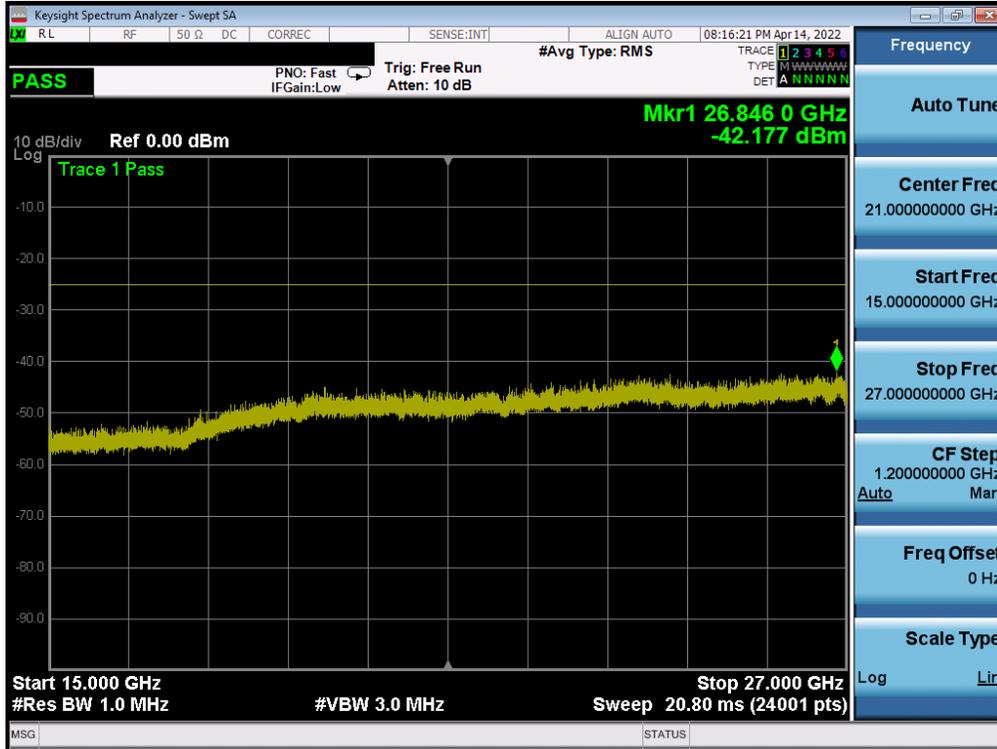


Plot 7-81. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel)



Plot 7-82. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 57 of 102



Plot 7-83. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 58 of 102

## 7.5 Band Edge Emissions at Antenna Terminal

### Test Overview

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 for Band 41 is as noted in the Test Notes on the following page.***

### Test Procedure Used

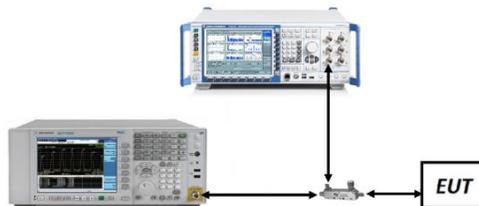
ANSI C63.26-2015 – Section 5.7.3

### Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW  $\geq$  1% of the emission bandwidth
4. VBW  $\geq$  3 x RBW
5. Detector = RMS
6. Number of sweep points  $\geq$  2 x Span/RBW
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize

### Test Setup

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



**Figure 7-4. Test Instrument & Measurement Setup**

FCC ID: PY7-57325M	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 59 of 102

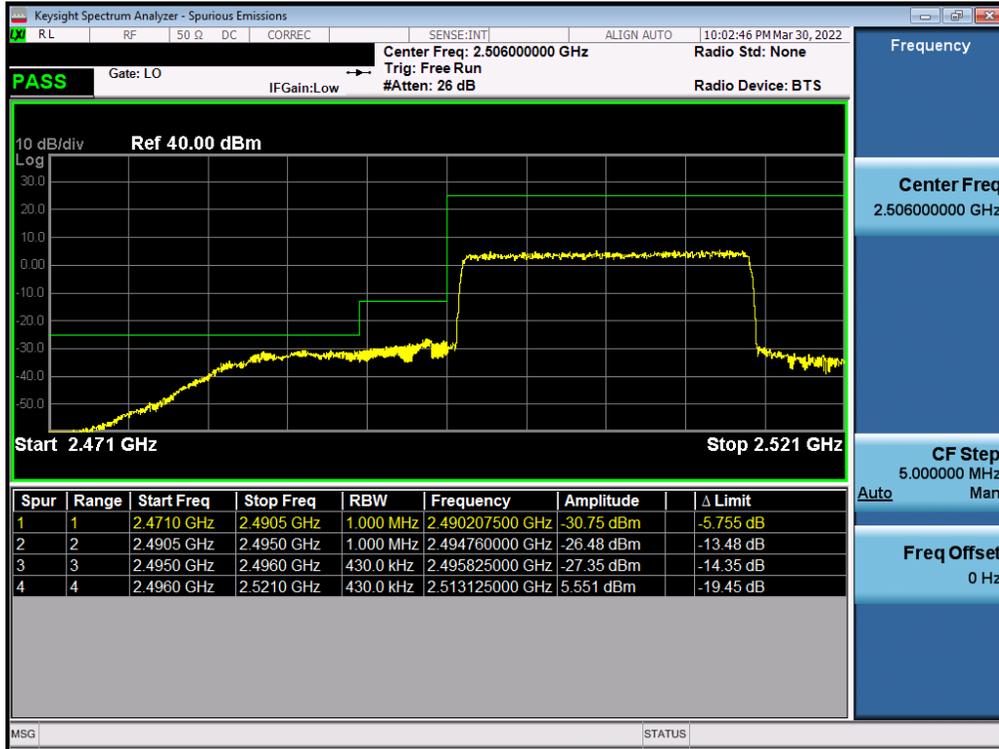
V3.0 1/6/2022

**Test Notes**

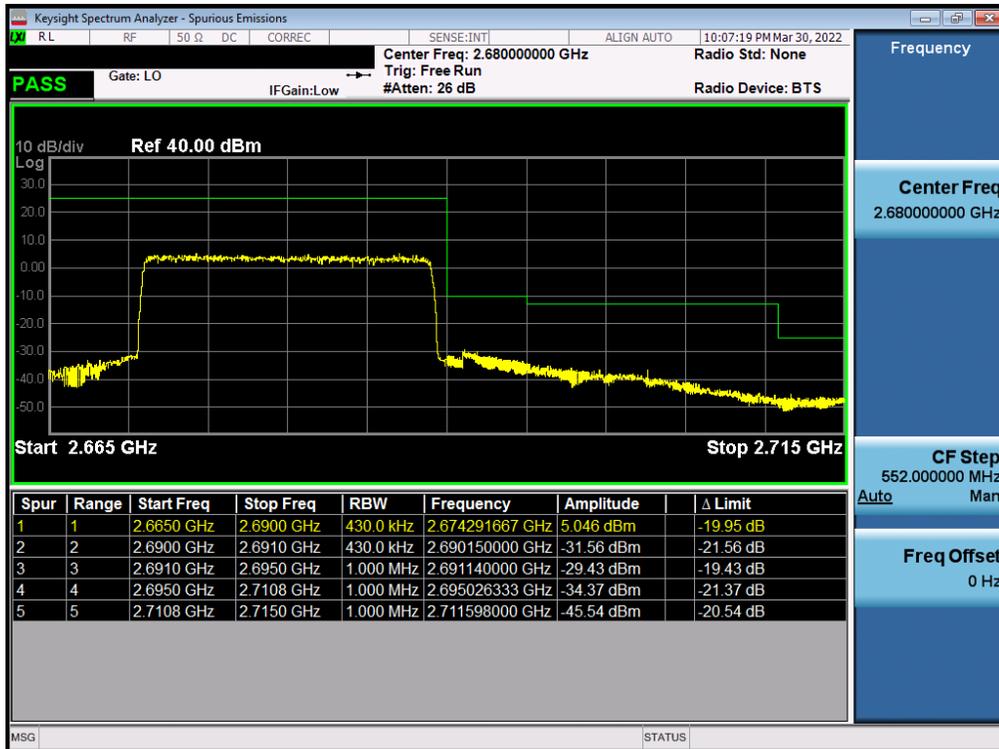
1. Per 27.53(a)(5) in the 1 MHz bands immediately outside and adjacent to the channel blocks at 2305, 2310, 2315, 2320, 2345, 2350, 2355, and 2360 MHz, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e., 1 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.
2. Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth. In addition, the attenuation factor shall not be less than  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5 MHz.
3. 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: PY7-57325M	<b>PART 27 MEASUREMENT REPORT</b>		<b>Approved by:</b> Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 60 of 102

# LTE Band 41(PC3)

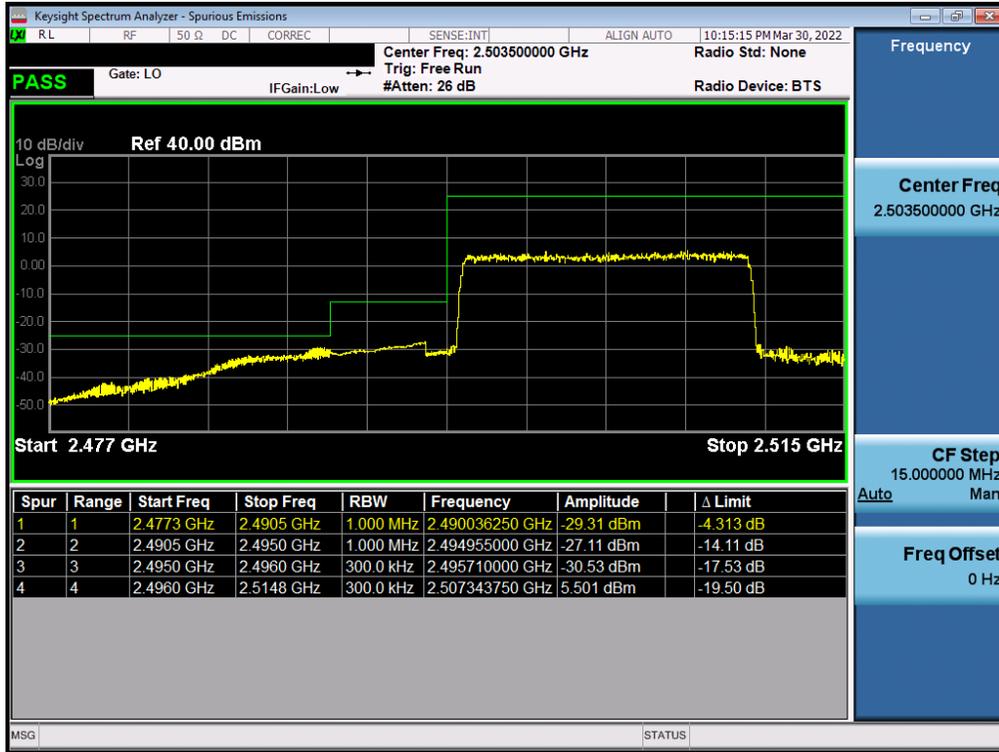


Plot 7-84. Lower ACP Plot (LTE Band 41(PC3) - 20MHz QPSK – Full RB)



Plot 7-85. Upper ACP Plot (LTE Band 41(PC3) - 20MHz QPSK – Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 61 of 102

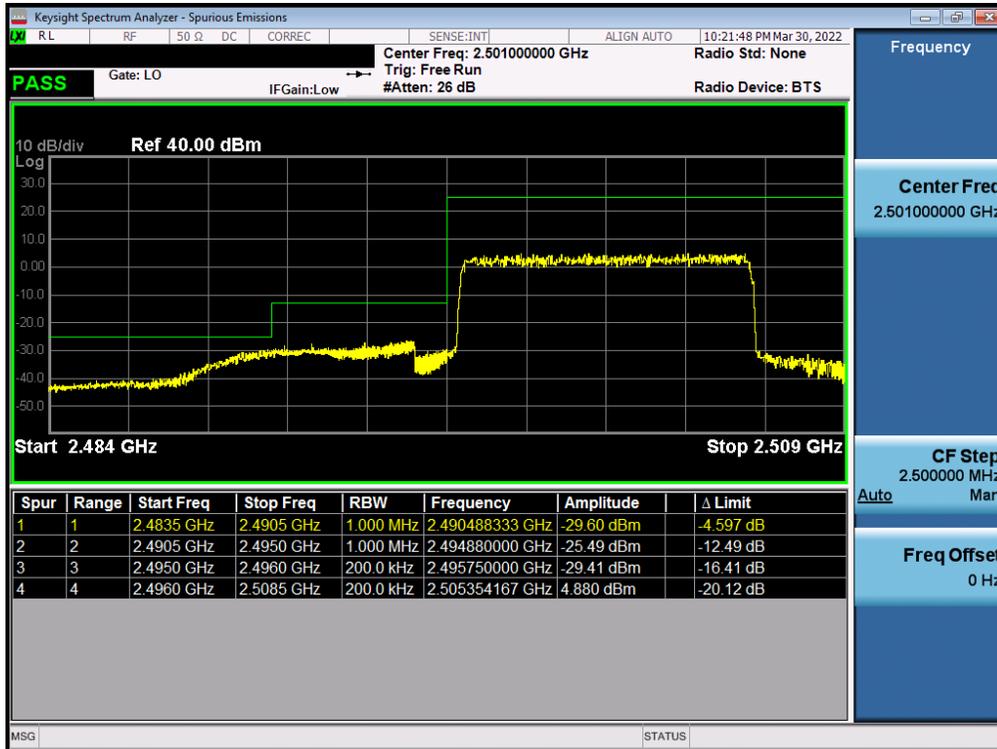


Plot 7-86. Lower ACP Plot (LTE Band 41(PC3) - 15MHz QPSK - Full RB)

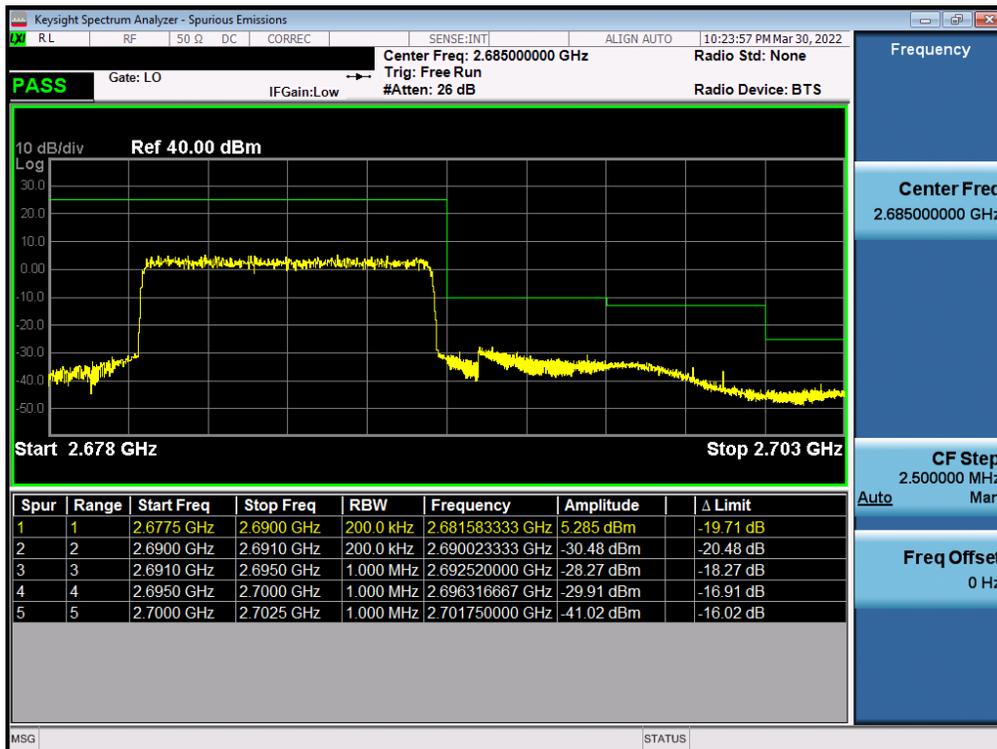


Plot 7-87. Upper ACP Plot (LTE Band 41(PC3) - 15MHz QPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M220120003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 62 of 102

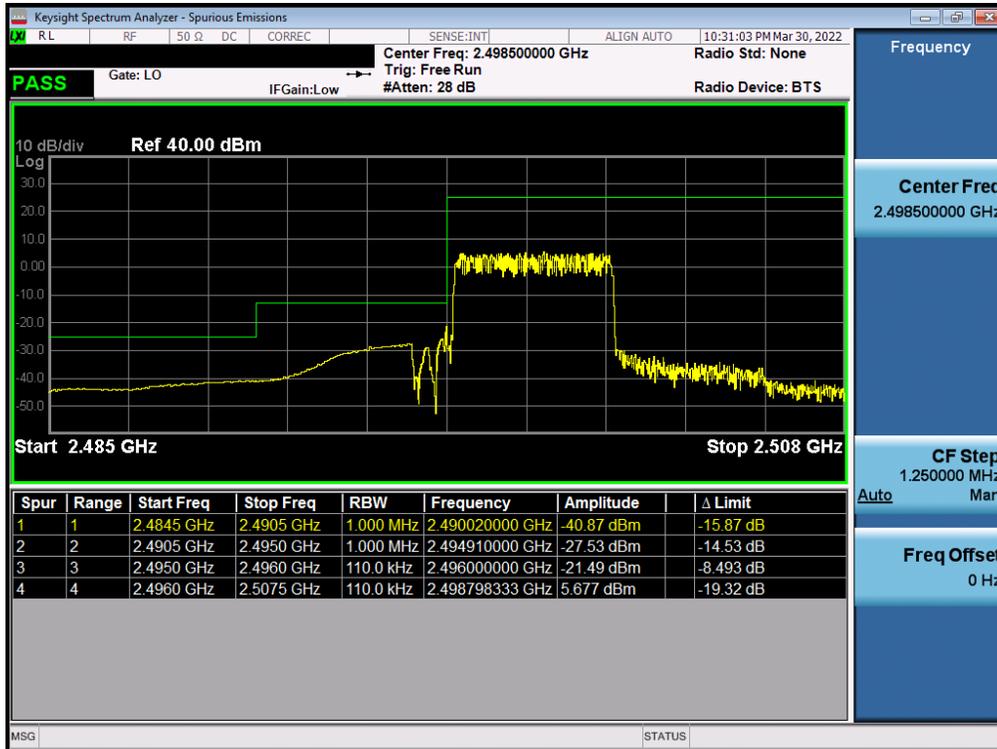


Plot 7-88. Lower ACP Plot (LTE Band 41(PC3) - 10MHz QPSK - Full RB)

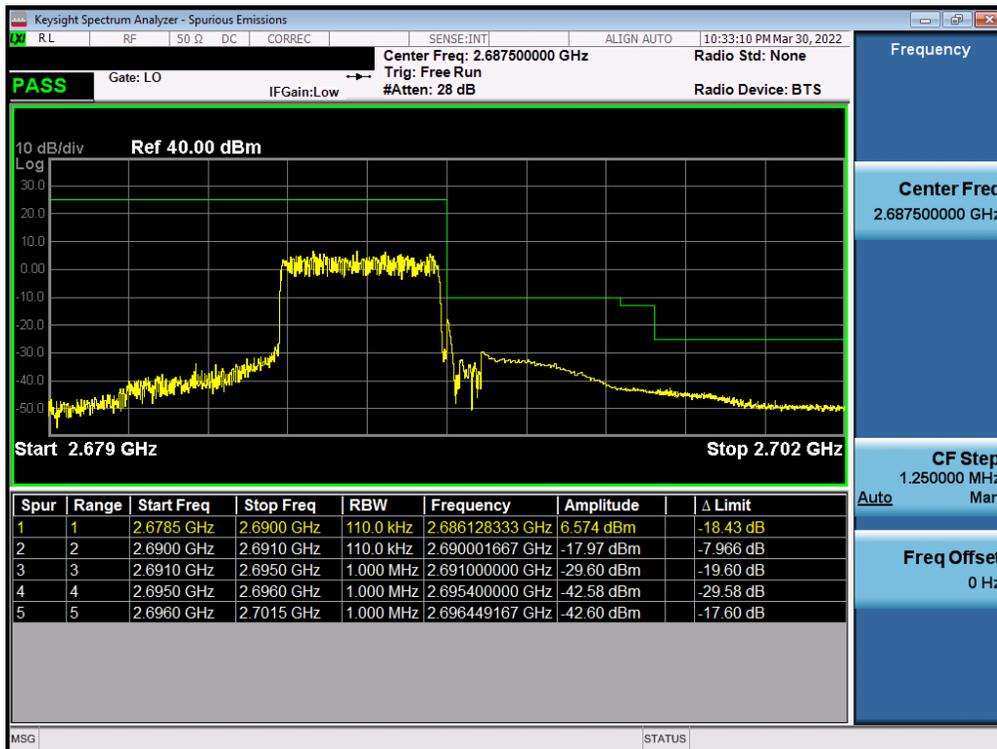


Plot 7-89. Upper ACP Plot (LTE Band 41(PC3) - 10MHz QPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M220120003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 63 of 102



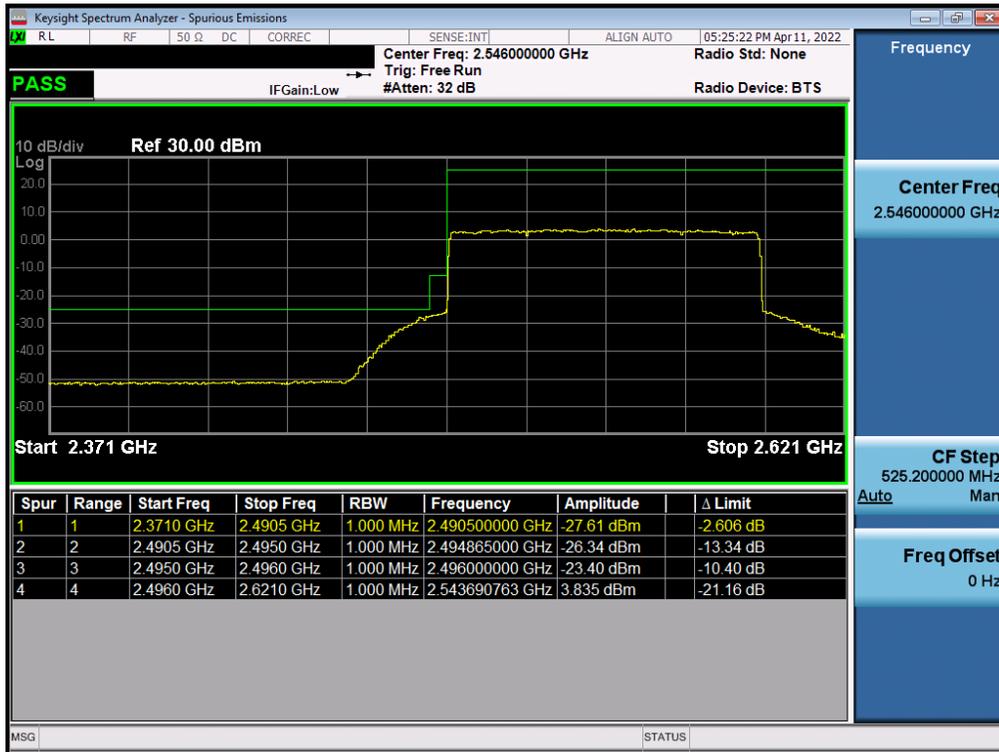
Plot 7-90. Lower ACP Plot (LTE Band 41(PC3) - 5MHz QPSK - Full RB)



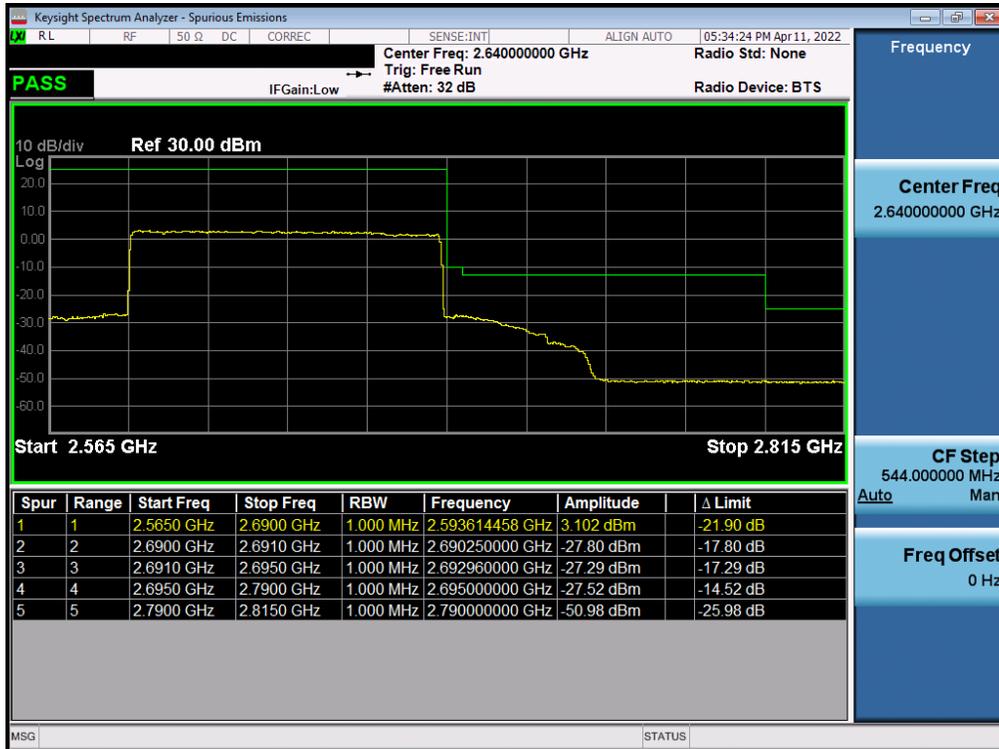
Plot 7-91. Upper ACP Plot (LTE Band 41(PC3) - 5MHz QPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 64 of 102

# NR Band n41 (PC2)

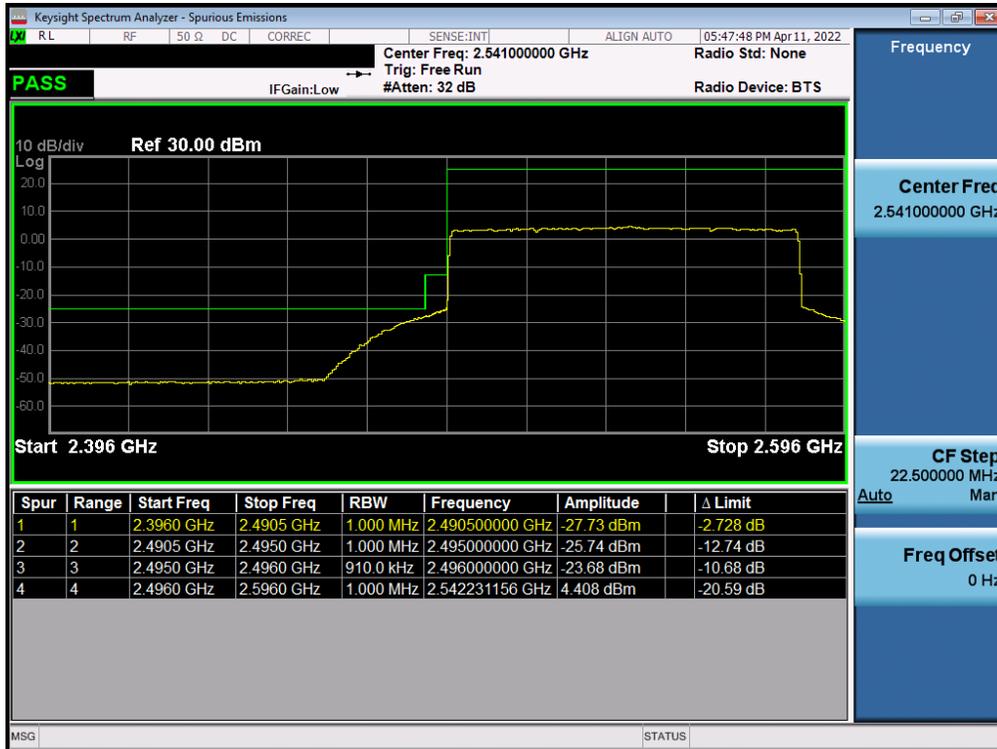


Plot 7-92. Lower ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK – Full RB)

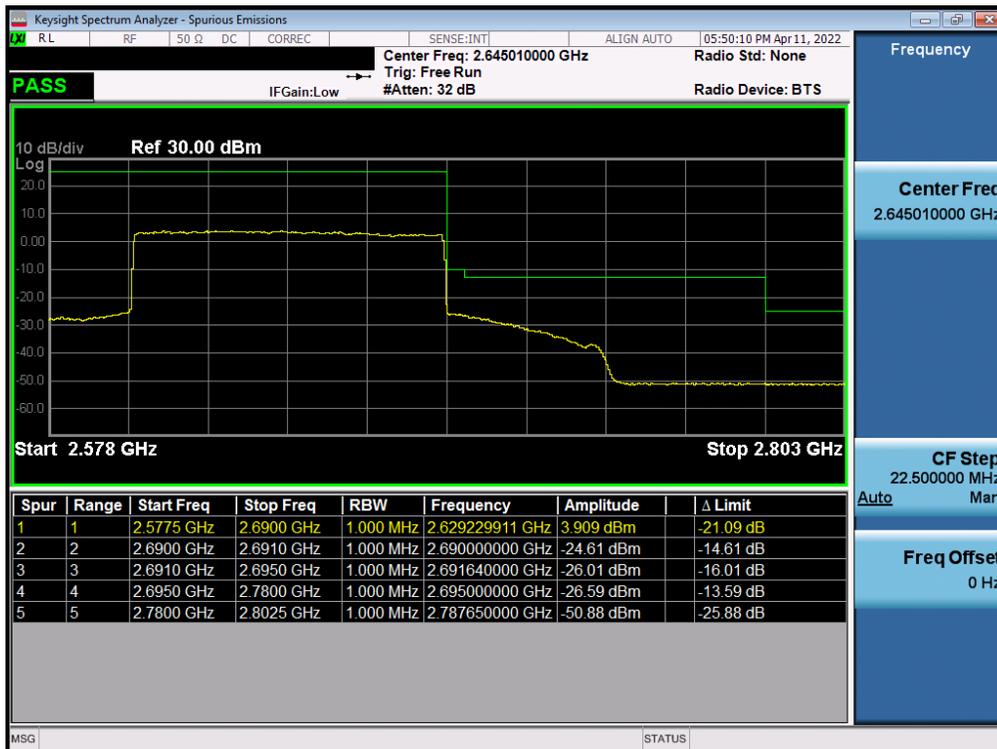


Plot 7-93. Upper ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK – Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 65 of 102

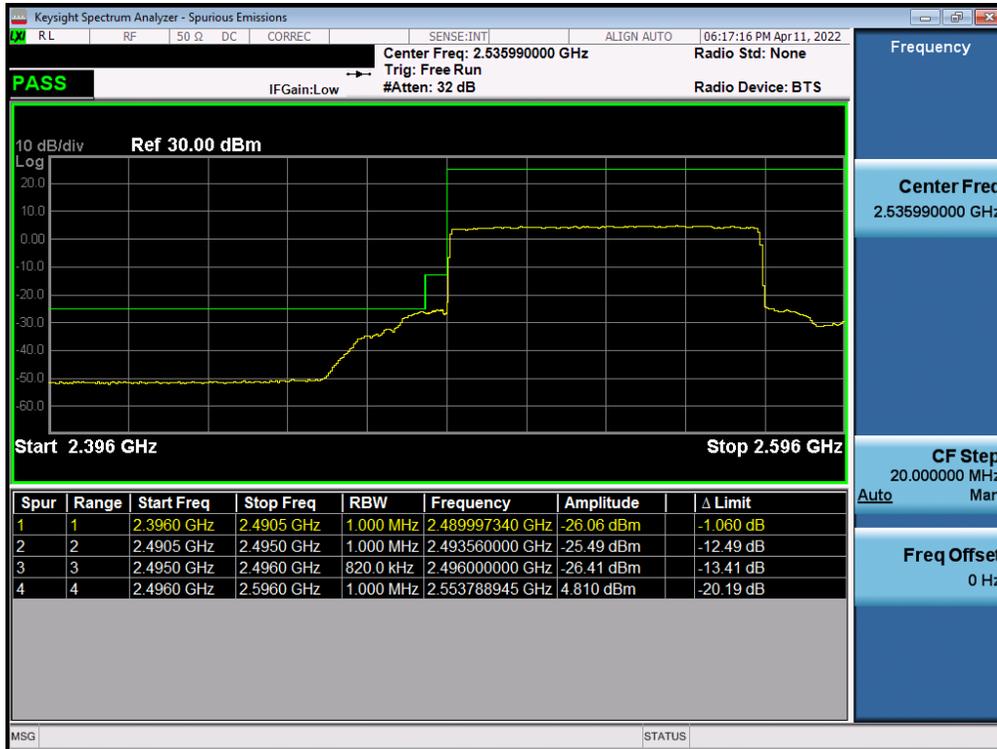


Plot 7-94. Lower ACP Plot (NR Band n41 - 90MHz CP-OFDM-QPSK – Full RB)

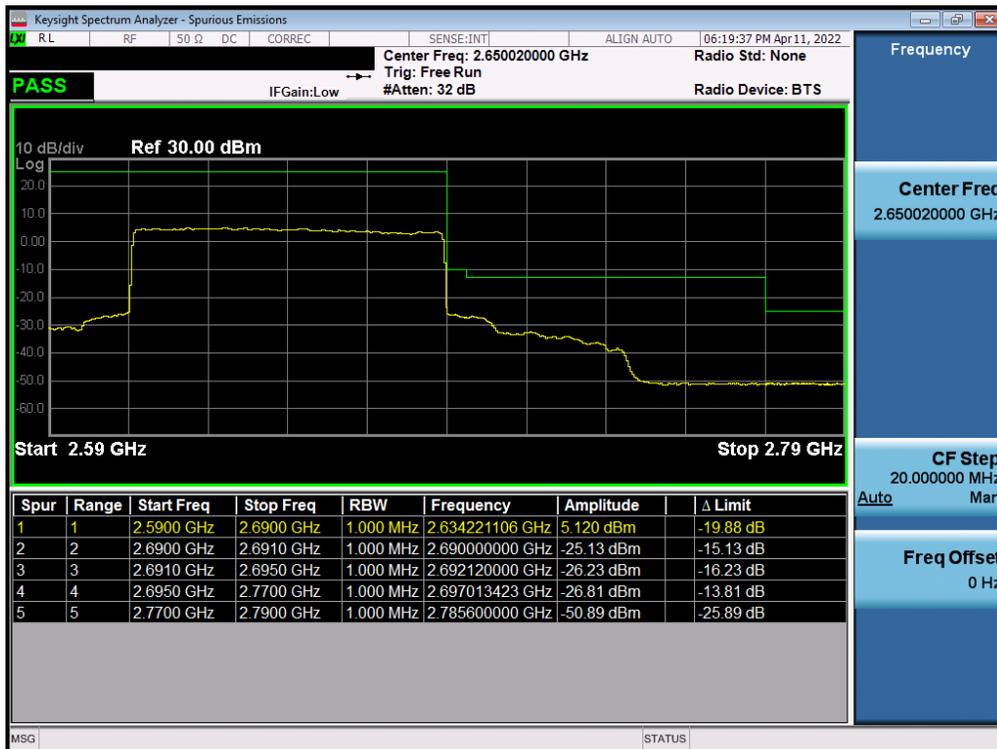


Plot 7-95. Upper ACP Plot (NR Band n41 - 90MHz CP-OFDM-QPSK – Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 66 of 102

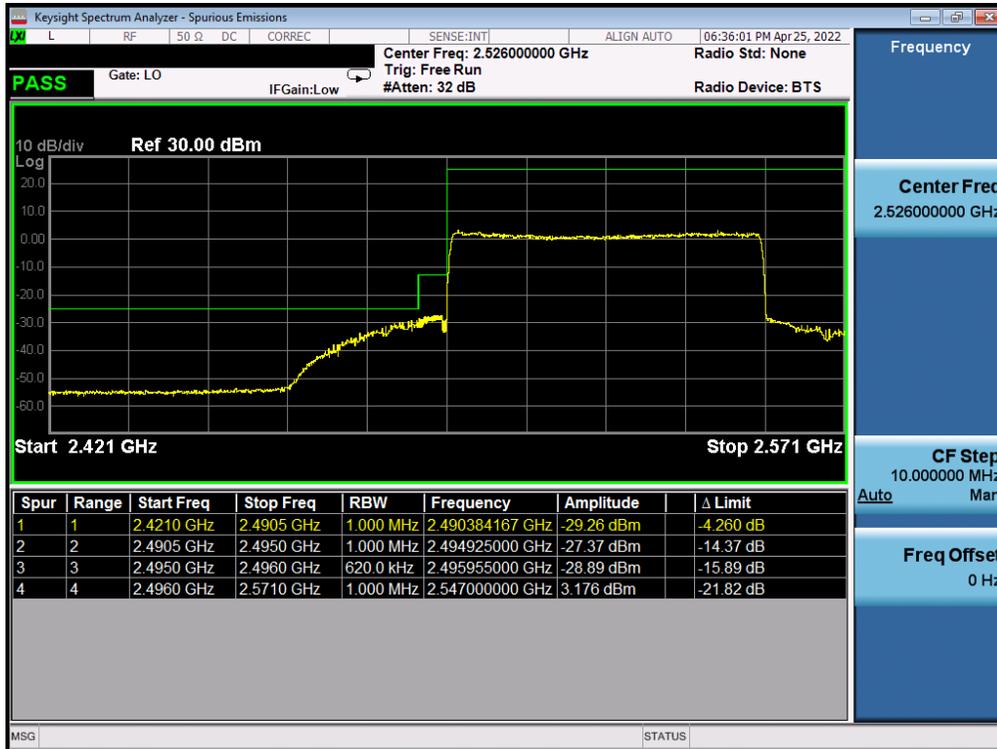


Plot 7-96. Lower ACP Plot (NR Band n41 - 80MHz CP-OFDM-QPSK – Full RB)

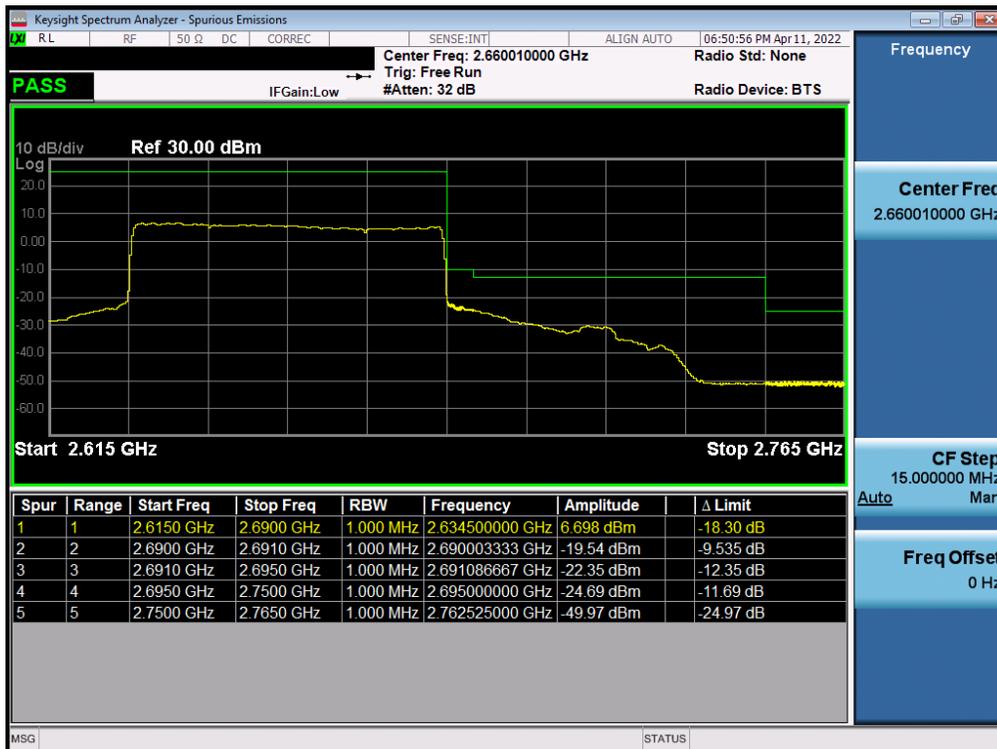


Plot 7-97. Upper ACP Plot (NR Band n41 - 80MHz CP-OFDM-QPSK – Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 67 of 102

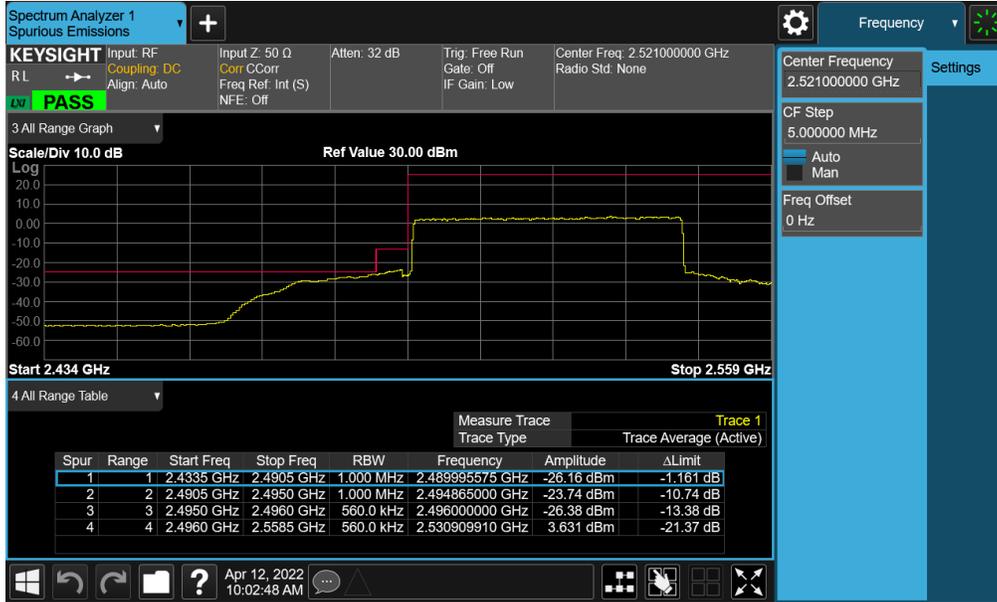


Plot 7-98. Lower ACP Plot (NR Band n41 - 60MHz CP-OFDM-QPSK-A-MPR – Full RB)

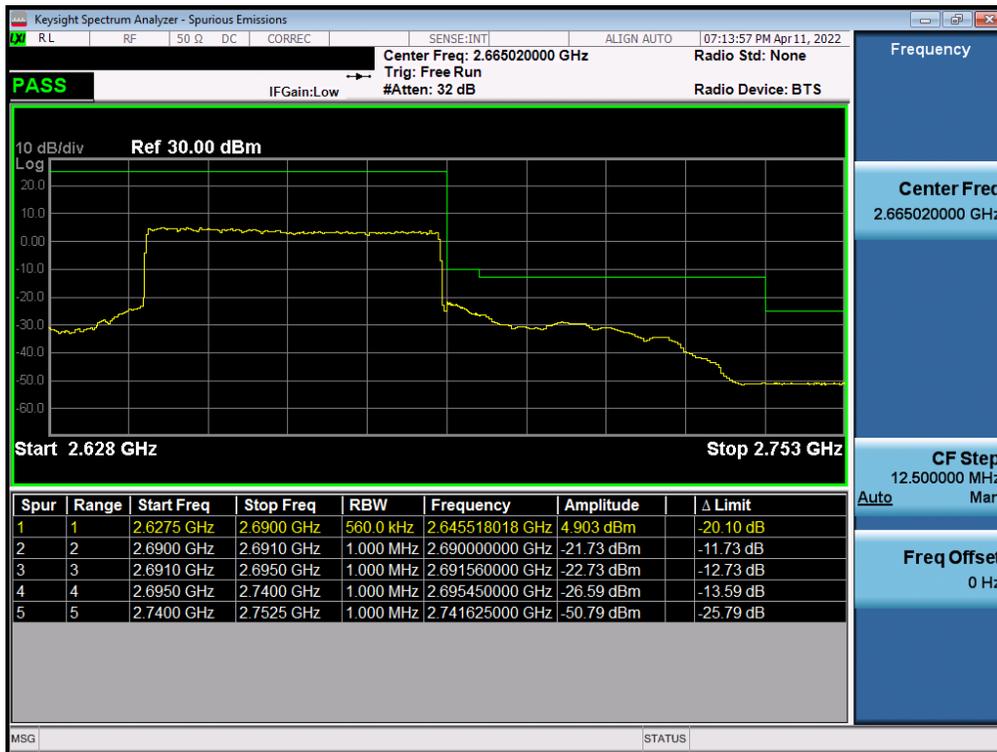


Plot 7-99. Upper ACP Plot (NR Band n41 - 60MHz CP-OFDM-QPSK – Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 68 of 102

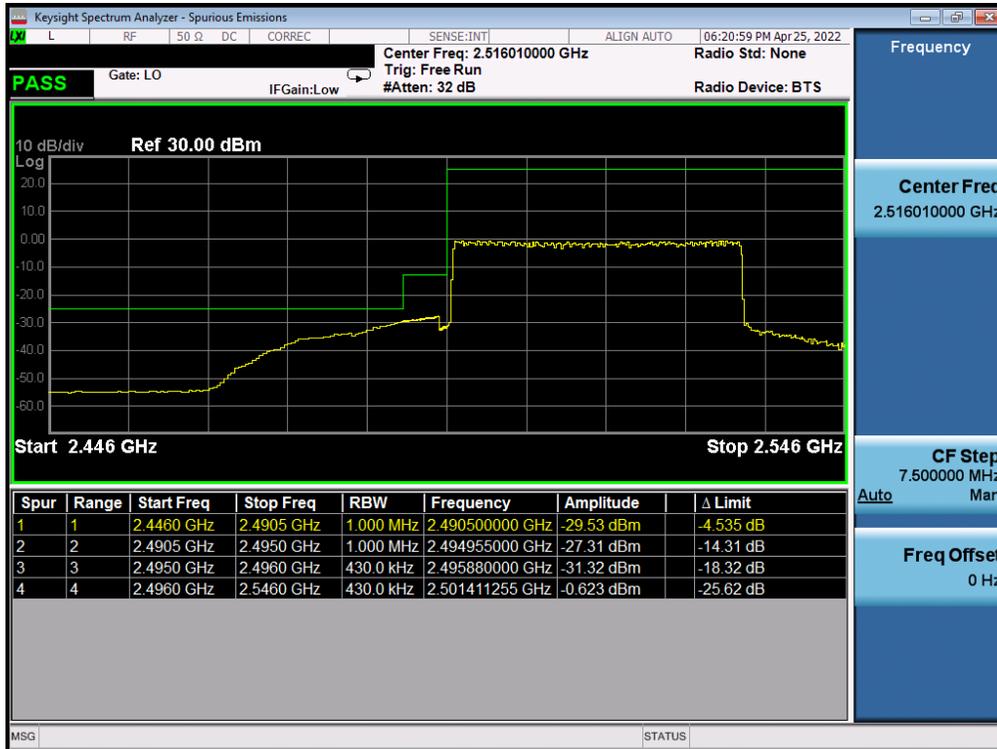


Plot 7-100. Lower ACP Plot (NR Band n41 - 50MHz CP-OFDM-QPSK – Full RB)

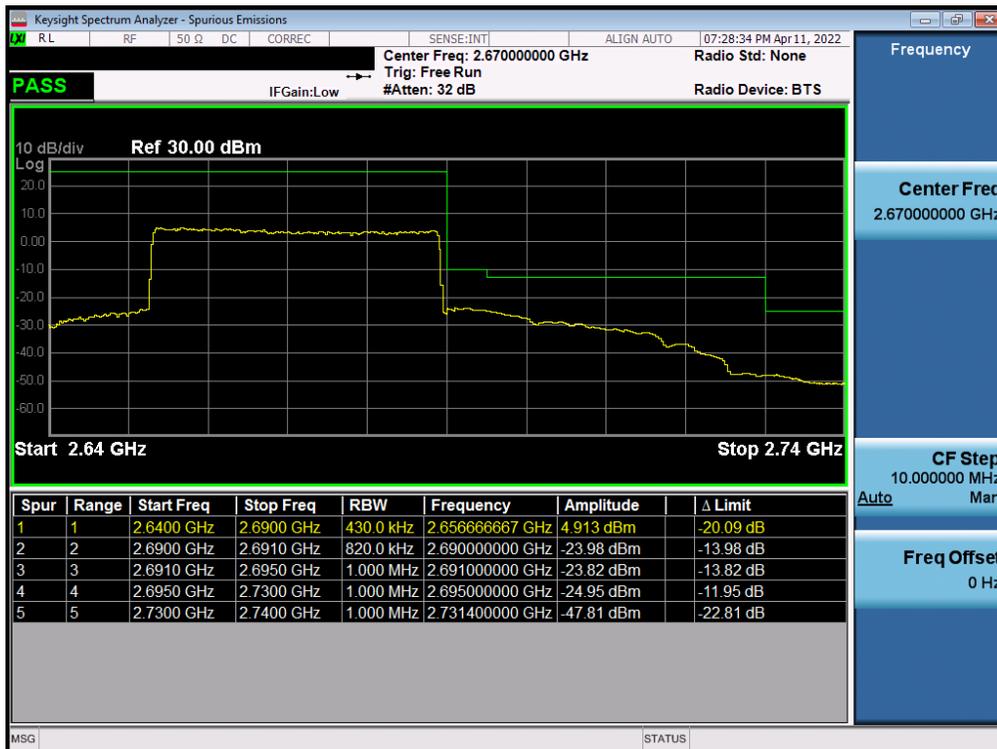


Plot 7-101. Upper ACP Plot (NR Band n41 - 50MHz CP-OFDM-QPSK – Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 69 of 102



Plot 7-102. Lower ACP Plot (NR Band n41 - 40MHz CP-OFDM-QPSK- A-MPR - Full RB)



Plot 7-103. Upper ACP Plot (NR Band n41 - 40MHz CP-OFDM-QPSK - Full RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-10.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 70 of 102