



# ELEMENT WASHINGTON DC LLC

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## PART 27 MEASUREMENT REPORT

**Applicant Name:**  
SONY Corporation  
1-7-1 Konan  
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.:**  
1M2201200003-11.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



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## PART 27 MEASUREMENT REPORT

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
NR Band n77 PC2 (3700 - 3980MHz) Main ANT	100 MHz	$\pi/2$ BPSK	3750.0 - 3930.0	0.060	17.81	96M9G7D
		QPSK	3750.0 - 3930.0	0.059	17.70	97M9G7D
		16QAM	3750.0 - 3930.0	0.051	17.04	97M8W7D
	80 MHz	$\pi/2$ BPSK	3740.0 - 3940.0	0.063	17.98	77M5G7D
		QPSK	3740.0 - 3940.0	0.062	17.89	77M7G7D
		16QAM	3740.0 - 3940.0	0.052	17.13	77M7W7D
	60 MHz	$\pi/2$ BPSK	3730.0 - 3950.0	0.062	17.96	58M5G7D
		QPSK	3730.0 - 3950.0	0.060	17.80	58M3G7D
		16QAM	3730.0 - 3950.0	0.053	17.28	58M3W7D
	40 MHz	$\pi/2$ BPSK	3720.0 - 3960.0	0.063	18.00	35M9G7D
		QPSK	3720.0 - 3960.0	0.063	18.00	38M1G7D
		16QAM	3720.0 - 3960.0	0.053	17.26	38M0W7D
	30 MHz	$\pi/2$ BPSK	3715.0 - 3965.0	0.063	18.00	27M0G7D
		QPSK	3715.0 - 3965.0	0.065	18.10	28M1G7D
		16QAM	3715.0 - 3965.0	0.053	17.26	28M1W7D
	20 MHz	$\pi/2$ BPSK	3710.0 - 3970.0	0.063	18.00	18M1G7D
		QPSK	3710.0 - 3970.0	0.063	17.97	18M4G7D
		16QAM	3710.0 - 3970.0	0.051	17.05	18M3W7D

**EUT Overview**

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
NR Band n77 PC2 (3700 - 3980MHz) As-Div ANT	100 MHz	$\pi/2$ BPSK	3750.0 - 3930.0	0.004	5.53	96M8G7D
		QPSK	3750.0 - 3930.0	0.004	5.52	159M1G7D
		16QAM	3750.0 - 3930.0	0.004	5.56	97M8W7D
	80 MHz	$\pi/2$ BPSK	3740.0 - 3940.0	0.004	5.48	77M3G7D
		QPSK	3740.0 - 3940.0	0.003	5.37	77M7G7D
		16QAM	3740.0 - 3940.0	0.004	5.86	77M7W7D
	60 MHz	$\pi/2$ BPSK	3730.0 - 3950.0	0.004	5.66	58M2G7D
		QPSK	3730.0 - 3950.0	0.004	5.63	58M3G7D
		16QAM	3730.0 - 3950.0	0.004	6.16	58M0W7D
	40 MHz	$\pi/2$ BPSK	3720.0 - 3960.0	0.004	5.91	36M0G7D
		QPSK	3720.0 - 3960.0	0.004	5.85	38M0G7D
		16QAM	3720.0 - 3960.0	0.004	6.29	38M0W7D
	30 MHz	$\pi/2$ BPSK	3715.0 - 3965.0	0.004	5.82	27M0G7D
		QPSK	3715.0 - 3965.0	0.004	5.88	28M0G7D
		16QAM	3715.0 - 3965.0	0.004	6.20	27M0W7D
	20 MHz	$\pi/2$ BPSK	3710.0 - 3970.0	0.004	5.77	18M1G7D
		QPSK	3710.0 - 3970.0	0.004	5.84	18M3G7D
		16QAM	3710.0 - 3970.0	0.004	6.14	18M5W7D

**EUT Overview**

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## 1.0 INTRODUCTION

### 1.1 Scope

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

### 1.2 Element Test Location

These measurement tests were conducted at the Element Laboratory located at 7185 Oakland Mills Road, Columbia, MD 21046. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014.

### 1.3 Test Facility / Accreditations

**Measurements were performed at Element Lab located in Columbia, MD 21046, U.S.A.**

- Element Washington DC LLC is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.01 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- Element Washington DC LLC TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).
- Element Washington DC LLC facility is a registered (2451B) test laboratory with the site description on file with ISED.
- Element Washington DC LLC is a Recognized U.S. Certification Assessment Body (CAB # US0110) for ISED Canada as designated by NIST under the U.S. and Canada Mutual Recognition Agreement.

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## 2.0 PRODUCT INFORMATION

### 2.1 Equipment Description

The Equipment Under Test (EUT) is the **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.:** 09682,09823, 005EAZ, 00QAZ, 00KC5, 03LC5

### 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 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: 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.

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## 3.0 DESCRIPTION OF TESTS

### 3.1 Evaluation Procedure

The measurement procedures described in the “American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services” (ANSI C63.26-2015) were used in the measurement of the EUT.

**Deviation from Measurement Procedure.....None**

### 3.2 Radiated Power and Radiated Spurious Emissions

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

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

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

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

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

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.

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## 4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of  $k = 2$  to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the  $U_{\text{CISPR}}$  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

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## 5.0 TEST EQUIPMENT CALIBRATION DATA

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

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	AP2	EMC Cable and Switch System	1/4/2022	Annual	1/4/2023	AP2
-	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
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
Keysight Technologies	N9030A	PXA Signal Analyzer (44GHz)	7/21/2021	Annual	7/21/2022	MY49430494
Keysight Technologies	N9030B	PXA Signal Analyzer, Multi-touch	1/7/2022	Annual	1/7/2023	MYS7141001
Keysight Technologies	N9038A	MXE EMI Receiver	1/21/2022	Annual	1/21/2023	MYS1210133
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
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	7/27/2020	Biennial	7/27/2022	A051107

**Table 5-1. Test Equipment**

**Notes:**

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

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## 6.0 SAMPLE CALCULATIONS

### 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.

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## 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): 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 (NR Band n77)	2.1051, 27.53(l), 27.53(n)	≤ 13 dBm / MHz	PASS	Sections 7.4, 7.5
	Peak-to-Average Ratio (NR Band n77)	27.53(j)(4), 27.53(k)(4)	≤ 13 dB	PASS	Section 7.6
	Frequency Stability	2.1055, 27.54	Fundamental emissions stay within authorized frequency block.	PASS	Section 7.9
<b>RADIATED</b>	Effective Radiated Power / Equivalent Isotropic Radiated Power (NR Band n77)	27.53(j)(3), 27.53(k)(3)	≤ 1 Watt EIRP	PASS	Section 7.7
	Radiated Spurious Emissions (NR Band n77)	2.1053, 27.53(l), 27.53(n)	≤ 13 dBm / MHz	PASS	Section 7.8

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

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

#### 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.
- 5) In this report, Main Ant corresponds to Main antenna and As-Div Ant corresponds to As-Div Antenna.

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## 7.2 Conducted Output Power Data

### Test Overview

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

### Test Procedure Used

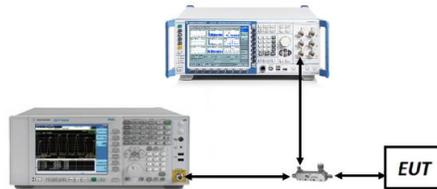
ANSI C63.26-2015 – Section 5.2

### Test Settings

1. 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.

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NR (SCS 30kHz)						LTE						NR	LTE	EN-DC
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	Conducted Power [dBm]	Conducted Power [dBm]	Total Tx. Power [dBm]
n77 (Main)	100	Mid	3840	QPSK	270/0	5	10	Mid	836.5	QPSK	50/0	24.18	22.98	26.63
				QPSK	270/0					QPSK	1/25	24.20	23.04	26.67
				QPSK	1/136					QPSK	50/0	25.50	23.07	27.46
				QPSK	1/136					QPSK	1/25	25.19	23.31	27.36
				16Q	1/136					16Q	1/25	24.48	23.16	26.88

Table 7-2. EN-DC Conducted Power (NR Band n77(Main Ant) – LTE Band 5)

NR (SCS 30kHz)						LTE						NR	LTE	EN-DC
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	Conducted Power [dBm]	Conducted Power [dBm]	Total Tx. Power [dBm]
n77 (Main)	100	Mid	3840	QPSK	270/0	66	20	Mid	1745	QPSK	100/0	24.29	23.03	26.72
				QPSK	270/0					QPSK	1/50	24.24	22.88	26.62
				QPSK	1/136					QPSK	100/0	25.56	22.85	27.42
				QPSK	1/136					QPSK	1/50	25.64	22.79	27.46
				16Q	1/136					16Q	1/50	24.54	22.76	26.75

Table 7-3. EN-DC Conducted Power (NR Band n77(Main Ant) – LTE Band 66)

NR (SCS 30kHz)						LTE						NR	LTE	EN-DC
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	Conducted Power [dBm]	Conducted Power [dBm]	Total Tx. Power [dBm]
n77 (As-Div)	100	Mid	3840	QPSK	270/0	5	10	Mid	836.5	QPSK	50/0	14.86	22.31	23.03
				QPSK	270/0					QPSK	1/25	14.82	22.36	23.06
				QPSK	1/136					QPSK	50/0	15.16	22.30	23.07
				QPSK	1/136					QPSK	1/25	15.32	23.33	23.97
				16Q	1/136					16Q	1/25	14.89	23.24	23.83

Table 7-4. EN-DC Conducted Power (NR Band n77(As-Div Ant) – LTE Band 5)

NR (SCS 30kHz)						LTE						NR	LTE	EN-DC
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	Conducted Power [dBm]	Conducted Power [dBm]	Total Tx. Power [dBm]
n77 (As-Div)	100	Mid	3840	QPSK	270/0	66	20	Mid	1745	QPSK	100/0	14.94	22.96	23.60
				QPSK	270/0					QPSK	1/50	14.91	23.07	23.69
				QPSK	1/136					QPSK	100/0	15.17	22.97	23.64
				QPSK	1/136					QPSK	1/50	15.16	23.20	23.83
				16Q	1/136					16Q	1/50	15.22	23.18	23.82

Table 7-5. EN-DC Conducted Power (NR Band n77(As-Div Ant) – LTE Band 66)

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## 7.3 Occupied Bandwidth

### Test Overview

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

### Test Procedure Used

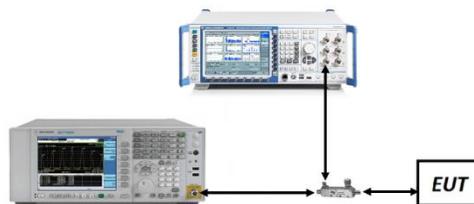
ANSI C63.26-2015 – Section 5.4.4

### Test Settings

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

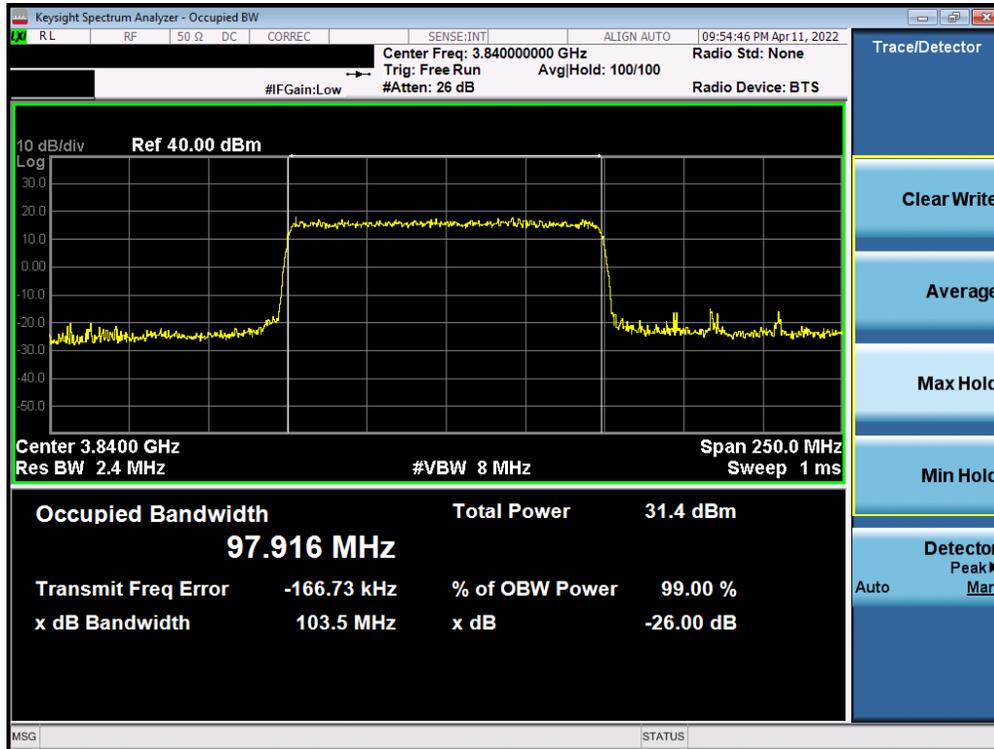
None.

FCC ID: PY7-57325M	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 13 of 99

## NR Band n77 – Main Ant

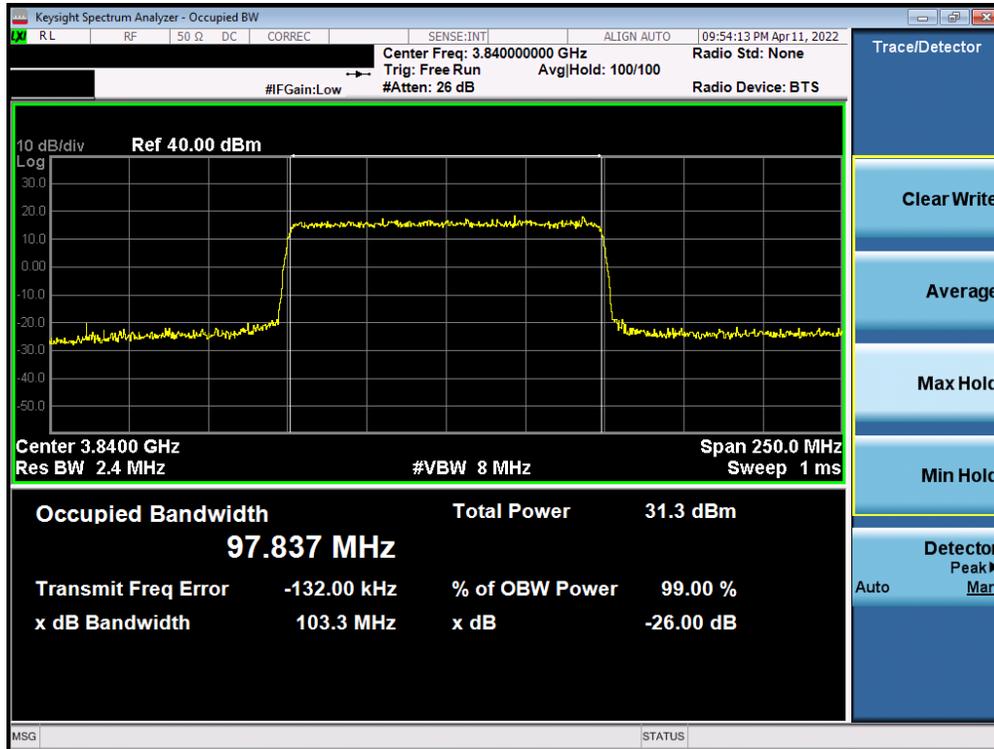


Plot 7-1. Occupied Bandwidth Plot (NR Band n77 - 100MHz  $\pi/2$  BPSK - Full RB - Main Ant)

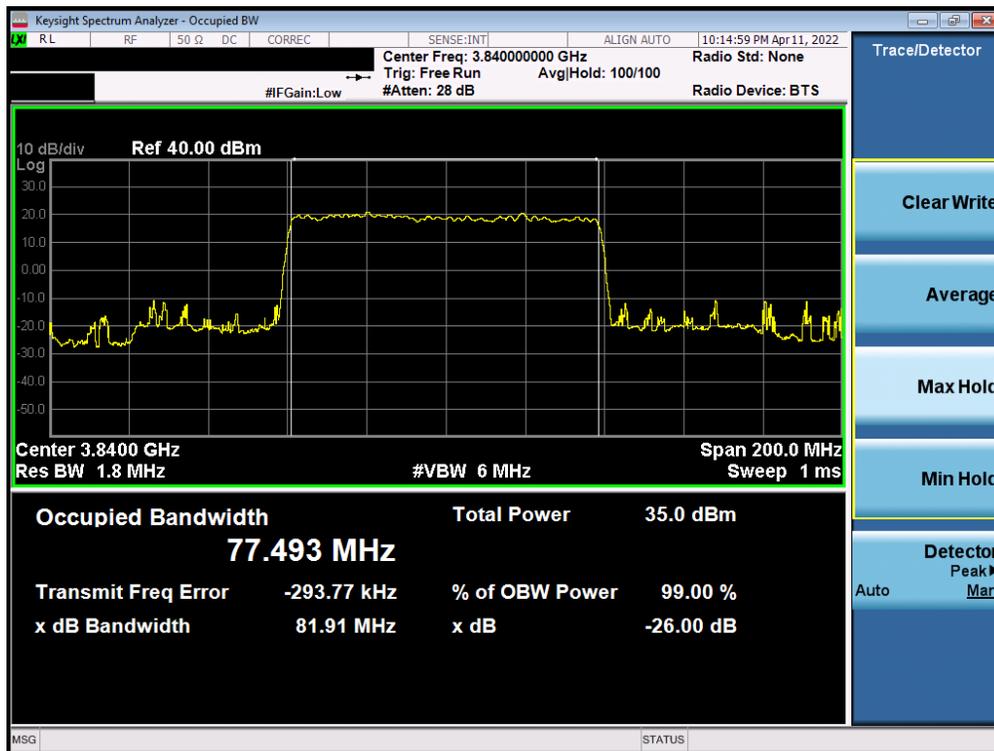


Plot 7-2. Occupied Bandwidth Plot (NR Band n77 - 100MHz QPSK - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 14 of 99

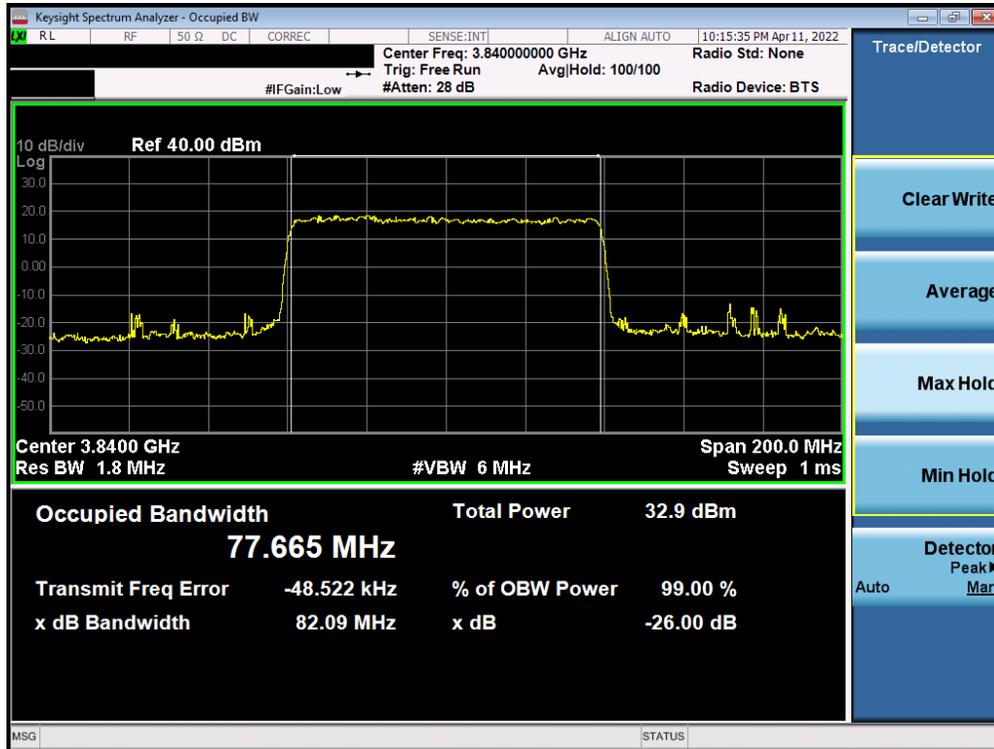


Plot 7-3. Occupied Bandwidth Plot (NR Band n77 - 100MHz 16-QAM - Full RB - Main Ant)

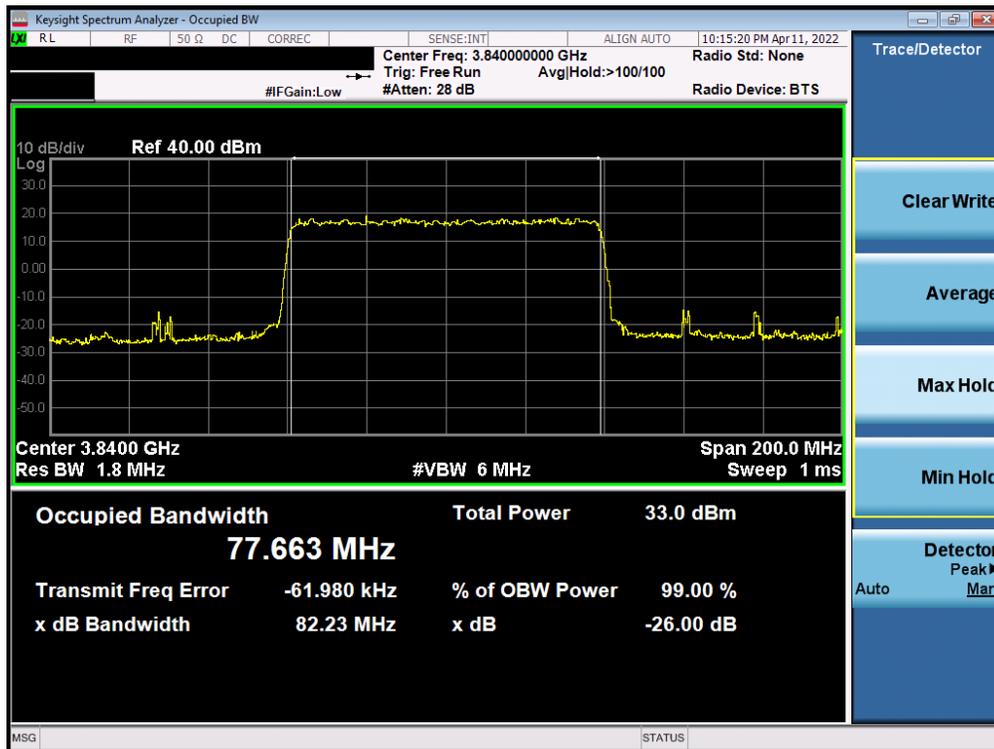


Plot 7-4. Occupied Bandwidth Plot (NR Band n77 - 80MHz  $\pi/2$  BPSK - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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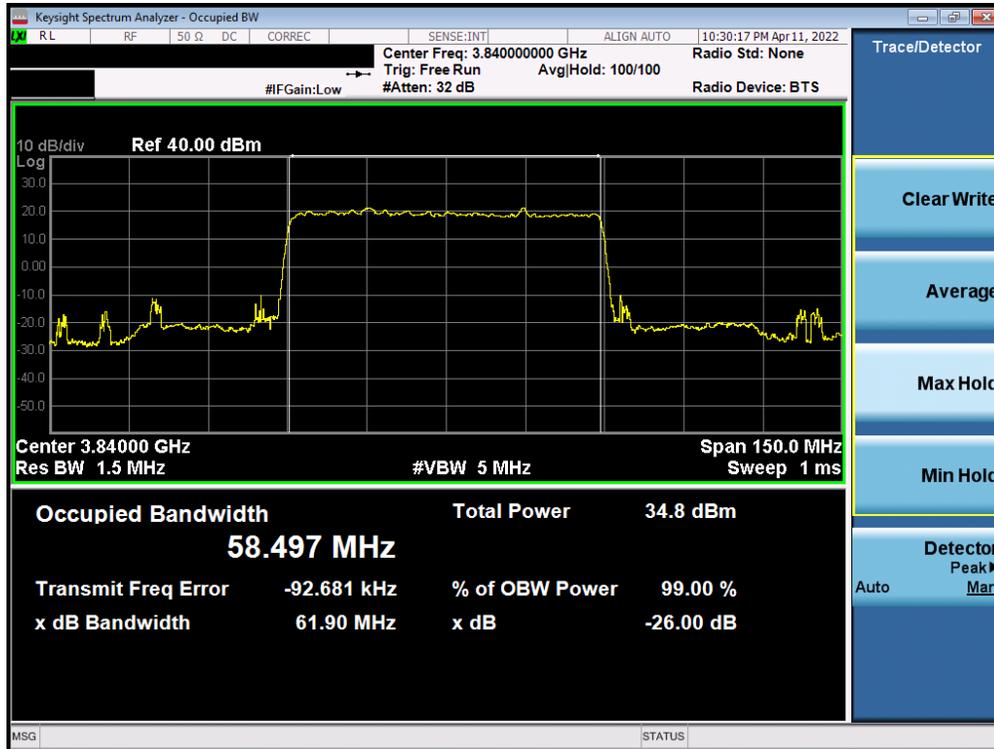


Plot 7-5. Occupied Bandwidth Plot (NR Band n77 - 80MHz QPSK - Full RB - Main Ant)

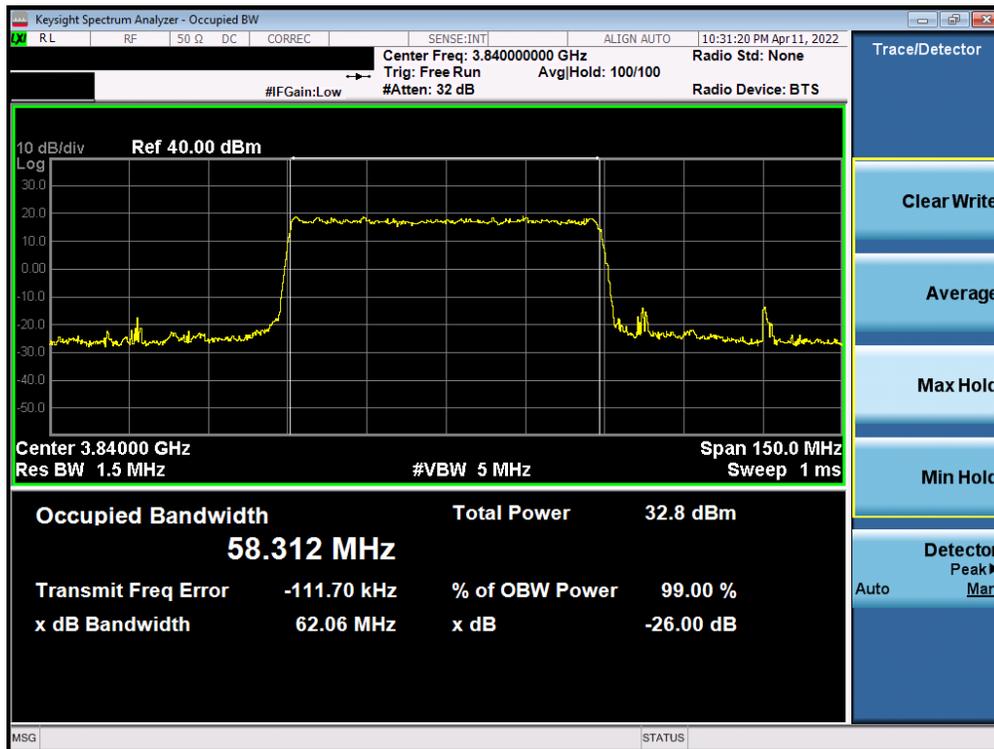


Plot 7-6. Occupied Bandwidth Plot (NR Band n77 - 80MHz 16-QAM - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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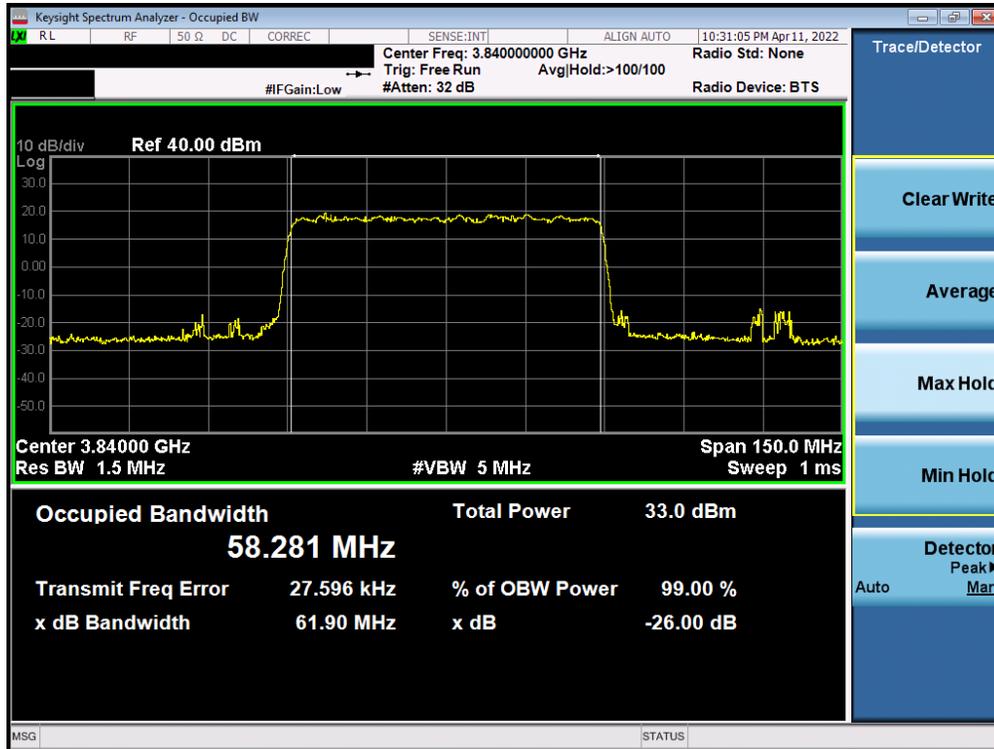


Plot 7-7. Occupied Bandwidth Plot (NR Band n77 - 60MHz  $\pi/2$  BPSK - Full RB - Main Ant)

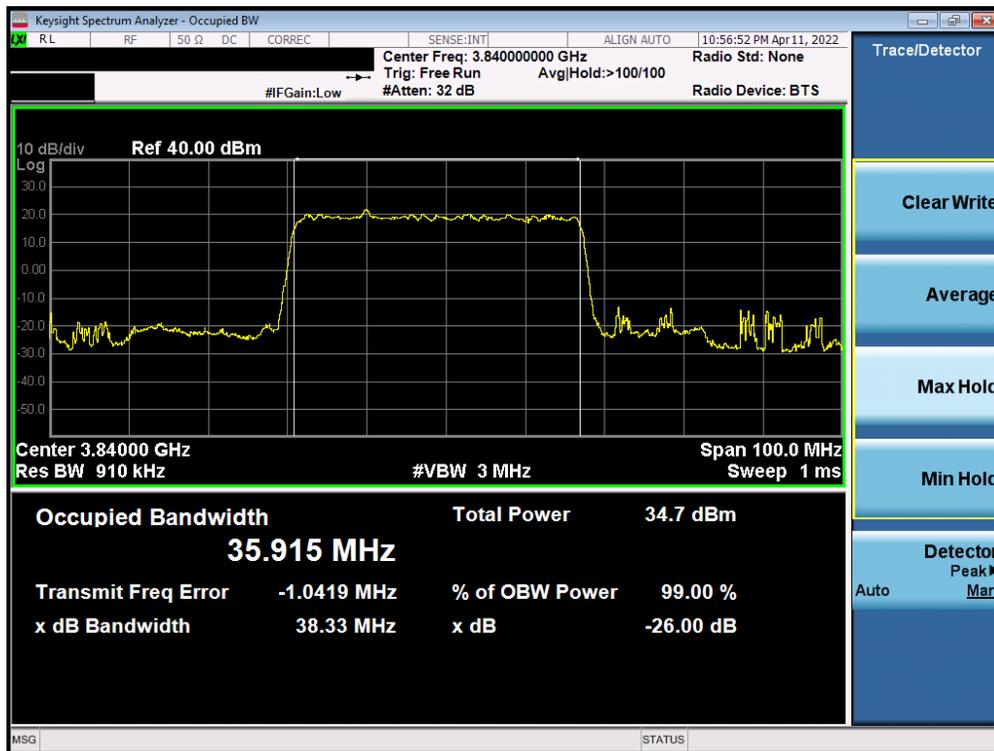


Plot 7-8. Occupied Bandwidth Plot (NR Band n77 - 60MHz QPSK - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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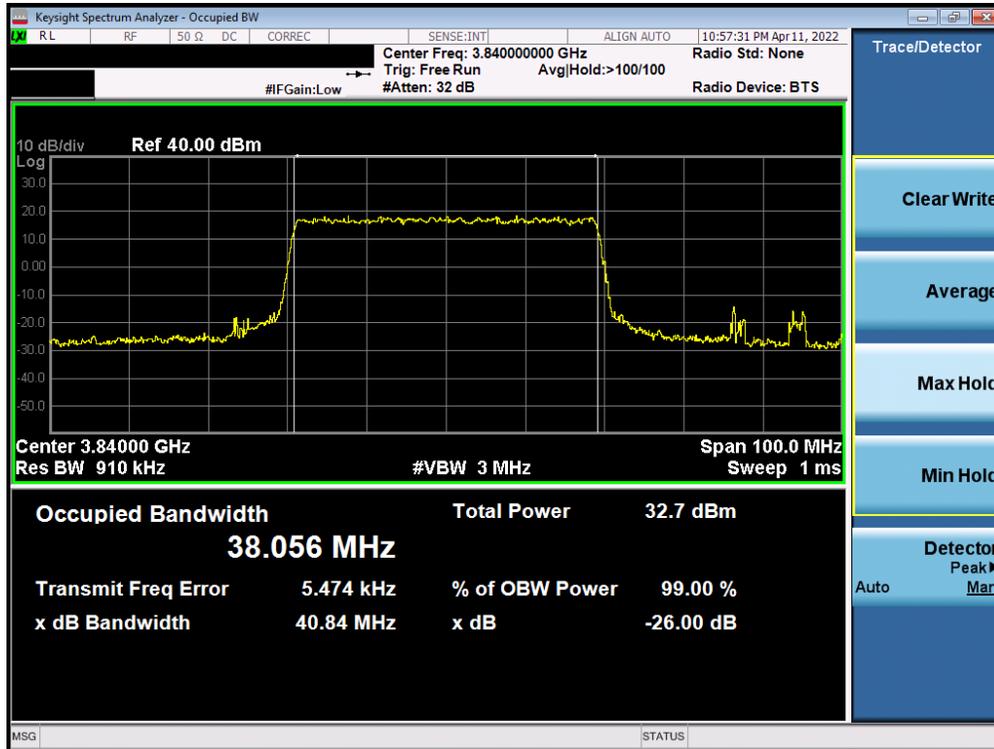


Plot 7-9. Occupied Bandwidth Plot (NR Band n77 - 60MHz 16-QAM - Full RB - Main Ant)

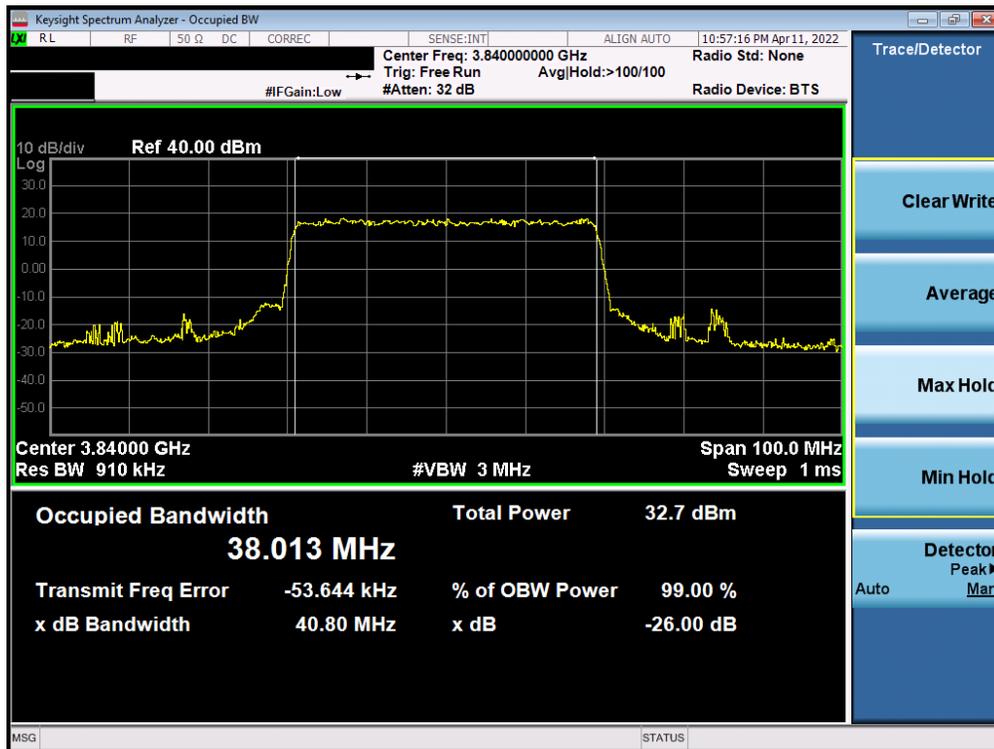


Plot 7-10. Occupied Bandwidth Plot (NR Band n77 - 40MHz  $\pi/2$  BPSK - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 18 of 99

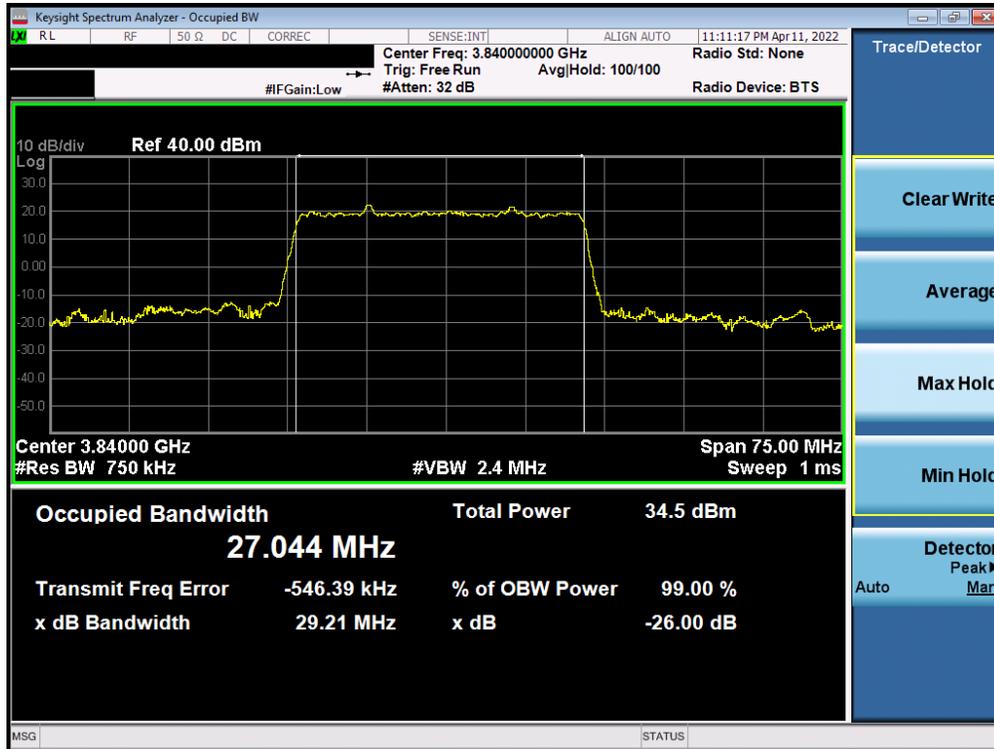


Plot 7-11. Occupied Bandwidth Plot (NR Band n77 - 40MHz QPSK - Full RB - Main Ant)

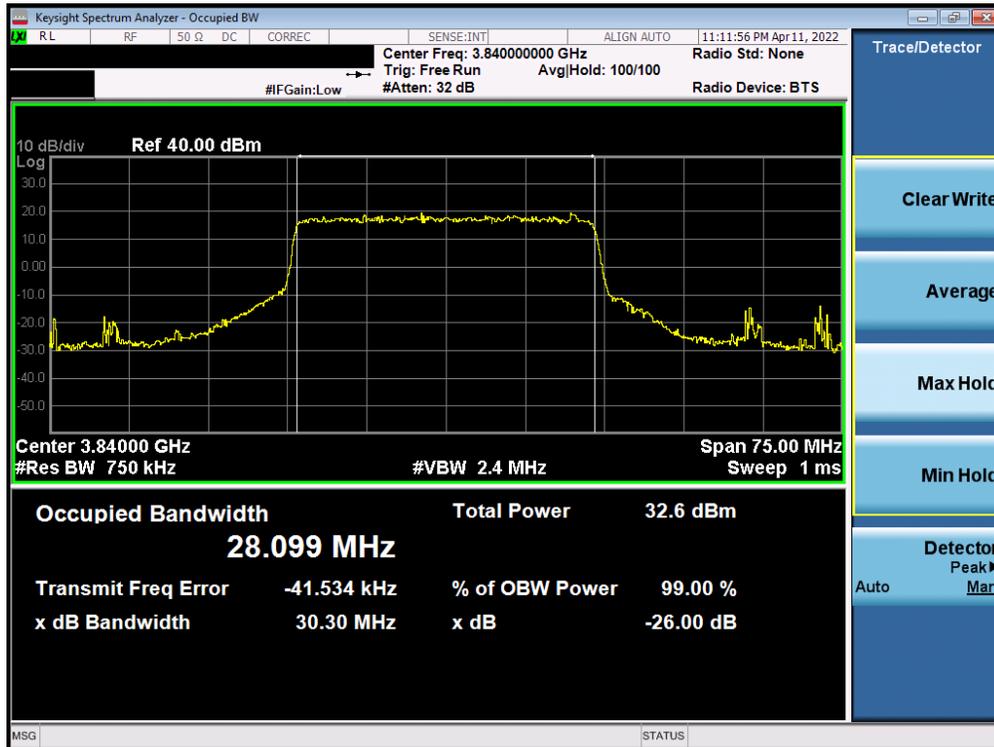


Plot 7-12. Occupied Bandwidth Plot (NR Band n77 - 40MHz 16-QAM - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 19 of 99



Plot 7-13. Occupied Bandwidth Plot (NR Band n77 - 30MHz  $\pi/2$  BPSK - Full RB - Main Ant)

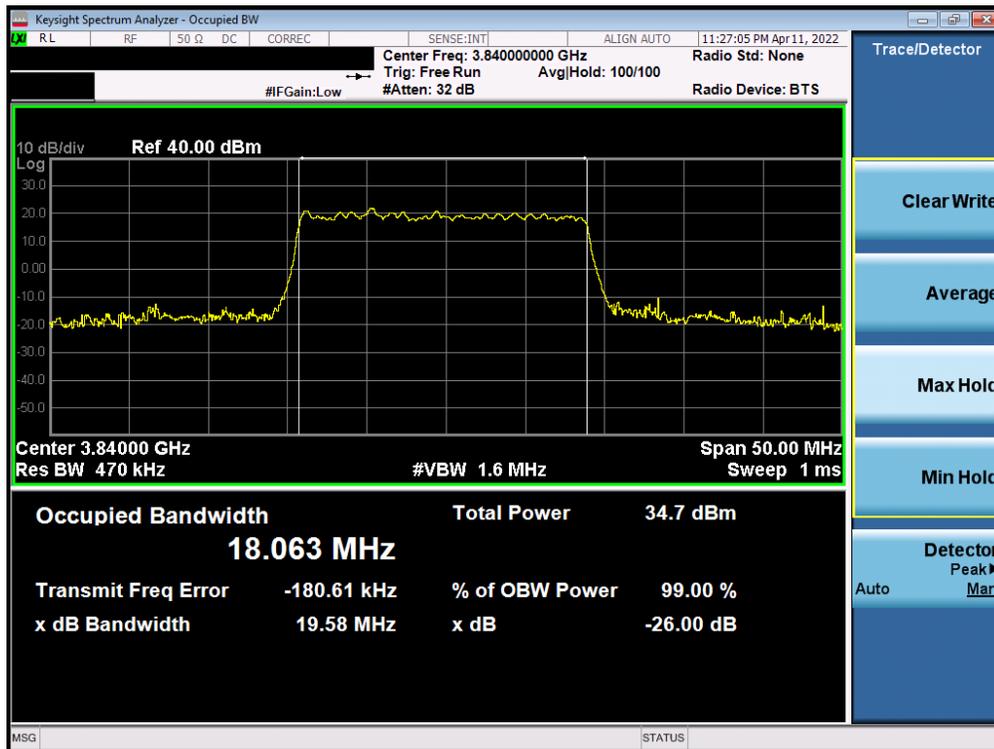


Plot 7-14. Occupied Bandwidth Plot (NR Band n77 - 30MHz QPSK - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 20 of 99

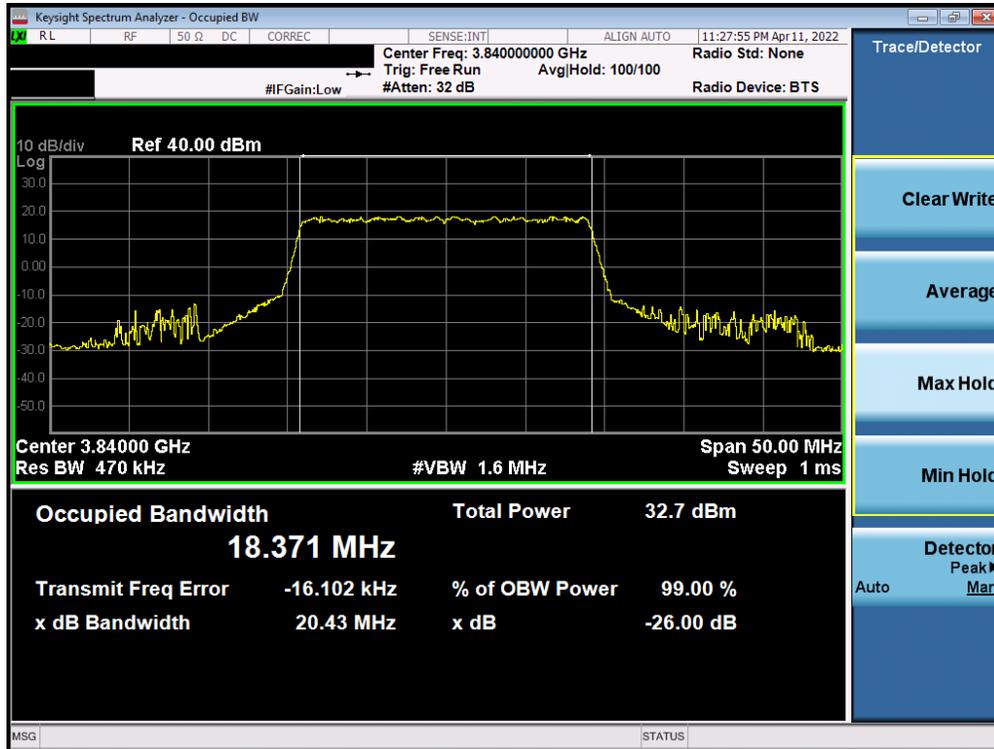


Plot 7-15. Occupied Bandwidth Plot (NR Band n77 - 30MHz 16-QAM - Full RB - Main Ant)

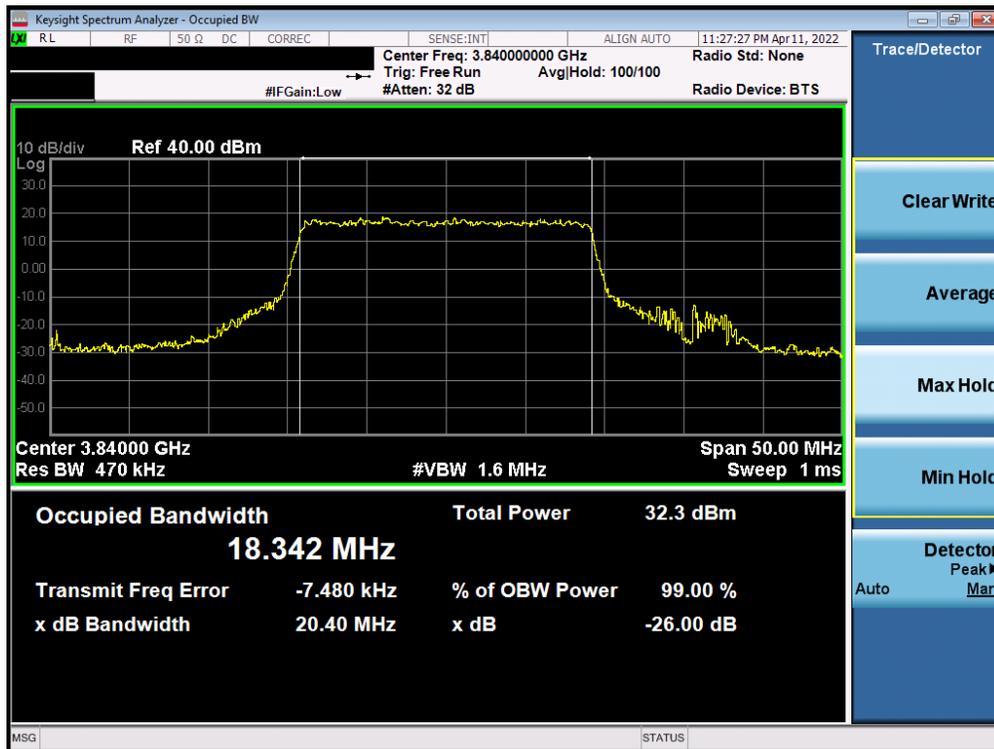


Plot 7-16. Occupied Bandwidth Plot (NR Band n77 - 20MHz  $\pi/2$  BPSK - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 21 of 99



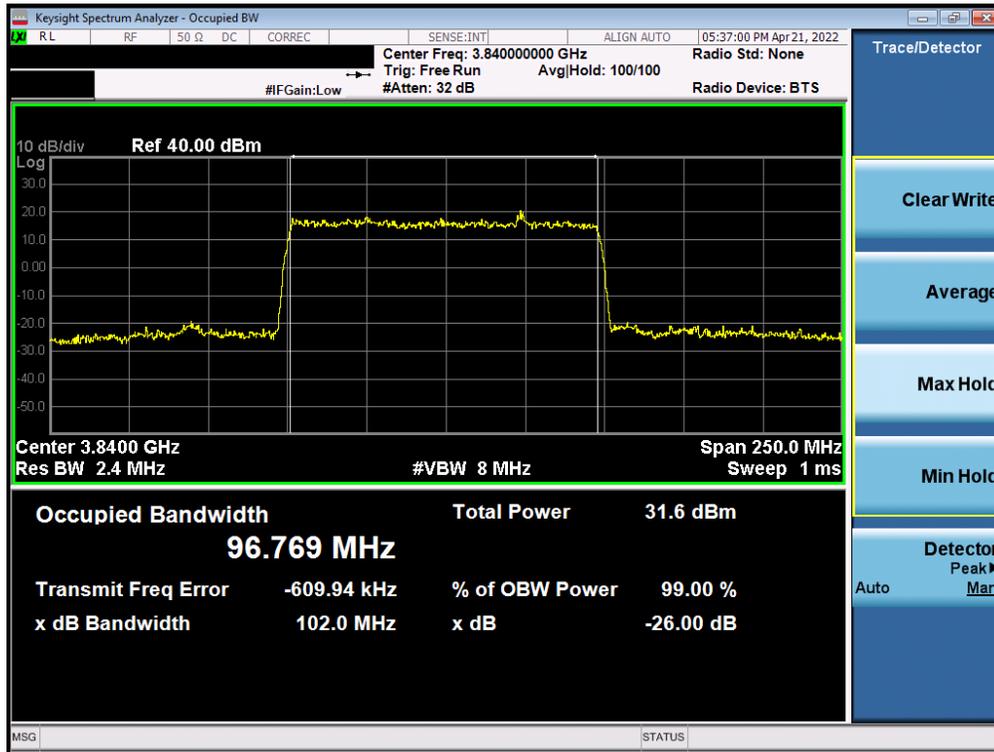
Plot 7-17. Occupied Bandwidth Plot (NR Band n77 - 20MHz QPSK - Full RB - Main Ant)



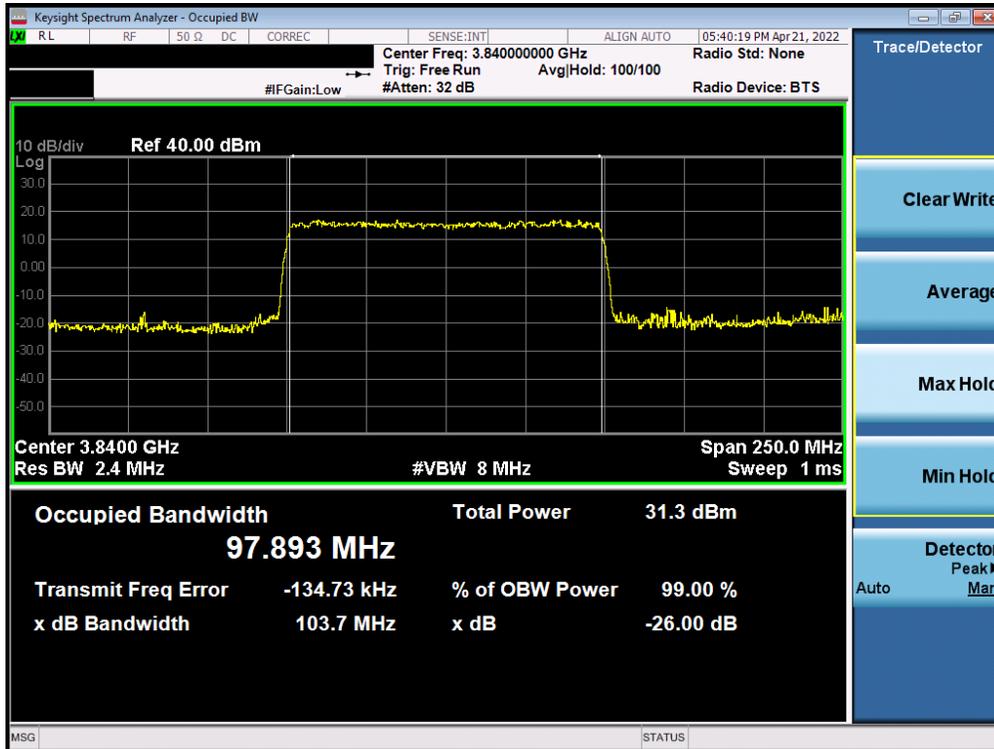
Plot 7-18. Occupied Bandwidth Plot (NR Band n77 - 20MHz 16-QAM - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 22 of 99

## NR Band n77 – As-Div Ant

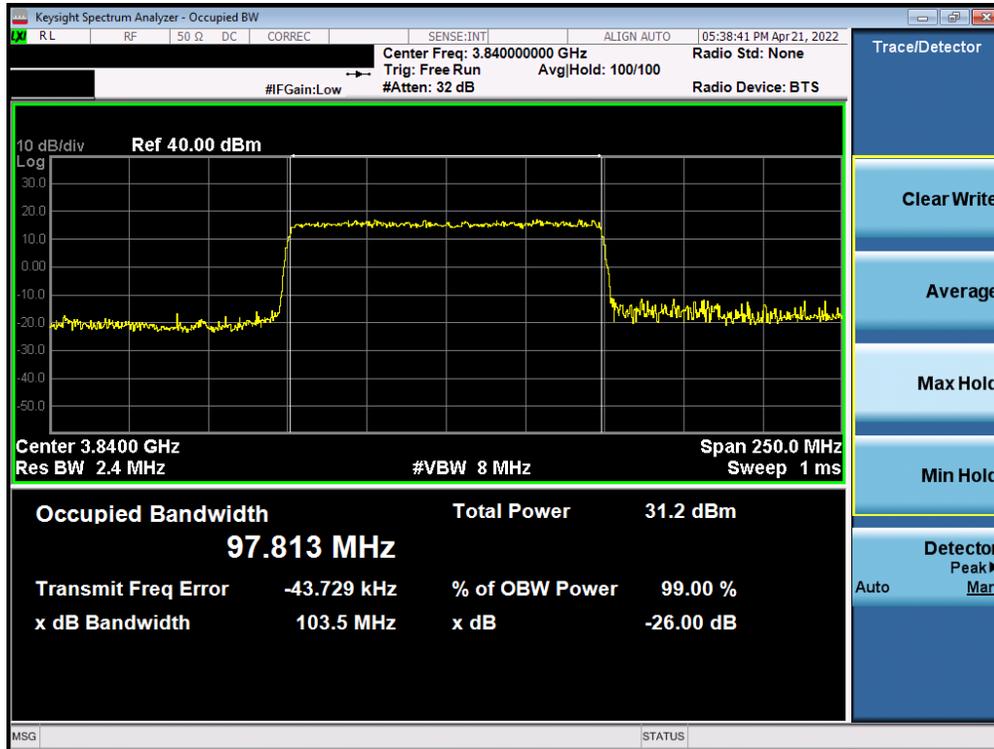


Plot 7-19. Occupied Bandwidth Plot (NR Band n77 - 100MHz  $\pi/2$  BPSK - Full RB - As-Div Ant)

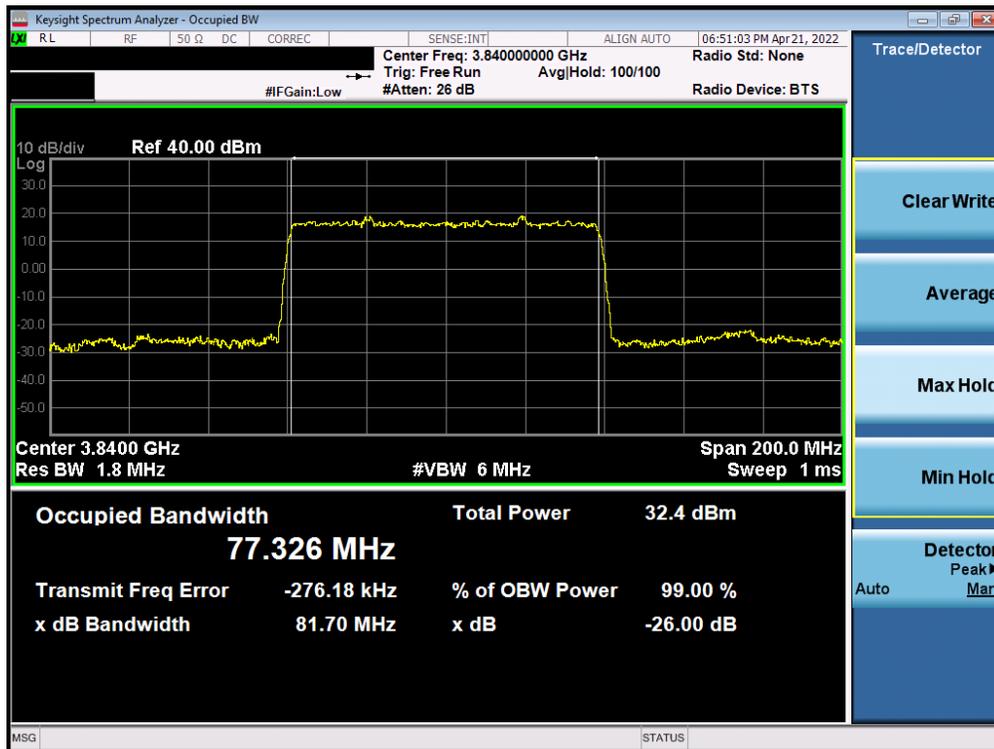


Plot 7-20. Occupied Bandwidth Plot (NR Band n77 - 100MHz QPSK - Full RB - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 23 of 99

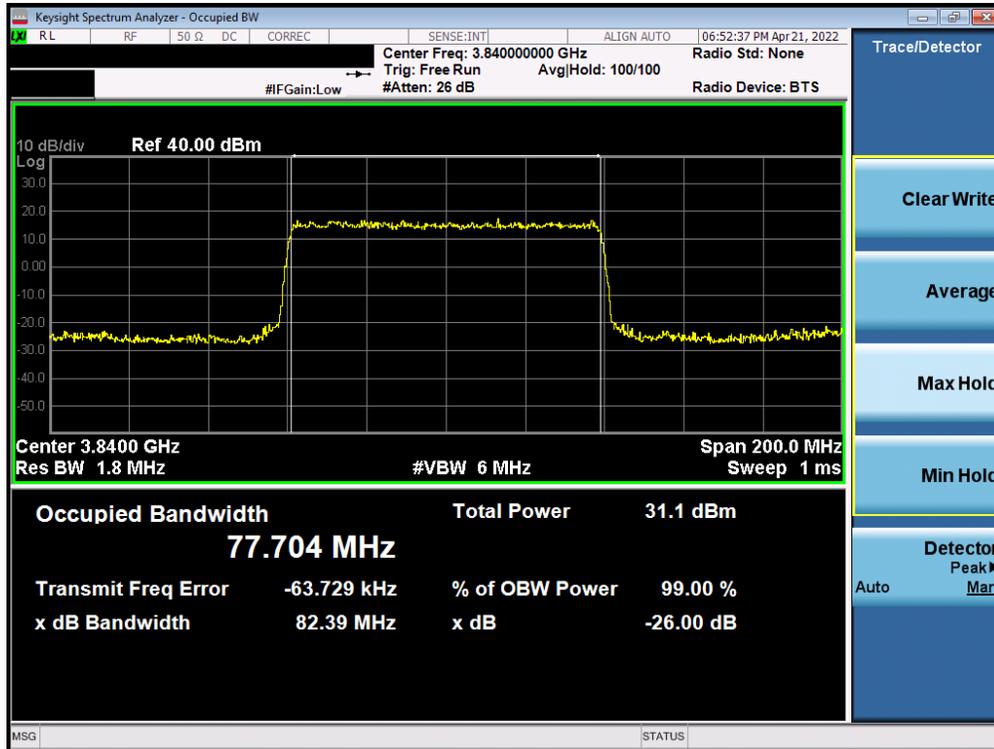


Plot 7-21. Occupied Bandwidth Plot (NR Band n77 - 100MHz 16-QAM - Full RB - As-Div Ant)

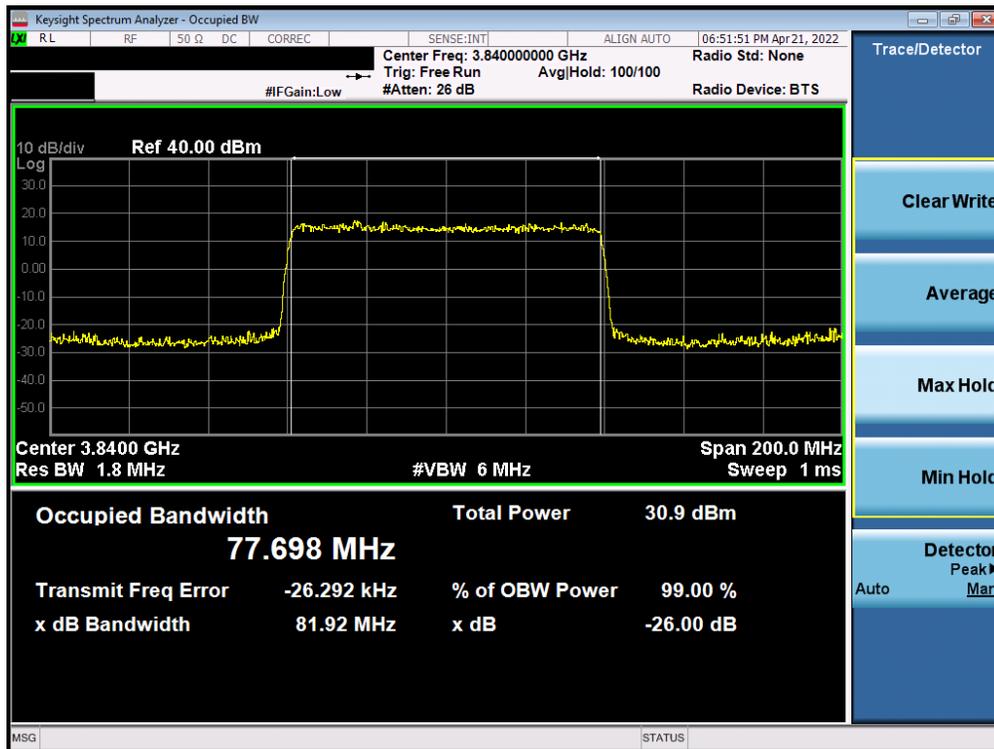


Plot 7-22. Occupied Bandwidth Plot (NR Band n77 - 80MHz  $\pi/2$  BPSK - Full RB - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 24 of 99

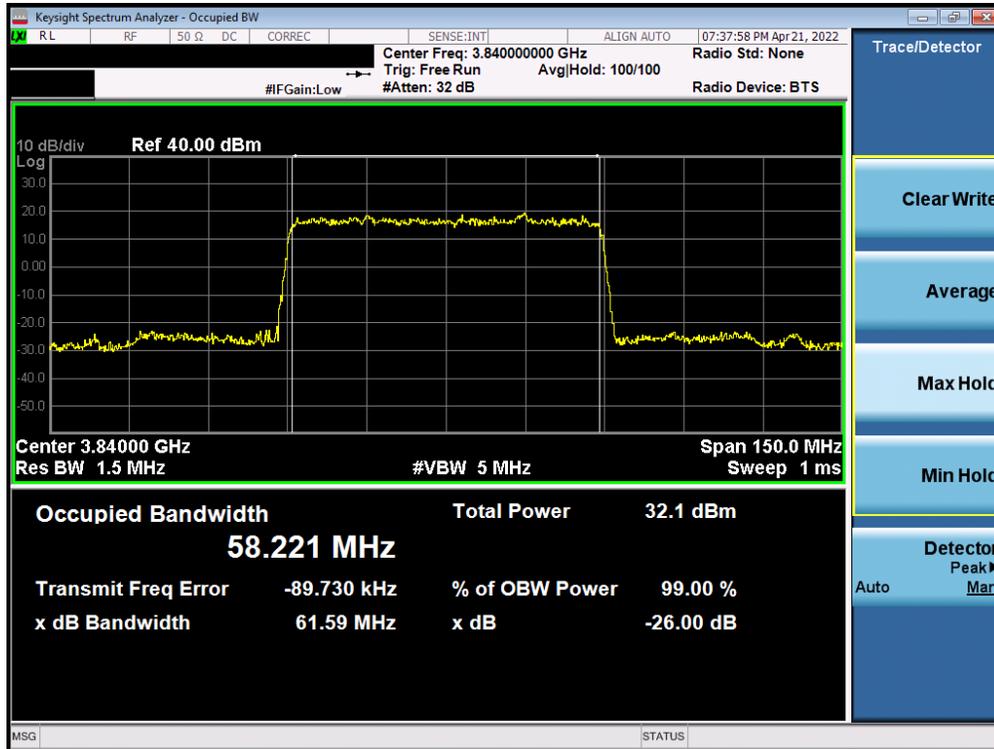


Plot 7-23. Occupied Bandwidth Plot (NR Band n77 - 80MHz QPSK - Full RB - As-Div Ant)

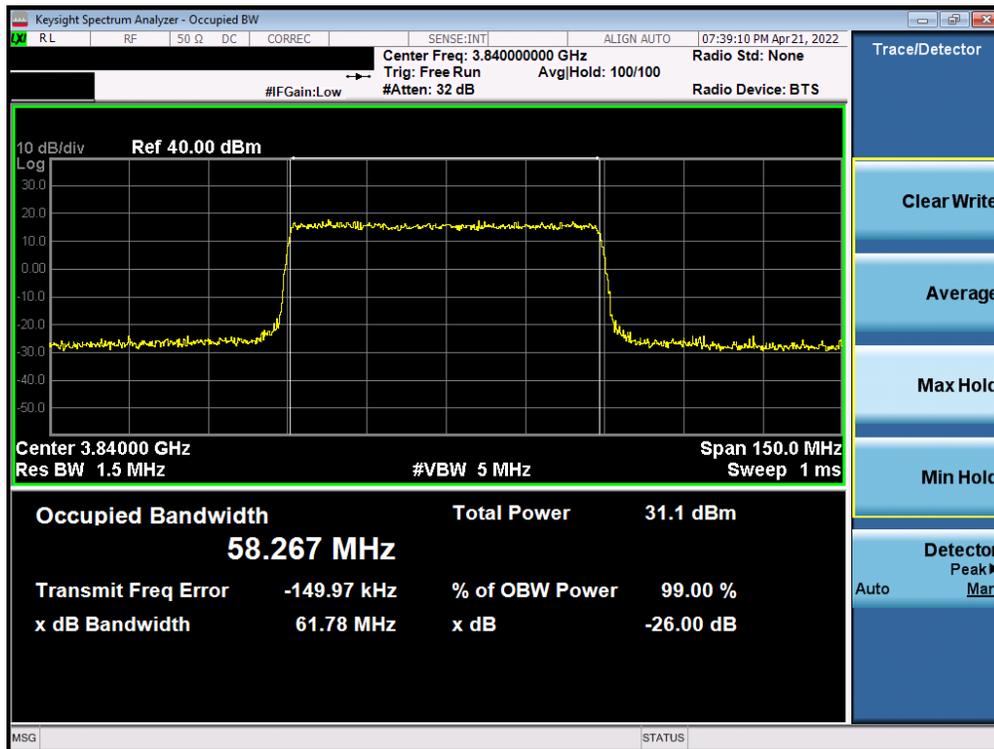


Plot 7-24. Occupied Bandwidth Plot (NR Band n77 - 80MHz 16-QAM - Full RB - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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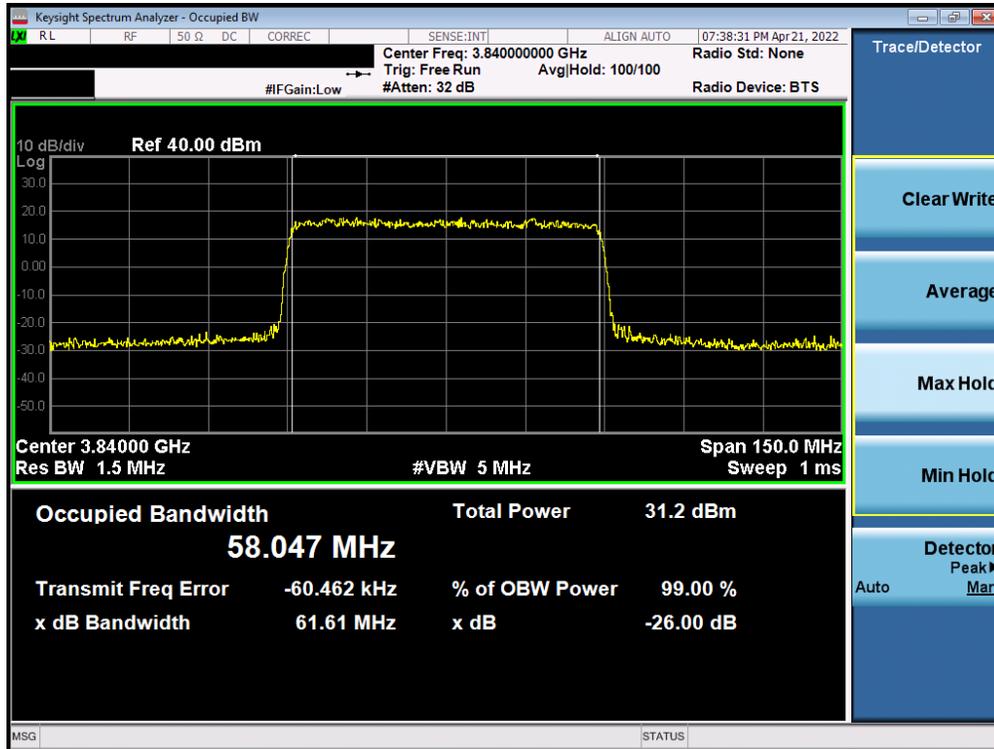


Plot 7-25. Occupied Bandwidth Plot (NR Band n77 - 60MHz  $\pi/2$  BPSK - Full RB - As-Div Ant)

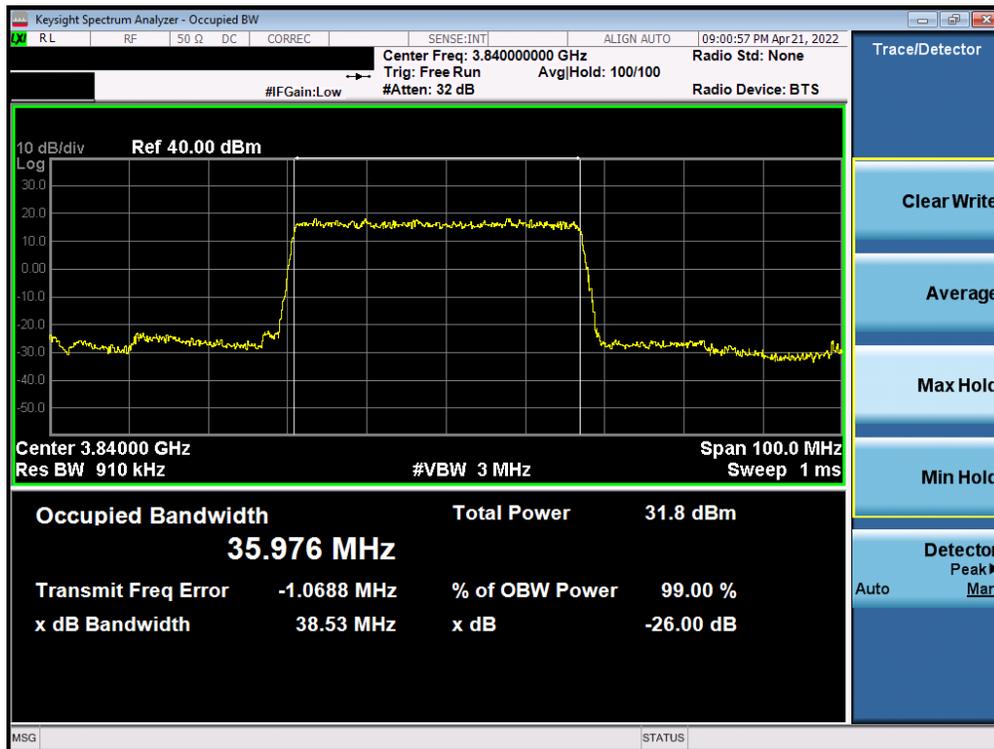


Plot 7-26. Occupied Bandwidth Plot (NR Band n77 - 60MHz QPSK - Full RB - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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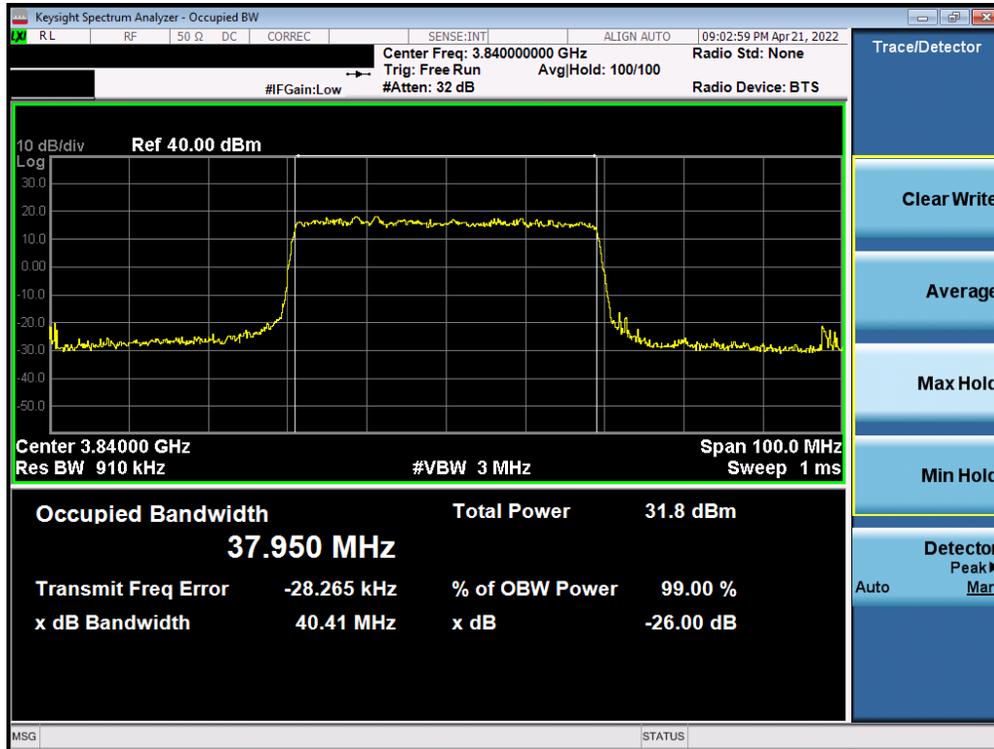


Plot 7-27. Occupied Bandwidth Plot (NR Band n77 - 60MHz 16-QAM - Full RB - As-Div Ant)

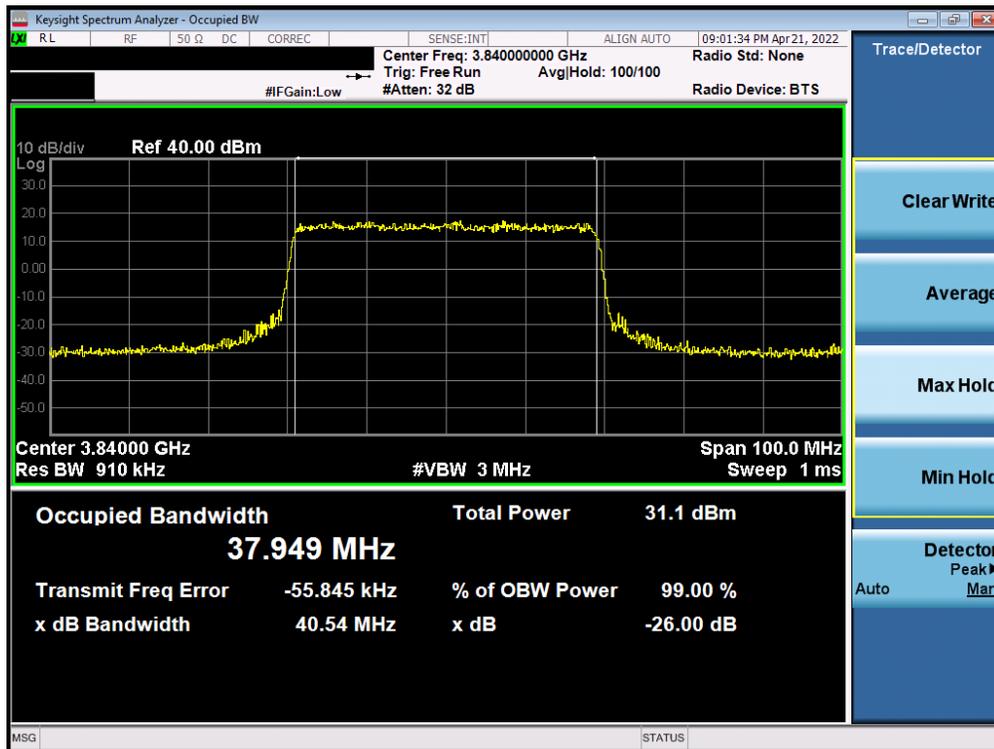


Plot 7-28. Occupied Bandwidth Plot (NR Band n77 - 40MHz  $\pi/2$  BPSK - Full RB - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 27 of 99

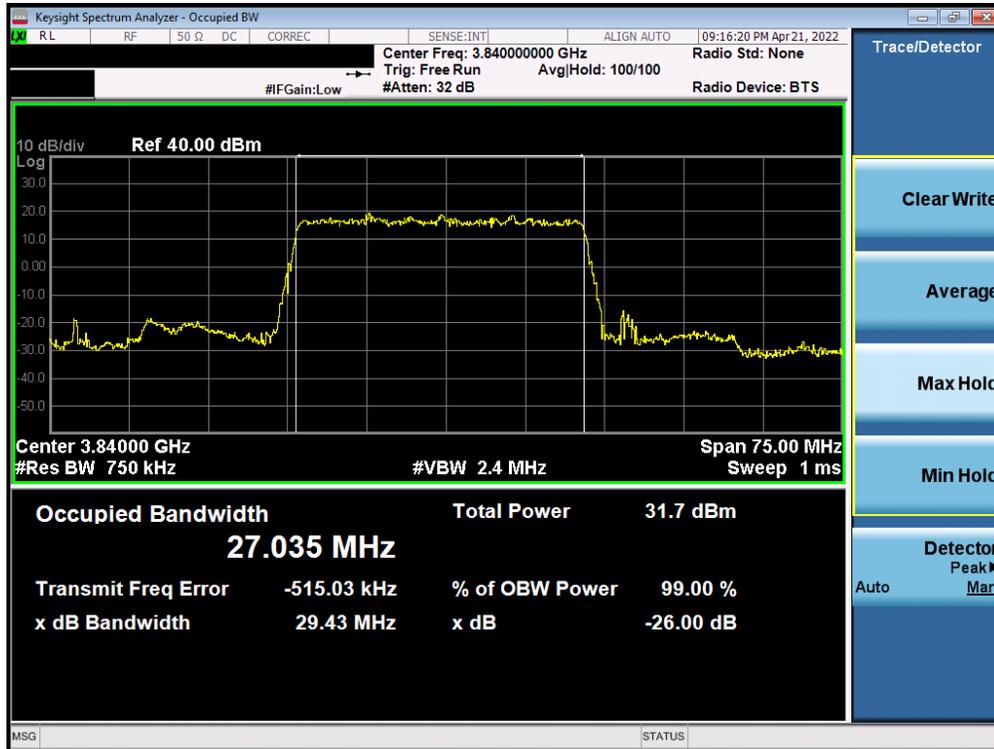


Plot 7-29. Occupied Bandwidth Plot (NR Band n77 - 40MHz QPSK - Full RB - As-Div Ant)

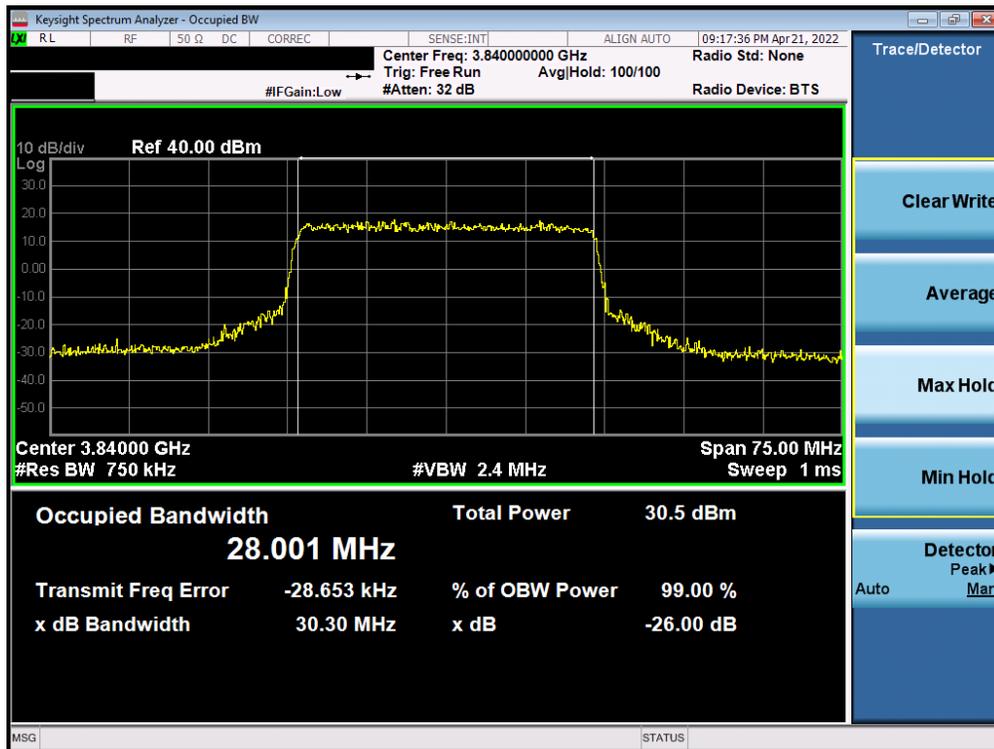


Plot 7-30. Occupied Bandwidth Plot (NR Band n77 - 40MHz 16-QAM - Full RB - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 28 of 99

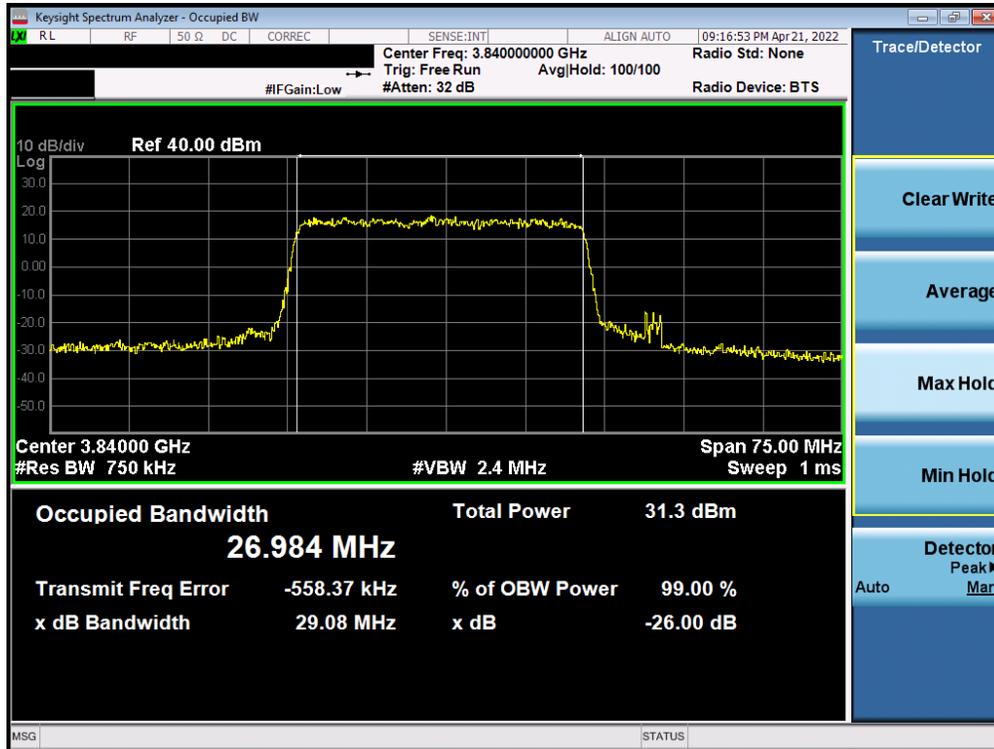


Plot 7-31. Occupied Bandwidth Plot (NR Band n77 - 30MHz  $\pi/2$  BPSK - Full RB - As-Div Ant)

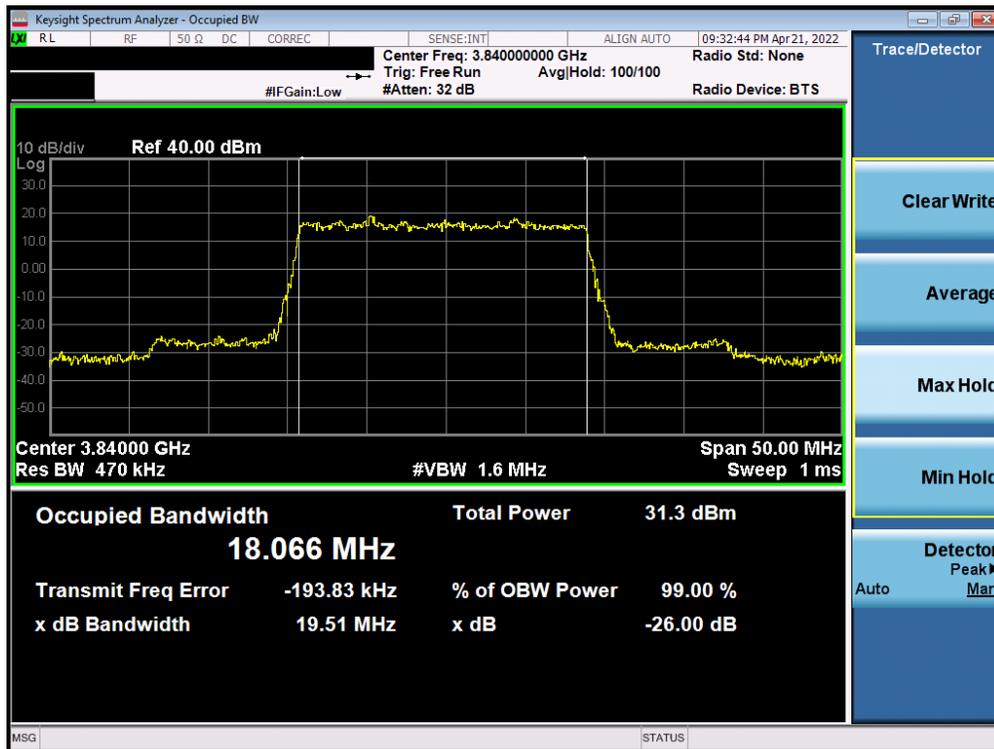


Plot 7-32. Occupied Bandwidth Plot (NR Band n77 - 30MHz QPSK - Full RB - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 29 of 99

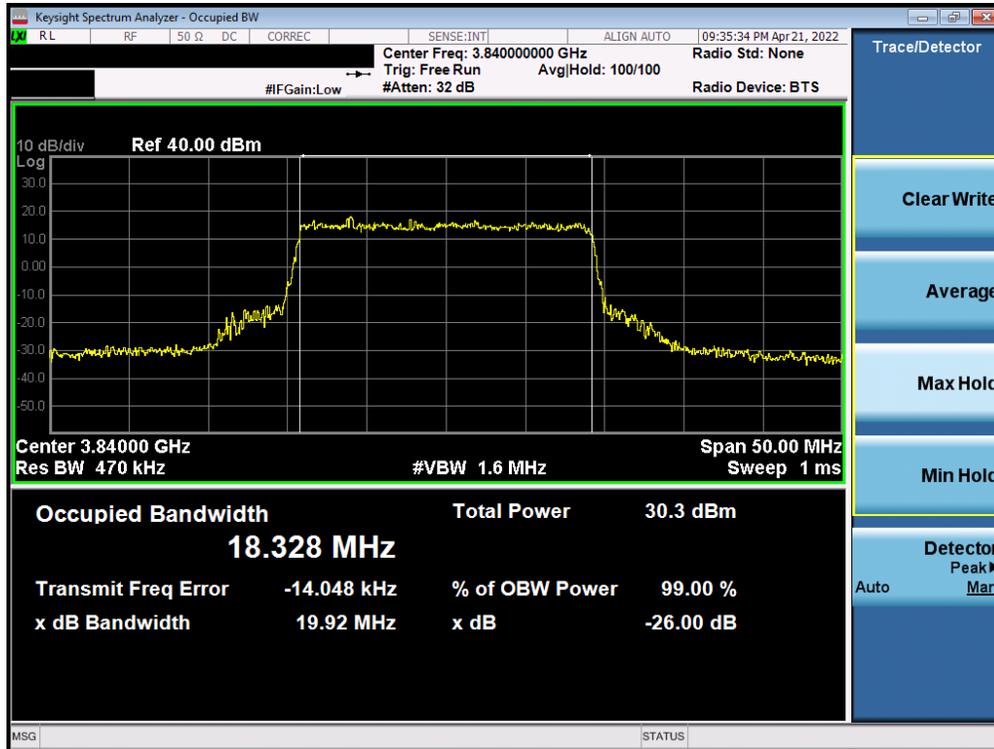


Plot 7-33. Occupied Bandwidth Plot (NR Band n77 - 30MHz 16-QAM - Full RB - As-Div Ant)

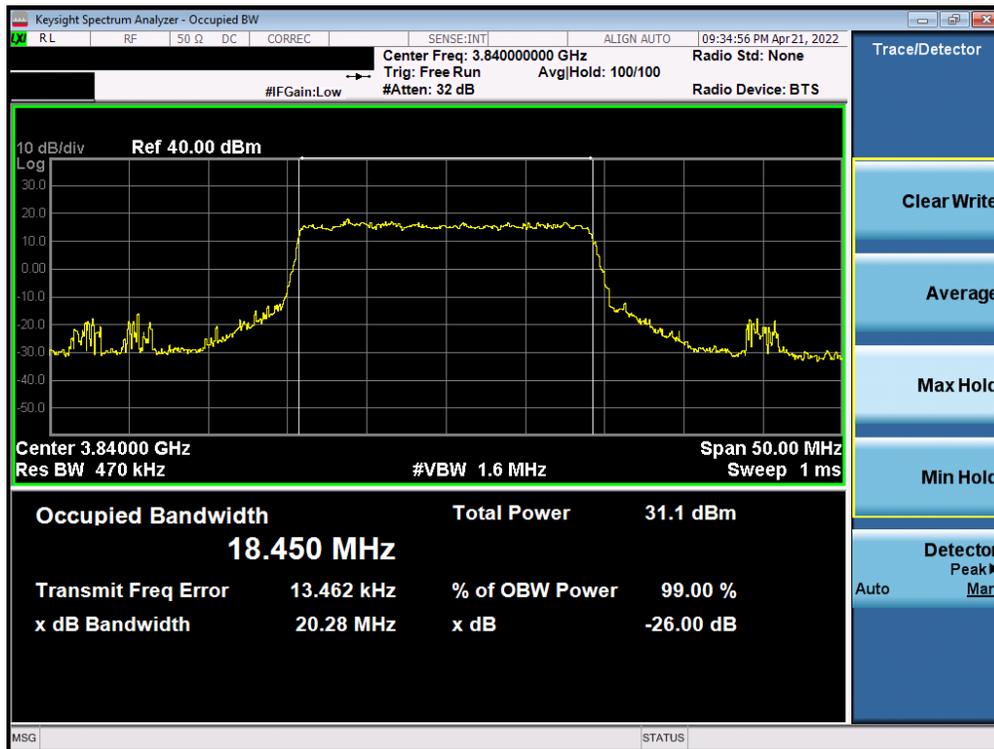


Plot 7-34. Occupied Bandwidth Plot (NR Band n77 - 20MHz  $\pi/2$  BPSK - Full RB - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-35. Occupied Bandwidth Plot (NR Band n77 - 20MHz QPSK - Full RB - As-Div Ant)



Plot 7-36. Occupied Bandwidth Plot (NR Band n77 - 20MHz 16-QAM - Full RB - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 31 of 99

## 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.

***For operations in the 3700 – 3980MHz band and the 3450 – 3550MHz band, the maximum permissible conducted power level of any spurious emission is -13dBm/MHz.***

### Test Procedure Used

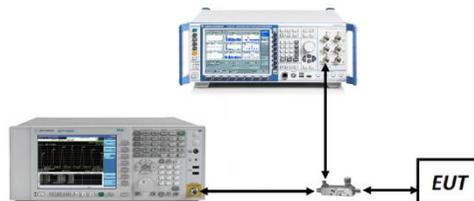
ANSI C63.26-2015 – Section 5.7.4

### Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to the tenth harmonic of the highest transmit frequency (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**

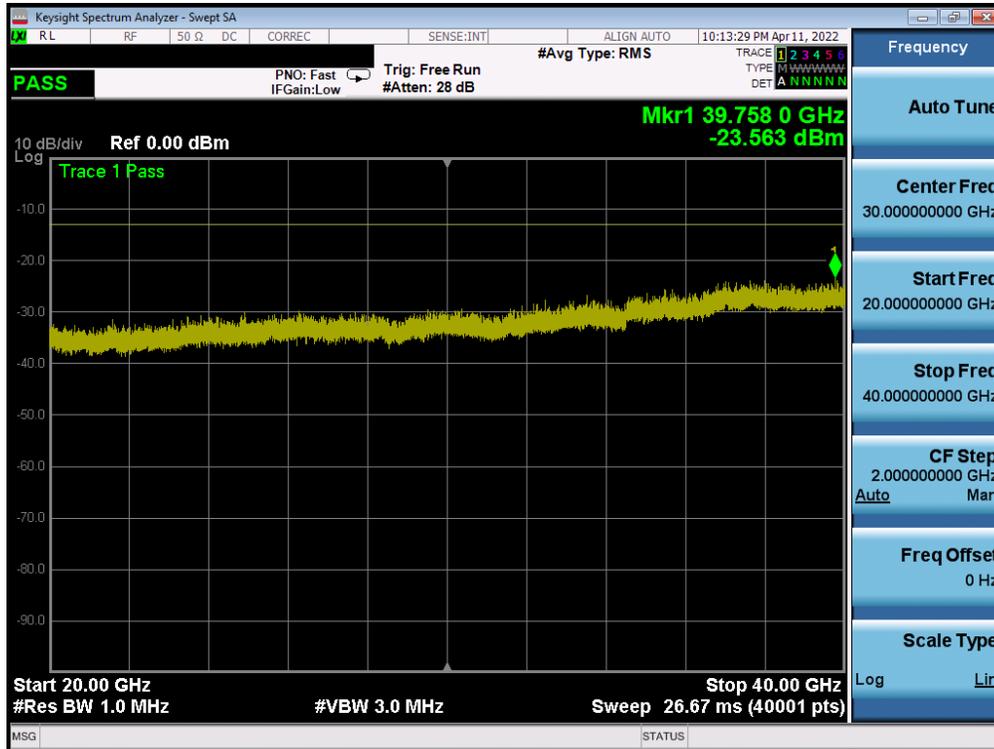
### Test Notes

1. Per Part 27.53(k), Part 27.53(l), 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.

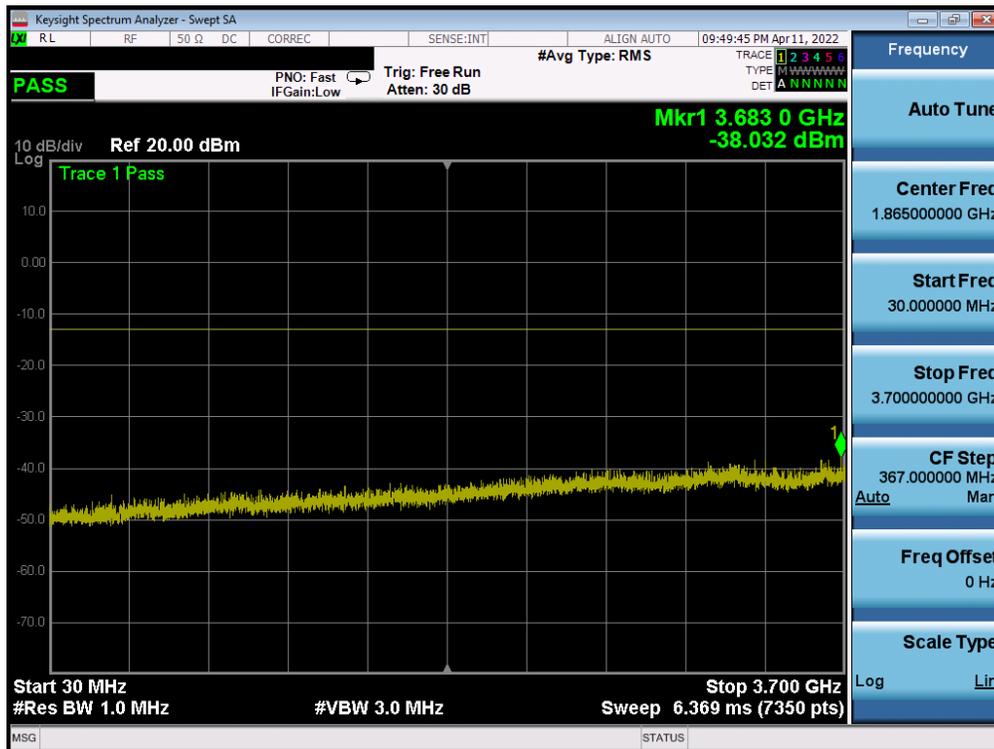
FCC ID: PY7-57325M	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 32 of 99

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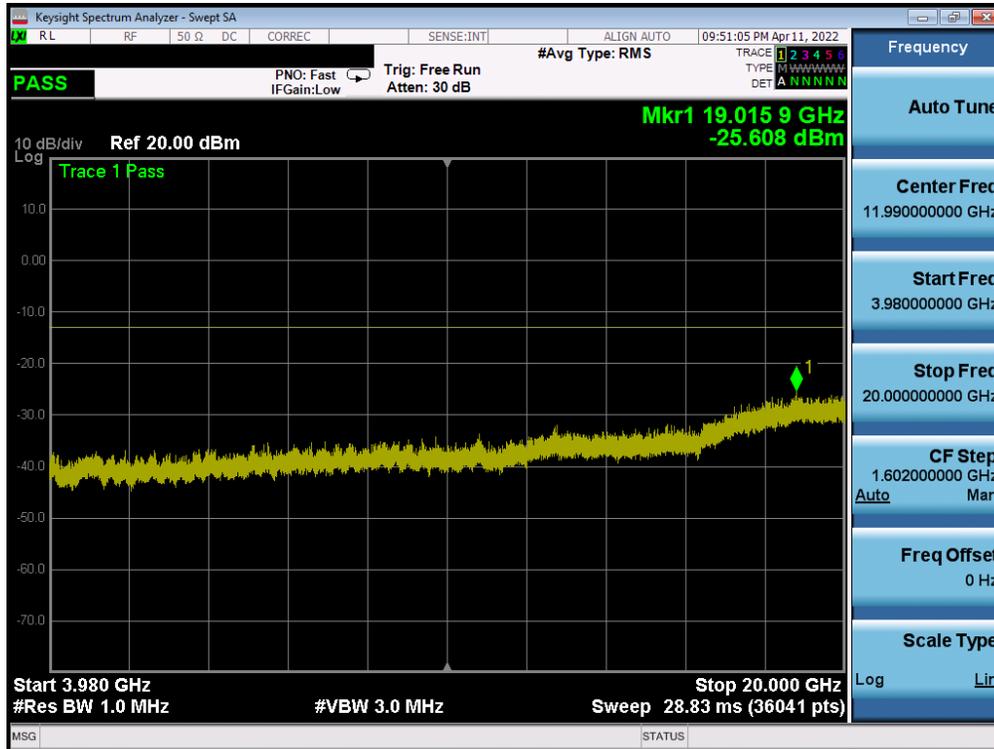


Plot 7-39. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - Main Ant)

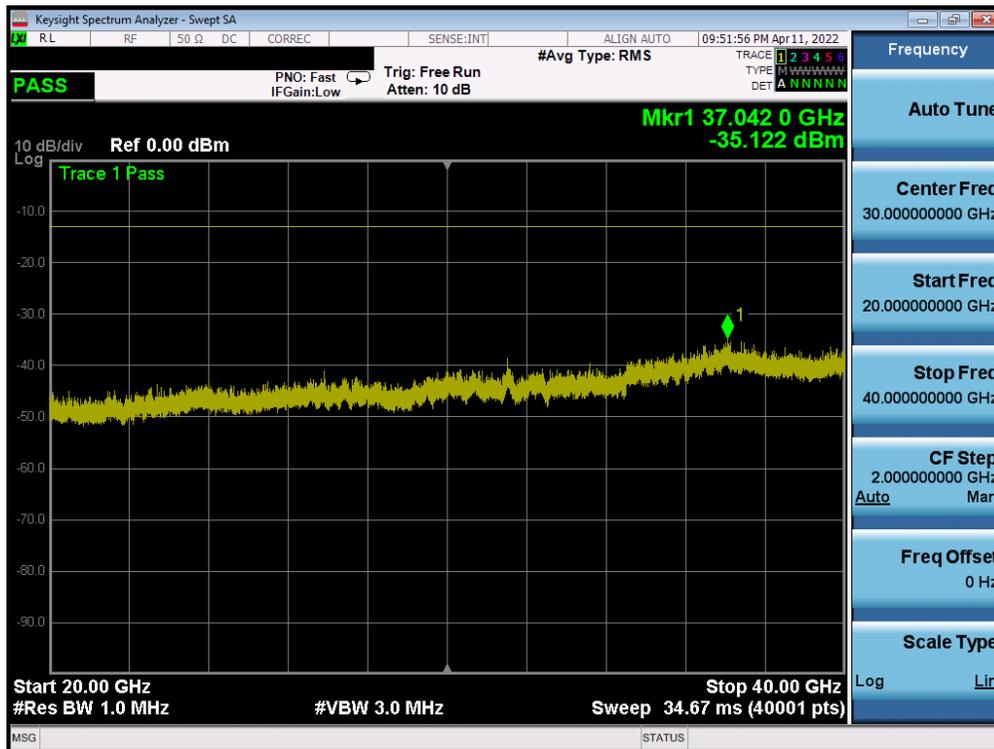


Plot 7-40. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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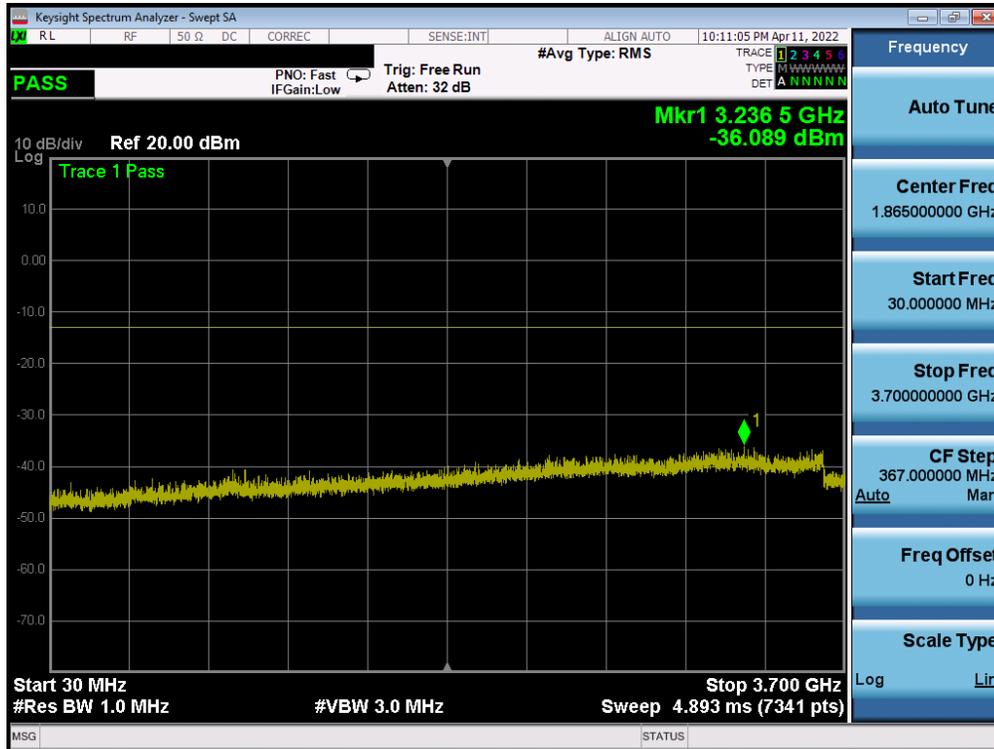


Plot 7-41. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - Main Ant)

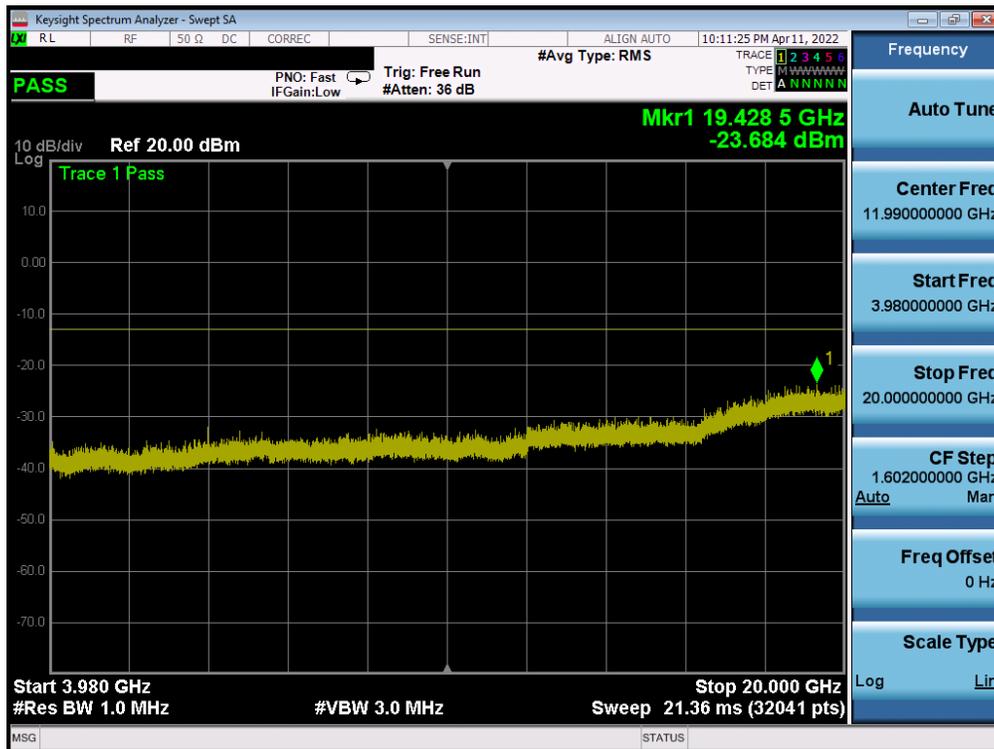


Plot 7-42. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-43. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel - Main Ant)

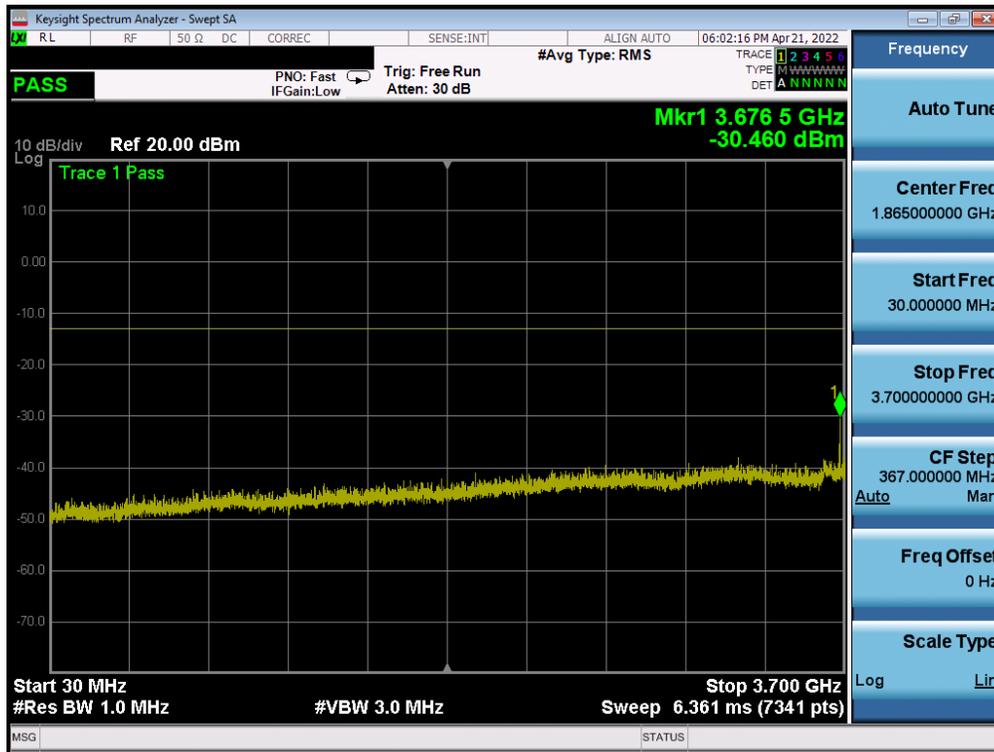


Plot 7-44. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel - Main Ant)

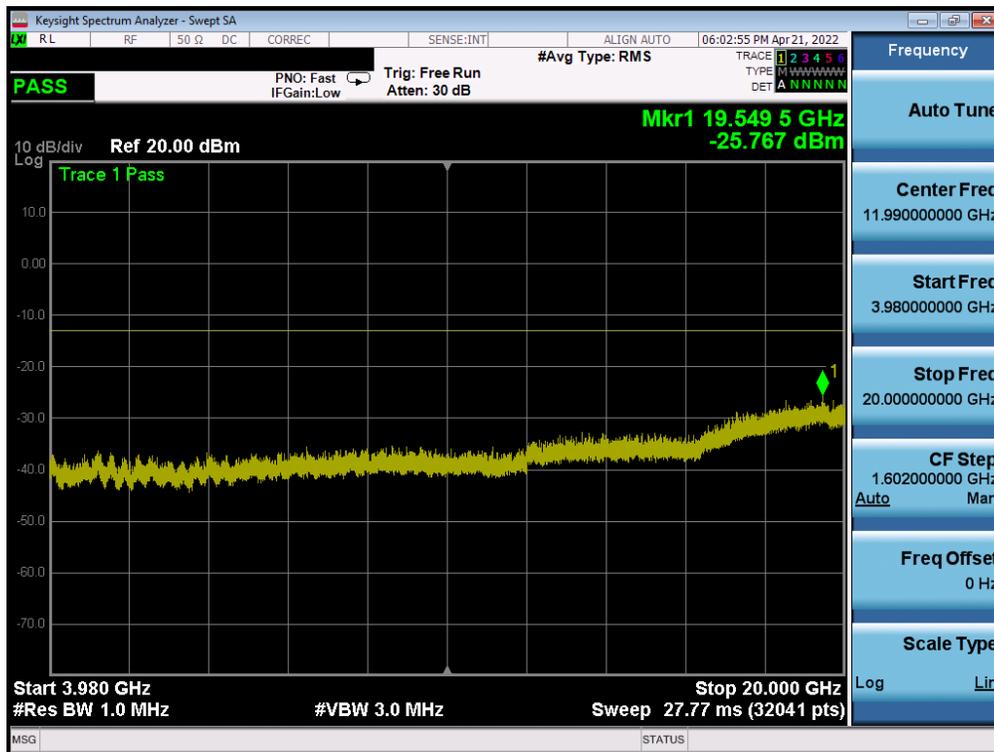
FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 36 of 99



## NR Band n77 – As-Div Ant

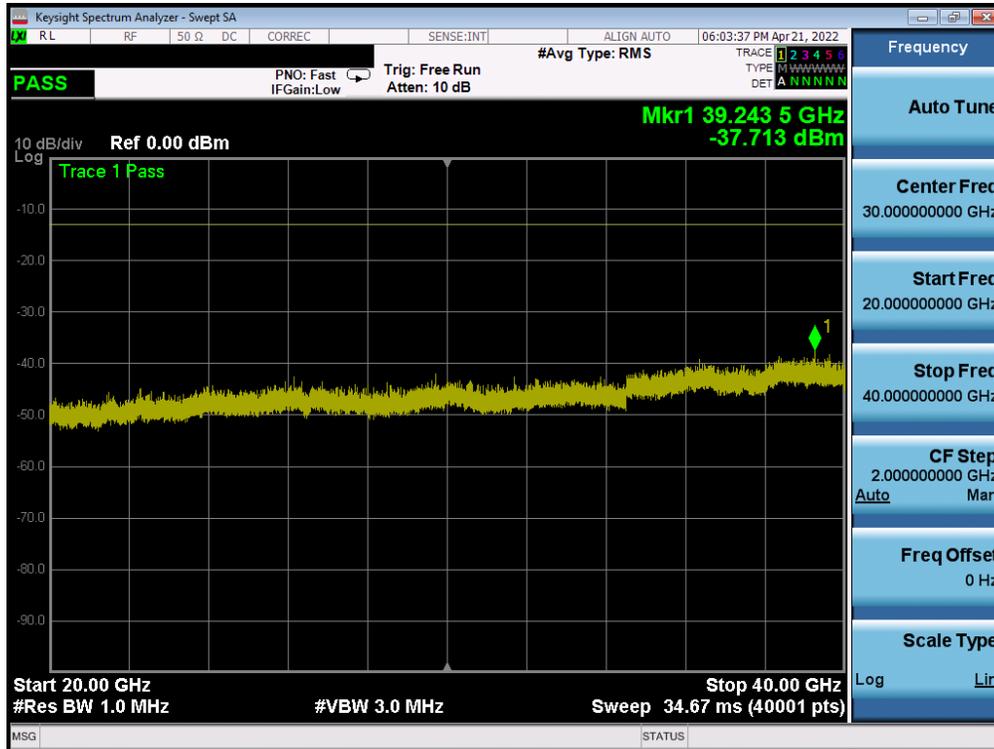


Plot 7-46. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - As-Div Ant)

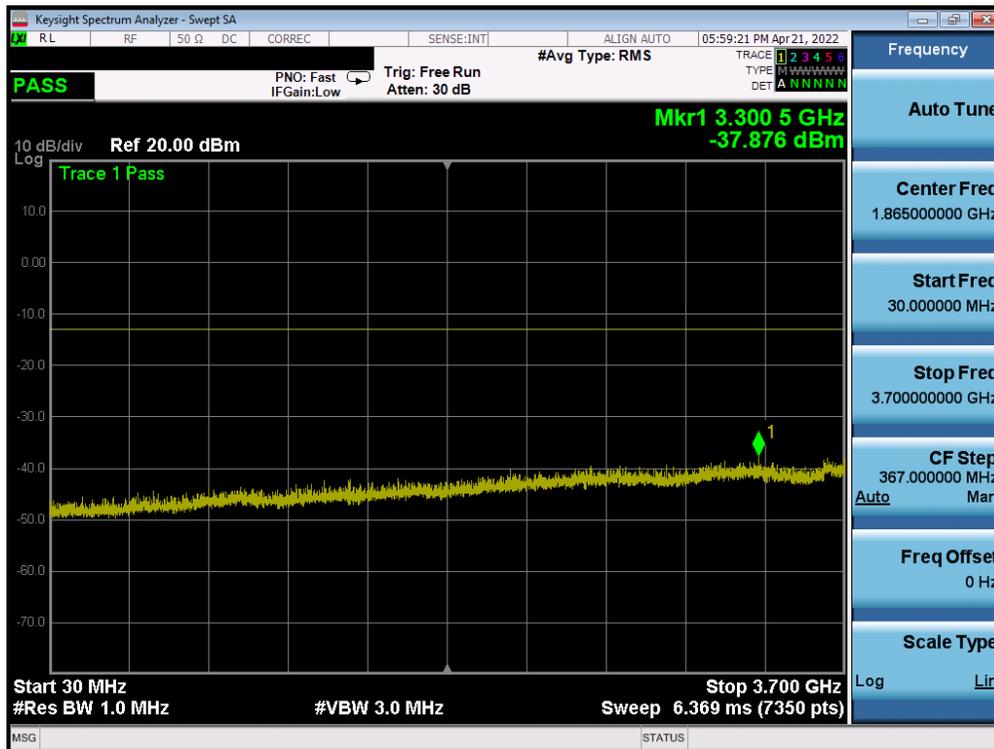


Plot 7-47. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 38 of 99

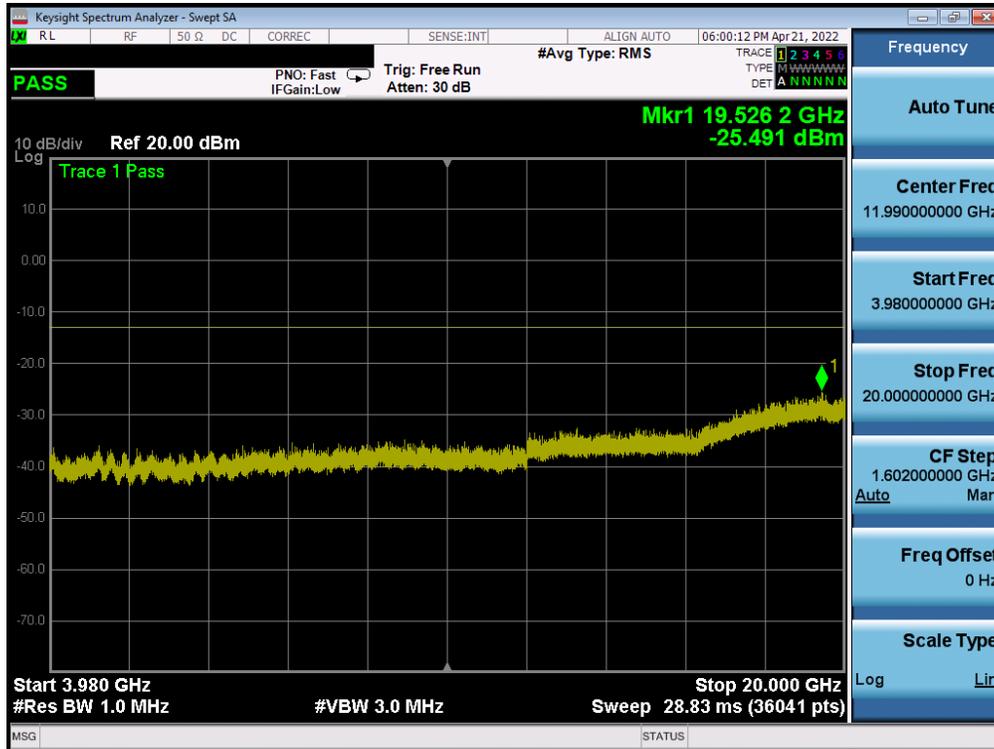


Plot 7-48. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel - As-Div Ant)

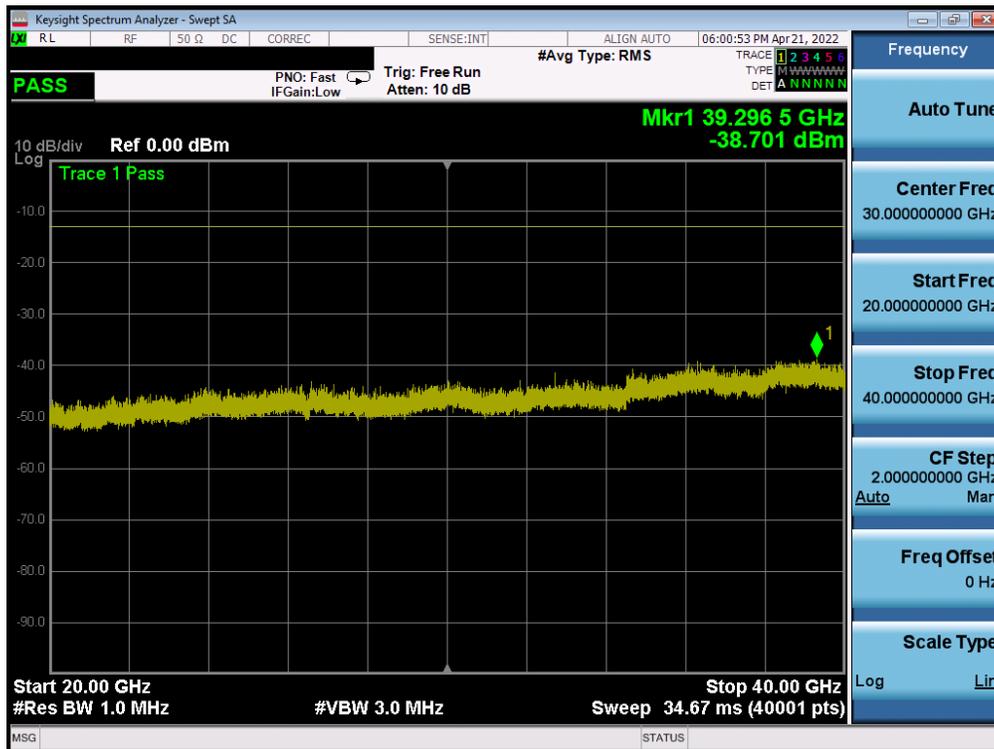


Plot 7-49. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 39 of 99

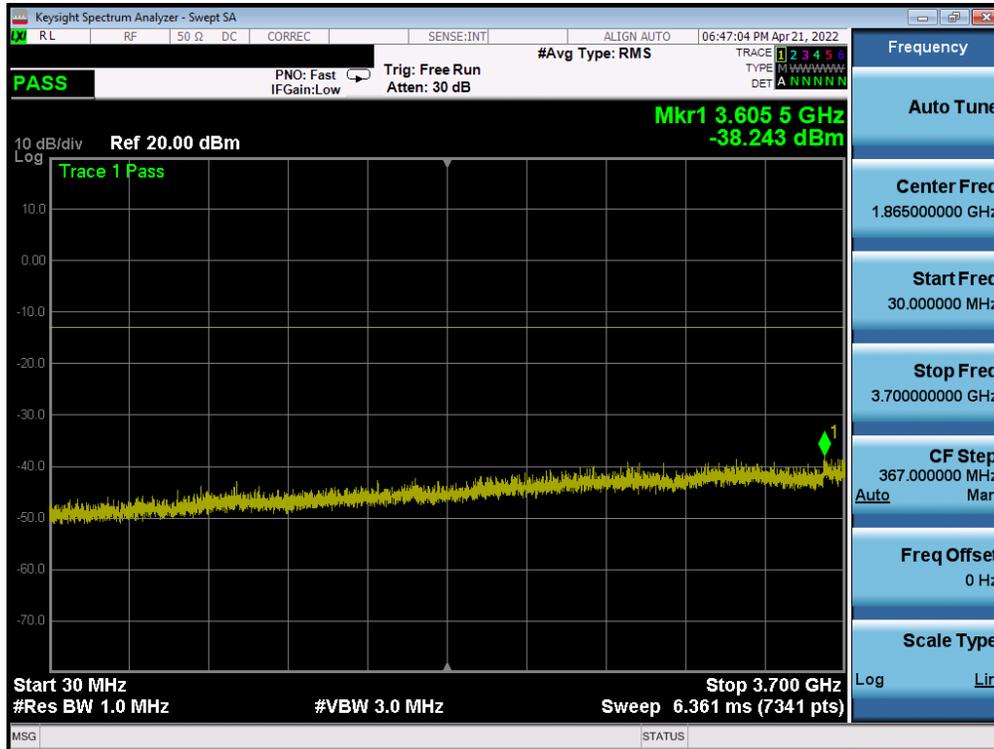


Plot 7-50. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - As-Div Ant)

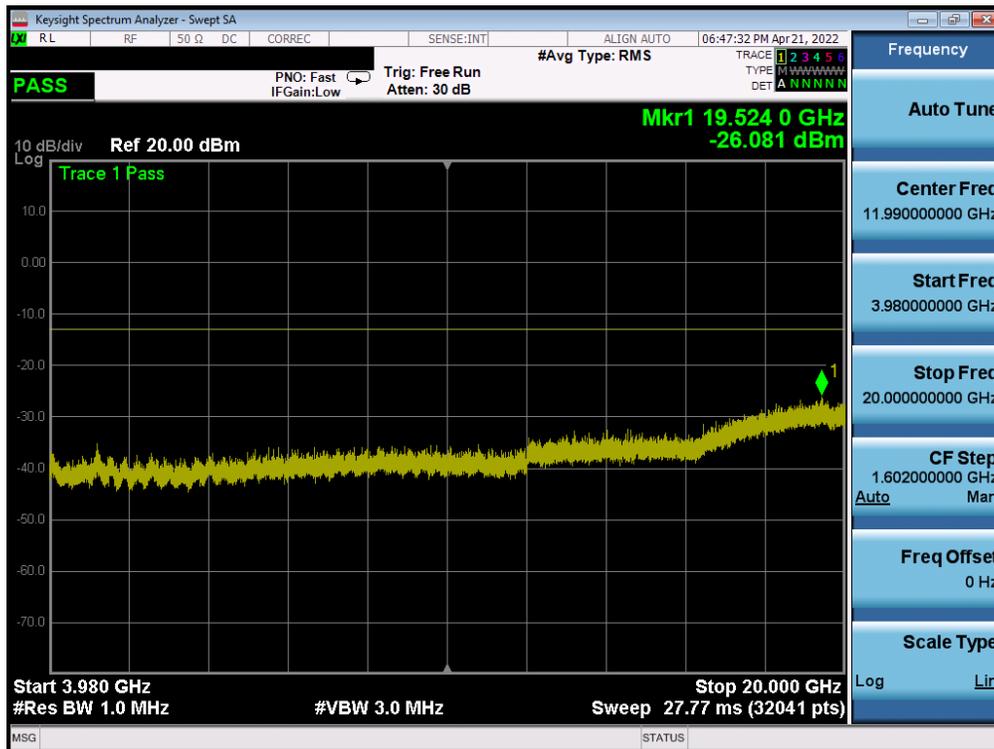


Plot 7-51. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 40 of 99

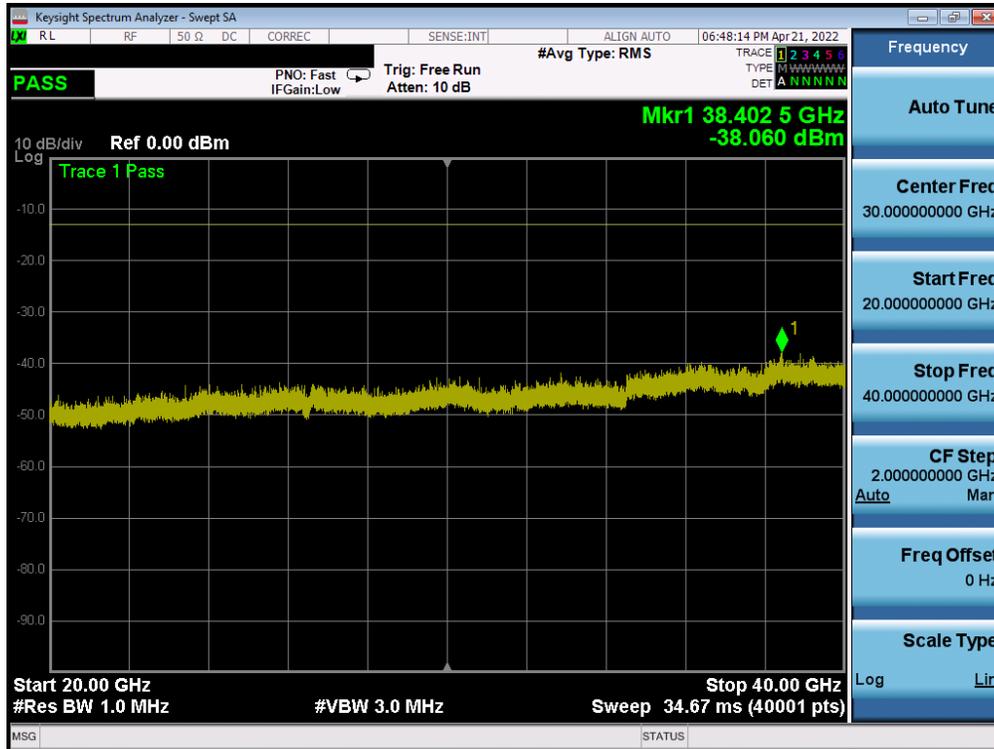


Plot 7-52. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel - As-Div Ant)



Plot 7-53. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-54. Conducted Spurious Plot (NR Band n77 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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## 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.

***For operations in the 3700 – 3980MHz band and the 3450 – 3550MHz band, the maximum permissible conducted power level of any out-of-band emission is -13dBm/MHz.***

### Test Procedure Used

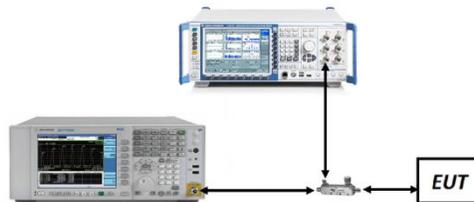
ANSI C63.26-2015 – Section 5.7.3

### 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**

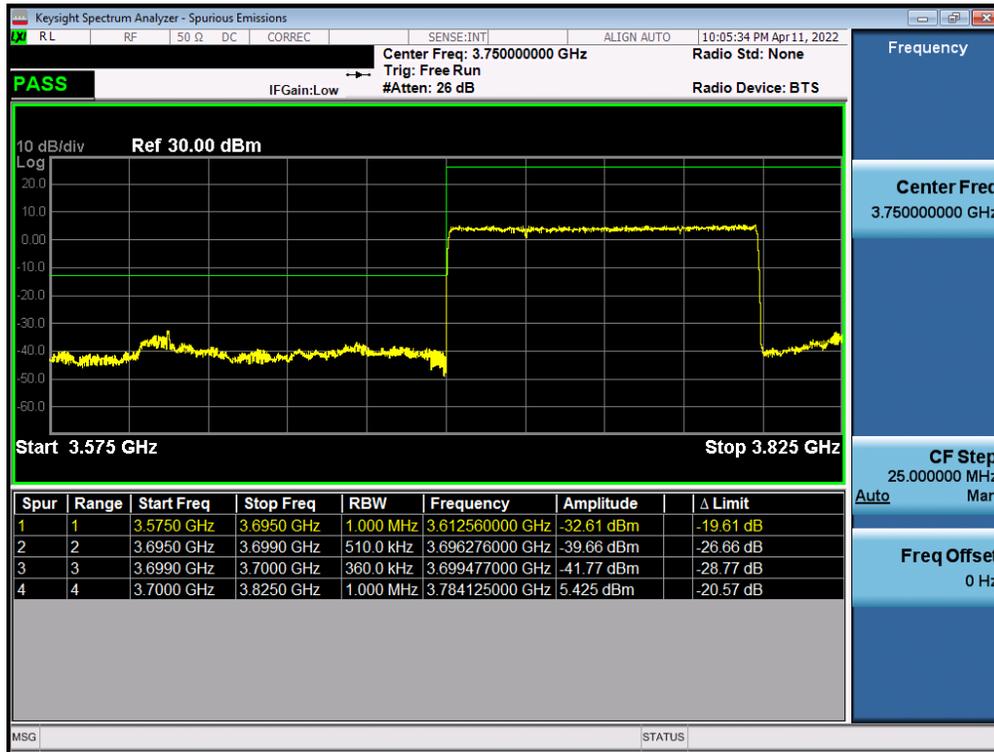
FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 43 of 99

**Test Notes**

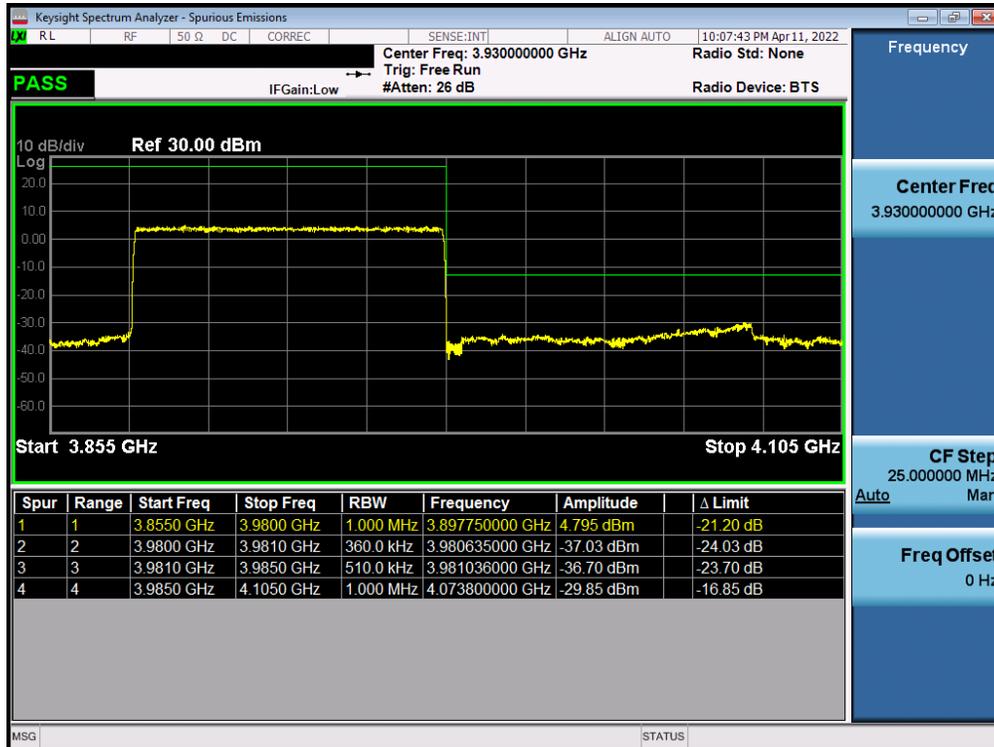
1. Per Part 27.53(l), compliance with the -13dBm/MHz conducted power limit for out-of-band emissions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz.
2. Per Part 27.53(n), compliance with the -13dBm/MHz conducted power limit for out-of-band emissions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed, but limited to a maximum of 200 kHz. In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz.
3. 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.
4. 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.

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<b>Test Report S/N:</b> 1M2201200003-11.PY7	<b>Test Dates:</b> 03/25/2022 - 05/19/2022	<b>EUT Type:</b> Portable Handset	Page 44 of 99

# NR Band n77 – Main Ant

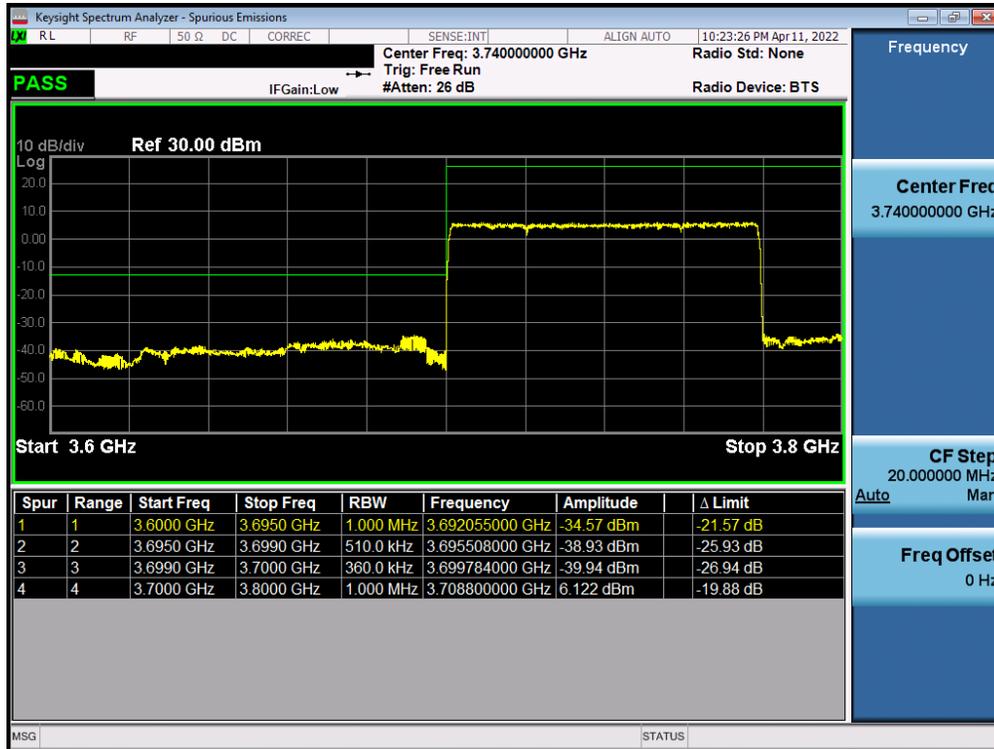


Plot 7-55. Lower ACP Plot (NR Band n77 - 100MHz CP-OFDM-QPSK – Full RB - Main Ant)

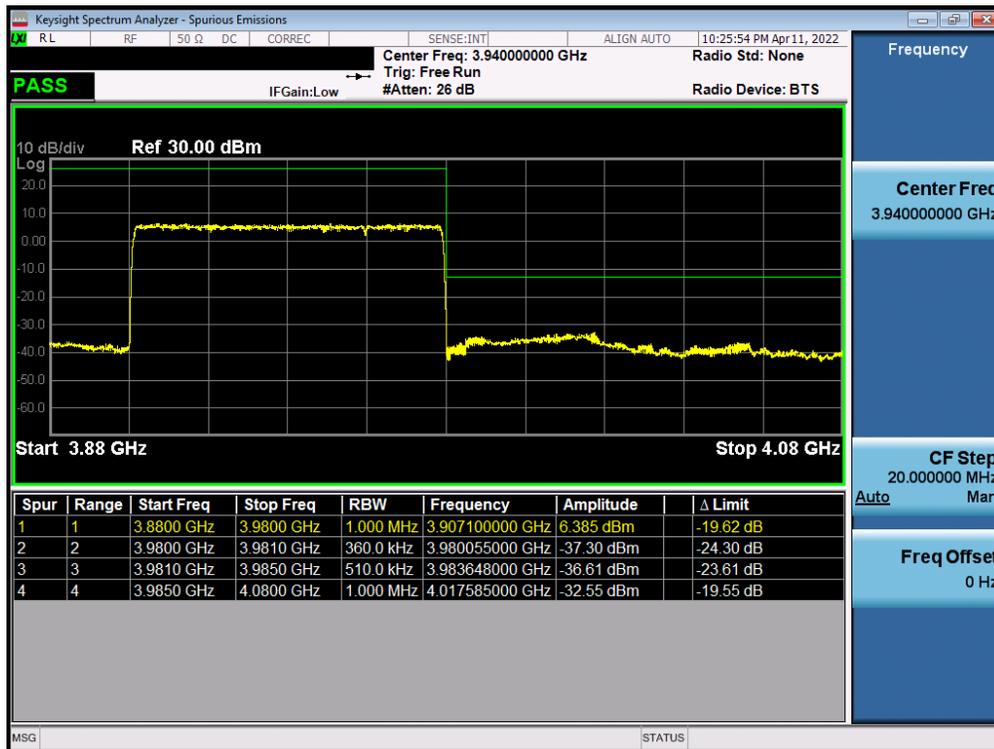


Plot 7-56. Upper ACP Plot (NR Band n77 - 100MHz CP-OFDM-QPSK – Full RB - Main Ant)

FCC ID: PY7-57325M		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 45 of 99	

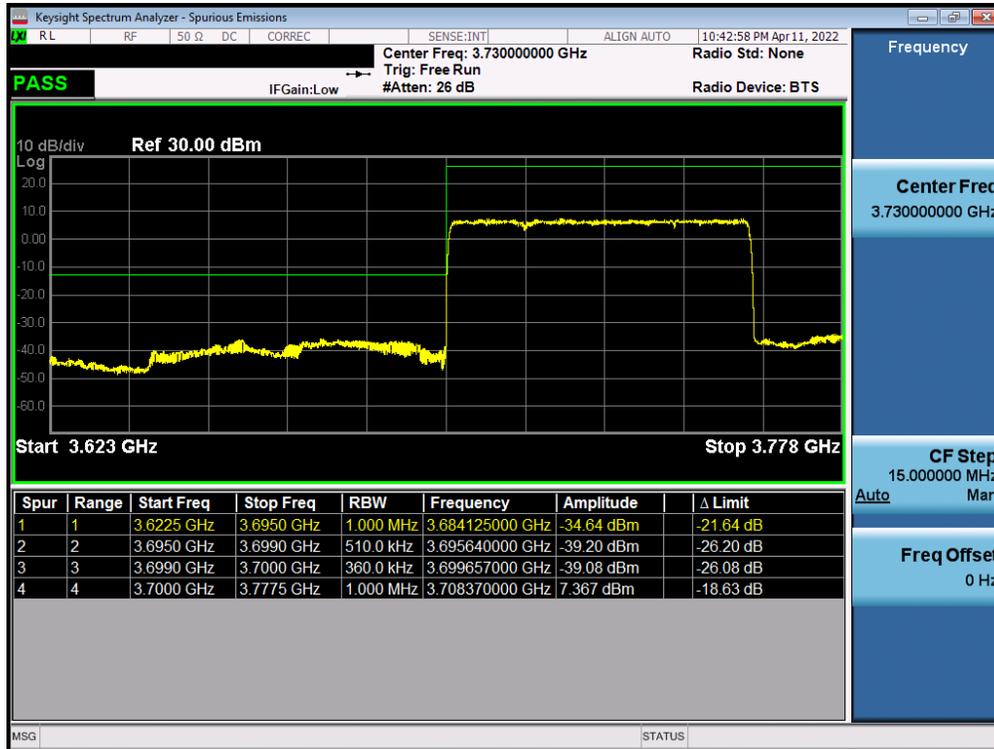


Plot 7-57. Lower ACP Plot (NR Band n77 - 80MHz CP-OFDM-QPSK - Full RB - Main Ant)

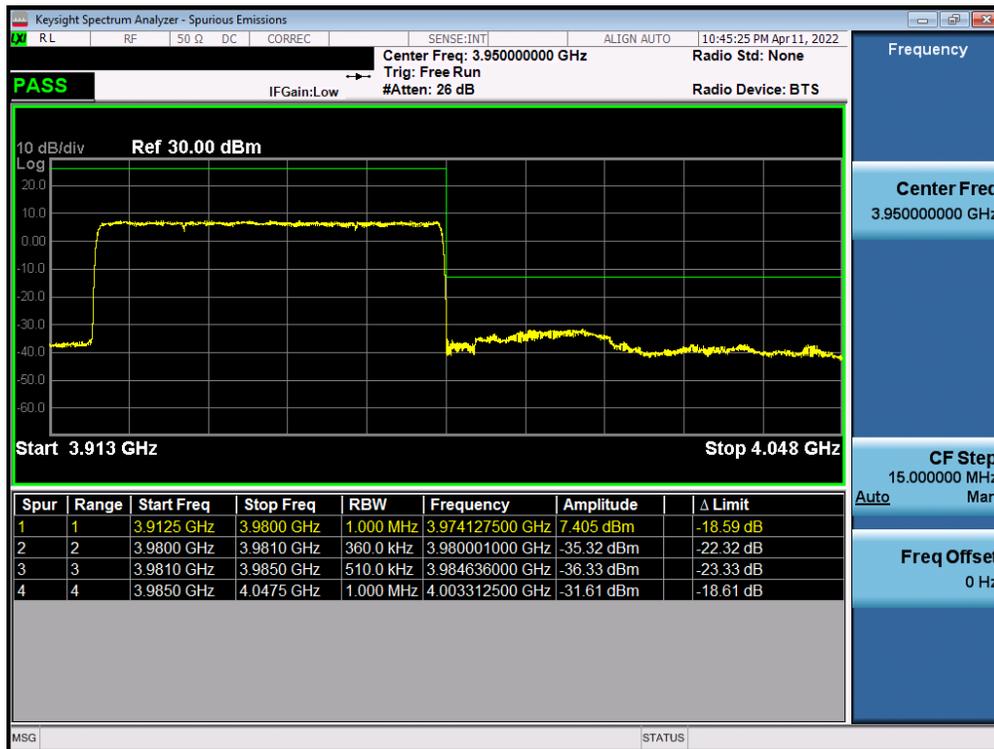


Plot 7-58. Upper ACP Plot (NR Band n77 - 80MHz CP-OFDM-QPSK - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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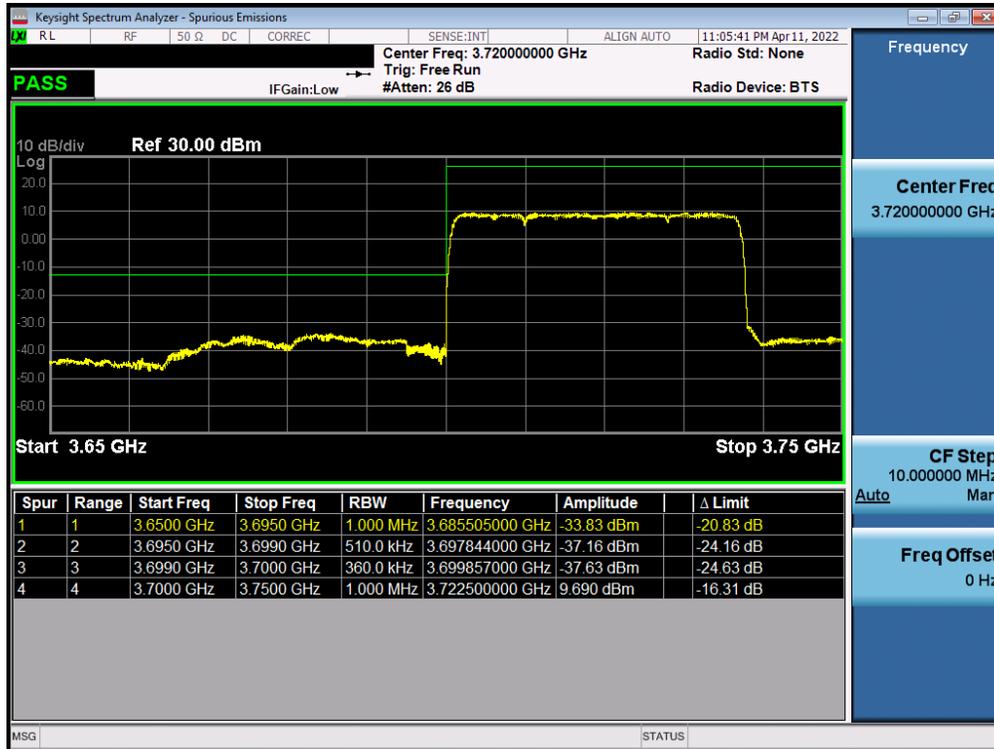


Plot 7-59. Lower ACP Plot (NR Band n77 - 60MHz CP-OFDM-QPSK – Full RB - Main Ant)

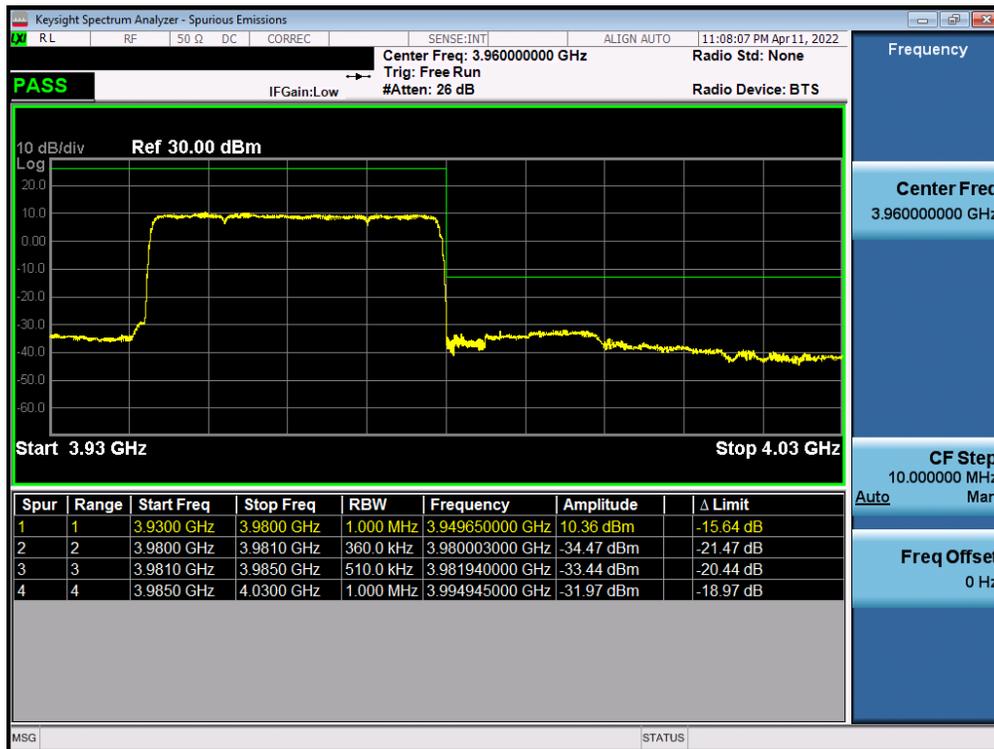


Plot 7-60. Upper ACP Plot (NR Band n77 - 60MHz CP-OFDM-QPSK – Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 47 of 99

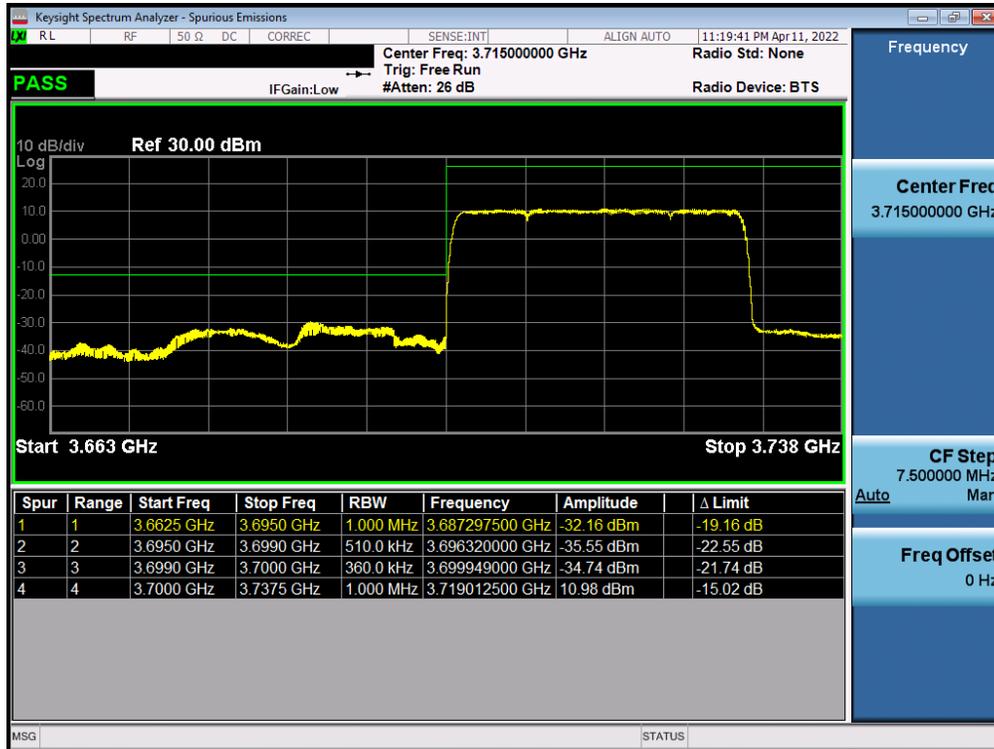


Plot 7-61. Lower ACP Plot (NR Band n77 - 40MHz CP-OFDM-QPSK – Full RB - Main Ant)

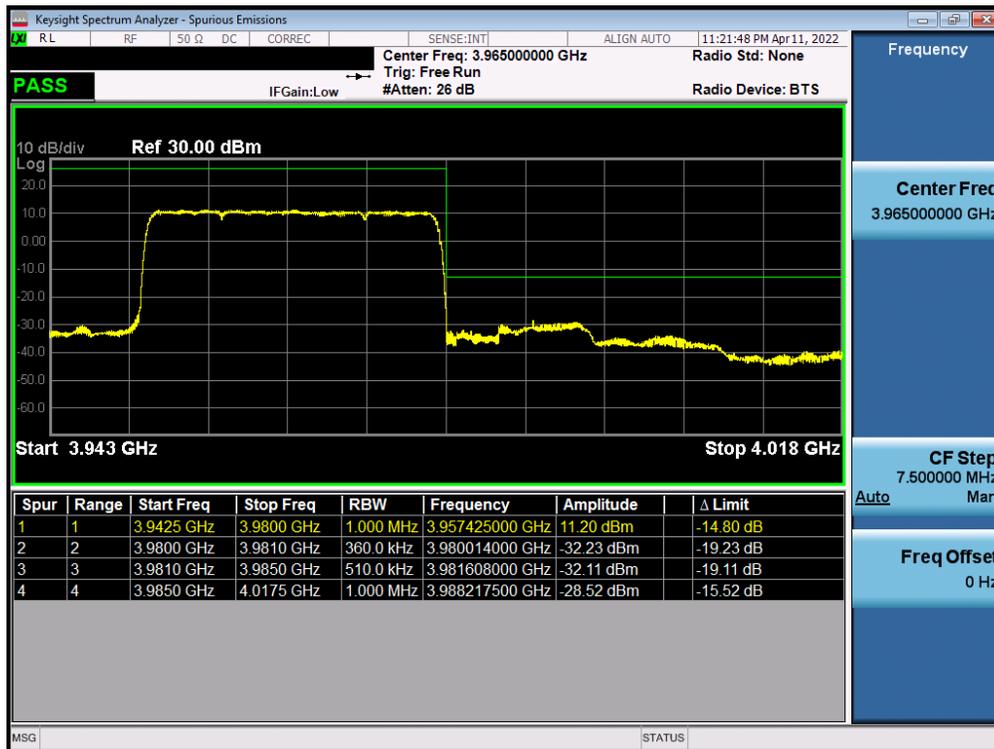


Plot 7-62. Upper ACP Plot (NR Band n77 - 40MHz CP-OFDM-QPSK – Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 48 of 99

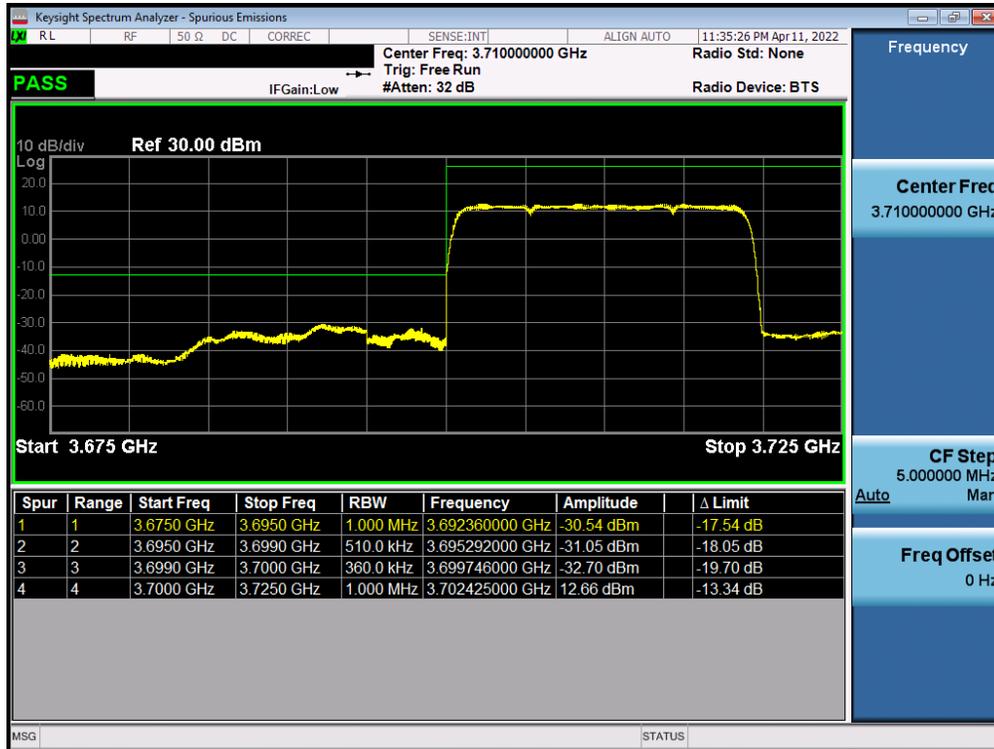


Plot 7-63. Lower ACP Plot (NR Band n77 - 30MHz CP-OFDM-QPSK – Full RB - Main Ant)

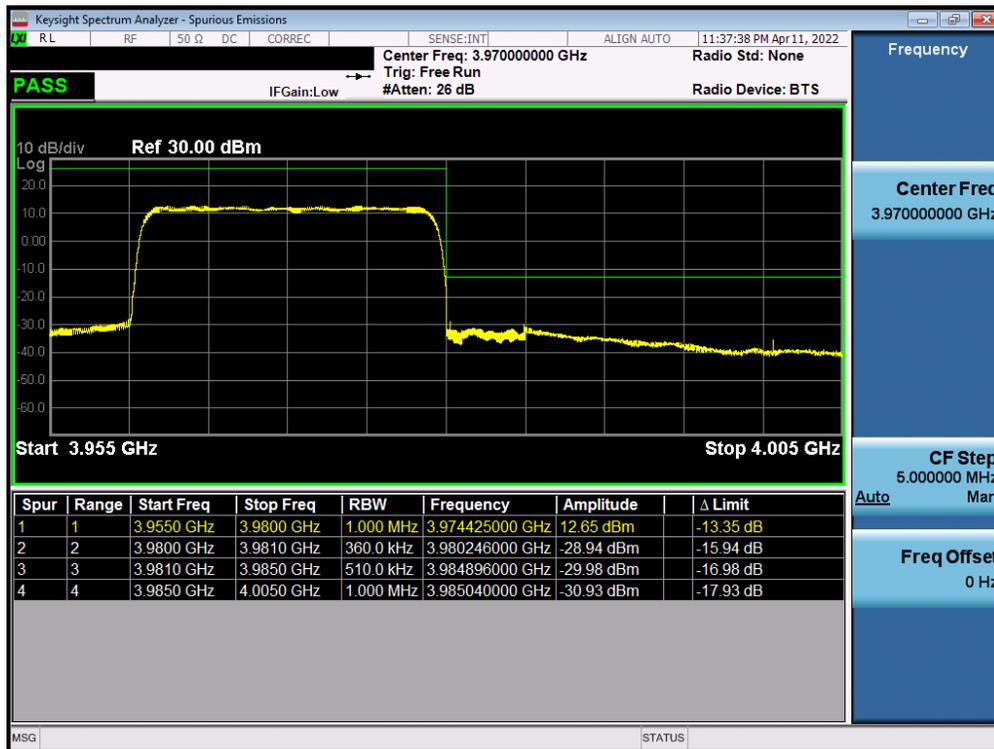


Plot 7-64. Upper ACP Plot (NR Band n77 - 30MHz CP-OFDM-QPSK – Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 49 of 99



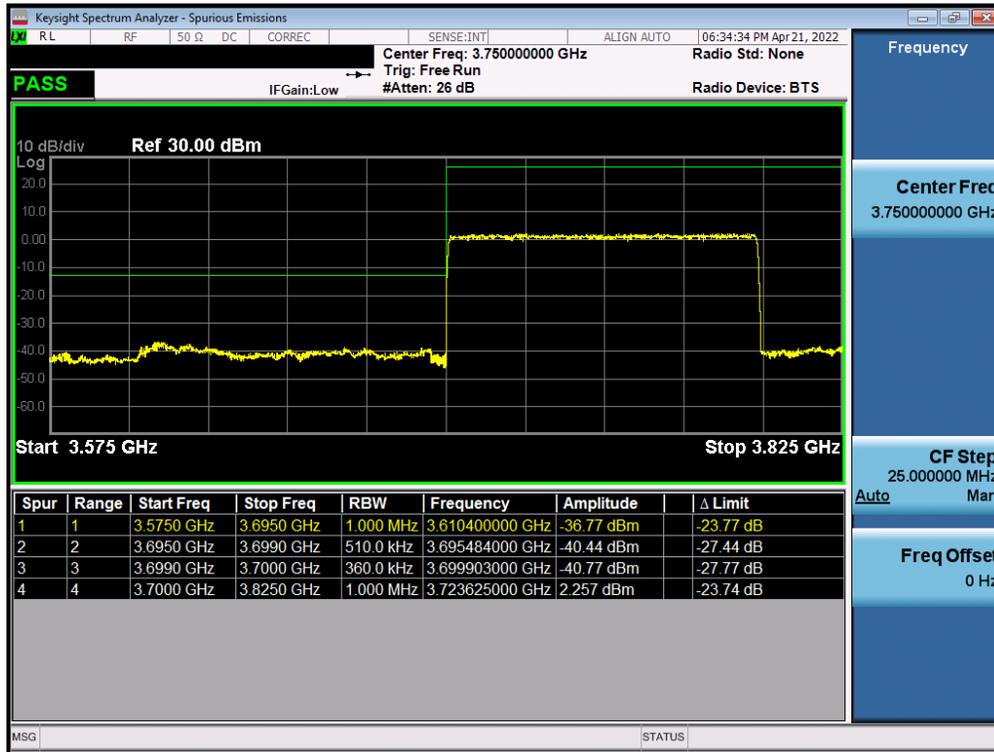
Plot 7-65. Lower ACP Plot (NR Band n77 - 20MHz CP-OFDM-QPSK - Full RB - Main Ant)



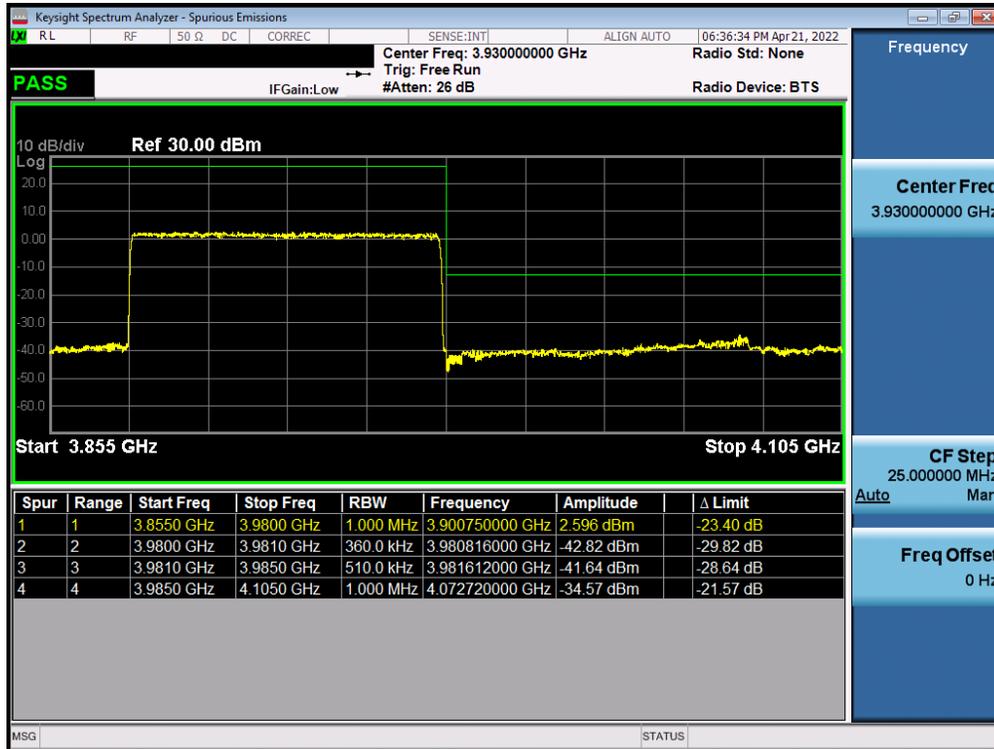
Plot 7-66. Upper ACP Plot (NR Band n77 - 20MHz CP-OFDM-QPSK - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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## NR Band n77 – As-Div Ant

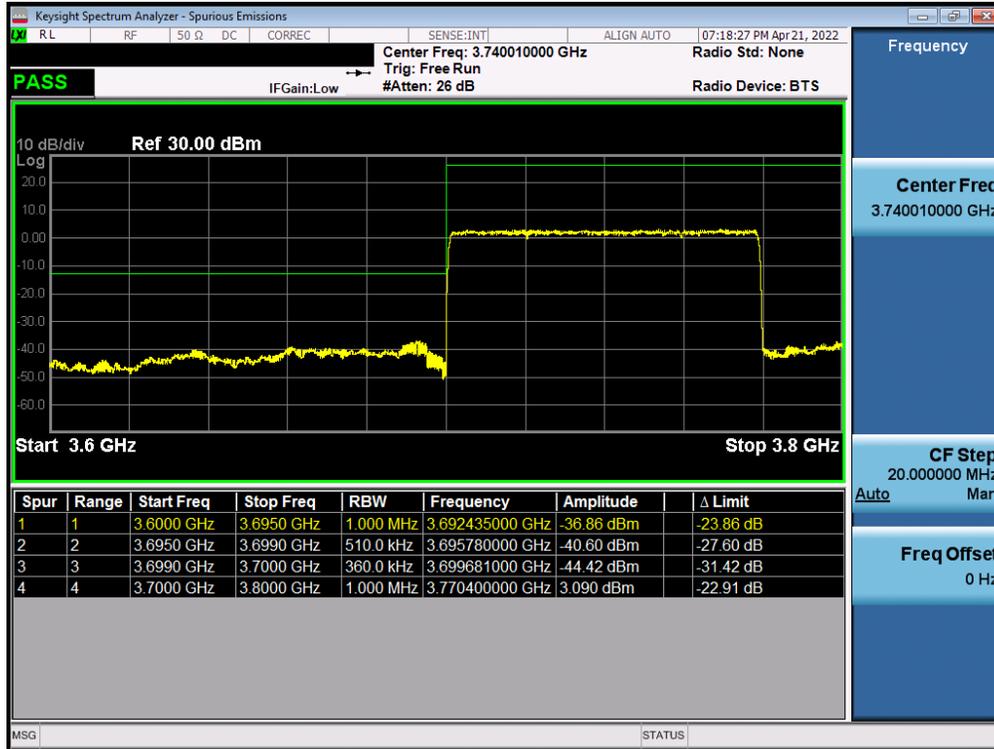


Plot 7-67. Lower ACP Plot (NR Band n77 - 100MHz CP-OFDM-QPSK – Full RB - As-Div Ant)

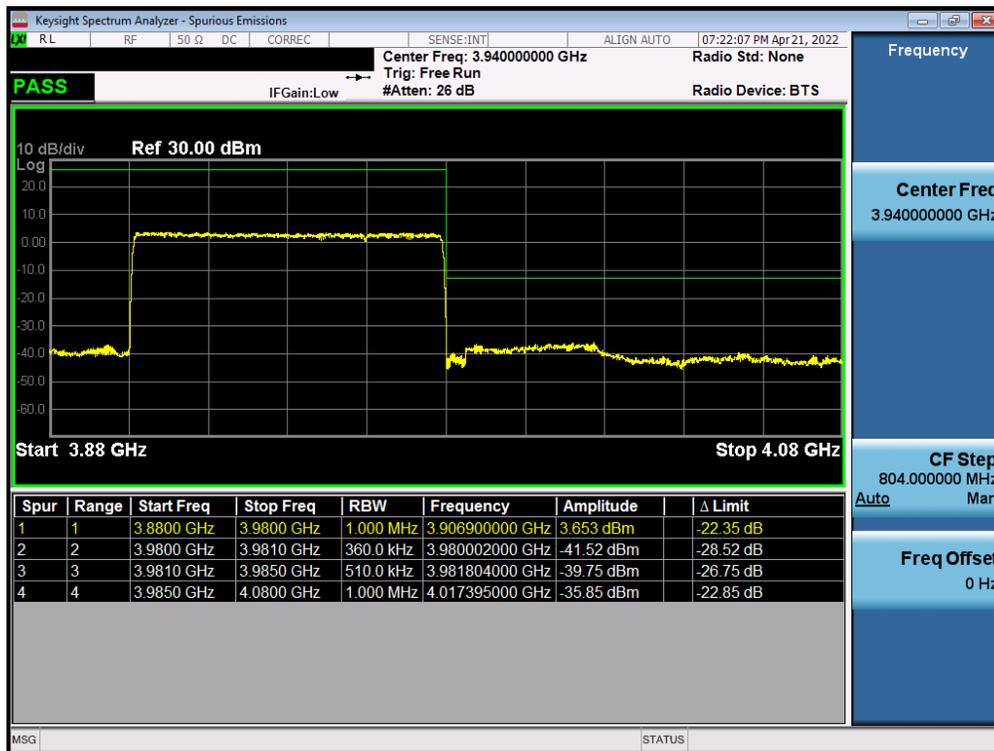


Plot 7-68. Upper ACP Plot (NR Band n77 - 100MHz CP-OFDM-QPSK – Full RB - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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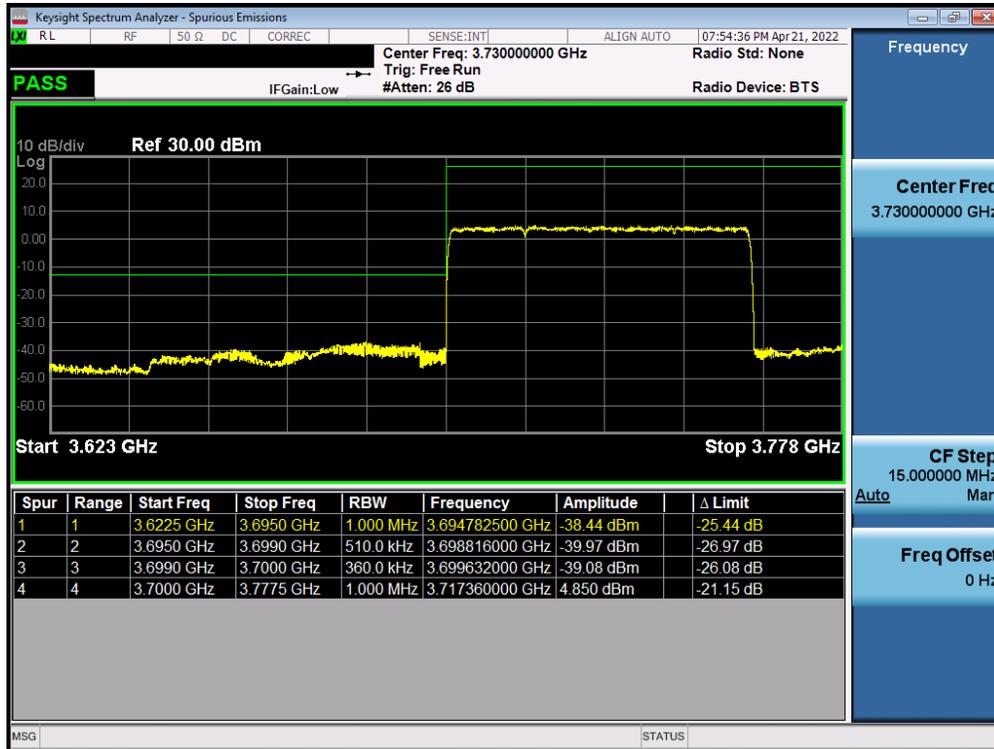


Plot 7-69. Lower ACP Plot (NR Band n77 - 80MHz CP-OFDM-QPSK – Full RB - As-Div Ant)

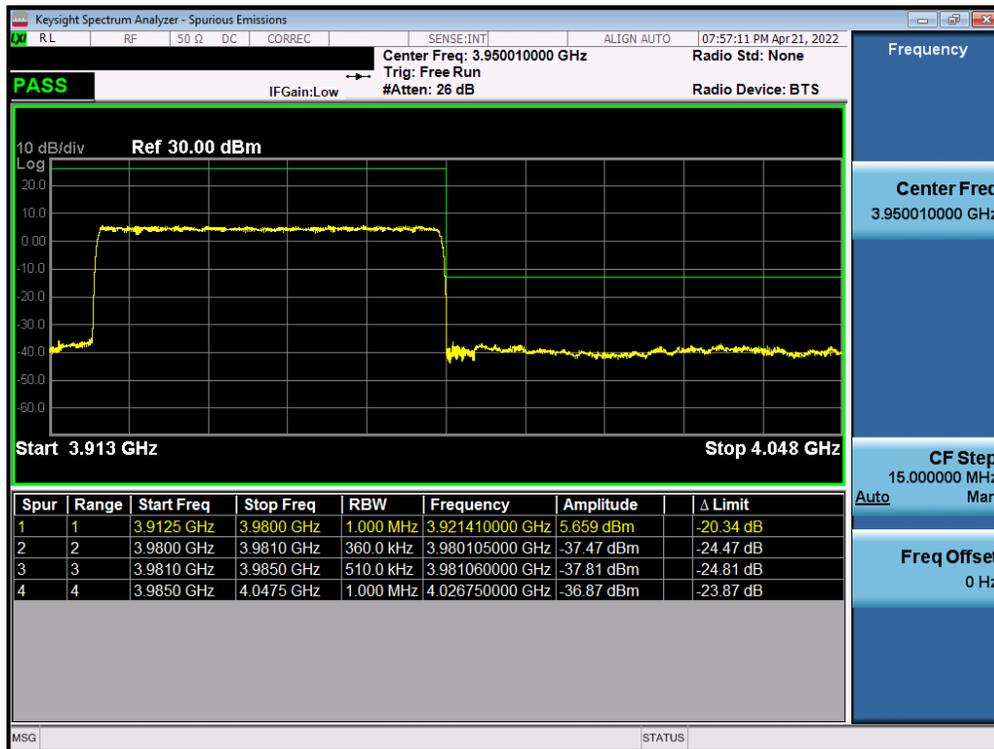


Plot 7-70. Upper ACP Plot (NR Band n77 - 80MHz CP-OFDM-QPSK – Full RB - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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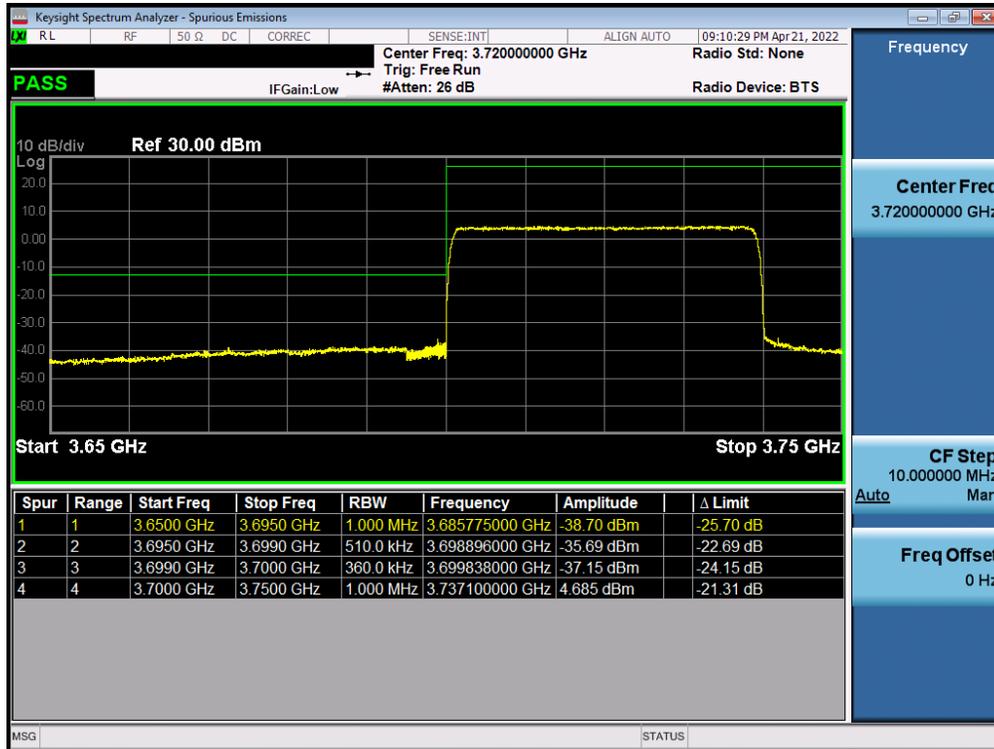


Plot 7-71. Lower ACP Plot (NR Band n77 - 60MHz CP-OFDM-QPSK – Full RB - As-Div Ant)

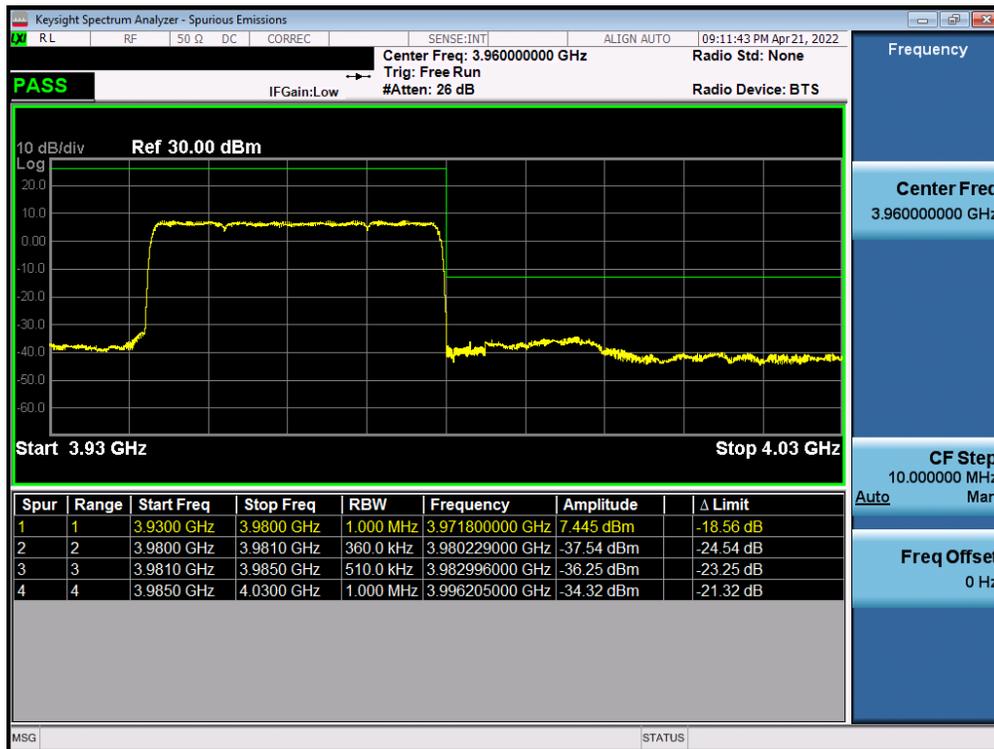


Plot 7-72. Upper ACP Plot (NR Band n77 - 60MHz CP-OFDM-QPSK – Full RB - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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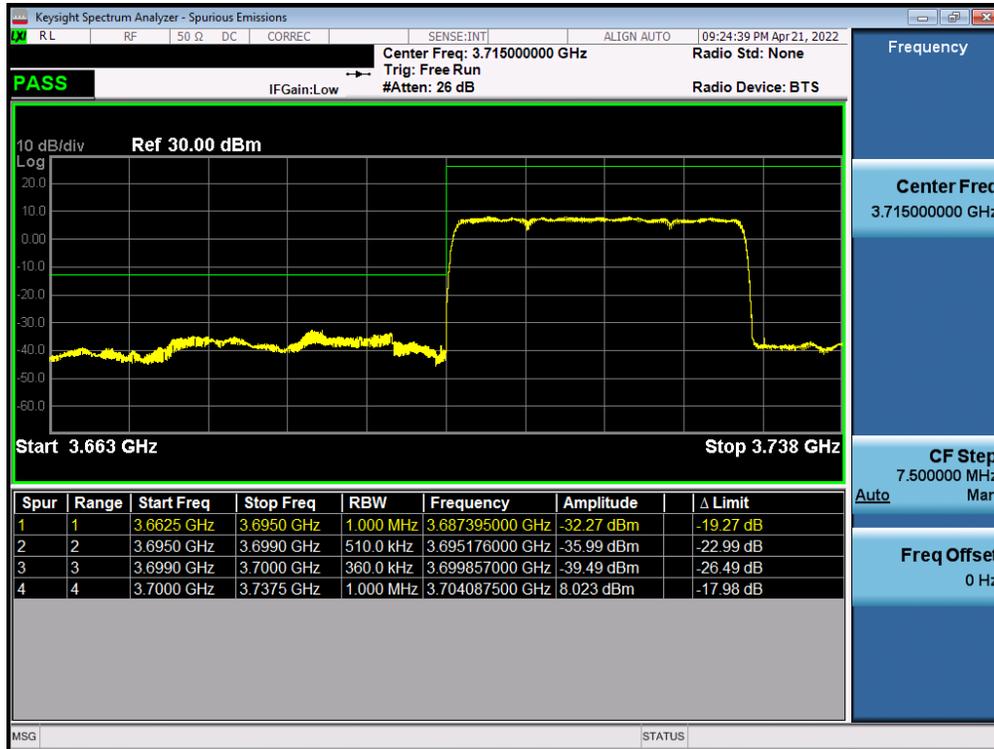


Plot 7-73. Lower ACP Plot (NR Band n77 - 40MHz CP-OFDM-QPSK – Full RB - As-Div Ant)

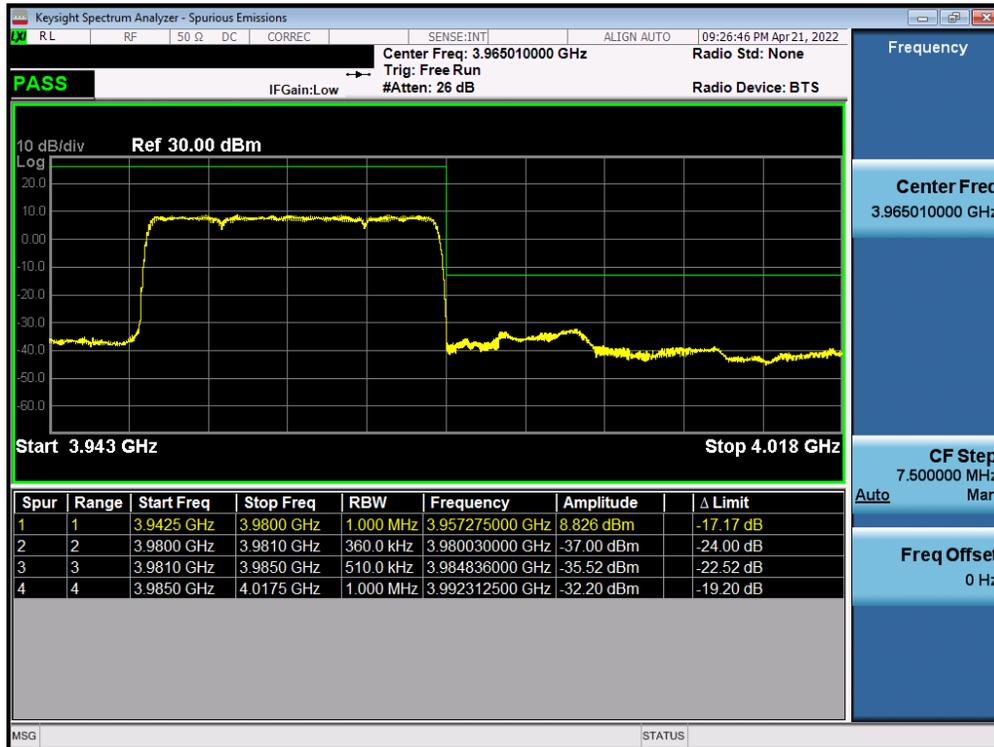


Plot 7-74. Upper ACP Plot (NR Band n77 - 40MHz CP-OFDM-QPSK – Full RB - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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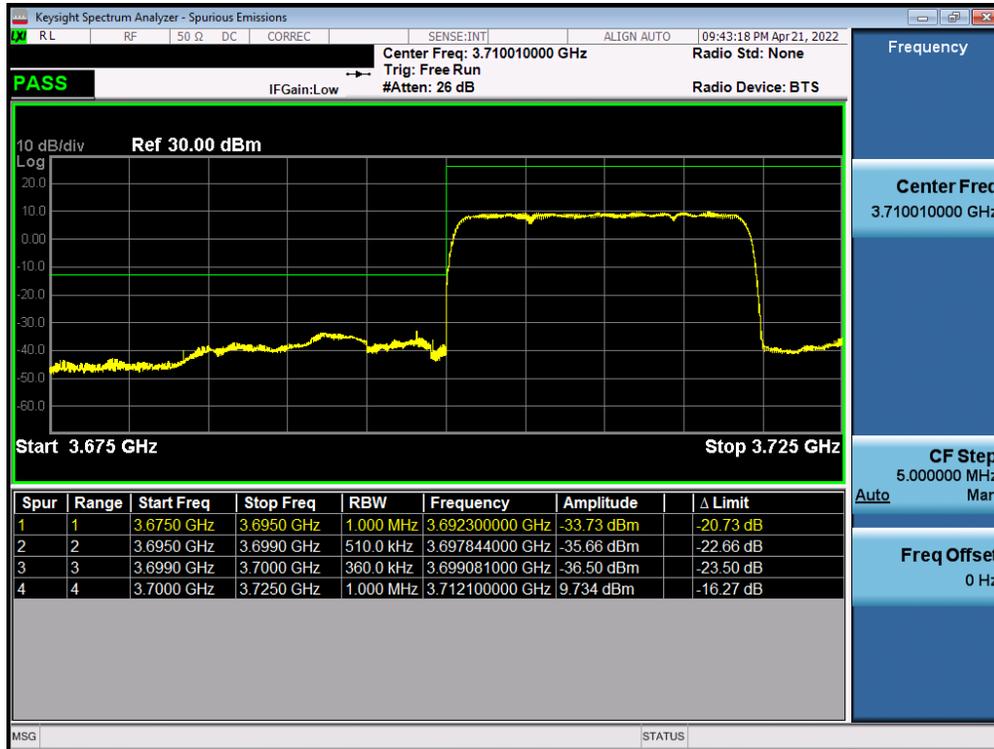


Plot 7-75. Lower ACP Plot (NR Band n77 - 30MHz CP-OFDM-QPSK – Full RB - As-Div Ant)

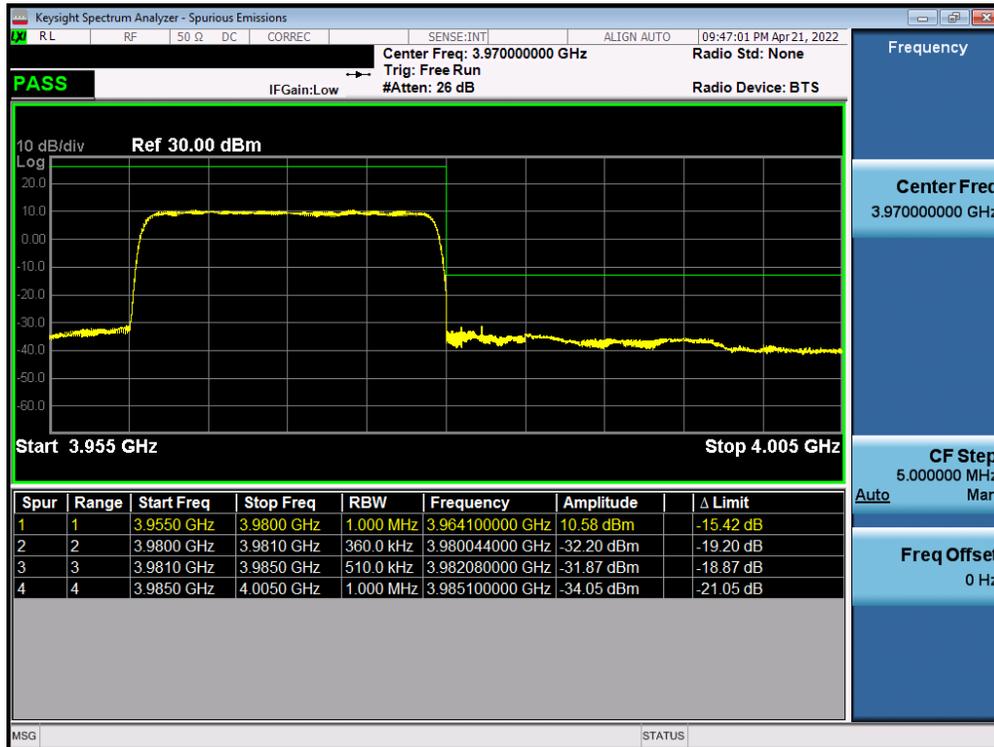


Plot 7-76. Upper ACP Plot (NR Band n77 - 30MHz CP-OFDM-QPSK – Full RB - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-77. Lower ACP Plot (NR Band n77 - 20MHz CP-OFDM-QPSK – Full RB - As-Div Ant)



Plot 7-78. Upper ACP Plot (NR Band n77 - 20MHz CP-OFDM-QPSK – Full RB - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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## 7.6 Peak-Average Ratio

### Test Overview

A peak to average ratio measurement is performed at the conducted port of the EUT. The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

***The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB.***

### Test Procedure Used

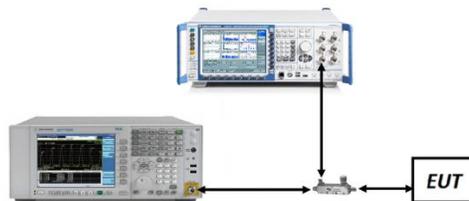
ANSI C63.26-2015 – Section 5.2.3.4

### Test Settings

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW  $\geq$  OBW or specified reference bandwidth
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

### Test Setup

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



**Figure 7-5. Test Instrument & Measurement Setup**

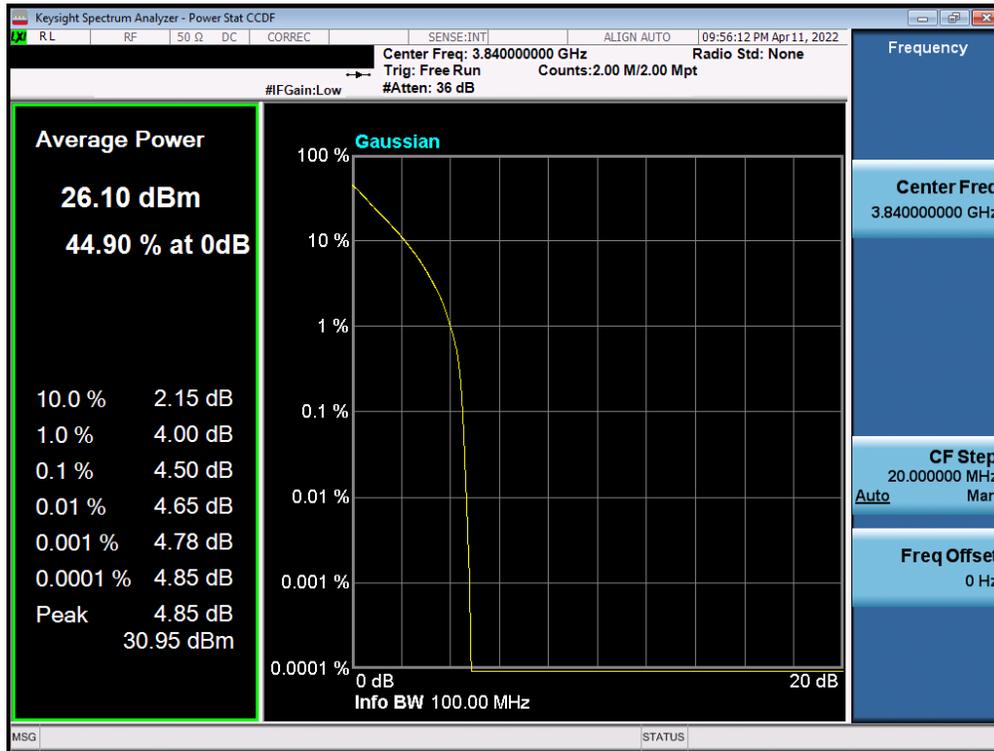
### Test Notes

None.

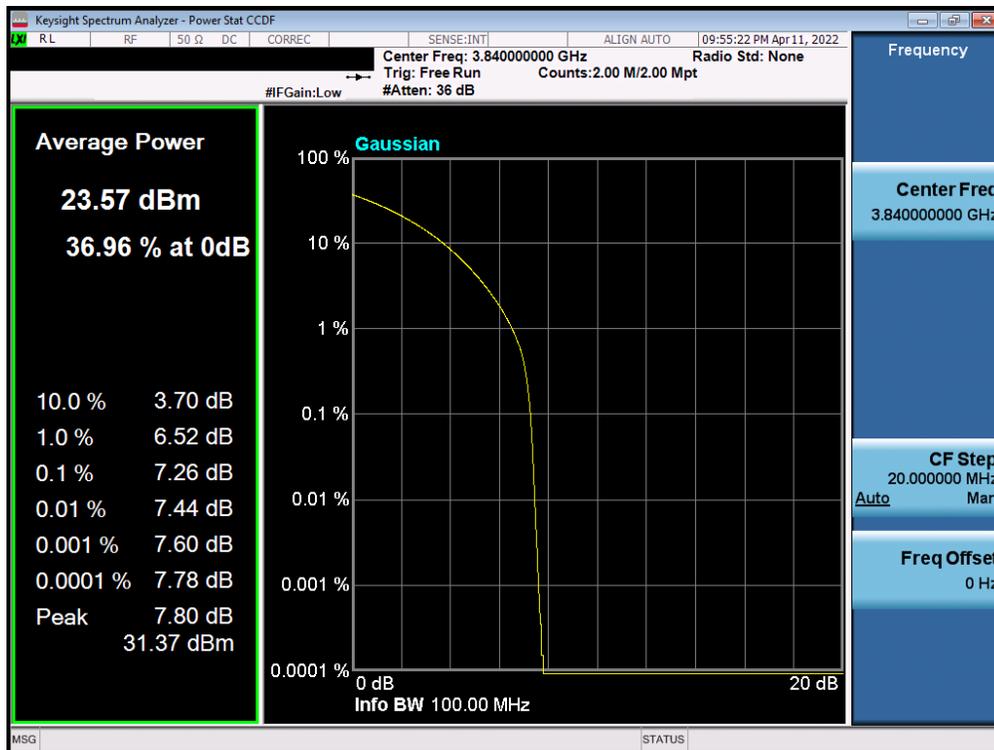
FCC ID: PY7-57325M	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2201200003-11.PY7	Test Dates: 03/25/2022 - 05/19/2022	EUT Type: Portable Handset	Page 57 of 99

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## NR Band n77 – Main Ant

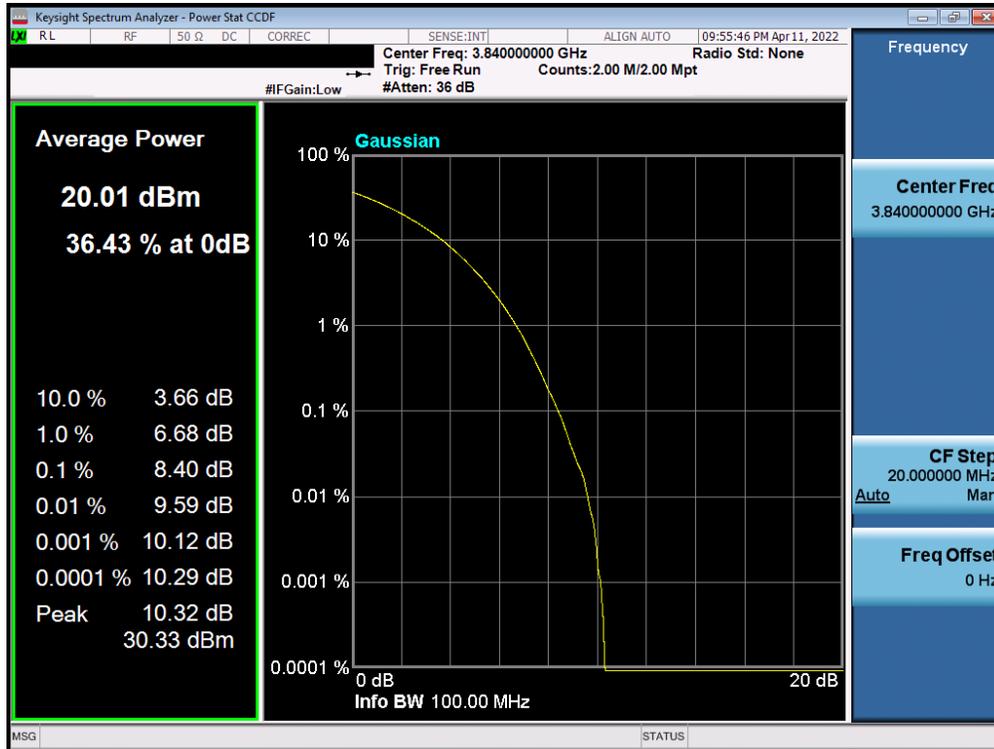


Plot 7-79. PAR Plot (NR Band n77 - 100MHz DFT-s-OFDM BPSK - Full RB - Main Ant)

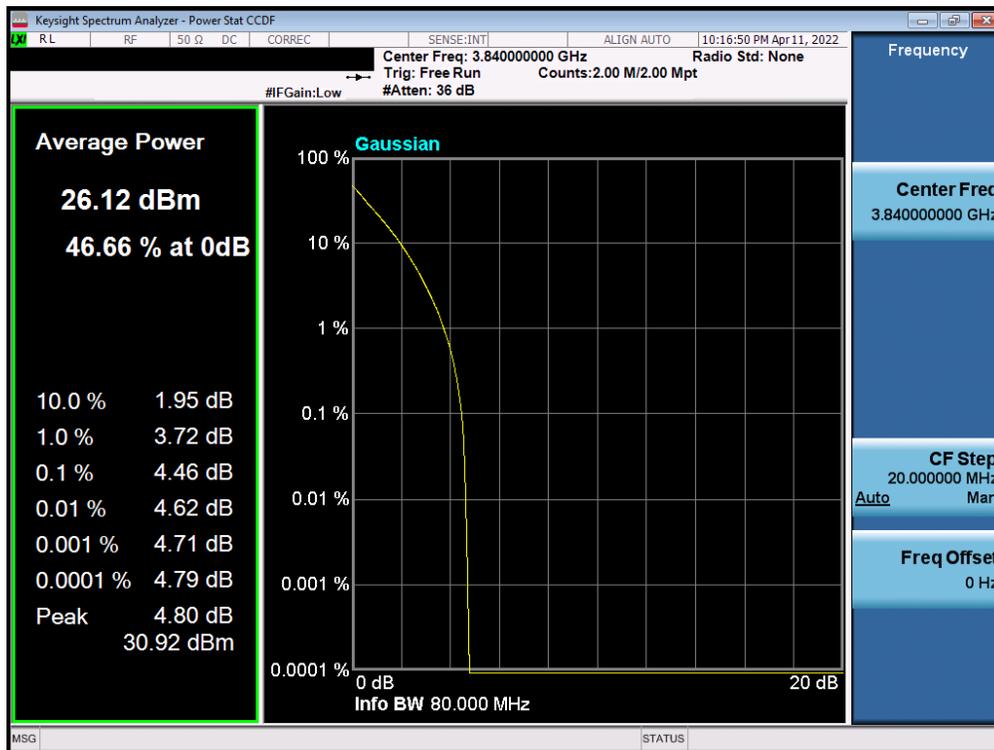


Plot 7-80. PAR Plot (NR Band n77 - 100MHz CP-OFDM QPSK - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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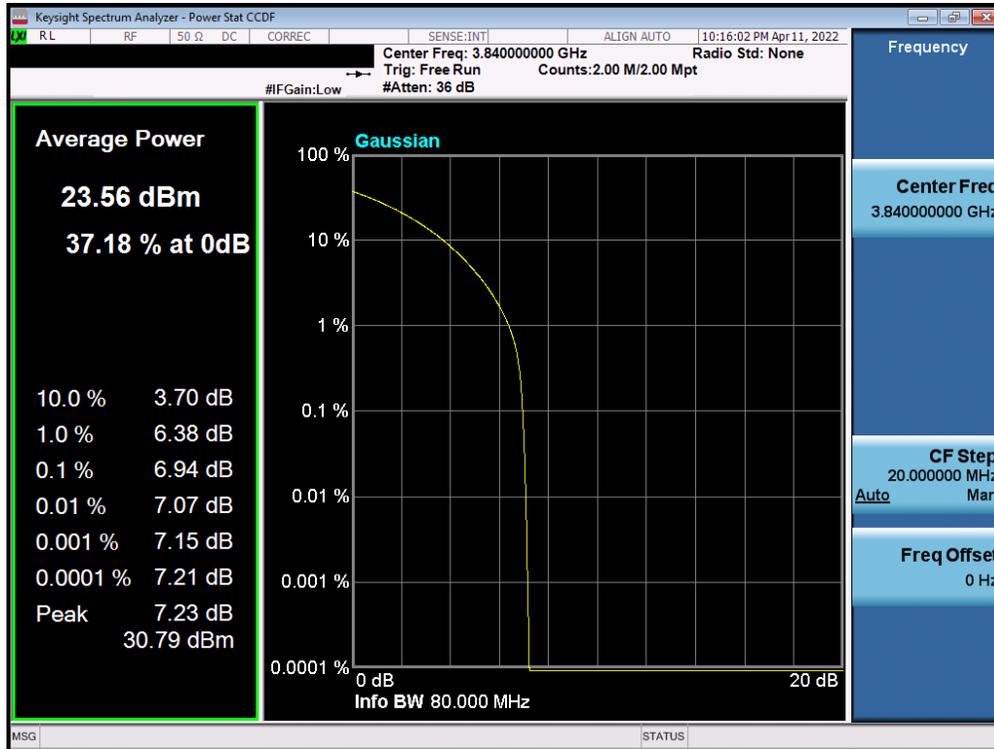


Plot 7-81. PAR Plot (NR Band n77 - 100MHz CP-OFDM 256-QAM - Full RB - Main Ant)

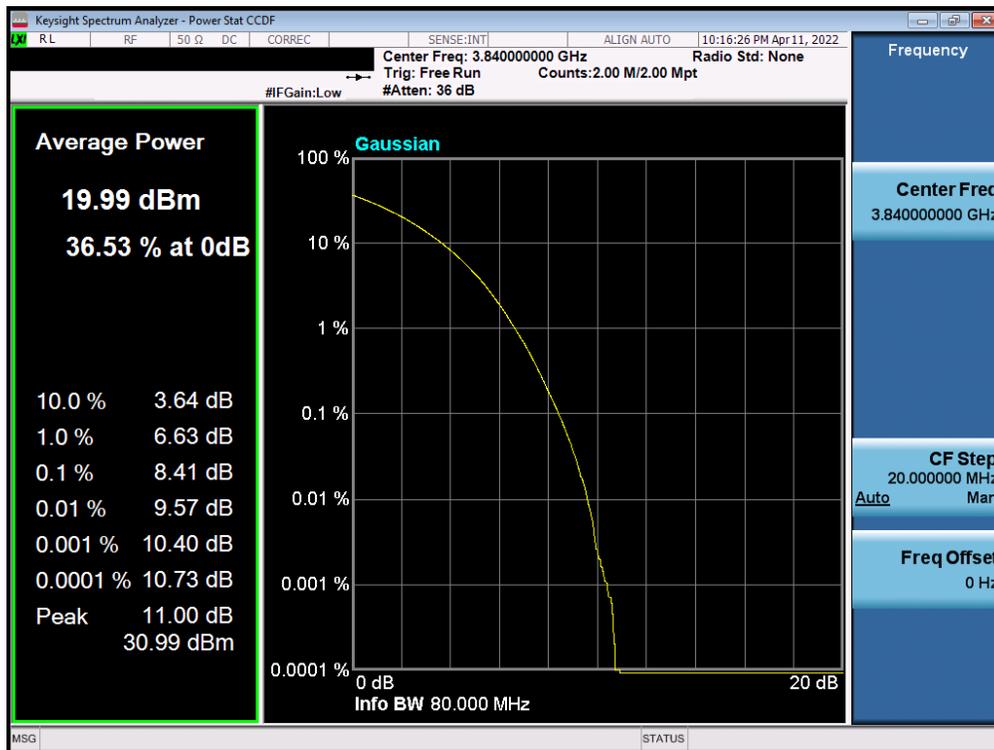


Plot 7-82. PAR Plot (NR Band n77 - 80MHz DFT-s-OFDM BPSK - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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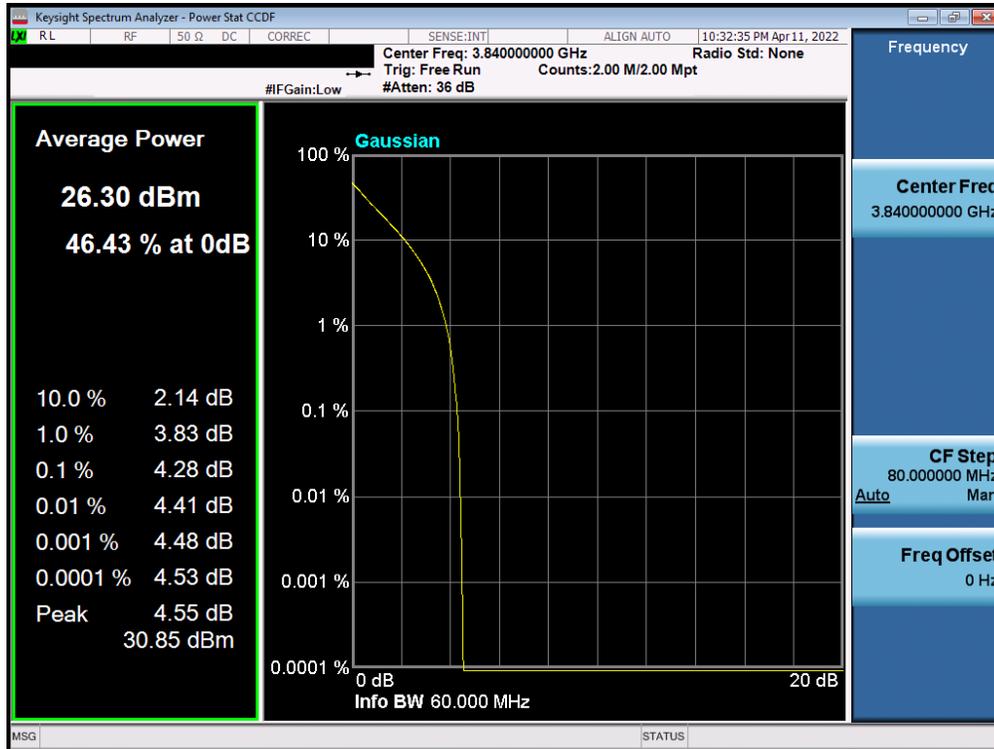


Plot 7-83. PAR Plot (NR Band n77 - 80MHz CP-OFDM QPSK - Full RB - Main Ant)

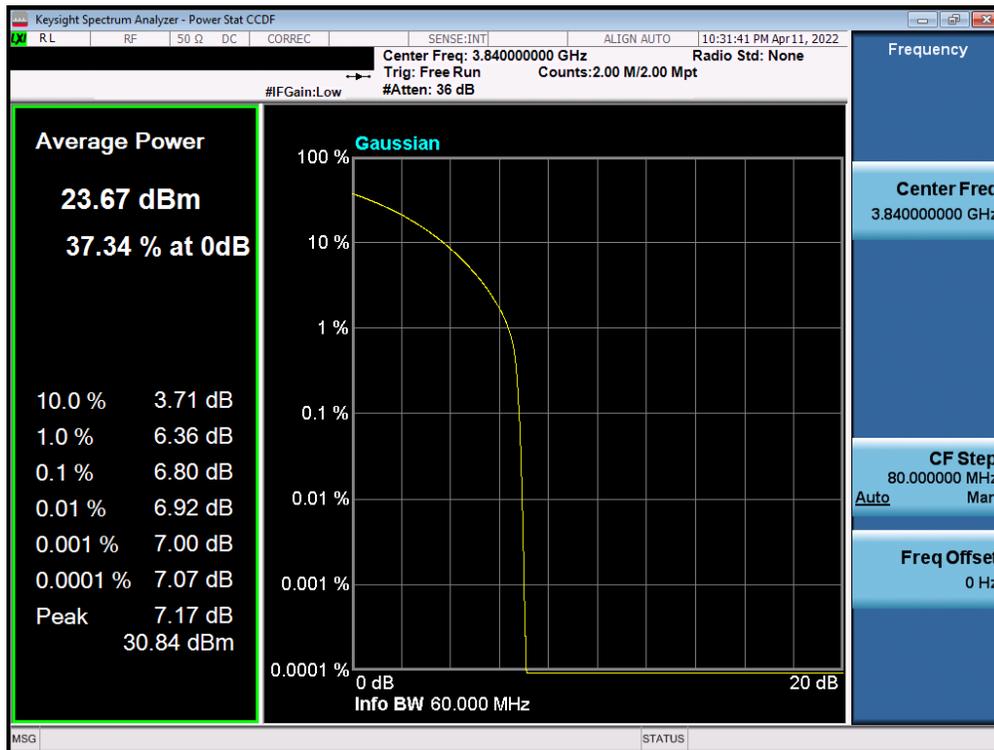


Plot 7-84. PAR Plot (NR Band n77 - 80MHz CP-OFDM 256-QAM - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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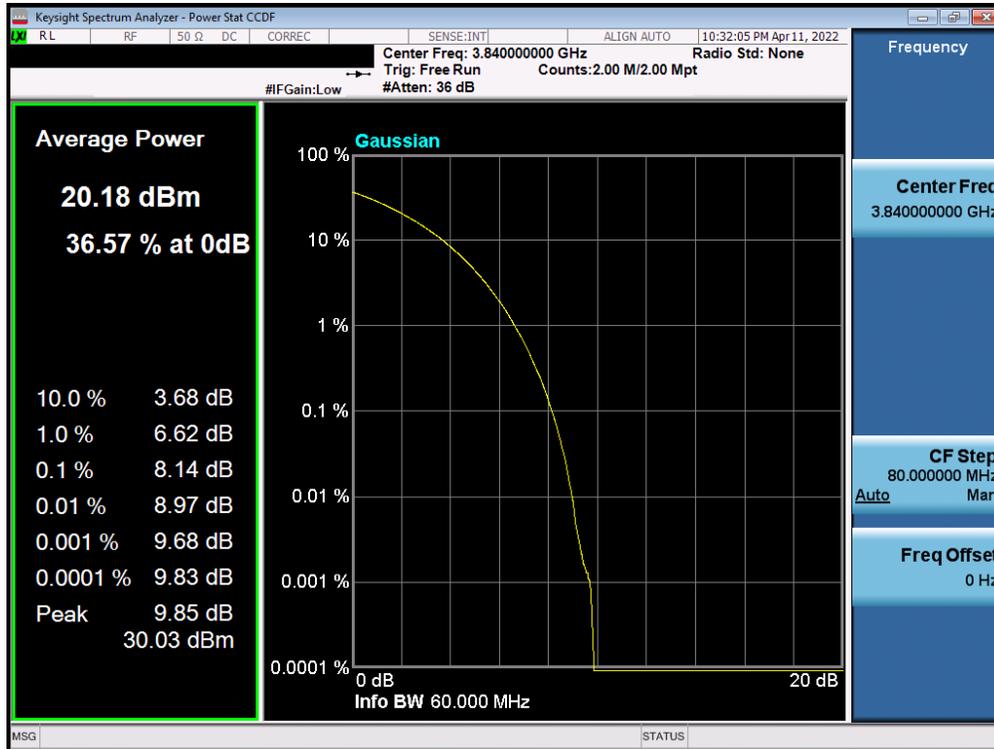


Plot 7-85. PAR Plot (NR Band n77 - 60MHz DFT-s-OFDM BPSK - Full RB - Main Ant)

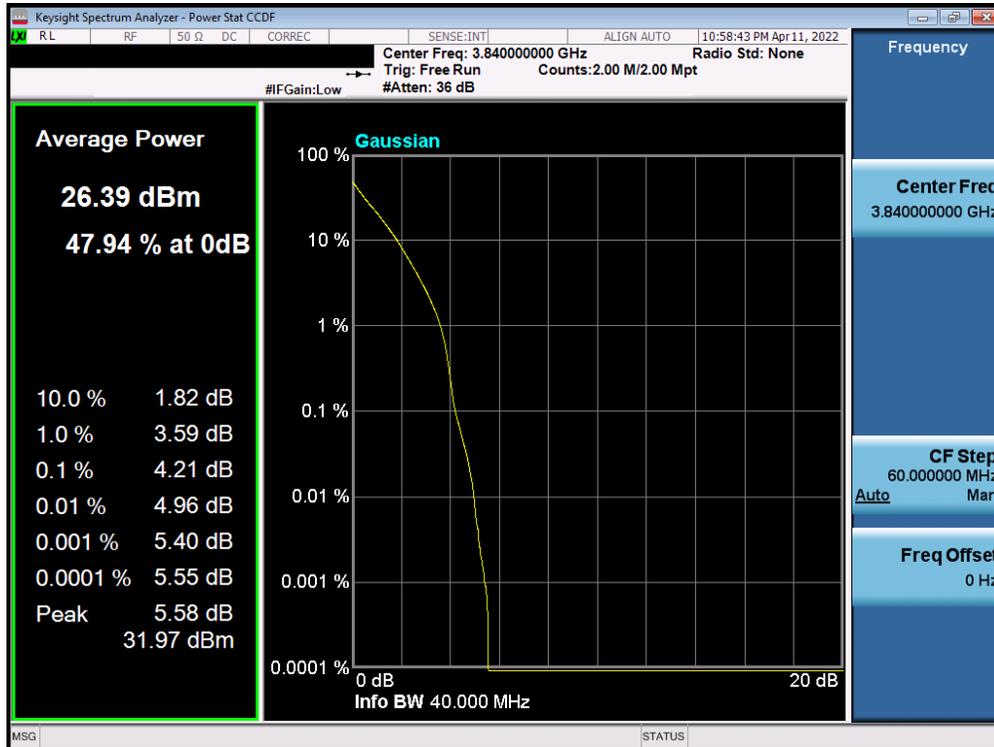


Plot 7-86. PAR Plot (NR Band n77 - 60MHz CP-OFDM QPSK - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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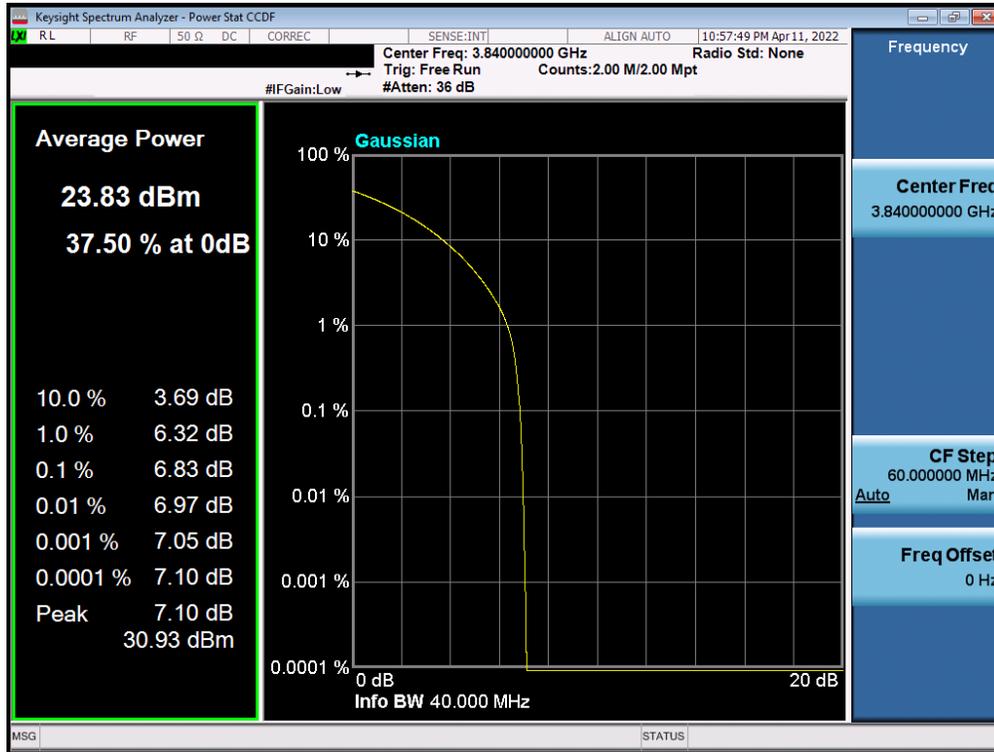


Plot 7-87. PAR Plot (NR Band n77 - 60MHz CP-OFDM 256-QAM - Full RB - Main Ant)

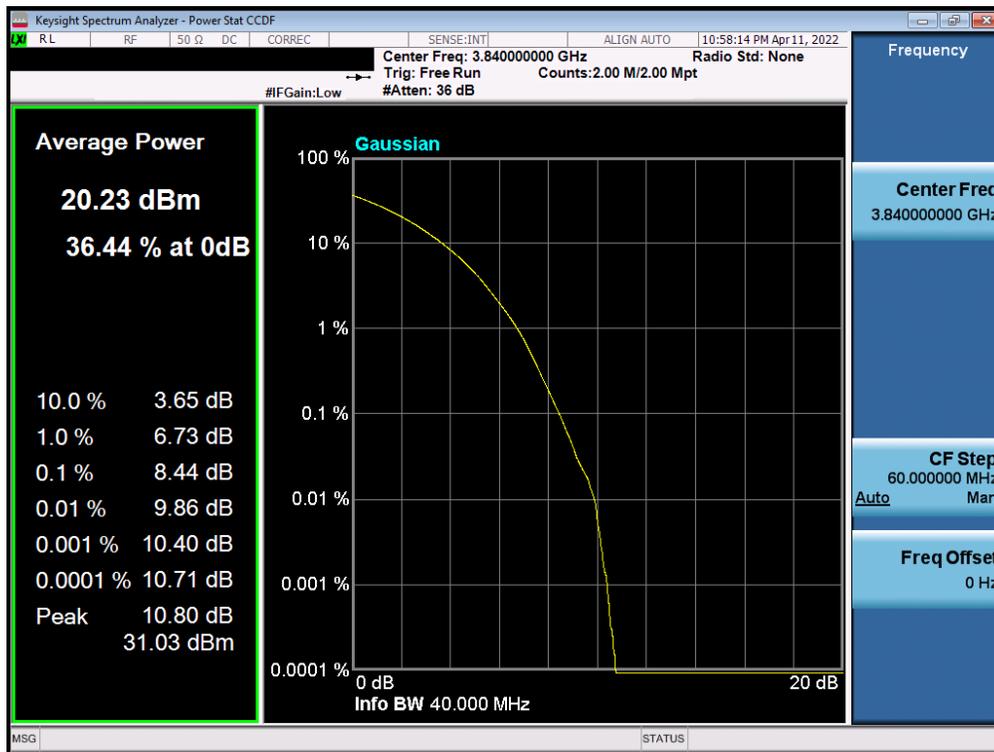


Plot 7-88. PAR Plot (NR Band n77 - 40MHz DFT-s-OFDM BPSK - Full RB - Main Ant)

FCC ID: PY7-57325M		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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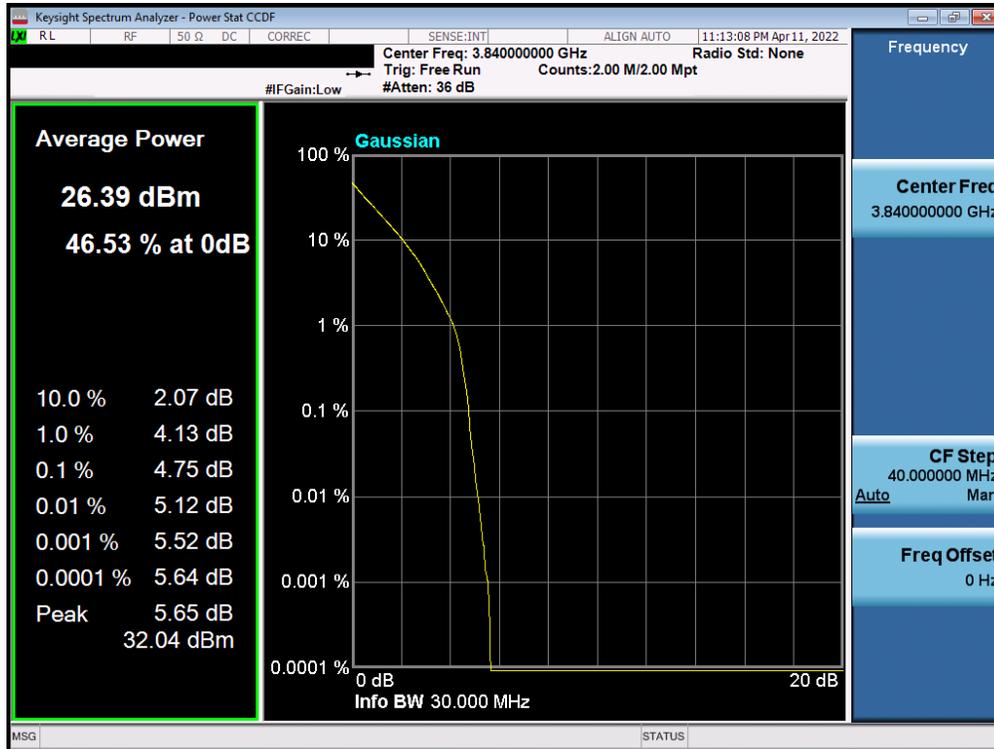


Plot 7-89. PAR Plot (NR Band n77 - 40MHz CP-OFDM QPSK - Full RB - Main Ant)

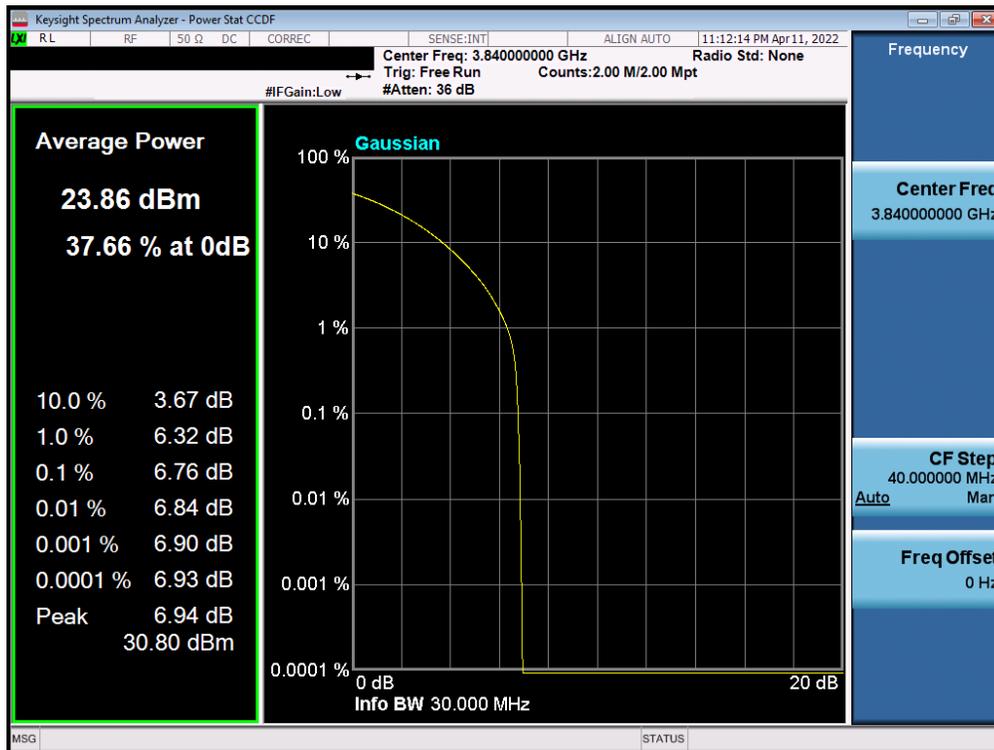


Plot 7-90. PAR Plot (NR Band n77 - 40MHz CP-OFDM 256-QAM - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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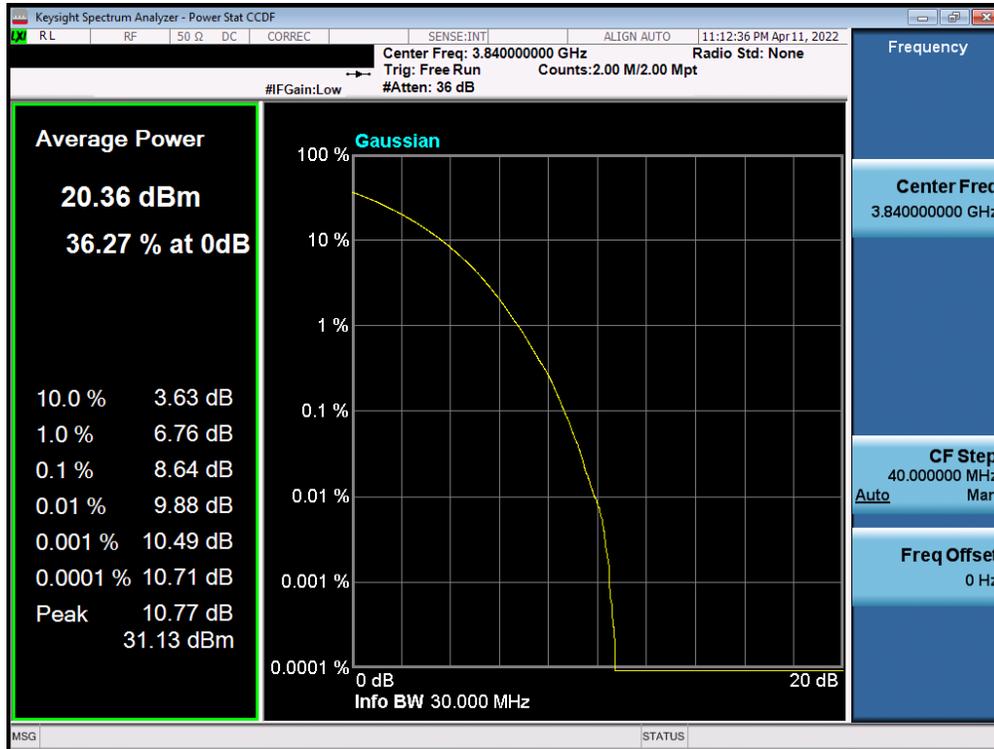


Plot 7-91. PAR Plot (NR Band n77 - 30MHz DFT-s-OFDM BPSK - Full RB - Main Ant)

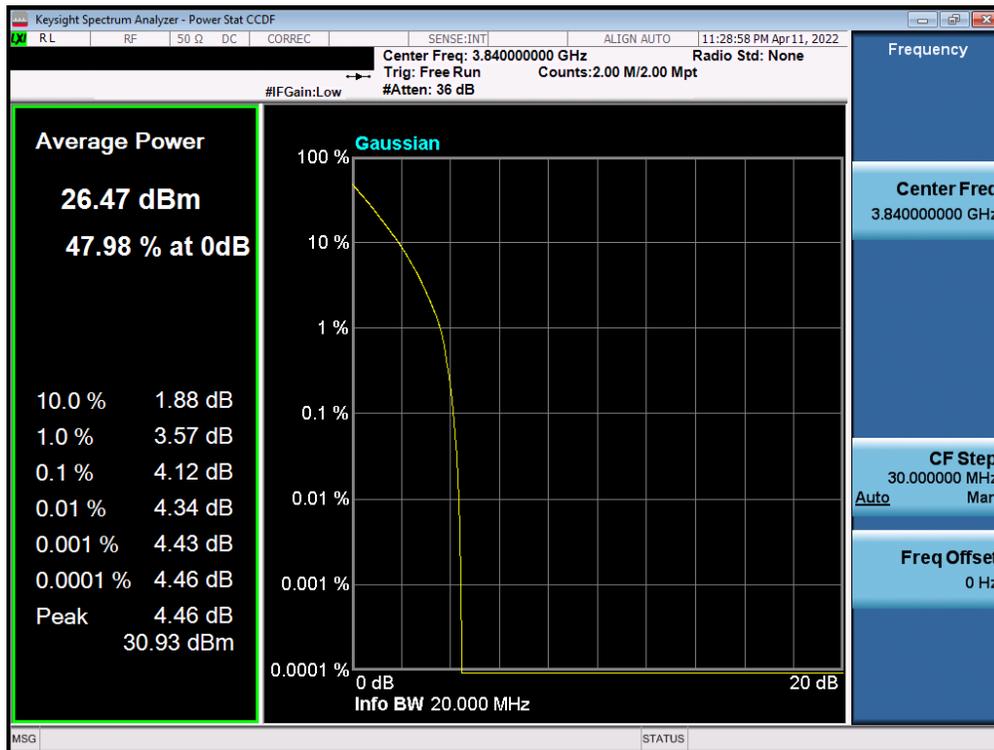


Plot 7-92. PAR Plot (NR Band n77 - 30MHz CP-OFDM QPSK - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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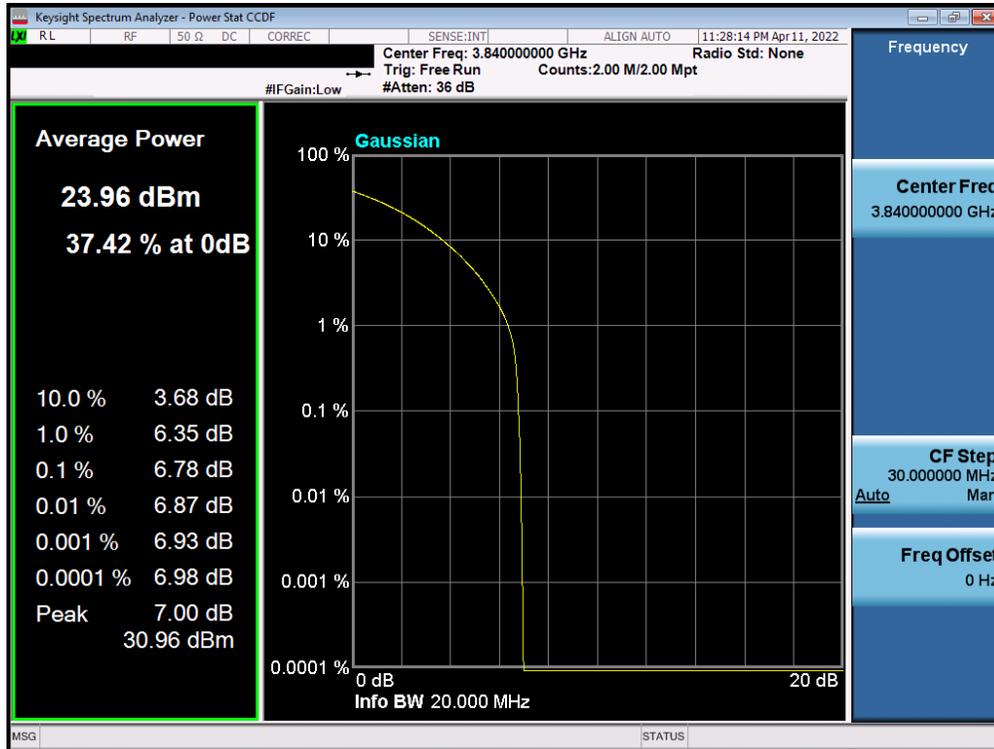


Plot 7-93. PAR Plot (NR Band n77 - 30MHz CP-OFDM 256-QAM - Full RB - Main Ant)

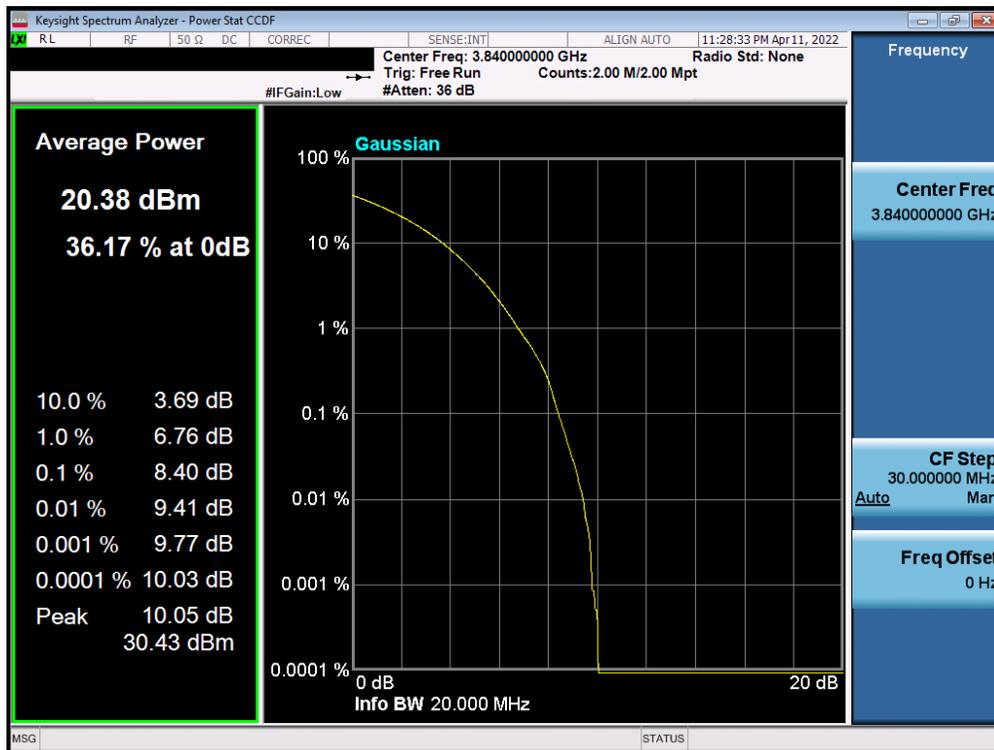


Plot 7-94. PAR Plot (NR Band n77 - 20MHz DFT-s-OFDM BPSK - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-95. PAR Plot (NR Band n77 - 20MHz CP-OFDM QPSK - Full RB - Main Ant)



Plot 7-96. PAR Plot (NR Band n77 - 20MHz CP-OFDM 256-QAM - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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# NR Band n77 – As-Div Ant



Plot 7-97. PAR Plot (NR Band n77 - 100MHz DFT-s-OFDM BPSK - Full RB - As-Div Ant)



Plot 7-98. PAR Plot (NR Band n77 - 100MHz CP-OFDM QPSK - Full RB - As-Div Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-99. PAR Plot (NR Band n77 - 100MHz CP-OFDM 256-QAM - Full RB - As-Div Ant)



Plot 7-100. PAR Plot (NR Band n77 - 80MHz DFT-s-OFDM BPSK - Full RB - As-Div Ant)

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