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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 - 05/21/2022

Test Report Issue Date:

05/26/2022

Test Site/Location:

Element Lab., Columbia, MD, USA

Test Report Serial No.:

1M2201200003-07.PY7

FCC ID:

PY7-57325M

APPLICANT:

SONY Corporation

Application Type:

Certification

EUT Type:

Portable Handset

FCC Classification:

PCS Licensed Transmitter Held to Ear (PCE)

FCC Rule Part:

27

Test Procedure(s):

ANSI C63.26-2015, KDB 648474 D03 v01r04

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

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

RJ Ortanez
Executive Vice President



FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 1 of 206

V3.0 1/5/2022

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FCC Part 27

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	ERP		EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	Max. Power [W]	Max. Power [dBm]	
LTE Band 71	20 MHz	QPSK	673.0 - 688.0	0.028	14.51	0.046	16.66	18M0G7D
		16QAM	673.0 - 688.0	0.023	13.70	0.038	15.85	18M0W7D
	15 MHz	QPSK	670.5 - 690.5	0.034	15.27	0.055	17.42	13M5G7D
		16QAM	670.5 - 690.5	0.027	14.26	0.044	16.41	13M5W7D
	10 MHz	QPSK	668.0 - 693.0	0.036	15.53	0.059	17.68	9M01G7D
		16QAM	668.0 - 693.0	0.027	14.33	0.044	16.48	9M03W7D
5 MHz	QPSK	665.5 - 695.5	0.035	15.43	0.057	17.58	4M55G7D	
	16QAM	665.5 - 695.5	0.026	14.21	0.043	16.36	4M54W7D	
LTE Band 12/17 (Main ANT)	10 MHz	QPSK	704.0 - 711.0	0.010	10.18	0.017	12.33	9M05G7D
		16QAM	704.0 - 711.0	0.009	9.65	0.015	11.80	9M02W7D
	5 MHz	QPSK	701.5 - 713.5	0.011	10.58	0.019	12.73	4M55G7D
		16QAM	701.5 - 713.5	0.010	9.78	0.016	11.93	4M55W7D
	3 MHz	QPSK	700.5 - 714.5	0.011	10.39	0.018	12.54	2M72G7D
		16QAM	700.5 - 714.5	0.009	9.73	0.015	11.88	2M73W7D
1.4 MHz	QPSK	699.7 - 715.3	0.011	10.44	0.018	12.59	1M11G7D	
	16QAM	699.7 - 715.3	0.010	9.88	0.016	12.03	1M11W7D	
LTE Band 13 (Main ANT)	10 MHz	QPSK	782.0	0.072	18.55	0.118	20.70	9M03G7D
		16QAM	782.0	0.062	17.92	0.102	20.07	9M05W7D
	5 MHz	QPSK	779.5 - 784.5	0.071	18.53	0.117	20.68	4M56G7D
16QAM		779.5 - 784.5	0.063	17.98	0.103	20.13	4M54W7D	
NR Band n71	20 MHz	$\pi/2$ BPSK	673.0 - 688.0	0.029	14.56	0.047	16.71	17M9G7D
		QPSK	673.0 - 688.0	0.029	14.62	0.048	16.77	18M9G7D
		16QAM	673.0 - 688.0	0.023	13.63	0.038	15.78	19M0W7D
	15 MHz	$\pi/2$ BPSK	670.5 - 690.5	0.029	14.57	0.047	16.72	13M5G7D
		QPSK	670.5 - 690.5	0.030	14.78	0.049	16.93	14M2G7D
		16QAM	670.5 - 690.5	0.025	14.03	0.042	16.18	14M1W7D
	10 MHz	$\pi/2$ BPSK	668.0 - 693.0	0.028	14.43	0.046	16.58	9M04G7D
		QPSK	668.0 - 693.0	0.028	14.48	0.046	16.63	9M34G7D
		16QAM	668.0 - 693.0	0.024	13.87	0.040	16.02	9M35W7D
	5 MHz	$\pi/2$ BPSK	665.5 - 695.5	0.030	14.73	0.049	16.88	4M59G7D
		QPSK	665.5 - 695.5	0.028	14.52	0.046	16.67	4M52G7D
		16QAM	665.5 - 695.5	0.023	13.70	0.038	15.85	4M52W7D

EUT Overview (LTE/NR Bands <1GHz)

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	ERP		EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	Max. Power [W]	Max. Power [dBm]	
LTE Band 12/17 (Sub ANT)	10 MHz	QPSK	704.0 - 711.0	0.068	18.34	0.112	20.49	9M01G7D
		16QAM	704.0 - 711.0	0.054	17.35	0.089	19.50	9M04W7D
	5 MHz	QPSK	701.5 - 713.5	0.068	18.35	0.112	20.50	4M55G7D
		16QAM	701.5 - 713.5	0.052	17.16	0.085	19.31	4M54W7D
	3 MHz	QPSK	700.5 - 714.5	0.068	18.31	0.111	20.46	2M73G7D
		16QAM	700.5 - 714.5	0.053	17.28	0.088	19.43	2M72W7D
1.4 MHz	QPSK	699.7 - 715.3	0.066	18.22	0.109	20.37	1M10G7D	
	16QAM	699.7 - 715.3	0.054	17.30	0.088	19.45	1M11W7D	
LTE Band 13 (Sub ANT)	10 MHz	QPSK	782.0	0.094	19.74	0.155	21.89	9M01G7D
		16QAM	782.0	0.077	18.87	0.127	21.02	9M01W7D
	5 MHz	QPSK	779.5 - 784.5	0.094	19.72	0.154	21.87	4M54G7D
16QAM		779.5 - 784.5	0.076	18.80	0.124	20.95	4M53W7D	

EUT Overview (LTE Bands <1GHz)

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Mode	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
			Max. Power [W]	Max. Power [dBm]	
WCDMA1700	Spread Spectrum	1712.4 - 1752.6	0.107	20.31	4M16F9W

EUT Overview (WCDMA)

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
LTE Band 66/4	20 MHz	QPSK	1720.0 - 1770.0	0.126	21.00	18M1G7D
		16QAM	1720.0 - 1770.0	0.107	20.28	18M1W7D
	15 MHz	QPSK	1717.5 - 1772.5	0.125	20.96	13M5G7D
		16QAM	1717.5 - 1772.5	0.100	19.98	13M6W7D
	10 MHz	QPSK	1715.0 - 1775.0	0.126	21.02	9M03G7D
		16QAM	1715.0 - 1775.0	0.101	20.04	9M04W7D
	5 MHz	QPSK	1712.5 - 1777.5	0.128	21.07	4M56G7D
		16QAM	1712.5 - 1777.5	0.097	19.88	4M53W7D
	3 MHz	QPSK	1711.5 - 1778.5	0.126	21.00	2M73G7D
		16QAM	1711.5 - 1778.5	0.100	20.02	2M72W7D
	1.4 MHz	QPSK	1710.7 - 1779.3	0.128	21.07	1M11G7D
		16QAM	1710.7 - 1779.3	0.102	20.09	1M11W7D
NR Band n66	20 MHz	$\pi/2$ BPSK	1720.0 - 1770.0	0.156	21.92	18M0G7D
		QPSK	1720.0 - 1770.0	0.144	21.58	19M0G7D
		16QAM	1720.0 - 1770.0	0.084	19.26	19M0W7D
	15 MHz	$\pi/2$ BPSK	1717.5 - 1772.5	0.158	21.98	13M5G7D
		QPSK	1717.5 - 1772.5	0.146	21.64	14M2G7D
		16QAM	1717.5 - 1772.5	0.080	19.02	14M2W7D
	10 MHz	$\pi/2$ BPSK	1715.0 - 1775.0	0.151	21.79	9M05G7D
		QPSK	1715.0 - 1775.0	0.140	21.47	9M36G7D
		16QAM	1715.0 - 1775.0	0.076	18.78	9M36W7D
	5 MHz	$\pi/2$ BPSK	1712.5 - 1777.5	0.155	21.89	4M52G7D
		QPSK	1712.5 - 1777.5	0.140	21.45	4M51G7D
		16QAM	1712.5 - 1777.5	0.079	18.98	4M51W7D

EUT Overview (LTE/NR Bands >1GHz)

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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, 09401, 09823, 10086, 00KC5, 03JC5, 03LC5, 036C5, 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 TEST RESULTS 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_{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
-	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:

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

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6.0 SAMPLE CALCULATIONS

Emission Designator

QPSK Modulation

Emission Designator = 8M62G7D

LTE BW = 8.62 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data transmission, telemetry, telecommand

QAM Modulation

Emission Designator = 8M45W7D

LTE BW = 8.45 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data transmission, telemetry, telecommand

Spurious Radiated Emission – LTE Band

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

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

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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): WCDMA/LTE/NR

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

* 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 shown in Section 7.0 were taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.
- 4) For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is EMC Software Tool v1.0.

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7.2 Conducted Power Output Data

§2.1046

Test Overview

The EUT is set up to transmit at maximum power for LTE. All power levels 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

KDB 971168 D01 v03r01 – Section 6.0

Test Settings

1. Span = 2 x OBW to 3 x OBW
2. RBW = 1% to 5% of the OBW
3. Number of measurement points in sweep $\geq 2 \times \text{span} / \text{RBW}$
4. Sweep = auto-couple (less than transmission burst duration)
5. Detector = RMS (power)
6. Trigger was set to enable power measurements only on full power bursts
7. Trace was allowed to stabilize
8. Spectrum analyzer's "Channel Power" function was used to compute the power by integrating the spectrum across the OBW of the signal

Test Setup

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

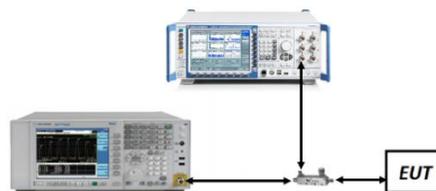


Figure 7-1. Test Instrument & Measurement Setup

Test Notes

1. Conducted power measurements were evaluated for the two contiguous channels 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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V3.0 1/5/2022

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
10 MHz	QPSK	23060	704.0	1 / 49	24.15
		23095	707.5	1 / 0	24.03
		23130	711.0	1 / 25	24.05
	16-QAM	23095	707.5	1 / 0	23.13
5 MHz	QPSK	23035	701.5	1 / 24	24.00
		23095	707.5	1 / 24	23.95
		23155	713.5	1 / 12	24.06
	16-QAM	23155	713.5	1 / 12	22.90
3 MHz	QPSK	23025	700.5	1 / 0	24.12
		23095	707.5	1 / 14	24.03
		23165	714.5	1 / 7	24.02
	16-QAM	23165	714.5	1 / 7	23.02
1.4 MHz	QPSK	23017	699.7	1 / 0	24.18
		23095	707.5	1 / 5	24.00
		23173	715.3	1 / 3	23.93
	16-QAM	23095	707.5	1 / 5	23.07

Table 7-1. LTE Band 12/17 (Sub ANT) Conducted Output Power

Bandwidth	Modulation	Channel	Frequency [MHz]	RB Size/Offset	Conducted Power [dBm]
10 MHz	QPSK	23230	782.0	1 / 0	24.15
	16-QAM	23230	782.0	1 / 0	23.10
5 MHz	QPSK	23205	779.5	1 / 0	24.09
		23230	782.0	1 / 12	23.97
		23255	784.5	1 / 12	24.13
	16-QAM	23255	784.5	1 / 12	23.02

Table 7-2. LTE Band 13 (Sub ANT) Conducted Output Power

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NR (SCS 15kHz)						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]
n71	20	Mid	680.5	QPSK	100/0	B66	20	Mid	1745	QPSK	100/0	23.22	23.06	26.15
				QPSK	100/0					23.30	23.05	26.19		
				QPSK	1/53					24.25	23.03	26.69		
				QPSK	1/53					24.19	23.01	26.65		
				16Q	1/53					23.04	22.38	25.73		
				16Q	100/0					23.04	22.38	25.73		

Table 7-3. EN-DC Conducted Power (EN-DC: NR Band n71 – LTE Band 66)

NR (SCS 15kHz)						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]
n66	20	Mid	1745	QPSK	100/0	B5	10	Mid	836.5	QPSK	50/0	23.72	23.31	26.53
				QPSK	100/0					23.75	23.37	26.57		
				QPSK	1/53					24.66	23.42	27.09		
				QPSK	1/53					24.74	23.39	27.13		
				16Q	1/53					23.97	22.95	26.50		
				16Q	1/25					23.97	22.95	26.50		

Table 7-4. EN-DC Conducted Power (EN-DC: NR Band n66 – LTE Band 5)

NR (SCS 15kHz)						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]
n66	20	Mid	1745	QPSK	100/0	B2 (Sub)	20	Mid	1880	QPSK	100/0	23.75	23.10	26.45
				QPSK	100/0					23.74	23.15	26.47		
				QPSK	1/53					24.52	23.13	26.89		
				QPSK	1/53					24.52	23.15	26.90		
				16Q	1/53					23.77	22.56	26.22		
				16Q	1/50					23.77	22.56	26.22		

Table 7-5. EN-DC Conducted Power (EN-DC: NR Band n66 – LTE Band 2 (Sub Antenna))

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

Test Setup

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

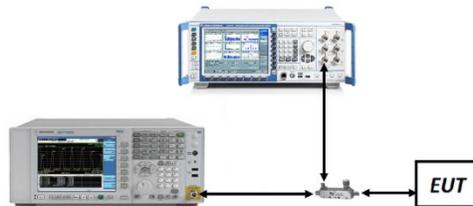


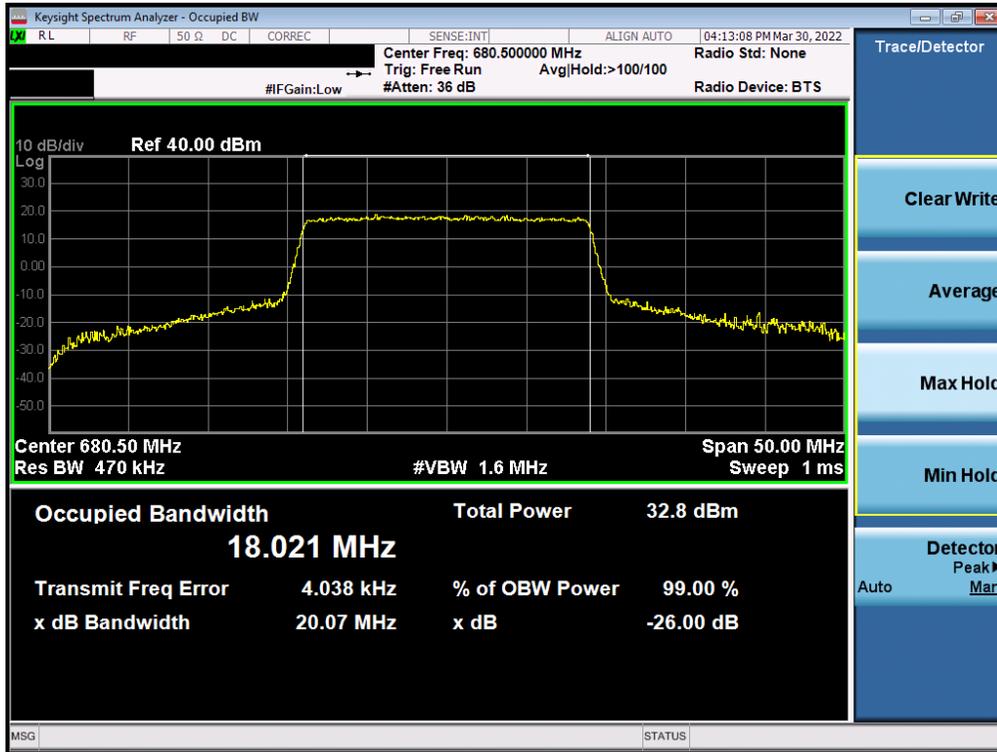
Figure 7-2. Test Instrument & Measurement Setup

Test Notes

None.

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LTE Band 71 – Main Ant

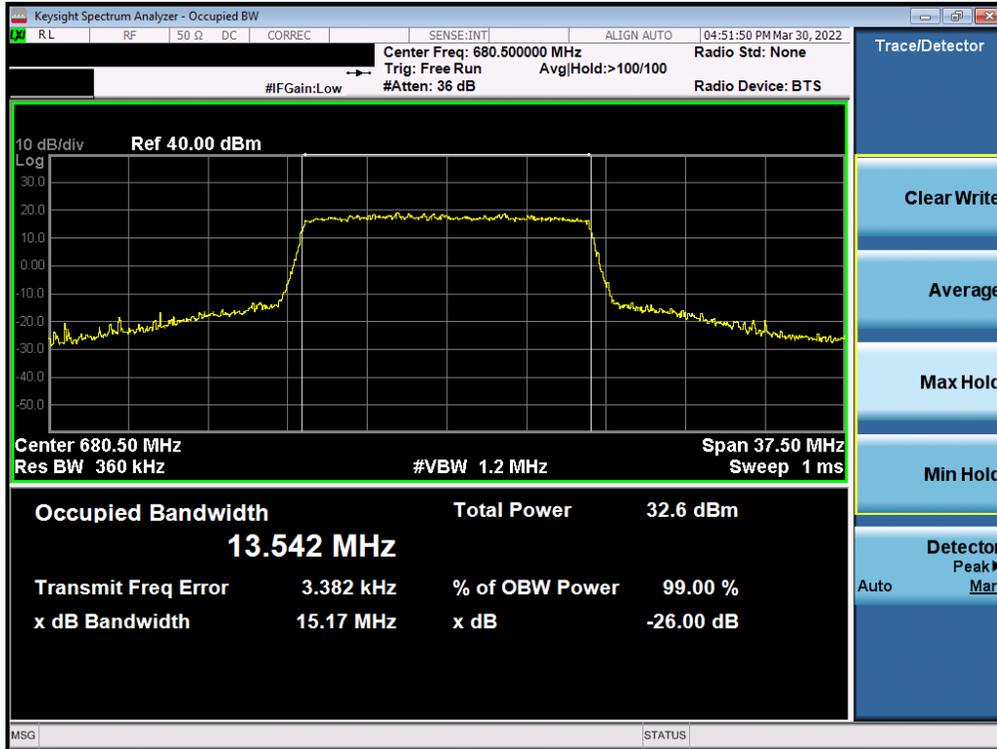


Plot 7-1. Occupied Bandwidth Plot (LTE Band 71 - 20MHz QPSK - Full RB – Main Ant)

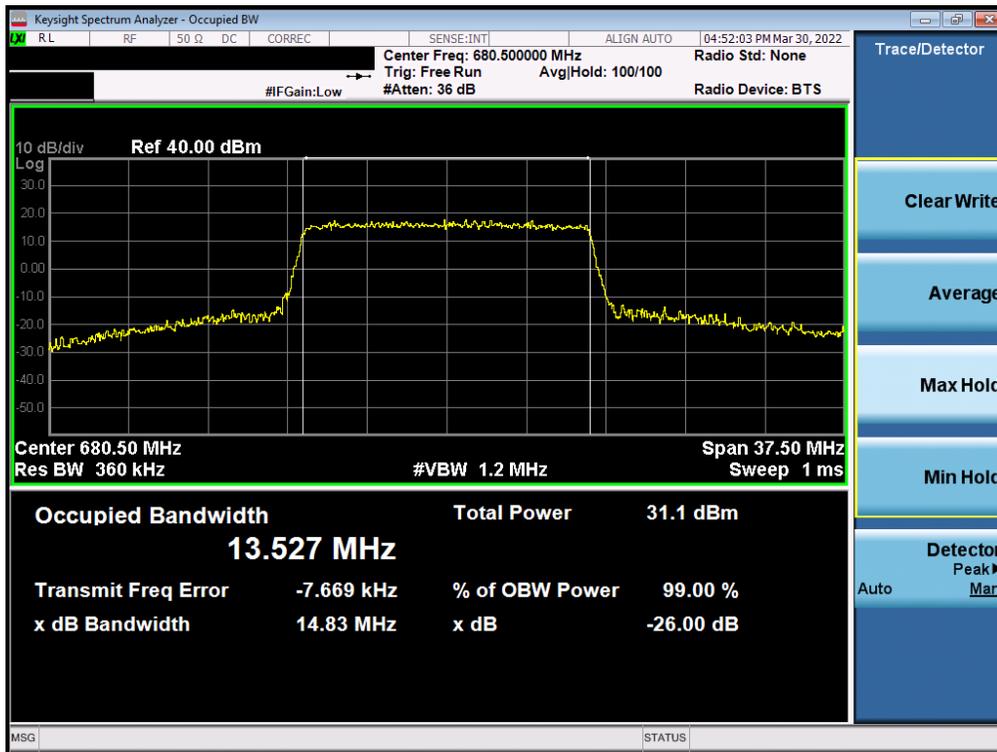


Plot 7-2. Occupied Bandwidth Plot (LTE Band 71 - 20MHz 16-QAM - Full RB – Main Ant)

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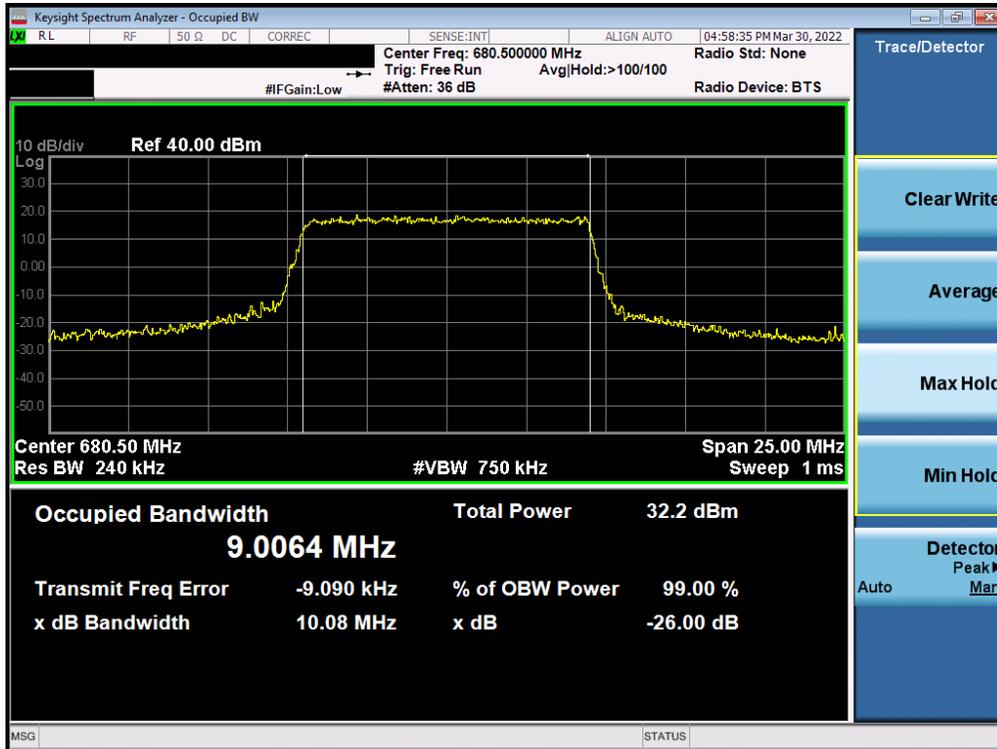


Plot 7-3. Occupied Bandwidth Plot (LTE Band 71 - 15MHz QPSK - Full RB – Main Ant)

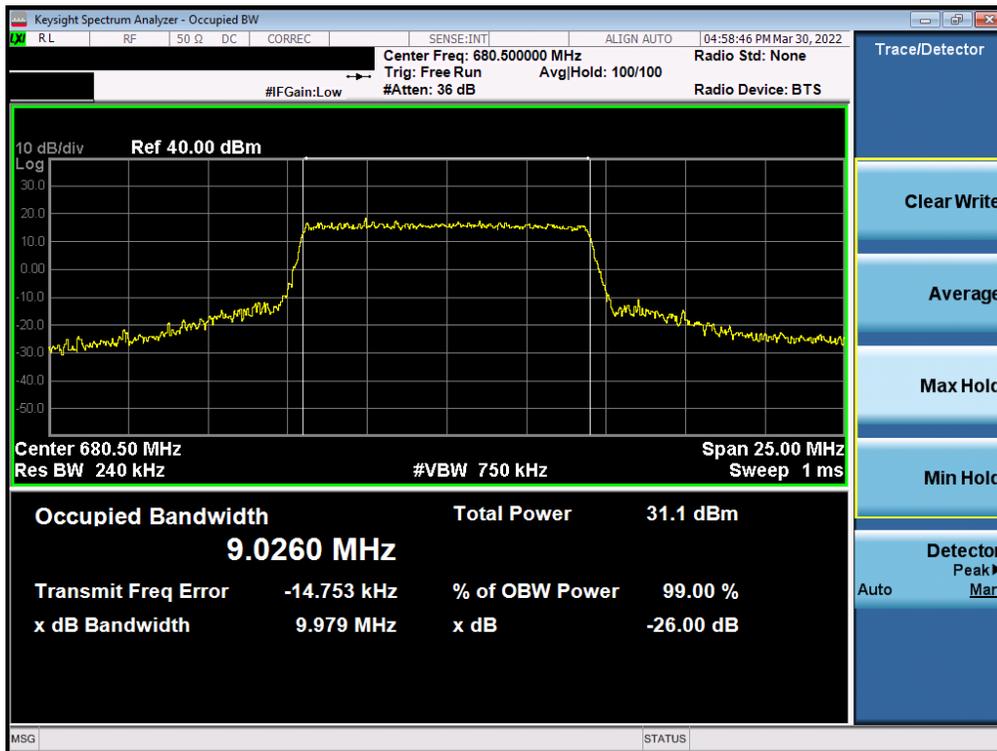


Plot 7-4. Occupied Bandwidth Plot (LTE Band 71 - 15MHz 16-QAM - Full RB – Main Ant)

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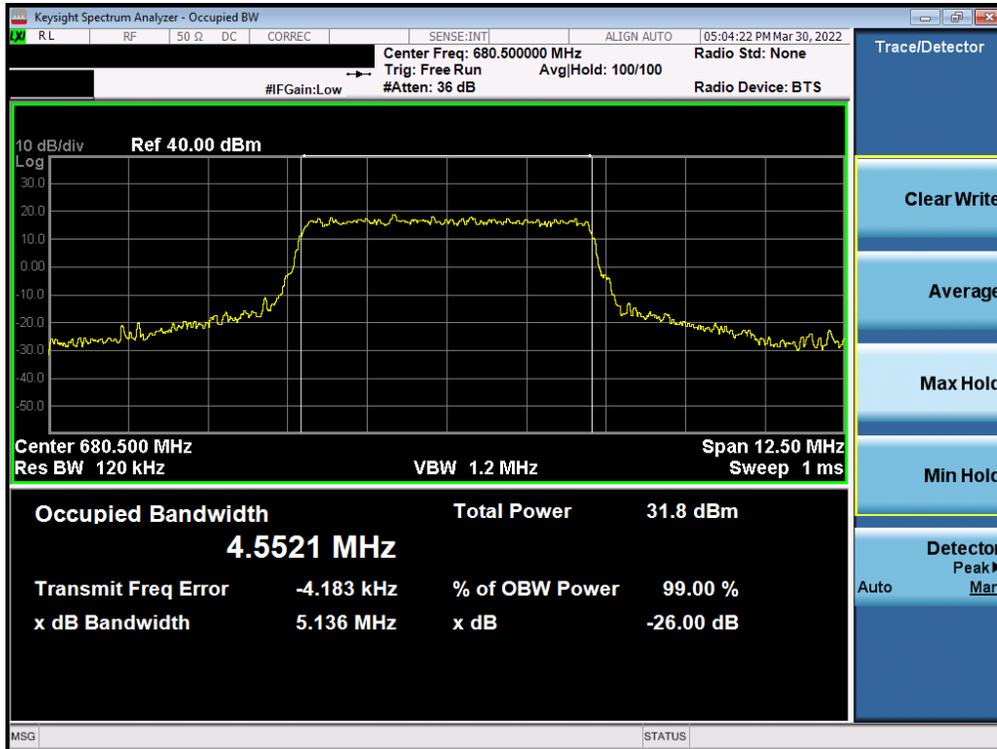


Plot 7-5. Occupied Bandwidth Plot (LTE Band 71 - 10MHz QPSK - Full RB - Main Ant)



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

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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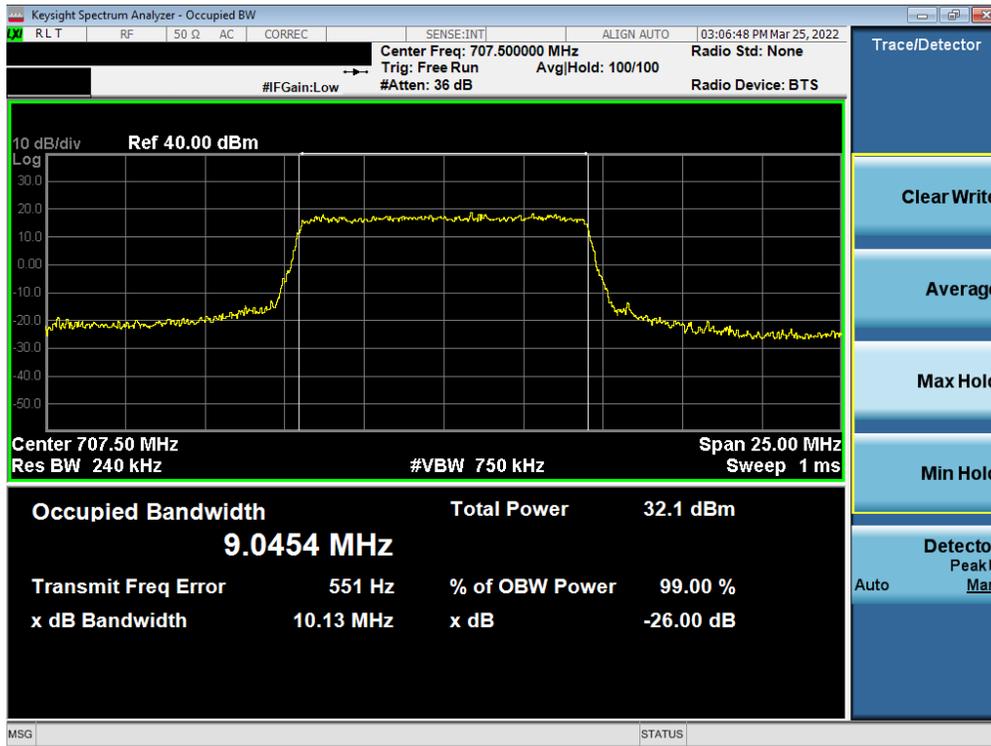
Plot 7-7. Occupied Bandwidth Plot (LTE Band 71 - 5MHz QPSK - Full RB – Main Ant)



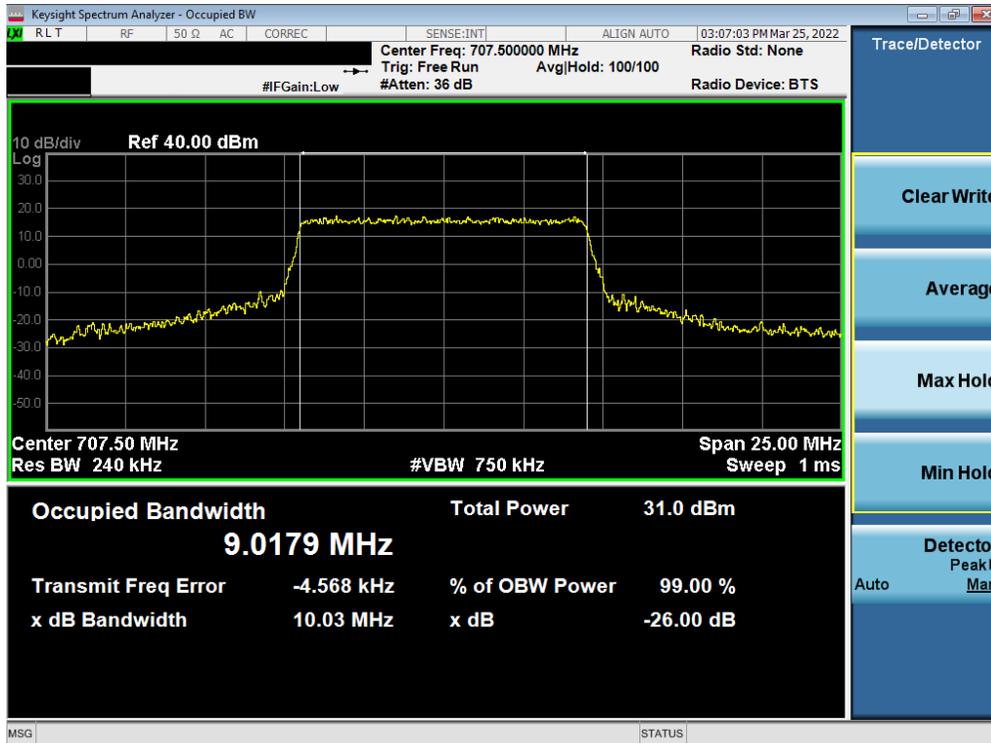
Plot 7-8. Occupied Bandwidth Plot (LTE Band 71 - 5MHz 16-QAM - Full RB – Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 12/17 – Main Ant

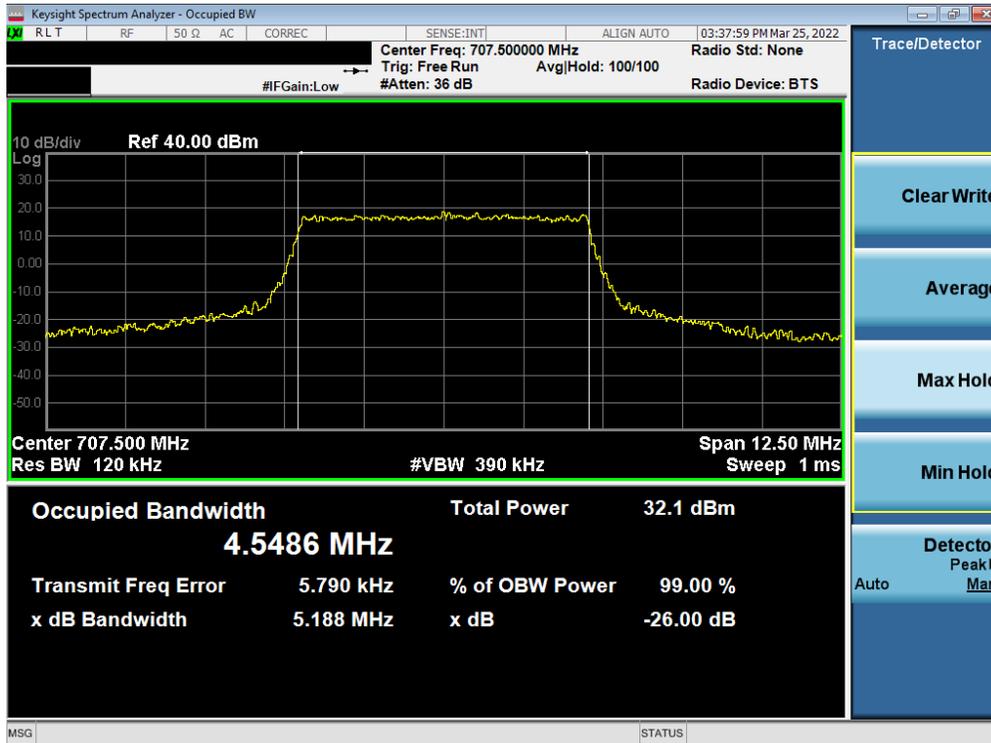


Plot 7-9. Occupied Bandwidth Plot (LTE Band 12/17 - 10MHz QPSK - Full RB – Main Ant)



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

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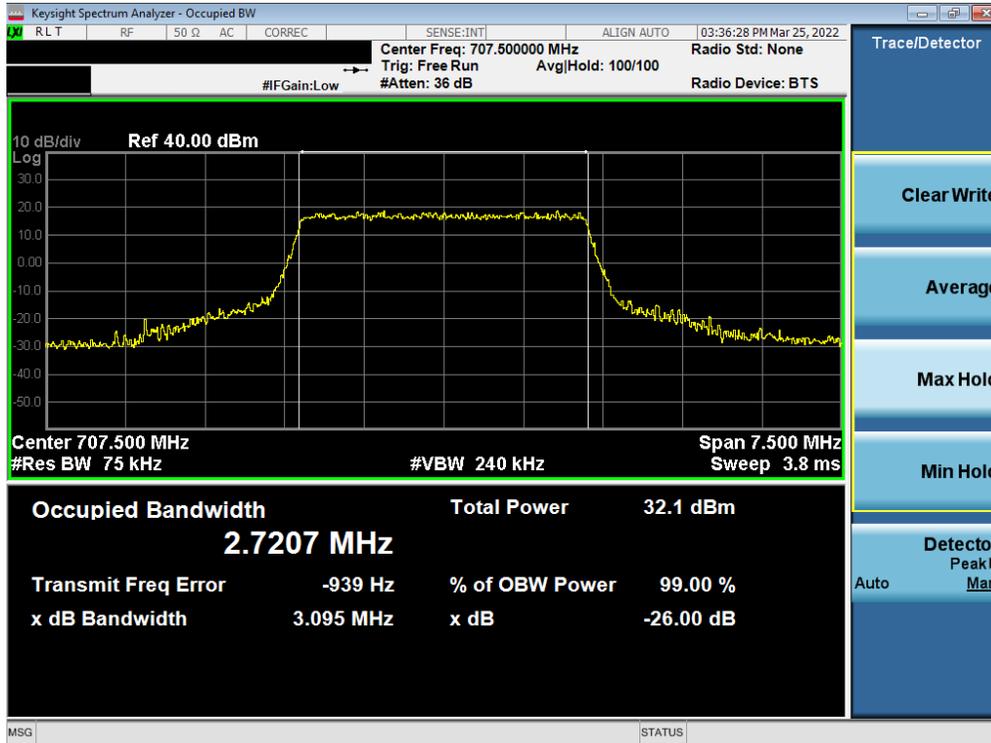


Plot 7-11. Occupied Bandwidth Plot (LTE Band 12/17 - 5MHz QPSK - Full RB – Main Ant)

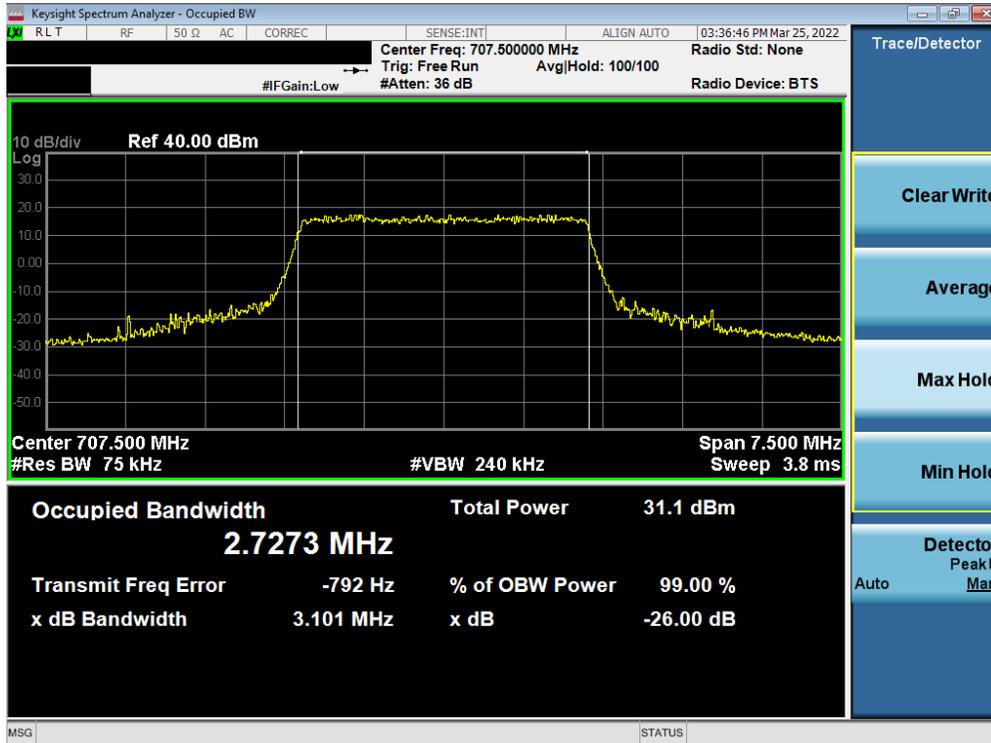


Plot 7-12. Occupied Bandwidth Plot (LTE Band 12/17 - 5MHz 16-QAM - Full RB – Main Ant)

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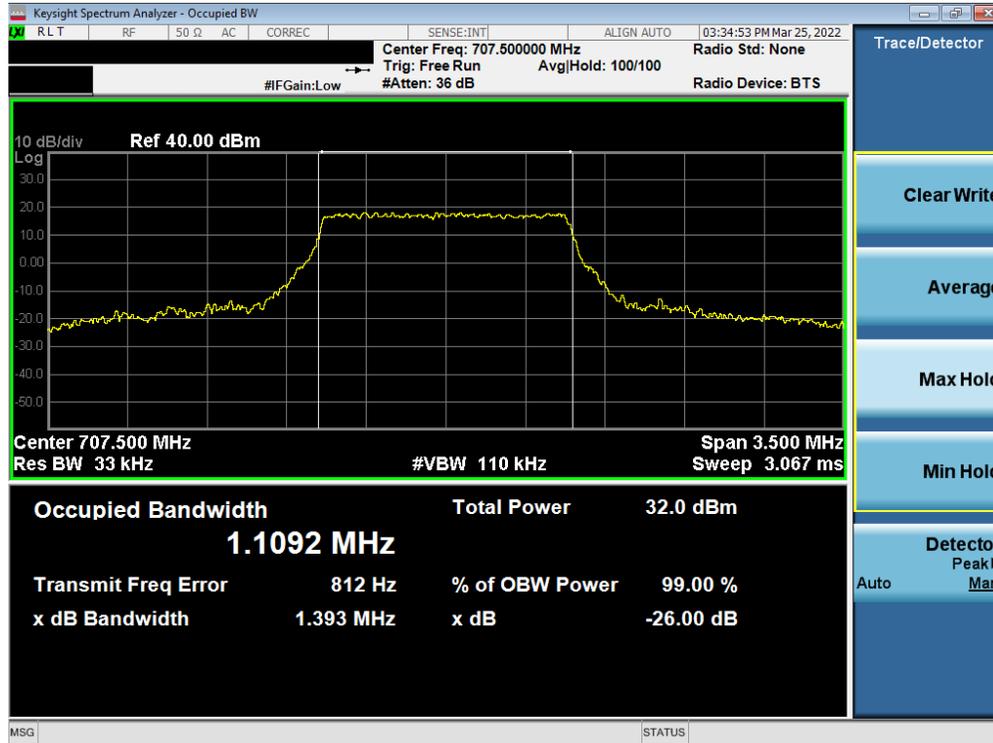


Plot 7-13. Occupied Bandwidth Plot (LTE Band 12 - 3MHz QPSK - Full RB – Main Ant)

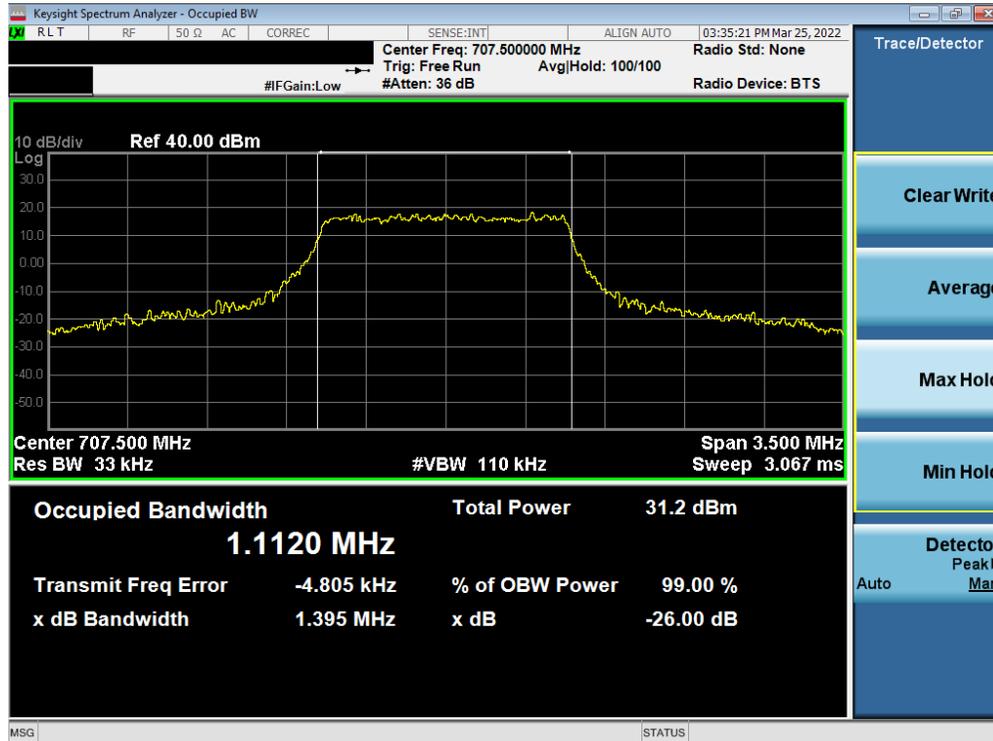


Plot 7-14. Occupied Bandwidth Plot (LTE Band 12 - 3MHz 16-QAM - Full RB – Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-15. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz QPSK - Full RB – Main Ant)



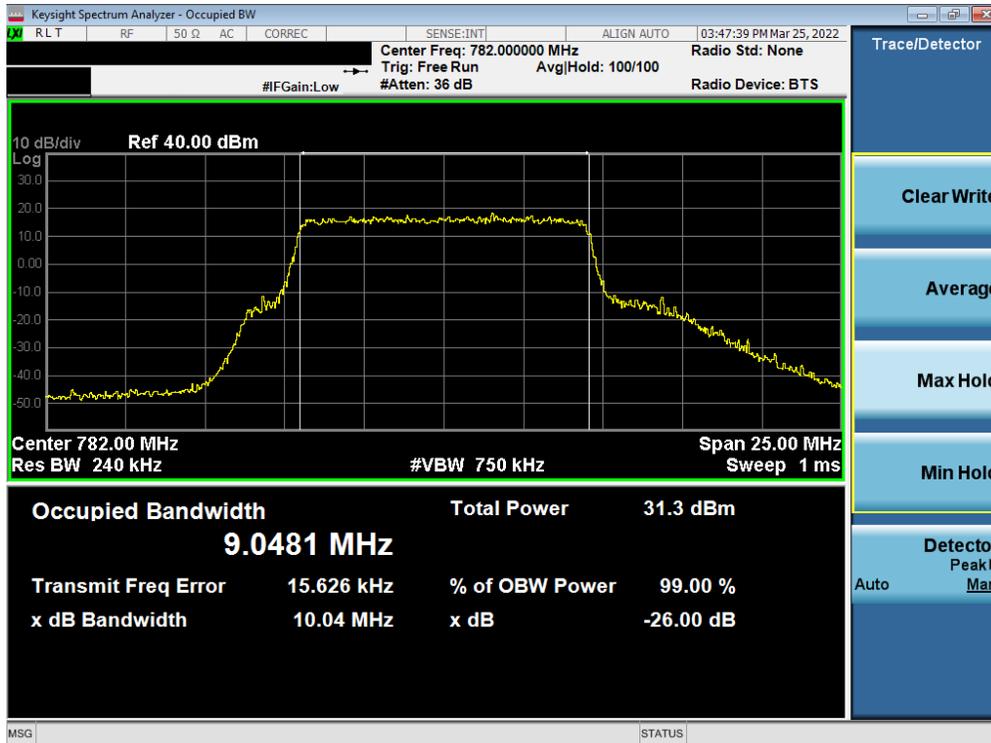
Plot 7-16. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz 16-QAM - Full RB – Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 13 – Main Ant

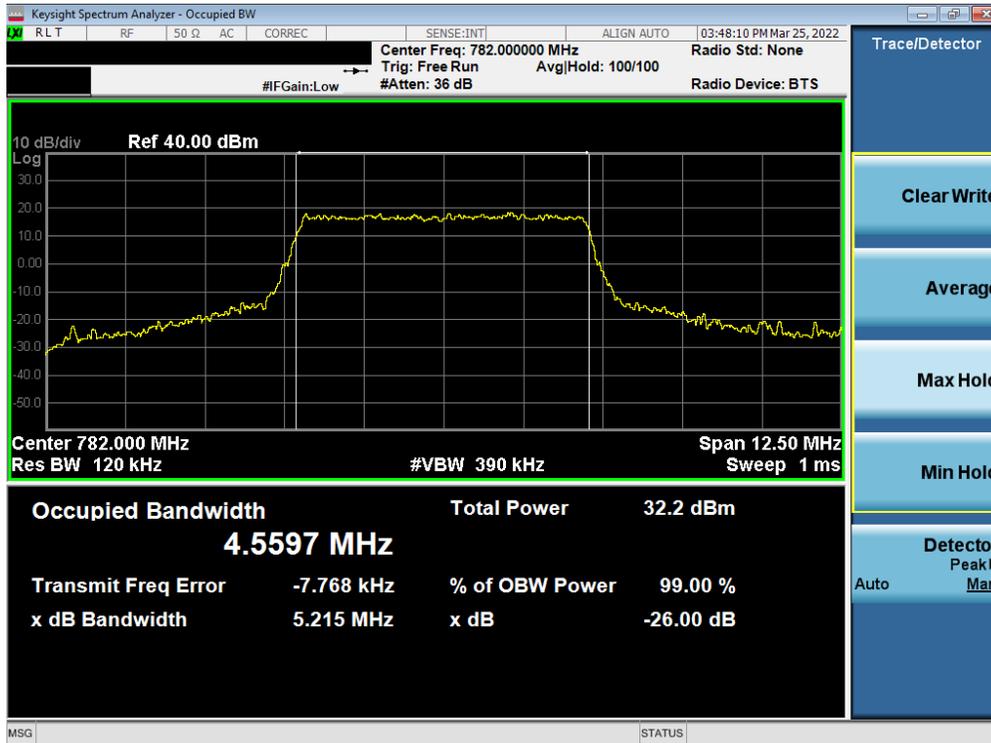


Plot 7-17. Occupied Bandwidth Plot (LTE Band 13 - 10MHz QPSK - Full RB – Main Ant)



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

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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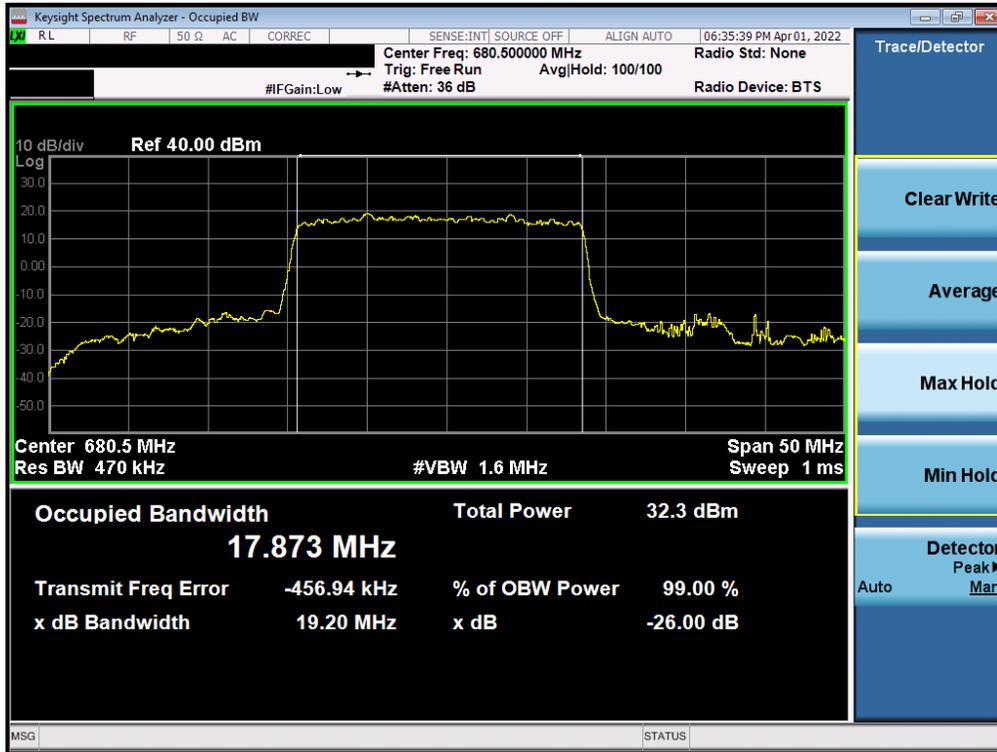
Plot 7-19. Occupied Bandwidth Plot (LTE Band 13 - 5MHz QPSK - Full RB – Main Ant)



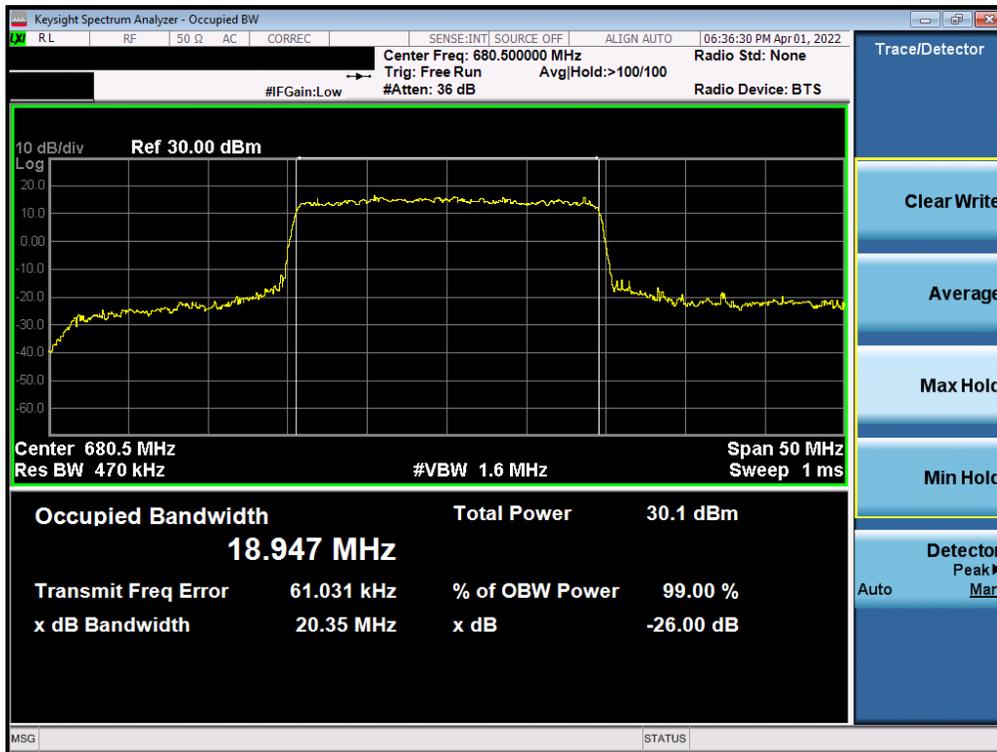
Plot 7-20. Occupied Bandwidth Plot (LTE Band 13 - 5MHz 16-QAM - Full RB – Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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NR Band n71 – Main Ant

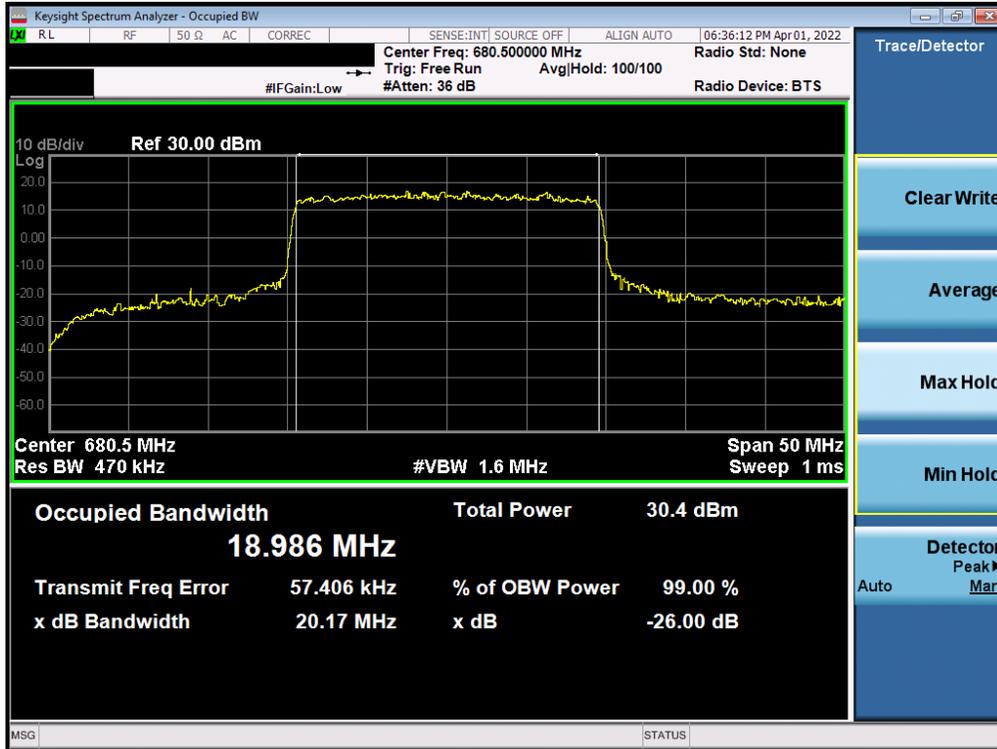


Plot 7-21. Occupied Bandwidth Plot (NR Band n71 - 20MHz DFT-s-OFDM BPSK - Full RB – Main Ant)

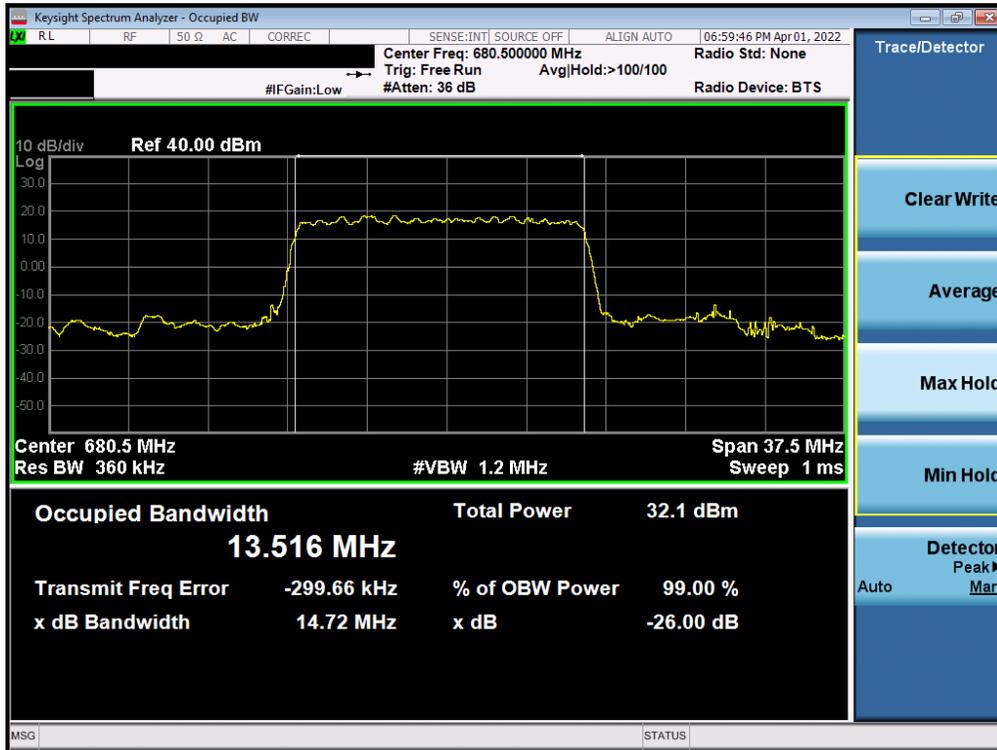


Plot 7-22. Occupied Bandwidth Plot (NR Band n71 - 20MHz CP-OFDM QPSK - Full RB – Main Ant)

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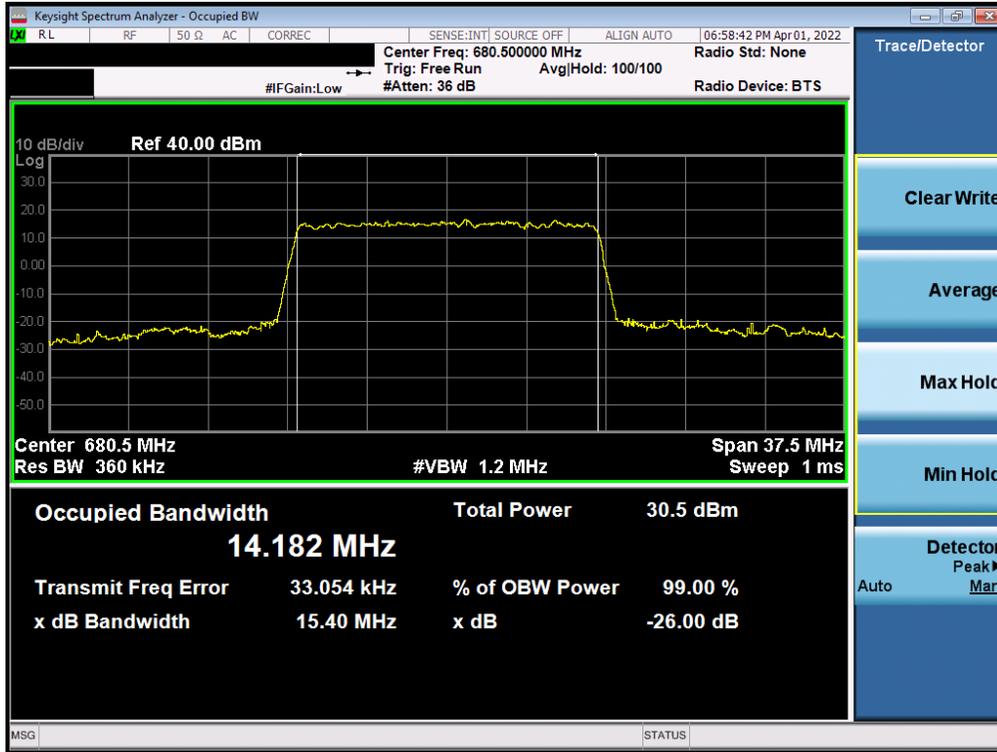


Plot 7-23. Occupied Bandwidth Plot (NR Band n71 - 20MHz CP-OFDM 16-QAM - Full RB – Main Ant)

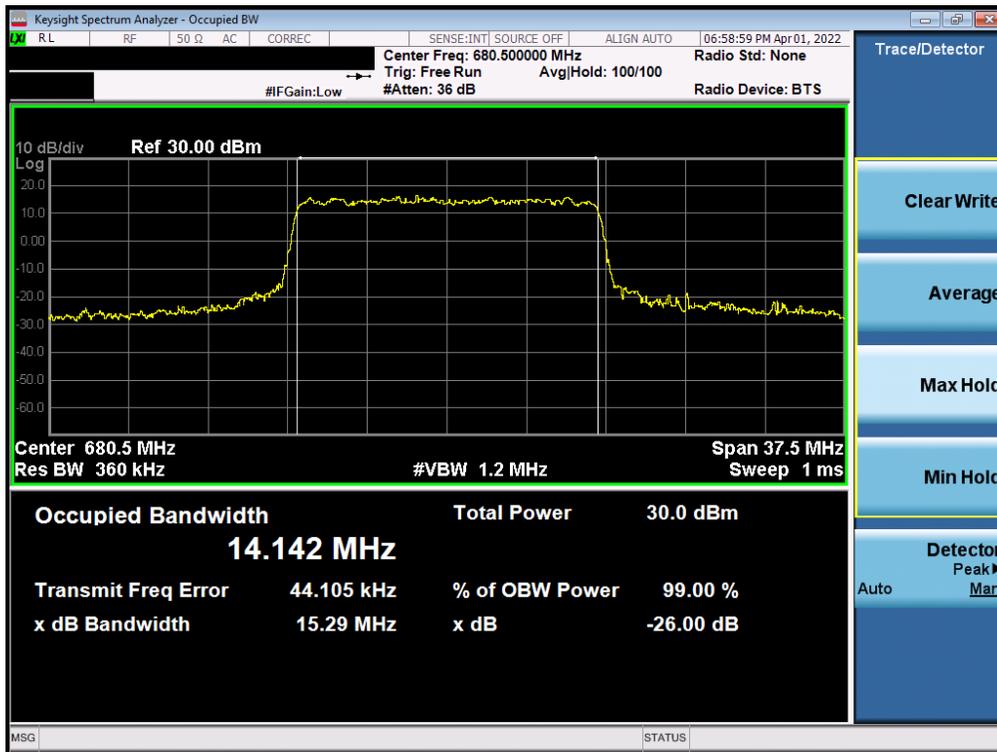


Plot 7-24. Occupied Bandwidth Plot (NR Band n71 - 15MHz DFT-s-OFDM BPSK - Full RB – Main Ant)

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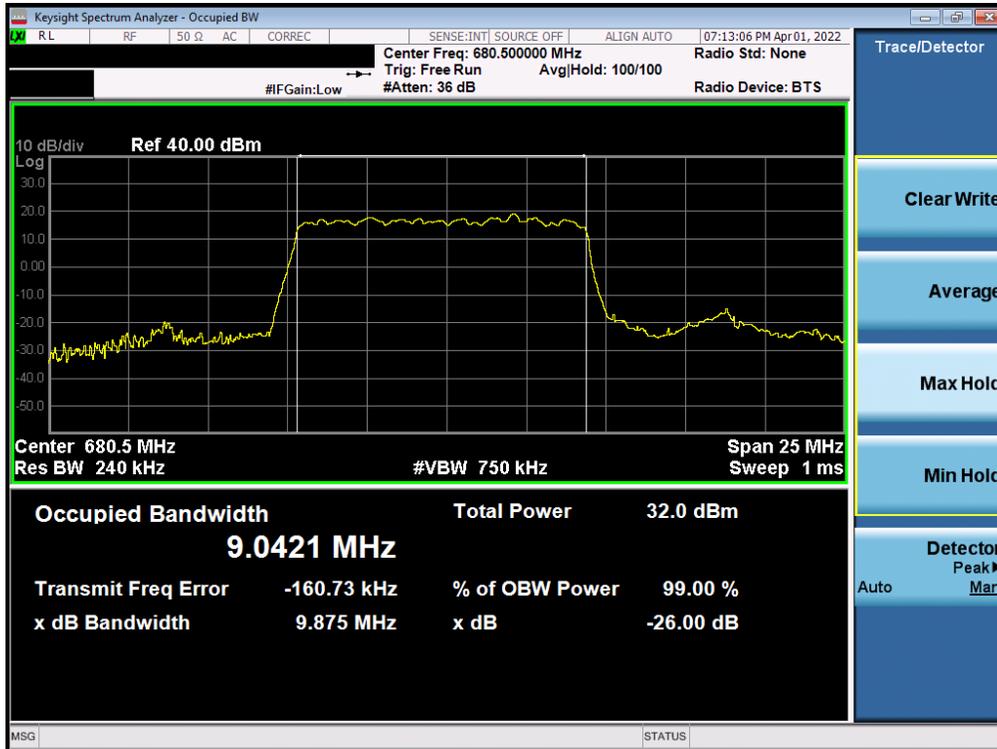


Plot 7-25. Occupied Bandwidth Plot (NR Band n71 - 15MHz QPSK - Full RB – Main Ant)

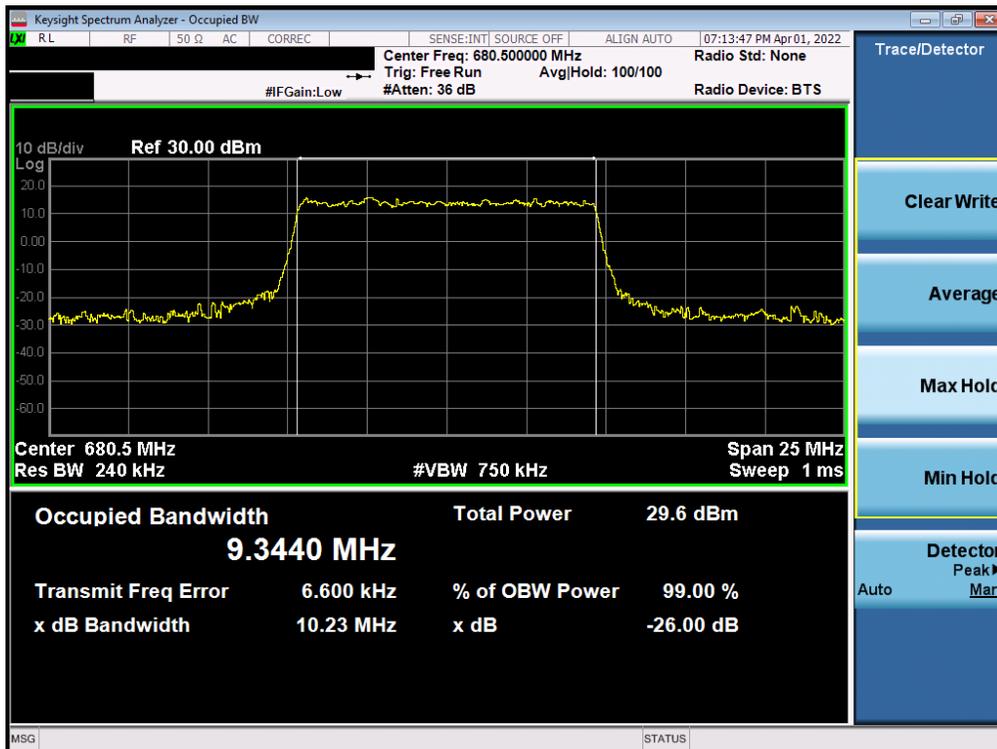


Plot 7-26. Occupied Bandwidth Plot (NR Band n71 - 15MHz CP-OFDM 16-QAM - Full RB – Main Ant)

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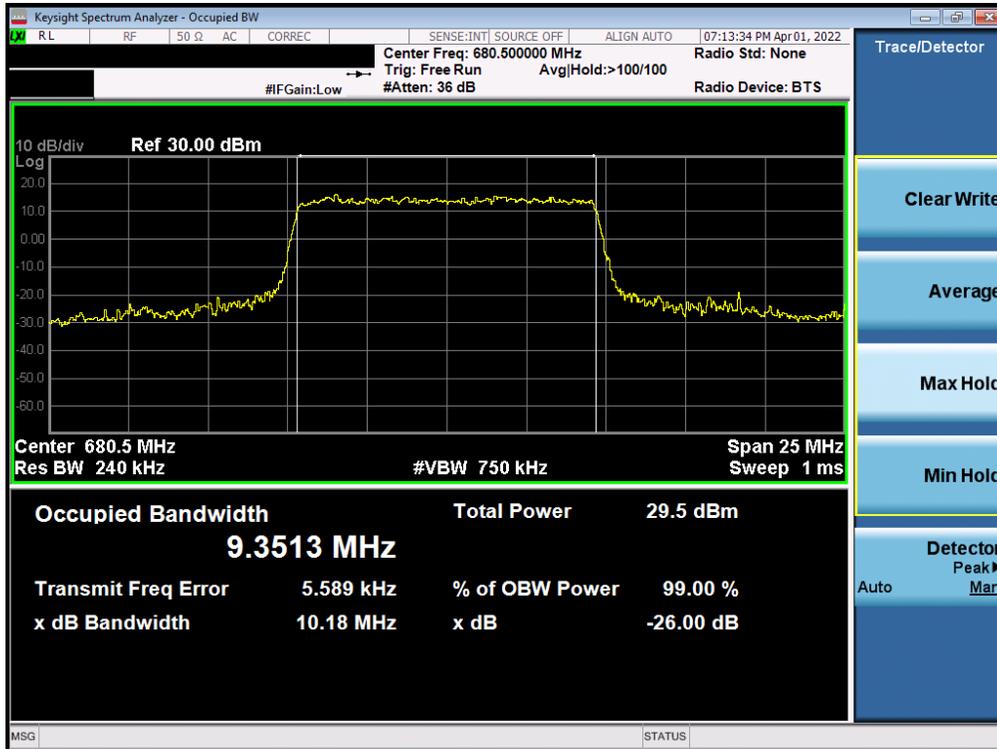


Plot 7-27. Occupied Bandwidth Plot (NR Band n71 - 10MHz DFT-s-OFDM BPSK - Full RB – Main Ant)

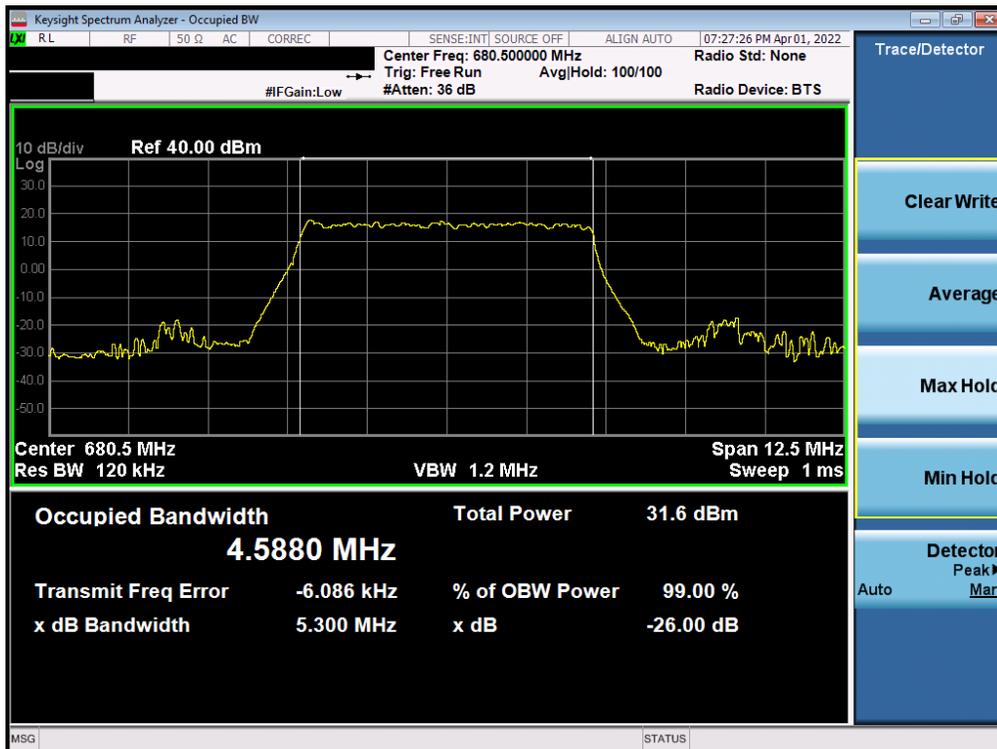


Plot 7-28. Occupied Bandwidth Plot (NR Band n71 - 10MHz CP-OFDM QPSK - Full RB – Main Ant)

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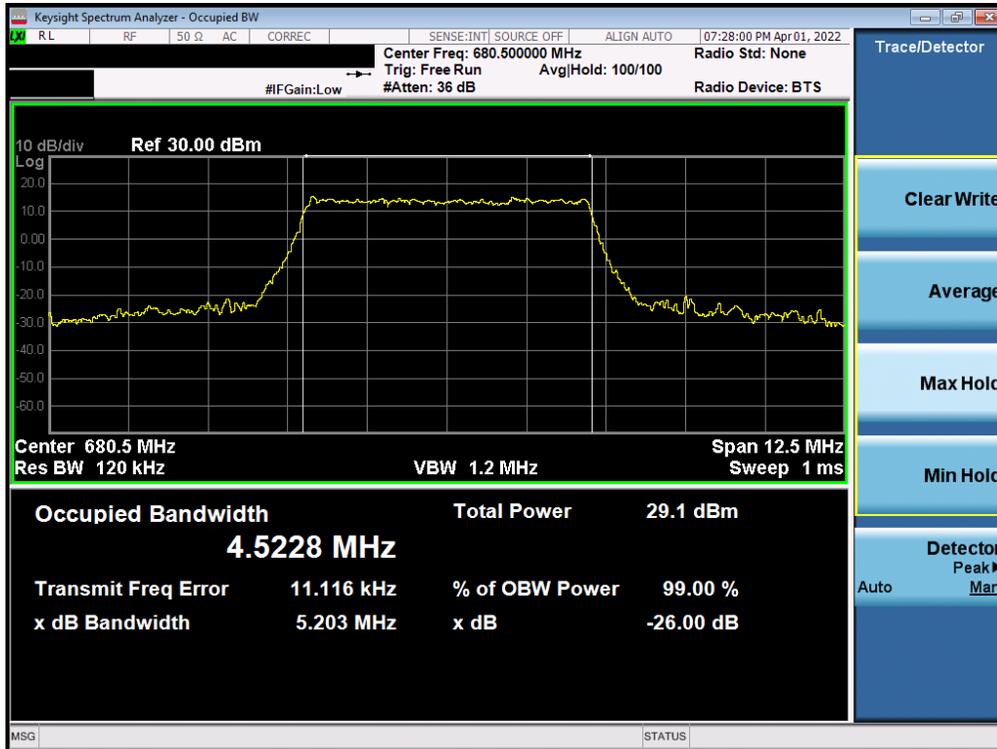


Plot 7-29. Occupied Bandwidth Plot (NR Band n71 - 10MHz CP-OFDM 16-QAM - Full RB – Main Ant)

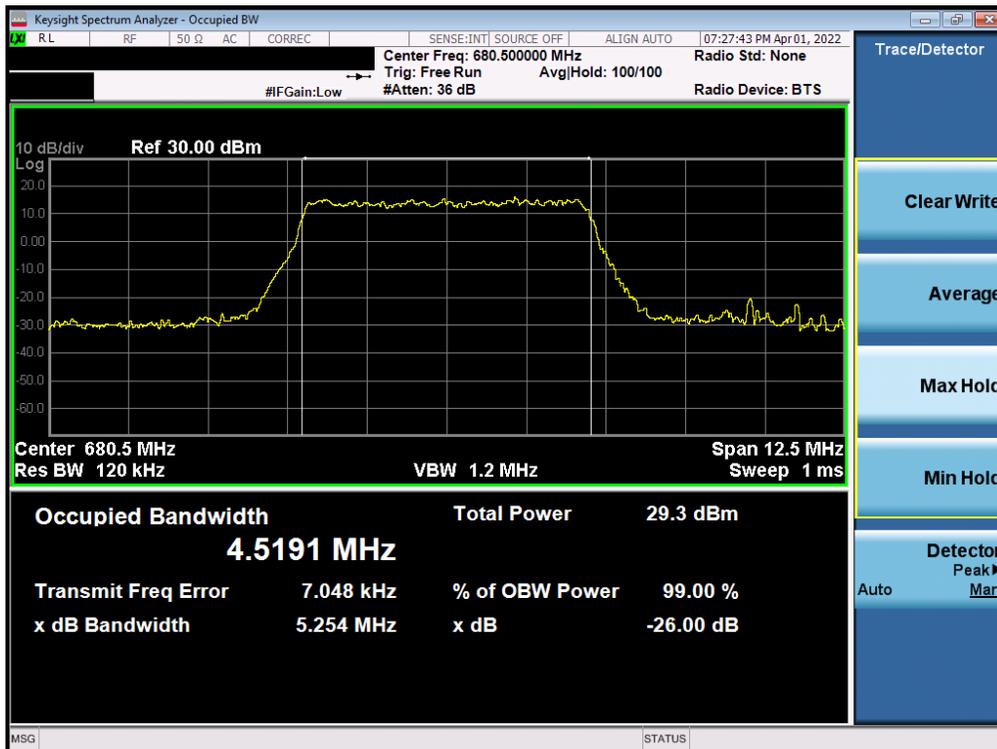


Plot 7-30. Occupied Bandwidth Plot (NR Band n71 - 5MHz DFT-s-OFDM BPSK - Full RB – Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 30 of 206



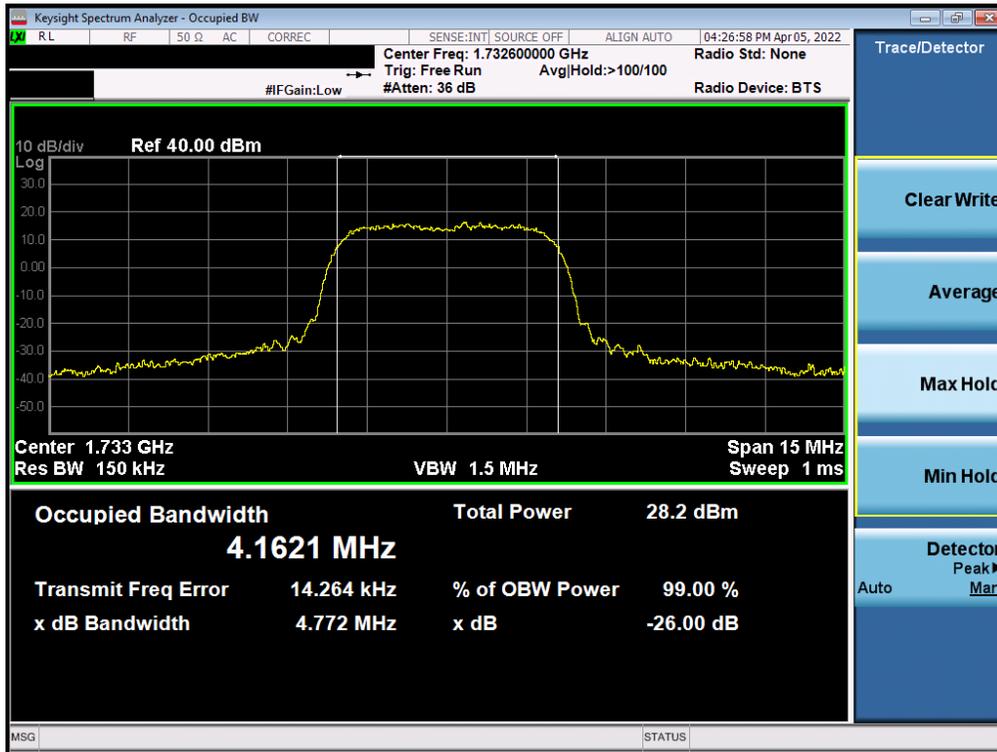
Plot 7-31. Occupied Bandwidth Plot (NR Band n71 - 5MHz CP-OFDM QPSK - Full RB - Main Ant)



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

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 31 of 206

WCDMA AWS – Main Ant



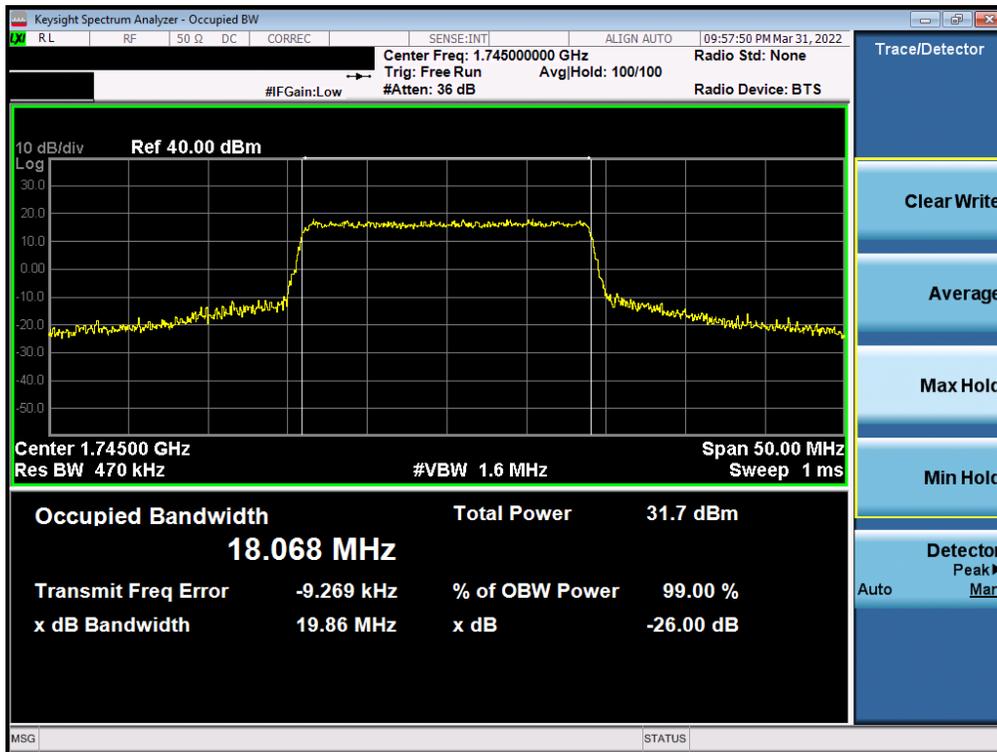
Plot 7-33. Occupied Bandwidth Plot (WCDMA, Ch. 1413 – Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 32 of 206

LTE Band 66/4 - Main Ant



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

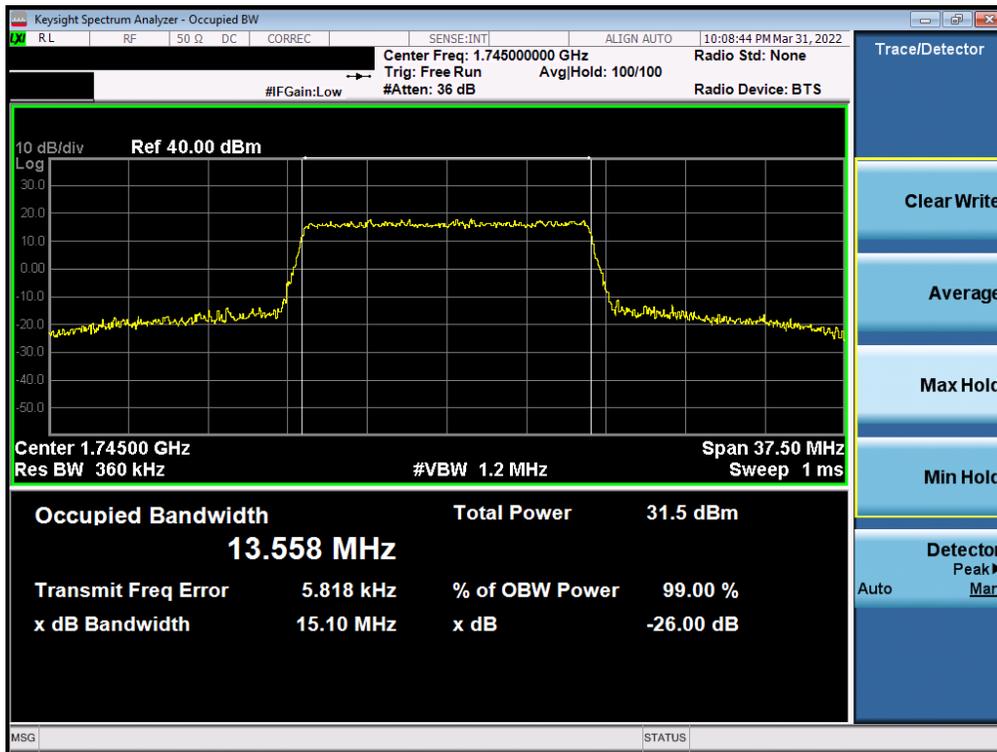


Plot 7-35. Occupied Bandwidth Plot (LTE Band 66/4 - 20MHz 16-QAM - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 33 of 206

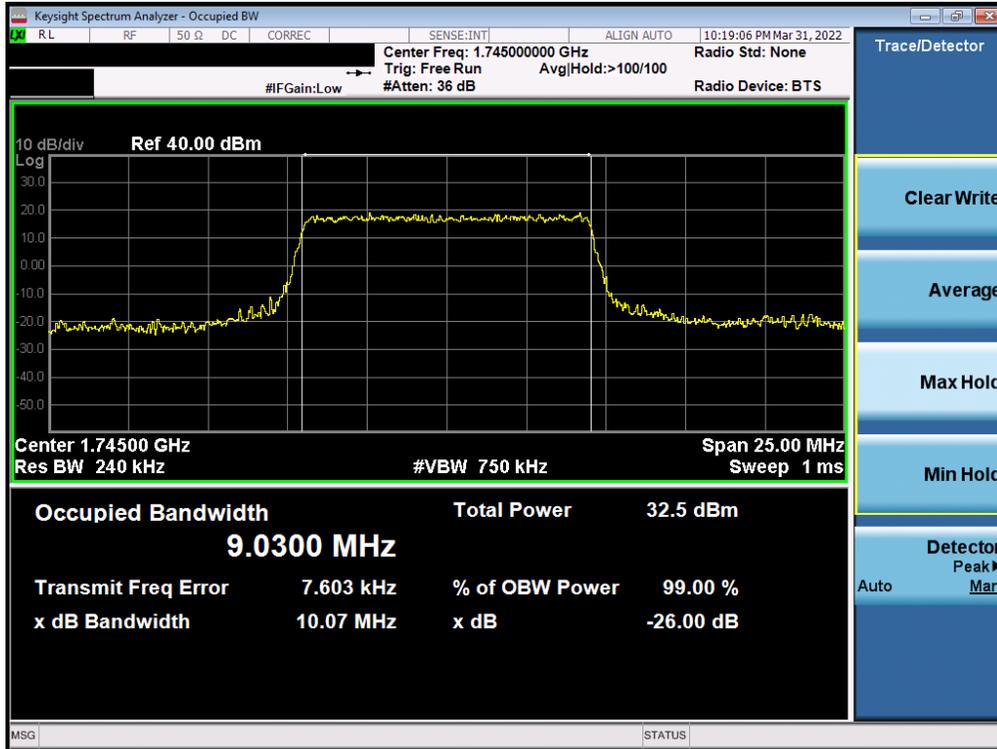


Plot 7-36. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz QPSK - Full RB - Main Ant)

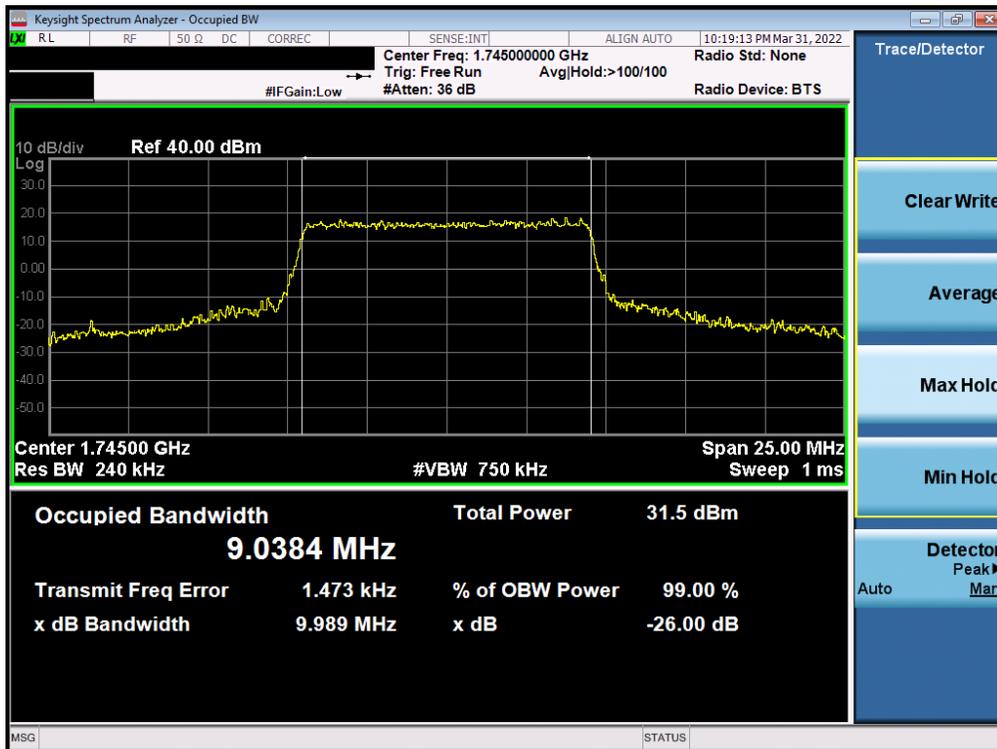


Plot 7-37. Occupied Bandwidth Plot (LTE Band 66/4 - 15MHz 16-QAM - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-38. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz QPSK - Full RB - Main Ant)

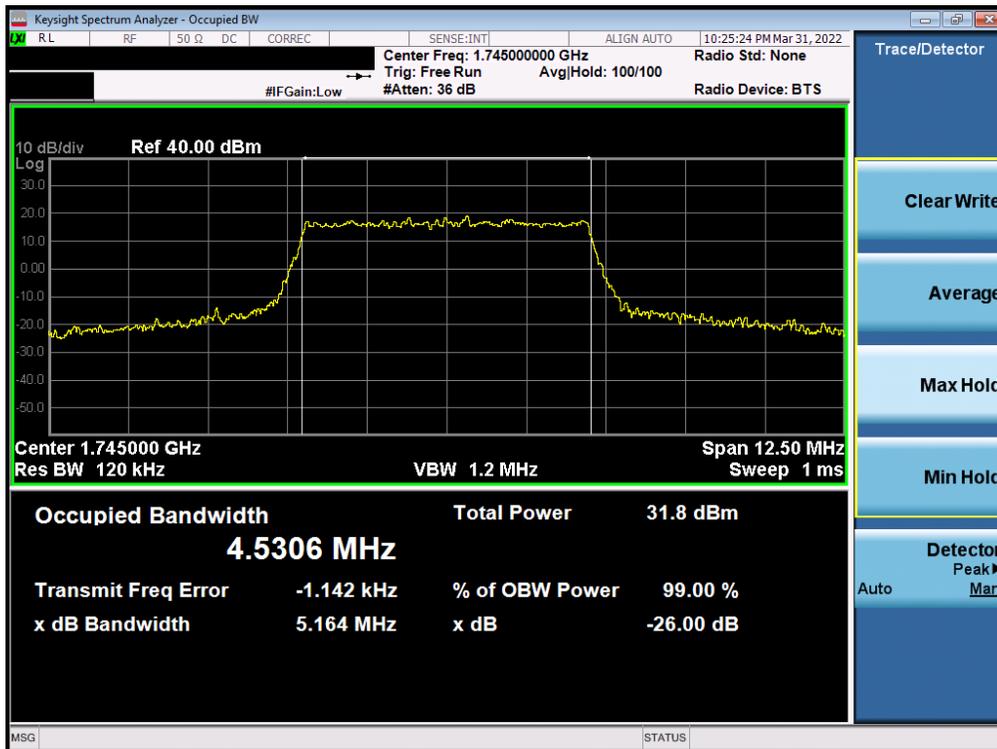


Plot 7-39. Occupied Bandwidth Plot (LTE Band 66/4 - 10MHz 16-QAM - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 35 of 206

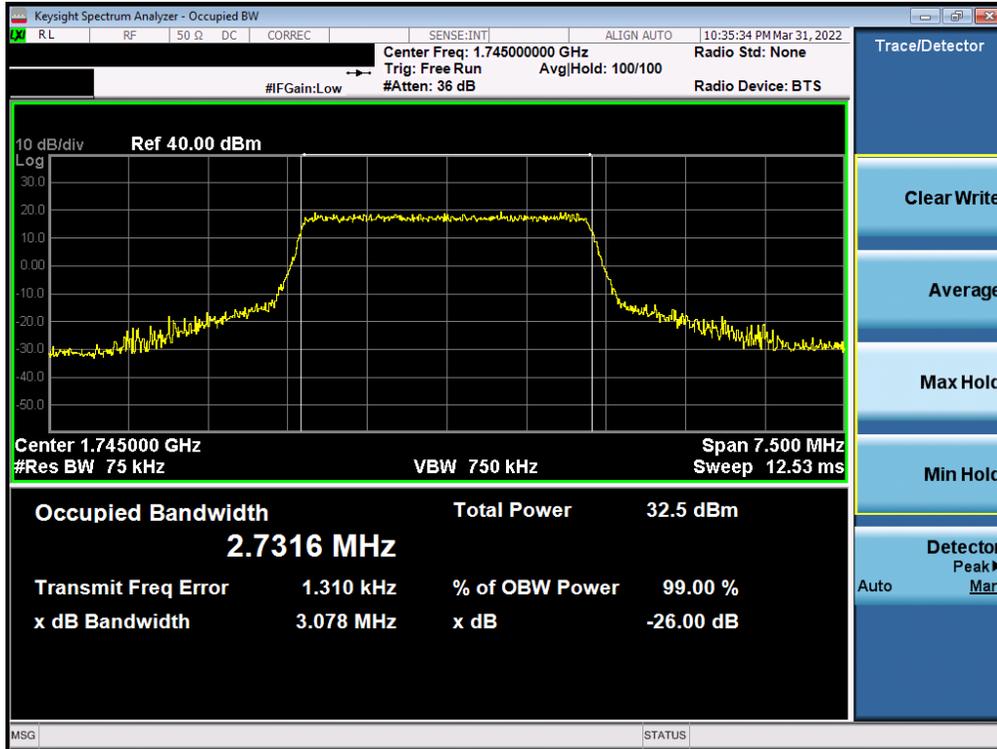


Plot 7-40. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz QPSK - Full RB - Main Ant)

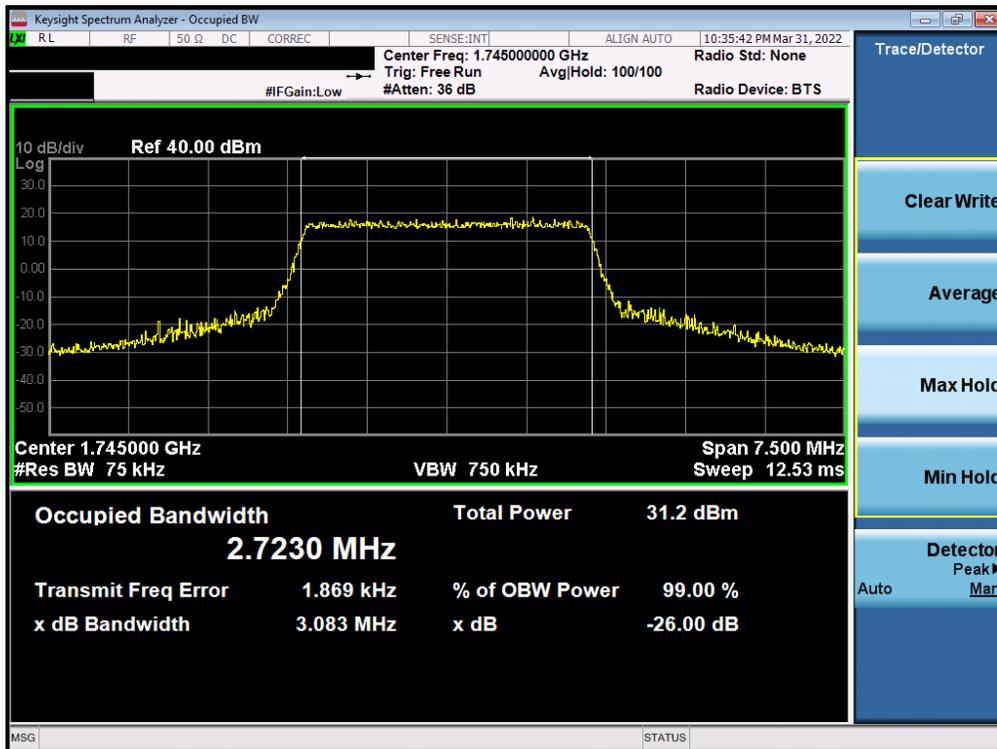


Plot 7-41. Occupied Bandwidth Plot (LTE Band 66/4 - 5MHz 16-QAM - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 36 of 206

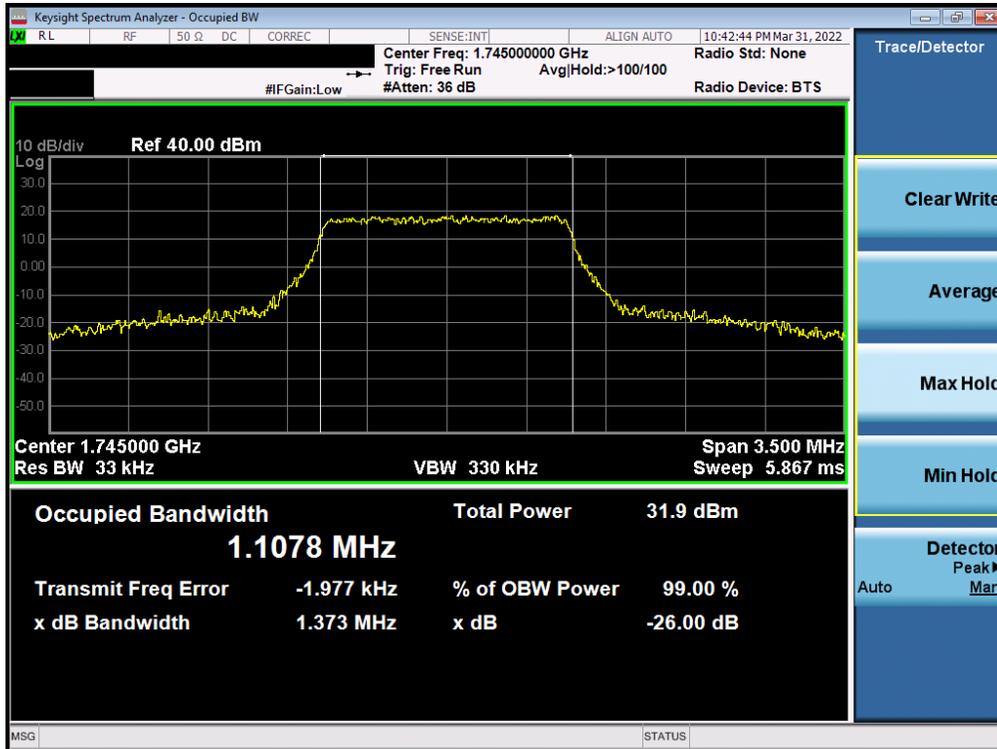


Plot 7-42. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz QPSK - Full RB - Main Ant)

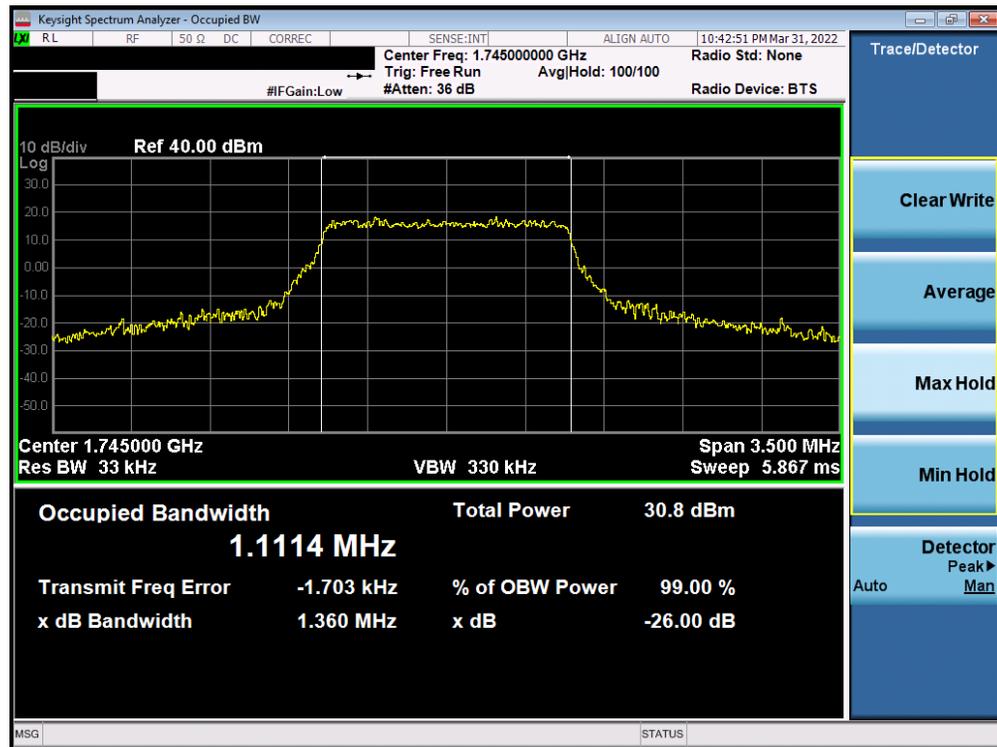


Plot 7-43. Occupied Bandwidth Plot (LTE Band 66/4 - 3MHz 16-QAM - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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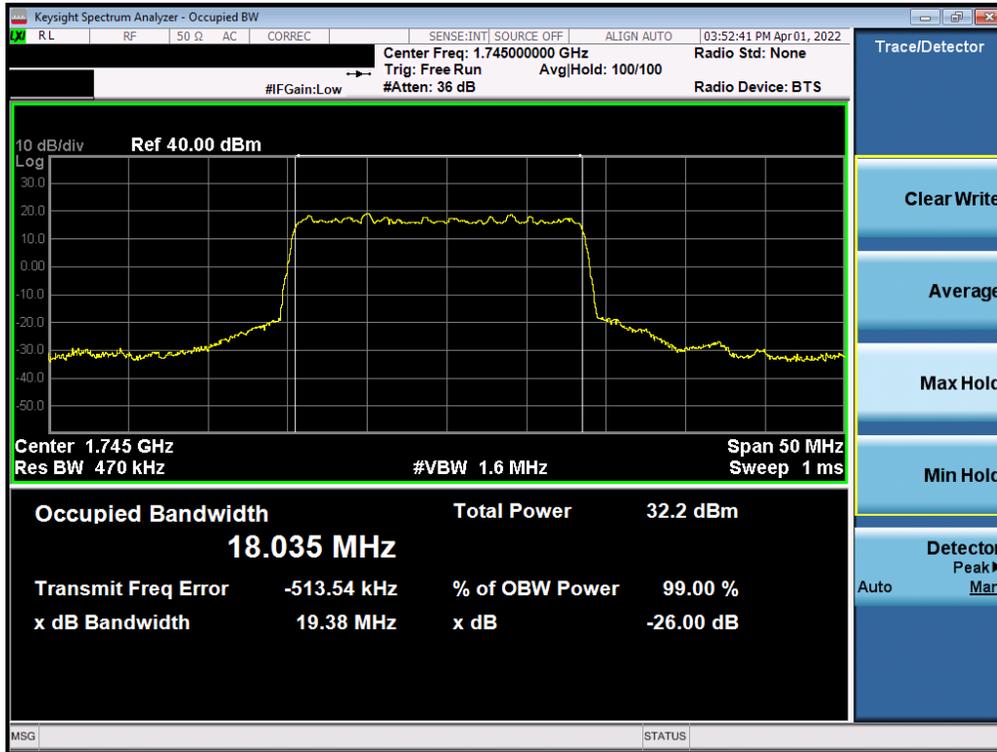
Plot 7-44. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz QPSK - Full RB - Main Ant)



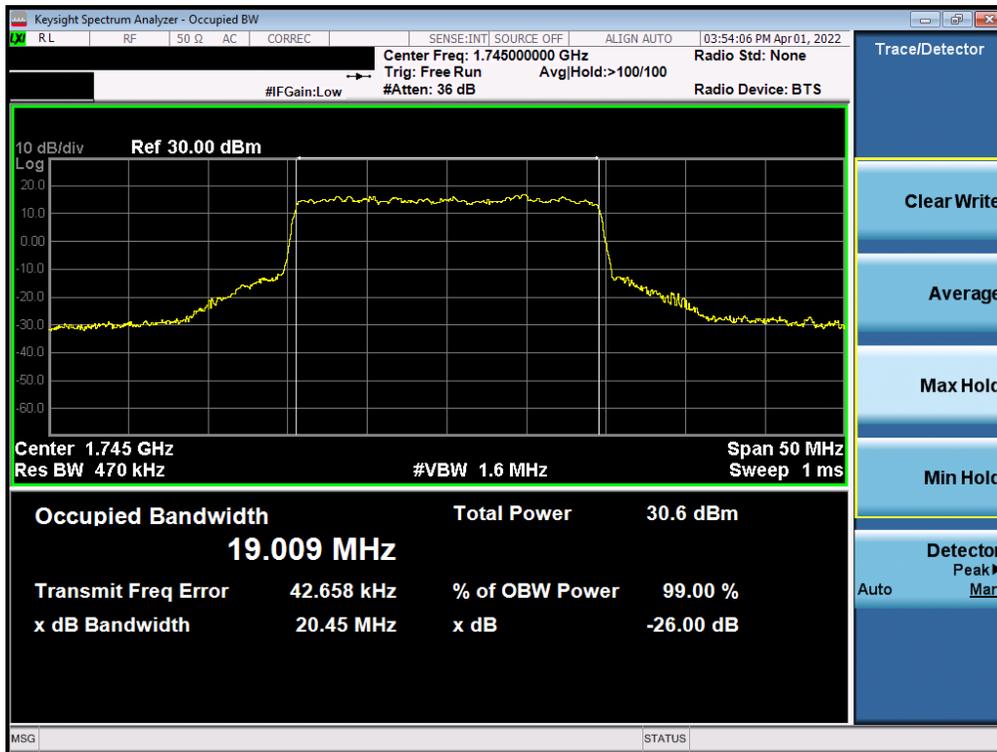
Plot 7-45. Occupied Bandwidth Plot (LTE Band 66/4 - 1.4MHz 16-QAM - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 38 of 206

NR Band n66 – Main Ant

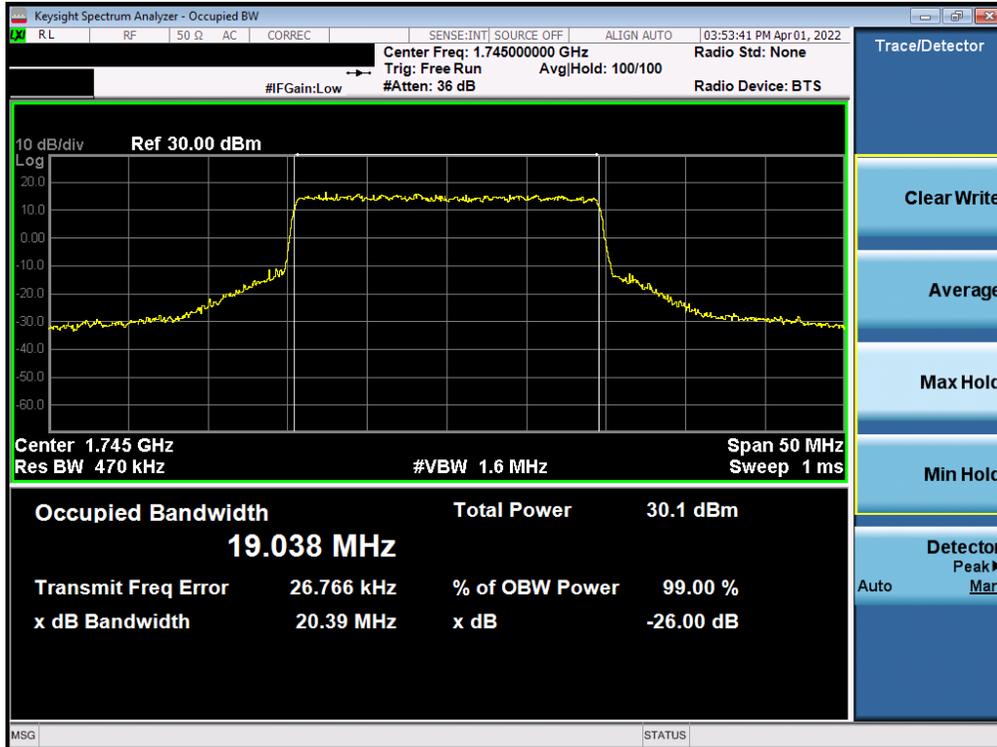


Plot 7-46. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz DFT-s-OFDM BPSK - Full RB – Main Ant)

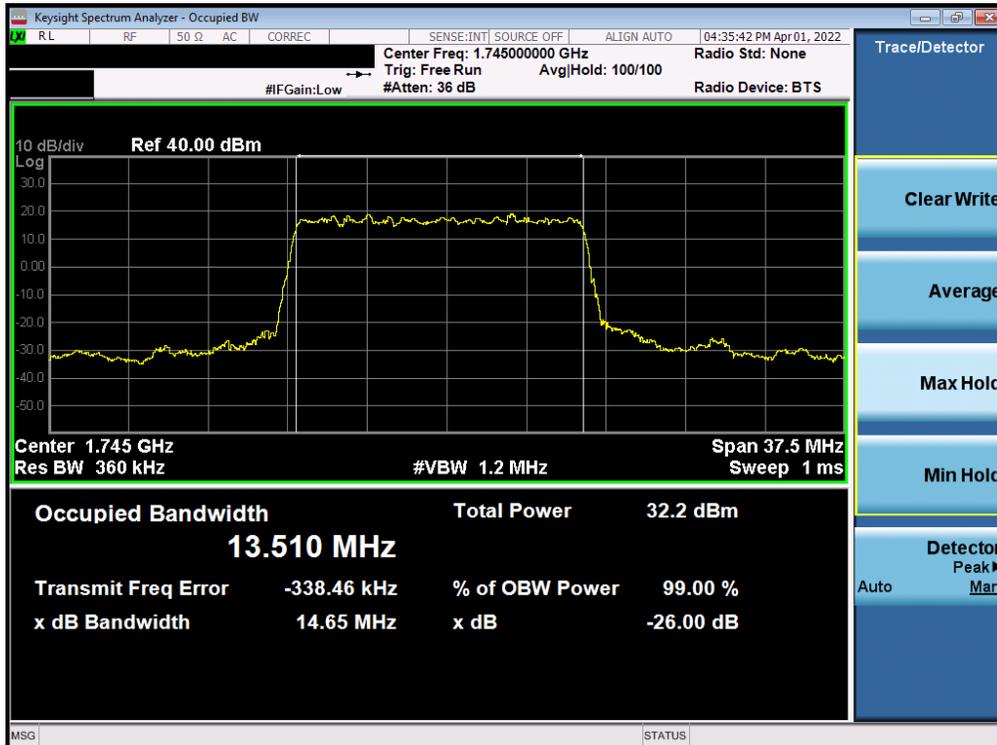


Plot 7-47. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz CP-OFDM QPSK - Full RB – Main Ant)

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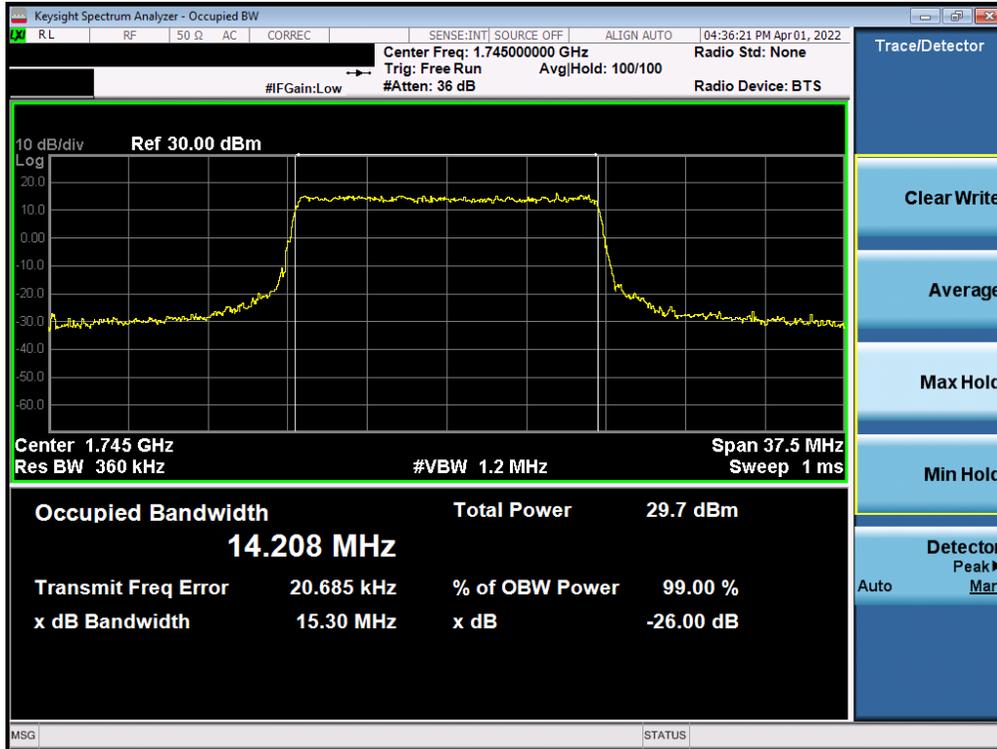


Plot 7-48. Occupied Bandwidth Plot (NR Band n66 - 20.0MHz CP-OFDM 16QAM - Full RB – Main Ant)

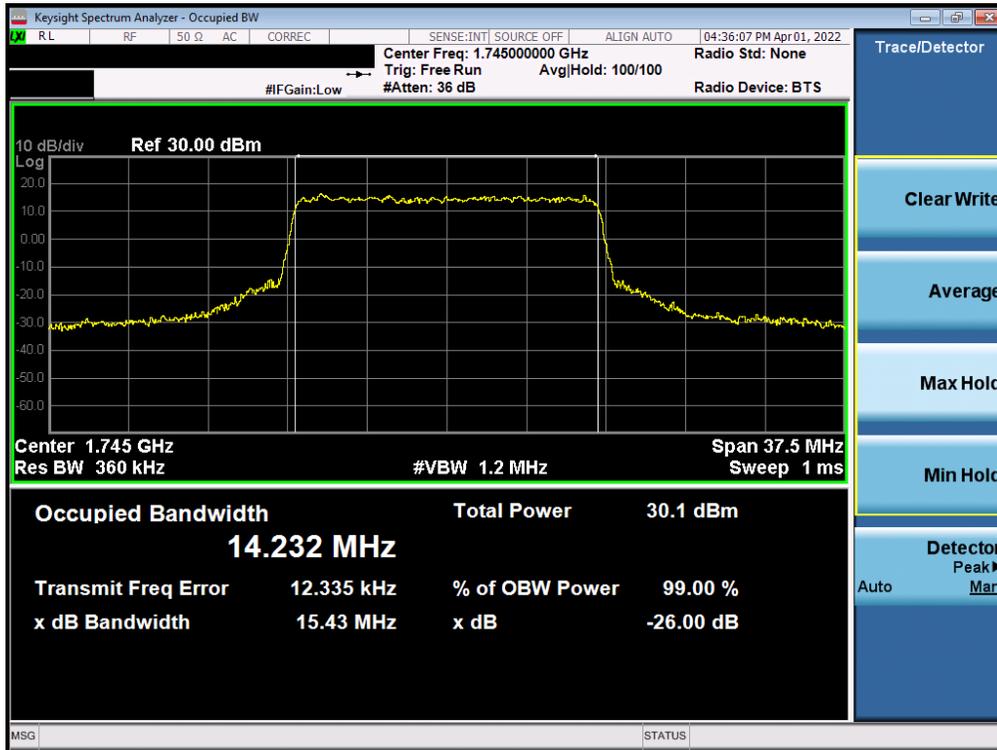


Plot 7-49. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz DFT-s-OFDM BPSK - Full RB – Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 40 of 206

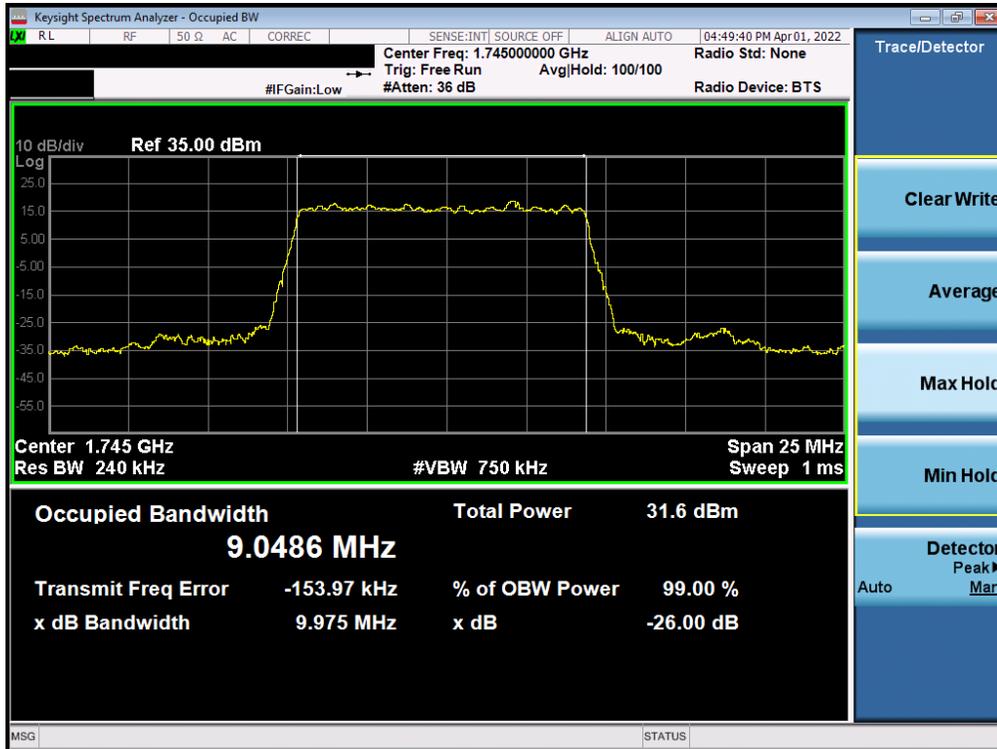


Plot 7-50. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz CP-OFDM QPSK - Full RB – Main Ant)

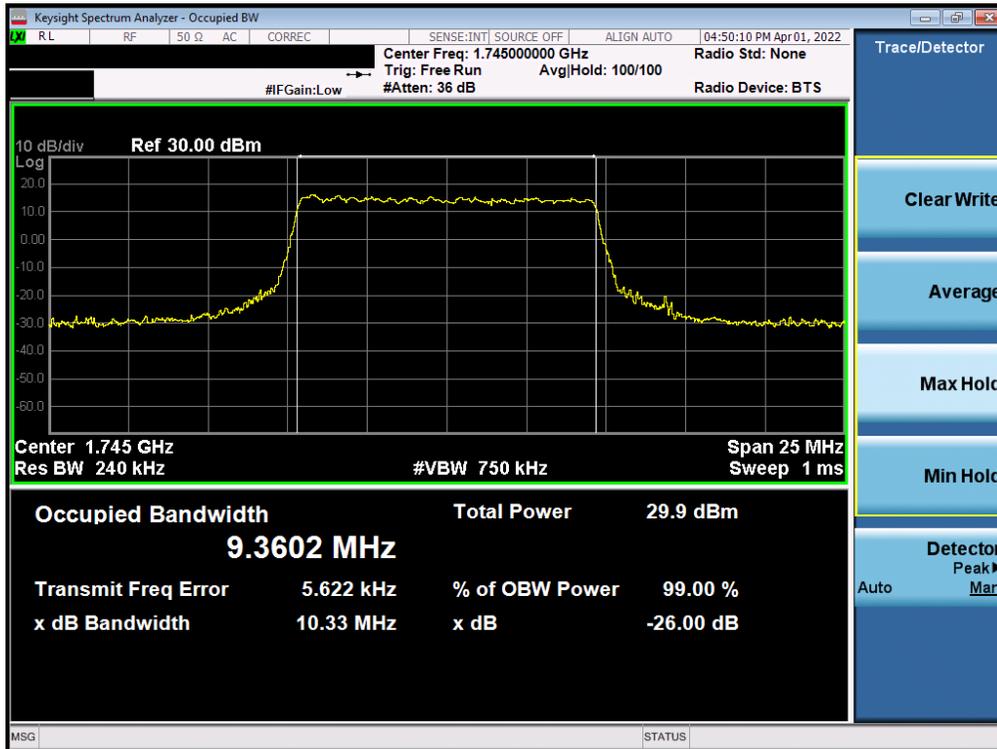


Plot 7-51. Occupied Bandwidth Plot (NR Band n66 - 15.0MHz CP-OFDM 16QAM - Full RB – Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 41 of 206

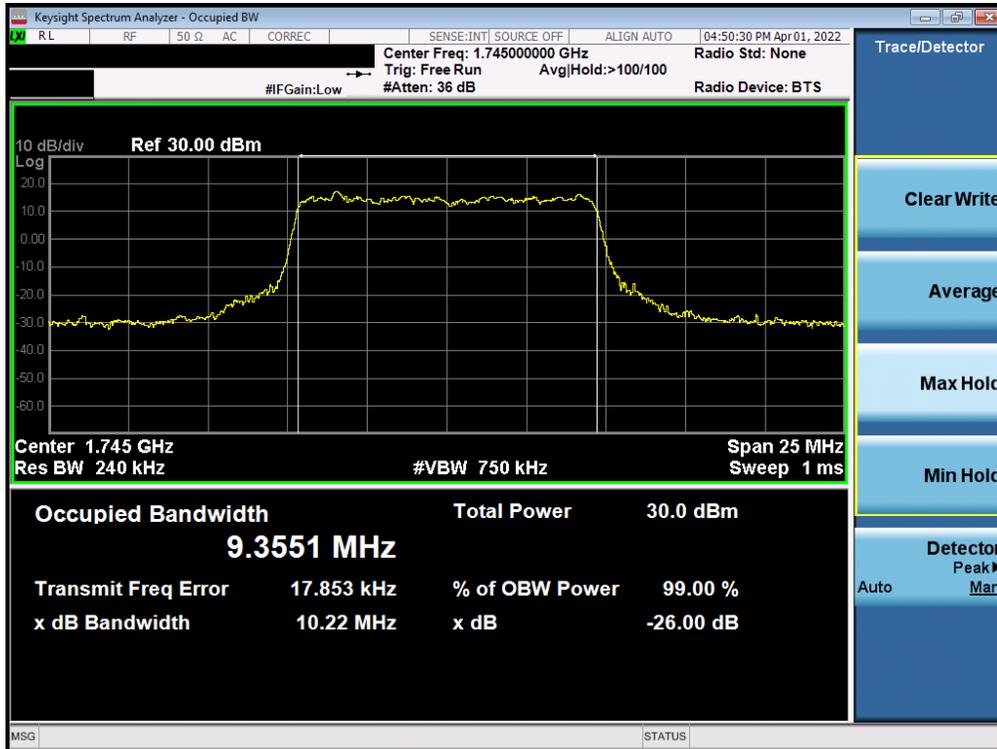


Plot 7-52. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz DFT-s-OFDM BPSK - Full RB - Main Ant)

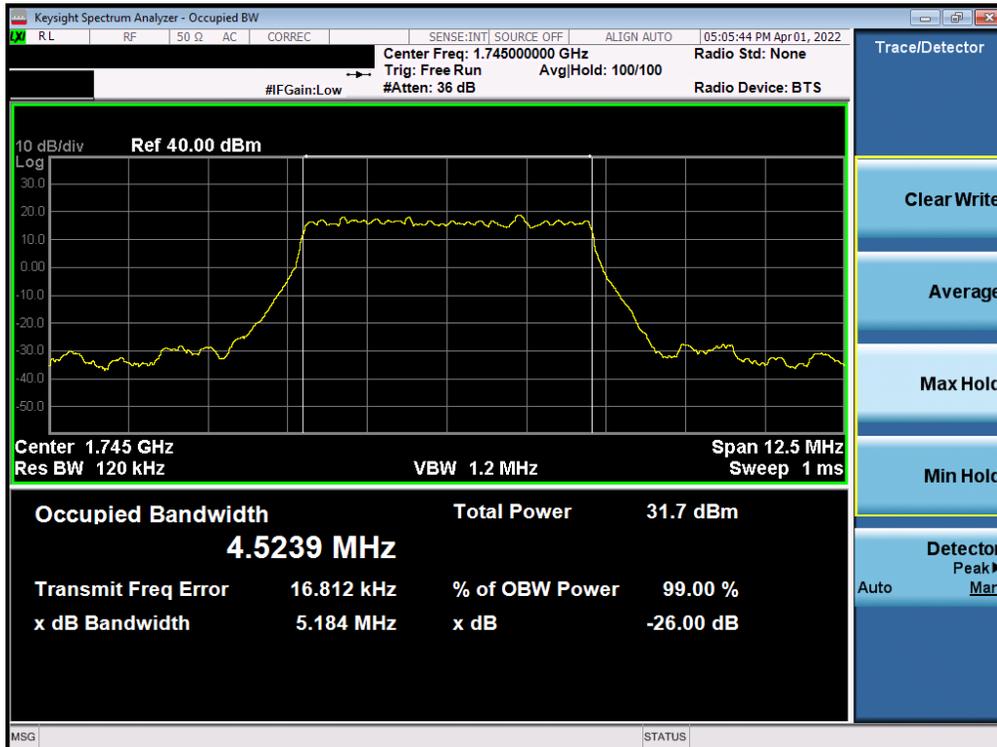


Plot 7-53. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz CP-OFDM QPSK - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 42 of 206

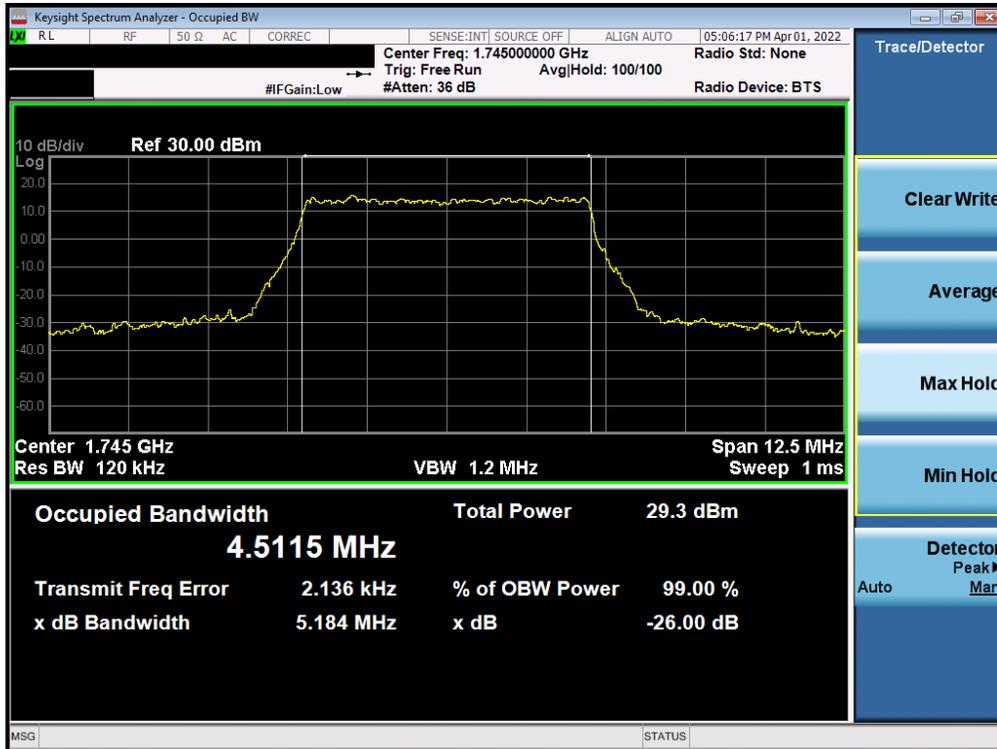


Plot 7-54. Occupied Bandwidth Plot (NR Band n66 - 10.0MHz CP-OFDM 16QAM - Full RB - Main Ant)



Plot 7-55. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz DFT-s-OFDM BPSK - Full RB - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 43 of 206



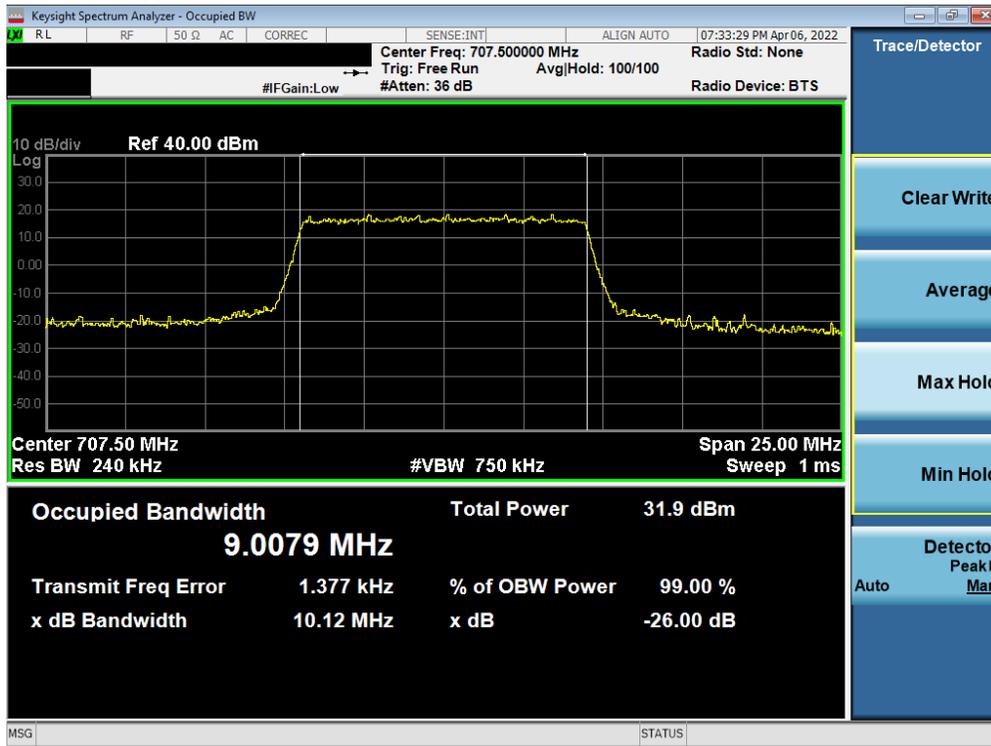
Plot 7-56. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz CP-OFDM QPSK - Full RB – Main Ant)



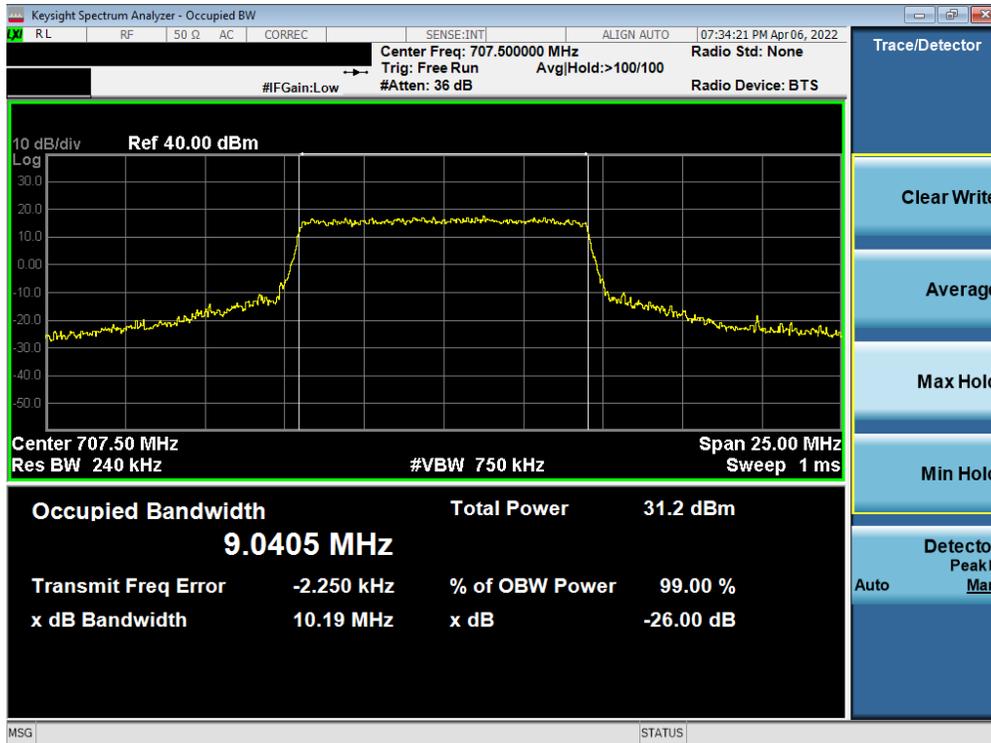
Plot 7-57. Occupied Bandwidth Plot (NR Band n66 - 5.0MHz CP-OFDM 16QAM - Full RB – Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 12/17 – Sub Ant

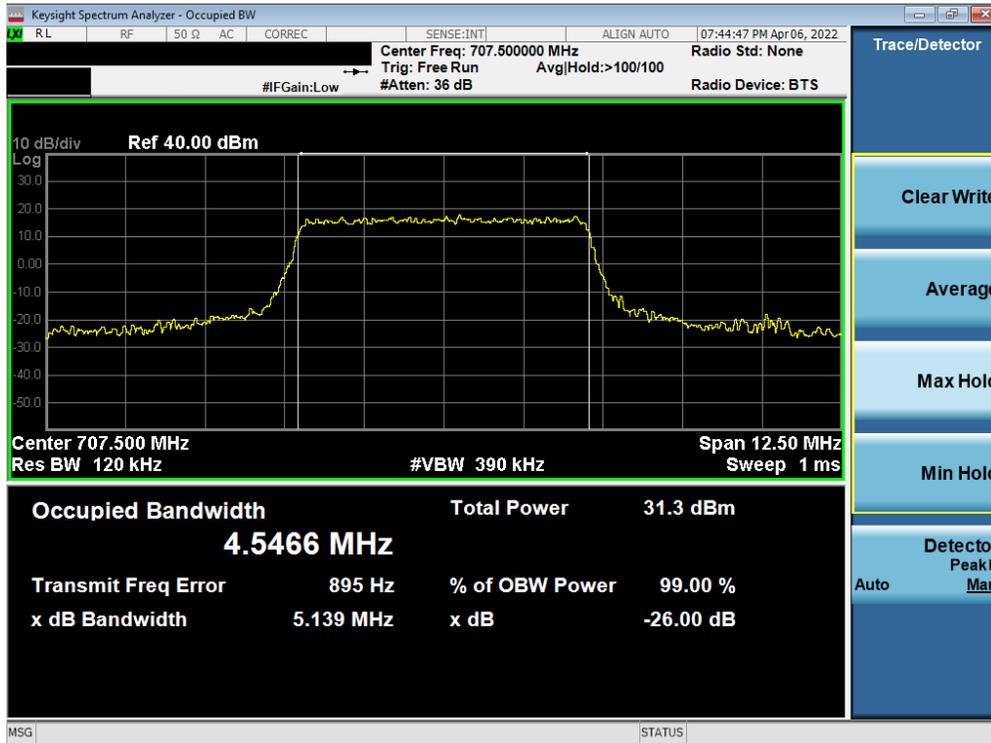


Plot 7-58. Occupied Bandwidth Plot (LTE Band 12/17 - 10MHz QPSK - Full RB – Sub Ant)

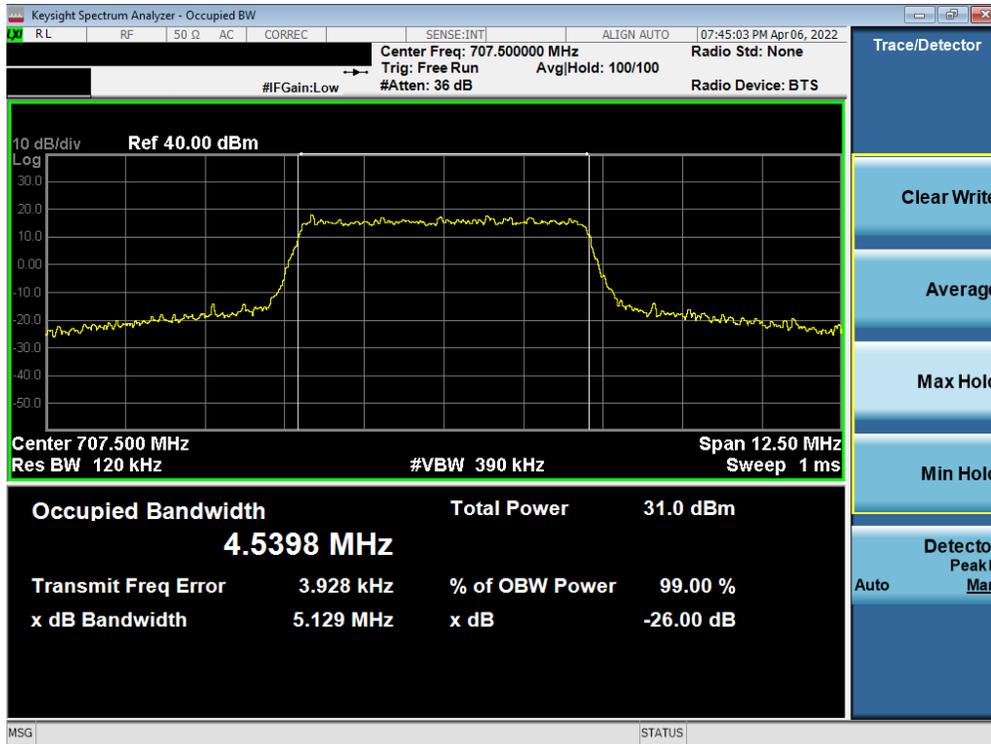


Plot 7-59. Occupied Bandwidth Plot (LTE Band 12/17 - 10MHz 16-QAM - Full RB – Sub Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-60. Occupied Bandwidth Plot (LTE Band 12/17 - 5MHz QPSK - Full RB – Sub Ant)

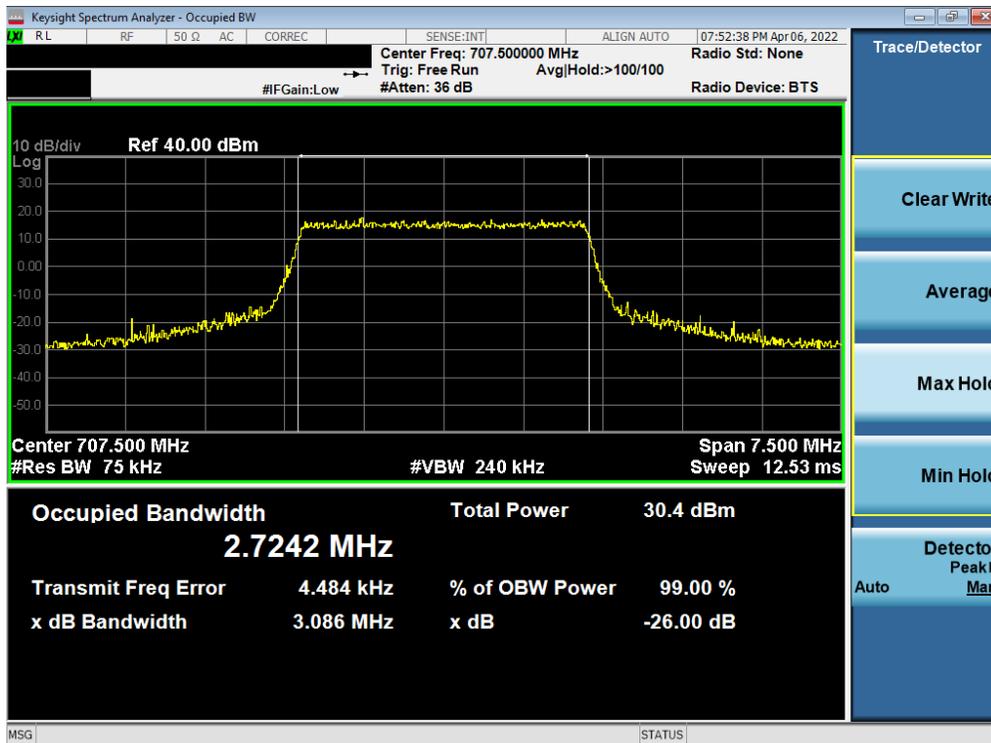


Plot 7-61. Occupied Bandwidth Plot (LTE Band 12/17 - 5MHz 16-QAM - Full RB – Sub Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 46 of 206

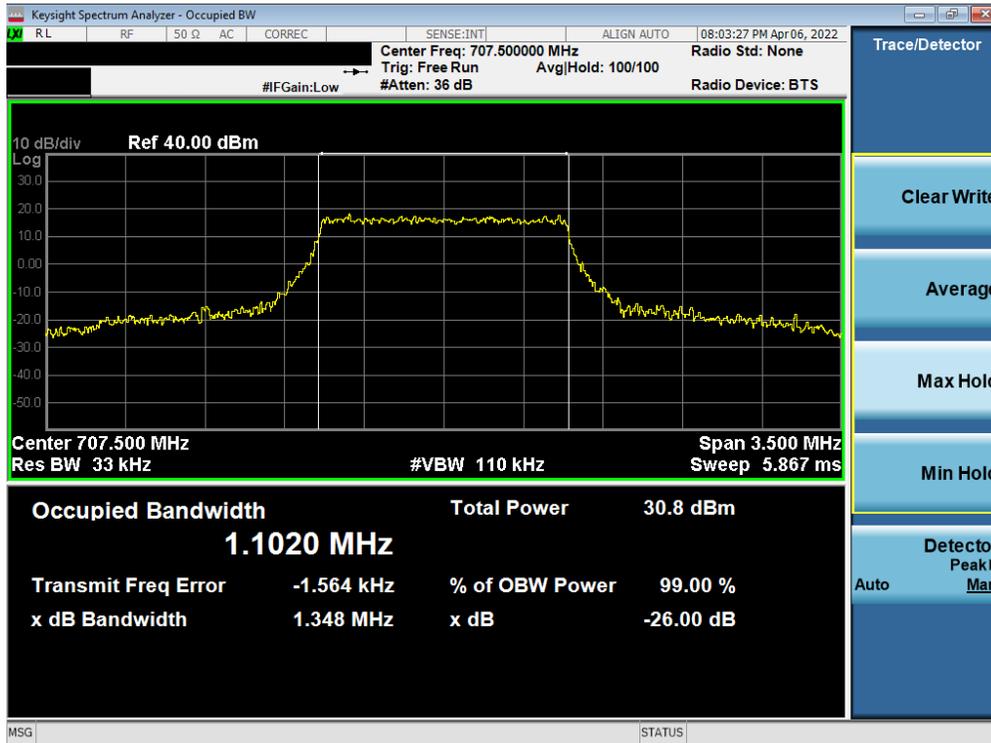


Plot 7-62. Occupied Bandwidth Plot (LTE Band 12 - 3MHz QPSK - Full RB – Sub Ant)

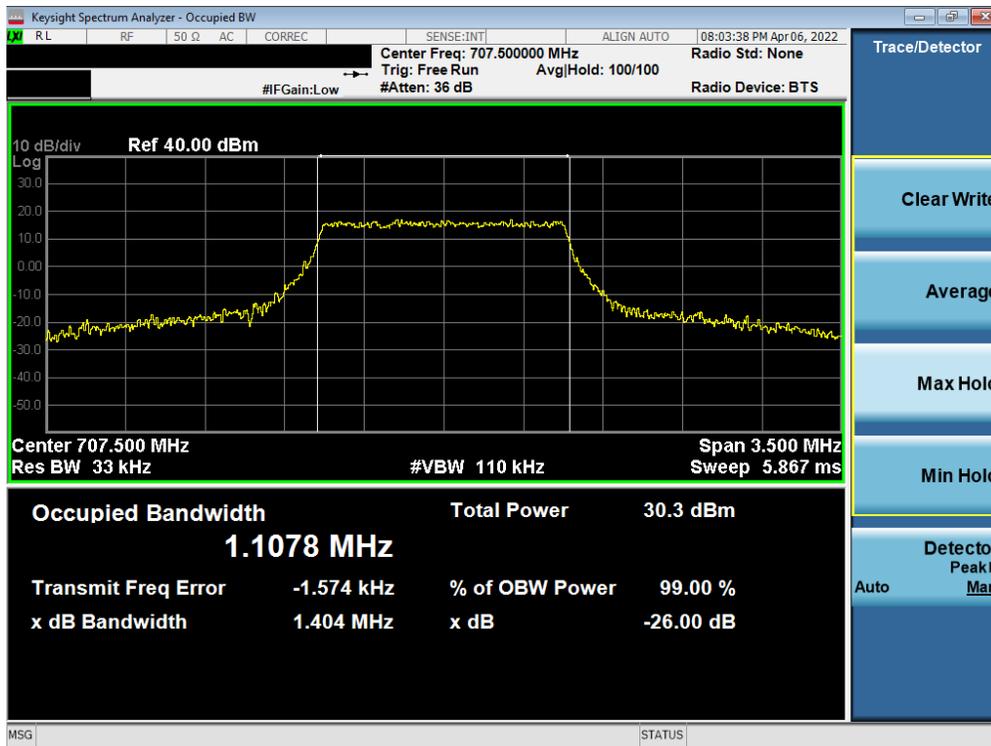


Plot 7-63. Occupied Bandwidth Plot (LTE Band 12 - 3MHz 16-QAM - Full RB - Sub Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 47 of 206



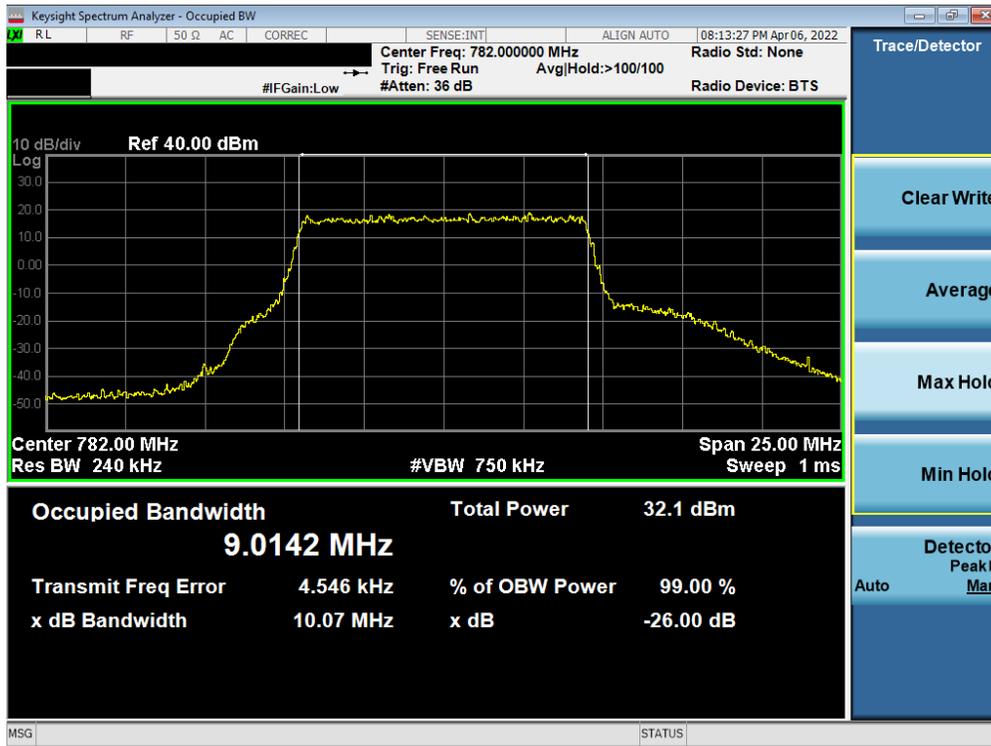
Plot 7-64. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz QPSK - Full RB – Sub Ant)



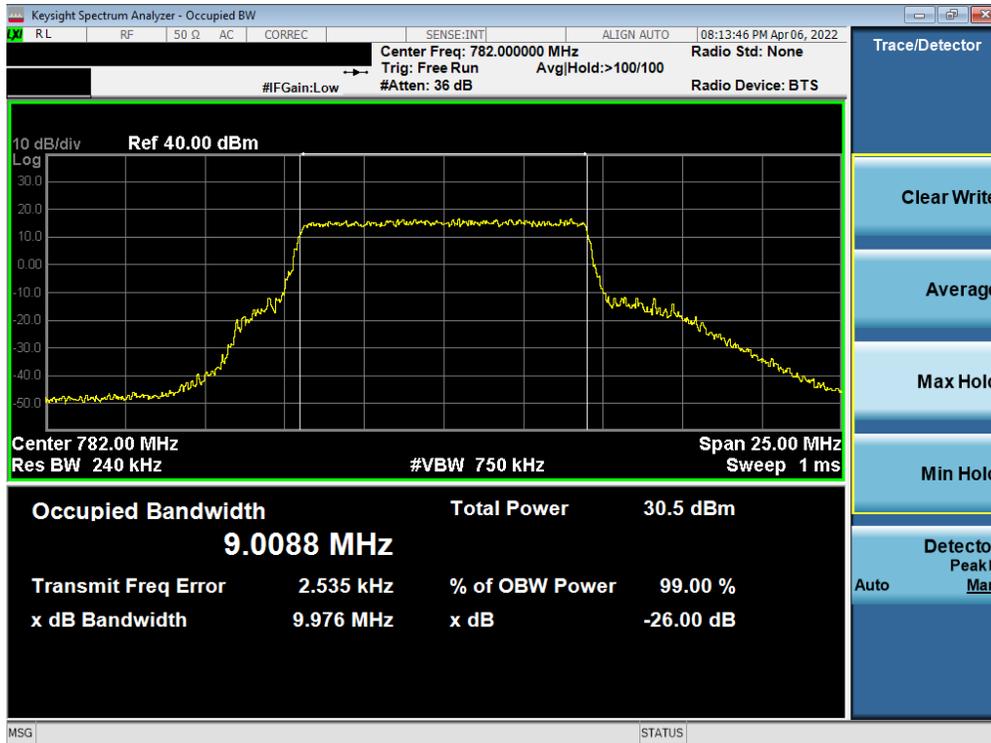
Plot 7-65. Occupied Bandwidth Plot (LTE Band 12 – 1.4MHz 16-QAM - Full RB – Sub Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 13 – Sub Ant

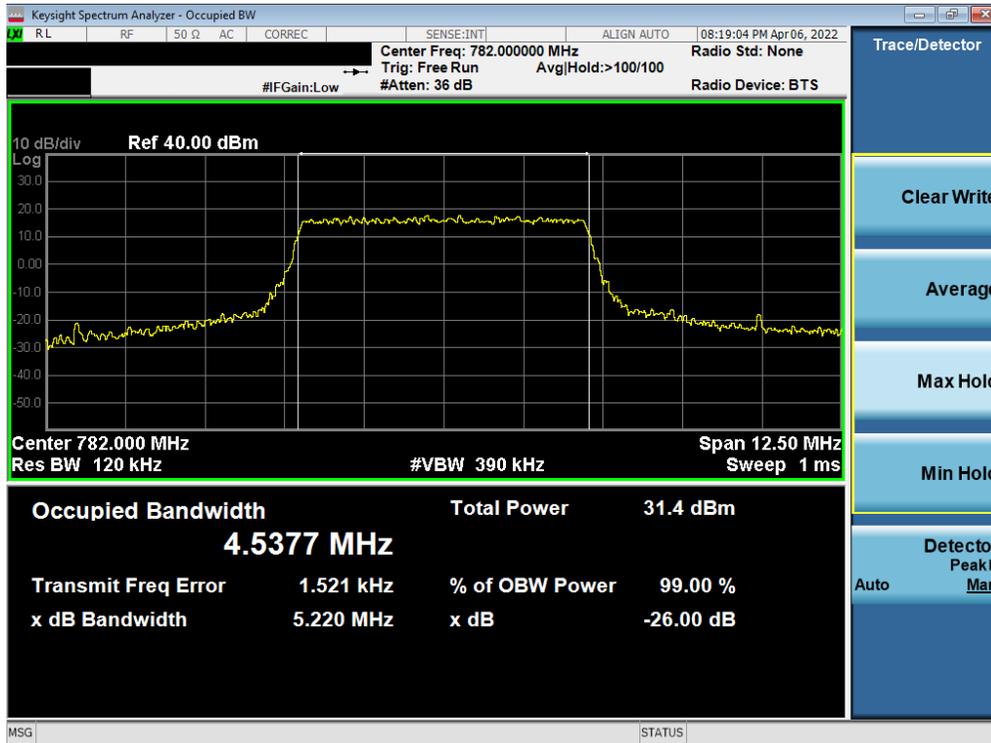


Plot 7-66. Occupied Bandwidth Plot (LTE Band 13 - 10MHz QPSK - Full RB – Sub Ant)

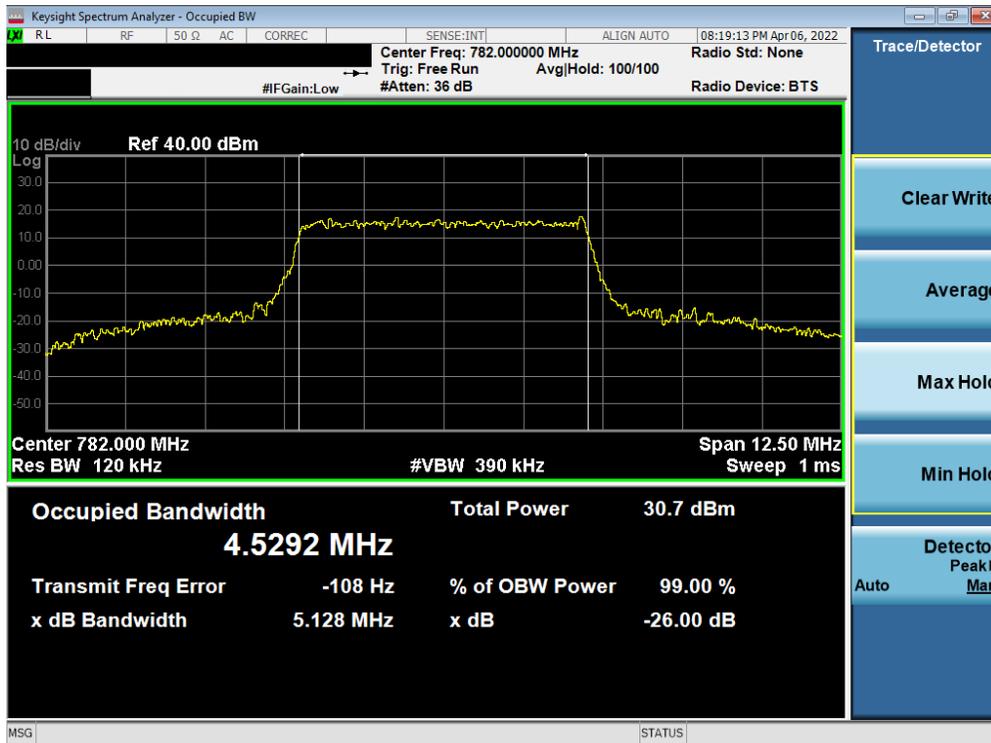


Plot 7-67. Occupied Bandwidth Plot (LTE Band 13 - 10MHz 16-QAM - Full RB – Sub Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-68. Occupied Bandwidth Plot (LTE Band 13 - 5MHz QPSK - Full RB – Sub Ant)



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

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 50 of 206

7.4 Spurious and Harmonic Emissions at Antenna Terminal

Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

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

Test Procedure Used

ANSI C63.26-2015 – Section 5.7.4

Test Settings

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

Test Setup

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

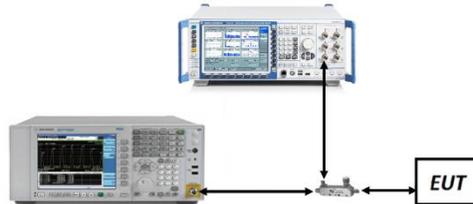


Figure 7-3. Test Instrument & Measurement Setup

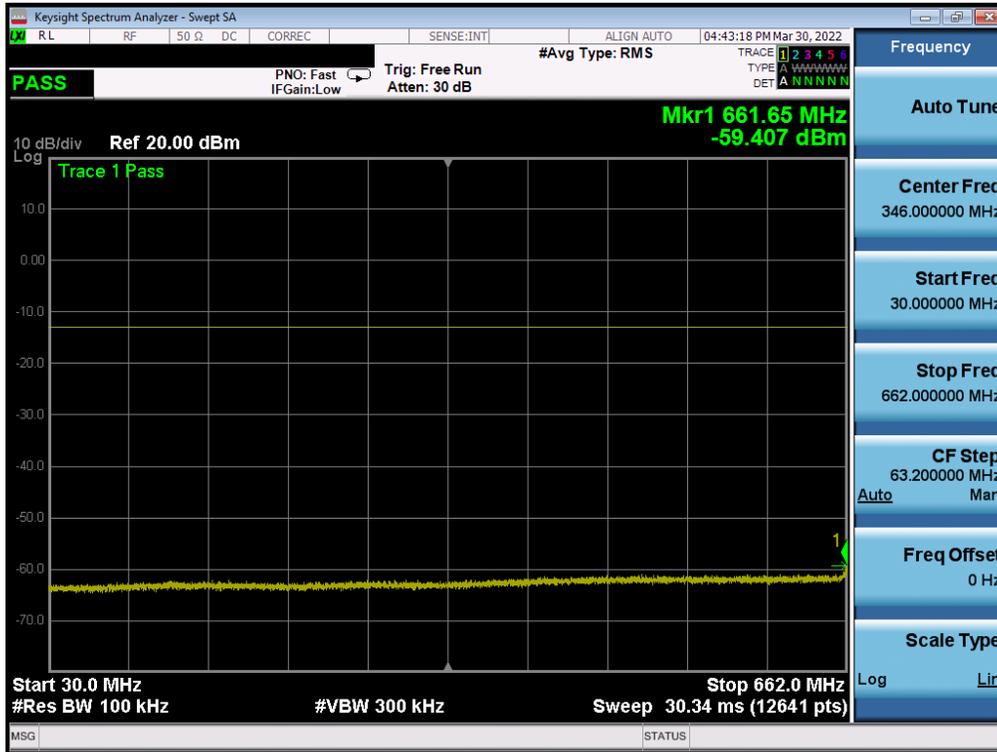
Test Notes

1. Per Part 27 and RSS-139, compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth 100 kHz or greater for measurements below 1GHz.
2. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

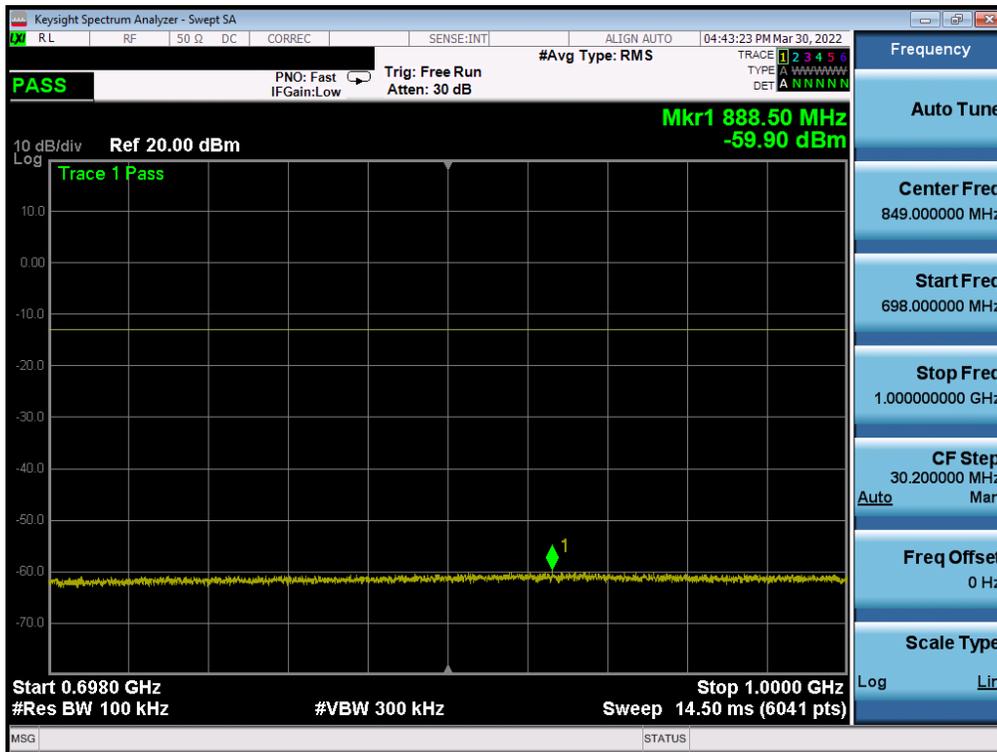
FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 51 of 206

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LTE Band 71 – Main Ant

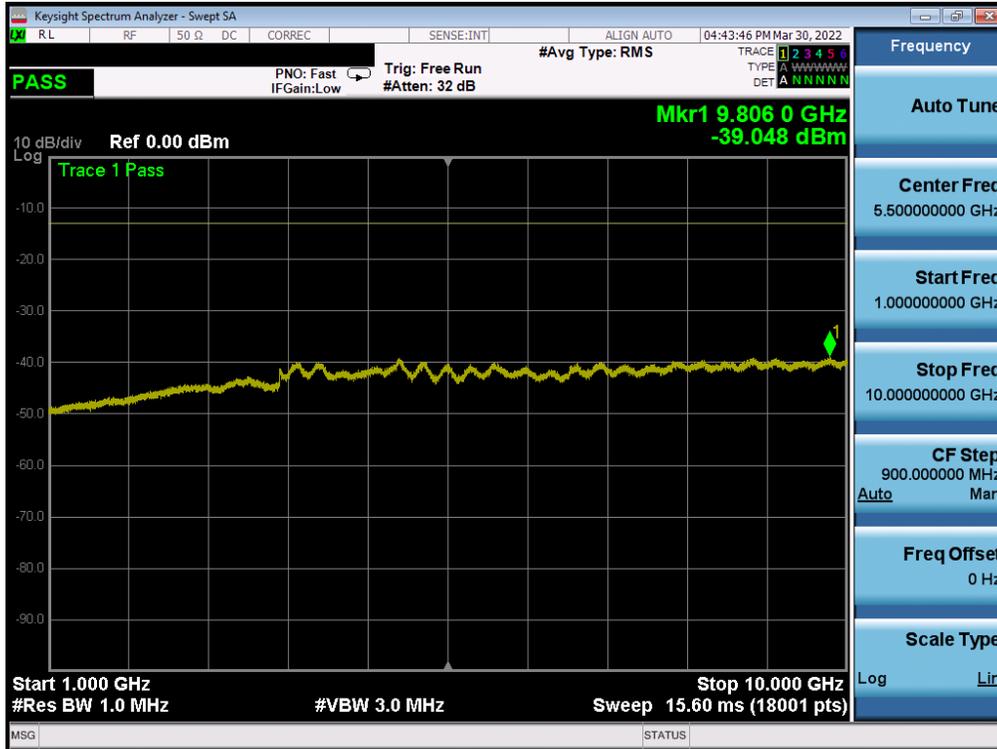


Plot 7-70. Conducted Spurious Plot (LTE Band 71 - 20MHz QPSK - 1 RB - Low Channel - Main Ant)

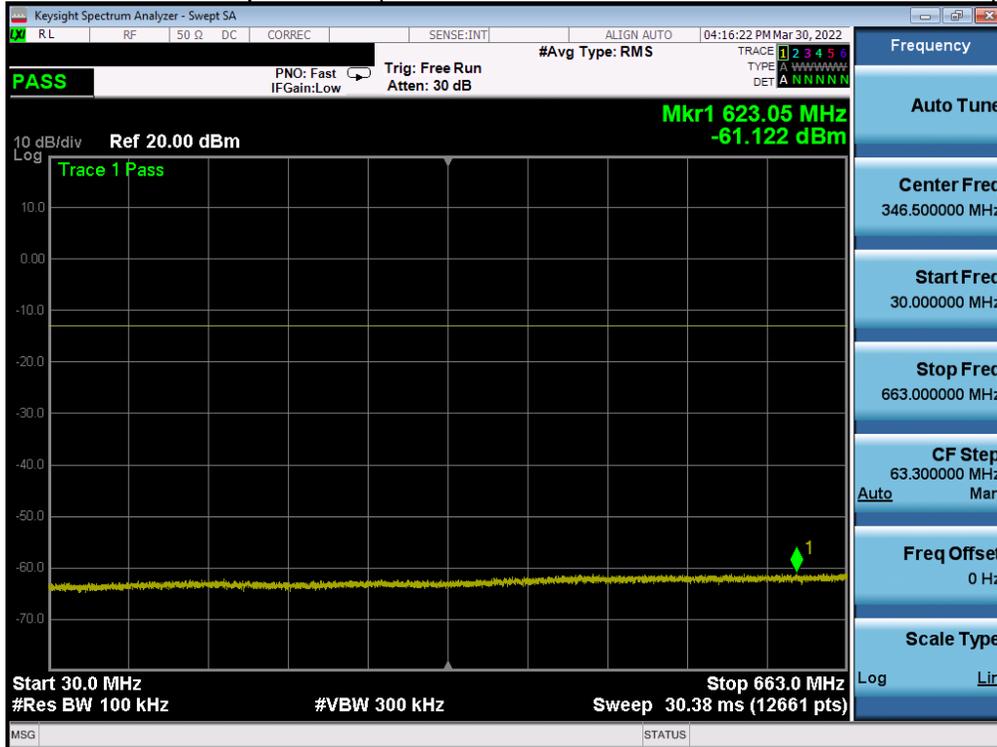


Plot 7-71. Conducted Spurious Plot (LTE Band 71 - 20MHz QPSK - 1 RB - Low Channel - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 52 of 206

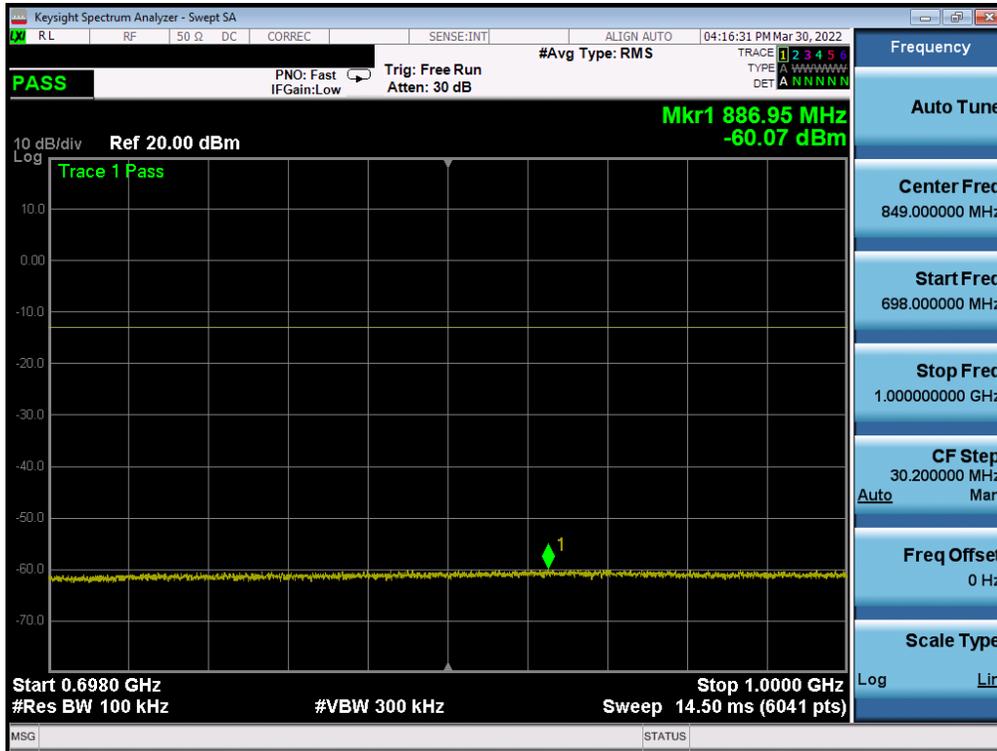


Plot 7-72. Conducted Spurious Plot (LTE Band 71 - 20MHz QPSK - 1 RB - Low Channel - Main Ant)

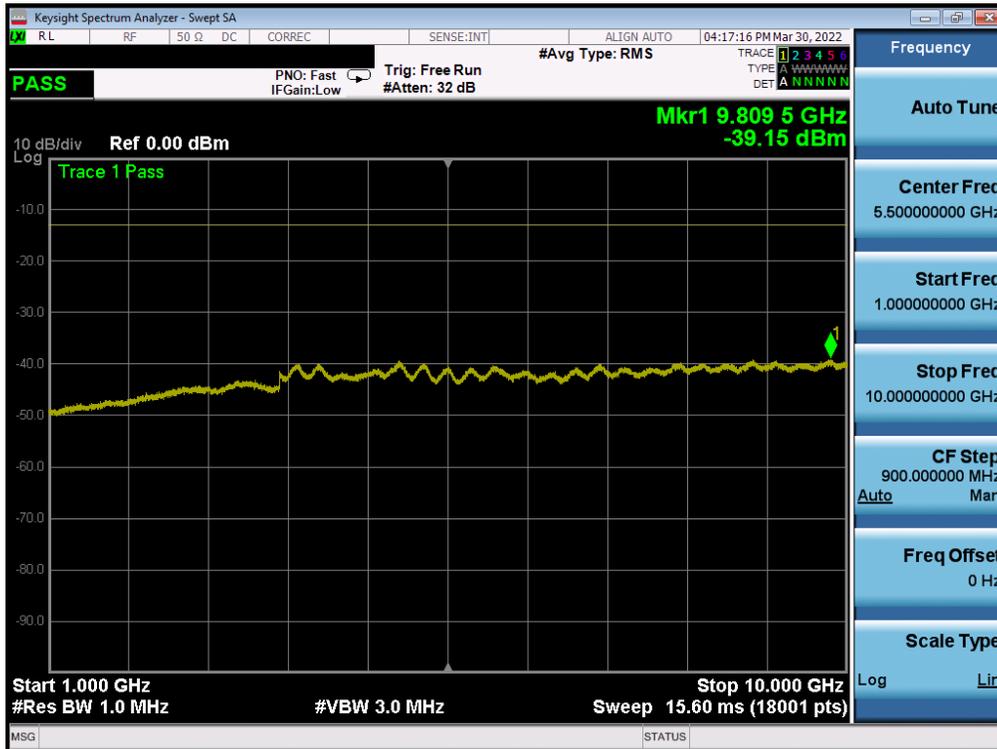


Plot 7-73. Conducted Spurious Plot (LTE Band 71 - 20MHz QPSK - 1 RB - Mid Channel - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 53 of 206

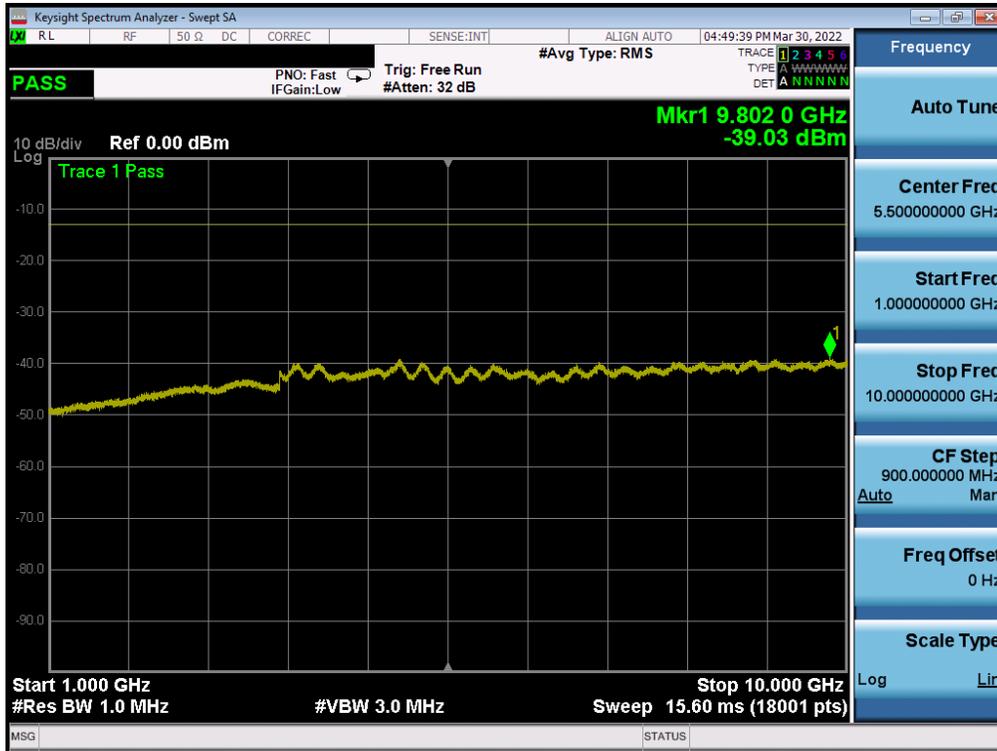


Plot 7-74. Conducted Spurious Plot (LTE Band 71 - 20MHz QPSK - 1 RB - Mid Channel - Main Ant)



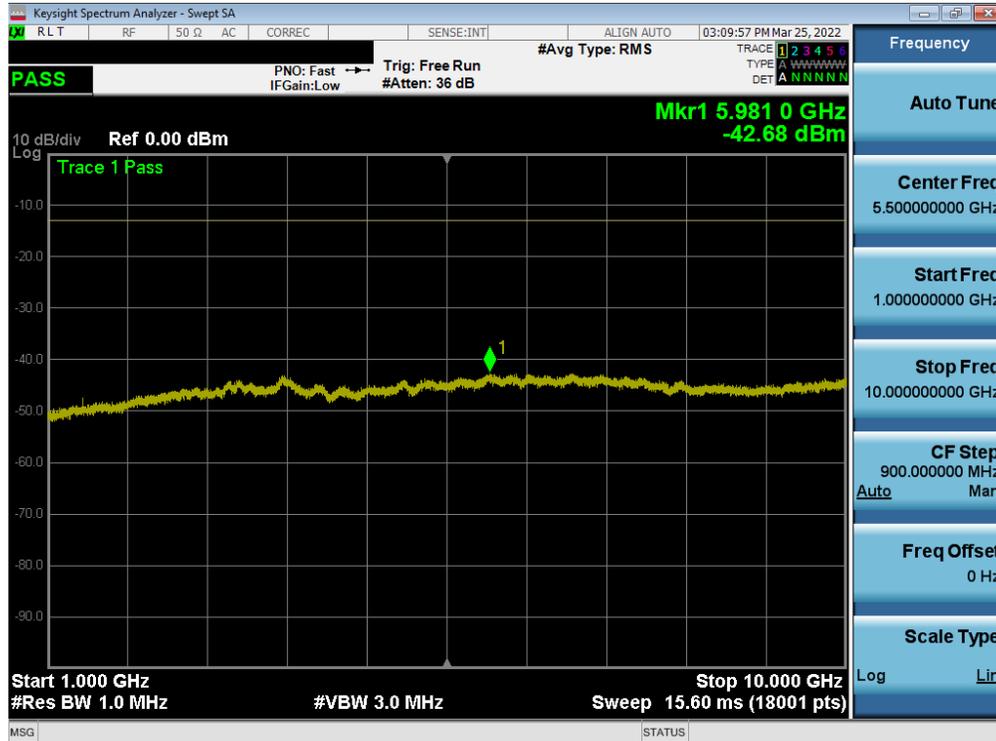
Plot 7-75. Conducted Spurious Plot (LTE Band 71 - 20MHz QPSK - 1 RB - Mid Channel - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 54 of 206

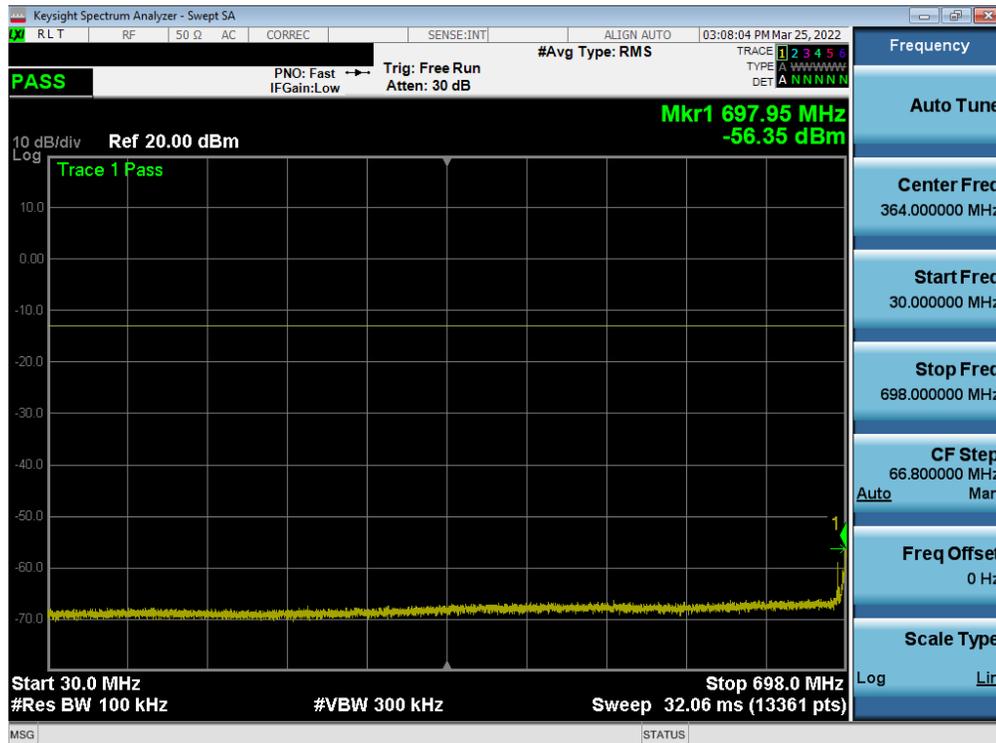


Plot 7-78. Conducted Spurious Plot (LTE Band 71 - 20MHz QPSK - 1 RB - High Channel - Main Ant)

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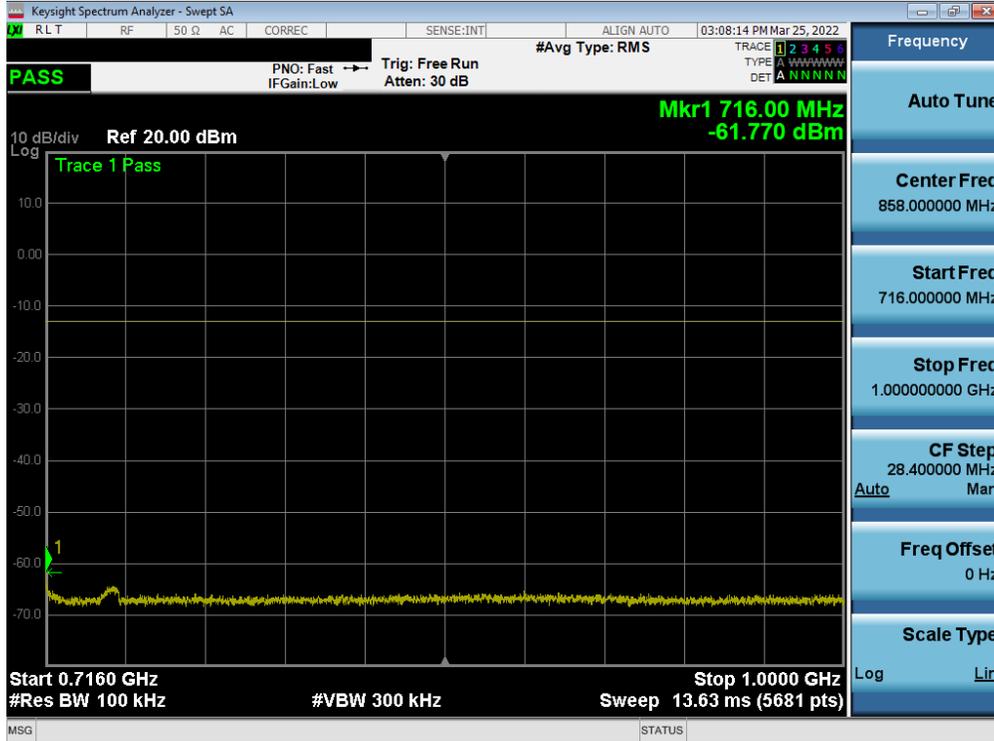


Plot 7-81. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - Low Channel - Main Ant)

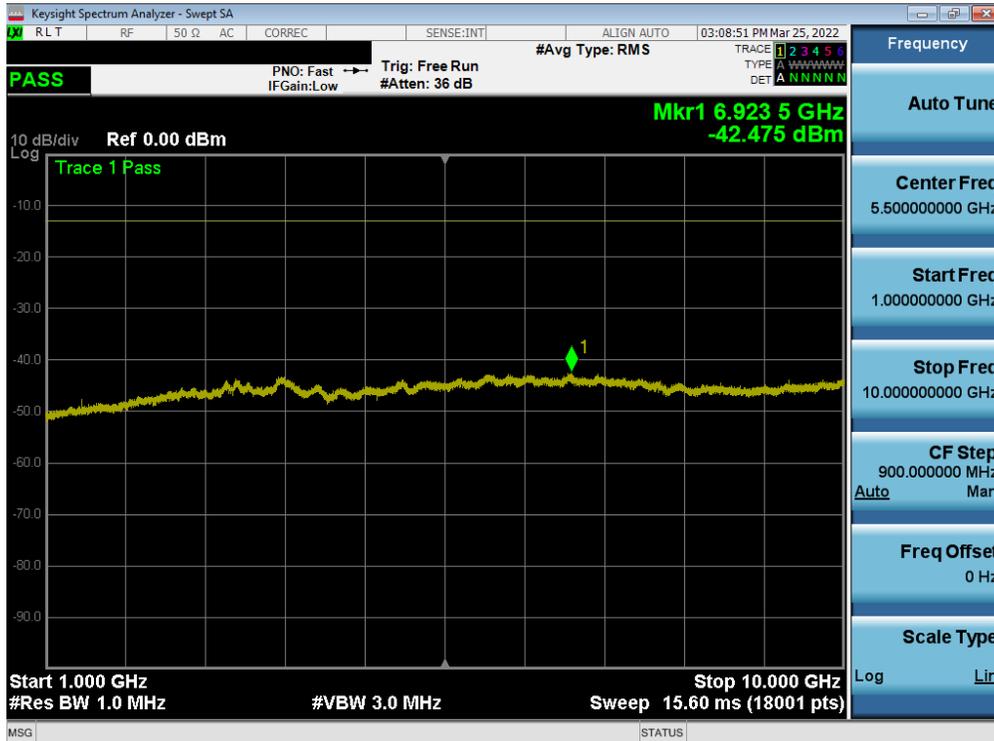


Plot 7-82. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - Mid Channel - Main Ant)

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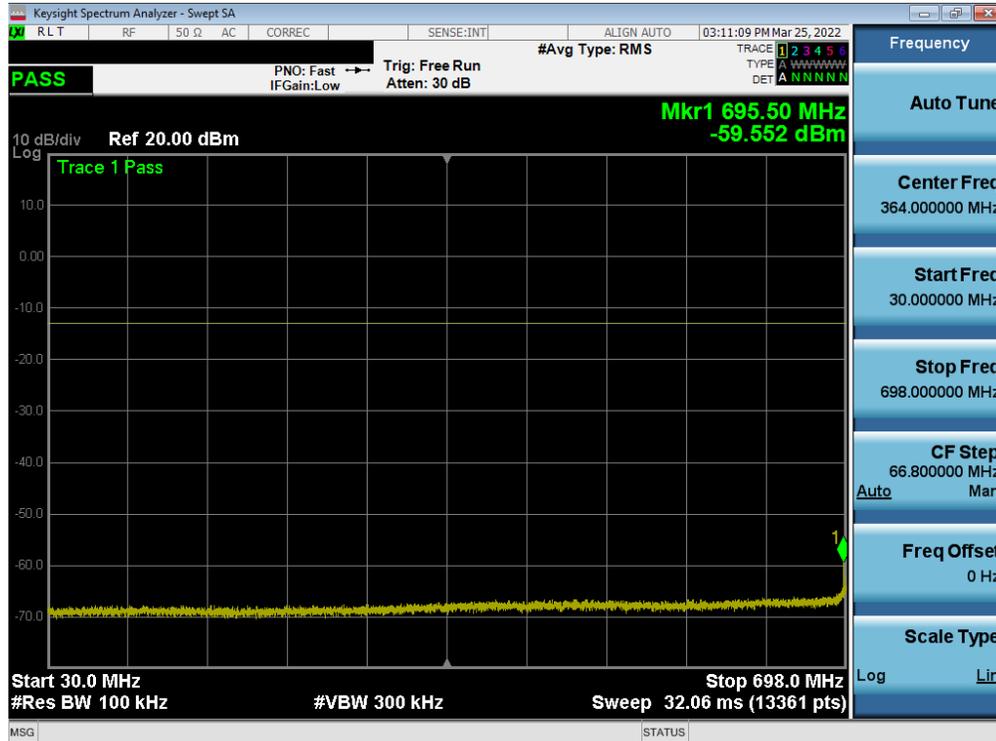


Plot 7-83. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - Mid Channel - Main Ant)

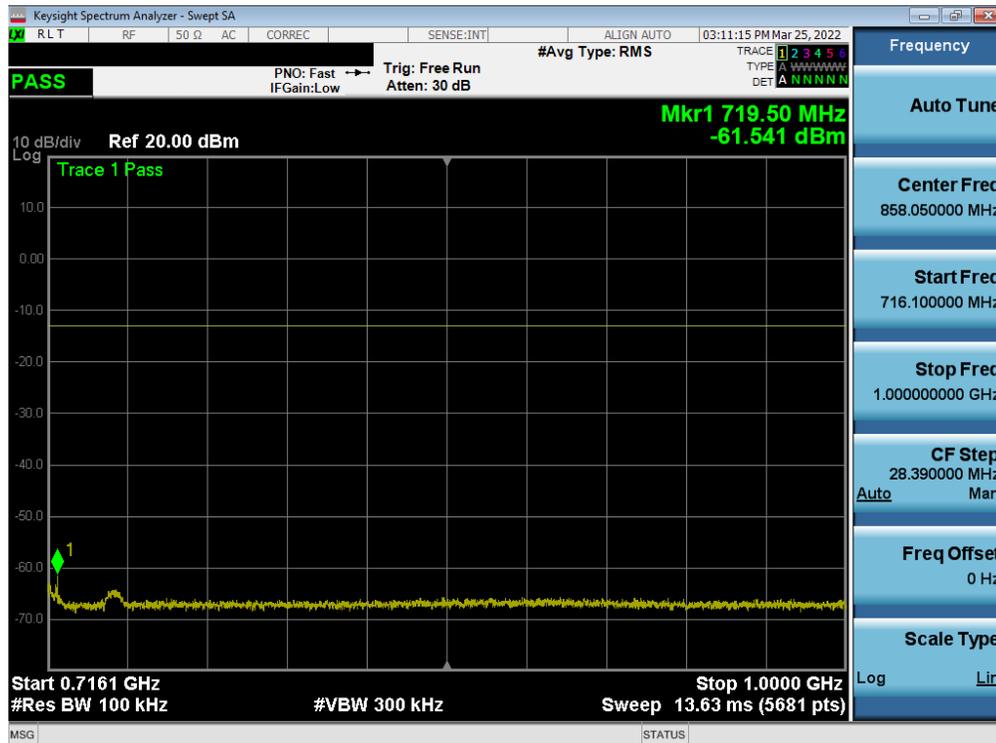


Plot 7-84. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - Mid Channel - Main Ant)

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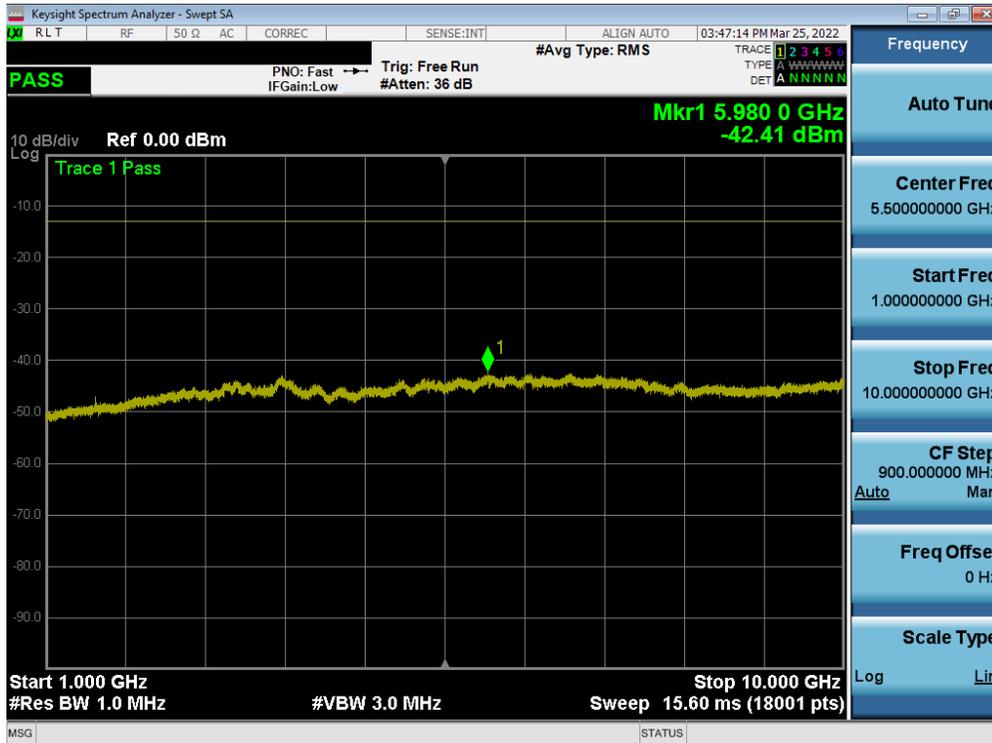


Plot 7-85. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - High Channel - Main Ant)



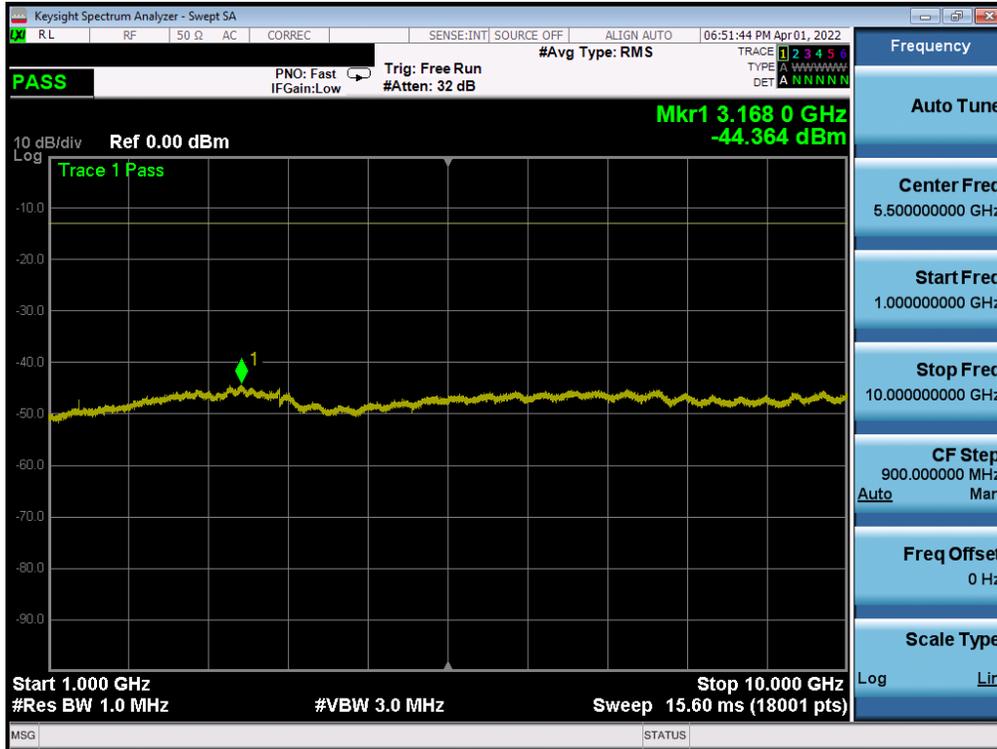
Plot 7-86. Conducted Spurious Plot (LTE Band 12/17 - 10MHz QPSK - 1 RB - High Channel - Main Ant)

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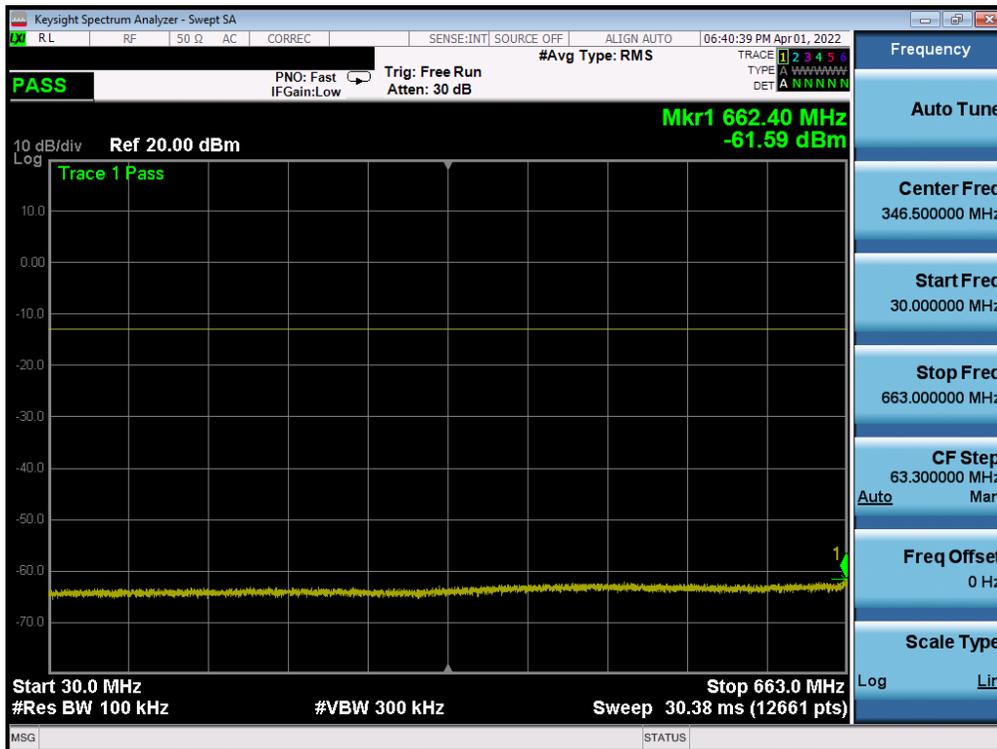


Plot 7-90. Conducted Spurious Plot (LTE Band 13 - 10MHz QPSK - 1 RB)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 63 of 206

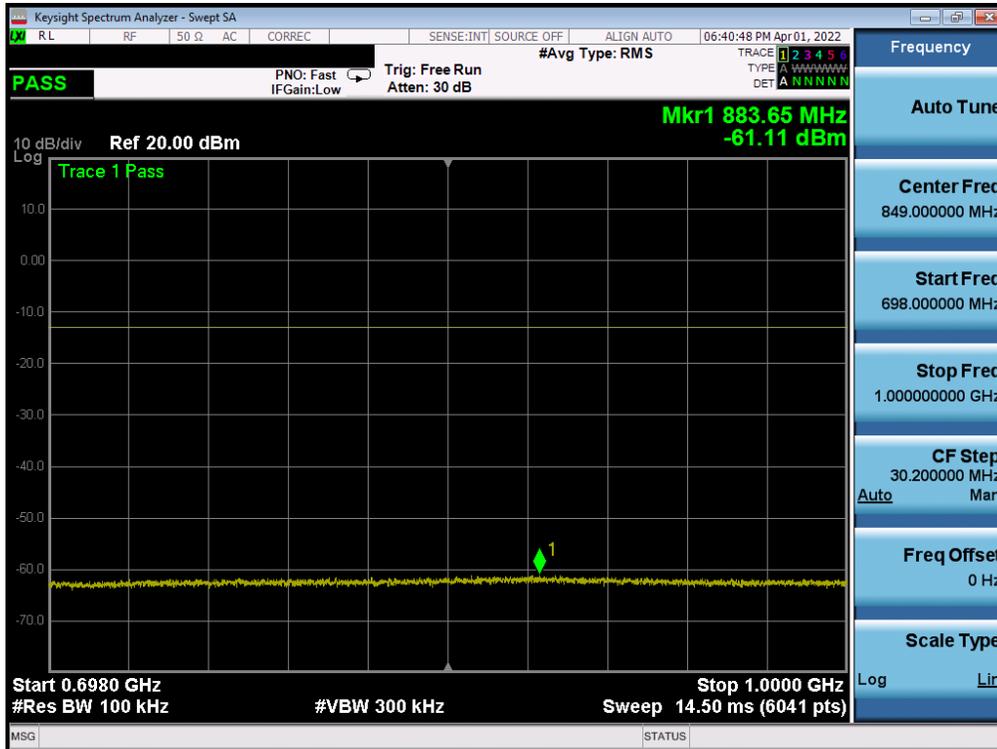


Plot 7-93. Conducted Spurious Plot (NR Band n71 - 20.0MHz - 1 RB - Low Channel - Main Ant)

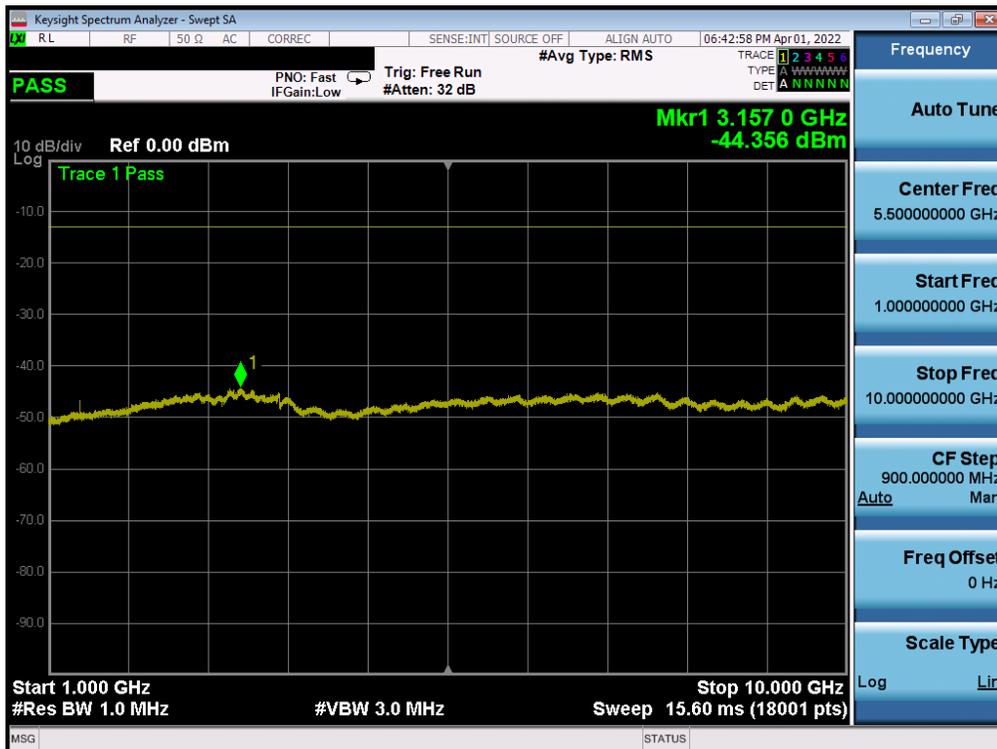


Plot 7-94. Conducted Spurious Plot (NR Band n71 - 20.0MHz - 1 RB - Mid Channel - Main Ant)

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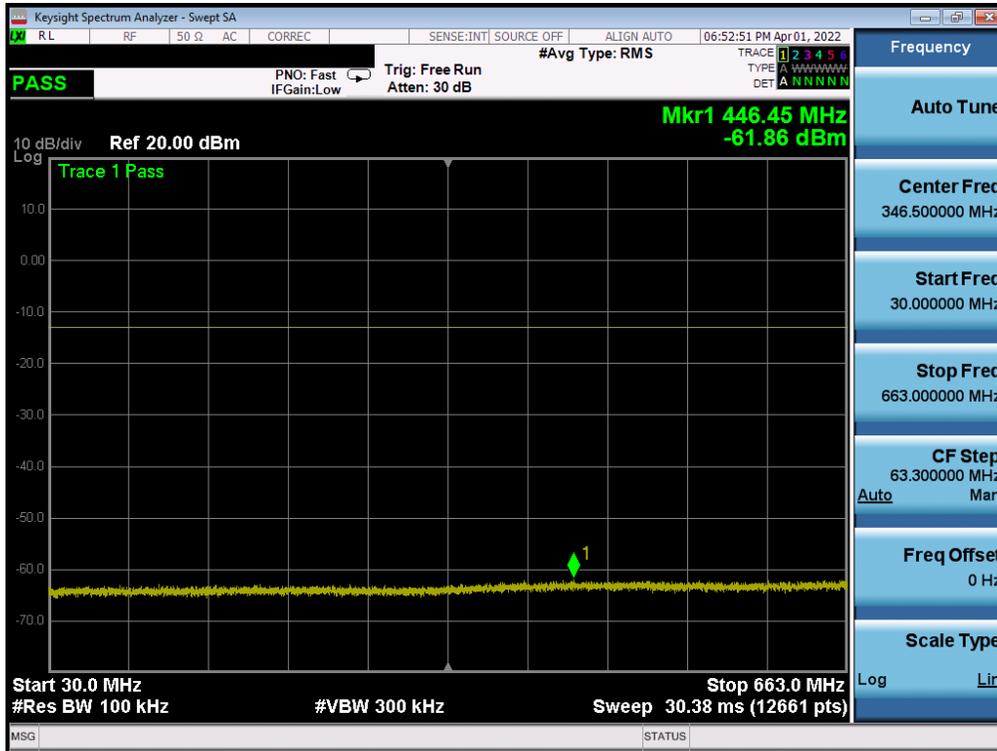


Plot 7-95. Conducted Spurious Plot (NR Band n71 - 20.0MHz - 1 RB - Mid Channel - Main Ant)

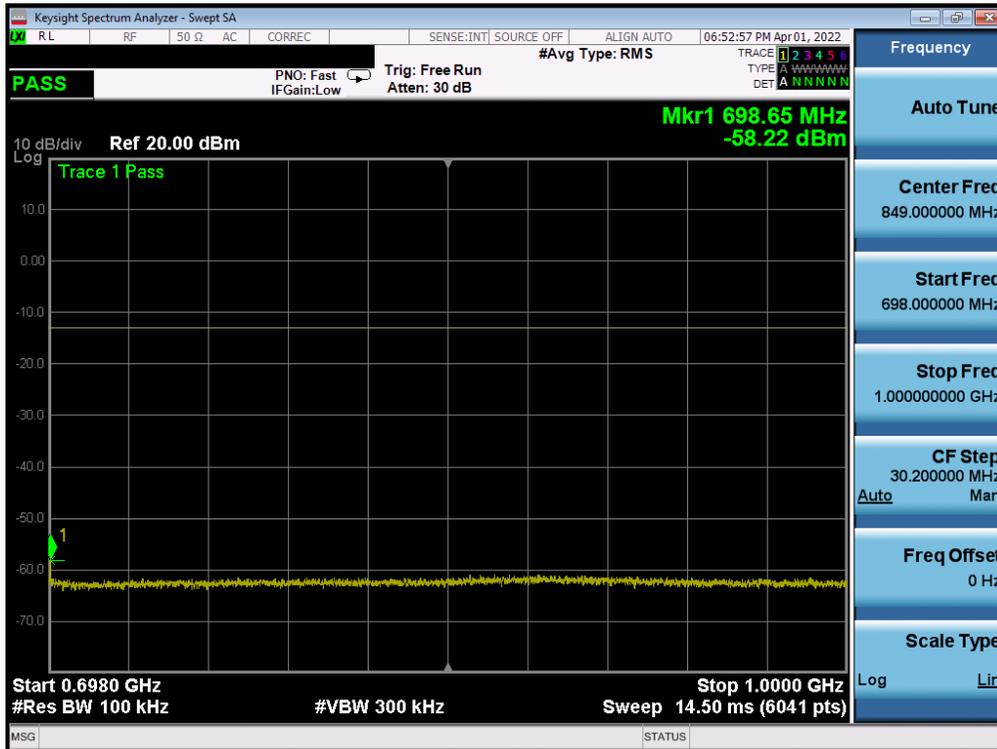


Plot 7-96. Conducted Spurious Plot (NR Band n71 - 20.0MHz - 1 RB - Mid Channel - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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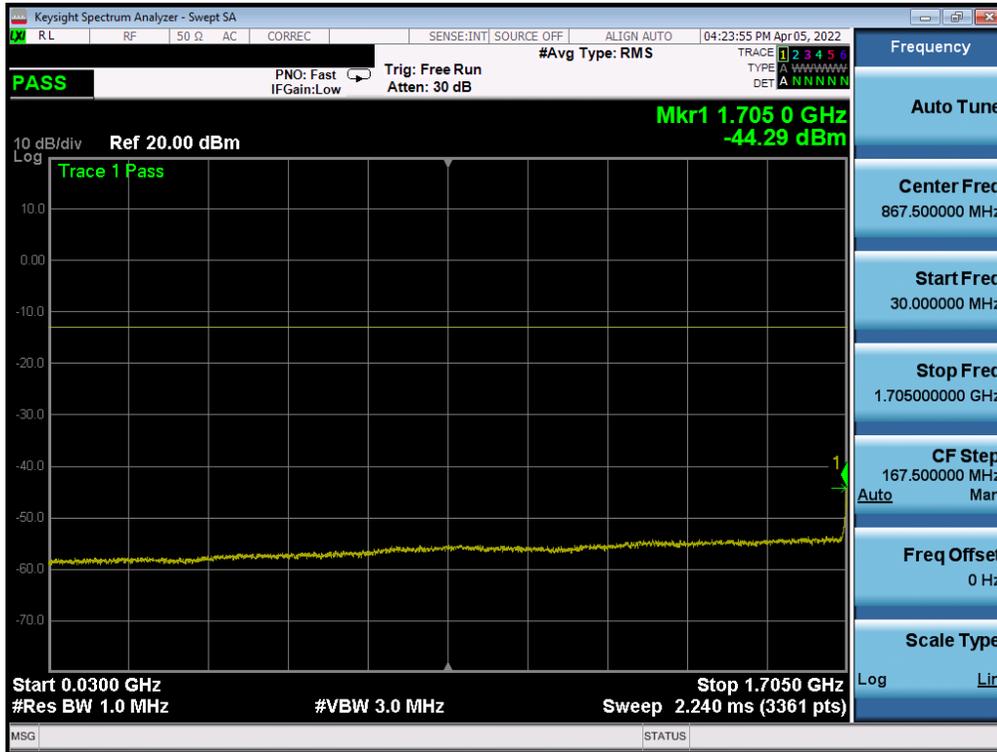
Plot 7-97. Conducted Spurious Plot (NR Band n71 - 20.0MHz - 1 RB - High Channel - Main Ant)



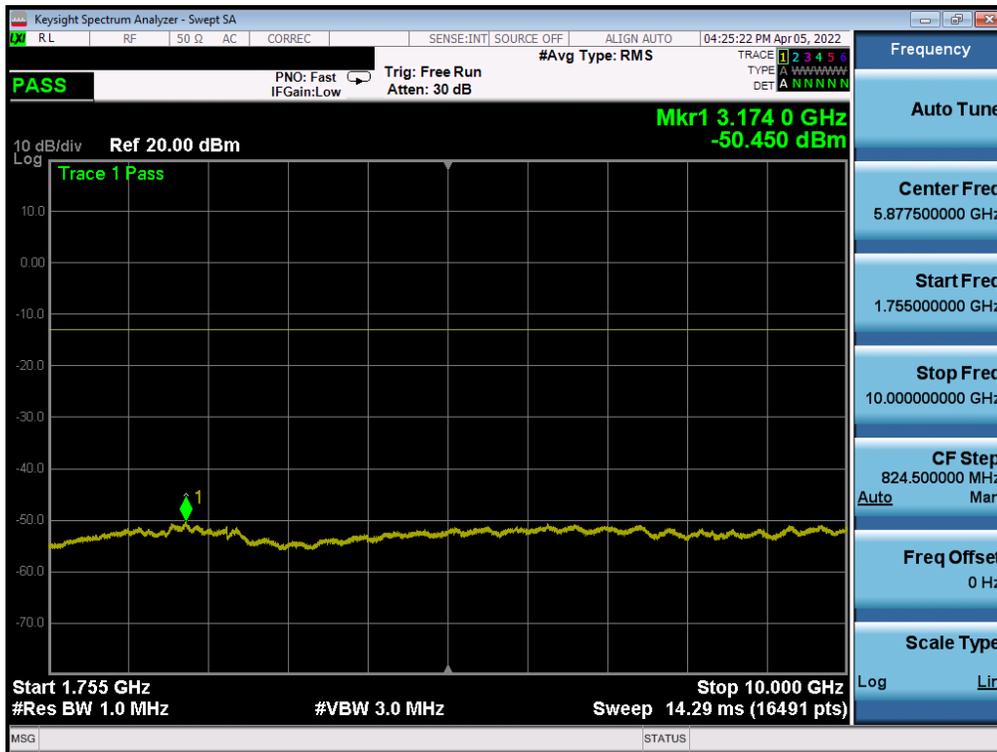
Plot 7-98. Conducted Spurious Plot (NR Band n71 - 20.0MHz - 1 RB - High Channel - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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WCDMA AWS – Main Ant



Plot 7-100. Conducted Spurious Plot (WCDMA Ch. 1312- Low Channel - Main Ant)

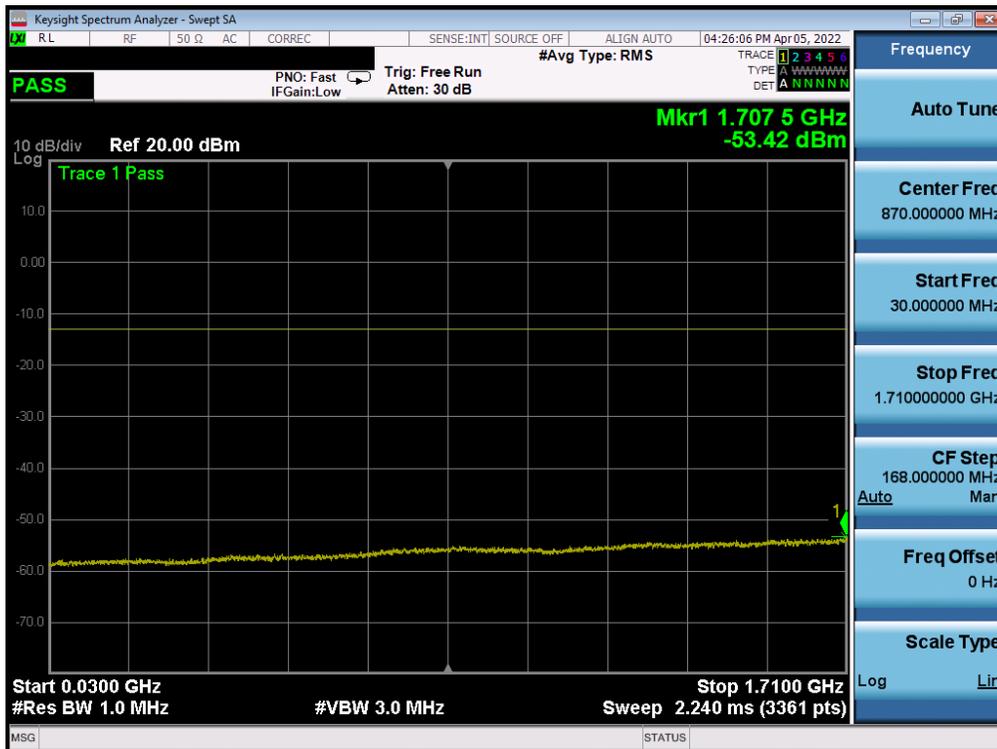


Plot 7-101. Conducted Spurious Plot (WCDMA Ch. 1312- Low Channel - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 69 of 206

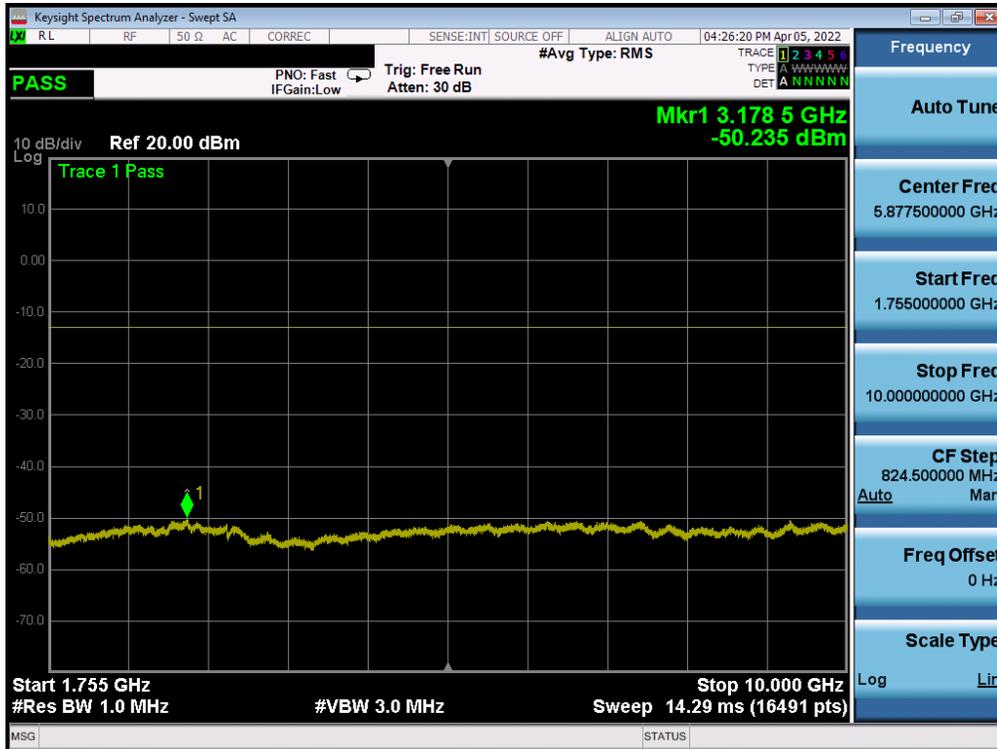


Plot 7-102. Conducted Spurious Plot (WCDMA Ch. 1312- Low Channel - Main Ant)



Plot 7-103. Conducted Spurious Plot (WCDMA Ch. 1413- Mid Channel - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-104. Conducted Spurious Plot (WCDMA Ch. 1413- Mid Channel - Main Ant)



Plot 7-105. Conducted Spurious Plot (WCDMA Ch. 1413- Mid Channel - Main Ant)

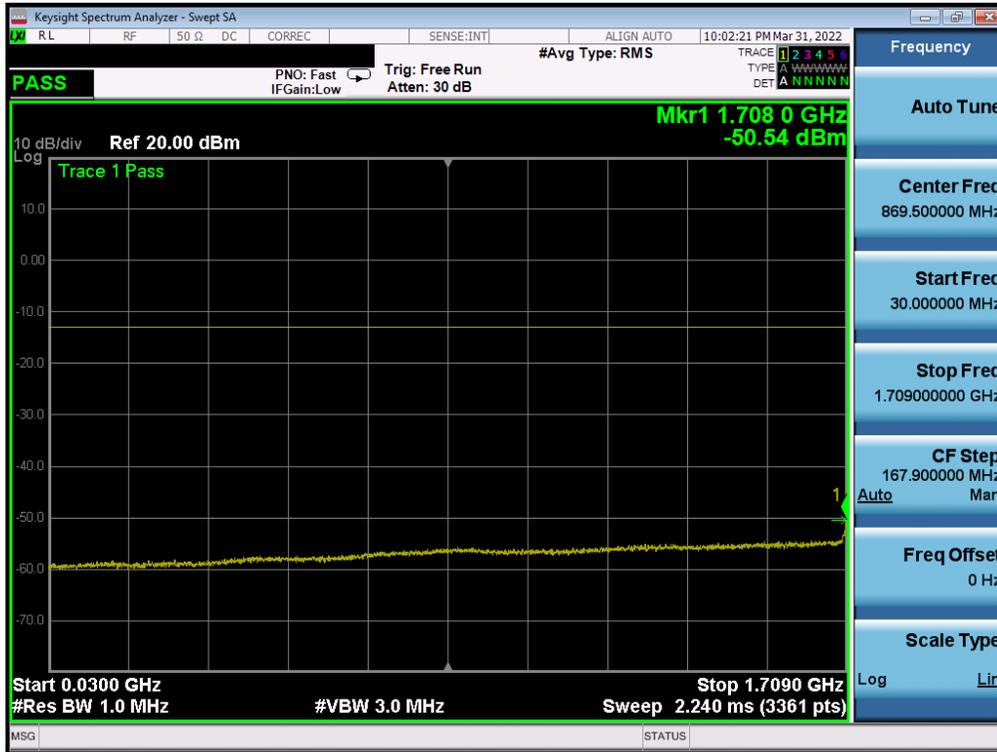
FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2201200003-07.PY7	Test Dates: 03/25/2022 - 05/21/2022	EUT Type: Portable Handset	Page 71 of 206



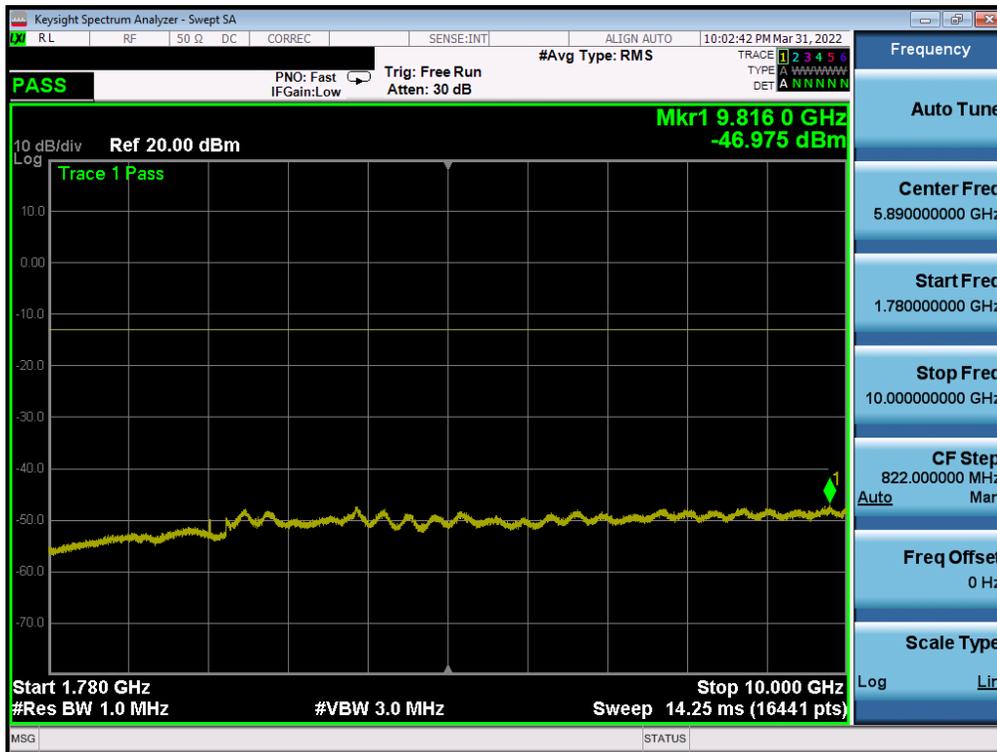
Plot 7-108. Conducted Spurious Plot (WCDMA Ch. 1513- High Channel - Main Ant)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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LTE Band 66/4 – Main Ant



Plot 7-109. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - Low Channel – Main Ant)



Plot 7-110. Conducted Spurious Plot (LTE Band 66/4 - 20MHz QPSK - 1 RB - Low Channel – Main Ant)

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