



ELEMENT WASHINGTON DC LLC

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PART 27 MEASUREMENT REPORT

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

Date of Testing:
05/05/2022 - 07/12/2022
Test Report Issue Date:
07/14/2022
Test Site/Location:
Element, Columbia, MD, USA
Test Report Serial No.:
1M2206010068-01-R1.PY7

FCC ID:	PY7-57325M
Applicant Name:	SONY Corporation

Application Type: Class II Permissive Change
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
Class II Permissive Change: Please see FCC change document
Original Grant Date: 06/17/2022

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.

This revised Test Report (S/N: 1M2206010068-01-R1.PY7) supersedes and replaces the previously issued test report (S/N: 1M2206010068-01.PY7) on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose of it accordingly.

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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Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP	
				Max. Power [W]	Max. Power [dBm]
UL-MIMO NR Band n41 (PC3)	100 MHz	QPSK	2546.0 - 2640.0	0.041	16.09
		16QAM	2546.0 - 2640.0	0.036	15.52
	90 MHz	QPSK	2541.0 - 2645.0	0.041	16.16
		16QAM	2541.0 - 2645.0	0.035	15.38
	80 MHz	QPSK	2536.0 - 2650.0	0.041	16.13
		16QAM	2536.0 - 2650.0	0.036	15.51
	60 MHz	QPSK	2526.0 - 2660.0	0.042	16.27
		16QAM	2526.0 - 2660.0	0.036	15.56
	50 MHz	QPSK	2521.0 - 2665.0	0.044	16.40
		16QAM	2521.0 - 2665.0	0.036	15.61
	40 MHz	QPSK	2516.0 - 2670.0	0.044	16.40
		16QAM	2516.0 - 2670.0	0.035	15.45
	30 MHz	QPSK	2511.0 - 2675.0	0.042	16.28
		16QAM	2511.0 - 2675.0	0.036	15.61
	20 MHz	QPSK	2506.0 - 2680.0	0.039	15.88
		16QAM	2506.0 - 2680.0	0.034	15.30

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.: 005EAZ, 00QAZ, 00KC5

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, UL-MIMO (n41 and n77)

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: F7U050 while operating under normal conditions in a simulated call or data transmission configuration. The worst case radiated emissions data is shown in this report.

2.4 Software and Firmware

Testing was performed on device(s) using software/firmware version 0.1309 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	MT8000A	Radio Communication Test Station	N/A			6261914237
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
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	8/3/2021	Annual	8/3/2022	100342
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

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
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 (NR Band n41)	2.1051, 27.53(m)(4)	Undesirable emissions must meet the limits detailed in 27.53(m)(4)	PASS	Sections 7.4, 7.5
RADIATED	Equivalent Isotropic Radiated Power (NR Band n41)	27.50(h)(2)	≤ 2 Watts max. EIRP	PASS	Section 7.6
	Radiated Spurious Emissions (NR Band n41)	2.1053, 27.53(m)(4)	Undesirable emissions must meet the limits detailed in 27.53(m)	PASS	Section 7.7

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

Notes:

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst-case emissions.
- 2) The analyzer plots were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.
- 4) All conducted emissions measurements are performed with automated test software to capture the corresponding plots necessary to show compliance. The measurement software utilized is EMC Software Tool v1.0.
- 5) This device supports n41 operation over two antennas simultaneously. The data in this section is marked as "Main" or "Sub"

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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. For 16-QAM and 64-QAM the conducted powers have the same targets, which the reports show only 16-QAM modulation.

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Bandwidth	Modulation	Channel	Frequency [MHz]	Main RB Size/Offset	Main Conducted Power [dBm]	Sub RB Size/Offset	Sub Conducted Power [dBm]	UL-MIMO Conducted Power [dBm]
100 MHz	QPSK	510000	2550.0	1 / 68	20.16	1 / 68	19.90	23.04
		518598	2593.0	1 / 68	20.04	1 / 68	19.75	22.91
		528000	2640.0	1 / 68	19.85	1 / 68	19.66	22.77
	16-QAM	510000	2550.0	1 / 68	20.47	1 / 68	20.41	23.45
		518598	2593.0	1 / 68	20.47	1 / 68	20.29	23.39
		528000	2640.0	1 / 68	20.46	1 / 68	20.02	23.26
	64-QAM	510000	2550.0	1 / 68	20.45	1 / 68	20.18	23.33
		518598	2593.0	1 / 68	20.33	1 / 68	20.21	23.28
		528000	2640.0	1 / 68	20.12	1 / 68	19.96	23.05
	256-QAM	510000	2550.0	1 / 68	19.58	1 / 68	18.98	22.30
		518598	2593.0	1 / 68	19.40	1 / 68	19.05	22.24
		528000	2640.0	1 / 68	19.24	1 / 68	18.85	22.06
90 MHz	QPSK	509000	2545.0	1 / 61	20.05	1 / 61	19.89	22.98
		518592	2593.0	1 / 61	19.99	1 / 61	20.04	23.02
		529002	2645.0	1 / 61	19.88	245 / 0	19.60	22.75
	16-QAM	509000	2545.0	1 / 61	20.49	1 / 61	20.41	23.46
		518592	2593.0	1 / 61	20.41	1 / 61	20.06	23.25
		529002	2645.0	1 / 61	20.25	245 / 0	19.64	22.96
	64-QAM	509000	2545.0	1 / 61	20.24	1 / 61	20.05	23.16
		518592	2593.0	1 / 61	20.30	1 / 61	20.13	23.23
		529002	2645.0	1 / 61	20.17	245 / 0	19.59	22.90
	256-QAM	509000	2545.0	1 / 61	19.30	1 / 61	18.94	22.14
		518592	2593.0	1 / 61	19.41	1 / 61	18.98	22.21
		529002	2645.0	1 / 61	19.39	245 / 0	18.58	22.01
80 MHz	QPSK	508000	2540.0	1 / 54	20.26	1 / 54	19.87	23.08
		518598	2593.0	1 / 54	20.01	1 / 54	19.94	22.99
		529998	2650.0	1 / 54	19.77	217 / 0	19.62	22.71
	16-QAM	508000	2540.0	1 / 54	20.36	1 / 54	20.32	23.35
		518598	2593.0	1 / 54	20.33	1 / 54	20.40	23.38
		529998	2650.0	1 / 54	20.14	217 / 0	19.66	22.91
	64-QAM	508000	2540.0	1 / 54	20.38	1 / 54	20.11	23.26
		518598	2593.0	1 / 54	20.34	1 / 54	20.29	23.33
		529998	2650.0	1 / 54	20.13	217 / 0	19.67	22.92
	256-QAM	508000	2540.0	1 / 54	19.37	1 / 54	18.86	22.14
		518598	2593.0	1 / 54	19.47	1 / 54	18.81	22.16
		529998	2650.0	1 / 54	19.29	217 / 0	18.67	22.00
60 MHz	QPSK	506000	2530.0	1 / 40	20.27	1 / 40	19.87	23.08
		518598	2593.0	1 / 40	20.13	1 / 40	20.11	23.13
		531996	2660.0	1 / 40	20.01	1 / 40	19.81	22.92
	16-QAM	506000	2530.0	1 / 40	20.47	1 / 40	20.46	23.47
		518598	2593.0	1 / 40	20.38	1 / 40	20.46	23.43
		531996	2660.0	1 / 40	20.22	1 / 40	20.42	23.33
	64-QAM	506000	2530.0	1 / 40	20.46	1 / 40	20.38	23.43
		518598	2593.0	1 / 40	20.46	1 / 40	20.46	23.47
		531996	2660.0	1 / 40	20.31	1 / 40	20.12	23.23
	256-QAM	506000	2530.0	1 / 40	19.83	1 / 40	19.14	22.51
		518598	2593.0	1 / 40	19.52	1 / 40	19.16	22.35
		531996	2660.0	1 / 40	19.32	1 / 40	18.88	22.12
50 MHz	QPSK	505000	2525.0	1 / 33	20.28	1 / 33	20.09	23.19
		518598	2593.0	1 / 33	20.35	1 / 33	20.14	23.26
		532998	2665.0	1 / 66	19.81	1 / 66	19.79	22.81
	16-QAM	505000	2525.0	1 / 33	20.40	1 / 33	20.45	23.44
		518598	2593.0	1 / 33	20.46	1 / 33	20.47	23.48
		532998	2665.0	1 / 66	20.21	1 / 66	20.33	23.28
	64-QAM	505000	2525.0	1 / 33	20.41	1 / 33	20.36	23.39
		518598	2593.0	1 / 33	20.39	1 / 33	20.40	23.40
		532998	2665.0	1 / 66	20.26	1 / 66	20.22	23.25
	256-QAM	505000	2525.0	1 / 33	19.73	1 / 33	19.26	22.51
		518598	2593.0	1 / 33	19.39	1 / 33	19.05	22.24
		532998	2665.0	1 / 66	19.44	1 / 66	19.07	22.27
40 MHz	QPSK	504000	2520.0	1 / 53	20.25	1 / 26	20.04	23.16
		518598	2593.0	1 / 53	20.29	1 / 26	20.21	23.26
		534000	2670.0	1 / 53	20.00	1 / 26	19.69	22.86
	16-QAM	504000	2520.0	1 / 53	20.49	1 / 26	20.46	23.49
		518598	2593.0	1 / 53	20.32	1 / 26	20.18	23.26
		534000	2670.0	1 / 53	20.34	1 / 26	20.25	23.31
	64-QAM	504000	2520.0	1 / 53	20.48	1 / 26	20.25	23.38
		518598	2593.0	1 / 53	20.41	1 / 26	20.21	23.32
		534000	2670.0	1 / 53	20.36	1 / 26	19.87	23.13
	256-QAM	504000	2520.0	1 / 53	19.56	1 / 26	19.17	22.38
		518598	2593.0	1 / 53	19.47	1 / 26	19.16	22.33
		534000	2670.0	1 / 53	19.47	1 / 26	18.82	22.17
30 MHz	QPSK	503000	2515.0	1 / 19	20.38	1 / 19	20.26	23.33
		518598	2593.0	1 / 39	20.04	1 / 19	19.91	22.99
		534999	2675.0	1 / 19	20.00	1 / 19	19.90	22.96
	16-QAM	503000	2515.0	1 / 19	20.49	1 / 19	20.44	23.47
		518598	2593.0	1 / 39	20.47	1 / 19	20.48	23.48
		534999	2675.0	1 / 19	20.40	1 / 19	20.07	23.25
	64-QAM	503000	2515.0	1 / 19	20.37	1 / 19	20.38	23.39
		518598	2593.0	1 / 39	20.35	1 / 19	20.35	23.36
		534999	2675.0	1 / 19	20.39	1 / 19	20.11	23.26
	256-QAM	503000	2515.0	1 / 19	19.80	1 / 19	19.18	22.51
		518598	2593.0	1 / 39	19.27	1 / 19	19.05	22.17
		534999	2675.0	1 / 19	19.36	1 / 19	18.72	22.06
20 MHz	QPSK	502000	2510.0	1 / 25	20.21	1 / 25	20.13	23.18
		518598	2593.0	1 / 37	19.64	1 / 37	19.82	22.74
		535998	2680.0	1 / 25	19.52	1 / 25	19.55	22.55
	16-QAM	502000	2510.0	1 / 25	20.32	1 / 25	20.47	23.41
		518598	2593.0	1 / 37	19.96	1 / 37	20.36	23.17
		535998	2680.0	1 / 25	19.81	1 / 25	20.12	22.88
	64-QAM	502000	2510.0	1 / 25	20.18	1 / 25	20.36	23.28
		518598	2593.0	1 / 37	19.98	1 / 37	20.29	23.15
		535998	2680.0	1 / 25	19.63	1 / 25	20.03	22.94
	256-QAM	502000	2510.0	1 / 25	19.53	1 / 25	19.22	22.39
		518598	2593.0	1 / 37	19.28	1 / 37	19.18	22.24
		535998	2680.0	1 / 25	18.96	1 / 25	19.04	22.01

Table 7-1. Conducted Power Data (UL-MIMO NR Band n41 (PC3))

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 12 of 53

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.



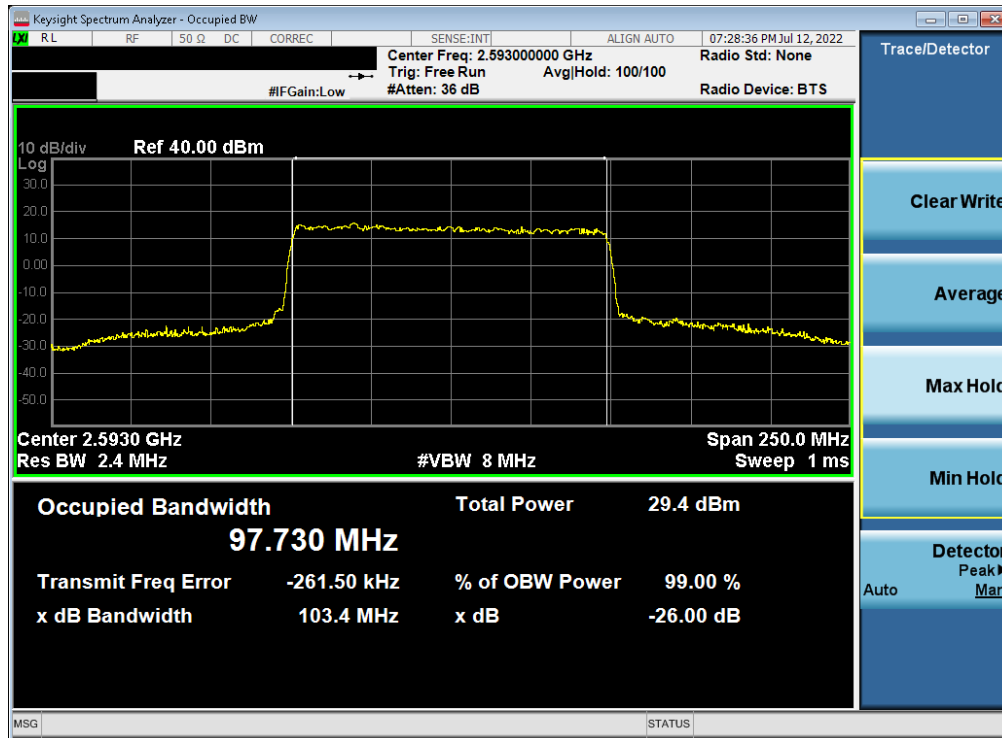
Figure 7-2. Test Instrument & Measurement Setup

Test Notes

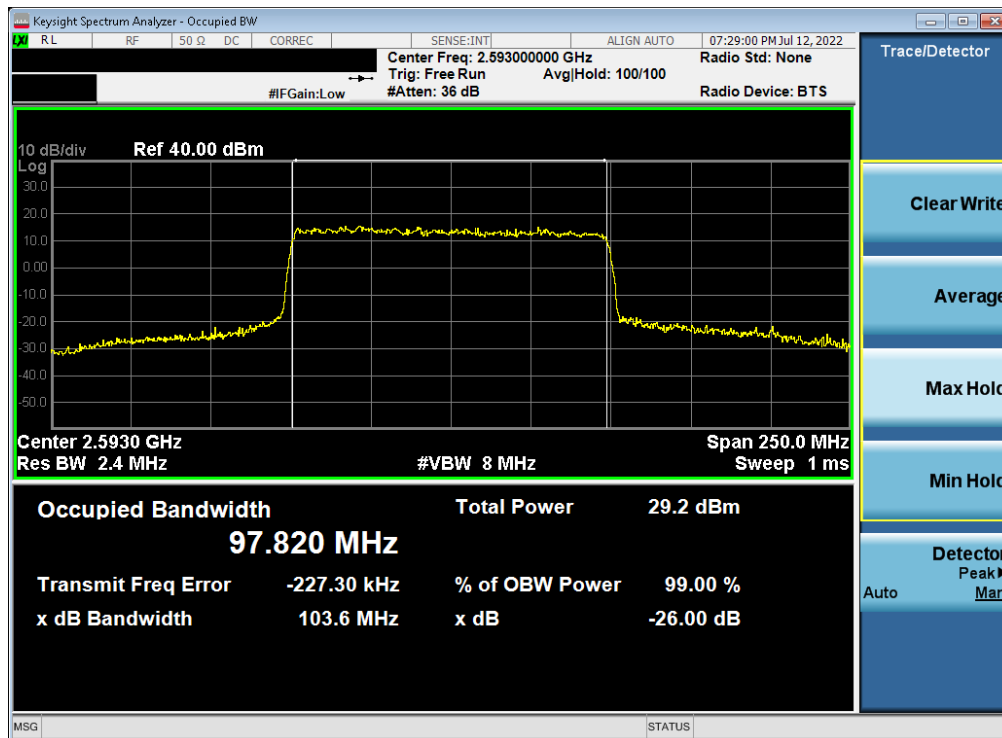
For this section, only the sub antenna occupied bandwidths are in this report, the main antenna occupied bandwidth plots are in the original filing report.

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 13 of 53

UL-MIMO NR Band n41 – Sub Antenna

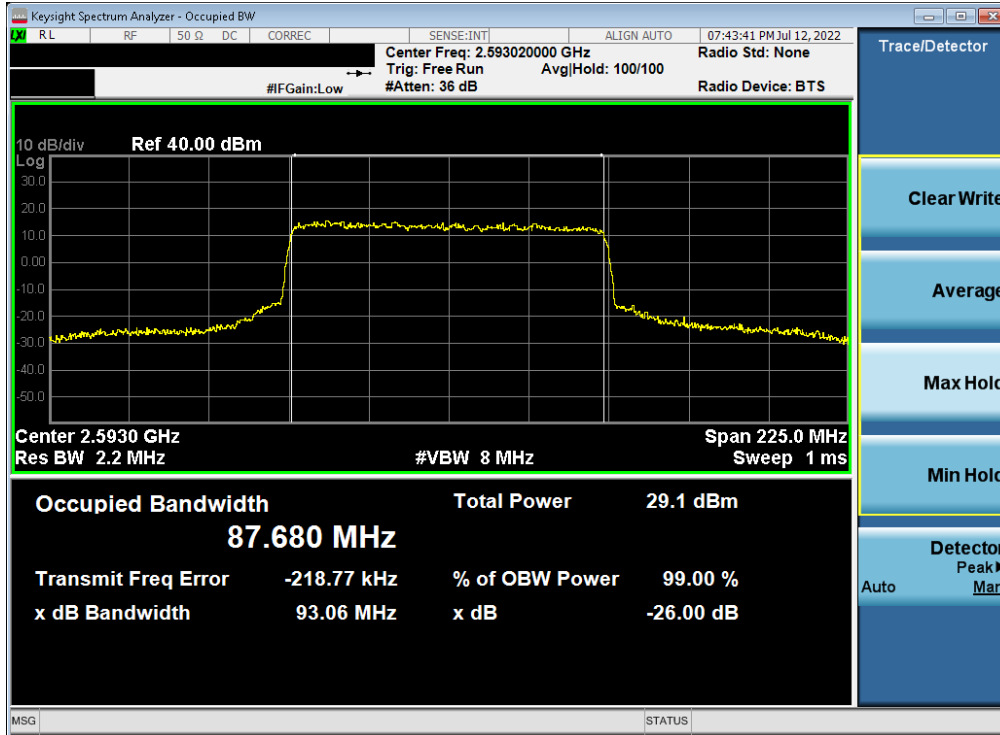


Plot 7-2. Occupied Bandwidth Plot (NR Band n41 - 100MHz QPSK - Full RB - Sub ANT)

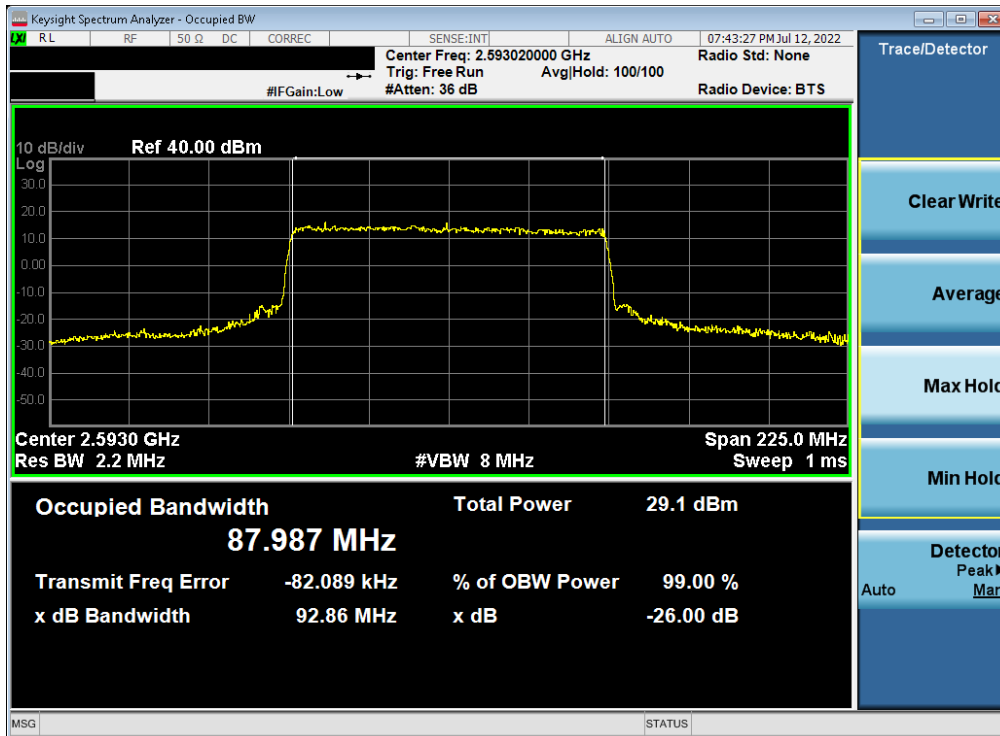


Plot 7-3. Occupied Bandwidth Plot (NR Band n41 - 100MHz 16-QAM - Full RB - Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 14 of 53

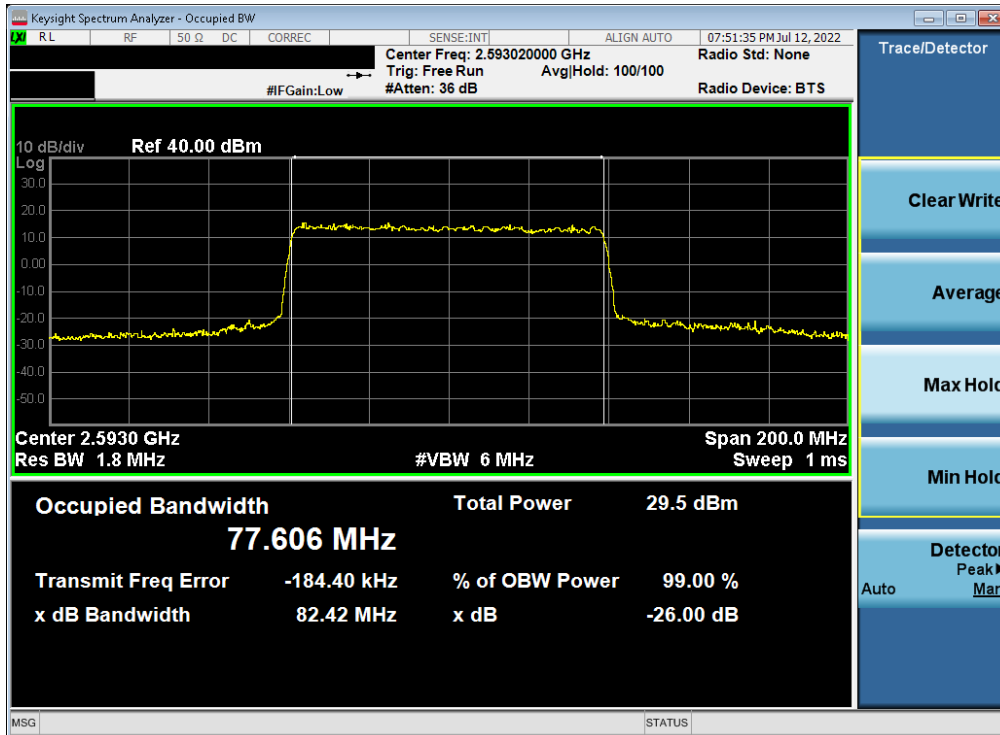


Plot 7-4. Occupied Bandwidth Plot (NR Band n41 - 90MHz QPSK - Full RB - Sub ANT)

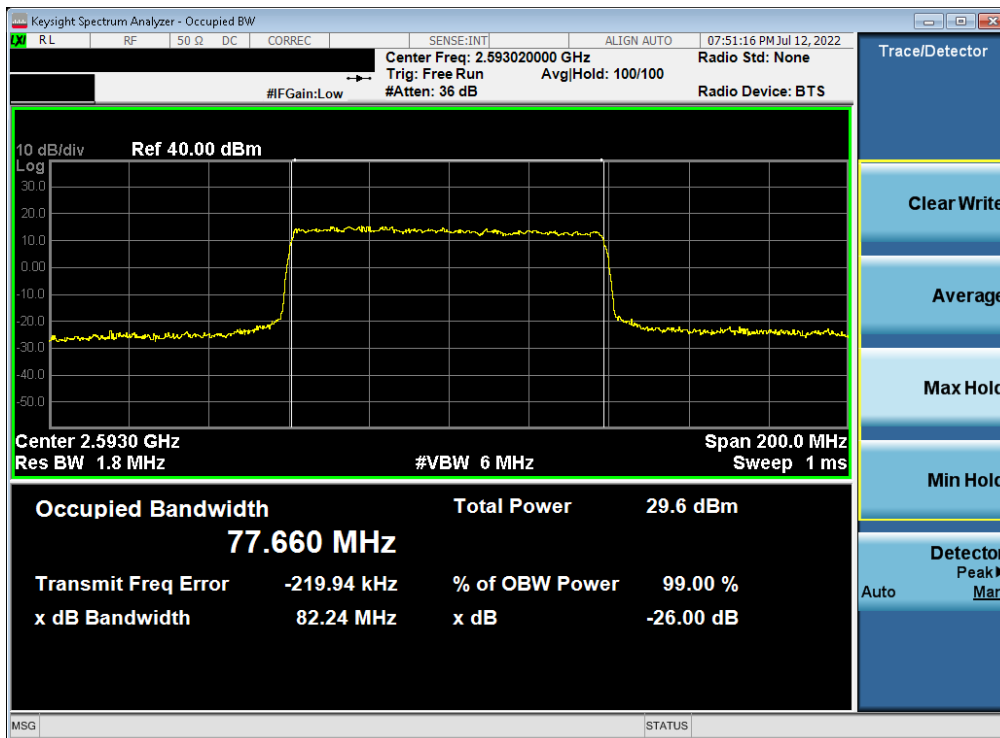


Plot 7-5. Occupied Bandwidth Plot (NR Band n41 - 90MHz 16-QAM - Full RB - Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 15 of 53

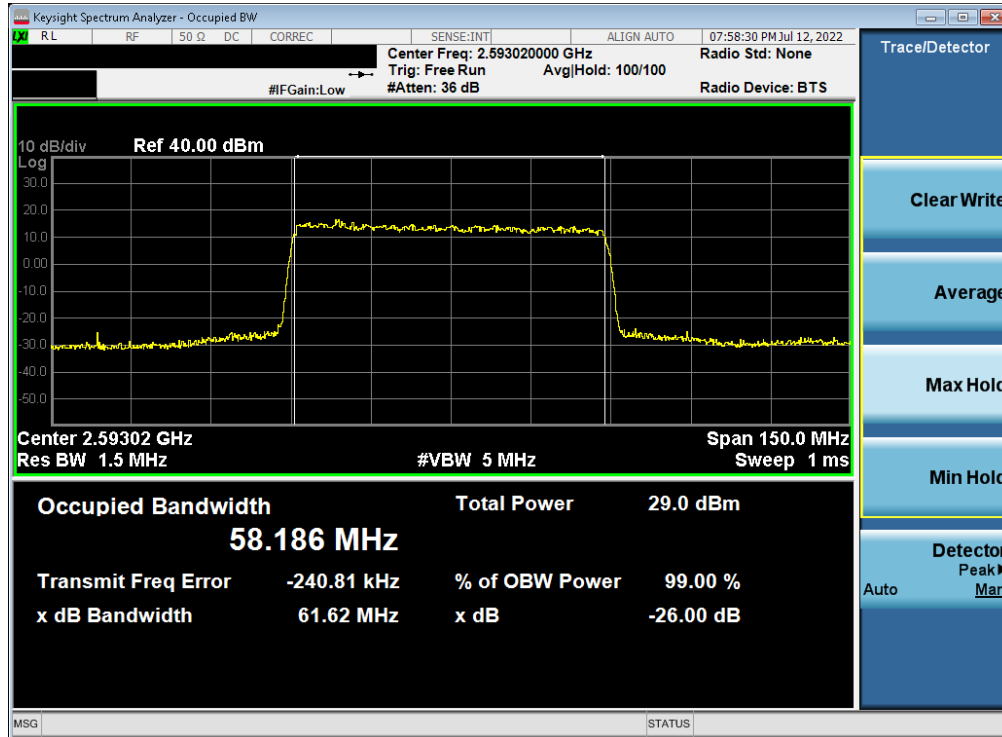


Plot 7-6. Occupied Bandwidth Plot (NR Band n41 - 80MHz QPSK - Full RB - Sub ANT)

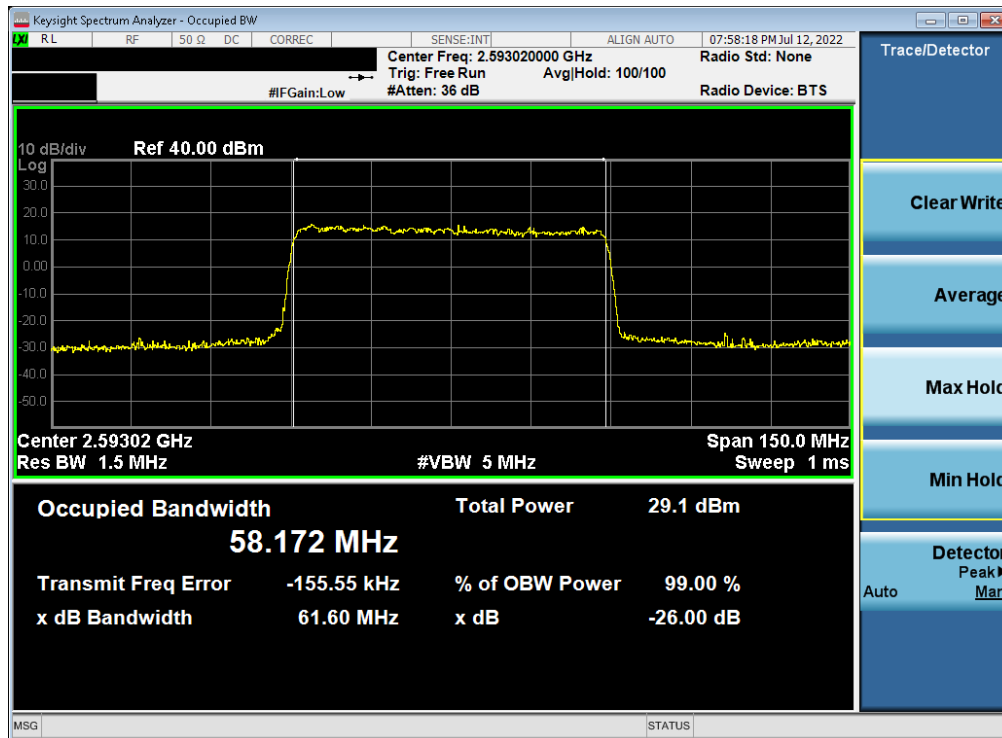


Plot 7-7. Occupied Bandwidth Plot (NR Band n41 - 80MHz 16-QAM - Full RB - Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 16 of 53

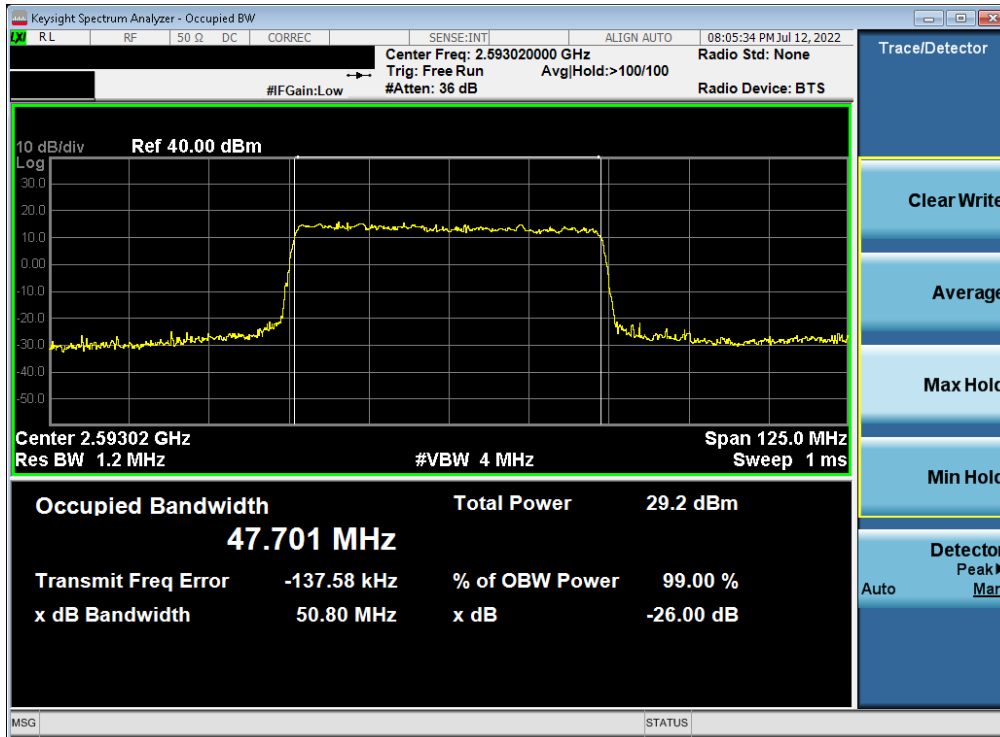


Plot 7-8. Occupied Bandwidth Plot (NR Band n41 - 60MHz QPSK - Full RB - Sub ANT)

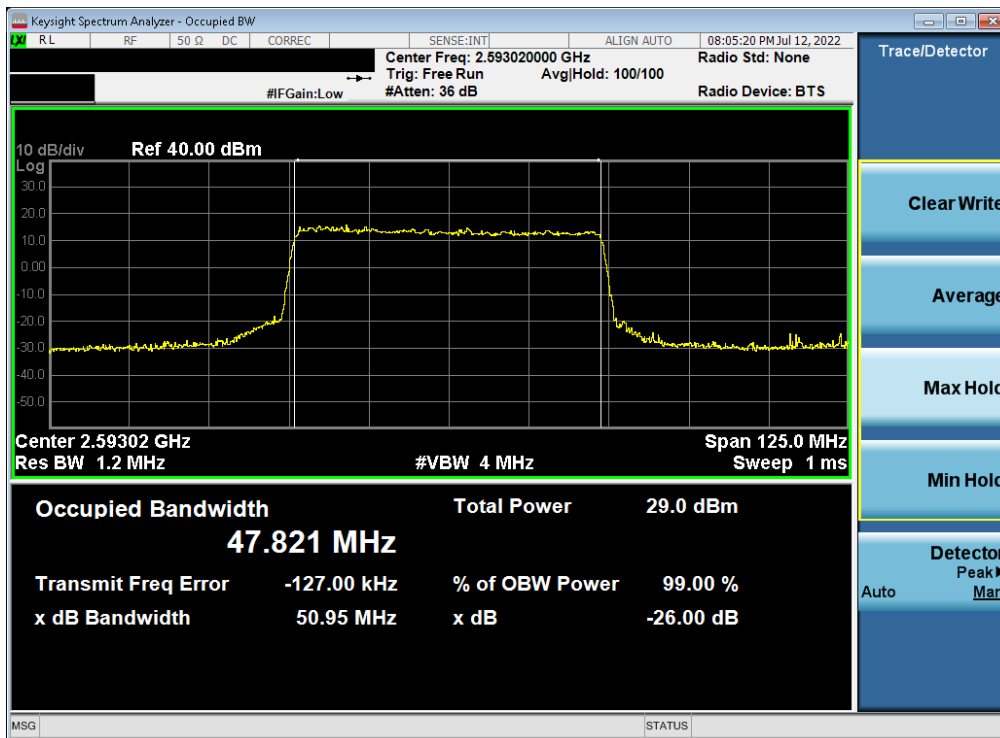


Plot 7-9. Occupied Bandwidth Plot (NR Band n41 - 60MHz 16-QAM - Full RB - Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 17 of 53

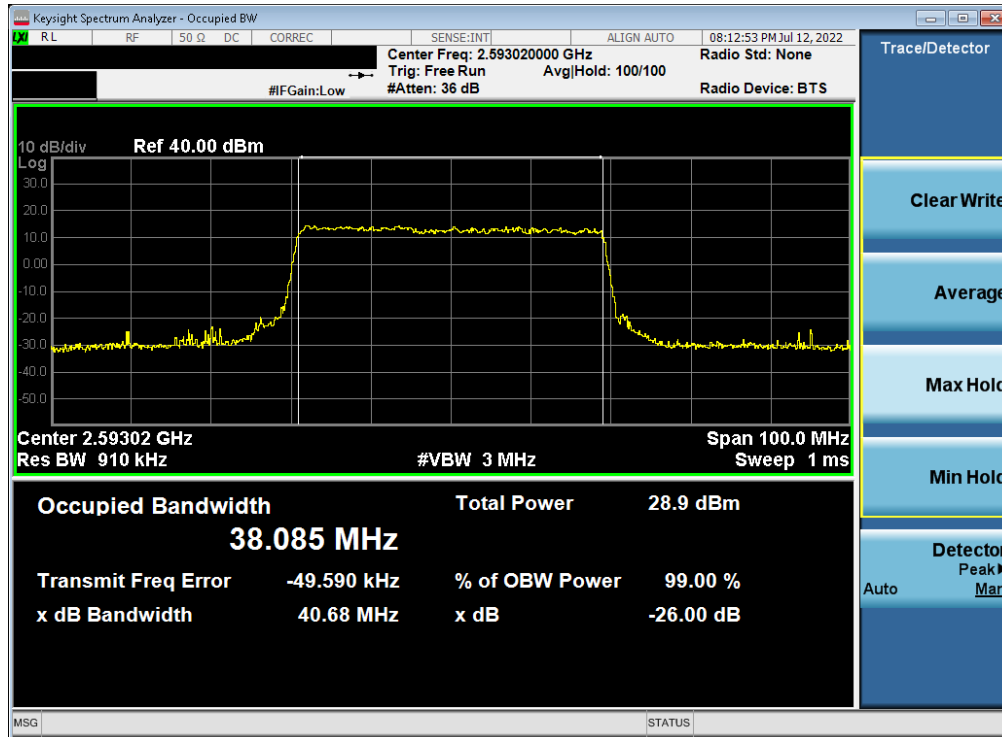


Plot 7-10. Occupied Bandwidth Plot (NR Band n41 - 50MHz QPSK - Full RB - Sub ANT)

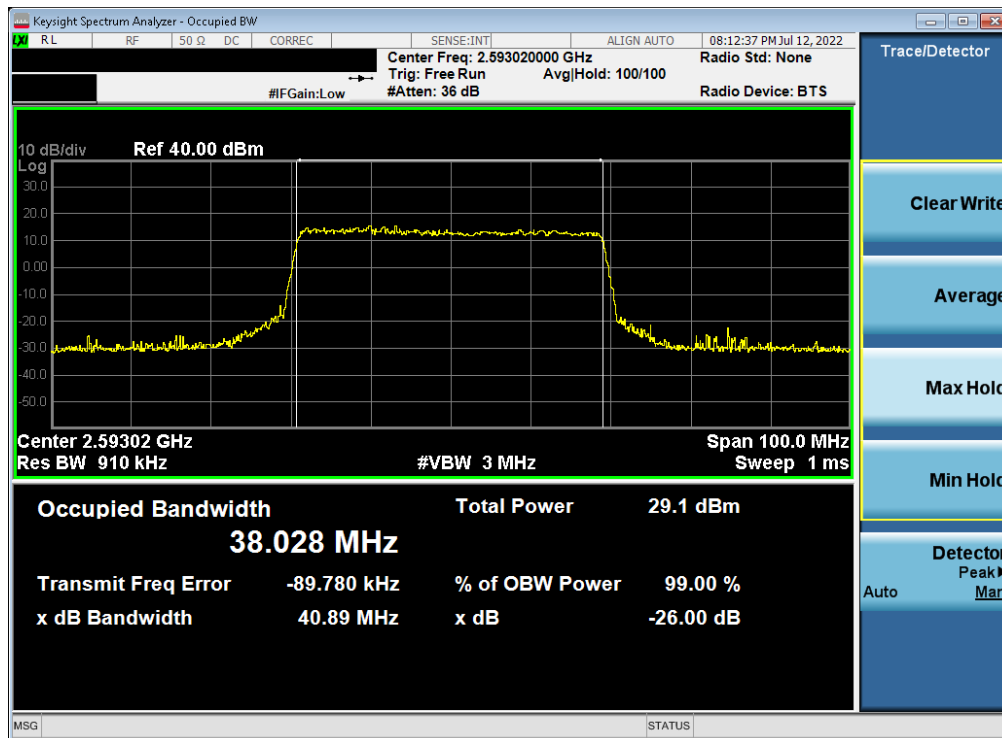


Plot 7-11. Occupied Bandwidth Plot (NR Band n41 - 50MHz 16-QAM - Full RB - Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 18 of 53

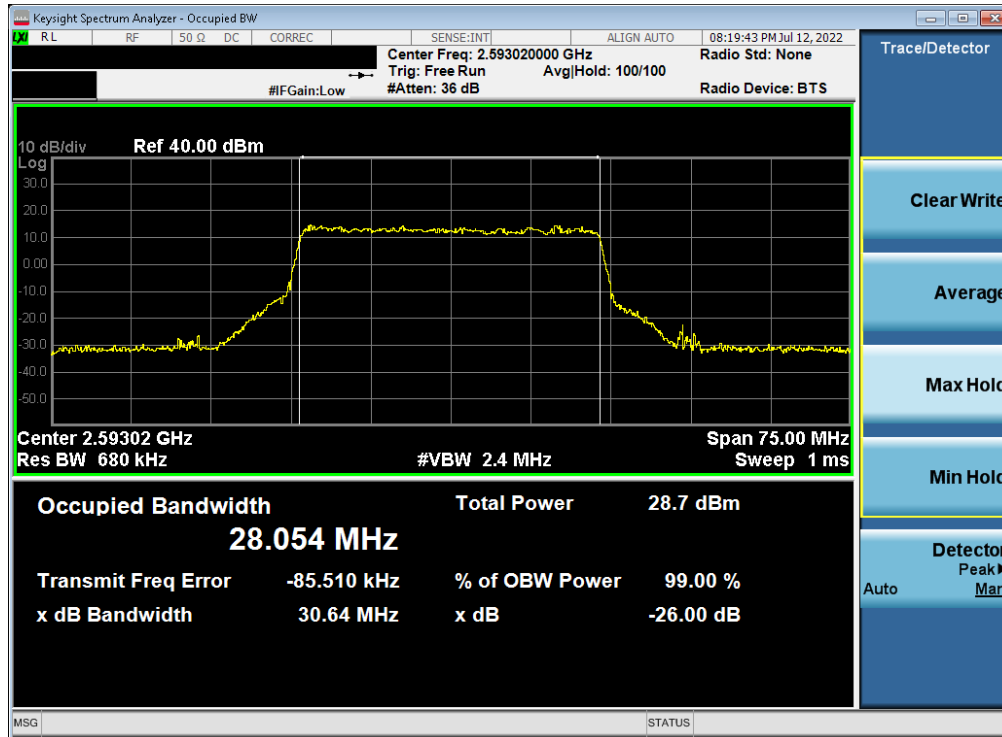


Plot 7-12. Occupied Bandwidth Plot (NR Band n41 - 40MHz QPSK - Full RB - Sub ANT)

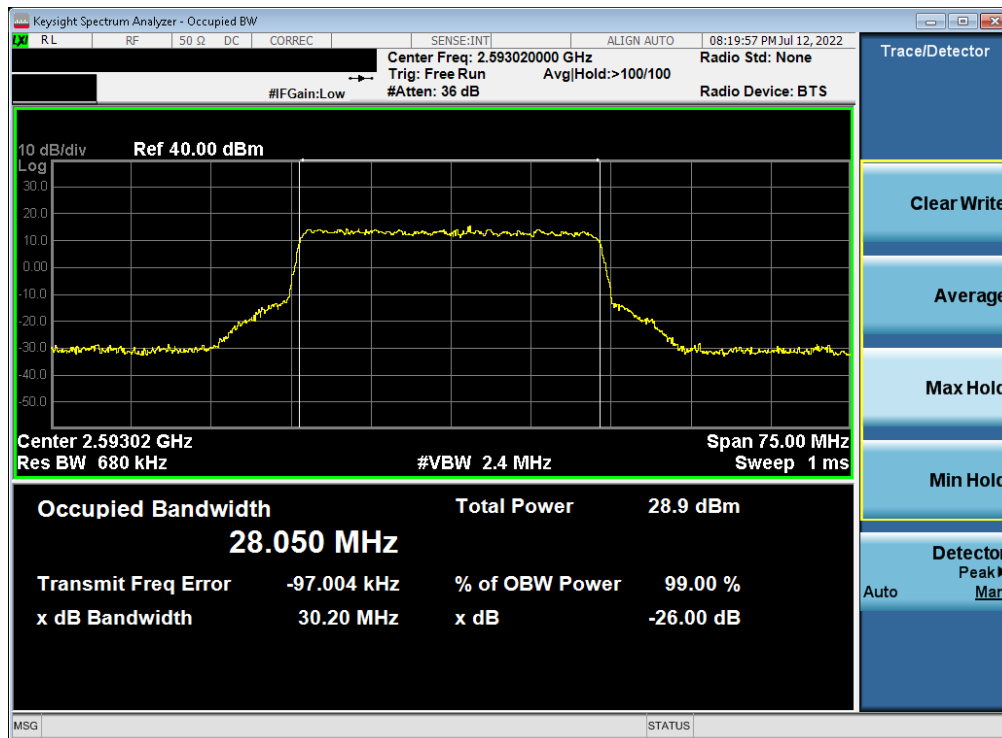


Plot 7-13. Occupied Bandwidth Plot (NR Band n41 - 40MHz 16-QAM - Full RB - Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 19 of 53

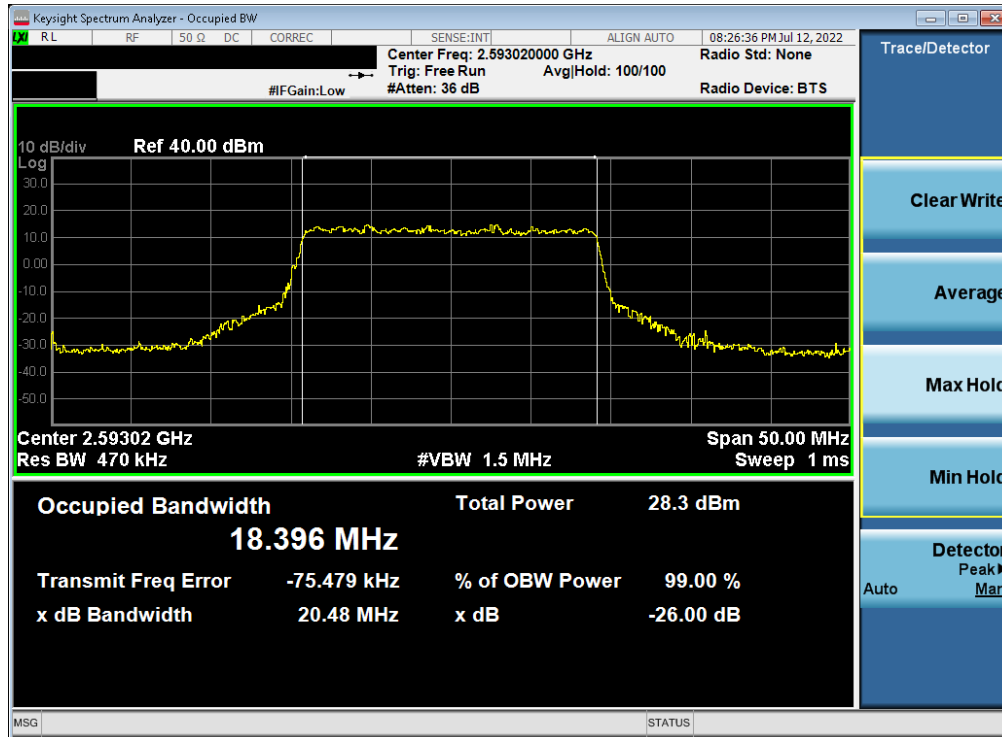


Plot 7-14. Occupied Bandwidth Plot (NR Band n41 - 30MHz QPSK - Full RB - Sub ANT)

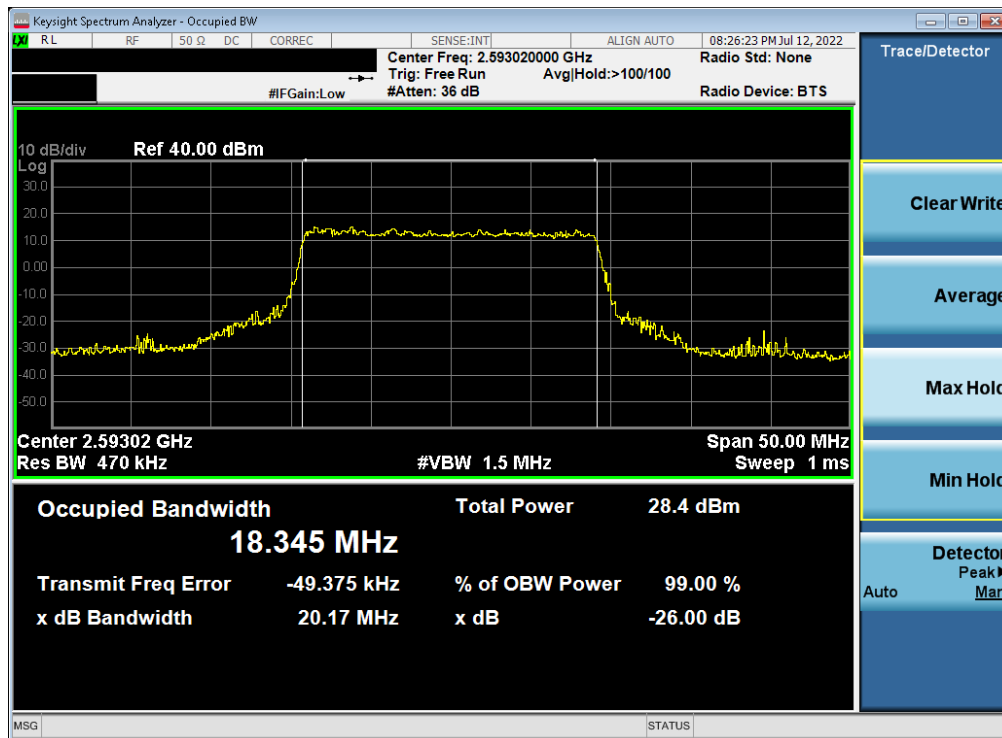


Plot 7-15. Occupied Bandwidth Plot (NR Band n41 - 30MHz 16-QAM - Full RB - Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
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Plot 7-16. Occupied Bandwidth Plot (NR Band n41 - 20MHz QPSK - Full RB - Sub ANT)



Plot 7-17. Occupied Bandwidth Plot (NR Band n41 - 20MHz 16-QAM - Full RB - Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 21 of 53

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.

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

Test Procedure Used

ANSI C63.26-2015 – Section 5.7.4

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to 10GHz (separated into at least two plots per channel)
2. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. Please see test notes below for RBW and VBW settings

Test Setup

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



Figure 7-3. Test Instrument & Measurement Setup

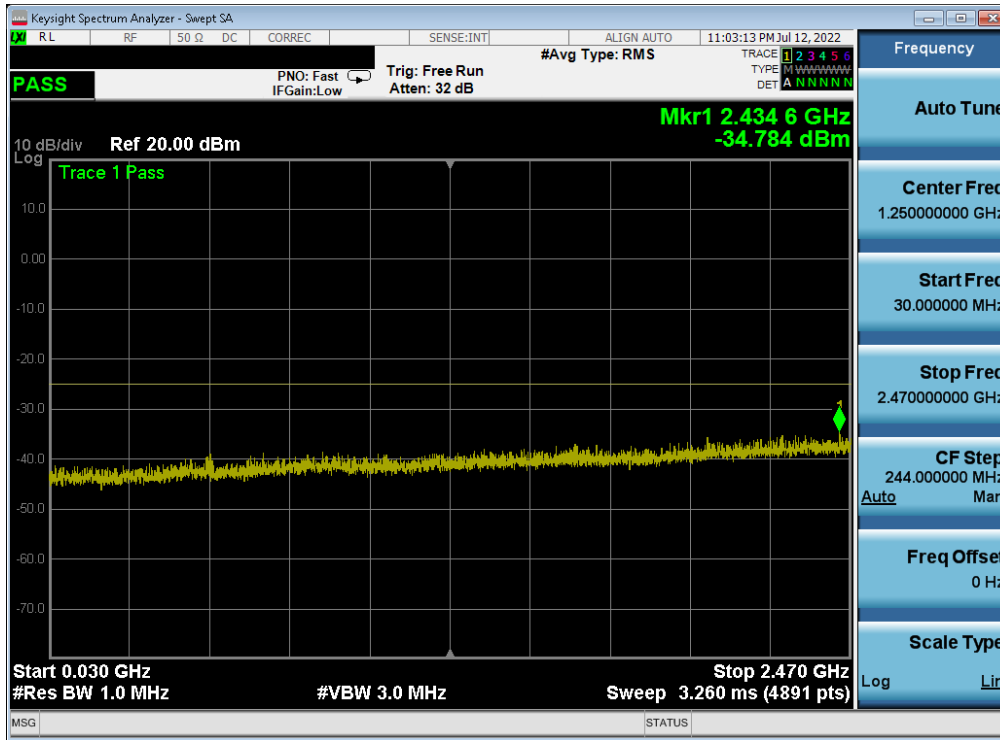
Test Notes

1. Per Part 27, 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.
3. In this section, the UL-MIMO NR band n41 (main and sub antennas) plots has a 3dB correction applied to the individual plots to address the MIMO requirements in ANSI C63.26.

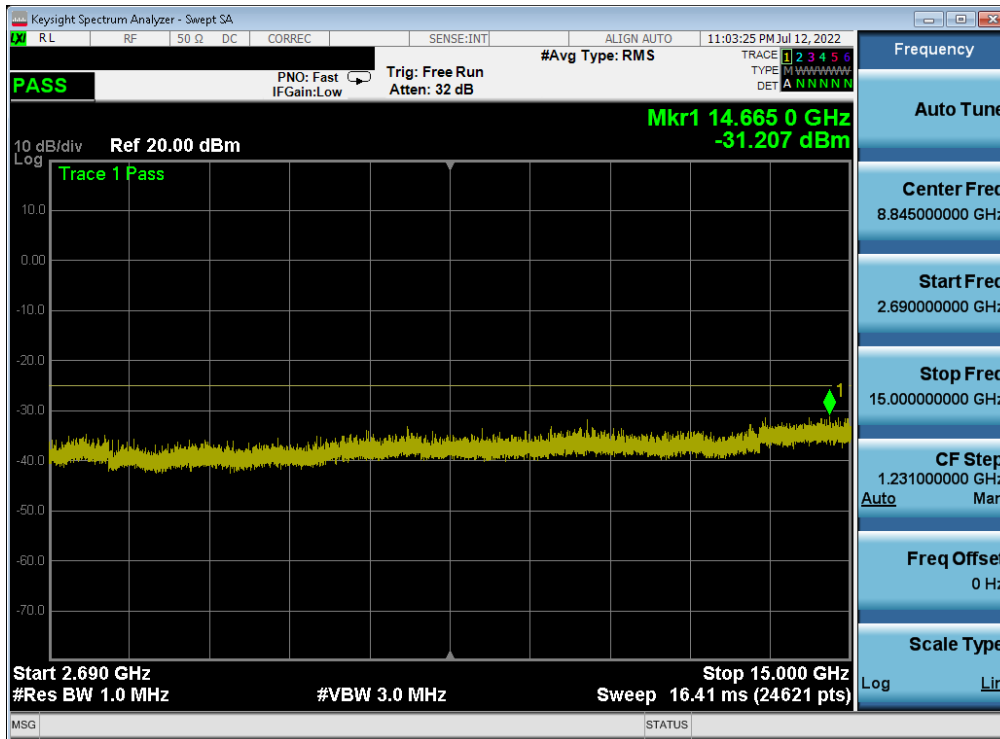
FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 22 of 53

V3.0 1/6/2022

UL-MIMO NR Band n41 – Main Antenna

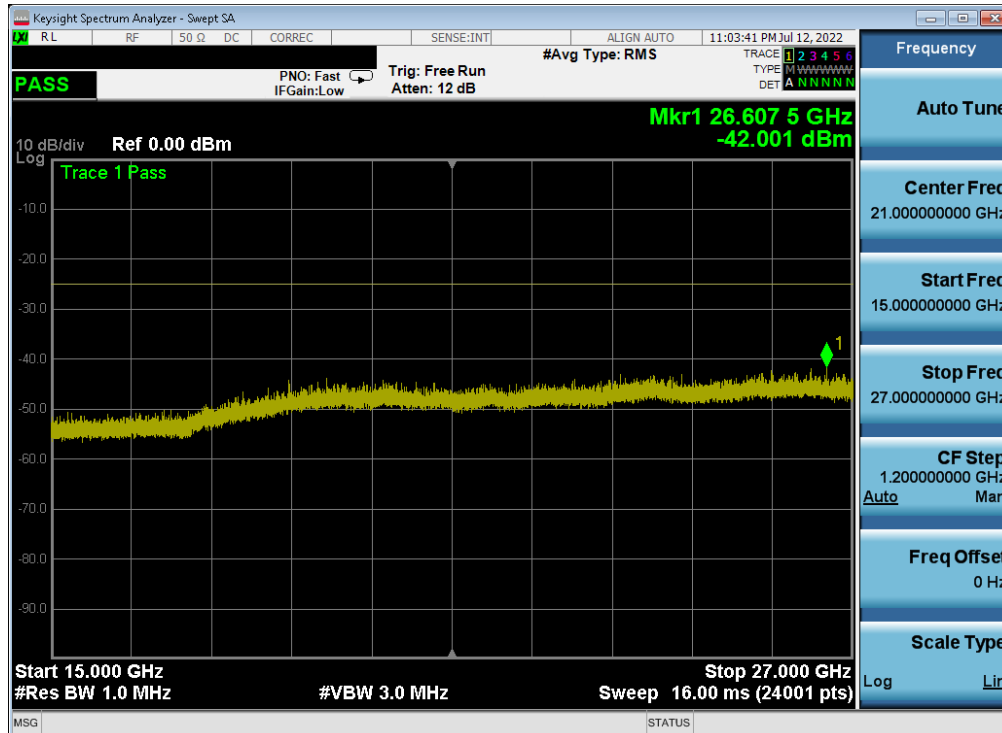


Plot 7-18. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Main ANT)

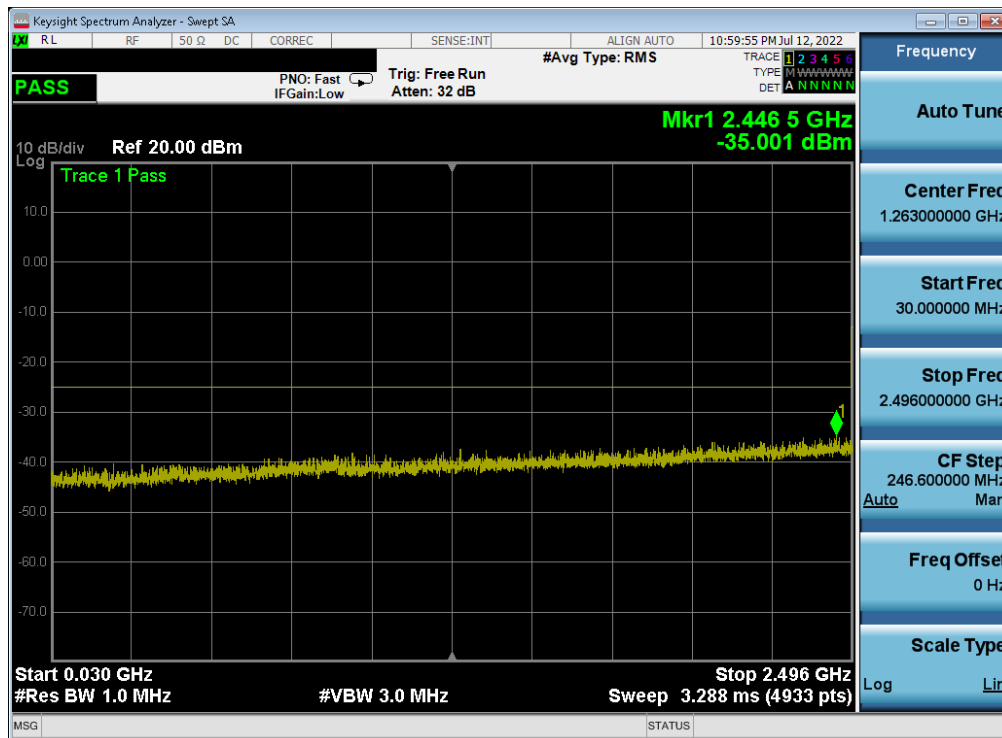


Plot 7-19. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Main ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 23 of 53

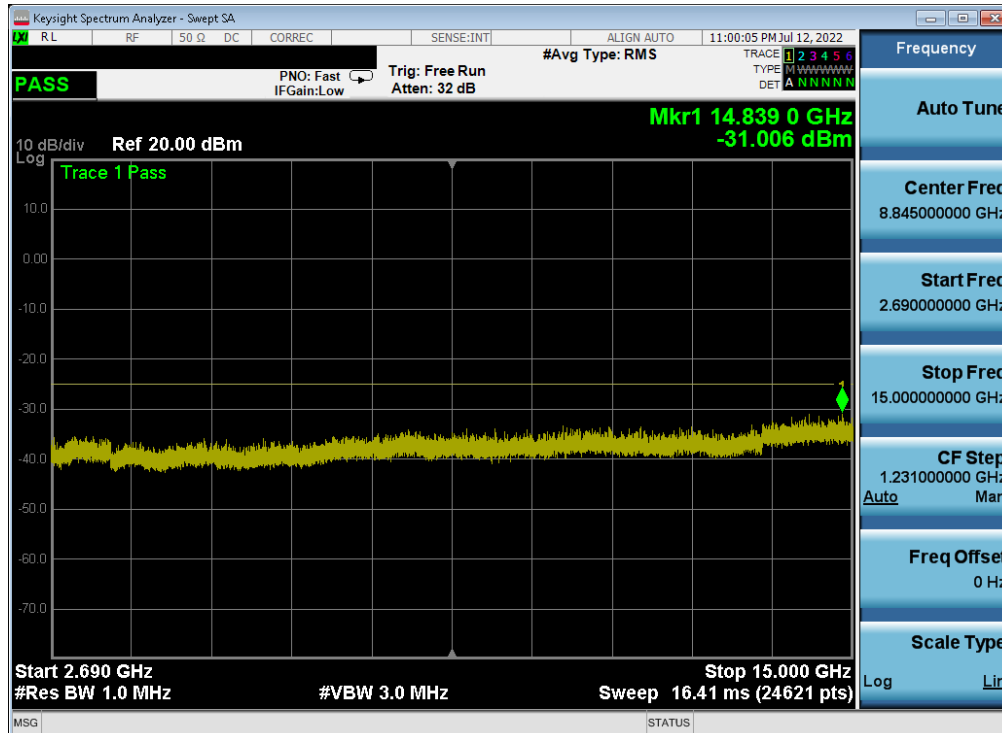


Plot 7-20. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Main ANT)

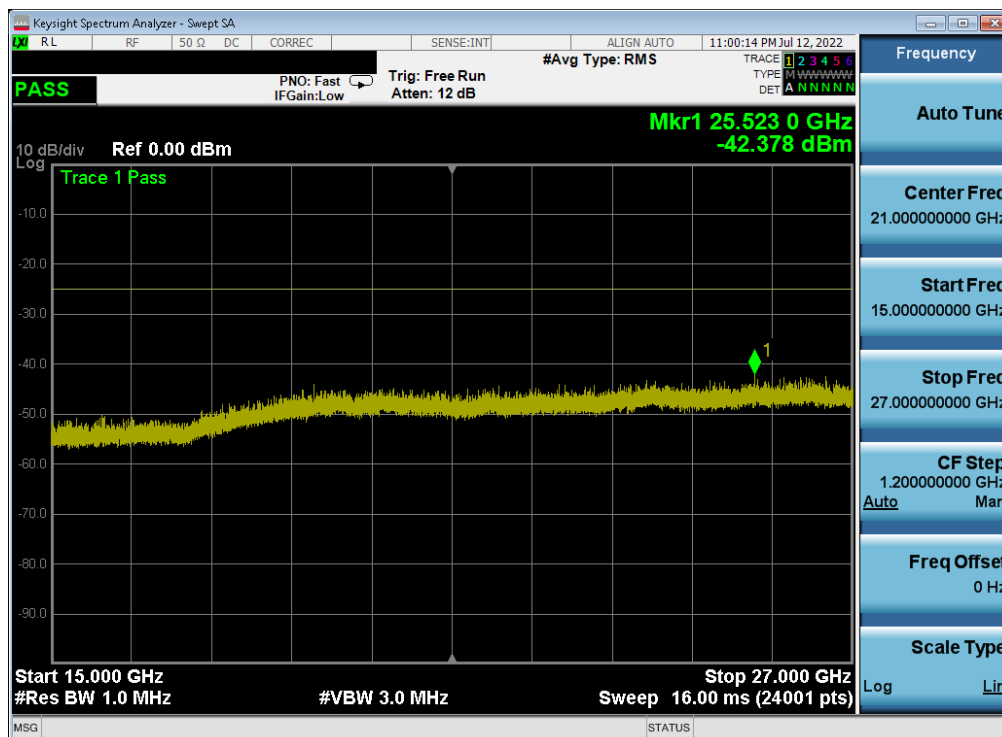


Plot 7-21. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel – Main ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 24 of 53

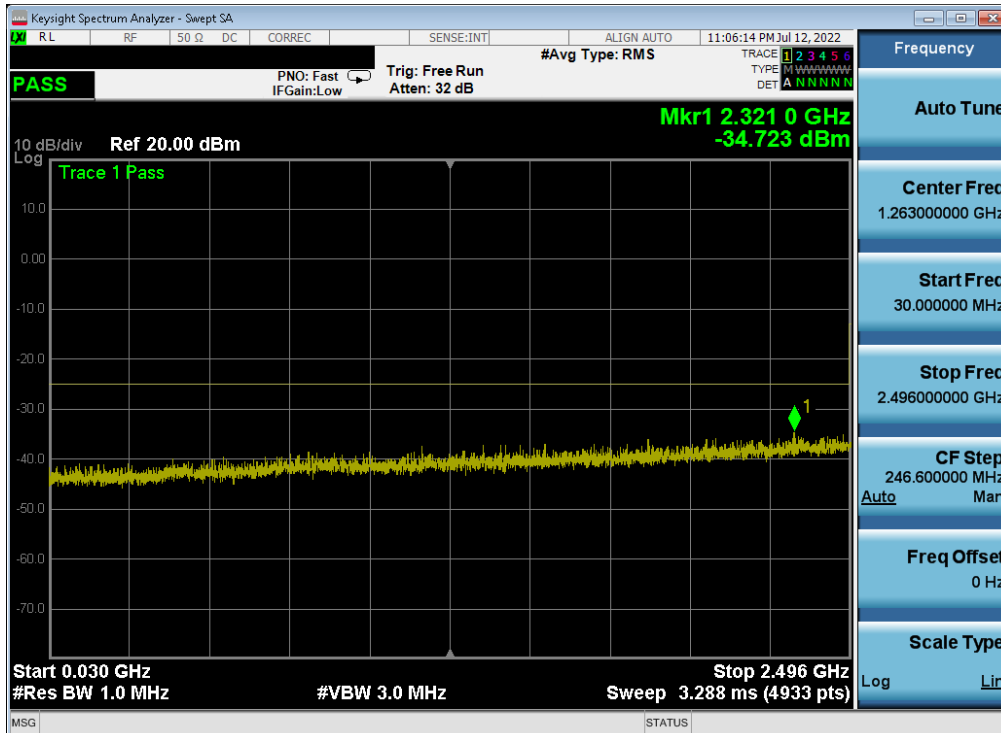


Plot 7-22. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel – Main ANT)

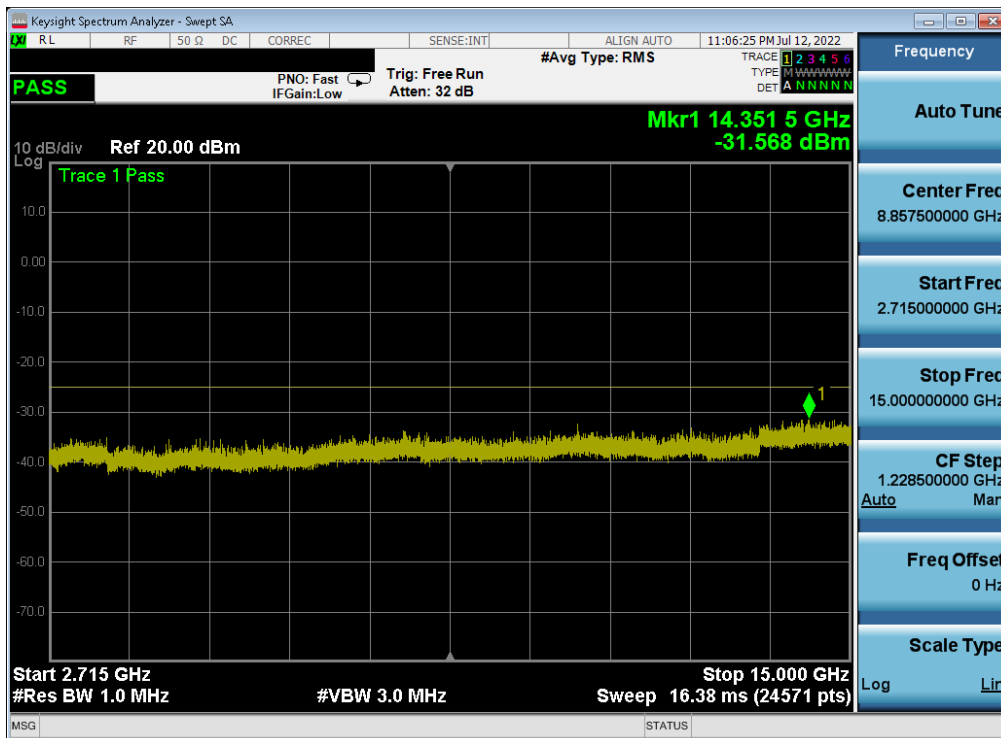


Plot 7-23. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel – Main ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 25 of 53

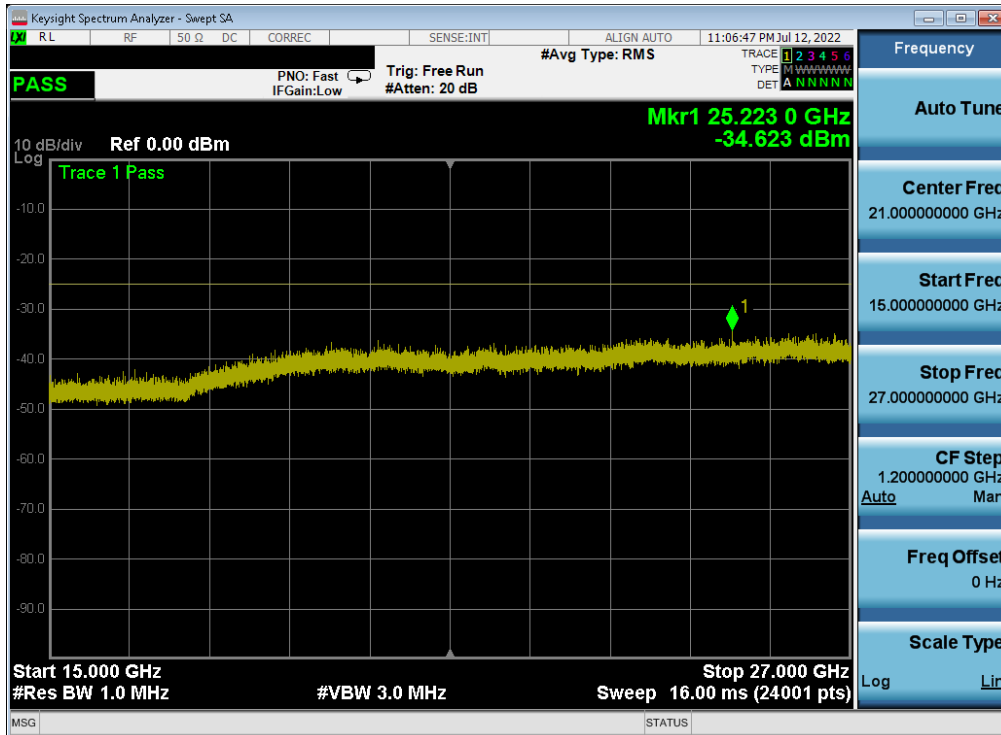


Plot 7-24. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel – Main ANT)



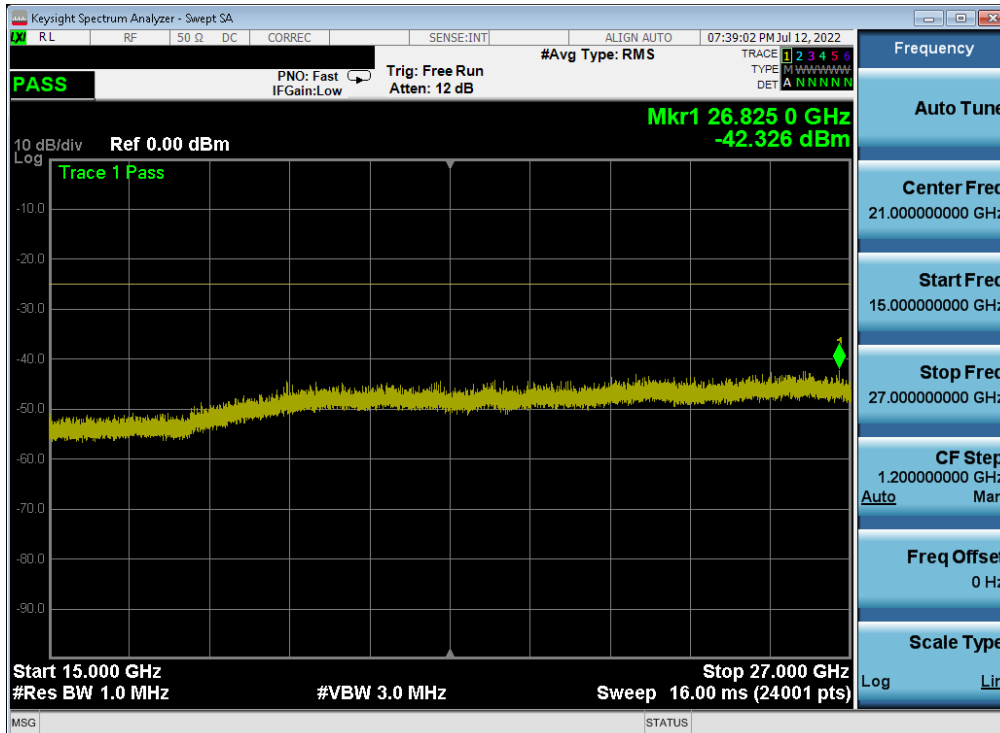
Plot 7-25. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel – Main ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 26 of 53

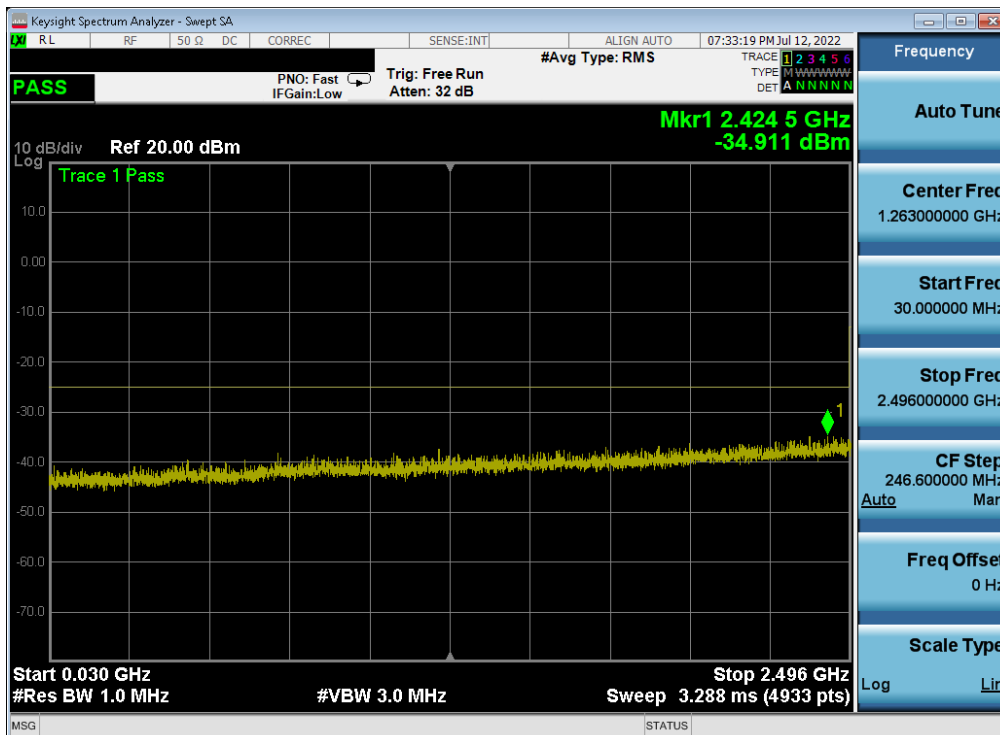


Plot 7-26. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel – Main ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 27 of 53

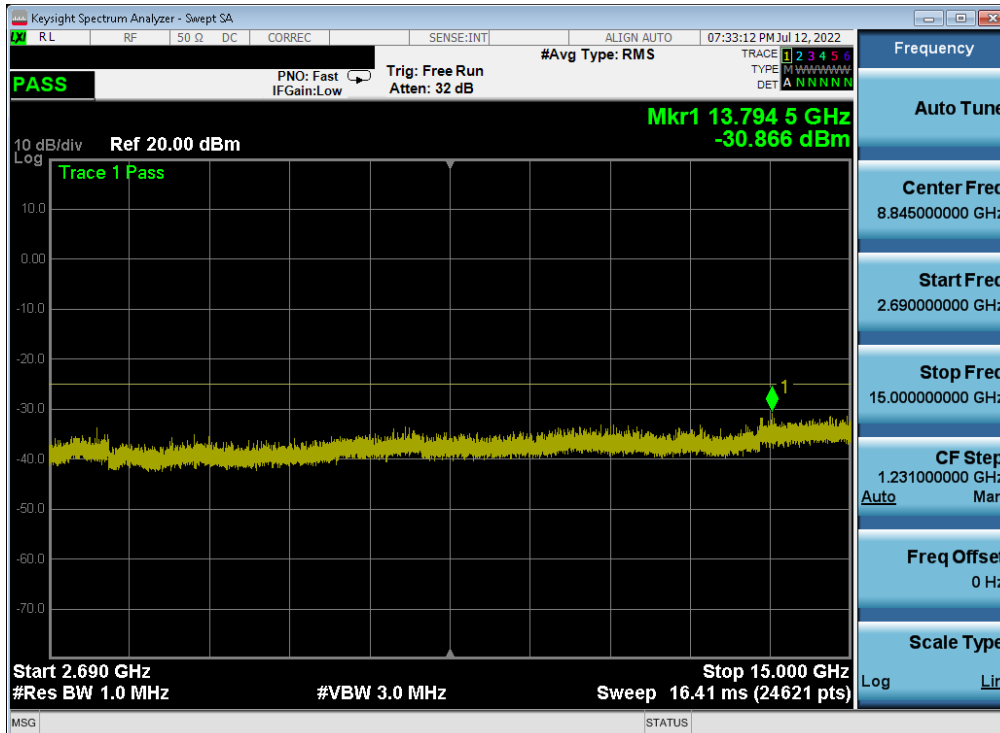


Plot 7-29. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Sub ANT)

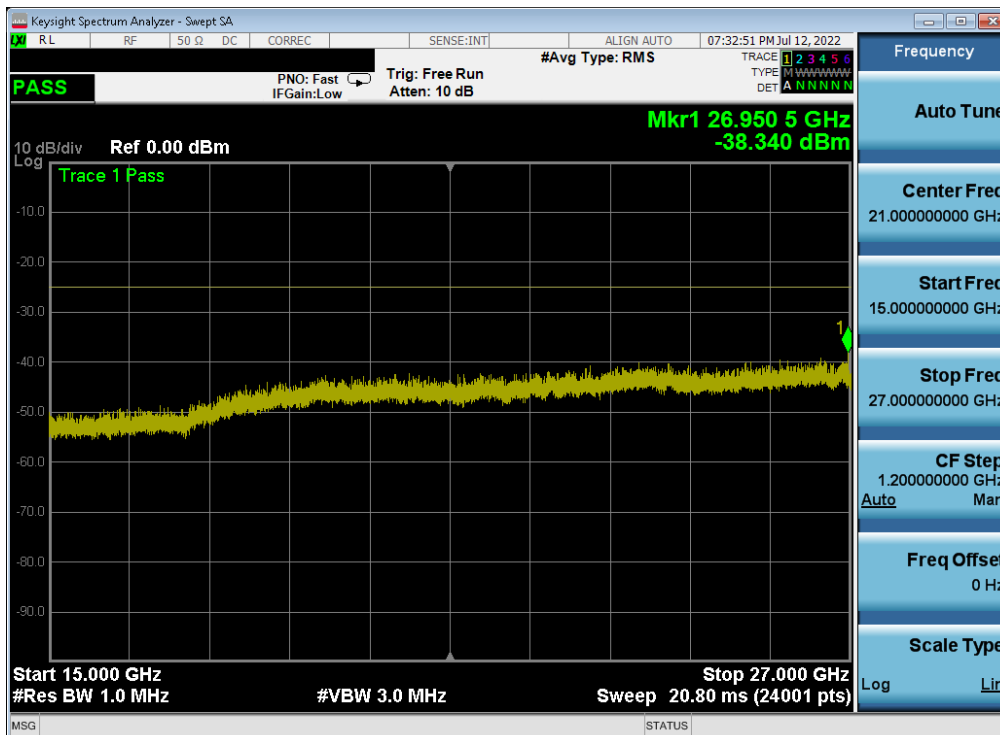


Plot 7-30. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel – Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 29 of 53

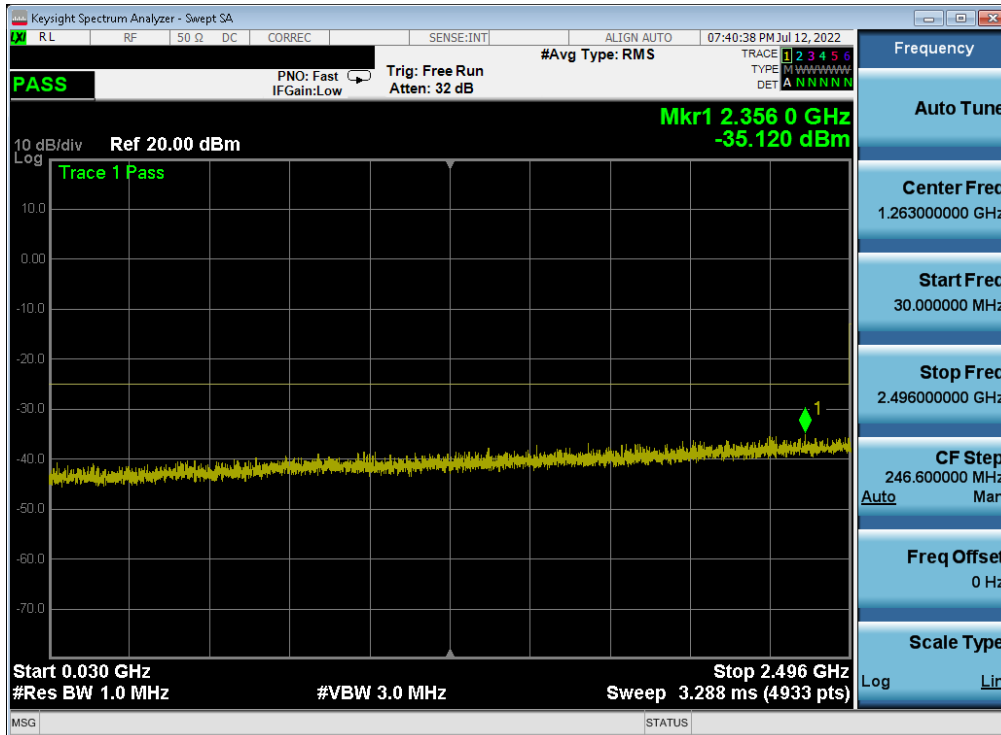


Plot 7-31. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel – Sub ANT)

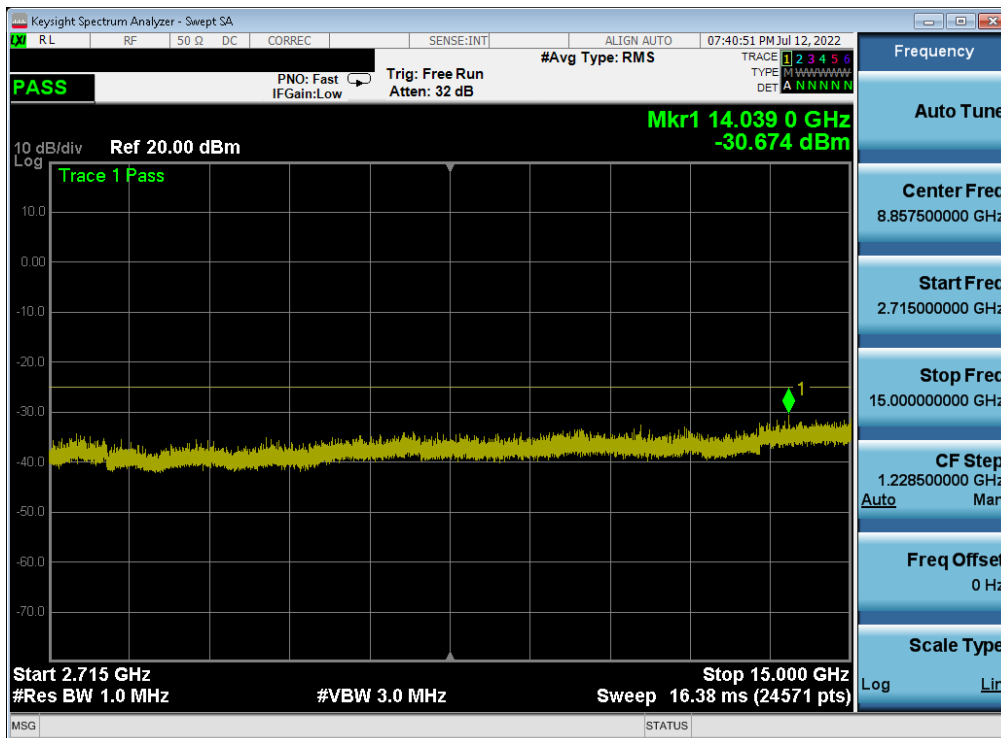


Plot 7-32. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel – Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 30 of 53

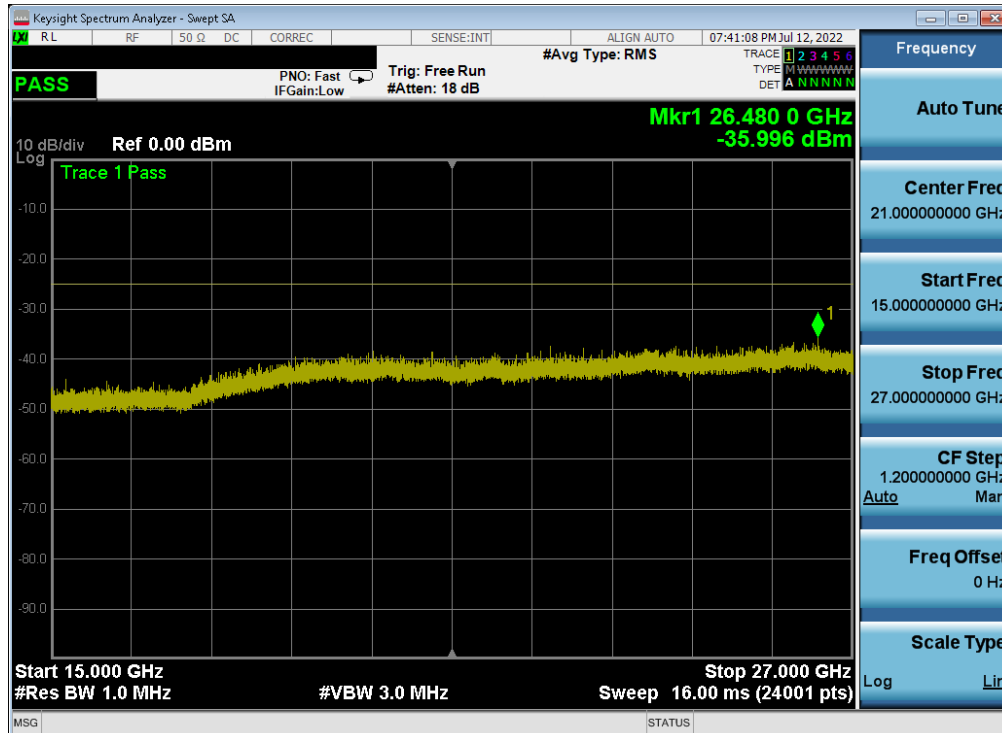


Plot 7-33. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel – Sub ANT)



Plot 7-34. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel – Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 31 of 53



Plot 7-35. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel – Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 32 of 53

7.5 Band Edge Emissions at Antenna Terminal

Test Overview

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

The minimum permissible attenuation level for Band 41 is as noted in the Test Notes on the following page.

Test Procedure Used

ANSI C63.26-2015 – Section 5.7.3

Test Settings

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

Test Setup

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



Figure 7-4. Test Instrument & Measurement Setup

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
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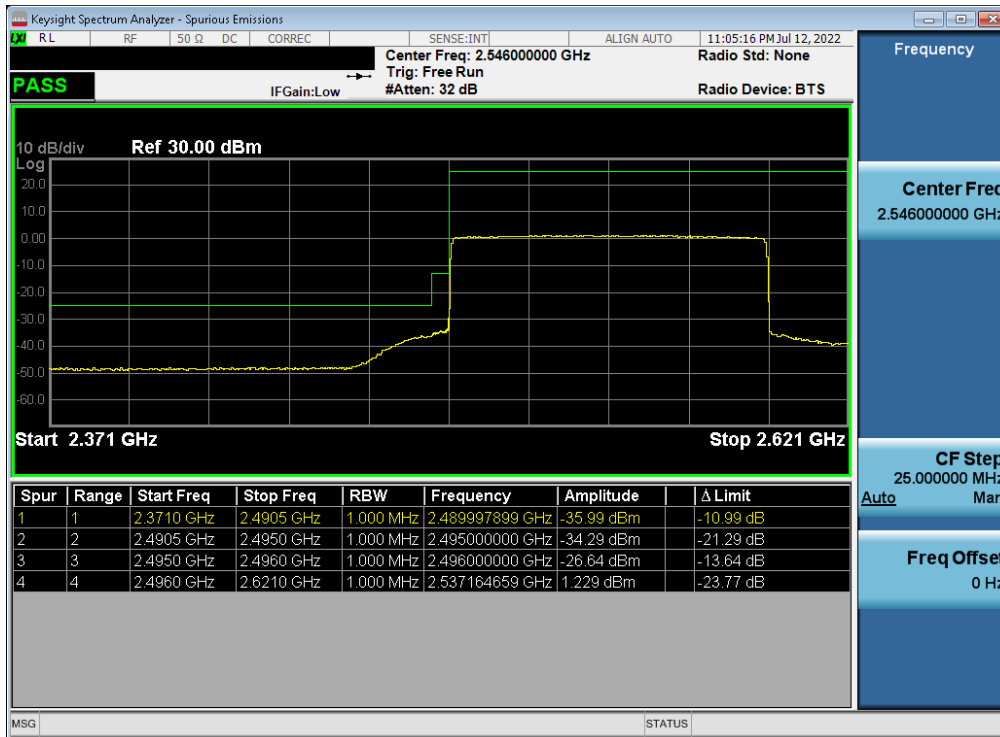
V3.0 1/6/2022

Test Notes

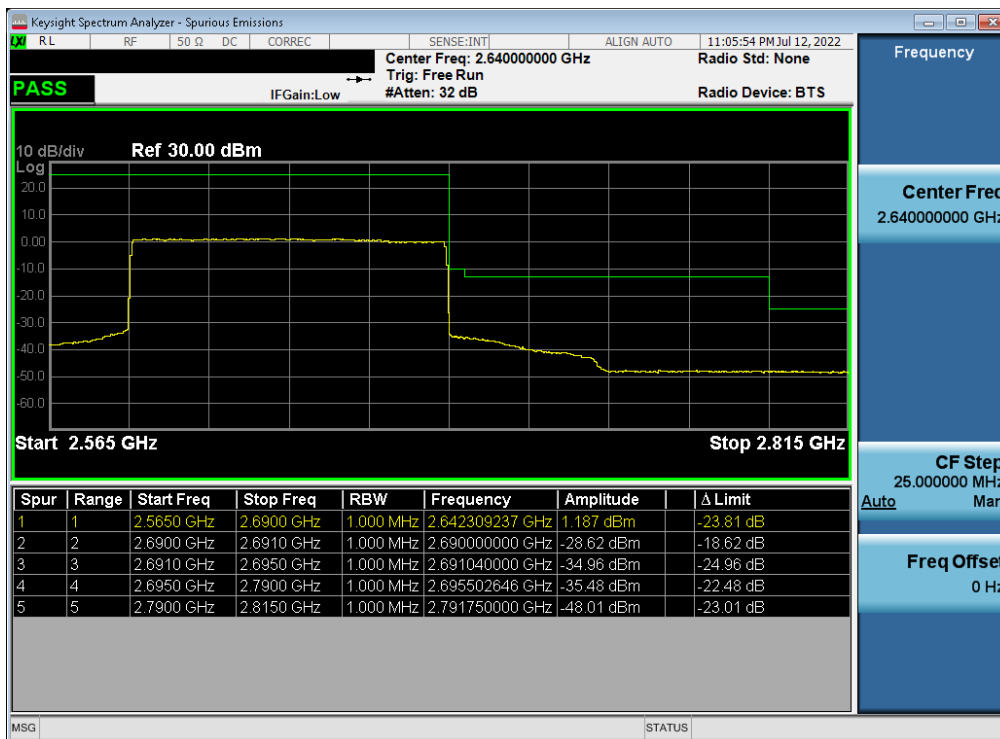
1. Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth. In addition, the attenuation factor shall not be less that $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz.
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.
3. For this section, only the sub antenna band edge emissions are in this report, the main antenna band edge emissions are in the original filing report.
4. In this section, the UL-MIMO NR band n41 (main and sub antennas) plots has a 3dB correction applied to the individual plots to address the MIMO requirements in ANSI C63.26.

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UL-MIMO NR Band n41 – Main Antenna



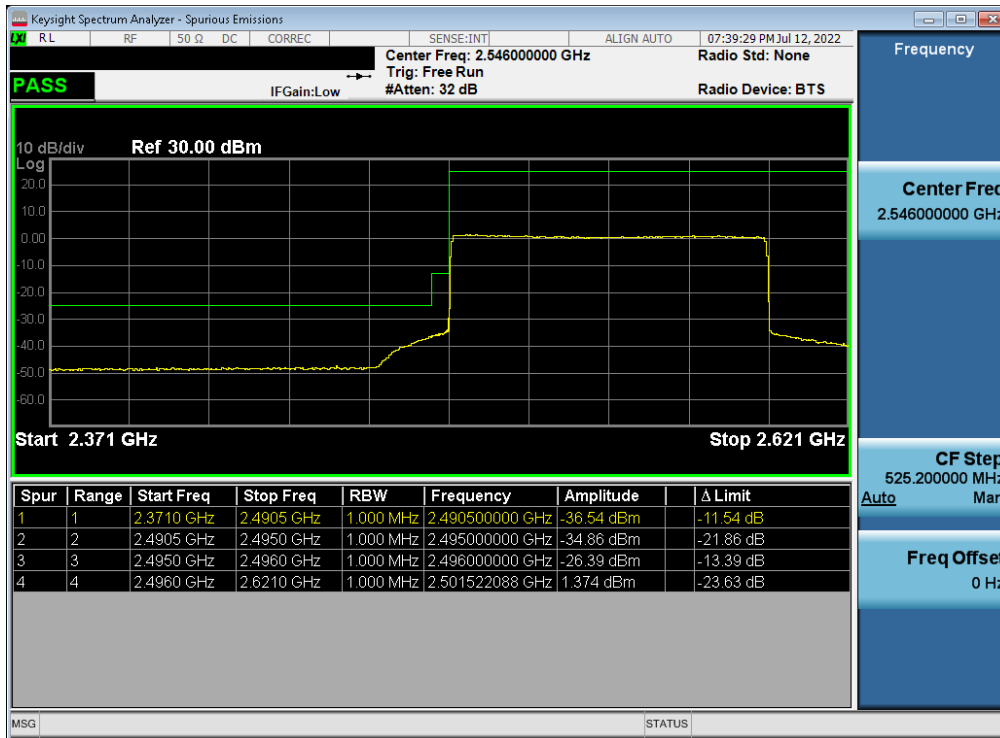
Plot 7-36. Lower ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK – Full RB – Main ANT)



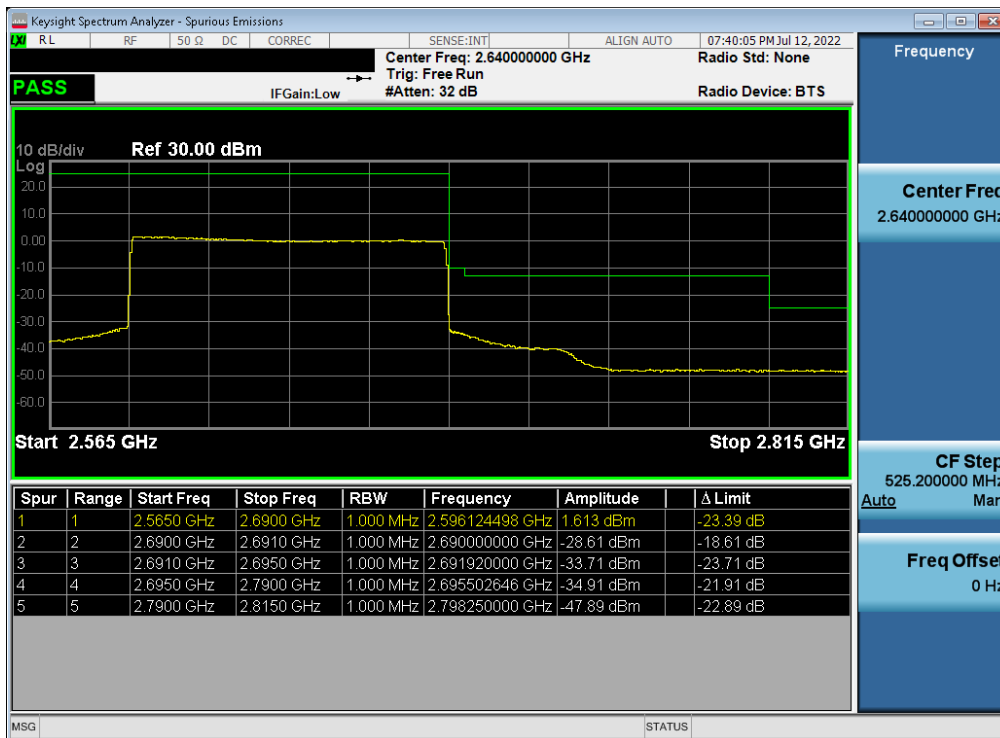
Plot 7-37. Upper ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK – Full RB – Main ANT)

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UL-MIMO NR Band n41 – Sub Antenna

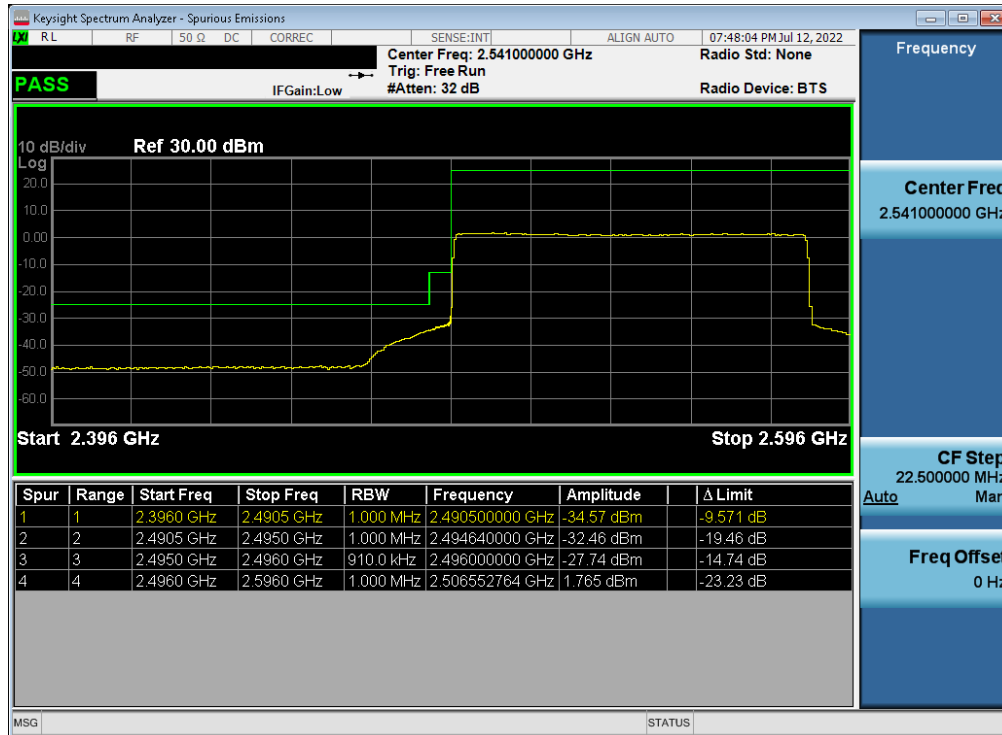


Plot 7-38. Lower ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK – Full RB – Sub ANT)

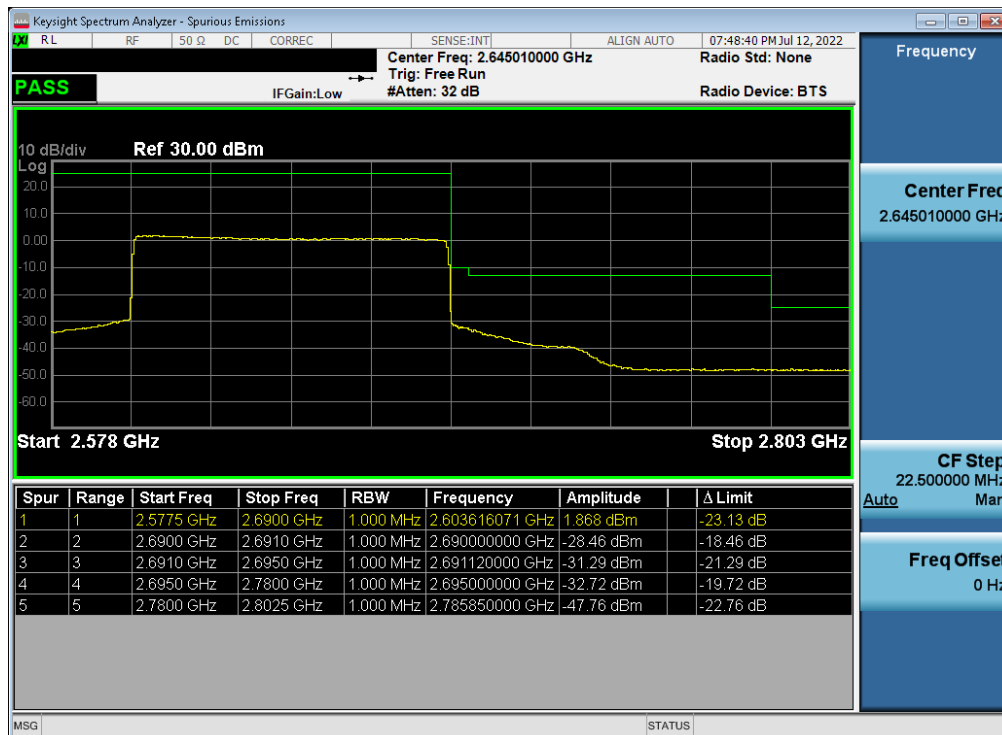


Plot 7-39. Upper ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK – Full RB – Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
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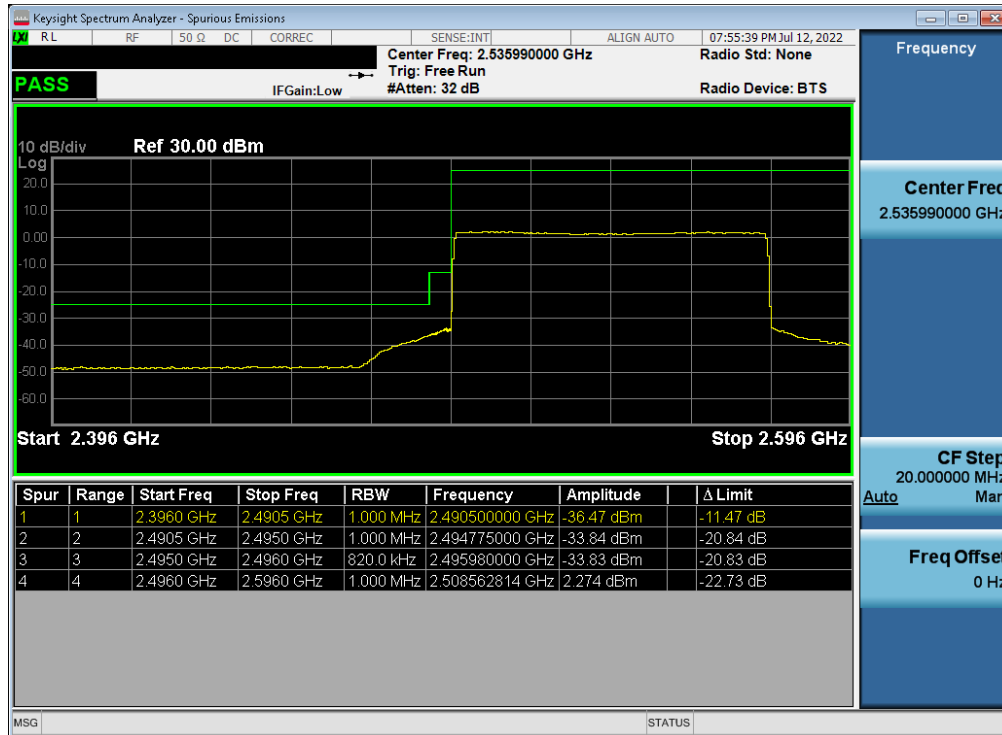


Plot 7-40. Lower ACP Plot (NR Band n41 - 90MHz CP-OFDM-QPSK - Full RB - Sub ANT)

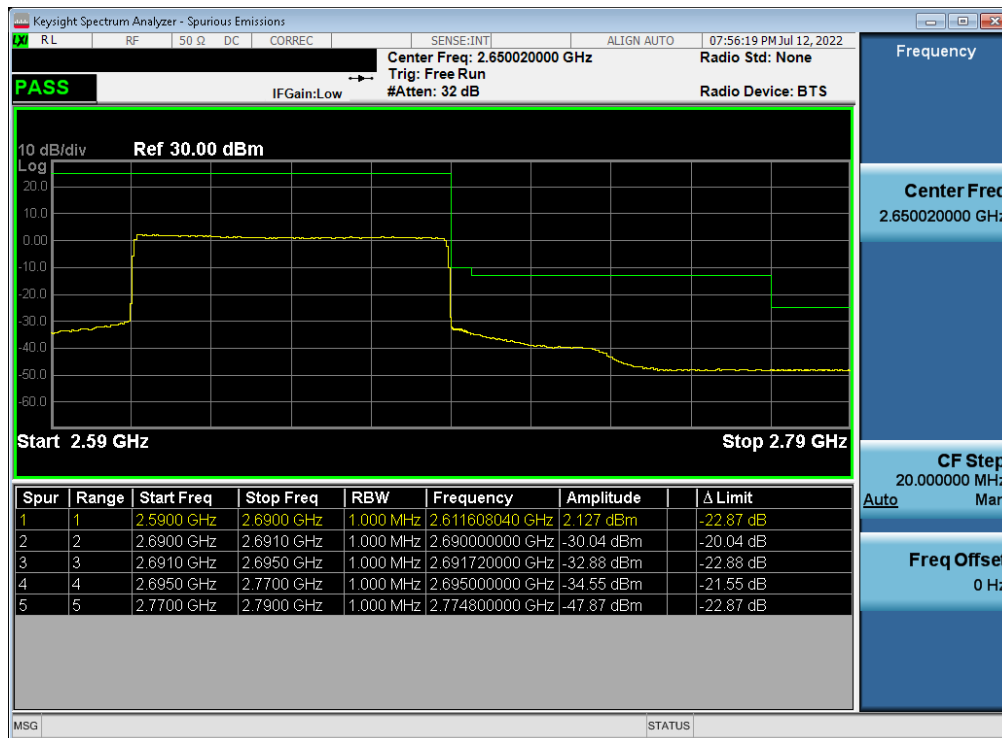


Plot 7-41. Upper ACP Plot (NR Band n41 - 90MHz CP-OFDM-QPSK - Full RB - Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
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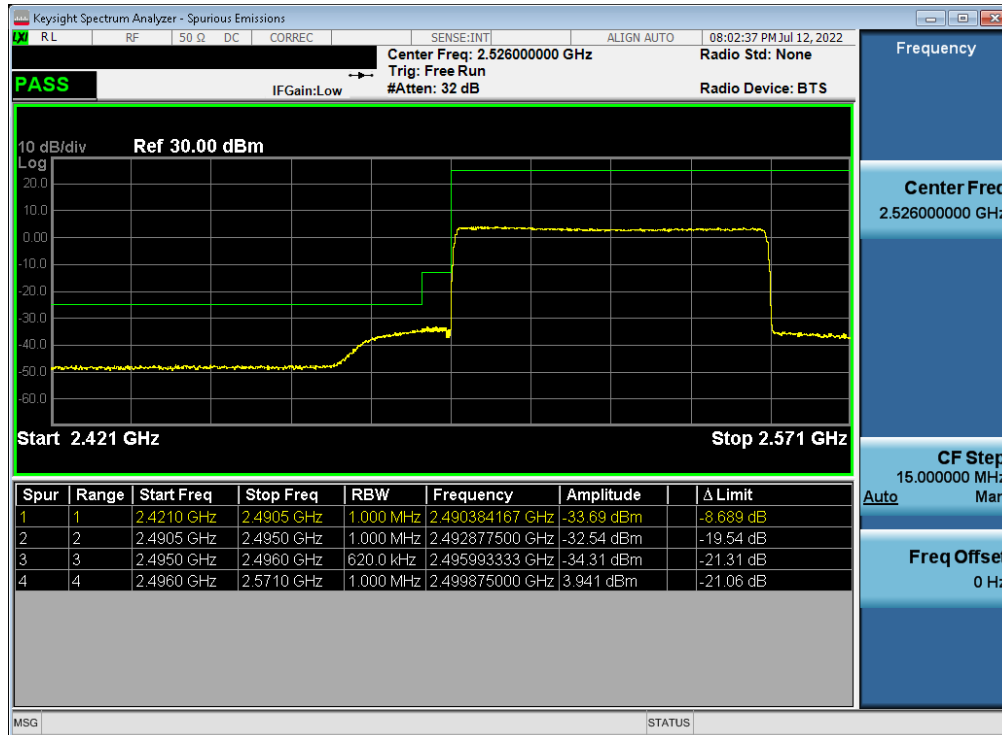


Plot 7-42. Lower ACP Plot (NR Band n41 - 80MHz CP-OFDM-QPSK - Full RB - Sub ANT)

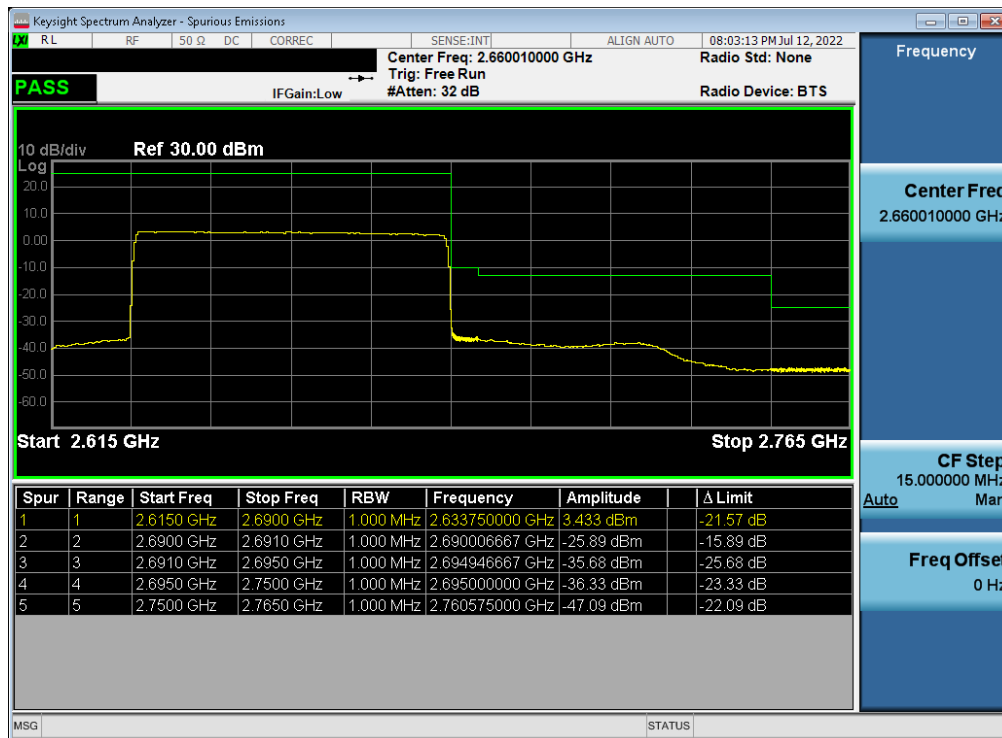


Plot 7-43. Upper ACP Plot (NR Band n41 - 80MHz CP-OFDM-QPSK - Full RB - Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
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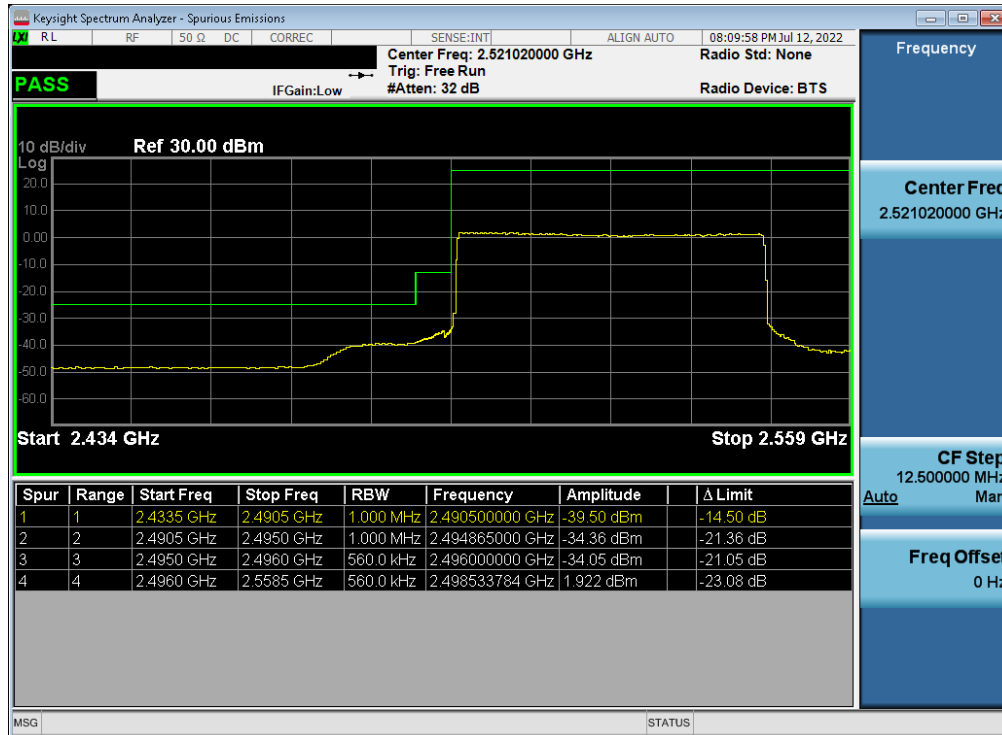


Plot 7-44. Lower ACP Plot (NR Band n41 - 60MHz CP-OFDM-QPSK - Full RB - Sub ANT)

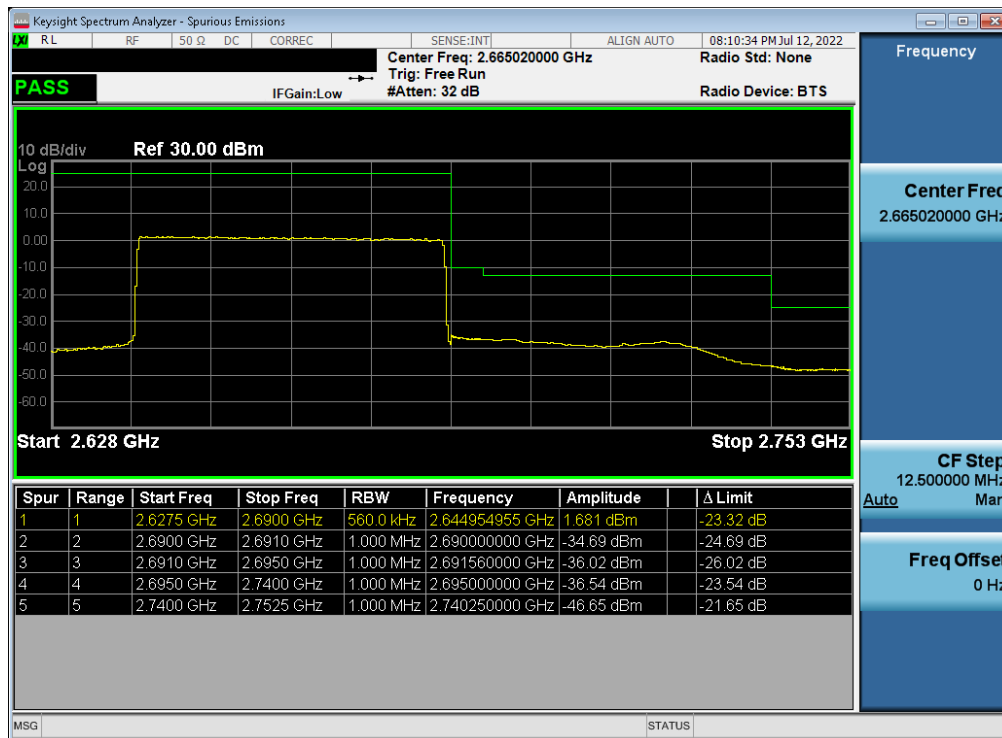


Plot 7-45. Upper ACP Plot (NR Band n41 - 60MHz CP-OFDM-QPSK - Full RB - Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
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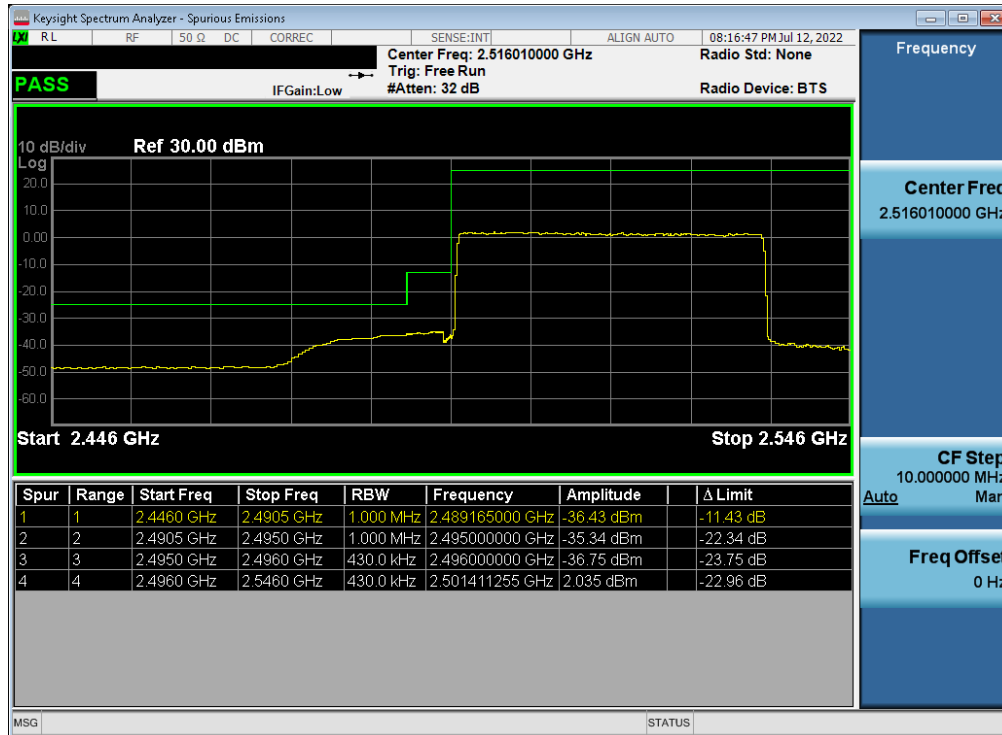


Plot 7-46. Lower ACP Plot (NR Band n41 - 50MHz CP-OFDM-QPSK - Full RB - Sub ANT)

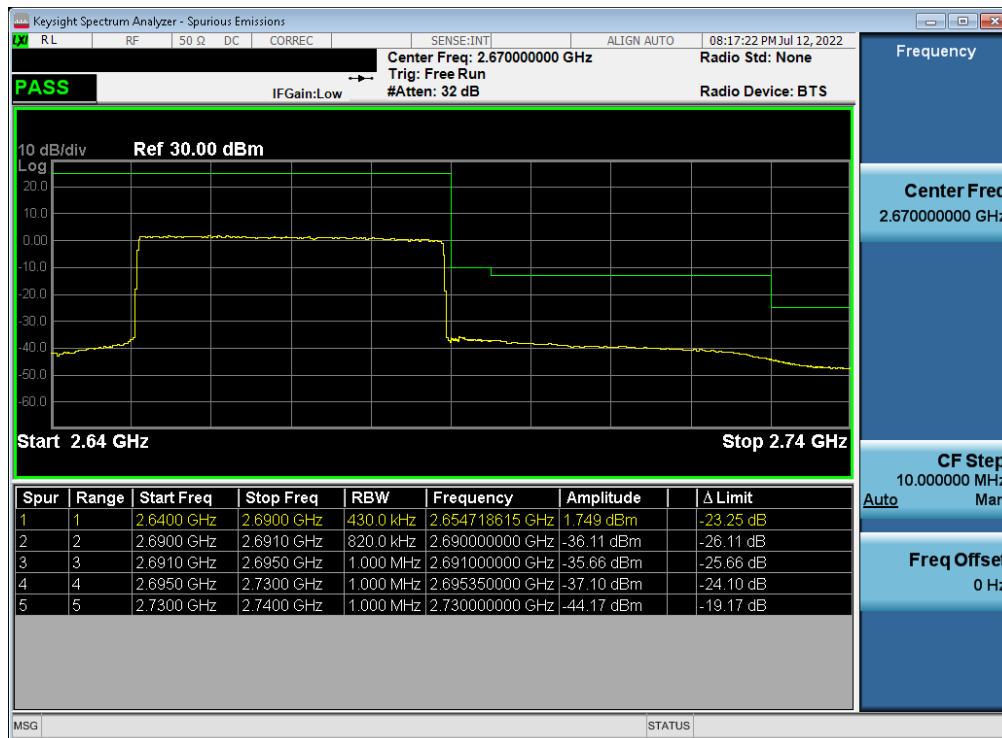


Plot 7-47. Upper ACP Plot (NR Band n41 - 50MHz CP-OFDM-QPSK - Full RB - Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
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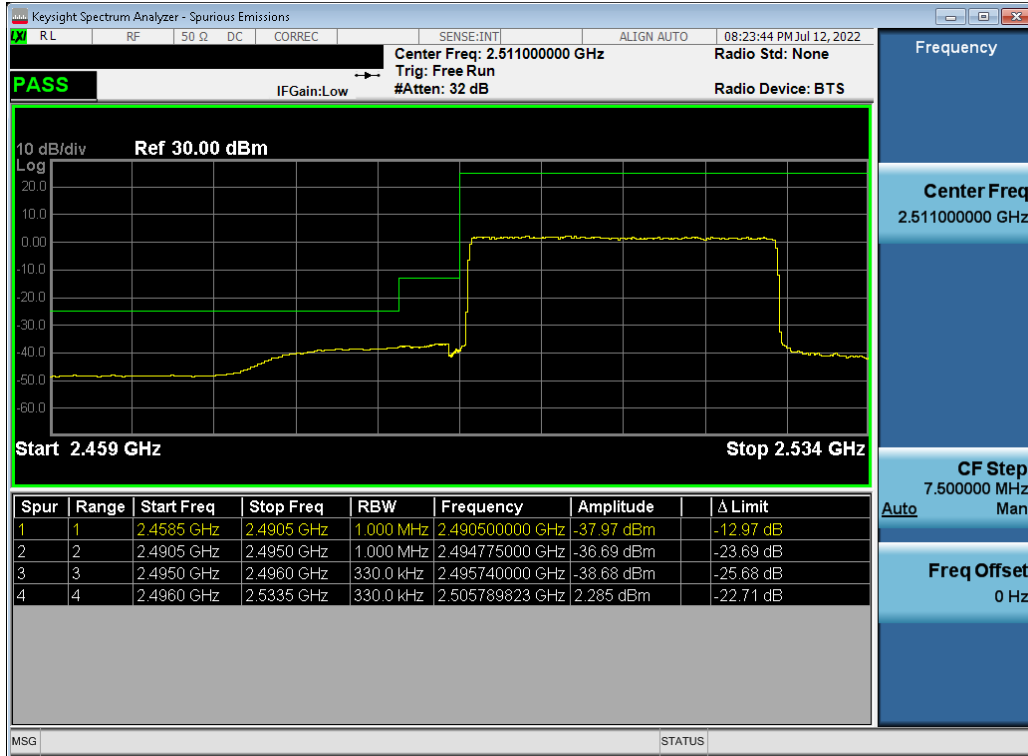


Plot 7-48. Lower ACP Plot (NR Band n41 - 40MHz CP-OFDM-QPSK - Full RB - Sub ANT)

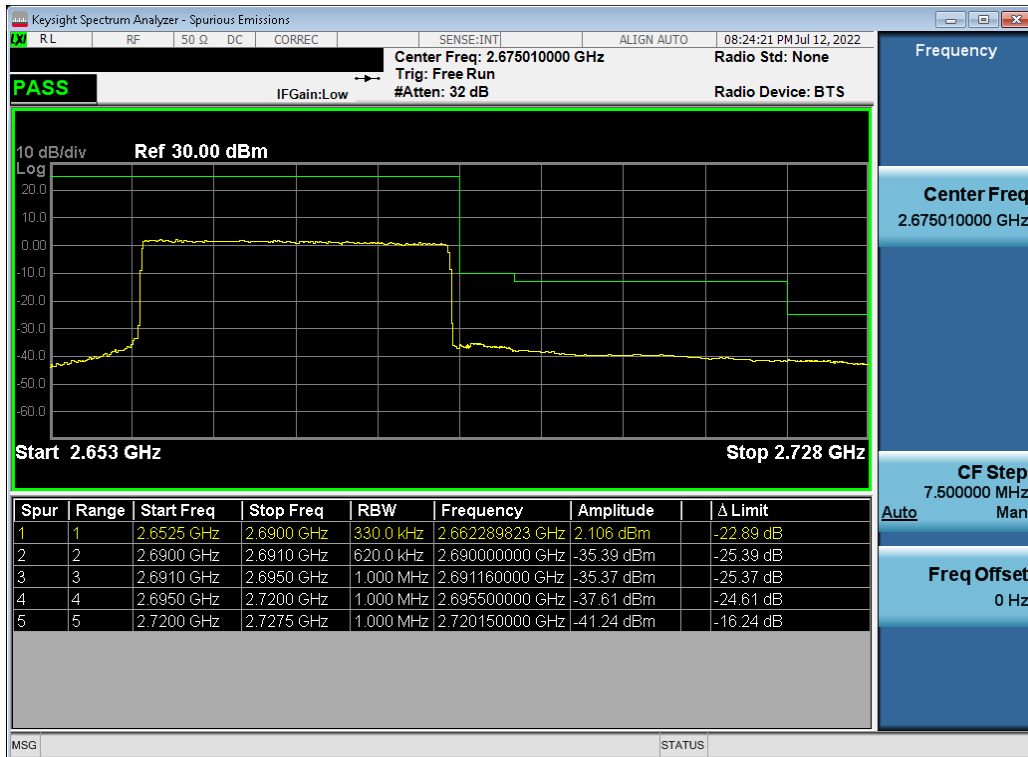


Plot 7-49. Upper ACP Plot (NR Band n41 - 40MHz CP-OFDM-QPSK - Full RB - Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 41 of 53

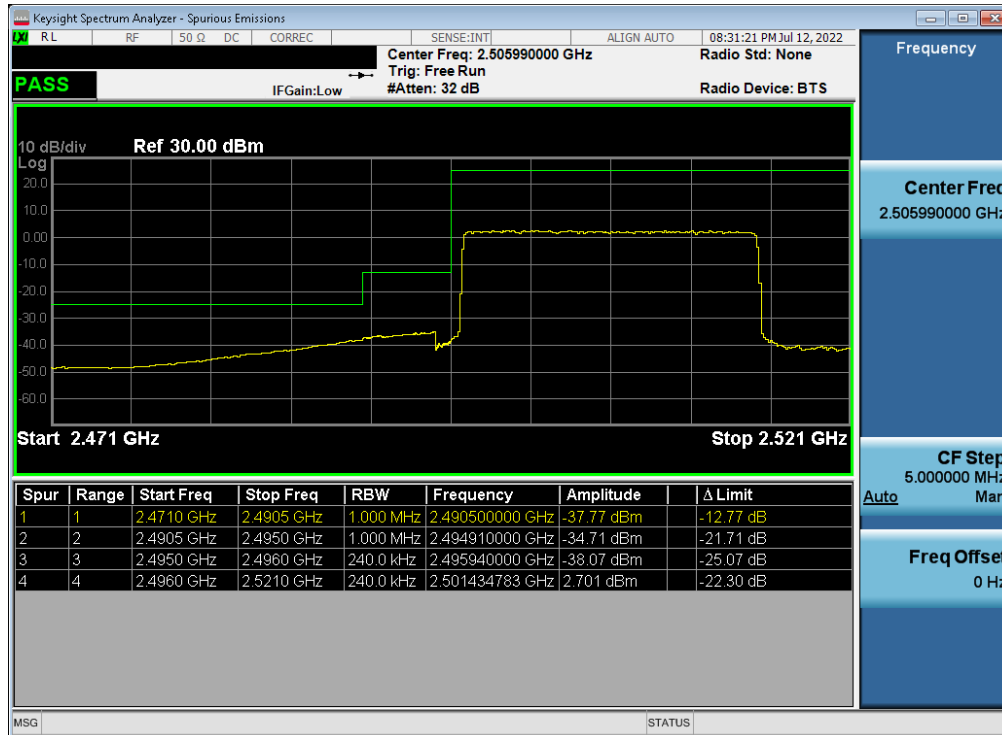


Plot 7-50. Lower ACP Plot (NR Band n41 - 30MHz CP-OFDM-QPSK - Full RB - Sub ANT)

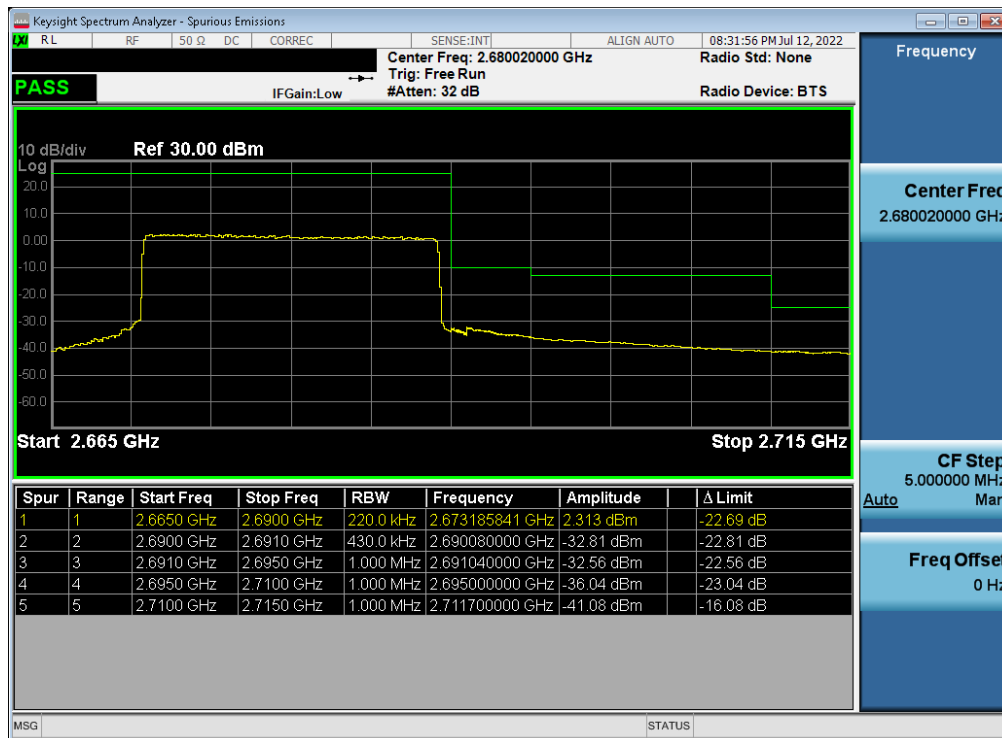


Plot 7-51. Upper ACP Plot (NR Band n41 - 30MHz CP-OFDM-QPSK - Full RB - Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
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Plot 7-52. Lower ACP Plot (NR Band n41 - 20MHz CP-OFDM-QPSK - Full RB - Sub ANT)



Plot 7-53. Upper ACP Plot (NR Band n41 - 20MHz CP-OFDM-QPSK - Full RB - Sub ANT)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
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7.6 Radiated Power (EIRP)

Test Overview

Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

ANSI C63.26-2015 – Section 5.2.4.4

Test Settings

1. Radiated power measurements are performed using the signal analyzer’s “channel power” measurement capability for signals with continuous operation. For signals with burst transmission, the signal analyzer’s “time domain power” measurement capability is used
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW \geq 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points \geq 2 x span / RBW
6. Detector = RMS
7. Trigger is set to “free run” for signals with continuous operation with the sweep times set to “auto”. Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration.
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the “gating” function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize.

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Test Setup

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

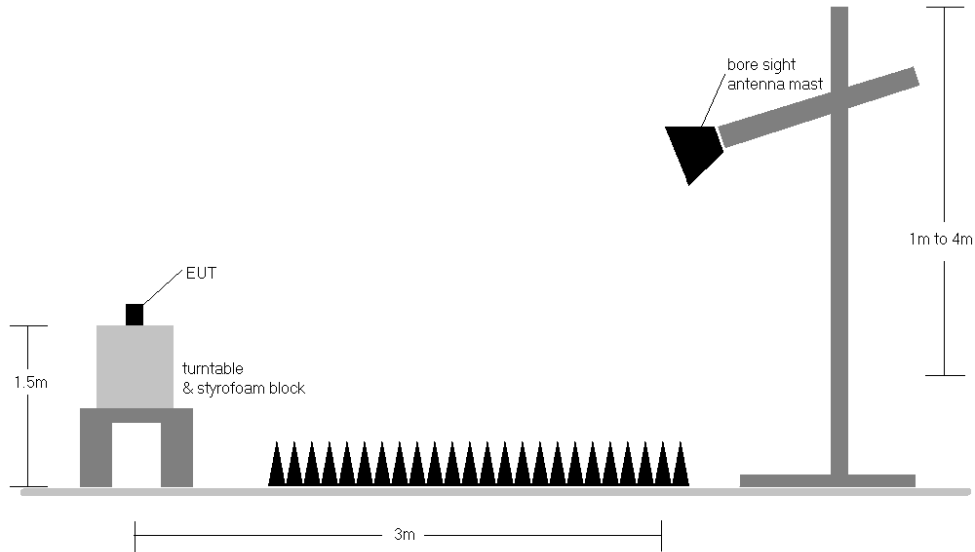


Figure 7-5. Radiated Test Setup >1GHz

Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst-case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.
- 4) For radiated power (EIRP), UL-MIMO test case have both the main and sub antenna transmitting simultaneously.

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
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Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
100 MHz	QPSK	2546.0	H	129	212	9.38	1 / 68	5.93	15.31	0.034	33.01	-17.70
	QPSK	2593.0	H	127	212	9.49	1 / 136	6.56	16.05	0.040	33.01	-16.96
90 MHz	QPSK	2640.0	H	137	208	9.89	1 / 68	6.20	16.09	0.041	33.01	-16.92
	16-QAM	2593.0	H	127	212	9.49	1 / 136	6.03	15.52	0.036	33.01	-17.49
80 MHz	QPSK	2541.0	H	129	212	9.39	1 / 61	5.86	15.25	0.033	33.01	-17.76
	QPSK	2593.0	H	127	212	9.49	1 / 61	6.67	16.16	0.041	33.01	-16.85
70 MHz	QPSK	2645.0	H	137	208	9.91	1 / 61	6.16	16.07	0.040	33.01	-16.94
	16-QAM	2593.0	H	127	212	9.49	1 / 61	5.89	15.38	0.035	33.01	-17.63
60 MHz	QPSK	2536.0	H	129	212	9.40	1 / 54	5.95	15.35	0.034	33.01	-17.66
	QPSK	2593.0	H	127	212	9.49	1 / 54	6.64	16.13	0.041	33.01	-16.88
50 MHz	QPSK	2650.0	H	137	208	9.93	1 / 54	6.10	16.03	0.040	33.01	-16.98
	16-QAM	2593.0	H	127	212	9.49	1 / 54	6.02	15.51	0.036	33.01	-17.50
40 MHz	QPSK	2526.0	H	129	212	9.43	1 / 40	5.92	15.35	0.034	33.01	-17.66
	QPSK	2593.0	H	127	212	9.49	1 / 40	6.78	16.27	0.042	33.01	-16.74
30 MHz	QPSK	2660.0	H	137	208	9.85	1 / 40	6.39	16.24	0.042	33.01	-16.77
	16-QAM	2593.0	H	127	212	9.49	1 / 40	6.07	15.56	0.036	33.01	-17.45
20 MHz	QPSK	2521.0	H	129	212	9.45	1 / 33	6.01	15.46	0.035	33.01	-17.55
	QPSK	2593.0	H	127	212	9.49	1 / 33	6.91	16.40	0.044	33.01	-16.61
10 MHz	QPSK	2665.0	H	137	208	9.84	1 / 66	6.30	16.13	0.041	33.01	-16.88
	16-QAM	2593.0	H	127	212	9.49	1 / 33	6.12	15.61	0.036	33.01	-17.40
5 MHz	QPSK	2516.0	H	129	212	9.48	1 / 53	5.95	15.43	0.035	33.01	-17.58
	QPSK	2593.0	H	127	212	9.49	1 / 53	6.91	16.40	0.044	33.01	-16.61
2.5 MHz	QPSK	2670.0	H	137	208	9.82	1 / 53	6.36	16.18	0.042	33.01	-16.83
	16-QAM	2670.0	H	137	208	9.82	1 / 53	5.63	15.45	0.035	33.01	-17.56
1.25 MHz	QPSK	2511.0	H	129	212	9.50	1 / 19	6.09	15.60	0.036	33.01	-17.41
	QPSK	2593.0	H	127	212	9.49	1 / 39	6.64	16.13	0.041	33.01	-16.88
0.625 MHz	QPSK	2675.0	H	137	208	9.85	1 / 19	6.44	16.28	0.042	33.01	-16.73
	16-QAM	2593.0	H	127	212	9.49	1 / 39	6.12	15.61	0.036	33.01	-17.40
0.3125 MHz	QPSK	2506.0	H	129	212	9.50	1 / 25	5.95	15.45	0.035	33.01	-17.56
	QPSK	2593.0	H	127	212	9.49	1 / 37	6.39	15.88	0.039	33.01	-17.13
0.15625 MHz	QPSK	2680.0	H	137	208	9.87	1 / 25	6.00	15.87	0.039	33.01	-17.14
	16-QAM	2593.0	H	127	212	9.49	1 / 37	5.81	15.30	0.034	33.01	-17.71
0.078125 MHz	QPSK (Opposite Pol.)	2640.0	V	125	337	9.50	1/68	5.22	14.72	0.030	33.01	-18.29
	QPSK (WCP)	2640.0	H	137	208	9.89	1/68	5.58	15.47	0.035	33.01	-17.54

Table 7-1. EIRP Data UL-MIMO NR Band n41 (PC3)

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7.7 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the field strength conversion method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using hybrid (biconical/log) antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

ANSI C63.26-2015 – Section 5.5.4

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW $\geq 3 \times$ RBW
3. Span = 1.5 times the OBW
4. No. of sweep points $\geq 2 \times$ span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

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Test Setup

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

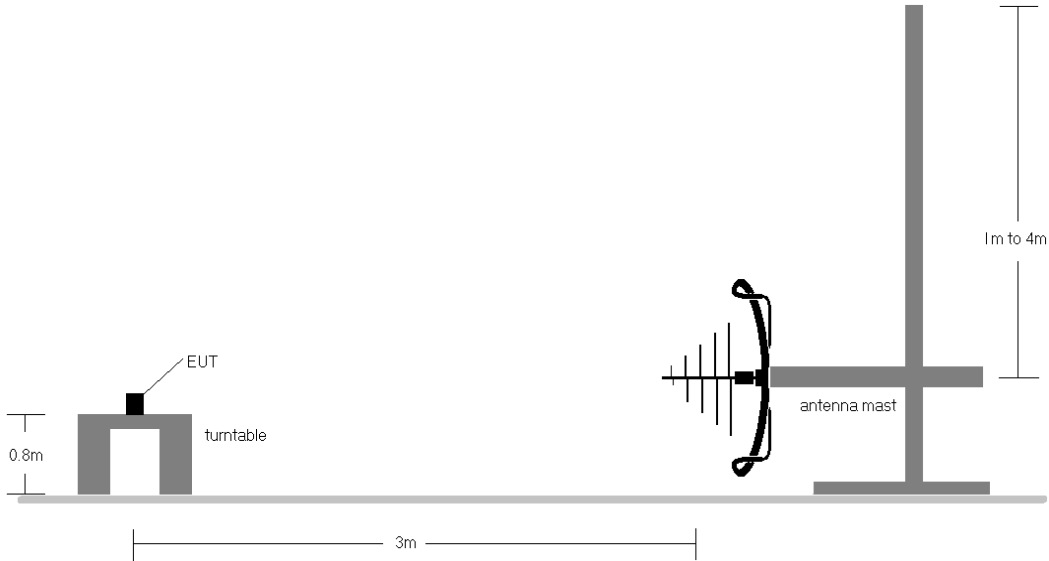


Figure 7-6. Test Instrument & Measurement Setup < 1GHz

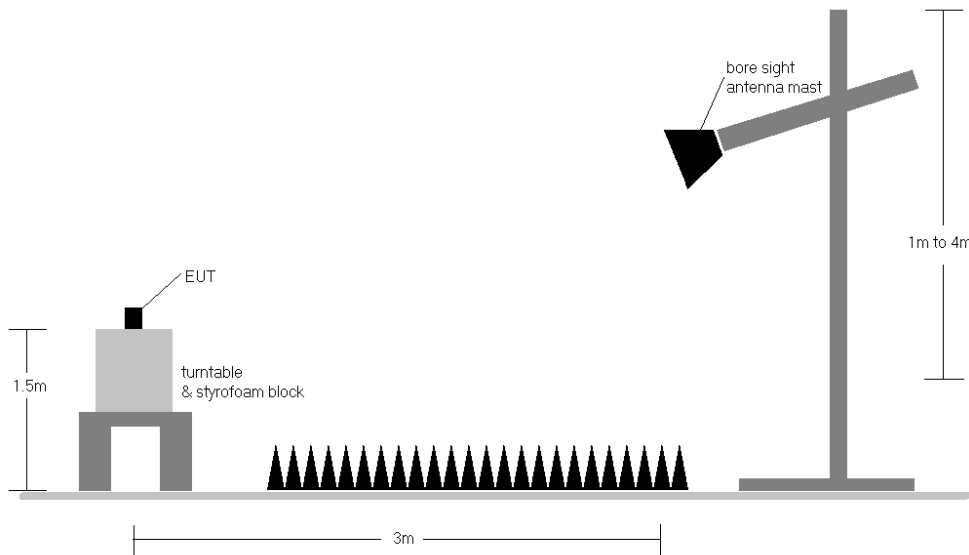


Figure 7-7. Test Instrument & Measurement Setup >1 GHz

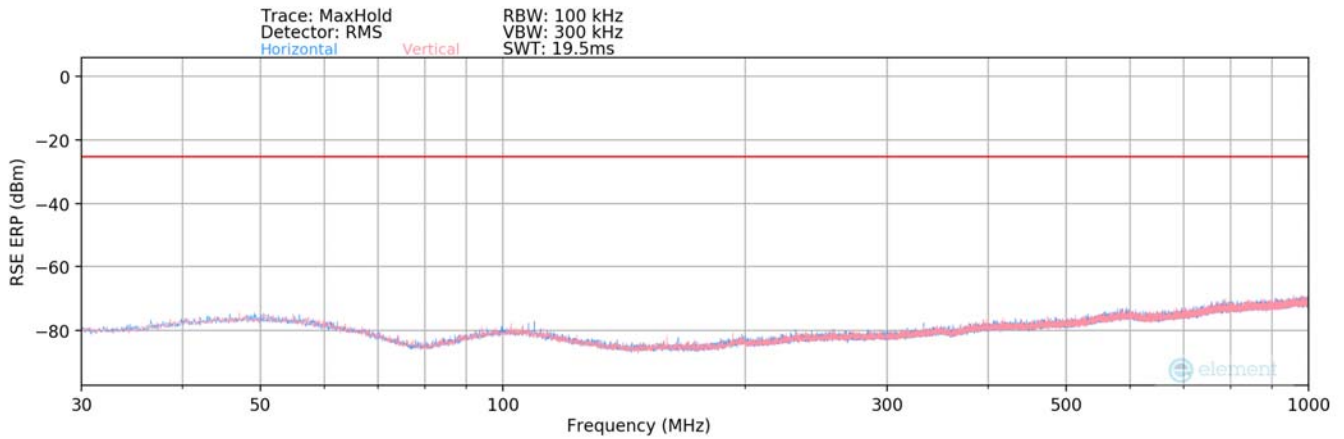
FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
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Test Notes

- 1) Field strengths are calculated using the Measurement quantity conversions in ANSI C63.26-2015 Section 5.2.7:
 - a) $E(\text{dB}\mu\text{V}/\text{m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$
 - b) $\text{EIRP (dBm)} = E(\text{dB}\mu\text{V}/\text{m}) + 20\log D - 104.8$; where D is the measurement distance in meters.
- 2) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst-case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 3) This unit was tested with its standard battery.
- 4) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 5) Emissions below 18GHz were measured at a 3-meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 6) The "-" shown in the following RSE tables are used to denote a noise floor measurement.
- 7) 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.
- 8) For radiated spurious emissions measurements, UL-MIMO test case have both the main and sub antenna transmitting simultaneously.

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UL-MIMO NR Band n41 (PC3)



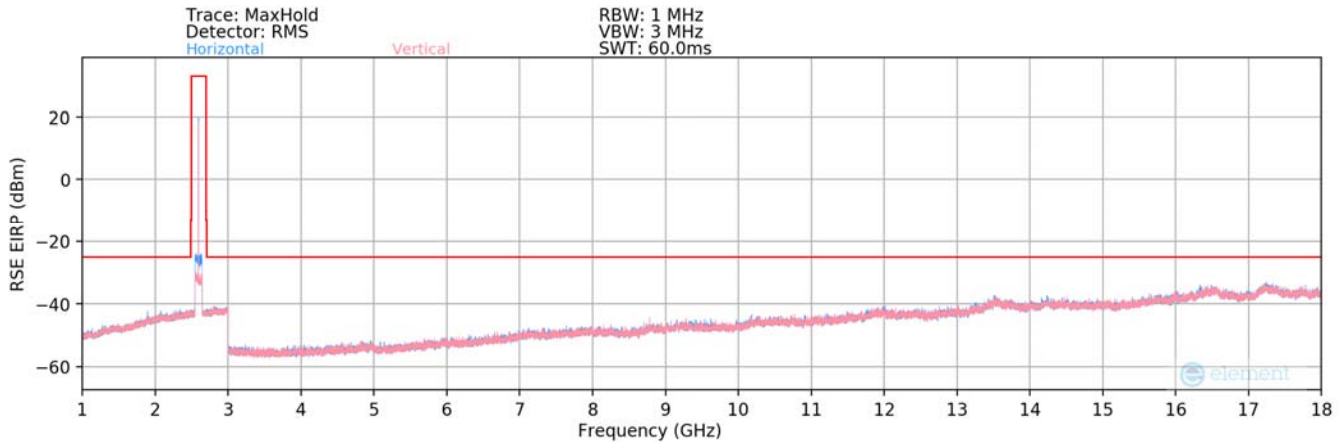
Plot 7-54. Radiated Spurious Plot 30MHz-1GHz (UL-MIMO NR Band n41)

Bandwidth (MHz):	100
Frequency (MHz):	2593.0
RB / Offset:	1 / 136
Mode:	UL-MIMO

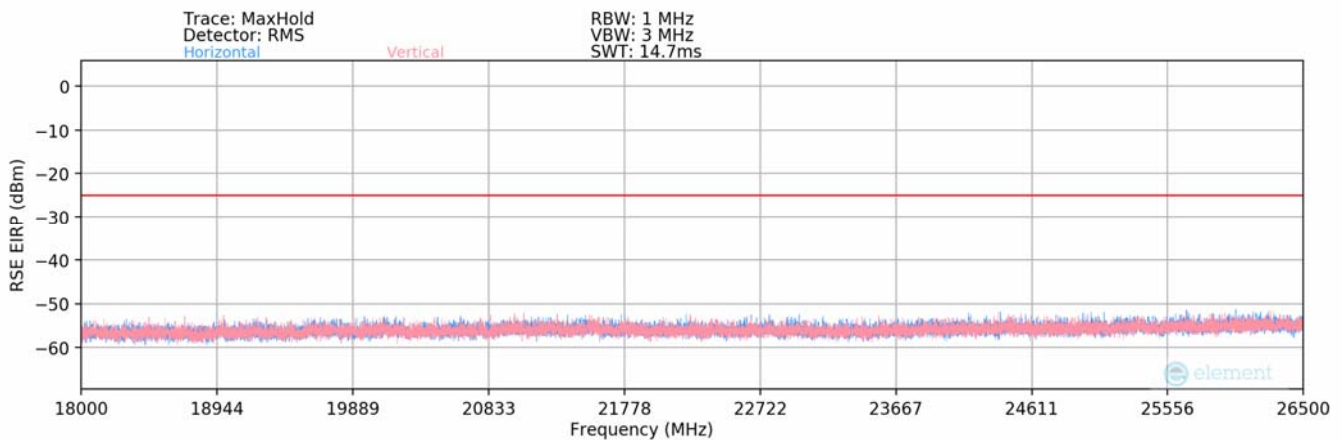
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
109.40	H	-	-	-70.14	-16.77	20.09	-75.17	-25.00	-50.17

Table 7-2. Radiated Spurious Data (UL-MIMO NR Band n41)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
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Plot 7-55. Radiated Spurious Plot 1-18GHz (UL-MIMO NR Band n41)



Plot 7-56. Radiated Spurious Plot 1-18GHz (UL-MIMO NR Band n41)

Bandwidth (MHz):	100
Frequency (MHz):	2546.0
RB / Offset:	1 / 136
Mode:	UL-MIMO

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
5092.00	H	-	-	-72.71	9.98	44.27	-50.99	-25.00	-25.99
7638.00	H	-	-	-75.49	16.47	47.98	-47.27	-25.00	-22.27
10184.00	H	-	-	-76.46	20.95	51.49	-43.77	-25.00	-18.77

Table 7-3. Radiated Spurious Data (UL-MIMO NR Band n41– Low Channel)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1-PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 51 of 53



Bandwidth (MHz):	100
Frequency (MHz):	2593.0
RB / Offset:	1 / 136
Mode:	UL-MIMO

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
5186.00	H	-	-	-73.31	10.50	44.19	-51.07	-25.00	-26.07
7779.00	H	-	-	-74.31	16.31	49.00	-46.26	-25.00	-21.26
10372.00	H	-	-	-74.98	20.12	52.14	-43.12	-25.00	-18.12

Table 7-4. Radiated Spurious Data (UL-MIMO NR Band n41– Mid Channel)

Bandwidth (MHz):	100
Frequency (MHz):	2640.0
RB / Offset:	1 / 136
Mode:	UL-MIMO

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
5280.00	H	-	-	-73.72	10.48	43.76	-51.49	-25.00	-26.49
7920.00	H	-	-	-74.40	16.35	48.95	-46.31	-25.00	-21.31
10560.00	H	-	-	-75.19	20.50	52.31	-42.95	-25.00	-17.95

Table 7-5. Radiated Spurious Data (UL-MIMO NR Band n41– High Channel)

Case:	w/ Wireless Charging Pad
Bandwidth (MHz):	100
Frequency (MHz):	2593.0
RB / Offset:	1 / 136
Mode:	UL-MIMO

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
5186.00	H	-	-	-73.42	10.50	44.08	-51.18	-25.00	-26.18
7779.00	H	-	-	-74.46	16.31	48.85	-46.41	-25.00	-21.41
10372.00	H	-	-	-75.64	20.12	51.48	-43.78	-25.00	-18.78

Table 7-6. Radiated Spurious Data with WCP (UL-MIMO NR Band n41)

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **SONY Portable Handset FCC ID: PY7-57325M** complies with all the requirements of Part 27 of the FCC rules.

FCC ID: PY7-57325M	PART 27 MEASUREMENT REPORT (CLASS II PERMISSIVE CHANGE)		Approved by: Technical Manager
Test Report S/N: 1M2206010068-01-R1.PY7	Test Dates: 05/05/2022 - 07/12/2022	EUT Type: Portable Handset	Page 53 of 53

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