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PART 27 MEASUREMENT REPORT

Applicant Name:
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Tokyo, 108-0075, Japan

Date of Testing:
06/03/2022 - 08/09/2022
Test Report Issue Date:
8/10/2022
Test Site/Location:
Element Lab., Columbia, MD, USA
Test Report Serial No.:
1M2205240063-07.PY7

FCC ID:	**PY7-76056F**
Applicant Name:	**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

ACCREDITED
CERT #2041.01

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Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP		Emission Designator
				Max. Power [W]	Max. Power [dBm]	
LTE Band 41(PC3)	20 MHz	QPSK	2506.0 - 2680.0	0.061	17.83	18M0G7D
		16QAM	2506.0 - 2680.0	0.056	17.45	18M1W7D
	15 MHz	QPSK	2503.5 - 2682.5	0.063	18.01	13M5G7D
		16QAM	2503.5 - 2682.5	0.055	17.38	13M5W7D
	10 MHz	QPSK	2501.0 - 2685.0	0.066	18.22	9M06G7D
		16QAM	2501.0 - 2685.0	0.058	17.61	9M05W7D
	5 MHz	QPSK	2498.5 - 2687.5	0.068	18.31	4M54G7D
		16QAM	2498.5 - 2687.5	0.060	17.76	4M52W7D
NR Band n41	100 MHz	π/2 BPSK	2546.0 - 2640.0	0.174	22.41	97M2G7D
		QPSK	2546.0 - 2640.0	0.182	22.59	98M4G7D
		16QAM	2546.0 - 2640.0	0.150	21.76	97M3W7D
	90 MHz	π/2 BPSK	2541.0 - 2645.0	0.174	22.42	87M6G7D
		QPSK	2541.0 - 2645.0	0.179	22.53	88M1G7D
		16QAM	2541.0 - 2645.0	0.162	22.10	88M2W7D
	80 MHz	π/2 BPSK	2536.0 - 2650.0	0.178	22.51	77M6G7D
		QPSK	2536.0 - 2650.0	0.186	22.70	78M1G7D
		16QAM	2536.0 - 2650.0	0.167	22.23	77M8W7D
	60 MHz	π/2 BPSK	2526.0 - 2660.0	0.184	22.64	58M5G7D
		QPSK	2526.0 - 2660.0	0.192	22.84	58M4G7D
		16QAM	2526.0 - 2660.0	0.170	22.29	58M4W7D
	50 MHz	π/2 BPSK	2521.0 - 2665.0	0.186	22.69	46M2G7D
		QPSK	2521.0 - 2665.0	0.193	22.86	47M9G7D
		16QAM	2521.0 - 2665.0	0.167	22.22	47M9W7D
	40 MHz	π/2 BPSK	2516.0 - 2670.0	0.186	22.68	36M0G7D
		QPSK	2516.0 - 2670.0	0.192	22.83	38M2G7D
		16QAM	2516.0 - 2670.0	0.164	22.14	38M2W7D
	30 MHz	π/2 BPSK	2511.0 - 2675.0	0.189	22.76	27M1G7D
		QPSK	2511.0 - 2675.0	0.199	22.99	28M1G7D
		16QAM	2511.0 - 2675.0	0.185	22.66	28M1W7D
	20 MHz	π/2 BPSK	2506.0 - 2680.0	0.195	22.91	18M1G7D
		QPSK	2506.0 - 2680.0	0.198	22.97	18M5G7D
		16QAM	2506.0 - 2680.0	0.148	21.70	18M4W7D

EUT Overview (LTE/NR)

Mode	Bandwidth	Modulation	Tx Frequency Range [MHz]	EIRP	
				Max. Power [W]	Max. Power [dBm]
UL-MIMO NR Band n41 (PC3)	100MHz	QPSK	2546.0 - 2640.0	0.052	17.15
		16QAM	2546.0 - 2640.0	0.045	16.54
	90MHz	QPSK	2541.0 - 2645.0	0.053	17.23
		16QAM	2541.0 - 2645.0	0.042	16.19
	80MHz	QPSK	2536.0 - 2650.0	0.053	17.23
		16QAM	2536.0 - 2650.0	0.042	16.23
	60MHz	QPSK	2526.0 - 2660.0	0.055	17.40
		16QAM	2526.0 - 2660.0	0.043	16.35
	50MHz	QPSK	2521.0 - 2665.0	0.056	17.45
		16QAM	2521.0 - 2665.0	0.045	16.52
	40MHz	QPSK	2516.0 - 2670.0	0.058	17.62
		16QAM	2516.0 - 2670.0	0.048	16.81
	30MHz	QPSK	2511.0 - 2675.0	0.057	17.59
		16QAM	2511.0 - 2675.0	0.048	16.79
	20MHz	QPSK	2506.0 - 2680.0	0.056	17.48
		16QAM	2506.0 - 2680.0	0.045	16.53

EUT Overview (UL-MIMO)

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.

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Sony Corporation Portable Handset FCC ID: PY7-76056F**. 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.: 94880, 99864, 00001, 00084

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 GSM/GPRS/EDGE, 850/1700/1900, WCDMA/HSPA, Multi-band LTE, Multi-band 5G NR FR1, 802.11b/g/n/ax WLAN, 802.11a/n/ac/ax UNII (5 and 6 GHz), Bluetooth (1x, EDR, LE), NFC, Wireless Power Transfer

2.3 Test Configuration

The EUT was tested per the guidance of ANSI C63.26-2015. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

This device supports wireless charging capability and, thus, is subject to the test requirements of KDB 648474 D03 v01r04. Additional radiated spurious emission measurements were performed with the EUT lying flat on an authorized wireless charging pad (WCP) Model: Belkin F7U050 while operating under normal conditions in a simulated call or data transmission configuration. The worst case radiated emissions data is shown in this report.

2.4 Software and Firmware

Testing was performed on device(s) using software/firmware version 0.45000000000000001 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.

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 $P_{g\ [dBm]}$ – 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

$$EIRP_{[dBm]} = E_{[dB\mu V/m]} + 20\log D - 104.8;$$ where D 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.

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 (±dB)
Conducted Bench Top Measurements	1.13
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

5.0 TEST EQUIPMENT CALIBRATION DATA

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

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	AP2	EMC Cable and Switch System	1/4/2022	Annual	1/4/2023	AP2
-	ETS	EMC Cable and Switch System	12/9/2021	Annual	12/9/2022	ETS
-	MVG	EMC Cable and Switch System	3/10/2022	Annual	3/10/2023	MVG
-	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	9/25/2022	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	N9030A	PXA Signal Analyzer (44GHz)	2/14/2022	Annual	2/14/2023	MY52350166
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	8/25/2022	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	9/25/2022	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.

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.

7.0 TEST RESULTS

7.1 Summary

Company Name: Sony Corporation

FCC ID: PY7-76056F

FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)

Mode(s): LTE/NR

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

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.

7.2 Conducted Output Power Data

Test Overview

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

Test Procedure Used

ANSI C63.26-2015 – Section 5.2

Test Settings

1. Span = 2 x OBW to 3 x OBW
2. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. Please see test notes below for RBW and VBW settings

Test Setup

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

Figure 7-1. Test Instrument & Measurement Setup

Test Notes

1. Conducted power measurements were evaluated using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device.

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

NR (SCS 30kHz)						LTE						NR Conducted Power [dBm]	LTE Conducted Power [dBm]	EN-DC Total Tx. Power [dBm]
NR Band	NR Bandwidth [MHz]	NR Channel	NR Frequency [MHz]	Mod.	NR RB#/Offset	LTE Band	LTE Bandwidth [MHz]	LTE Channel	LTE Frequency [MHz]	Mod.	LTE RB#/Offset			
n41 (PC3)	100	Mid	2593	QPSK	270/0	B2 (Sub)	20	Mid	1880	QPSK	100/0	22.82	23.64	26.26
				QPSK	270/0					QPSK	1/50	22.75	23.75	26.29
				QPSK	1/136					QPSK	100/0	22.80	23.61	26.23
				QPSK	1/136					QPSK	1/50	22.84	23.74	26.32
				16Q	1/136					16Q	1/50	22.71	23.60	26.19

Table 7-1. Conducted Output Power (EN-DC: NR Band n41 – LTE Band 2)

Bandwidth	Modulation	Channel	Frequency [MHz]	Main ANT RB Size/Offset	Main ANT Conducted Power [dBm]	Sub ANT RB Size/Offset	Sub ANT Conducted Power [dBm]	UL-MIMO Conducted Power [dBm]
100 MHz	QPSK	510000	2550.0	273 / 0	19.72	1 / 68	18.97	22.37
		518598	2593.0	273 / 0	19.69	1 / 68	19.16	22.44
		528000	2640.0	273 / 0	19.45	1 / 204	19.14	22.30
	16-QAM	510000	2550.0	1 / 68	19.91	1 / 68	19.36	22.65
		518598	2593.0	1 / 136	19.29	1 / 68	19.67	22.50
		528000	2640.0	1 / 68	19.68	1 / 204	19.72	22.71
	64-QAM	510000	2550.0	1 / 68	19.93	1 / 68	19.34	22.65
		518598	2593.0	1 / 136	19.58	1 / 68	19.37	22.49
		528000	2640.0	1 / 68	19.44	1 / 204	19.51	22.49
	256-QAM	510000	2550.0	1 / 68	19.62	1 / 68	18.99	22.33
		518598	2593.0	1 / 136	19.76	1 / 68	19.41	22.60
		528000	2640.0	1 / 68	19.40	1 / 204	19.14	22.28
90 MHz	QPSK	509000	2545.0	245 / 0	19.70	245 / 0	19.12	22.43
		518592	2593.0	245 / 0	19.63	245 / 0	19.14	22.40
		529002	2645.0	245 / 0	19.55	245 / 0	19.19	22.38
	16-QAM	509000	2545.0	245 / 0	19.72	245 / 0	19.13	22.45
		518592	2593.0	245 / 0	19.64	245 / 0	19.11	22.39
		529002	2645.0	245 / 0	19.51	245 / 0	19.17	22.36
	64-QAM	509000	2545.0	245 / 0	19.72	245 / 0	19.16	22.46
		518592	2593.0	245 / 0	19.68	245 / 0	19.12	22.42
		529002	2645.0	245 / 0	19.53	245 / 0	19.20	22.38
	256-QAM	509000	2545.0	245 / 0	19.75	245 / 0	19.12	22.46
		518592	2593.0	245 / 0	19.65	245 / 0	19.15	22.42
		529002	2645.0	245 / 0	19.57	245 / 0	19.18	22.39
80 MHz	QPSK	508000	2540.0	217 / 0	19.79	217 / 0	19.23	22.53
		518598	2593.0	1 / 108	19.83	217 / 0	19.16	22.52
		529998	2650.0	217 / 0	19.52	217 / 0	19.22	22.38
	16-QAM	508000	2540.0	217 / 0	19.79	217 / 0	19.21	22.52
		518598	2593.0	1 / 108	19.92	217 / 0	19.18	22.58
		529998	2650.0	217 / 0	19.54	217 / 0	19.24	22.40
	64-QAM	508000	2540.0	217 / 0	19.76	217 / 0	19.22	22.51
		518598	2593.0	1 / 108	19.96	217 / 0	19.17	22.59
		529998	2650.0	217 / 0	19.54	217 / 0	19.18	22.37
	256-QAM	508000	2540.0	217 / 0	19.81	217 / 0	19.24	22.55
		518598	2593.0	1 / 108	19.61	217 / 0	19.20	22.42
		529998	2650.0	217 / 0	19.56	217 / 0	19.23	22.41
60 MHz	QPSK	506000	2530.0	162 / 0	19.93	162 / 0	19.36	22.66
		518598	2593.0	162 / 0	19.92	162 / 0	19.38	22.67
		531996	2660.0	162 / 0	19.66	162 / 0	19.41	22.55
	16-QAM	506000	2530.0	162 / 0	19.96	162 / 0	19.36	22.68
		518598	2593.0	162 / 0	19.96	162 / 0	19.41	22.70
		531996	2660.0	162 / 0	19.64	162 / 0	19.41	22.54
	64-QAM	506000	2530.0	162 / 0	19.93	162 / 0	19.40	22.68
		518598	2593.0	162 / 0	19.92	162 / 0	19.39	22.67
		531996	2660.0	162 / 0	19.62	162 / 0	19.40	22.52
	256-QAM	506000	2530.0	162 / 0	19.97	162 / 0	19.41	22.71
		518598	2593.0	162 / 0	19.92	162 / 0	19.39	22.67
		531996	2660.0	162 / 0	19.66	162 / 0	19.42	22.55
50 MHz	QPSK	505000	2525.0	133 / 0	19.93	1 / 99	19.42	22.69
		518598	2593.0	133 / 0	19.94	1 / 99	19.72	22.84
		532998	2665.0	133 / 0	19.74	1 / 99	19.43	22.60
	16-QAM	505000	2525.0	133 / 0	19.92	1 / 99	19.79	22.87
		518598	2593.0	133 / 0	19.92	1 / 99	19.57	22.76
		532998	2665.0	133 / 0	19.74	1 / 99	19.62	22.69
	64-QAM	505000	2525.0	133 / 0	19.95	1 / 99	19.69	22.83
		518598	2593.0	133 / 0	19.92	1 / 99	19.61	22.78
		532998	2665.0	133 / 0	19.58	1 / 99	19.68	22.64
	256-QAM	505000	2525.0	133 / 0	20.00	1 / 99	19.31	22.68
		518598	2593.0	133 / 0	19.93	1 / 99	19.37	22.67
		532998	2665.0	133 / 0	19.75	1 / 99	19.40	22.59
40 MHz	QPSK	504000	2520.0	1 / 79	20.11	1 / 53	19.54	22.85
		518598	2593.0	106 / 0	20.08	1 / 79	19.54	22.83
		534000	2670.0	1 / 26	19.86	106 / 0	19.66	22.77
	16-QAM	504000	2520.0	1 / 79	20.43	1 / 53	19.79	23.13
		518598	2593.0	106 / 0	20.04	1 / 79	20.02	23.04
		534000	2670.0	1 / 26	20.34	106 / 0	19.55	22.98
	64-QAM	504000	2520.0	1 / 79	20.33	1 / 53	19.57	22.98
		518598	2593.0	106 / 0	20.07	1 / 79	19.66	22.88
		534000	2670.0	1 / 26	20.20	106 / 0	19.58	22.91
	256-QAM	504000	2520.0	1 / 79	20.26	1 / 53	19.46	22.89
		518598	2593.0	106 / 0	20.10	1 / 79	19.35	22.75
		534000	2670.0	1 / 26	19.72	106 / 0	19.58	22.67
30 MHz	QPSK	503000	2515.0	78 / 0	20.10	78 / 0	19.57	22.85
		518598	2593.0	1 / 58	20.19	1 / 58	19.56	22.90
		534999	2675.0	78 / 0	19.80	78 / 0	19.67	22.74
	16-QAM	503000	2515.0	78 / 0	20.11	78 / 0	19.42	22.79
		518598	2593.0	1 / 19	20.42	1 / 58	19.82	23.14
		534999	2675.0	78 / 0	19.74	78 / 0	19.61	22.69
	64-QAM	503000	2515.0	78 / 0	20.06	78 / 0	19.45	22.78
		518598	2593.0	1 / 19	20.40	1 / 58	19.77	23.10
		534999	2675.0	78 / 0	19.75	78 / 0	19.59	22.68
	256-QAM	503000	2515.0	78 / 0	20.13	78 / 0	19.50	22.84
		518598	2593.0	1 / 19	20.18	1 / 58	19.67	22.94
		534999	2675.0	78 / 0	19.81	78 / 0	19.65	22.74
20 MHz	QPSK	502000	2510.0	51 / 0	20.04	51 / 0	19.41	22.75
		518598	2593.0	51 / 0	20.09	1 / 25	19.47	22.80
		535998	2680.0	51 / 0	19.67	1 / 37	19.57	22.63
	16-QAM	502000	2510.0	51 / 0	20.06	51 / 0	19.35	22.73
		518598	2593.0	51 / 0	20.14	1 / 25	19.49	22.84
		535998	2680.0	51 / 0	19.61	1 / 37	19.77	22.70
	64-QAM	502000	2510.0	51 / 0	20.02	51 / 0	19.41	22.74
		518598	2593.0	51 / 0	20.07	1 / 25	19.69	22.89
		535998	2680.0	51 / 0	19.68	1 / 37	19.63	22.66
	256-QAM	502000	2510.0	51 / 0	20.06	51 / 0	19.39	22.75
		518598	2593.0	51 / 0	20.06	1 / 25	19.42	22.77
		535998	2680.0	51 / 0	19.69	1 / 37	19.45	22.58

Table 7-2. Conducted Output Power (UL-MIMO NR Band n41)

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 ≥ 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.

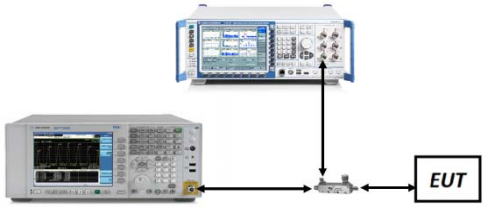
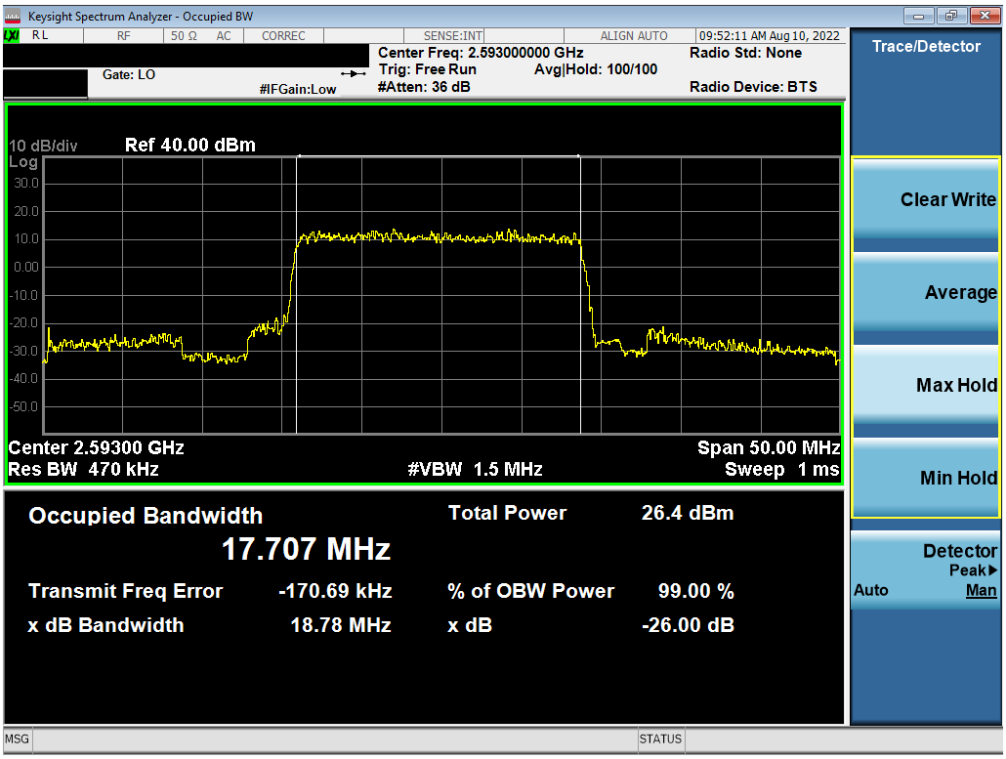


Figure 7-2. Test Instrument & Measurement Setup

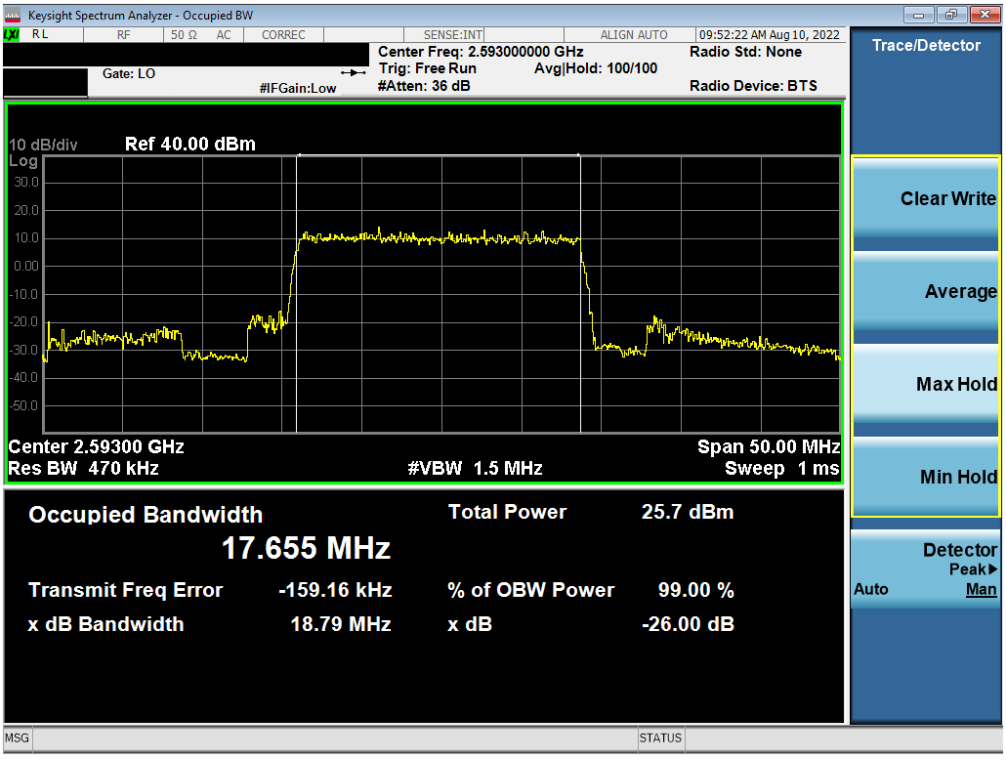
Test Notes

None.

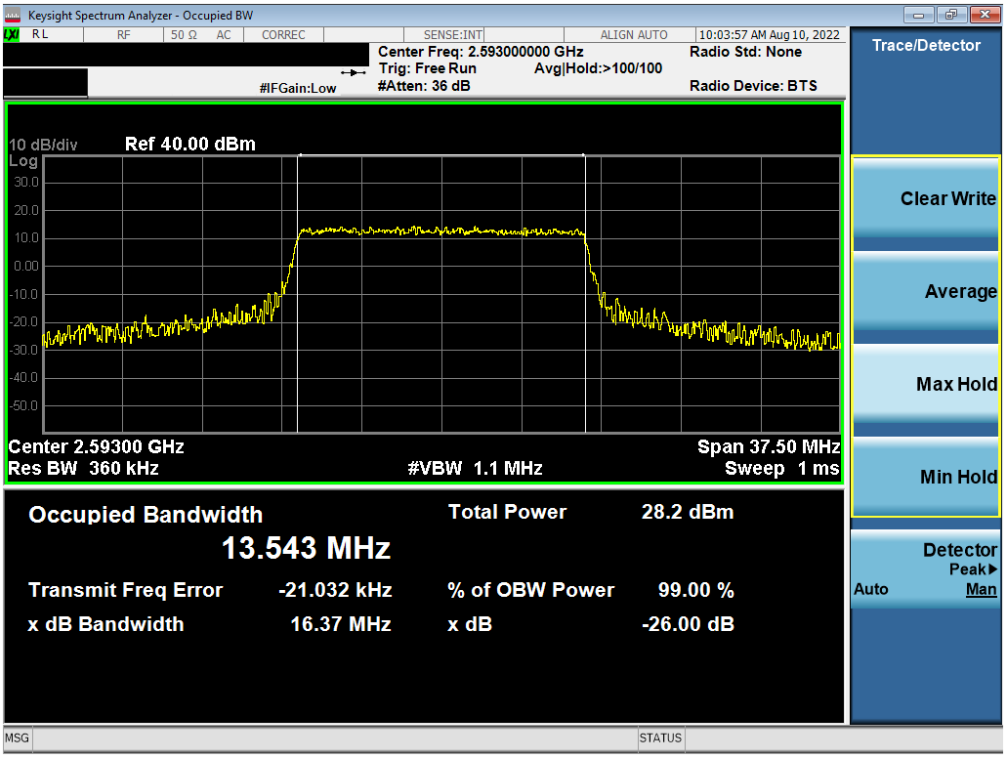
LTE Band 41(PC3)



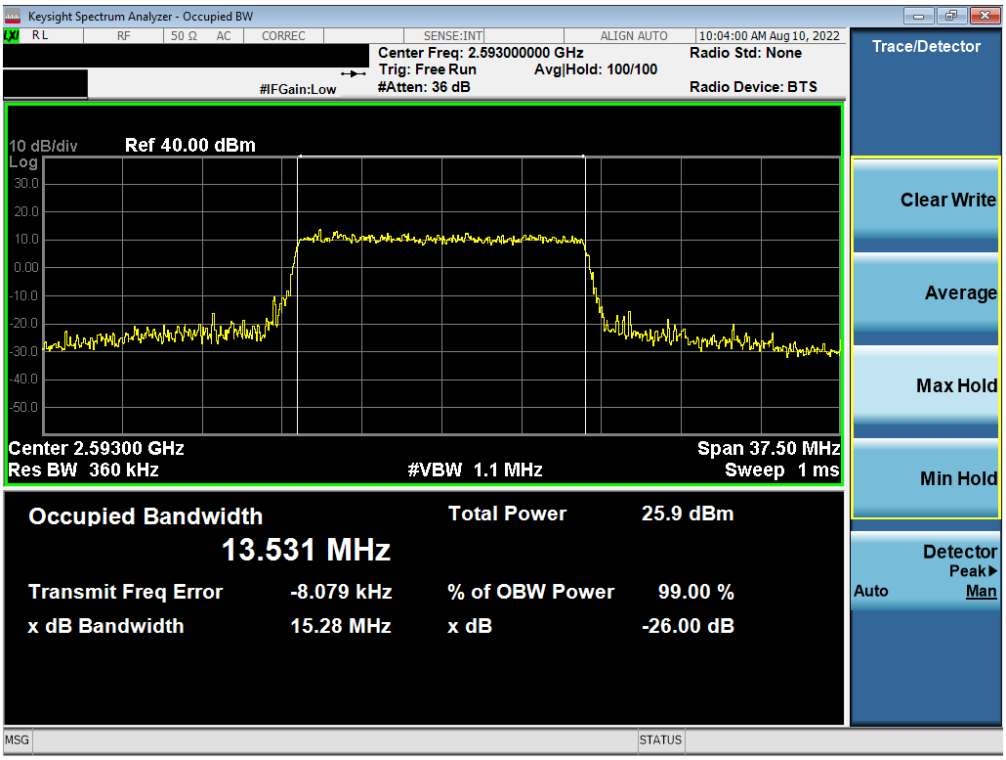
Plot 7-1. Occupied Bandwidth Plot (LTE Band 41(PC3) - 20MHz QPSK - Full RB)



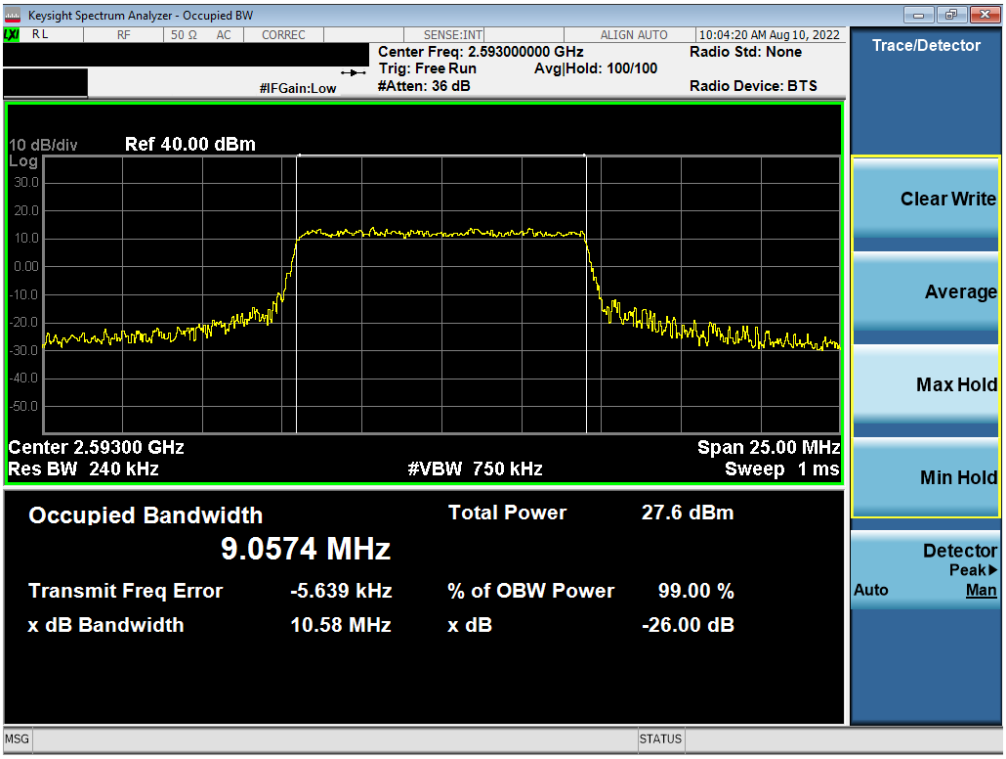
Plot 7-2. Occupied Bandwidth Plot (LTE Band 41(PC3) - 20MHz 16-QAM - Full RB)



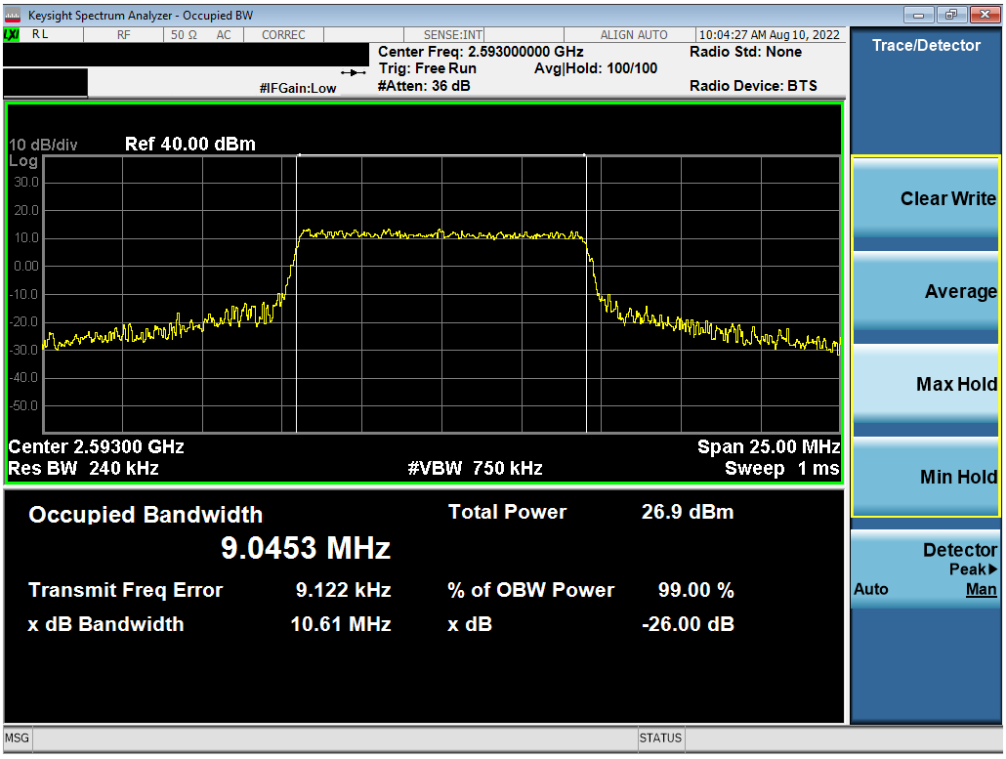
Plot 7-3. Occupied Bandwidth Plot (LTE Band 41(PC3) - 15MHz QPSK - Full RB)



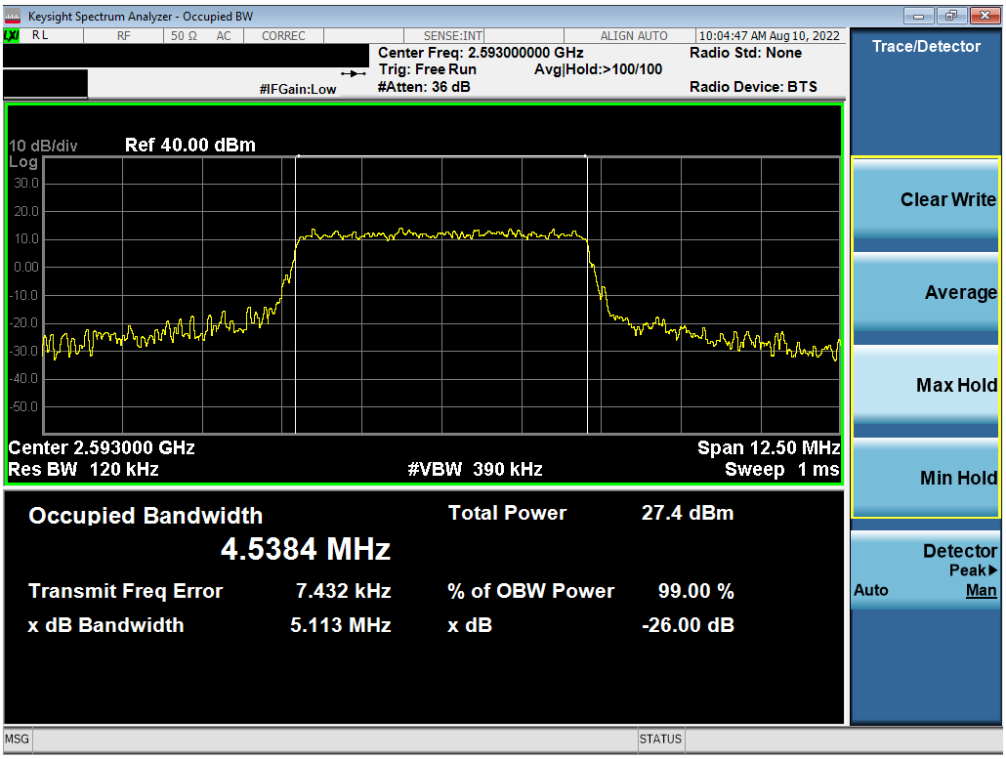
Plot 7-4. Occupied Bandwidth Plot (LTE Band 41(PC3) - 15MHz 16-QAM - Full RB)



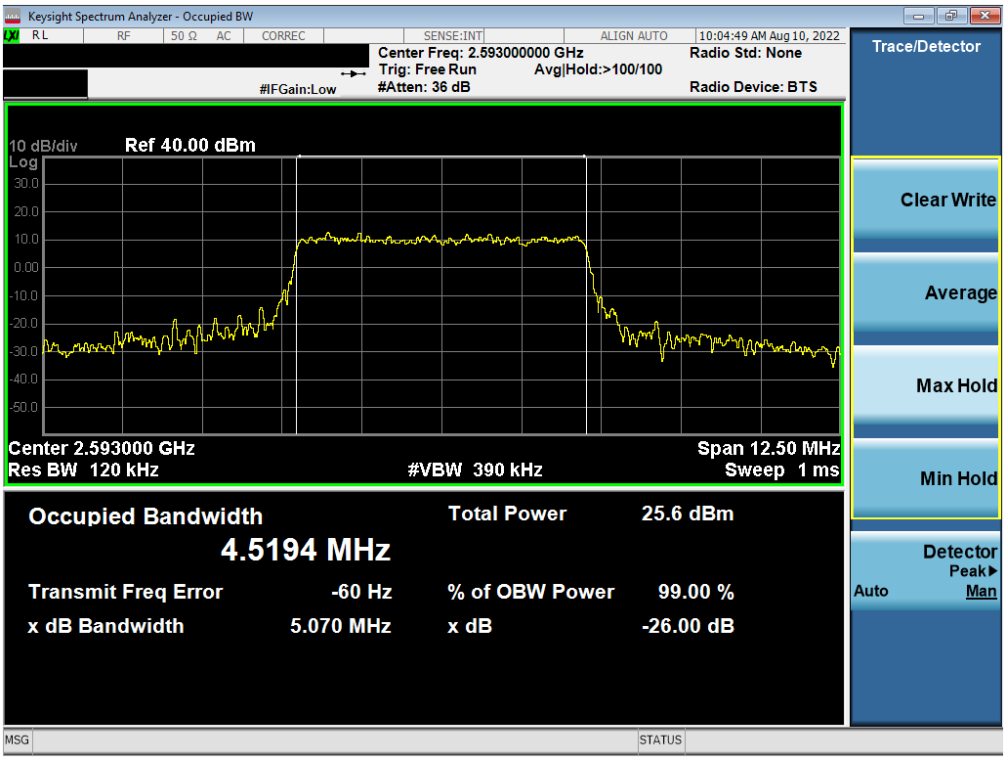
Plot 7-5. Occupied Bandwidth Plot (LTE Band 41(PC3) - 10MHz QPSK - Full RB)



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

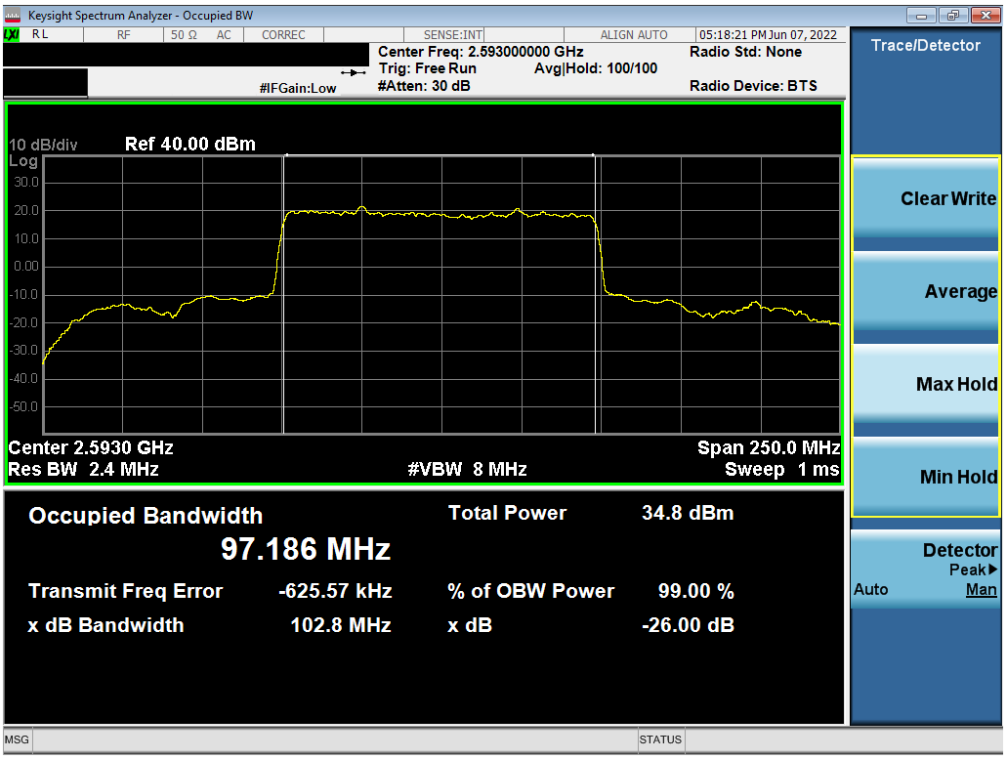


Plot 7-7. Occupied Bandwidth Plot (LTE Band 41(PC3) - 5MHz QPSK - Full RB)

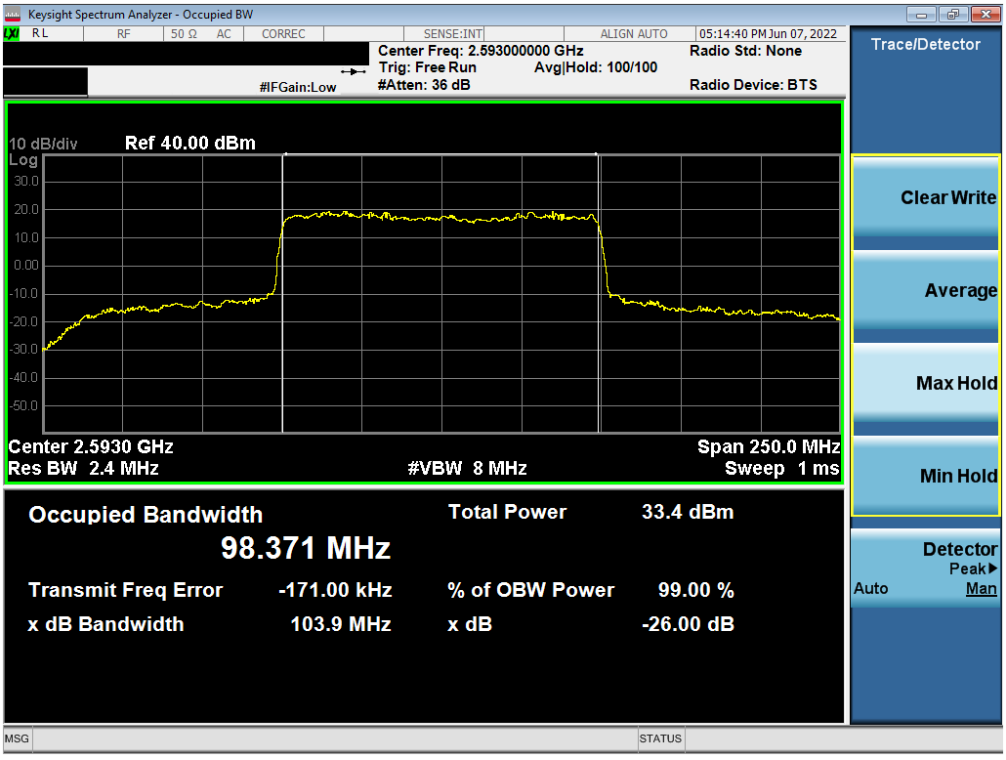


Plot 7-8. Occupied Bandwidth Plot (LTE Band 41(PC3) - 5MHz 16-QAM - Full RB)

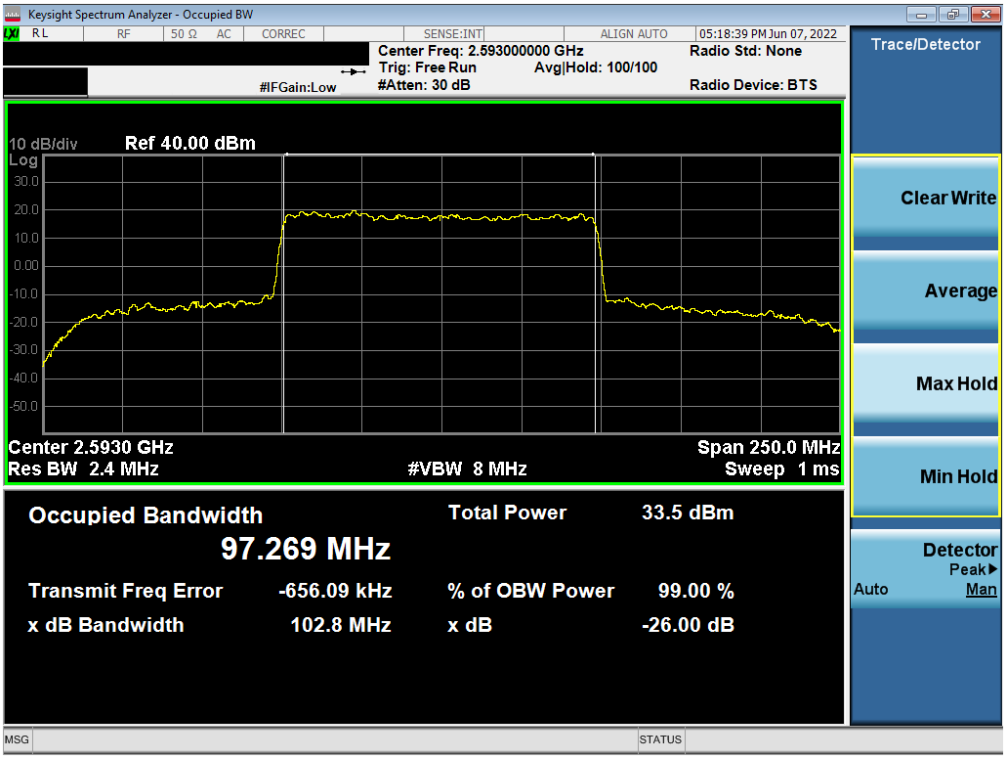
NR Band n41



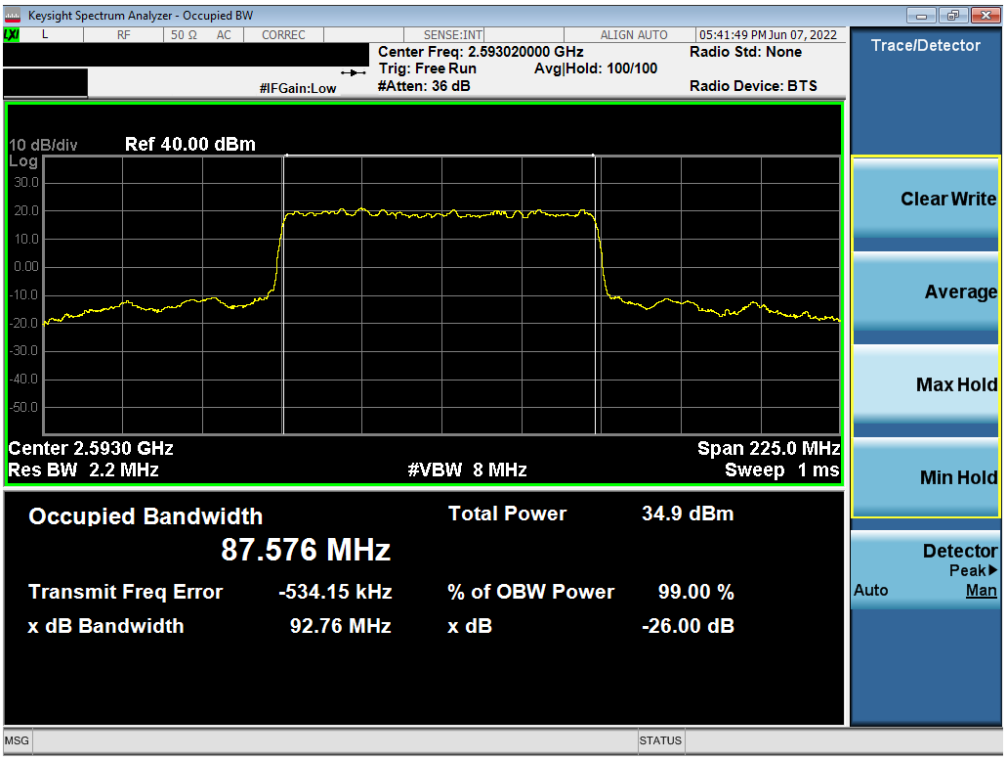
Plot 7-9. Occupied Bandwidth Plot (NR Band n41 - 100MHz π/2 BPSK - Full RB)



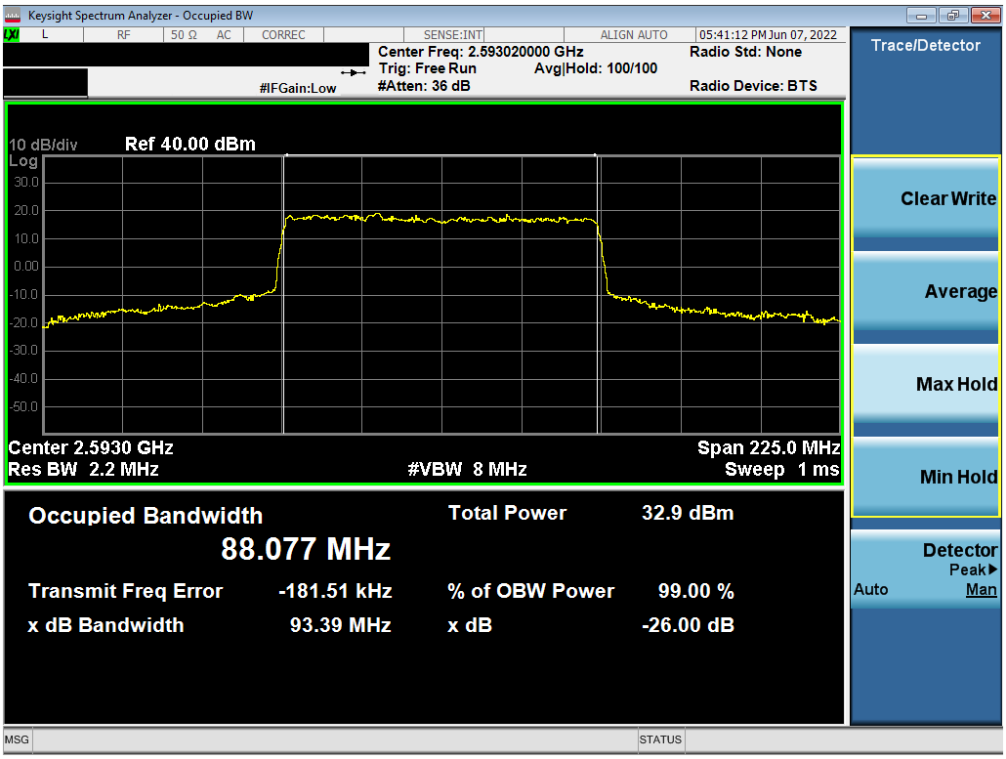
Plot 7-10. Occupied Bandwidth Plot (NR Band n41 - 100MHz QPSK - Full RB)



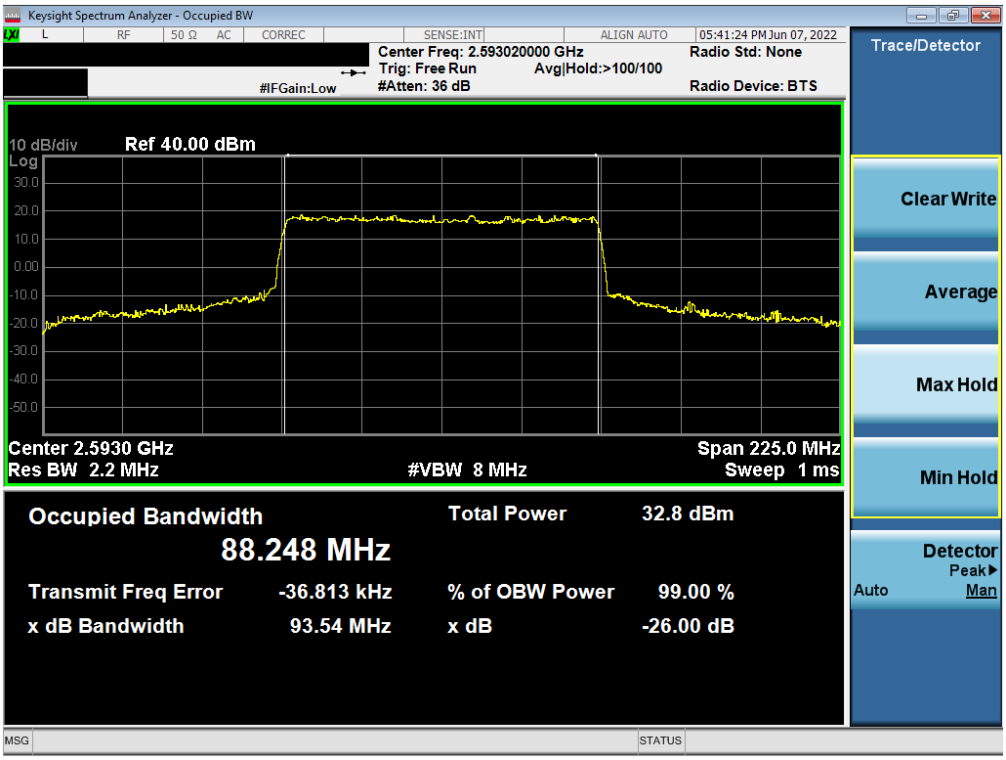
Plot 7-11. Occupied Bandwidth Plot (NR Band n41 - 100MHz 16-QAM - Full RB)



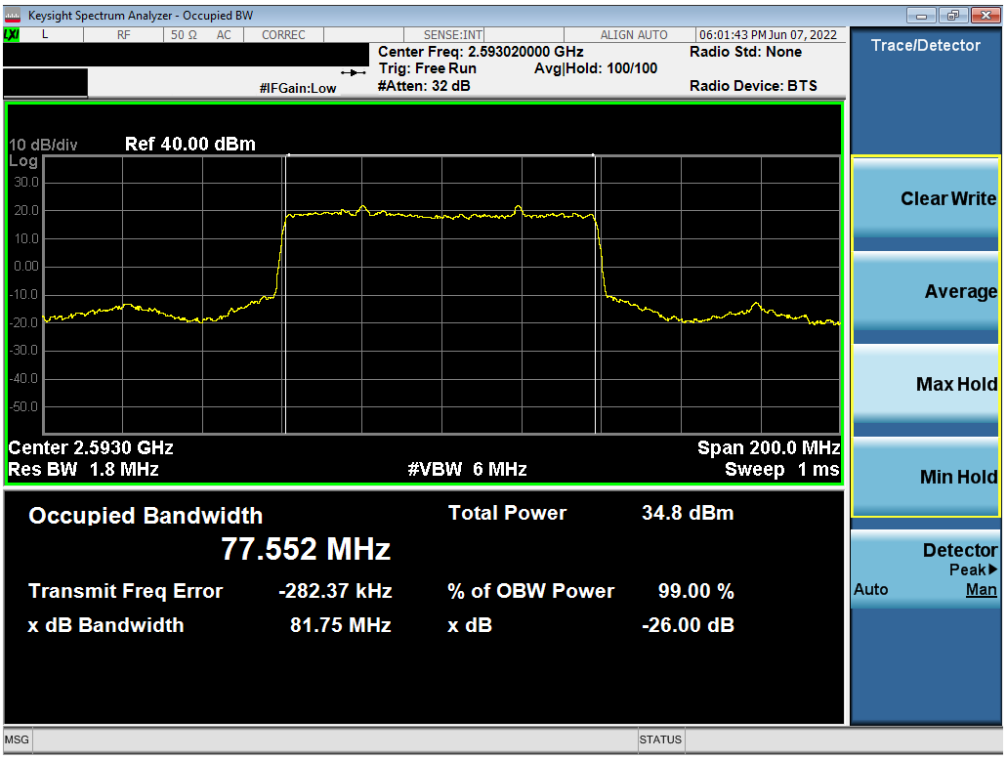
Plot 7-12. Occupied Bandwidth Plot (NR Band n41 - 90MHz π/2 BPSK - Full RB)



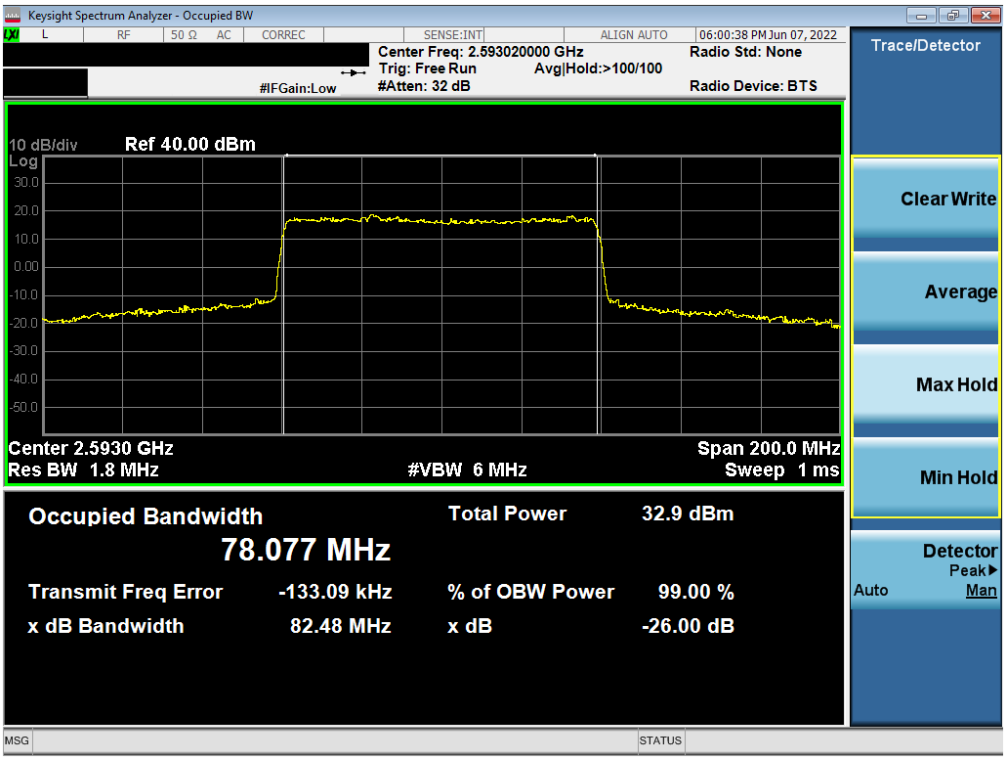
Plot 7-13. Occupied Bandwidth Plot (NR Band n41 - 90MHz QPSK - Full RB)



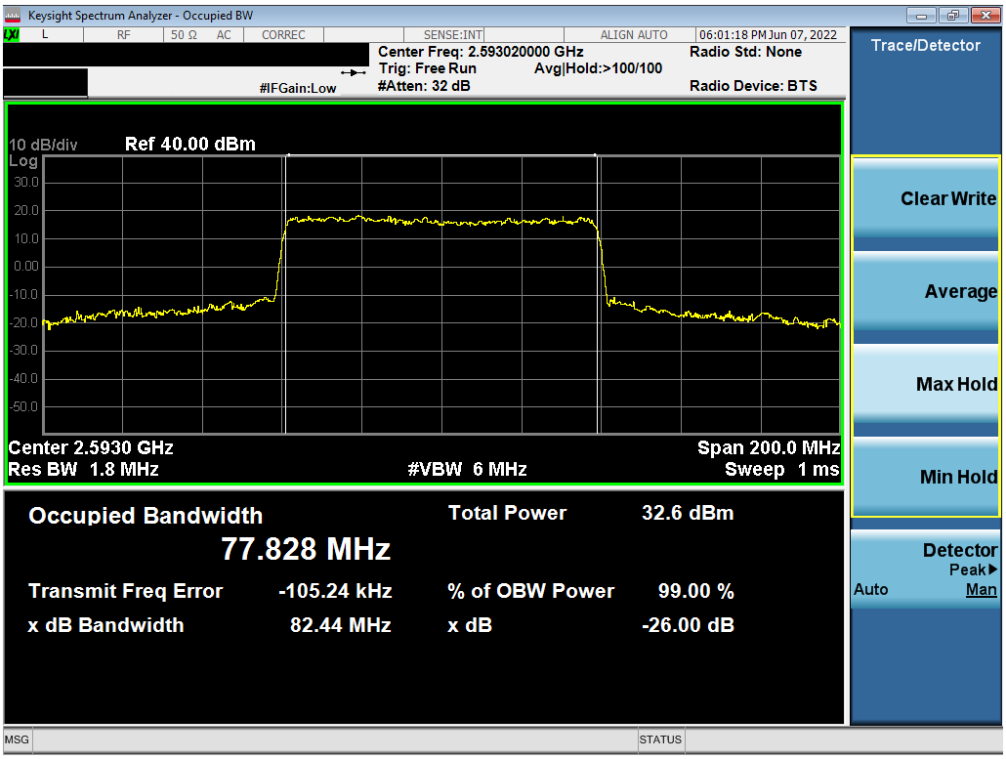
Plot 7-14. Occupied Bandwidth Plot (NR Band n41 - 90MHz 16-QAM - Full RB)



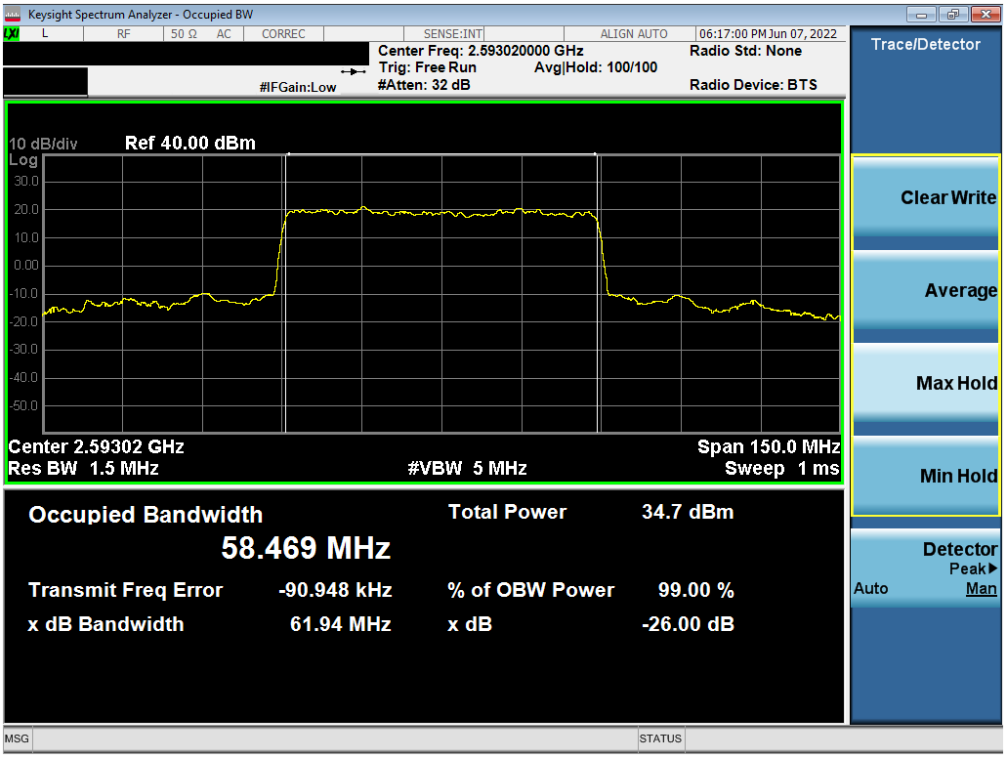
Plot 7-15. Occupied Bandwidth Plot (NR Band n41 - 80MHz π/2 BPSK - Full RB)



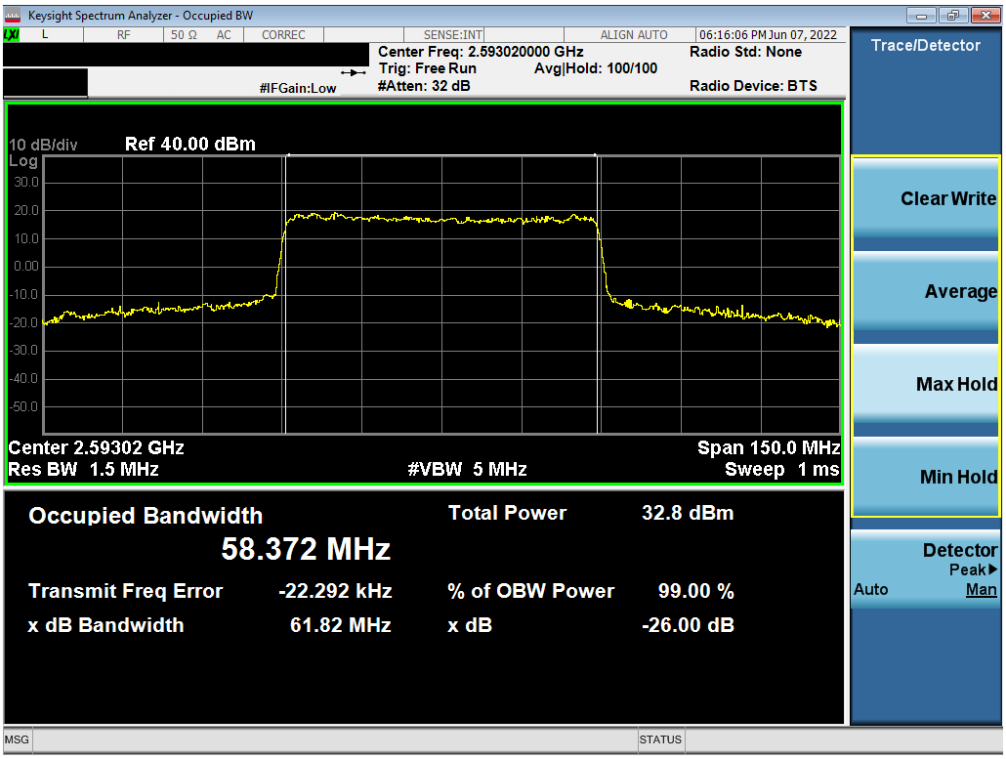
Plot 7-16. Occupied Bandwidth Plot (NR Band n41 - 80MHz QPSK - Full RB)



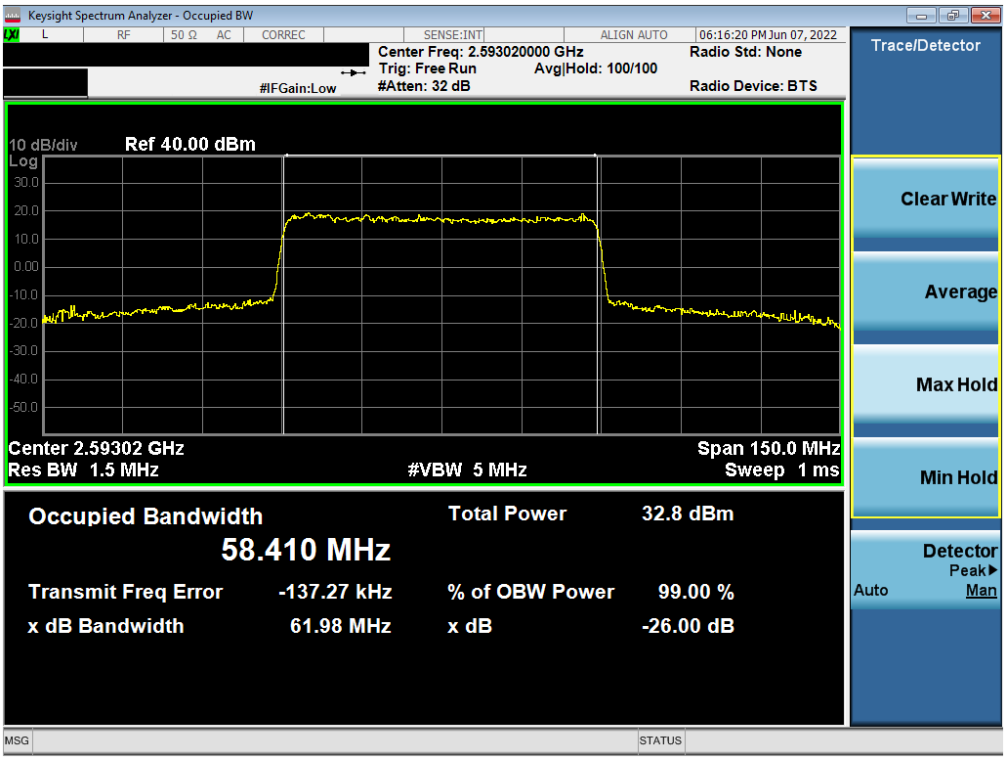
Plot 7-17. Occupied Bandwidth Plot (NR Band n41 - 80MHz 16-QAM - Full RB)



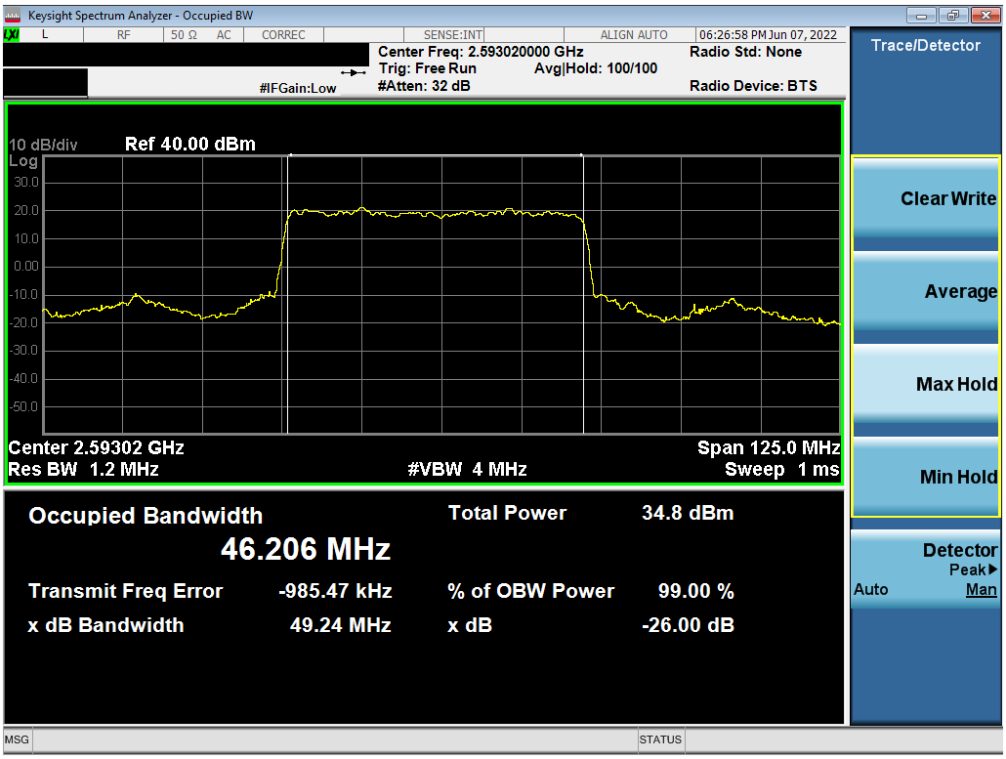
Plot 7-18. Occupied Bandwidth Plot (NR Band n41 - 60MHz π/2 BPSK - Full RB)



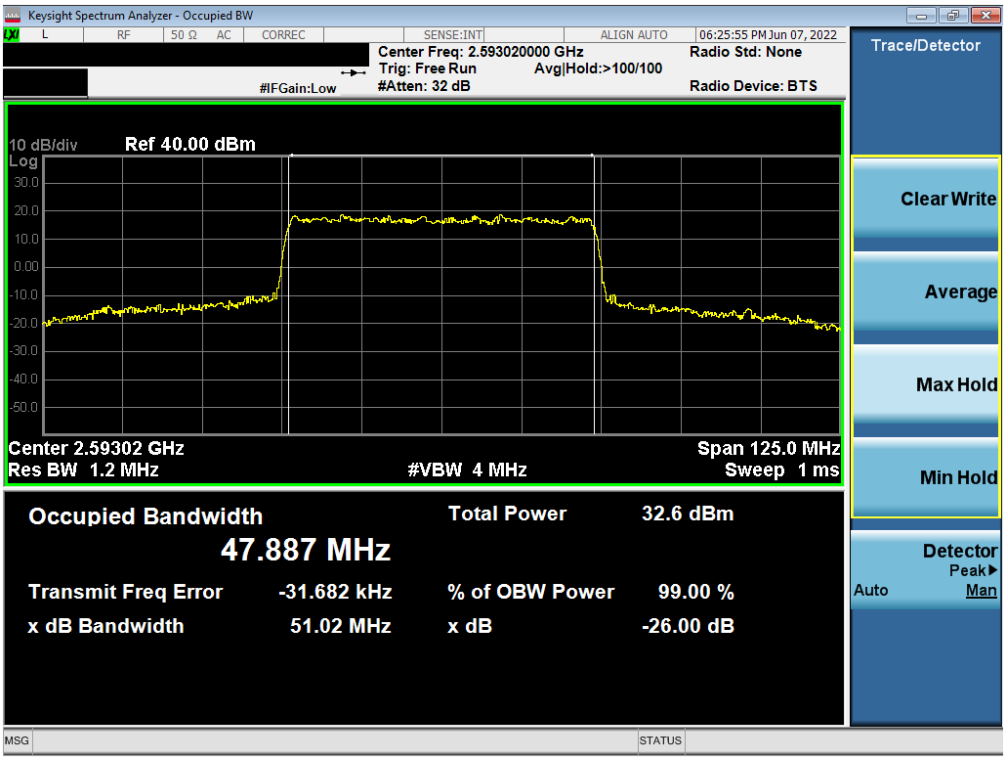
Plot 7-19. Occupied Bandwidth Plot (NR Band n41 - 60MHz QPSK - Full RB)



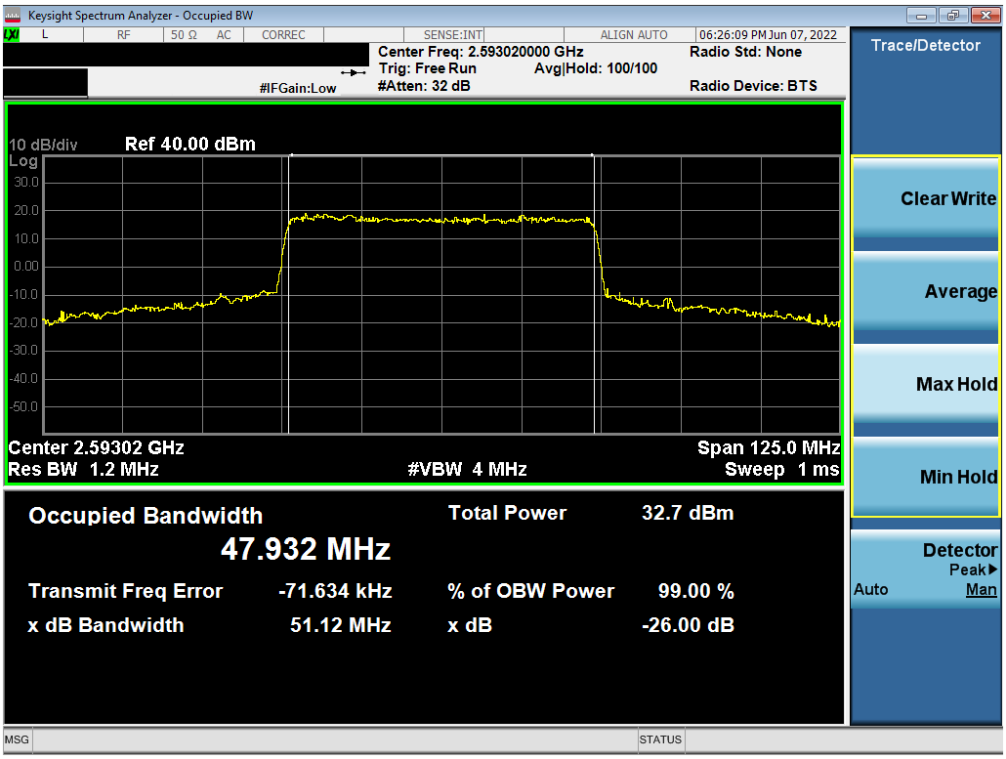
Plot 7-20. Occupied Bandwidth Plot (NR Band n41 - 60MHz 16-QAM - Full RB)



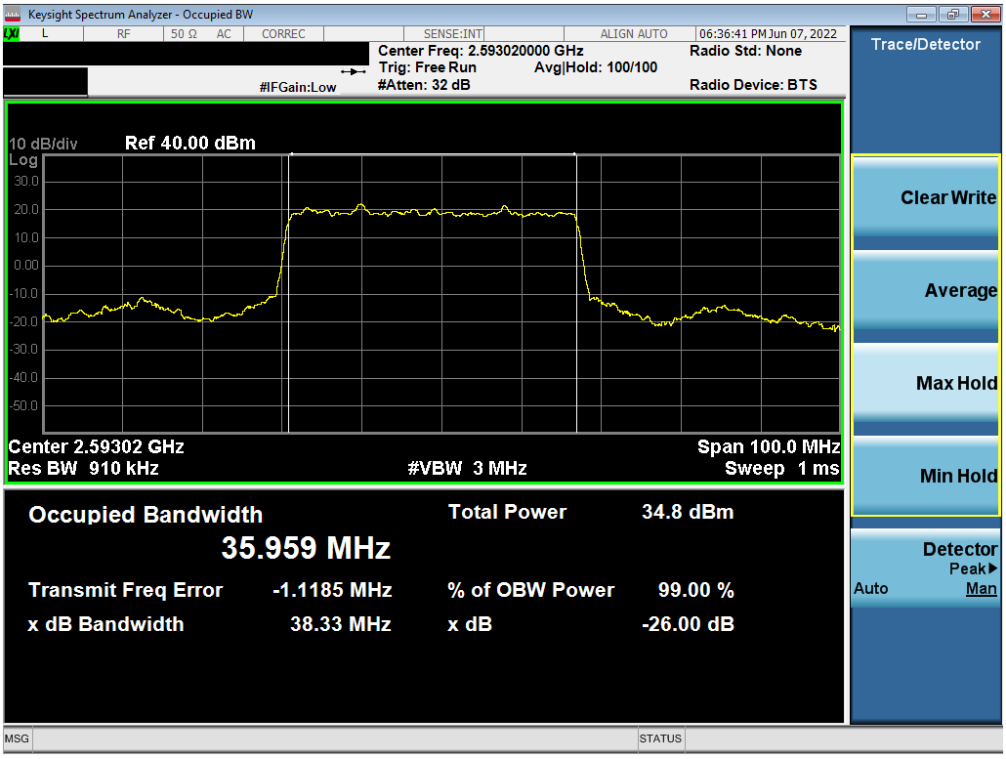
Plot 7-21. Occupied Bandwidth Plot (NR Band n41 - 50MHz π/2 BPSK - Full RB)



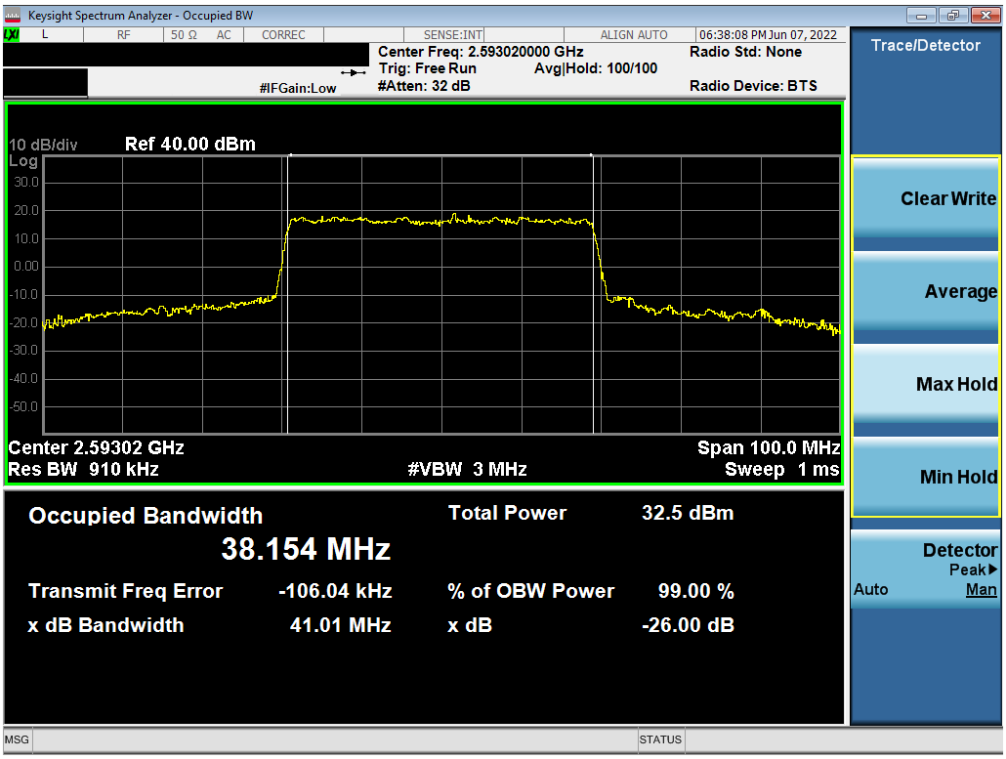
Plot 7-22. Occupied Bandwidth Plot (NR Band n41 - 50MHz QPSK - Full RB)



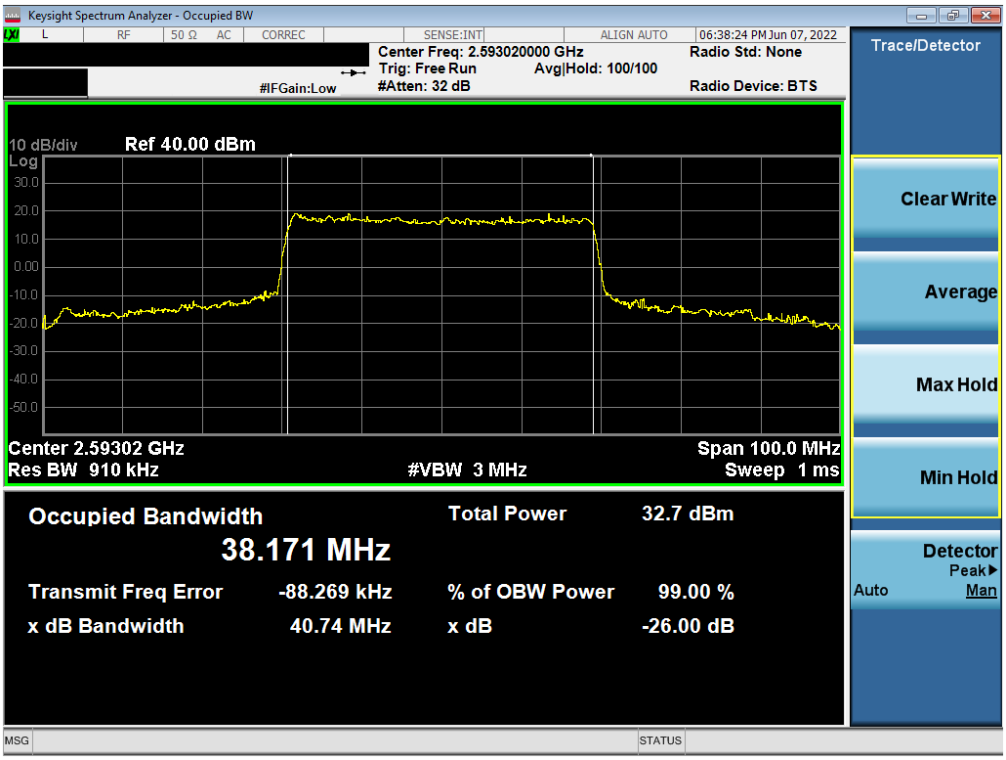
Plot 7-23. Occupied Bandwidth Plot (NR Band n41 - 50MHz 16-QAM - Full RB)



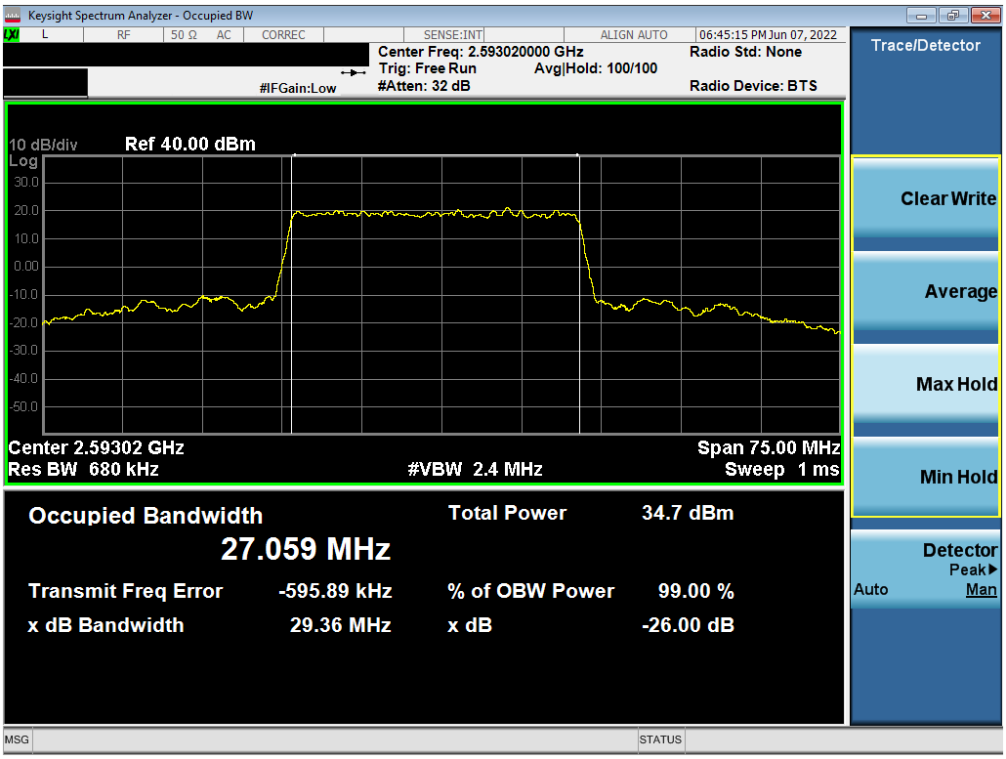
Plot 7-24. Occupied Bandwidth Plot (NR Band n41 - 40MHz π/2 BPSK - Full RB)



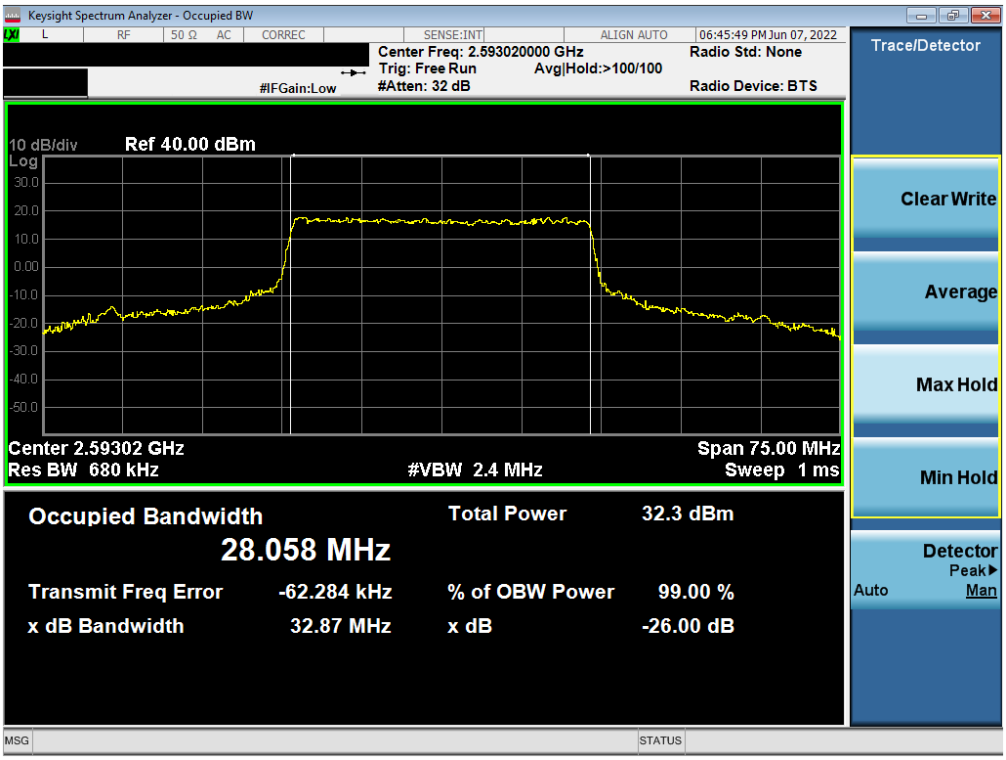
Plot 7-25. Occupied Bandwidth Plot (NR Band n41 - 40MHz QPSK - Full RB)



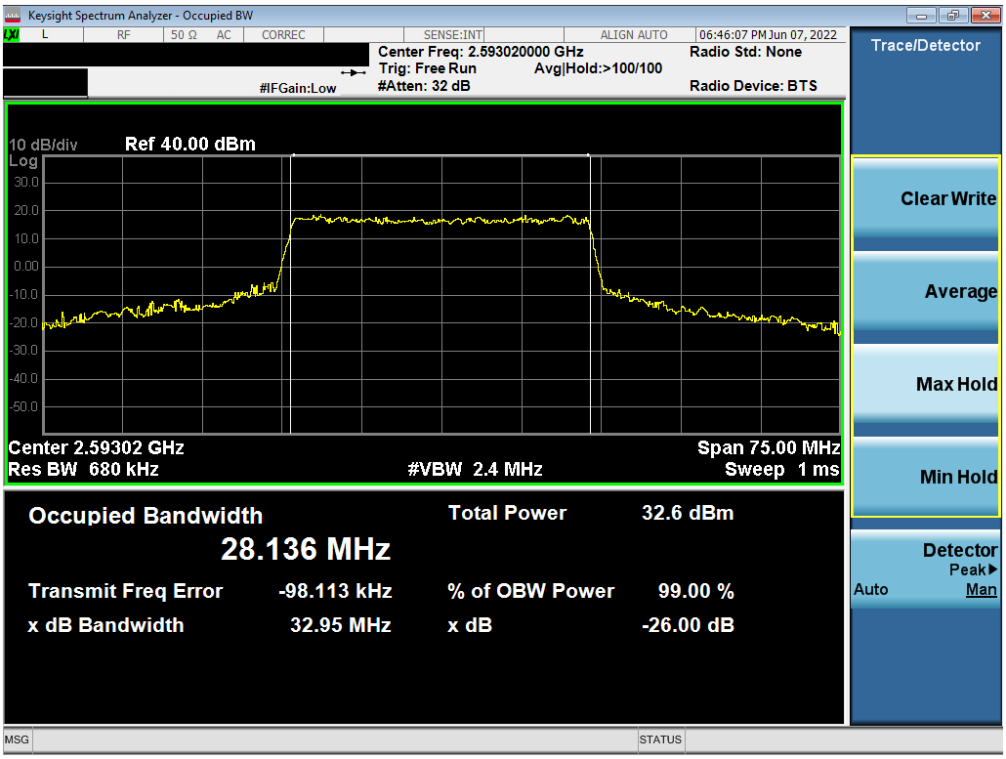
Plot 7-26. Occupied Bandwidth Plot (NR Band n41 - 40MHz 16-QAM - Full RB)



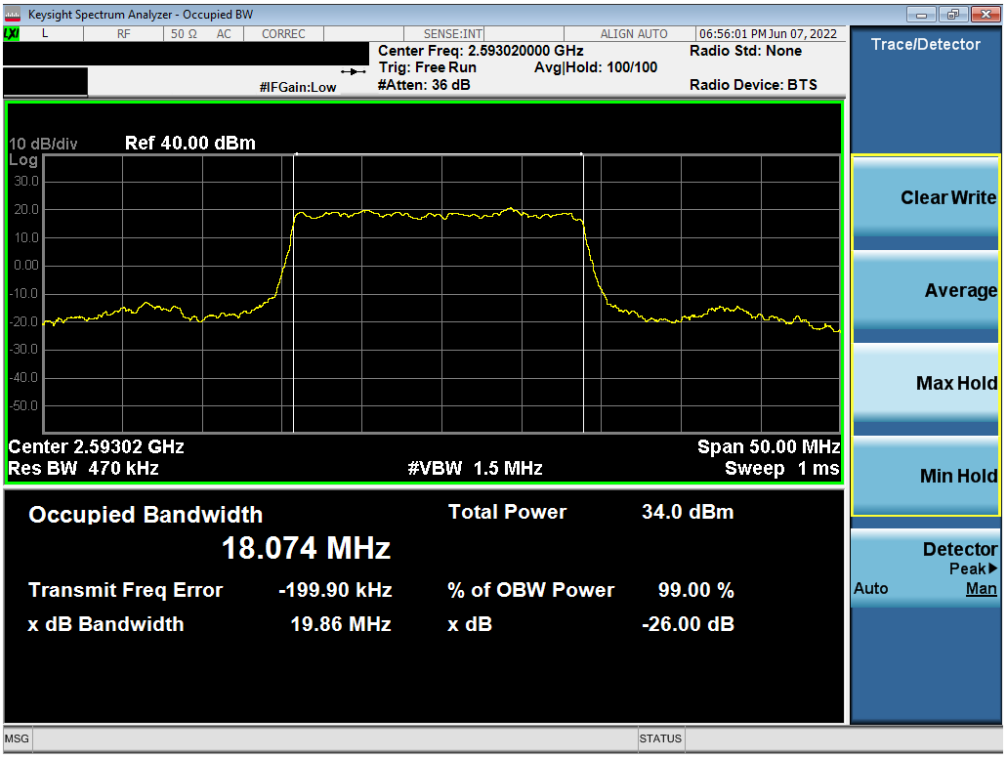
Plot 7-27. Occupied Bandwidth Plot (NR Band n41 - 30MHz π/2 BPSK - Full RB)



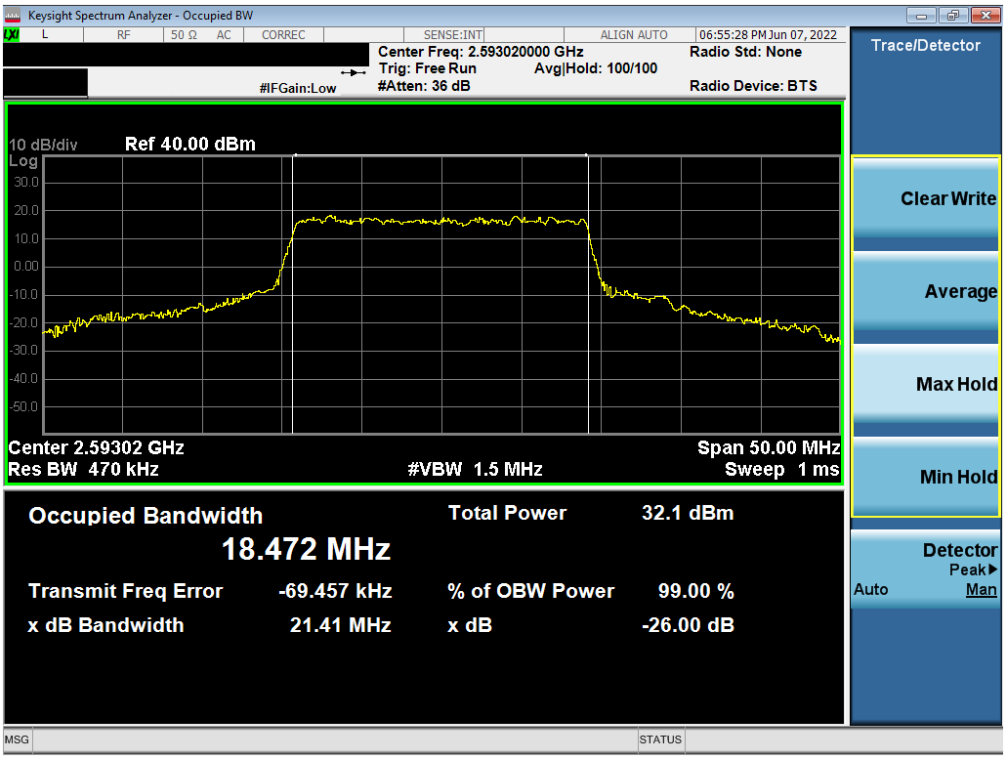
Plot 7-28. Occupied Bandwidth Plot (NR Band n41 - 30MHz QPSK - Full RB)



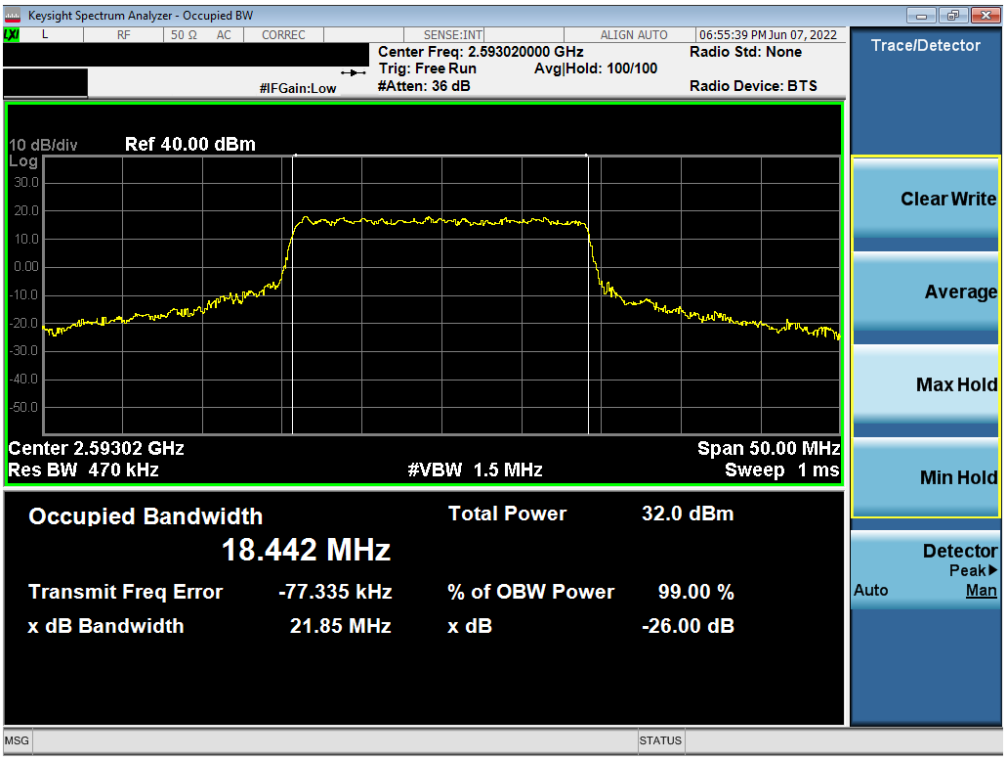
Plot 7-29. Occupied Bandwidth Plot (NR Band n41 - 30MHz 16-QAM - Full RB)



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

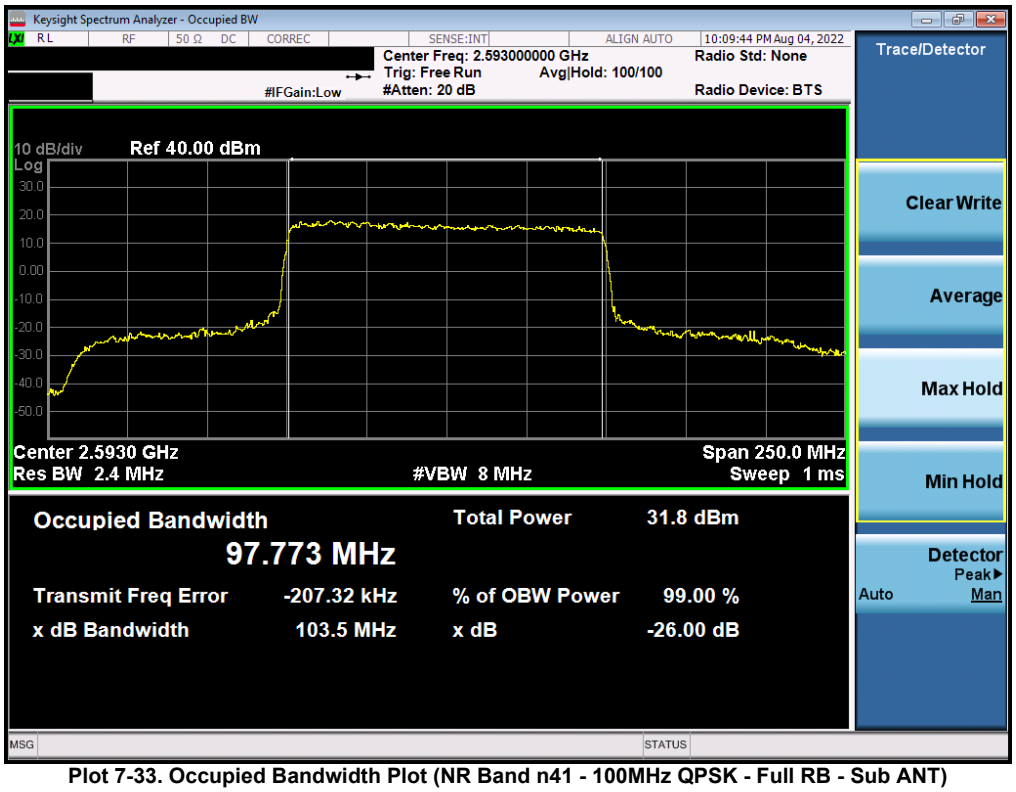


Plot 7-31. Occupied Bandwidth Plot (NR Band n41 - 20MHz QPSK - Full RB)

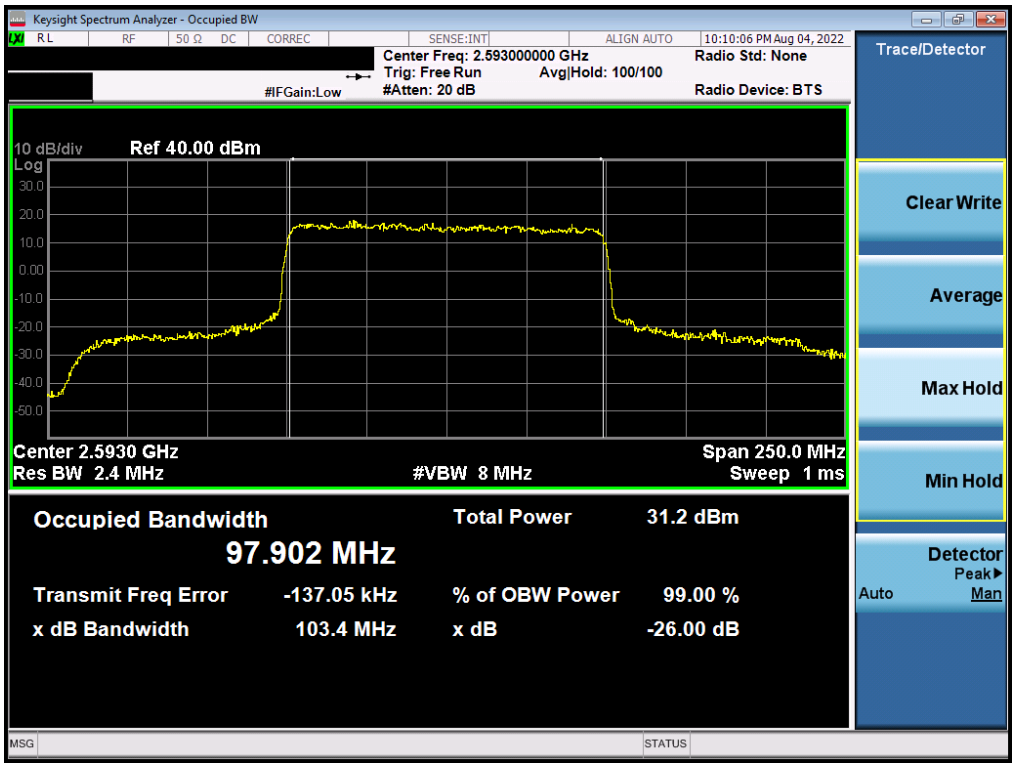


Plot 7-32. Occupied Bandwidth Plot (NR Band n41 - 20MHz 16-QAM - Full RB)

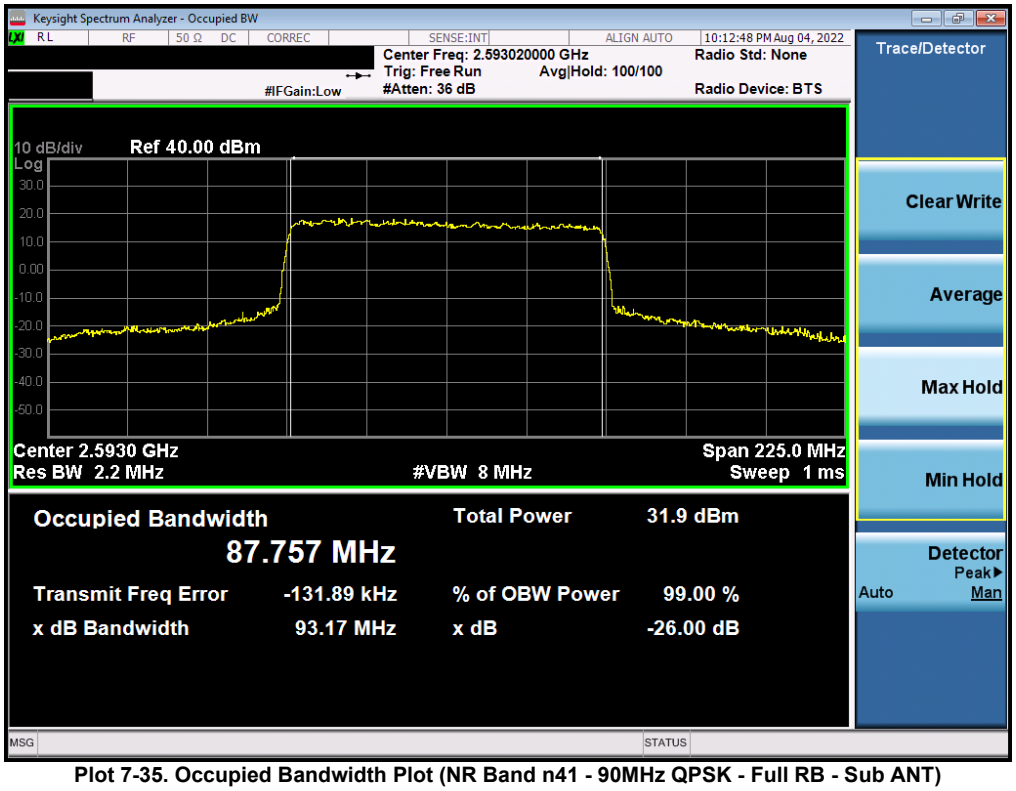
UL-MIMO NR Band n41 – Sub Antenna



Plot 7-33. Occupied Bandwidth Plot (NR Band n41 - 100MHz QPSK - Full RB - Sub ANT)

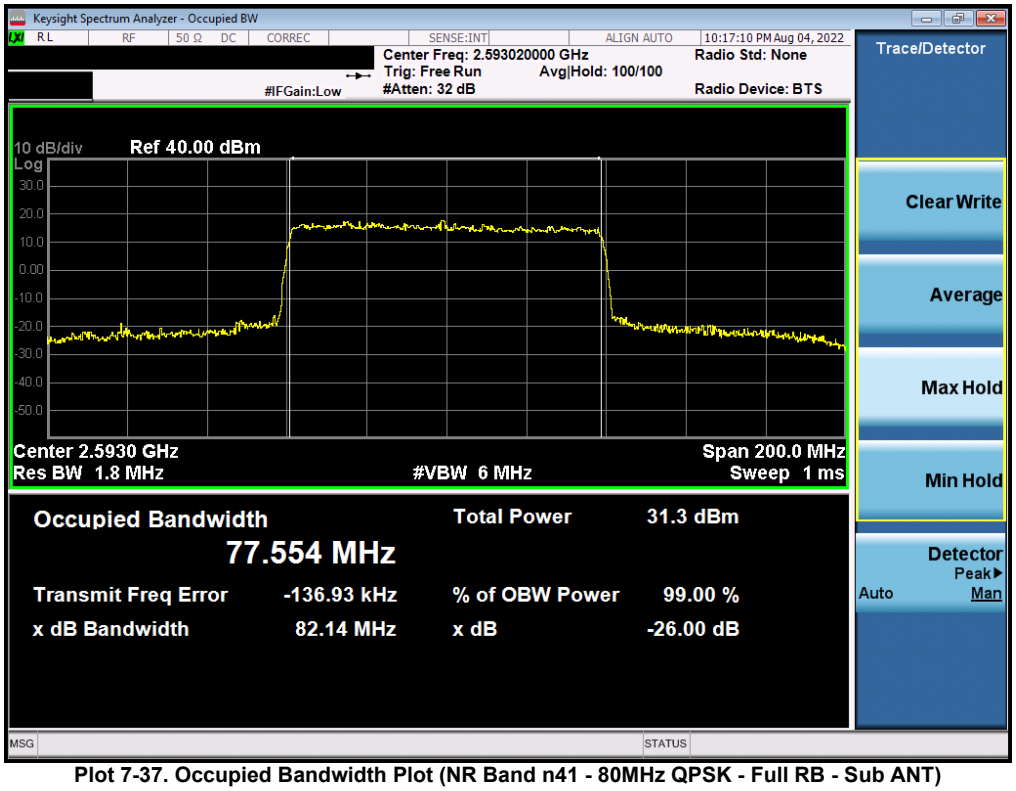


Plot 7-34. Occupied Bandwidth Plot (NR Band n41 - 100MHz 16-QAM - Full RB - Sub ANT)

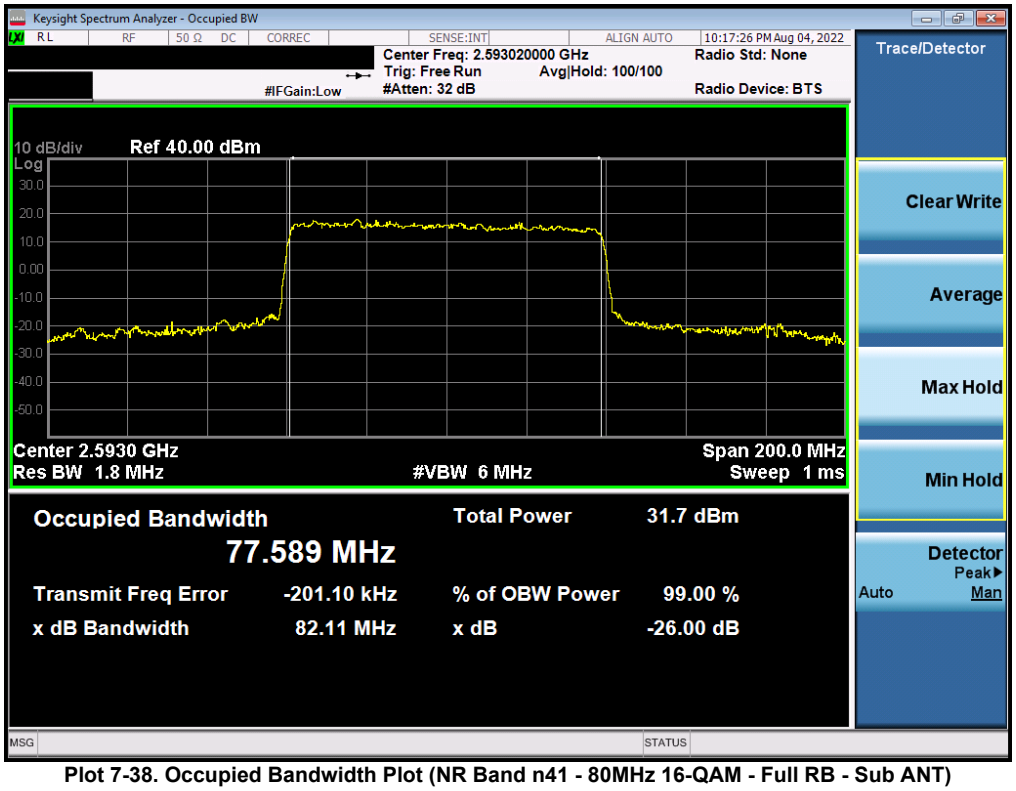


Plot 7-35. Occupied Bandwidth Plot (NR Band n41 - 90MHz QPSK - Full RB - Sub ANT)

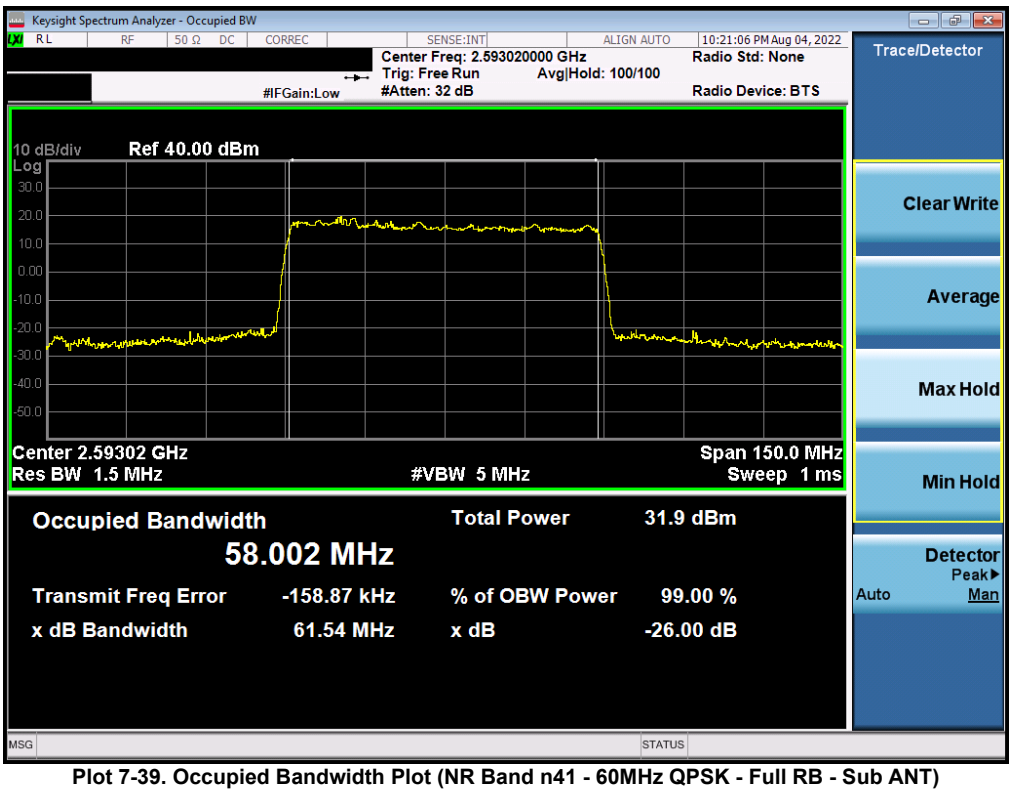
Plot 7-36. Occupied Bandwidth Plot (NR Band n41 - 90MHz 16-QAM - Full RB - Sub ANT)



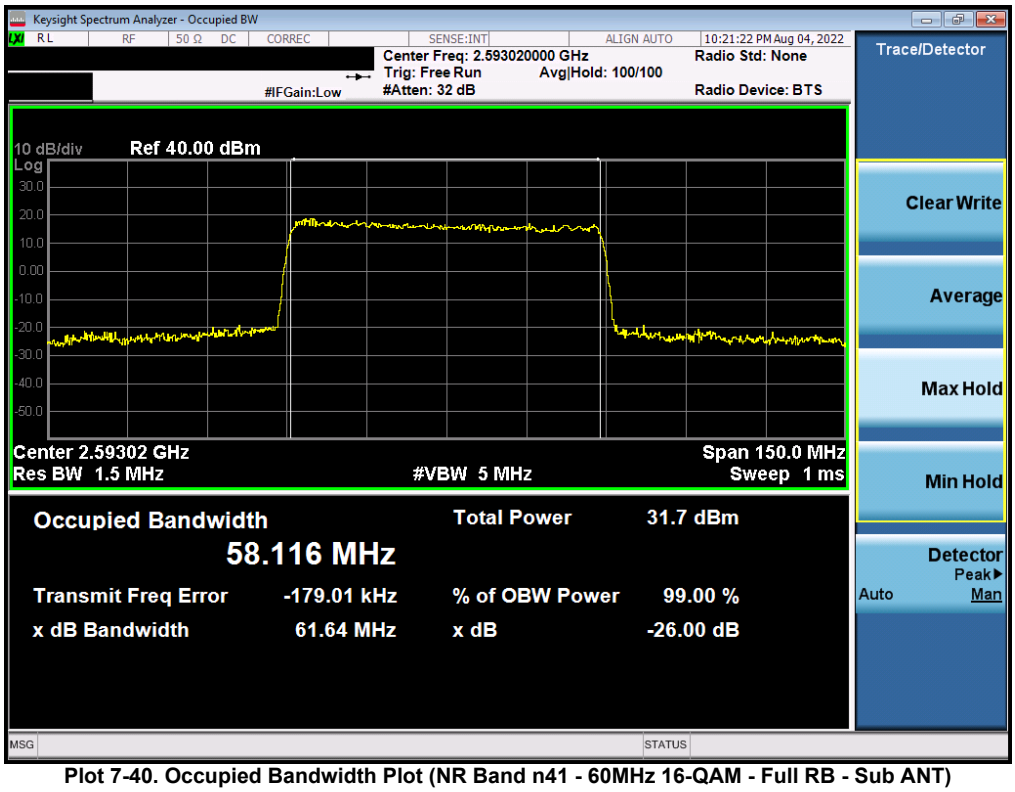
Plot 7-37. Occupied Bandwidth Plot (NR Band n41 - 80MHz QPSK - Full RB - Sub ANT)



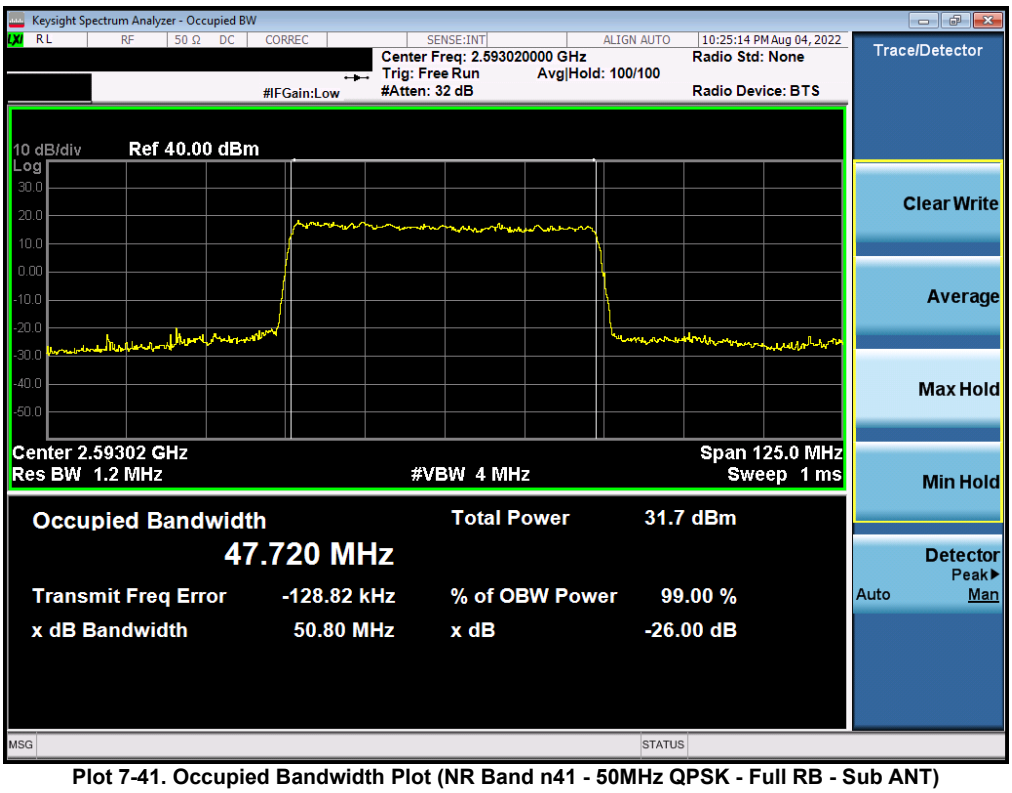
Plot 7-38. Occupied Bandwidth Plot (NR Band n41 - 80MHz 16-QAM - Full RB - Sub ANT)



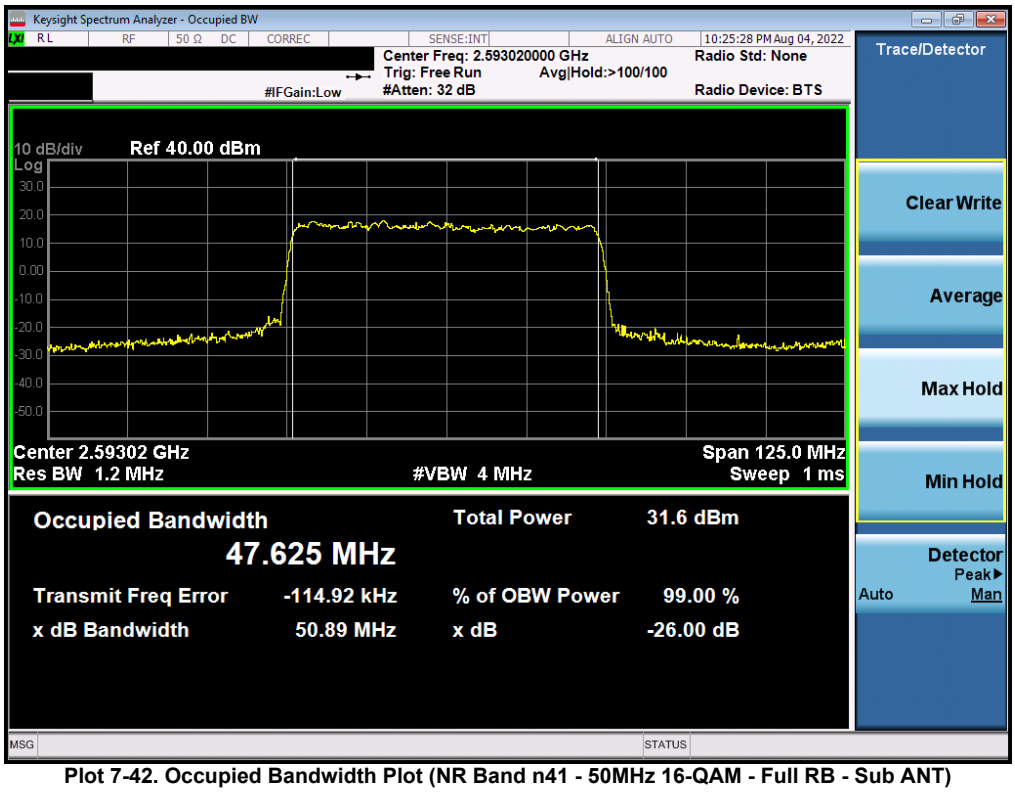
Plot 7-39. Occupied Bandwidth Plot (NR Band n41 - 60MHz QPSK - Full RB - Sub ANT)



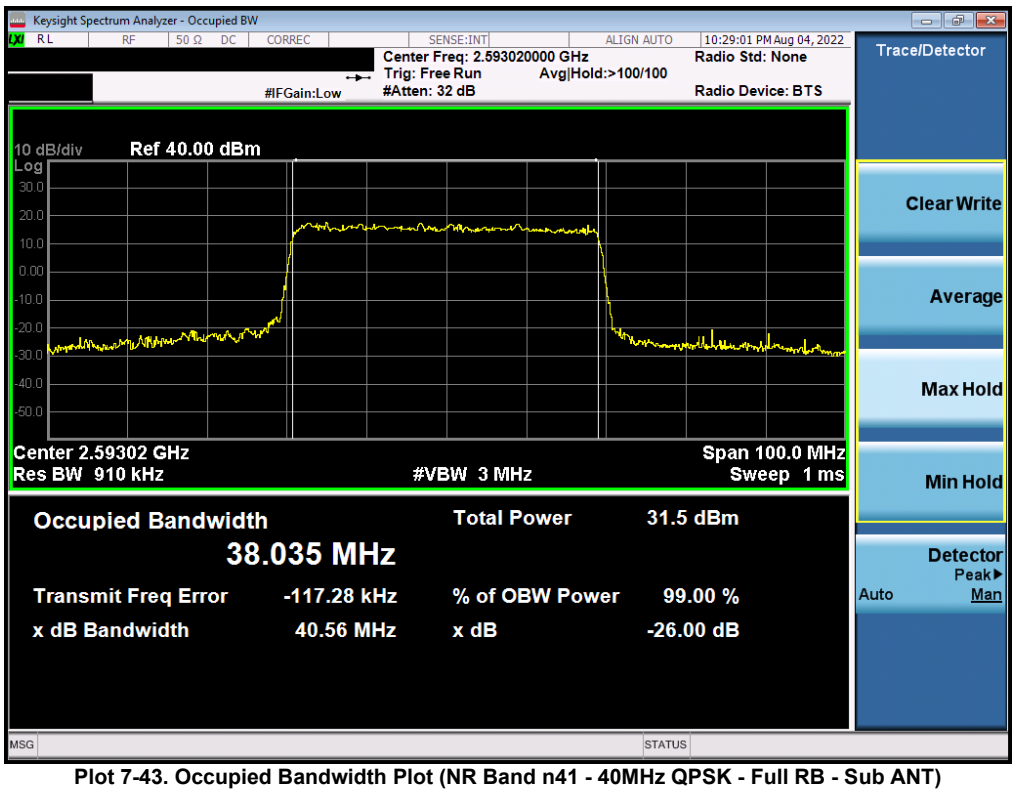
Plot 7-40. Occupied Bandwidth Plot (NR Band n41 - 60MHz 16-QAM - Full RB - Sub ANT)



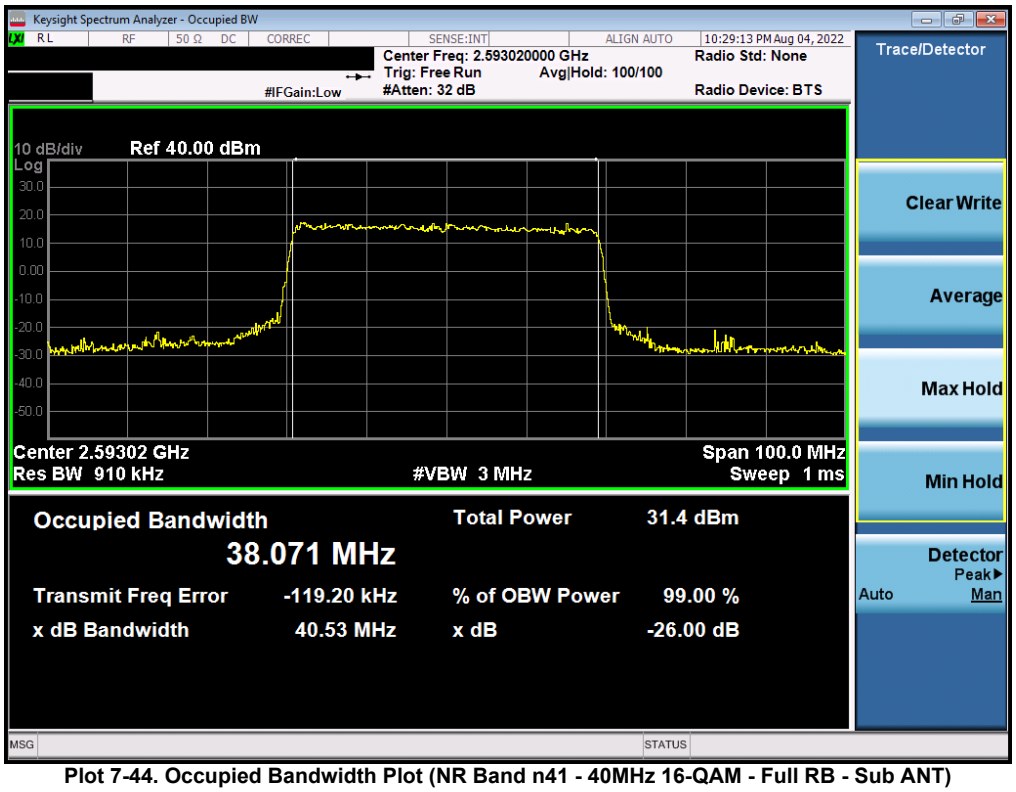
Plot 7-41. Occupied Bandwidth Plot (NR Band n41 - 50MHz QPSK - Full RB - Sub ANT)



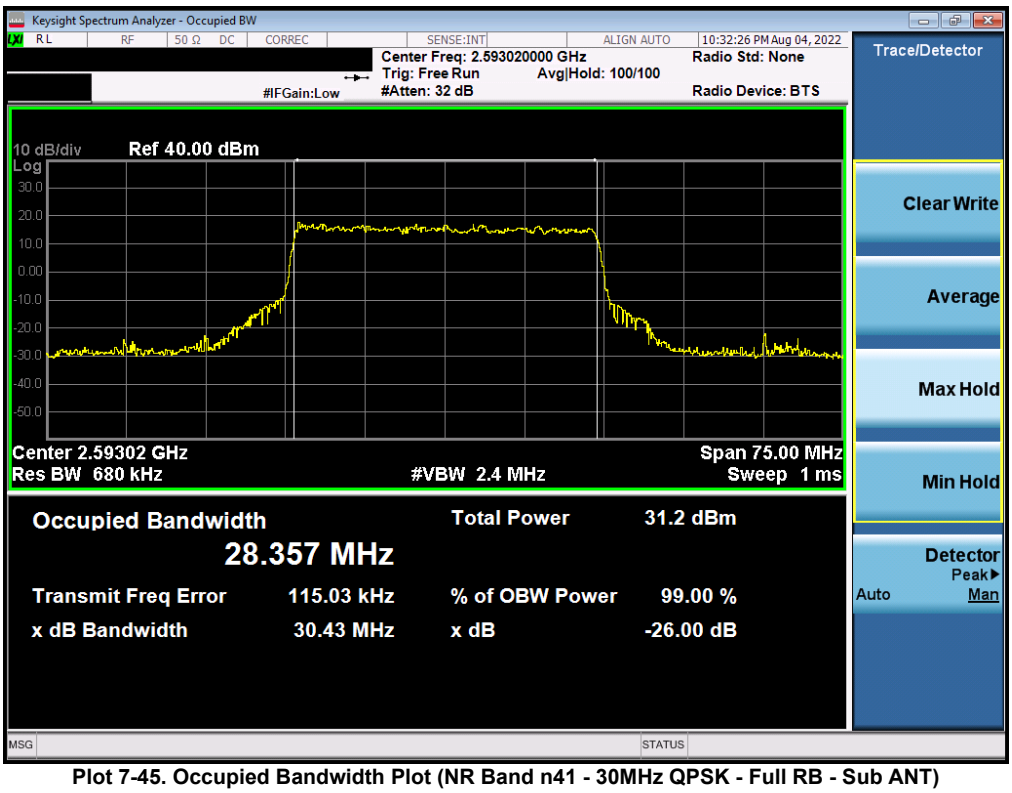
Plot 7-42. Occupied Bandwidth Plot (NR Band n41 - 50MHz 16-QAM - Full RB - Sub ANT)



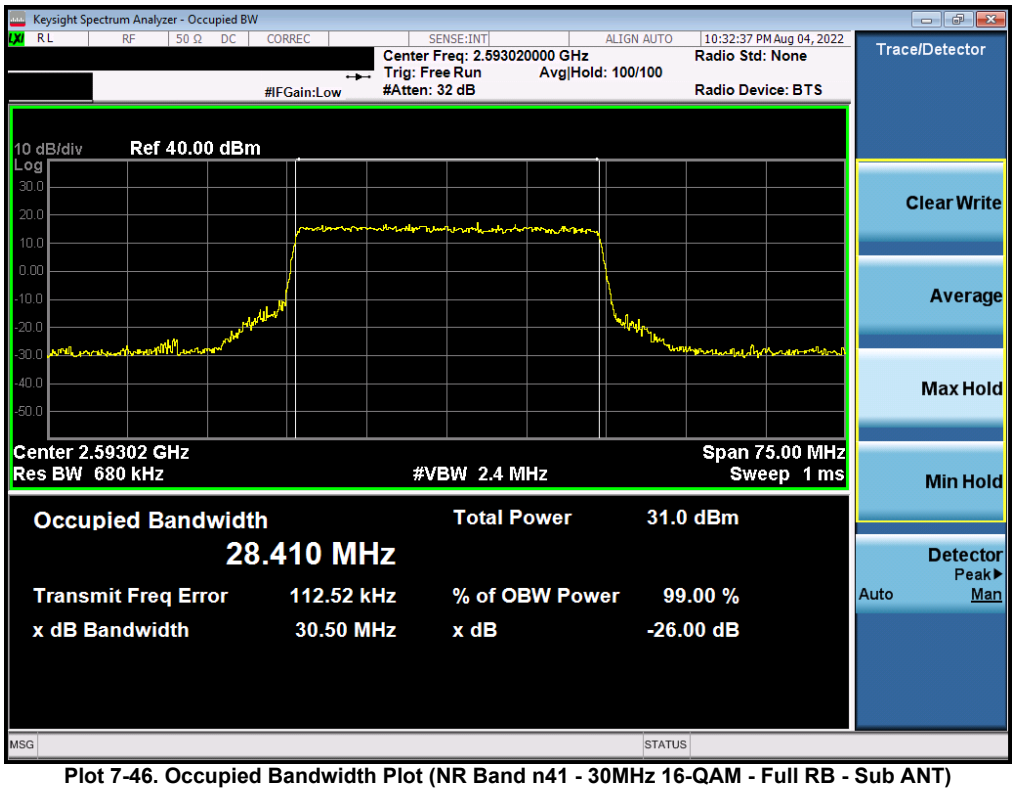
Plot 7-43. Occupied Bandwidth Plot (NR Band n41 - 40MHz QPSK - Full RB - Sub ANT)



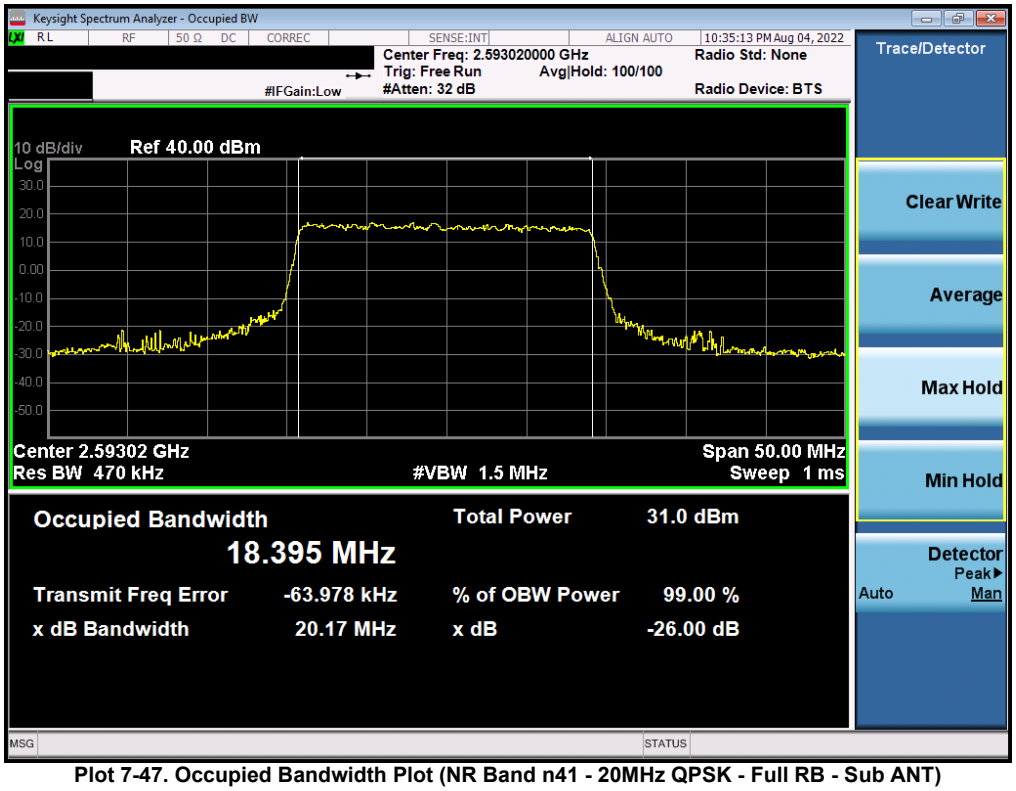
Plot 7-44. Occupied Bandwidth Plot (NR Band n41 - 40MHz 16-QAM - Full RB - Sub ANT)



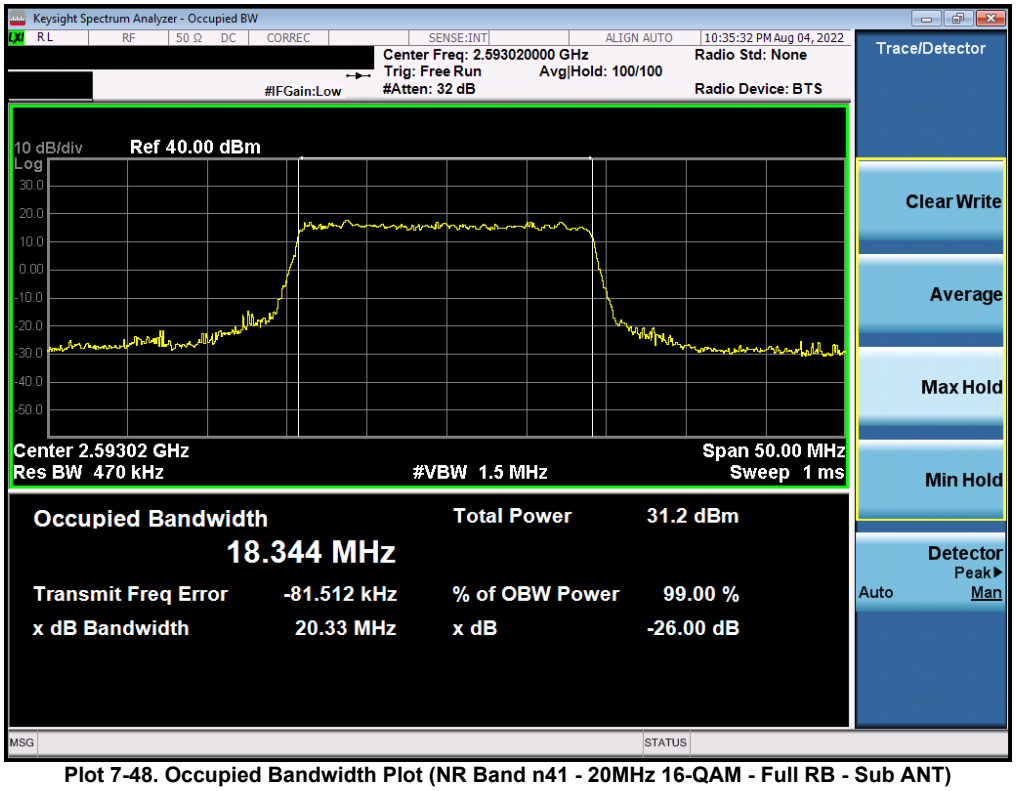
Plot 7-45. Occupied Bandwidth Plot (NR Band n41 - 30MHz QPSK - Full RB - Sub ANT)



Plot 7-46. Occupied Bandwidth Plot (NR Band n41 - 30MHz 16-QAM - Full RB - Sub ANT)



Plot 7-47. Occupied Bandwidth Plot (NR Band n41 - 20MHz QPSK - Full RB - Sub ANT)



Plot 7-48. Occupied Bandwidth Plot (NR Band n41 - 20MHz 16-QAM - Full RB - Sub ANT)

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.

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

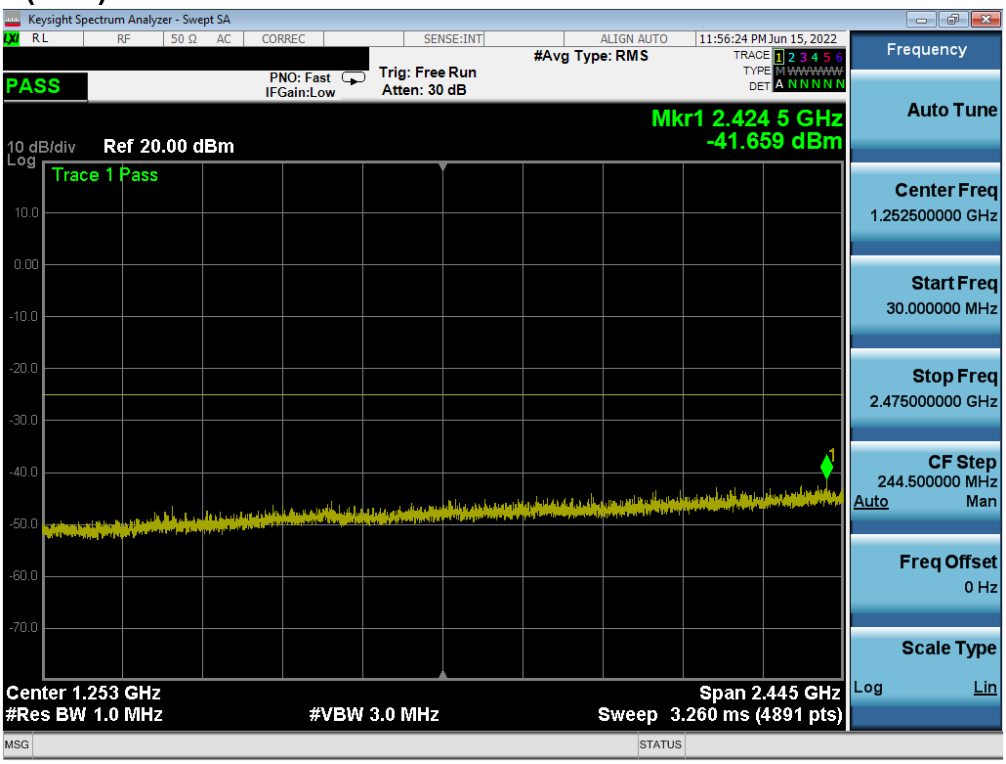
Test Notes

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

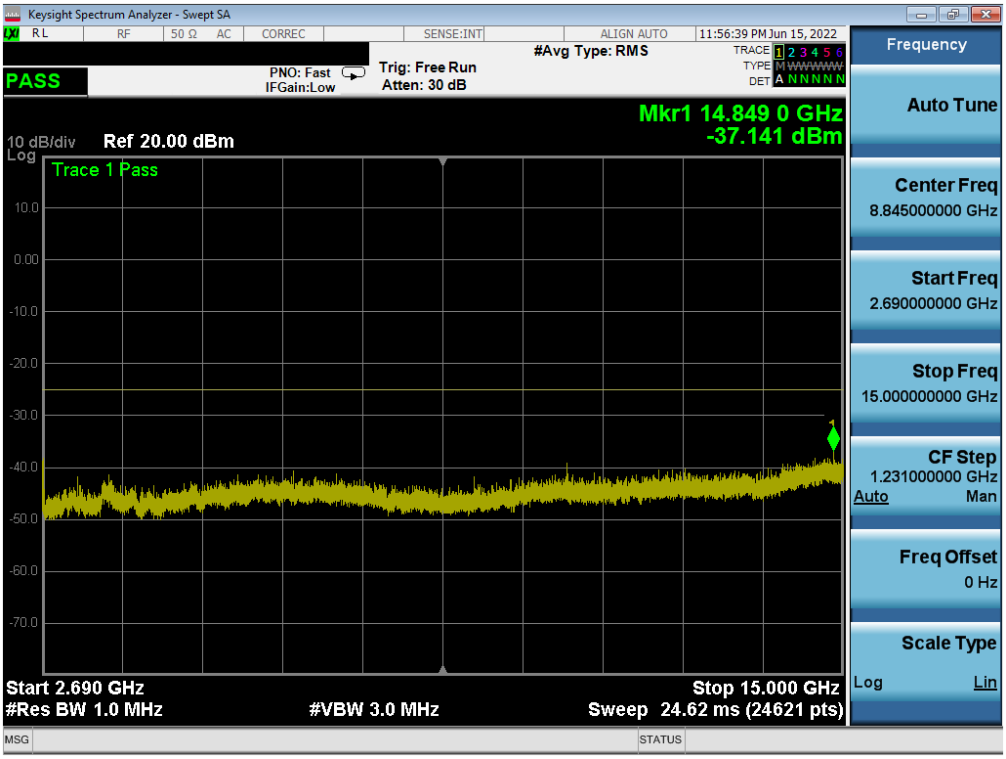
2. For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

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.

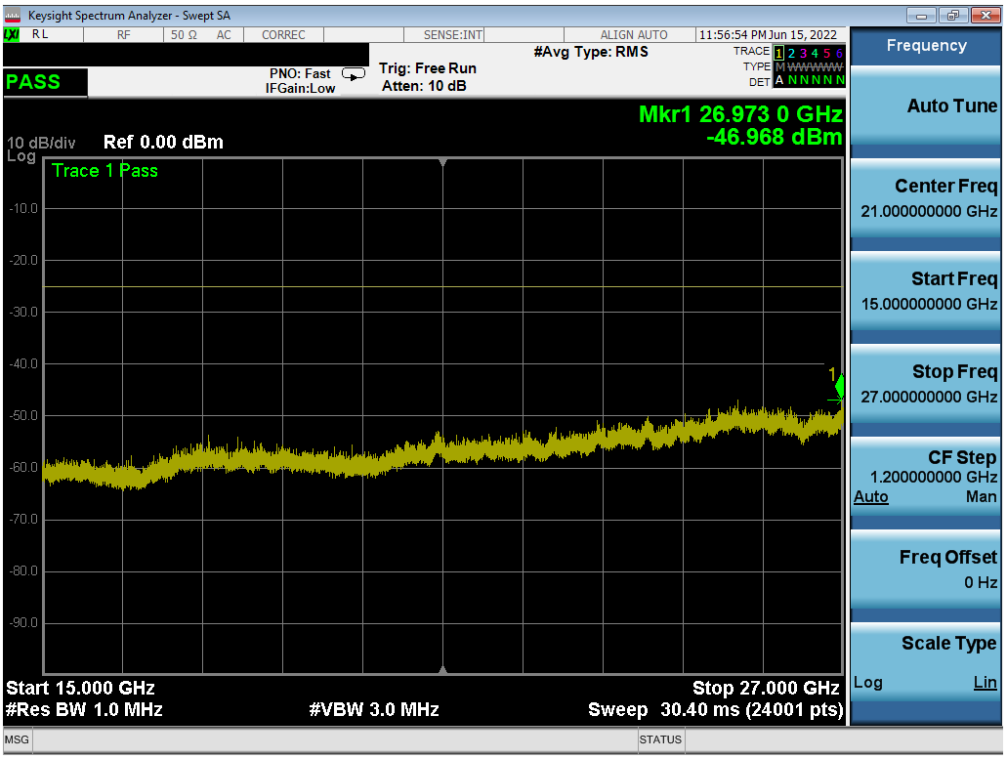
LTE Band 41(PC3)



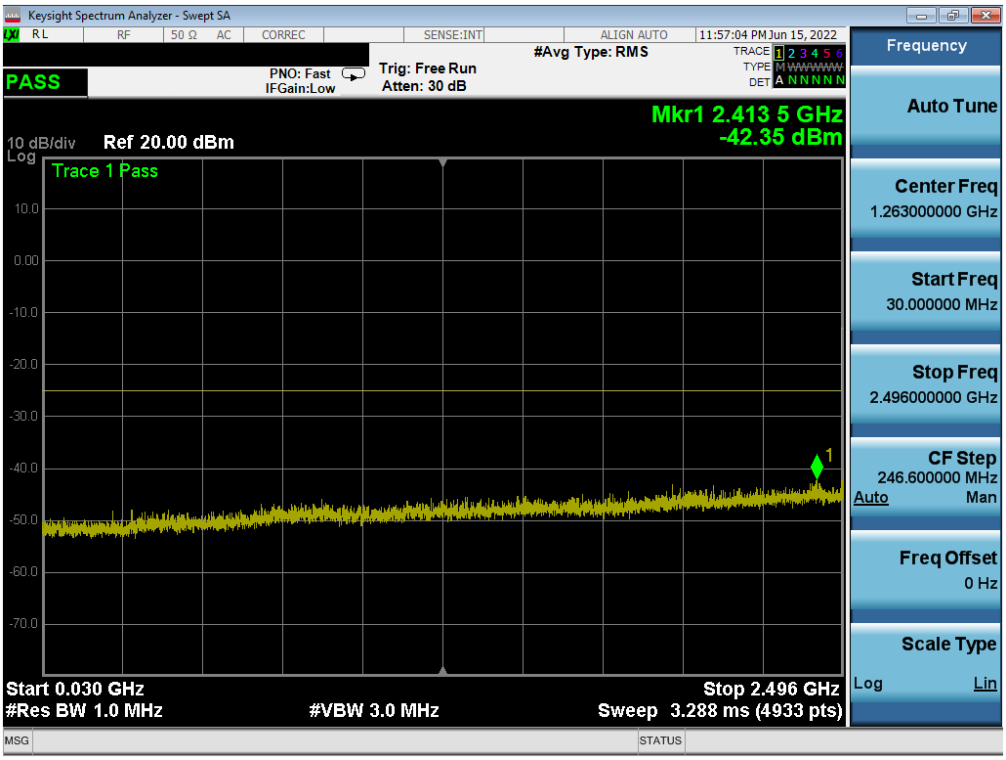
Plot 7-49. Conducted Spurious Plot (LTE Band 41(PC3) - 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



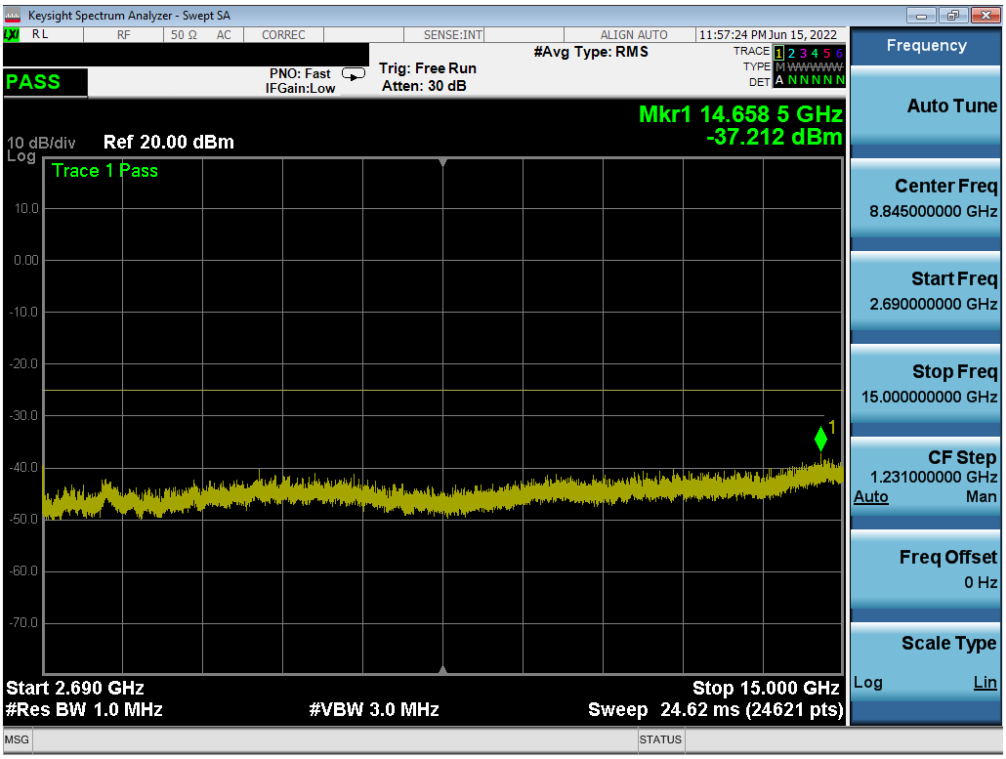
Plot 7-50. Conducted Spurious Plot (LTE Band 41(PC3) - 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



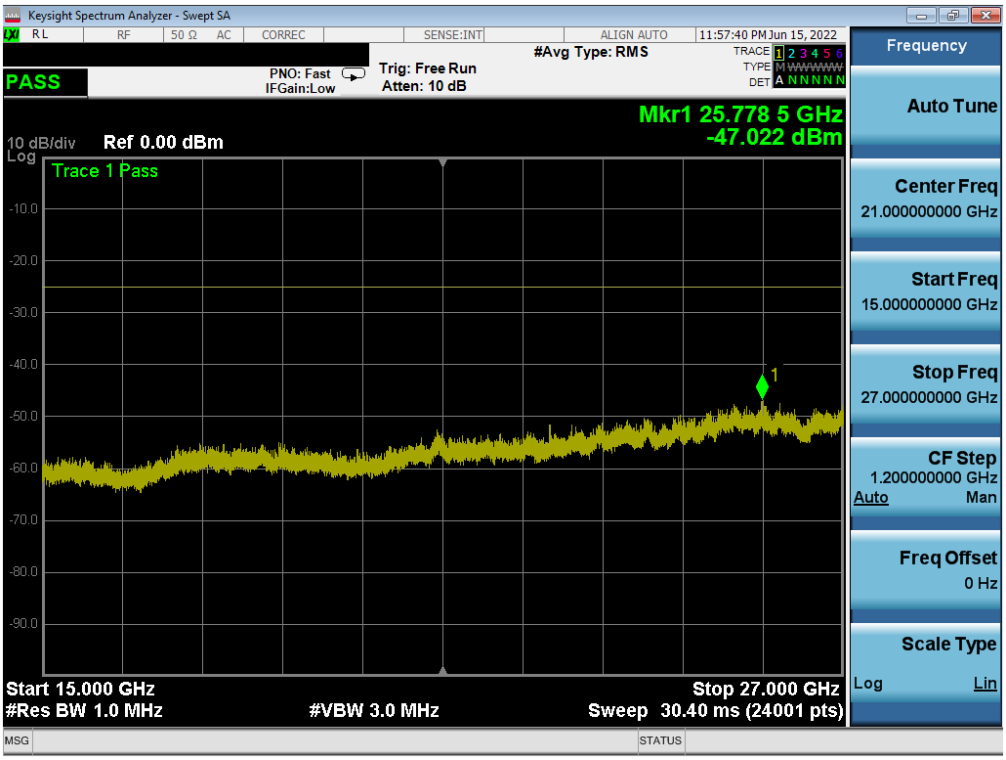
Plot 7-51. Conducted Spurious Plot (LTE Band 41(PC3) - 20MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



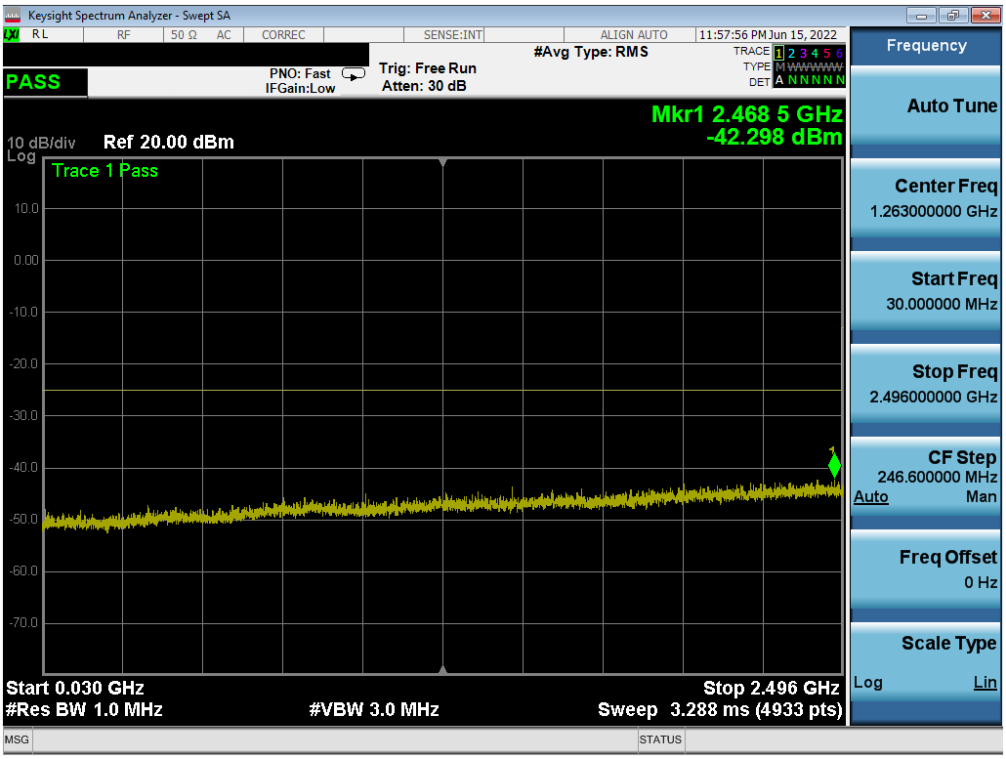
Plot 7-52. Conducted Spurious Plot (LTE Band 41(PC3) - 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



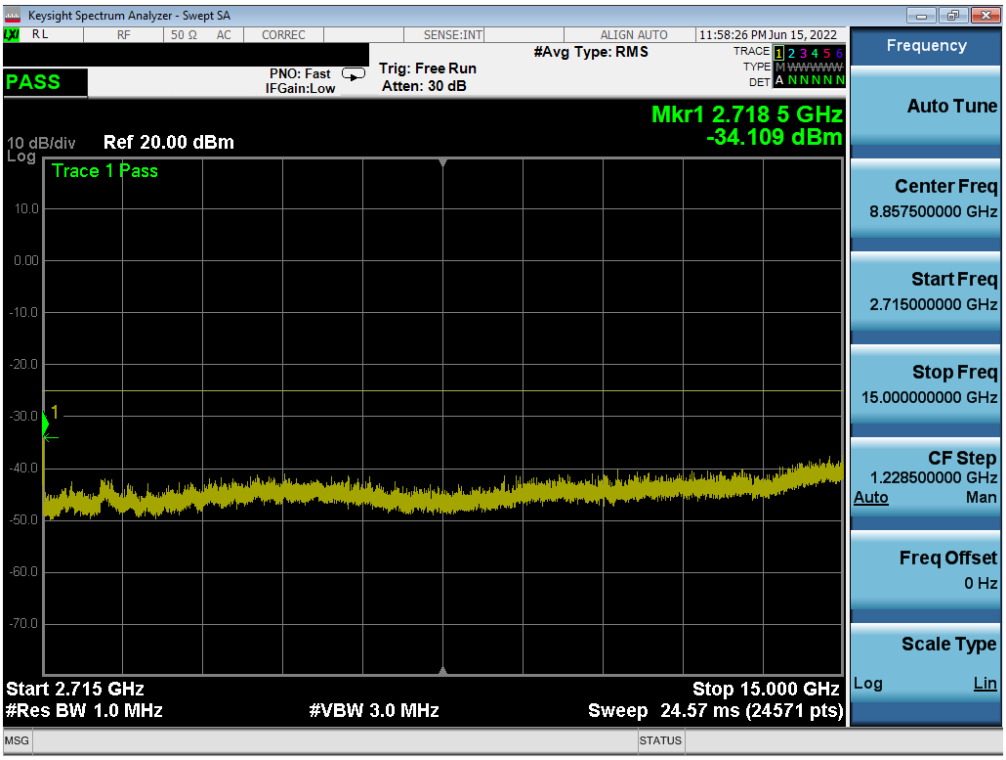
Plot 7-53. Conducted Spurious Plot (LTE Band 41(PC3) - 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



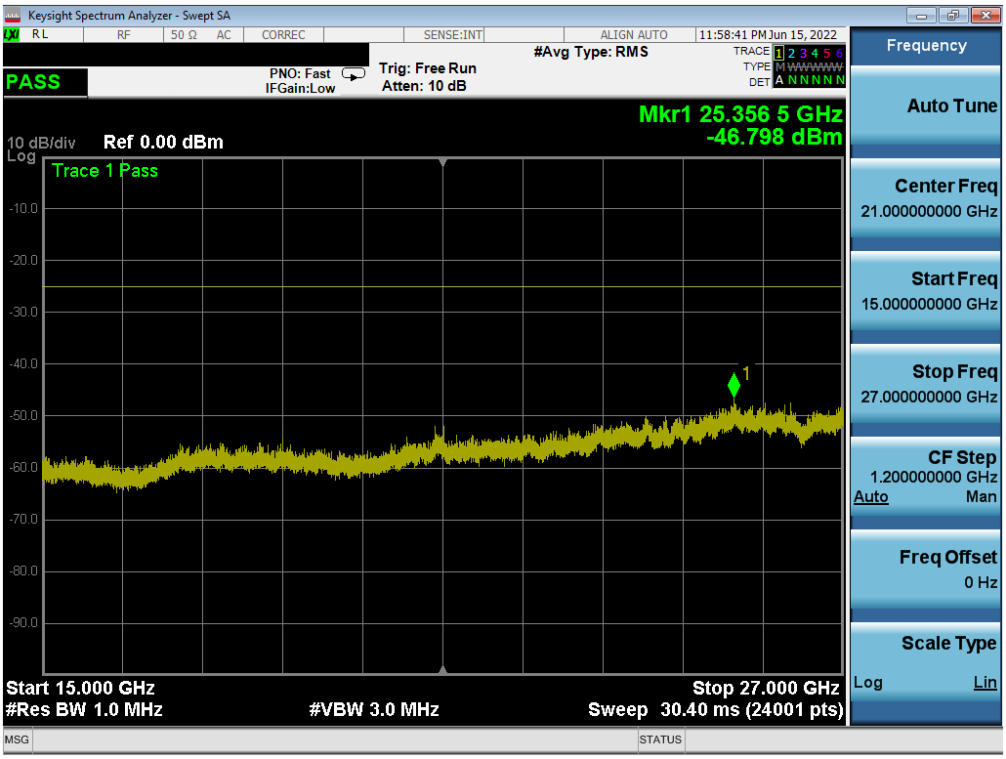
Plot 7-54. Conducted Spurious Plot (LTE Band 41(PC3) - 20MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



Plot 7-55. Conducted Spurious Plot (LTE Band 41(PC3) - 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

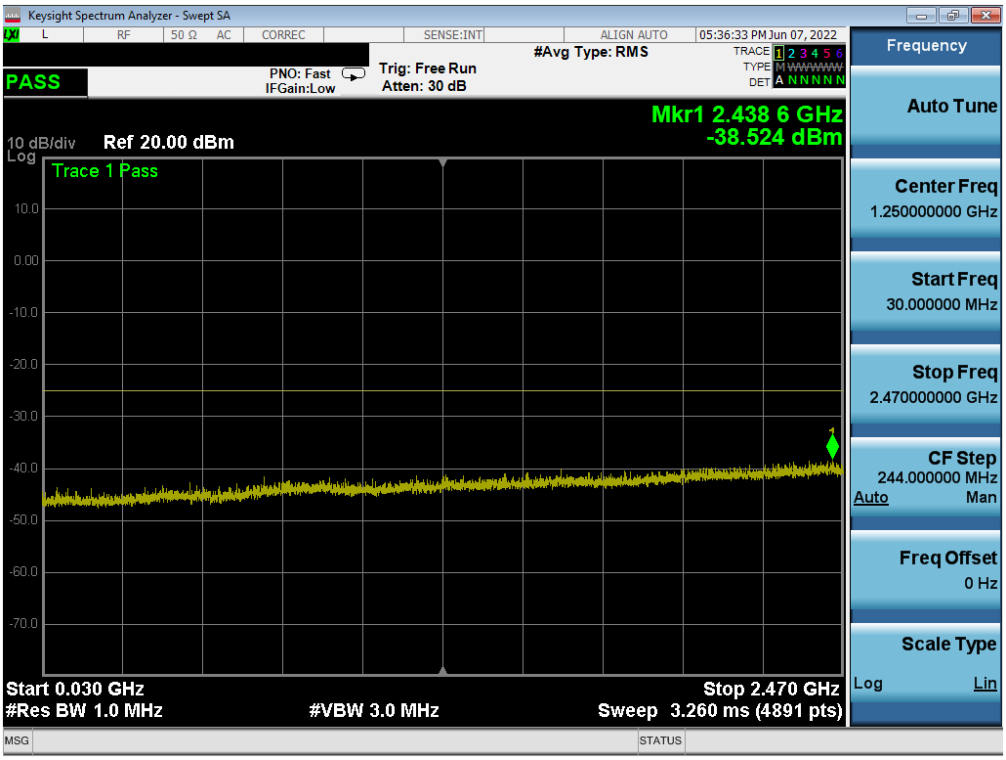


Plot 7-56. Conducted Spurious Plot (LTE Band 41(PC3) - 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

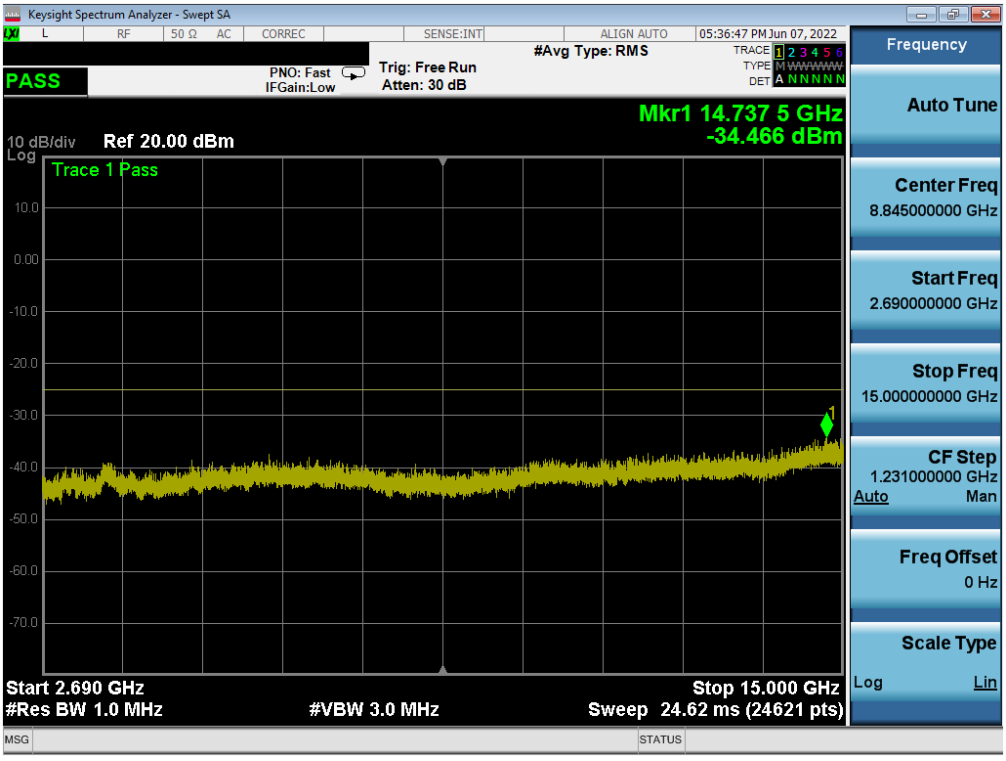


Plot 7-57. Conducted Spurious Plot (LTE Band 41(PC3) - 20MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

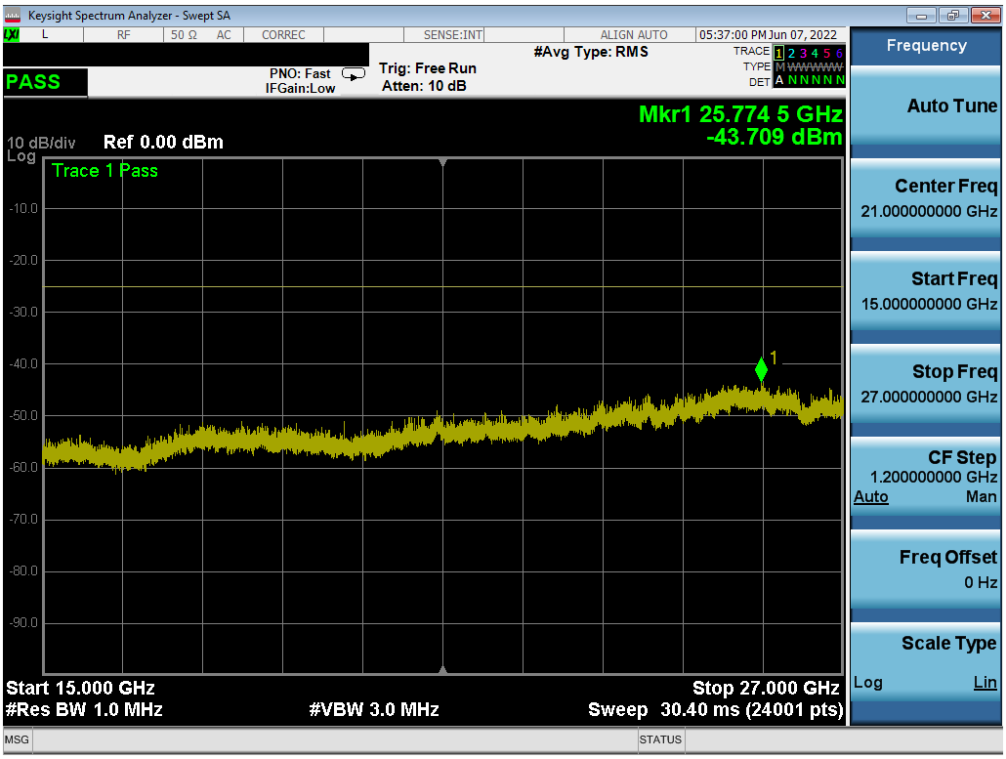
NR Band n41



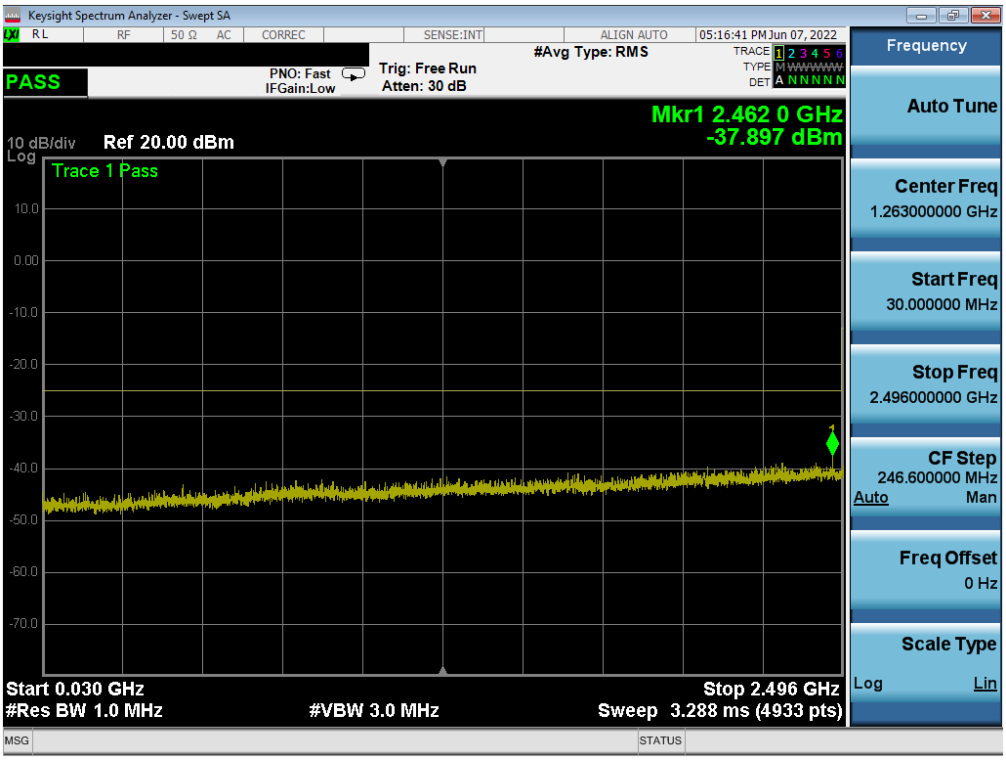
Plot 7-58. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



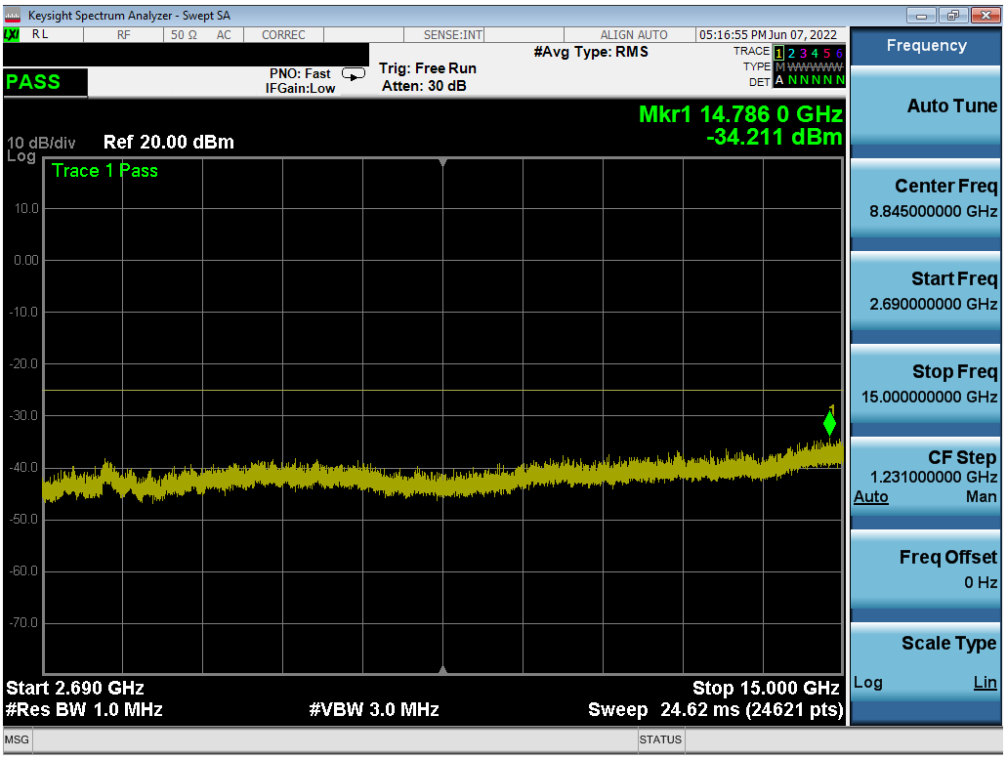
Plot 7-59. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



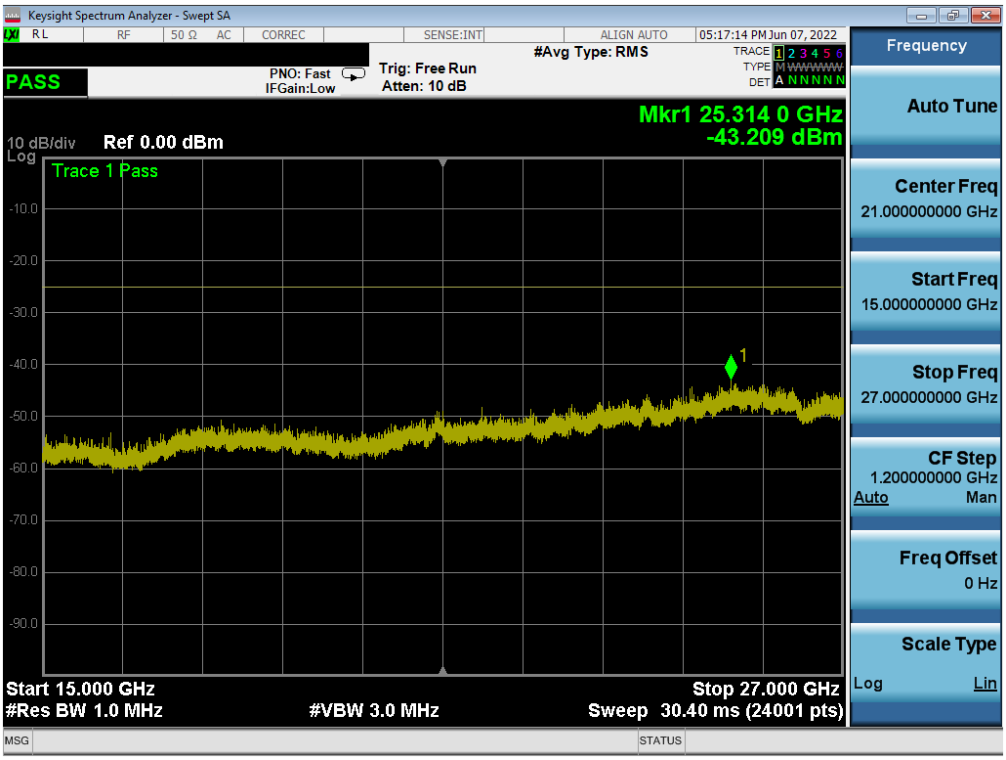
Plot 7-60. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel)



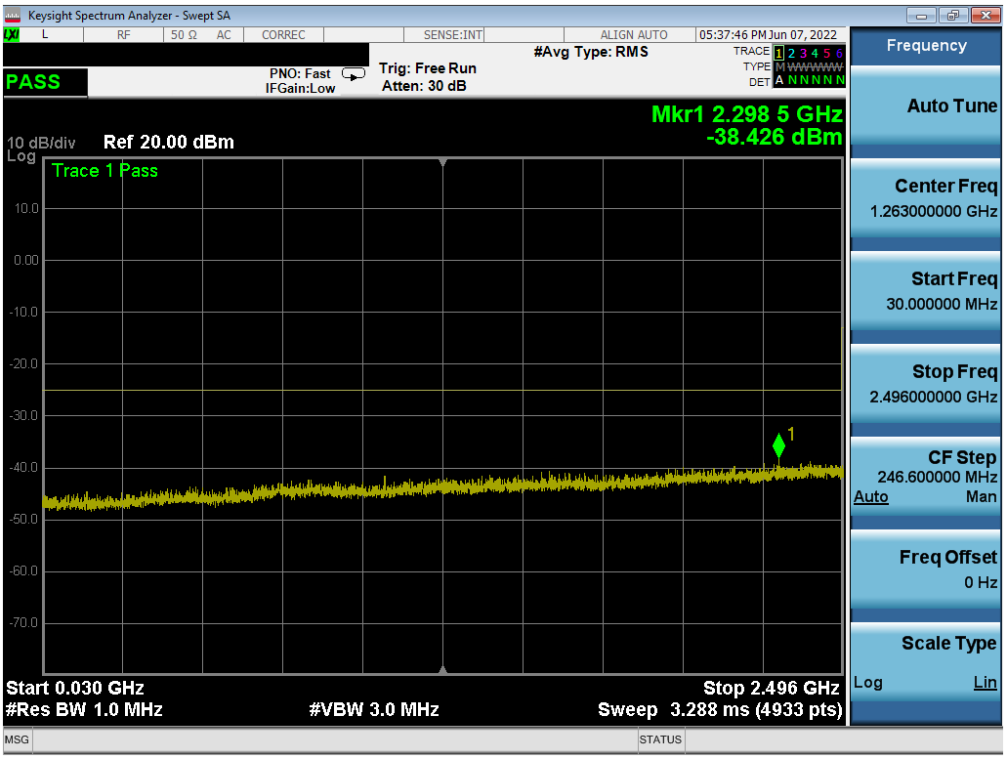
Plot 7-61. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



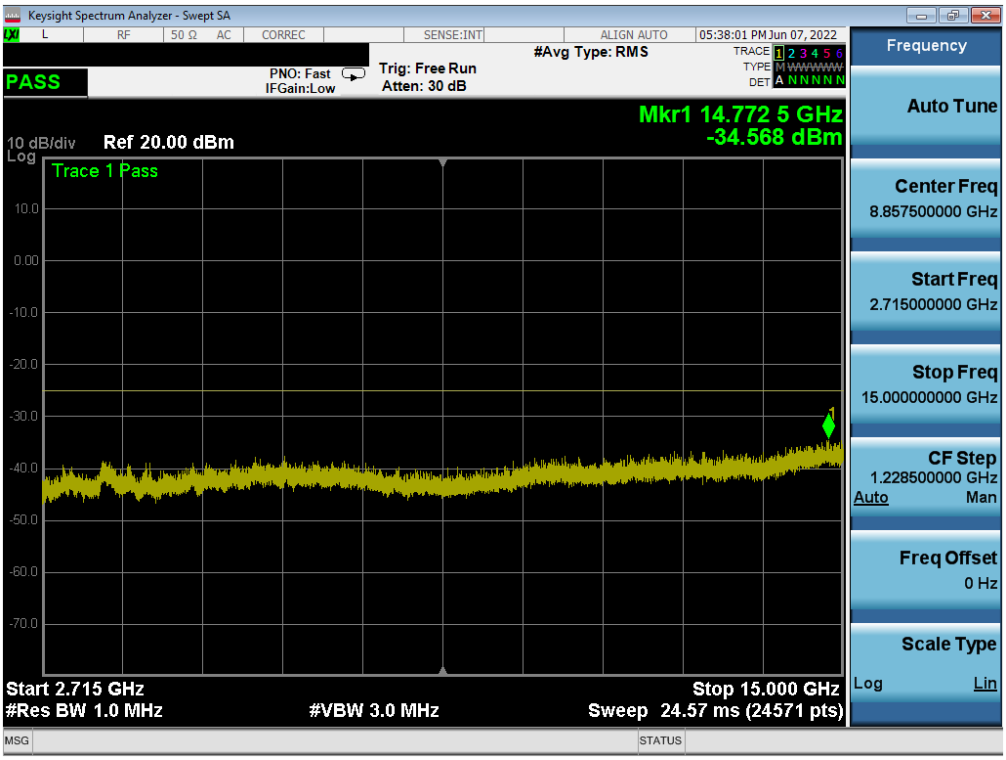
Plot 7-62. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



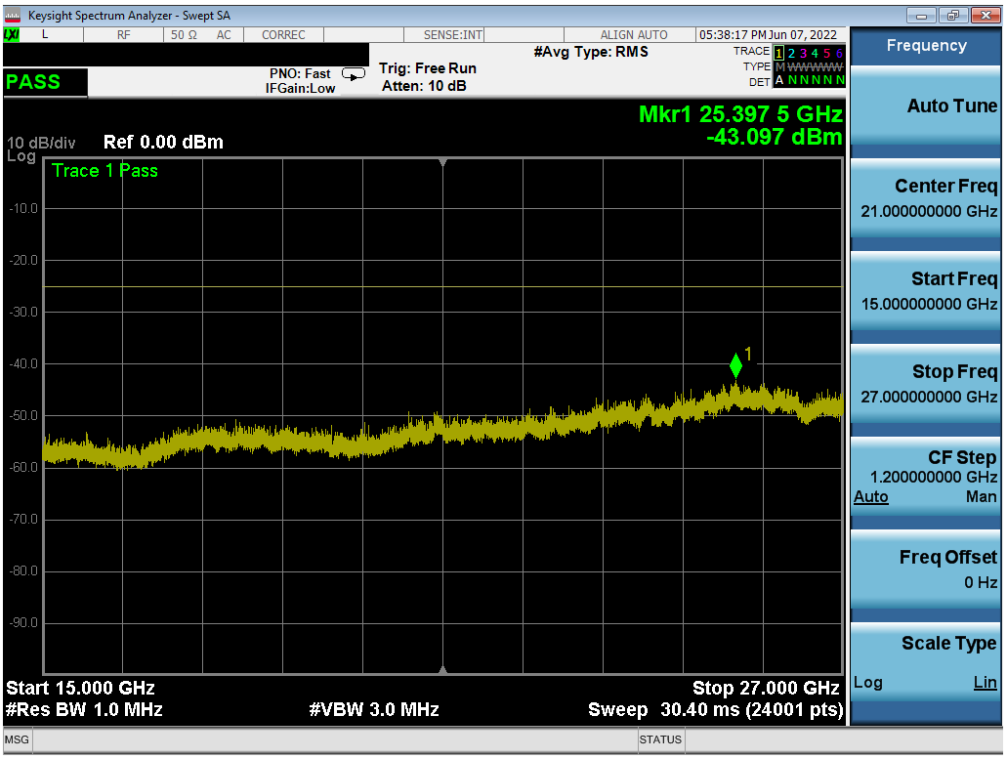
Plot 7-63. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel)



Plot 7-64. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

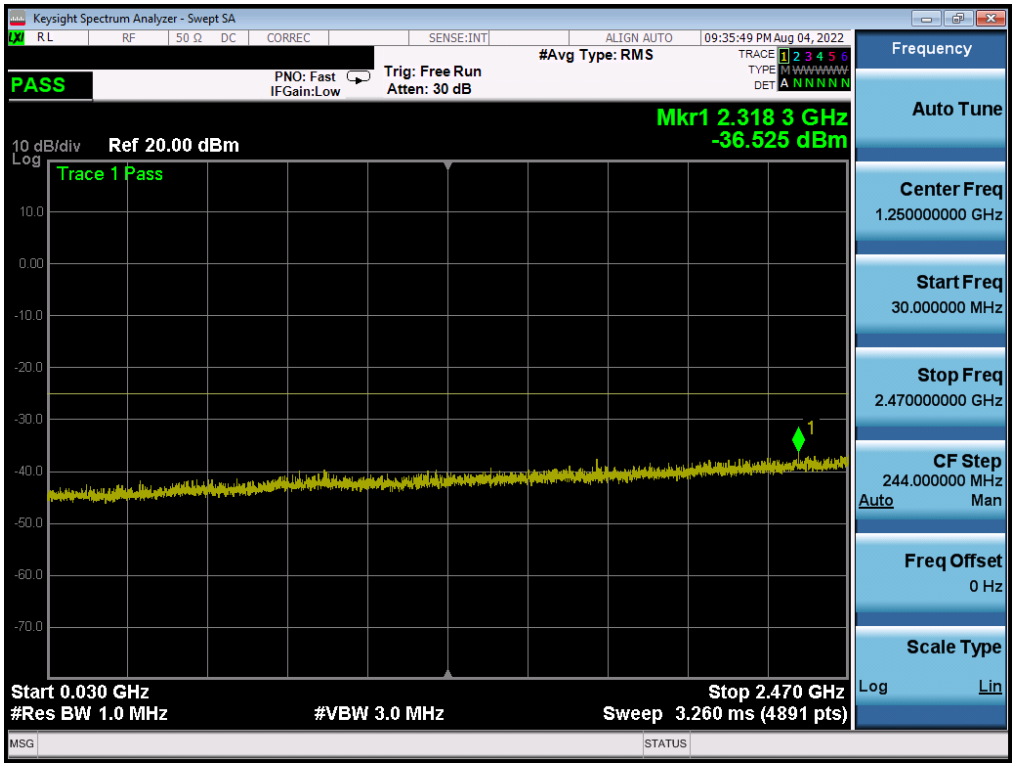


Plot 7-65. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

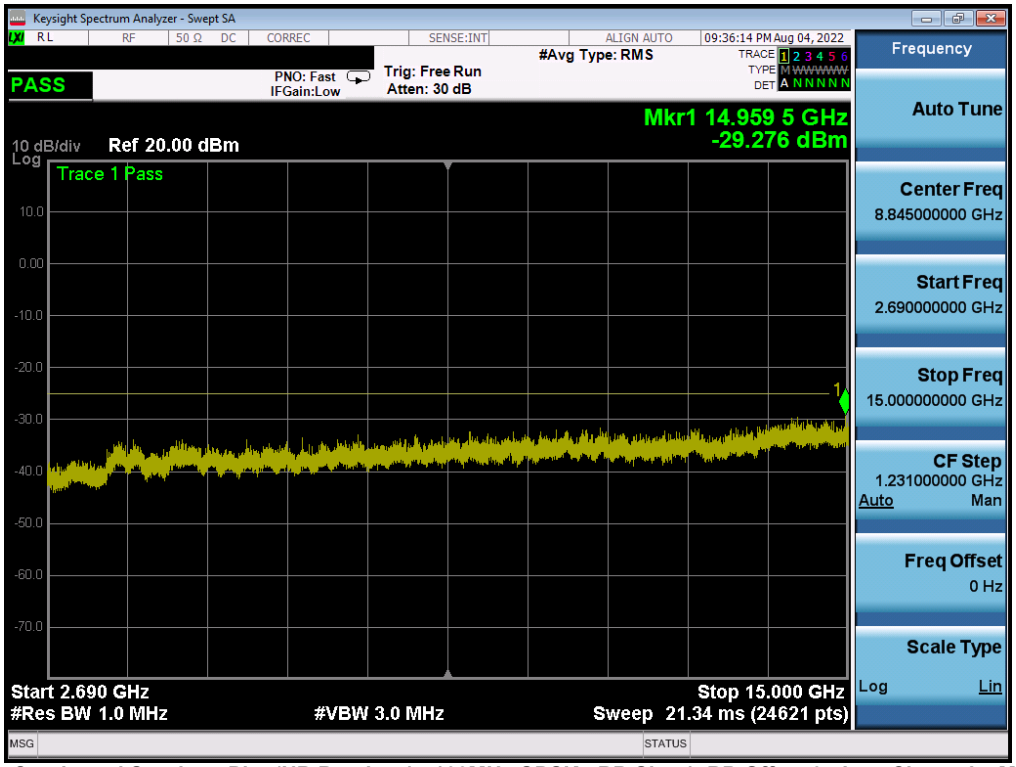


Plot 7-66. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel)

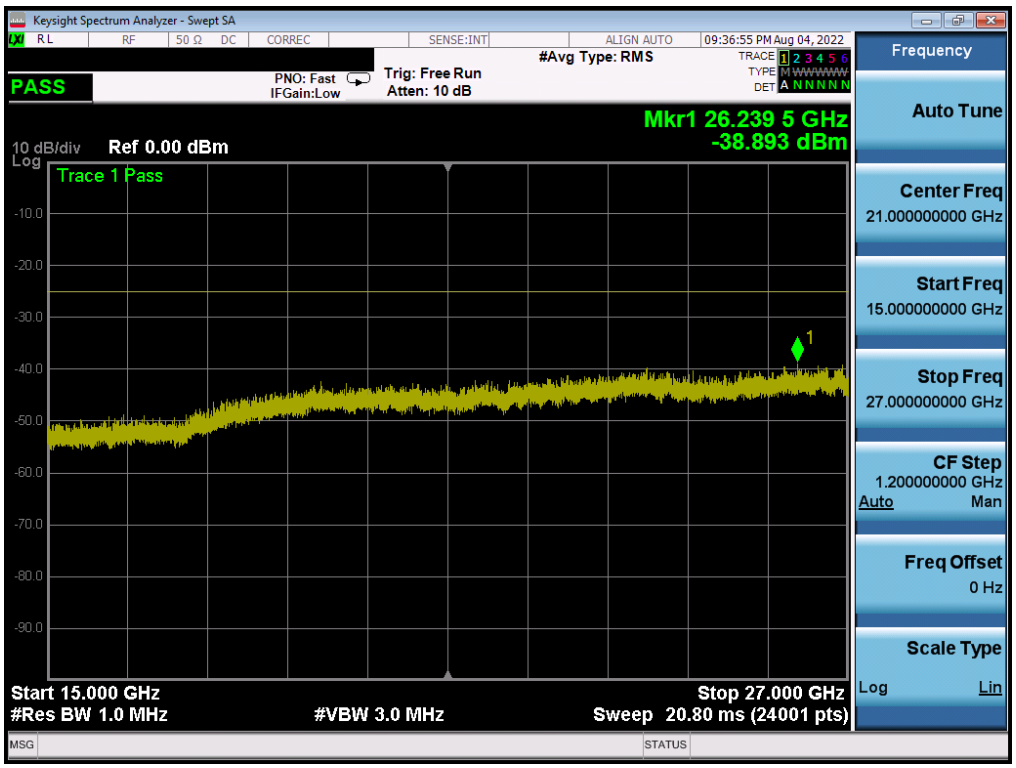
UL-MIMO NR Band n41 – Main Antenna



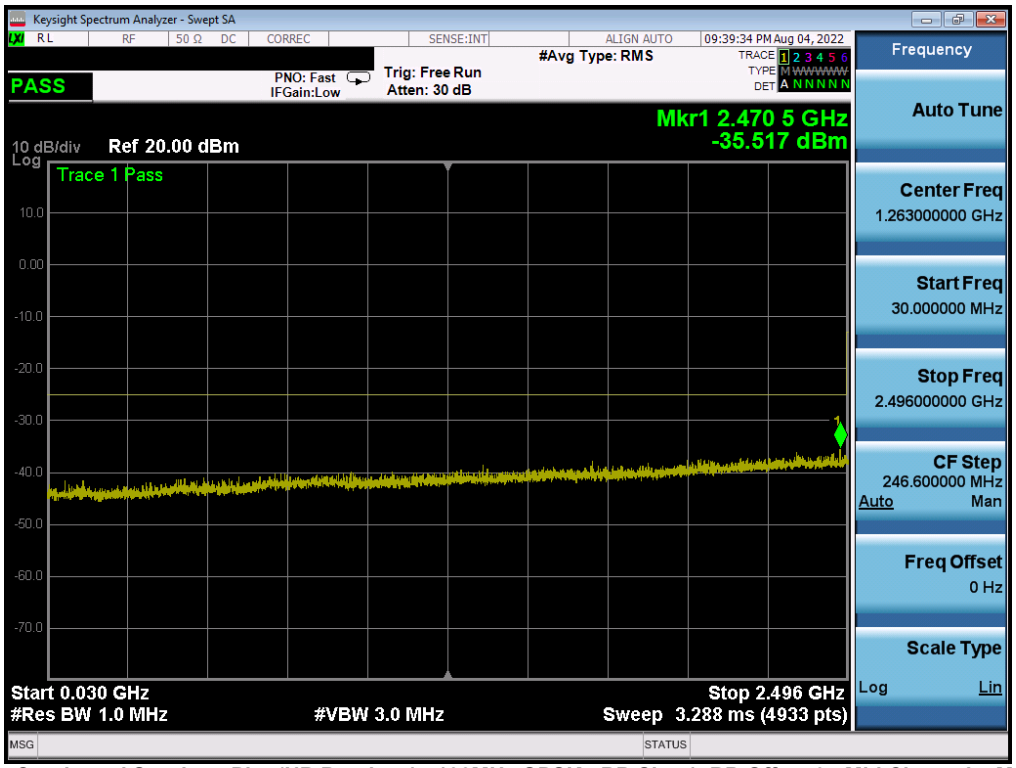
Plot 7-67. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Main ANT)



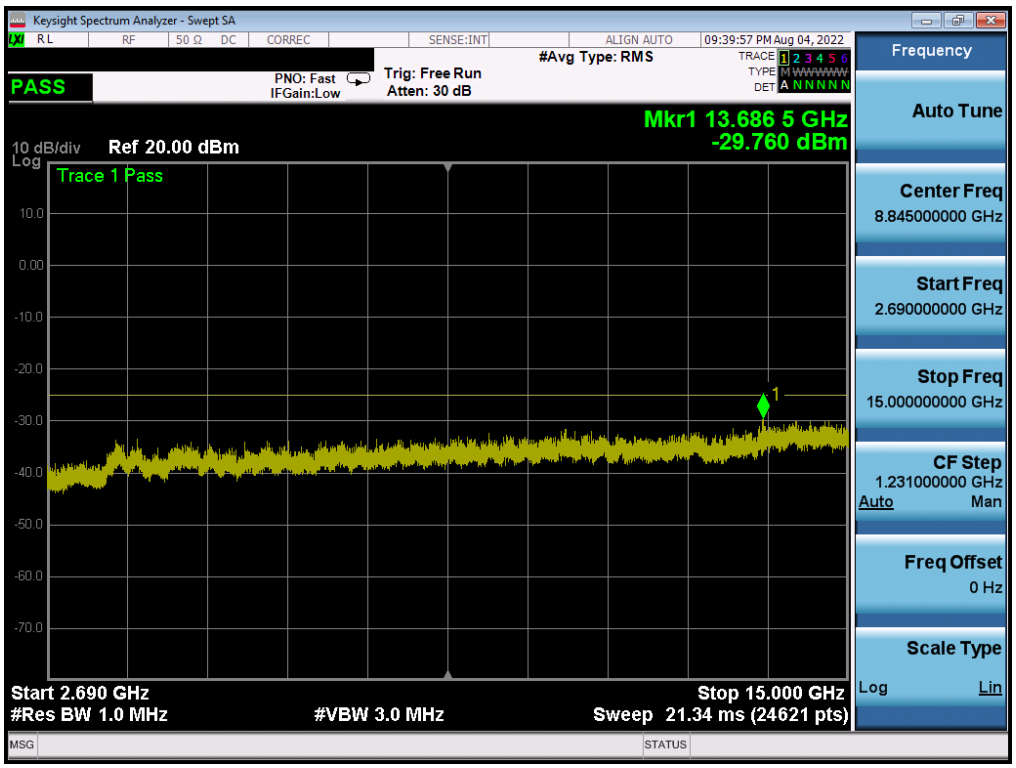
Plot 7-68. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Main ANT)



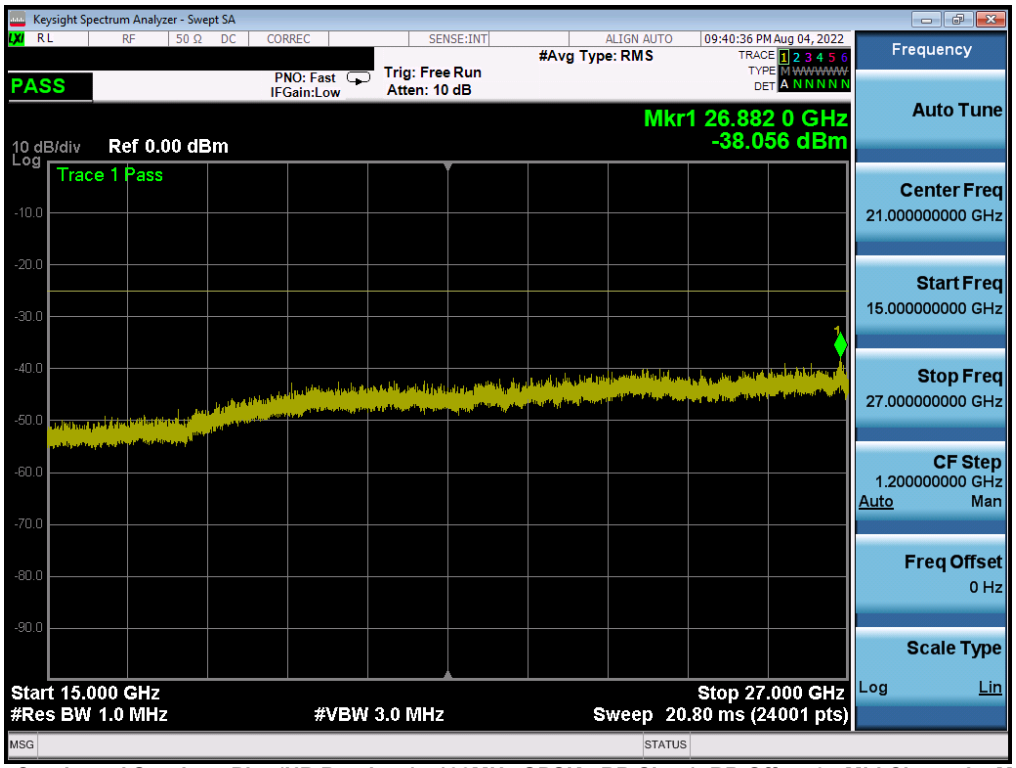
Plot 7-69. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Main ANT)



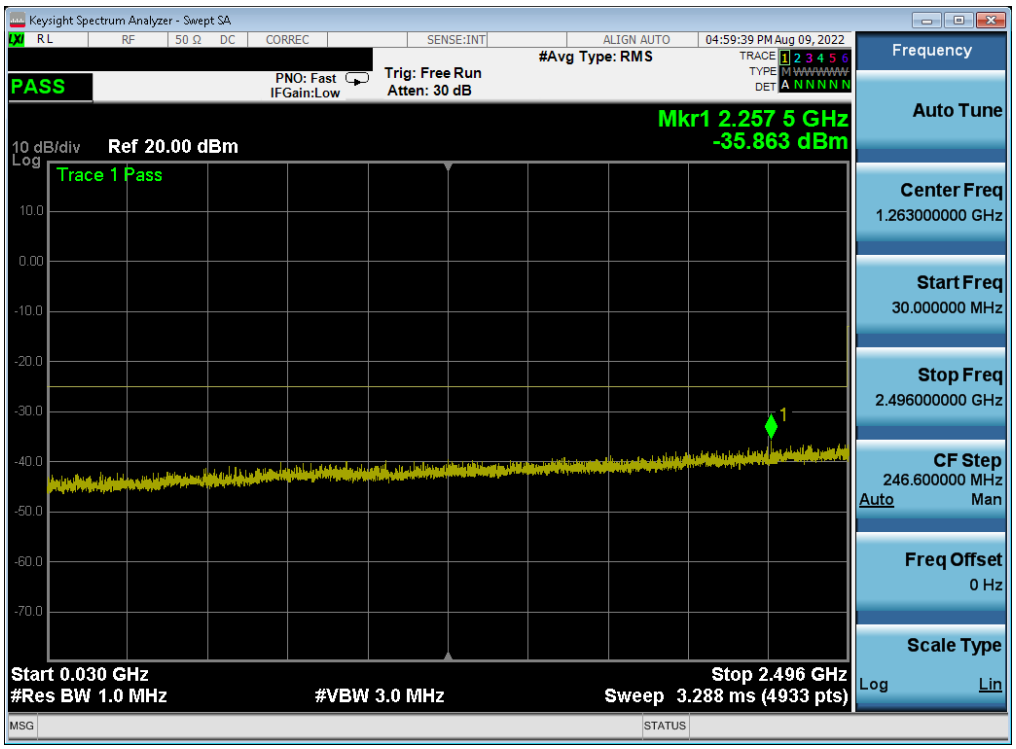
Plot 7-70. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel – Main ANT)



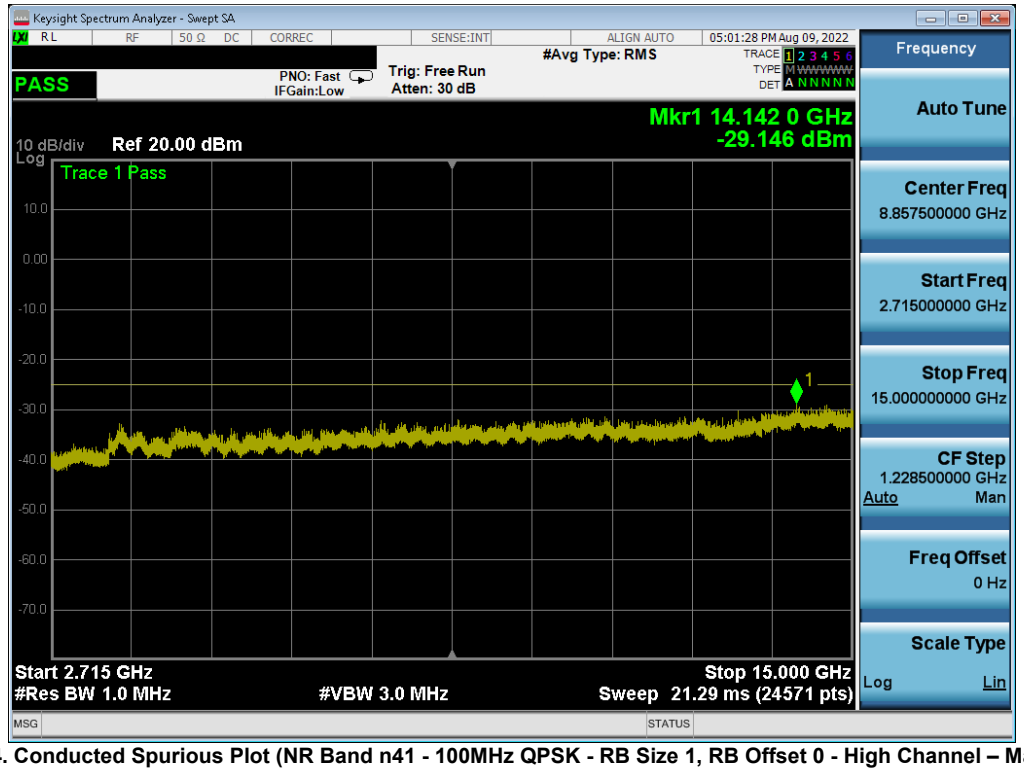
Plot 7-71. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel – Main ANT)



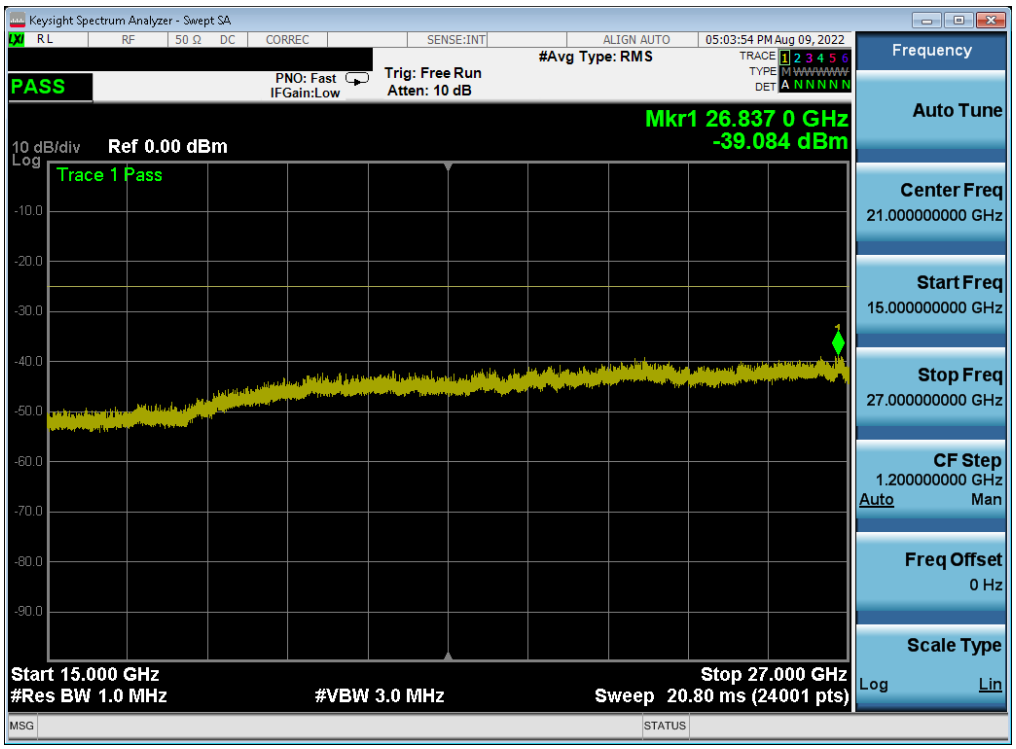
Plot 7-72. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel – Main ANT)



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

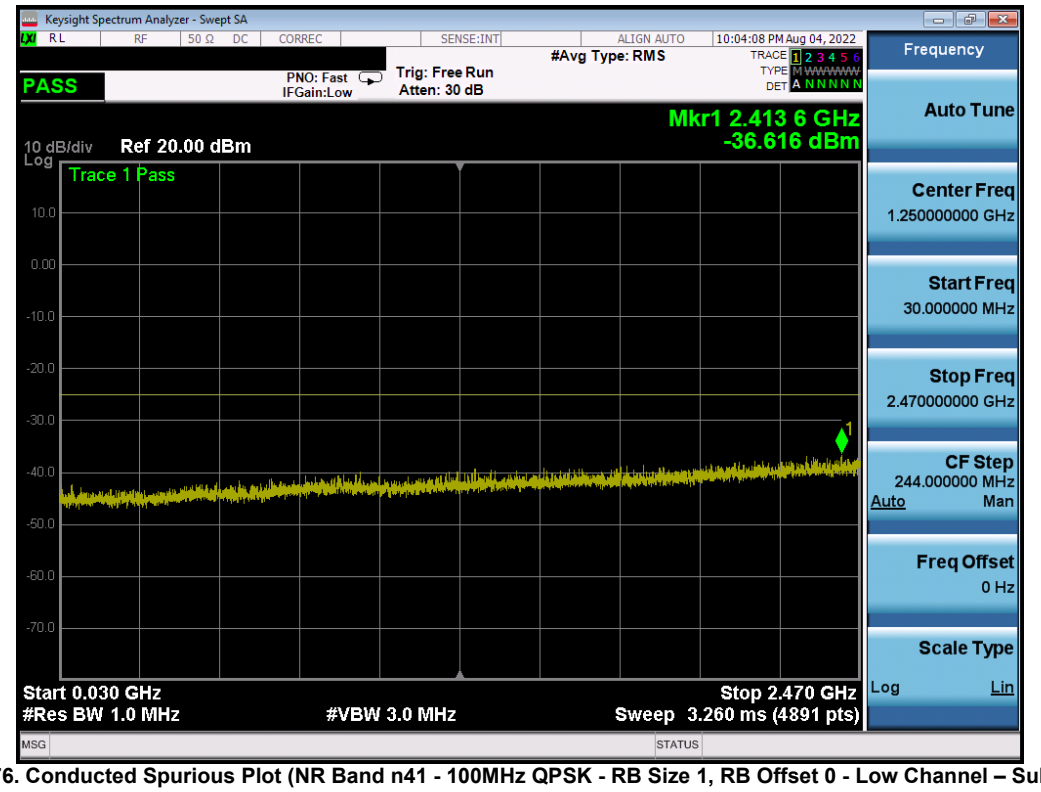


Plot 7-74. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel – Main ANT)

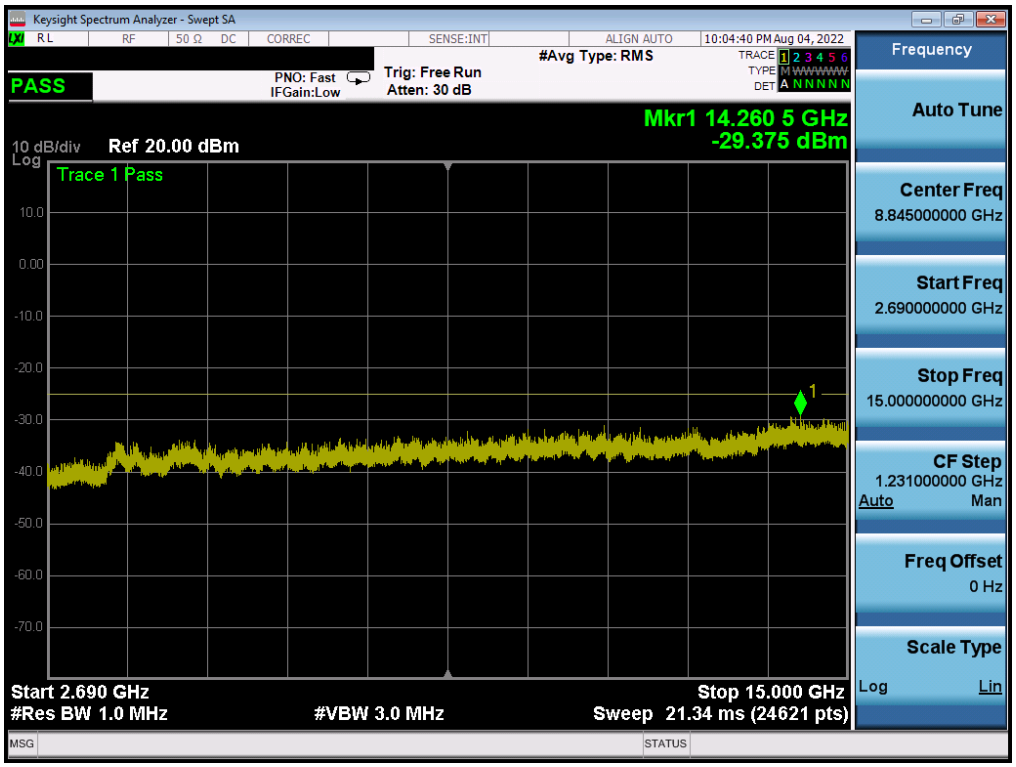


Plot 7-75. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel – Main ANT)

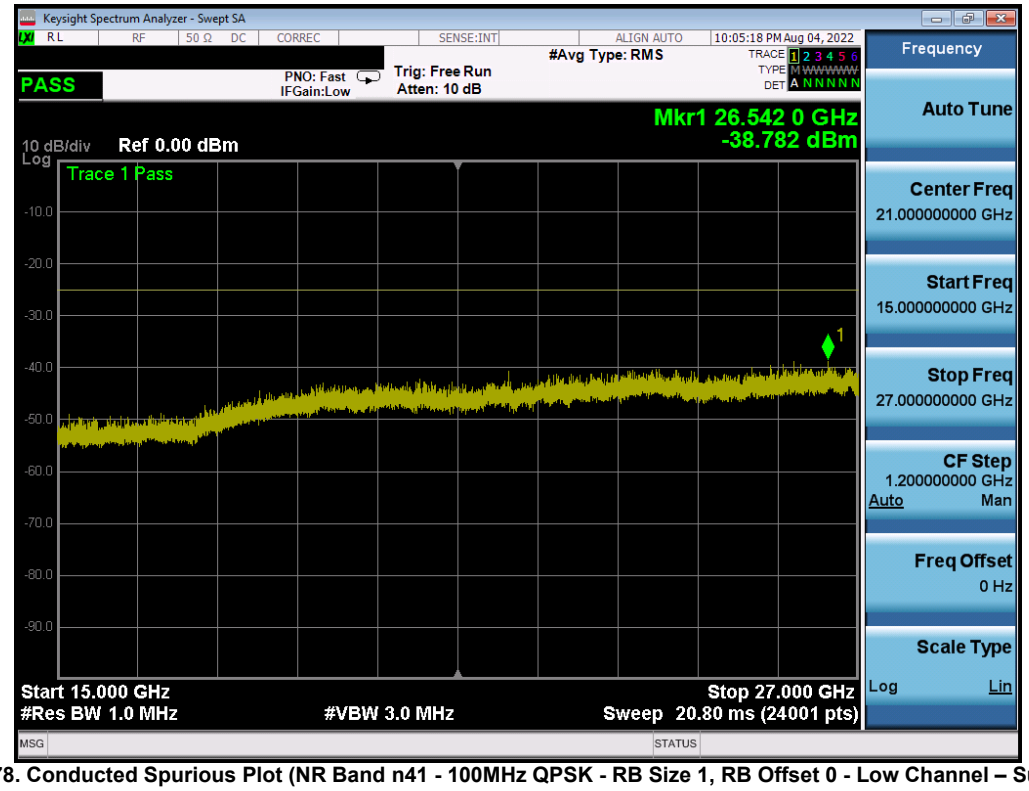
UL-MIMO NR Band n41 – Sub Antenna



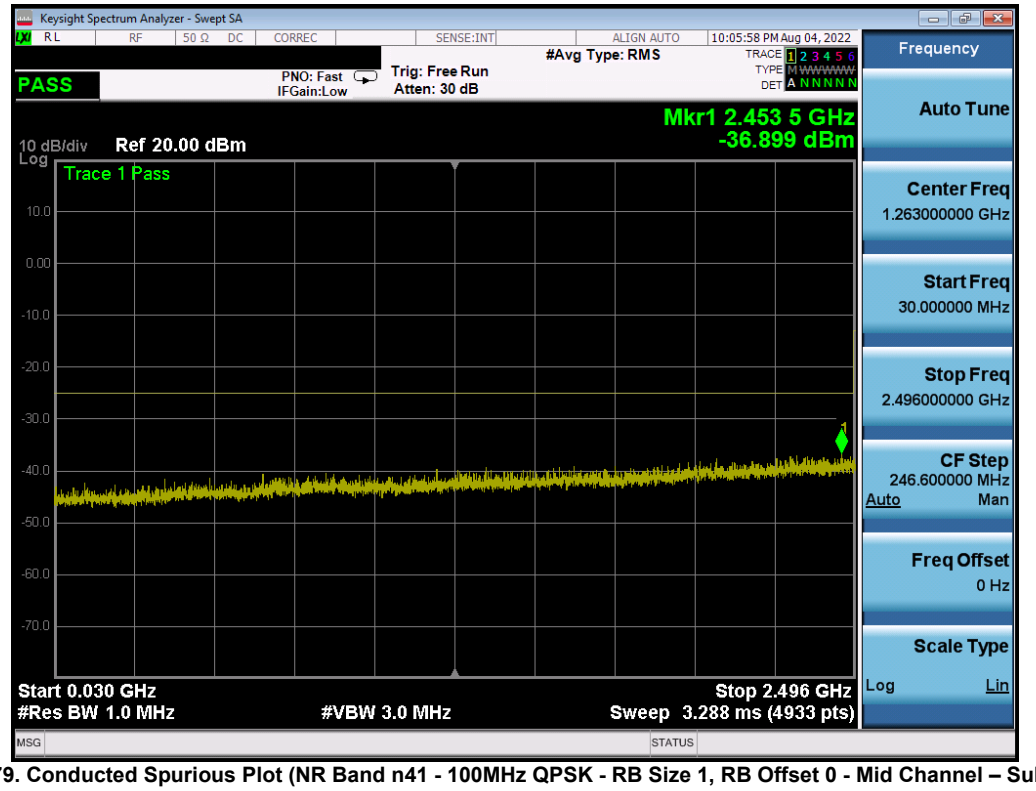
Plot 7-76. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Sub ANT)



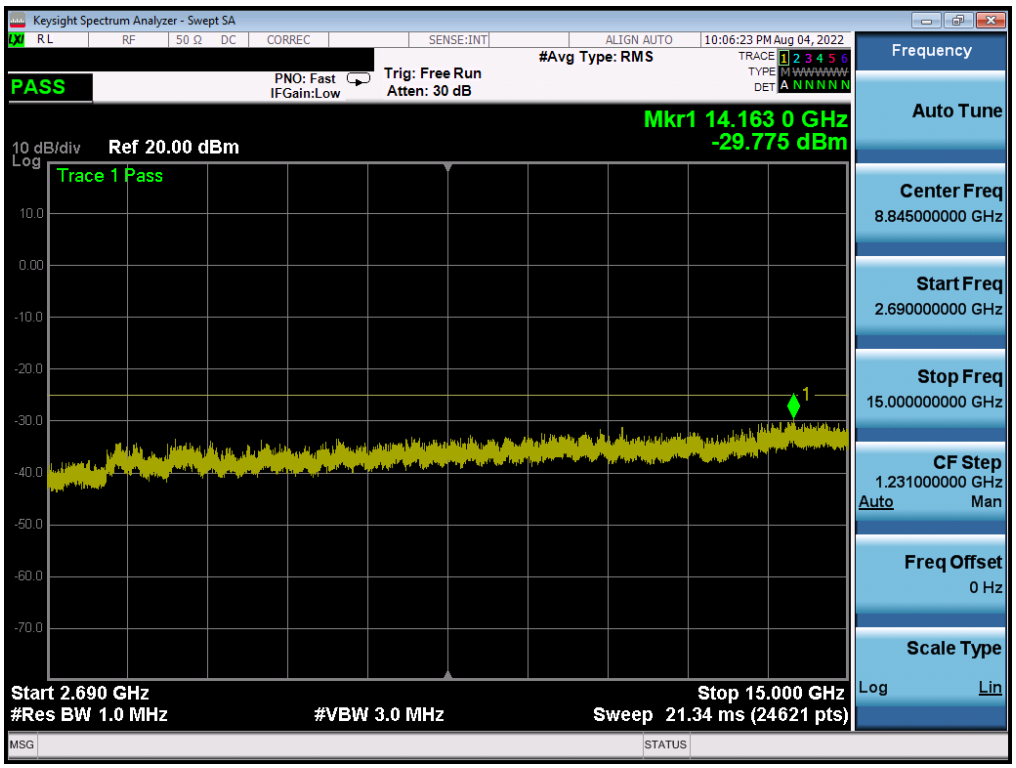
Plot 7-77. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Low Channel – Sub ANT)



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

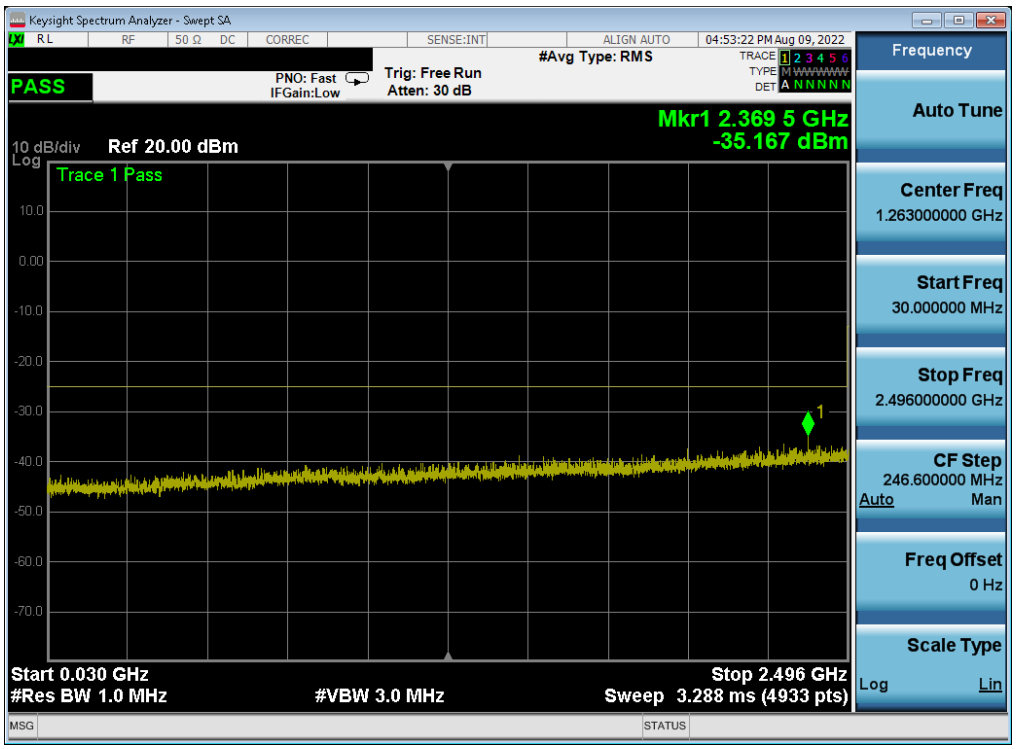


Plot 7-79. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel – Sub ANT)

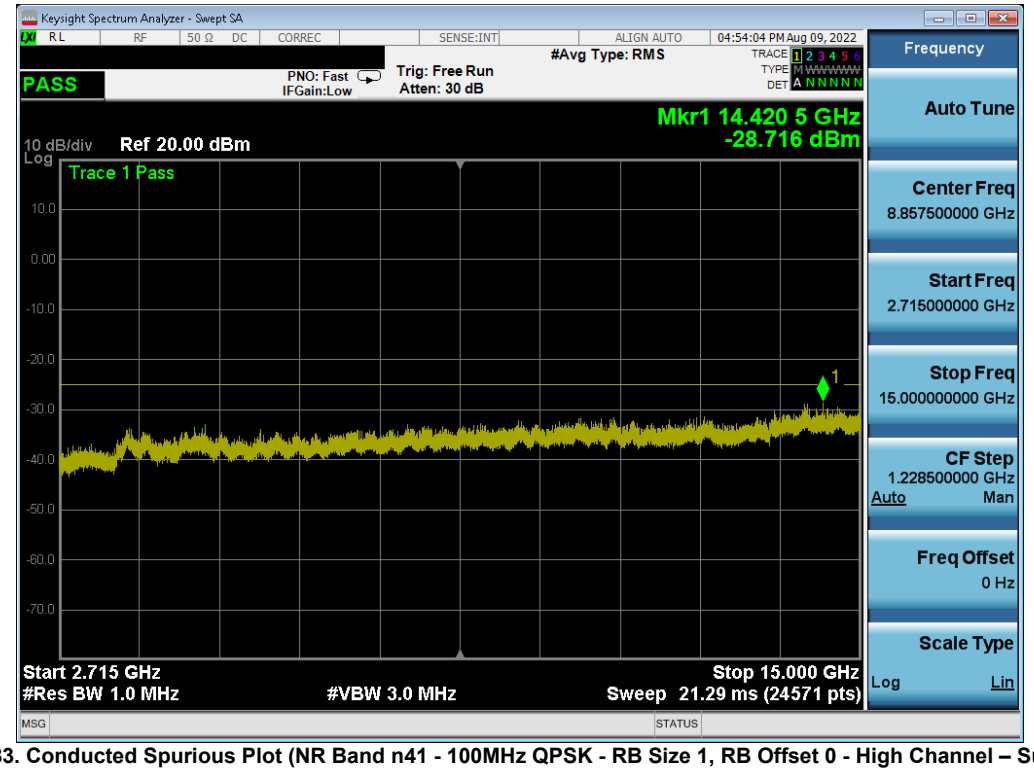


Plot 7-80. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel – Sub ANT)

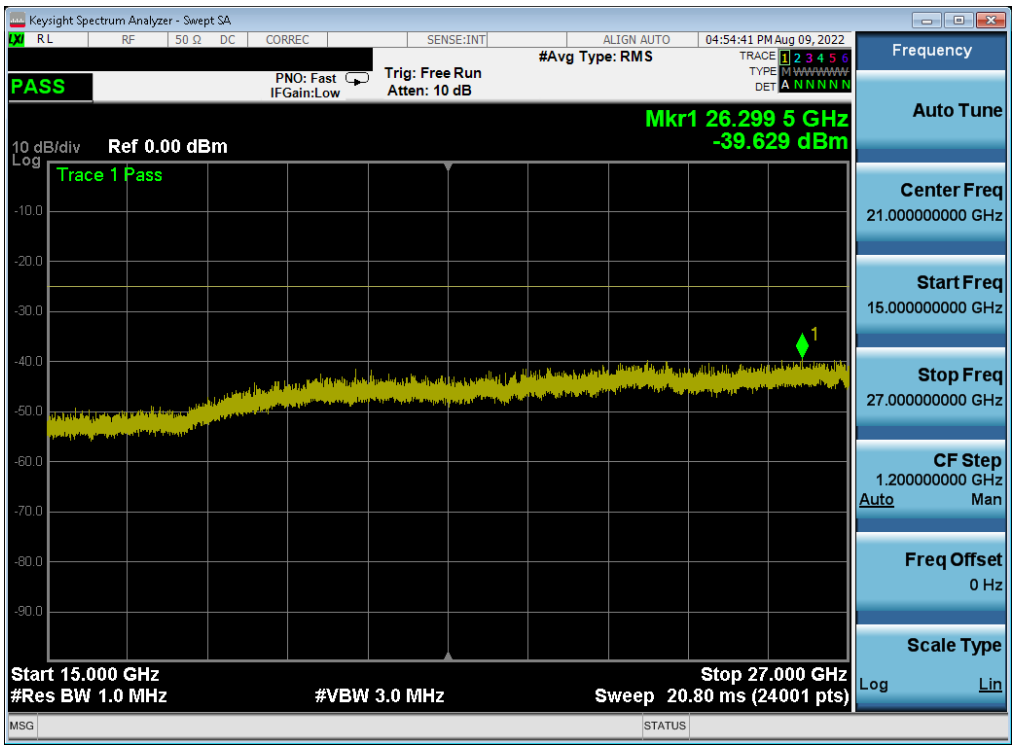
Plot 7-81. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - Mid Channel – Sub ANT)



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



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



Plot 7-84. Conducted Spurious Plot (NR Band n41 - 100MHz QPSK - RB Size 1, RB Offset 0 - High Channel – Sub ANT)

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 ≥ 1% of the emission bandwidth
4. VBW ≥ 3 x RBW
5. Detector = RMS
6. Number of sweep points ≥ 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.

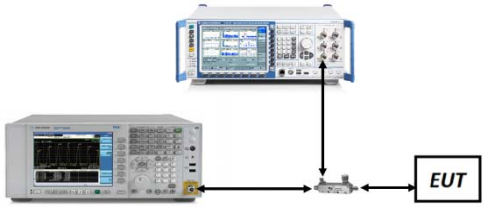


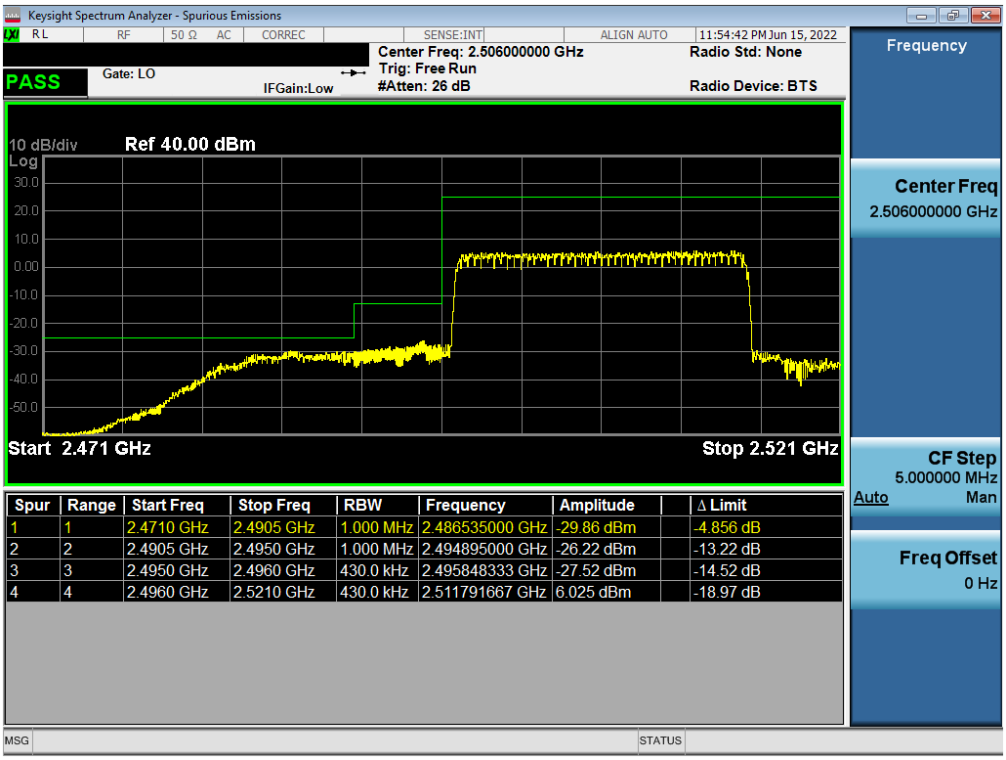
Figure 7-4. Test Instrument & Measurement Setup

Test Notes

1. 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.

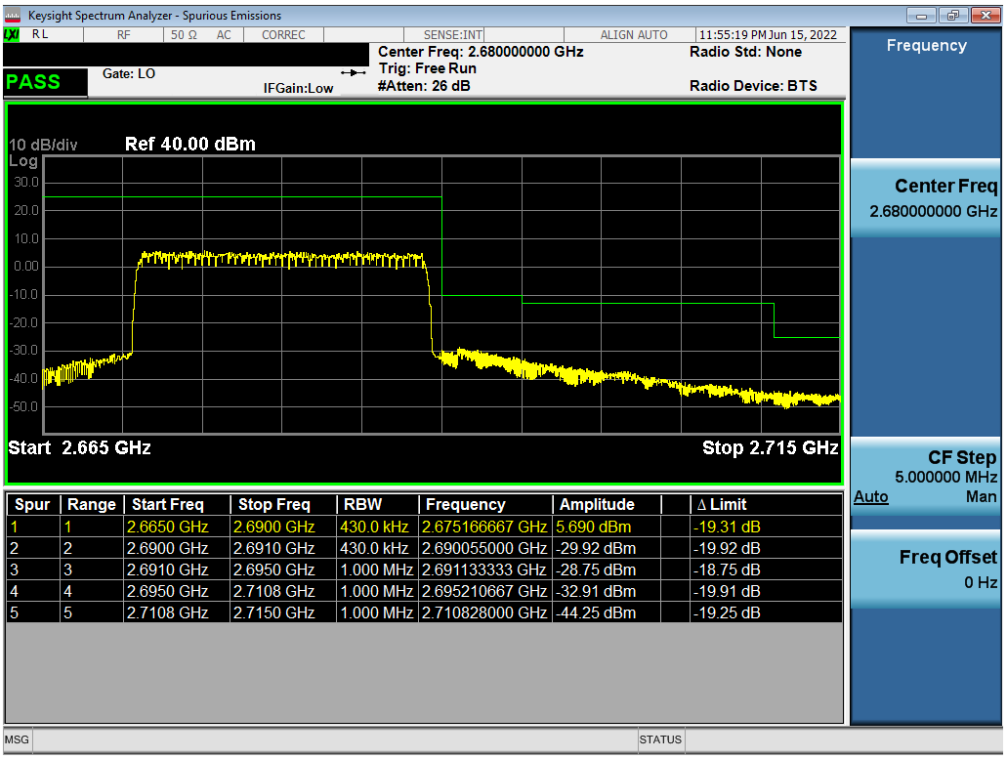
2. In this section, the UL-MIMO NR band n41 (main and sub antennas) plots has a 3dB correction applied to the individual plots to address the MIMO requirements in ANSI C63.26.

LTE Band 41(PC3)



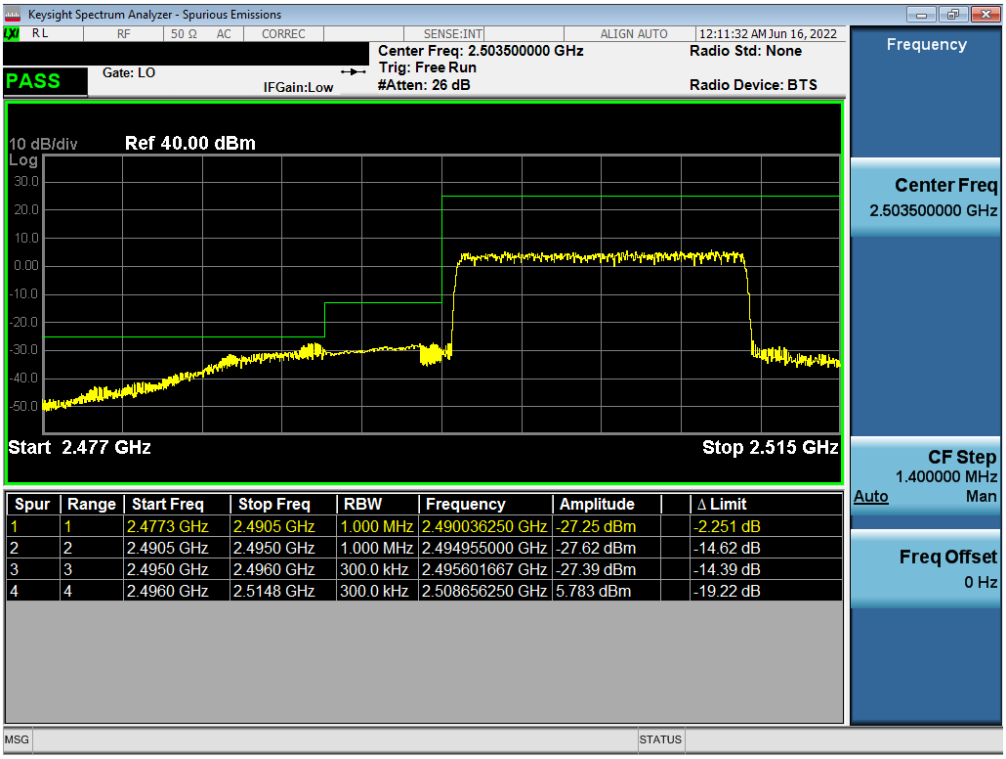
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4710 GHz	2.4905 GHz	1.000 MHz	2.486535000 GHz	-29.86 dBm	-4.856 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494895000 GHz	-26.22 dBm	-13.22 dB
3	3	2.4950 GHz	2.4960 GHz	430.0 kHz	2.495848333 GHz	-27.52 dBm	-14.52 dB
4	4	2.4960 GHz	2.5210 GHz	430.0 kHz	2.511791667 GHz	6.025 dBm	-18.97 dB

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



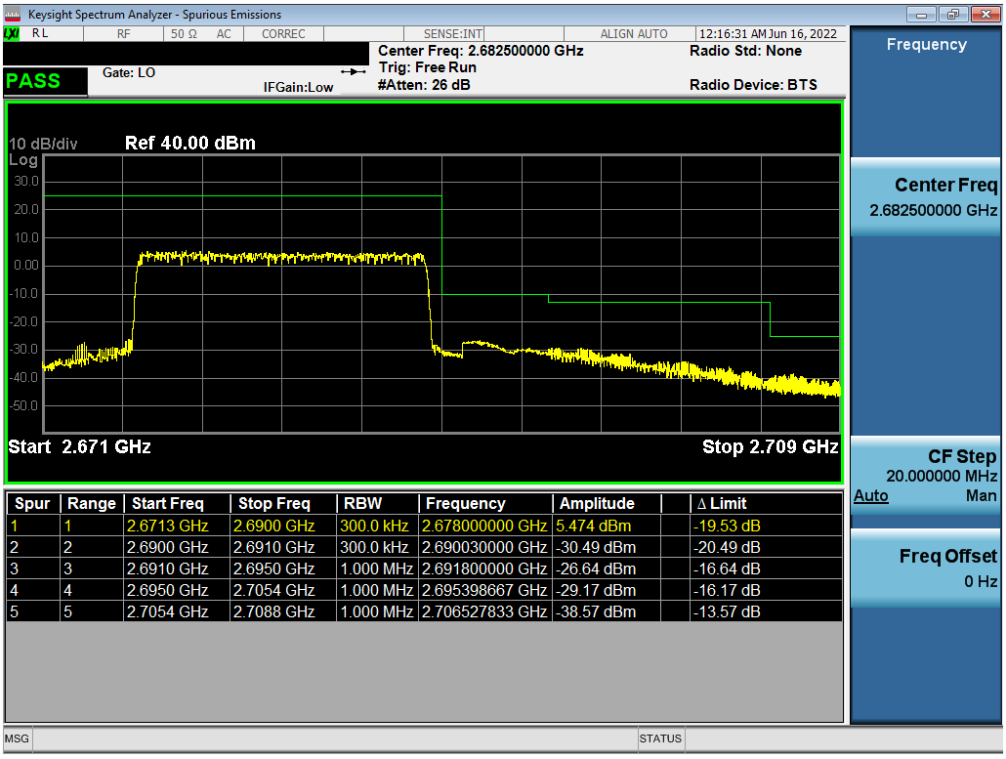
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	430.0 kHz	2.675166667 GHz	5.690 dBm	-19.31 dB
2	2	2.6900 GHz	2.6910 GHz	430.0 kHz	2.690055000 GHz	-29.92 dBm	-19.92 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691133333 GHz	-28.75 dBm	-18.75 dB
4	4	2.6950 GHz	2.7108 GHz	1.000 MHz	2.695210667 GHz	-32.91 dBm	-19.91 dB
5	5	2.7108 GHz	2.7150 GHz	1.000 MHz	2.710828000 GHz	-44.25 dBm	-19.25 dB

Plot 7-86. Upper ACP Plot (LTE Band 41(PC3) - 20MHz QPSK – Full RB)



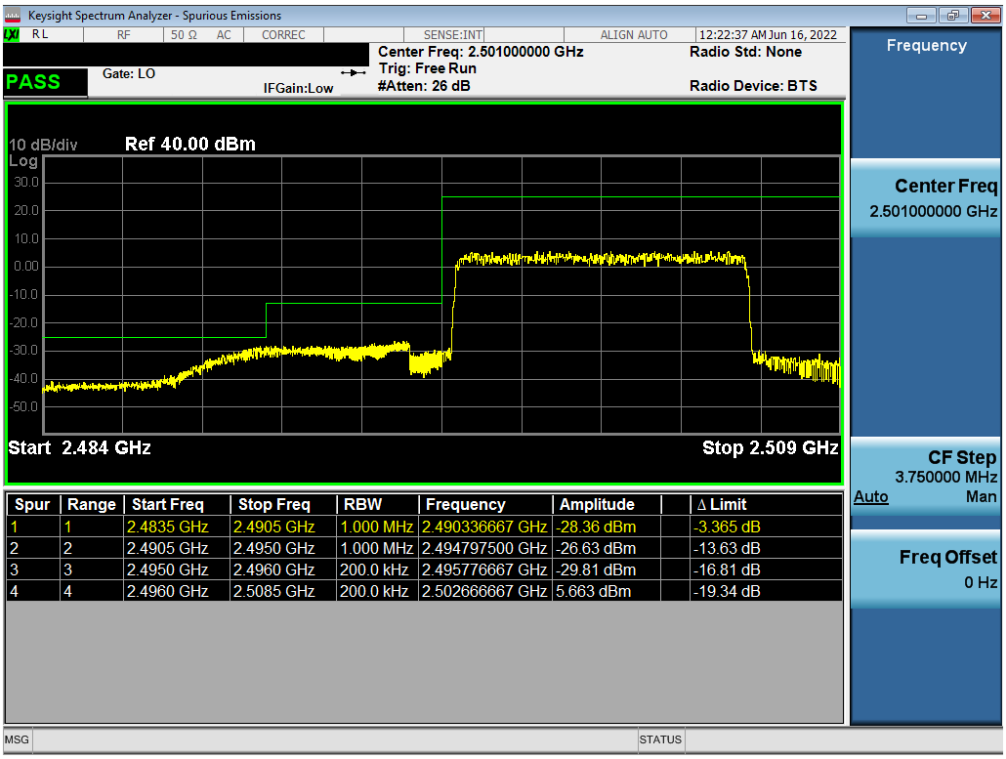
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4773 GHz	2.4905 GHz	1.000 MHz	2.490036250 GHz	-27.25 dBm	-2.251 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494955000 GHz	-27.62 dBm	-14.62 dB
3	3	2.4950 GHz	2.4960 GHz	300.0 kHz	2.495601667 GHz	-27.39 dBm	-14.39 dB
4	4	2.4960 GHz	2.5148 GHz	300.0 kHz	2.508656250 GHz	5.783 dBm	-19.22 dB

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



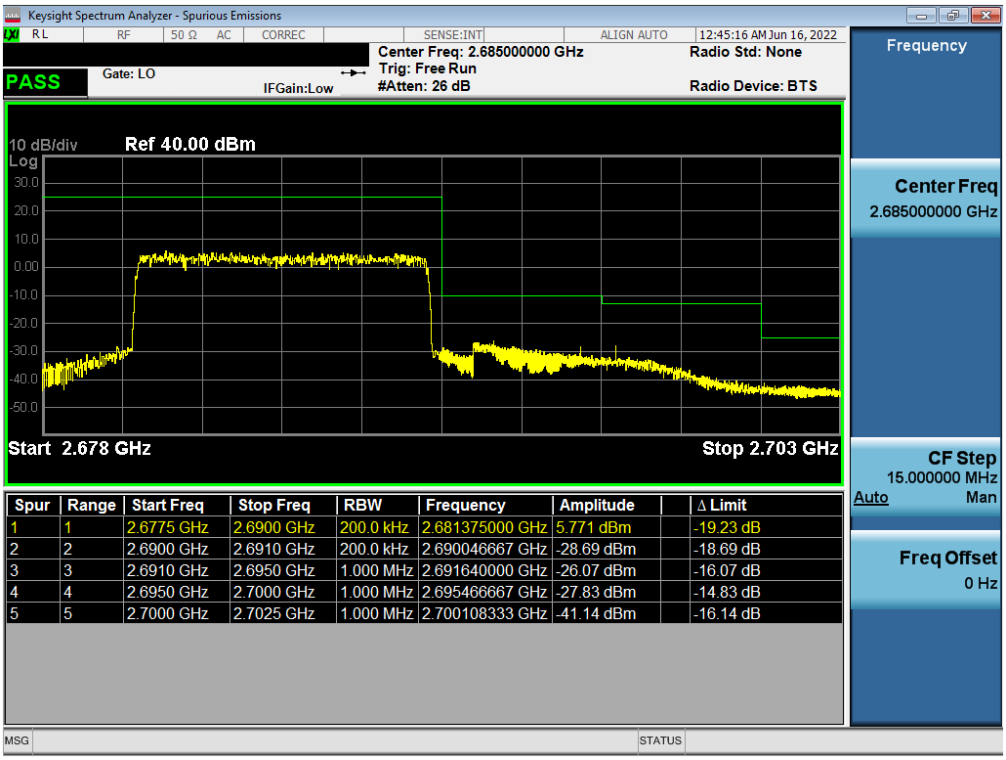
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6713 GHz	2.6900 GHz	300.0 kHz	2.678000000 GHz	5.474 dBm	-19.53 dB
2	2	2.6900 GHz	2.6910 GHz	300.0 kHz	2.690030000 GHz	-30.49 dBm	-20.49 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691800000 GHz	-26.64 dBm	-16.64 dB
4	4	2.6950 GHz	2.7054 GHz	1.000 MHz	2.695398667 GHz	-29.17 dBm	-16.17 dB
5	5	2.7054 GHz	2.7088 GHz	1.000 MHz	2.706527833 GHz	-38.57 dBm	-13.57 dB

Plot 7-88. Upper ACP Plot (LTE Band 41(PC3) - 15MHz QPSK – Full RB)



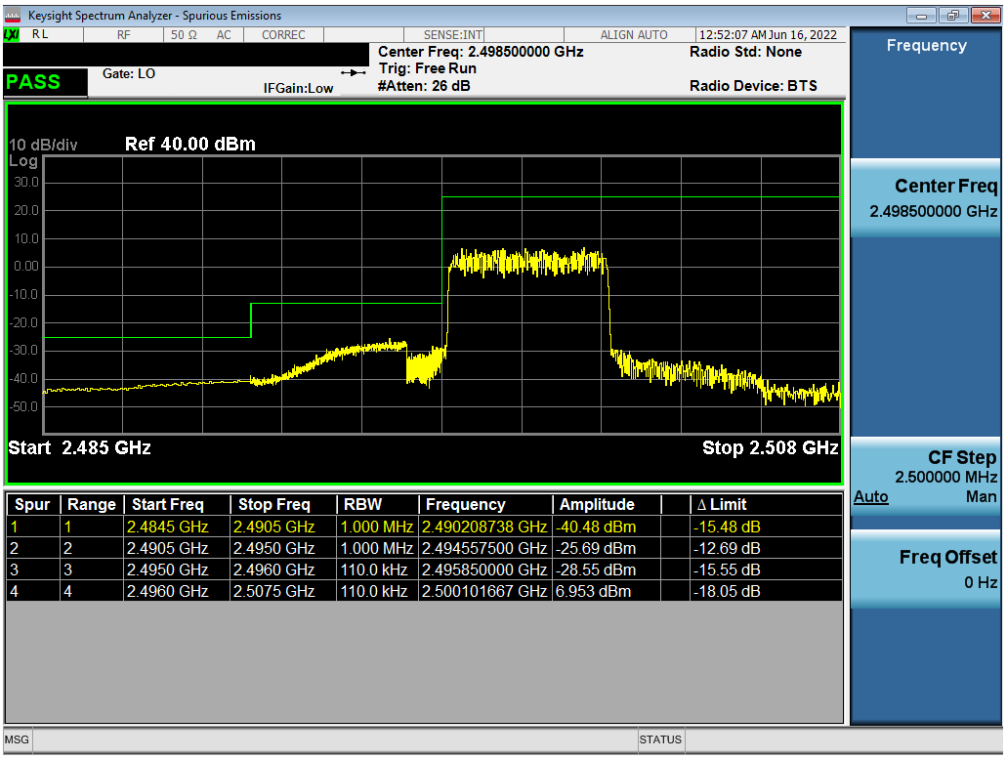
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4835 GHz	2.4905 GHz	1.000 MHz	2.490336667 GHz	-28.36 dBm	-3.365 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494797500 GHz	-26.63 dBm	-13.63 dB
3	3	2.4950 GHz	2.4960 GHz	200.0 kHz	2.495776667 GHz	-29.81 dBm	-16.81 dB
4	4	2.4960 GHz	2.5085 GHz	200.0 kHz	2.502666667 GHz	5.663 dBm	-19.34 dB

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



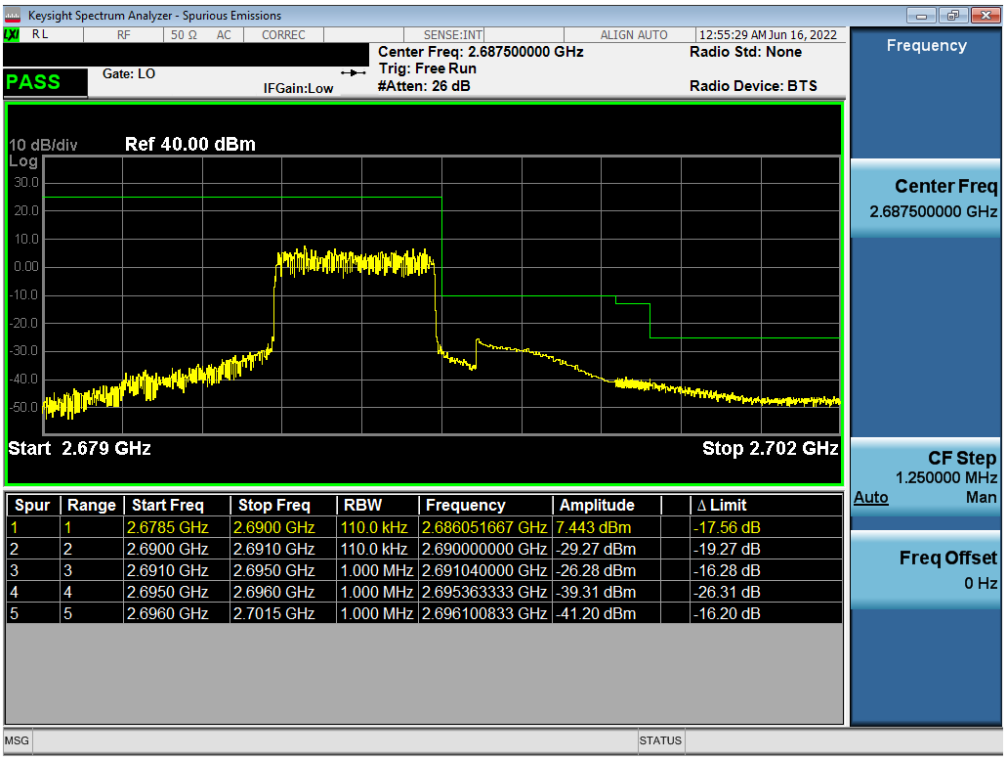
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6775 GHz	2.6900 GHz	200.0 kHz	2.681375000 GHz	5.771 dBm	-19.23 dB
2	2	2.6900 GHz	2.6910 GHz	200.0 kHz	2.690046667 GHz	-28.69 dBm	-18.69 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691640000 GHz	-26.07 dBm	-16.07 dB
4	4	2.6950 GHz	2.7000 GHz	1.000 MHz	2.695466667 GHz	-27.83 dBm	-14.83 dB
5	5	2.7000 GHz	2.7025 GHz	1.000 MHz	2.700108333 GHz	-41.14 dBm	-16.14 dB

Plot 7-90. Upper ACP Plot (LTE Band 41(PC3) - 10MHz QPSK – Full RB)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4845 GHz	2.4905 GHz	1.000 MHz	2.490208738 GHz	-40.48 dBm	-15.48 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494557500 GHz	-25.69 dBm	-12.69 dB
3	3	2.4950 GHz	2.4960 GHz	110.0 kHz	2.495850000 GHz	-28.55 dBm	-15.55 dB
4	4	2.4960 GHz	2.5075 GHz	110.0 kHz	2.500101667 GHz	6.953 dBm	-18.05 dB

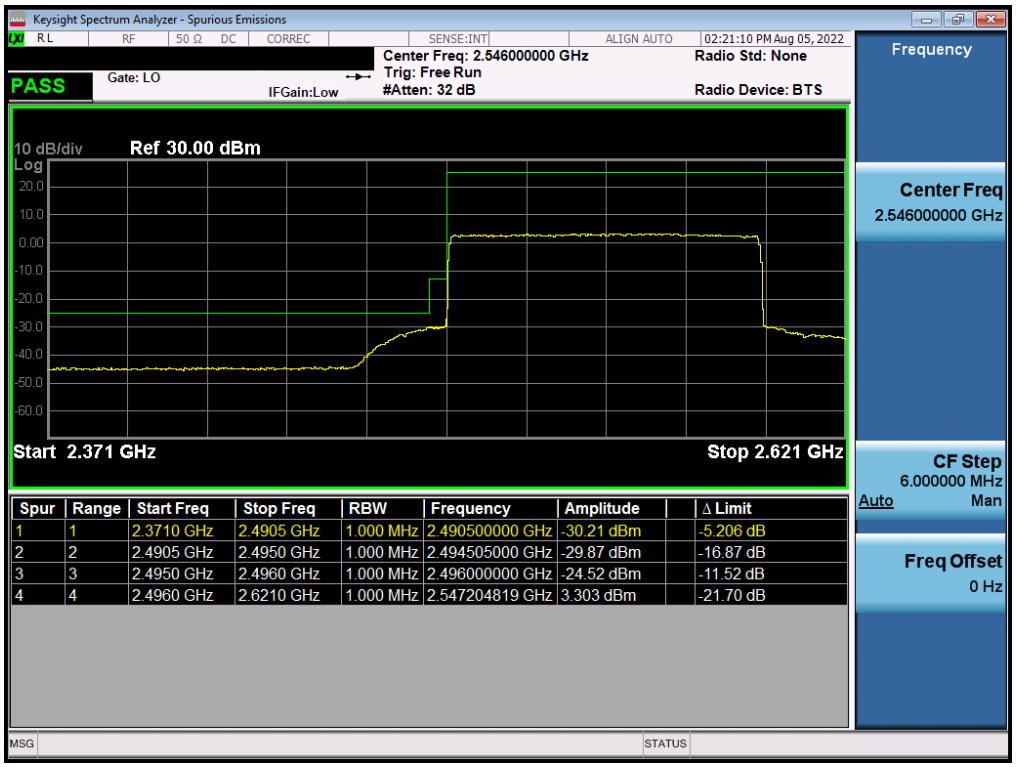
Plot 7-91. Lower ACP Plot (LTE Band 41(PC3) - 5MHz QPSK – Full RB)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6785 GHz	2.6900 GHz	110.0 kHz	2.686051667 GHz	7.443 dBm	-17.56 dB
2	2	2.6900 GHz	2.6910 GHz	110.0 kHz	2.690000000 GHz	-29.27 dBm	-19.27 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691040000 GHz	-26.28 dBm	-16.28 dB
4	4	2.6950 GHz	2.6960 GHz	1.000 MHz	2.695363333 GHz	-39.31 dBm	-26.31 dB
5	5	2.6960 GHz	2.7015 GHz	1.000 MHz	2.696100833 GHz	-41.20 dBm	-16.20 dB

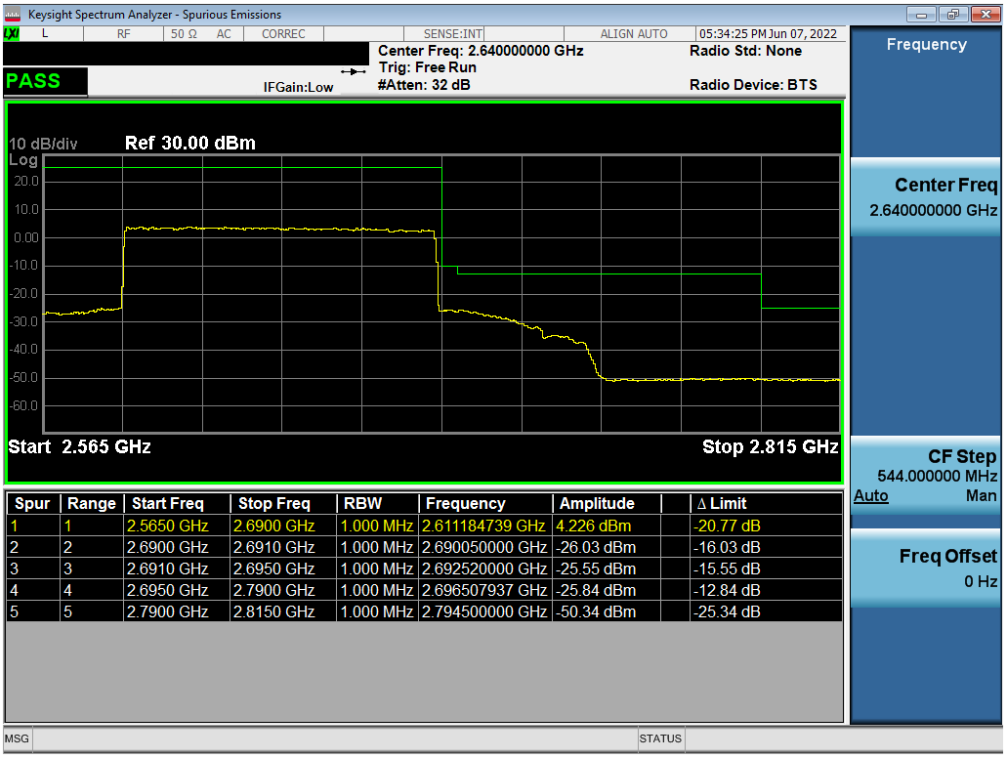
Plot 7-92. Upper ACP Plot (LTE Band 41(PC3) - 5MHz QPSK – Full RB)

NR Band n41



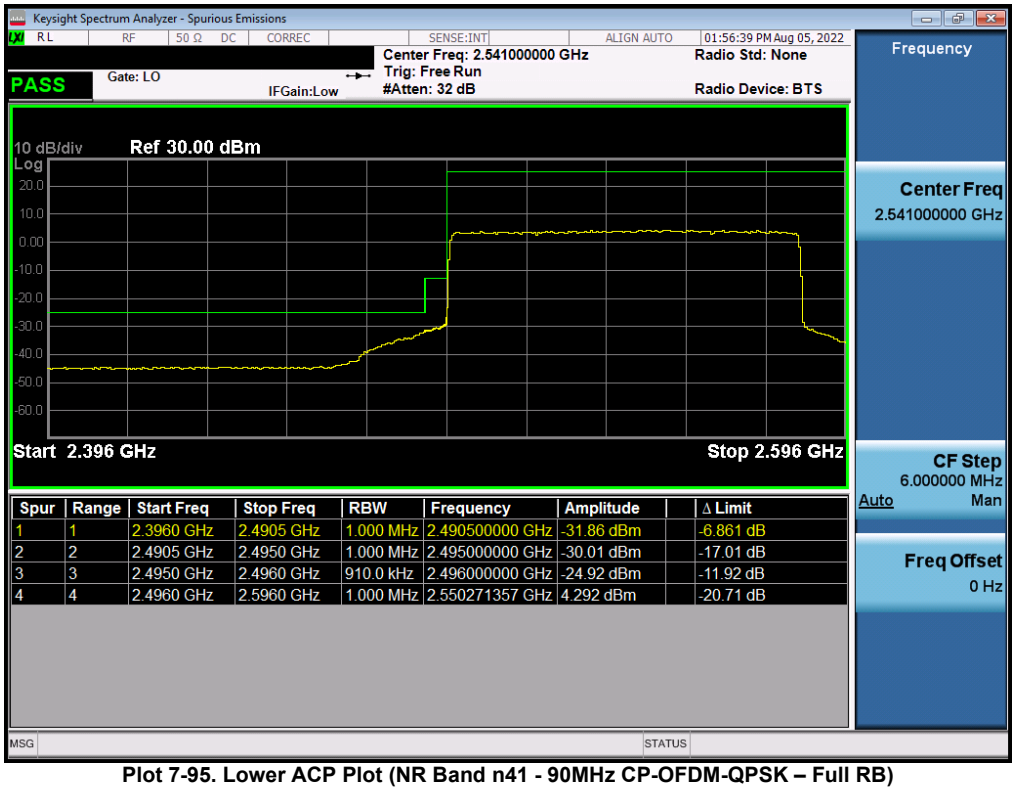
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.3710 GHz	2.4905 GHz	1.000 MHz	2.490500000 GHz	-30.21 dBm	-5.206 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494505000 GHz	-29.87 dBm	-16.87 dB
3	3	2.4950 GHz	2.4960 GHz	1.000 MHz	2.496000000 GHz	-24.52 dBm	-11.52 dB
4	4	2.4960 GHz	2.6210 GHz	1.000 MHz	2.547204819 GHz	3.303 dBm	-21.70 dB

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



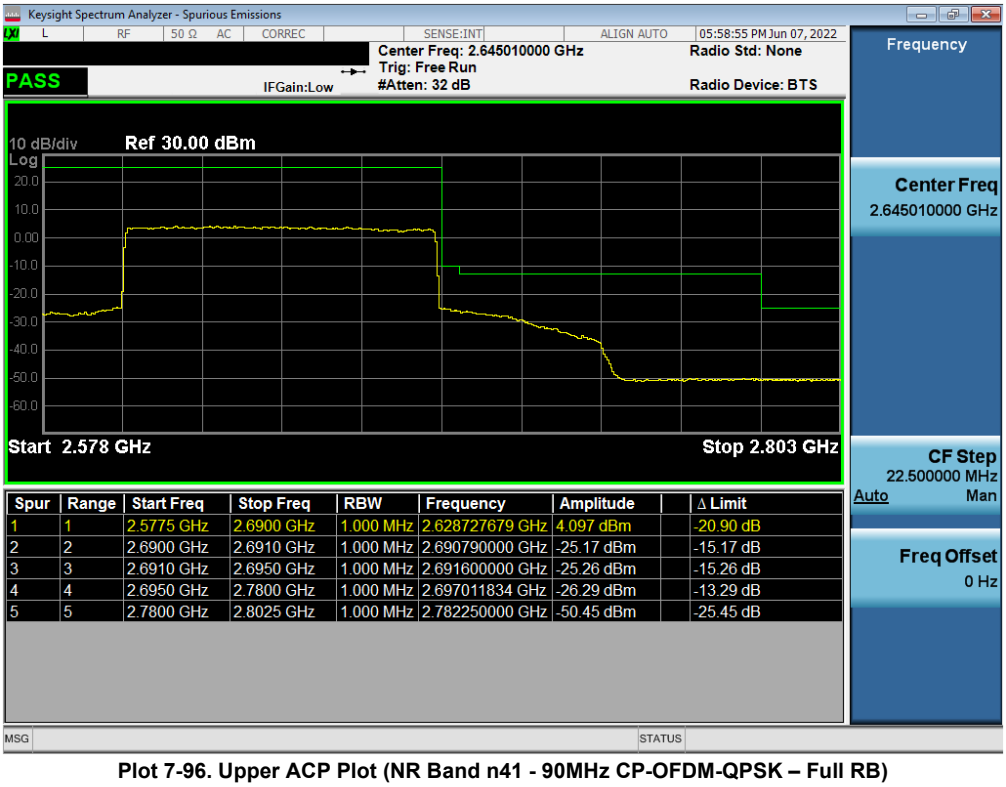
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5650 GHz	2.6900 GHz	1.000 MHz	2.611184739 GHz	4.226 dBm	-20.77 dB
2	2	2.6900 GHz	2.6910 GHz	1.000 MHz	2.690050000 GHz	-26.03 dBm	-16.03 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.692520000 GHz	-25.55 dBm	-15.55 dB
4	4	2.6950 GHz	2.7900 GHz	1.000 MHz	2.696507937 GHz	-25.84 dBm	-12.84 dB
5	5	2.7900 GHz	2.8150 GHz	1.000 MHz	2.794500000 GHz	-50.34 dBm	-25.34 dB

Plot 7-94. Upper ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK – Full RB)



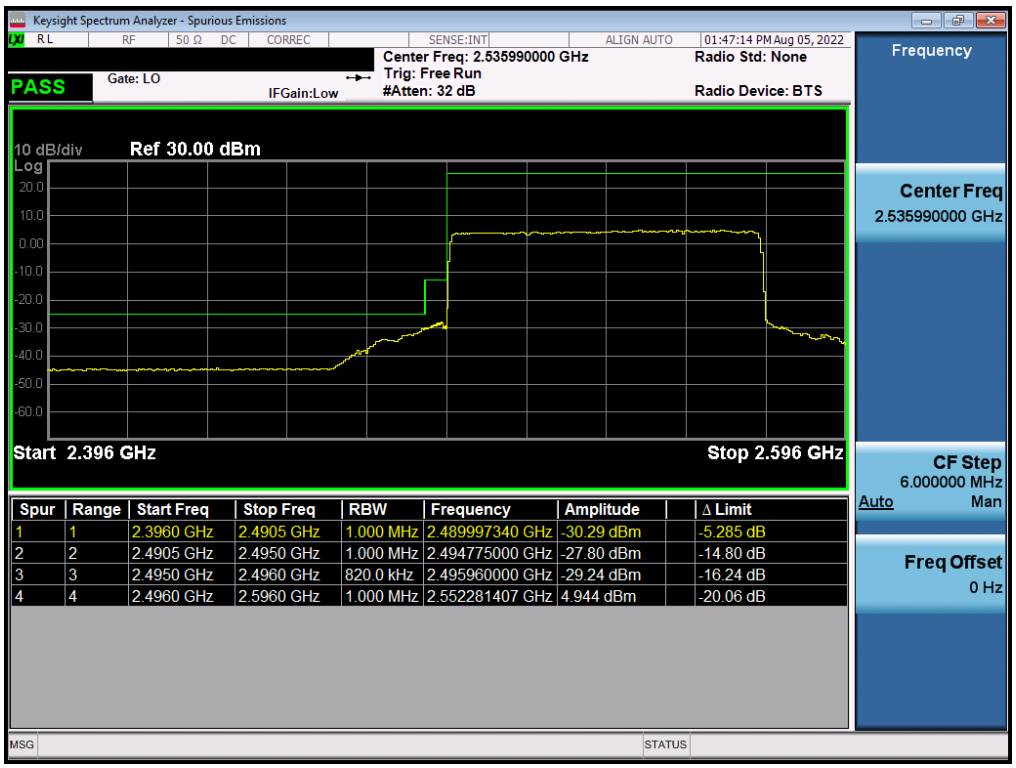
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.3960 GHz	2.4905 GHz	1.000 MHz	2.490500000 GHz	-31.86 dBm	-6.861 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.495000000 GHz	-30.01 dBm	-17.01 dB
3	3	2.4950 GHz	2.4960 GHz	910.0 kHz	2.496000000 GHz	-24.92 dBm	-11.92 dB
4	4	2.4960 GHz	2.5960 GHz	1.000 MHz	2.550271357 GHz	4.292 dBm	-20.71 dB

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



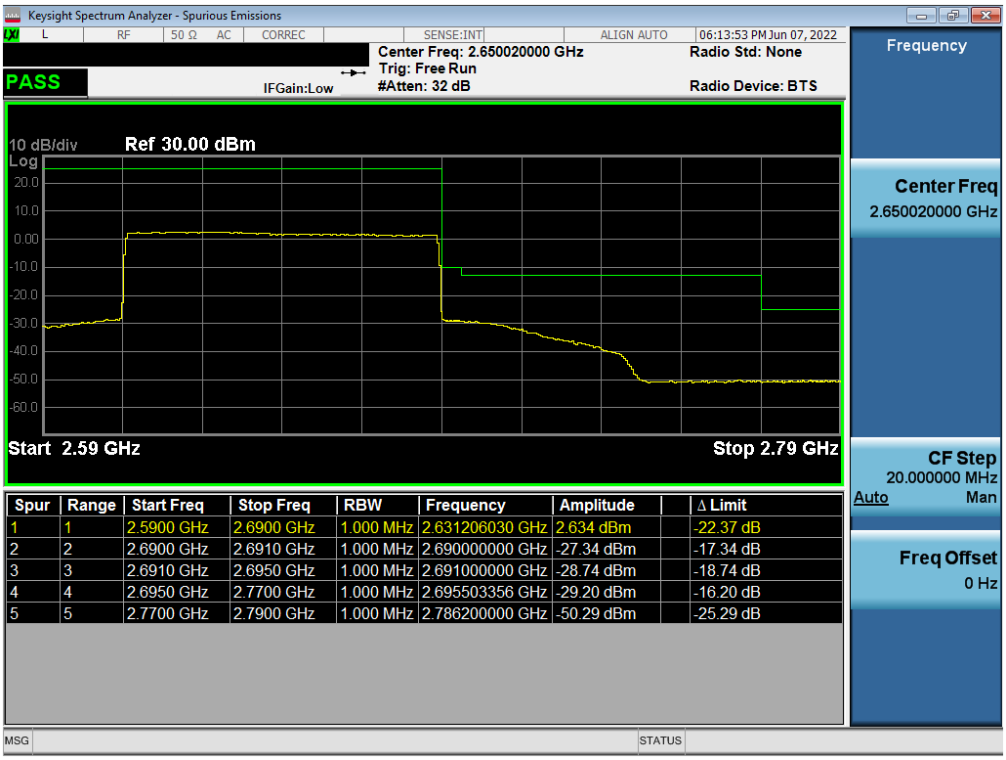
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5775 GHz	2.6900 GHz	1.000 MHz	2.628727679 GHz	4.097 dBm	-20.90 dB
2	2	2.6900 GHz	2.6910 GHz	1.000 MHz	2.690790000 GHz	-25.17 dBm	-15.17 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691600000 GHz	-25.26 dBm	-15.26 dB
4	4	2.6950 GHz	2.7800 GHz	1.000 MHz	2.697011834 GHz	-26.29 dBm	-13.29 dB
5	5	2.7800 GHz	2.8025 GHz	1.000 MHz	2.782250000 GHz	-50.45 dBm	-25.45 dB

Plot 7-96. Upper ACP Plot (NR Band n41 - 90MHz CP-OFDM-QPSK – Full RB)



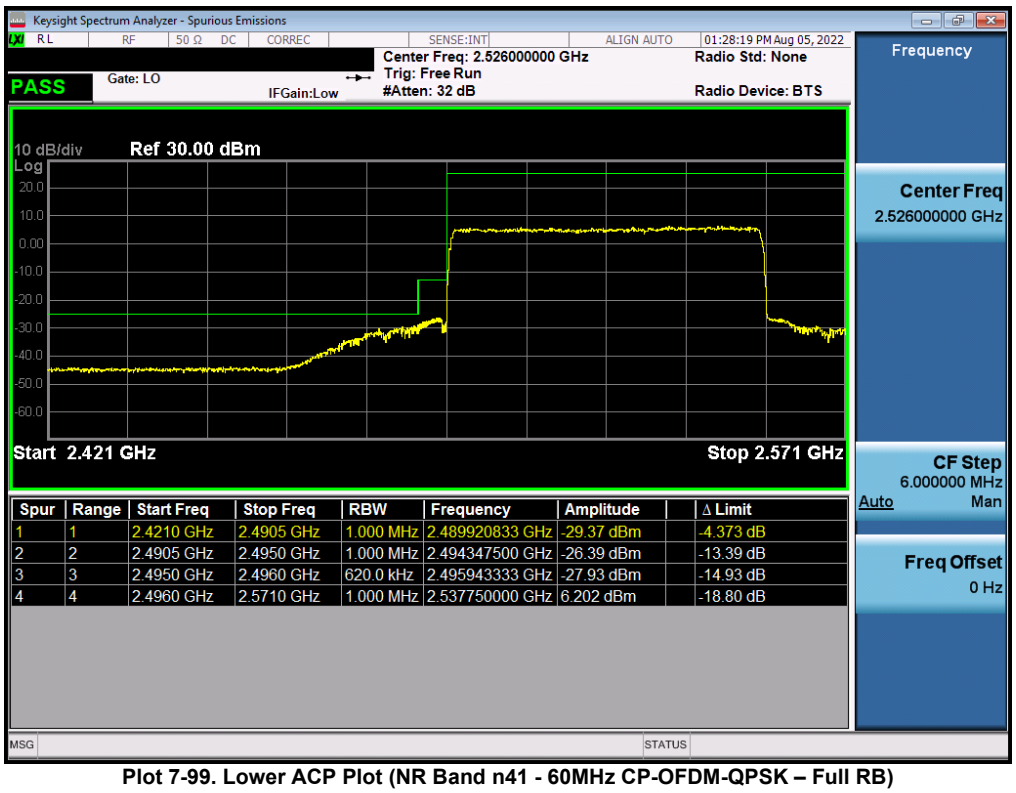
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.3960 GHz	2.4905 GHz	1.000 MHz	2.489997340 GHz	-30.29 dBm	-5.285 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494775000 GHz	-27.80 dBm	-14.80 dB
3	3	2.4950 GHz	2.4960 GHz	820.0 kHz	2.495960000 GHz	-29.24 dBm	-16.24 dB
4	4	2.4960 GHz	2.5960 GHz	1.000 MHz	2.552281407 GHz	4.944 dBm	-20.06 dB

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



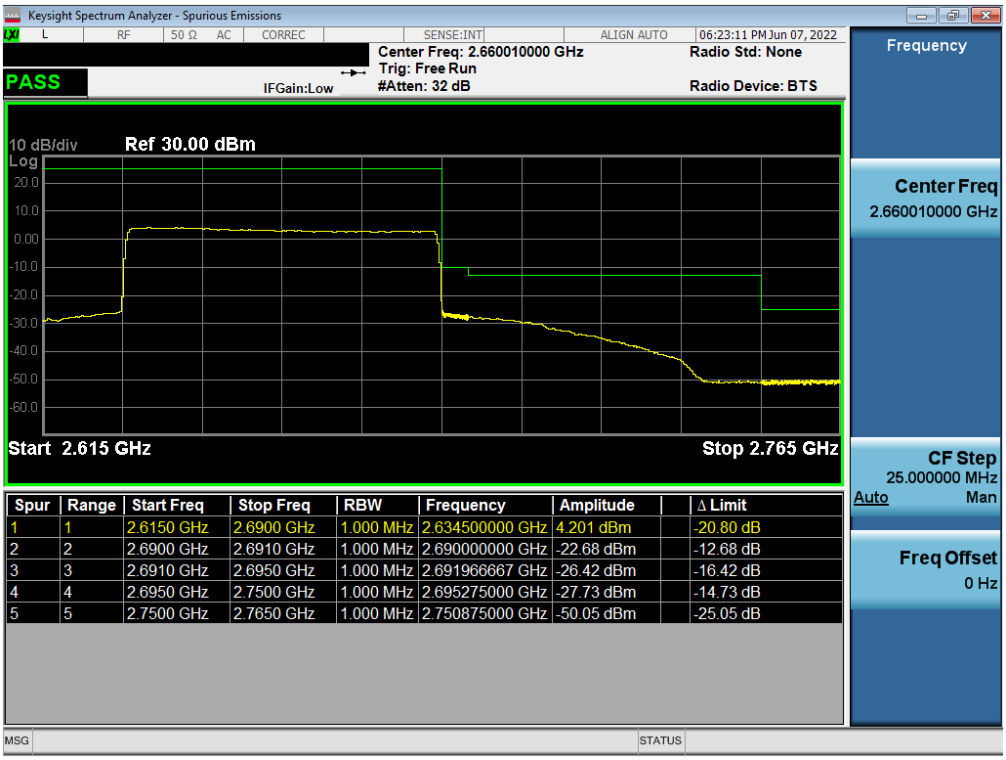
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5900 GHz	2.6900 GHz	1.000 MHz	2.631206030 GHz	2.634 dBm	-22.37 dB
2	2	2.6900 GHz	2.6910 GHz	1.000 MHz	2.690000000 GHz	-27.34 dBm	-17.34 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691000000 GHz	-28.74 dBm	-18.74 dB
4	4	2.6950 GHz	2.7700 GHz	1.000 MHz	2.695503356 GHz	-29.20 dBm	-16.20 dB
5	5	2.7700 GHz	2.7900 GHz	1.000 MHz	2.786200000 GHz	-50.29 dBm	-25.29 dB

Plot 7-98. Upper ACP Plot (NR Band n41 - 80MHz CP-OFDM-QPSK – Full RB)



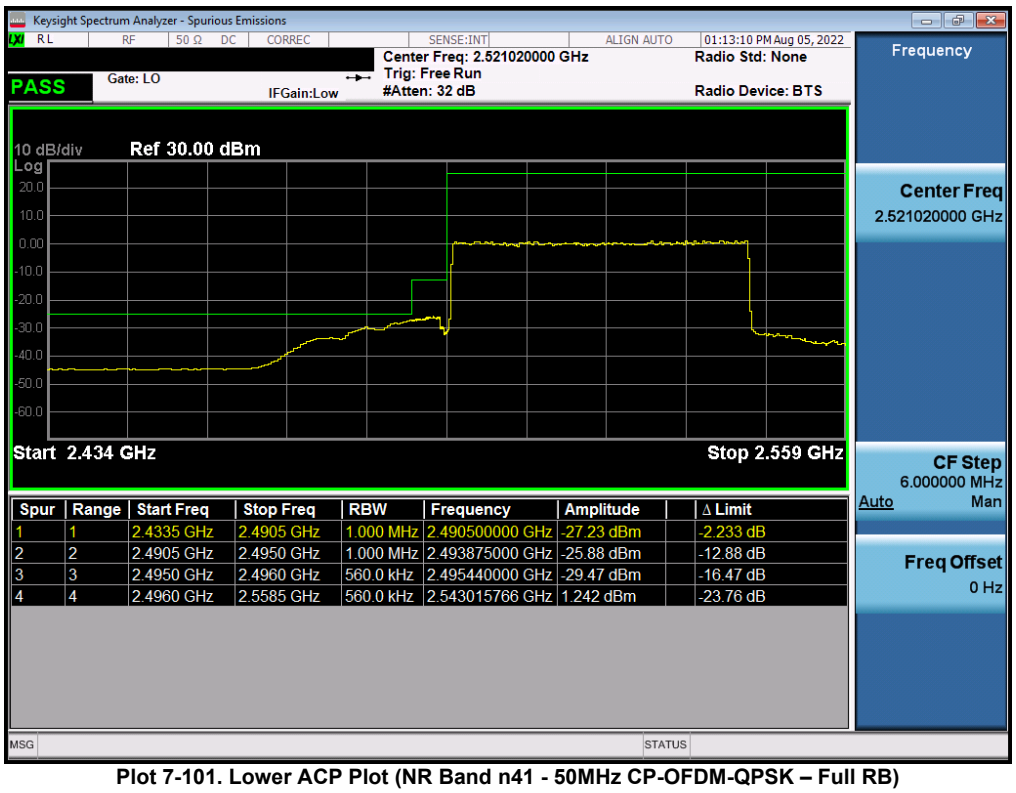
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4210 GHz	2.4905 GHz	1.000 MHz	2.489920833 GHz	-29.37 dBm	-4.373 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494347500 GHz	-26.39 dBm	-13.39 dB
3	3	2.4950 GHz	2.4960 GHz	620.0 kHz	2.495943333 GHz	-27.93 dBm	-14.93 dB
4	4	2.4960 GHz	2.5710 GHz	1.000 MHz	2.537750000 GHz	6.202 dBm	-18.80 dB

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



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6150 GHz	2.6900 GHz	1.000 MHz	2.634500000 GHz	4.201 dBm	-20.80 dB
2	2	2.6900 GHz	2.6910 GHz	1.000 MHz	2.690000000 GHz	-22.68 dBm	-12.68 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691966667 GHz	-26.42 dBm	-16.42 dB
4	4	2.6950 GHz	2.7500 GHz	1.000 MHz	2.695275000 GHz	-27.73 dBm	-14.73 dB
5	5	2.7500 GHz	2.7650 GHz	1.000 MHz	2.750875000 GHz	-50.05 dBm	-25.05 dB

Plot 7-100. Upper ACP Plot (NR Band n41 - 60MHz CP-OFDM-QPSK – Full RB)

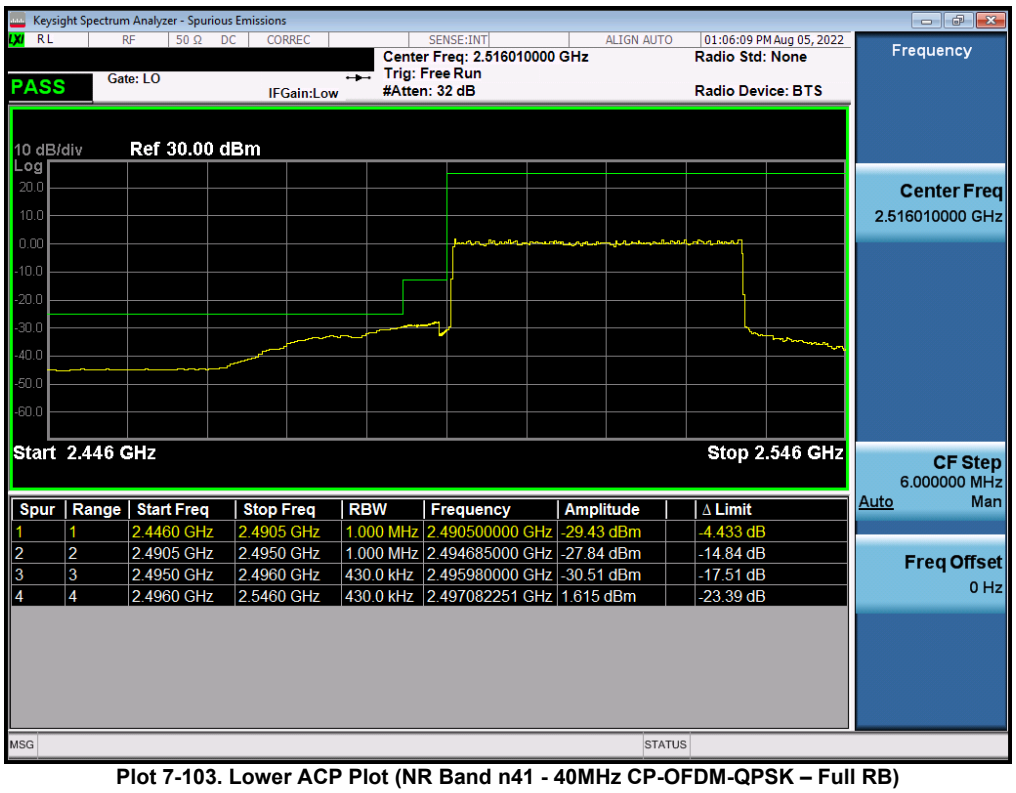


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4335 GHz	2.4905 GHz	1.000 MHz	2.490500000 GHz	-27.23 dBm	-2.233 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.493875000 GHz	-25.88 dBm	-12.88 dB
3	3	2.4950 GHz	2.4960 GHz	560.0 kHz	2.495440000 GHz	-29.47 dBm	-16.47 dB
4	4	2.4960 GHz	2.5585 GHz	560.0 kHz	2.543015766 GHz	1.242 dBm	-23.76 dB

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

Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6275 GHz	2.6900 GHz	560.0 kHz	2.642702703 GHz	4.815 dBm	-20.18 dB
2	2	2.6900 GHz	2.6910 GHz	1.000 MHz	2.690240000 GHz	-22.84 dBm	-12.84 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691600000 GHz	-23.40 dBm	-13.40 dB
4	4	2.6950 GHz	2.7400 GHz	1.000 MHz	2.695000000 GHz	-24.91 dBm	-11.91 dB
5	5	2.7400 GHz	2.7525 GHz	1.000 MHz	2.749875000 GHz	-50.44 dBm	-25.44 dB

Plot 7-102. Upper ACP Plot (NR Band n41 - 50MHz CP-OFDM-QPSK – Full RB)

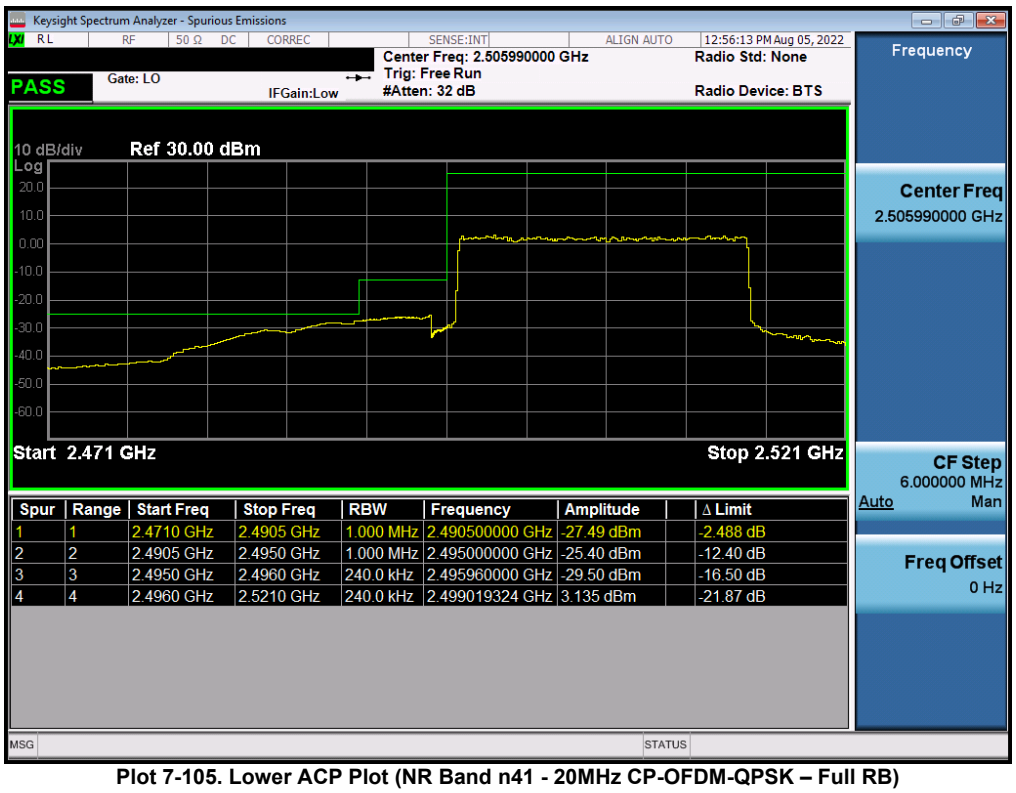


Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4460 GHz	2.4905 GHz	1.000 MHz	2.490500000 GHz	-29.43 dBm	-4.433 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494685000 GHz	-27.84 dBm	-14.84 dB
3	3	2.4950 GHz	2.4960 GHz	430.0 kHz	2.495980000 GHz	-30.51 dBm	-17.51 dB
4	4	2.4960 GHz	2.5460 GHz	430.0 kHz	2.497082251 GHz	1.615 dBm	-23.39 dB

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

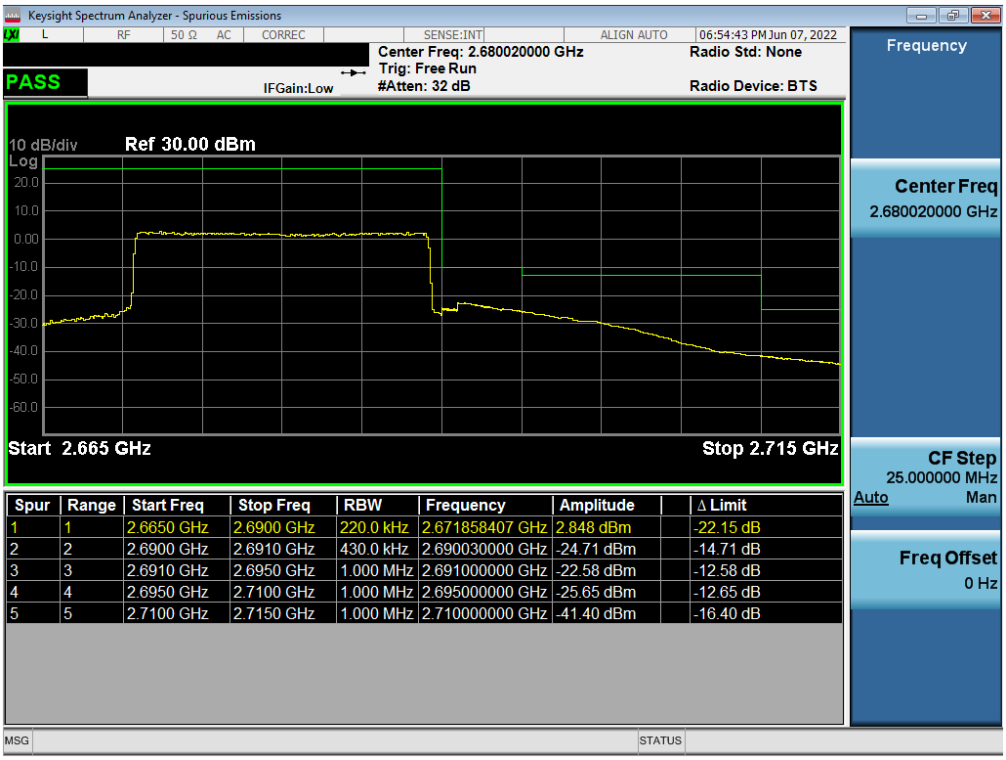
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6400 GHz	2.6900 GHz	430.0 kHz	2.653203463 GHz	5.443 dBm	-19.56 dB
2	2	2.6900 GHz	2.6910 GHz	820.0 kHz	2.690780000 GHz	-23.93 dBm	-13.93 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691000000 GHz	-23.05 dBm	-13.05 dB
4	4	2.6950 GHz	2.7300 GHz	1.000 MHz	2.695000000 GHz	-24.73 dBm	-11.73 dB
5	5	2.7300 GHz	2.7400 GHz	1.000 MHz	2.733400000 GHz	-48.24 dBm	-23.24 dB

Plot 7-104. Upper ACP Plot (NR Band n41 - 40MHz CP-OFDM-QPSK – Full RB)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4710 GHz	2.4905 GHz	1.000 MHz	2.490500000 GHz	-27.49 dBm	-2.488 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.495000000 GHz	-25.40 dBm	-12.40 dB
3	3	2.4950 GHz	2.4960 GHz	240.0 kHz	2.495960000 GHz	-29.50 dBm	-16.50 dB
4	4	2.4960 GHz	2.5210 GHz	240.0 kHz	2.499019324 GHz	3.135 dBm	-21.87 dB

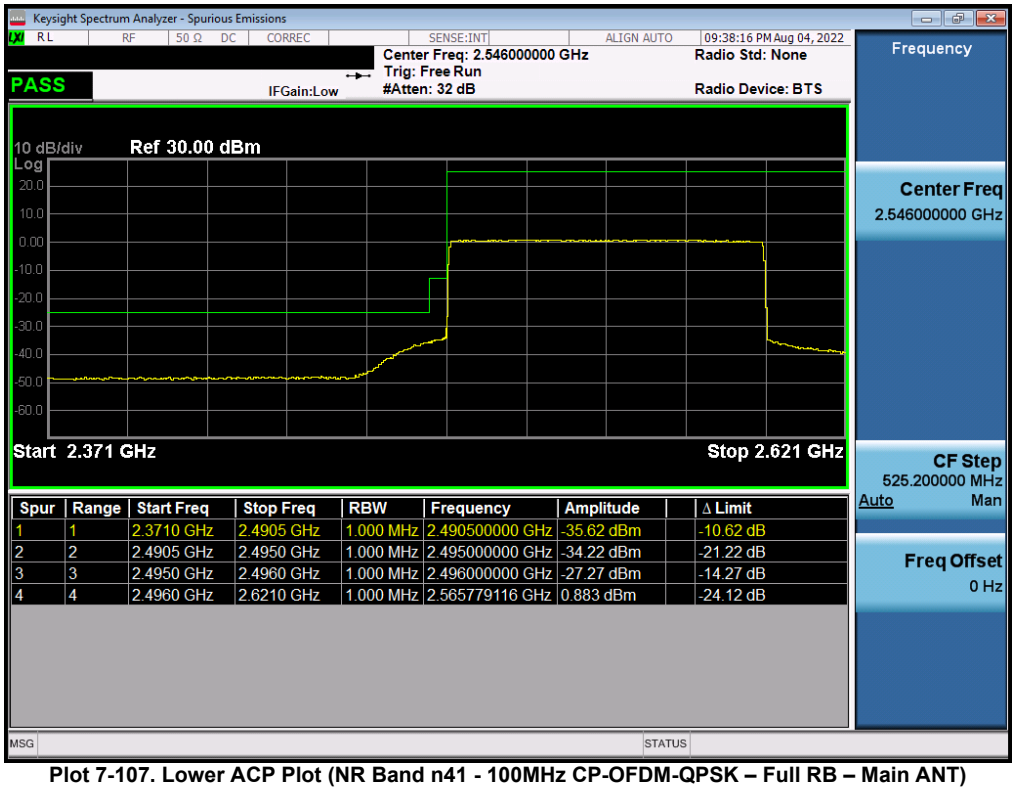
Plot 7-105. Lower ACP Plot (NR Band n41 - 20MHz CP-OFDM-QPSK – Full RB)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	220.0 kHz	2.671858407 GHz	2.848 dBm	-22.15 dB
2	2	2.6900 GHz	2.6910 GHz	430.0 kHz	2.690030000 GHz	-24.71 dBm	-14.71 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691000000 GHz	-22.58 dBm	-12.58 dB
4	4	2.6950 GHz	2.7100 GHz	1.000 MHz	2.695000000 GHz	-25.65 dBm	-12.65 dB
5	5	2.7100 GHz	2.7150 GHz	1.000 MHz	2.710000000 GHz	-41.40 dBm	-16.40 dB

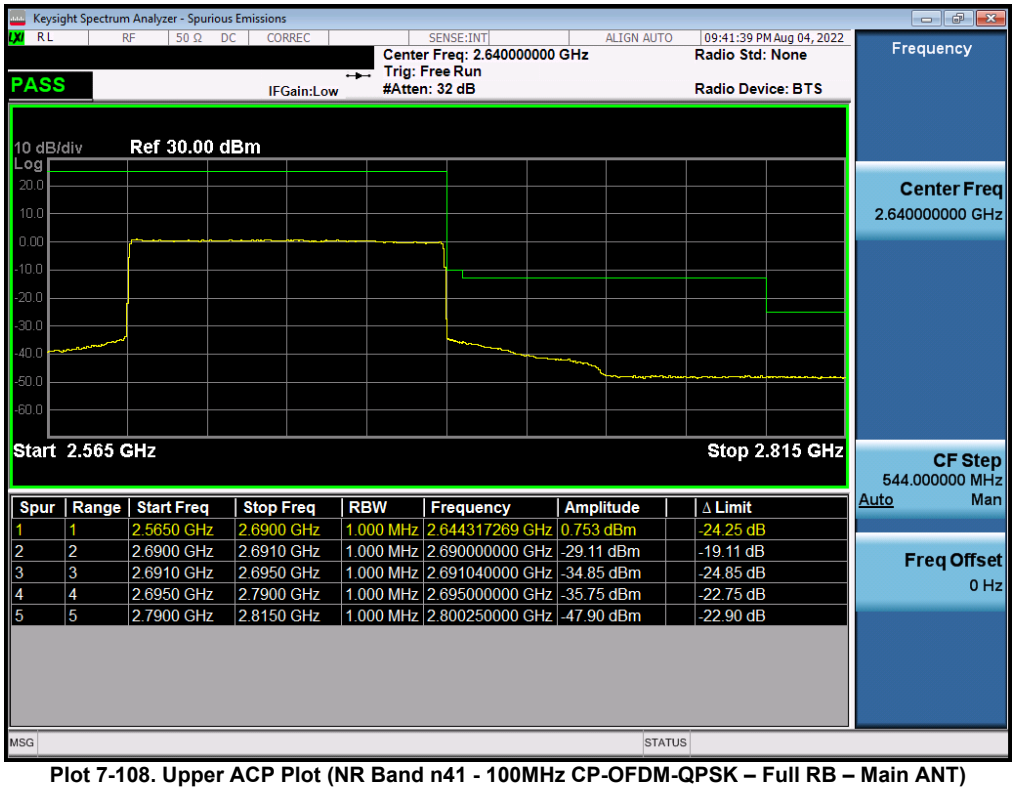
Plot 7-106. Upper ACP Plot (NR Band n41 - 20MHz CP-OFDM-QPSK – Full RB)

UL-MIMO NR Band n41 – Main Antenna



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.3710 GHz	2.4905 GHz	1.000 MHz	2.490500000 GHz	-35.62 dBm	-10.62 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.495000000 GHz	-34.22 dBm	-21.22 dB
3	3	2.4950 GHz	2.4960 GHz	1.000 MHz	2.496000000 GHz	-27.27 dBm	-14.27 dB
4	4	2.4960 GHz	2.6210 GHz	1.000 MHz	2.565779116 GHz	0.883 dBm	-24.12 dB

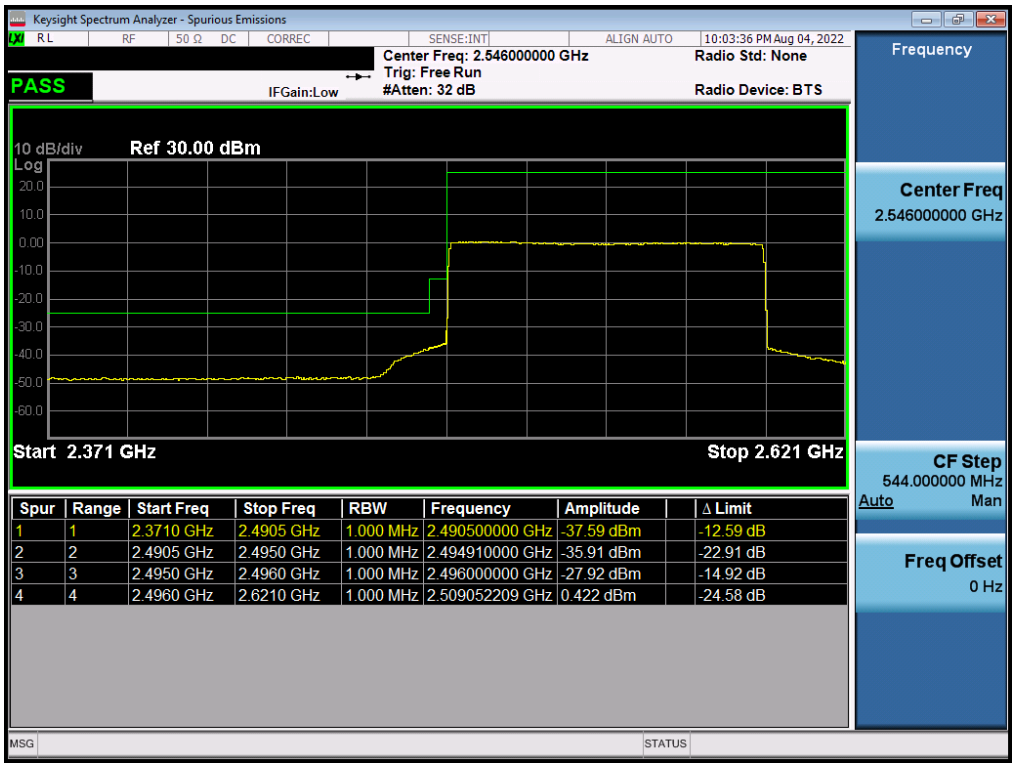
Plot 7-107. Lower ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK – Full RB – Main ANT)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5650 GHz	2.6900 GHz	1.000 MHz	2.644317269 GHz	0.753 dBm	-24.25 dB
2	2	2.6900 GHz	2.6910 GHz	1.000 MHz	2.690000000 GHz	-29.11 dBm	-19.11 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691040000 GHz	-34.85 dBm	-24.85 dB
4	4	2.6950 GHz	2.7900 GHz	1.000 MHz	2.695000000 GHz	-35.75 dBm	-22.75 dB
5	5	2.7900 GHz	2.8150 GHz	1.000 MHz	2.800250000 GHz	-47.90 dBm	-22.90 dB

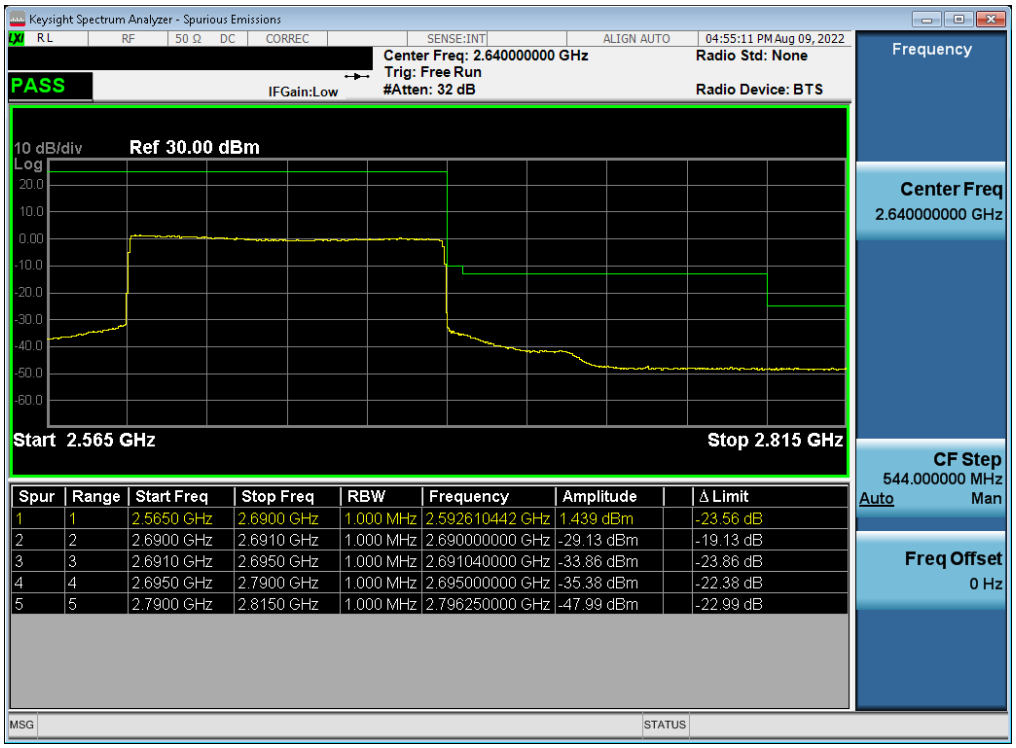
Plot 7-108. Upper ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK – Full RB – Main ANT)

UL-MIMO NR Band n41 – Sub Antenna



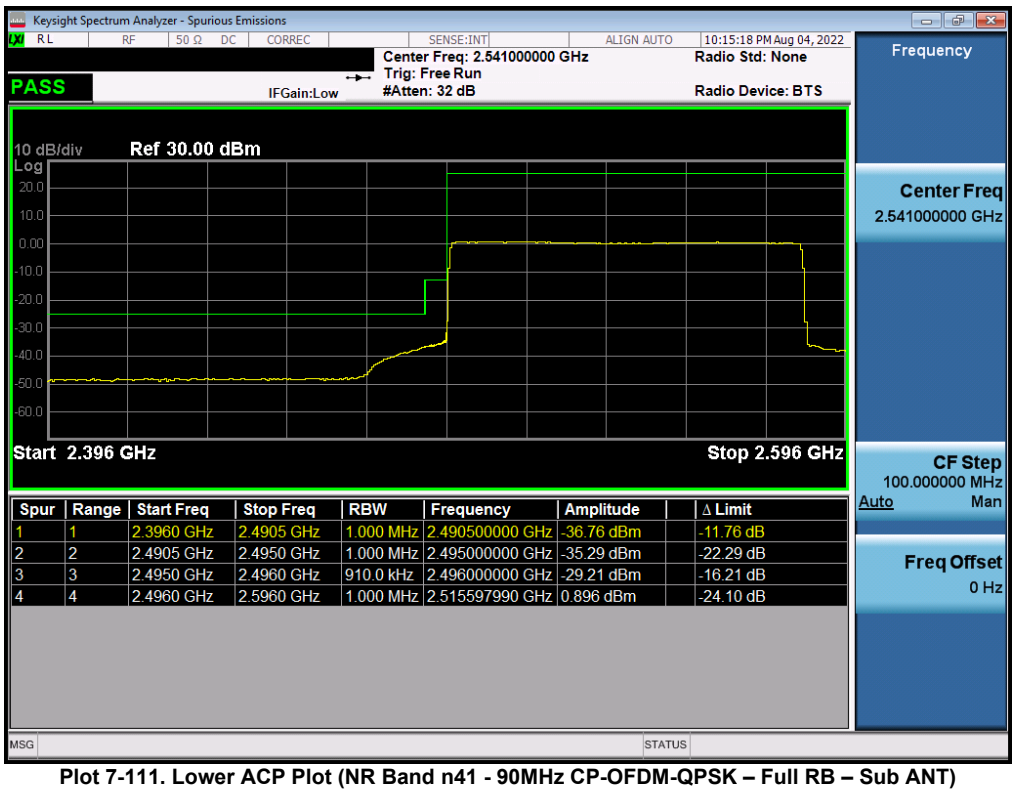
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.3710 GHz	2.4905 GHz	1.000 MHz	2.490500000 GHz	-37.59 dBm	-12.59 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494910000 GHz	-35.91 dBm	-22.91 dB
3	3	2.4950 GHz	2.4960 GHz	1.000 MHz	2.496000000 GHz	-27.92 dBm	-14.92 dB
4	4	2.4960 GHz	2.6210 GHz	1.000 MHz	2.509052209 GHz	0.422 dBm	-24.58 dB

Plot 7-109. Lower ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK – Full RB – Sub ANT)



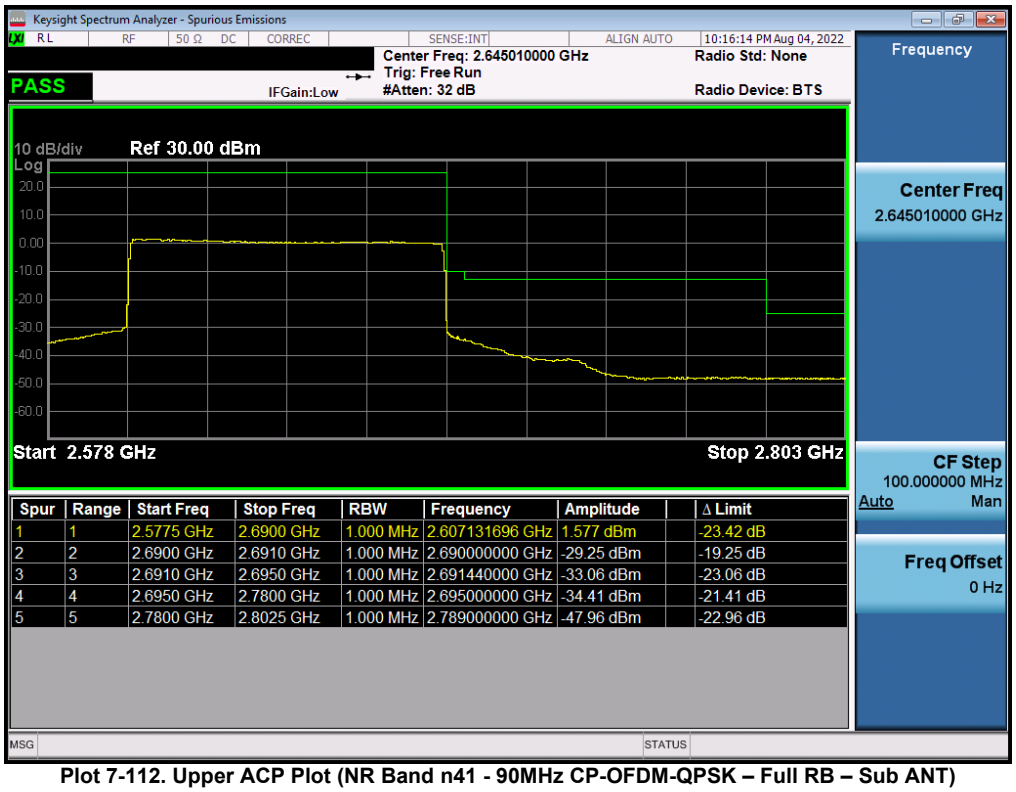
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5650 GHz	2.6900 GHz	1.000 MHz	2.592610442 GHz	1.439 dBm	-23.56 dB
2	2	2.6900 GHz	2.6910 GHz	1.000 MHz	2.690000000 GHz	-29.13 dBm	-19.13 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691040000 GHz	-33.86 dBm	-23.86 dB
4	4	2.6950 GHz	2.7900 GHz	1.000 MHz	2.695000000 GHz	-35.38 dBm	-22.38 dB
5	5	2.7900 GHz	2.8150 GHz	1.000 MHz	2.796250000 GHz	-47.99 dBm	-22.99 dB

Plot 7-110. Upper ACP Plot (NR Band n41 - 100MHz CP-OFDM-QPSK – Full RB – Sub ANT)



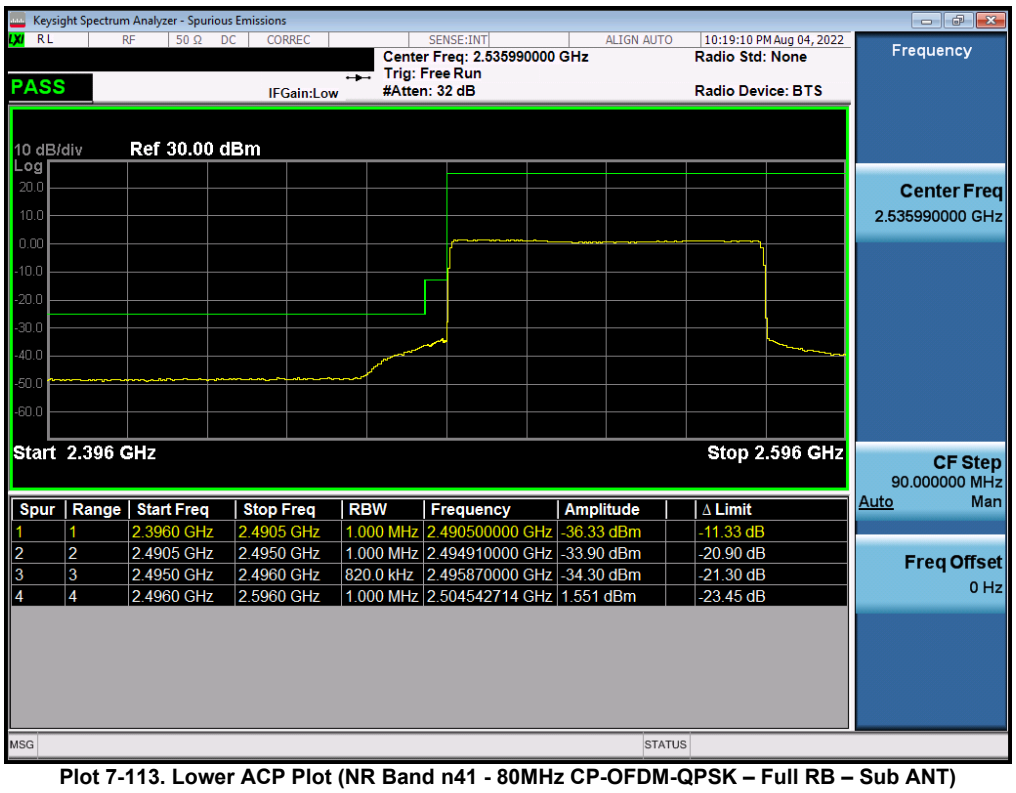
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.3960 GHz	2.4905 GHz	1.000 MHz	2.490500000 GHz	-36.76 dBm	-11.76 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.495000000 GHz	-35.29 dBm	-22.29 dB
3	3	2.4950 GHz	2.4960 GHz	910.0 kHz	2.496000000 GHz	-29.21 dBm	-16.21 dB
4	4	2.4960 GHz	2.5960 GHz	1.000 MHz	2.515597990 GHz	0.896 dBm	-24.10 dB

Plot 7-111. Lower ACP Plot (NR Band n41 - 90MHz CP-OFDM-QPSK – Full RB – Sub ANT)



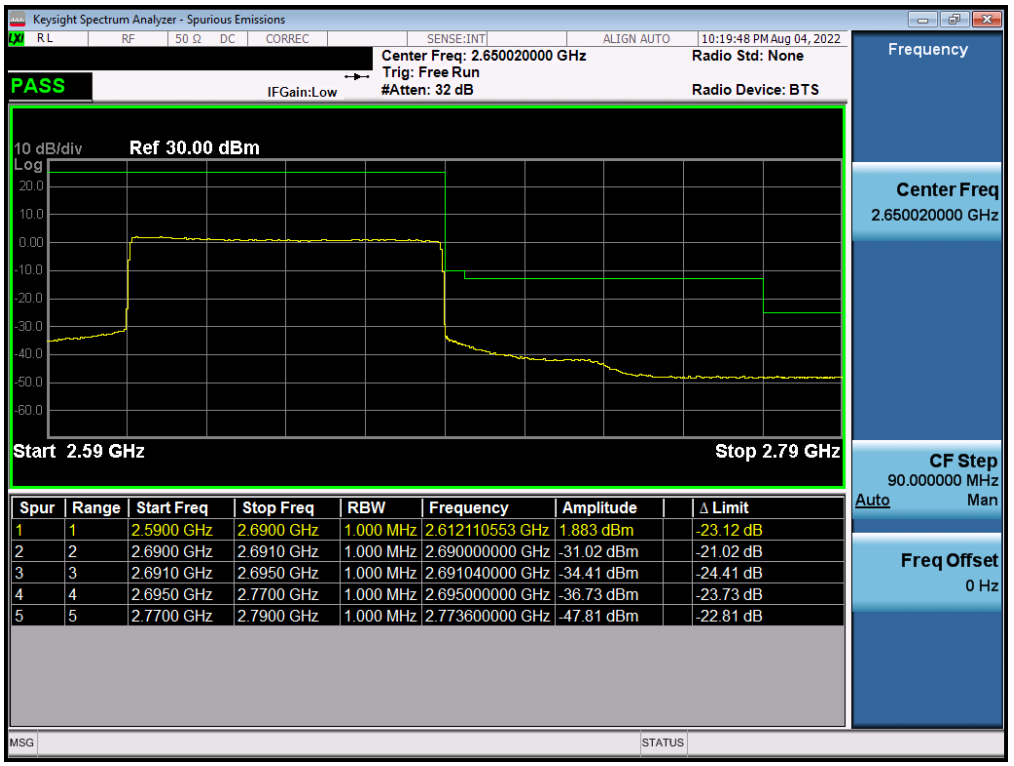
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5775 GHz	2.6900 GHz	1.000 MHz	2.607131696 GHz	1.577 dBm	-23.42 dB
2	2	2.6900 GHz	2.6910 GHz	1.000 MHz	2.690000000 GHz	-29.25 dBm	-19.25 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691440000 GHz	-33.06 dBm	-23.06 dB
4	4	2.6950 GHz	2.7800 GHz	1.000 MHz	2.695000000 GHz	-34.41 dBm	-21.41 dB
5	5	2.7800 GHz	2.8025 GHz	1.000 MHz	2.789000000 GHz	-47.96 dBm	-22.96 dB

Plot 7-112. Upper ACP Plot (NR Band n41 - 90MHz CP-OFDM-QPSK – Full RB – Sub ANT)



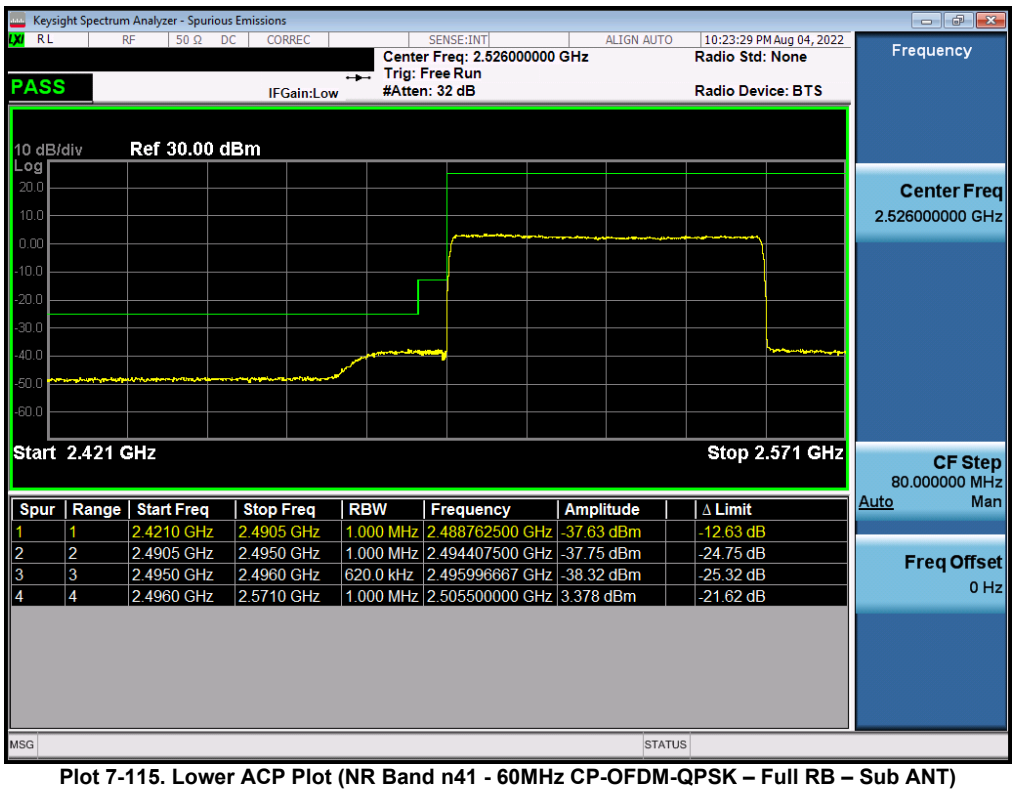
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.3960 GHz	2.4905 GHz	1.000 MHz	2.490500000 GHz	-36.33 dBm	-11.33 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494910000 GHz	-33.90 dBm	-20.90 dB
3	3	2.4950 GHz	2.4960 GHz	820.0 kHz	2.495870000 GHz	-34.30 dBm	-21.30 dB
4	4	2.4960 GHz	2.5960 GHz	1.000 MHz	2.504542714 GHz	1.551 dBm	-23.45 dB

Plot 7-113. Lower ACP Plot (NR Band n41 - 80MHz CP-OFDM-QPSK – Full RB – Sub ANT)



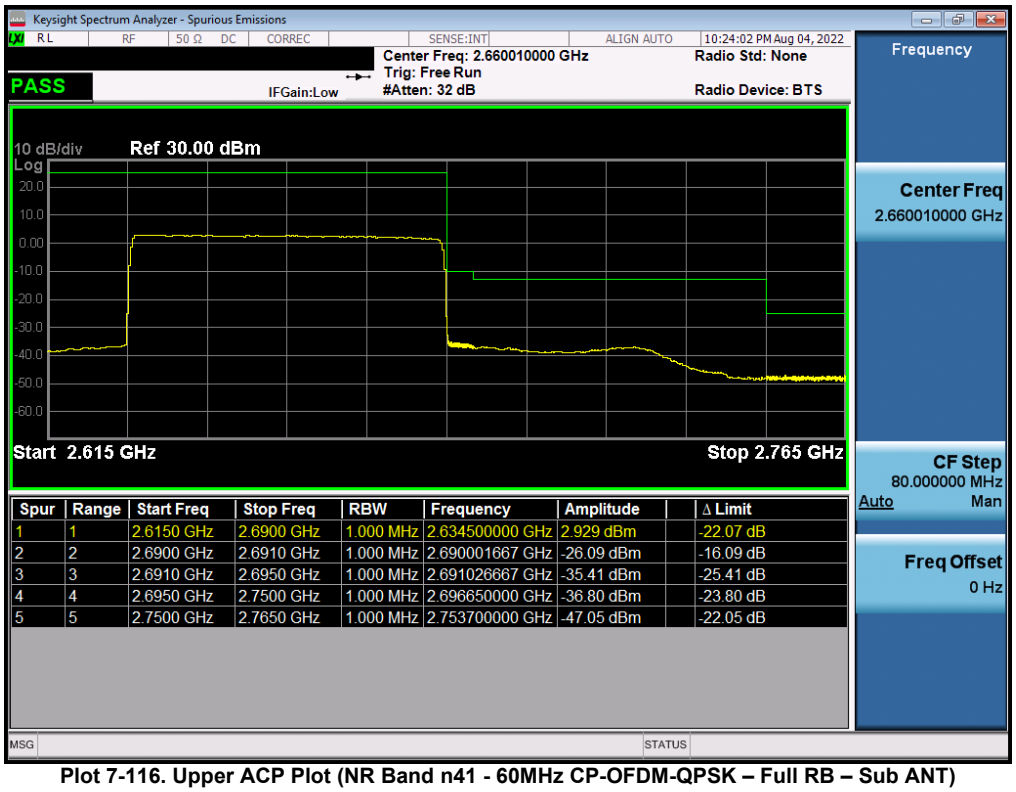
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.5900 GHz	2.6900 GHz	1.000 MHz	2.612110553 GHz	1.883 dBm	-23.12 dB
2	2	2.6900 GHz	2.6910 GHz	1.000 MHz	2.690000000 GHz	-31.02 dBm	-21.02 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691040000 GHz	-34.41 dBm	-24.41 dB
4	4	2.6950 GHz	2.7700 GHz	1.000 MHz	2.695000000 GHz	-36.73 dBm	-23.73 dB
5	5	2.7700 GHz	2.7900 GHz	1.000 MHz	2.773600000 GHz	-47.81 dBm	-22.81 dB

Plot 7-114. Upper ACP Plot (NR Band n41 - 80MHz CP-OFDM-QPSK – Full RB – Sub ANT)



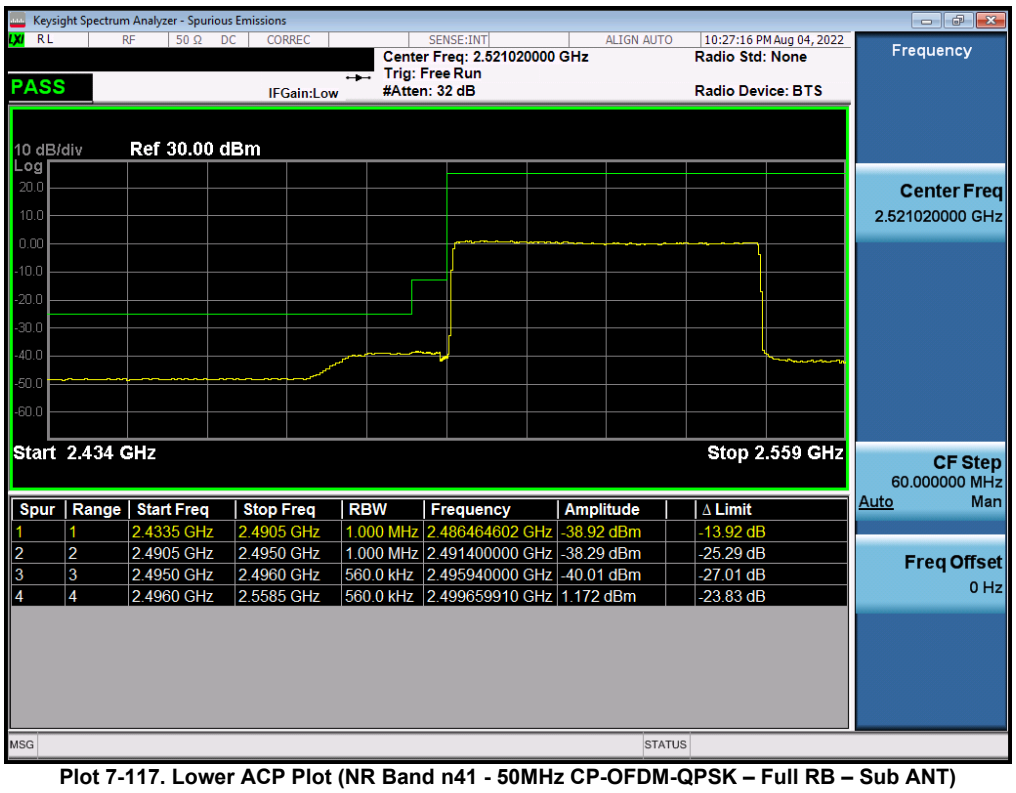
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4210 GHz	2.4905 GHz	1.000 MHz	2.488762500 GHz	-37.63 dBm	-12.63 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494407500 GHz	-37.75 dBm	-24.75 dB
3	3	2.4950 GHz	2.4960 GHz	620.0 kHz	2.495996667 GHz	-38.32 dBm	-25.32 dB
4	4	2.4960 GHz	2.5710 GHz	1.000 MHz	2.505500000 GHz	3.378 dBm	-21.62 dB

Plot 7-115. Lower ACP Plot (NR Band n41 - 60MHz CP-OFDM-QPSK – Full RB – Sub ANT)



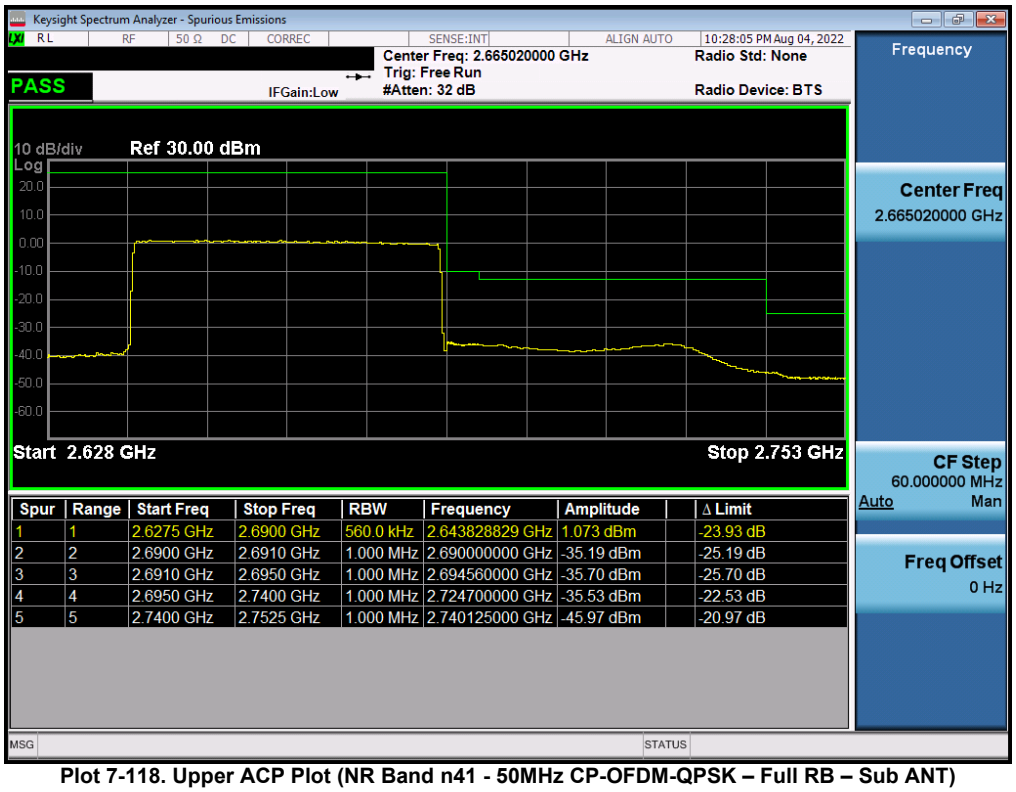
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6150 GHz	2.6900 GHz	1.000 MHz	2.634500000 GHz	2.929 dBm	-22.07 dB
2	2	2.6900 GHz	2.6910 GHz	1.000 MHz	2.690001667 GHz	-26.09 dBm	-16.09 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691026667 GHz	-35.41 dBm	-25.41 dB
4	4	2.6950 GHz	2.7500 GHz	1.000 MHz	2.696650000 GHz	-36.80 dBm	-23.80 dB
5	5	2.7500 GHz	2.7650 GHz	1.000 MHz	2.753700000 GHz	-47.05 dBm	-22.05 dB

Plot 7-116. Upper ACP Plot (NR Band n41 - 60MHz CP-OFDM-QPSK – Full RB – Sub ANT)



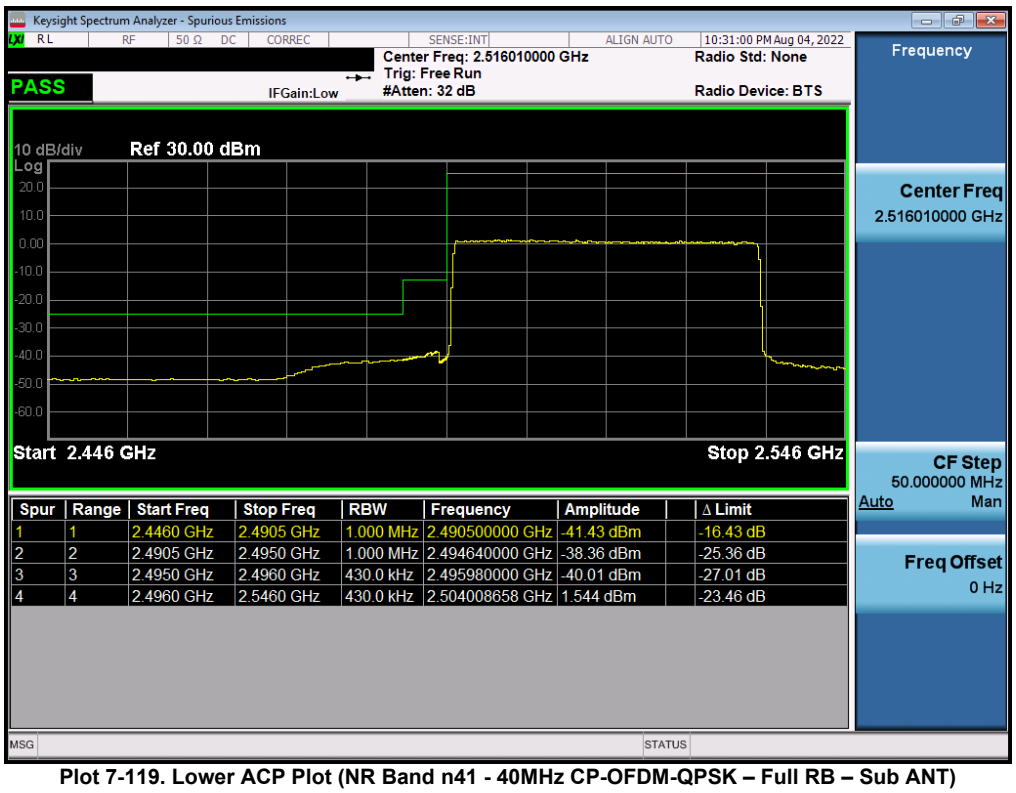
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4335 GHz	2.4905 GHz	1.000 MHz	2.486464602 GHz	-38.92 dBm	-13.92 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.491400000 GHz	-38.29 dBm	-25.29 dB
3	3	2.4950 GHz	2.4960 GHz	560.0 kHz	2.495940000 GHz	-40.01 dBm	-27.01 dB
4	4	2.4960 GHz	2.5585 GHz	560.0 kHz	2.499659910 GHz	1.172 dBm	-23.83 dB

Plot 7-117. Lower ACP Plot (NR Band n41 - 50MHz CP-OFDM-QPSK – Full RB – Sub ANT)



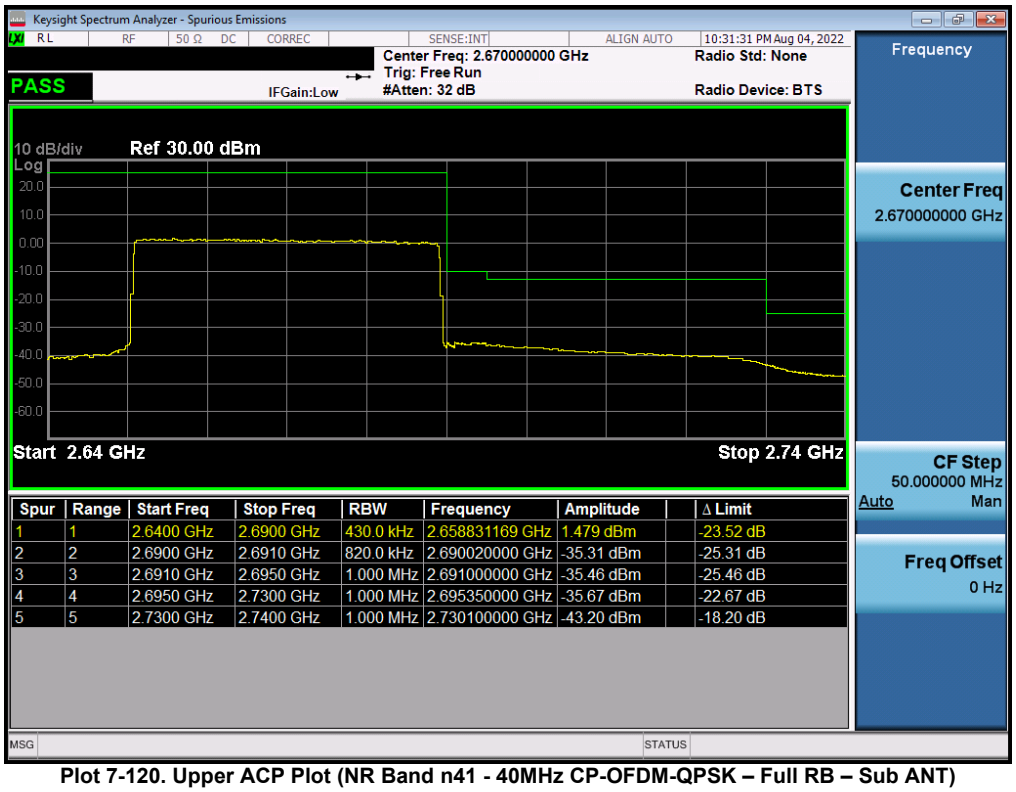
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6275 GHz	2.6900 GHz	560.0 kHz	2.643828829 GHz	1.073 dBm	-23.93 dB
2	2	2.6900 GHz	2.6910 GHz	1.000 MHz	2.690000000 GHz	-35.19 dBm	-25.19 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.694560000 GHz	-35.70 dBm	-25.70 dB
4	4	2.6950 GHz	2.7400 GHz	1.000 MHz	2.724700000 GHz	-35.53 dBm	-22.53 dB
5	5	2.7400 GHz	2.7525 GHz	1.000 MHz	2.740125000 GHz	-45.97 dBm	-20.97 dB

Plot 7-118. Upper ACP Plot (NR Band n41 - 50MHz CP-OFDM-QPSK – Full RB – Sub ANT)



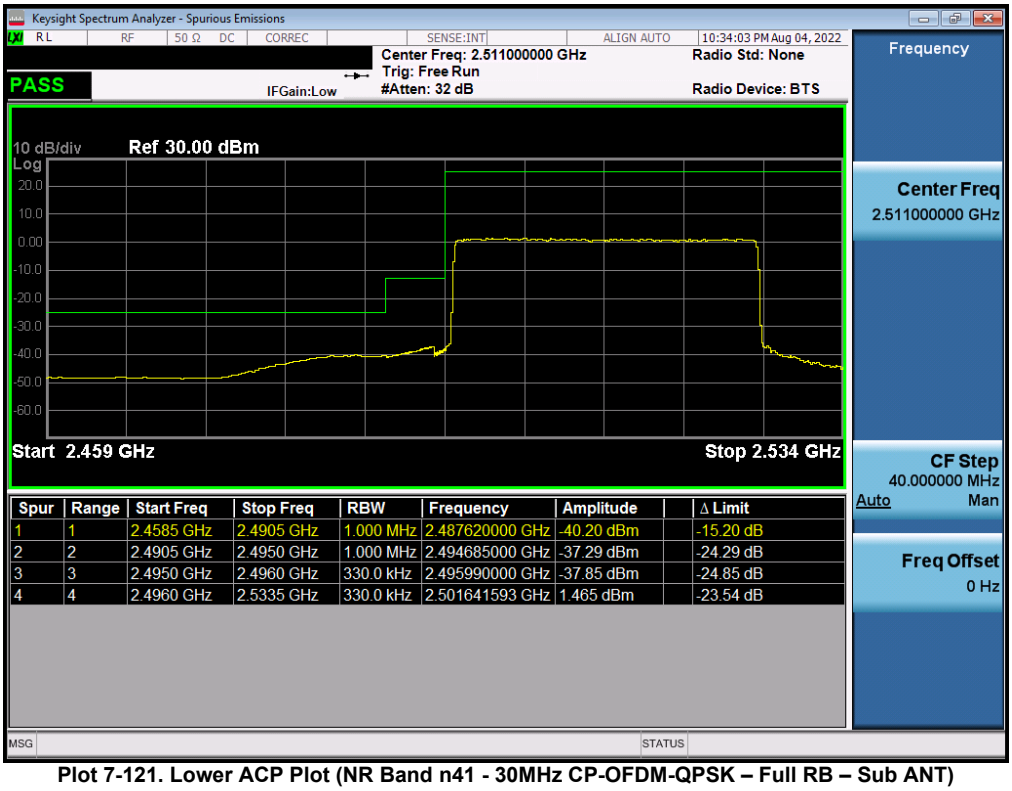
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4460 GHz	2.4905 GHz	1.000 MHz	2.490500000 GHz	-41.43 dBm	-16.43 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494640000 GHz	-38.36 dBm	-25.36 dB
3	3	2.4950 GHz	2.4960 GHz	430.0 kHz	2.495980000 GHz	-40.01 dBm	-27.01 dB
4	4	2.4960 GHz	2.5460 GHz	430.0 kHz	2.504008658 GHz	1.544 dBm	-23.46 dB

Plot 7-119. Lower ACP Plot (NR Band n41 - 40MHz CP-OFDM-QPSK – Full RB – Sub ANT)



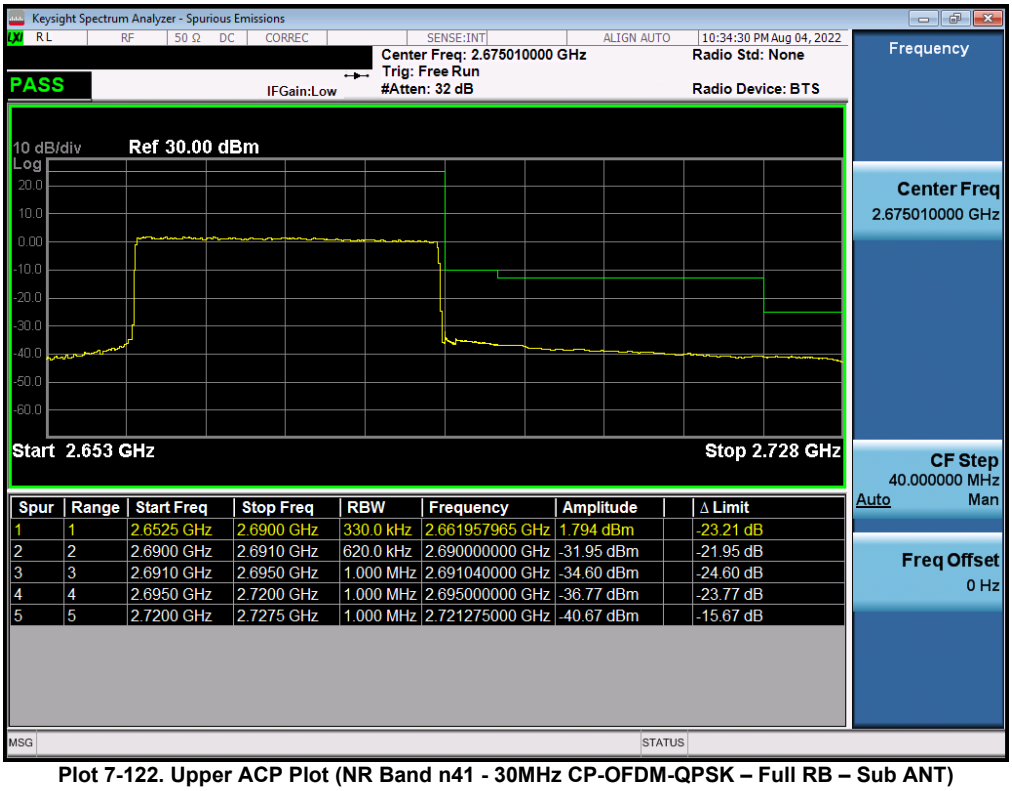
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6400 GHz	2.6900 GHz	430.0 kHz	2.658831169 GHz	1.479 dBm	-23.52 dB
2	2	2.6900 GHz	2.6910 GHz	820.0 kHz	2.690020000 GHz	-35.31 dBm	-25.31 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691000000 GHz	-35.46 dBm	-25.46 dB
4	4	2.6950 GHz	2.7300 GHz	1.000 MHz	2.695350000 GHz	-35.67 dBm	-22.67 dB
5	5	2.7300 GHz	2.7400 GHz	1.000 MHz	2.730100000 GHz	-43.20 dBm	-18.20 dB

Plot 7-120. Upper ACP Plot (NR Band n41 - 40MHz CP-OFDM-QPSK – Full RB – Sub ANT)



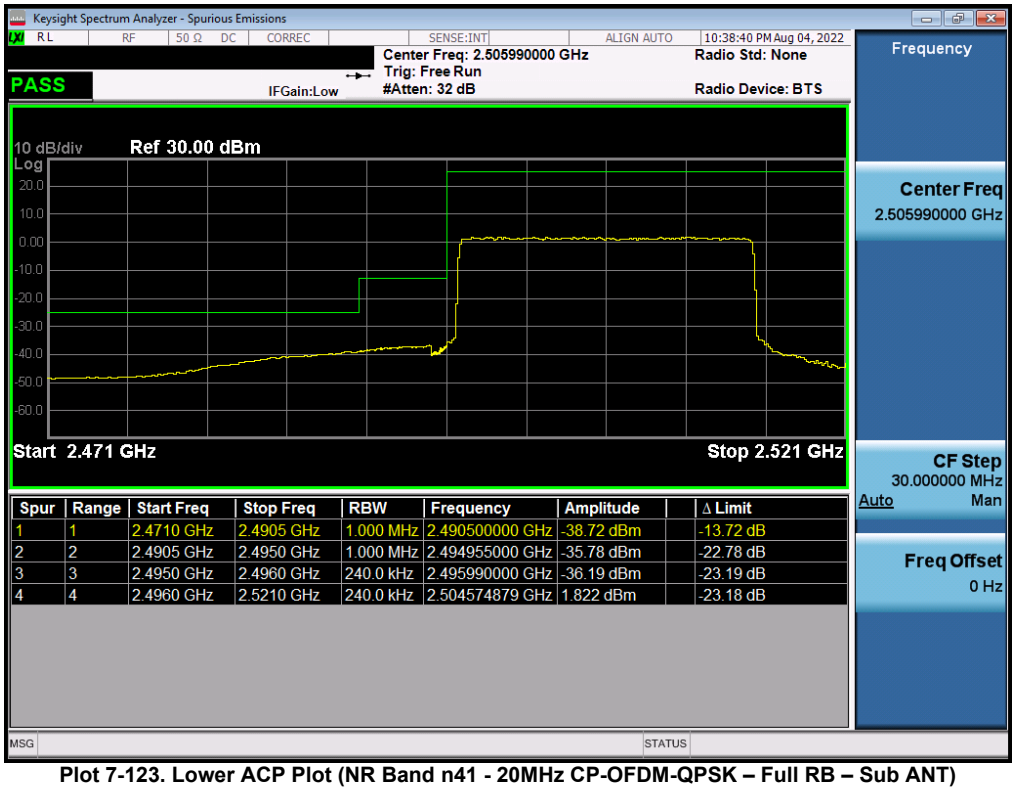
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4585 GHz	2.4905 GHz	1.000 MHz	2.487620000 GHz	-40.20 dBm	-15.20 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494685000 GHz	-37.29 dBm	-24.29 dB
3	3	2.4950 GHz	2.4960 GHz	330.0 kHz	2.495990000 GHz	-37.85 dBm	-24.85 dB
4	4	2.4960 GHz	2.5335 GHz	330.0 kHz	2.501641593 GHz	1.465 dBm	-23.54 dB

Plot 7-121. Lower ACP Plot (NR Band n41 - 30MHz CP-OFDM-QPSK – Full RB – Sub ANT)



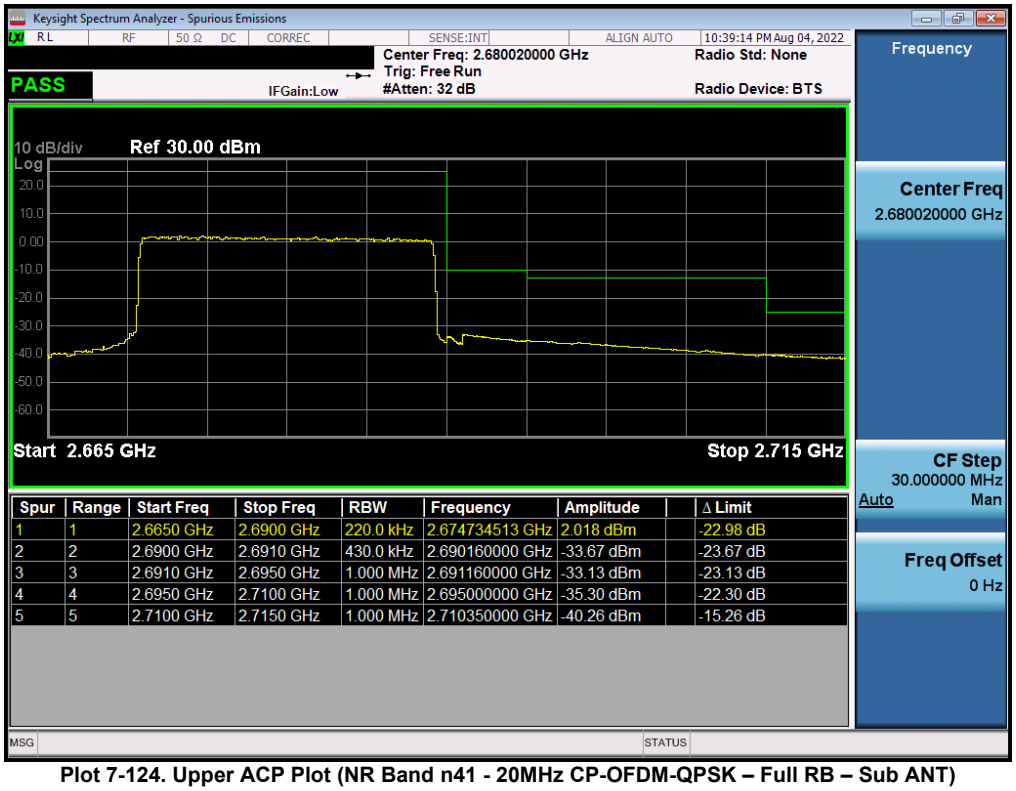
Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6525 GHz	2.6900 GHz	330.0 kHz	2.661957965 GHz	1.794 dBm	-23.21 dB
2	2	2.6900 GHz	2.6910 GHz	620.0 kHz	2.690000000 GHz	-31.95 dBm	-21.95 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691040000 GHz	-34.60 dBm	-24.60 dB
4	4	2.6950 GHz	2.7200 GHz	1.000 MHz	2.695000000 GHz	-36.77 dBm	-23.77 dB
5	5	2.7200 GHz	2.7275 GHz	1.000 MHz	2.721275000 GHz	-40.67 dBm	-15.67 dB

Plot 7-122. Upper ACP Plot (NR Band n41 - 30MHz CP-OFDM-QPSK – Full RB – Sub ANT)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.4710 GHz	2.4905 GHz	1.000 MHz	2.490500000 GHz	-38.72 dBm	-13.72 dB
2	2	2.4905 GHz	2.4950 GHz	1.000 MHz	2.494955000 GHz	-35.78 dBm	-22.78 dB
3	3	2.4950 GHz	2.4960 GHz	240.0 kHz	2.495990000 GHz	-36.19 dBm	-23.19 dB
4	4	2.4960 GHz	2.5210 GHz	240.0 kHz	2.504574879 GHz	1.822 dBm	-23.18 dB

Plot 7-123. Lower ACP Plot (NR Band n41 - 20MHz CP-OFDM-QPSK – Full RB – Sub ANT)



Spur	Range	Start Freq	Stop Freq	RBW	Frequency	Amplitude	Δ Limit
1	1	2.6650 GHz	2.6900 GHz	220.0 kHz	2.674734513 GHz	2.018 dBm	-22.98 dB
2	2	2.6900 GHz	2.6910 GHz	430.0 kHz	2.690160000 GHz	-33.67 dBm	-23.67 dB
3	3	2.6910 GHz	2.6950 GHz	1.000 MHz	2.691160000 GHz	-33.13 dBm	-23.13 dB
4	4	2.6950 GHz	2.7100 GHz	1.000 MHz	2.695000000 GHz	-35.30 dBm	-22.30 dB
5	5	2.7100 GHz	2.7150 GHz	1.000 MHz	2.710350000 GHz	-40.26 dBm	-15.26 dB

Plot 7-124. Upper ACP Plot (NR Band n41 - 20MHz CP-OFDM-QPSK – Full RB – Sub ANT)

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 ≥ 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points ≥ 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.

Test Setup

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

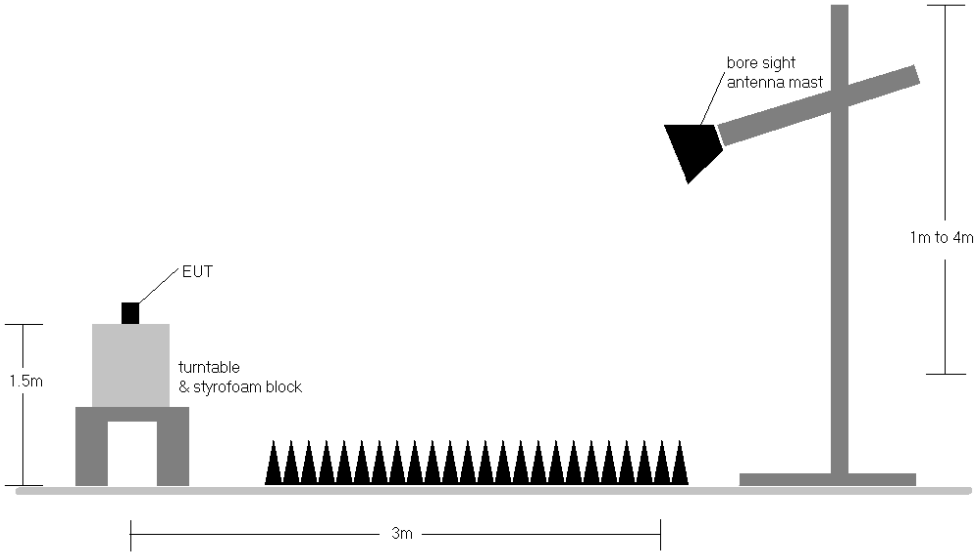


Figure 7-5. Radiated Test Setup >1GHz

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.

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]
20 MHz	QPSK	2506.0	H	103	130	9.49	1 / 50	8.34	**17.83**	0.061	33.01	-15.18
	QPSK	2593.0	H	110	139	9.46	1 / 0	8.23	17.69	0.059	33.01	-15.32
	QPSK	2680.0	H	102	121	9.87	1 / 50	7.49	17.36	0.054	33.01	-15.65
	16-QAM	2506.0	H	103	130	9.50	1 / 50	7.95	17.45	0.056	33.01	-15.56
15 MHz	QPSK	2503.5	H	103	130	9.50	1 / 0	8.52	**18.01**	0.063	33.01	-15.00
	QPSK	2593.0	H	110	139	9.49	1 / 37	8.13	17.63	0.058	33.01	-15.39
	QPSK	2682.5	H	102	121	9.87	1 / 37	7.94	17.81	0.060	33.01	-15.20
	16-QAM	2503.5	H	103	130	9.50	1 / 37	7.89	17.38	0.055	33.01	-15.63
10 MHz	QPSK	2501.0	H	103	130	9.49	1 / 49	8.72	**18.22**	0.066	33.01	-14.79
	QPSK	2593.0	H	110	139	9.49	1 / 49	8.24	17.73	0.059	33.01	-15.28
	QPSK	2685.0	H	102	121	9.86	1 / 25	8.08	17.94	0.062	33.01	-15.07
	16-QAM	2501.0	H	103	130	9.49	1 / 25	8.12	17.61	0.058	33.01	-15.40
5 MHz	QPSK	2498.5	H	103	130	9.49	1 / 12	8.82	**18.31**	0.068	33.01	-14.70
	QPSK	2593.0	H	110	139	9.49	1 / 12	8.17	17.66	0.058	33.01	-15.35
	QPSK	2687.5	H	102	121	9.86	1 / 12	8.22	18.07	0.064	33.01	-14.94
	16-QAM	2498.5	H	103	130	9.49	1 / 12	8.26	17.76	0.060	33.01	-15.26
20 MHz	Opposite Pol.	2506.0	V	102	306	9.50	1 / 50	7.75	17.25	0.053	33.01	-15.76
	WCP	2506.0	H	212	127	9.49	1 / 50	6.75	16.24	0.042	33.01	-16.77

Table 7-3. EIRP Data (LTE Band 41(PC3))

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	π/2 BPSK	2546.0	H	144	152	9.38	1 / 136	12.94	22.32	0.171	33.01	-10.69
	π/2 BPSK	2593.0	H	147	153	9.49	1 / 136	12.65	22.14	0.164	33.01	-10.87
	π/2 BPSK	2640.0	H	133	147	9.89	1 / 136	12.52	22.41	0.174	33.01	-10.60
	QPSK	2546.0	H	144	152	9.38	1 / 136	13.15	22.53	0.179	33.01	-10.48
	QPSK	2593.0	H	147	153	9.49	1 / 136	12.70	22.19	0.166	33.01	-10.82
	QPSK	2640.0	H	133	147	9.89	1 / 136	12.70	**22.59**	0.182	33.01	-10.42
	16-QAM	2640.0	H	133	147	9.89	1 / 136	11.79	21.68	0.147	33.01	-11.33
90 MHz	π/2 BPSK	2541.0	H	144	152	9.39	1 / 122	12.74	22.13	0.163	33.01	-10.88
	π/2 BPSK	2593.0	H	147	153	9.49	1 / 122	12.93	22.42	0.174	33.01	-10.59
	π/2 BPSK	2645.0	H	133	147	9.91	1 / 122	12.49	22.40	0.174	33.01	-10.61
	QPSK	2541.0	H	144	152	9.39	1 / 122	12.93	22.31	0.170	33.01	-10.70
	QPSK	2593.0	H	147	153	9.49	1 / 122	13.04	**22.53**	0.179	33.01	-10.48
	QPSK	2645.0	H	133	147	9.91	1 / 122	12.59	22.50	0.178	33.01	-10.51
	16-QAM	2593.0	H	147	153	9.49	1 / 122	12.61	22.10	0.162	33.01	-10.91
80 MHz	π/2 BPSK	2536.0	H	144	152	9.40	1 / 108	12.82	22.22	0.167	33.01	-10.79
	π/2 BPSK	2593.0	H	147	153	9.49	1 / 108	13.02	22.51	0.178	33.01	-10.50
	π/2 BPSK	2650.0	H	133	147	9.93	1 / 108	12.41	22.34	0.172	33.01	-10.67
	QPSK	2536.0	H	144	152	9.40	1 / 108	13.01	22.41	0.174	33.01	-10.60
	QPSK	2593.0	H	147	153	9.49	1 / 108	13.21	**22.70**	0.186	33.01	-10.31
	QPSK	2650.0	H	133	147	9.93	1 / 108	12.53	22.46	0.176	33.01	-10.55
	16-QAM	2593.0	H	147	153	9.49	1 / 108	12.74	22.23	0.167	33.01	-10.78
60 MHz	π/2 BPSK	2526.0	H	144	152	9.43	1 / 81	13.17	22.60	0.182	33.01	-10.41
	π/2 BPSK	2593.0	H	147	153	9.49	1 / 81	13.15	22.64	0.184	33.01	-10.37
	π/2 BPSK	2660.0	H	133	147	9.85	1 / 81	12.55	22.40	0.174	33.01	-10.61
	QPSK	2526.0	H	144	152	9.43	1 / 81	13.41	**22.84**	0.192	33.01	-10.17
	QPSK	2593.0	H	147	153	9.49	1 / 81	13.25	22.74	0.188	33.01	-10.27
	QPSK	2660.0	H	133	147	9.85	1 / 81	12.77	22.62	0.183	33.01	-10.39
	16-QAM	2593.0	H	147	153	9.49	1 / 81	12.80	22.29	0.170	33.01	-10.72
50 MHz	π/2 BPSK	2521.0	H	144	152	9.45	1 / 99	13.12	22.57	0.181	33.01	-10.44
	π/2 BPSK	2593.0	H	147	153	9.49	1 / 99	13.19	22.69	0.186	33.01	-10.32
	π/2 BPSK	2665.0	H	133	147	9.84	1 / 66	12.56	22.39	0.174	33.01	-10.62
	QPSK	2521.0	H	144	152	9.45	1 / 99	13.41	**22.86**	0.193	33.01	-10.15
	QPSK	2593.0	H	147	153	9.49	1 / 99	13.33	22.82	0.192	33.01	-10.19
	QPSK	2665.0	H	133	147	9.84	1 / 99	12.86	22.69	0.186	33.01	-10.32
	16-QAM	2593.0	H	147	153	9.49	1 / 99	12.73	22.22	0.167	33.01	-10.79
40 MHz	π/2 BPSK	2516.0	H	144	152	9.48	1 / 79	13.09	22.57	0.181	33.01	-10.44
	π/2 BPSK	2593.0	H	147	153	9.49	1 / 53	13.19	22.68	0.186	33.01	-10.33
	π/2 BPSK	2670.0	H	133	147	9.82	1 / 53	12.64	22.46	0.176	33.01	-10.55
	QPSK	2516.0	H	144	152	9.48	1 / 79	13.36	**22.83**	0.192	33.01	-10.18
	QPSK	2593.0	H	147	153	9.49	1 / 53	13.26	22.75	0.189	33.01	-10.26
	QPSK	2670.0	H	133	147	9.82	1 / 53	12.82	22.64	0.184	33.01	-10.37
	16-QAM	2593.0	H	147	153	9.49	1 / 53	12.64	22.14	0.164	33.01	-10.87
30 MHz	π/2 BPSK	2511.0	H	144	152	9.50	1 / 58	13.11	22.61	0.182	33.01	-10.40
	π/2 BPSK	2593.0	H	147	153	9.49	1 / 58	13.27	22.76	0.189	33.01	-10.25
	π/2 BPSK	2675.0	H	133	147	9.85	1 / 58	12.65	22.49	0.178	33.01	-10.52
	QPSK	2511.0	H	144	152	9.50	1 / 58	13.49	**22.99**	0.199	33.01	-10.02
	QPSK	2593.0	H	147	153	9.49	1 / 58	13.48	22.97	0.198	33.01	-10.04
	QPSK	2675.0	H	133	147	9.85	1 / 58	12.84	22.69	0.186	33.01	-10.32
	16-QAM	2593.0	H	147	153	9.49	1 / 58	12.76	22.26	0.168	33.01	-10.75
20 MHz	π/2 BPSK	2506.0	H	144	152	9.50	1 / 25	13.06	22.56	0.180	33.01	-10.45
	π/2 BPSK	2593.0	H	147	153	9.49	1 / 25	13.42	22.91	0.195	33.01	-10.10
	π/2 BPSK	2680.0	H	133	147	9.87	1 / 25	12.67	22.54	0.180	33.01	-10.47
	QPSK	2506.0	H	144	152	9.50	1 / 25	13.27	22.77	0.189	33.01	-10.24
	QPSK	2593.0	H	147	153	9.49	1 / 25	13.48	**22.97**	0.198	33.01	-10.04
	QPSK	2680.0	H	133	147	9.87	1 / 25	12.73	22.61	0.182	33.01	-10.40
	16-QAM	2506.0	H	144	152	9.50	1 / 37	12.20	21.70	0.148	33.01	-11.31
100 MHz	QPSK (CP-OFDM)	2640.0	H	134	147	9.89	1/136	10.96	20.85	0.122	33.01	-12.16
	QPSK (Opposite Pol.)	2640.0	V	125	89	9.50	1/136	9.78	19.28	0.085	33.01	-13.73
	QPSK (WCP)	2640.0	H	102	145	9.89	1/204	1.67	11.56	0.014	33.01	-21.45

Table 7-4. EIRP Data (NR Band n41)

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	125	32	9.38	1 / 136	6.73	16.11	0.041	33.01	-16.90
	QPSK	2593.0	H	122	45	9.49	1 / 68	7.27	16.76	0.047	33.01	-16.25
	QPSK	2640.0	H	114	47	9.89	1 / 68	7.26	**17.15**	0.052	33.01	-15.86
	16-QAM	2640.0	H	114	47	9.89	1 / 136	6.65	16.54	0.045	33.01	-16.47
90 MHz	QPSK	2541.0	H	125	32	9.39	245 / 0	6.78	16.17	0.041	33.01	-16.84
	QPSK	2593.0	H	122	45	9.49	245 / 0	7.23	16.72	0.047	33.01	-16.29
	QPSK	2645.0	H	114	47	9.91	245 / 0	7.32	**17.23**	0.053	33.01	-15.78
	16-QAM	2645.0	H	114	47	9.91	245 / 0	6.28	16.19	0.042	33.01	-16.82
80 MHz	QPSK	2536.0	H	125	32	9.40	217 / 0	6.87	16.27	0.042	33.01	-16.74
	QPSK	2593.0	H	122	45	9.49	1 / 108	7.35	16.84	0.048	33.01	-16.17
	QPSK	2650.0	H	114	47	9.93	217 / 0	7.30	**17.23**	0.053	33.01	-15.78
	16-QAM	2650.0	H	114	47	9.93	217 / 0	6.30	16.23	0.042	33.01	-16.78
60 MHz	QPSK	2526.0	H	125	32	9.43	162 / 0	6.97	16.40	0.044	33.01	-16.61
	QPSK	2593.0	H	122	45	9.49	162 / 0	7.50	16.99	0.050	33.01	-16.02
	QPSK	2660.0	H	114	47	9.85	162 / 0	7.55	**17.40**	0.055	33.01	-15.61
	16-QAM	2593.0	H	122	45	9.49	162 / 0	6.86	16.35	0.043	33.01	-16.66
50 MHz	QPSK	2521.0	H	125	32	9.45	133 / 0	6.98	16.43	0.044	33.01	-16.58
	QPSK	2593.0	H	122	45	9.49	133 / 0	7.67	17.16	0.052	33.01	-15.85
	QPSK	2665.0	H	114	47	9.84	133 / 0	7.62	**17.45**	0.056	33.01	-15.56
	16-QAM	2665.0	H	114	47	9.84	133 / 0	6.69	16.52	0.045	33.01	-16.49
40 MHz	QPSK	2516.0	H	125	32	9.48	1 / 79	7.11	16.59	0.046	33.01	-16.42
	QPSK	2593.0	H	122	45	9.49	106 / 0	7.66	17.15	0.052	33.01	-15.86
	QPSK	2670.0	H	114	47	9.82	1 / 26	7.80	**17.62**	0.058	33.01	-15.39
	16-QAM	2670.0	H	114	47	9.82	1 / 26	6.99	16.81	0.048	33.01	-16.20
30 MHz	QPSK	2511.0	H	125	32	9.50	78 / 0	7.08	16.59	0.046	33.01	-16.42
	QPSK	2593.0	H	122	45	9.49	1 / 58	7.73	17.22	0.053	33.01	-15.79
	QPSK	2675.0	H	114	47	9.85	78 / 0	7.75	**17.59**	0.057	33.01	-15.42
	16-QAM	2593.0	H	122	45	9.49	1 / 19	7.30	16.79	0.048	33.01	-16.22
20 MHz	QPSK	2506.0	H	125	32	9.50	51 / 0	6.99	16.49	0.045	33.01	-16.52
	QPSK	2593.0	H	122	45	9.49	51 / 0	7.63	17.12	0.052	33.01	-15.89
	QPSK	2680.0	H	114	47	9.87	51 / 0	7.61	**17.48**	0.056	33.01	-15.53
	16-QAM	2680.0	H	114	47	9.87	51 / 0	6.66	16.53	0.045	33.01	-16.48
100 MHz	QPSK (Opposite Pol.)	2640.0	V	183	293	9.46	1/68	3.99	13.45	0.022	33.01	-19.56
	QPSK (WCP)	2640.0	H	139	146	9.49	1/136	6.78	16.27	0.042	33.01	-16.74

Table 7-5. EIRP Data (UL-MIMO NR Band n41)

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 ≥ 3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points ≥ 2 x span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

Test Setup

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

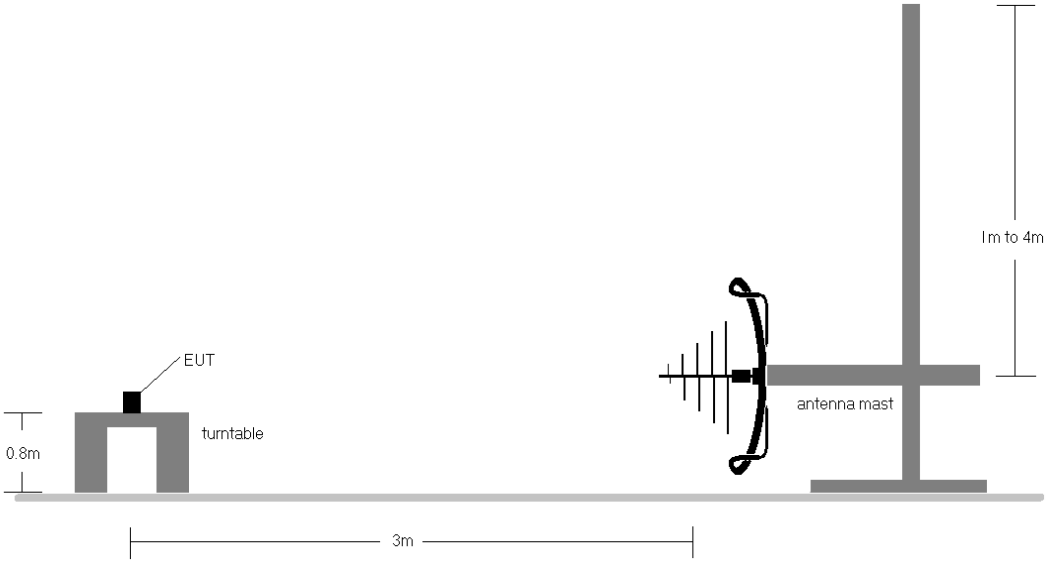


Figure 7-6. Test Instrument & Measurement Setup < 1GHz

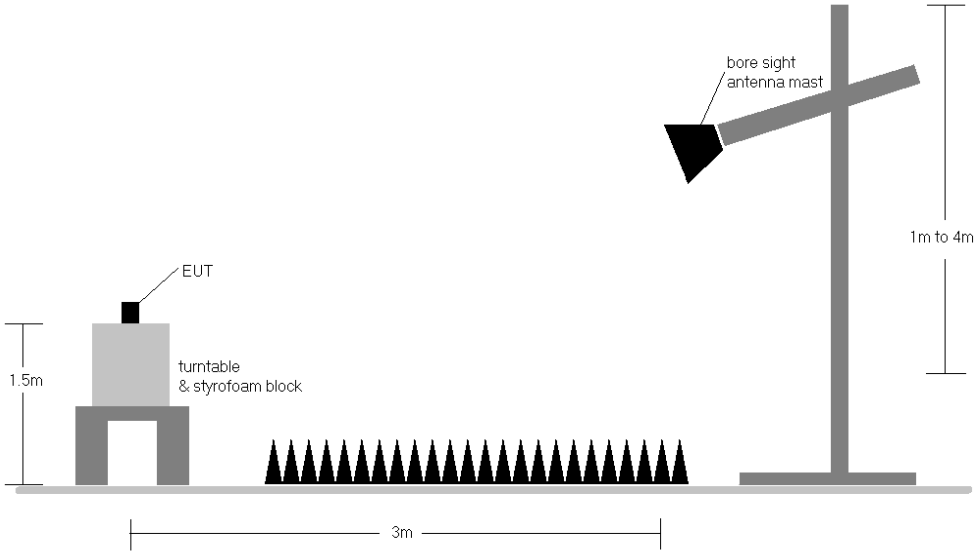


Figure 7-7. Test Instrument & Measurement Setup >1 GHz

Test Notes

1) Field strengths are calculated using the Measurement quantity conversions in ANSI C63.26-2015 Section 5.2.7:
   a) E(dBµV/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m)
   b) EIRP (dBm) = E(dBµV/m) + 20logD – 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.

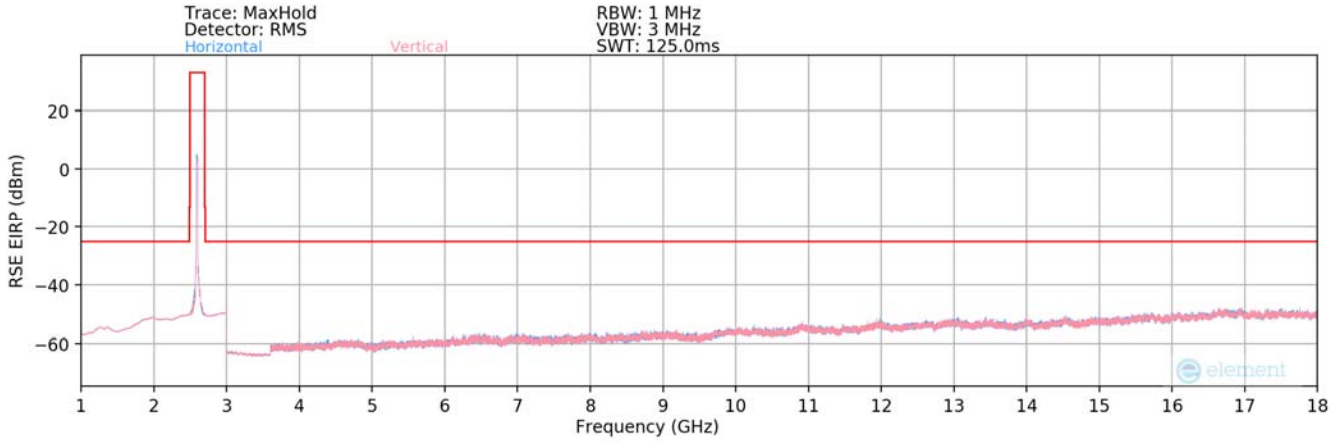
6) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

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.

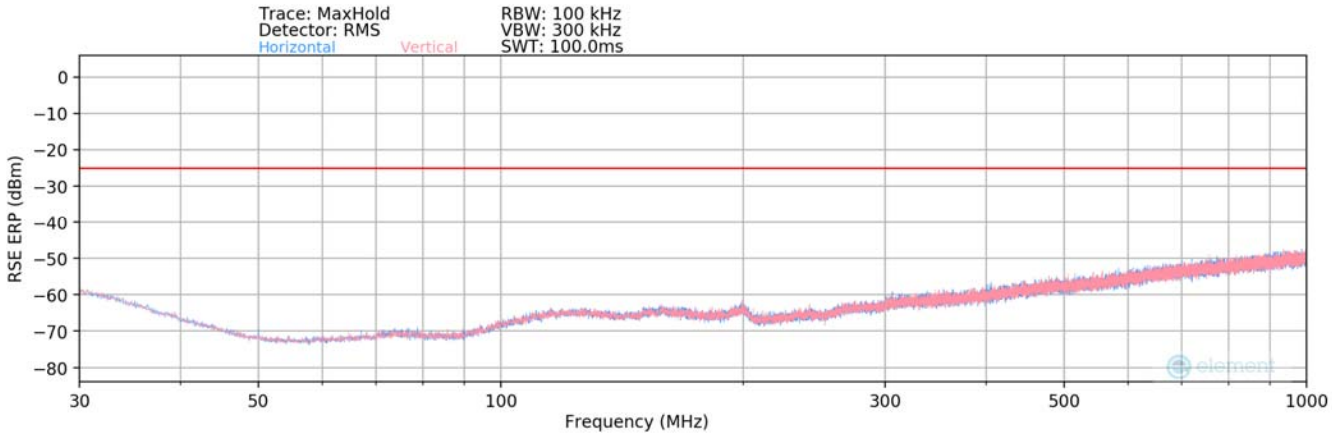
8) Spurious emissions shown in this section are measured while operating in EN-DC mode with Sub 6GHz NR carrier as well as an LTE carrier (anchor). Spurious emissions from the NR carrier device, is subject to the rules under which the NR carrier operates. Spurious emissions caused by the LTE carrier must meet the requirements of the rules under which the LTE carrier operates.

9) For radiated spurious emissions measurements, UL-MIMO test case have both the main and sub antenna transmitting simultaneously.

LTE Band 41(PC3)



Plot 7-125. Radiated Spurious Plot (LTE Band 41(PC3))



Plot 7-126. Radiated Spurious Plot (LTE Band 41(PC3), <1GHz)

Plot 7-127. Radiated Spurious Plot (LTE Band 41(PC3), >18GHz)

Bandwidth (MHz):	20
Frequency (MHz):	2506.0
RB / Offset:	1 / 50

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]
5012.00	H	-	-	-77.26	4.32	34.06	-61.20	-25.00	-36.20
7518.00	H	288	266	-73.29	7.35	41.06	-54.20	-25.00	-29.20
10024.00	H	-	-	-78.64	10.31	38.67	-56.59	-25.00	-31.59
12530.00	H	138	74	-78.88	13.58	41.70	-53.56	-25.00	-28.56
15036.00	H	-	-	-80.19	15.15	41.96	-53.30	-25.00	-28.30
17542.00	H	-	-	-79.09	16.87	44.78	-50.48	-25.00	-25.48

Table 7-6. Radiated Spurious Data (LTE Band 41(PC3) – Low Channel)

Bandwidth (MHz):	20
Frequency (MHz):	2593.0
RB / Offset:	1 / 50

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	-	-	-77.09	5.02	34.93	-60.32	-25.00	-35.32
7779.00	H	281	258	-70.59	7.21	43.62	-51.64	-25.00	-26.64
10372.00	H	-	-	-81.84	11.09	36.25	-59.01	-25.00	-34.01
12965.00	H	-	-	-79.79	14.32	41.53	-53.73	-25.00	-28.73
15558.00	H	-	-	-79.77	15.61	42.84	-52.42	-25.00	-27.42

Table 7-7. Radiated Spurious Data (LTE Band 41(PC3) – Mid Channel)

Bandwidth (MHz):	20
Frequency (MHz):	2680.0
RB / Offset:	1 / 50

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]
5360.00	H	179	17	-76.86	4.81	34.95	-60.30	-25.00	-35.30
8040.00	H	169	62	-77.76	7.87	37.11	-58.14	-25.00	-33.14
10720.00	H	-	-	-79.40	11.74	39.34	-55.91	-25.00	-30.91
13400.00	H	-	-	-79.67	14.02	41.35	-53.91	-25.00	-28.91
16080.00	H	-	-	-79.82	16.91	44.09	-51.17	-25.00	-26.17

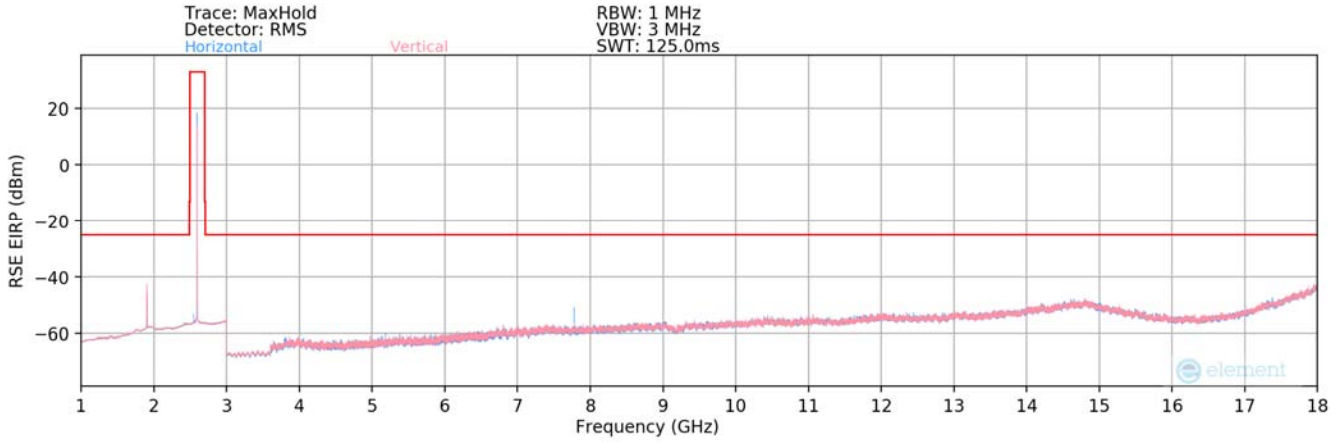
Table 7-8. Radiated Spurious Data (LTE Band 41(PC3) – High Channel)

Bandwidth (MHz):	20
Frequency (MHz):	2593.0
RB / Offset:	1/50

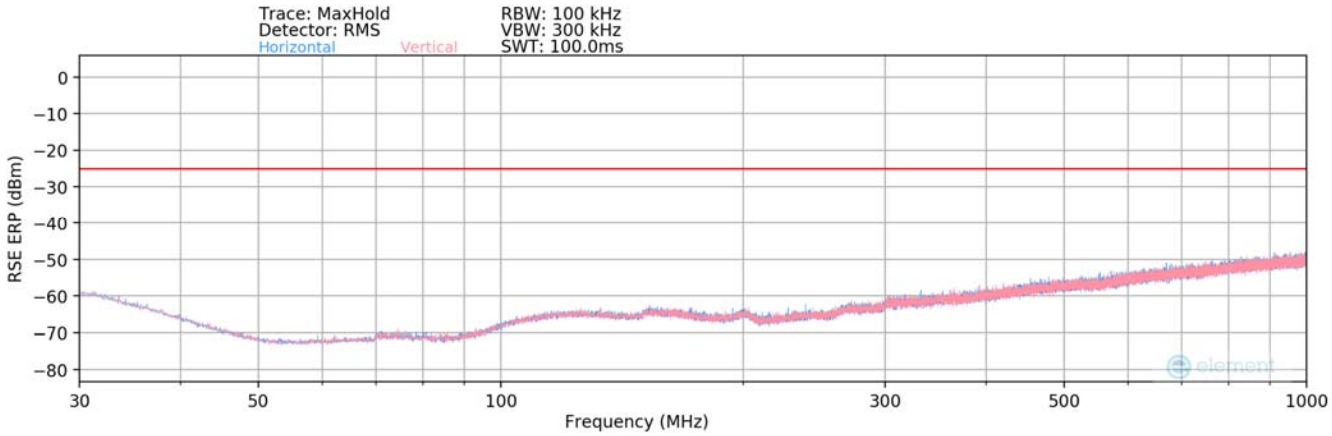
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
190.30	H	-	-	-99.82	18.67	25.85	-69.41	-25.00	-44.41

Table 7-9. Radiated Spurious Data (LTE Band 41(PC3) – Mid Channel, <1GHz)

NR Band n41



Plot 7-128. Radiated Spurious Plot (NR Band n41)



Plot 7-129. Radiated Spurious Plot (NR Band n41, <1GHz)

Plot 7-130. Radiated Spurious Plot (NR Band n41, >18GHz)

Bandwidth (MHz):	100
Frequency (MHz):	2546.0
RB / Offset:	1 / 136
Mode:	Stand Alone

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	400	83	-78.16	2.16	31.00	-64.26	-25.00	-39.26
7638.00	H	125	354	-75.99	7.10	38.11	-57.15	-25.00	-32.15
10184.00	H	-	-	-82.27	10.95	35.68	-59.58	-25.00	-34.58
12730.00	H	-	-	-81.47	12.63	38.16	-57.10	-25.00	-32.10
15276.00	H	-	-	-81.50	14.42	39.92	-55.33	-25.00	-30.33

Table 7-10. Radiated Spurious Data (NR Band n41 – Low Channel)

Bandwidth (MHz):	100
Frequency (MHz):	2593.0
RB / Offset:	1 / 136
Mode:	Stand Alone

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	400	349	-71.97	2.13	37.16	-58.09	-25.00	-33.09
7779.00	H	112	358	-68.23	7.19	45.96	-49.30	-25.00	-24.30
10372.00	H	-	-	-81.96	11.25	36.29	-58.97	-25.00	-33.97
12965.00	H	-	-	-81.64	13.10	38.46	-56.80	-25.00	-31.80
15558.00	H	-	-	-81.57	13.20	38.63	-56.63	-25.00	-31.63
18151.00	H	-	-	-57.61	1.74	51.13	-53.67	-25.00	-28.67
20744.00	H	-	-	-58.54	3.33	51.79	-53.01	-25.00	-28.01
23337.00	H	-	-	-59.50	3.89	51.39	-53.41	-25.00	-28.41

Table 7-11. Radiated Spurious Data (NR Band n41 – Mid Channel)

Bandwidth (MHz):	100
Frequency (MHz):	2640.0
RB / Offset:	1 / 136
Mode:	Stand Alone

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	109	16	-78.66	2.39	30.73	-64.53	-25.00	-39.53
7920.00	H	201	192	-79.44	7.05	34.61	-60.65	-25.00	-35.65
10560.00	H	-	-	-82.57	11.41	35.84	-59.42	-25.00	-34.42
13200.00	H	-	-	-82.24	13.30	38.06	-57.20	-25.00	-32.20
15840.00	H	-	-	-81.05	12.06	38.01	-57.25	-25.00	-32.25

Table 7-12. Radiated Spurious Data (NR Band n41 – High Channel)

Case:	w/ Wireless Charging Pad
Bandwidth (MHz):	100
Frequency (MHz):	2593.0
RB / Offset:	1 / 136
Mode:	Stand Alone

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	-	-	-79.19	2.13	29.94	-65.31	-25.00	-40.31
7779.00	H	-	-	-80.16	7.19	34.03	-61.23	-25.00	-36.23
10372.00	H	-	-	-81.73	11.25	36.52	-58.74	-25.00	-33.74

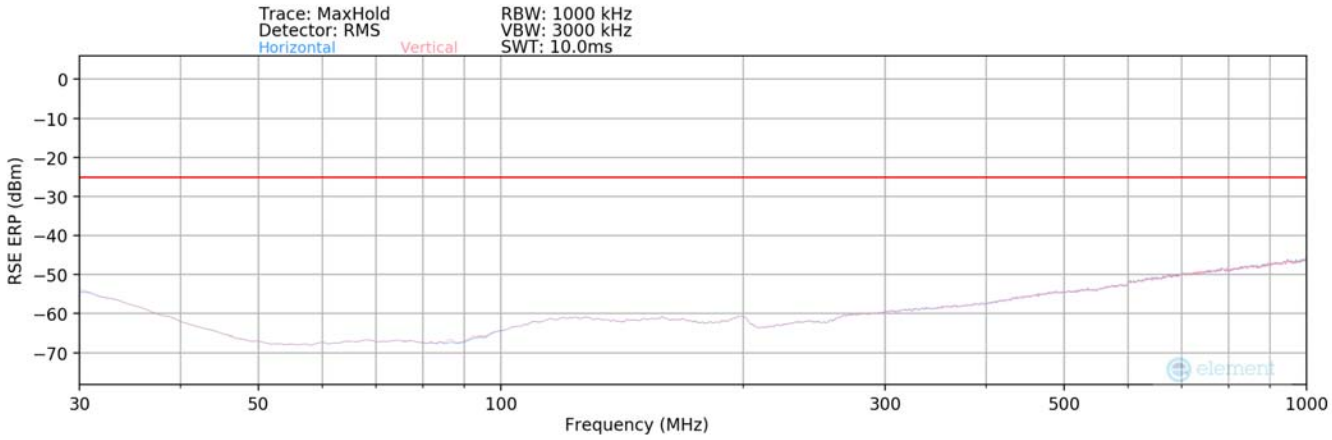
Table 7-13. Radiated Spurious Data with WCP (NR Band n41)

Bandwidth (MHz):	100
Frequency (MHz):	2593.0
RB / Offset:	1 / 136
Mode:	Stand Alone
Anchor Band:	LTE Band 66

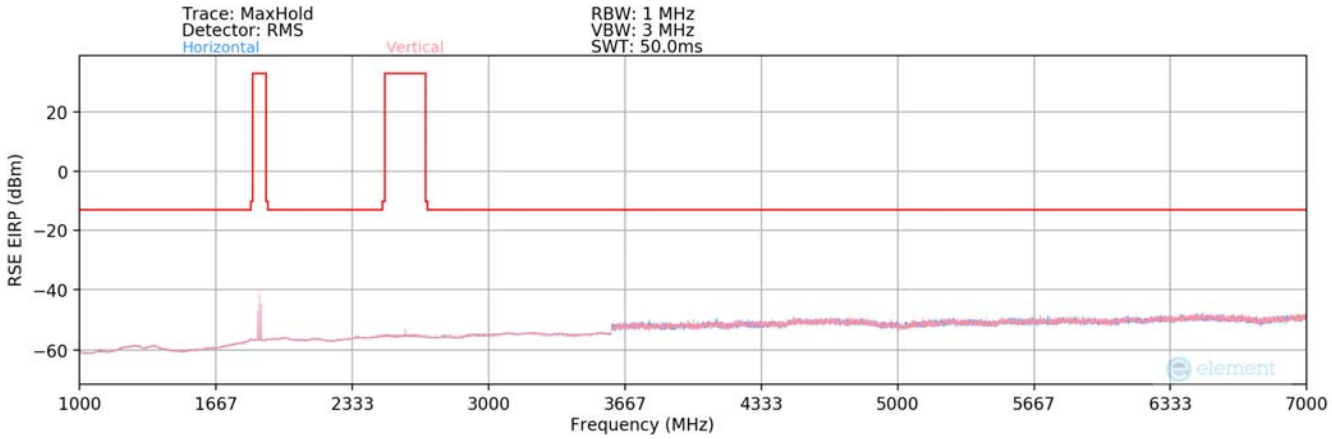
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
244.90	H	-	-	-74.74	18.71	50.97	-44.29	-25.00	-19.29

Table 7-14. Radiated Spurious Data (NR Band n41 – Mid Channel, <1GHz)

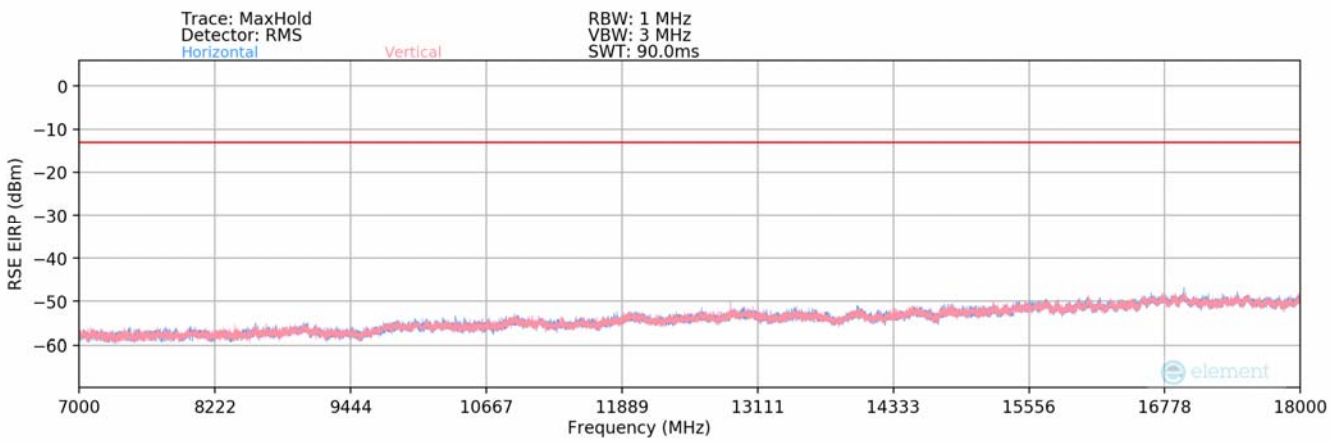
EN-DC: NR Band n41 – LTE Band 2



Plot 7-131. Radiated Spurious Plot EN-DC: NR Band n41 – LTE Band 2 - 30MHz-1GHz)



Plot 7-132. Radiated Spurious Plot EN-DC: NR Band n41 – LTE Band 2 - 1-7GHz)



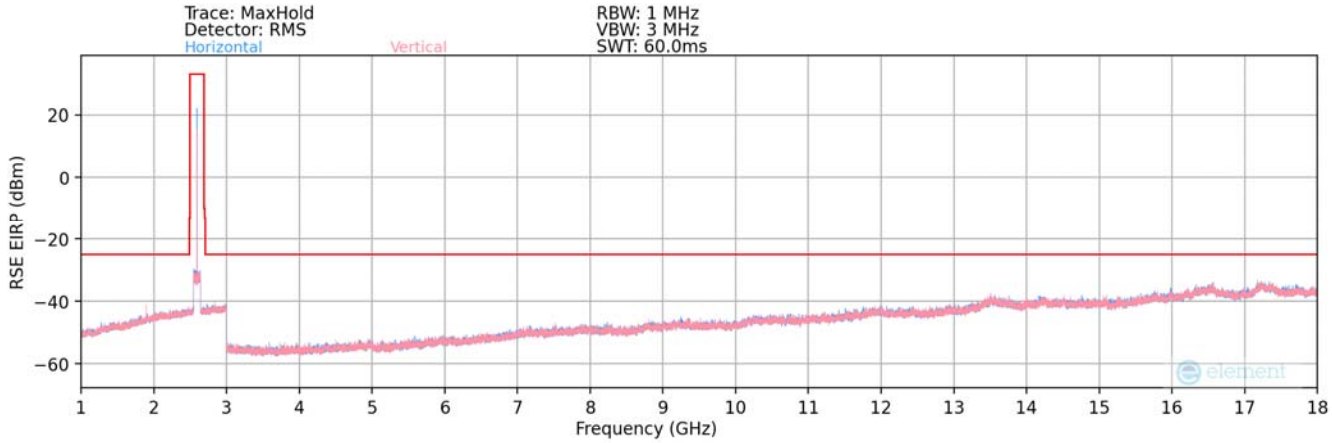
Plot 7-133. Radiated Spurious Plot EN-DC: NR Band n41 – LTE Band 2 – 7-18GHz)

Case:	n41 + B2
Bandwidth (MHz):	100
Frequency (MHz):	2593.0
RB / Offset:	1 / 136
Mode:	EN-DC
Anchor Band:	LTE Band 2

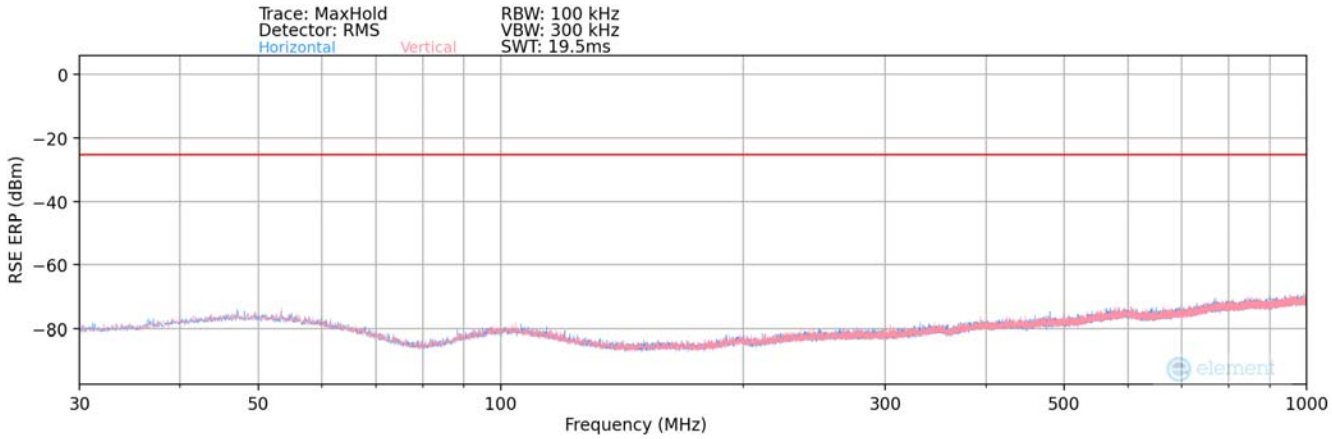
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
454.0	H	-	-	-79.50	24.90	52.40	-42.86	-13.00	-29.86
713.0	H	-	-	-80.92	29.29	55.37	-39.88	-13.00	-26.88
1167.0	H	-	-	-71.34	5.63	41.29	-53.97	-13.00	-40.97
3306.0	H	-	-	-72.42	12.62	47.20	-48.06	-13.00	-35.06
4473.0	H	-	-	-74.98	14.53	46.55	-48.71	-13.00	-35.71
5899.0	H	-	-	-76.36	16.14	46.78	-48.48	-13.00	-35.48
6353.0	H	-	-	-76.42	17.09	47.67	-47.59	-13.00	-34.59
8946.0	H	-	-	-77.28	9.93	39.65	-55.61	-13.00	-42.61

Table 7-15. Radiated Spurious Data (EN-DC: NR Band n41 – LTE Band 2)

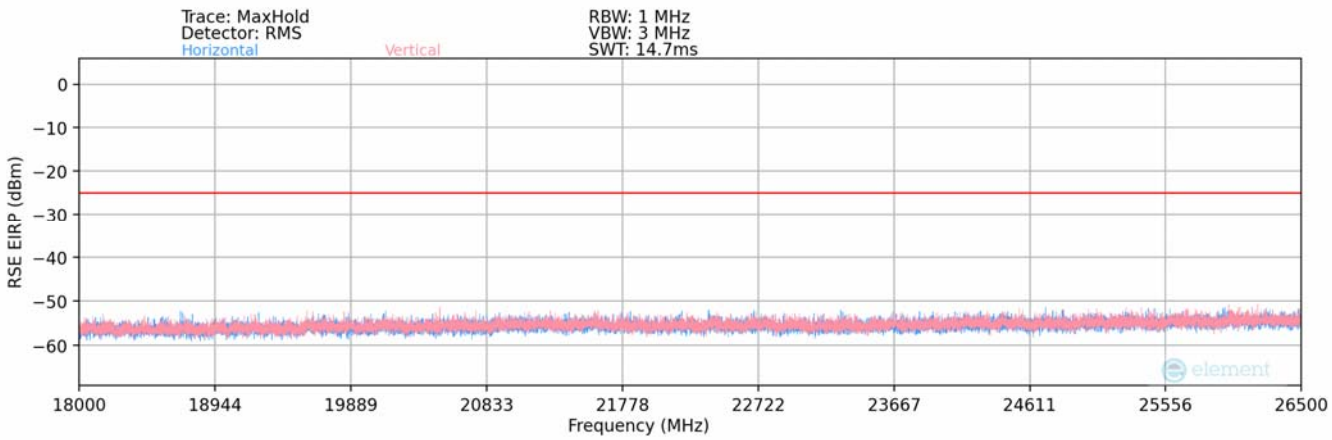
UL-MIMO NR Band n41



Plot 7-134. Radiated Spurious Plot (UL-MIMO NR Band n41)



Plot 7-135. Radiated Spurious Plot (UL-MIMO NR Band n41, <1GHz)



Plot 7-136. Radiated Spurious Plot (UL-MIMO NR Band n41, >18GHz)

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	V	-	-	-72.08	11.18	46.10	-49.16	-25.00	-24.16
7638.00	V	-	-	-74.46	17.48	50.02	-45.23	-25.00	-20.23
10184.00	V	-	-	-75.82	21.54	52.72	-42.54	-25.00	-17.54

Table 7-16. Radiated Spurious Data (UL-MIMO NR Band n41 – Low Channel)

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	V	-	-	-74.38	11.90	44.52	-50.73	-25.00	-25.73
7779.00	V	-	-	-73.77	17.33	50.56	-44.69	-25.00	-19.69
10372.00	V	-	-	-75.76	20.89	52.13	-43.13	-25.00	-18.13

Table 7-17. Radiated Spurious Data (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	V	-	-	-73.28	11.13	44.85	-50.41	-25.00	-25.41
7920.00	V	-	-	-74.17	17.01	49.84	-45.42	-25.00	-20.42
10560.00	V	-	-	-75.64	21.17	52.53	-42.73	-25.00	-17.73

Table 7-18. Radiated Spurious Data (NR Band n41 – High Channel)

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]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
540.00	V	-	-	-70.77	-9.15	27.08	-68.18	-25.00	-43.18

Table 7-19. Radiated Spurious Data (NR Band n41 – Mid Channel – Ant1, <1GHz)

7.8 Frequency Stability / Temperature Variation

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26-2015. The frequency stability of the transmitter is measured by:

a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

For Part 27, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Procedure Used

ANSI C63.26-2015 – Section 5.6

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

Test Notes

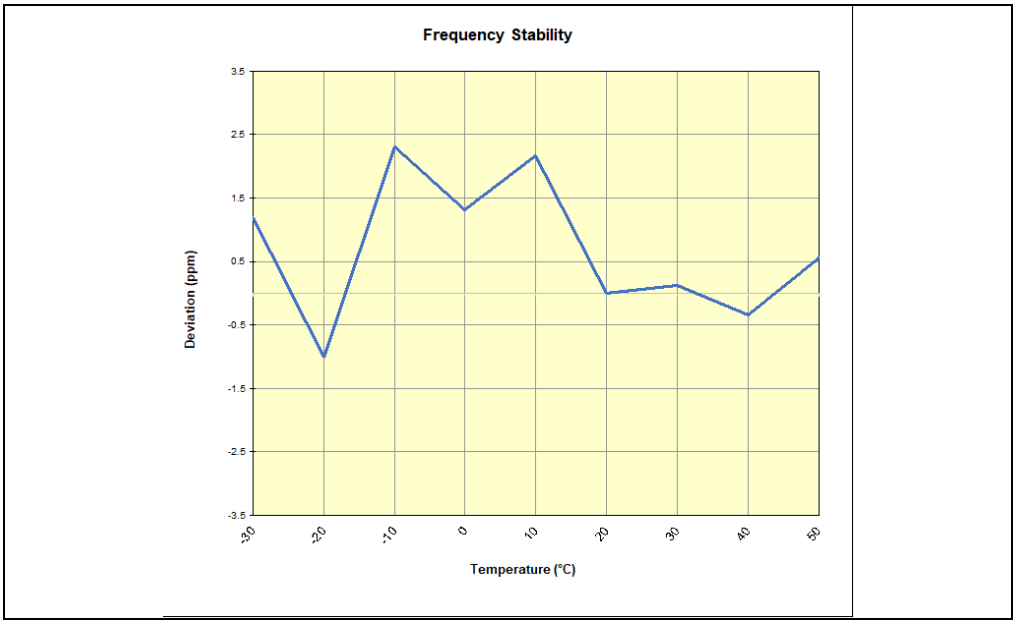
None

LTE Band 41

Operating Frequency (Hz):	2,593,000,000
Ref. Voltage (VDC):	4.28

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.28	- 30	2,593,089,103	3,074	0.0001185
		- 20	2,593,083,435	-2,594	-0.0001000
		- 10	2,593,092,016	5,987	0.0002309
		0	2,593,089,421	3,392	0.0001308
		+ 10	2,593,091,647	5,618	0.0002167
		+ 20 (Ref)	2,593,086,029	0	0.0000000
		+ 30	2,593,086,341	312	0.0000120
		+ 40	2,593,085,135	-894	-0.0000345
		+ 50	2,593,087,486	1,457	0.0000562
Battery Endpoint	3.69	+ 20	2,593,086,785	756	0.0000292

Table 7-20. LTE Band 41(PC3) Frequency Stability Data



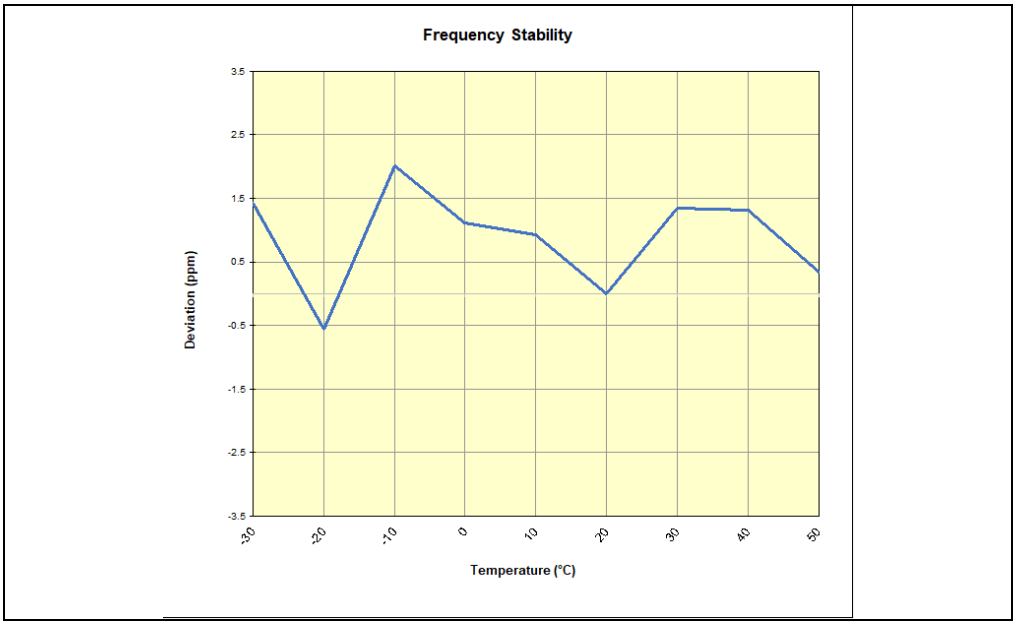
Plot 7-137. LTE Band 41(PC3) Frequency Stability Chart

NR Band n41

Operating Frequency (Hz):	2,593,000,000
Ref. Voltage (VDC):	4.28

Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.28	- 30	2,592,968,744	3,693	0.0001424
		- 20	2,592,963,617	-1,434	-0.0000553
		- 10	2,592,970,264	5,213	0.0002010
		0	2,592,967,943	2,892	0.0001115
		+ 10	2,592,967,478	2,427	0.0000936
		+ 20 (Ref)	2,592,965,051	0	0.0000000
		+ 30	2,592,968,546	3,495	0.0001348
		+ 40	2,592,968,461	3,410	0.0001315
		+ 50	2,592,965,945	894	0.0000345
Battery Endpoint	3.69	+ 20	2,592,965,412	361	0.0000139

Table 7-21. NR Band n41 Frequency Stability Data



Plot 7-138. NR Band n41 Frequency Stability Chart

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Sony Corporation Portable Handset FCC ID: PY7-76056F** complies with all the requirements of Part 27 of the FCC rules.