

FCC Sub6 REPORT

Certification

Applicant Name:

SAMSUNG Electronics Co., Ltd.

Date of Issue:

November 13, 2023

Location:

HCT CO., LTD.,
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Address:

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 Suwon-si, Gyeonggi-do, 16677, Rep. of Korea

Report No.: HCT-RF-2311-FC032

FCC ID: A3LSMG556B

APPLICANT: SAMSUNG Electronics Co., Ltd.

Model(s): SM-G556B
 EUT Type: Mobile phone
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
 FCC Rule Part(s): §90, §22

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	Conducted Output Power	
				Max. Power (W)	Max. Power (dBm)
Sub6 n26 (5)	816.5 – 824.0	4M50G7D	PI/2 BPSK	0.229	23.59
		4M52G7D	QPSK	0.233	23.67
		4M47W7D	16QAM	0.177	22.49
		4M50W7D	64QAM	0.124	20.92
		4M50W7D	256QAM	0.083	19.19
Sub6 n26 (10)	819.0 – 824.0	9M01G7D	PI/2 BPSK	0.224	23.50
		8M93G7D	QPSK	0.228	23.58
		8M94W7D	16QAM	0.190	22.78
		8M95W7D	64QAM	0.137	21.37
		8M94W7D	256QAM	0.081	19.08
Sub6 n26 (15)	821.5 – 824.0	13M5G7D	PI/2 BPSK	0.225	23.53
		13M4G7D	QPSK	0.222	23.47
		13M5W7D	16QAM	0.179	22.53
		13M5W7D	64QAM	0.127	21.04
		13M5W7D	256QAM	0.081	19.06
Sub6 n26 (20)	824.0	18M0G7D	PI/2 BPSK	0.215	23.32
		18M0G7D	QPSK	0.214	23.30
		17M9W7D	16QAM	0.179	22.52
		18M0W7D	64QAM	0.126	21.02
		17M9W7D	256QAM	0.076	18.80

The measurements shown in this report were made in accordance with the procedures specified in CFR47 section §2.947. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998, 21 U.S.C. 853(a)

Report No.: HCT-RF-2311-FC032

REVIEWED BY



Report prepared by : Jae Ryang Do
Engineer of Telecommunication Testing Center



Report approved by : Jong Seok Lee
Manager of Telecommunication Testing Center

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.
This test results were applied only to the test methods required by the standard.

Test Report Statement:

The above Test Report is not related to the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS(Korea Laboratory Accreditation Scheme), which signed the ILAC-MRA.

The report shall not be reproduced except in full(only partly) without approval of the laboratory.

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-2311-FC032	November 13, 2023	- First Approval Report

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MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	SAMSUNG Electronics Co., Ltd.
Address:	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
FCC ID:	A3LSMG556B
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§90, §22
EUT Type:	Mobile phone
Model(s):	SM-G556B
SCS(kHz):	15
BandWidth(MHz):	5, 10, 15, 20
Waveform:	CP-OFDM, DFT-S-OFDM
Modulation:	DFT-S-OFDM: PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM
Tx Frequency:	816.5 MHz – 824.0 MHz (Sub6 n26 (5 MHz)) 819.0 MHz – 824.0 MHz (Sub6 n26 (10 MHz)) 821.5 MHz – 824.0 MHz (Sub6 n26 (15 MHz)) 824.0 MHz (Sub6 n26 (20 MHz))
Date(s) of Tests:	September 27, 2023 ~ November 13, 2023
Serial number:	Radiated: R3CW908NFEN Conducted: R3CW908NHWB

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

The EUT was a Mobile Phone with GSM/GPRS/EGPRS/UMTS and LTE, Sub6.

It also supports IEEE 802.11 a/b/g/n/ac (20/40/80 MHz), Bluetooth, BT LE, NFC, AIT.

2.2. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

2.3. TEST FACILITY

The Fully-anechoic chamber and conducted measurement facility used to collect the radiated data are located at the **74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA.**

3. DESCRIPTION OF TESTS

3.1 TEST PROCEDURE

Test Description	Test Procedure Used
Occupied Bandwidth	- KDB 971168 D01 v03r01 – Section 4.3 - ANSI C63.26-2015 – Section 5.4.4
Channel Edge	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Spurious and Harmonic Emissions at Antenna Terminal	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Conducted Output Power	- KDB 971168 D01 v03r01 - Section 5.2.4 - ANSI C63.26-2015 - Section 5.2.1 & 5.2.4.2
Frequency stability	- ANSI C63.26-2015 – Section 5.6
Effective Radiated Power/ Effective Isotropic Radiated Power	- KDB 971168 D01 v03r01 – Section 5.2 & 5.8 - ANSI/TIA-603-E-2016 – Section 2.2.17
Radiated Spurious and Harmonic Emissions	- KDB 971168 D01 v03r01 – Section 6.2 - ANSI/TIA-603-E-2016 – Section 2.2.12

3.2 CONDUCTED OUTPUT POWER

Test Overview

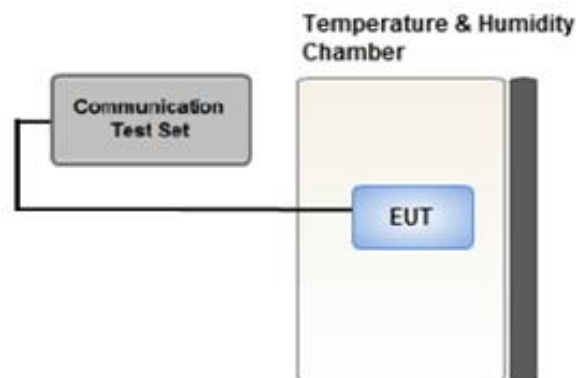
According to ANSI C63.26-2015 Section 5.2.1 when measuring the maximum RF output power from such devices, control over the EUT must be provided either through special test software (provided by manufacturer specifically for compliance testing, but not accessible by an end user) or through use of a base station emulator, communications test set, call box, or similar instrumentation that is capable of establishing a communications link with the EUT to enable control over variable parameters (e.g., output power, OBW, etc.).

In some cases, these instruments also include basic digital spectrum analyzer and/or power meter capabilities that can be utilized to measure the RF output power if the specified detectors and requirements can be realized and the measurement functions have been calibrated.

Test Procedure

1. The RF port of the EUT was connected to the Communication Tester via an RF cable.
2. Conducted average power was measured using a calibrated Radio Communication Tester.

Test setup



3.3 RADIATED POWER

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

The equipment under test is placed on a non-conductive table 3-meters away from the receive antenna in accordance with ANSI/TIA-603-E-2016 Clause 2.2.17.

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5 % of the expected OBW, not to exceed 1 MHz
3. VBW $\geq 3 \times$ RBW
4. Span = 1.5 times the OBW
5. No. of sweep points $> 2 \times$ span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

Test Note

1. The turntable is rotated through 360 degrees, and the receiving antenna scans in order to determine the level of the maximized emission.
2. A half wave dipole is then substituted in place of the EUT. For emissions above 1 GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator and the previously recorded signal was duplicated.

The power is calculated by the following formula;

$$P_d \text{ (dBm)} = P_g \text{ (dBm)} - \text{cable loss (dB)} + \text{antenna gain (dB)}$$

Where: P_d is the dipole equivalent power and P_g is the generator output power into the substitution antenna.

3. The maximum value is calculated by adding the forward power to the calibrated source plus its appropriate gain value.

These steps are repeated with the receiving antenna in both vertical and horizontal polarization. the difference

between the gain of the horn and an isotropic antenna are taken into consideration

4. The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.
5. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

3.4 RADIATED SPURIOUS EMISSIONS

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

Radiated Spurious Emission Measurements at 3 meters by Substitution Method according to ANSI/TIA-603-E-2016.

Test Settings

1. RBW = 100 kHz for emissions below 1 GHz and 1 MHz for emissions above 1 GHz
2. VBW $\geq 3 \times$ RBW
3. Span = 1.5 times the OBW
4. No. of sweep points $> 2 \times$ span / RBW
5. Detector = Peak
6. Trace mode = Max Hold
7. The trace was allowed to stabilize
8. Test channel : Low/ Middle/ High
9. Frequency range : We are performed all frequency to 10th harmonics from 9 kHz.

Test Note

1. Measurements value show only up to 3 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
2. The EUT was tested in three orthogonal planes(X, Y, Z) 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 test data
3. For spurious emissions above 1 GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator and the previously recorded signal was duplicated.

The spurious emissions is calculated by the following formula;

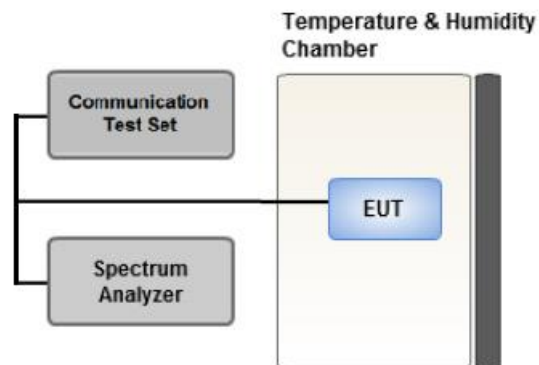
$$\text{Result}_{(\text{dBm})} = P_{\text{g}}_{(\text{dBm})} - \text{cable loss}_{(\text{dB})} + \text{antenna gain}_{(\text{dBi})}$$

Where: P_{g} is the generator output power into the substitution antenna.

If the fundamental frequency is below 1 GHz, RF output power has been converted to EIRP.

$$\text{EIRP}_{(\text{dBm})} = \text{ERP}_{(\text{dBm})} + 2.15 \text{ dB}$$

3.5 OCCUPIED BANDWIDTH.



Test setup

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

The EUT makes a call to the communication simulator.

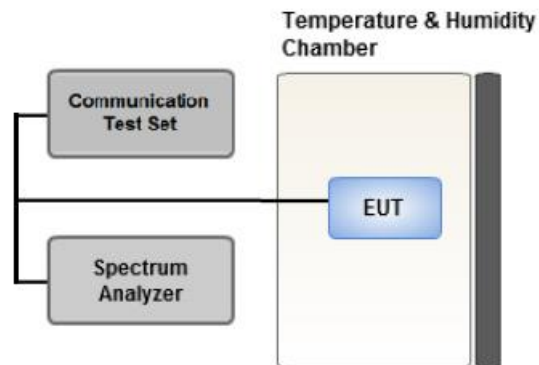
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth

Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99 % occupied bandwidth and the 26 dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 1 – 5 % of the expected OBW
3. VBW $\geq 3 \times$ RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. The trace was allowed to stabilize
8. If necessary, steps 2 – 7 were repeated after changing the RBW such that it would be within 1 – 5 % of the 99 % occupied bandwidth observed in Step 7

3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL



Test setup

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.

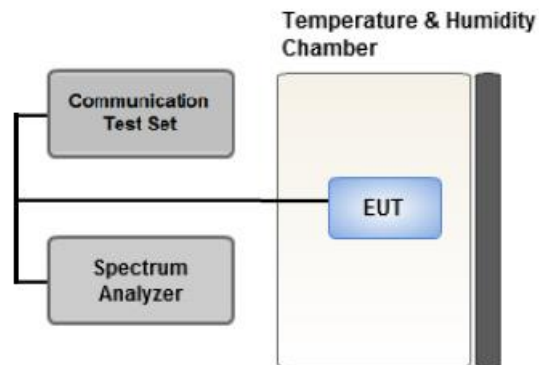
All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

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 Settings

1. RBW = 1 MHz
2. VBW $\geq$ 3 MHz
3. Detector = RMS
4. Trace Mode = trace average
5. Sweep time = auto
6. Number of points in sweep $\geq$ 2 x Span / RBW

3.7 CHANNEL EDGE



Test setup

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 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 Settings

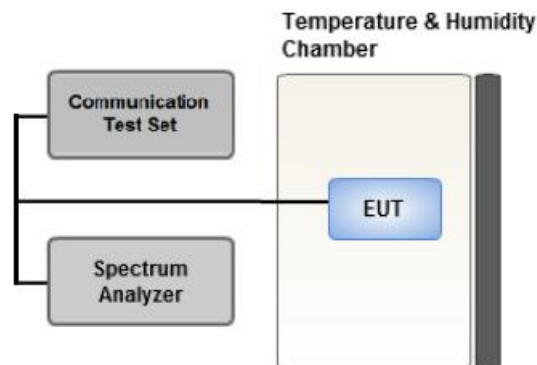
1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW :
 - .- EA licensee's frequency block by up to and including 37.5 kHz : 300 Hz
 - .- EA licensee's frequency block greater than 37.5 kHz : 100 kHz
4. VBW > 3 x RBW
5. Detector = RMS
6. Number of sweep points $\geq 2 \times \text{Span/RBW}$
7. Trace mode = trace average
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Test Notes

For 90.691(a), RBW=300 Hz for offset less than 37.5 kHz from channel edge and RBW=100 kHz for offsets greater than 37.5 kHz is allowed.

Where Margin < 1 dB the emission level is either corrected by $10 \log(1 \text{ MHz} / \text{RB})$ or the emission is integrated over a 1 MHz bandwidth to determine the final result. When using the integration method the integration window is either centered on the emission or, for emissions at the band edge, centered by an offset of 500 kHz from the block edge so that the integration window is the 1 MHz adjacent to the block edge

3.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE



Test setup

Test Overview

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26-2015.

The frequency stability of the transmitter is measured by:

1. Temperature:

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

2. Primary Supply Voltage:

- Unless otherwise specified, vary primary supply voltage from 85 % to 115% of the nominal value for other than hand carried battery equipment.
- For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.

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.

3.9 WORST CASE(RADIATED TEST)

- Waveform : All Waveform of operation were investigated and the worst case configuration results are reported.

(Worst case: DFT-S-OFDM)

- The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.
- All modes of operation were investigated and the worst case configuration results are reported.

Mode: NSA, SA

Worst case: SA

Mode : Stand alone, Stand alone + External accessories (Earphone, AC adapter, etc)

Worst case : Stand alone

- We were performed the RSE test in condition of co-location.

Mode : Stand alone, Simultaneous transmission scenarios

Worst case : Stand alone

- Radiated Spurious emissions are measured while operating in EN-DC mode with Sub 6 NR carrier as well as an LTE carrier (anchor).

All EN-DC mode of operation (=anchor) were investigated and the test results were measured No Peak Found.

The test results which are attenuated more than 20 dB below the permissible value, so it was not reported.

- All RB sizes, offsets of operation were investigated and the worst case configuration results are reported.

Please refer to the table below.

- In the case of radiated spurious emissions, all bandwidth of operation was investigated and the worst case bandwidth results are reported. (Worst case : 5 MHz)

[Worst case]

Test Description	Modulation	RB size	RB offset	Axis
Effective Radiated Power	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	See Section 8.1		X
Radiated Spurious and Harmonic Emissions	PI/2 BPSK,	See Section 8.2		Y

3.10 WORST CASE(CONDUCTED TEST)

- Worst case : Of all modulation, We have tested modulation of the high Conducted Output Power.
- Waveform : All Waveform of operation were investigated and the worst case configuration results are reported.
(Worst case: DFT-S-OFDM)
- Modulation : All Modulation of operation were investigated and the worst case configuration results are reported.
(Worst case: PI/2 BPSK)
- All modes of operation were investigated and the worst case configuration results are reported.
Mode: NSA, SA
Worst case: SA
- All RB sizes, offsets of operation were investigated and the worst case configuration results are reported.
Please refer to the table below.

[Worst case]

Test Description	Modulation	Bandwidth (MHz)	Frequency	RB size	RB offset
Occupied Bandwidth	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	5	High	Full RB	0
	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	10, 15, 20	Mid	Full RB	0
Channel Edge	PI/2 BPSK,	5	Low	1	0
			High	1	24
		10	Mid	1	0
				1	51
		15	Mid	1	0
				1	78
		20	Mid	1	0
				1	105
		5	Low, High	Full RB	0
		10, 15, 20	Mid	Full RB	0
Spurious and Harmonic Emissions at Antenna Terminal	PI/2 BPSK,	5	Low, High	1	1
		10, 15, 20	Mid	1	1

4. LIST OF TEST EQUIPMENT

Equipment	Model	Manufacture	Serial No.	Due to Calibration	Calibration Interval
Precision Dipole Antenna	UHAP	Schwarzbeck	01273	03/27/2024	Biennial
Precision Dipole Antenna	UHAP	Schwarzbeck	01274	03/27/2024	Biennial
Horn Antenna(1~18 GHz)	BBHA 9120D	Schwarzbeck	02289	03/21/2024	Biennial
Horn Antenna(1~18 GHz)	BBHA 9120D	Schwarzbeck	9120D-1299	04/27/2025	Biennial
Horn Antenna(15~40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	09/29/2024	Biennial
Horn Antenna(15~40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	03/28/2025	Biennial
Loop Antenna(9 kHz~30 MHz)	FMZB1513	Rohde & Schwarz	1513-175	01/16/2025	Biennial
Bilog Antenna	VULB9160	Schwarzbeck	3150	03/09/2025	Biennial
Hybrid Antenna	VULB9160	Schwarzbeck	760	02/24/2025	Biennial
RF Switching System	FBSR-06B (1G HPF + LNA)	T&M SYSTEM	F3L1	05/22/2024	Annual
RF Switching System	FBSR-06B (3G HPF + LNA)	T&M SYSTEM	F3L2	05/22/2024	Annual
RF Switching System	FBSR-06B (6G HPF + LNA)	T&M SYSTEM	F3L3	05/22/2024	Annual
RF Switching System	FBSR-06B (LNA)	T&M SYSTEM	F3L4	05/22/2024	Annual
Power Amplifier	CBL18265035	CERNEX	22966	12/01/2023	Annual
Power Amplifier	CBL26405040	CERNEX	25956	03/02/2024	Annual
DC Power Supply	E3632A	Hewlett Packard	MY40004427	08/25/2024	Annual
Power Splitter(DC~26.5 GHz)	11667B	Hewlett Packard	11275	03/02/2024	Annual
Chamber	SU-642	ESPEC	93008124	02/22/2024	Annual
Signal Analyzer(10 Hz~26.5 GHz)	N9020A	Agilent	MY51110063	04/11/2024	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	04/19/2024	Annual
Spectrum Analyzer(10 Hz~40 GHz)	FSV40	REOHDE & SCHWARZ	101436	02/22/2024	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/10/2024	Annual
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262287701	05/22/2024	Annual
Wideband Radio Communication Tester	MT8000A	Anritsu Corp.	6262302511	05/23/2024	Annual
SIGNAL GENERATOR (100 kHz~40 GHz)	SMB100A	REOHDE & SCHWARZ	177633	06/22/2024	Annual
Signal Analyzer(5 Hz~40.0 GHz)	N9030B	KEYSIGHT	MY55480167	05/24/2024	Annual
4-Way Divider	ZC4PD-K1844+	Mini-Circuits	942907	09/19/2024	Annual
FCC LTE Mobile Conducted RF Automation Test Software	-	HCT CO., LTD.,	-	-	-

Note:

- Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.
- Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2017).

5. 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 data shown herein 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.

Parameter	Expanded Uncertainty ($\pm$ dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.90 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.14 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.16 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.57 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.76 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (Above 40 GHz)	5.52 (Confidence level about 95 %, $k=2$)

6. SUMMARY OF TEST RESULTS

6.1 Test Condition: Conducted Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Occupied Bandwidth	§2.1049	N/A	PASS
Channel Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§2.1051, §90.691	$< 50 + 10\log_{10} (P[\text{Watts}])$ at Band Edge and for all out-of-band emissions within 37.5 kHz of Block Edge	PASS
Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§2.1051, §22.917(a)	$< 43 + 10\log_{10} (P[\text{Watts}])$ at Band Edge and for all out-of-band emissions	PASS
Conducted Output Power	§2.1046 §90.635	< 100 Watts	PASS
Frequency stability / variation of ambient temperature	§2.1055, §90.213 §22.355	< 2.5 ppm	PASS

6.2 Test Condition: Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Effective Radiated Power	§22.913(a)(5)	< 7 Watts max. ERP (Only 15,20 MHz B.W & Straddle C.H)	PASS
Radiated Spurious and Harmonic Emissions	§2.1053, §90.691 §22.917(a)	$< 43 + 10\log_{10} (P[\text{Watts}])$ for all out-of band emissions	PASS

7. SAMPLE CALCULATION

7.1 ERP Sample Calculation

Ch./ Freq.		Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol.	ERP	
channel	Freq.(MHz)						W	dBm
128	824.20	-21.37	38.40	-10.61	0.95	H	0.483	26.84

$$\text{ERP} = \text{Substitute LEVEL(dBm)} + \text{Ant. Gain} - \text{CL(Cable Loss)}$$

- 1) The EUT mounted on a non-conductive turntable is 2.5 meter above test site ground level.
- 2) During the test , the turn table is rotated until the maximum signal is found.
- 3) Record the field strength meter's level.
- 4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.
- 5) Increase the signal generator output till the field strength meter's level is equal to the item (3).
- 6) The signal generator output level with Ant. Gain and cable loss are the rating of effective radiated power.

7.2 EIRP Sample Calculation

Ch./ Freq.		Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol.	EIRP	
channel	Freq.(MHz)						W	dBm
20175	1,732.50	-15.75	18.45	9.90	1.76	H	0.456	26.59

$$\text{EIRP} = \text{Substitute LEVEL(dBm)} + \text{Ant. Gain} - \text{CL(Cable Loss)}$$

- 1) The EUT mounted on a non-conductive turntable is 2.5 meter above test site ground level.
- 2) During the test , the turn table is rotated until the maximum signal is found.
- 3) Record the field strength meter's level.
- 4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.
- 5) Increase the signal generator output till the field strength meter's level is equal to the item (3).
- 6) The signal generator output level with Ant. Gain and cable loss are the rating of equivalent isotropic radiated power.

7.3. Emission Designator

GSM Emission Designator

Emission Designator = 249KGXW

GSM BW = 249 kHz

G = Phase Modulation

X = Cases not otherwise covered

W = Combination (Audio/Data)

EDGE Emission Designator

Emission Designator = 249KG7W

GSM BW = 249 kHz

G = Phase Modulation

7 = Quantized/Digital Info

W = Combination (Audio/Data)

WCDMA Emission Designator

Emission Designator = 4M17F9W

WCDMA BW = 4.17 MHz

F = Frequency Modulation

9 = Composite Digital Info

W = Combination (Audio/Data)

QPSK Modulation

Emission Designator = 4M48G7D

LTE BW = 4.48 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data transmission; telemetry; telecommand

QAM Modulation

Emission Designator = 4M48W7D

LTE BW = 4.48 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data transmission; telemetry; telecommand

8. TEST DATA

8.1 CONDUCTED OUTPUT POWER

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)						Limit (W)
				816.5 MHz		821.5 MHz		824.0 MHz		
				dBm	W	dBm	W	dBm	W	
5	BPSK	1	1	23.59	0.229	23.28	0.213	23.24	0.211	100
		1	13	23.37	0.217	23.21	0.209	22.92	0.196	100
		1	23	23.58	0.228	23.18	0.208	22.93	0.196	100
		12	0	22.88	0.194	22.78	0.190	22.77	0.189	100
		12	7	23.35	0.216	23.25	0.211	23.23	0.211	100
		12	13	22.80	0.191	22.73	0.187	22.72	0.187	100
		25	0	22.85	0.193	22.77	0.189	22.77	0.189	100
	QPSK	1	1	23.67	0.233	23.27	0.212	23.66	0.232	100
		1	13	23.58	0.228	23.10	0.204	23.16	0.207	100
		1	23	23.66	0.232	23.07	0.203	23.14	0.206	100
		12	0	22.38	0.173	22.30	0.170	22.29	0.169	100
		12	7	23.39	0.218	23.26	0.212	23.25	0.211	100
		12	13	22.32	0.171	22.23	0.167	22.25	0.168	100
		25	0	22.27	0.169	22.31	0.170	22.23	0.167	100
	16QAM	1	1	22.49	0.177	22.27	0.169	22.11	0.163	100
	64QAM	1	1	20.92	0.124	20.58	0.114	20.65	0.116	100
	256QAM	1	1	19.19	0.083	18.55	0.072	18.77	0.075	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)				Limit (W)
				819.0 MHz		824.0 MHz		
				dBm	W	dBm	W	
10	BPSK	1	1	23.50	0.224	23.35	0.216	100
		1	26	23.13	0.206	23.24	0.211	100
		1	50	23.29	0.213	23.26	0.212	100
		25	0	22.81	0.191	22.81	0.191	100
		25	14	23.28	0.213	23.19	0.208	100
		25	27	22.71	0.187	22.70	0.186	100
		50	0	22.82	0.191	22.79	0.190	100
	QPSK	1	1	23.58	0.228	23.18	0.208	100
		1	26	23.46	0.222	22.32	0.171	100
		1	50	23.48	0.223	22.39	0.174	100
		25	0	22.33	0.171	22.31	0.170	100
		25	14	23.31	0.214	23.15	0.207	100
		25	27	22.18	0.165	22.19	0.166	100
		50	0	22.28	0.169	22.26	0.168	100
	16QAM	1	1	22.28	0.169	22.78	0.190	100
	64QAM	1	1	21.37	0.137	20.73	0.118	100
	256QAM	1	1	19.08	0.081	18.74	0.075	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)				Limit (W)
				821.5 MHz		824.0 MHz		
				dBm	W	dBm	W	
15	BPSK	1	1	23.53	0.225	23.46	0.222	100
		1	40	23.36	0.217	22.84	0.192	100
		1	77	23.22	0.210	22.85	0.193	100
		36	0	22.85	0.193	22.86	0.193	100
		36	22	23.29	0.214	23.28	0.213	100
		36	43	22.74	0.188	22.76	0.189	100
		75	0	22.83	0.192	22.80	0.190	100
	QPSK	1	1	23.47	0.222	23.31	0.214	100
		1	40	23.08	0.203	22.77	0.189	100
		1	77	22.99	0.199	22.71	0.187	100
		36	0	22.31	0.170	22.34	0.171	100
		36	22	23.25	0.211	23.30	0.214	100
		36	43	22.18	0.165	22.31	0.170	100
		75	0	22.22	0.167	22.35	0.172	100
	16QAM	1	1	22.38	0.173	22.53	0.179	100
	64QAM	1	1	20.83	0.121	21.04	0.127	100
	256QAM	1	1	18.61	0.073	19.06	0.080	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)		Limit (W)
				824.0 MHz		
				dBm	W	
20	BPSK	1	1	23.32	0.215	100
		1	53	22.76	0.189	100
		1	104	22.80	0.190	100
		50	0	22.86	0.193	100
		50	28	23.31	0.214	100
		50	56	22.82	0.191	100
		100	0	22.89	0.194	100
	QPSK	1	1	23.30	0.214	100
		1	53	22.71	0.186	100
		1	104	22.74	0.188	100
		50	0	22.43	0.175	100
		50	28	23.29	0.213	100
		50	56	22.32	0.171	100
		100	0	22.33	0.171	100
	16QAM	1	1	22.52	0.179	100
	64QAM	1	1	21.02	0.126	100
	256QAM	1	1	18.80	0.076	100

8.2 EFFECTIVE RADIATED POWER

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit	ERP		RB		
								W	W	dBm	Size	Offset	
816.5	Sub6 n26 5 MHz [15 kHz]	PI/2 BPSK	-31.50	29.24	-10.05	1.38	H	< 100	0.060	17.81	1	1	
		QPSK	-31.53	29.21	-10.05	1.38	H		0.060	17.78			
		16-QAM	-32.56	28.18	-10.05	1.38	H		0.047	16.75			
		64-QAM	-34.03	26.71	-10.05	1.38	H		0.034	15.28			
		256-QAM	-36.01	24.73	-10.05	1.38	H		0.021	13.30			
821.5		PI/2 BPSK	-31.45	29.45	-10.05	1.38	H		< 100	0.063	18.02	1	1
		QPSK	-31.57	29.33	-10.05	1.38	H			0.062	17.90		
		16-QAM	-32.65	28.25	-10.05	1.38	H			0.048	16.82		
		64-QAM	-34.06	26.84	-10.05	1.38	H			0.035	15.41		
		256-QAM	-36.08	24.82	-10.05	1.38	H			0.022	13.39		
824.0		PI/2 BPSK	-31.51	29.41	-10.05	1.38	H	< 7.00	0.063	17.98	1	1	
		QPSK	-31.54	29.38	-10.05	1.38	H		0.062	17.95			
		16-QAM	-32.52	28.40	-10.05	1.38	H		0.050	16.97			
		64-QAM	-34.05	26.87	-10.05	1.38	H		0.035	15.44			
		256-QAM	-36.07	24.85	-10.05	1.38	H		0.022	13.42			

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit	ERP		RB	
								W	W	dBm	Size	Offset
819.0	Sub6 n26 10 MHz [15 kHz]	PI/2 BPSK	-31.64	29.10	-10.05	1.38	H	< 100	0.058	17.67	1	1
		QPSK	-31.68	29.06	-10.05	1.38	H		0.058	17.63		
		16-QAM	-32.70	28.04	-10.05	1.38	H		0.046	16.61		
		64-QAM	-34.14	26.60	-10.05	1.38	H		0.033	15.17		
		256-QAM	-36.11	24.63	-10.05	1.38	H		0.021	13.20		
824.0	Sub6 n26 10 MHz [15 kHz]	PI/2 BPSK	-31.61	29.29	-10.05	1.38	H	< 7.00	0.061	17.86	1	1
		QPSK	-31.64	29.26	-10.05	1.38	H		0.061	17.83		
		16-QAM	-32.58	28.32	-10.05	1.38	H		0.049	16.89		
		64-QAM	-34.13	26.77	-10.05	1.38	H		0.034	15.34		
		256-QAM	-36.14	24.76	-10.05	1.38	H		0.022	13.33		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit	ERP		RB	
								W	W	dBm	Size	Offset
821.5	Sub6 n26 15 MHz [15 kHz]	PI/2 BPSK	-31.58	29.34	-10.05	1.38	H	< 7.00	0.062	17.91	1	39
		QPSK	-31.61	29.31	-10.05	1.38	H		0.061	17.88		
		16-QAM	-32.59	28.33	-10.05	1.38	H		0.049	16.90		
		64-QAM	-34.00	26.92	-10.05	1.38	H		0.035	15.49		
		256-QAM	-36.02	24.90	-10.05	1.38	H		0.022	13.47		
824.0		PI/2 BPSK	-31.58	29.32	-10.05	1.38	H		0.062	17.89	1	39
		QPSK	-31.65	29.25	-10.05	1.38	H		0.061	17.82		
		16-QAM	-32.55	28.35	-10.05	1.38	H		0.049	16.92		
		64-QAM	-34.08	26.82	-10.05	1.38	H		0.035	15.39		
		256-QAM	-36.14	24.76	-10.05	1.38	H		0.022	13.33		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit	ERP		RB	
								W	W	dBm	Size	Offset
824.0	Sub6 n26 20 MHz [15 kHz]	PI/2 BPSK	-31.55	29.35	-10.05	1.38	H	< 7.00	0.062	17.92	1	53
		QPSK	-31.61	29.29	-10.05	1.38	H		0.061	17.86		
		16-QAM	-32.56	28.34	-10.05	1.38	H		0.049	16.91		
		64-QAM	-34.06	26.84	-10.05	1.38	H		0.035	15.41		
		256-QAM	-36.05	24.85	-10.05	1.38	H		0.022	13.42		

8.3 RADIATED SPURIOUS EMISSIONS

■ NR Band:	<u>N26</u>
■ Bandwidth:	<u>5 MHz</u>
■ Modulation:	<u>PI/2 BPSK</u>
■ Distance:	<u>3 meters</u>
■ SCS:	<u>15 kHz</u>
■ Limit:	<u>-13 dBm</u>

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offset
163300 (816.5)	1 633.00	-57.36	9.20	-66.27	2.03	H	-59.10	-13.00	1	1
	2 449.50	-51.36	10.20	-54.61	2.45	V	-46.86	-13.00		
	3 266.00	-51.51	10.90	-53.55	2.92	V	-45.57	-13.00		
	4 082.50	-56.26	11.30	-56.11	3.25	V	-48.06	-13.00		
	4 899.00	-57.17	10.90	-52.88	3.58	H	-45.56	-13.00		
164300 (821.5)	1 643.00	-56.93	9.40	-65.55	2.00	V	-58.15	-13.00	1	1
	2 464.50	-51.17	10.30	-56.00	2.52	V	-48.22	-13.00		
	3 286.00	-50.92	11.00	-53.40	2.94	H	-45.34	-13.00		
	4 107.50	-55.58	11.20	-54.66	3.28	H	-46.74	-13.00		
	4 929.00	-60.28	10.70	-55.12	3.61	V	-48.03	-13.00		
164800 (824.0)	1 648.00	-57.08	9.20	-66.07	2.02	H	-58.89	-13.00	1	1
	2 472.00	-51.34	10.20	-55.48	2.49	V	-47.77	-13.00		
	3 296.00	-51.32	10.75	-53.67	2.91	H	-45.83	-13.00		
	4 120.00	-54.08	11.30	-53.37	3.22	V	-45.29	-13.00		
	4 944.00	-60.54	11.00	-56.06	3.60	H	-48.66	-13.00		

8.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Band 26	5 MHz	821.5	BPSK	25	0	4.4985
			QPSK			4.5179
			16QAM			4.4734
			64QAM			4.4958
			256QAM			4.4946
	10 MHz	819.0	BPSK	50		9.0121
			QPSK			8.9256
			16QAM			8.9415
			64QAM			8.9454
			256QAM			8.9396
	15 MHz	** 821.5	BPSK	75		13.484
			QPSK			13.429
			16QAM			13.456
			64QAM			13.477
			256QAM			13.484
	20 MHz	** 824.0	BPSK	100		17.956
			QPSK			17.968
			16QAM			17.917
			64QAM			17.992
			256QAM			17.911

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 38 ~ 57.
2. **: Straddle Channel
3. Straddle channel does not exceed the Part22 and Part90 limits.

8.5 CONDUCTED SPURIOUS EMISSIONS

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
26	5	816.5	8.3240	30.815	-75.024	-44.209	-13.00
		821.5	9.7019	30.815	-74.849	-44.034	
		** 824.0	4.0379	30.200	-74.063	-43.863	
	10	819.0	7.9731	30.815	-74.323	-43.508	
		** 824.0	7.9990	30.815	-74.309	-43.494	
	15	** 821.5	5.1890	30.815	-75.113	-44.298	
		** 824.0	4.9273	30.200	-74.270	-44.070	
	20	** 824.0	4.9746	30.200	-75.310	-45.110	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 84 ~ 91.
2. Result (dBm) = Measurement Maximum Data (dBm) + Factor (dB)
3. Factor (dB) = Cable Loss + Ext. Attenuator + Power Splitter

Frequency Range (GHz)	Factor [dB]
0.03 – 1	27.494
1 – 5	30.200
5 – 10	30.815
10 – 15	31.340
15 – 20	31.713
Above 20	32.355

5. **: Straddle Channel
6. Straddle channel does not exceed the Part22 and Part90 limit

8.6 CHANNEL EDGE (Part90)

- Test Channel : 164800(824.0MHz)
- Plots of the EUT's Band Edge are shown Page 58 ~ 73.

8.7 BAND EDGE(Part22)

- Test Channel : 164800(824.0 MHz)
- Plots of the EUT's Band Edge are shown Page 74 ~ 83.

8.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

- ▣ BandWidth: 5 MHz
- ▣ Voltage(100 %): 3.850 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
821.5	100 %	+20(Ref)	821 499 999	0.0	0.000 000	0.000
	100 %	-30	821 499 997	-2.0	0.000 000	-0.002
	100 %	-20	821 499 997	-2.0	0.000 000	-0.002
	100 %	-10	821 499 997	-2.0	0.000 000	-0.002
	100 %	0	821 499 996	-2.6	0.000 000	-0.003
	100 %	+10	821 499 996	-3.0	0.000 000	-0.004
	100 %	+30	821 499 996	-2.8	0.000 000	-0.003
	100 %	+40	821 499 996	-3.1	0.000 000	-0.004
	100 %	+50	821 499 995	-3.6	0.000 000	-0.004
	Batt. Endpoint	+20	821 499 994	-4.3	-0.000 001	-0.005

- ☐ BandWidth: 10 MHz
☐ Voltage(100 %): 3.850 VDC
☐ Batt. Endpoint: 3.400 VDC
☐ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
819.0	100 %	+20(Ref)	819 000 000	0.0	0.000 000	0.000
	100 %	-30	819 000 000	-0.3	0.000 000	0.000
	100 %	-20	819 000 000	-0.5	0.000 000	-0.001
	100 %	-10	818 999 999	-1.0	0.000 000	-0.001
	100 %	0	818 999 999	-1.2	0.000 000	-0.001
	100 %	+10	818 999 998	-1.7	0.000 000	-0.002
	100 %	+30	818 999 998	-1.7	0.000 000	-0.002
	100 %	+40	818 999 998	-2.0	0.000 000	-0.003
	100 %	+50	818 999 998	-2.6	0.000 000	-0.003
	Batt. Endpoint	+20	818 999 997	-2.7	0.000 000	-0.003

☐ BandWidth: 15 MHz
☐ Voltage(100 %): 3.850 VDC
☐ Batt. Endpoint: 3.400 VDC
☐ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
** 821.5	100 %	+20(Ref)	821 499 998	0.0	0.000 000	0.000
	100 %	-30	821 499 998	-0.1	0.000 000	0.000
	100 %	-20	821 499 996	-1.7	0.000 000	-0.002
	100 %	-10	821 499 997	-0.8	0.000 000	-0.001
	100 %	0	821 499 995	-3.0	0.000 000	-0.004
	100 %	+10	821 499 998	0.0	0.000 000	0.000
	100 %	+30	821 499 997	-1.0	0.000 000	-0.001
	100 %	+40	821 499 997	-0.7	0.000 000	-0.001
	100 %	+50	821 499 995	-3.1	0.000 000	-0.004
	Batt. Endpoint	+20	821 499 995	-2.6	0.000 000	-0.003

Note:

1. **: Straddle Channel
2. Straddle channel does not exceed the Part22 and Part90 limits.

☐ BandWidth: 20 MHz
☐ Voltage(100 %): 3.850 VDC
☐ Batt. Endpoint: 3.400 VDC
☐ LIMIT: Emission must remain in band

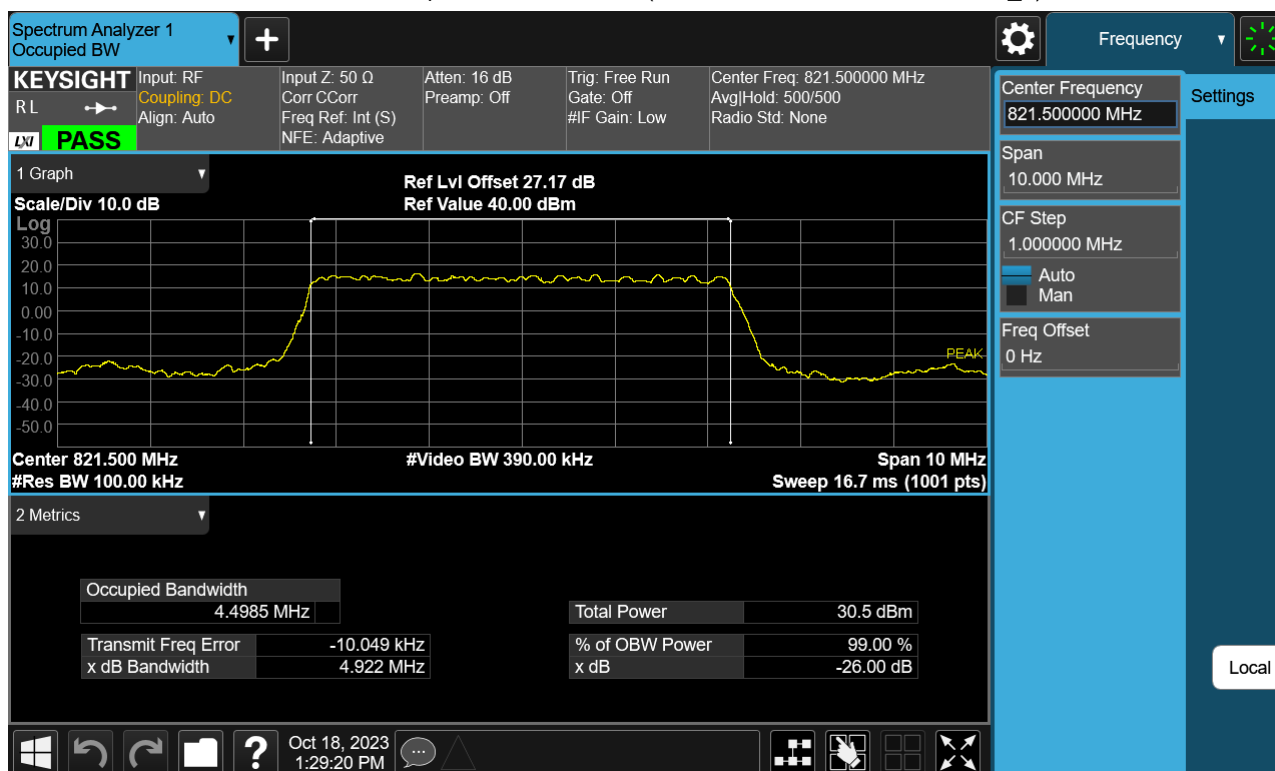
Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
** 824.0	100 %	+20(Ref)	823 999 997	0.0	0.000 000	0.000
	100 %	-30	823 999 995	-2.0	0.000 000	-0.002
	100 %	-20	823 999 994	-3.6	0.000 000	-0.004
	100 %	-10	823 999 995	-2.8	0.000 000	-0.003
	100 %	0	823 999 995	-2.6	0.000 000	-0.003
	100 %	+10	823 999 994	-2.9	0.000 000	-0.003
	100 %	+30	823 999 995	-2.1	0.000 000	-0.003
	100 %	+40	823 999 994	-2.9	0.000 000	-0.004
	100 %	+50	823 999 996	-1.6	0.000 000	-0.002
	Batt. Endpoint	+20	823 999 994	-3.7	0.000 000	-0.004

Note:

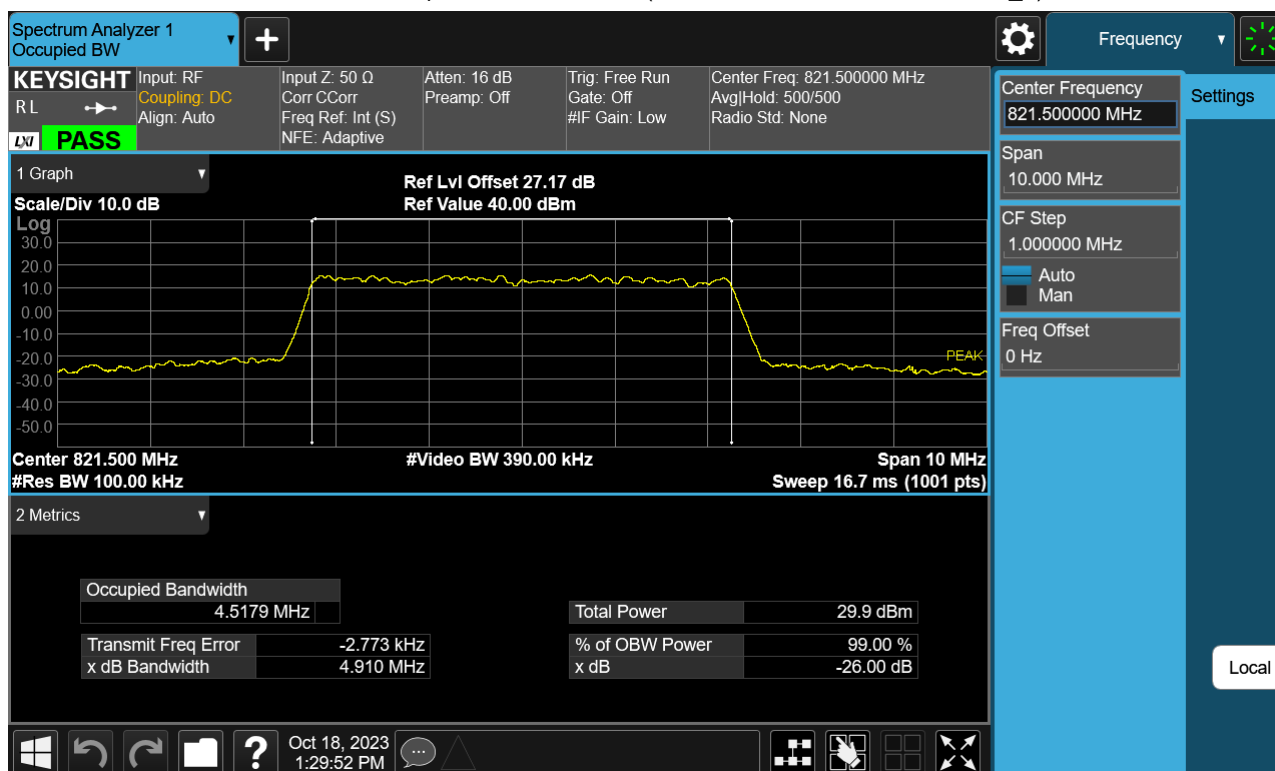
1. **: Straddle Channel
2. Straddle channel does not exceed the Part22 and Part90 limits.

9. TEST PLOTS

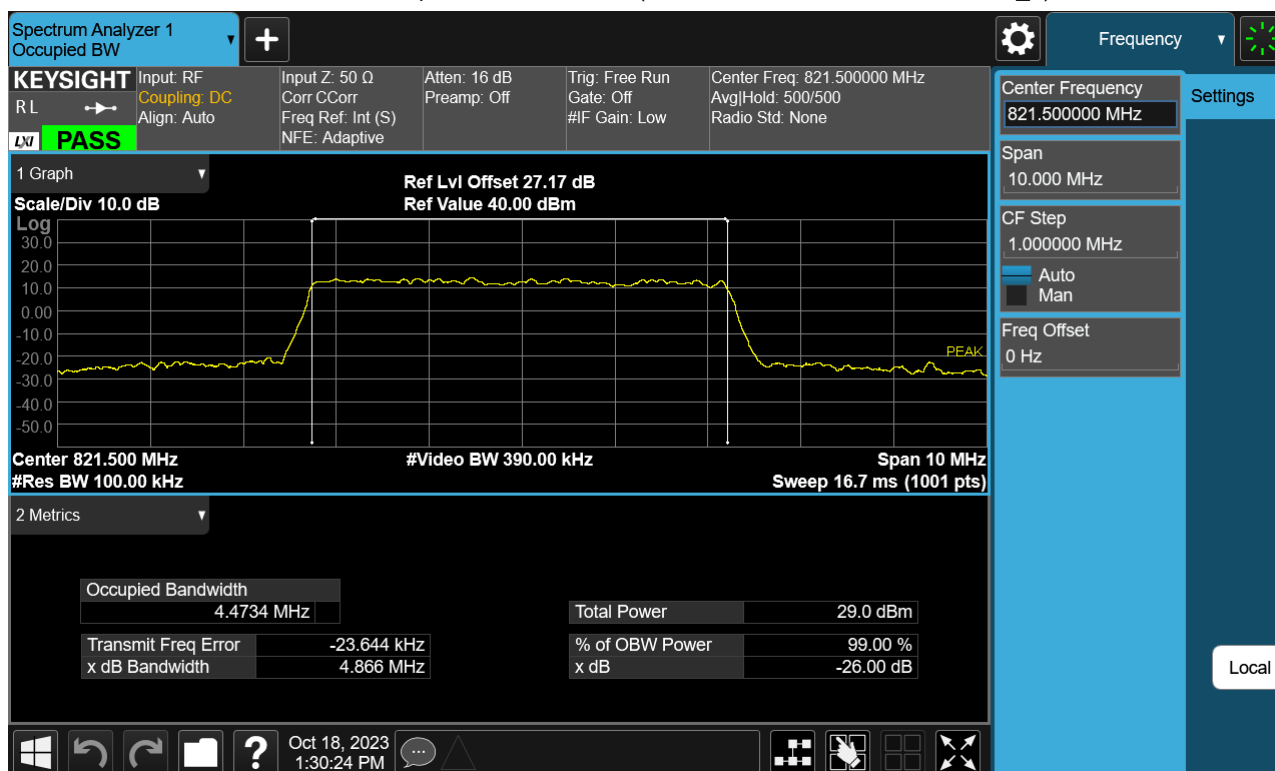
Sub6 n26. Occupied Bandwidth Plot (5 M BW Ch.164300 BPSK RB 25_0)



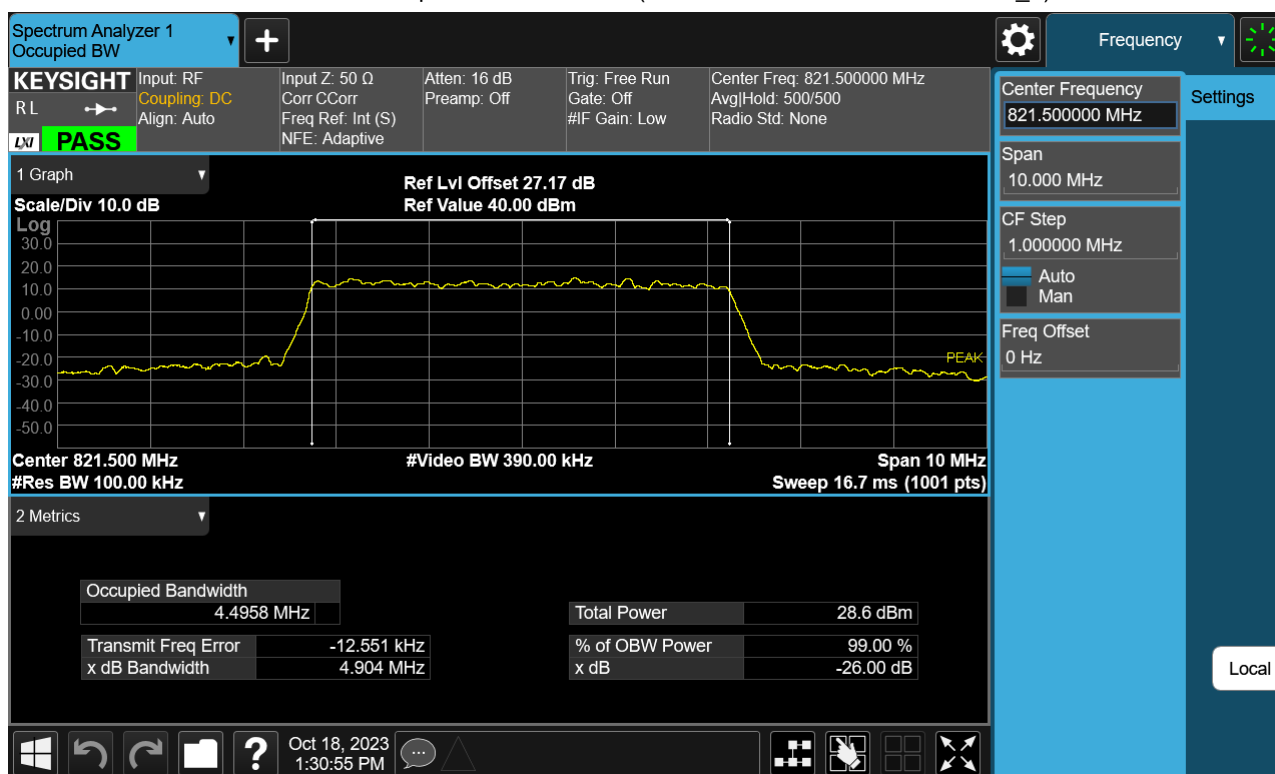
Sub6 n26. Occupied Bandwidth Plot (5 M BW Ch.164300 QPSK RB 25_0)



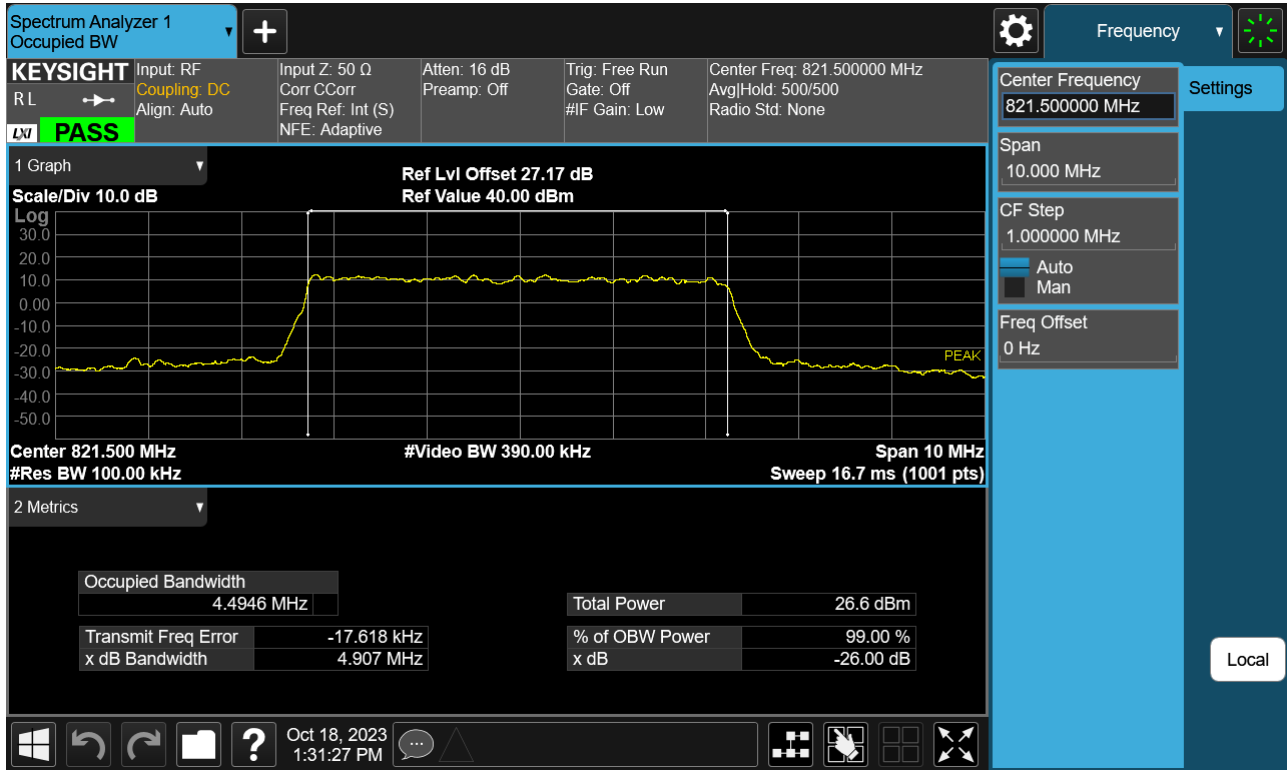
Sub6 n26. Occupied Bandwidth Plot (5 M BW Ch.164300 16QAM RB 25_0)



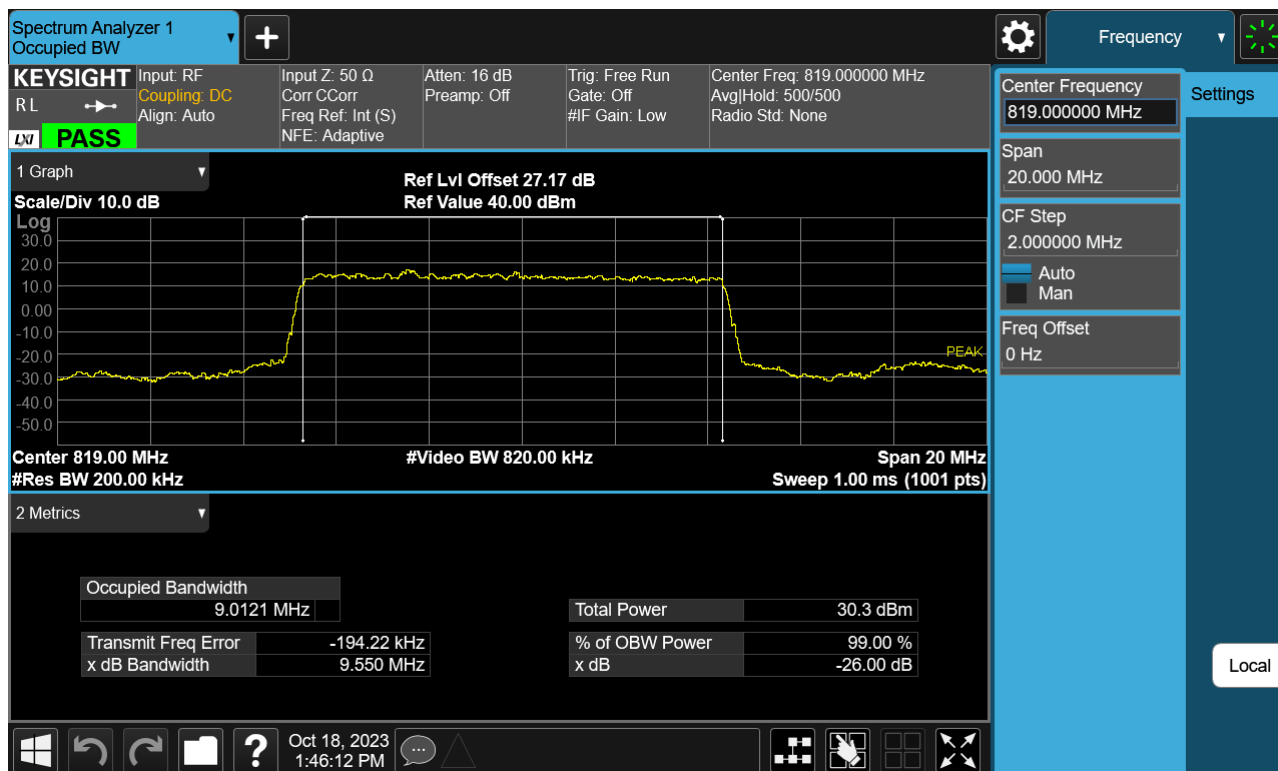
Sub6 n26. Occupied Bandwidth Plot (5 M BW Ch.164300 64QAM RB 25_0)



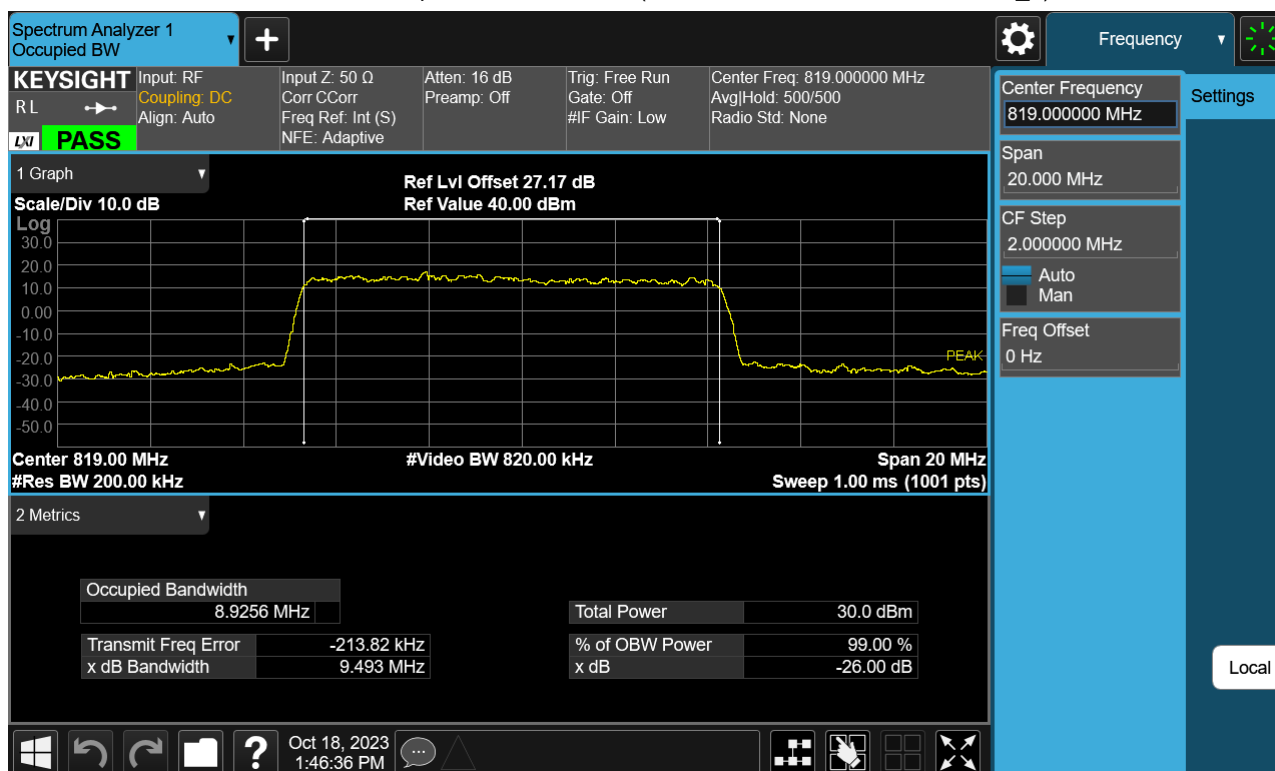
Sub6 n26. Occupied Bandwidth Plot (5 M BW Ch.164300 256QAM RB 25_0)



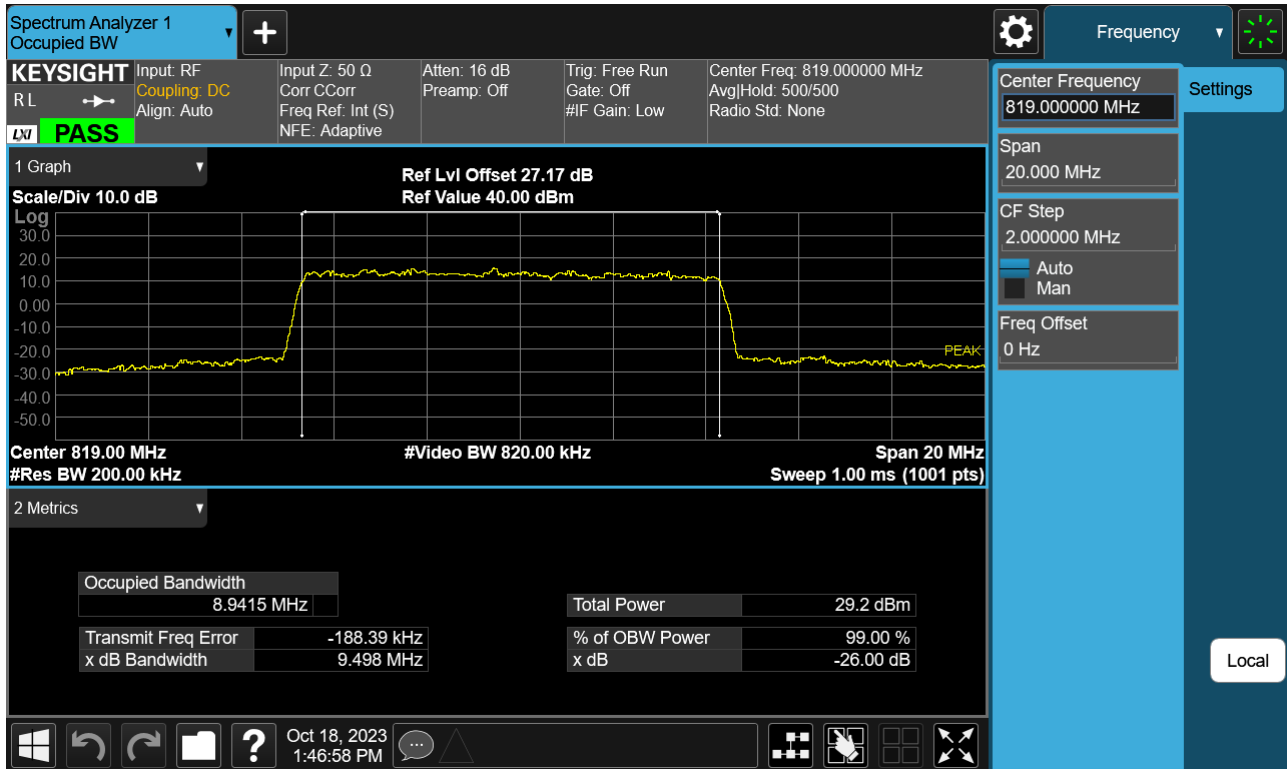
Sub6 n26. Occupied Bandwidth Plot (10 M BW Ch.163800 BPSK RB 50_0)



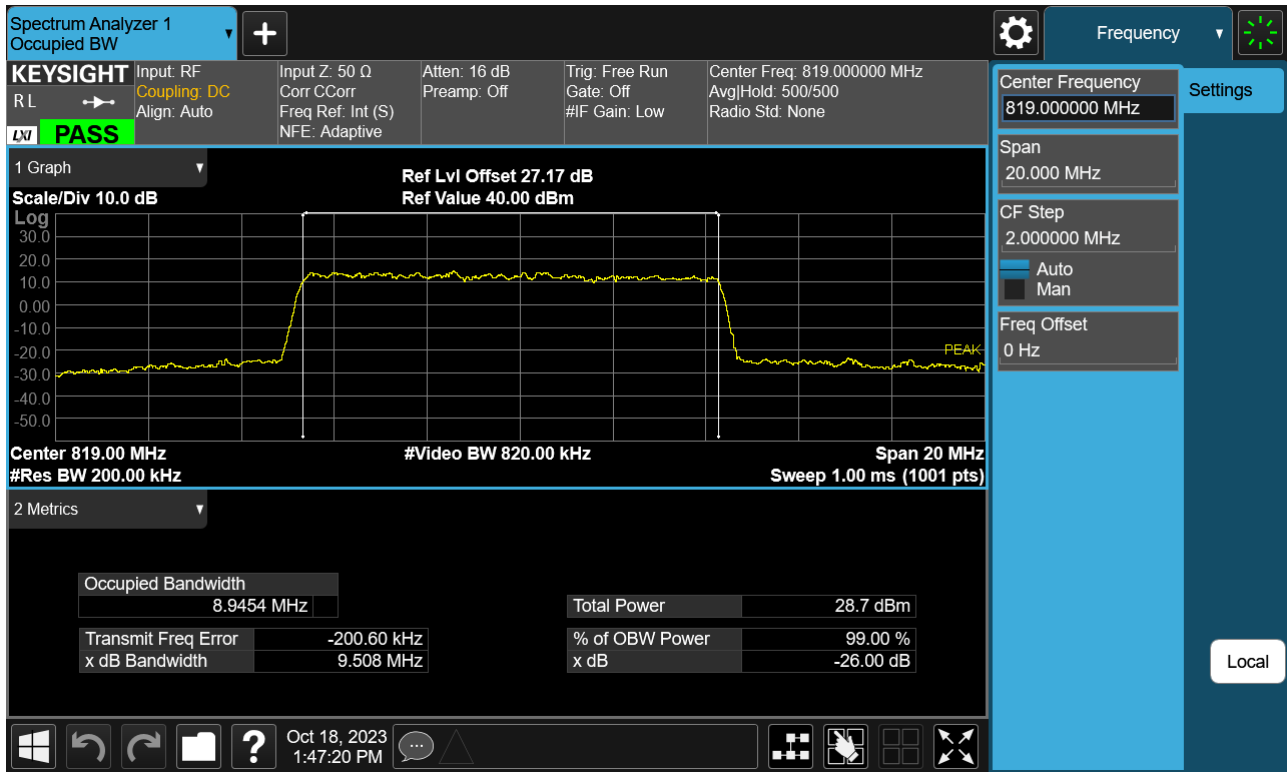
Sub6 n26. Occupied Bandwidth Plot (10 M BW Ch.163800 QPSK RB 50_0)



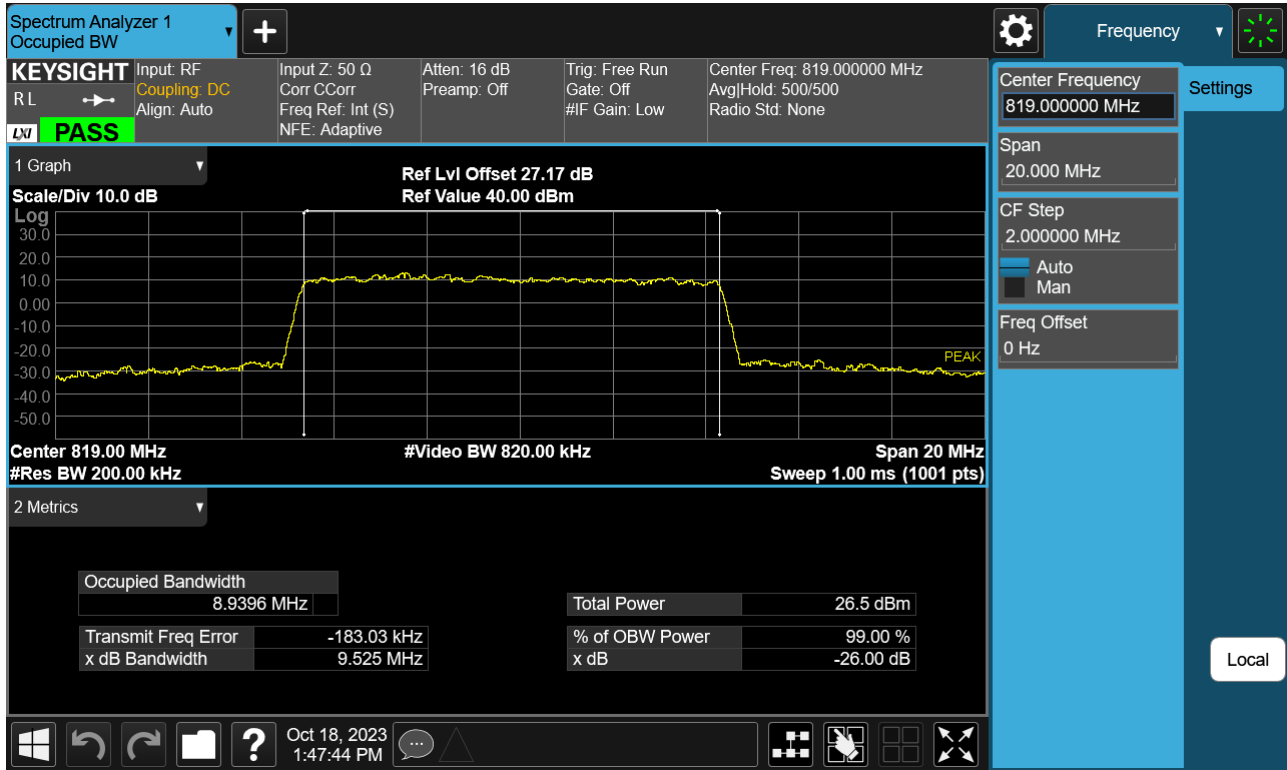
Sub6 n26. Occupied Bandwidth Plot (10 M BW Ch.163800 16QAM RB 50_0)



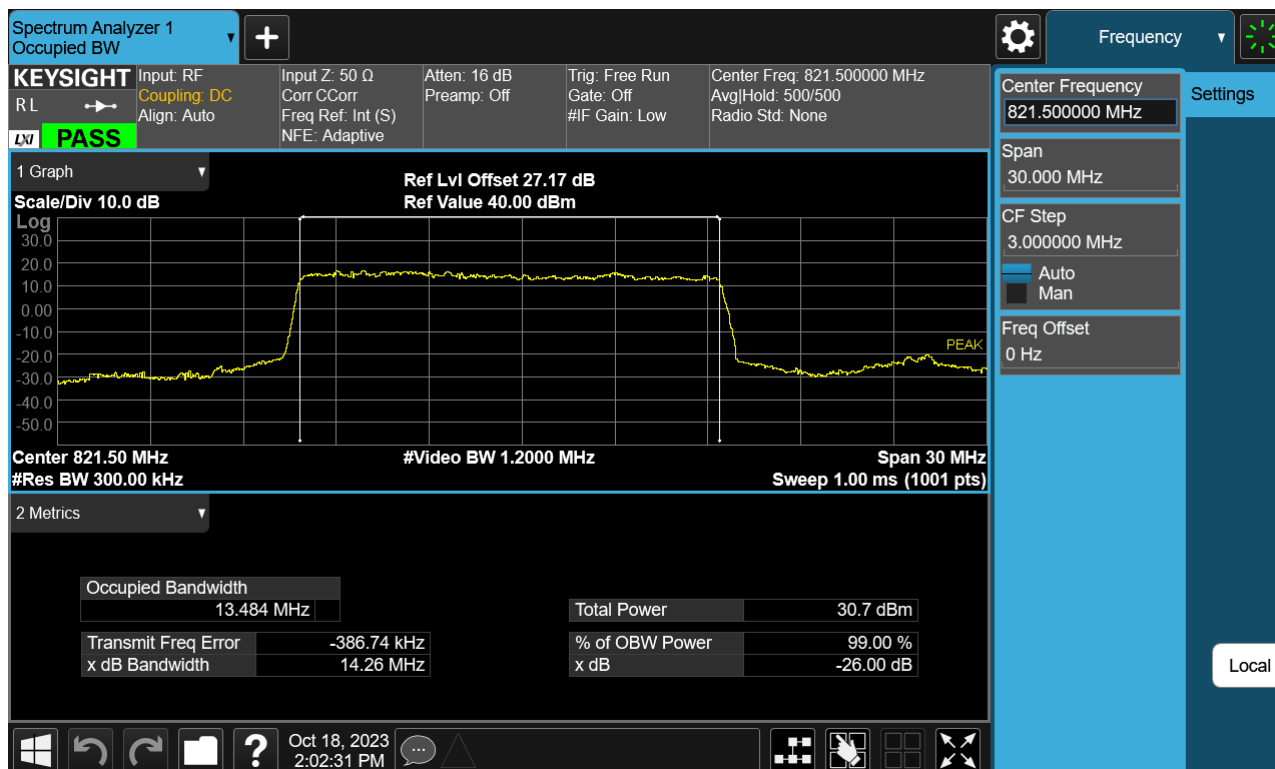
Sub6 n26. Occupied Bandwidth Plot (10 M BW Ch.163800 64QAM RB 50_0)



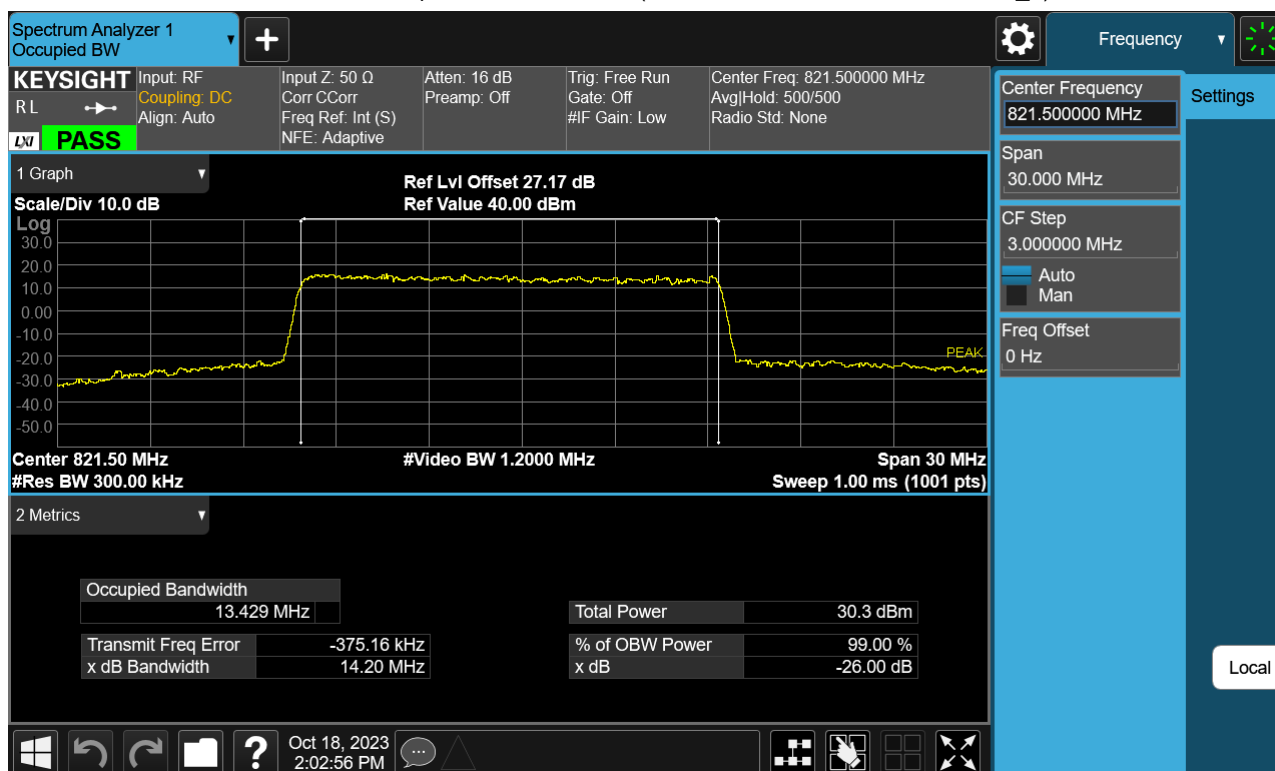
Sub6 n26. Occupied Bandwidth Plot (10 M BW Ch.163800 256QAM RB 50_0)



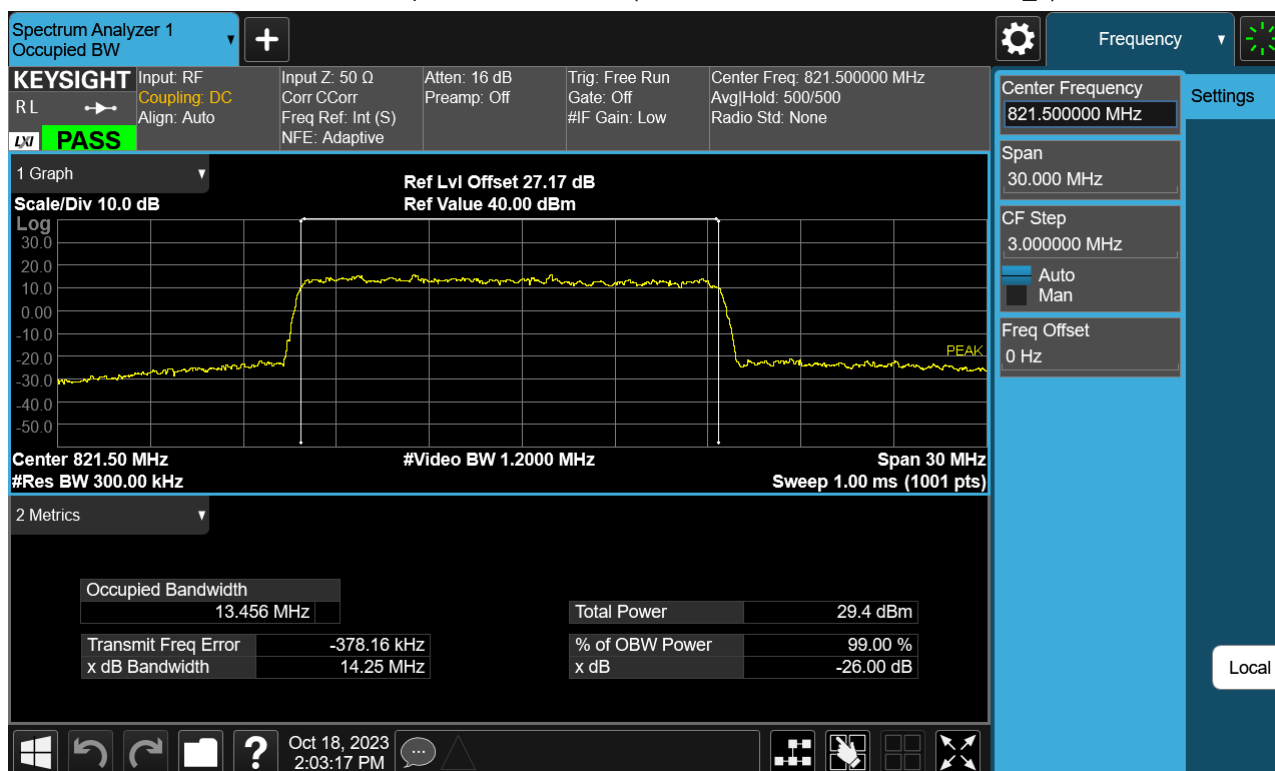
Sub6 n26. Occupied Bandwidth Plot (15 M BW Ch.164300 BPSK RB 75_0)



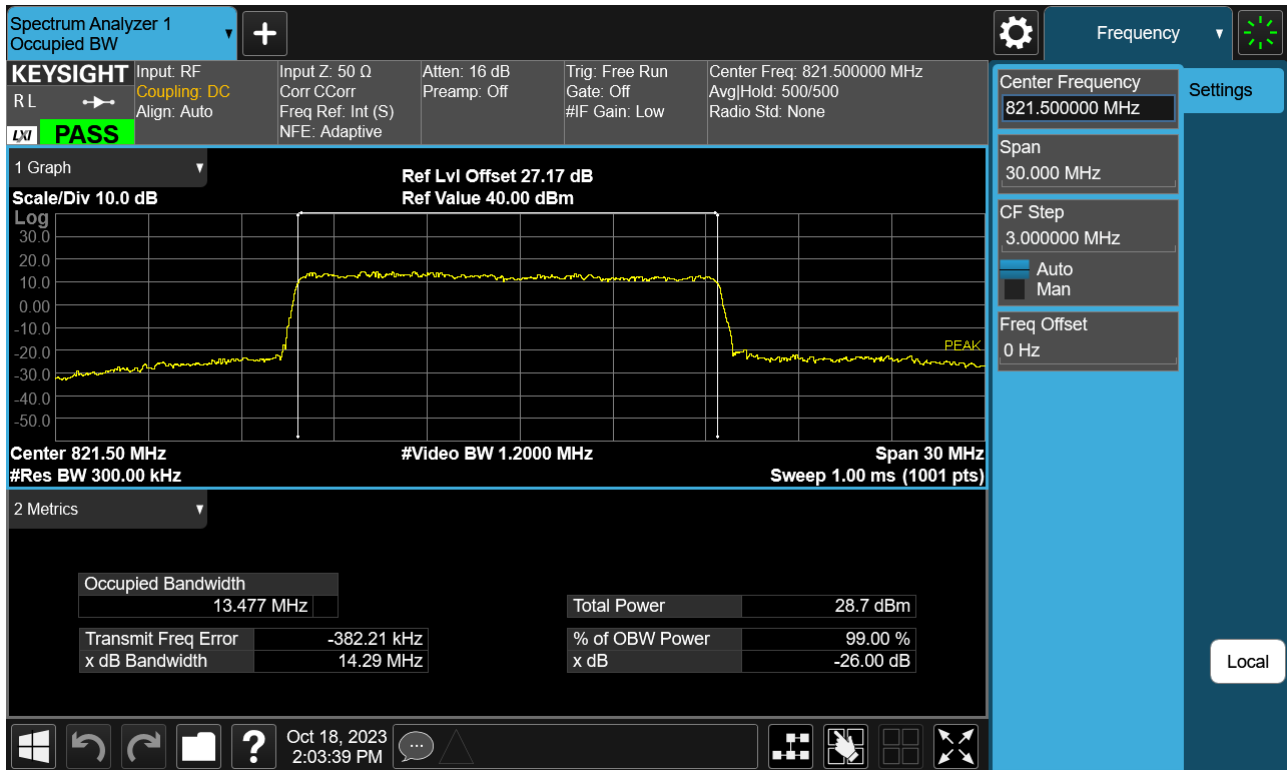
Sub6 n26. Occupied Bandwidth Plot (15 M BW Ch.164300 QPSK RB 75_0)



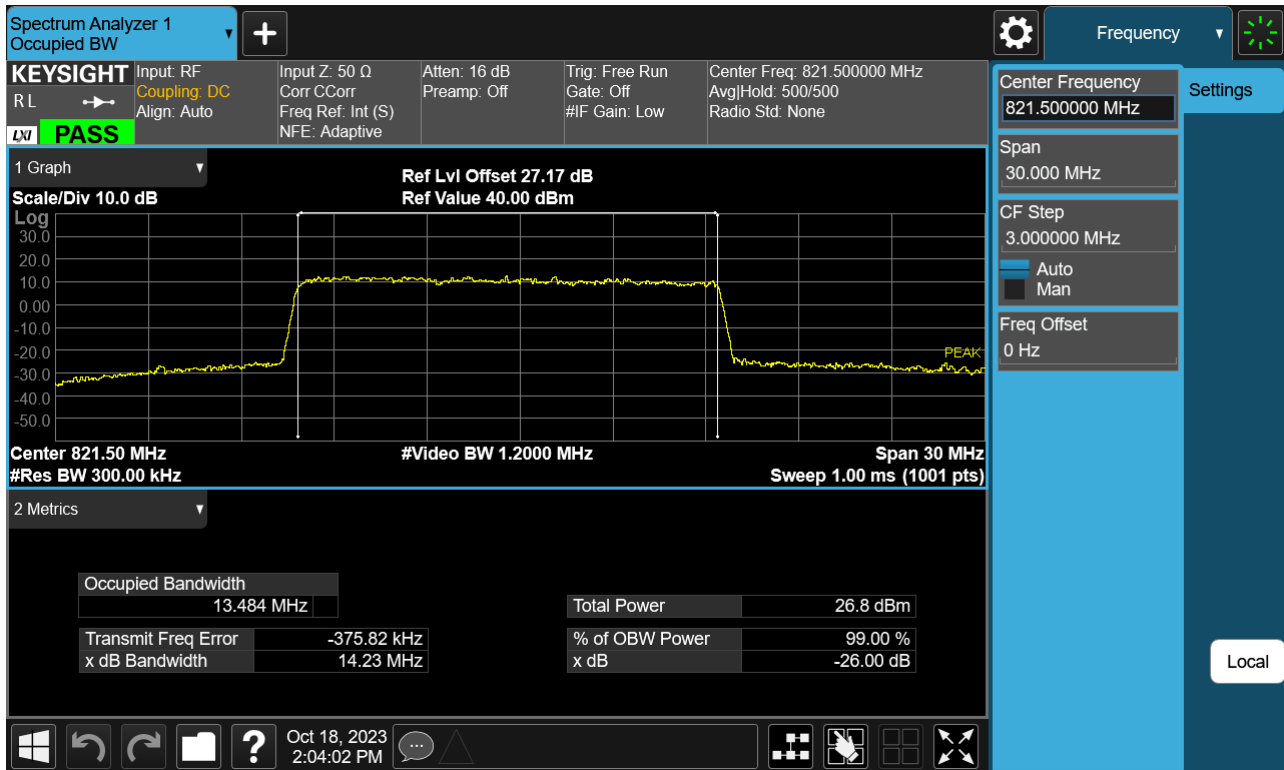
Sub6 n26. Occupied Bandwidth Plot (15 M BW Ch.164300 16QAM RB 75_0)



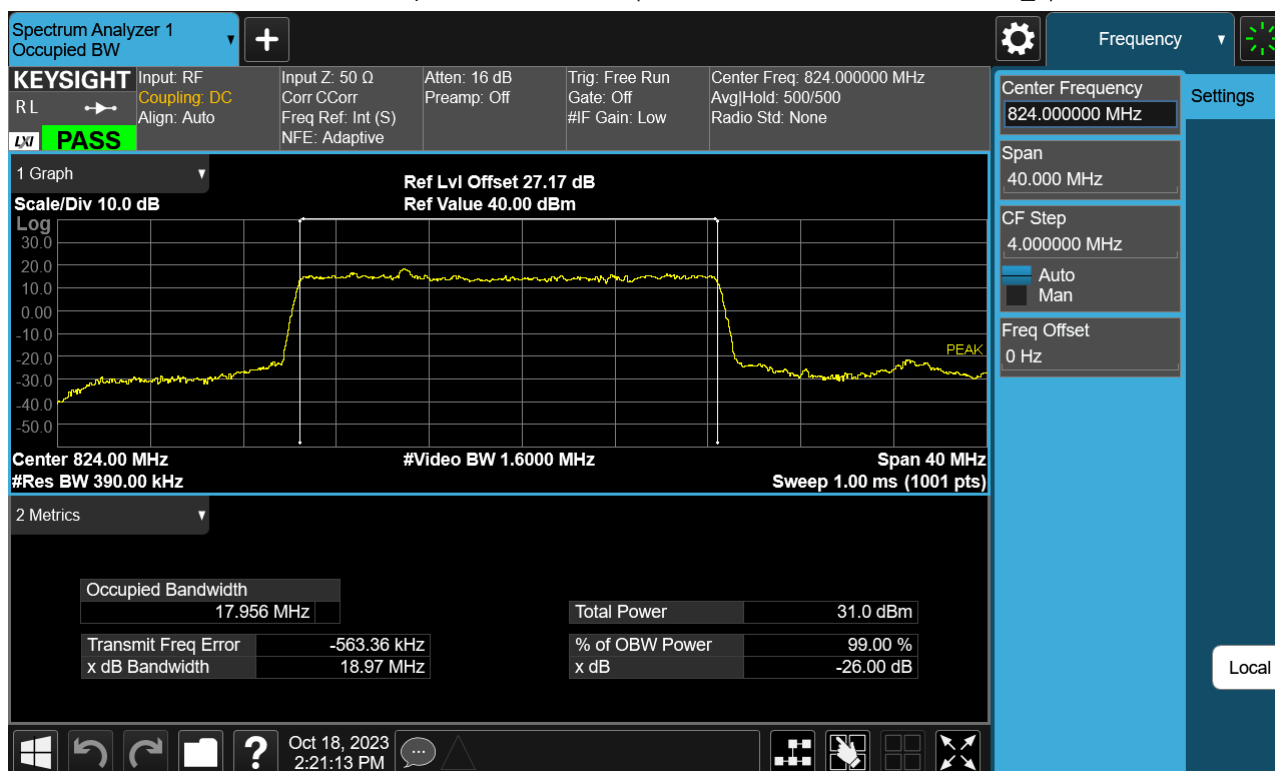
Sub6 n26. Occupied Bandwidth Plot (15 M BW Ch.164300 64QAM RB 75_0)



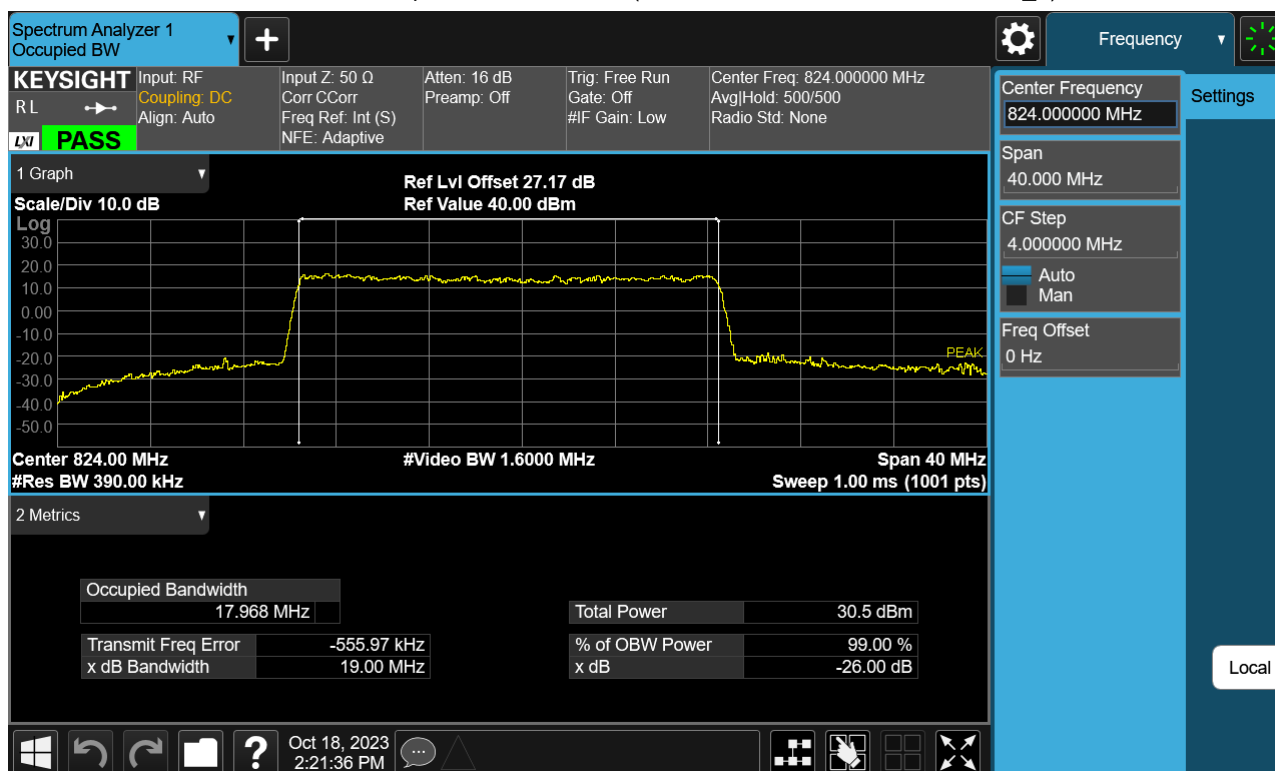
Sub6 n26. Occupied Bandwidth Plot (15 M BW Ch.164300 256QAM RB 100_0)



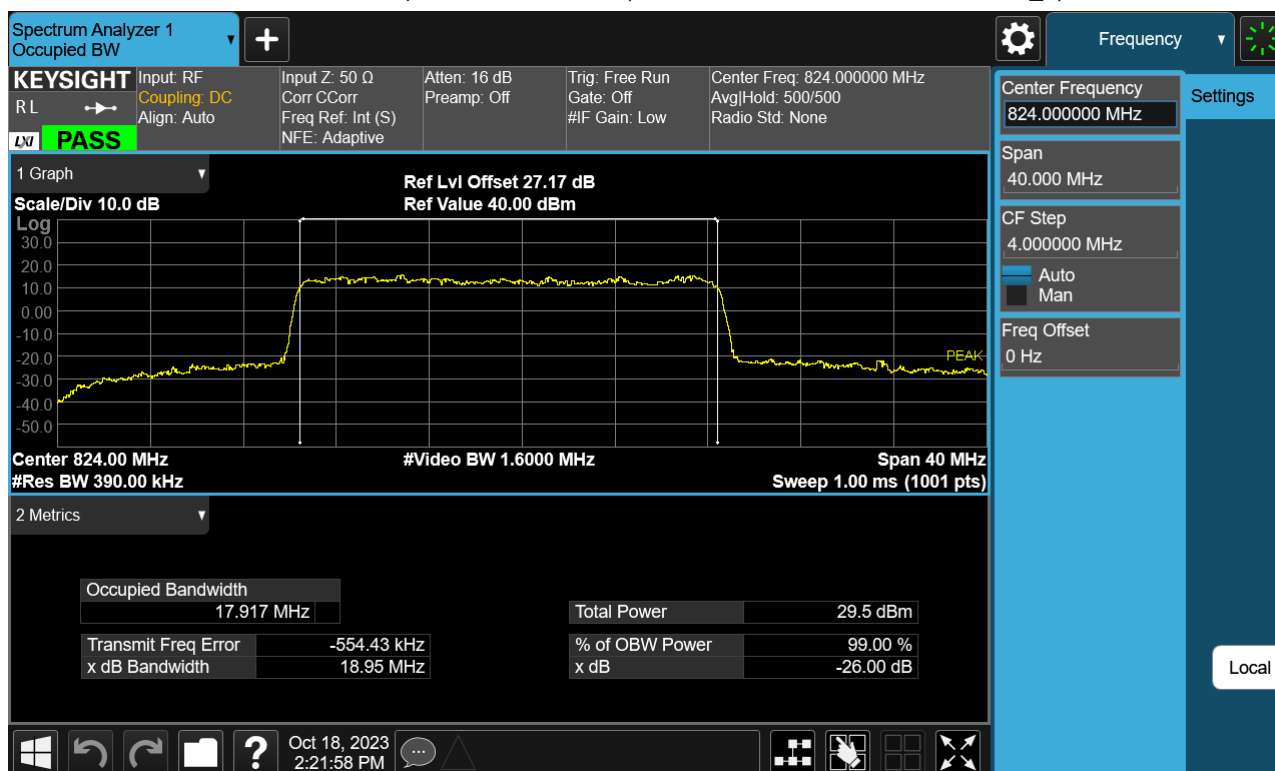
Sub6 n26. Occupied Bandwidth Plot (20 M BW Ch.164800 BPSK RB 100_0)



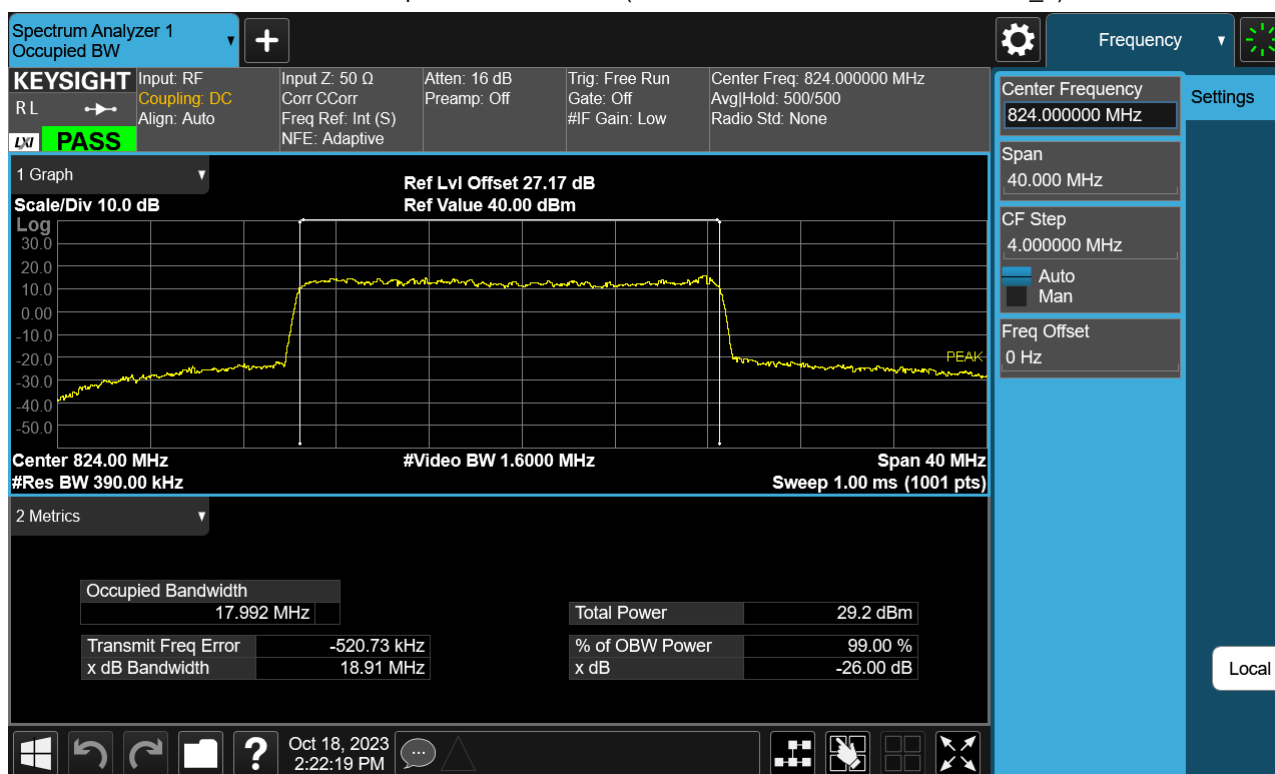
Sub6 n26. Occupied Bandwidth Plot (20 M BW Ch.164800 QPSK RB 100_0)



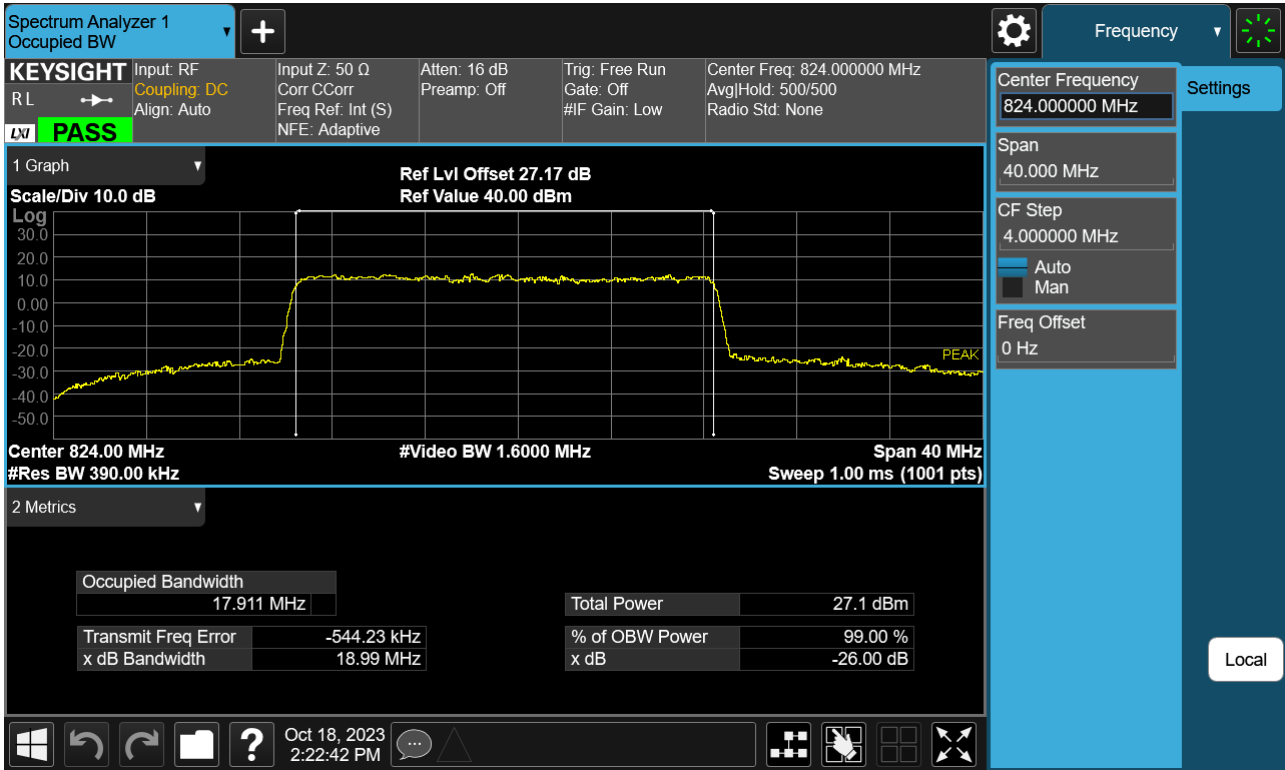
Sub6 n26. Occupied Bandwidth Plot (20 M BW Ch.164800 16QAM RB 100_0)



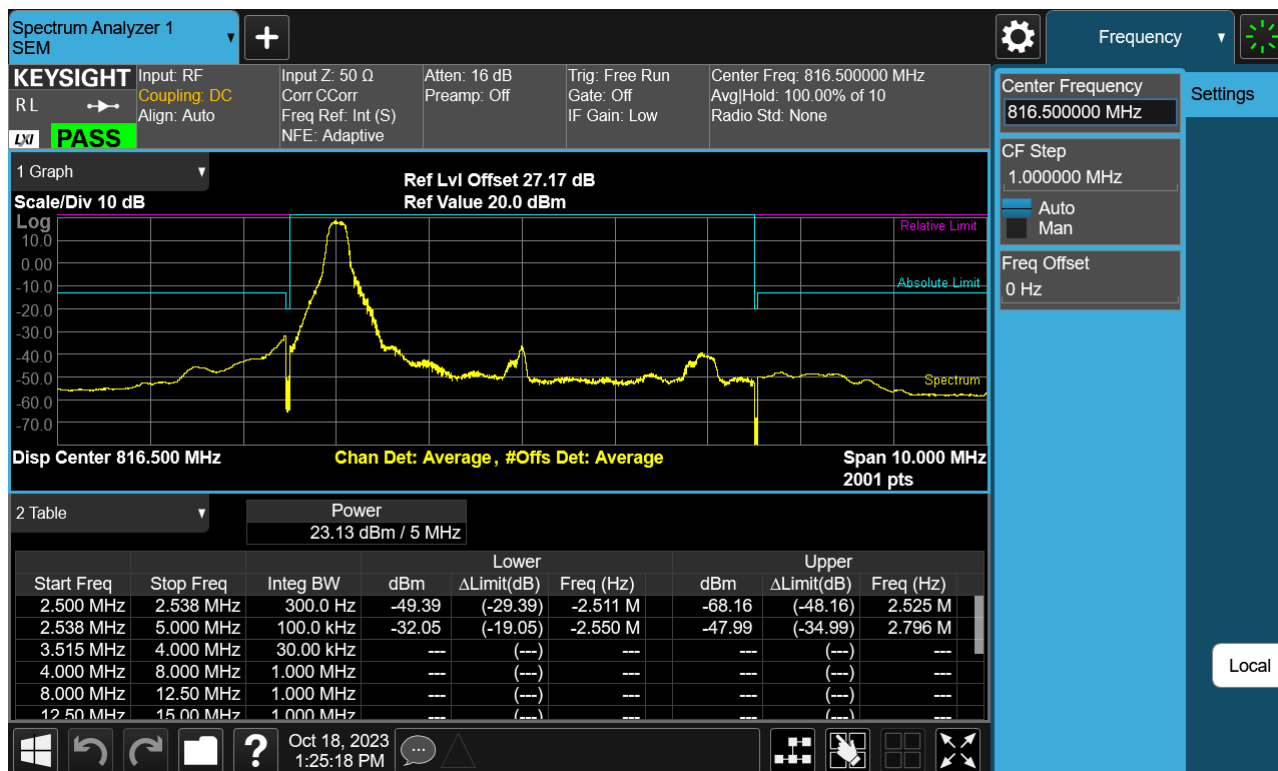
Sub6 n26. Occupied Bandwidth Plot (20 M BW Ch.164800 64QAM RB 100_0)



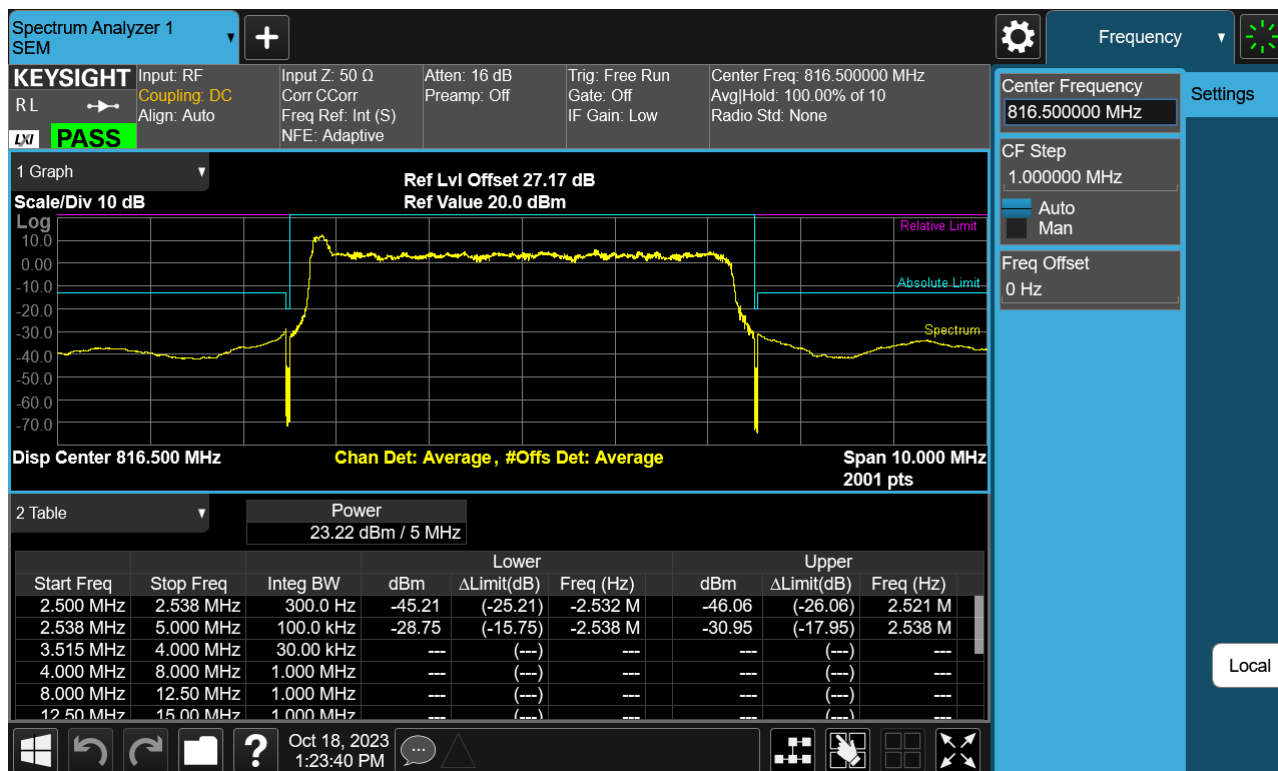
Sub6 n26. Occupied Bandwidth Plot (20 M BW Ch.164800 256QAM RB 100_0)



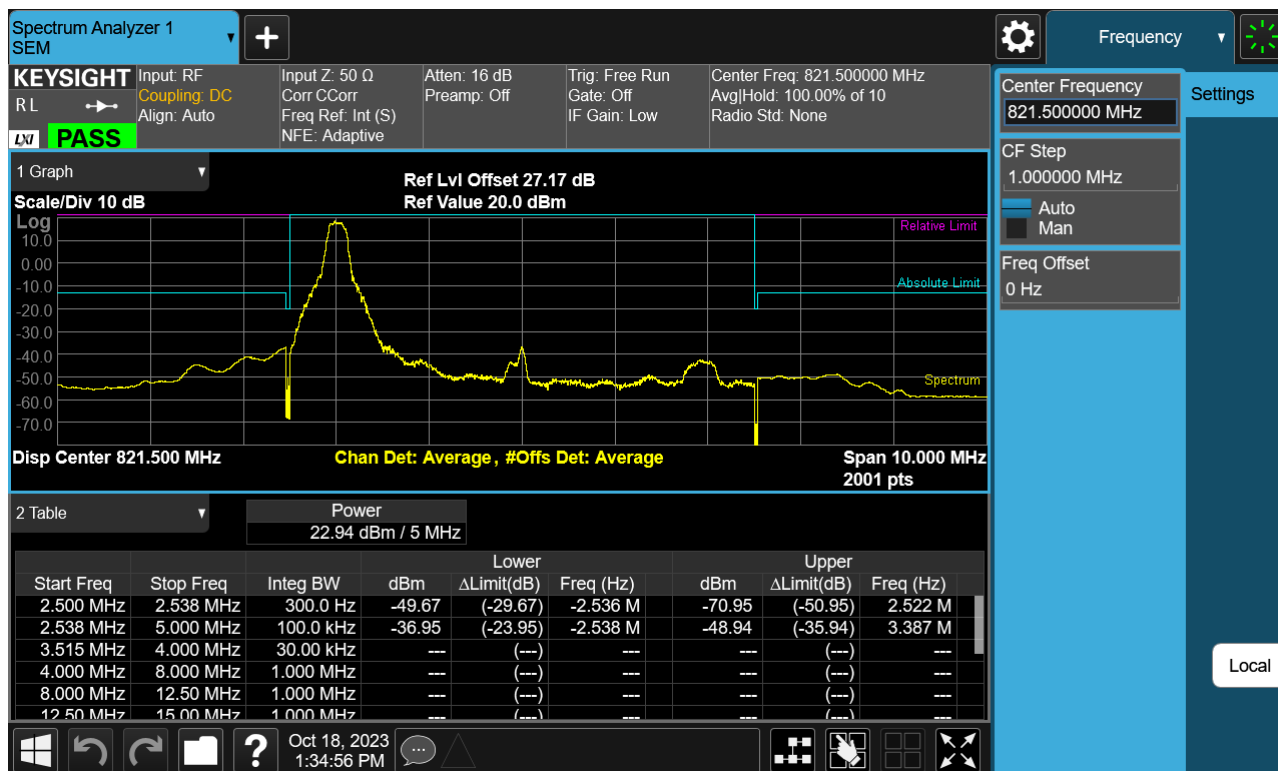
Sub6 n26. Lower Channel Edge Plot (5 M BW Ch.163300 BPSK RB 1, Offset 0)



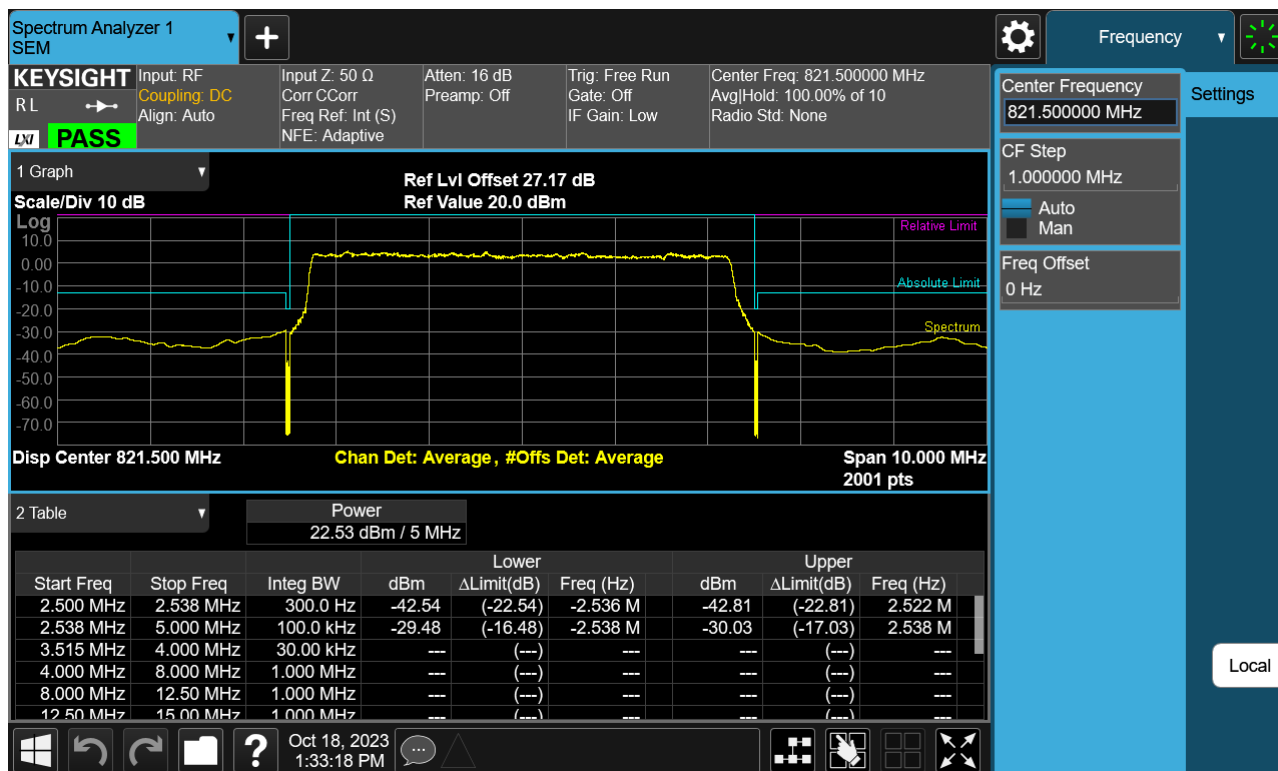
Sub6 n26. Lower Channel Edge Plot (5 M BW Ch.163300 BPSK_RB25_Offset 0)



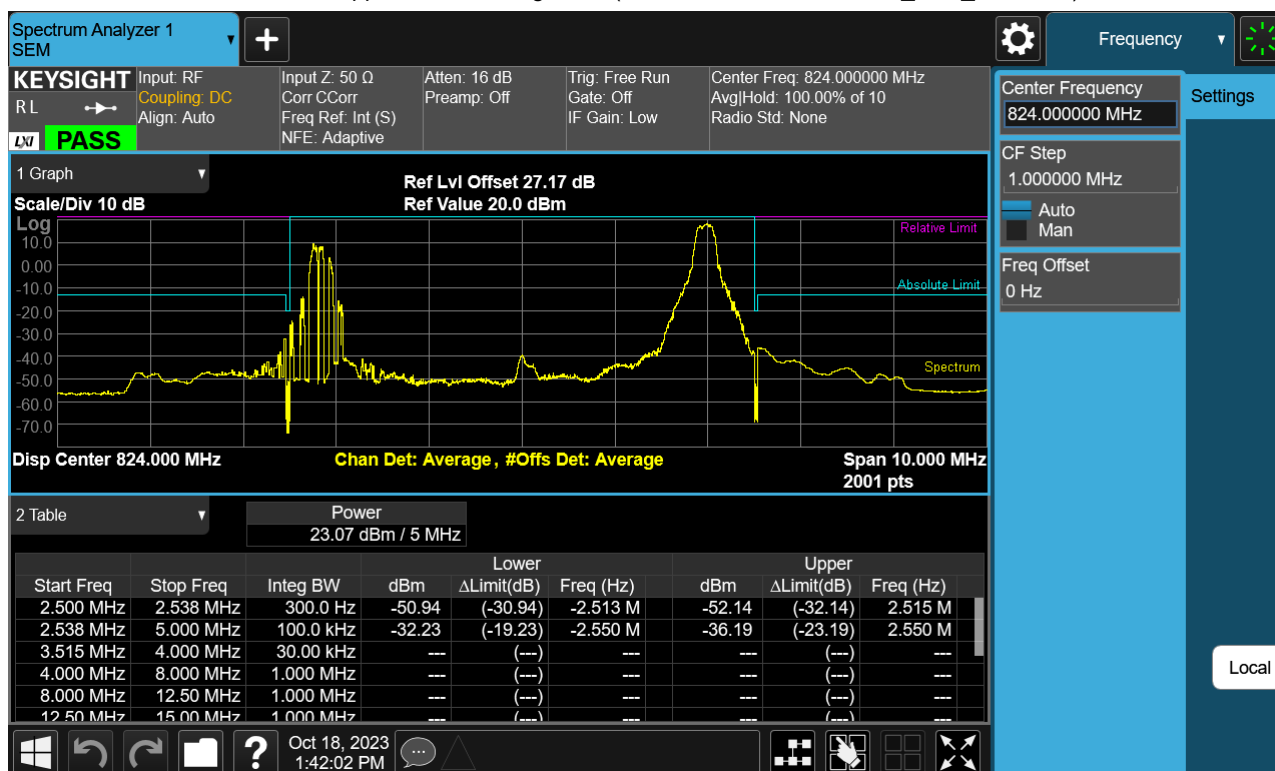
Sub6 n26. Mid Channel Edge Plot (5 M BW Ch.164300 BPSK_RB1_Offset 24)



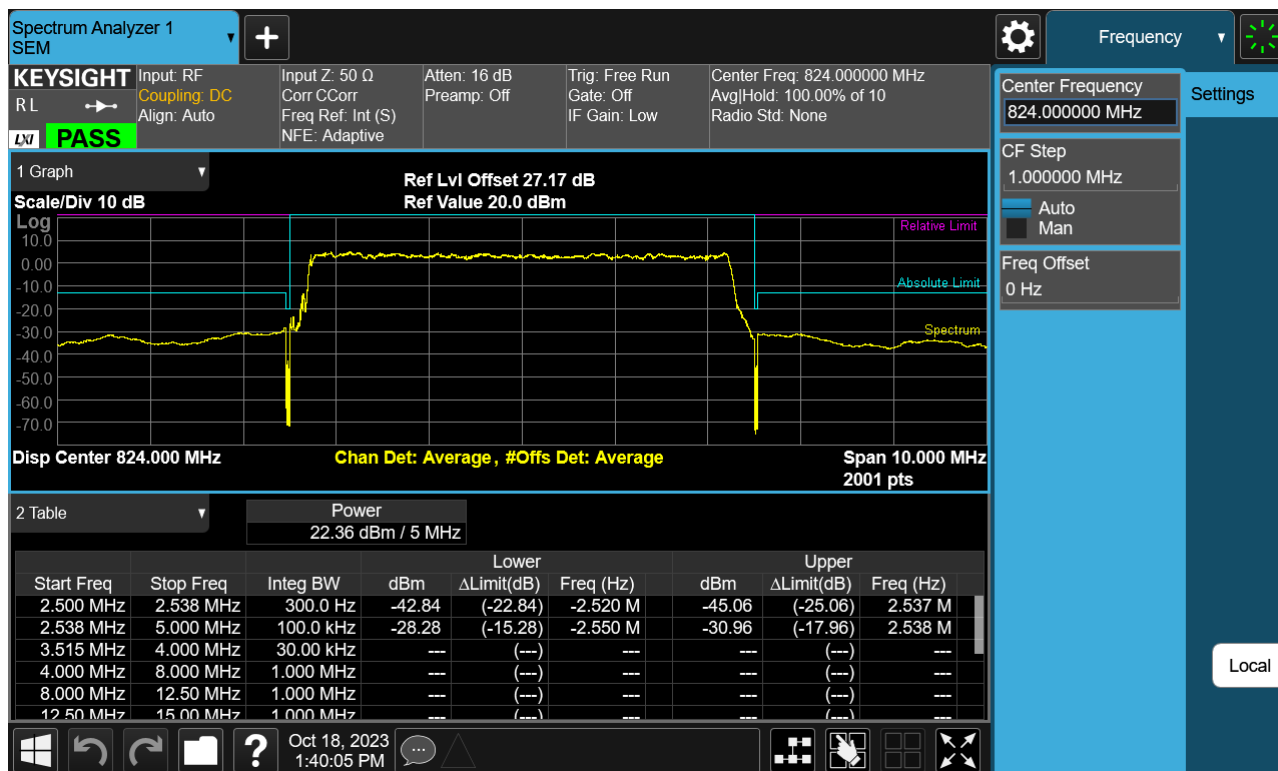
Sub6 n26. Mid Channel Edge Plot (5 M BW Ch.164300 BPSK_ RB25_Offset 0)



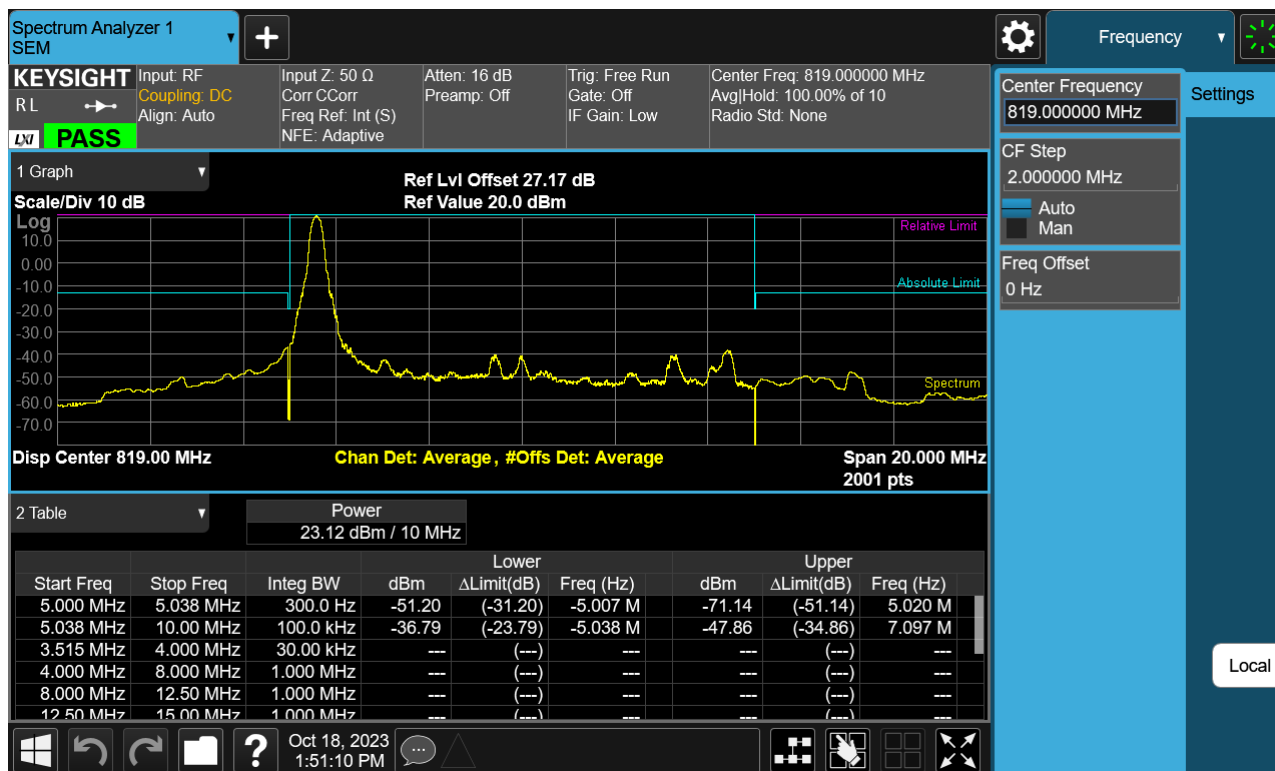
Sub6 n26. Upper Channel Edge Plot (5 M BW Ch.164800 BPSK_RB1_Offset 24)



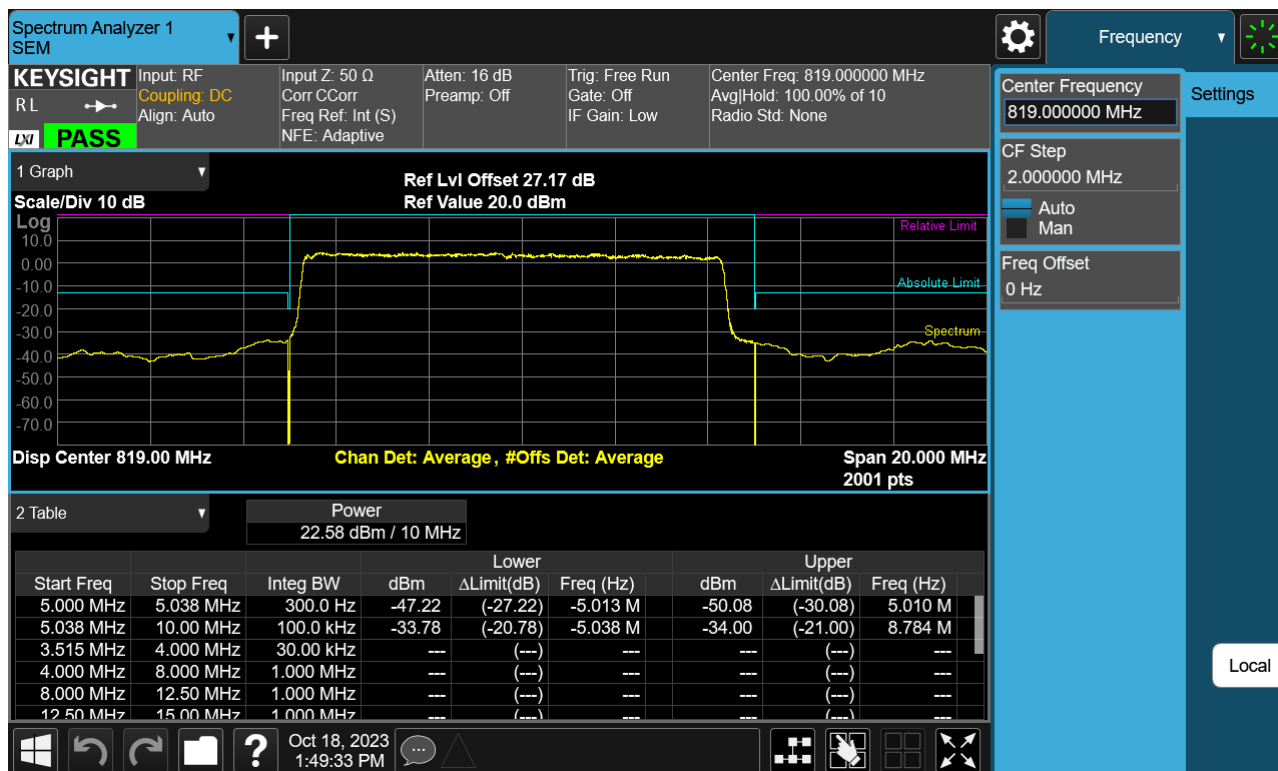
Sub6 n26. Upper Channel Edge Plot (5 M BW Ch.164800 BPSK_RB25_Offset 0)



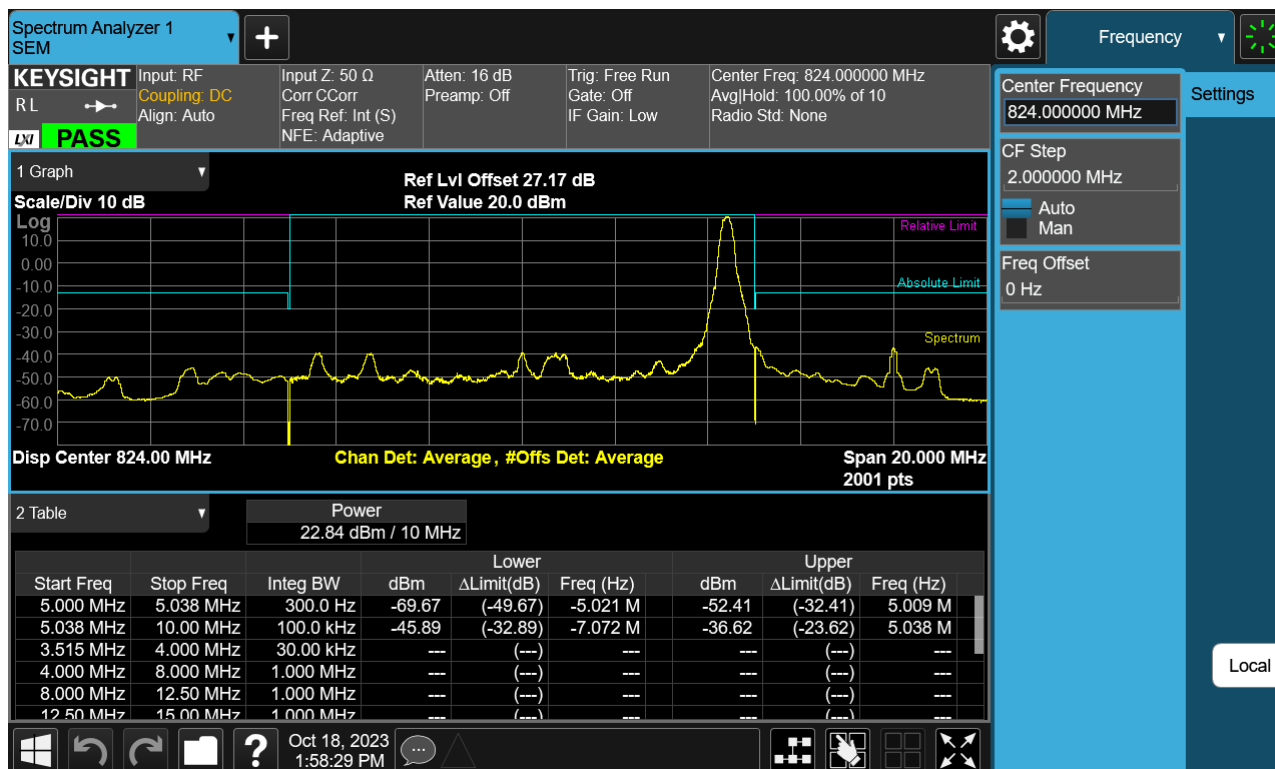
Sub6 n26. Low Channel Edge Plot (10 M BW Ch.163800 BPSK RB 1, Offset 0)



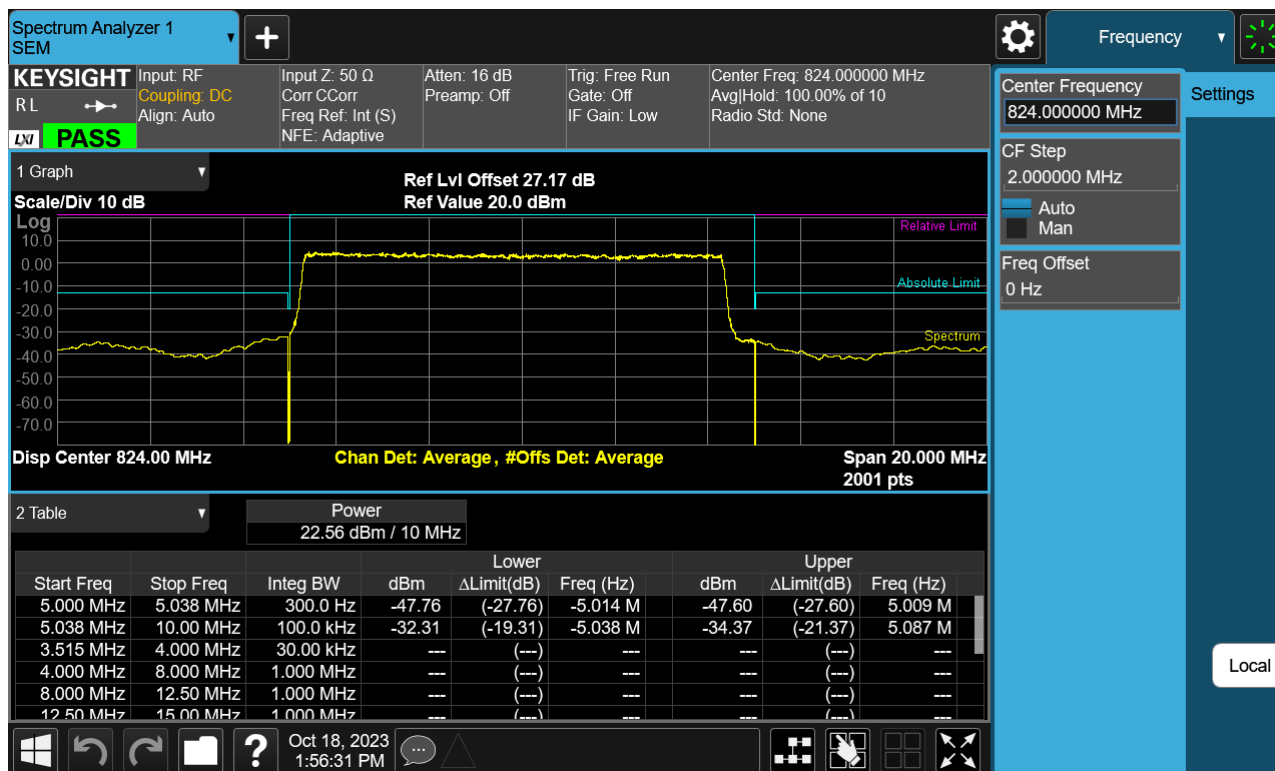
Sub6 n26. Low Channel Edge Plot (10 M BW Ch.163800 BPSK_RB50_Offset 0)



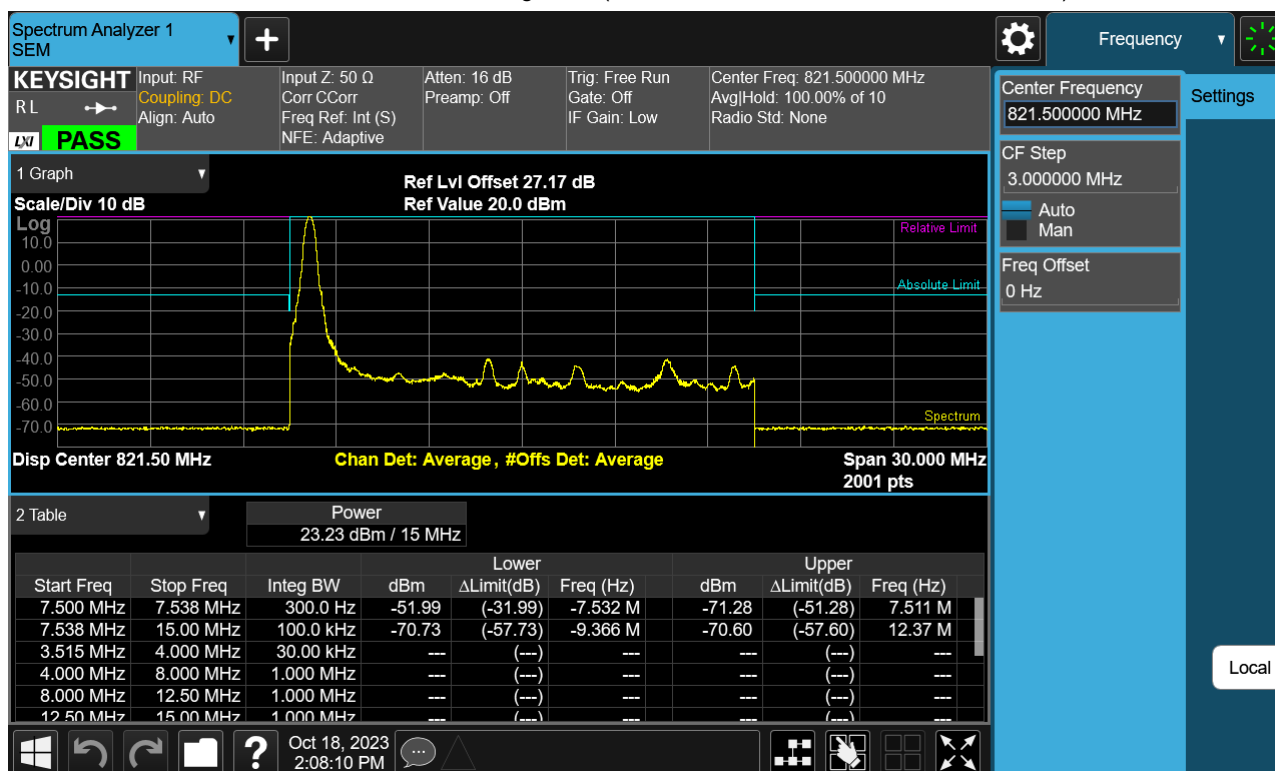
Sub6 n26. Upper Channel Edge Plot (10 M BW Ch.164800 BPSK_RB1_Offset 51)



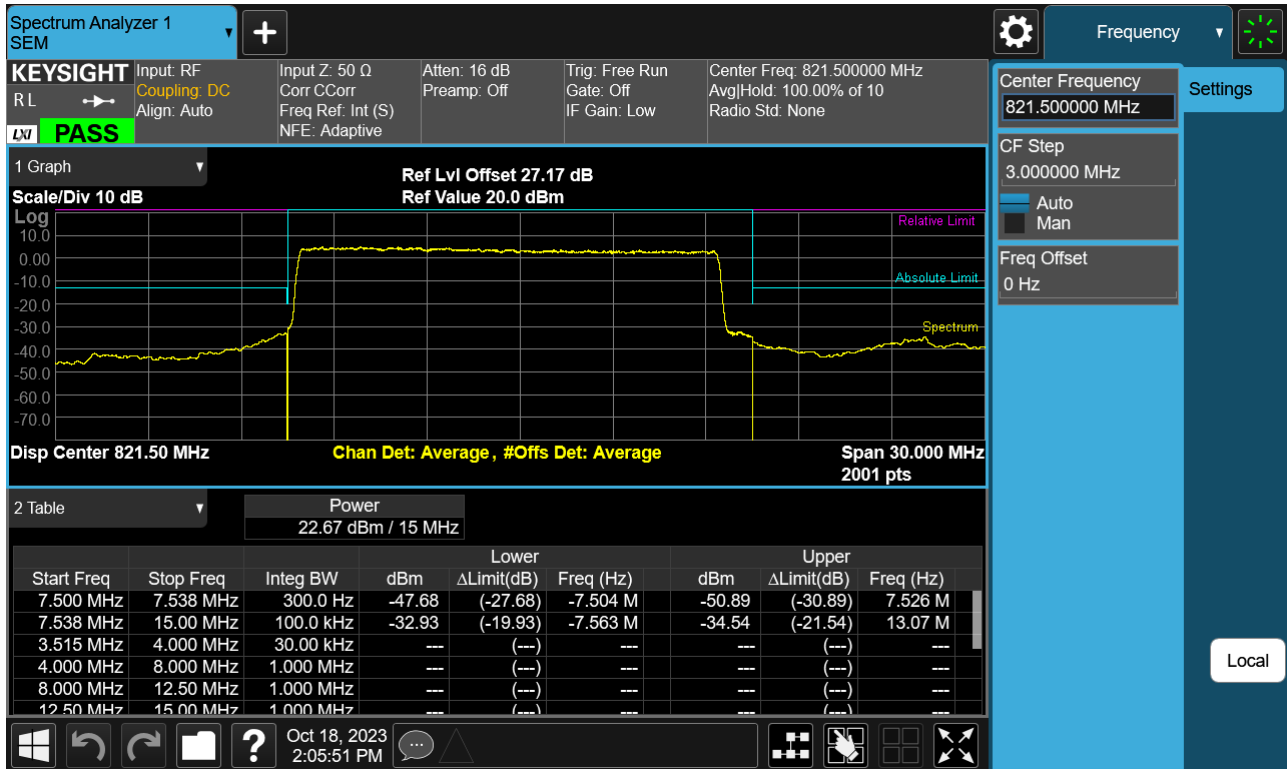
Sub6 n26. Upper Channel Edge Plot (10 M BW Ch.164800 BPSK_RB50_Offset 0)



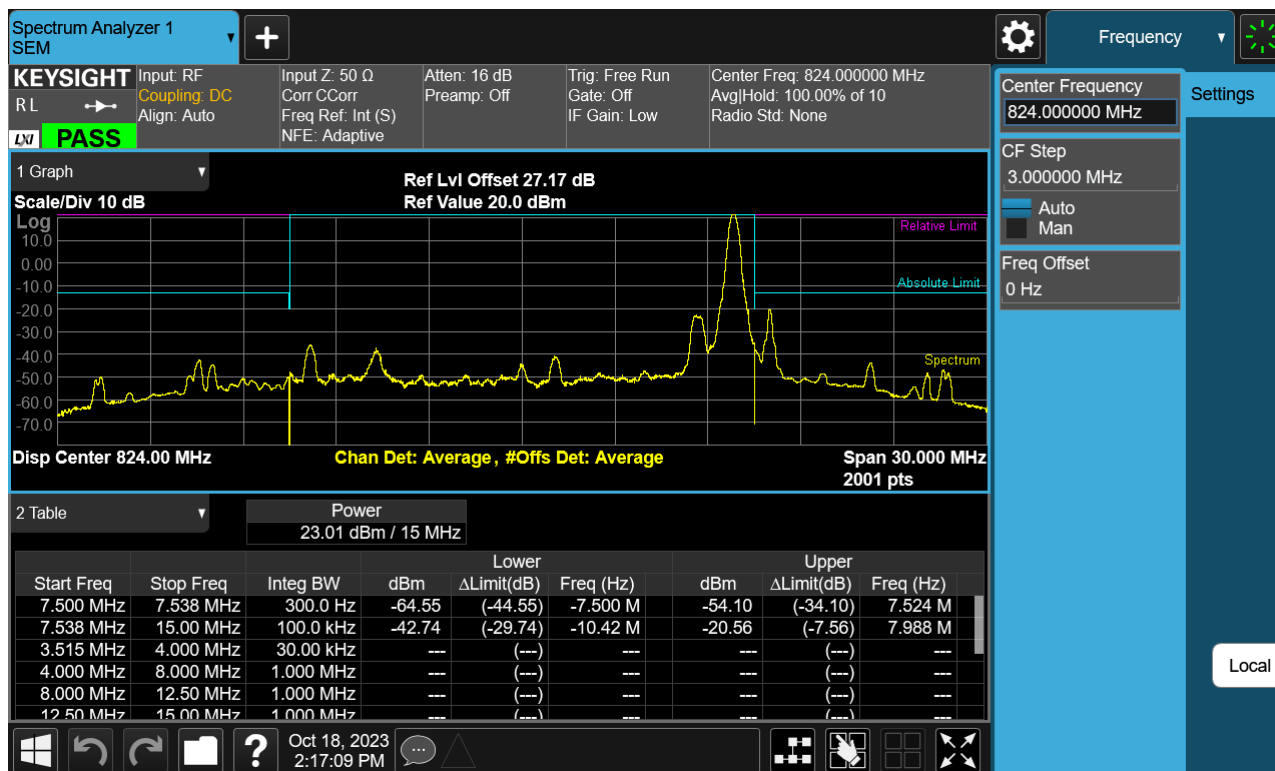
Sub6 n26. Low Channel Edge Plot (15 M BW Ch.164300 BPSK RB 1, Offset 0)



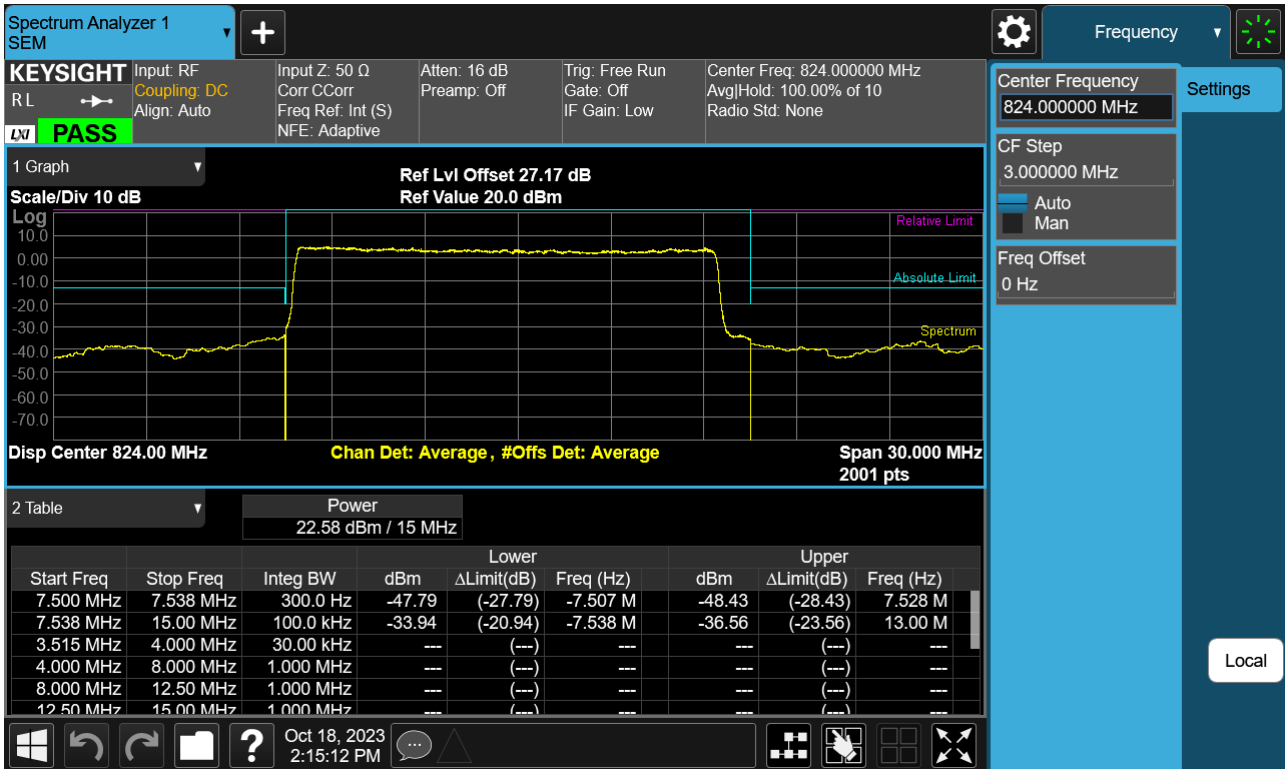
Sub6 n26. Low Channel Edge Plot (15 M BW Ch.164300 BPSK_RB75_Offset 0)



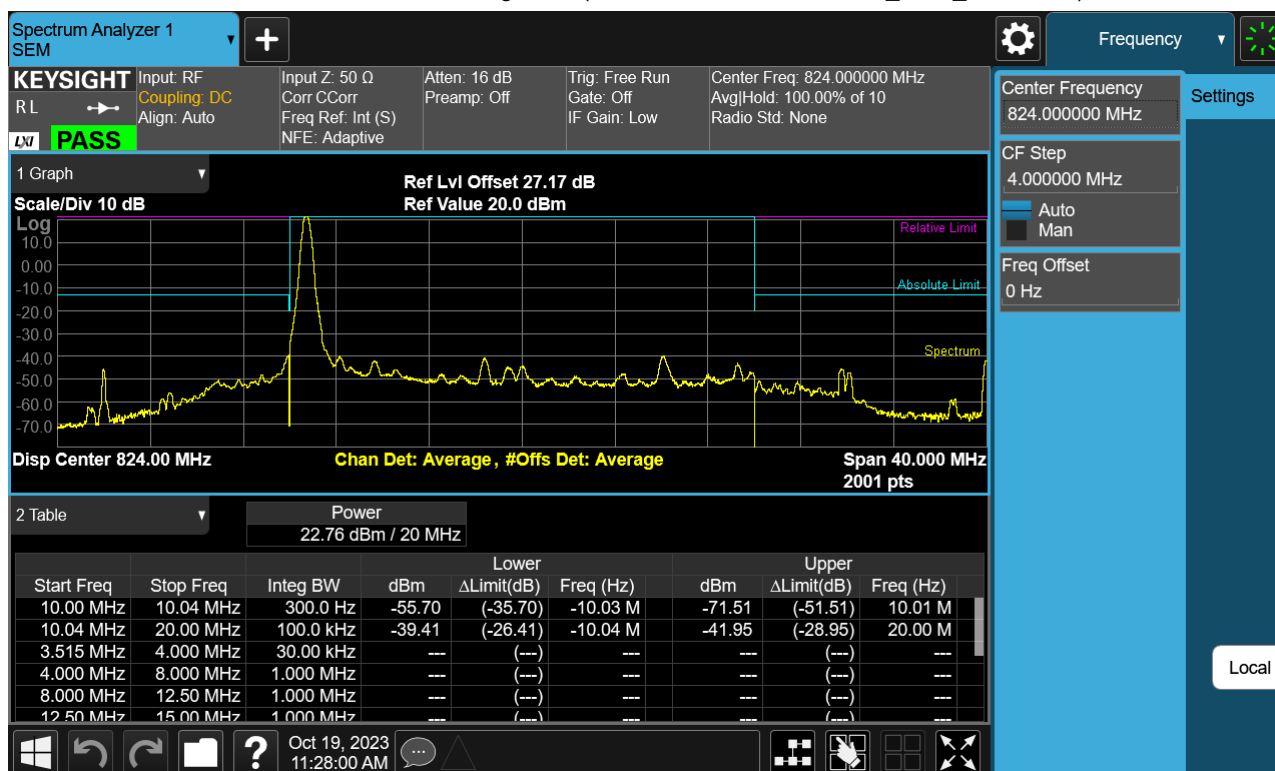
Sub6 n26. Upper Channel Edge Plot (15 M BW Ch.164800 BPSK_RB1_Offset 78)



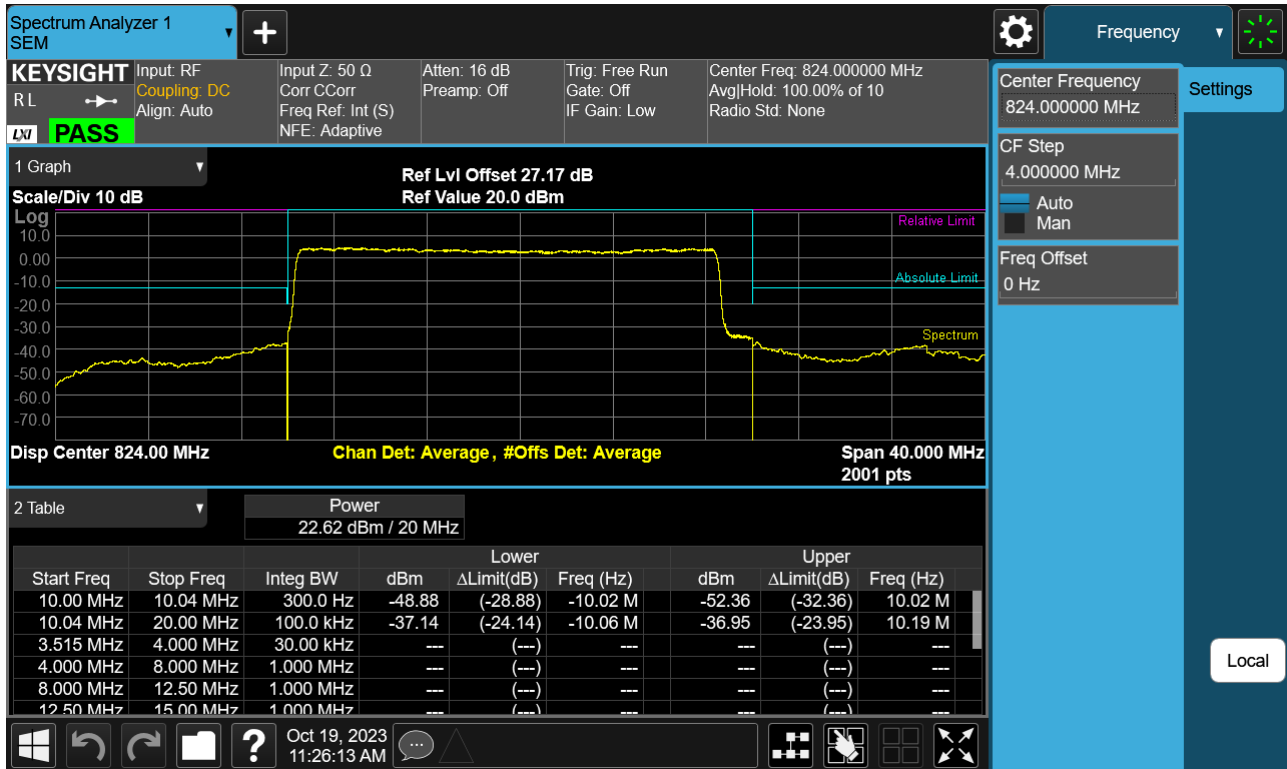
Sub6 n26. Upper Channel Edge Plot (15 M BW Ch.164800 BPSK_RB75_Offset 0)



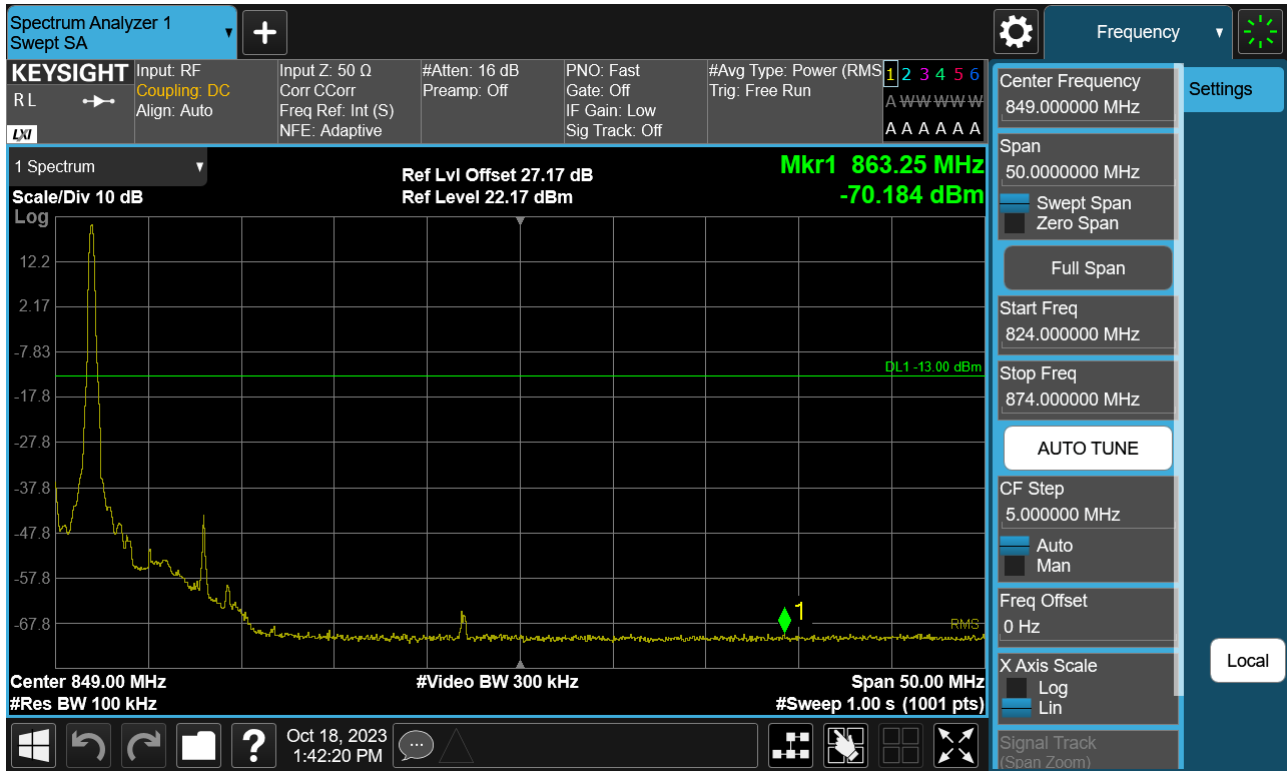
Sub6 n26. Mid Channel Edge Plot (20 M BW Ch.164800 QPSK_ RB1_Offset 105)



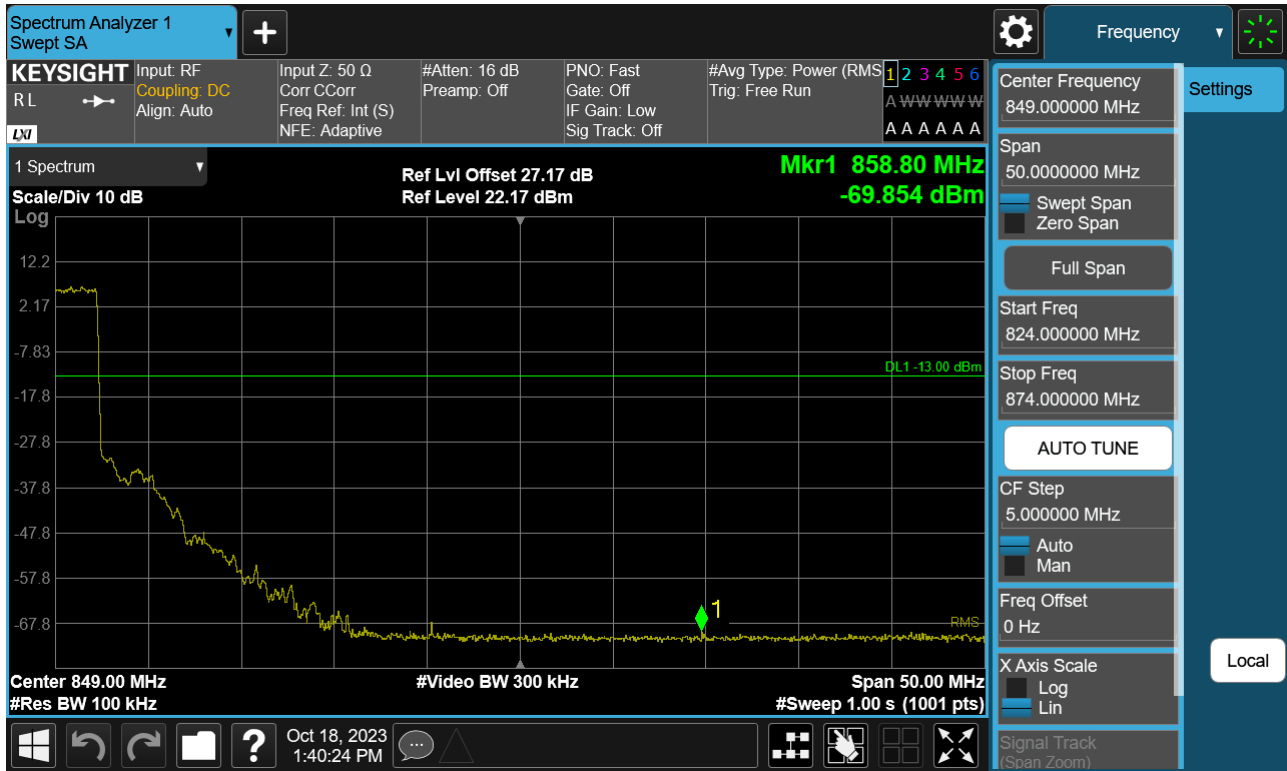
Sub6 n26. Mid Channel Edge Plot (20 M BW Ch.164800 BPSK_ RB100_Offset 0)



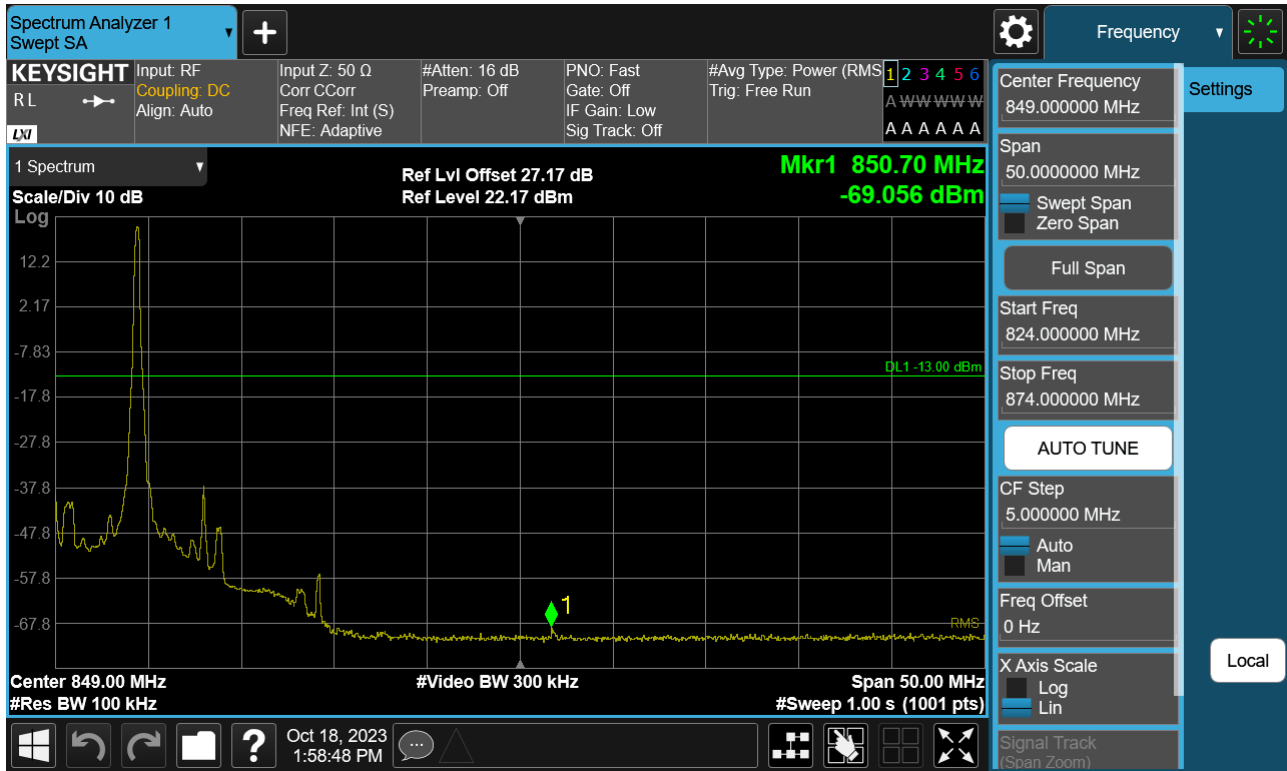
Sub6 n26. Upper Band Edge Plot (5 M BW Ch.164800 BPSK_RB1_Offset 24)



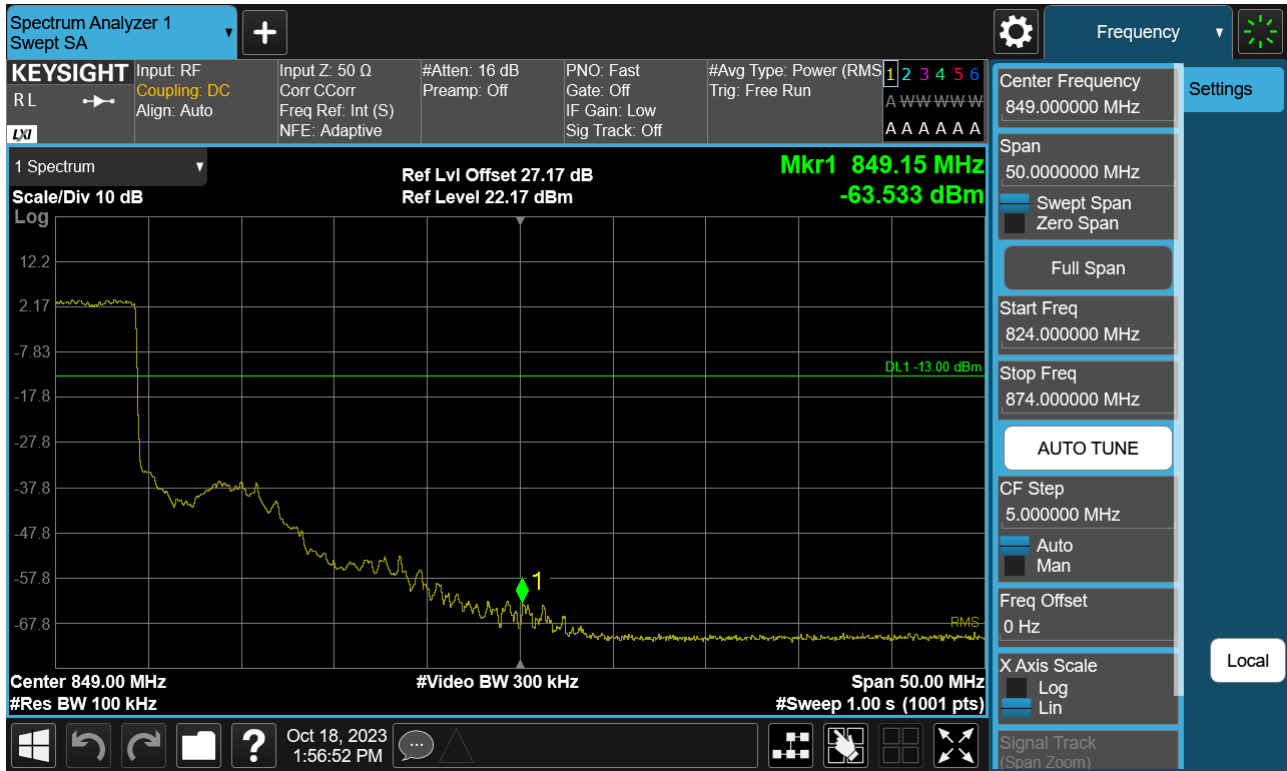
Sub6 n26. Upper Band Edge Plot (5 M BW Ch.164800 BPSK_RB25_Offset 0)



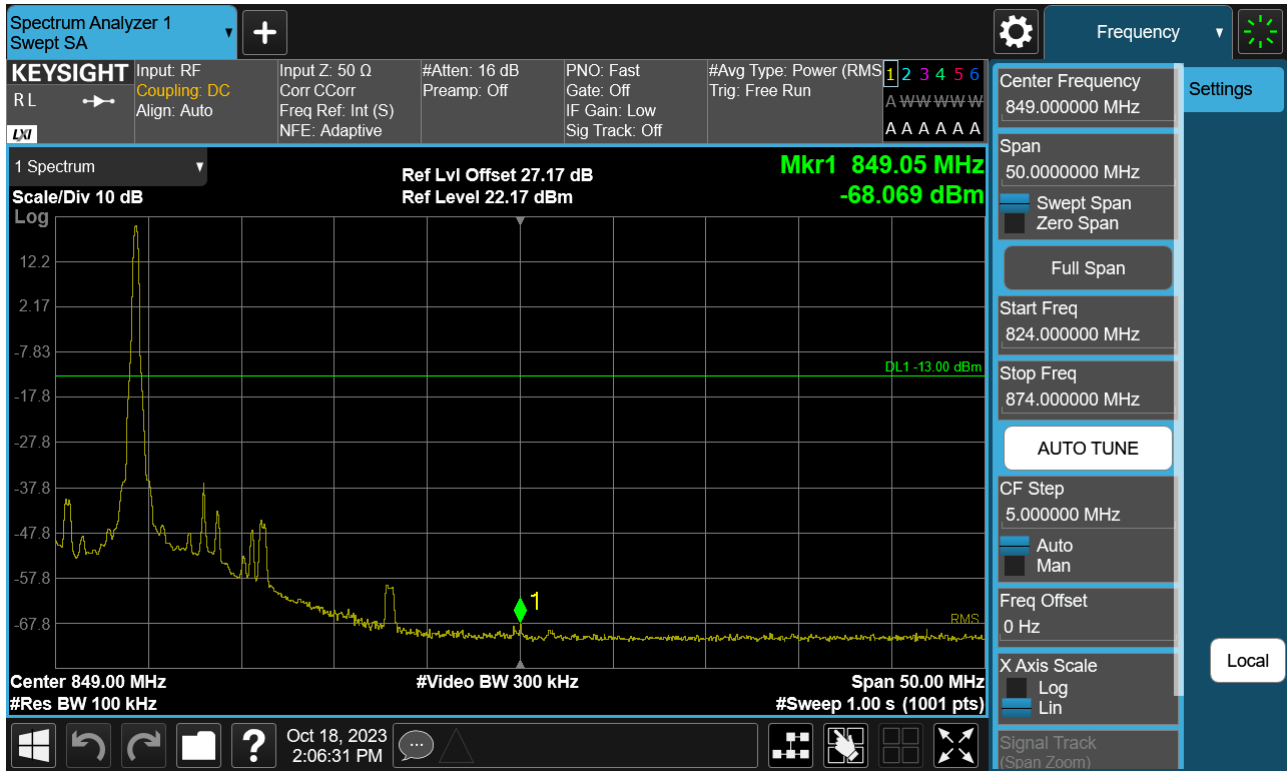
Sub6 n26. Upper Band Edge Plot (10 M BW Ch.164800 BPSK_RB1_Offset 51)



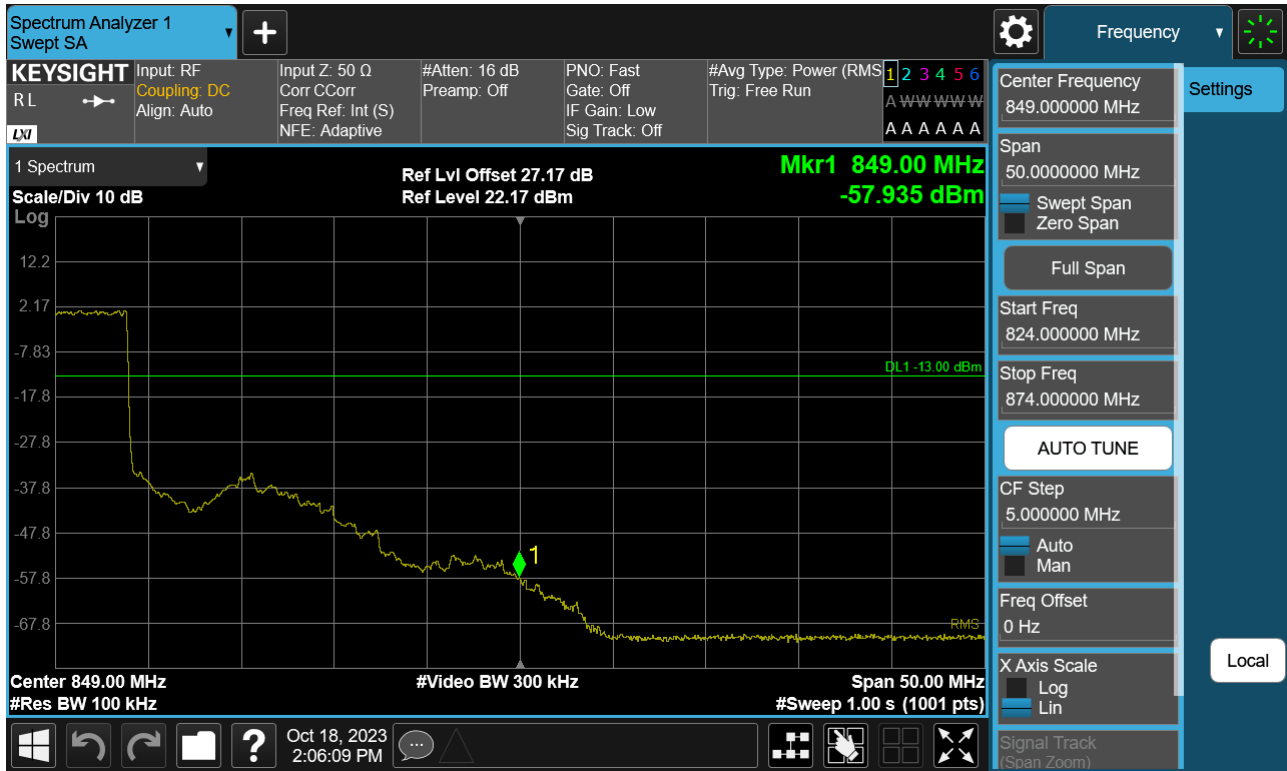
Sub6 n26. Upper Band Edge Plot (10 M BW Ch.164800 BPSK_RB50_Offset 0)



Sub6 n26. Lower Band Edge Plot (15 M BW Ch.164300 BPSK_RB1_Offset 0)



Sub6 n26. Lower Band Edge Plot (15 M BW Ch.164300 BPSK_RB75_Offset 0)



Sub6 n26. Upper Band Edge Plot (15 M BW Ch.164800 BPSK_RB1_Offset 78)



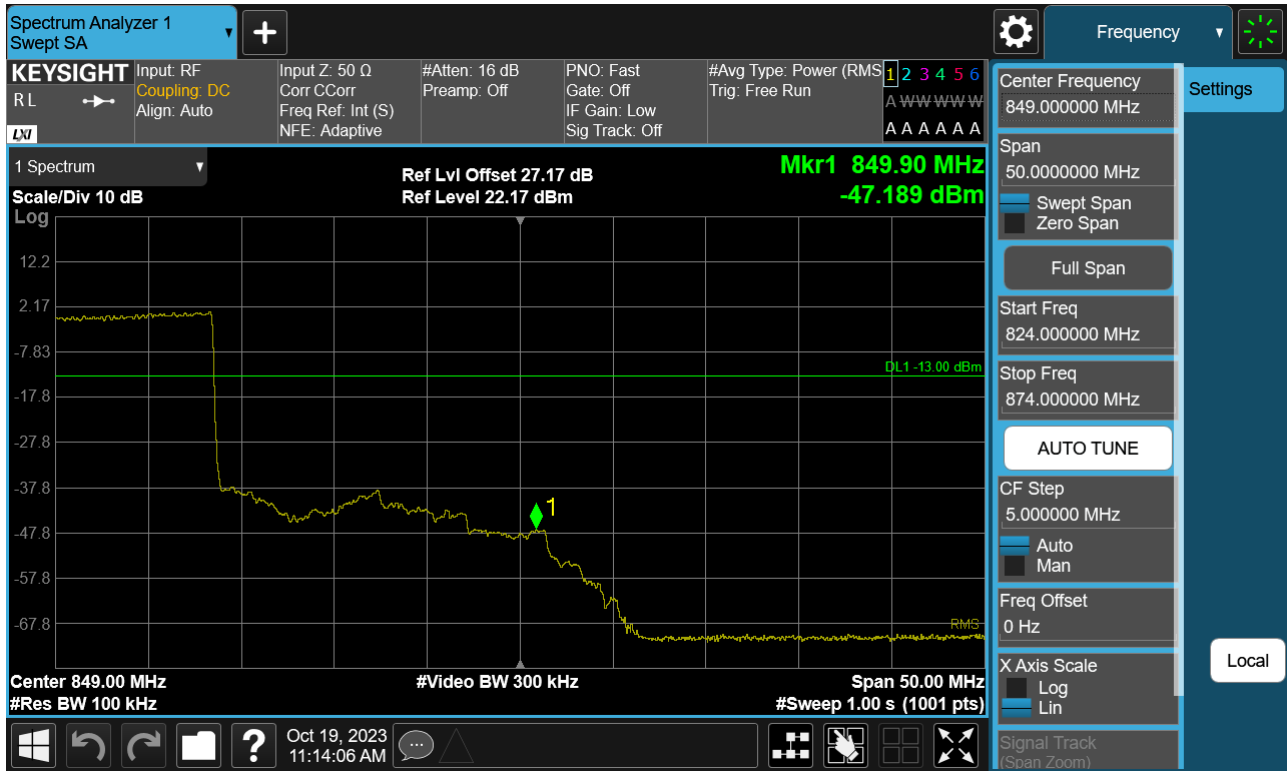
Sub6 n26. Upper Band Edge Plot (15 M BW Ch.164800 BPSK_RB75_Offset 0)



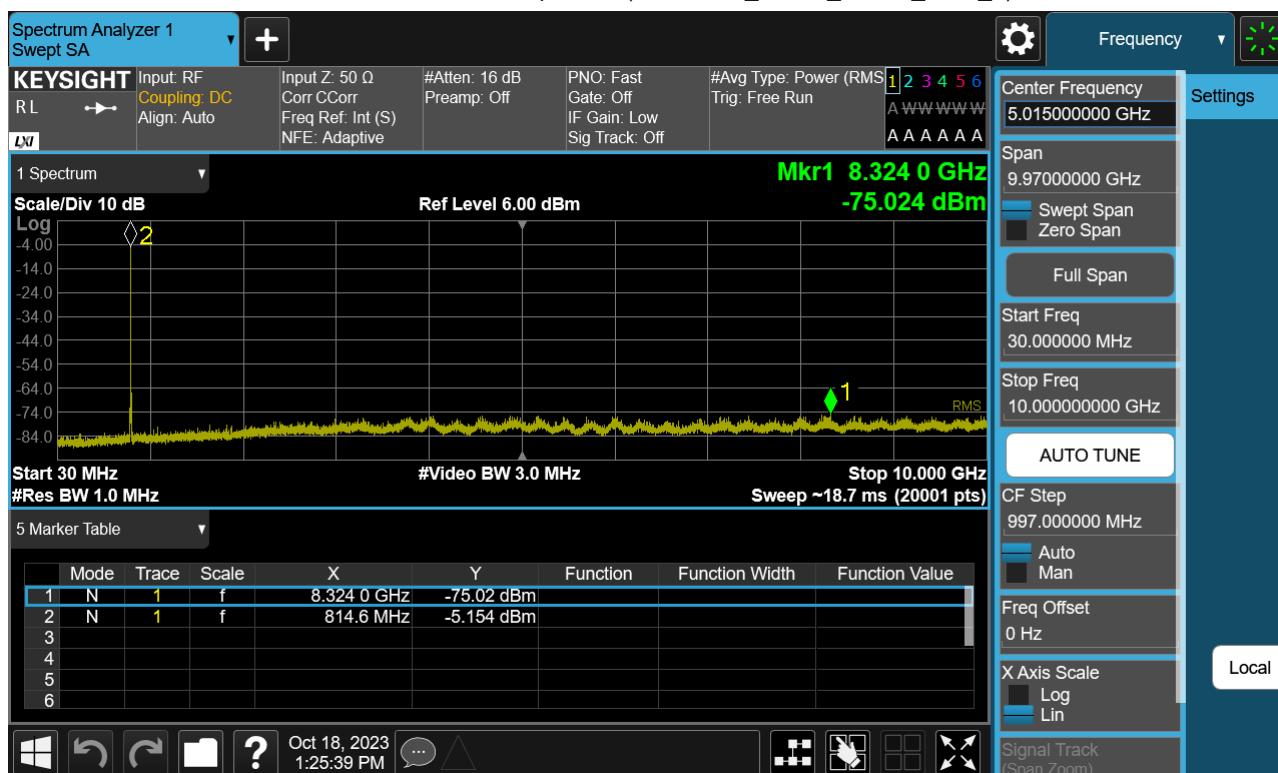
Sub6 n26. Mid Band Edge Plot (20 M BW Ch.164800 BPSK_RB1_Offset 105)



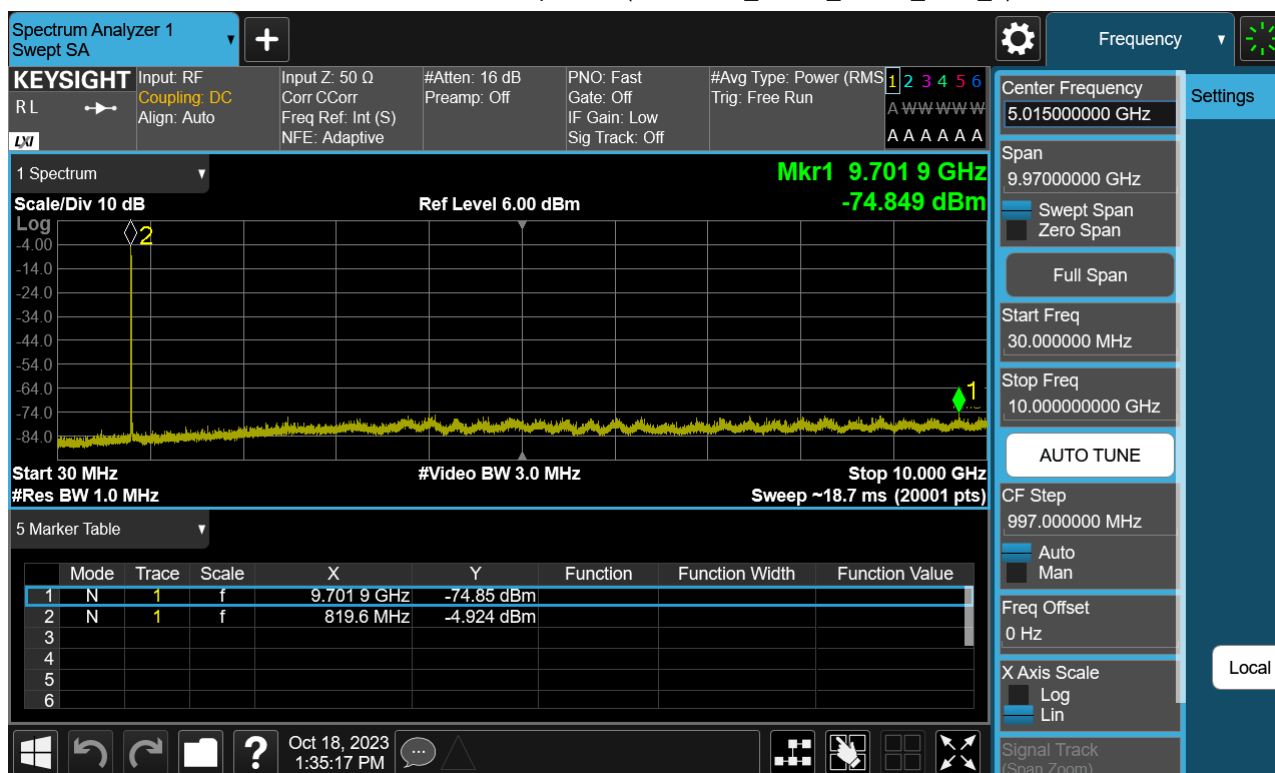
Sub6 n26. Mid Band Edge Plot (20 M BW Ch.164800 BPSK_RB100_Offset 0)



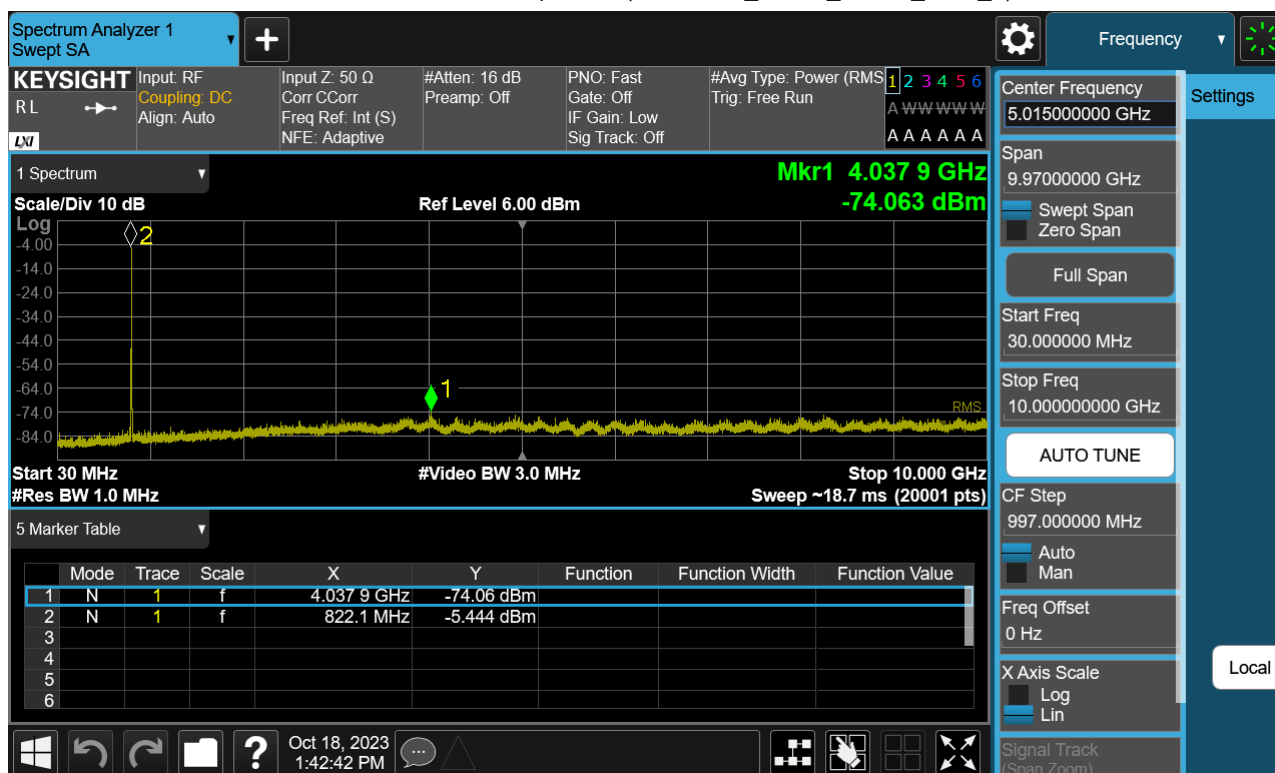
Sub6 n26. Conducted Spurious (163300 ch_5 MHz_ BPSK_RB 1_1)



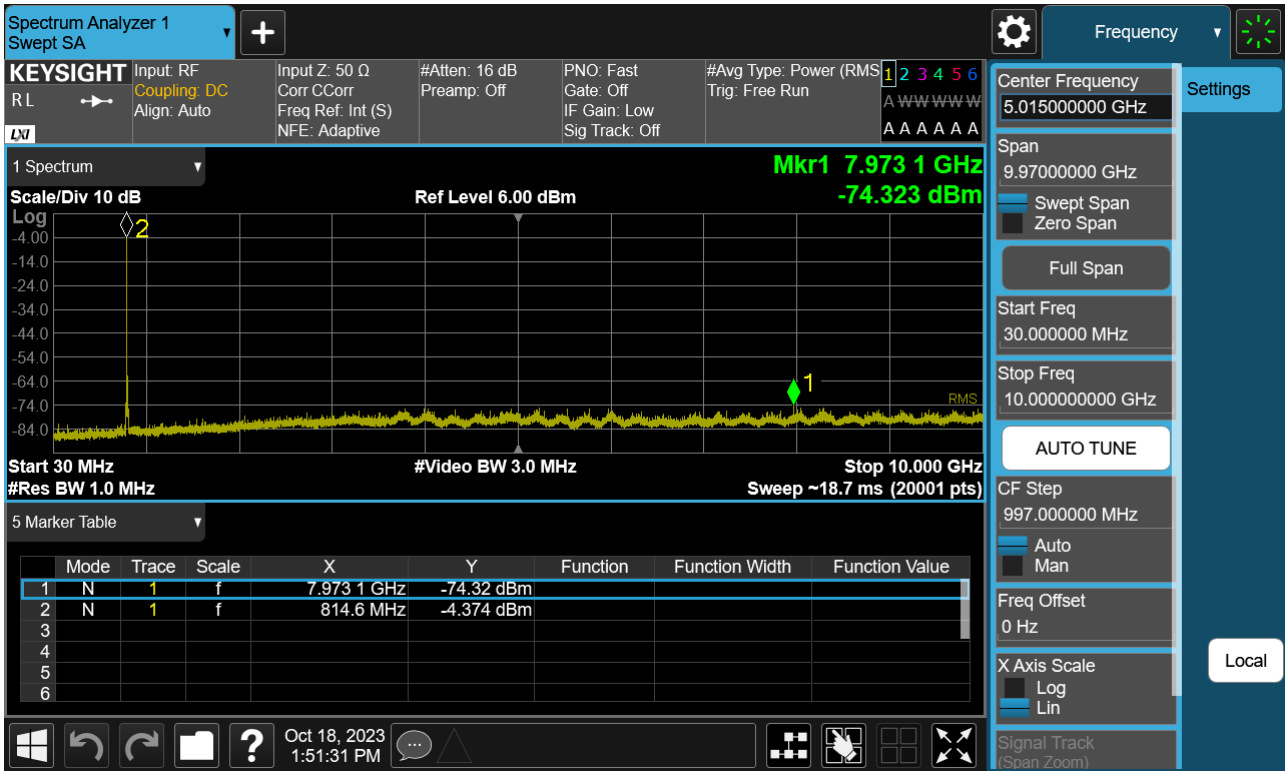
Sub6 n26. Conducted Spurious (164300 ch_5 MHz_ BPSK_RB 1_1)



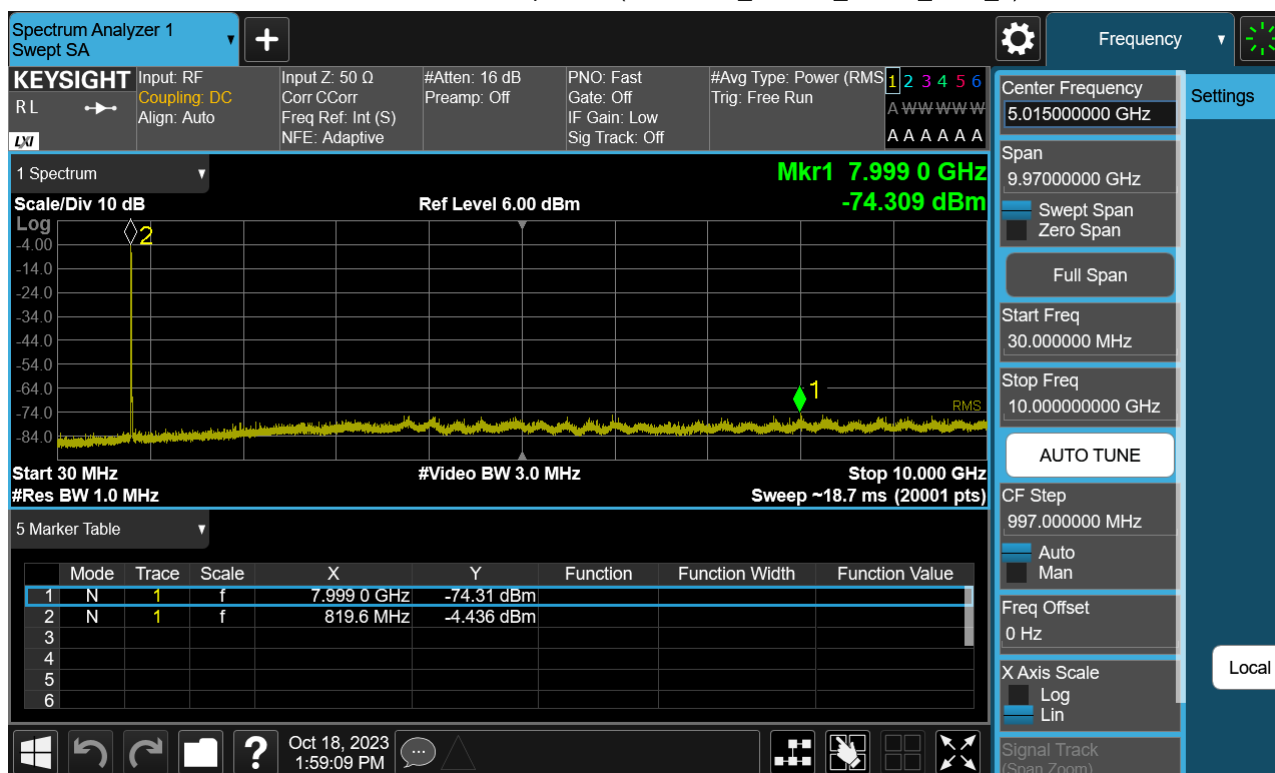
Sub6 n26. Conducted Spurious (164800 ch_5 MHz_ BPSK_RB 1_1)



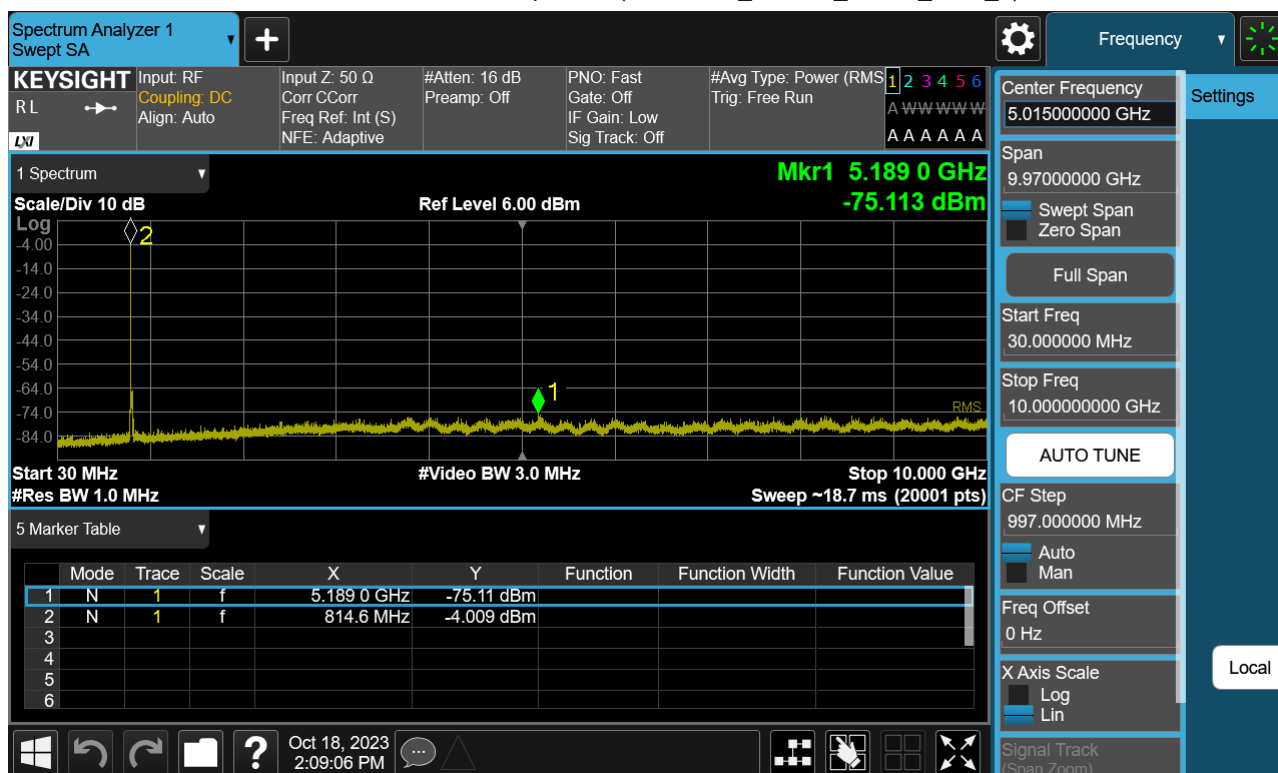
Sub6 n26. Conducted Spurious (163800 ch_10 MHz_ BPSK_RB 1_1)



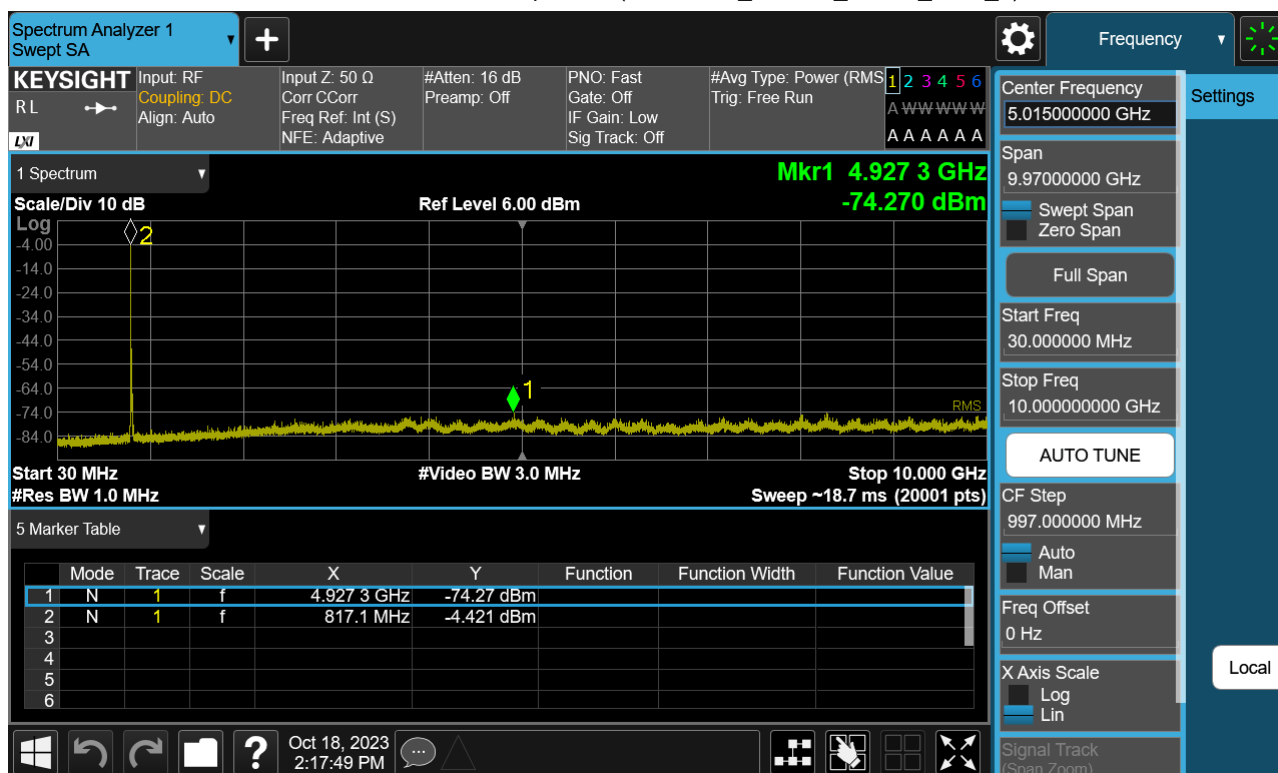
Sub6 n26. Conducted Spurious (164800 ch_10 MHz_ BPSK_RB 1_1)



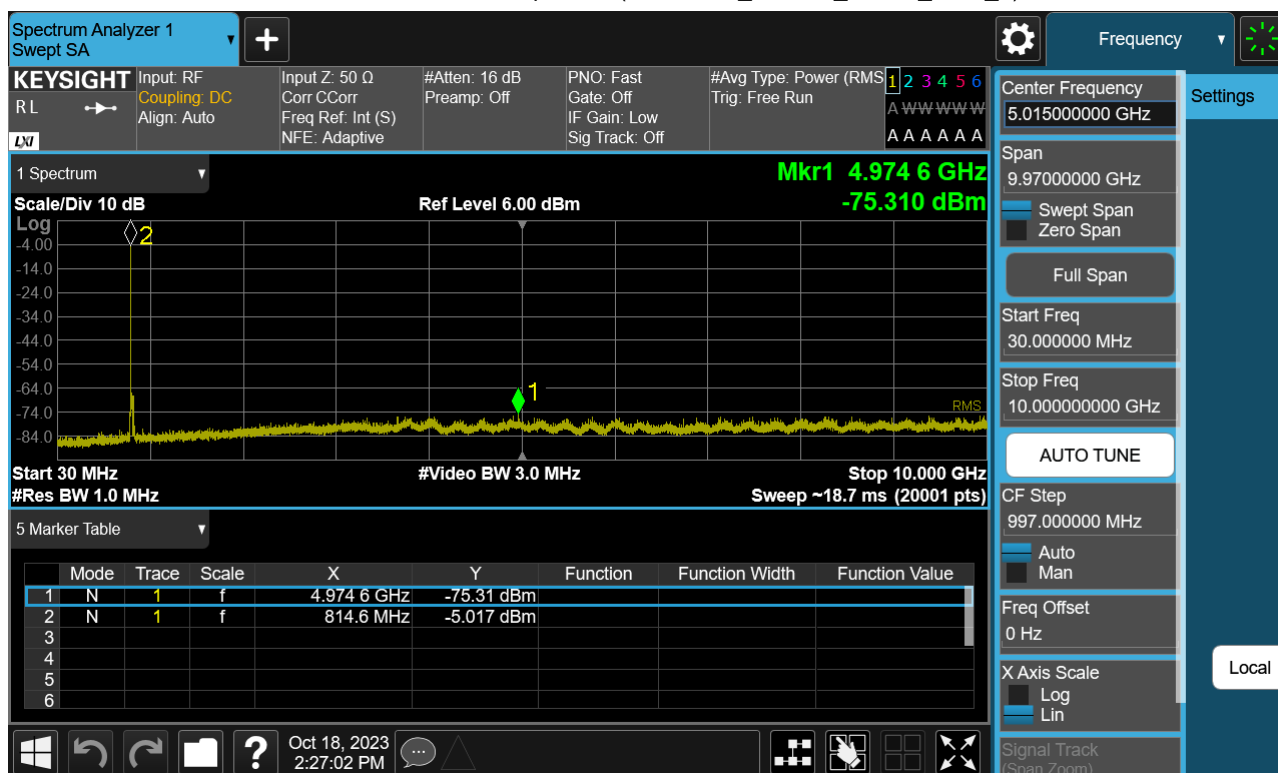
Sub6 n26. Conducted Spurious (164300 ch_15 MHz_ BPSK_RB 1_1)



Sub6 n26. Conducted Spurious (164800 ch_15 MHz_ BPSK_RB 1_1)



Sub6 n26. Conducted Spurious (164800 ch_20 MHz_ BPSK_RB 1_1)



10 ANNEX A_ TEST SETUP PHOTO

Please refer to test setup photo file no. as follows;

No.	Description
1	HCT-RF-2311-FC032-P