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FCC Sub6 REPORT

Certification

Applicant Name:
SAMSUNG Electronics Co., Ltd.

Address:
129, Samsung-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16677, Rep. of Korea

Date of Issue:
January 05, 2022

Location:
HCT CO., LTD.,
74, Seoicheon-ro 578beon-gil, Majang-myeon,
Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA

Report No.: HCT-RF-2201-FC033

FCC ID: **A3LSMA536V**

APPLICANT: **SAMSUNG Electronics Co., Ltd.**

Model(s): SM-A536V
EUT Type: Mobile phone
FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s): §22, §2

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	ERP	
				Max. Power (W)	Max. Power (dBm)
Sub6 n5 (5)	826.5 – 846.5	4M53G7D	PI/2 BPSK	0.072	18.60
		4M52G7D	QPSK	0.071	18.52
		4M55W7D	16QAM	0.058	17.65
		4M52W7D	64QAM	0.041	16.08
		4M53W7D	256QAM	0.026	14.18
Sub6 n5 (10)	829.0 – 844.0	8M99G7D	PI/2 BPSK	0.071	18.52
		9M02G7D	QPSK	0.071	18.51
		9M01W7D	16QAM	0.056	17.51
		9M01W7D	64QAM	0.039	15.92
		9M00W7D	256QAM	0.026	14.07
Sub6 n5 (15)	831.5 – 841.5	13M5G7D	PI/2 BPSK	0.072	18.57
		13M5G7D	QPSK	0.070	18.48
		13M5W7D	16QAM	0.056	17.45
		13M5W7D	64QAM	0.040	16.04
		13M5W7D	256QAM	0.026	14.07
Sub6 n5 (20)	834.0 – 839.0	17M9G7D	PI/2 BPSK	0.074	18.71
		17M9G7D	QPSK	0.074	18.68
		17M9W7D	16QAM	0.058	17.66
		18M0W7D	64QAM	0.042	16.21
		17M9W7D	256QAM	0.026	14.18

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)

REVIEWED BY

Report prepared by : Jung Ki Lim Engineer of Telecommunication Testing Center	Report approved by : Jong Seok Lee Manager of Telecommunication Testing Center

This test results were applied only to the test methods required by the standard.

This laboratory is not accredited for the test results marked *.
The above Test Report is the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS(Korea Laboratory Accreditation Scheme), which signed the ILAC-MRA. (HCT Accreditation No.: KT197)

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

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-2201-FC033	January 05, 2022	- First Approval Report

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.

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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:	A3LSMA536V
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§22, §2
EUT Type:	Mobile phone
Model(s):	SM-A536V
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:	826.5 MHz – 846.5 MHz (Sub6 n5(5 MHz)) 829.0 MHz – 844.0 MHz (Sub6 n5(10 MHz)) 831.5 MHz – 841.5 MHz (Sub6 n5(15 MHz)) 834.0 MHz – 839.0 MHz (Sub6 n5(20 MHz))
Date(s) of Tests:	November 29, 2021 ~ January 03, 2022
Serial number:	Radiated: R3CRA0Y6K5E Conducted: 594d1d5d23257ece

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), Bluetooth, BT LE, NFC,

mmWave(n260/261).

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
Band 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	- N/A (See SAR Report)
Peak- to- Average Ratio	- KDB 971168 D01 v03r01 – Section 5.7 - ANSI C63.26-2015 – Section 5.2.3.4
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 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 ≥ 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".
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;

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

   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.

3.3 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 ≥ 3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points > 2 x 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;

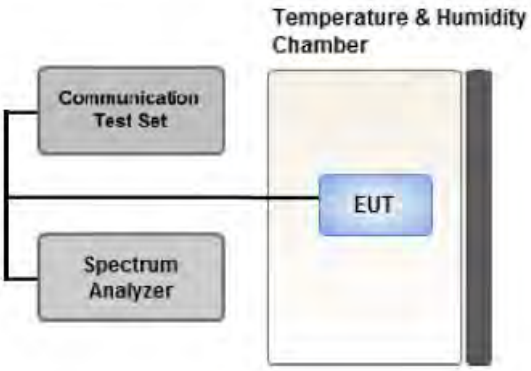
$$\text{Result}_{(dBm)} = \text{Pg}_{(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dBi)}$$

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.

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

3.4 PEAK- TO- AVERAGE RATIO



Test setup

① **CCDF Procedure for PAPR**

Test Settings

1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Set the measurement interval as follows:
   .- for continuous transmissions, set to 1 ms,
   .- or burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.
4. Record the maximum PAPR level associated with a probability of 0.1 %.

② **Alternate Procedure for PAPR**

Use one of the procedures presented in 5.2(ANSI C63.26-2015) to measure the total peak power and record as P_{Pk}. Use one of the applicable procedures presented 5.2(ANSI C63.26-2015) to measure the total average power and record as P_{Avg}. Determine the P.A.R. from:

$$P.A.R_{(dB)} = P_{Pk\ (dBm)} - P_{Avg\ (dBm)}\ (P_{Avg} = \text{Average Power + Duty cycle Factor})$$

Test Settings(Peak Power)

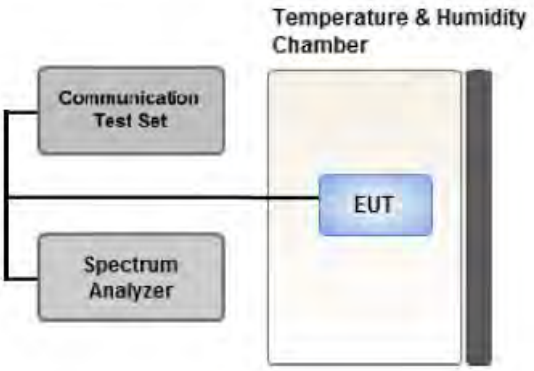
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW ≥ 3 × RBW.

1. Set the RBW ≥ OBW.
2. Set VBW ≥ 3 × RBW.
3. Set span ≥ 2 × OBW.
4. Sweep time ≥ 10 × (number of points in sweep) × (transmission symbol period).
5. Detector = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the peak amplitude level.

Test Settings(Average Power)

1. Set span to 2 × to 3 × the OBW.
2. Set RBW ≥ OBW.
3. Set VBW ≥ 3 × RBW.
4. Set number of measurement points in sweep ≥ 2 × span / RBW.
5. Sweep time:
   Set ≥ [10 × (number of points in sweep) × (transmission period)] for single sweep (automation-compatible) measurement. The transmission period is the (on + off) time.
6. Detector = power averaging (rms).
7. Set sweep trigger to “free run.”
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. (To accurately determine the average power over the on and off period of the transmitter, it can be necessary to increase the number of traces to be averaged above 100 or, if using a manually configured sweep time, increase the sweep time.)
9. Use the peak marker function to determine the maximum amplitude level.
10. Add [10 log (1/duty cycle)] to the measured maximum power level to compute the average power during continuous transmission. For example, add [10 log (1/0.25)] = 6 dB if the duty cycle is a constant 25 %.

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.

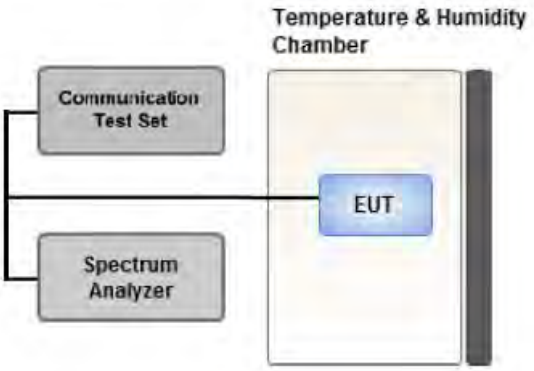
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

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 ≥ 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

3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL



Test setup

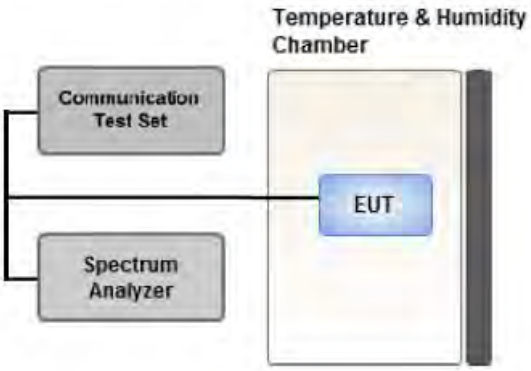
Test Overview

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

3.7 BAND 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 > 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
8. Sweep time = auto couple
9. The trace was allowed to stabilize

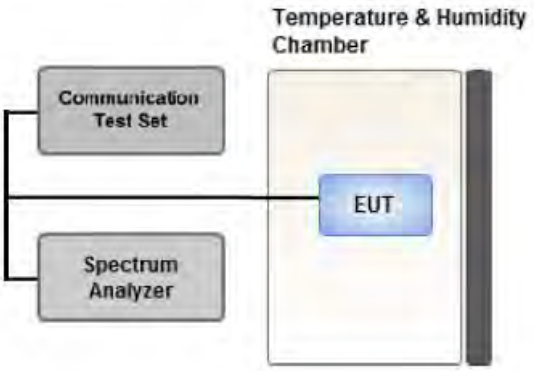
Test Notes

According to FCC 22.917, 24.238, 27.53 specified that power of any emission outside of The authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

All measurements were done at 2 channels(low and high operational frequency range.)

The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

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 : Stand alone, Stand alone + External accessories (Earphone, AC adapter, etc)
  Worst case : Stand alone
  Mode: NSA,SA
  Worst case: NSA (2A-n5A)
- We were performed the RSE test in condition of co-location. There has no significant emission raised.
  Mode : WWAN + WLAN 5 GHz + BT (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 were investigated and the worst case configuration results are reported.
  Worst case: 2A-n5A (10 MHz)
- 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 were investigated and the worst case bandwidth results are reported.
  (Worst case : 20 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 Emissions	PI/2 BPSK	1	53	X

3.10 WORST CASE(CONDUCTED TEST)

- 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: NSA (2A-n5A)
- 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 Peak- to- Average Ratio	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	5, 10, 15, 20	Mid	Full RB	0
Band Edge	PI/2 BPSK	5	Low	1	0
			High	1	24
		10	Low	1	0
			High	1	51
		15	Low	1	0
			High	1	78
		20	Low	1	0
			High	1	105
		5, 10, 15, 20	Low, High	Full RB	0
Spurious and Harmonic Emissions at Antenna Terminal	PI/2 BPSK	5, 10, 15, 20	Low, Mid, High	1	1

4. LIST OF TEST EQUIPMENT

Equipment	Model	Manufacture	Serial No.	Due to Calibration	Calibration Interval
Precision Dipole Antenna	UHAP	Schwarzbeck	01273	05/30/2022	Biennial
Precision Dipole Antenna	UHAP	Schwarzbeck	01274	05/30/2022	Biennial
Horn Antenna(1~18GHz)	BBHA 9120D	Schwarzbeck	02289	05/08/2022	Biennial
Horn Antenna(1~18GHz)	BBHA 9120D	Schwarzbeck	9120D-1299	05/04/2022	Biennial
Horn Antenna(15~40GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	10/13/2022	Biennial
Horn Antenna(15~40GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	02/11/2022	Biennial
Loop Antenna(9kHz~30 MHz)	FMZB1513	Rohde & Schwarz	1513-175	05/18/2022	Biennial
Bilog Antenna	VULB9160	Schwarzbeck	3150	03/03/2023	Biennial
Hybrid Antenna	VULB9160	Schwarzbeck	760	02/22/2023	Biennial
High Pass Filter	WHKX10-900-1000-15000-40SS	Wainwright Instruments	15	06/15/2022	Annual
High Pass Filter	WHKX10-2700-3000-18000-40SS	Wainwright Instruments	145	06/15/2022	Annual
High Pass Filter	WHNX6-4740-6000-26500-40CC	Wainwright Instruments	11	06/15/2022	Annual
LOW NOISE AMP (100 MHz ~ 18GHz)	CBLU1183540B-01	CERNEX	26822	06/15/2022	Annual
Power Amplifier	CBL18265035	CERNEX	22966	12/02/2022	Annual
Power Amplifier	CBL26405040	CERNEX	25956	03/23/2022	Annual
DC Power Supply	E3632A	Hewlett Packard	MY40004427	09/15/2022	Annual
Power Splitter(DC~26.5 GHz)	11667B	Hewlett Packard	11275	04/07/2022	Annual
Chamber	SU-642	ESPEC	93008124	03/15/2022	Annual
Signal Analyzer(10Hz~26.5GHz)	N9020A	Agilent	MY51110063	04/22/2022	Annual
ATTENUATOR(20dB)	8493C	Hewlett Packard	17280	06/01/2022	Annual
Spectrum Analyzer(10Hz~40GHz)	FSV40	REOHDE & SCHWARZ	101436	03/02/2022	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/18/2022	Annual
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262287700	05/25/2022	Annual
Wideband Radio Communication Tester	MT8000A	Anritsu Corp.	6262302511	05/26/2022	Annual
SIGNAL GENERATOR (100kHz~40GHz)	SMB100A	REOHDE & SCHWARZ	177633	07/05/2022	Annual
Signal Analyzer(5Hz~40.0GHz)	N9030B	KEYSIGHT	MY55480167	06/02/2022	Annual
4-Way Divider	ZC4PD-K1844+	Mini-Circuits	942907	09/27/2022	Annua
FCC LTE Mobile Conducted RF Automation Test Software	-	HCT CO., LTD.,	-	-	-

Note:

1. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.
2. 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 (±dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.82 (Confidence level about 95 %, *k*=2)
Radiated Disturbance (9 kHz ~ 30 MHz)	3.40 (Confidence level about 95 %, *k*=2)
Radiated Disturbance (30 MHz ~ 1 GHz)	4.80 (Confidence level about 95 %, *k*=2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.70 (Confidence level about 95 %, *k*=2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.05 (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
Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§2.1051, §22.917(a)	< 43 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions	PASS
Conducted Output Power	§2.1046	N/A	See Note1
Frequency stability / variation of ambient temperature	§2.1055, §22.355	< 2.5 ppm	PASS

Note:

1. See SAR Report
2. Conducted tests were tested using 5G Wireless Tester.

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	PASS
Radiated Spurious and Harmonic Emissions	§2.1053, §22.917(a)	< 43 + 10log10 (P[Watts]) for all out-of band emissions	PASS

Note:

1. Radiateded tests were tested using 5G Wireless Tester.

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

ERP = Substitute LEVEL(dBm) + Ant. Gain – 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

EIRP = Substitute LEVEL(dBm) + Ant. Gain – 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)

PSK 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 EFFECTIVE RADIATED POWER

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	ERP		RB	
								W	W	dBm	Size	Offset
826.5	Sub6 n5/ 5 MHz [15 kHz]	PI/2 BPSK	-31.16	29.92	-10.09	1.40	H	< 7.00	0.070	18.43	1	12
		QPSK	-31.21	29.87	-10.09	1.40	H		0.069	18.38		
		16-QAM	-32.20	28.88	-10.09	1.40	H		0.055	17.39		
		64-QAM	-33.85	27.23	-10.09	1.40	H		0.037	15.74		
		256-QAM	-35.77	25.31	-10.09	1.40	H		0.024	13.82		
836.5		PI/2 BPSK	-30.87	29.87	-10.07	1.40	H		0.069	18.40	1	12
		QPSK	-30.90	29.84	-10.07	1.40	H		0.069	18.37		
		16-QAM	-31.86	28.88	-10.07	1.40	H		0.055	17.41		
		64-QAM	-33.39	27.35	-10.07	1.40	H		0.039	15.88		
		256-QAM	-35.42	25.32	-10.07	1.40	H		0.024	13.85		
846.5		PI/2 BPSK	-30.88	30.08	-10.05	1.43	H		0.072	18.60	1	12
		QPSK	-30.96	30.00	-10.05	1.43	H		0.071	18.52		
		16-QAM	-31.83	29.13	-10.05	1.43	H		0.058	17.65		
		64-QAM	-33.40	27.56	-10.05	1.43	H		0.041	16.08		
		256-QAM	-35.30	25.66	-10.05	1.43	H		0.026	14.18		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	ERP		RB	
								W	W	dBm	Size	Offset
829.0	Sub6 n5/ 10 MHz [15 kHz]	PI/2 BPSK	-31.13	29.80	-10.08	1.40	H	< 7.00	0.068	18.32	1	26
		QPSK	-31.14	29.79	-10.08	1.40	H		0.068	18.31		
		16-QAM	-32.05	28.88	-10.08	1.40	H		0.055	17.40		
		64-QAM	-33.60	27.33	-10.08	1.40	H		0.039	15.85		
		256-QAM	-35.59	25.34	-10.08	1.40	H		0.024	13.86		
836.5		PI/2 BPSK	-30.88	29.86	-10.07	1.40	H		0.069	18.39	1	26
		QPSK	-30.90	29.84	-10.07	1.40	H		0.069	18.37		
		16-QAM	-31.85	28.89	-10.07	1.40	H		0.055	17.42		
		64-QAM	-33.44	27.30	-10.07	1.40	H		0.038	15.83		
		256-QAM	-35.32	25.42	-10.07	1.40	H		0.025	13.95		
844.0		PI/2 BPSK	-30.79	30.00	-10.05	1.43	H		0.071	18.52	1	26
		QPSK	-30.80	29.99	-10.05	1.43	H		0.071	18.51		
		16-QAM	-31.80	28.99	-10.05	1.43	H		0.056	17.51		
		64-QAM	-33.39	27.40	-10.05	1.43	H		0.039	15.92		
		256-QAM	-35.24	25.55	-10.05	1.43	H		0.026	14.07		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	ERP		RB	
								W	W	dBm	Size	Offset
831.5	Sub6 n5/ 15 MHz [15 kHz]	PI/2 BPSK	-31.05	29.85	-10.08	1.40	H	< 7.00	0.069	18.37	1	39
		QPSK	-31.10	29.80	-10.08	1.40	H		0.068	18.32		
		16-QAM	-32.05	28.85	-10.08	1.40	H		0.055	17.37		
		64-QAM	-33.50	27.40	-10.08	1.40	H		0.039	15.92		
		256-QAM	-35.46	25.44	-10.08	1.40	H		0.025	13.96		
836.5		PI/2 BPSK	-30.70	30.04	-10.07	1.40	H		0.072	18.57	1	39
		QPSK	-30.79	29.95	-10.07	1.40	H		0.070	18.48		
		16-QAM	-31.82	28.92	-10.07	1.40	H		0.056	17.45		
		64-QAM	-33.23	27.51	-10.07	1.40	H		0.040	16.04		
		256-QAM	-35.28	25.46	-10.07	1.40	H		0.025	13.99		
841.5		PI/2 BPSK	-30.75	29.99	-10.06	1.43	H		0.071	18.50	1	39
		QPSK	-30.78	29.96	-10.06	1.43	H		0.070	18.47		
		16-QAM	-31.80	28.94	-10.06	1.43	H		0.056	17.45		
		64-QAM	-33.25	27.49	-10.06	1.43	H		0.040	16.00		
		256-QAM	-35.18	25.56	-10.06	1.43	H		0.026	14.07		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	ERP		RB	
								W	W	dBm	Size	Offset
834.0	Sub6 n5/ 20 MHz [15 kHz]	PI/2 BPSK	-30.75	30.15	-10.07	1.40	H	< 7.00	0.074	18.68	1	53
		QPSK	-30.76	30.14	-10.07	1.40	H		0.074	18.67		
		16-QAM	-31.81	29.09	-10.07	1.40	H		0.058	17.62		
		64-QAM	-33.27	27.63	-10.07	1.40	H		0.041	16.16		
		256-QAM	-35.35	25.55	-10.07	1.40	H		0.026	14.08		
836.5		PI/2 BPSK	-30.79	29.95	-10.07	1.40	H		0.071	18.48	1	53
		QPSK	-30.80	29.94	-10.07	1.40	H		0.070	18.47		
		16-QAM	-31.78	28.96	-10.07	1.40	H		0.056	17.49		
		64-QAM	-33.30	27.44	-10.07	1.40	H		0.040	15.97		
		256-QAM	-35.30	25.44	-10.07	1.40	H		0.025	13.97		
839.0		PI/2 BPSK	-30.75	30.17	-10.06	1.40	H		0.074	18.71	1	53
		QPSK	-30.78	30.14	-10.06	1.40	H		0.074	18.68		
		16-QAM	-31.80	29.12	-10.06	1.40	H		0.058	17.66		
		64-QAM	-33.25	27.67	-10.06	1.40	H		0.042	16.21		
		256-QAM	-35.28	25.64	-10.06	1.40	H		0.026	14.18		

8.2 RADIATED SPURIOUS EMISSIONS

▣ NR Band: N5

▣ LTE Band(Anchor): B2

▣ Bandwidth: 20 MHz

▣ Modulation: PI/2 BPSK

▣ Distance: 3 meters

▣ SCS: 15 kHz

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)
166800 (834.0)	1 668.00	-57.33	9.52	-66.98	2.03	V	-59.49	-13.00
	2 502.00	-46.56	10.20	-51.82	2.49	H	-44.11	-13.00
	3 336.00	-60.57	11.24	-62.87	3.00	V	-54.62	-13.00
167300 (836.5)	1 673.00	-55.57	9.52	-65.22	2.03	V	-57.73	-13.00
	2 509.50	-48.08	10.28	-53.06	2.51	H	-45.29	-13.00
	3 346.00	-58.34	11.28	-61.12	2.99	H	-52.83	-13.00
167800 (839.0)	1 678.00	-55.91	9.58	-65.53	2.05	H	-58.00	-13.00
	2 517.00	-46.66	10.36	-51.32	2.53	H	-43.49	-13.00
	3 356.00	-60.33	11.30	-63.13	2.98	H	-54.81	-13.00

▣ ENDC-Mode : 2A(10 MHz)-n5A(20 MHz)

Band	Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)
2	18900 (1880.0)	3760.00	-60.76	11.64	-60.99	3.16	H	-52.51	-13.00
		5640.00	-61.00	12.00	-54.82	3.93	V	-46.75	-13.00
		7520.00	-61.32	11.54	-46.87	4.51	V	-39.84	-13.00

8.3 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
Sub6 n5	5 MHz	836.5	BPSK	25	0	4.28
			QPSK			5.48
			16-QAM			6.31
			64-QAM			6.33
			256-QAM			6.44
	10 MHz		BPSK	50		4.40
			QPSK			5.51
			16-QAM			6.29
			64-QAM			6.21
			256-QAM			6.18
	15 MHz		BPSK	75		4.31
			QPSK			5.32
			16-QAM			6.12
			64-QAM			6.12
			256-QAM			6.26
	20 MHz		BPSK	100		4.25
			QPSK			5.31
			16-QAM			6.05
			64-QAM			6.07
			256-QAM			6.24

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 56 ~ 75.
2. Peak- to- Average Ratio is not required. These values are reported for information only.

8.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Sub6 n5	5 MHz	836.5	BPSK	25	0	4.5295
			QPSK			4.5212
			16-QAM			4.5506
			64-QAM			4.5220
			256-QAM			4.5250
	10 MHz		BPSK	50		8.9939
			QPSK			9.0186
			16-QAM			9.0121
			64-QAM			9.0118
			256-QAM			8.9948
	15 MHz		BPSK	75		13.452
			QPSK			13.491
			16-QAM			13.473
			64-QAM			13.468
			256-QAM			13.459
	20 MHz		BPSK	100		17.896
			QPSK			17.943
			16-QAM			17.914
			64-QAM			17.958
			256-QAM			17.891

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 36 ~ 55.

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)
Sub6 n5	5	826.5	3.8336	30.200	-74.702	-44.502	-13.00
		836.5	1.7379	30.200	-73.718	-43.518	
		846.5	1.7399	30.200	-74.280	-44.080	
	10	829.0	1.7384	30.200	-71.543	-41.343	
		836.5	1.7374	30.200	-68.072	-37.872	
		844.0	1.7438	30.200	-69.042	-38.842	
	15	831.5	1.7389	30.200	-70.876	-40.676	
		836.5	1.7409	30.200	-70.650	-40.450	
		841.5	1.7394	30.200	-71.637	-41.437	
	20	834.0	1.7409	30.200	-72.548	-42.348	
		836.5	1.7379	30.200	-68.839	-38.639	
		839.0	9.7169	30.815	-74.672	-43.857	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 100 ~ 111.
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

8.6 BAND EDGE

- Plots of the EUT's Band Edge are shown Page 76 ~ 99.

8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

▣ BandWidth: 5 MHz

▣ Voltage(100 %): 4.200 VDC

▣ Batt. Endpoint: 3.400 VDC

▣Deviation Limit: ± 0.000 25 % or 2.5 ppm

Test. Frequncy (MHz)	Voltage (%)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
836.5	100 %	+20(Ref)	836 500 015	0.0	0.000 000	0.000
	100 %	-30	836 500 024	9.2	0.000 001	0.011
	100 %	-20	836 500 020	5.2	0.000 001	0.006
	100 %	-10	836 500 032	16.9	0.000 002	0.020
	100 %	0	836 500 024	9.5	0.000 001	0.011
	100 %	+10	836 500 030	14.8	0.000 002	0.018
	100 %	+30	836 500 027	12.4	0.000 001	0.015
	100 %	+40	836 500 031	15.9	0.000 002	0.019
	100 %	+50	836 500 027	12.3	0.000 001	0.015
	Batt. Endpoint	+20	836 500 022	7.3	0.000 001	0.009

▣ BandWidth: 10 MHz

▣ Voltage(100 %): 4.200 VDC

▣ Batt. Endpoint: 3.400 VDC

▣Deviation Limit: ± 0.000 25 % or 2.5 ppm

Test. Frequncy (MHz)	Voltage (%)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
836.5	100 %	+20(Ref)	836 500 005	0.0	0.000 000	0.000
	100 %	-30	836 500 018	12.9	0.000 002	0.015
	100 %	-20	836 500 015	9.9	0.000 001	0.012
	100 %	-10	836 500 010	5.7	0.000 001	0.007
	100 %	0	836 500 016	10.7	0.000 001	0.013
	100 %	+10	836 500 018	13.3	0.000 002	0.016
	100 %	+30	836 500 009	3.7	0.000 000	0.004
	100 %	+40	836 500 008	3.3	0.000 000	0.004
	100 %	+50	836 500 013	7.7	0.000 001	0.009
	Batt. Endpoint	+20	836 500 011	6.5	0.000 001	0.008

▣ BandWidth: 15 MHz

▣ Voltage(100 %): 4.200 VDC

▣ Batt. Endpoint: 3.400 VDC

▣Deviation Limit: ± 0.000 25 % or 2.5 ppm

Test. Frequncy (MHz)	Voltage (%)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
836.5	100 %	+20(Ref)	836 500 013	0.0	0.000 000	0.000
	100 %	-30	836 500 025	11.5	0.000 001	0.014
	100 %	-20	836 500 023	9.4	0.000 001	0.011
	100 %	-10	836 500 026	12.8	0.000 002	0.015
	100 %	0	836 500 026	12.8	0.000 002	0.015
	100 %	+10	836 500 026	12.6	0.000 002	0.015
	100 %	+30	836 500 028	14.3	0.000 002	0.017
	100 %	+40	836 500 024	10.1	0.000 001	0.012
	100 %	+50	836 500 027	13.7	0.000 002	0.016
	Batt. Endpoint	+20	836 500 028	14.5	0.000 002	0.017

▣ BandWidth: 20 MHz

▣ Voltage(100 %): 4.200 VDC

▣ Batt. Endpoint: 3.400 VDC

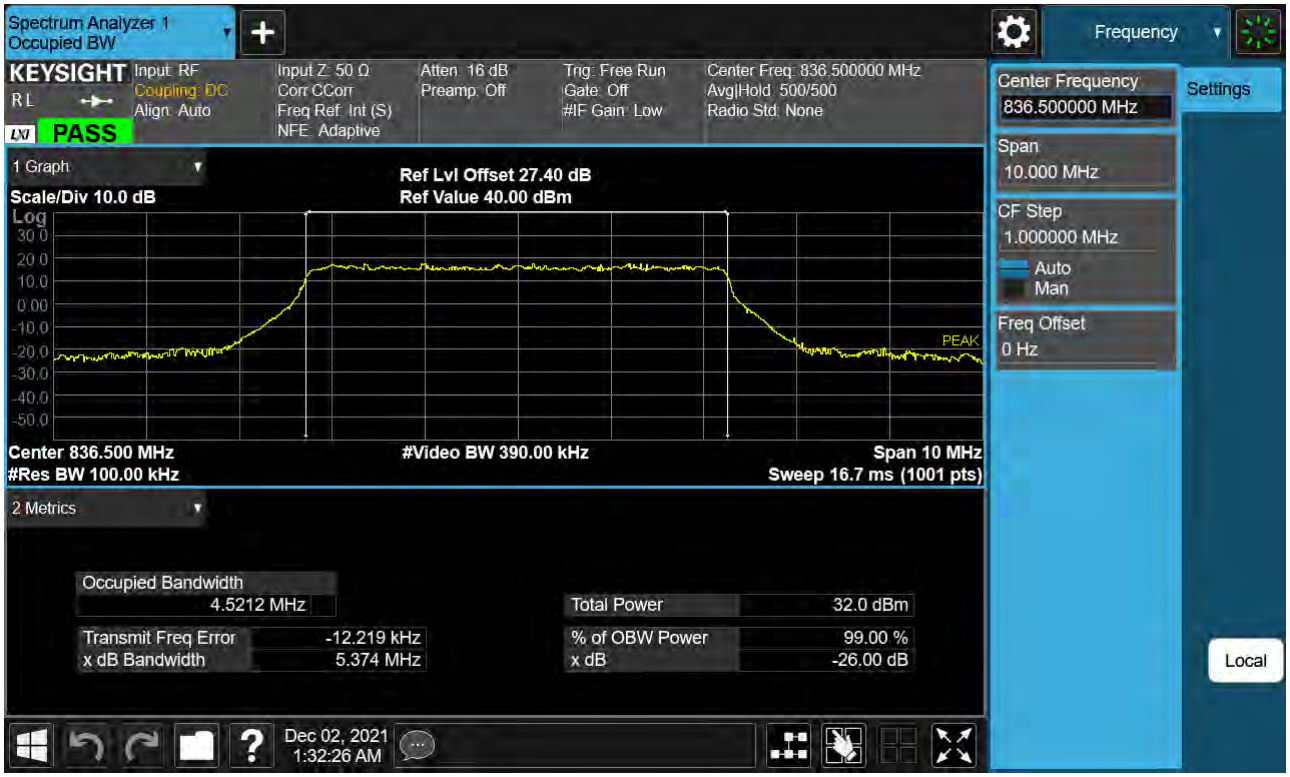
▣Deviation Limit: ± 0.000 25 % or 2.5 ppm

Test. Frequncy (MHz)	Voltage (%)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
836.5	100 %	+20(Ref)	836 500 017	0.0	0.000 000	0.000
	100 %	-30	836 500 029	12.9	0.000 002	0.015
	100 %	-20	836 500 020	3.9	0.000 000	0.005
	100 %	-10	836 500 027	10.6	0.000 001	0.013
	100 %	0	836 500 021	4.1	0.000 000	0.005
	100 %	+10	836 500 022	5.1	0.000 001	0.006
	100 %	+30	836 500 028	11.8	0.000 001	0.014
	100 %	+40	836 500 025	8.7	0.000 001	0.010
	100 %	+50	836 500 020	3.7	0.000 000	0.004
	Batt. Endpoint	+20	836 500 031	14.4	0.000 002	0.017

9. TEST PLOTS

Sub6 n5. Occupied Bandwidth Plot (5 M BW Ch.167300 BPSK_Full RB_0)

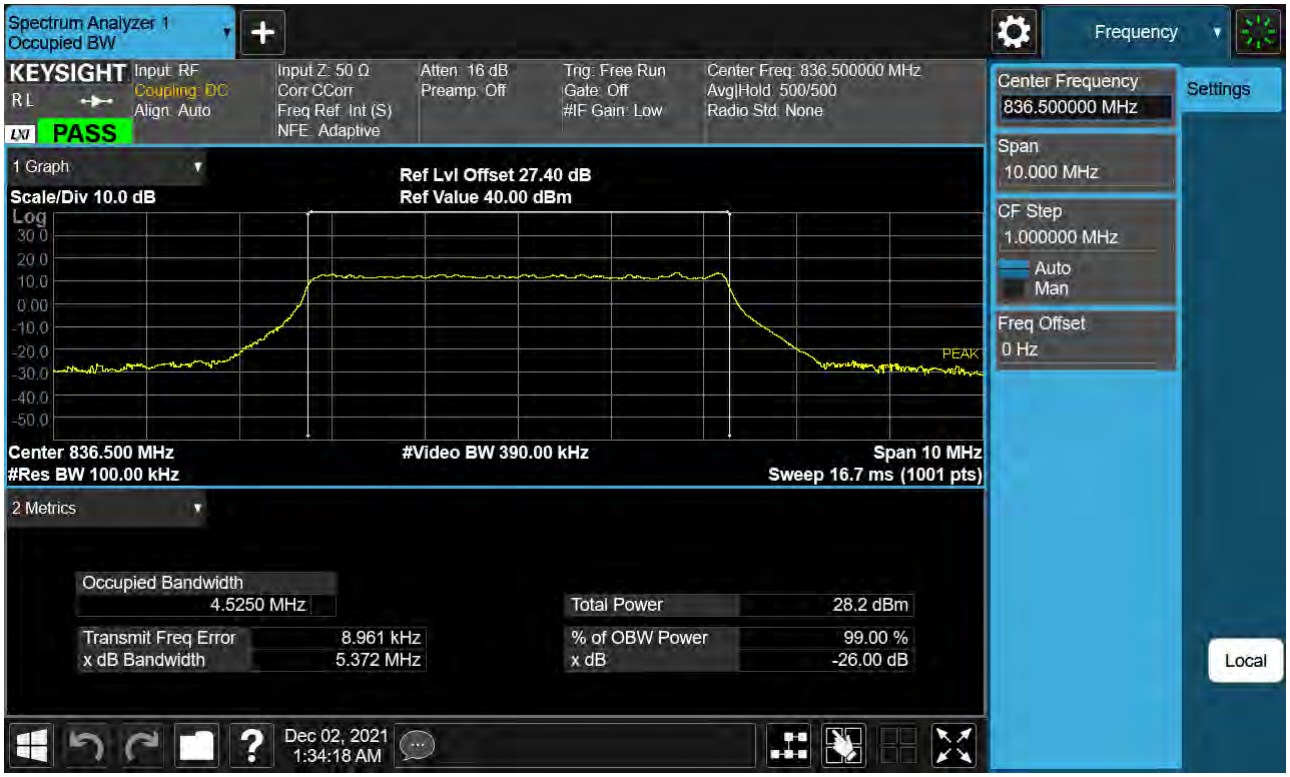
Sub6 n5. Occupied Bandwidth Plot (5 M BW Ch.167300 QPSK_ Full RB _0)



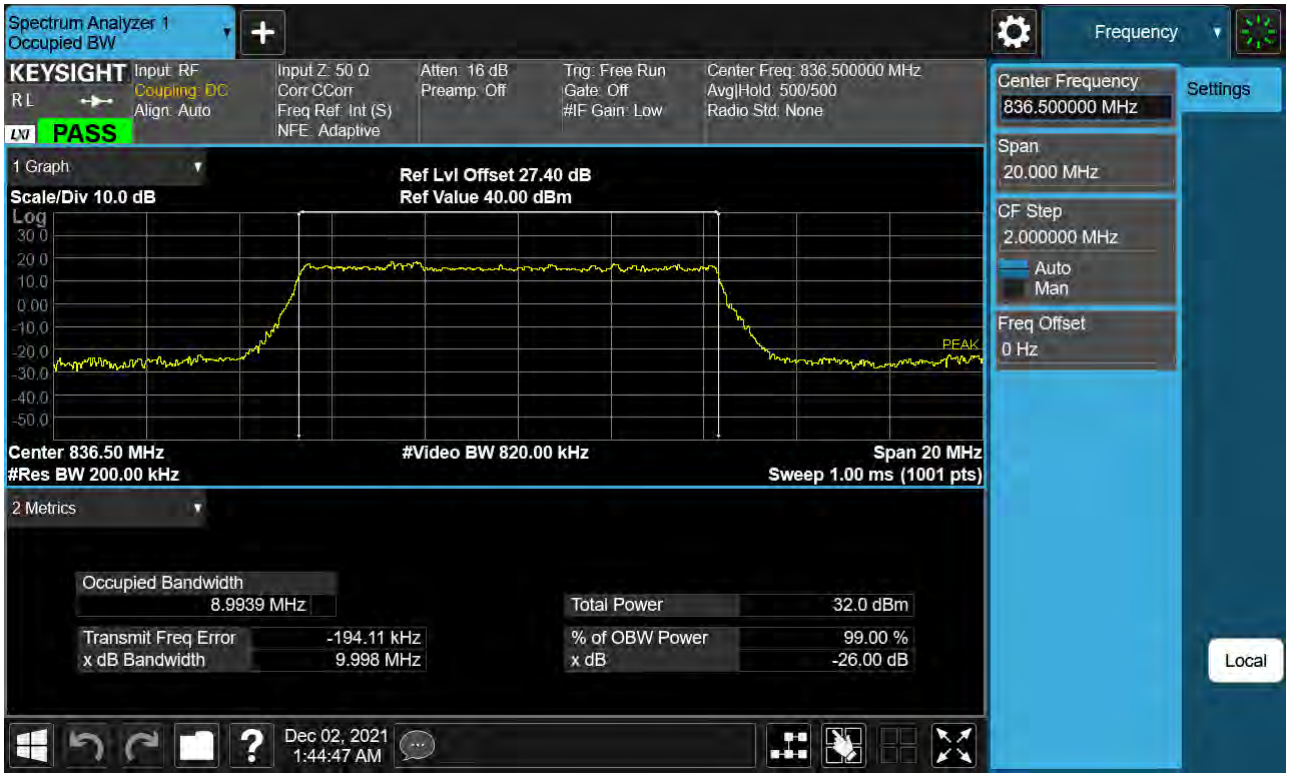
Sub6 n5. Occupied Bandwidth Plot (5 M BW Ch.167300 16QAM_ Full RB _0)

Sub6 n5. Occupied Bandwidth Plot (5 M BW Ch.167300 64QAM_ Full RB _0)

Sub6 n5. Occupied Bandwidth Plot (5 M BW Ch.167300 256QAM_ Full RB _0)



Sub6 n5. Occupied Bandwidth Plot (10 M BW Ch.167300 BPSK_ Full RB _0)

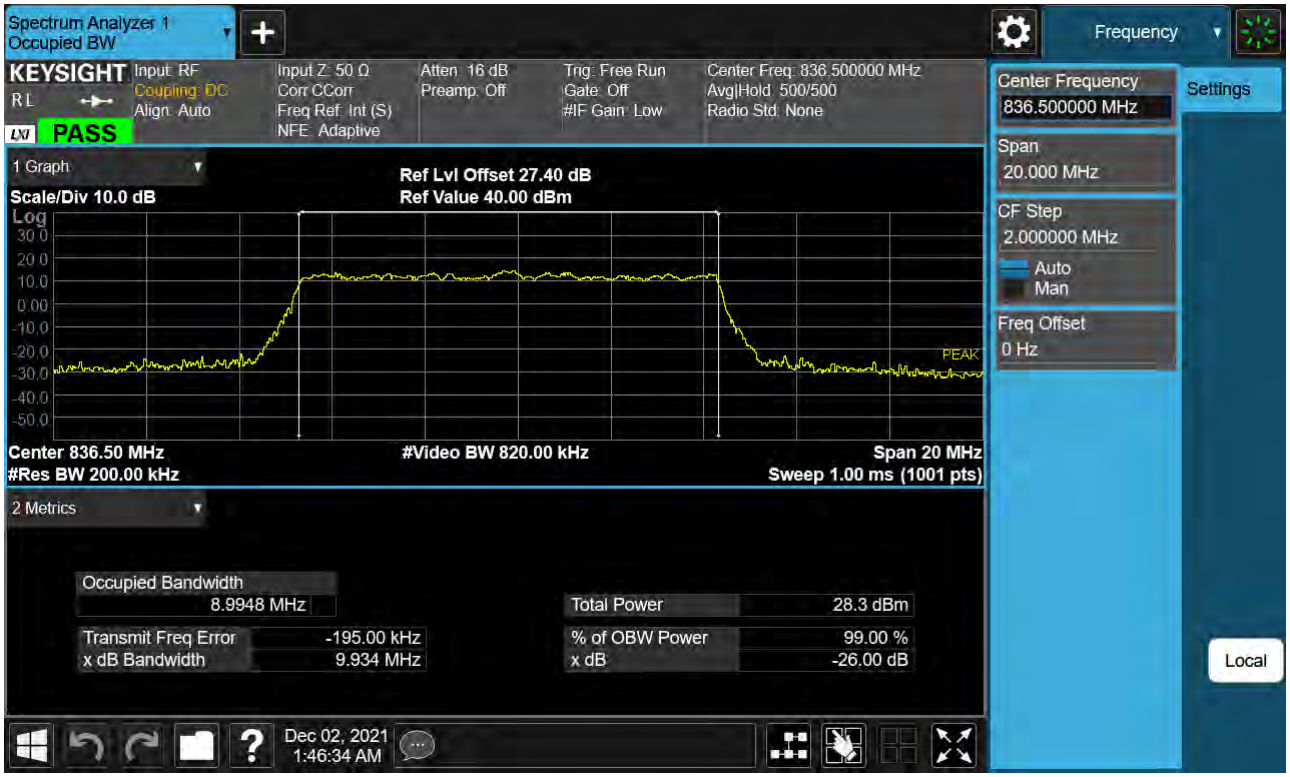


Sub6 n5. Occupied Bandwidth Plot (10 M BW Ch.167300 QPSK_ Full RB _0)

Sub6 n5. Occupied Bandwidth Plot (10 M BW Ch.167300 16QAM_ Full RB _0)

Sub6 n5. Occupied Bandwidth Plot (10 M BW Ch.167300 64QAM_ Full RB _0)

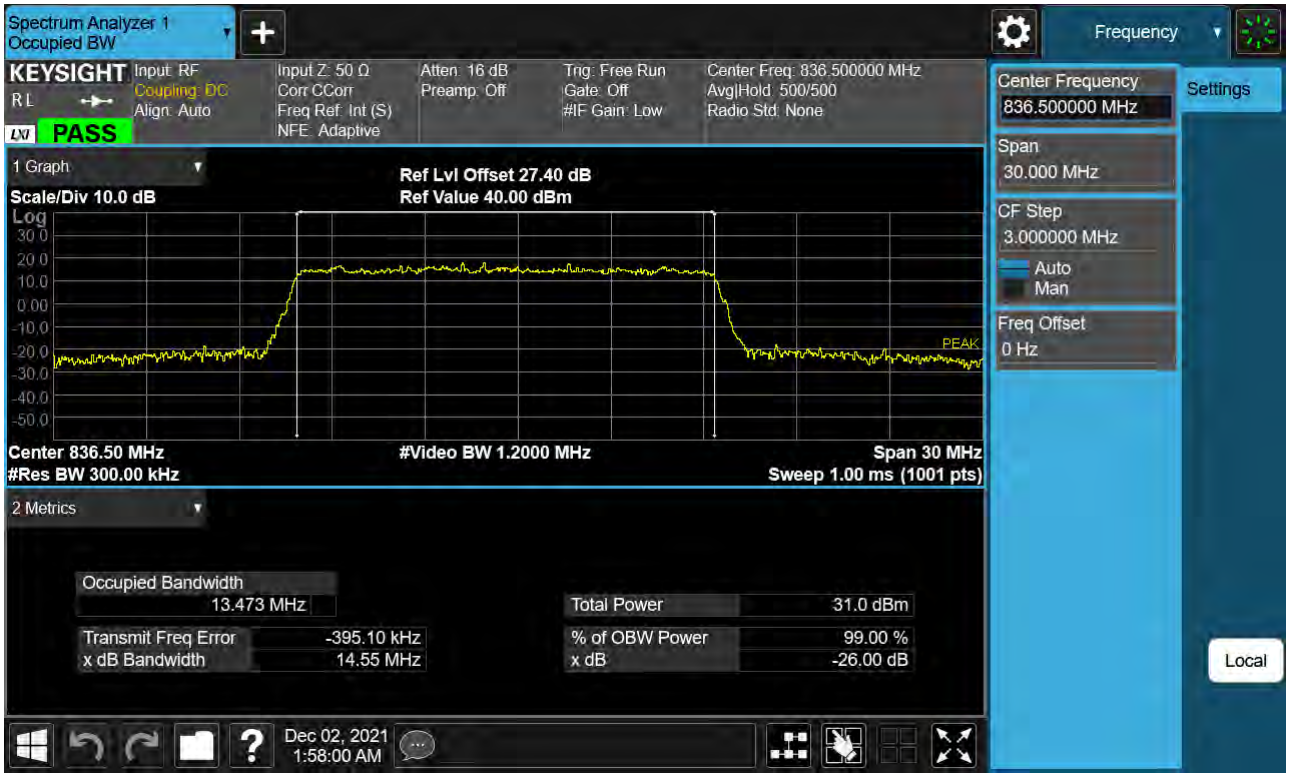
Sub6 n5. Occupied Bandwidth Plot (10 M BW Ch.167300 256QAM_ Full RB _0)



Sub6 n5. Occupied Bandwidth Plot (15 M BW Ch.167300 BPSK_ Full RB _0)

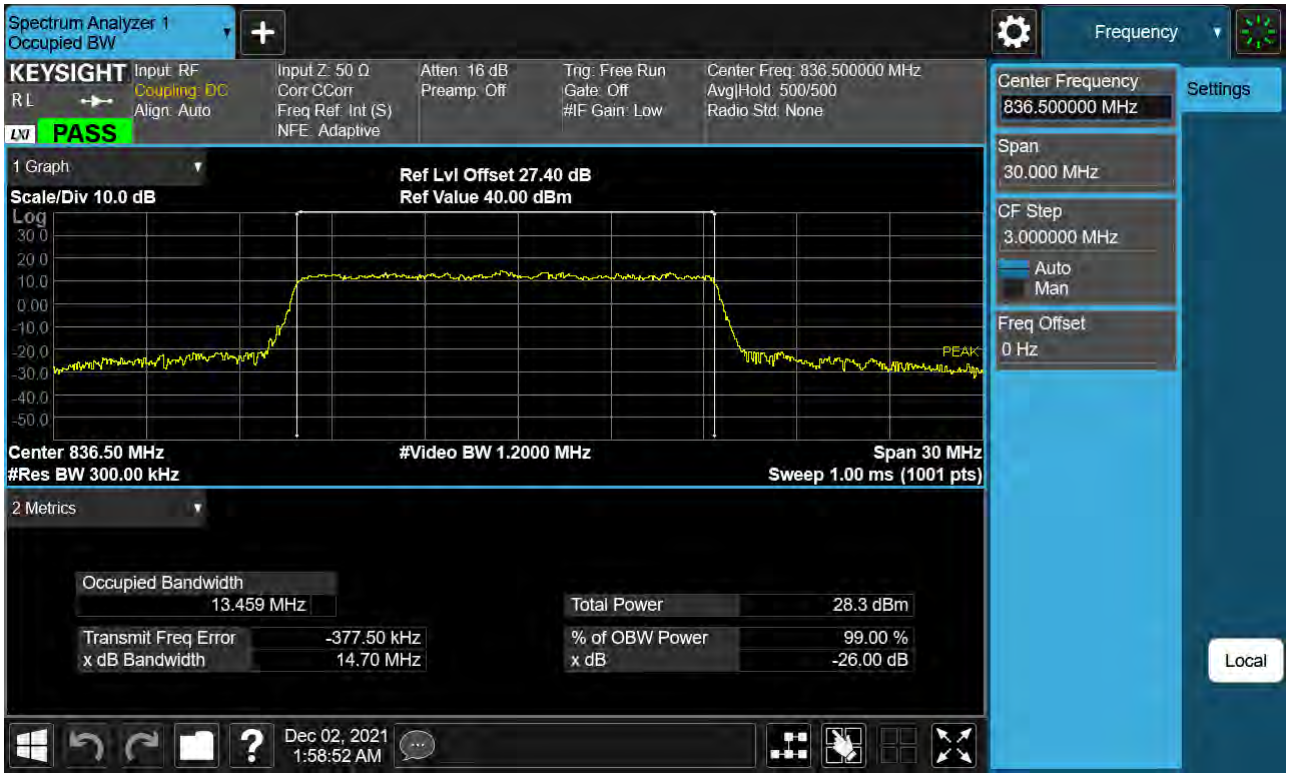
Sub6 n5. Occupied Bandwidth Plot (15 M BW Ch.167300 QPSK_ Full RB _0)

Sub6 n5. Occupied Bandwidth Plot (15 M BW Ch.167300 16QAM_ Full RB _0)



Sub6 n5. Occupied Bandwidth Plot (15 M BW Ch.167300 64QAM_ Full RB _0)

Sub6 n5. Occupied Bandwidth Plot (15 M BW Ch.167300 256QAM_ Full RB _0)



Sub6 n5. Occupied Bandwidth Plot (20 M BW Ch.167300 BPSK_ Full RB _0)

Sub6 n5. Occupied Bandwidth Plot (20 M BW Ch.167300 QPSK_ Full RB _0)

Sub6 n5. Occupied Bandwidth Plot (20 M BW Ch.167300 16QAM_ Full RB _0)

Sub6 n5. Occupied Bandwidth Plot (20 M BW Ch.167300 64QAM_ Full RB _0)

Sub6 n5. Occupied Bandwidth Plot (20 M BW Ch.167300 256QAM_ Full RB _0)

Sub6 n5. PAR Plot (5 M BW_Ch.167300_ BPSK_ Full RB _0)

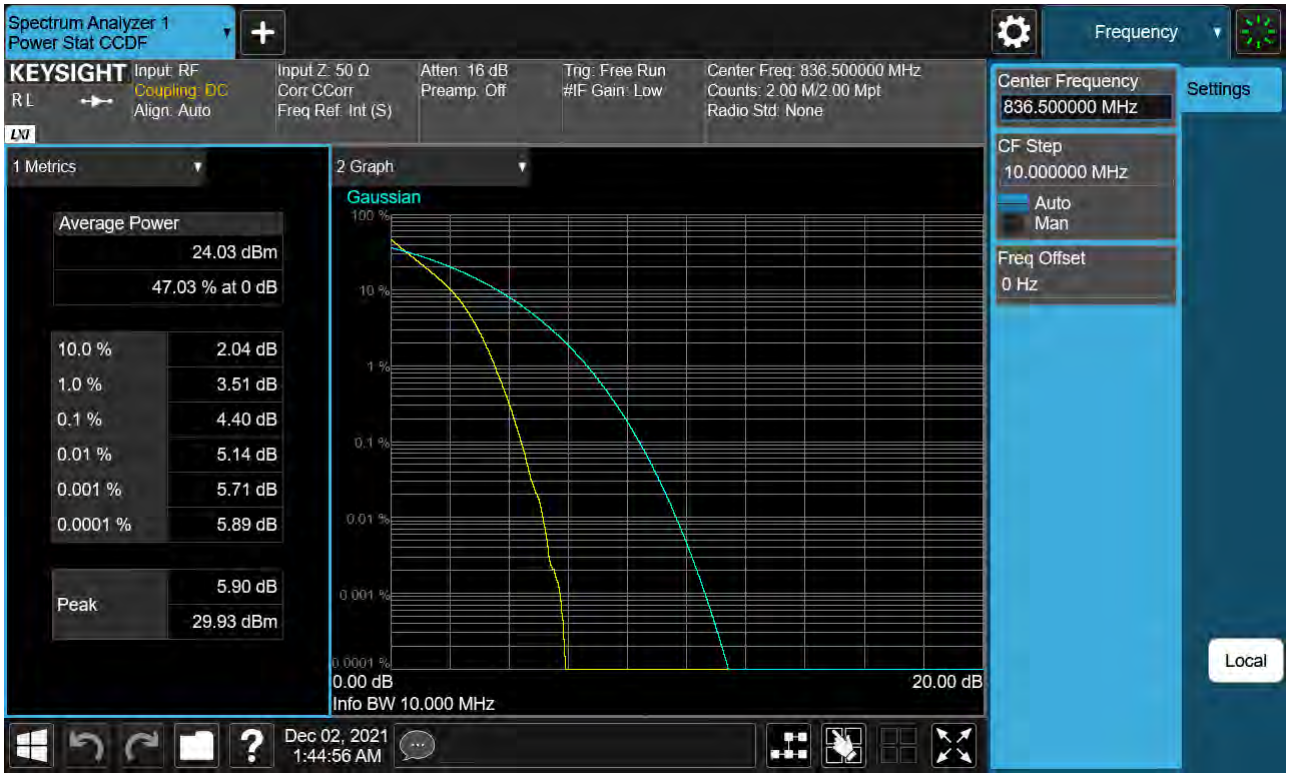
Sub6 n5. PAR Plot (5 M BW_Ch. 167300_QPSK_ Full RB _0)

Sub6 n5. PAR Plot (5 M BW_Ch. 167300_16QAM_ Full RB _0)

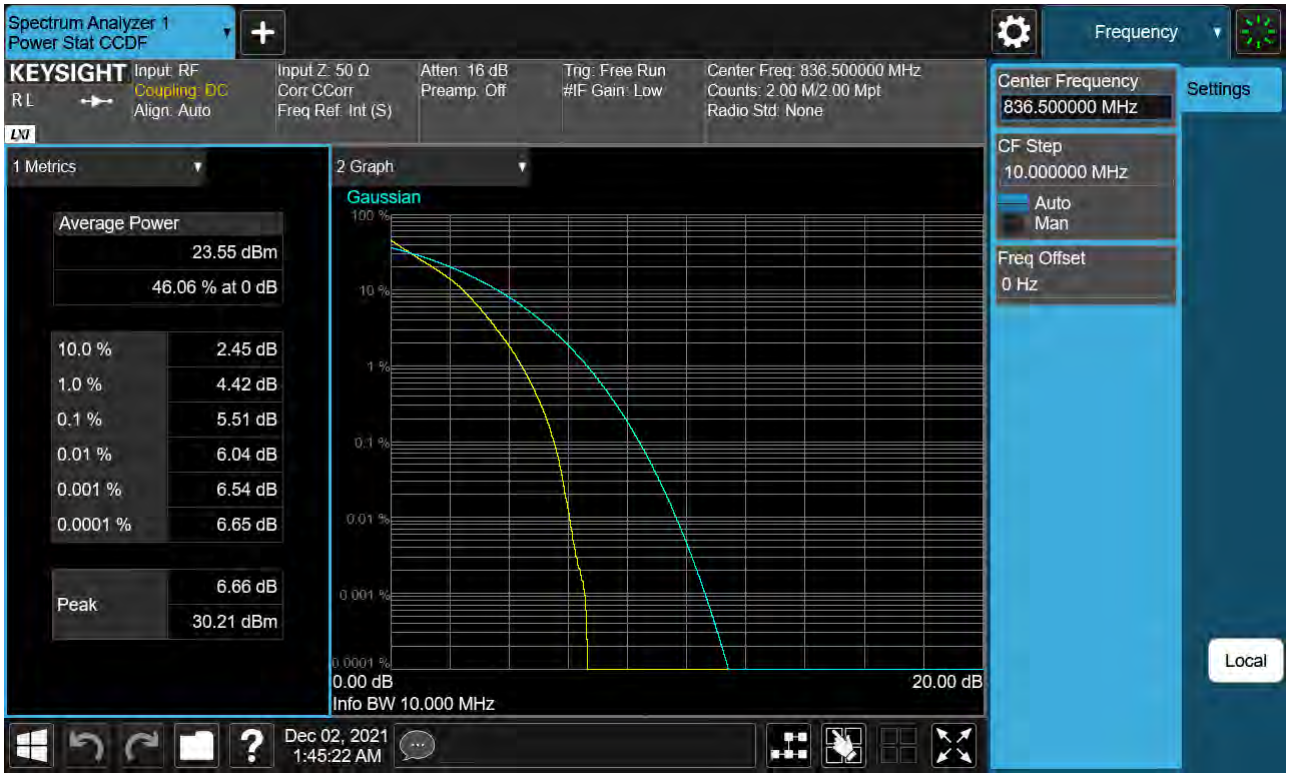
Sub6 n5. PAR Plot (5 M BW_Ch. 167300_64QAM_ Full RB _0)

Sub6 n5. PAR Plot (5 M BW_Ch. 167300_256QAM_ Full RB _0)

Sub6 n5. PAR Plot (10 M BW_Ch. 167300_ BPSK_ Full RB _0)



Sub6 n5. PAR Plot (10 M BW_Ch. 167300_QPSK_ Full RB _0)

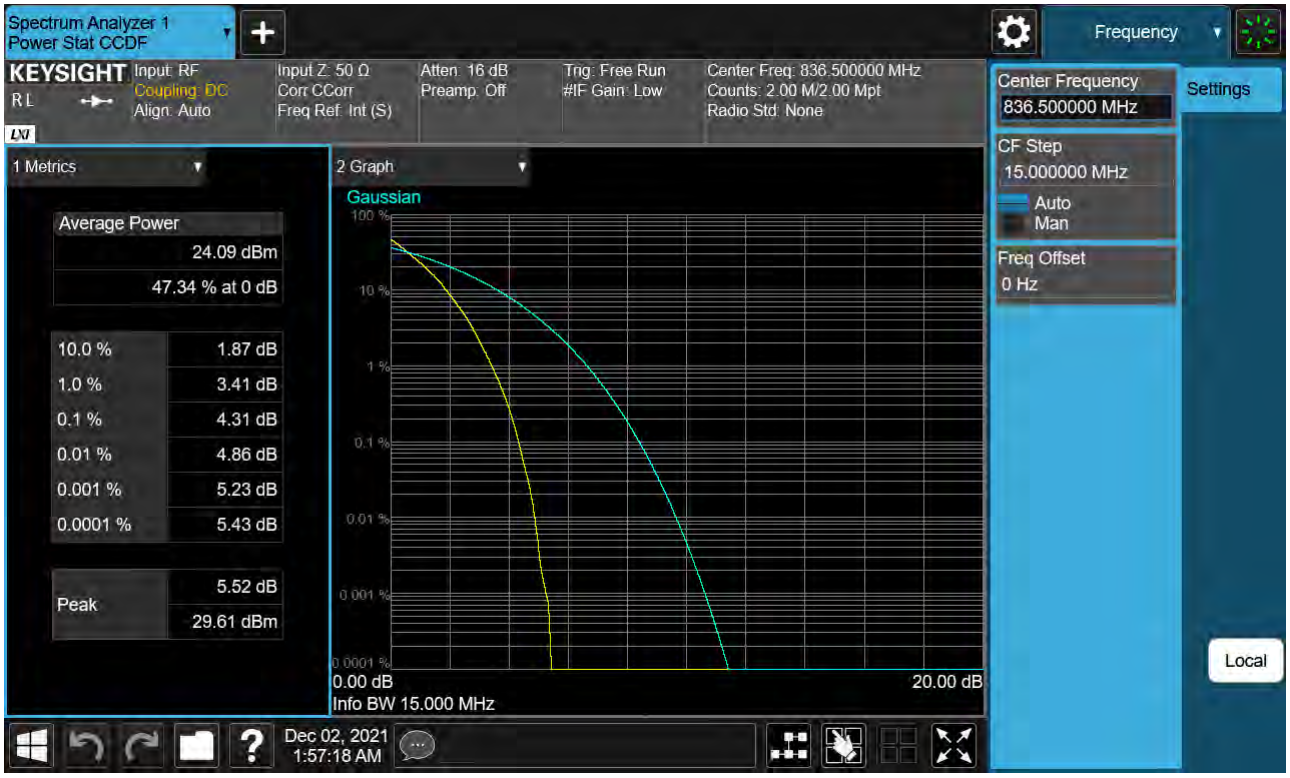


Sub6 n5. PAR Plot (10 M BW_Ch. 167300_16QAM_ Full RB _0)

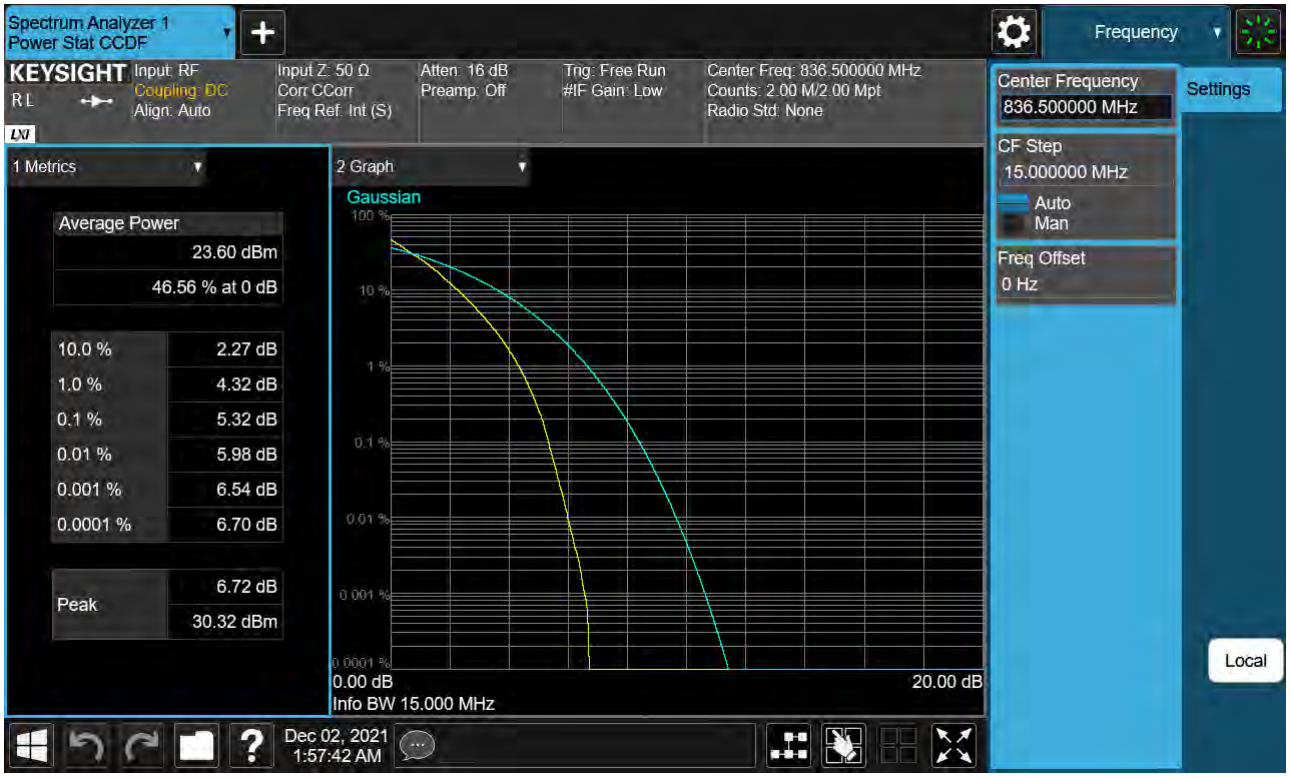
Sub6 n5. PAR Plot (10 M BW_Ch. 167300_64QAM_ Full RB _0)

Sub6 n5. PAR Plot (10 M BW_Ch. 167300_256QAM_ Full RB _0)

Sub6 n5. PAR Plot (15 M BW_Ch. 167300_ BPSK_ Full RB _0)



Sub6 n5. PAR Plot (15 M BW_Ch. 167300_QPSK_ Full RB _0)

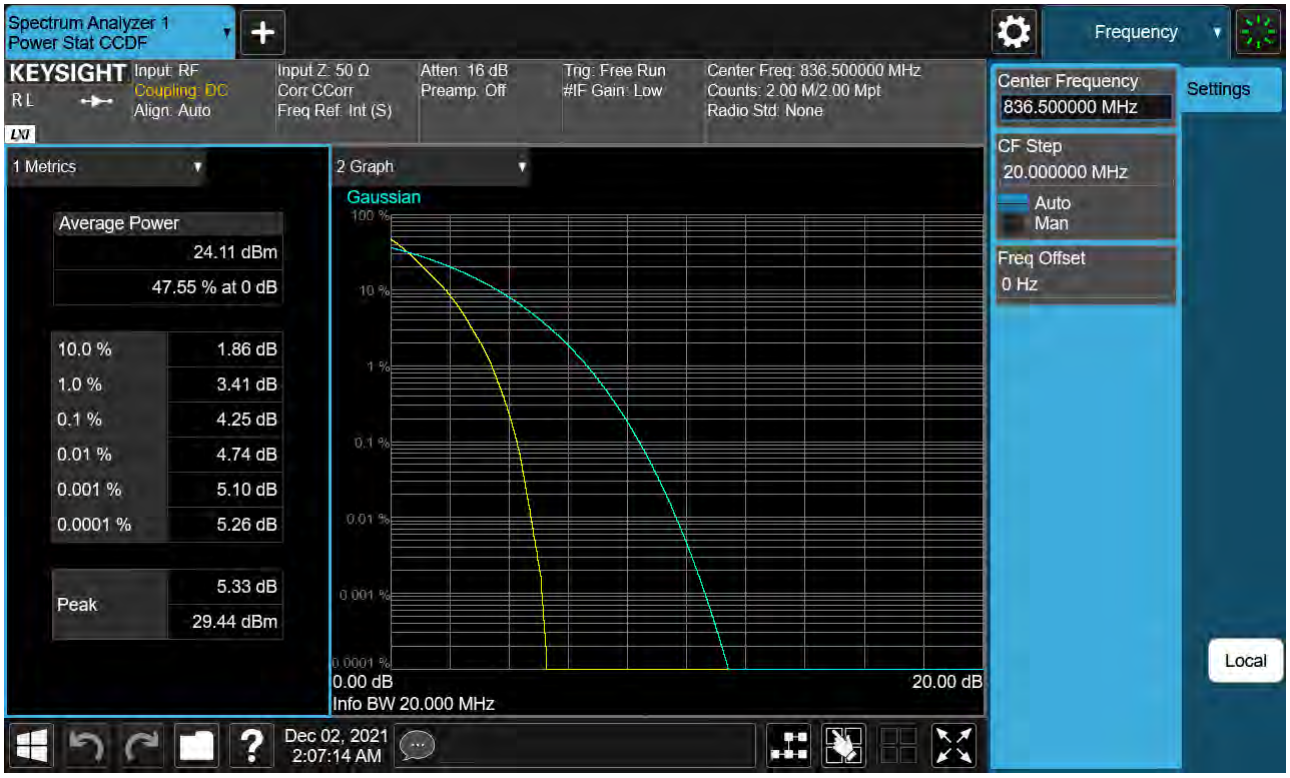


Sub6 n5. PAR Plot (15 M BW_Ch. 167300_16QAM_ Full RB _0)

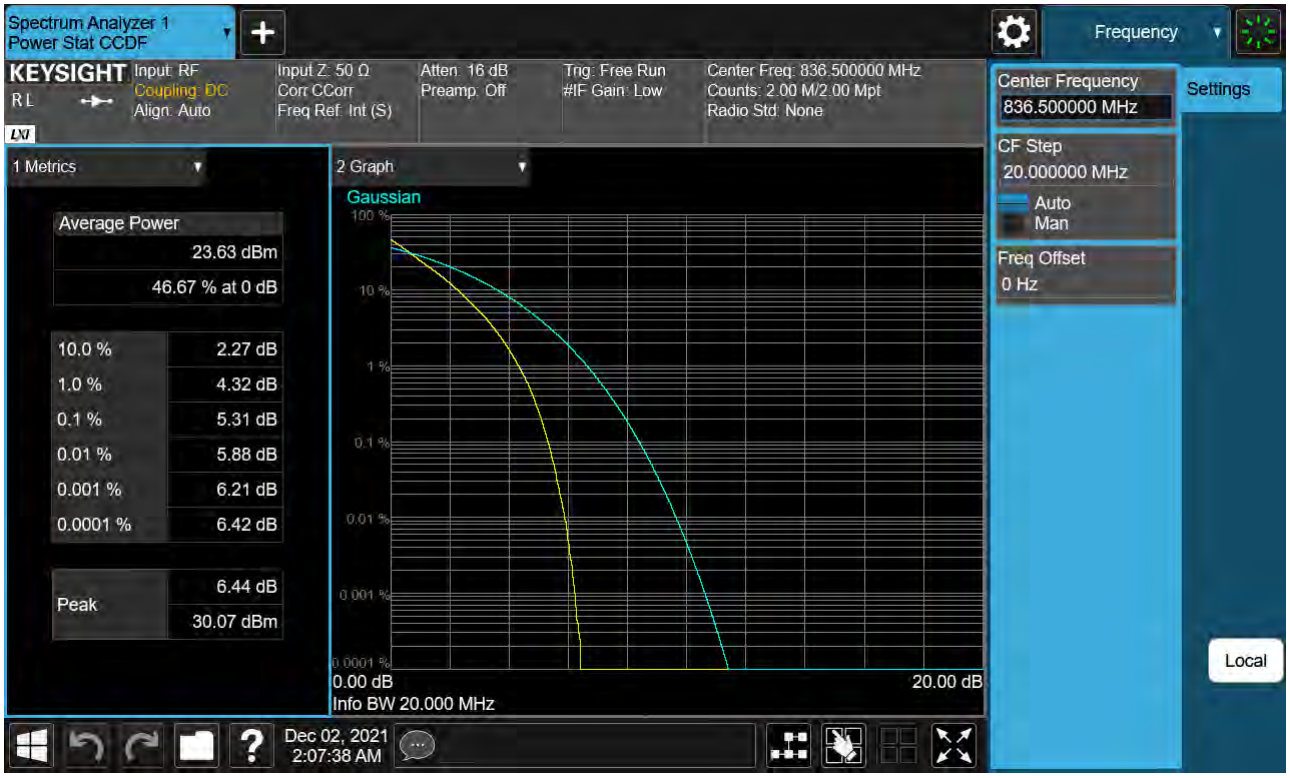
Sub6 n5. PAR Plot (15 M BW_Ch. 167300_64QAM_ Full RB _0)

Sub6 n5. PAR Plot (15 M BW_Ch. 167300_256QAM_ Full RB _0)

Sub6 n5. PAR Plot (20 M BW_Ch. 167300_ BPSK_ Full RB _0)



Sub6 n5. PAR Plot (20 M BW_Ch. 167300_QPSK_ Full RB _0)

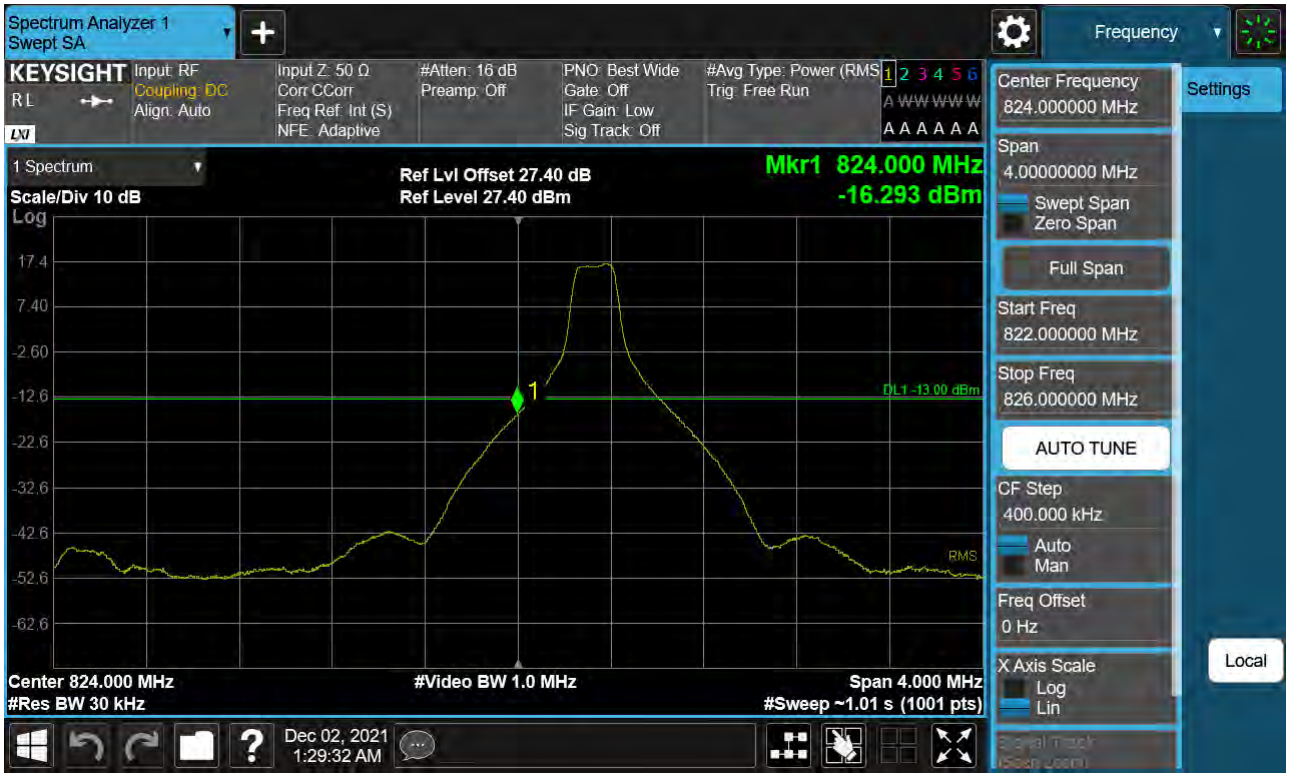


Sub6 n5. PAR Plot (20 M BW_Ch. 167300_16QAM_ Full RB _0)

Sub6 n5. PAR Plot (20 M BW_Ch. 167300_64QAM_ Full RB _0)

Sub6 n5. PAR Plot (20 M BW_Ch. 167300_256QAM_ Full RB _0)

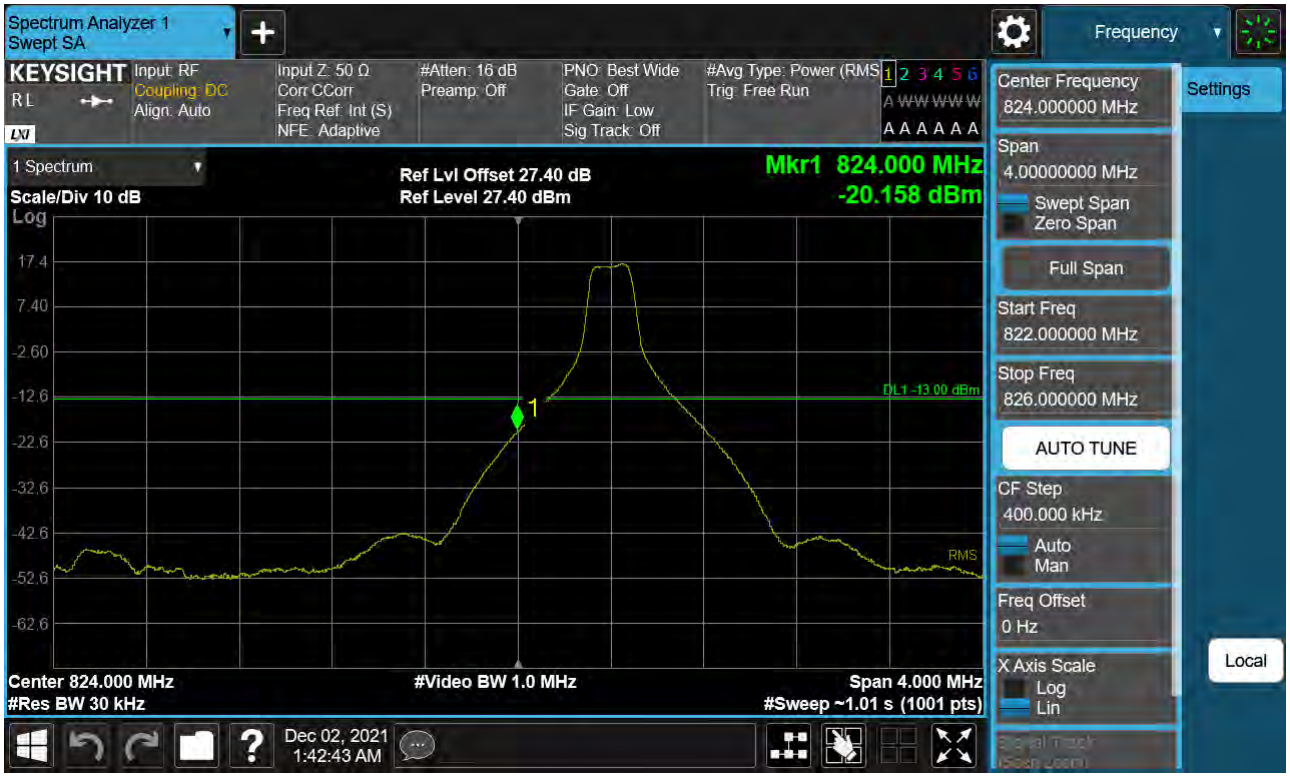
Sub6 n5. Lower Band Edge Plot (5 M BW Ch.165300 BPSK_RB1_Offset 0)



Sub6 n5. Lower Band Edge Plot (5 M BW Ch.165300 BPSK_RB25_Offset 0)

Sub6 n5. Lower Extended Band Edge Plot (5 M BW Ch.165300 BPSK_RB25_0)

Sub6 n5. Lower Band Edge Plot (10 M BW Ch.165800 BPSK_RB1_Offset 0)



Sub6 n5. Lower Band Edge Plot (10 M BW Ch.165800 BPSK_RB50_Offset 0)

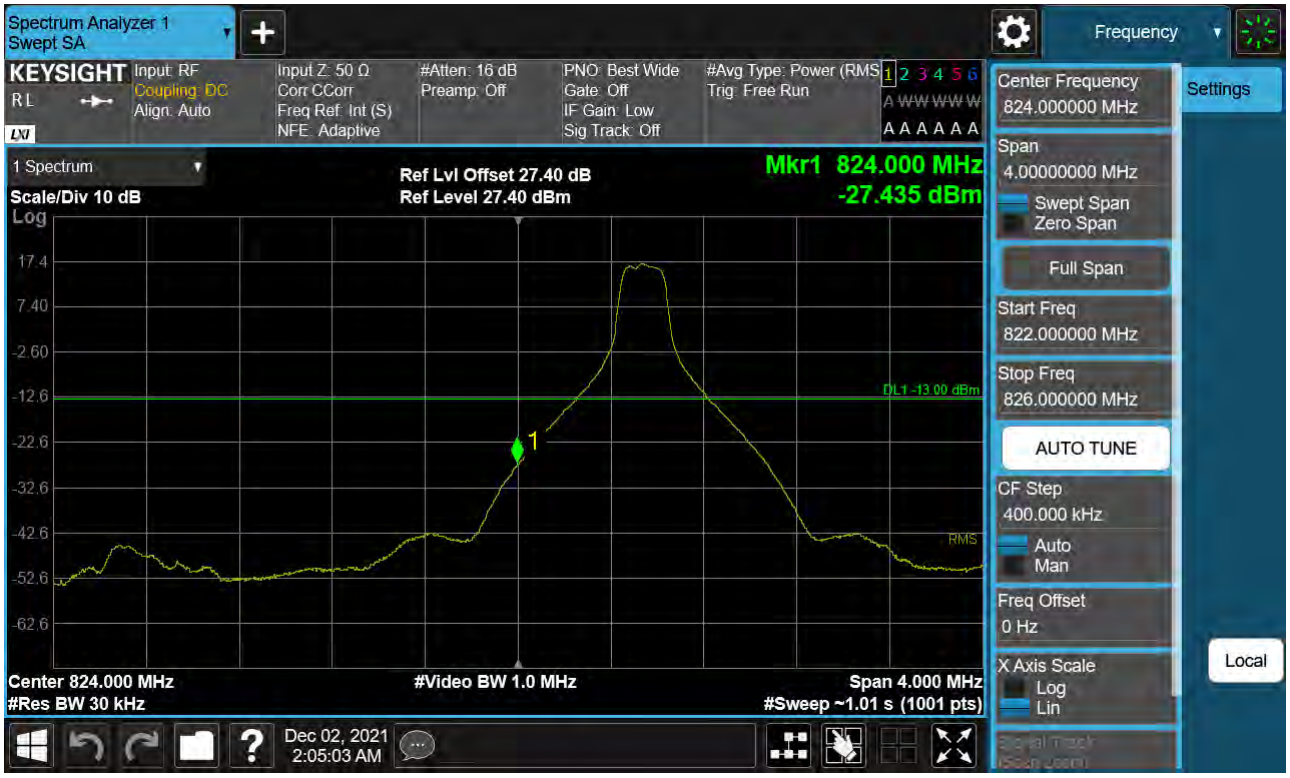
Sub6 n5. Lower Extended Band Edge Plot (10 M BW Ch.165800 BPSK_RB50_0)

Sub6 n5. Lower Band Edge Plot (15 M BW Ch.166300 BPSK_RB1_Offset 0)

Sub6 n5. Lower Band Edge Plot (15 M BW Ch.166300 BPSK_RB75_Offset 0)

Sub6 n5. Lower Extended Band Edge Plot (15 M BW Ch.166300 BPSK_RB75_0)

Sub6 n5. Lower Band Edge Plot (20 M BW Ch.166800 BPSK_RB1_Offset 0)



Sub6 n5. Lower Band Edge Plot (20 M BW Ch.166800 BPSK_RB100_Offset 0)

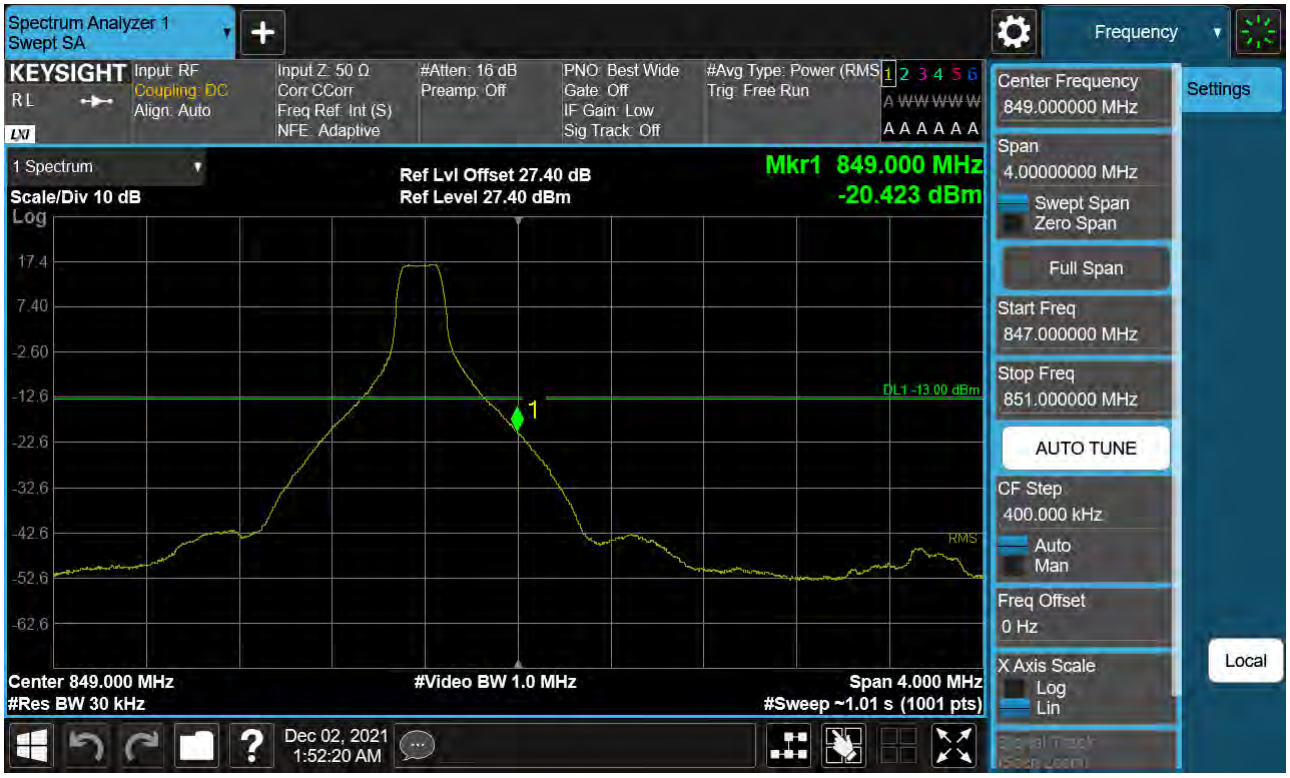
Sub6 n5. Lower Extended Band Edge Plot (20 M BW Ch.166800 BPSK_RB100_0)

Sub6 n5. Upper Band Edge Plot (5 M BW Ch.169300 BPSK_RB1_Offset 24)

Sub6 n5. Upper Band Edge Plot (5 M BW Ch.169300 BPSK_RB25_Offset 0)

Sub6 n5. Upper Extended Band Edge Plot (5 M BW Ch.169300 BPSK_RB25_0)

Sub6 n5. Upper Band Edge Plot (10 M BW Ch.168800 BPSK_RB1_Offset 51)



Sub6 n5. Upper Band Edge Plot (10 M BW Ch.168800 BPSK_RB50_Offset 0)

Sub6 n5. Upper Extended Band Edge Plot (10 M BW Ch.168800 BPSK_RB50_0)

Sub6 n5. Upper Band Edge Plot (15 M BW Ch.168300 BPSK_RB1_Offset 78)

Sub6 n5. Upper Band Edge Plot (15 M BW Ch.168300 BPSK_RB75_Offset 0)

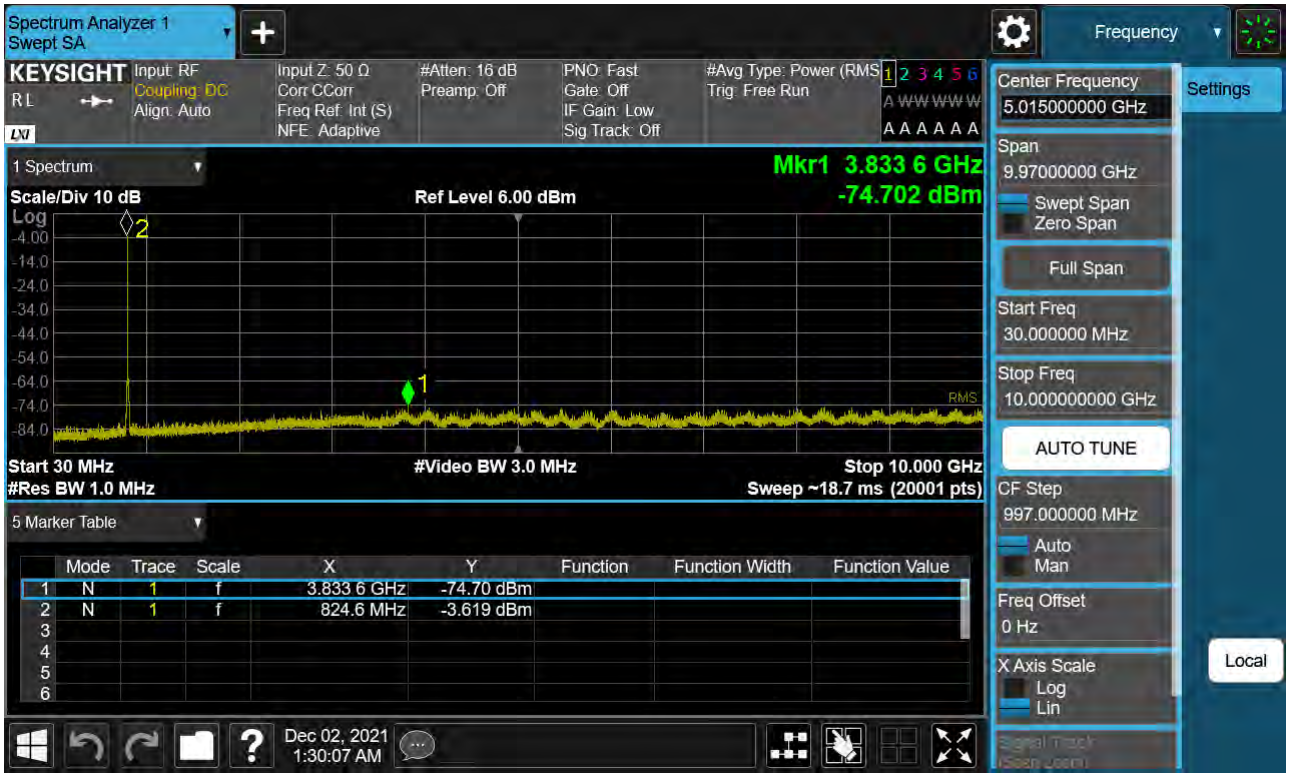
Sub6 n5. Upper Extended Band Edge Plot (15 M BW Ch.168300 BPSK_RB75_0)

Sub6 n5. Upper Band Edge Plot (20 M BW Ch.167800 BPSK_RB1_Offset 105)

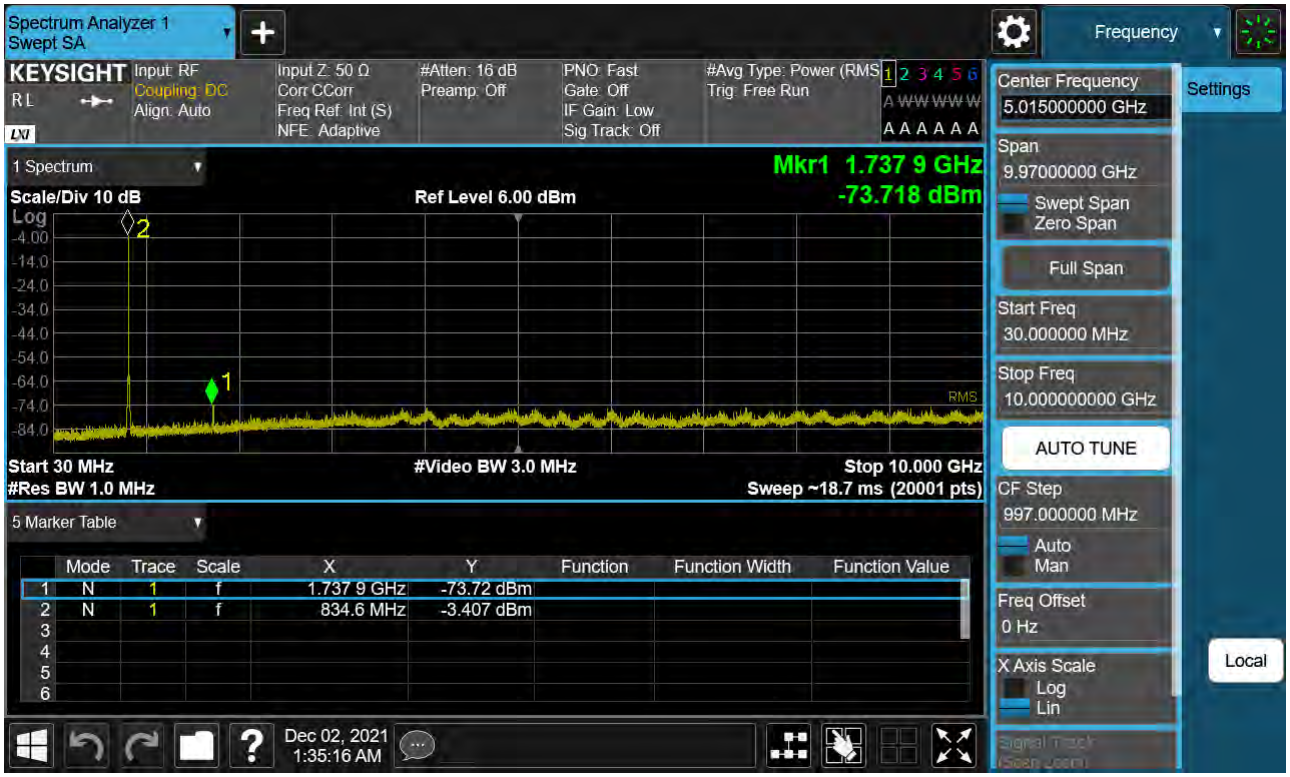
Sub6 n5. Upper Band Edge Plot (20 M BW Ch.167800 BPSK_RB100_Offset 0)

Sub6 n5. Upper Extended Band Edge Plot (20 M BW Ch.167800 BPSK_RB100_0)

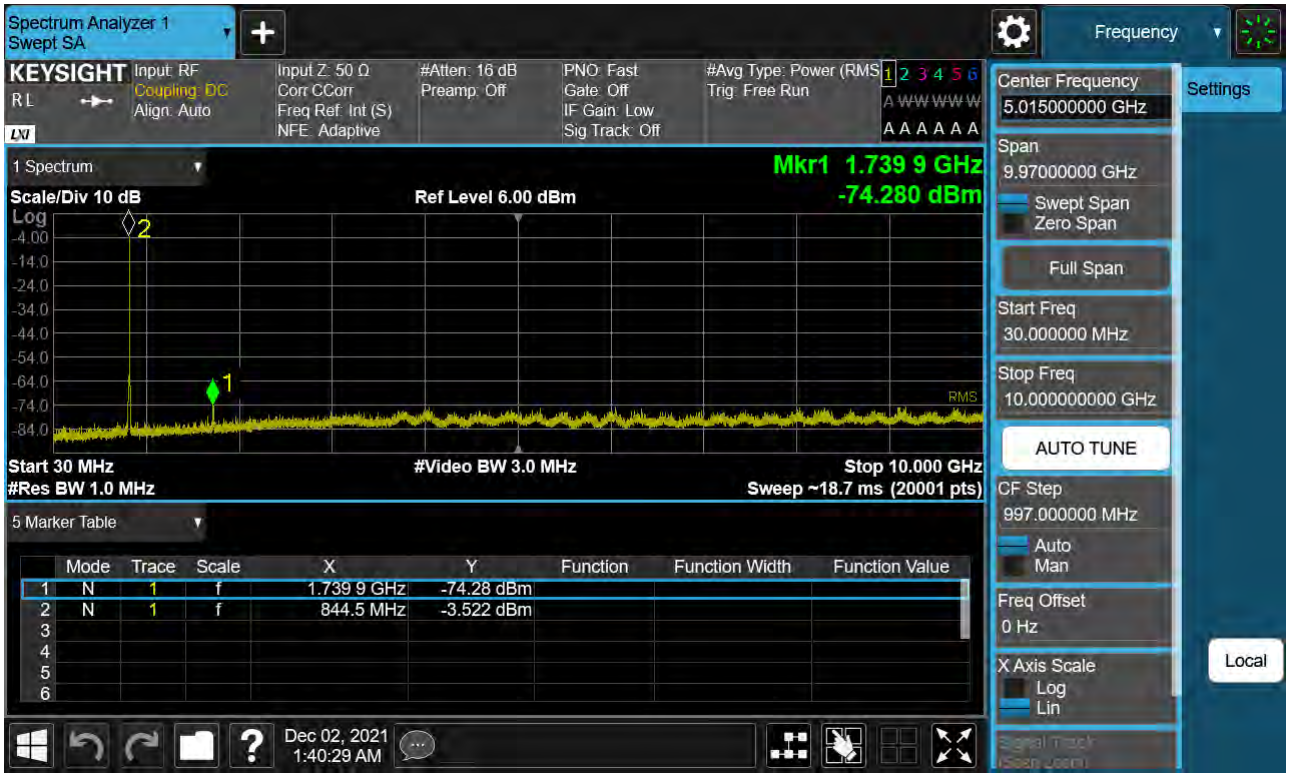
Sub6 n5. Conducted Spurious Plot (165300ch_5 MHz_BPSK_RB 1_1)



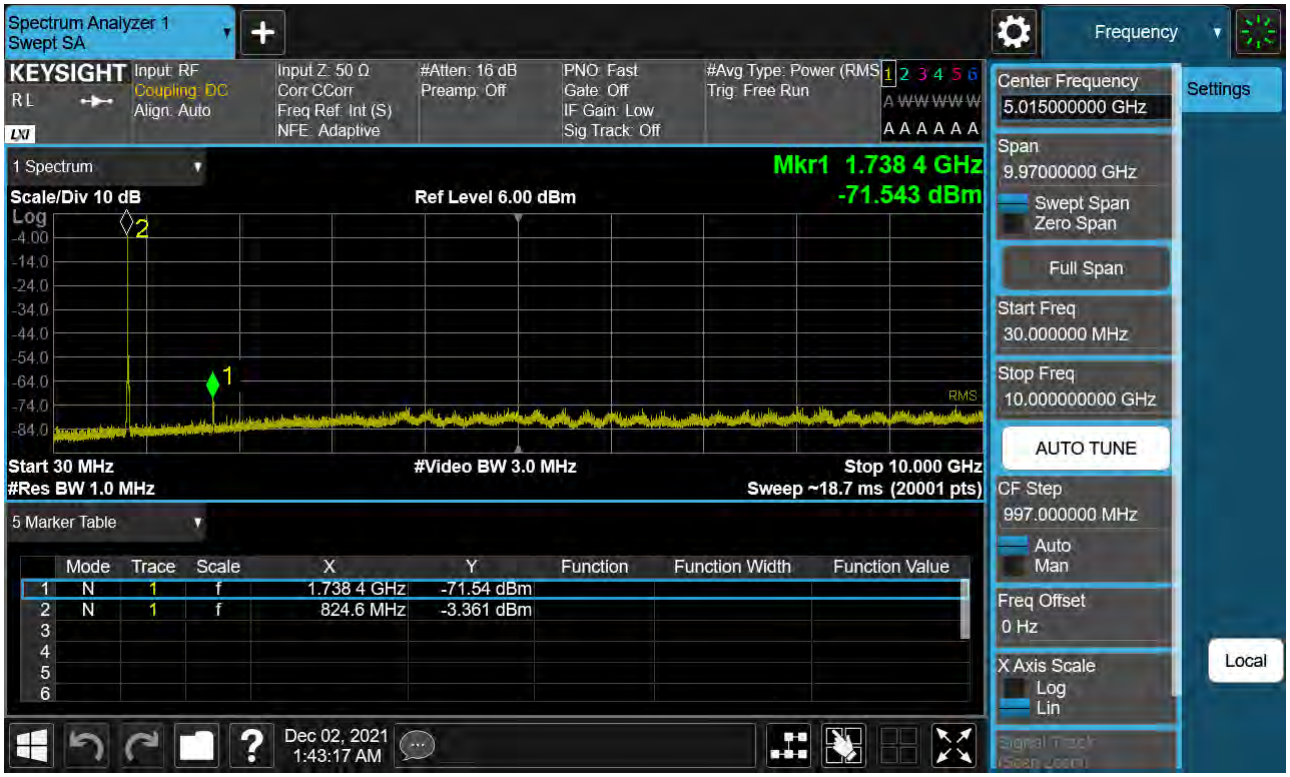
Sub6 n5. Conducted Spurious Plot (167300ch_5 MHz_BPSK_RB 1_1)



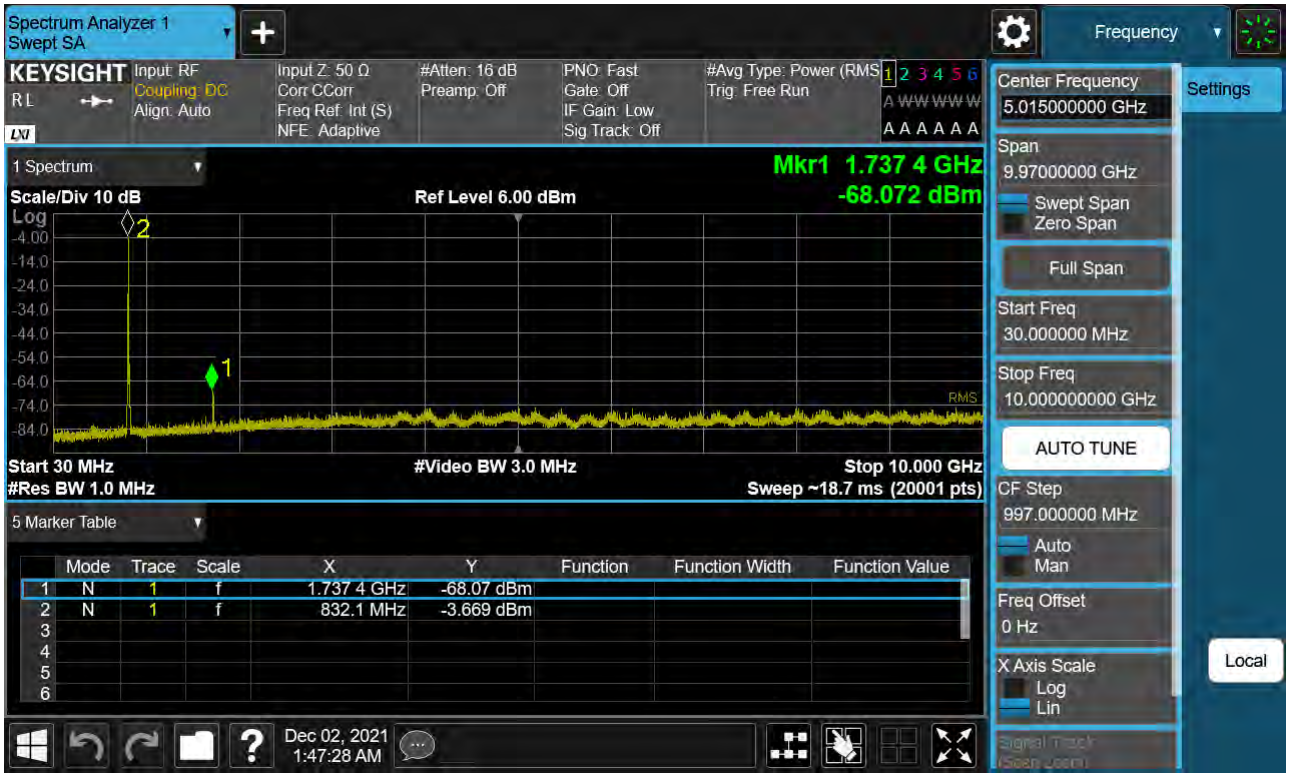
Sub6 n5. Conducted Spurious Plot (169300ch_5 MHz_BPSK_RB 1_1)



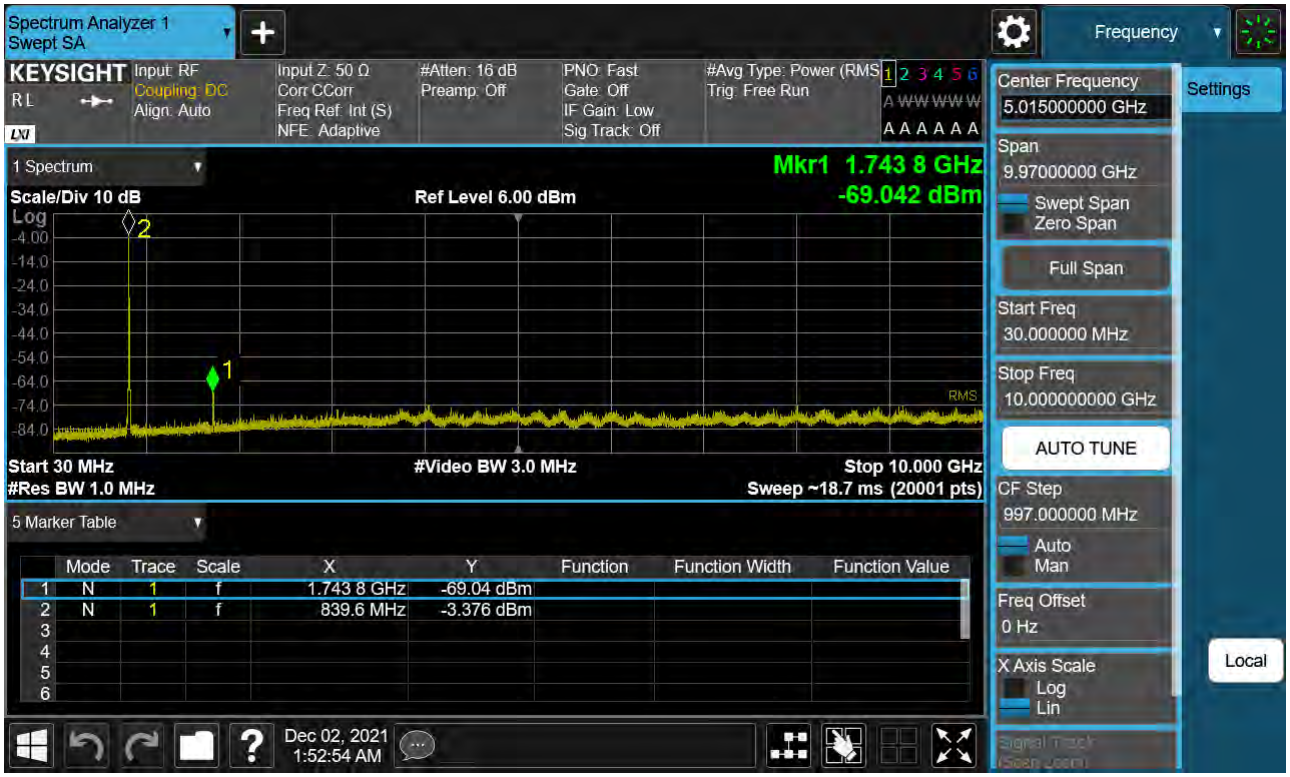
Sub6 n5. Conducted Spurious Plot (165800ch_10 MHz_BPSK_RB 1_1)



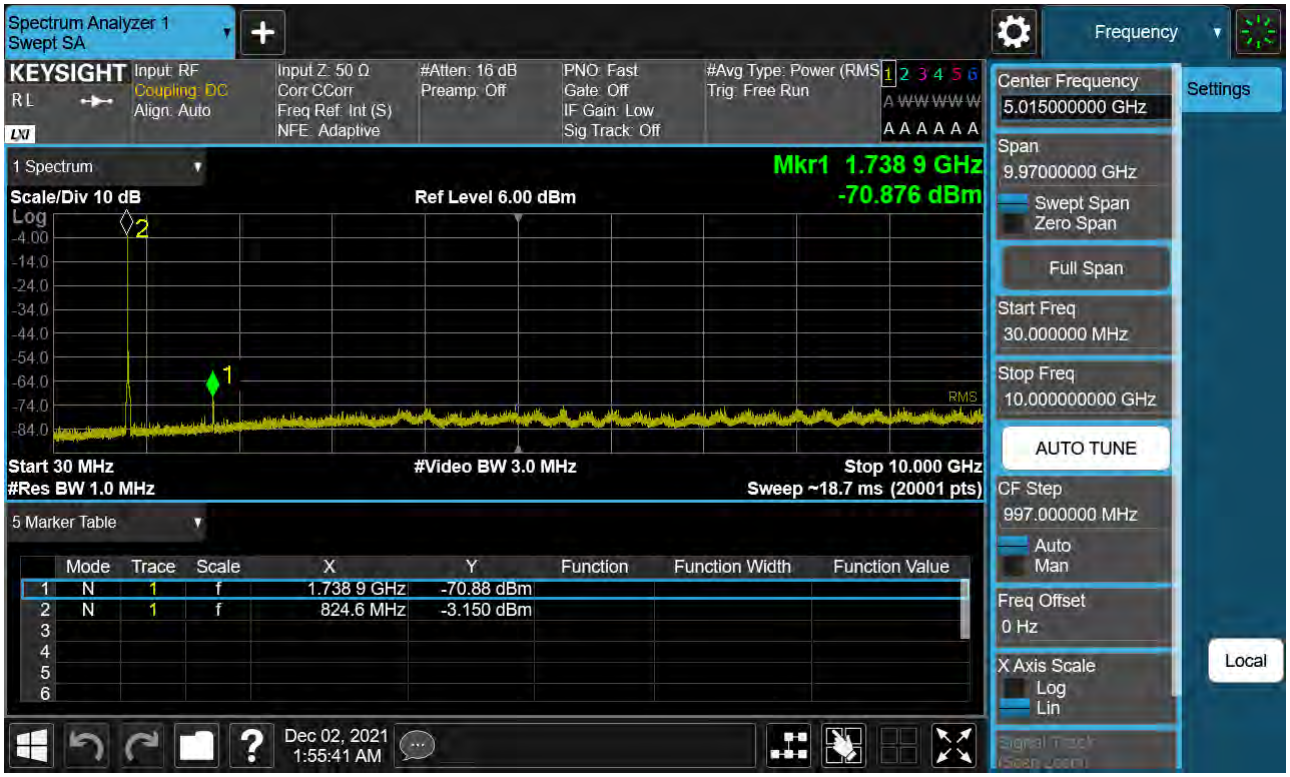
Sub6 n5. Conducted Spurious Plot (167300ch_10 MHz_BPSK_RB 1_1)



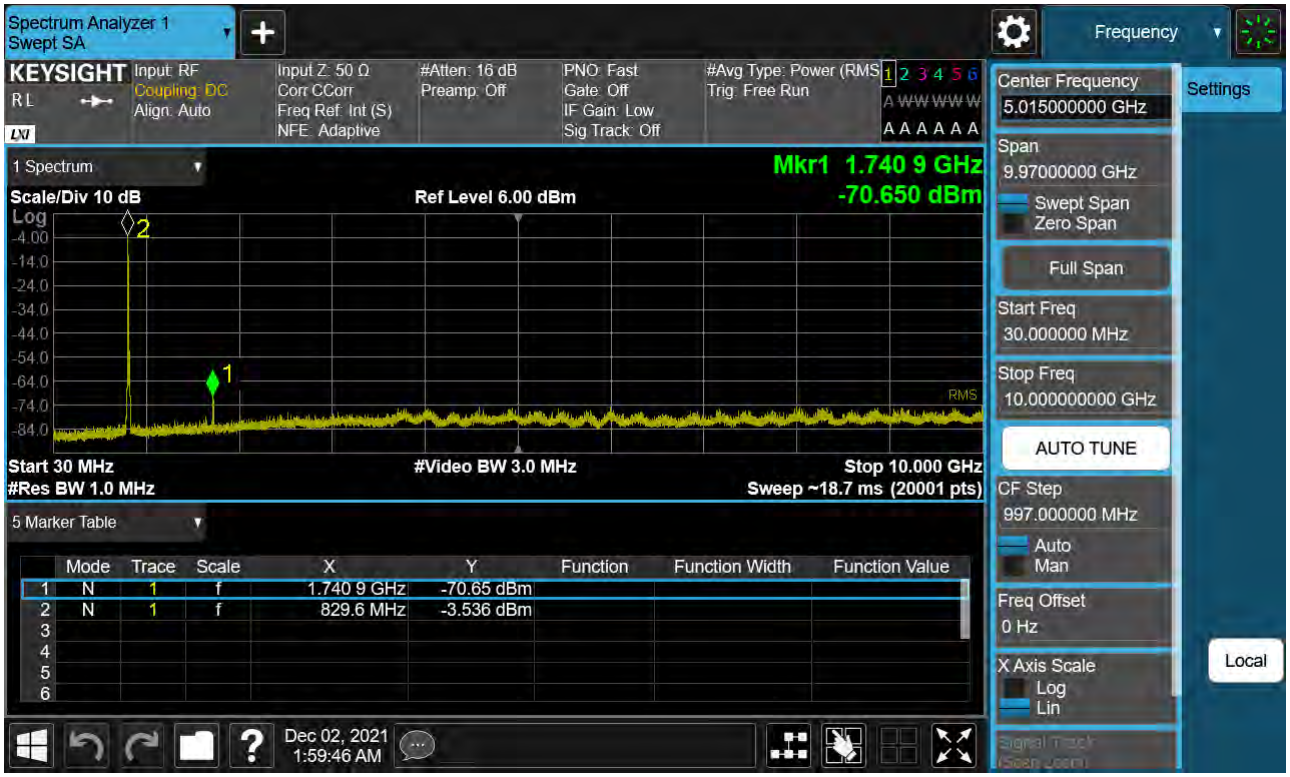
Sub6 n5. Conducted Spurious Plot (168800ch_10 MHz_BPSK_RB 1_1)



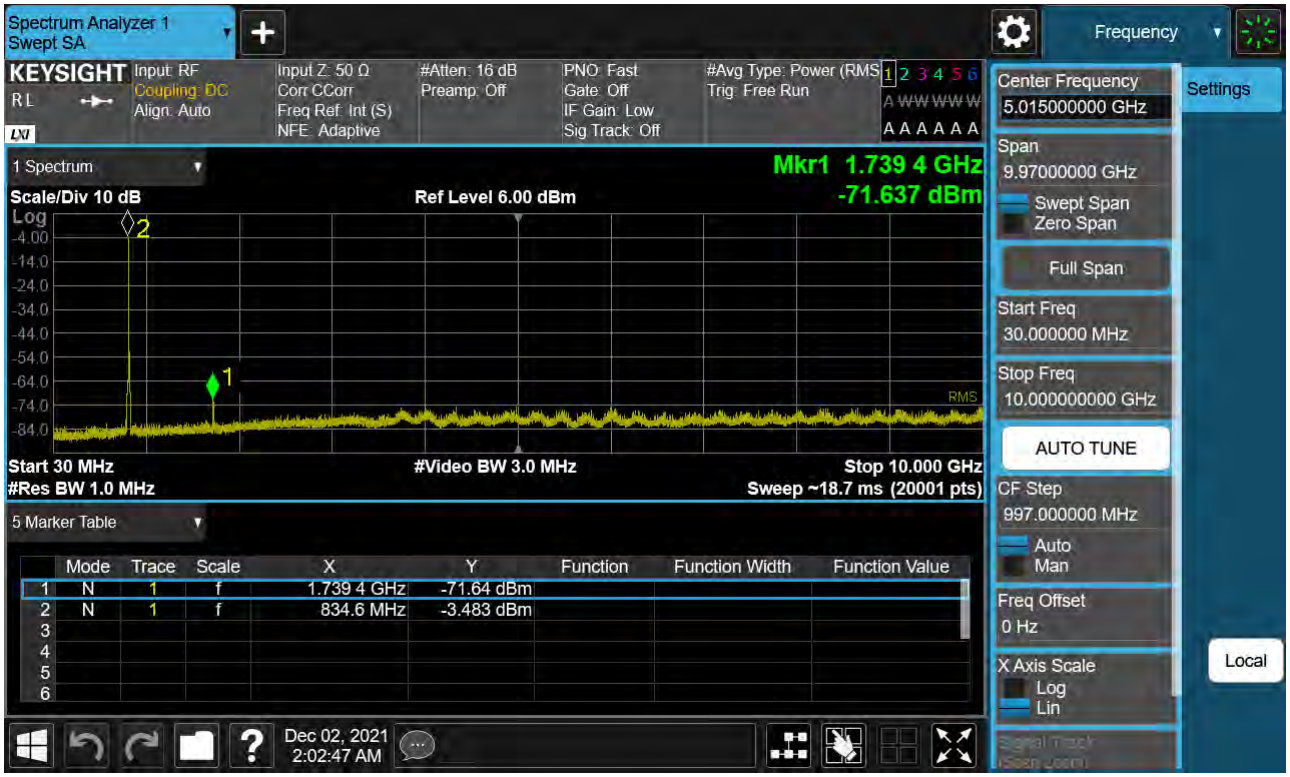
Sub6 n5. Conducted Spurious Plot (166300ch_15 MHz_BPSK_RB 1_1)



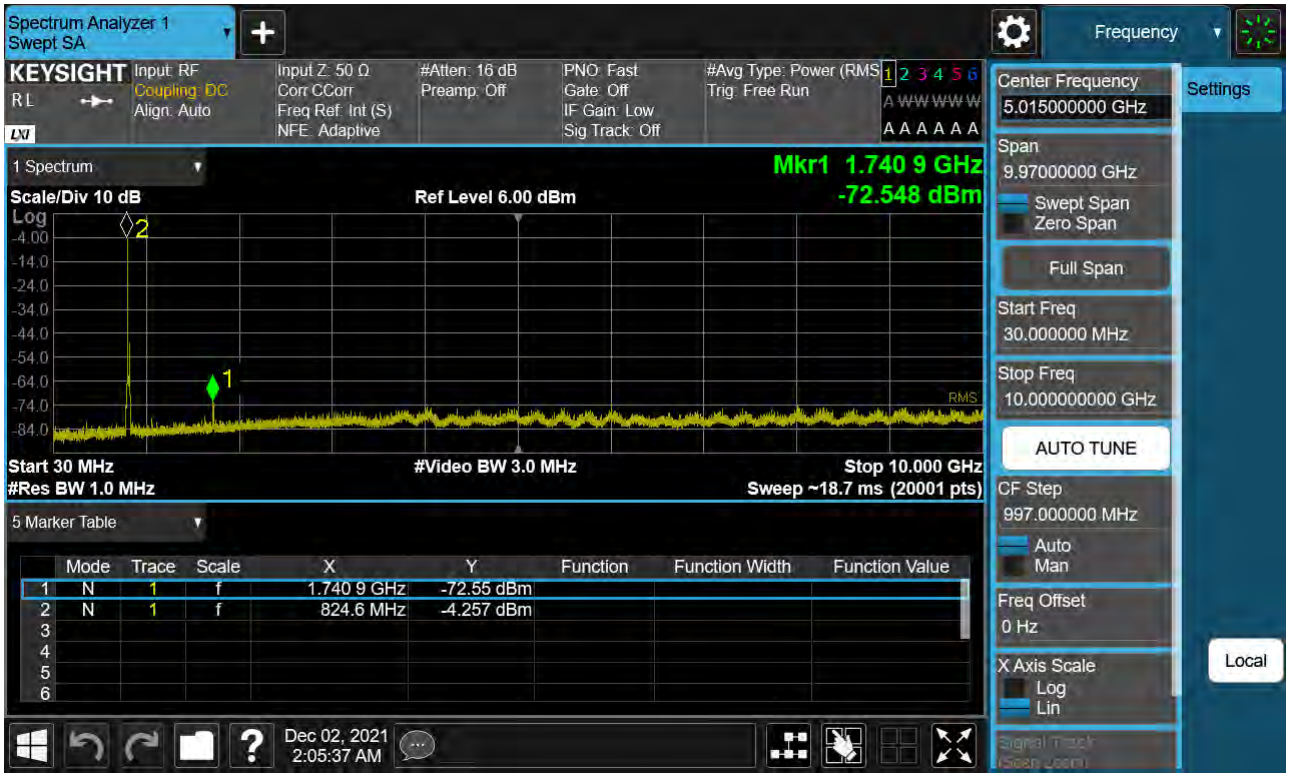
Sub6 n5. Conducted Spurious Plot (167300ch_15 MHz_BPSK_RB 1_1)



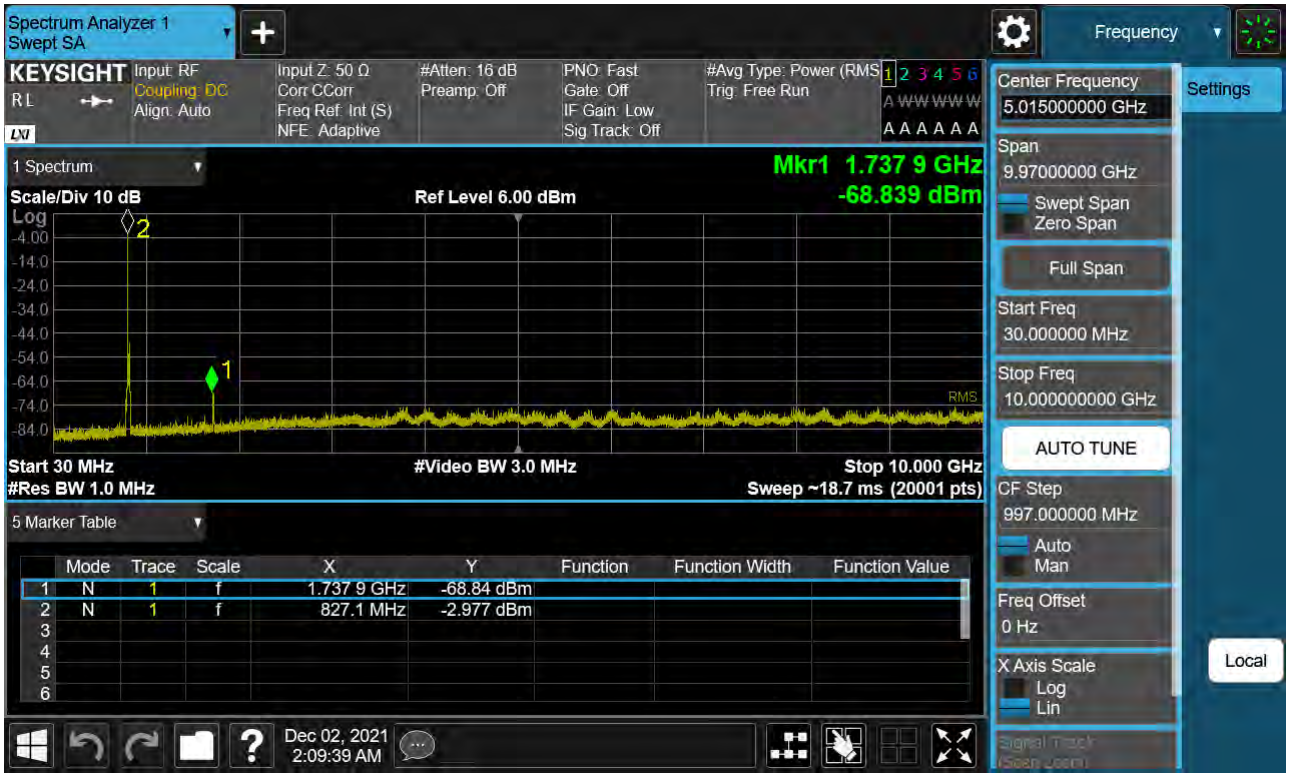
Sub6 n5. Conducted Spurious Plot (168300ch_15 MHz_BPSK_RB 1_1)



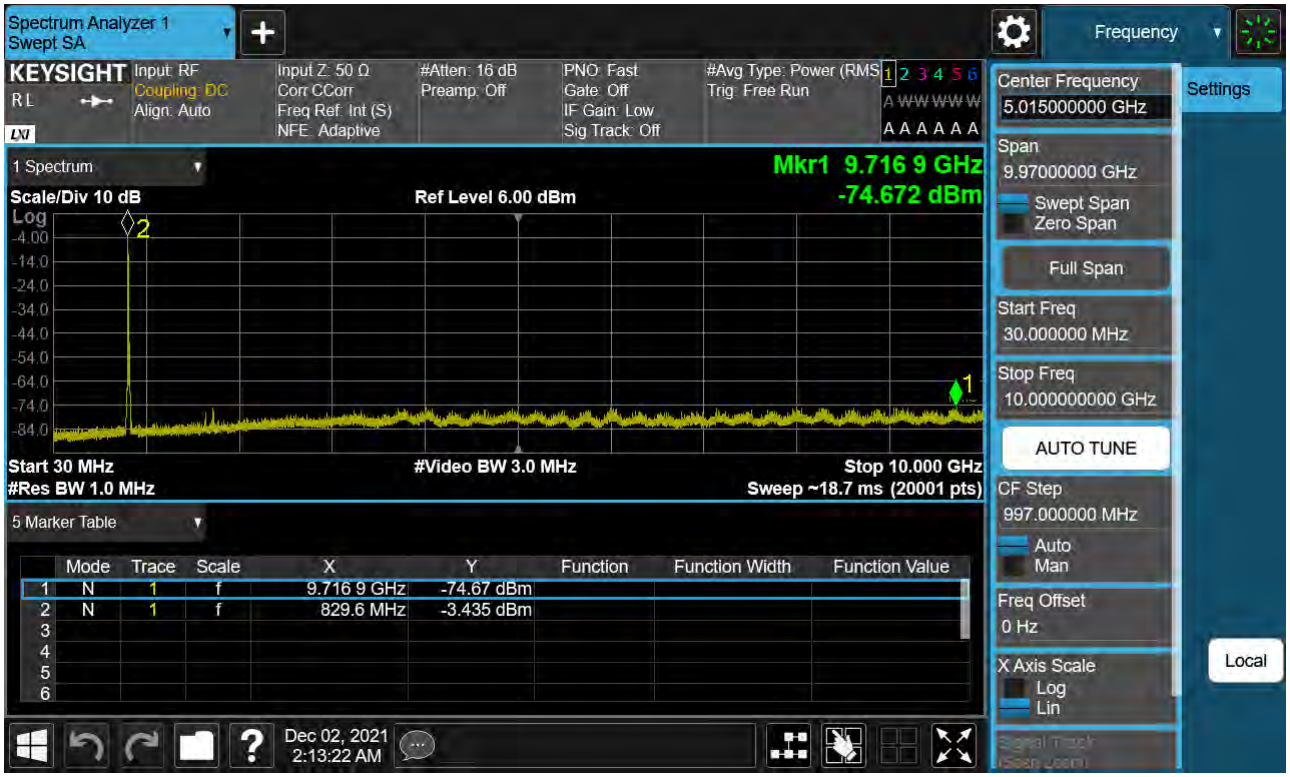
Sub6 n5. Conducted Spurious Plot (166800ch_20 MHz_BPSK_RB 1_1)



Sub6 n5. Conducted Spurious Plot (167300ch_20 MHz_BPSK_RB 1_1)



Sub6 n5. Conducted Spurious Plot (167800ch_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-2201-FC033-P