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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:
September 17, 2021

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

Report No.: HCT-RF-2109-FC031

FCC ID: **A3LSMG990E**

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

Model(s): SM-G990E/DS
Additional Model(s): SM-G990E
EUT Type: Mobile Phone
FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s): §27, §2

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max. Power (W)	Max. Power (dBm)
Sub6 n66 (5)	1712.5 – 1777.5	4M51G7D	PI/2 BPSK	0.156	21.93
		4M54G7D	QPSK	0.155	21.89
		4M53W7D	16QAM	0.124	20.94
		4M54W7D	64QAM	0.085	19.29
		4M52W7D	256QAM	0.055	17.43
Sub6 n66 (10)	1715.0 – 1775.0	8M98G7D	PI/2 BPSK	0.158	21.98
		9M02G7D	QPSK	0.157	21.97
		9M02W7D	16QAM	0.123	20.91
		9M03W7D	64QAM	0.085	19.27
		9M01W7D	256QAM	0.056	17.50
Sub6 n66 (15)	1717.5 – 1772.5	13M5G7D	PI/2 BPSK	0.154	21.87
		13M5G7D	QPSK	0.153	21.84
		13M5W7D	16QAM	0.119	20.77
		13M5W7D	64QAM	0.083	19.18
		13M5W7D	256QAM	0.055	17.40
Sub6 n66 (20)	1720.0 – 1770.0	17M9G7D	PI/2 BPSK	0.152	21.81
		17M9G7D	QPSK	0.150	21.77
		17M9W7D	16QAM	0.119	20.75
		17M9W7D	64QAM	0.082	19.14
		17M8W7D	256QAM	0.053	17.27

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)

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-2109-FC031	September 17, 2021	- First Approval Report

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

Table of Contents

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:	A3LSMG990E
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§27, §2
EUT Type:	Mobile Phone
Model(s):	SM-G990E/DS
Additional Model(s):	SM-G990E
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:	1712.5 MHz – 1777.5 MHz (Sub6 n66(5 MHz)) 1715.0 MHz – 1775.0 MHz (Sub6 n66(10 MHz)) 1717.5 MHz – 1772.5 MHz (Sub6 n66(15 MHz)) 1720.0 MHz – 1770.0 MHz (Sub6 n66(20 MHz))
Date(s) of Tests:	August 23, 2021 ~ September 13, 2021
Serial number:	Radiated: R3CR903MSPP Conducted: R3CR803NAKK

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 (HT20/40/80), Bluetooth, BT LE, NFC.

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 - ANSI C63.26-2015 – Section 5.2.6(only GSM)
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;

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

   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 = 100kHz 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;

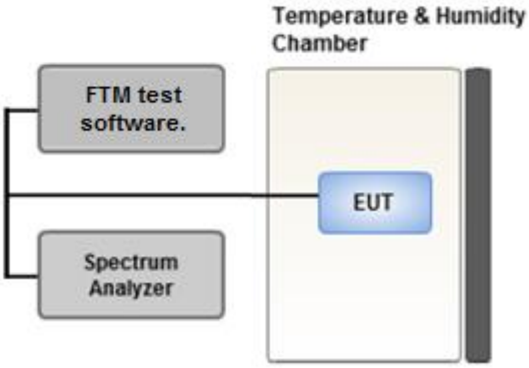
   $$Result_{(dBm)} = Pg_{(dBm)} - cable\ loss_{(dB)} + antenna\ gain_{(dBi)}$$

   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.

   $$EIRP_{(dBm)} = ERP_{(dBm)} + 2.15$$

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:

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

Test Settings(Peak Power)

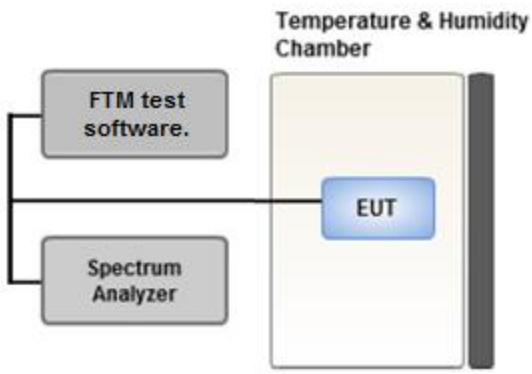
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW ≥ 3 × RBW.

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.

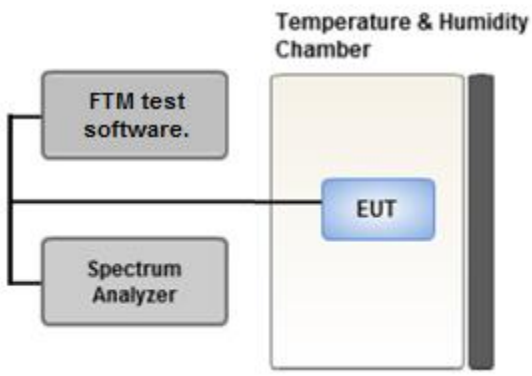
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

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.

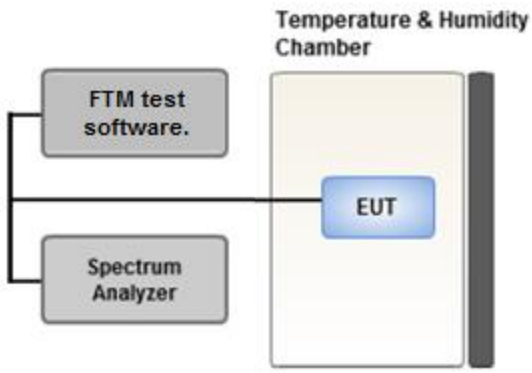
All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

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

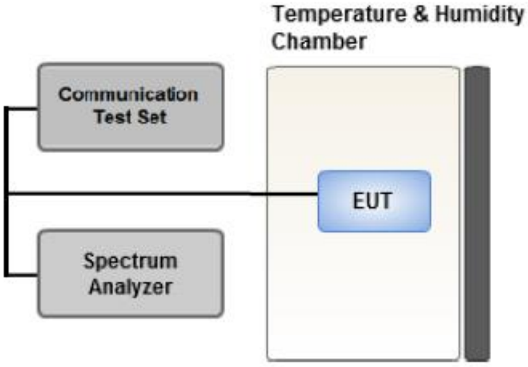
Test Notes

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: NSA
  Worst case: NSA
- 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: 5A-n66A)
- All RB sizes, offsets of operation were investigated and the worst case configuration results are reported.
  Please refer to the table below.
- SM-G990E/DS & additional models were tested and the worst case results are reported.
  (Worst case : SM-G990E/DS)

[Worst case]

Test Description	Modulation	RB size	RB offset	Axis
Effective Isotropic Radiated Power	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	1	1	Z
Radiated Spurious and Harmonic Emissions	QPSK	1	1	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
  Worst case: NSA
- All RB sizes, offsets of operation were investigated and the worst case configuration results are reported.
  Please refer to the table below.
- SM-G990E/DS & additional models were tested and the worst case results are reported.
  (Worst case : SM-G990E/DS)

[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~30MHz)	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 (100MHz ~ 18GHz)	CBLU1183540B-01	CERNEX	26822	06/15/2022	Annual
Power Amplifier	CBL18265035	CERNEX	22966	12/04/2021	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.	6262116770	07/12/2022	Annual
Wideband Radio Communication Tester	MT8820C	Anritsu Corp.	6201026545	01/07/2022	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
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. Espectially, 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, §27.53(h)	< 43 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions	PASS
Conducted Output Power	§2.1046	N/A	**See Note1**
Peak- to- Average Ratio	§27.50(d)(5)	< 13 dB	PASS
Frequency stability / variation of ambient temperature	§2.1055, §27.54	Emission must remain in band	PASS

Note:

1. See SAR Report

2. All conducted tests were tested using 5G Wireless Tester.

6.2 Test Condition : Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Equivalent Isotropic Radiated Power	§27.50(d)(4)	< 1 Watts max. EIRP	PASS
Radiated Spurious and Harmonic Emissions	§2.1053, §27.53(h)	< 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
349000	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 EQUIVALENT ISOTROPIC RADIATED POWER

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1712.5	Sub6 n66/ 5 MHz [15 kHz]	PI/2 BPSK	-19.29	13.57	9.76	2.08	V	< 1.00	0.133	21.25
		QPSK	-19.32	13.54	9.76	2.08	V		0.133	21.22
		16-QAM	-20.35	12.51	9.76	2.08	V		0.105	20.19
		64-QAM	-21.91	10.95	9.76	2.08	V		0.073	18.63
		256-QAM	-23.79	9.07	9.76	2.08	V		0.047	16.75
1745.0		PI/2 BPSK	-19.18	13.95	9.97	1.99	V		0.156	21.93
		QPSK	-19.22	13.91	9.97	1.99	V		0.155	21.89
		16-QAM	-20.17	12.96	9.97	1.99	V		0.124	20.94
		64-QAM	-21.82	11.31	9.97	1.99	V		0.085	19.29
		256-QAM	-23.68	9.45	9.97	1.99	V		0.055	17.43
1777.5		PI/2 BPSK	-19.61	13.60	10.12	2.14	V		0.144	21.58
		QPSK	-19.65	13.56	10.12	2.14	V		0.143	21.54
		16-QAM	-20.70	12.51	10.12	2.14	V		0.112	20.49
		64-QAM	-22.28	10.93	10.12	2.14	V		0.078	18.91
		256-QAM	-24.08	9.13	10.12	2.14	V		0.051	17.11

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1715.0	Sub6 n66/ 10 MHz [15 kHz]	PI/2 BPSK	-19.34	13.68	9.79	2.07	V	< 1.00	0.138	21.40
		QPSK	-19.35	13.67	9.79	2.07	V		0.138	21.39
		16-QAM	-20.31	12.71	9.79	2.07	V		0.110	20.43
		64-QAM	-21.95	11.07	9.79	2.07	V		0.076	18.79
		256-QAM	-23.85	9.17	9.79	2.07	V		0.049	16.89
1745.0		PI/2 BPSK	-19.13	14.00	9.97	1.99	V		0.158	21.98
		QPSK	-19.14	13.99	9.97	1.99	V		0.157	21.97
		16-QAM	-20.20	12.93	9.97	1.99	V		0.123	20.91
		64-QAM	-21.84	11.29	9.97	1.99	V		0.085	19.27
		256-QAM	-23.61	9.52	9.97	1.99	V		0.056	17.50
1775.0		PI/2 BPSK	-19.29	13.94	10.10	2.14	V		0.155	21.90
		QPSK	-19.31	13.92	10.10	2.14	V		0.154	21.88
		16-QAM	-20.36	12.87	10.10	2.14	V		0.121	20.83
		64-QAM	-21.98	11.25	10.10	2.14	V		0.083	19.21
		256-QAM	-23.76	9.47	10.10	2.14	V		0.055	17.43

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1717.5	Sub6 n66/ 15 MHz [15 kHz]	PI/2 BPSK	-19.38	13.61	9.82	2.07	V	< 1.00	0.137	21.36
		QPSK	-19.40	13.59	9.82	2.07	V		0.136	21.34
		16-QAM	-20.35	12.64	9.82	2.07	V		0.109	20.39
		64-QAM	-22.03	10.96	9.82	2.07	V		0.074	18.71
		256-QAM	-23.84	9.15	9.82	2.07	V		0.049	16.90
1745.0		PI/2 BPSK	-19.38	13.75	9.97	1.99	V		0.149	21.73
		QPSK	-19.41	13.72	9.97	1.99	V		0.148	21.70
		16-QAM	-20.47	12.66	9.97	1.99	V		0.116	20.64
		64-QAM	-22.03	11.10	9.97	1.99	V		0.081	19.08
		256-QAM	-23.90	9.23	9.97	1.99	V		0.053	17.21
1772.5		PI/2 BPSK	-19.35	13.92	10.08	2.13	V		0.154	21.87
		QPSK	-19.38	13.89	10.08	2.13	V		0.153	21.84
		16-QAM	-20.45	12.82	10.08	2.13	V		0.119	20.77
		64-QAM	-22.04	11.23	10.08	2.13	V		0.083	19.18
		256-QAM	-23.82	9.45	10.08	2.13	V		0.055	17.40

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
1720.0	Sub6 n66/ 20 MHz [15 kHz]	PI/2 BPSK	-19.39	13.78	9.82	2.05	V	< 1.00	0.143	21.55
		QPSK	-19.41	13.76	9.82	2.05	V		0.142	21.53
		16-QAM	-20.38	12.79	9.82	2.05	V		0.114	20.56
		64-QAM	-22.00	11.17	9.82	2.05	V		0.078	18.94
		256-QAM	-23.80	9.37	9.82	2.05	V		0.052	17.14
1745.0		PI/2 BPSK	-19.38	13.75	9.97	1.99	V		0.149	21.73
		QPSK	-19.40	13.73	9.97	1.99	V		0.148	21.71
		16-QAM	-20.48	12.65	9.97	1.99	V		0.116	20.63
		64-QAM	-22.06	11.07	9.97	1.99	V		0.080	19.05
		256-QAM	-23.89	9.24	9.97	1.99	V		0.053	17.22
1770.0		PI/2 BPSK	-19.46	13.86	10.08	2.13	V		0.152	21.81
		QPSK	-19.50	13.82	10.08	2.13	V		0.150	21.77
		16-QAM	-20.52	12.80	10.08	2.13	V		0.119	20.75
		64-QAM	-22.13	11.19	10.08	2.13	V		0.082	19.14
		256-QAM	-24.00	9.32	10.08	2.13	V		0.053	17.27

8.2 RADIATED SPURIOUS EMISSIONS

- ▣ NR Band: N66
- ▣ LTE Band(Anchor): B5
- ▣ Bandwidth: 10 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)
343000 (1715.0)	3 430.00	-57.80	11.30	-58.52	3.04	H	-50.26	-13.00
	5 145.00	-61.42	11.38	-56.32	3.68	V	-48.62	-13.00
	6 860.00	-63.09	11.18	-52.30	4.48	H	-45.60	-13.00
	8 575.00	-61.69	10.95	-47.71	4.83	H	-41.59	-13.00
	10 290.00	-64.43	11.68	-46.47	5.40	H	-40.19	-13.00
349000 (1745.0)	3 490.00	-56.74	11.46	-58.05	3.05	V	-49.64	-13.00
	5 235.00	-61.11	11.57	-55.80	3.79	V	-48.02	-13.00
	6 980.00	-63.52	11.16	-51.29	4.51	V	-44.64	-13.00
	8 725.00	-62.23	11.10	-48.26	4.92	V	-42.08	-13.00
	10 470.00	-63.86	11.80	-46.48	5.45	V	-40.13	-13.00
355000 (1775.0)	3 550.00	-56.36	11.70	-57.87	3.09	H	-49.26	-13.00
	5 325.00	-60.53	11.75	-55.97	3.78	V	-48.00	-13.00
	7 100.00	-62.99	11.00	-48.54	4.42	V	-41.96	-13.00
	8 875.00	-61.84	11.05	-47.55	4.95	H	-41.44	-13.00
	10 650.00	-63.47	11.70	-44.26	5.47	V	-38.03	-13.00

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)
20525 (836.5)	1,673.00	-56.52	9.52	-66.17	2.03	H	-58.68	-13.00
	2,509.50	-60.61	10.28	-65.59	2.51	H	-57.82	-13.00
	3,346.00	-59.39	11.28	-62.17	2.99	V	-53.88	-13.00

8.3 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
Sub6 n66	5 MHz	1745.0	BPSK	25	0	3.78
			QPSK			4.77
			16-QAM			5.57
			64-QAM			5.90
			256-QAM			6.53
	10 MHz		BPSK	50		3.84
			QPSK			4.74
			16-QAM			5.57
			64-QAM			5.92
			256-QAM			6.31
	15 MHz		BPSK	75		3.70
			QPSK			4.63
			16-QAM			5.44
			64-QAM			5.81
			256-QAM			6.38
	20 MHz		BPSK	100		3.66
			QPSK			4.60
			16-QAM			5.43
			64-QAM			5.70
			256-QAM			6.33

Note:

1. Plots of the EUT’s Peak- to- Average Ratio are shown Page 57 ~ 76.

8.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Sub6 n66	5 MHz	1745.0	BPSK	25	0	4.5091
			QPSK			4.5406
			16-QAM			4.5343
			64-QAM			4.5348
			256-QAM			4.5150
	10 MHz		BPSK	50		8.9844
			QPSK			9.0163
			16-QAM			9.0188
			64-QAM			9.0315
			256-QAM			9.0101
	15 MHz		BPSK	75		13.495
			QPSK			13.469
			16-QAM			13.484
			64-QAM			13.519
			256-QAM			13.451
	20 MHz		BPSK	100		17.924
			QPSK			17.921
			16-QAM			17.882
			64-QAM			17.914
			256-QAM			17.823

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 37~ 56.

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 n66	5	1712.5	3.8515	30.596	-65.578	-34.982	-13.00
		1745.0	3.8685	30.596	-65.697	-35.101	
		1777.5	3.8570	30.596	-65.489	-34.893	
	10	1715.0	3.8625	30.596	-65.350	-34.754	
		1745.0	3.8685	30.596	-65.501	-34.905	
		1775.0	3.8321	30.596	-65.516	-34.920	
	15	1717.5	3.8754	30.596	-65.371	-34.775	
		1745.0	3.8754	30.596	-65.661	-35.065	
		1772.5	3.8650	30.596	-65.400	-34.804	
	20	1720.0	3.8774	30.596	-65.648	-35.052	
		1745.0	3.8480	30.596	-65.426	-34.830	
		1770.0	3.8500	30.596	-65.389	-34.793	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 101 ~ 124.

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	27.890
1 – 5	30.596
5 – 10	31.211
10 – 15	31.736
15 – 20	32.109
Above 20(26.5)	32.751

8.6 BAND EDGE

- Plots of the EUT's Band Edge are shown Page 77 ~ 100.

8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

- ▣ BandWidth: 5 MHz
- ▣ Voltage(100%): 4.200 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequncy (MHz)	Voltage (%)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
1712.5	100%	+20(Ref)	1712 500 011	0.0	0.000 000	0.000
	100%	-30	1712 500 024	13.4	0.000 001	0.008
	100%	-20	1712 500 019	8.4	0.000 000	0.005
	100%	-10	1712 500 024	13.3	0.000 001	0.008
	100%	0	1712 500 018	7.2	0.000 000	0.004
	100%	+10	1712 500 025	14.8	0.000 001	0.009
	100%	+30	1712 500 023	12.1	0.000 001	0.007
	100%	+40	1712 500 027	16.1	0.000 001	0.009
	100%	+50	1712 500 020	9.7	0.000 001	0.006
	Batt. Endpoint	+20	1712 500 021	10.9	0.000 001	0.006
1777.5	100%	+20(Ref)	1777 500 016	0.0	0.000 000	0.000
	100%	-30	1777 500 032	15.7	0.000 001	0.009
	100%	-20	1777 500 032	15.9	0.000 001	0.009
	100%	-10	1777 500 020	4.1	0.000 000	0.002
	100%	0	1777 500 021	4.6	0.000 000	0.003
	100%	+10	1777 500 030	13.8	0.000 001	0.008
	100%	+30	1777 500 020	3.3	0.000 000	0.002
	100%	+40	1777 500 026	9.7	0.000 001	0.005
	100%	+50	1777 500 026	9.2	0.000 001	0.005
	Batt. Endpoint	+20	1777 500 022	5.7	0.000 000	0.003

▣ BandWidth: 10 MHz

▣ Voltage(100%): 4.200 VDC

▣ Batt. Endpoint: 3.400 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy (MHz)	Voltage (%)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
1715.0	100%	+20(Ref)	1715 000 011	0.0	0.000 000	0.000
	100%	-30	1715 000 023	12.7	0.000 001	0.007
	100%	-20	1715 000 014	3.7	0.000 000	0.002
	100%	-10	1715 000 024	13.6	0.000 001	0.008
	100%	0	1715 000 019	8.1	0.000 000	0.005
	100%	+10	1715 000 023	12.1	0.000 001	0.007
	100%	+30	1715 000 014	3.7	0.000 000	0.002
	100%	+40	1715 000 025	14.6	0.000 001	0.009
	100%	+50	1715 000 026	14.9	0.000 001	0.009
	Batt. Endpoint	+20	1715 000 019	8.7	0.000 001	0.005
1775.0	100%	+20(Ref)	1775 000 006	0.0	0.000 000	0.000
	100%	-30	1775 000 022	16.5	0.000 001	0.009
	100%	-20	1775 000 014	8.7	0.000 000	0.005
	100%	-10	1775 000 009	3.3	0.000 000	0.002
	100%	0	1775 000 009	3.5	0.000 000	0.002
	100%	+10	1775 000 019	13.6	0.000 001	0.008
	100%	+30	1775 000 021	14.9	0.000 001	0.008
	100%	+40	1775 000 019	13.3	0.000 001	0.007
	100%	+50	1775 000 013	7.2	0.000 000	0.004
	Batt. Endpoint	+20	1775 000 012	6.5	0.000 000	0.004

▣ BandWidth: 15 MHz

▣ Voltage(100%): 4.200 VDC

▣ Batt. Endpoint: 3.400 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy (MHz)	Voltage (%)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
1717.5	100%	+20(Ref)	1717 500 004	0.0	0.000 000	0.000
	100%	-30	1717 500 013	8.9	0.000 001	0.005
	100%	-20	1717 500 012	8.3	0.000 000	0.005
	100%	-10	1717 500 016	12.2	0.000 001	0.007
	100%	0	1717 500 016	12.3	0.000 001	0.007
	100%	+10	1717 500 017	13.6	0.000 001	0.008
	100%	+30	1717 500 017	13.5	0.000 001	0.008
	100%	+40	1717 500 015	10.9	0.000 001	0.006
	100%	+50	1717 500 011	7.7	0.000 000	0.004
	Batt. Endpoint	+20	1717 500 008	3.9	0.000 000	0.002
1772.5	100%	+20(Ref)	1772 500 007	0.0	0.000 000	0.000
	100%	-30	1772 500 016	9.3	0.000 001	0.005
	100%	-20	1772 500 011	4.5	0.000 000	0.003
	100%	-10	1772 500 015	7.9	0.000 000	0.004
	100%	0	1772 500 023	16.5	0.000 001	0.009
	100%	+10	1772 500 018	11.0	0.000 001	0.006
	100%	+30	1772 500 017	10.5	0.000 001	0.006
	100%	+40	1772 500 016	9.1	0.000 001	0.005
	100%	+50	1772 500 017	9.9	0.000 001	0.006
	Batt. Endpoint	+20	1772 500 011	4.5	0.000 000	0.003

▣ BandWidth: 20 MHz

▣ Voltage(100%): 4.200 VDC

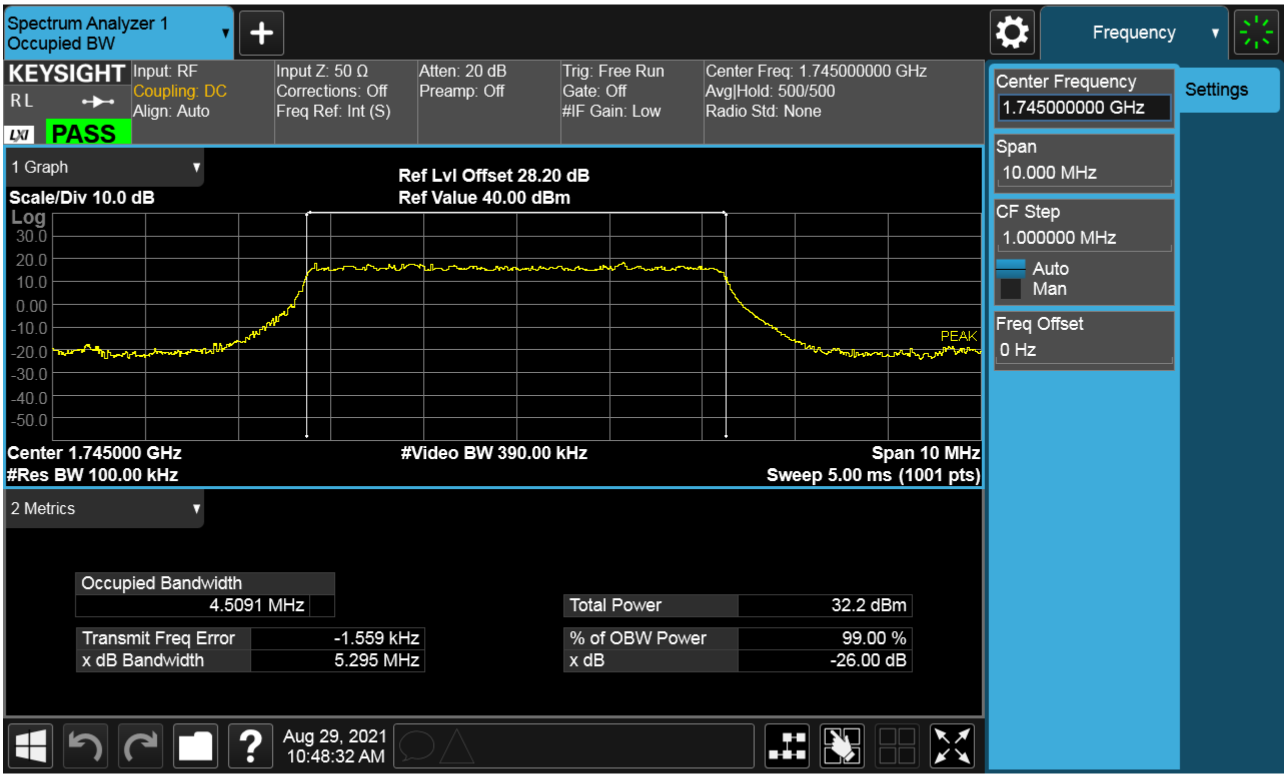
▣ Batt. Endpoint: 3.400 VDC

▣ LIMIT: Emission must remain in band

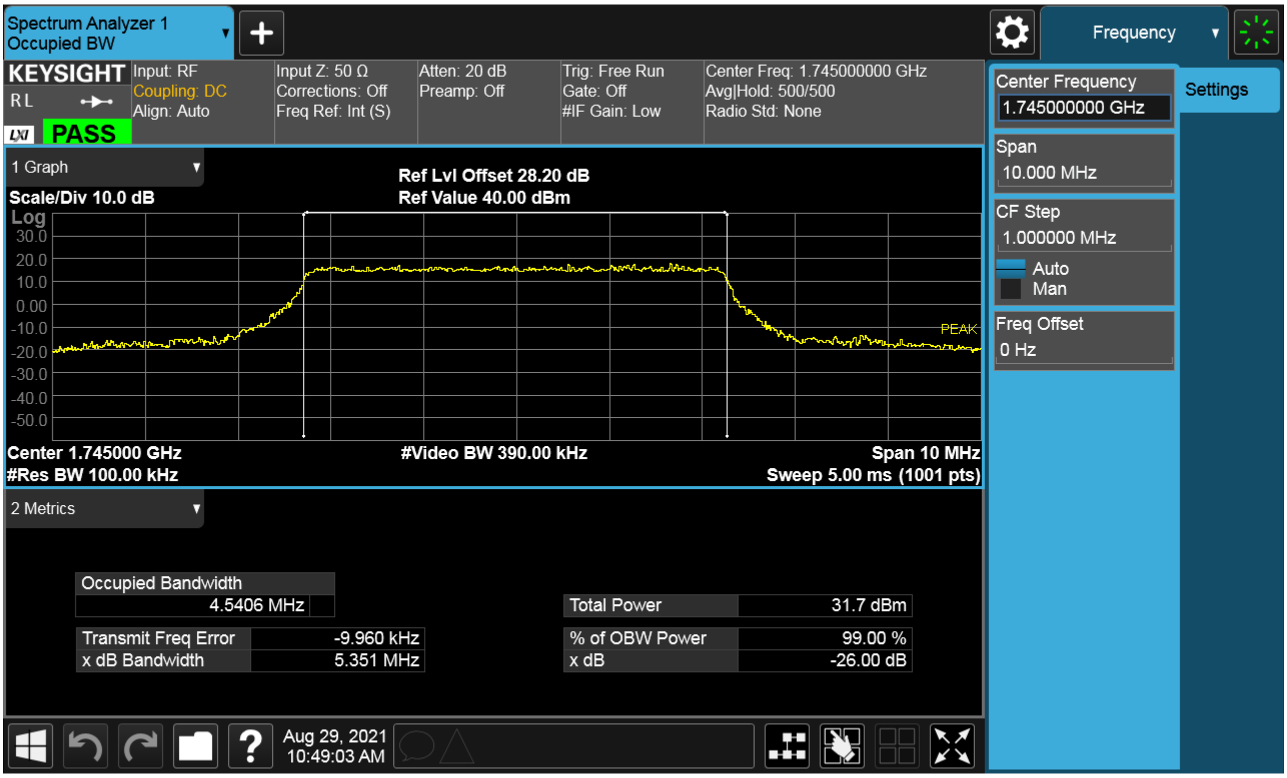
Test. Frequncy (MHz)	Voltage (%)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
1720.0	100%	+20(Ref)	1720 000 006	0.0	0.000 000	0.000
	100%	-30	1720 000 019	13.0	0.000 001	0.008
	100%	-20	1720 000 019	13.3	0.000 001	0.008
	100%	-10	1720 000 018	12.4	0.000 001	0.007
	100%	0	1720 000 009	3.5	0.000 000	0.002
	100%	+10	1720 000 016	9.9	0.000 001	0.006
	100%	+30	1720 000 019	13.0	0.000 001	0.008
	100%	+40	1720 000 021	15.5	0.000 001	0.009
	100%	+50	1720 000 015	9.1	0.000 001	0.005
	Batt. Endpoint	+20	1720 000 013	7.5	0.000 000	0.004
1770.0	100%	+20(Ref)	1770 000 009	0.0	0.000 000	0.000
	100%	-30	1770 000 018	9.0	0.000 001	0.005
	100%	-20	1770 000 014	4.9	0.000 000	0.003
	100%	-10	1770 000 017	8.0	0.000 000	0.005
	100%	0	1770 000 020	11.3	0.000 001	0.006
	100%	+10	1770 000 025	16.1	0.000 001	0.009
	100%	+30	1770 000 014	5.1	0.000 000	0.003
	100%	+40	1770 000 015	6.1	0.000 000	0.003
	100%	+50	1770 000 013	3.7	0.000 000	0.002
	Batt. Endpoint	+20	1770 000 017	7.9	0.000 000	0.004

9. TEST PLOTS

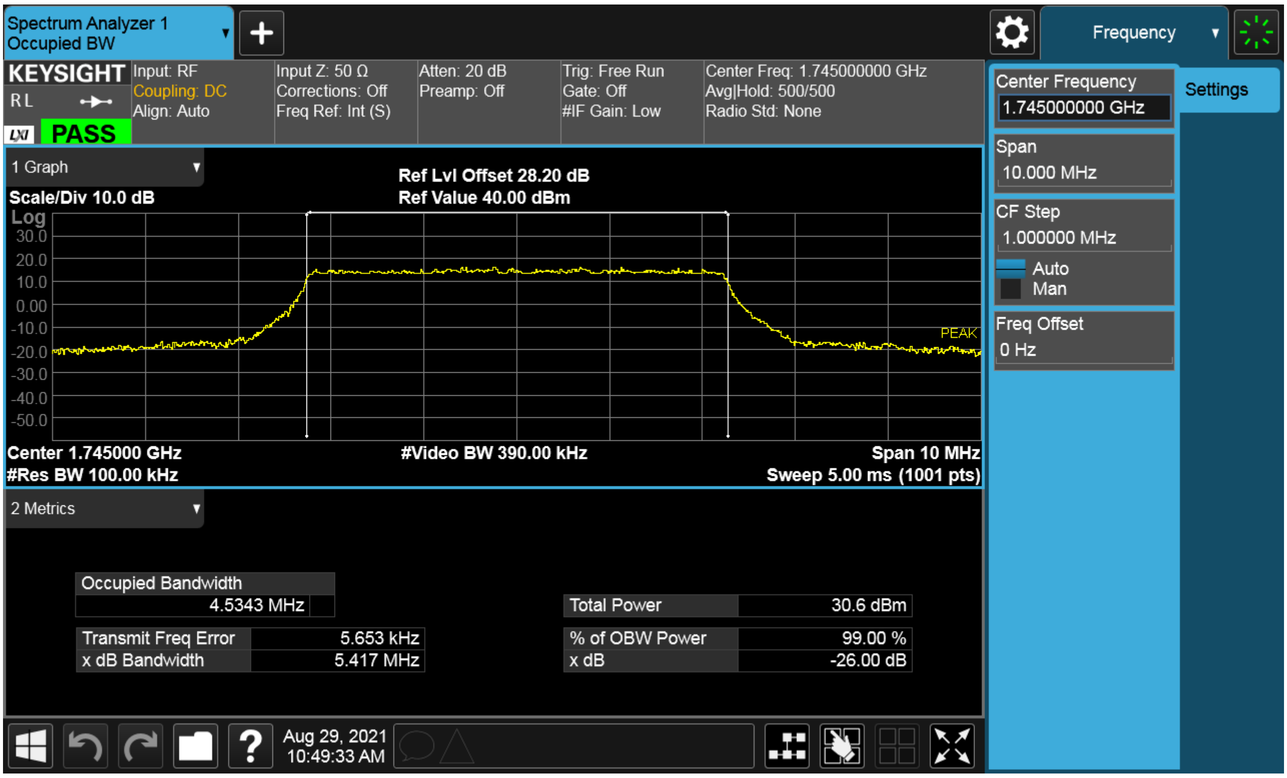
Sub6 n66. Occupied Bandwidth Plot (5 M BW Ch.349000 BPSK Full RB)



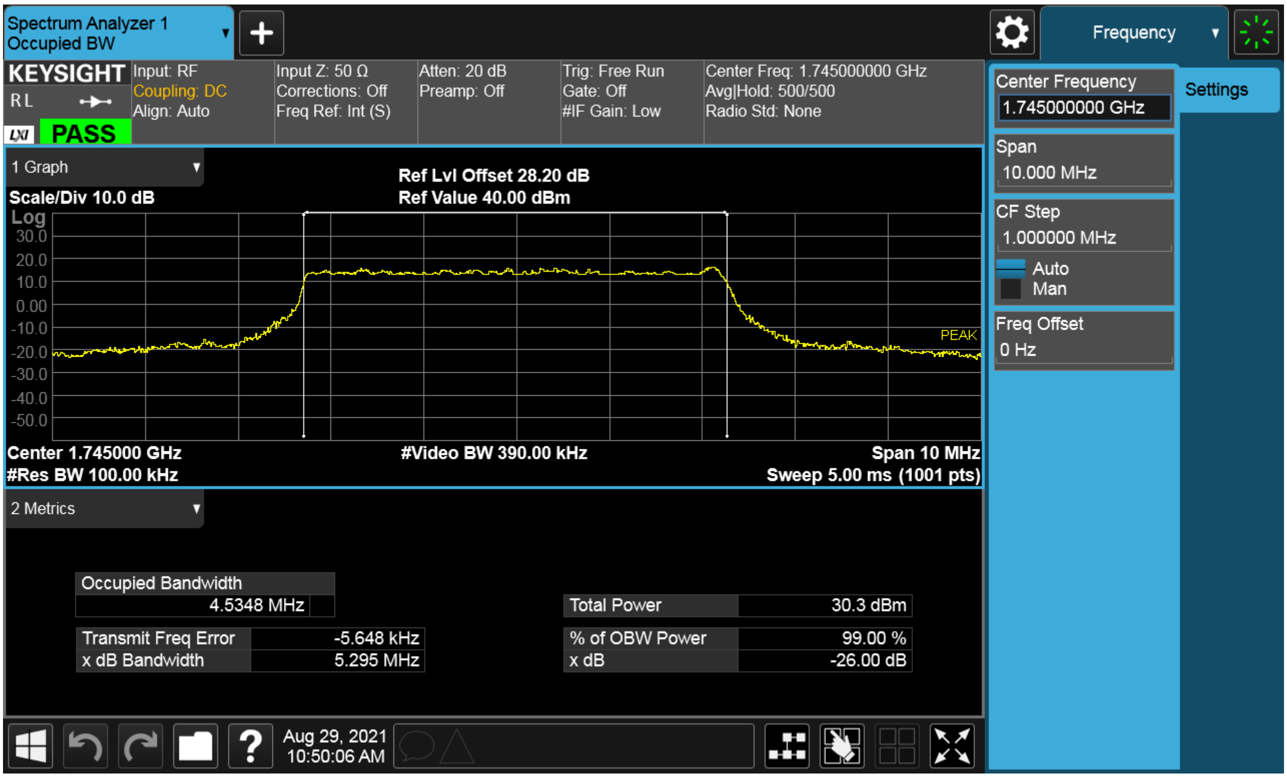
Sub6 n66. Occupied Bandwidth Plot (5 M BW Ch.349000 QPSK Full RB)



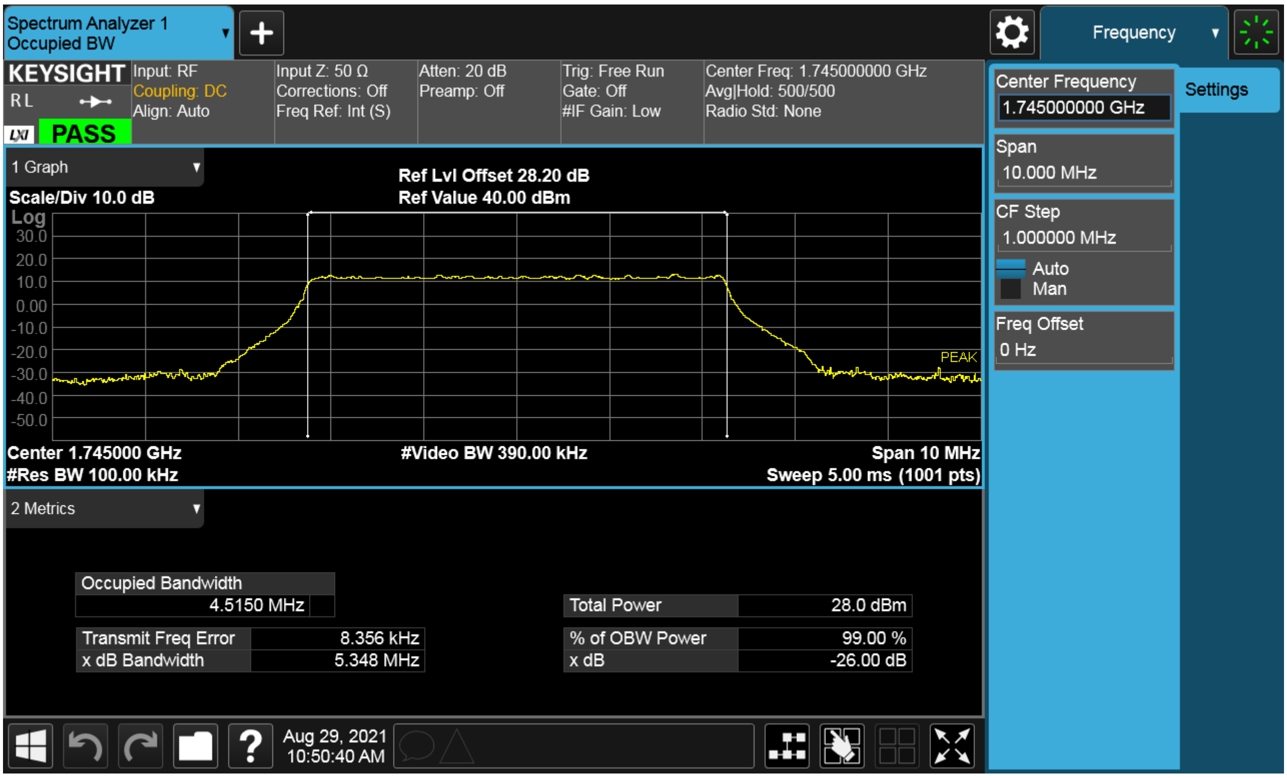
Sub6 n66. Occupied Bandwidth Plot (5 M BW Ch.349000 16QAM Full RB)



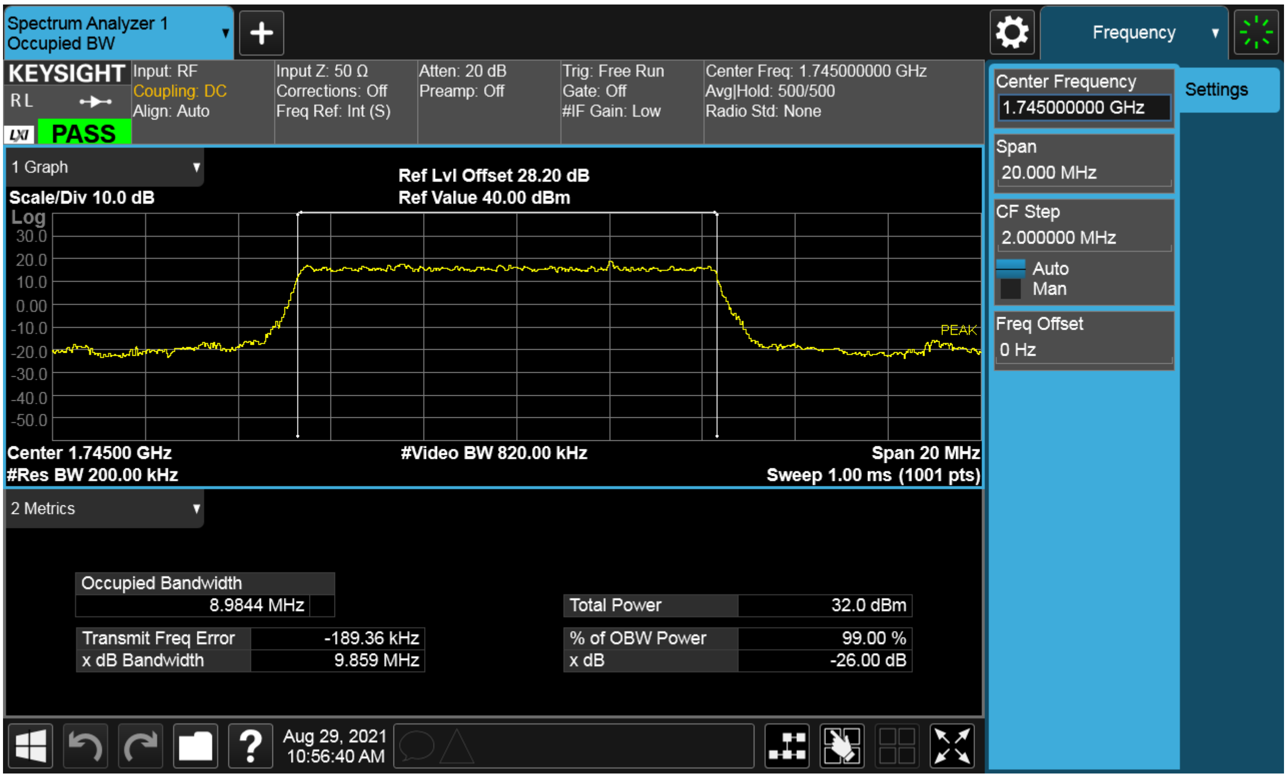
Sub6 n66. Occupied Bandwidth Plot (5 M BW Ch.349000 64QAM Full RB)



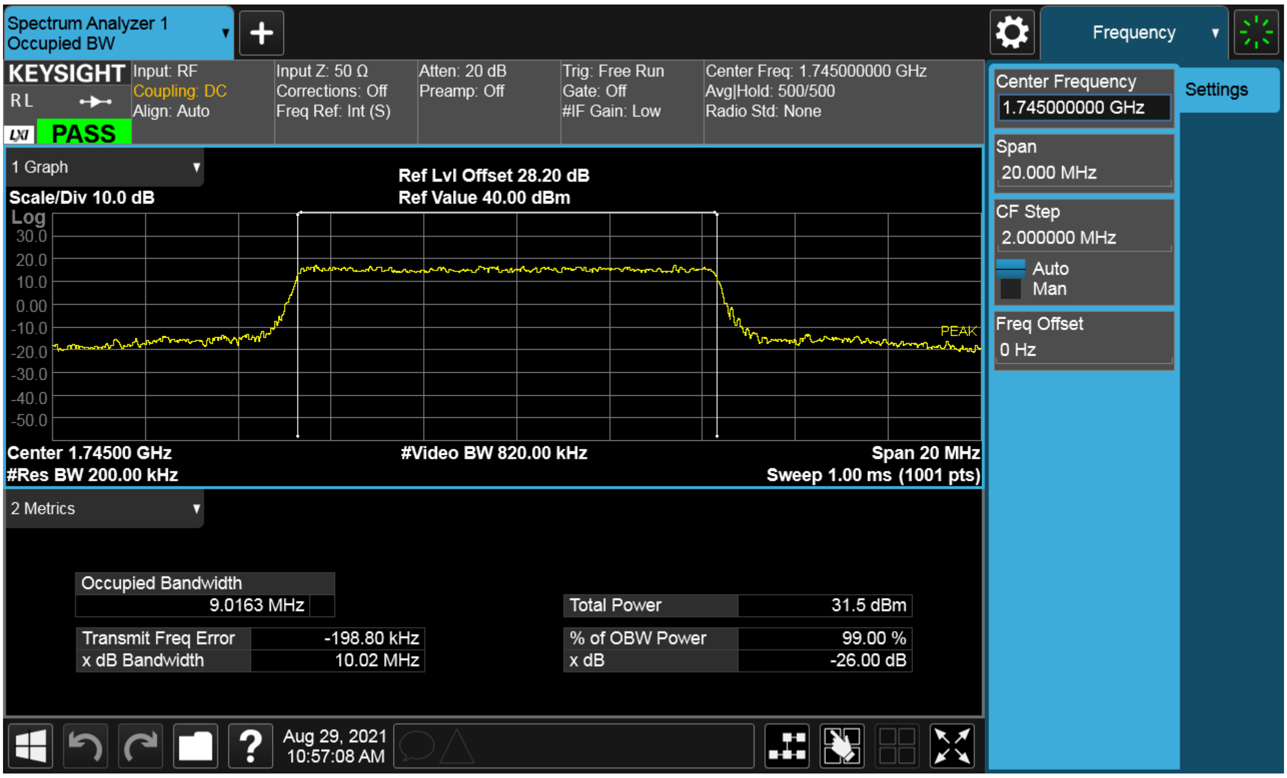
Sub6 n66. Occupied Bandwidth Plot (5 M BW Ch.349000 256QAM Full RB)



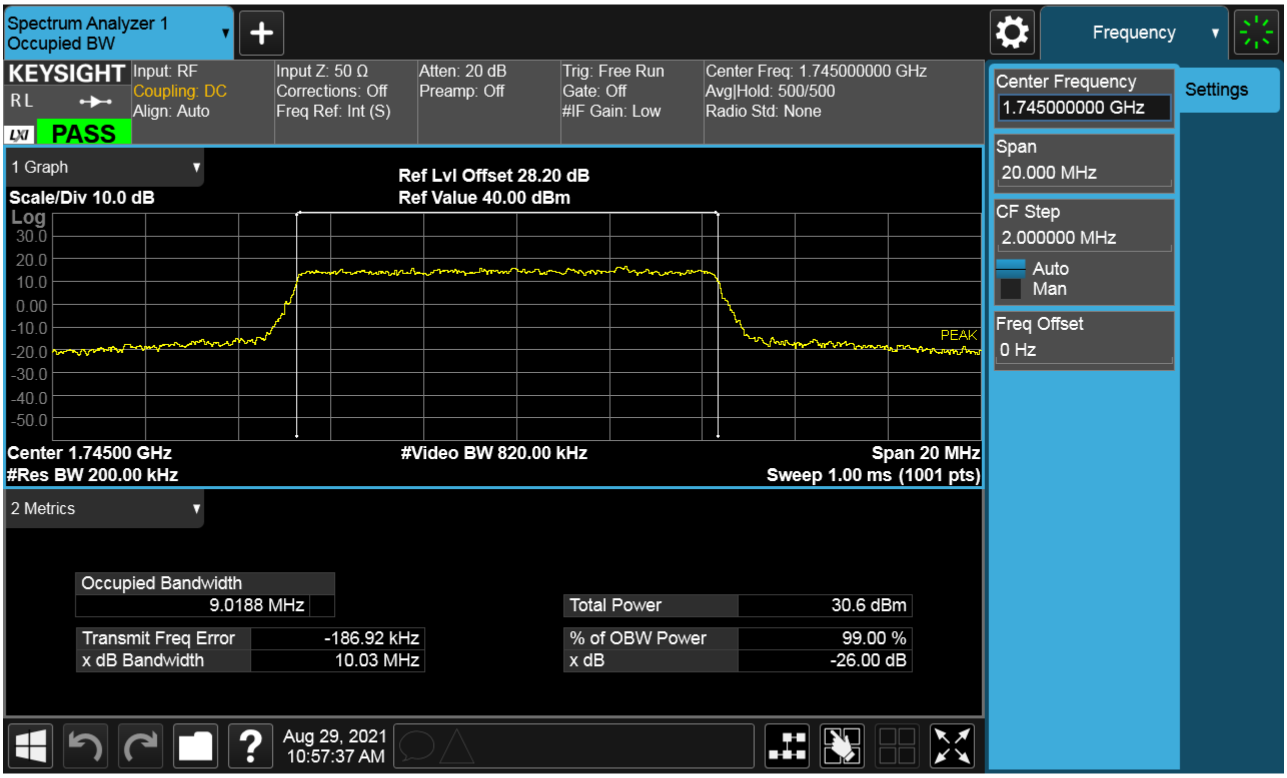
Sub6 n66. Occupied Bandwidth Plot (10 M BW Ch.349000 BPSK Full RB)



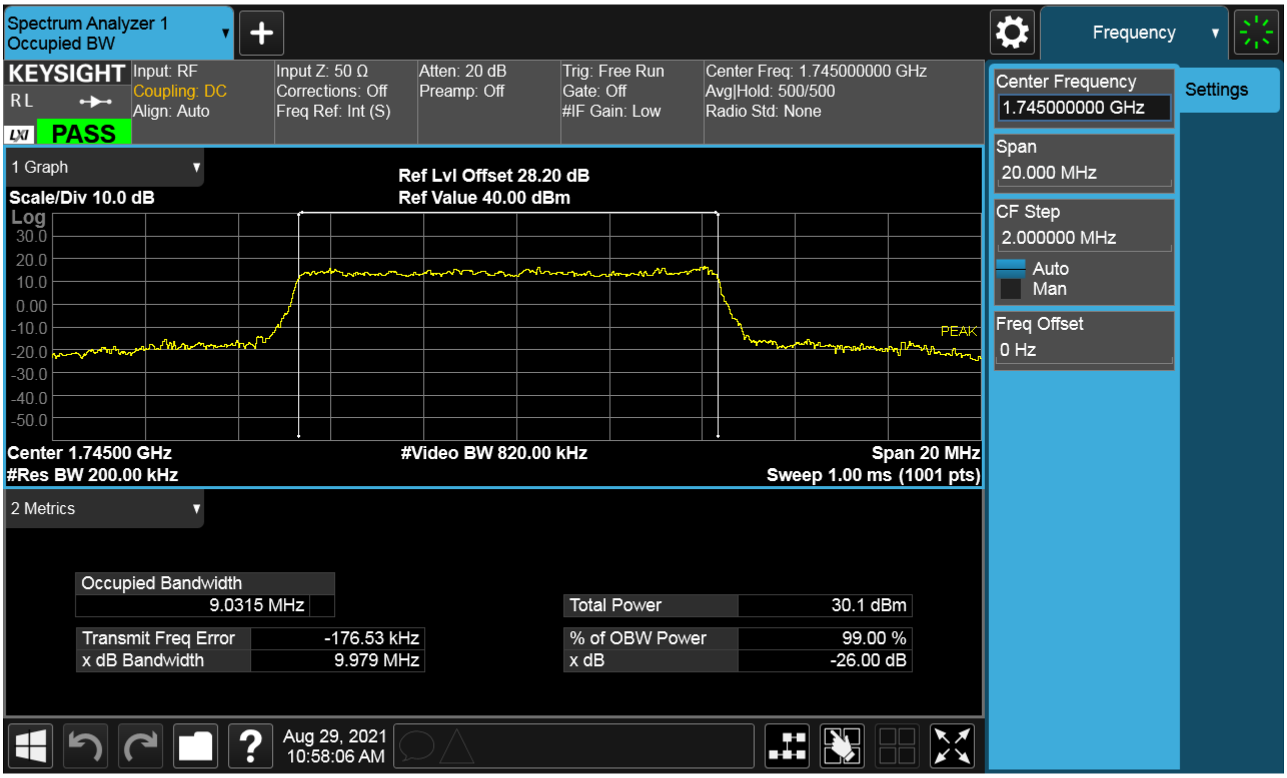
Sub6 n66. Occupied Bandwidth Plot (10 M BW Ch.349000 QPSK Full RB)



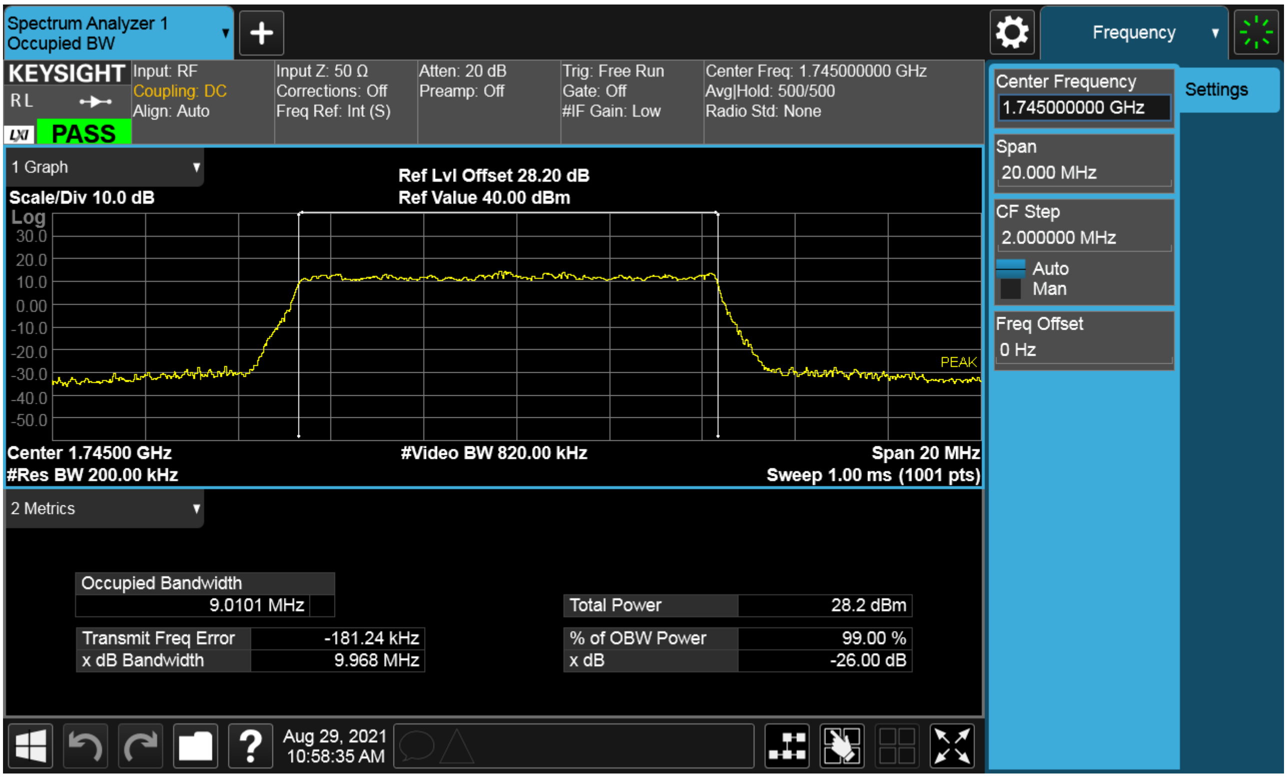
Sub6 n66. Occupied Bandwidth Plot (10 M BW Ch.349000 16QAM Full RB)



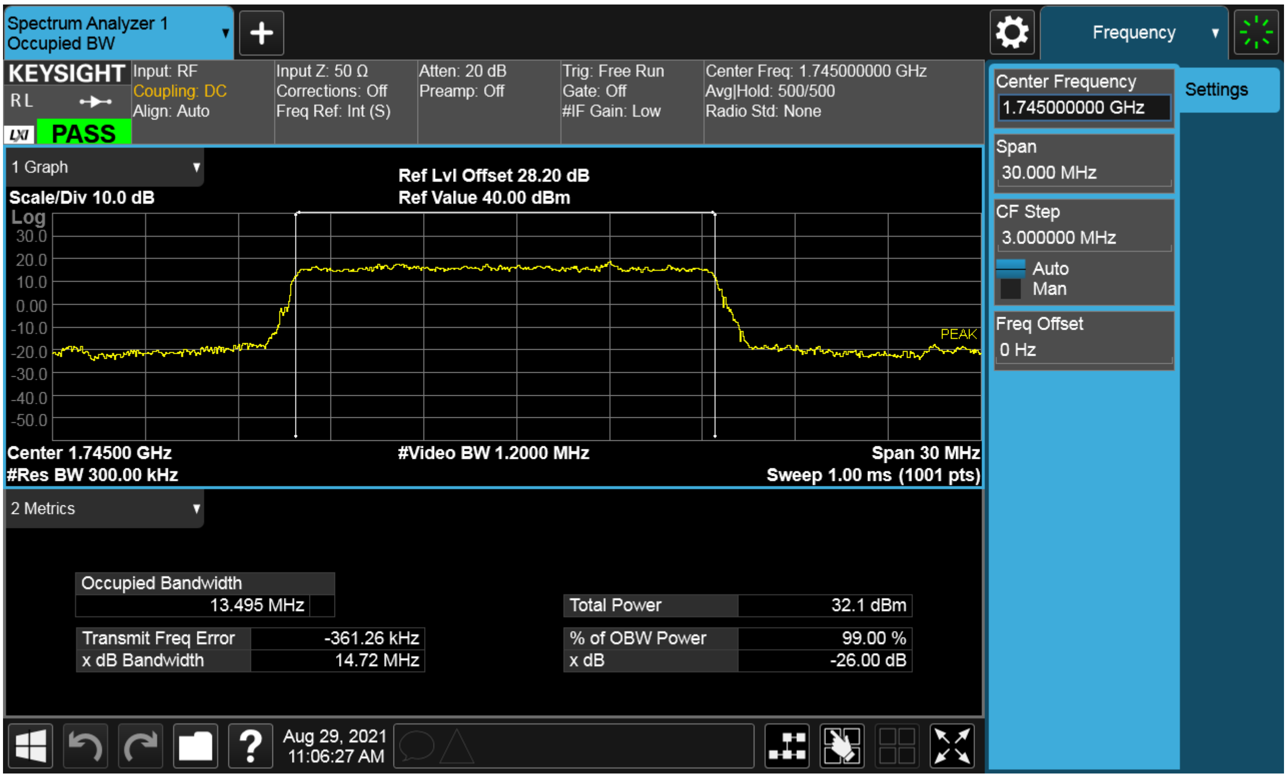
Sub6 n66. Occupied Bandwidth Plot (10 M BW Ch.349000 64QAM Full RB)



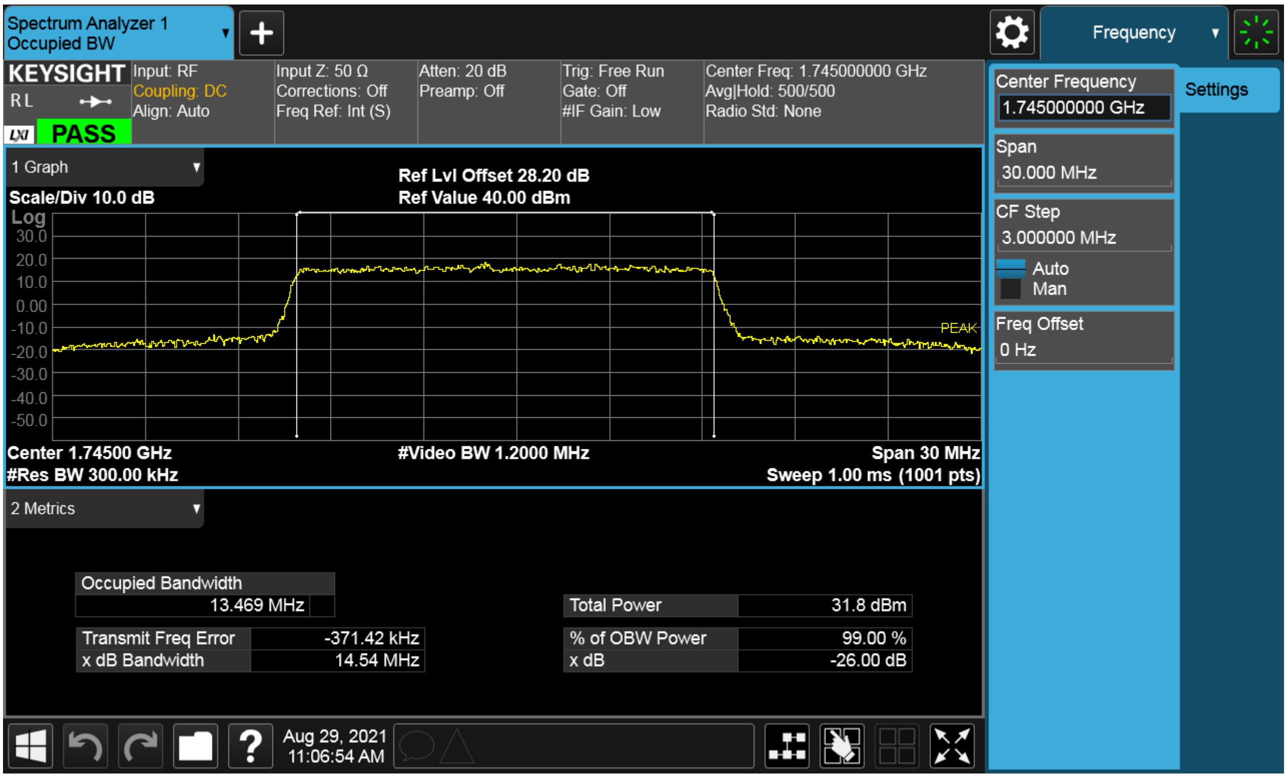
Sub6 n66. Occupied Bandwidth Plot (10 M BW Ch.349000 256QAM Full RB)



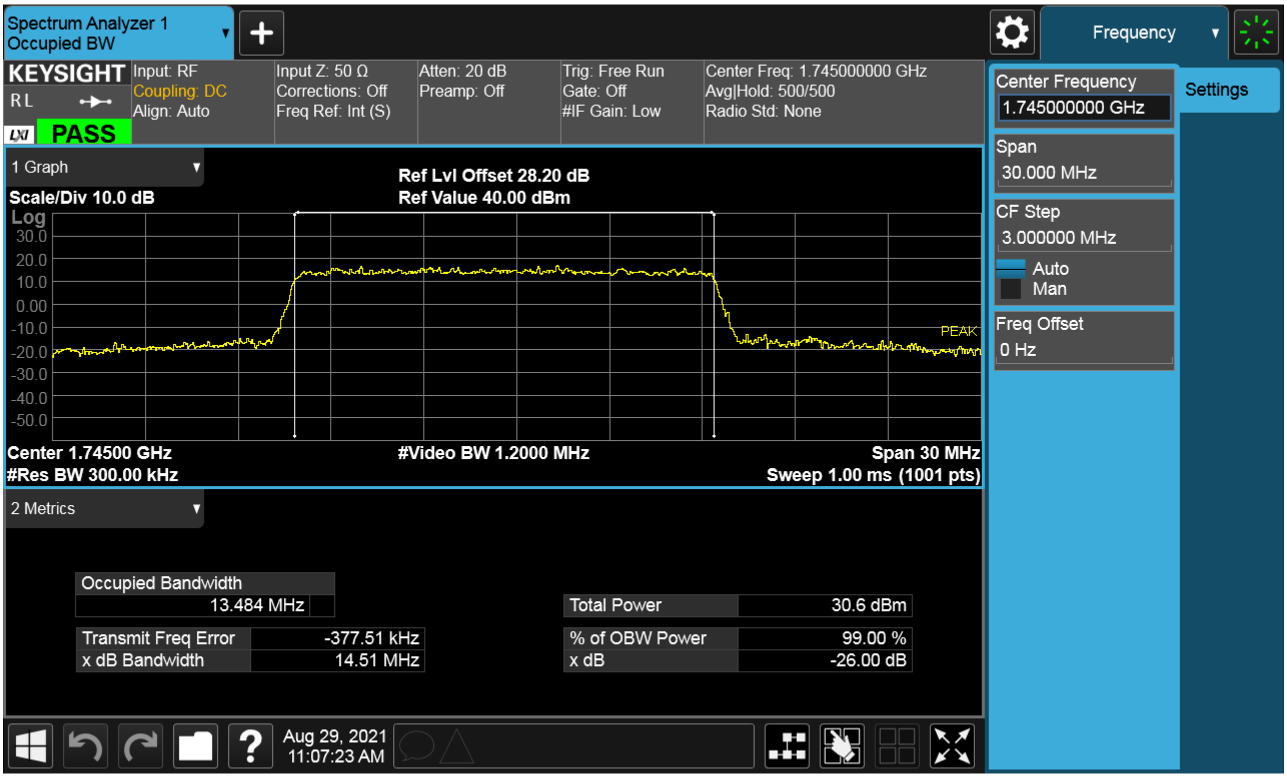
Sub6 n66. Occupied Bandwidth Plot (15 M BW Ch.349000 BPSK Full RB)



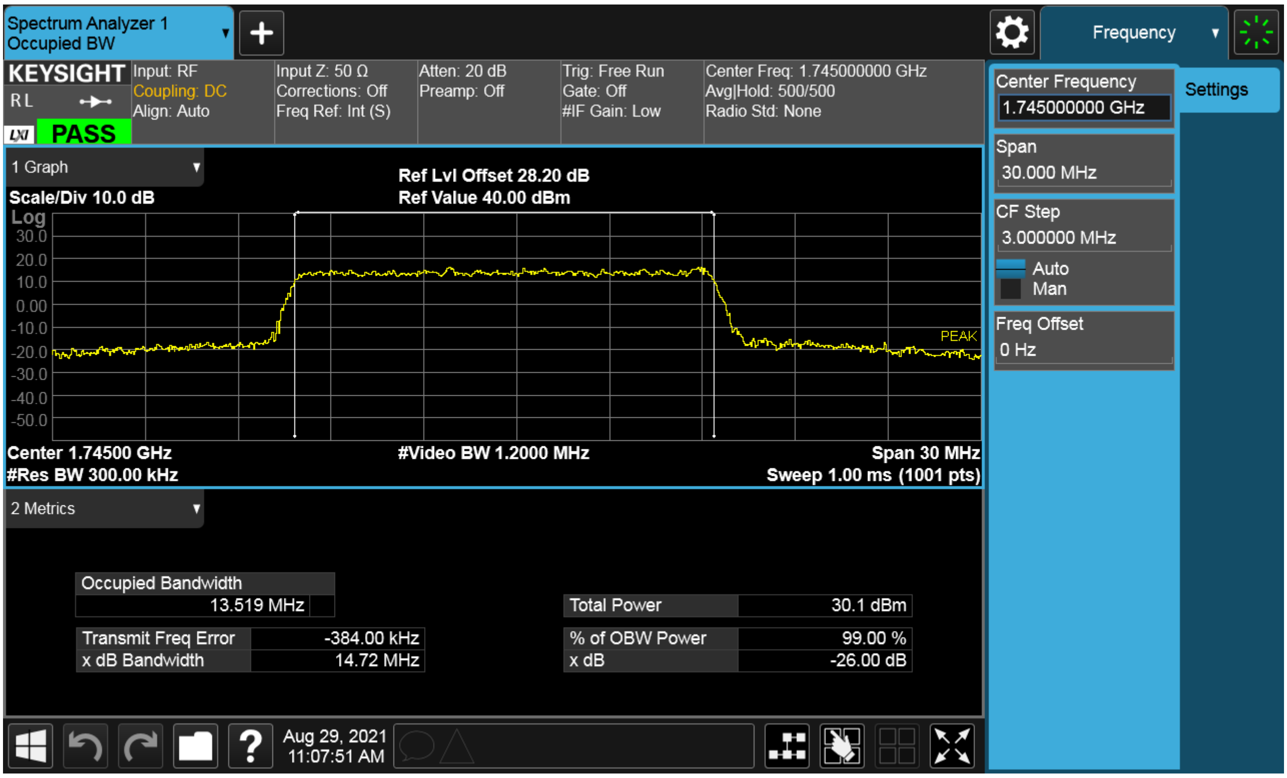
Sub6 n66. Occupied Bandwidth Plot (15 M BW Ch.349000 QPSK Full RB)



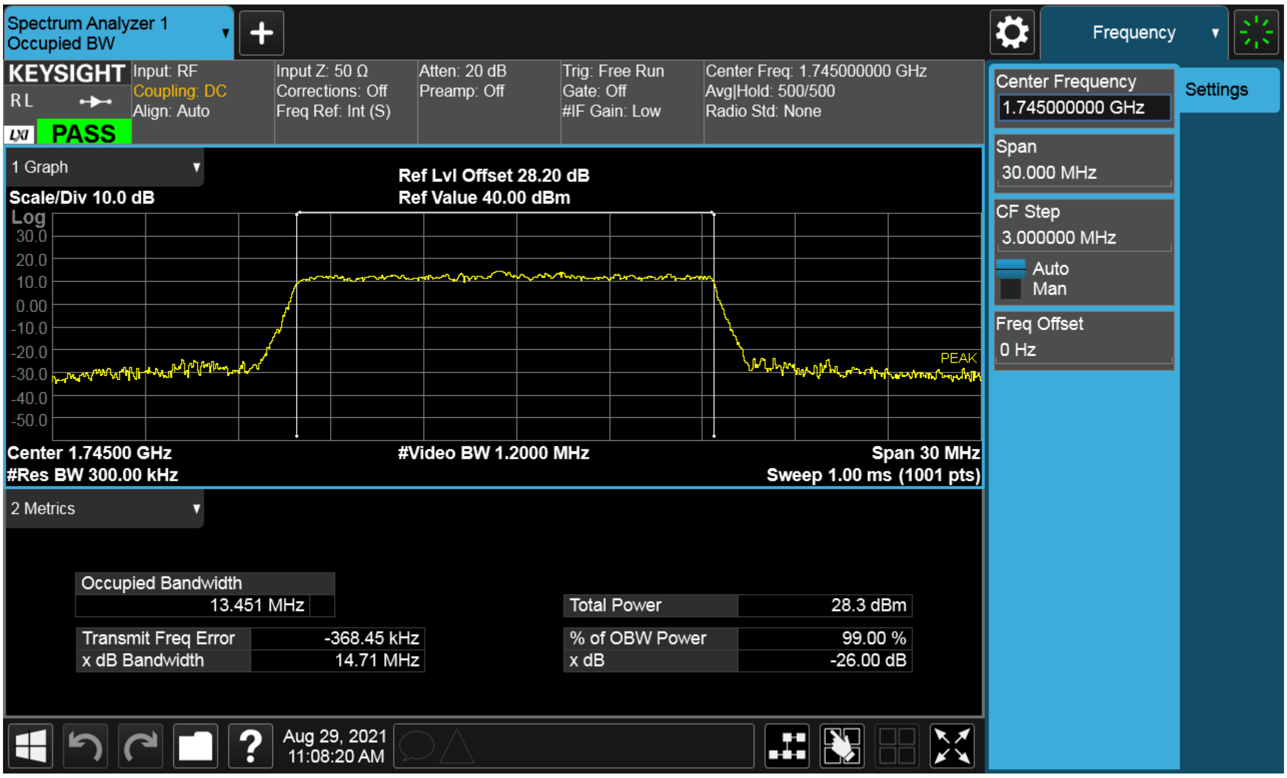
Sub6 n66. Occupied Bandwidth Plot (15 M BW Ch.349000 16QAM Full RB)



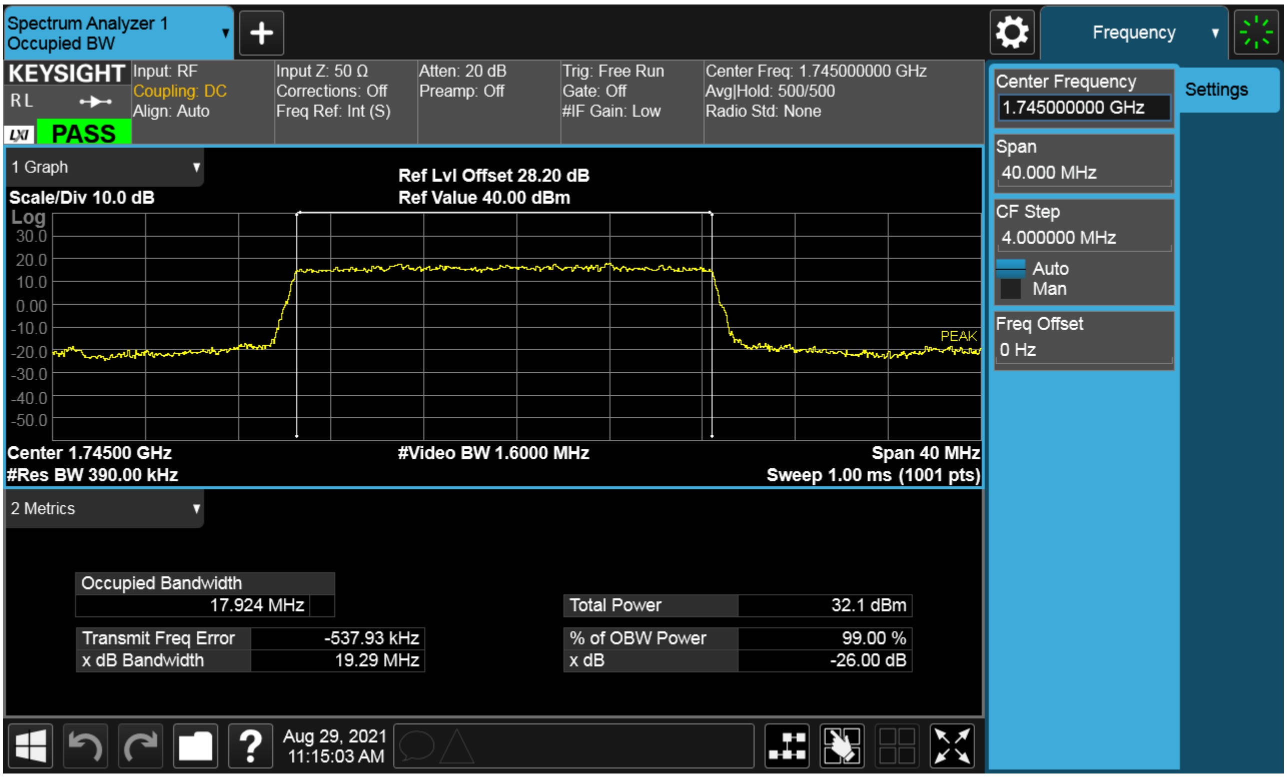
Sub6 n66. Occupied Bandwidth Plot (15 M BW Ch.349000 64QAM Full RB)



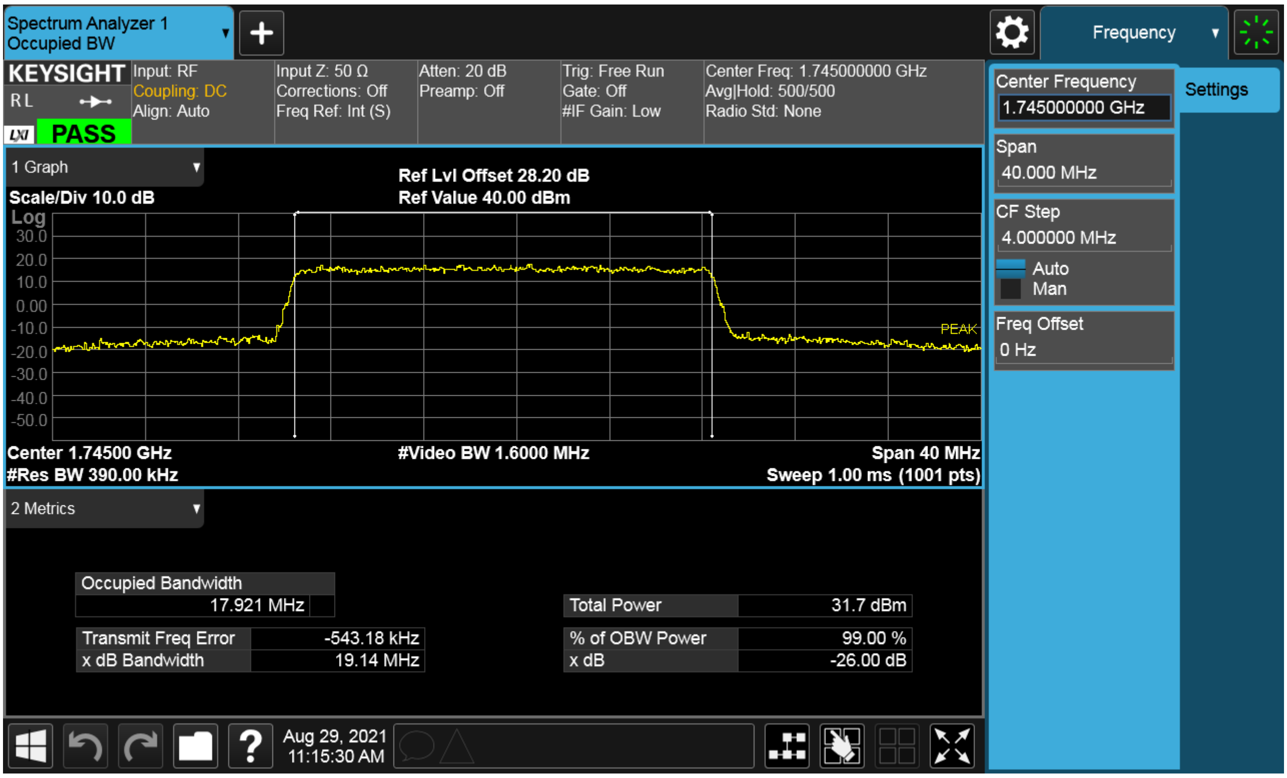
Sub6 n66. Occupied Bandwidth Plot (15 M BW Ch.349000 256QAM Full RB)



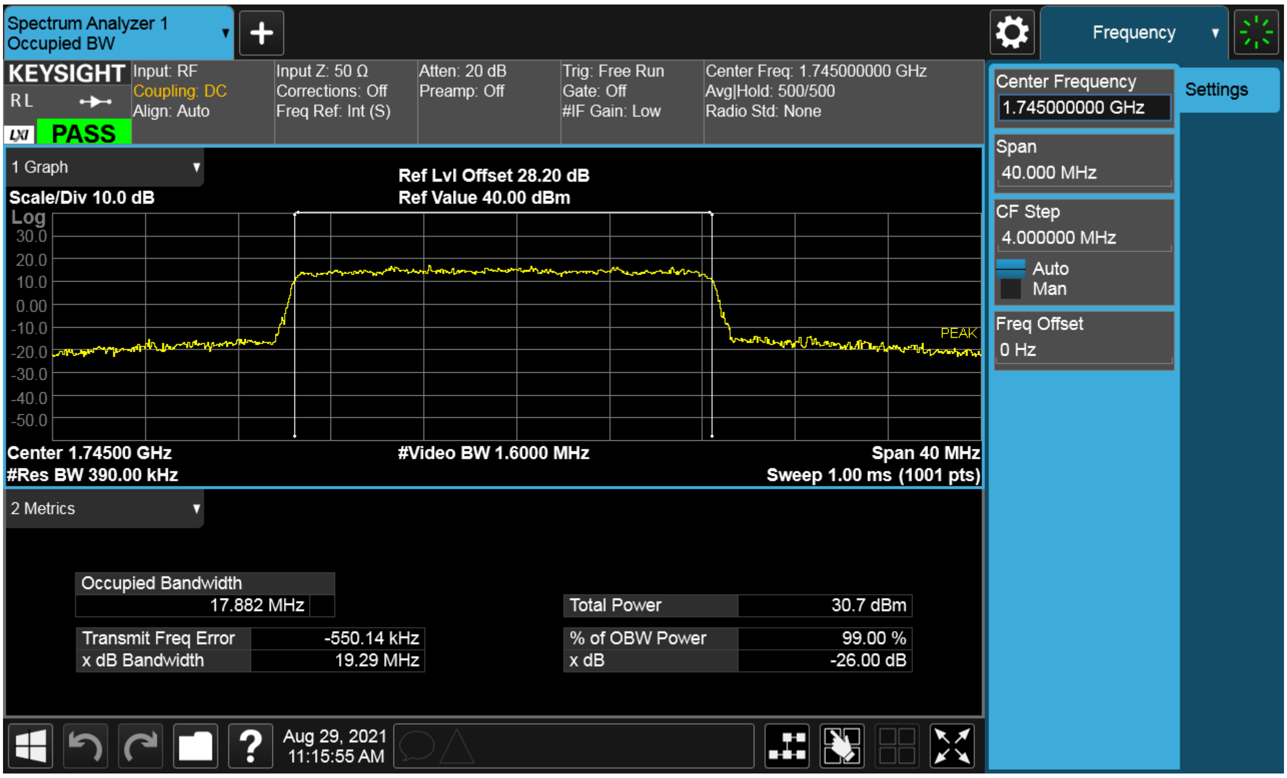
Sub6 n66. Occupied Bandwidth Plot (20 M BW Ch.349000 BPSK Full RB)



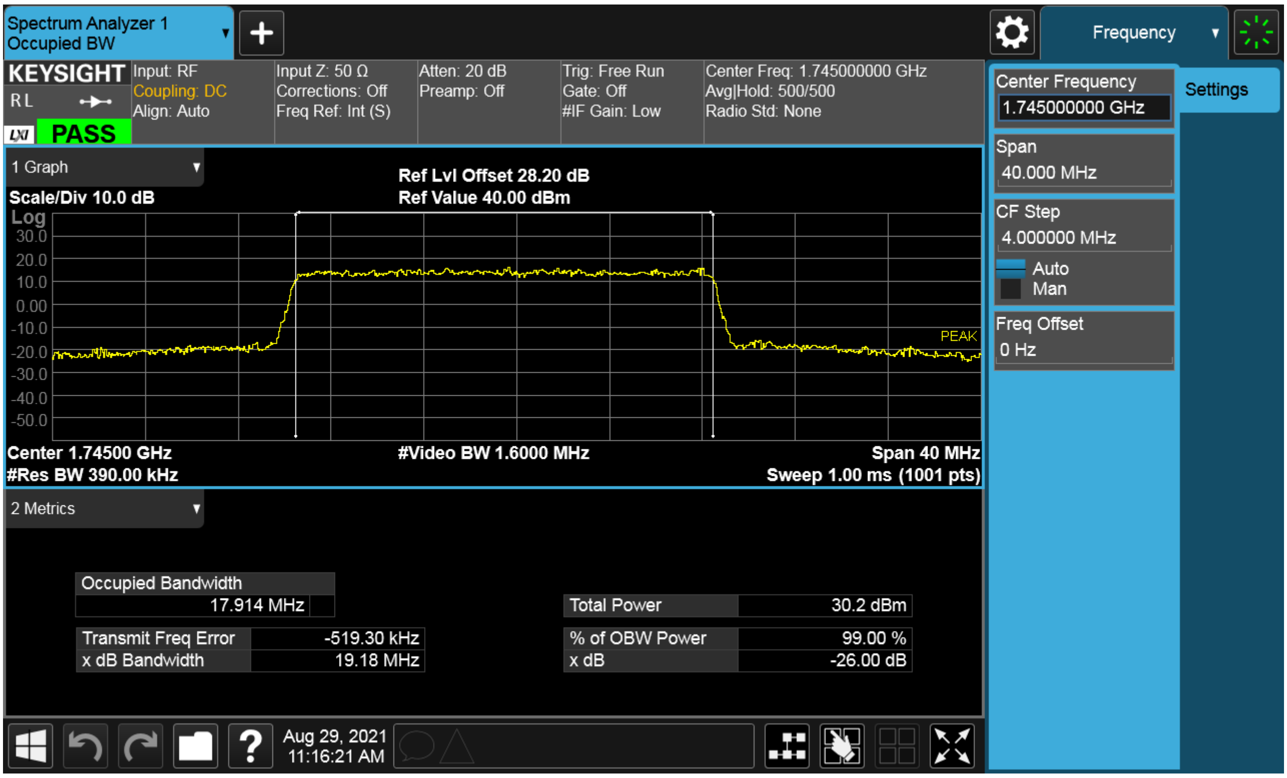
Sub6 n66. Occupied Bandw idth Plot (20 M BW Ch.349000 QPSK Full RB)



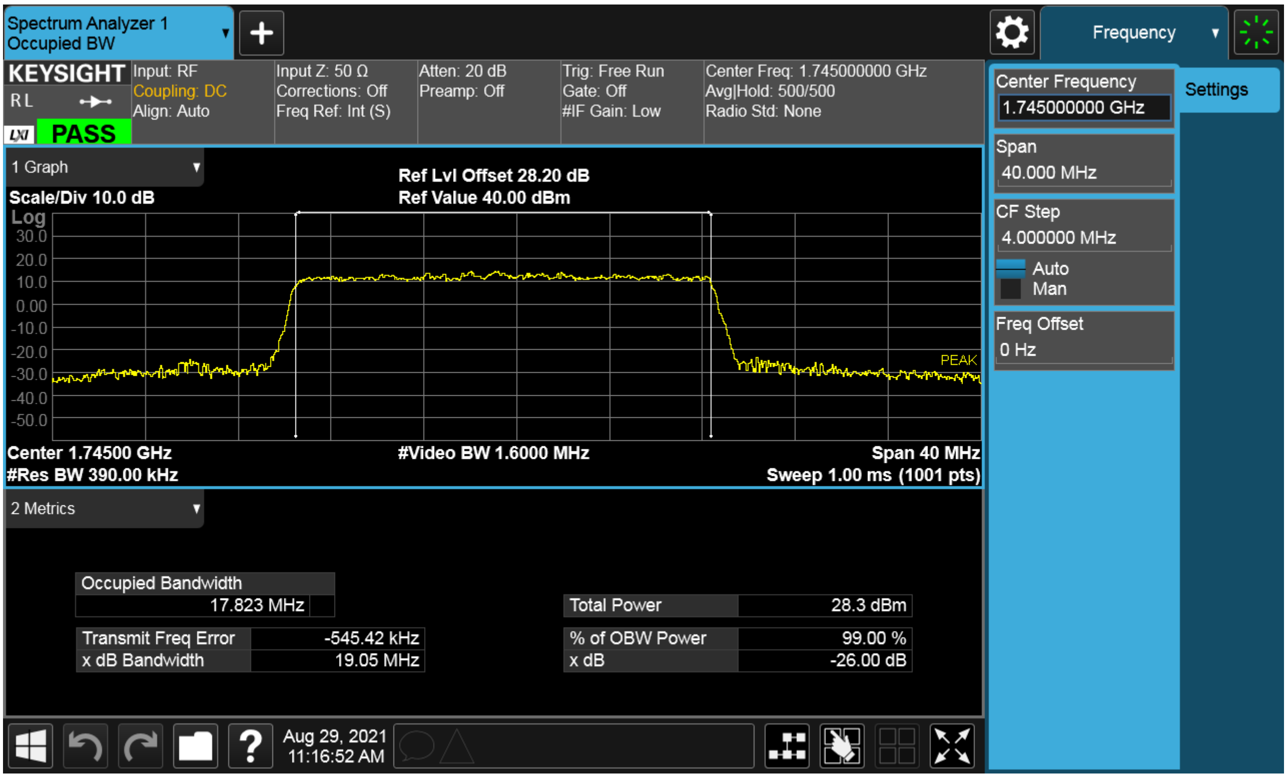
Sub6 n66. Occupied Bandwidth Plot (20 M BW Ch.349000 16QAM Full RB)



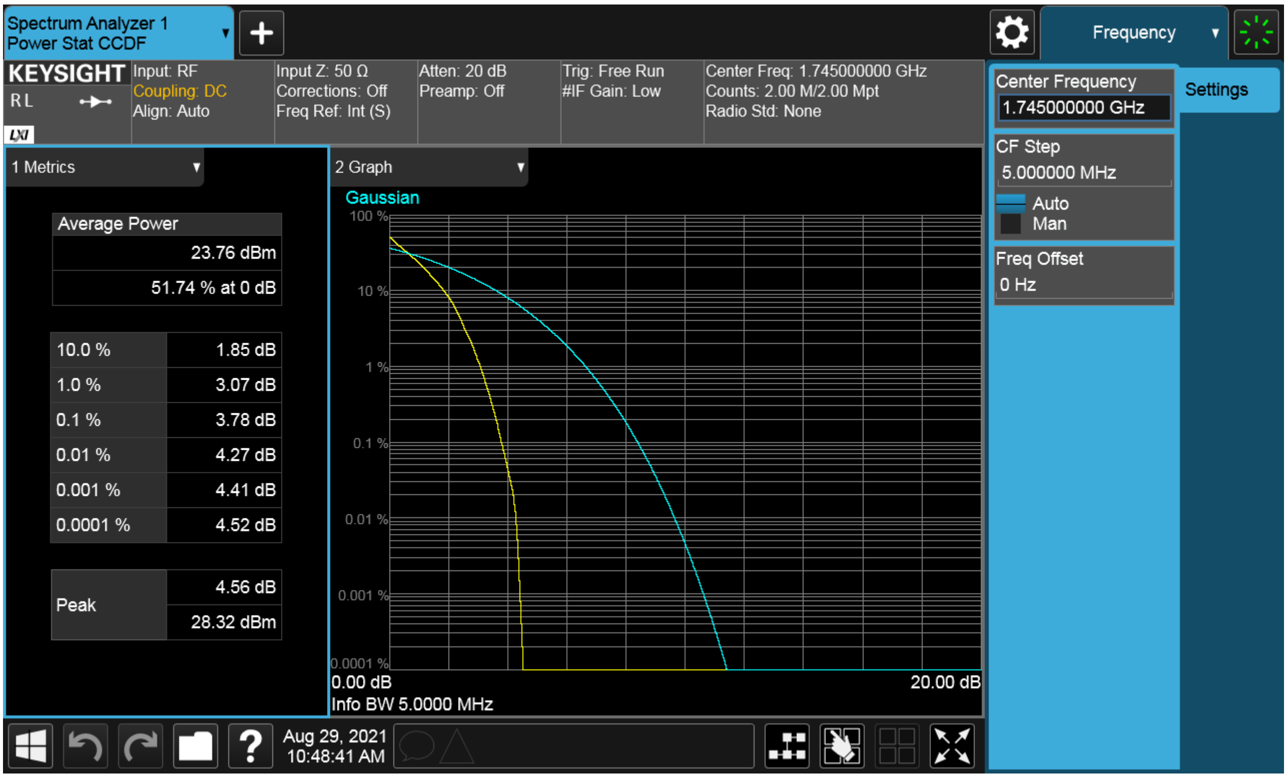
Sub6 n66. Occupied Bandwidth Plot (20 M BW Ch.349000 64QAM Full RB)



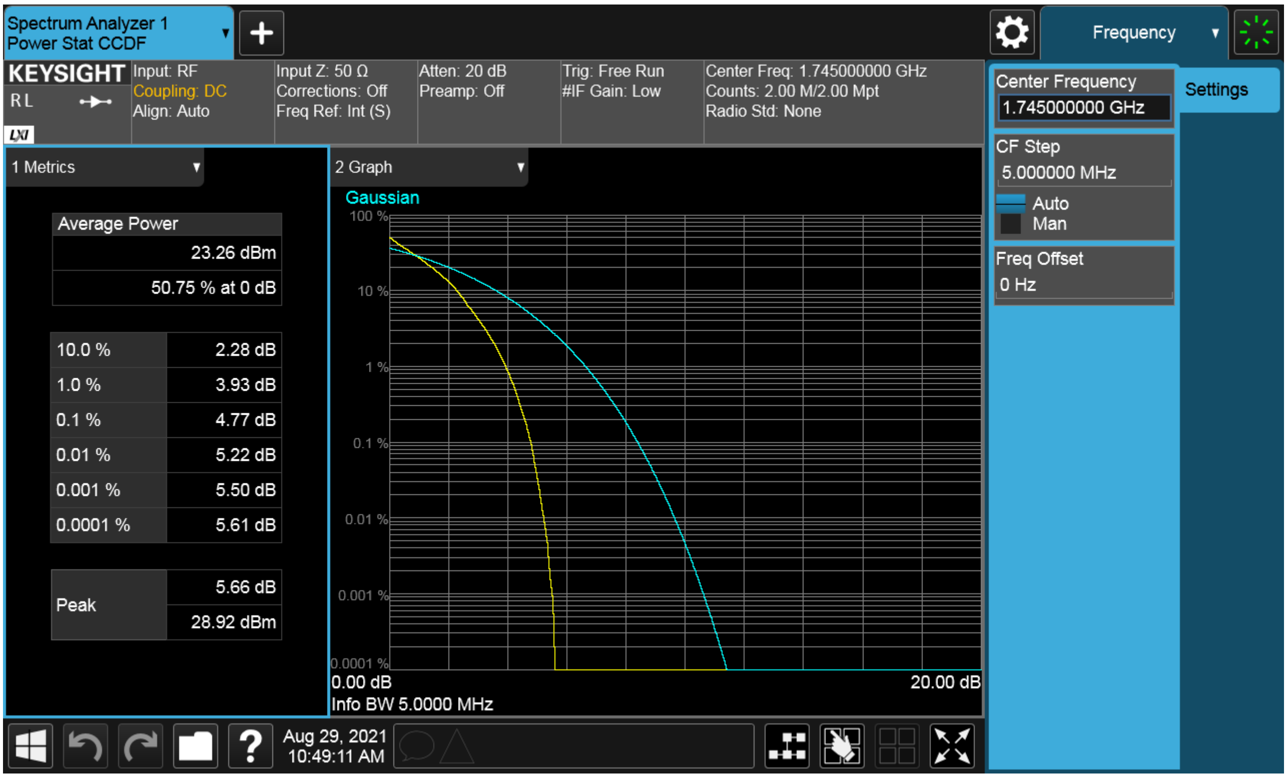
Sub6 n66. Occupied Bandwidth Plot (20 M BW Ch.349000 256QAM Full RB)



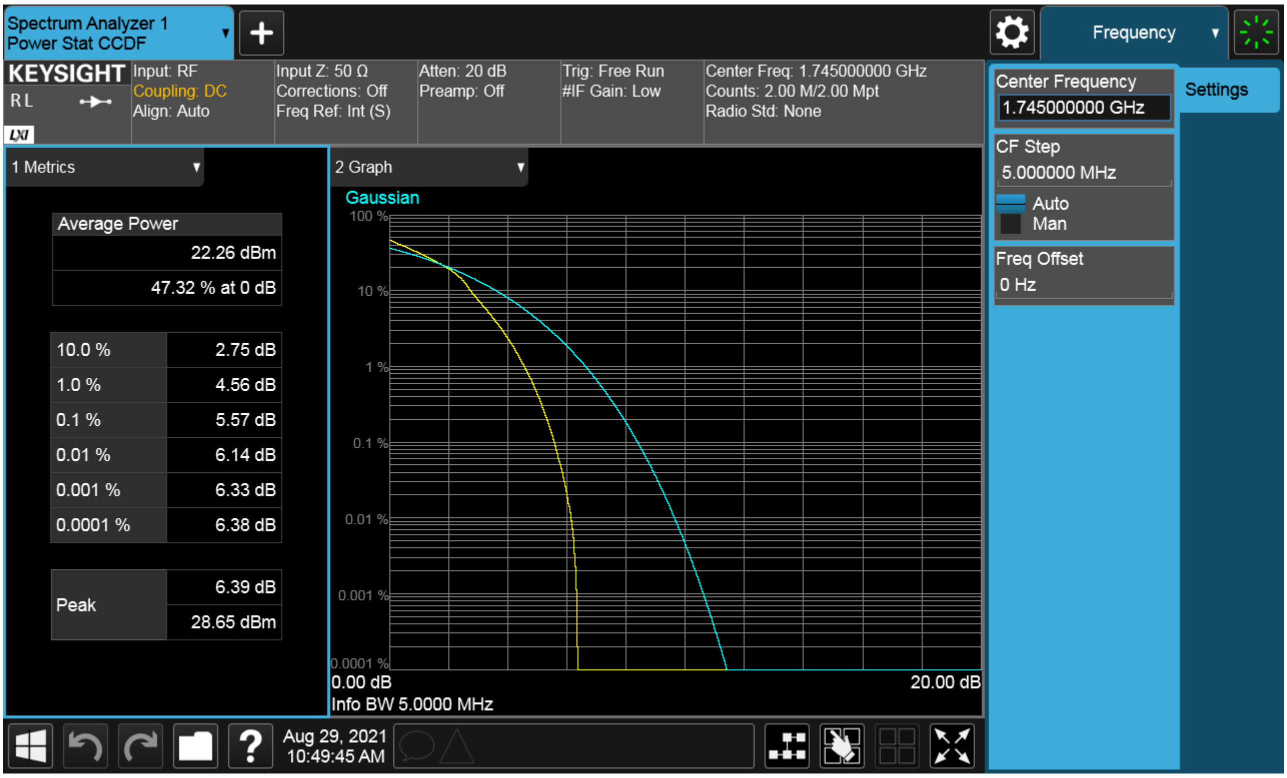
Sub6 n66. PAR Plot (5 M BW_Ch.349000_ BPSK_ Full RB)



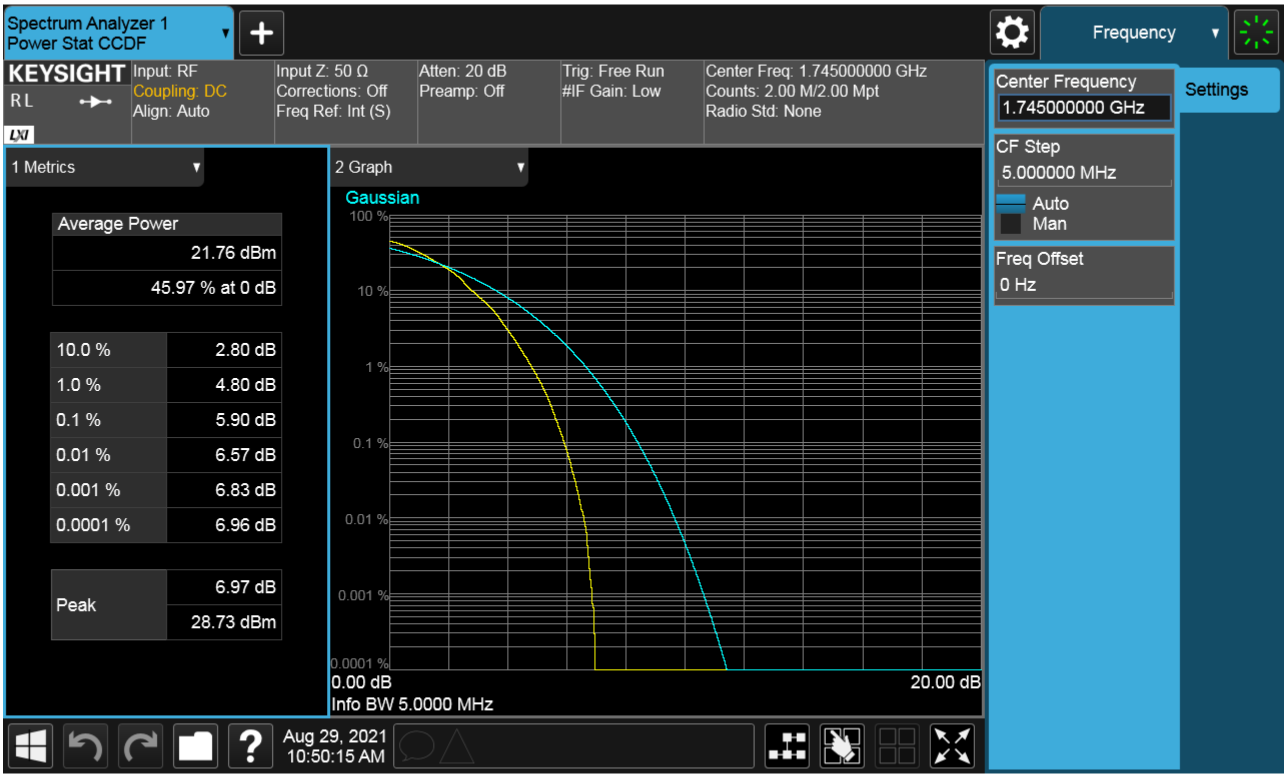
Sub6 n66. PAR Plot (5 M BW_Ch.349000_QPSK_ Full RB)



Sub6 n66. PAR Plot (5 M BW_Ch.349000_16QAM_ Full RB)

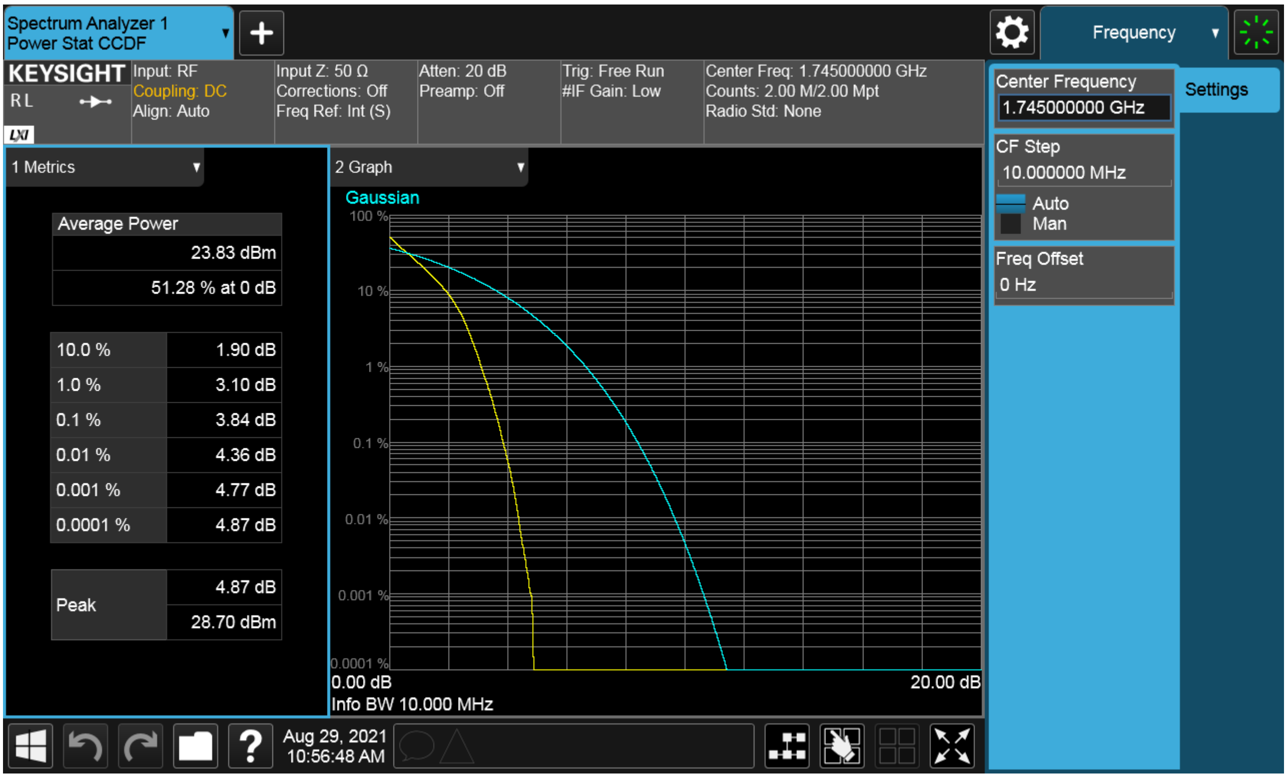


Sub6 n66. PAR Plot (5 M BW_Ch.349000_64QAM_ Full RB)

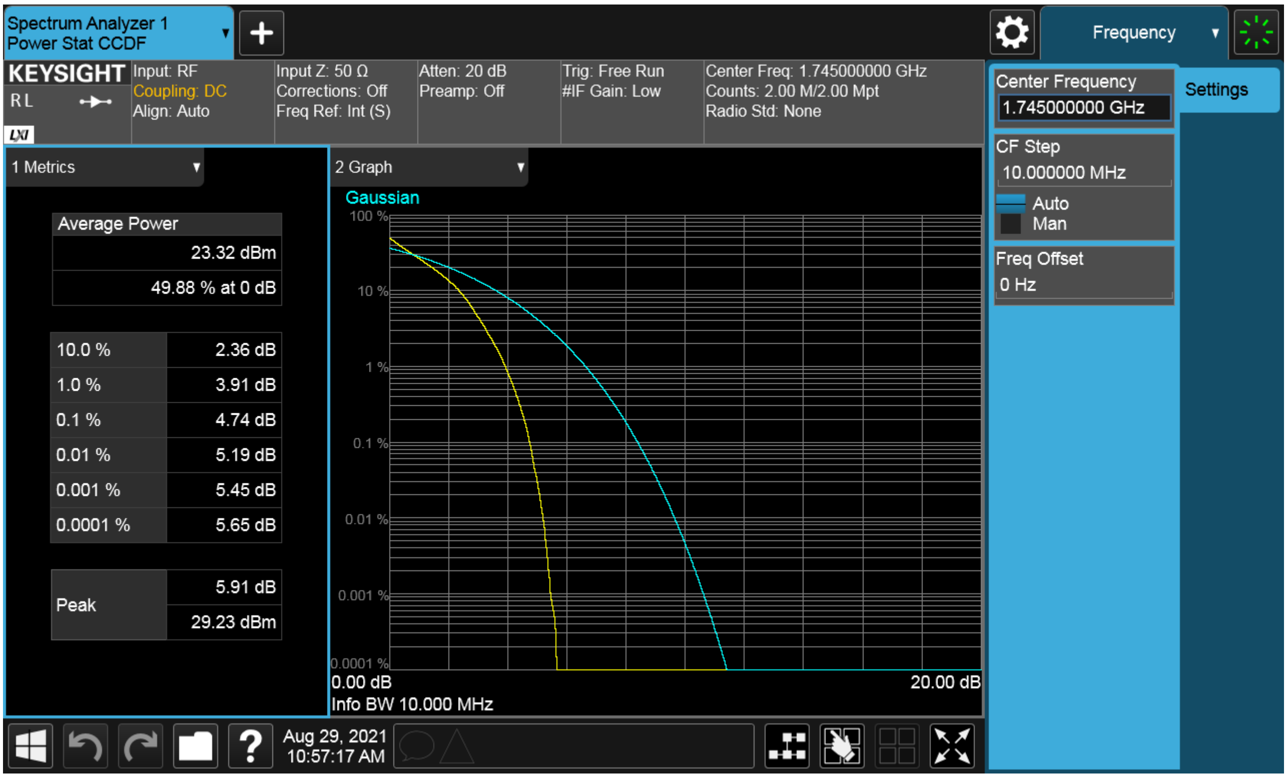


Sub6 n66. PAR Plot (5 M BW_Ch.349000_256QAM_ Full RB)

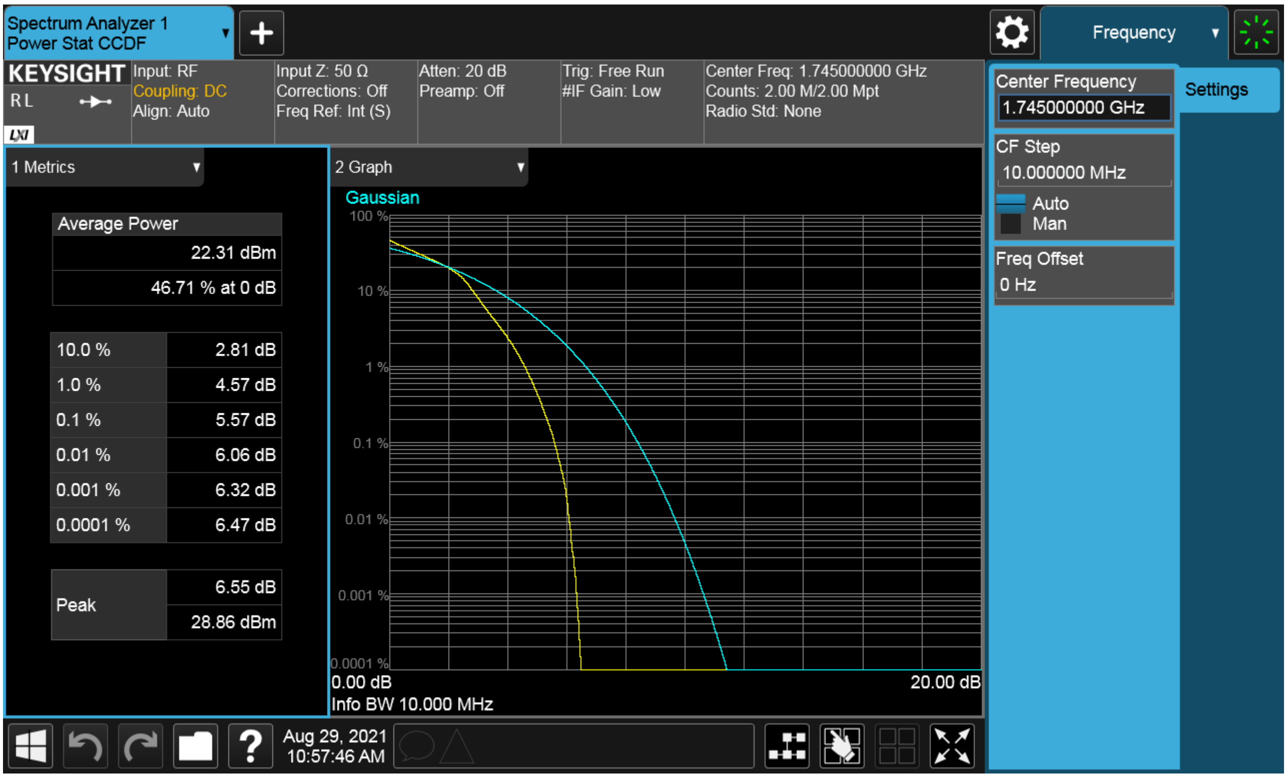
Sub6 n66. PAR Plot (10 M BW_Ch.349000_ BPSK_ Full RB)



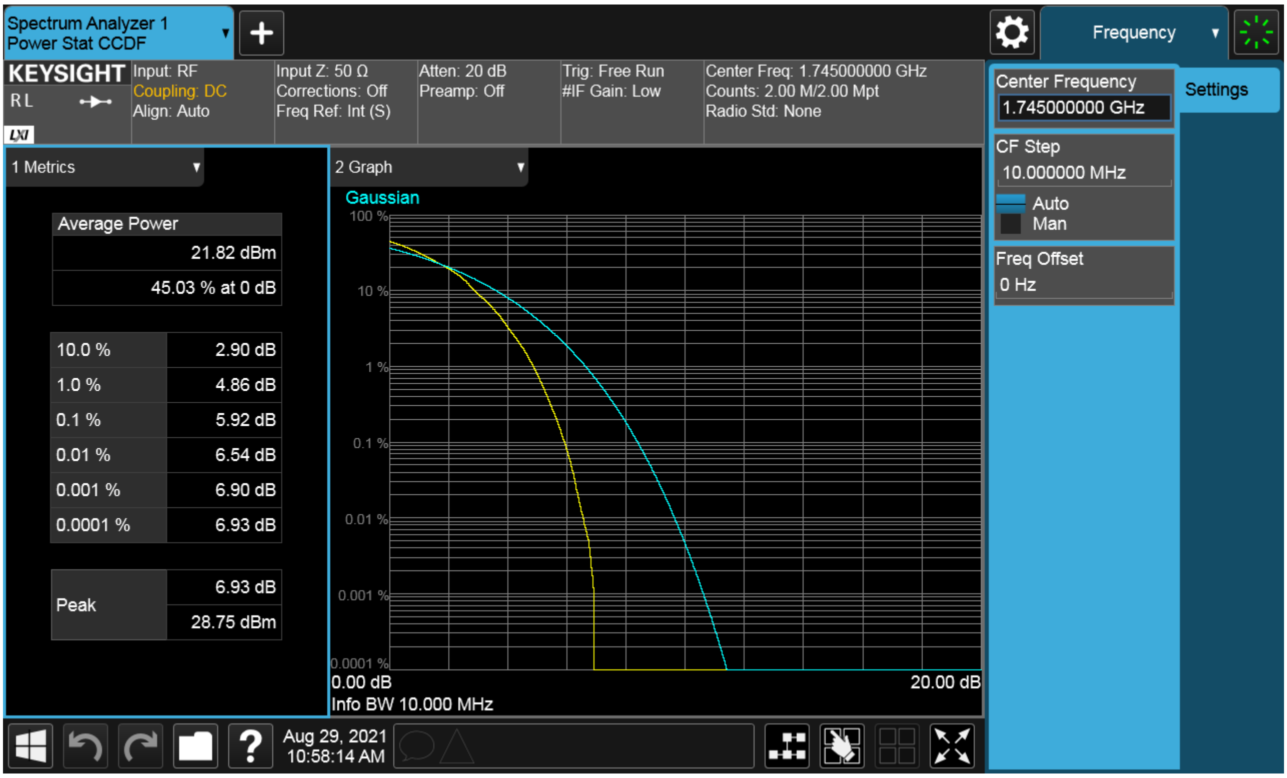
Sub6 n66. PAR Plot (10 M BW_Ch.349000_QPSK_ Full RB)



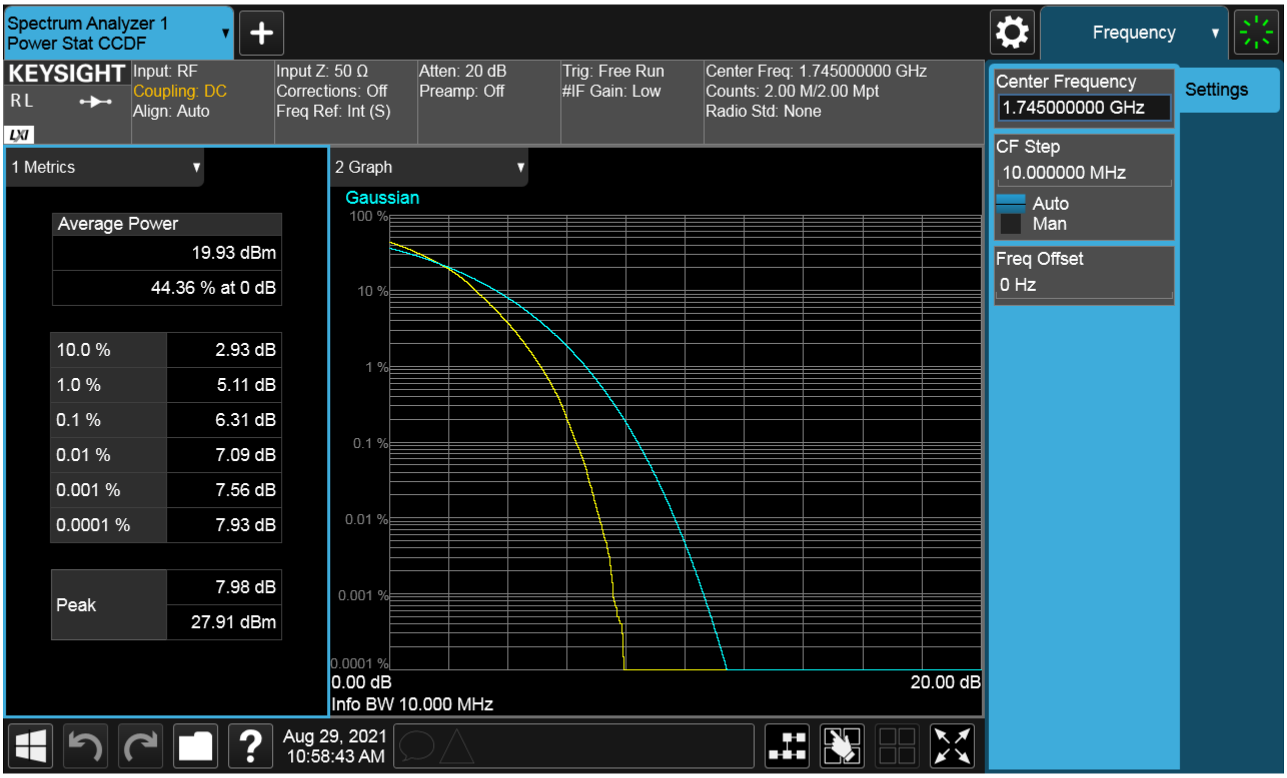
Sub6 n66. PAR Plot (10 M BW_Ch.349000_16QAM_ Full RB)



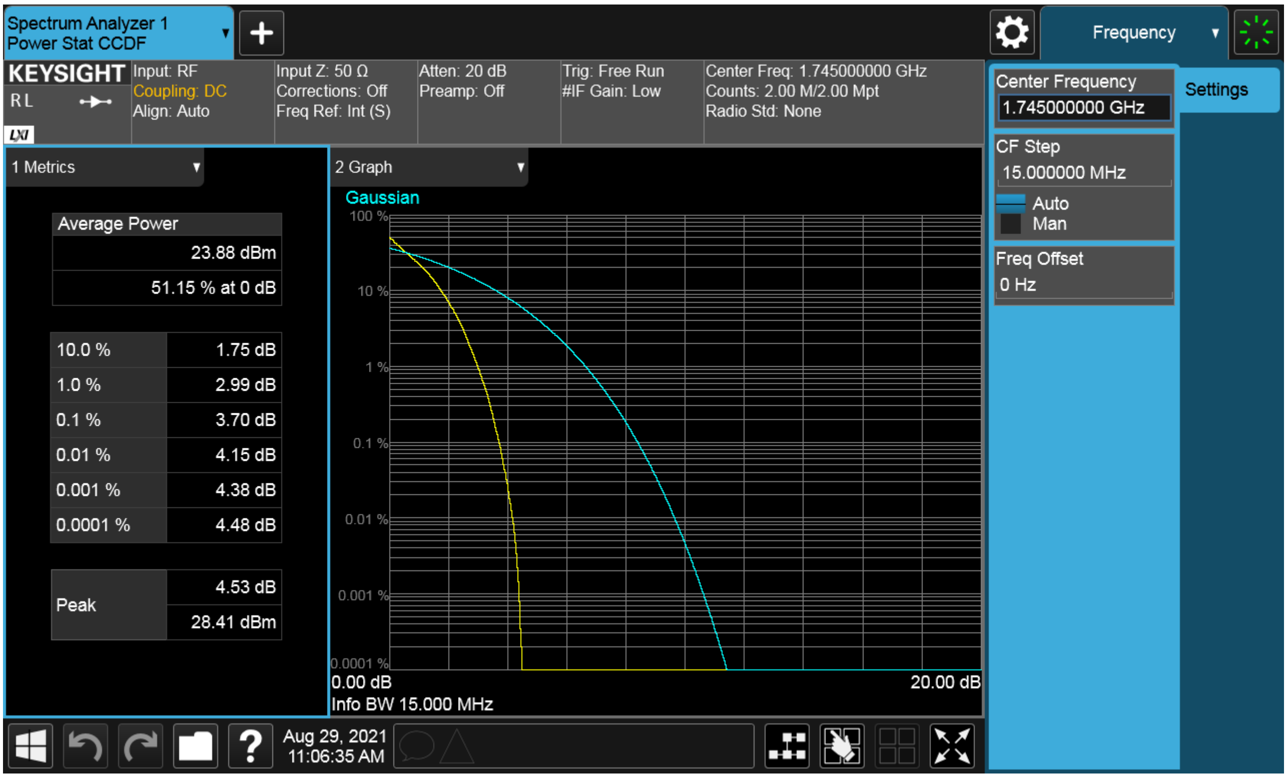
Sub6 n66. PAR Plot (10 M BW_Ch.349000_64QAM_ Full RB)



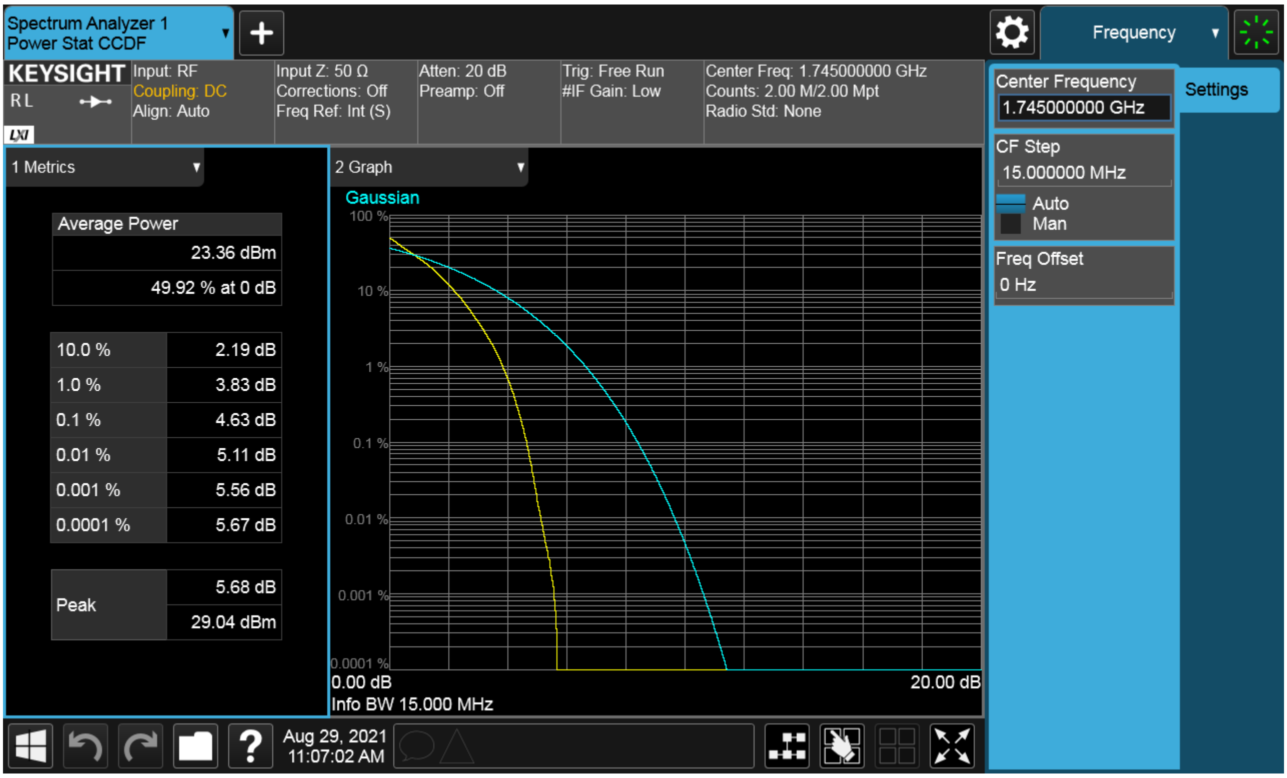
Sub6 n66. PAR Plot (10 M BW_Ch.349000_256QAM_ Full RB)



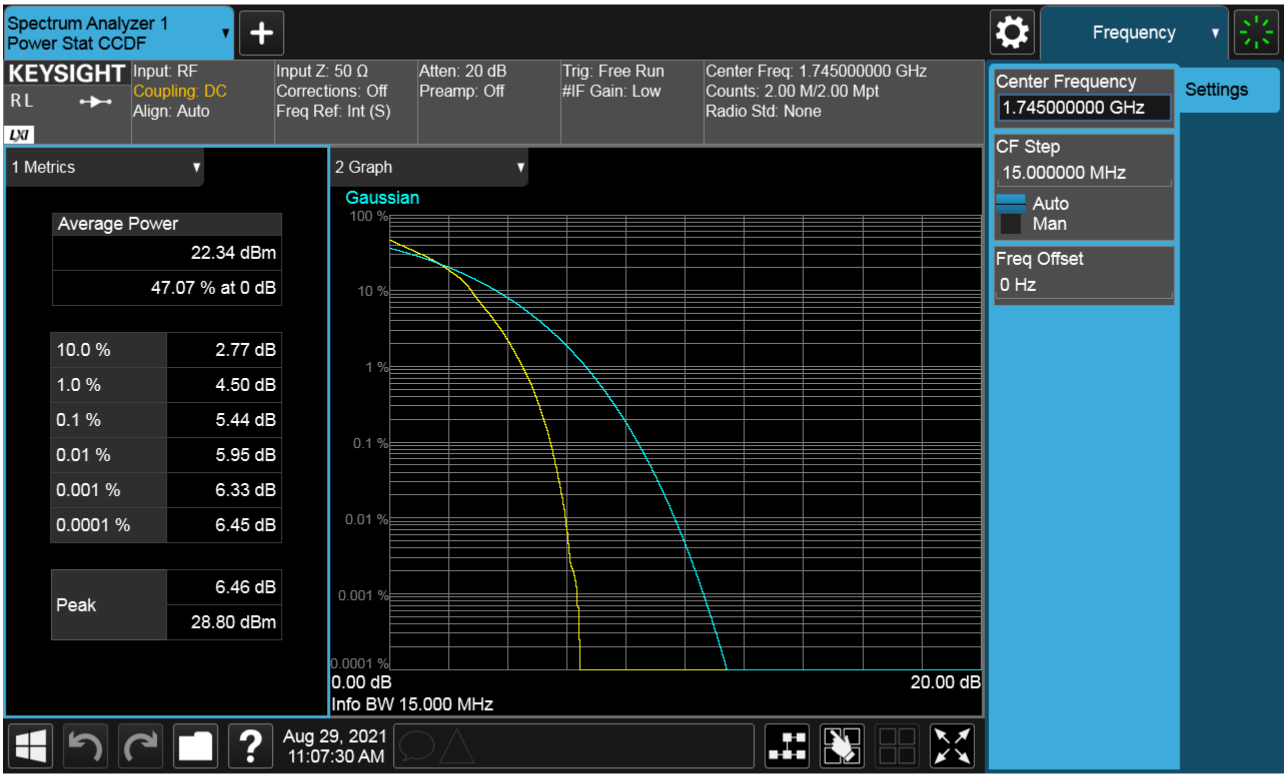
Sub6 n66. PAR Plot (15 M BW_Ch.349000_ BPSK_ Full RB)



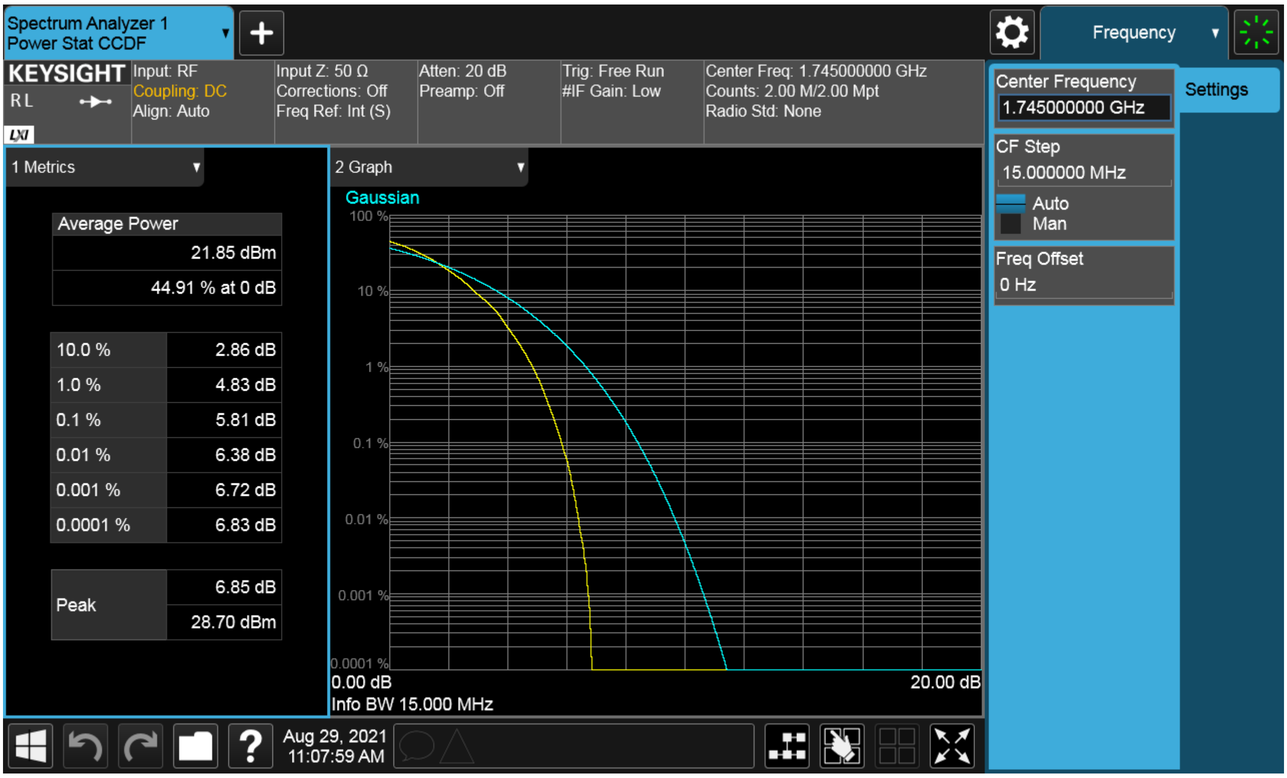
Sub6 n66. PAR Plot (15 M BW_Ch.349000_QPSK_ Full RB)



Sub6 n66. PAR Plot (15 M BW_Ch.349000_16QAM_ Full RB)

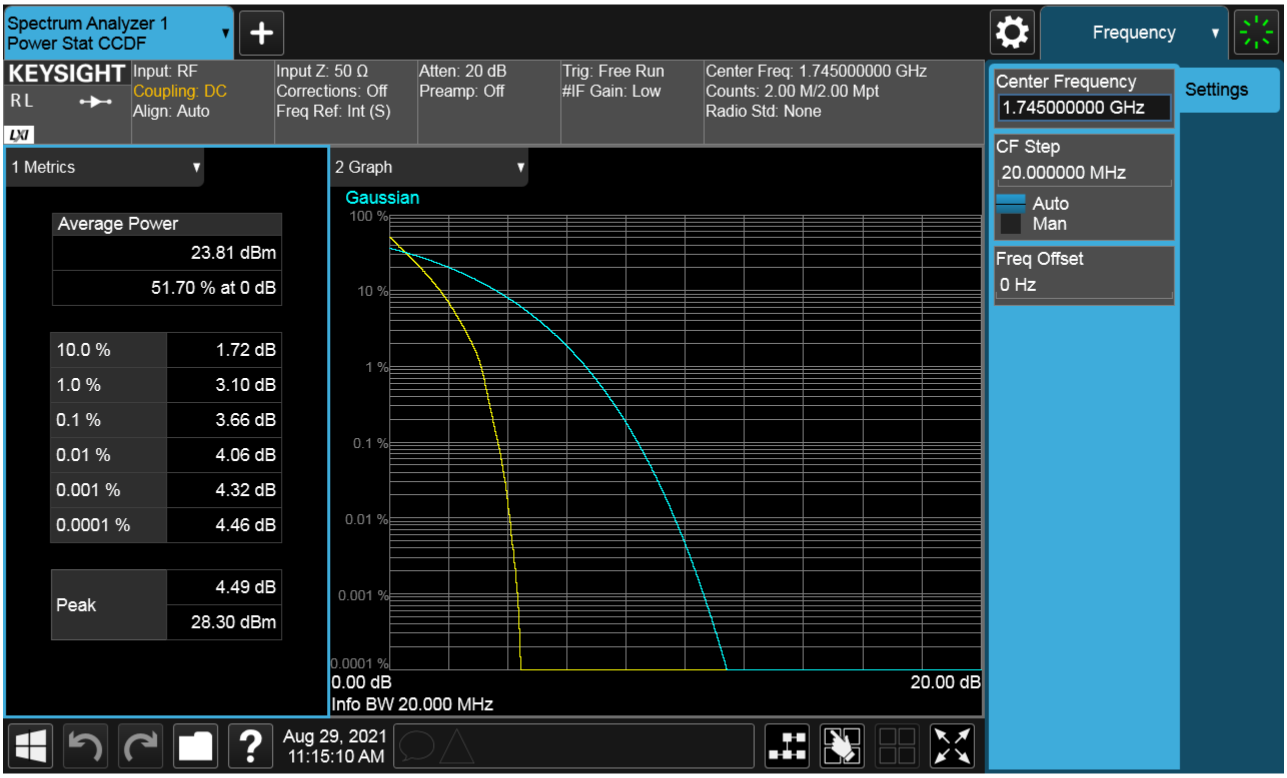


Sub6 n66. PAR Plot (15 M BW_Ch.349000_64QAM_ Full RB)

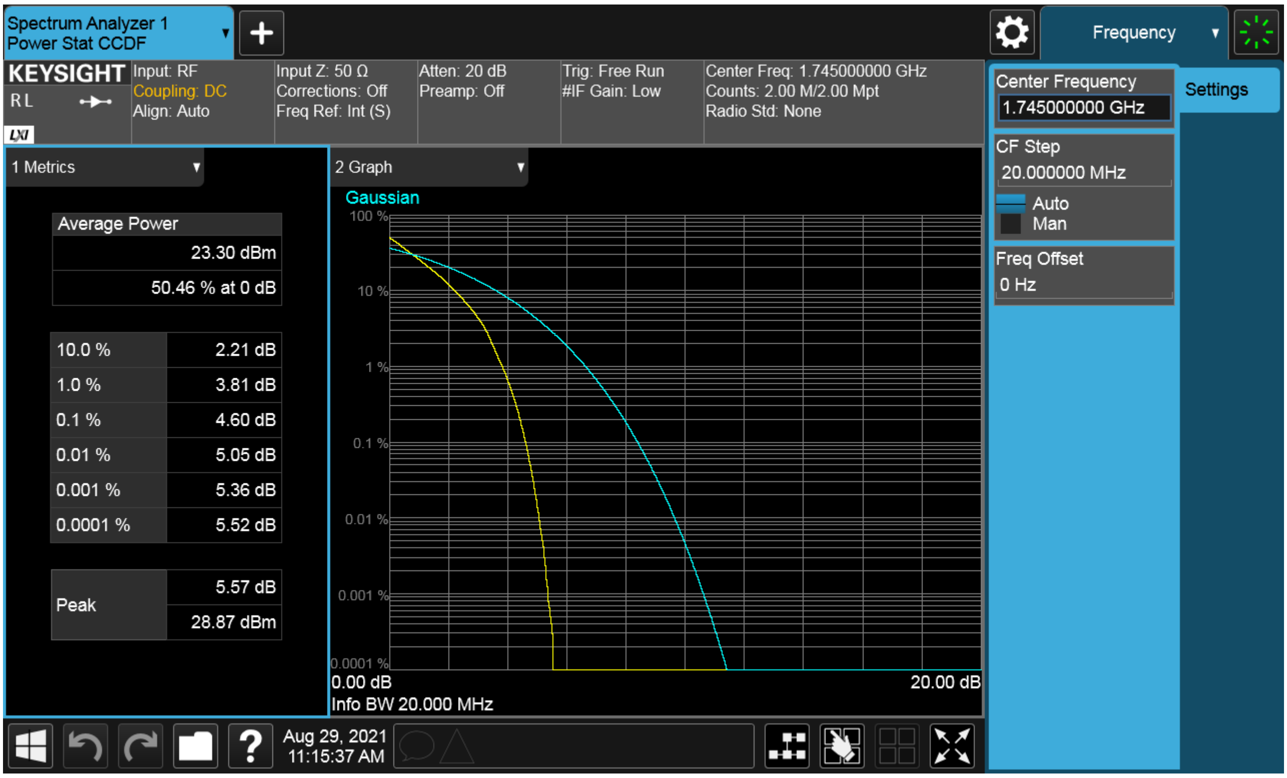


Sub6 n66. PAR Plot (15 M BW_Ch.349000_256QAM_ Full RB)

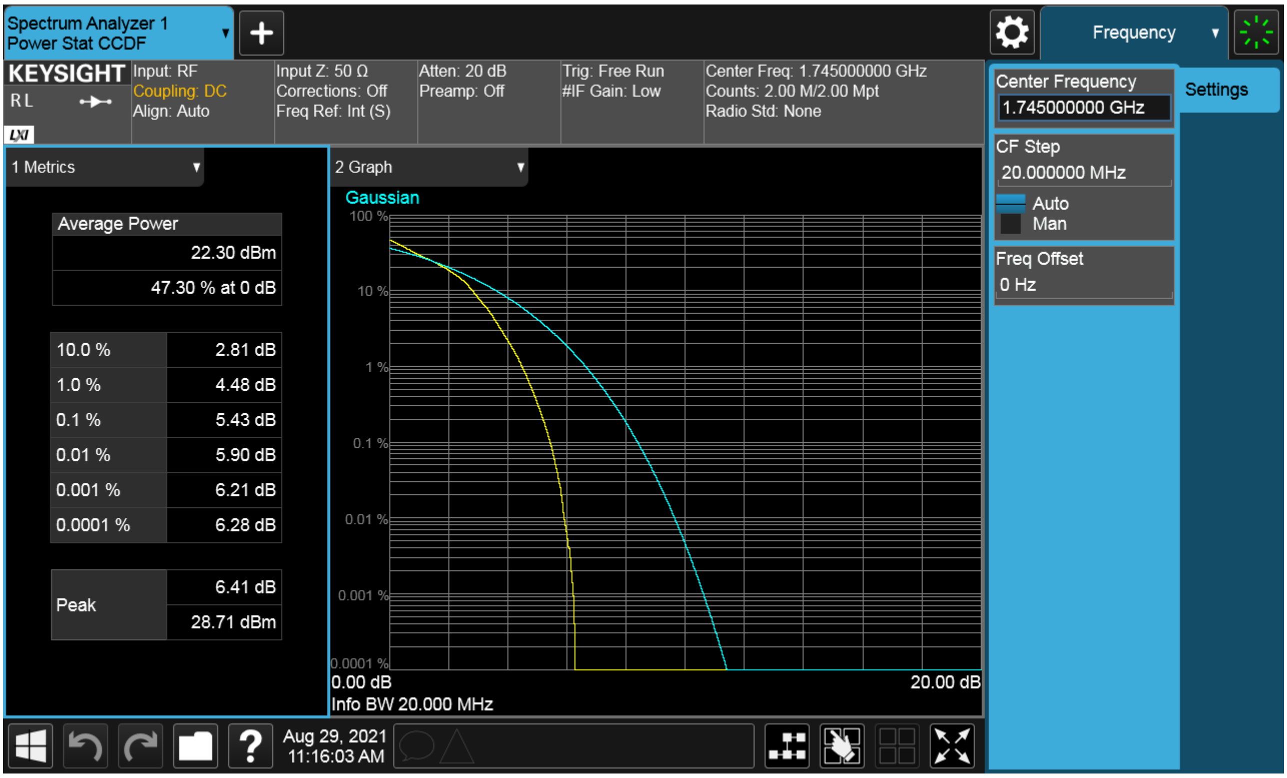
Sub6 n66. PAR Plot (20 M BW_Ch.349000_ BPSK_ Full RB)



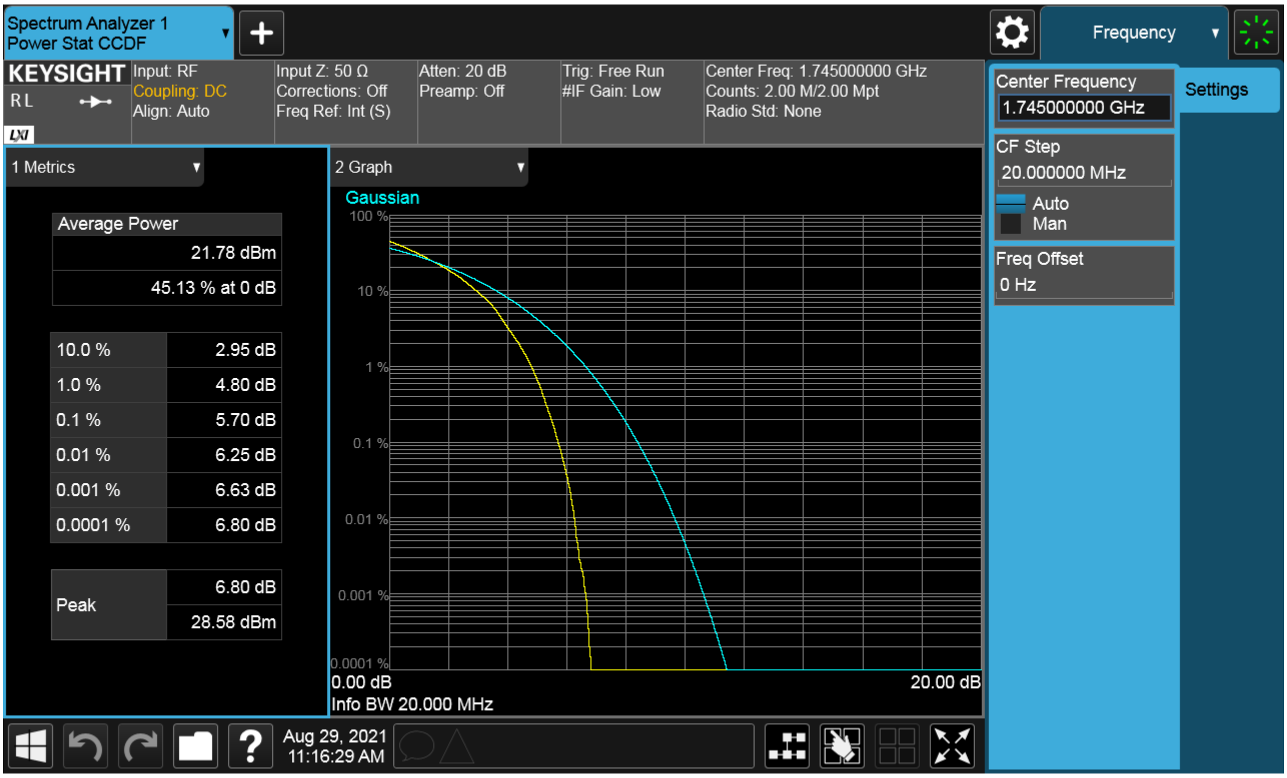
Sub6 n66. PAR Plot (20 M BW_Ch.349000_QPSK_ Full RB)



Sub6 n66. PAR Plot (20 M BW_Ch.349000_16QAM_ Full RB)

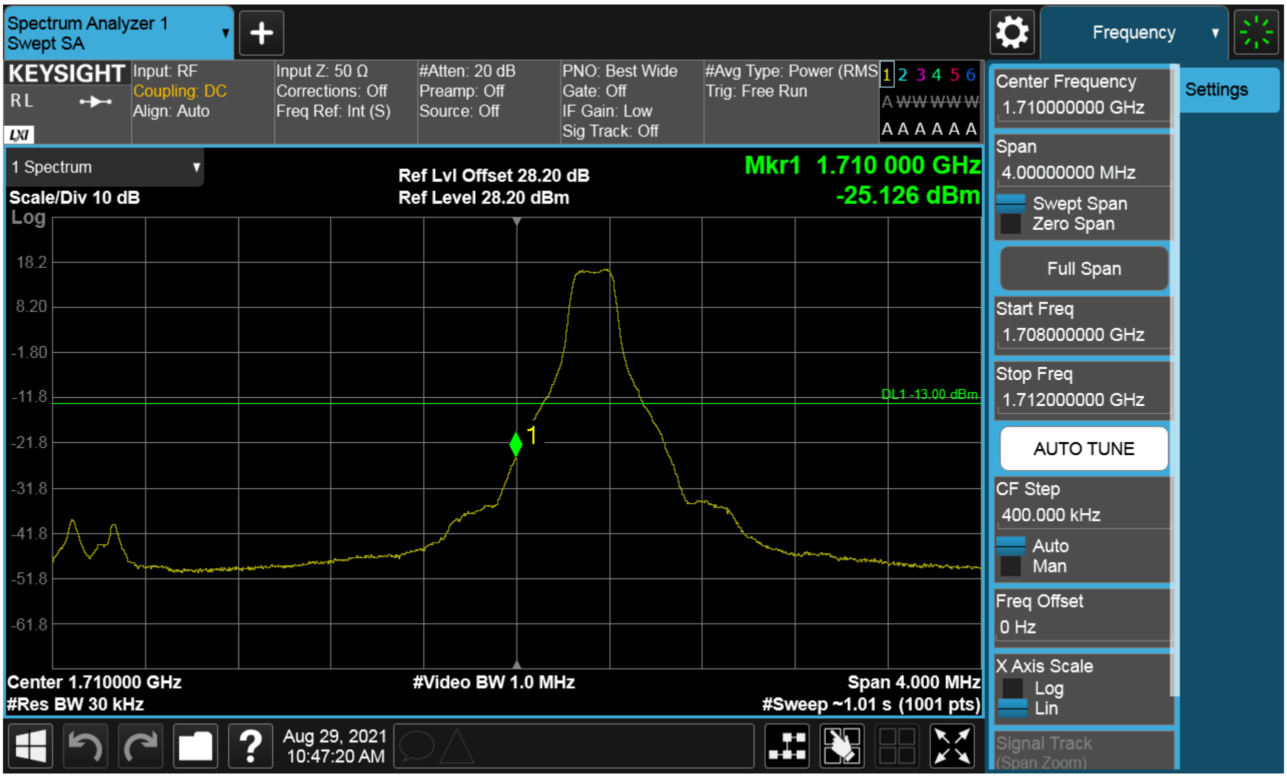


Sub6 n66. PAR Plot (20 M BW_Ch.349000_64QAM_ Full RB)

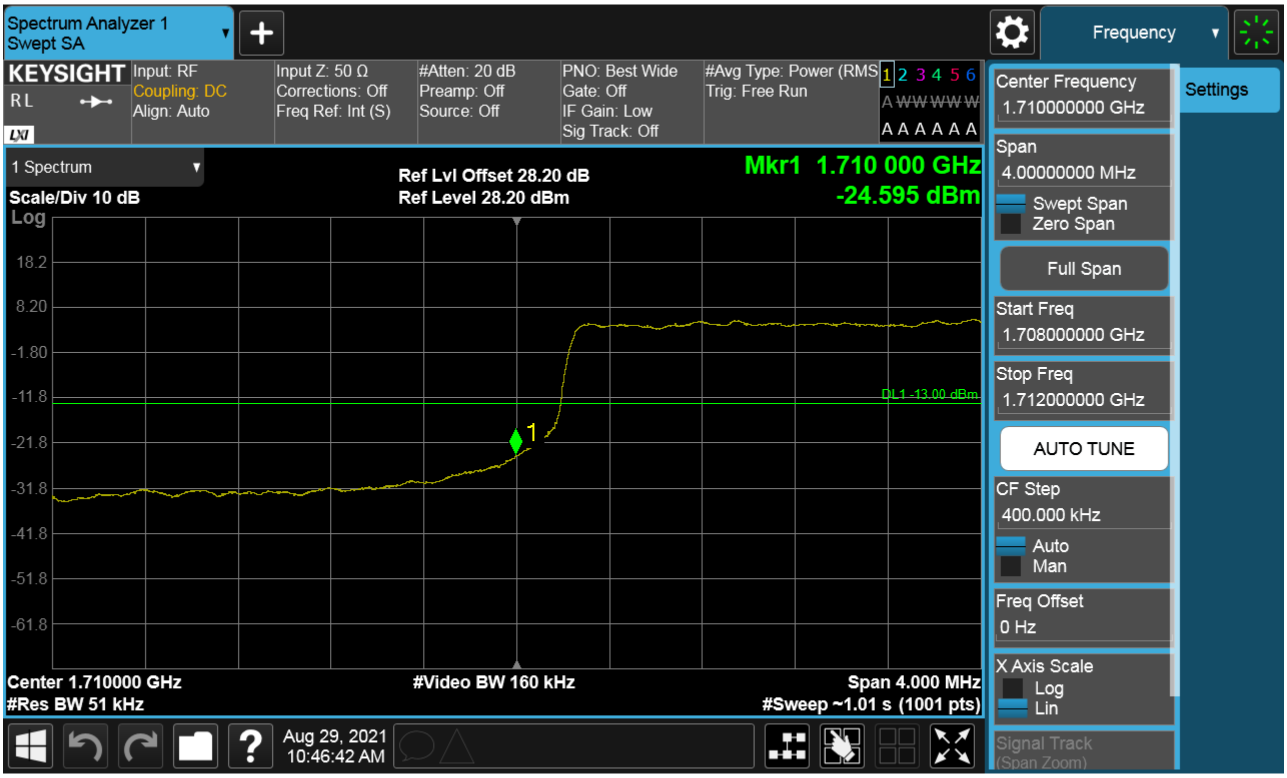


Sub6 n66. PAR Plot (20 M BW_Ch.349000_256QAM_ Full RB)

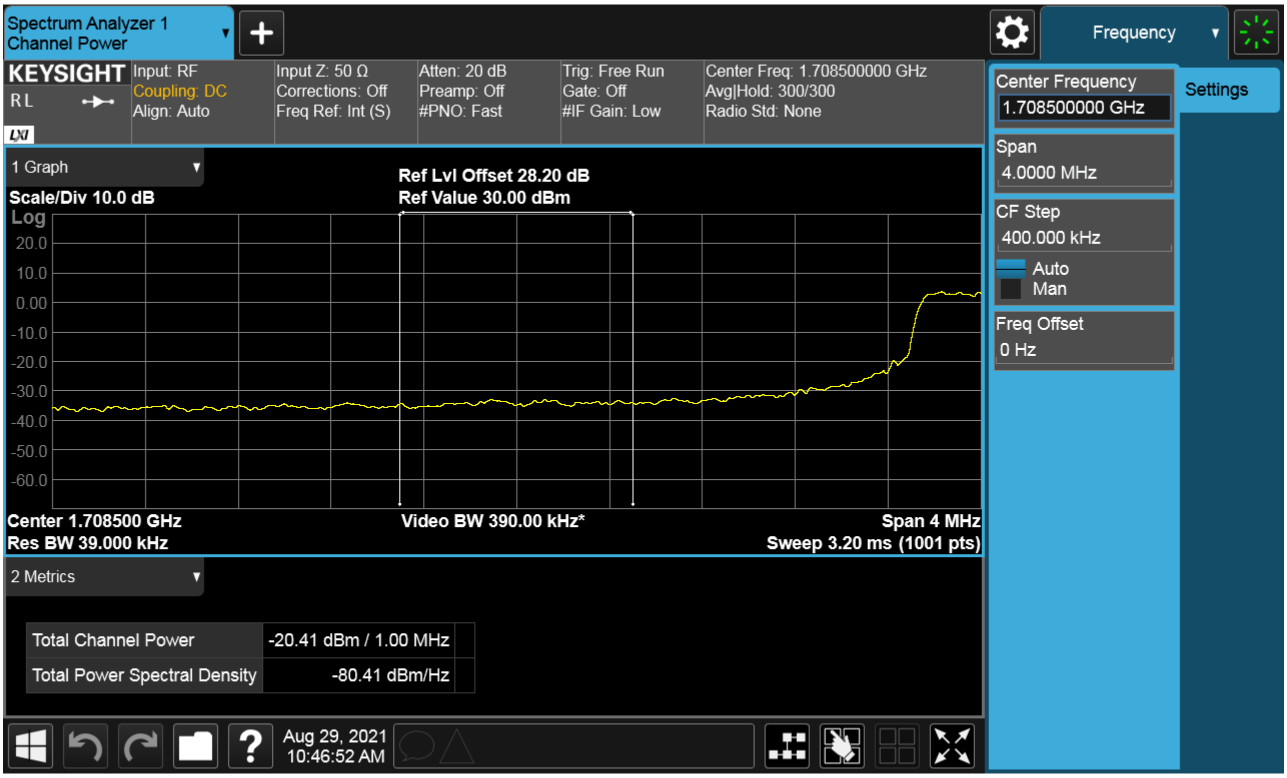
Sub6 n66. Lower Band Edge Plot (5 M BW Ch.342500 BPSK RB 1, Offset 0) -1



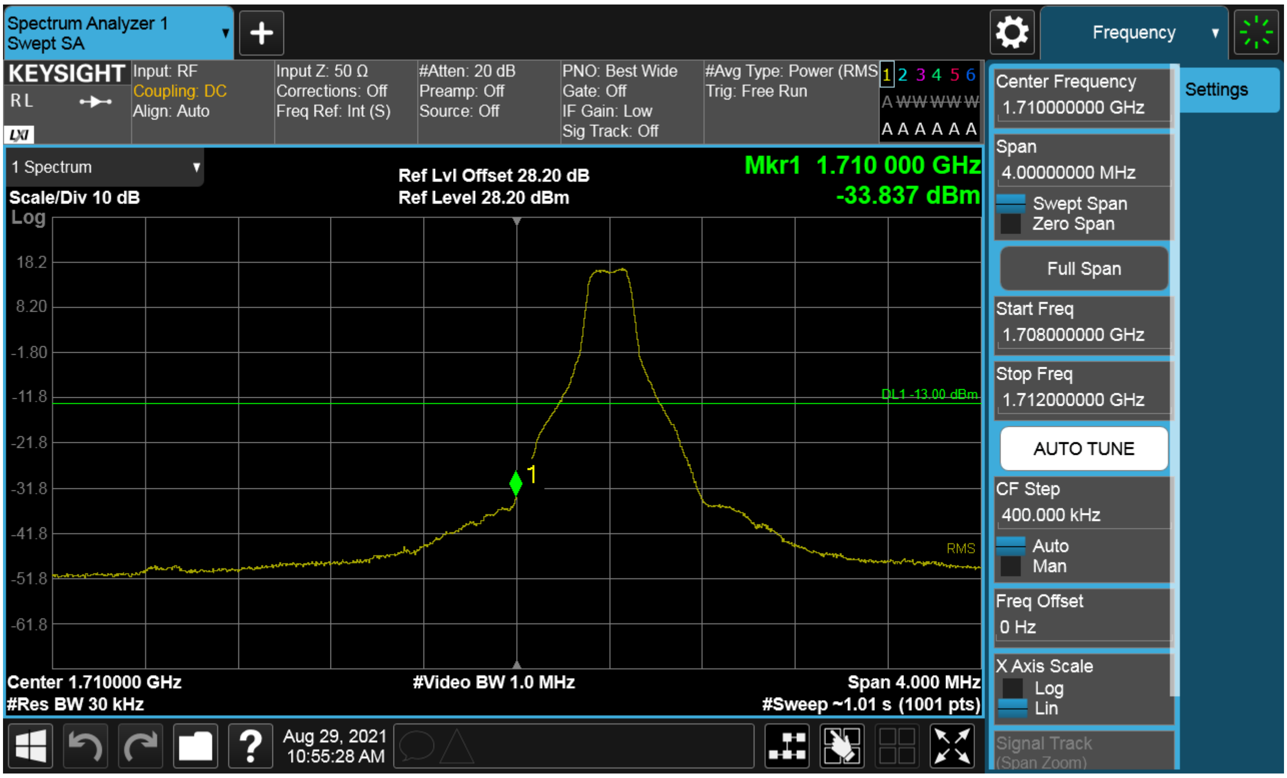
Sub6 n66. Lower Band Edge Plot (5 M BW Ch.342500 BPSK Full RB) -2



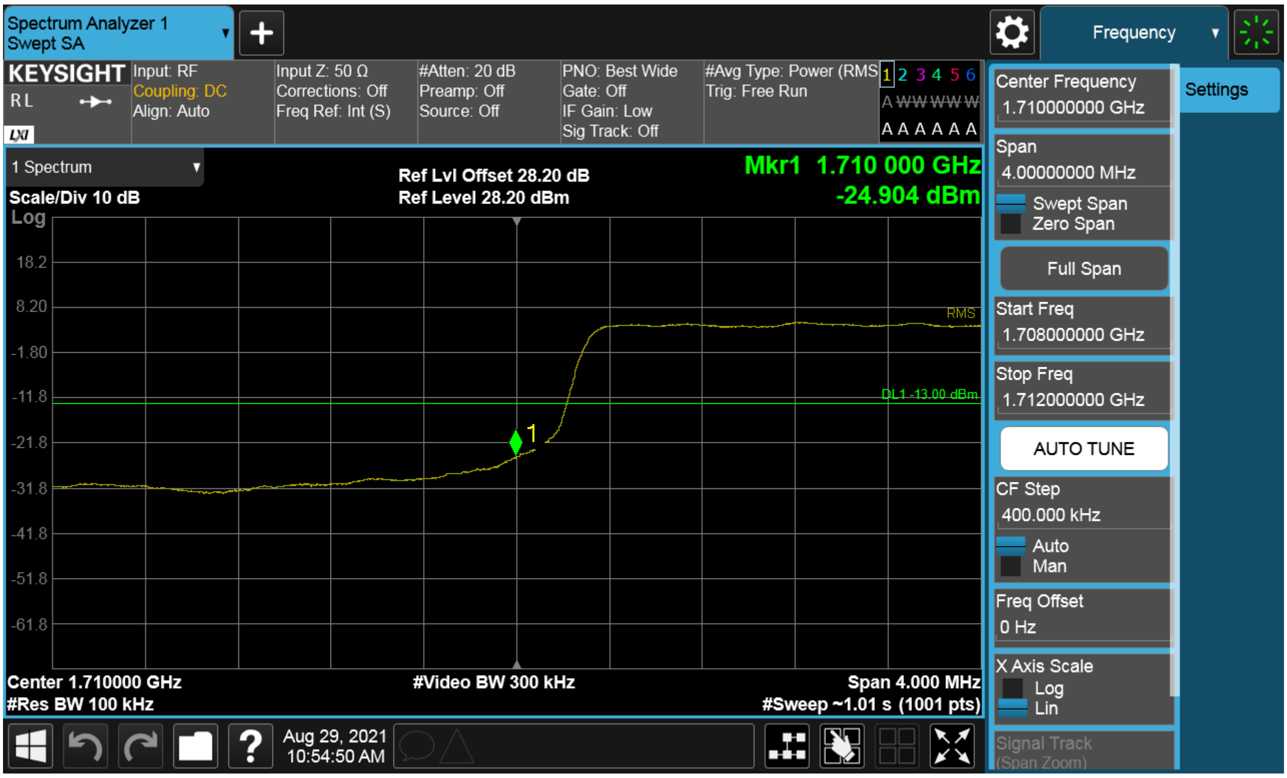
Sub6 n66. Lower Extended Band Edge Plot (5 M BW Ch.342500 BPSK_ Full RB) -3



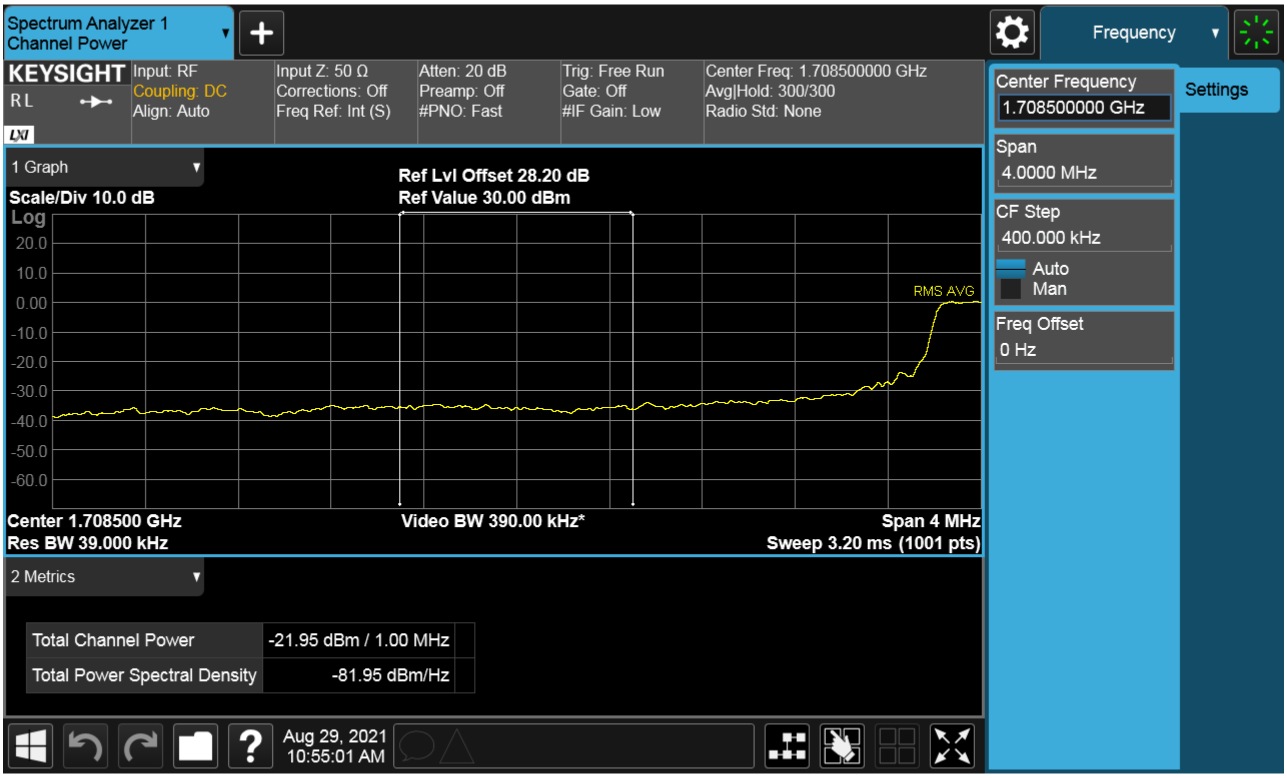
Sub6 n66. Lower Band Edge Plot (10 M BW Ch.343000 BPSK RB 1, Offset 0) -1



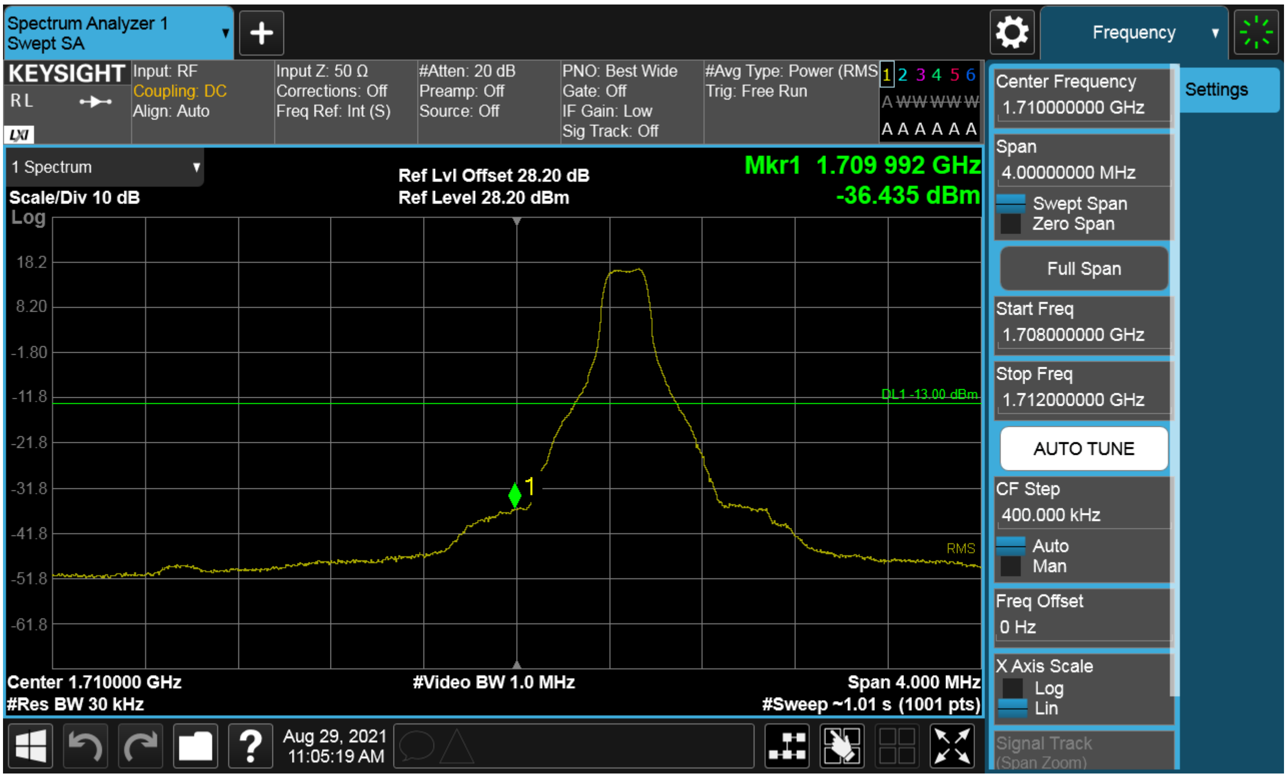
Sub6 n66. Lower Band Edge Plot (10 M BW Ch.343000 BPSK Full RB) -2



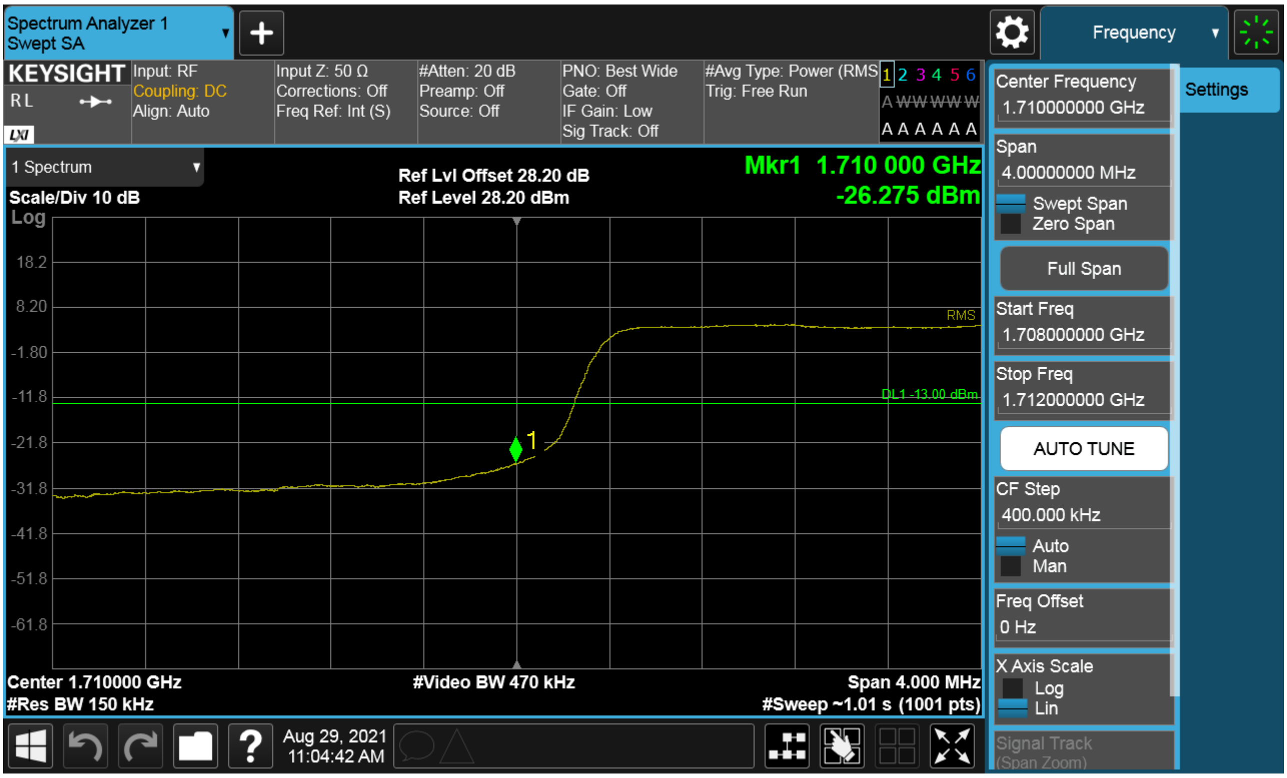
Sub6 n66. Lower Extended Band Edge Plot (10 M BW Ch.343000 BPSK_ Full RB) -3



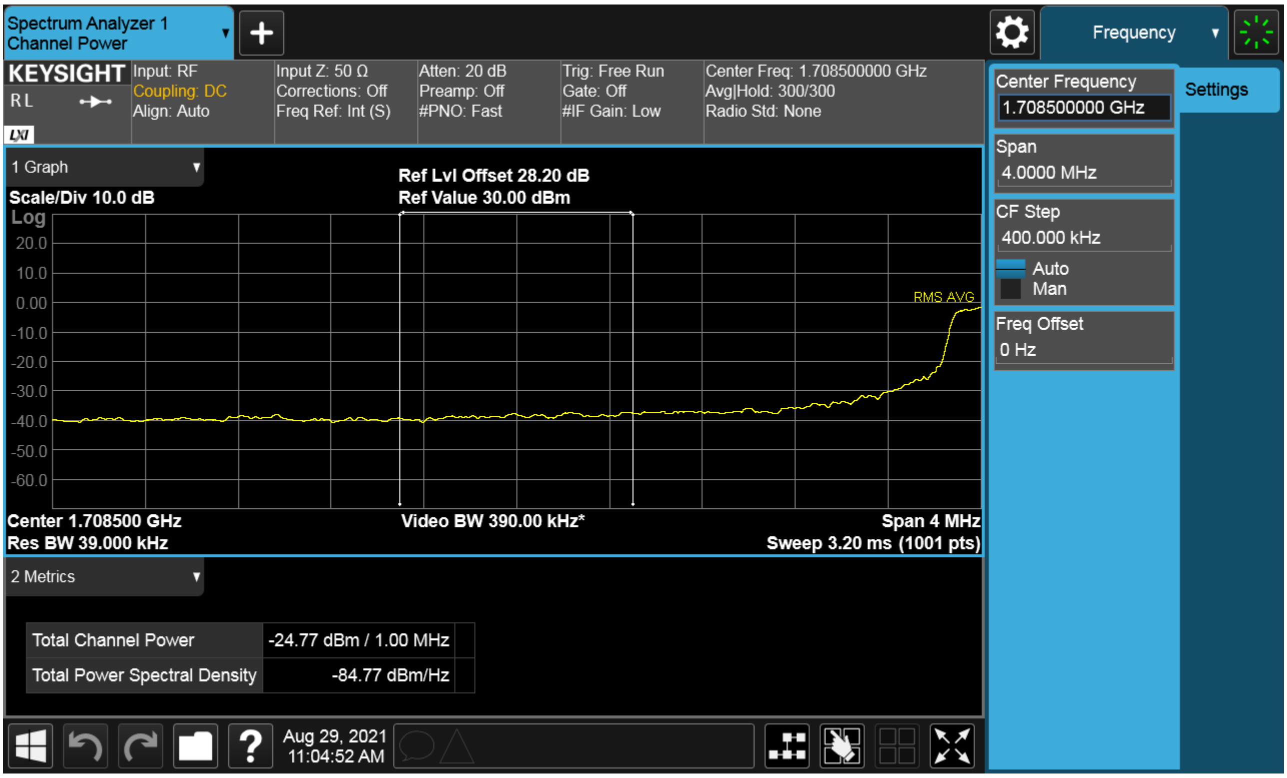
Sub6 n66. Lower Band Edge Plot (15 M BW Ch.343500 BPSK RB 1, Offset 0) -1



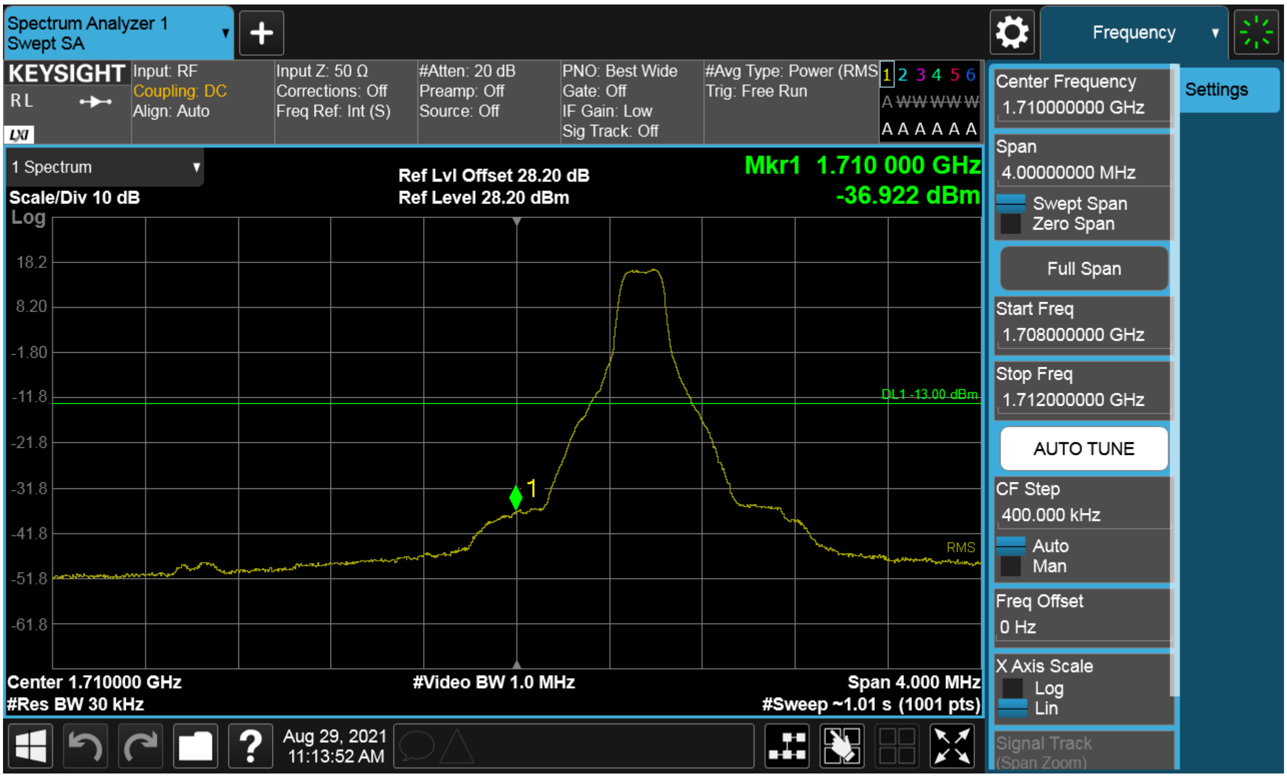
Sub6 n66. Lower Band Edge Plot (15 M BW Ch.343500 BPSK Full RB) -2



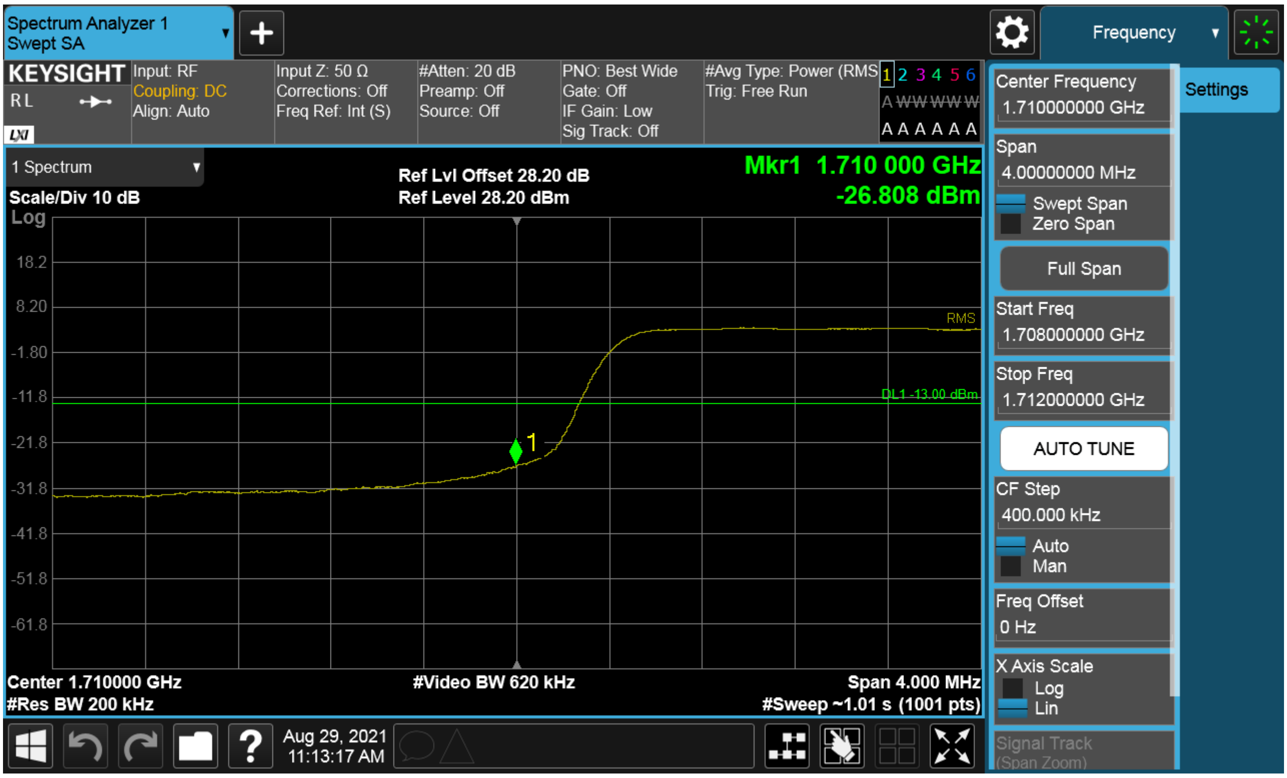
Sub6 n66. Lower Extended Band Edge Plot (15 M BW Ch.343500 BPSK_ Full RB) -3



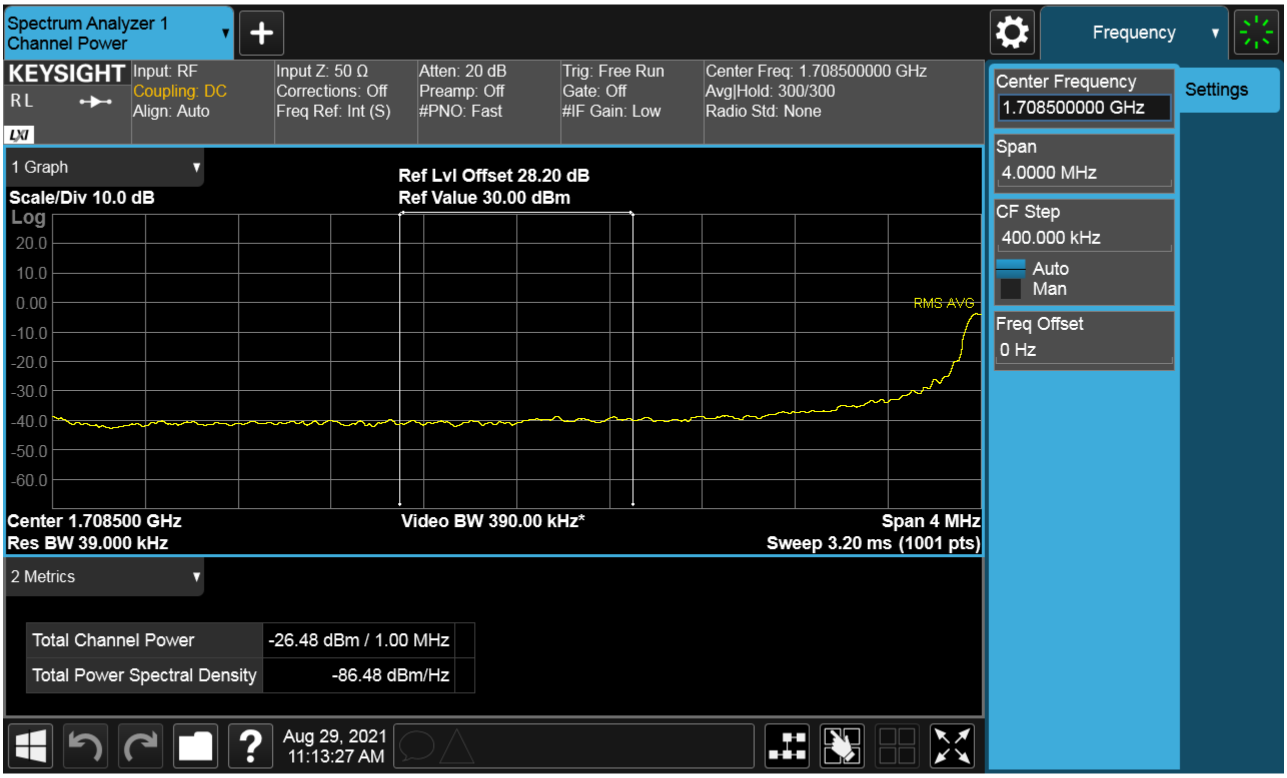
Sub6 n66. Lower Band Edge Plot (20 M BW Ch.344000 BPSK RB 1, Offset 0) -1



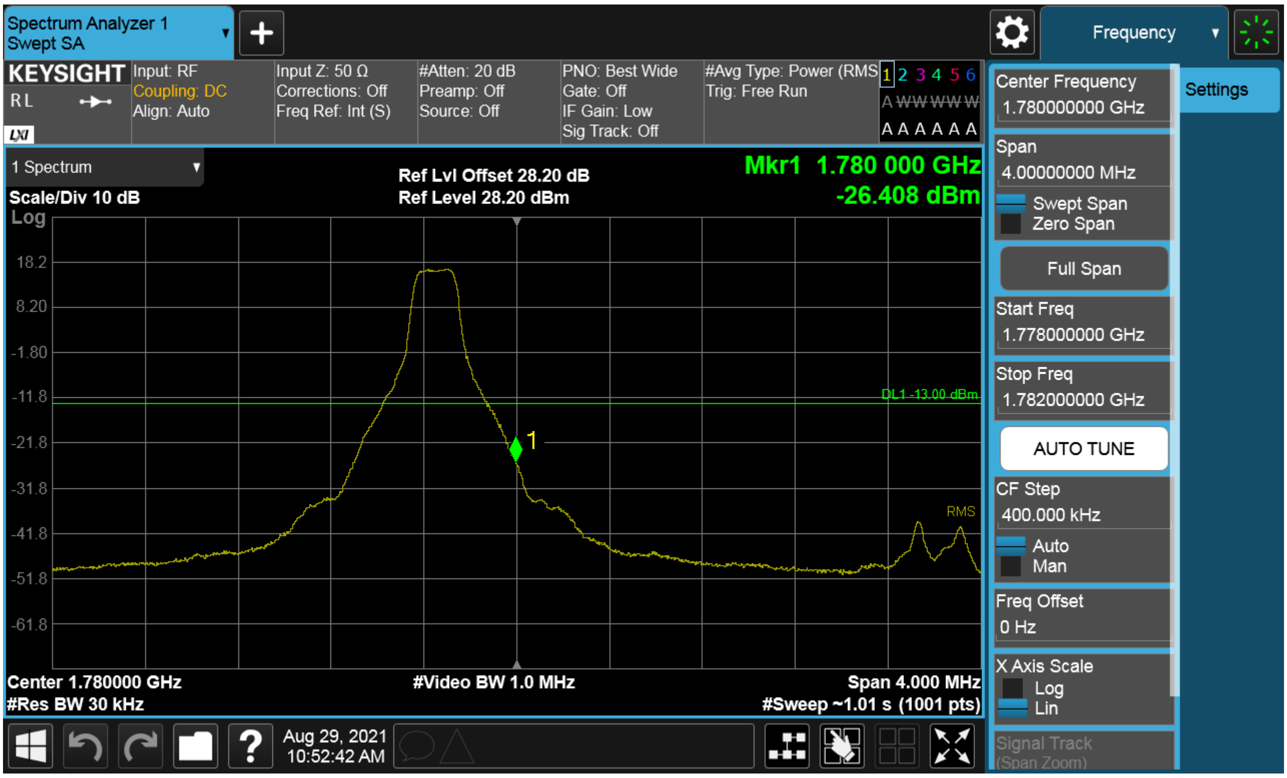
Sub6 n66. Lower Band Edge Plot (20 M BW Ch.344000 BPSK Full RB) -2



Sub6 n66. Lower Extended Band Edge Plot (20 M BW Ch.344000 BPSK_ Full RB) -3



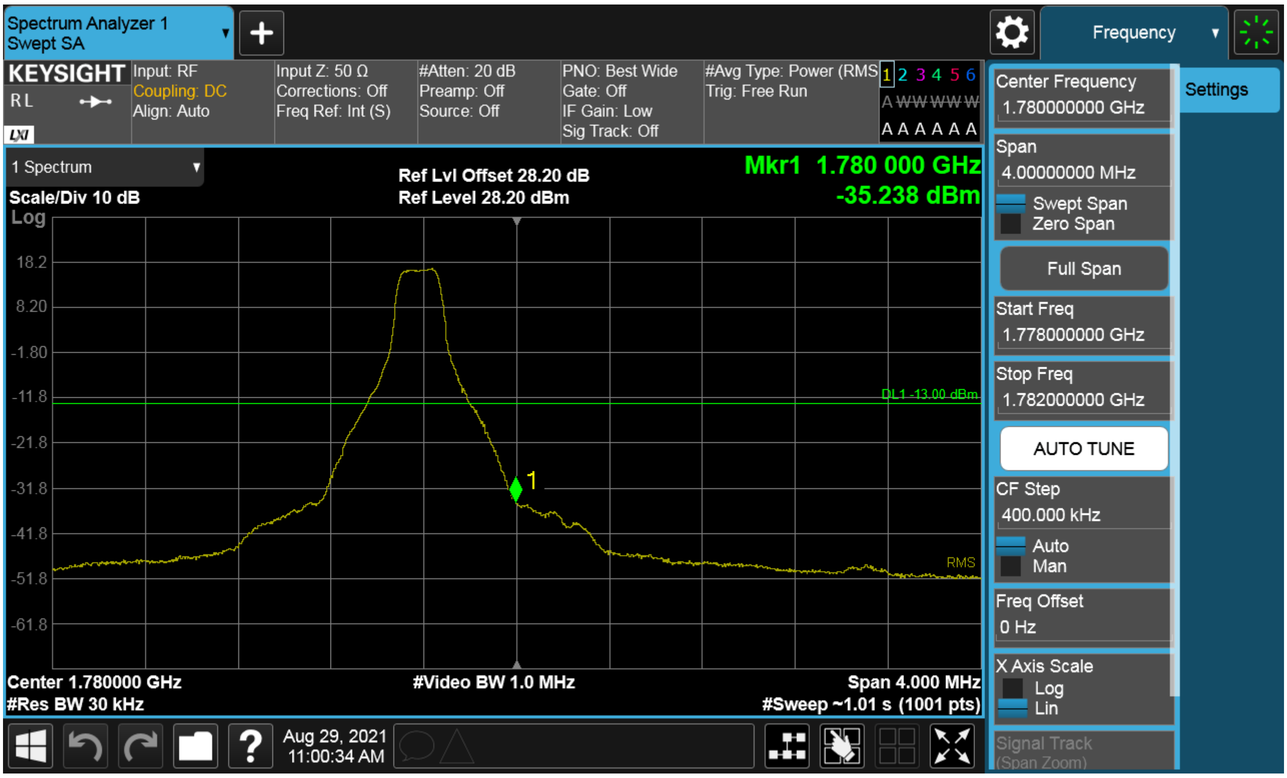
Sub6 n66. Upper Band Edge Plot (5 M BW Ch.355500 BPSK_RB1_Offset 24) -1



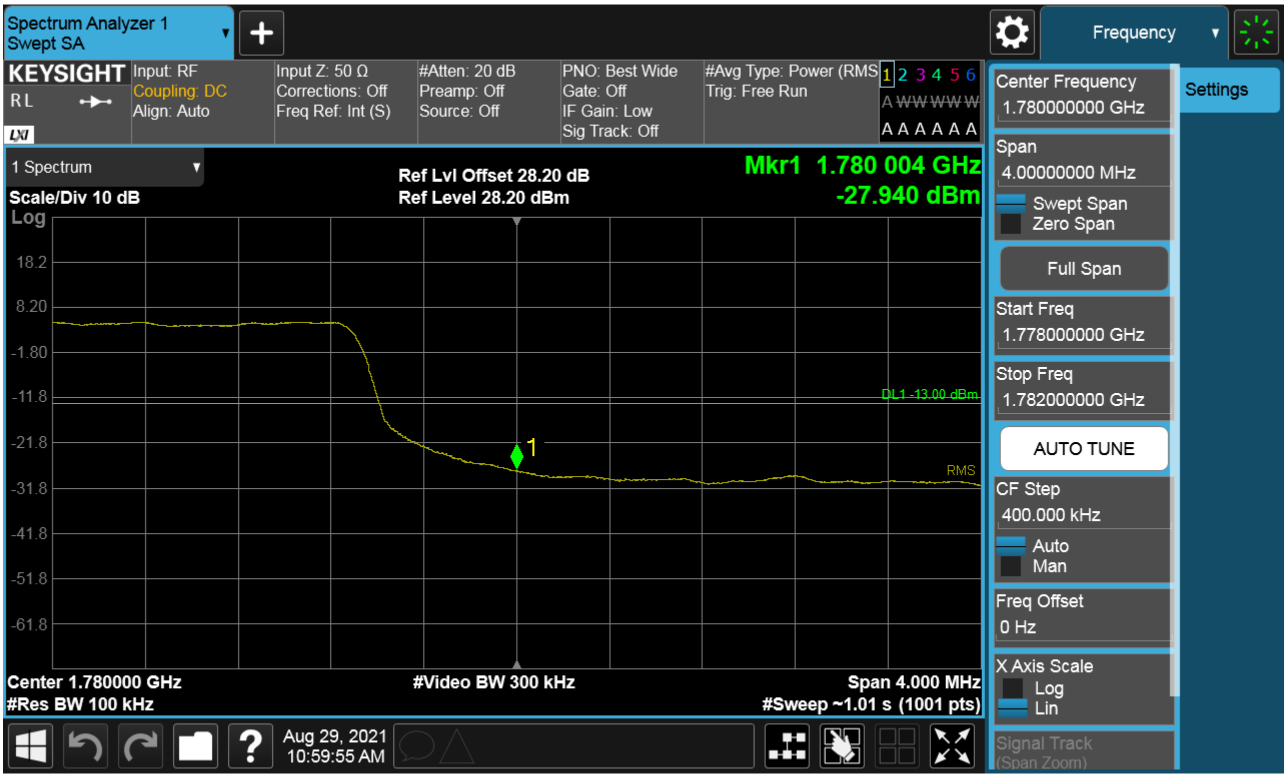
Sub6 n66. Upper Band Edge Plot (5 M BW Ch.355500 BPSK_ Full RB) -2

Sub6 n66. Upper Extended Band Edge Plot (5 M BW Ch.355500 BPSK_ Full RB) -3

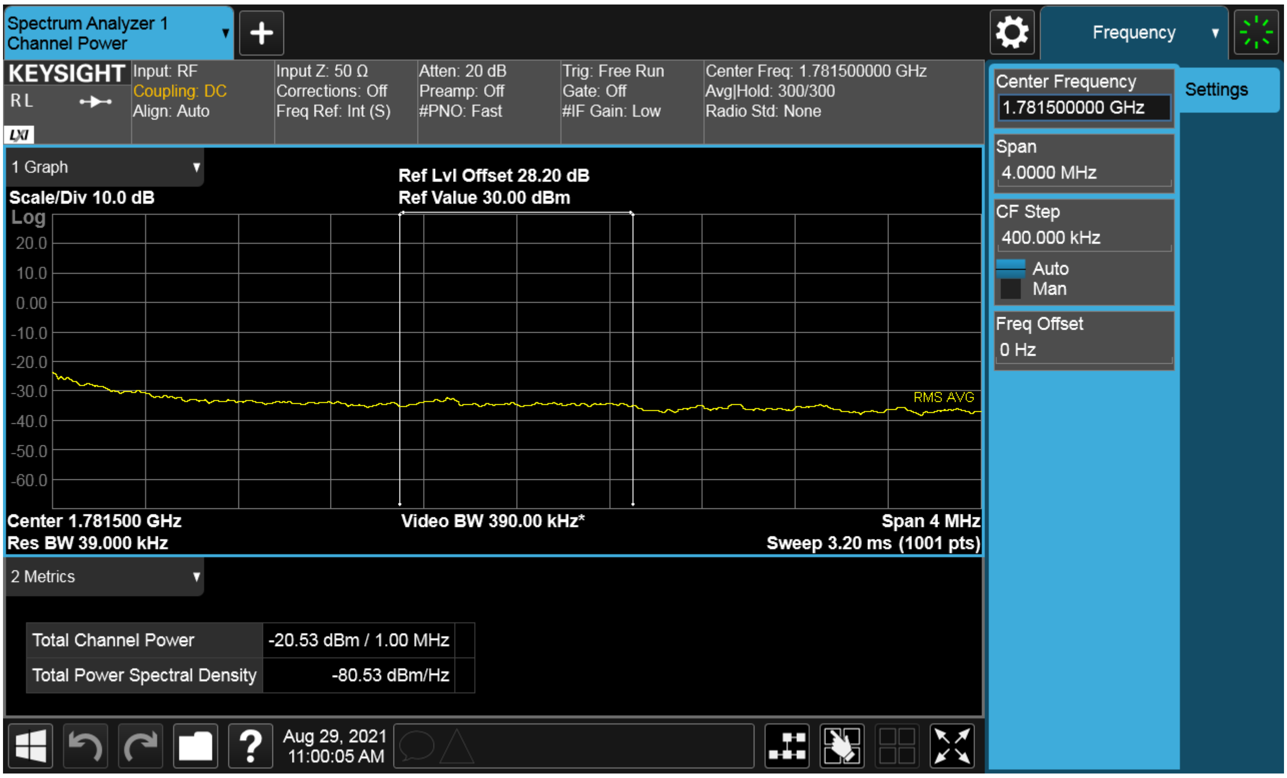
Sub6 n66. Upper Band Edge Plot (10 M BW Ch.355000 BPSK_RB1_Offset 51) -1



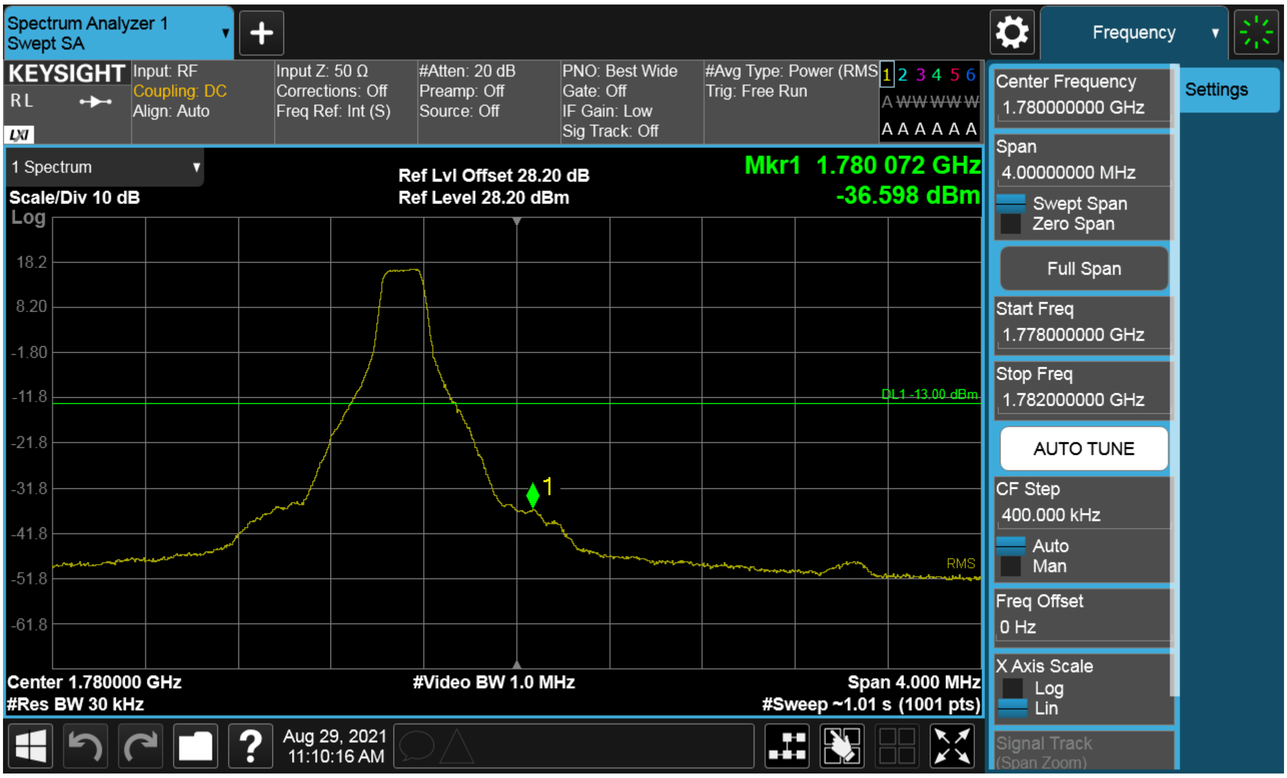
Sub6 n66. Upper Band Edge Plot (10 M BW Ch.355000 BPSK_ Full RB) -2



Sub6 n66. Upper Extended Band Edge Plot (10 M BW Ch.355000 BPSK_ Full RB) -3

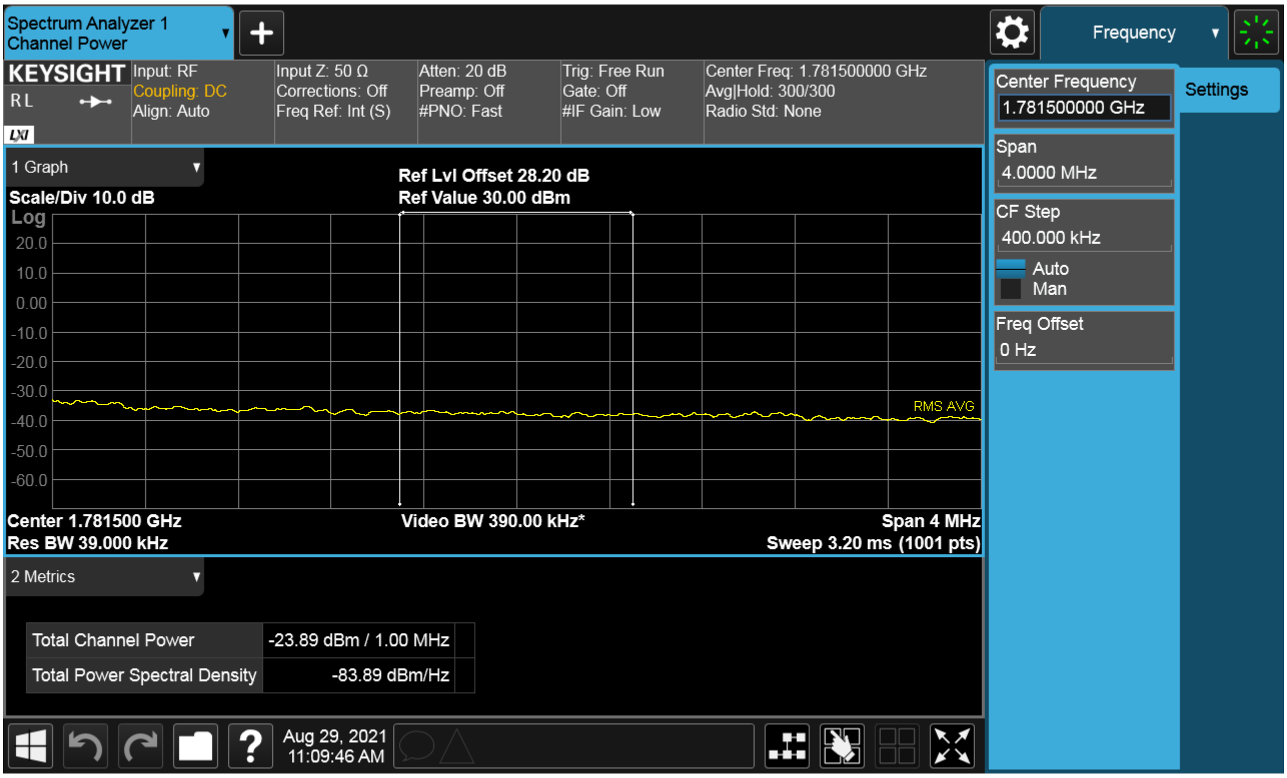


Sub6 n66. Upper Band Edge Plot (15 M BW Ch.354500 BPSK_RB1_Offset 78) -1

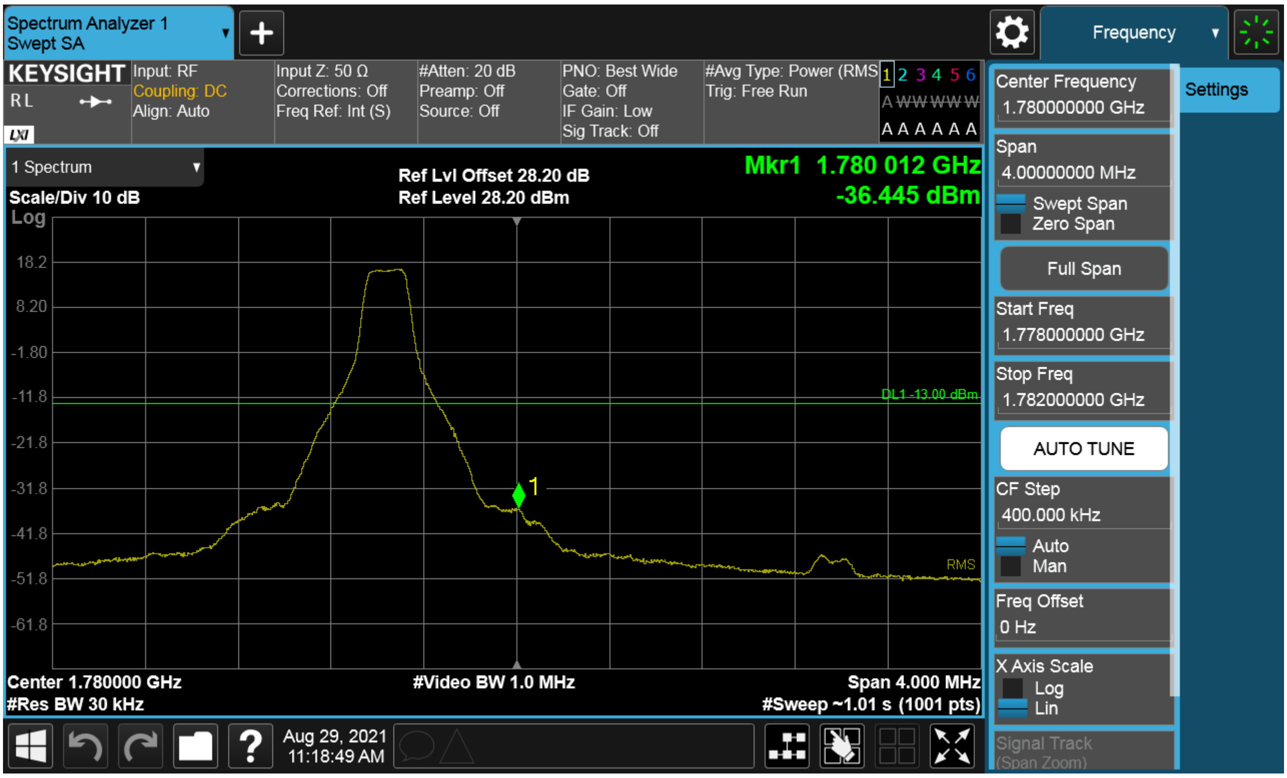


Sub6 n66. Upper Band Edge Plot (15 M BW Ch.354500 BPSK_ Full RB) -2

Sub6 n66. Upper Extended Band Edge Plot (15 M BW Ch.354500 BPSK_ Full RB) -3

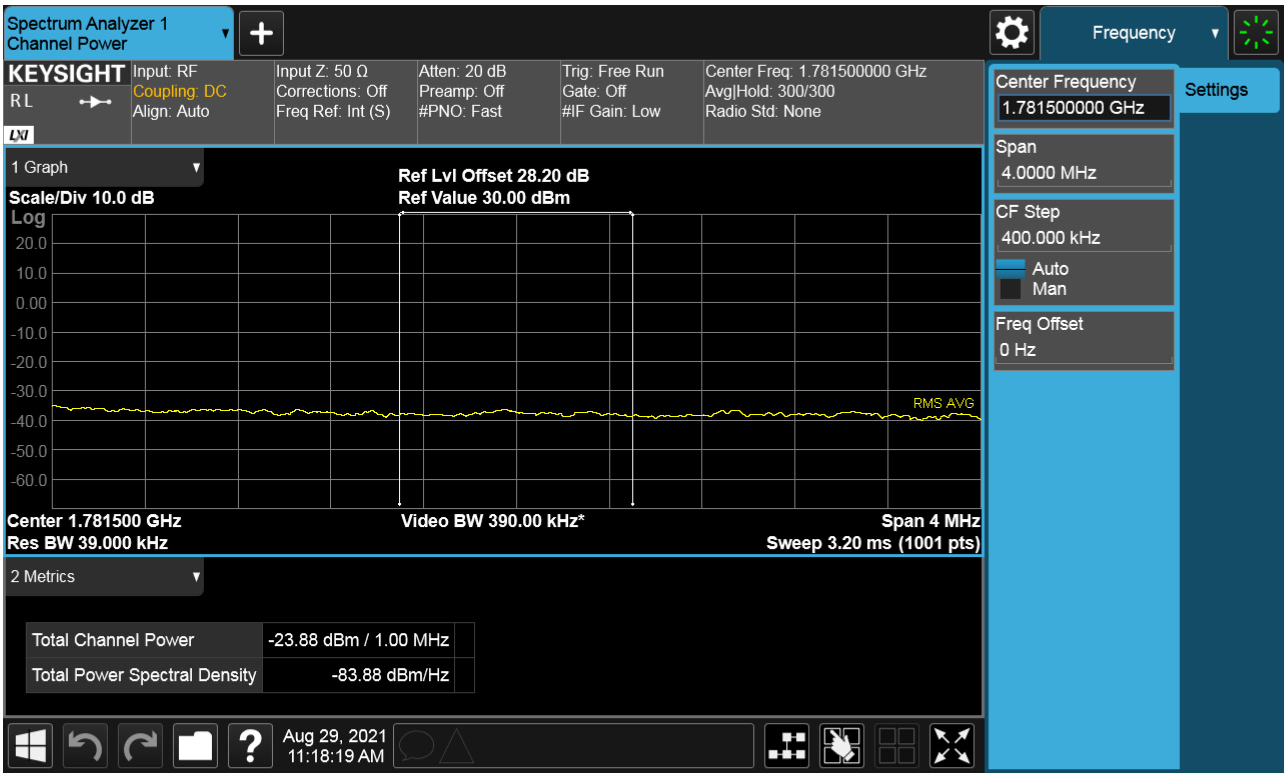


Sub6 n66. Upper Band Edge Plot (20 M BW Ch.354000 BPSK_RB1_Offset 105) -1

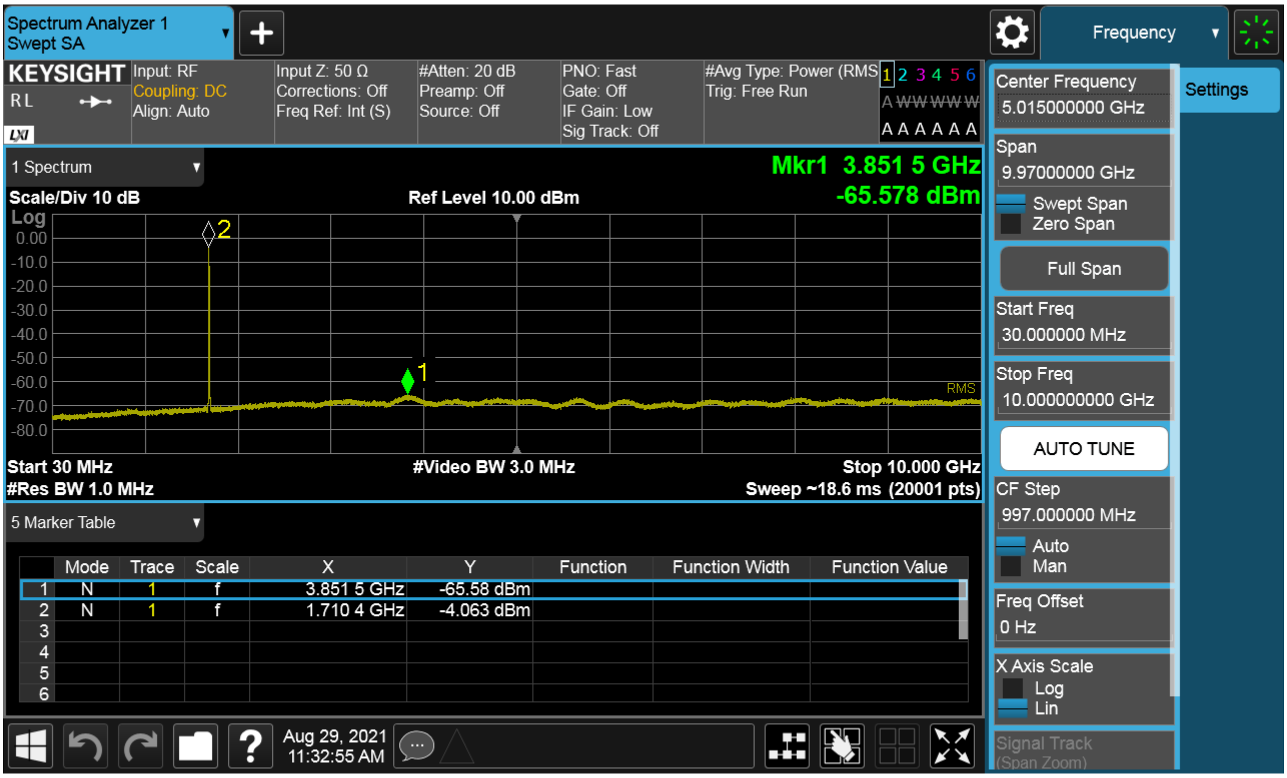


Sub6 n66. Upper Band Edge Plot (20 M BW Ch.354000 BPSK_ Full RB) -2

Sub6 n66. Upper Extended Band Edge Plot (20 M BW Ch.354000 BPSK_ Full RB) -3

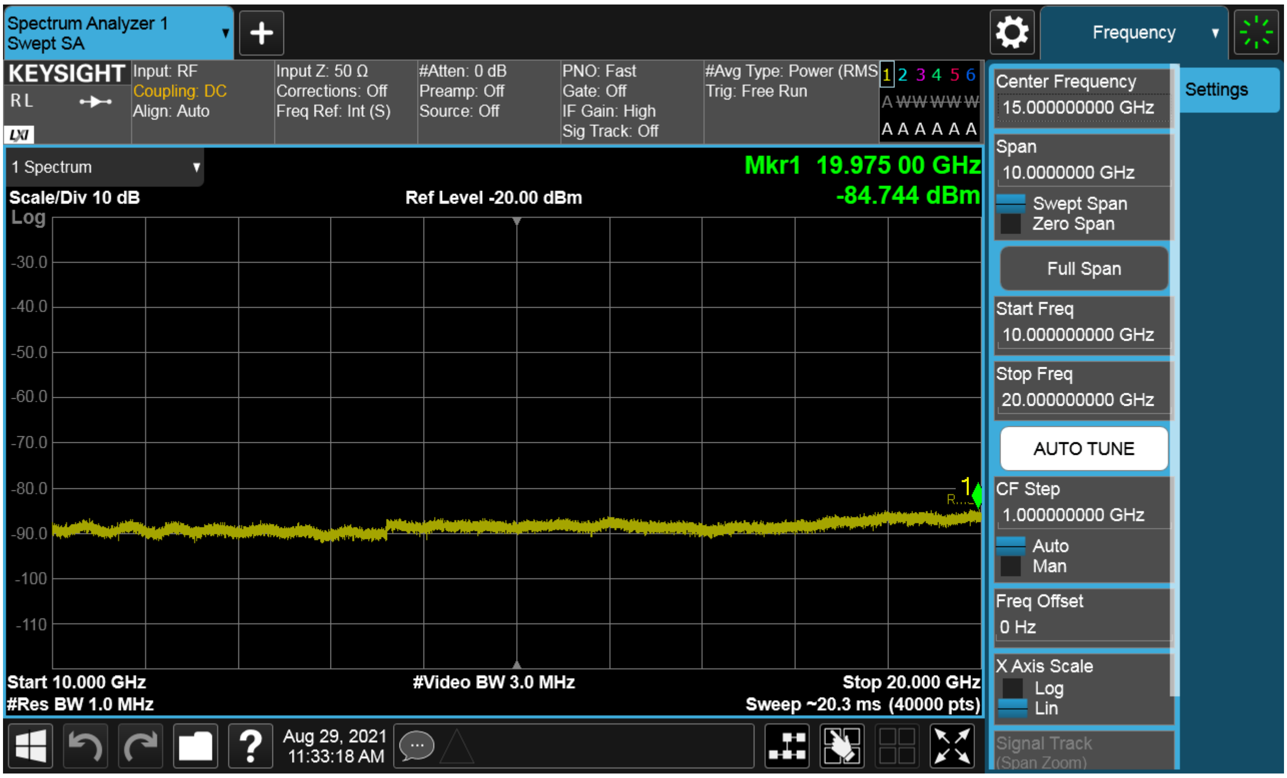


Sub6 n66. Conducted Spurious Plot_1 (342500ch_5 MHz_BPSK_ RB 1_1)

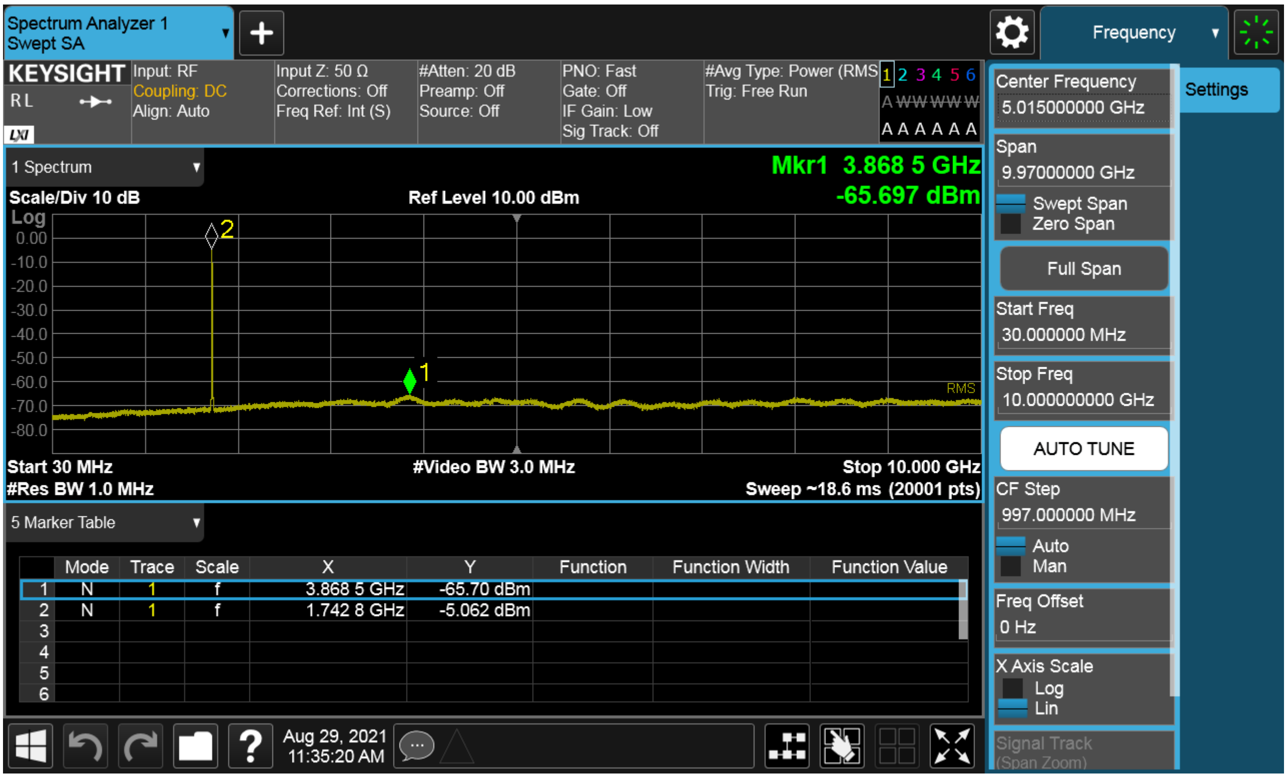


	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	3.851 5 GHz	-65.58 dBm			
2	N	1	f	1.710 4 GHz	-4.063 dBm			
3								
4								
5								
6								

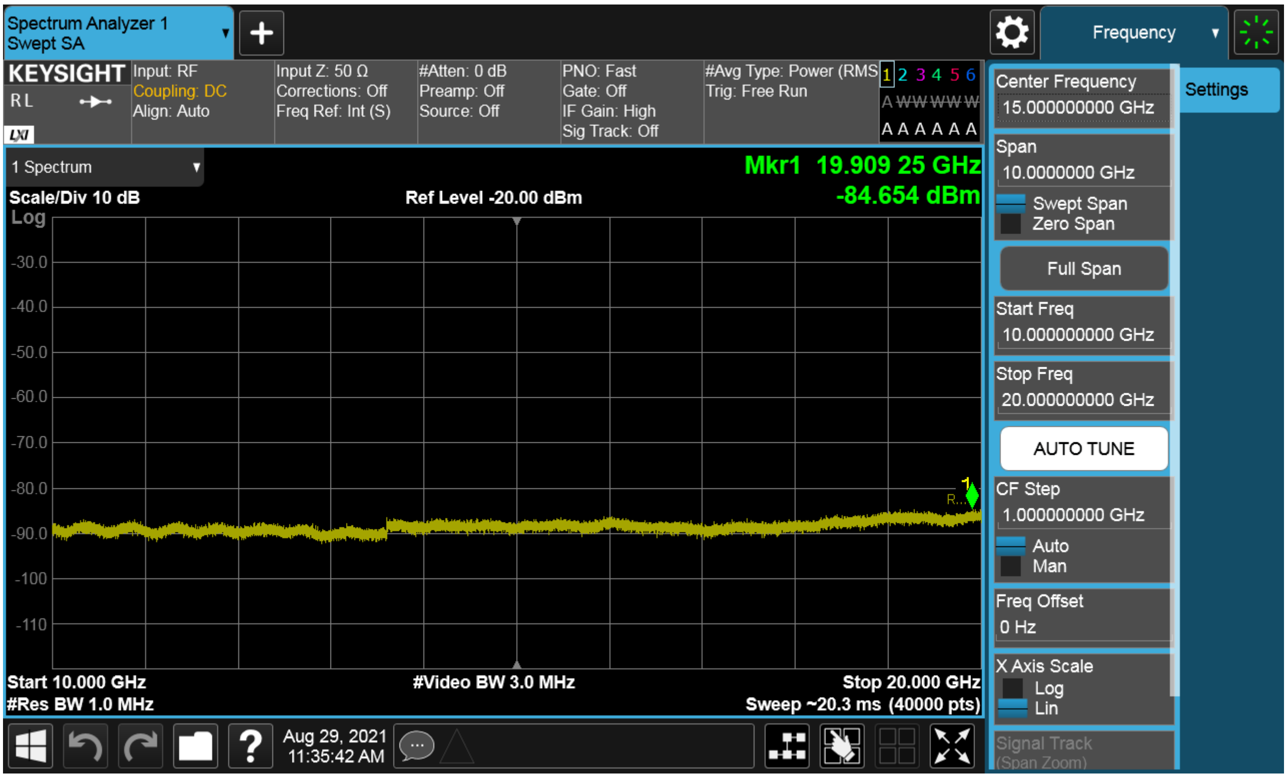
Sub6 n66. Conducted Spurious Plot_2 (342500ch_5 MHz_BPSK_ RB 1_1)



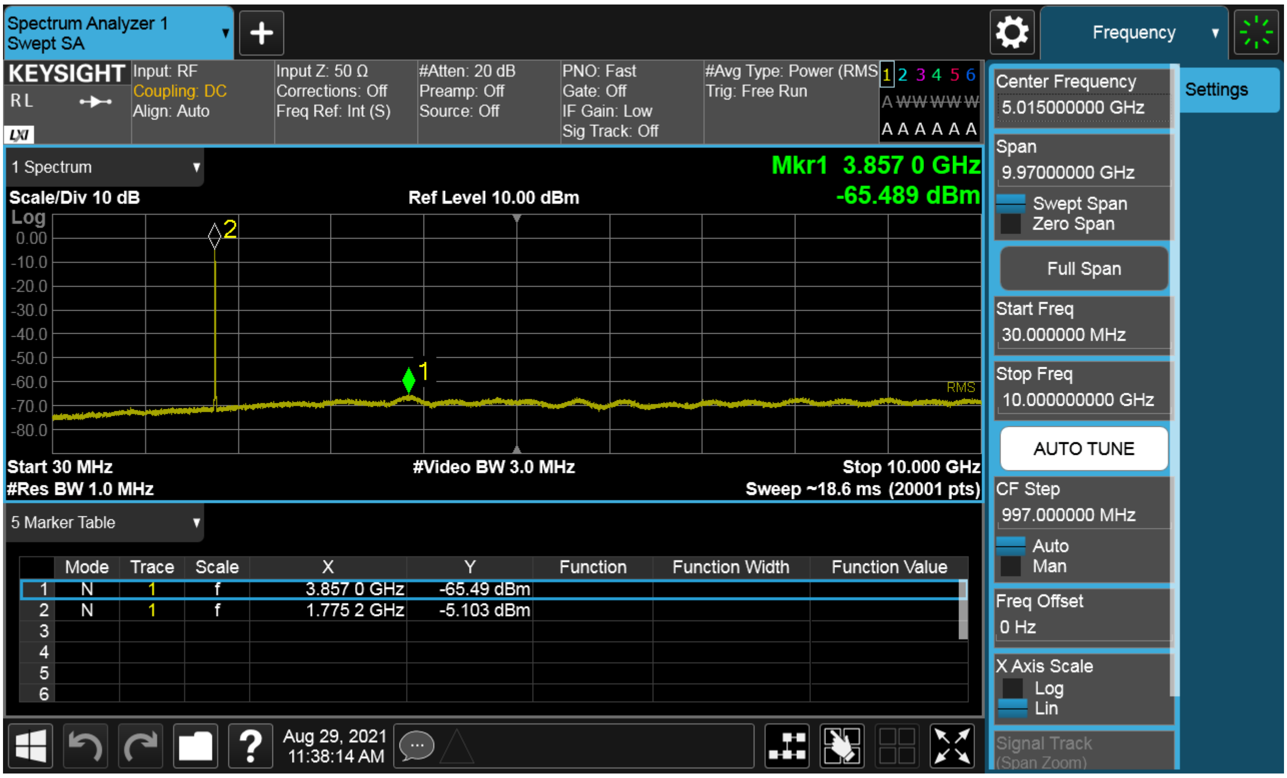
Sub6 n66. Conducted Spurious Plot_1 (349000ch_5 MHz_BPSK_ RB 1_1)



Sub6 n66. Conducted Spurious Plot_2 (349000ch_5 MHz_BPSK_ RB 1_1)

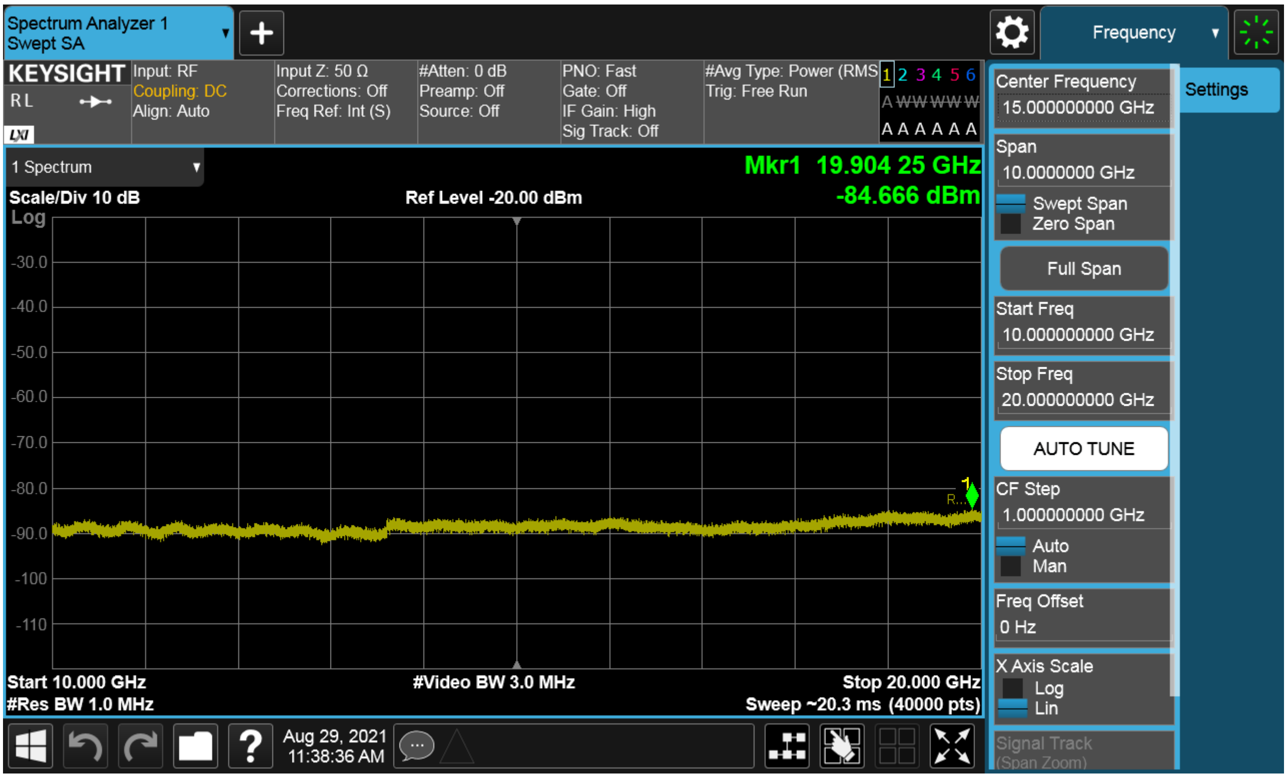


Sub6 n66. Conducted Spurious Plot_1 (355500ch_5 MHz_BPSK_ RB 1_1)

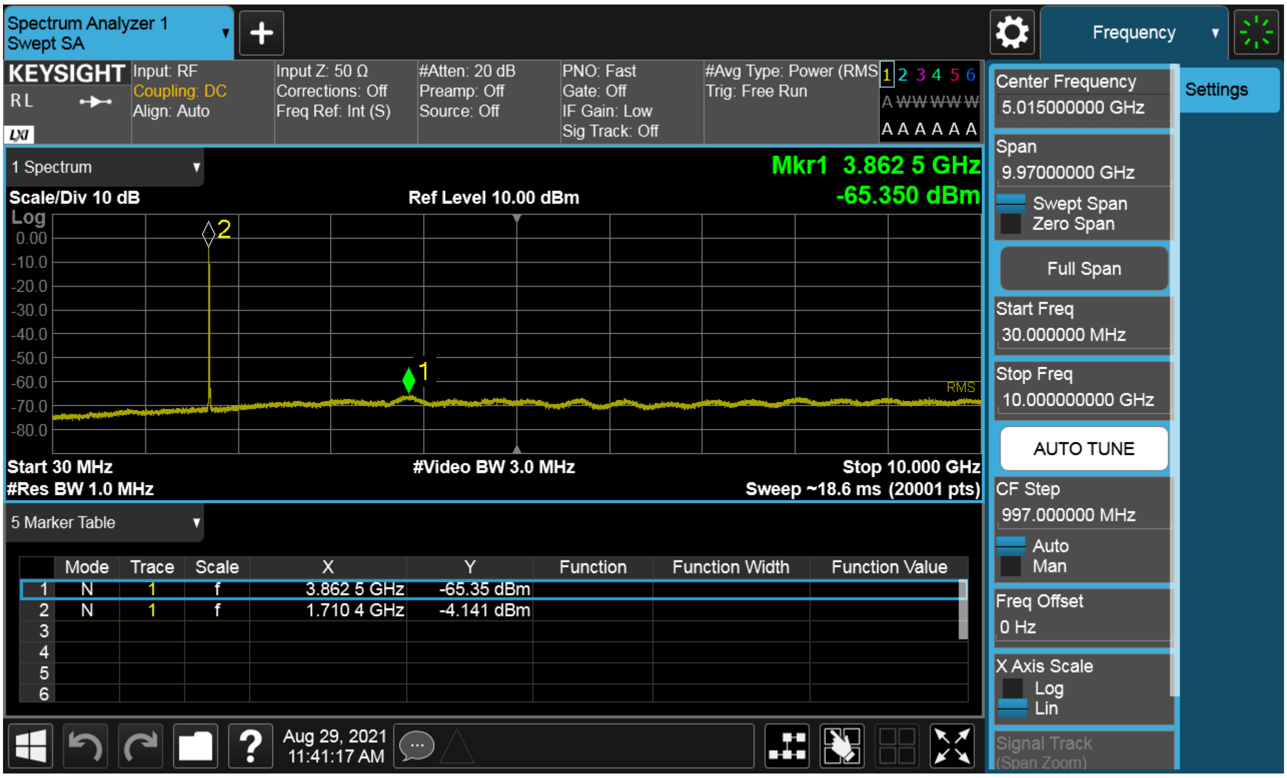


	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	3.857 0 GHz	-65.49 dBm			
2	N	1	f	1.775 2 GHz	-5.103 dBm			
3								
4								
5								
6								

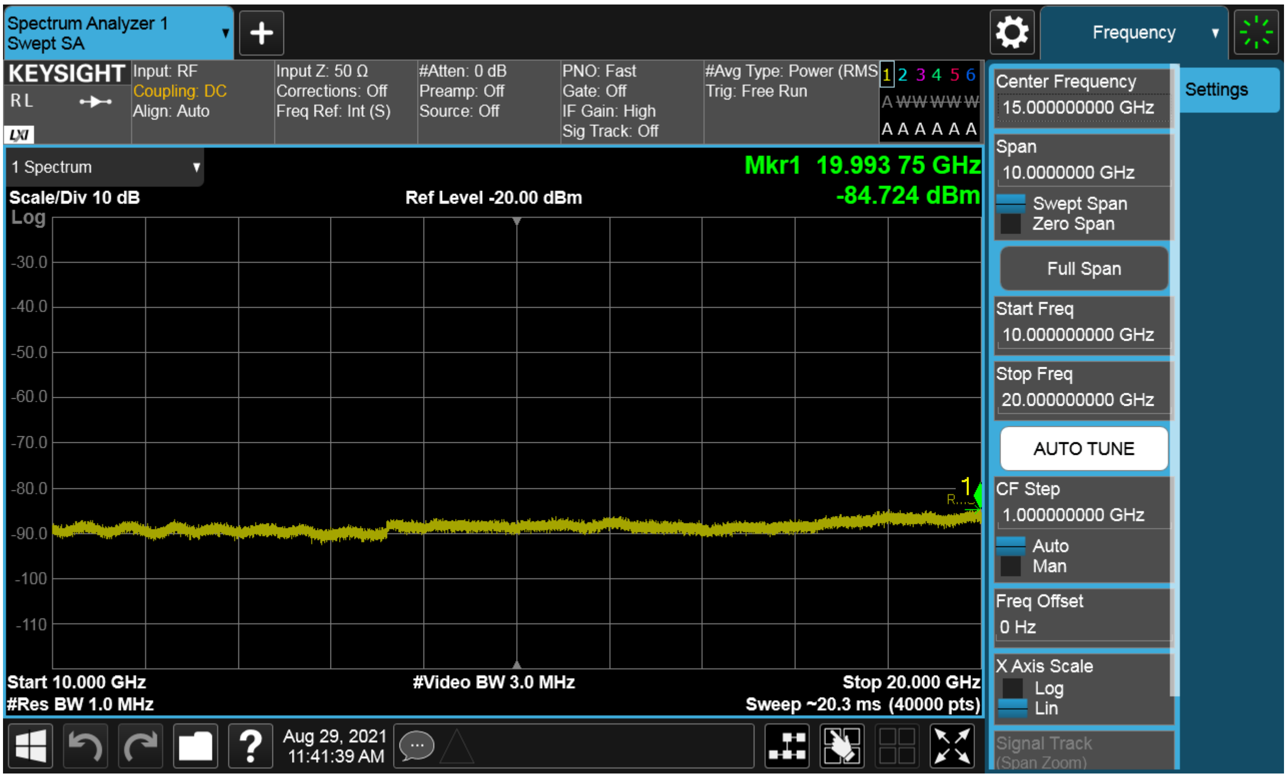
Sub6 n66. Conducted Spurious Plot_2 (355500ch_5 MHz_BPSK_ RB 1_1)



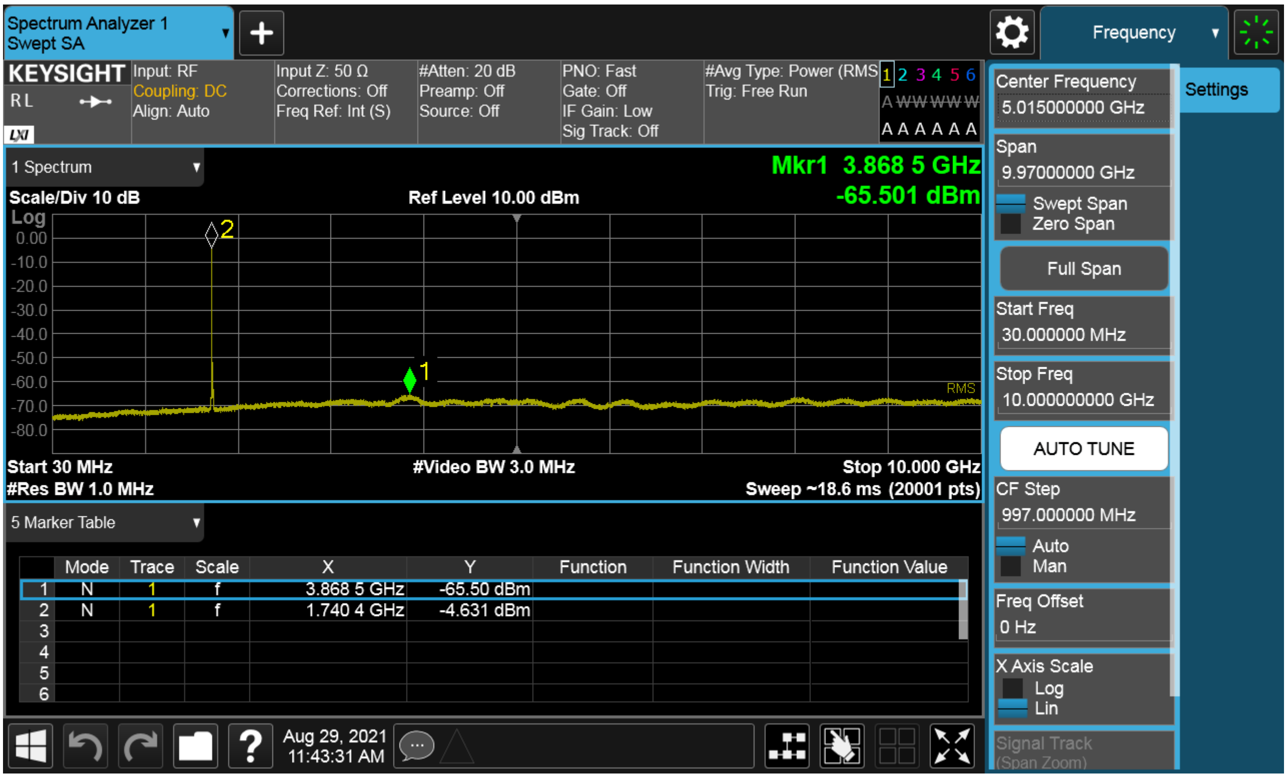
Sub6 n66. Conducted Spurious Plot_1 (343000ch_10 MHz_BPSK_ RB 1_1)



Sub6 n66. Conducted Spurious Plot_2 (343000ch_10 MHz_BPSK_ RB 1_1)

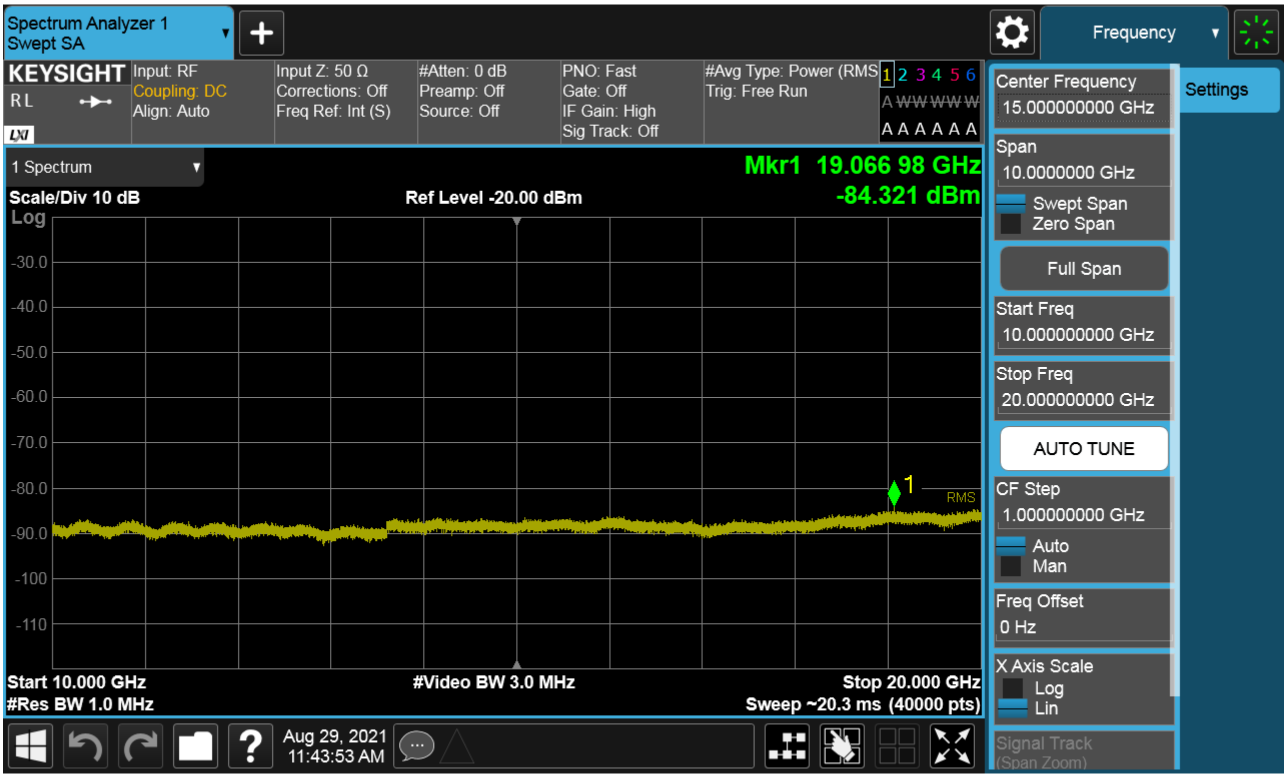


Sub6 n66. Conducted Spurious Plot_1 (349000ch_10 MHz_BPSK_ RB 1_1)

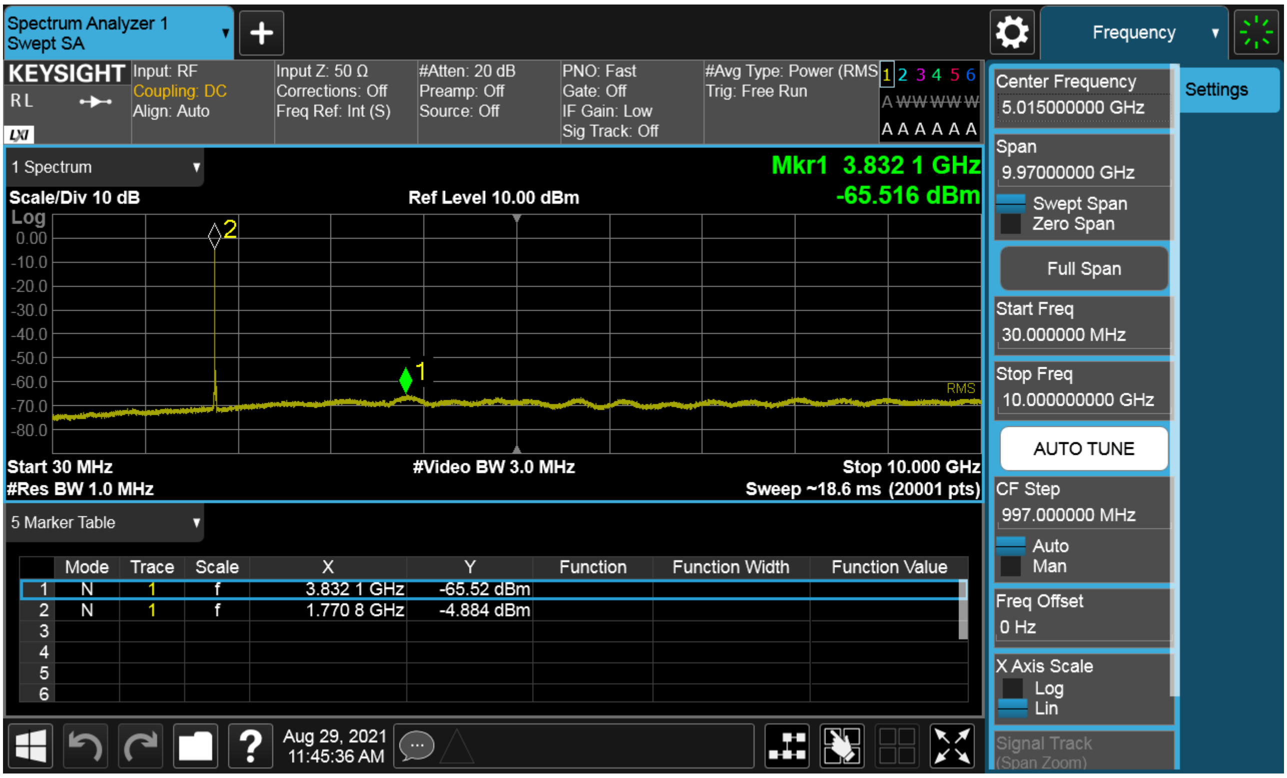


	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	3.868 5 GHz	-65.50 dBm			
2	N	1	f	1.740 4 GHz	-4.631 dBm			
3								
4								
5								
6								

Sub6 n66. Conducted Spurious Plot_2 (349000ch_10 MHz_BPSK_ RB 1_1)



Sub6 n66. Conducted Spurious Plot_1 (355000ch_10 MHz_BPSK_ RB 1_1)



	Mode	Trace	Scale	X	Y	Function	Function Width	Function Value
1	N	1	f	3.832 1 GHz	-65.52 dBm			
2	N	1	f	1.770 8 GHz	-4.884 dBm			
3								
4								
5								
6								

Sub6 n66. Conducted Spurious Plot_2 (355000ch_10 MHz_BPSK_ RB 1_1)