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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:
February 25, 2021

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

Report No.: HCT-RF-2102-FC062

FCC ID:	**A3LSMA526U**
APPLICANT:	**SAMSUNG Electronics Co., Ltd.**

Model(s):	SM-A526U
Additional Model(s):	SM-A526U1
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 n77 (20)	3710.01 – 3969.99	17M8G7D	PI/2 BPSK	0.256	24.08
		17M8G7D	QPSK	0.254	24.05
		17M8W7D	16QAM	0.198	22.97
		17M9W7D	64QAM	0.127	21.04
		17M9W7D	256QAM	0.089	19.48
Sub6 n77 (30)	3715.02 – 3964.98	26M9G7D	PI/2 BPSK	0.270	24.32
		27M0G7D	QPSK	0.269	24.30
		27M0W7D	16QAM	0.213	23.28
		26M8W7D	64QAM	0.136	21.33
		26M8W7D	256QAM	0.095	19.77
Sub6 n77 (40)	3720.00 – 3960.00	35M8G7D	PI/2 BPSK	0.275	24.39
		35M8G7D	QPSK	0.272	24.34
		35M7W7D	16QAM	0.212	23.26
		35M7W7D	64QAM	0.137	21.38
		35M8W7D	256QAM	0.096	19.82
Sub6 n77 (50)	3725.01 – 3954.99	45M8G7D	PI/2 BPSK	0.241	23.83
		45M9G7D	QPSK	0.236	23.73
		45M8W7D	16QAM	0.183	22.63
		45M6W7D	64QAM	0.119	20.75
		45M7W7D	256QAM	0.082	19.14
Sub6 n77 (60)	3730.01 – 3950.00	57M9G7D	PI/2 BPSK	0.221	23.45
		58M0G7D	QPSK	0.219	23.41
		58M1W7D	16QAM	0.179	22.52
		58M0W7D	64QAM	0.116	20.66
		57M9W7D	256QAM	0.078	18.90
Sub6 n77 (70)	3735.00 – 3945.00	64M6G7D	PI/2 BPSK	0.211	23.25
		64M1G7D	QPSK	0.210	23.23
		61M5W7D	16QAM	0.168	22.25
		64M5W7D	64QAM	0.108	20.35
		64M5W7D	256QAM	0.072	18.57
Sub6 n77 (80)	3740.01 – 3939.99	77M2G7D	PI/2 BPSK	0.194	22.89
		77M1G7D	QPSK	0.191	22.82
		77M3W7D	16QAM	0.142	21.53
		77M0W7D	64QAM	0.100	20.00
		77M4W7D	256QAM	0.067	18.26
Sub6 n77 (90)	3745.01 – 3934.98	86M6G7D	PI/2 BPSK	0.193	22.85
		86M9G7D	QPSK	0.192	22.83
		87M9W7D	16QAM	0.152	21.81
		86M9W7D	64QAM	0.099	19.94
		87M1W7D	256QAM	0.065	18.14
Sub6 n77 (100)	3750.00 – 3930.00	96M2G7D	PI/2 BPSK	0.178	22.50
		96M6G7D	QPSK	0.177	22.49
		96M2W7D	16QAM	0.142	21.52
		96M5W7D	64QAM	0.092	19.65
		96M3W7D	256QAM	0.061	17.89

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 : Jae Ryang Do
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-2102-FC062	February 25, 2021	- 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:	A3LSMA526U
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-A526U
Additional Model(s):	SM-A526U1
SCS(kHz):	30
Bandwidth(MHz):	20, 30, 40, 50, 60, 70, 80, 90, 100
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:	3710.01 MHz – 3969.99 MHz (Sub6 n77(20 MHz)) 3715.02 MHz – 3964.98 MHz (Sub6 n77(30 MHz)) 3720.00 MHz – 3960.00 MHz (Sub6 n77(40 MHz)) 3725.01 MHz – 3954.99 MHz (Sub6 n77(50 MHz)) 3730.01 MHz – 3950.00 MHz (Sub6 n77(60 MHz)) 3735.00 MHz – 3945.00 MHz (Sub6 n77(70 MHz)) 3740.01 MHz – 3939.99 MHz (Sub6 n77(80 MHz)) 3745.01 MHz – 3934.98 MHz (Sub6 n77(90 MHz)) 3750.00 MHz – 3930.00 MHz (Sub6 n77(100 MHz))
Date(s) of Tests:	January 19, 2021 ~ February 24, 2021
Serial number:	Radiated: R3CR10BEAAB Conducted: R3CR10BBDLY

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

The EUT was a Mobile Phone with GSM/GPRS/EGPRS/UMTS, CDMA(BC0, 1, 10) 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 1MHz
3. VBW ≥ 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points > 2 x span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
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 1GHz, 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 1GHz and 1MHz for emissions above 1GHz
2. VBW ≥ 3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points > 2 x span / RBW
5. Detector = 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 10^{th} 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 1GHz, 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;

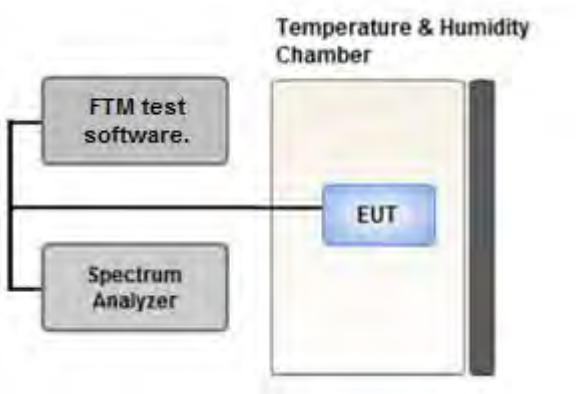
$$Result_{(dBm)} = Pg_{(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dBi)}$$

   Where: $P_g$is the generator output power into the substitution antenna.

   If the fundamental frequency is below 1GHz, 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:

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

Test Settings(Peak Power)

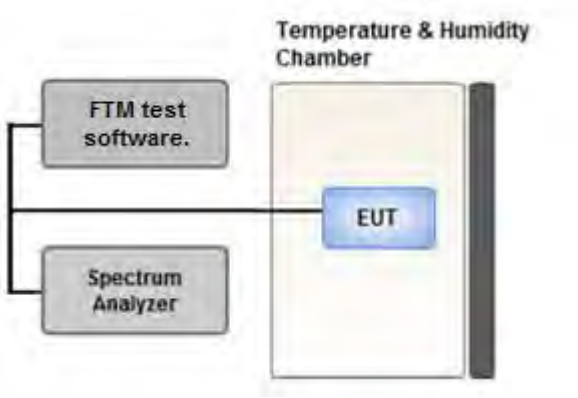
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW ≥ 3 × RBW.

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.

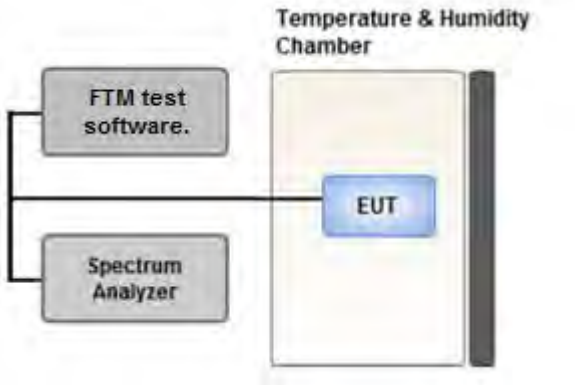
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

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

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.

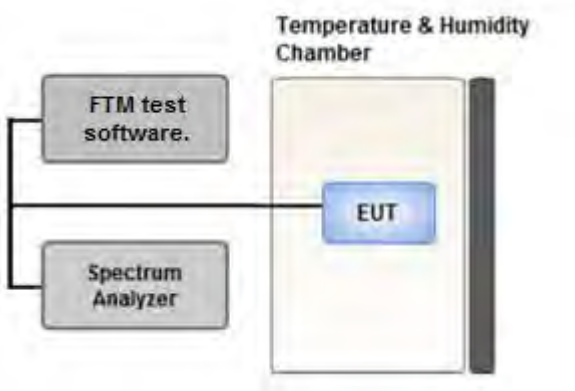
All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

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 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 : Please check the test notes below
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

For mobile operations in the 3700-3980 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed −13 dBm/MHz.

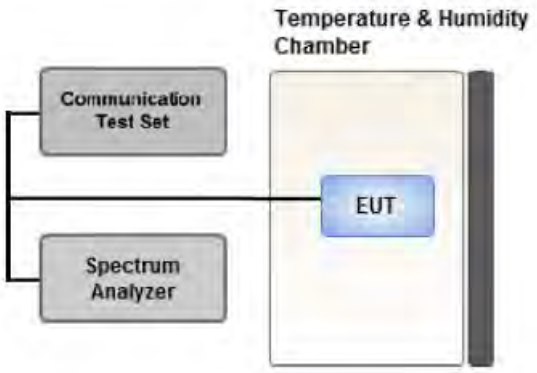
Measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater.

However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz.

In the bands between 1 and 5 MHz removed from the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be 500 kHz.

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

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.

(In the case of radiated spurious emissions, only the B.W result that confirmed the maximum radiated power was reported.)

- 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-n77A(BW 40MHz))
- All RB sizes, offsets of operation were investigated and the worst case configuration results are reported.
  Please refer to the table below.
- SM-A526U & additional models were tested and the worst case results are reported.
  (Worst case : SM-A526U)

[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	PI/2 BPSK	1	1	Y

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 RB sizes, offsets of operation were investigated and the worst case configuration results are reported.
  Please refer to the table below.
- SM-A526U & additional models were tested and the worst case results are reported.
  (Worst case : SM-A526U)

[Worst case]

Test Description	Modulation	Bandwidth (MHz)	Frequency	RB size	RB offset
Occupied Bandwidth,	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	20, 30, 40, 50, 60, 70, 80, 90, 100	Mid	Full RB	0
Peak-To-Average Ratio	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	20, 30, 40, 50, 60, 70, 80, 90, 100	Mid	1	Mid
Band Edge	PI/2 BPSK	20	Low	1	0
			High	1	50
		30	Low	1	0
			High	1	77
		40	Low	1	0
			High	1	105
		50	Low	1	0
			High	1	132
		60	Low	1	0
			High	1	161
		70	Low	1	0
			High	1	188
		80	Low	1	0
			High	1	216
		90	Low	1	0
			High	1	244
		100	Low	1	0
			High	1	272
		20, 30, 40, 50, 60, 70, 80, 90, 100	Low, High	Full RB	0
Spurious and Harmonic Emissions at Antenna Terminal	PI/2 BPSK	20, 30, 40, 50, 60, 70, 80, 90, 100	Low, Mid, High	1	1

4. LIST OF TEST EQUIPMENT

Manufacture	Model/ Equipment	Serial Number	Calibration Date	Calibration Interval	Calibration Due
Wainwright Instruments	WHKX10-900-1000-15000-40SS/ High Pass Filter	5	07/13/2020	Annual	07/13/2021
Wainwright Instruments	WHKX10-2700-3000-18000-40SS/ High Pass Filter	145	09/03/2020	Annual	09/03/2021
Wainwright Instruments	WHNX6-4740-6000-26500-40CC/ High Pass Filter	11	09/03/2020	Annual	09/03/2021
Hewlett Packard	11667B / Power Splitter(DC~26.5 GHz)	11275	04/27/2020	Annual	04/27/2021
CERNEX	LOW NOISE AMP (100MHz ~ 18GHz)	26822	06/04/2020	Annual	06/04/2021
CERNEX	CBL18265035 / Power Amplifier	22966	12/04/2020	Annual	12/04/2021
CERNEX	CBL26405040 / Power Amplifier	25956	03/23/2020	Annual	03/23/2021
Hewlett Packard	E3632A/DC Power Supply	MY40004427	09/16/2020	Annual	09/16/2021
Schwarzbeck	UHAP / Precision Dipole Antenna	01273	05/30/2020	Biennial	05/30/2022
Schwarzbeck	UHAP / Precision Dipole Antenna	01274	05/30/2020	Biennial	05/30/2022
ESPEC	SU-642 / Chamber	93008124	03/18/2020	Annual	03/18/2021
Schwarzbeck	BBHA 9120D/ Horn Antenna(1~18GHz)	02289	05/08/2020	Biennial	05/08/2022
Schwarzbeck	BBHA 9120D/ Horn Antenna(1~18GHz)	9120D-1299	05/10/2019	Biennial	05/10/2021
Schwarzbeck	BBHA 9170/ Horn Antenna(15~40GHz)	BBHA9170342	04/29/2019	Biennial	04/29/2021
Schwarzbeck	BBHA 9170/ Horn Antenna(15~40GHz)	BBHA9170124	02/11/2020	Biennial	02/11/2022
Agilent	N9020A/Signal Analyzer(10Hz~26.5GHz)	MY51110063	04/27/2020	Annual	04/27/2021
Hewlett Packard	8493C/ATTENUATOR(20dB)	17280	06/04/2020	Annual	06/04/2021
REOHDE & SCHWARZ	FSV40/Spectrum Analyzer(10Hz~40GHz)	101436	03/16/2020	Annual	03/16/2021
Rohde & Schwarz	FMZB1513/ Loop Antenna(9kHz~30MHz)	1513-175	05/18/2020	Biennial	05/18/2022
Schwarzbeck	VULB9160/ Bilog Antenna	3150	03/12/2019	Biennial	03/12/2021
Schwarzbeck	VULB9160/ Hybrid Antenna	760	03/22/2019	Biennial	03/22/2021
Anritsu Corp.	MT8821C/Wideband Radio Communication Tester	6262116770	07/22/2020	Annual	07/22/2021
REOHDE & SCHWARZ	SMB100A/ SIGNAL GENERATOR (100kHz~40GHz)	177633	07/13/2020	Annual	07/13/2021
KEYSIGHT	N9030B / Signal Analyzer(5Hz~40.0GHz)	MY55480167	06/04/2020	Annual	06/04/2021
KEYSIGHT	E7515B / 5G Wireless Tester	MY60101126	05/28/2020	Annual	05/28/2021
Mini-Circuits	ZC4PD-K1844+ / 4-Way Divider	942907	09/14/2020	Annual	09/14/2021
HCT CO., LTD.,	FCC LTE Mobile Conducted RF Automation Test Software	-	-	-	-

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
Radiated Disturbance (9 kHz ~ 30 MHz)	3.40
Radiated Disturbance (30 MHz ~ 1 GHz)	4.80
Radiated Disturbance (1 GHz ~ 18 GHz)	5.70
Radiated Disturbance (18 GHz ~ 40 GHz)	5.05

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(i)(2)	< -13 dBm	PASS
Conducted Output Power	§2.1046	N/A	**See Note1**
Peak- to- Average Ratio	§27.50(j)(4)	< 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(j)(3)	< 1 Watts max. EIRP	PASS
Radiated Spurious and Harmonic Emissions	§2.1053, §27.53(i)(2)	< -13 dBm	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
3710.01	Sub6 n77/ 20 MHz [30 kHz]	PI/2 BPSK	-23.57	13.29	11.70	2.81	H	< 1.00	0.165	22.18
		QPSK	-23.59	13.27	11.70	2.81	H		0.164	22.16
		16-QAM	-24.58	12.28	11.70	2.81	H		0.131	21.17
		64-QAM	-26.53	10.33	11.70	2.81	H		0.083	19.22
		256-QAM	-28.32	8.54	11.70	2.81	H		0.055	17.43
3840.00		PI/2 BPSK	-23.94	13.29	11.24	2.86	H		0.147	21.67
		QPSK	-23.99	13.24	11.24	2.86	H		0.145	21.62
		16-QAM	-24.94	12.29	11.24	2.86	H		0.117	20.67
		64-QAM	-26.83	10.40	11.24	2.86	H		0.076	18.78
		256-QAM	-28.62	8.61	11.24	2.86	H		0.050	16.99
3969.99		PI/2 BPSK	-22.11	15.82	11.18	2.92	H		0.256	24.08
		QPSK	-22.14	15.79	11.18	2.92	H		0.254	24.05
		16-QAM	-23.22	14.71	11.18	2.92	H		0.198	22.97
		64-QAM	-25.15	12.78	11.18	2.92	H		0.127	21.04
		256-QAM	-26.71	11.22	11.18	2.92	H		0.089	19.48

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
3715.02	Sub6 n77/ 30 MHz [30 kHz]	PI/2 BPSK	-23.92	12.92	11.70	2.82	H	< 1.00	0.151	21.80
		QPSK	-23.93	12.91	11.70	2.82	H		0.151	21.79
		16-QAM	-24.95	11.89	11.70	2.82	H		0.119	20.77
		64-QAM	-26.87	9.97	11.70	2.82	H		0.077	18.85
		256-QAM	-28.70	8.14	11.70	2.82	H		0.050	17.02
3840.00		PI/2 BPSK	-23.59	13.64	11.24	2.86	H		0.159	22.02
		QPSK	-23.61	13.62	11.24	2.86	H		0.158	22.00
		16-QAM	-24.59	12.64	11.24	2.86	H		0.126	21.02
		64-QAM	-26.43	10.80	11.24	2.86	H		0.083	19.18
		256-QAM	-28.22	9.01	11.24	2.86	H		0.055	17.39
3964.98		PI/2 BPSK	-21.87	16.08	11.16	2.92	H		0.270	24.32
		QPSK	-21.89	16.06	11.16	2.92	H		0.269	24.30
		16-QAM	-22.91	15.04	11.16	2.92	H		0.213	23.28
		64-QAM	-24.86	13.09	11.16	2.92	H		0.136	21.33
		256-QAM	-26.42	11.53	11.16	2.92	H		0.095	19.77

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
3720.00	Sub6 n77/ 40 MHz [30 kHz]	PI/2 BPSK	-23.94	12.88	11.70	2.82	H	< 1.00	0.150	21.76
		QPSK	-23.98	12.84	11.70	2.82	H		0.149	21.72
		16-QAM	-24.96	11.86	11.70	2.82	H		0.119	20.74
		64-QAM	-26.90	9.92	11.70	2.82	H		0.076	18.80
		256-QAM	-28.62	8.20	11.70	2.82	H		0.051	17.08
3840.00		PI/2 BPSK	-23.64	13.59	11.24	2.86	H		0.157	21.97
		QPSK	-23.65	13.58	11.24	2.86	H		0.157	21.96
		16-QAM	-24.52	12.71	11.24	2.86	H		0.129	21.09
		64-QAM	-26.41	10.82	11.24	2.86	H		0.083	19.20
		256-QAM	-28.22	9.01	11.24	2.86	H		0.055	17.39
3960.00		PI/2 BPSK	-21.80	16.17	11.14	2.92	H		0.275	24.39
		QPSK	-21.85	16.12	11.14	2.92	H		0.272	24.34
		16-QAM	-22.93	15.04	11.14	2.92	H		0.212	23.26
		64-QAM	-24.81	13.16	11.14	2.92	H		0.137	21.38
		256-QAM	-26.37	11.60	11.14	2.92	H		0.096	19.82

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
3725.01	Sub6 n77/ 50 MHz [30 kHz]	PI/2 BPSK	-23.78	13.04	11.70	2.83	H	< 1.00	0.155	21.91
		QPSK	-23.83	12.99	11.70	2.83	H		0.153	21.86
		16-QAM	-24.81	12.01	11.70	2.83	H		0.122	20.88
		64-QAM	-26.73	10.09	11.70	2.83	H		0.079	18.96
		256-QAM	-28.37	8.45	11.70	2.83	H		0.054	17.32
3840.00		PI/2 BPSK	-23.97	13.26	11.24	2.86	H		0.146	21.64
		QPSK	-24.03	13.20	11.24	2.86	H		0.144	21.58
		16-QAM	-24.90	12.33	11.24	2.86	H		0.118	20.71
		64-QAM	-26.82	10.41	11.24	2.86	H		0.076	18.79
		256-QAM	-28.62	8.61	11.24	2.86	H		0.050	16.99
3954.99		PI/2 BPSK	-22.35	15.63	11.12	2.92	H		0.241	23.83
		QPSK	-22.45	15.53	11.12	2.92	H		0.236	23.73
		16-QAM	-23.55	14.43	11.12	2.92	H		0.183	22.63
		64-QAM	-25.43	12.55	11.12	2.92	H		0.119	20.75
		256-QAM	-27.04	10.94	11.12	2.92	H		0.082	19.14

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
3730.01	Sub6 n77/ 60 MHz [30 kHz]	PI/2 BPSK	-23.69	13.12	11.70	2.83	H	< 1.00	0.158	21.99
		QPSK	-23.76	13.05	11.70	2.83	H		0.156	21.92
		16-QAM	-24.71	12.10	11.70	2.83	H		0.125	20.97
		64-QAM	-26.68	10.13	11.70	2.83	H		0.079	19.00
		256-QAM	-28.48	8.33	11.70	2.83	H		0.052	17.20
3840.00		PI/2 BPSK	-23.90	13.33	11.24	2.86	H		0.148	21.71
		QPSK	-23.92	13.31	11.24	2.86	H		0.148	21.69
		16-QAM	-24.82	12.41	11.24	2.86	H		0.120	20.79
		64-QAM	-26.78	10.45	11.24	2.86	H		0.076	18.83
		256-QAM	-28.55	8.68	11.24	2.86	H		0.051	17.06
3950.00		PI/2 BPSK	-22.71	15.27	11.10	2.92	H		0.221	23.45
		QPSK	-22.75	15.23	11.10	2.92	H		0.219	23.41
		16-QAM	-23.64	14.34	11.10	2.92	H		0.179	22.52
		64-QAM	-25.50	12.48	11.10	2.92	H		0.116	20.66
		256-QAM	-27.26	10.72	11.10	2.92	H		0.078	18.90

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
3735.00	Sub6 n77/ 70 MHz [30 kHz]	PI/2 BPSK	-23.83	13.05	11.70	2.84	H	< 1.00	0.156	21.92
		QPSK	-23.89	12.99	11.70	2.84	H		0.153	21.86
		16-QAM	-24.83	12.05	11.70	2.84	H		0.124	20.92
		64-QAM	-26.72	10.16	11.70	2.84	H		0.080	19.03
		256-QAM	-28.50	8.38	11.70	2.84	H		0.053	17.25
3840.00		PI/2 BPSK	-23.86	13.37	11.24	2.86	H		0.150	21.75
		QPSK	-23.89	13.34	11.24	2.86	H		0.149	21.72
		16-QAM	-24.81	12.42	11.24	2.86	H		0.120	20.80
		64-QAM	-26.71	10.52	11.24	2.86	H		0.078	18.90
		256-QAM	-28.46	8.77	11.24	2.86	H		0.052	17.15
3945.00		PI/2 BPSK	-22.89	15.08	11.09	2.92	H		0.211	23.25
		QPSK	-22.91	15.06	11.09	2.92	H		0.210	23.23
		16-QAM	-23.89	14.08	11.09	2.92	H		0.168	22.25
		64-QAM	-25.79	12.18	11.09	2.92	H		0.108	20.35
		256-QAM	-27.57	10.40	11.09	2.92	H		0.072	18.57

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
3740.01	Sub6 n77/ 80 MHz [30 kHz]	PI/2 BPSK	-23.69	13.27	11.70	2.84	H	< 1.00	0.163	22.13
		QPSK	-23.72	13.24	11.70	2.84	H		0.162	22.10
		16-QAM	-24.74	12.22	11.70	2.84	H		0.128	21.08
		64-QAM	-26.62	10.34	11.70	2.84	H		0.083	19.20
		256-QAM	-28.48	8.48	11.70	2.84	H		0.054	17.34
3840.00		PI/2 BPSK	-23.69	13.54	11.24	2.86	H		0.156	21.92
		QPSK	-23.78	13.45	11.24	2.86	H		0.152	21.83
		16-QAM	-24.69	12.54	11.24	2.86	H		0.124	20.92
		64-QAM	-26.57	10.66	11.24	2.86	H		0.080	19.04
		256-QAM	-28.38	8.85	11.24	2.86	H		0.053	17.23
3939.99		PI/2 BPSK	-23.23	14.73	11.08	2.92	H		0.194	22.89
		QPSK	-23.30	14.66	11.08	2.92	H		0.191	22.82
		16-QAM	-24.59	13.37	11.08	2.92	H		0.142	21.53
		64-QAM	-26.12	11.84	11.08	2.92	H		0.100	20.00
		256-QAM	-27.86	10.10	11.08	2.92	H		0.067	18.26

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
3745.01	Sub6 n77/ 90 MHz [30 kHz]	PI/2 BPSK	-23.66	13.34	11.70	2.84	H	< 1.00	0.166	22.20
		QPSK	-23.71	13.29	11.70	2.84	H		0.164	22.15
		16-QAM	-24.66	12.34	11.70	2.84	H		0.132	21.20
		64-QAM	-26.58	10.42	11.70	2.84	H		0.085	19.28
		256-QAM	-28.40	8.60	11.70	2.84	H		0.056	17.46
3840.00		PI/2 BPSK	-23.59	13.64	11.24	2.86	H		0.159	22.02
		QPSK	-23.61	13.62	11.24	2.86	H		0.158	22.00
		16-QAM	-24.65	12.58	11.24	2.86	H		0.125	20.96
		64-QAM	-26.46	10.77	11.24	2.86	H		0.082	19.15
		256-QAM	-28.32	8.91	11.24	2.86	H		0.054	17.29
3934.98		PI/2 BPSK	-23.28	14.70	11.07	2.92	H		0.193	22.85
		QPSK	-23.30	14.68	11.07	2.92	H		0.192	22.83
		16-QAM	-24.32	13.66	11.07	2.92	H		0.152	21.81
		64-QAM	-26.19	11.79	11.07	2.92	H		0.099	19.94
		256-QAM	-27.99	9.99	11.07	2.92	H		0.065	18.14

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
3750.00	Sub6 n77/ 100 MHz [30 kHz]	PI/2 BPSK	-23.59	13.44	11.70	2.84	H	< 1.00	0.170	22.30
		QPSK	-23.64	13.39	11.70	2.84	H		0.168	22.25
		16-QAM	-24.65	12.38	11.70	2.84	H		0.133	21.24
		64-QAM	-26.58	10.45	11.70	2.84	H		0.085	19.31
		256-QAM	-28.35	8.68	11.70	2.84	H		0.057	17.54
3840.00		PI/2 BPSK	-23.54	13.69	11.24	2.86	H		0.161	22.07
		QPSK	-23.57	13.66	11.24	2.86	H		0.160	22.04
		16-QAM	-24.58	12.65	11.24	2.86	H		0.127	21.03
		64-QAM	-26.50	10.73	11.24	2.86	H		0.081	19.11
		256-QAM	-28.30	8.93	11.24	2.86	H		0.054	17.31
3930.00		PI/2 BPSK	-23.58	14.12	11.24	2.86	H		0.178	22.50
		QPSK	-23.59	14.11	11.24	2.86	H		0.177	22.49
		16-QAM	-24.56	13.14	11.24	2.86	H		0.142	21.52
		64-QAM	-26.43	11.27	11.24	2.86	H		0.092	19.65
		256-QAM	-28.19	9.51	11.24	2.86	H		0.061	17.89

8.2 RADIATED SPURIOUS EMISSIONS

▣ NR Band: N77

▣ LTE Band(Anchor): B2

▣ Bandwidth: 40 MHz

▣ Modulation: PI/2 BPSK

▣ Distance: 1 meters

▣ SCS: 30 kHz

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)
648000 (3720.00)	7 440.00	-56.59	11.36	-49.47	4.13	H	-42.24	-13.00
	11 160.00	-62.45	12.30	-50.23	5.16	V	-43.09	-13.00
	14 880.00	-54.81	14.02	-49.17	5.96	V	-41.11	-13.00
656000 (3840.00)	7 680.00	-51.89	11.54	-45.00	4.18	H	-37.64	-13.00
	11 520.00	-61.69	12.44	-50.82	5.16	V	-43.54	-13.00
	15 360.00	-55.32	15.54	-50.24	6.07	H	-40.77	-13.00
664000 (3960.00)	7 920.00	-54.18	11.04	-46.67	4.26	V	-39.89	-13.00
	11 880.00	-60.36	12.80	-50.42	5.38	V	-43.00	-13.00
	15 840.00	-56.82	16.40	-49.49	6.23	V	-39.32	-13.00

ENDC-Mode: 2A-n77A

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)
18900 (1880.0)	3,760.00	-57.34	11.64	-60.33	2.85	V	-51.54	-13.00
	5,640.00	-58.44	12.00	-55.22	3.54	V	-46.76	-13.00
	7,520.00	-57.67	11.54	-45.32	4.12	V	-37.90	-13.00

8.3 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
Sub6 n77	20 MHz	3840.00	BPSK	51	0	4.22
			QPSK			5.38
			16-QAM			6.19
			64-QAM			6.42
			256-QAM			6.38
	30 MHz		BPSK	78		4.07
			QPSK			5.29
			16-QAM			6.04
			64-QAM			6.25
			256-QAM			6.52
	40 MHz		BPSK	106		4.06
			QPSK			5.12
			16-QAM			5.97
			64-QAM			6.24
			256-QAM			6.54
	50 MHz		BPSK	133		4.48
			QPSK			5.45
			16-QAM			6.17
			64-QAM			6.33
			256-QAM			6.53
	60 MHz		BPSK	162		4.24
			QPSK			5.46
			16-QAM			6.14
			64-QAM			6.46
			256-QAM			6.46

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
Sub6 n77	70 MHz	3840.00	BPSK	189	0	3.87
			QPSK			5.18
			16-QAM			6.02
			64-QAM			6.49
			256-QAM			6.56
	80 MHz		BPSK	217		3.96
			QPSK			5.25
			16-QAM			6.07
			64-QAM			6.45
			256-QAM			6.57
	90 MHz		BPSK	245		4.30
			QPSK			5.48
			16-QAM			6.02
			64-QAM			6.42
			256-QAM			6.51
	100 MHz		BPSK	273		4.68
			QPSK			5.56
			16-QAM			6.05
			64-QAM			6.40
			256-QAM			6.63

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 97 ~ 141.

8.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Sub6 n77	20 MHz	3840.00	BPSK	51	0	17.811
			QPSK			17.780
			16-QAM			17.844
			64-QAM			17.869
			256-QAM			17.903
	30 MHz		BPSK	78		26.871
			QPSK			26.952
			16-QAM			27.017
			64-QAM			26.787
			256-QAM			26.838
	40 MHz		BPSK	106		35.789
			QPSK			35.769
			16-QAM			35.740
			64-QAM			35.736
			256-QAM			35.766
	50 MHz		BPSK	133		45.807
			QPSK			45.933
			16-QAM			45.801
			64-QAM			45.634
			256-QAM			45.694
	60 MHz		BPSK	162		57.934
			QPSK			57.953
			16-QAM			58.063
			64-QAM			57.995
			256-QAM			57.869

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Sub6 n77	70 MHz	3840.00	BPSK	189	0	64.545
			QPSK			64.091
			16-QAM			61.507
			64-QAM			64.503
			256-QAM			64.543
	80 MHz		BPSK	217		77.164
			QPSK			77.076
			16-QAM			77.276
			64-QAM			77.037
			256-QAM			77.352
	90 MHz		BPSK	245		86.613
			QPSK			86.860
			16-QAM			86.878
			64-QAM			86.669
			256-QAM			86.933
	100 MHz		BPSK	273		96.177
			QPSK			96.631
			16-QAM			96.220
			64-QAM			96.480
			256-QAM			96.315

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 52 ~ 96.

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 n77	20	3710.01	8.2642	32.721	-72.275	-39.554	-13.00
		3840.00	5.4826	32.721	-71.771	-39.050	
		3969.99	3.2279	32.111	-72.404	-40.293	
	30	3715.02	6.3400	32.721	-72.750	-40.029	
		3840.00	8.0055	32.721	-72.321	-39.600	
		3964.98	9.9108	32.721	-72.697	-39.976	
	40	3720.00	3.2608	32.111	-71.871	-39.760	
		3840.00	3.2089	32.111	-72.483	-40.372	
		3960.00	9.7253	32.721	-71.948	-39.227	
	50	3725.01	7.9886	32.721	-72.432	-39.711	
		3840.00	8.0269	32.721	-71.550	-38.829	
		3954.99	8.0653	32.721	-72.553	-39.832	
	60	3730.01	4.9921	32.111	-72.386	-40.275	
		3840.00	8.0409	32.721	-72.482	-39.761	
		3950.00	7.1890	32.721	-72.304	-39.583	
	70	3735.00	8.0324	32.721	-72.309	-39.588	
		3840.00	3.4991	32.111	-71.430	-39.319	
		3945.00	7.9801	32.721	-72.389	-39.668	
	80	3740.01	3.3944	32.111	-71.332	-39.221	
		3840.00	2.6043	32.111	-72.581	-40.470	
		3939.99	7.1969	32.721	-72.239	-39.518	
	90	3745.01	3.3939	32.111	-72.709	-40.598	
		3840.00	3.4891	32.111	-70.389	-38.278	
		3934.98	3.5843	32.111	-69.348	-37.237	
	100	3750.00	5.2254	32.721	-72.630	-39.909	
		3840.00	3.4437	32.111	-72.395	-40.284	
		3930.00	5.9946	32.721	-72.402	-39.681	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 250 ~ 303.
2. Duty Cycle factor already applied on the factor.
   - Duty Cycle Factor(dB) = 3.01

- Factor(dB) = Duty Cycle factor + Cable Loss + Divider + Ext. Attenuator

- Result(dBm) = Reading + Factor

3. Factor(dB)

Frequency Range (GHz)	Factor [dB]
0.03 – 1	29.623
1 – 5	32.111
5 – 10	32.721
10 – 15	33.246
15 – 20	33.619
Above 20	34.261

8.6 BAND EDGE

1. Plots of the EUT's Band Edge are shown Page 142 ~ 249.
2. Duty Cycle factor already applied on the offset.
   - Duty Cycle Factor(dB) = 3.01
   - Offset(dB) = Duty Cycle factor + Cable Loss + Divider + Ext. Attenuator

8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

▣ BandWidth: 20 MHz

▣ Voltage(100%): 3.860 VDC

▣ Batt. Endpoint: 3.400 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy (MHz)	Voltage (%)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3710.010	100%	+20(Ref)	3710 010 009	0.0	0.000 000	0.000
	100%	-30	3710 010 020	11.0	0.000 000	0.003
	100%	-20	3710 010 025	16.2	0.000 000	0.004
	100%	-10	3710 010 014	4.9	0.000 000	0.001
	100%	0	3710 010 021	12.1	0.000 000	0.003
	100%	+10	3710 010 017	7.5	0.000 000	0.002
	100%	+30	3710 010 020	11.0	0.000 000	0.003
	100%	+40	3710 010 022	13.0	0.000 000	0.003
	100%	+50	3710 010 013	3.6	0.000 000	0.001
	Batt. Endpoint	+20	3710 010 014	4.5	0.000 000	0.001
3969.990	100%	+20(Ref)	3969 990 009	0.0	0.000 000	0.000
	100%	-30	3969 990 019	10.6	0.000 000	0.003
	100%	-20	3969 990 025	16.1	0.000 000	0.004
	100%	-10	3969 990 012	3.4	0.000 000	0.001
	100%	0	3969 990 018	9.3	0.000 000	0.002
	100%	+10	3969 990 012	3.3	0.000 000	0.001
	100%	+30	3969 990 018	8.8	0.000 000	0.002
	100%	+40	3969 990 020	11.4	0.000 000	0.003
	100%	+50	3969 990 018	9.3	0.000 000	0.002
	Batt. Endpoint	+20	3969 990 022	13.4	0.000 000	0.003

▣ BandWidth: 30 MHz

▣ Voltage(100%): 3.860 VDC

▣ Batt. Endpoint: 3.400 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy (MHz)	Voltage (%)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3715.020	100%	+20(Ref)	3715 020 016	0.0	0.000 000	0.000
	100%	-30	3715 020 019	3.0	0.000 000	0.001
	100%	-20	3715 020 031	15.2	0.000 000	0.004
	100%	-10	3715 020 022	5.9	0.000 000	0.002
	100%	0	3715 020 023	7.3	0.000 000	0.002
	100%	+10	3715 020 024	8.1	0.000 000	0.002
	100%	+30	3715 020 026	10.1	0.000 000	0.003
	100%	+40	3715 020 026	10.4	0.000 000	0.003
	100%	+50	3715 020 025	9.4	0.000 000	0.003
	Batt. Endpoint	+20	3715 020 021	4.7	0.000 000	0.001
3964.980	100%	+20(Ref)	3964 980 016	0.0	0.000 000	0.000
	100%	-30	3964 980 025	8.8	0.000 000	0.002
	100%	-20	3964 980 021	5.0	0.000 000	0.001
	100%	-10	3964 980 020	4.3	0.000 000	0.001
	100%	0	3964 980 030	13.8	0.000 000	0.003
	100%	+10	3964 980 030	14.2	0.000 000	0.004
	100%	+30	3964 980 020	4.3	0.000 000	0.001
	100%	+40	3964 980 032	16.0	0.000 000	0.004
	100%	+50	3964 980 022	6.1	0.000 000	0.002
	Batt. Endpoint	+20	3964 980 028	12.2	0.000 000	0.003

▣ BandWidth: 40 MHz

▣ Voltage(100%): 3.860 VDC

▣ Batt. Endpoint: 3.400 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy (MHz)	Voltage (%)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3720.000	100%	+20(Ref)	3720 000 014	0.0	0.000 000	0.000
	100%	-30	3720 000 025	11.1	0.000 000	0.003
	100%	-20	3720 000 026	12.3	0.000 000	0.003
	100%	-10	3720 000 023	8.7	0.000 000	0.002
	100%	0	3720 000 023	9.5	0.000 000	0.003
	100%	+10	3720 000 019	5.5	0.000 000	0.001
	100%	+30	3720 000 025	11.5	0.000 000	0.003
	100%	+40	3720 000 022	7.9	0.000 000	0.002
	100%	+50	3720 000 022	7.8	0.000 000	0.002
	Batt. Endpoint	+20	3720 000 021	7.3	0.000 000	0.002
3960.000	100%	+20(Ref)	3960 000 006	0.0	0.000 000	0.000
	100%	-30	3960 000 020	14.5	0.000 000	0.004
	100%	-20	3960 000 015	9.4	0.000 000	0.002
	100%	-10	3960 000 012	6.6	0.000 000	0.002
	100%	0	3960 000 021	14.6	0.000 000	0.004
	100%	+10	3960 000 016	9.7	0.000 000	0.002
	100%	+30	3960 000 011	5.4	0.000 000	0.001
	100%	+40	3960 000 015	9.3	0.000 000	0.002
	100%	+50	3960 000 012	6.0	0.000 000	0.002
	Batt. Endpoint	+20	3960 000 017	10.8	0.000 000	0.003

▣ BandWidth: 50 MHz

▣ Voltage(100%): 3.860 VDC

▣ Batt. Endpoint: 3.400 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy (MHz)	Voltage (%)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3725.010	100%	+20(Ref)	3725 010 014	0.0	0.000 000	0.000
	100%	-30	3725 010 024	10.1	0.000 000	0.003
	100%	-20	3725 010 025	11.6	0.000 000	0.003
	100%	-10	3725 010 023	9.6	0.000 000	0.003
	100%	0	3725 010 018	4.1	0.000 000	0.001
	100%	+10	3725 010 019	5.2	0.000 000	0.001
	100%	+30	3725 010 023	9.9	0.000 000	0.003
	100%	+40	3725 010 024	10.0	0.000 000	0.003
	100%	+50	3725 010 027	13.9	0.000 000	0.004
	Batt. Endpoint	+20	3725 010 023	9.5	0.000 000	0.003
3954.990	100%	+20(Ref)	3954 990 004	0.0	0.000 000	0.000
	100%	-30	3954 990 007	3.5	0.000 000	0.001
	100%	-20	3954 990 021	16.7	0.000 000	0.004
	100%	-10	3954 990 016	12.2	0.000 000	0.003
	100%	0	3954 990 013	9.1	0.000 000	0.002
	100%	+10	3954 990 009	5.0	0.000 000	0.001
	100%	+30	3954 990 021	16.7	0.000 000	0.004
	100%	+40	3954 990 019	15.5	0.000 000	0.004
	100%	+50	3954 990 013	9.0	0.000 000	0.002
	Batt. Endpoint	+20	3954 990 018	14.2	0.000 000	0.004

▣ BandWidth: 60 MHz

▣ Voltage(100%): 3.860 VDC

▣ Batt. Endpoint: 3.400 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy (MHz)	Voltage (%)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3730.020	100%	+20(Ref)	3730 020 015	0.0	0.000 000	0.000
	100%	-30	3730 020 022	7.2	0.000 000	0.002
	100%	-20	3730 020 032	16.9	0.000 000	0.005
	100%	-10	3730 020 028	12.7	0.000 000	0.003
	100%	0	3730 020 026	10.8	0.000 000	0.003
	100%	+10	3730 020 029	13.4	0.000 000	0.004
	100%	+30	3730 020 022	6.4	0.000 000	0.002
	100%	+40	3730 020 030	15.1	0.000 000	0.004
	100%	+50	3730 020 021	5.9	0.000 000	0.002
	Batt. Endpoint	+20	3730 020 024	9.0	0.000 000	0.002
3949.995	100%	+20(Ref)	3949 995 003	0.0	0.000 000	0.000
	100%	-30	3949 995 007	3.9	0.000 000	0.001
	100%	-20	3949 995 013	9.8	0.000 000	0.002
	100%	-10	3949 995 020	16.9	0.000 000	0.004
	100%	0	3949 995 019	15.6	0.000 000	0.004
	100%	+10	3949 995 009	6.0	0.000 000	0.002
	100%	+30	3949 995 015	12.2	0.000 000	0.003
	100%	+40	3949 995 008	4.8	0.000 000	0.001
	100%	+50	3949 995 019	15.9	0.000 000	0.004
	Batt. Endpoint	+20	3949 995 016	13.0	0.000 000	0.003

▣ BandWidth: 70 MHz

▣ Voltage(100%): 3.860 VDC

▣ Batt. Endpoint: 3.400 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy (MHz)	Voltage (%)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3735.000	100%	+20(Ref)	3735 000 016	0.0	0.000 000	0.000
	100%	-30	3735 000 024	7.5	0.000 000	0.002
	100%	-20	3735 000 026	9.9	0.000 000	0.003
	100%	-10	3735 000 020	3.5	0.000 000	0.001
	100%	0	3735 000 023	6.1	0.000 000	0.002
	100%	+10	3735 000 032	15.4	0.000 000	0.004
	100%	+30	3735 000 032	15.5	0.000 000	0.004
	100%	+40	3735 000 025	8.4	0.000 000	0.002
	100%	+50	3735 000 022	5.9	0.000 000	0.002
	Batt. Endpoint	+20	3735 000 029	13.0	0.000 000	0.003
3945.000	100%	+20(Ref)	3945 000 005	0.0	0.000 000	0.000
	100%	-30	3945 000 020	14.8	0.000 000	0.004
	100%	-20	3945 000 018	12.8	0.000 000	0.003
	100%	-10	3945 000 009	4.3	0.000 000	0.001
	100%	0	3945 000 011	6.2	0.000 000	0.002
	100%	+10	3945 000 018	12.9	0.000 000	0.003
	100%	+30	3945 000 018	12.4	0.000 000	0.003
	100%	+40	3945 000 020	15.3	0.000 000	0.004
	100%	+50	3945 000 017	12.0	0.000 000	0.003
	Batt. Endpoint	+20	3945 000 016	10.7	0.000 000	0.003

▣ BandWidth: 80 MHz

▣ Voltage(100%): 3.860 VDC

▣ Batt. Endpoint: 3.400 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy (MHz)	Voltage (%)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3740.010	100%	+20(Ref)	3740 010 012	0.0	0.000 000	0.000
	100%	-30	3740 010 021	9.0	0.000 000	0.002
	100%	-20	3740 010 018	6.4	0.000 000	0.002
	100%	-10	3740 010 024	12.4	0.000 000	0.003
	100%	0	3740 010 022	10.7	0.000 000	0.003
	100%	+10	3740 010 023	11.3	0.000 000	0.003
	100%	+30	3740 010 021	9.1	0.000 000	0.002
	100%	+40	3740 010 020	8.4	0.000 000	0.002
	100%	+50	3740 010 021	9.0	0.000 000	0.002
	Batt. Endpoint	+20	3740 010 017	4.8	0.000 000	0.001
3939.990	100%	+20(Ref)	3939 990 009	0.0	0.000 000	0.000
	100%	-30	3939 990 026	17.0	0.000 000	0.004
	100%	-20	3939 990 023	13.7	0.000 000	0.003
	100%	-10	3939 990 025	15.6	0.000 000	0.004
	100%	0	3939 990 014	4.1	0.000 000	0.001
	100%	+10	3939 990 022	12.7	0.000 000	0.003
	100%	+30	3939 990 014	4.9	0.000 000	0.001
	100%	+40	3939 990 014	4.6	0.000 000	0.001
	100%	+50	3939 990 016	6.1	0.000 000	0.002
	Batt. Endpoint	+20	3939 990 018	8.1	0.000 000	0.002

▣ BandWidth: 90 MHz

▣ Voltage(100%): 3.860 VDC

▣ Batt. Endpoint: 3.400 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy (MHz)	Voltage (%)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3745.020	100%	+20(Ref)	3745 020 006	0.0	0.000 000	0.000
	100%	-30	3745 020 012	5.2	0.000 000	0.001
	100%	-20	3745 020 023	17.0	0.000 000	0.005
	100%	-10	3745 020 017	11.0	0.000 000	0.003
	100%	0	3745 020 014	7.4	0.000 000	0.002
	100%	+10	3745 020 010	3.2	0.000 000	0.001
	100%	+30	3745 020 018	11.9	0.000 000	0.003
	100%	+40	3745 020 016	10.1	0.000 000	0.003
	100%	+50	3745 020 018	11.3	0.000 000	0.003
	Batt. Endpoint	+20	3745 020 010	3.6	0.000 000	0.001
3934.980	100%	+20(Ref)	3934 980 012	0.0	0.000 000	0.000
	100%	-30	3934 980 021	9.1	0.000 000	0.002
	100%	-20	3934 980 022	9.6	0.000 000	0.002
	100%	-10	3934 980 015	3.5	0.000 000	0.001
	100%	0	3934 980 028	15.8	0.000 000	0.004
	100%	+10	3934 980 018	5.8	0.000 000	0.001
	100%	+30	3934 980 018	5.9	0.000 000	0.001
	100%	+40	3934 980 019	7.4	0.000 000	0.002
	100%	+50	3934 980 029	16.8	0.000 000	0.004
	Batt. Endpoint	+20	3934 980 021	9.2	0.000 000	0.002

▣ BandWidth: 100 MHz

▣ Voltage(100%): 3.860 VDC

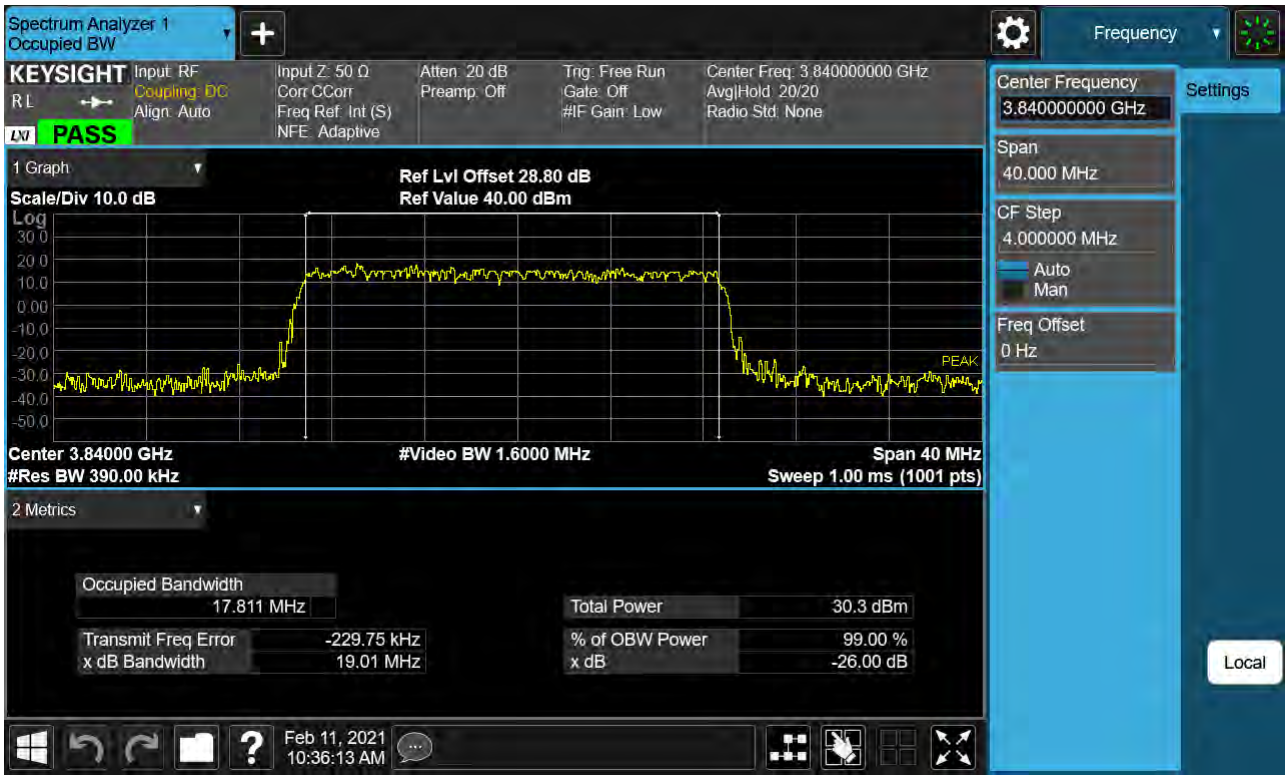
▣ Batt. Endpoint: 3.400 VDC

▣ LIMIT: Emission must remain in band

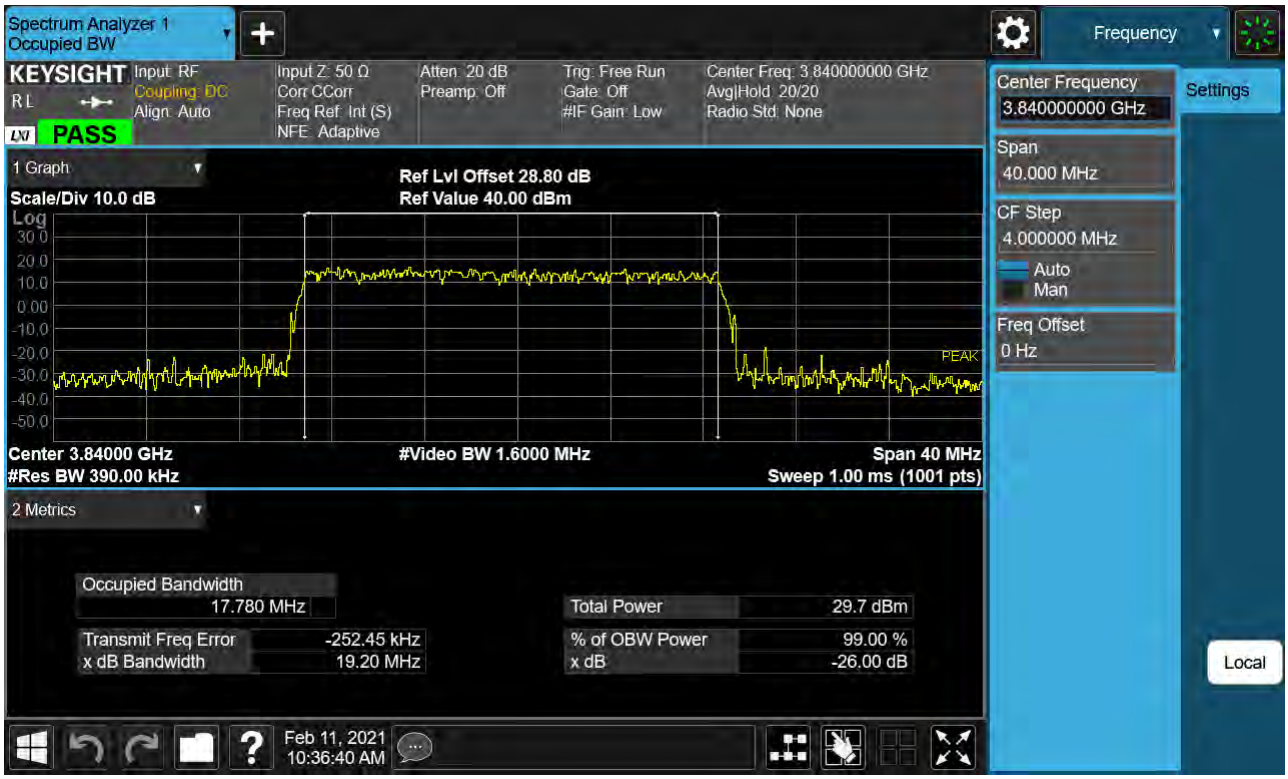
Test. Frequncy (MHz)	Voltage (%)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3750.000	100%	+20(Ref)	3750 000 014	0.0	0.000 000	0.000
	100%	-30	3750 000 027	13.4	0.000 000	0.004
	100%	-20	3750 000 018	4.5	0.000 000	0.001
	100%	-10	3750 000 018	4.5	0.000 000	0.001
	100%	0	3750 000 026	12.0	0.000 000	0.003
	100%	+10	3750 000 025	10.6	0.000 000	0.003
	100%	+30	3750 000 024	9.7	0.000 000	0.003
	100%	+40	3750 000 028	13.8	0.000 000	0.004
	100%	+50	3750 000 020	5.9	0.000 000	0.002
	Batt. Endpoint	+20	3750 000 026	12.6	0.000 000	0.003
3930.000	100%	+20(Ref)	3930 000 006	0.0	0.000 000	0.000
	100%	-30	3930 000 016	10.3	0.000 000	0.003
	100%	-20	3930 000 015	9.7	0.000 000	0.002
	100%	-10	3930 000 018	12.8	0.000 000	0.003
	100%	0	3930 000 013	6.9	0.000 000	0.002
	100%	+10	3930 000 020	14.2	0.000 000	0.004
	100%	+30	3930 000 009	3.3	0.000 000	0.001
	100%	+40	3930 000 021	15.6	0.000 000	0.004
	100%	+50	3930 000 015	9.8	0.000 000	0.002
	Batt. Endpoint	+20	3930 000 022	16.7	0.000 000	0.004

9. TEST PLOTS

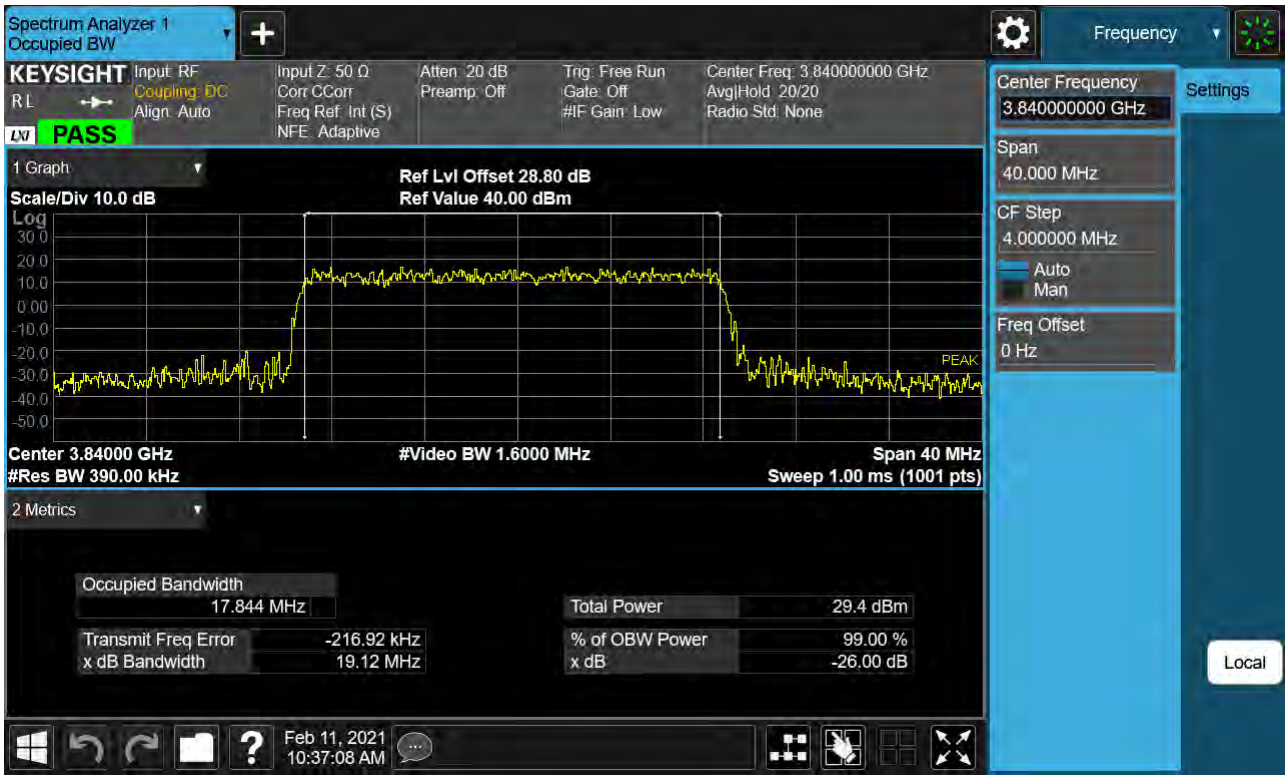
Sub6 n77. Occupied Bandwidth Plot (20M BW Ch.656000 BPSK)



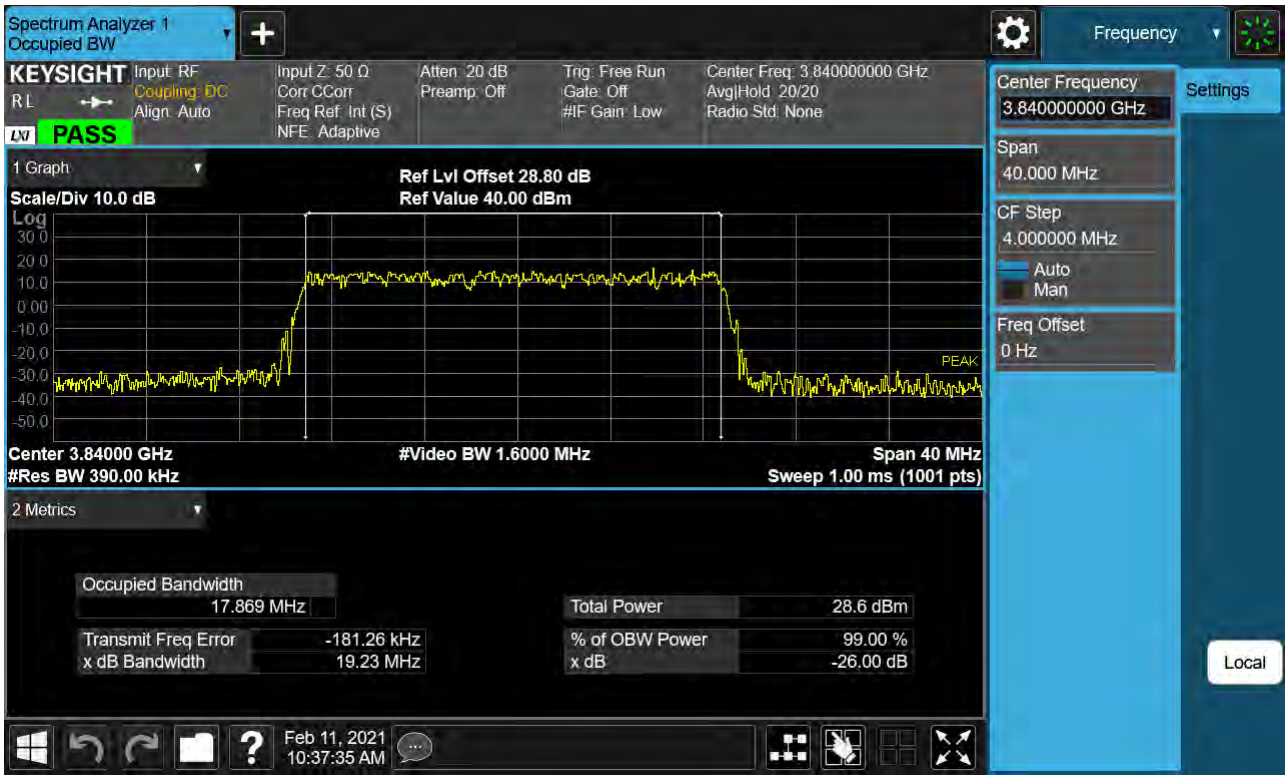
Sub6 n77. Occupied Bandwidth Plot (20M BW Ch.656000 QPSK)



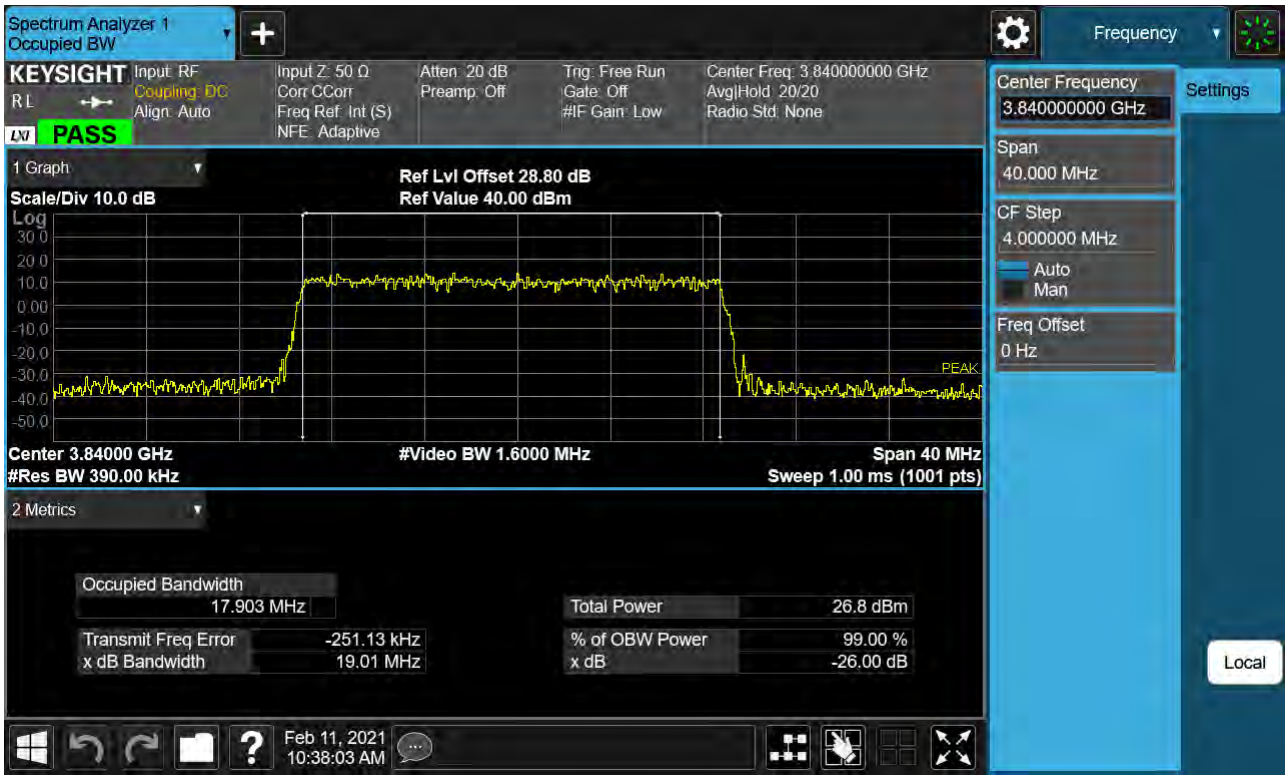
Sub6 n77. Occupied Bandwidth Plot (20M BW Ch.656000 16QAM)



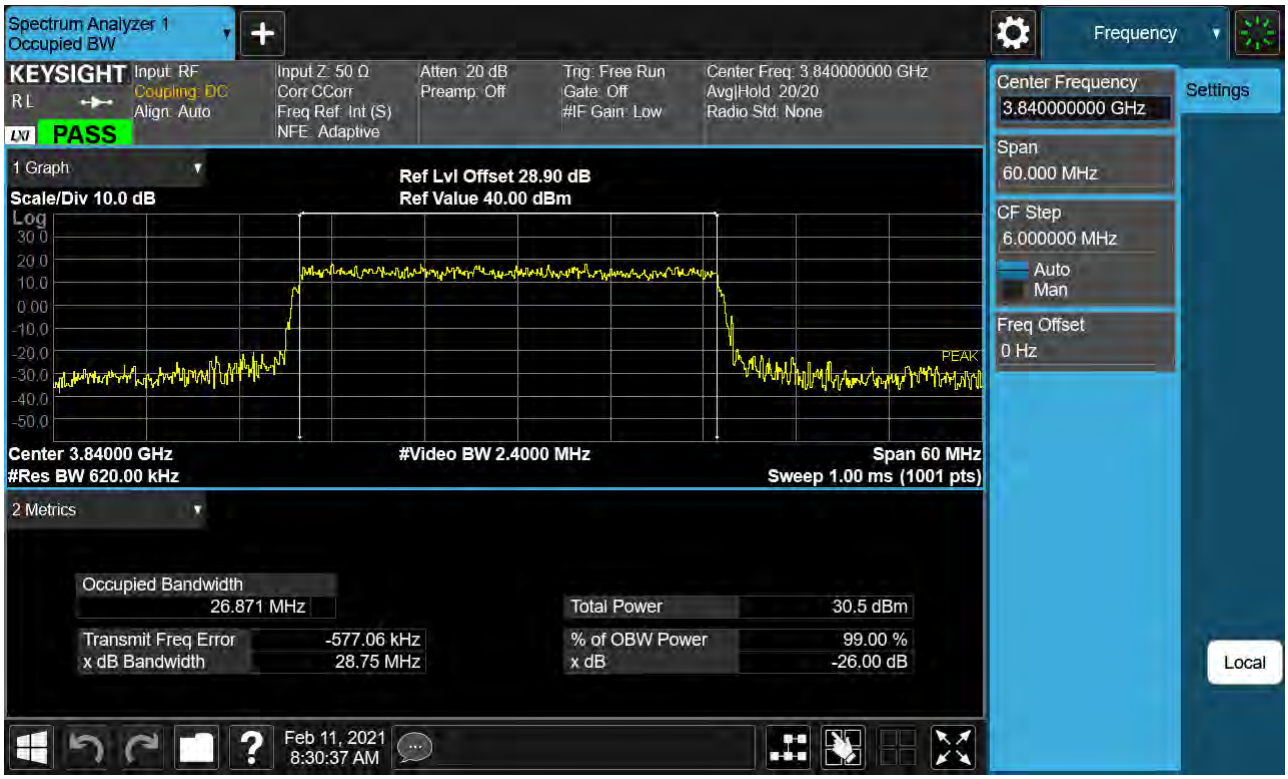
Sub6 n77. Occupied Bandwidth Plot (20M BW Ch.656000 64QAM)



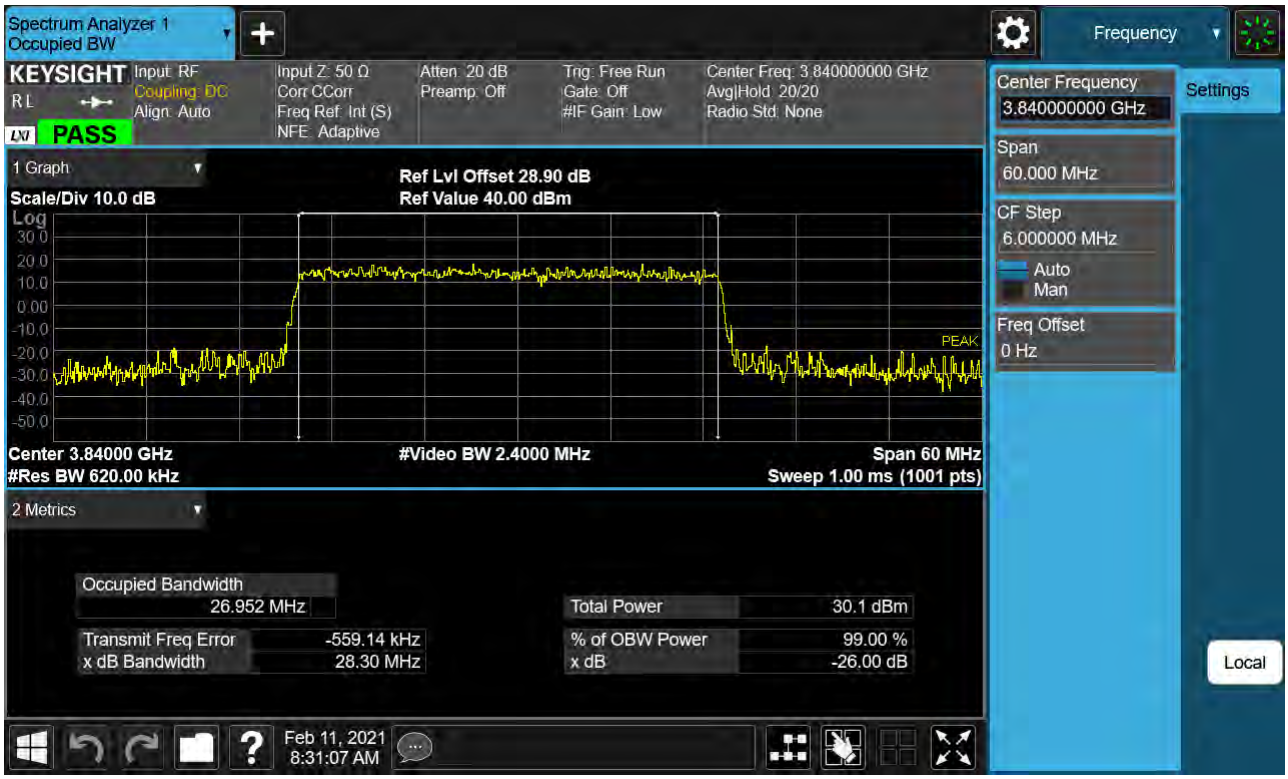
Sub6 n77. Occupied Bandwidth Plot (20M BW Ch.656000 256QAM)



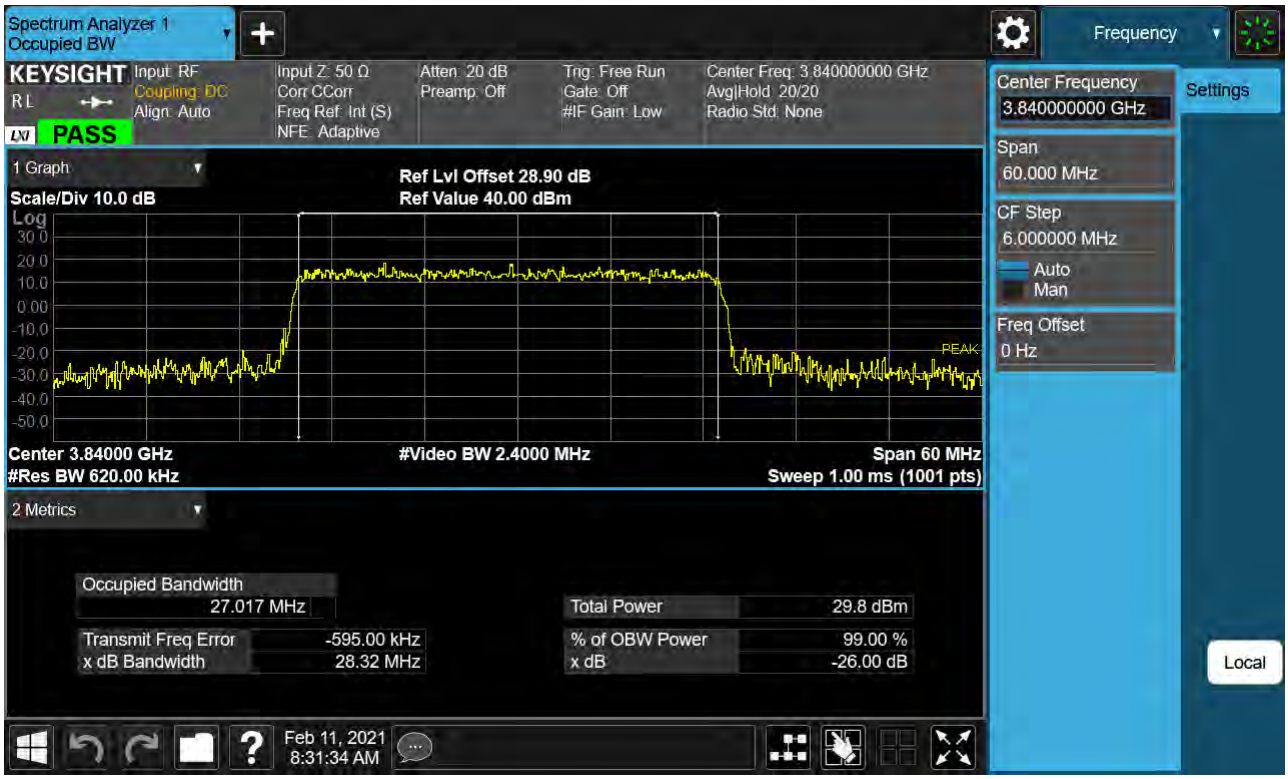
Sub6 n77. Occupied Bandwidth Plot (30M BW Ch.656000 BPSK)



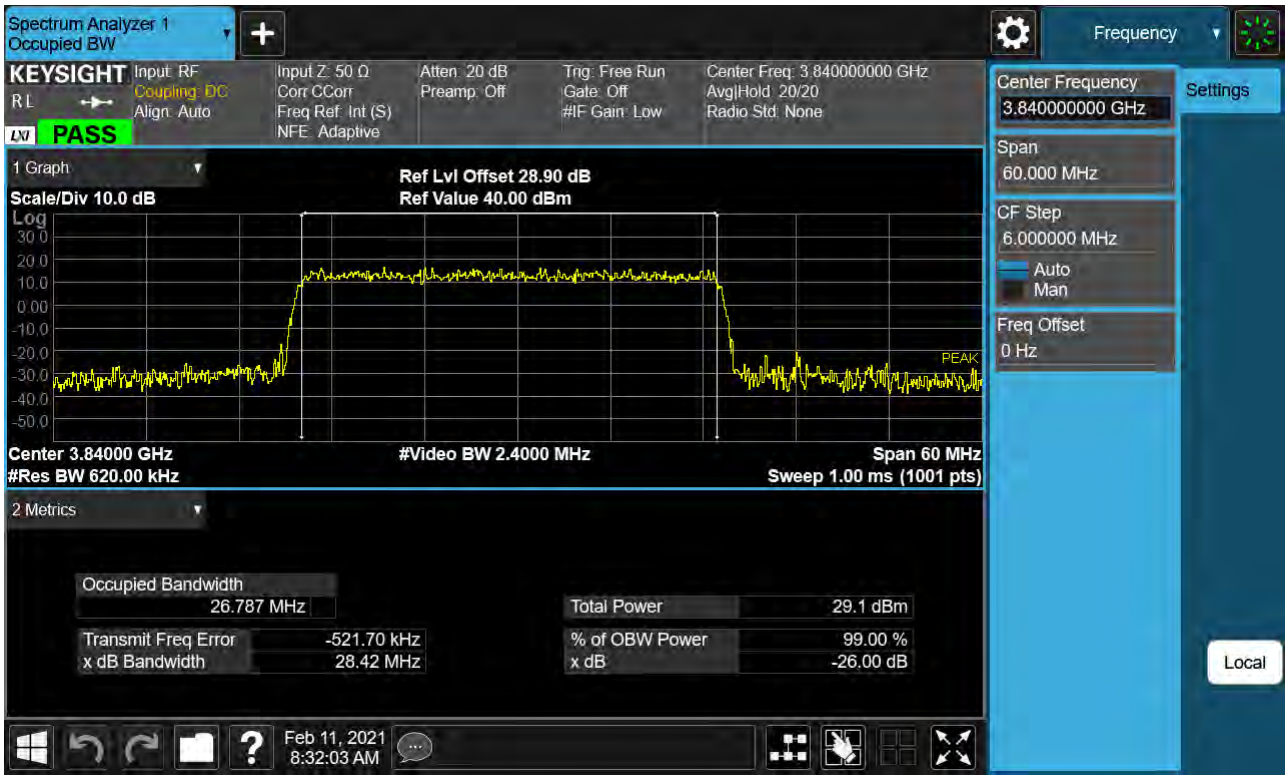
Sub6 n77. Occupied Bandwidth Plot (30M BW Ch.656000 QPSK)



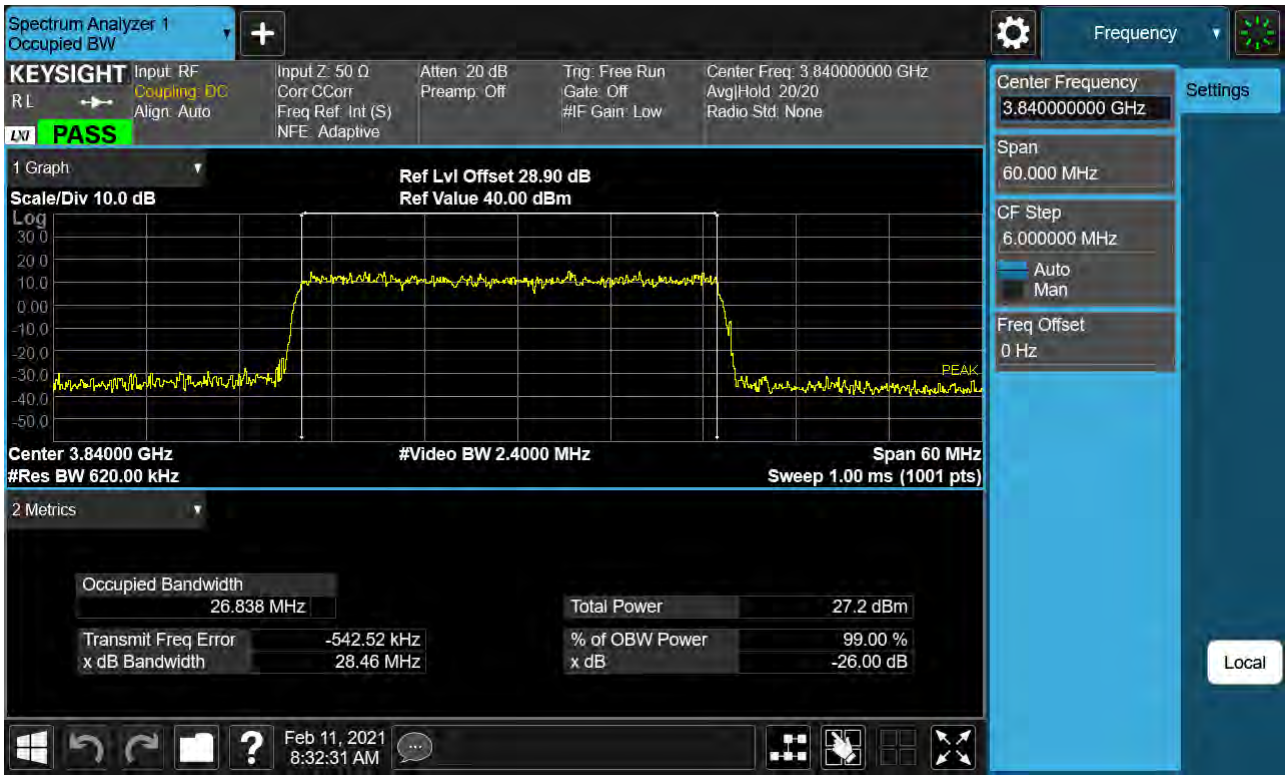
Sub6 n77. Occupied Bandwidth Plot (30M BW Ch.656000 16QAM)



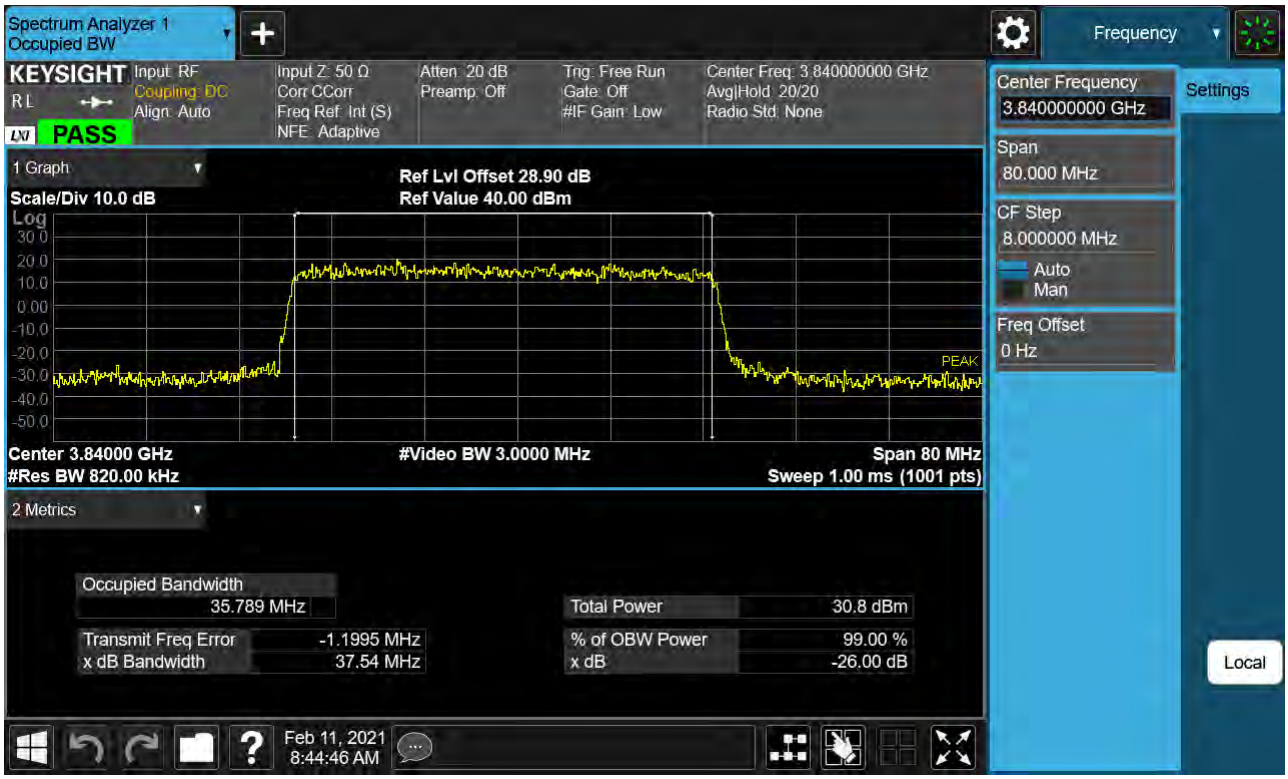
Sub6 n77. Occupied Bandwidth Plot (30M BW Ch.656000 64QAM)



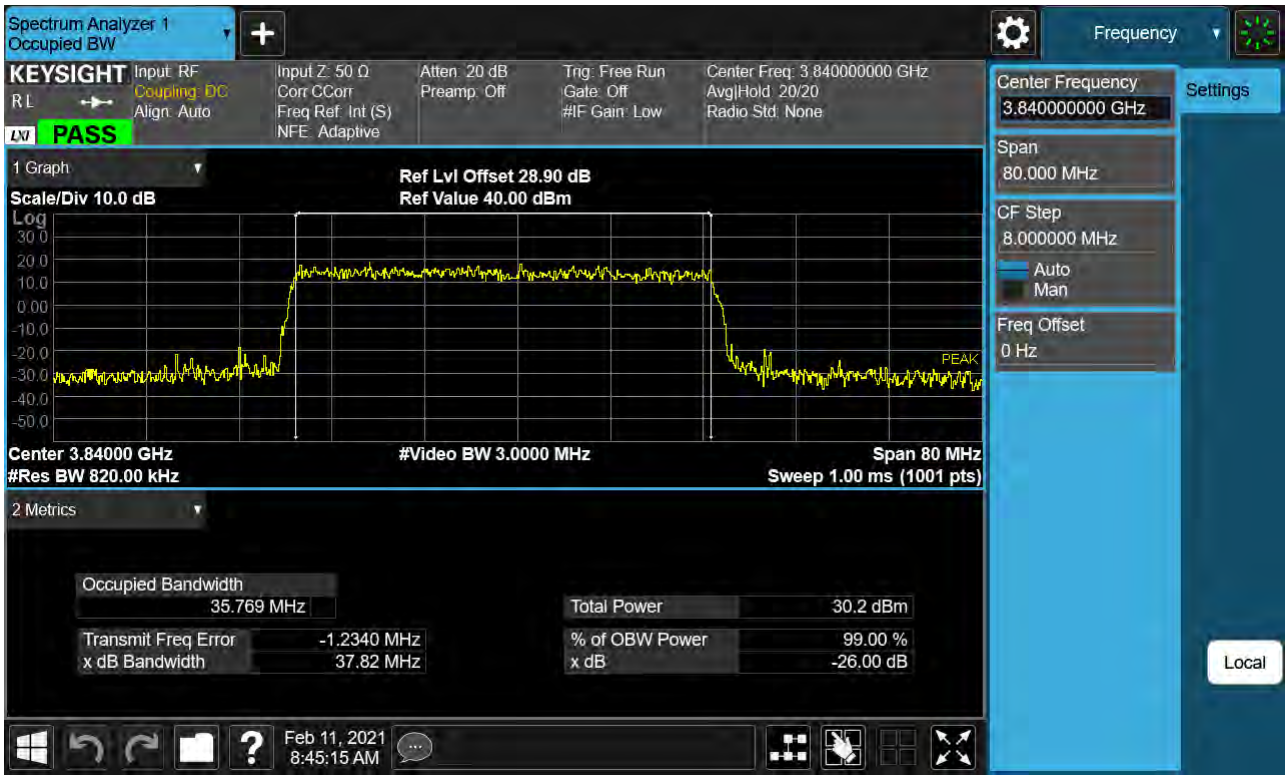
Sub6 n77. Occupied Bandwidth Plot (30M BW Ch.656000 256QAM)



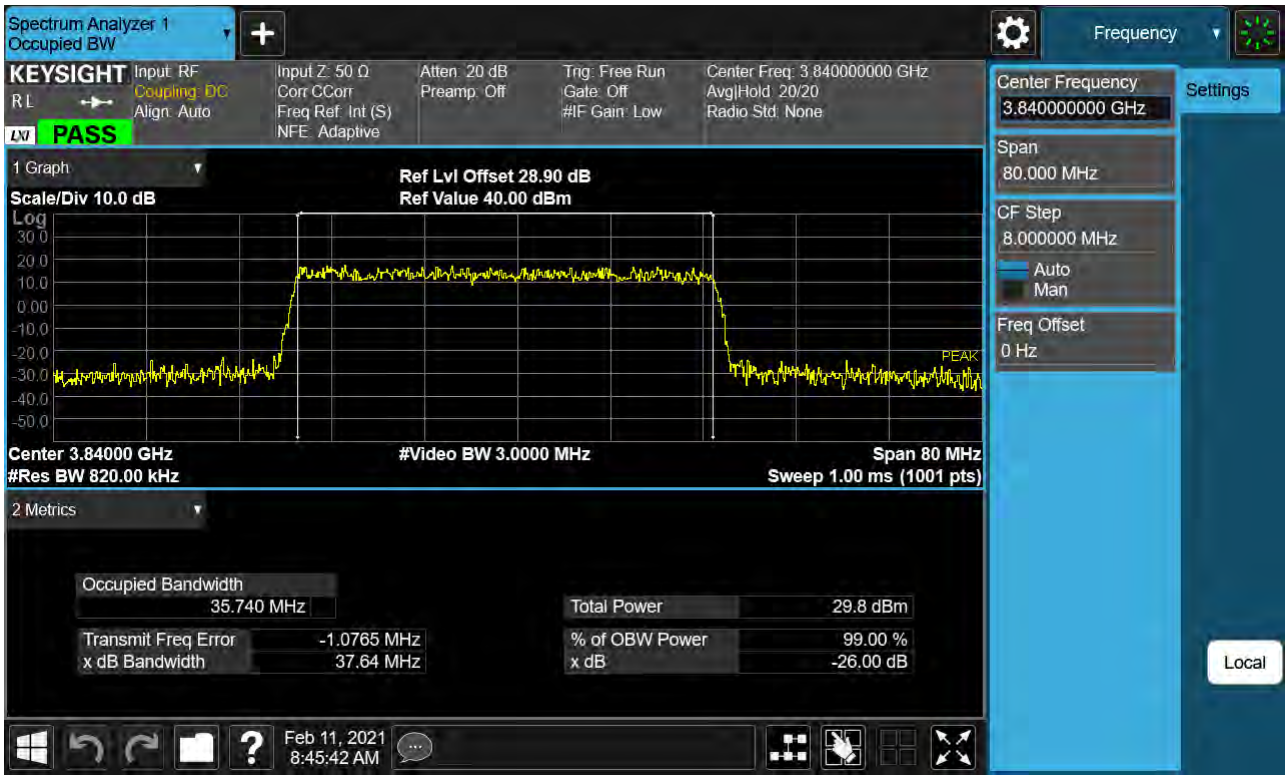
Sub6 n77. Occupied Bandwidth Plot (40M BW Ch.656000 BPSK)



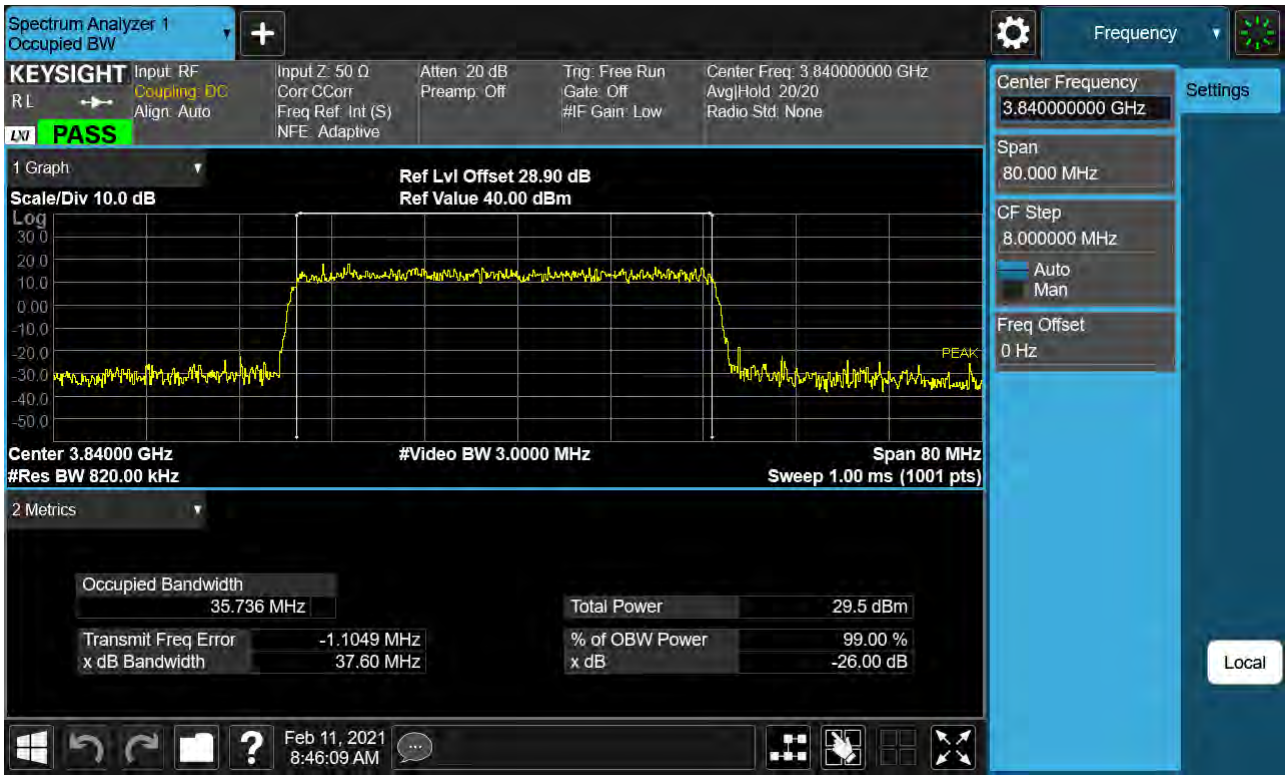
Sub6 n77. Occupied Bandwidth Plot (40M BW Ch.656000 QPSK)



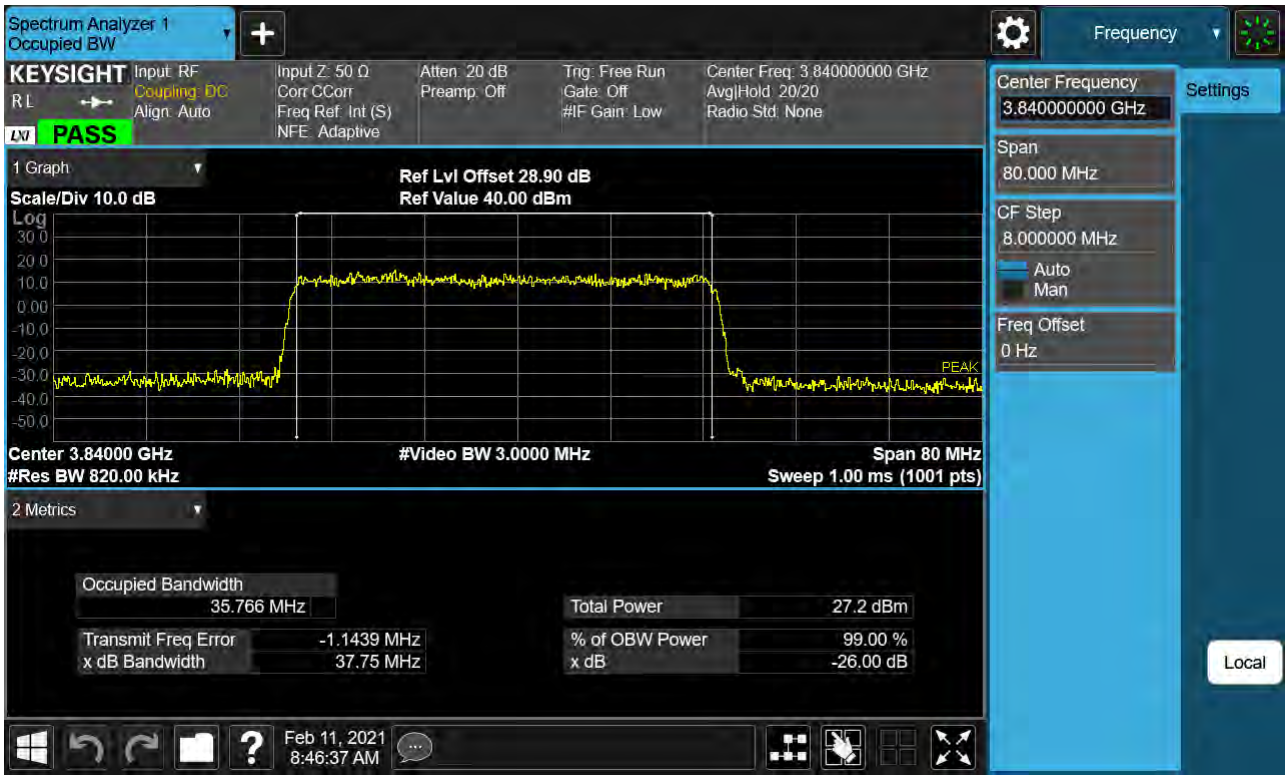
Sub6 n77. Occupied Bandwidth Plot (40M BW Ch.656000 16QAM)



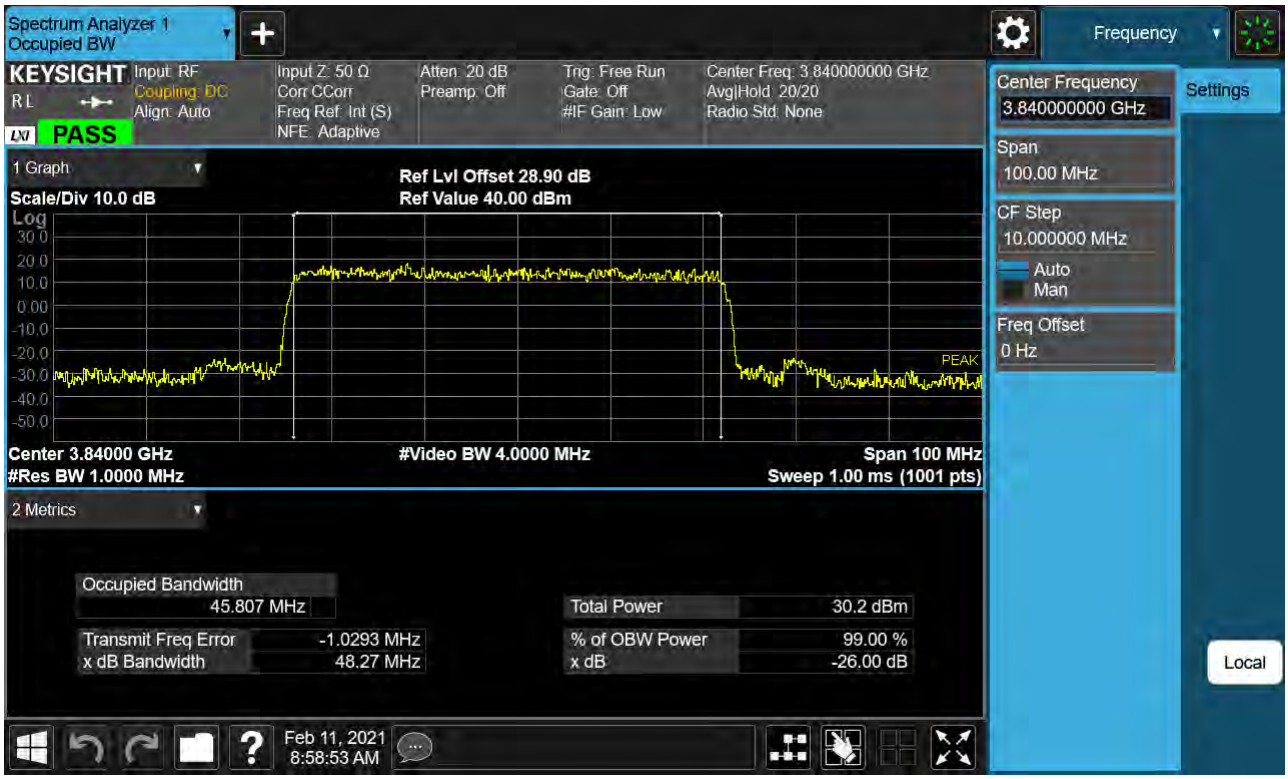
Sub6 n77. Occupied Bandwidth Plot (40M BW Ch.656000 64QAM)



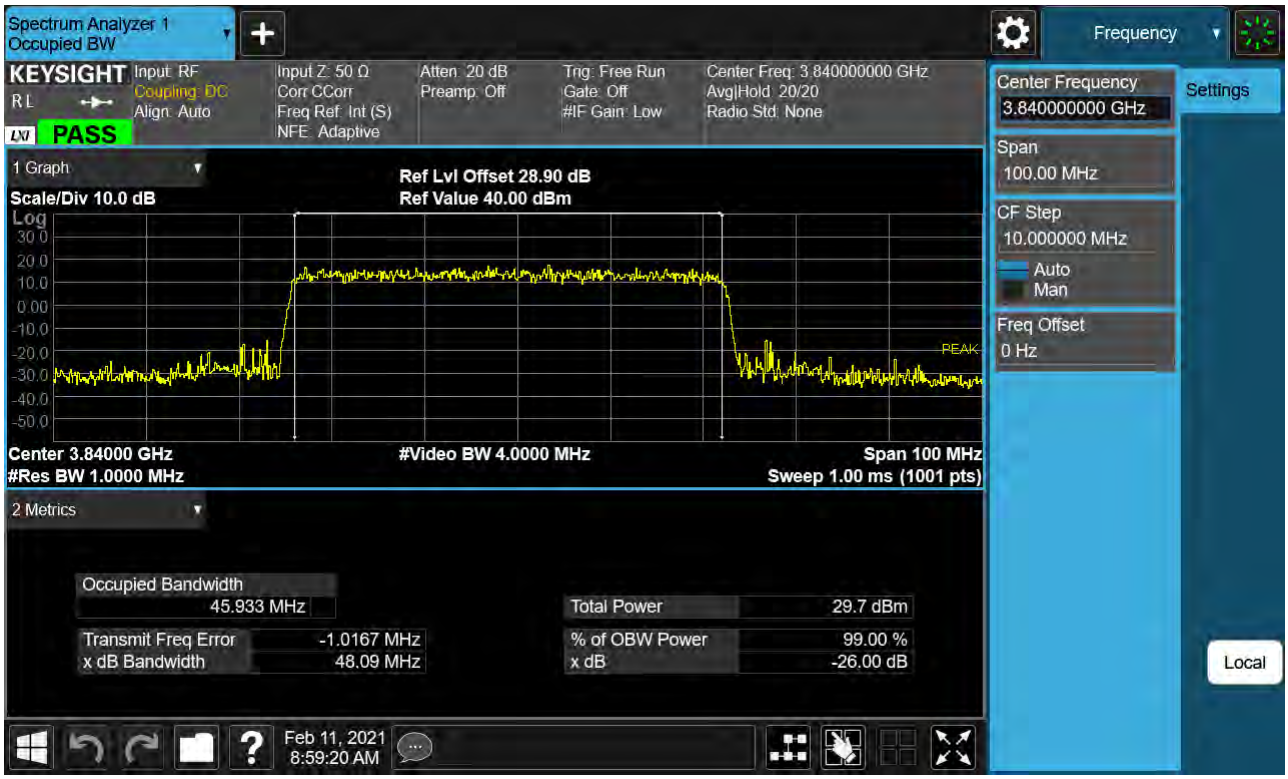
Sub6 n77. Occupied Bandwidth Plot (40M BW Ch.656000 256QAM)



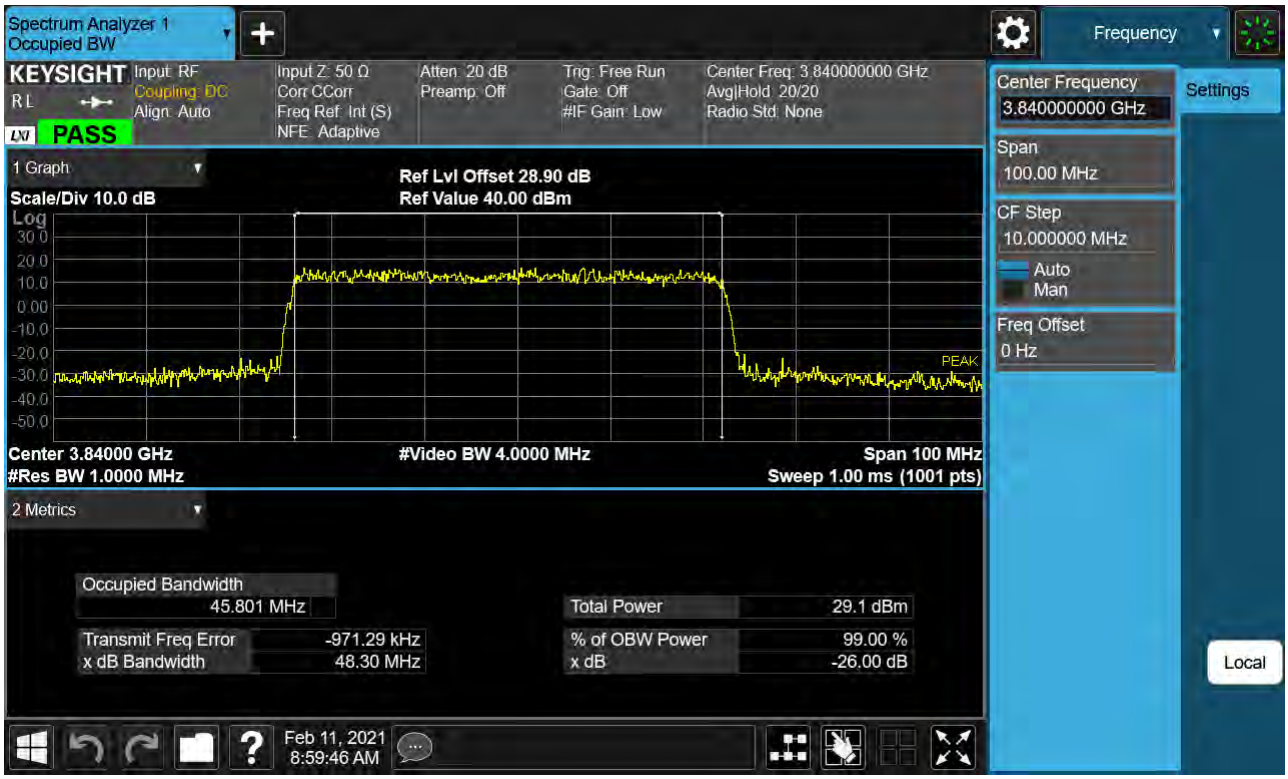
Sub6 n77. Occupied Bandwidth Plot (50M BW Ch.656000 BPSK)



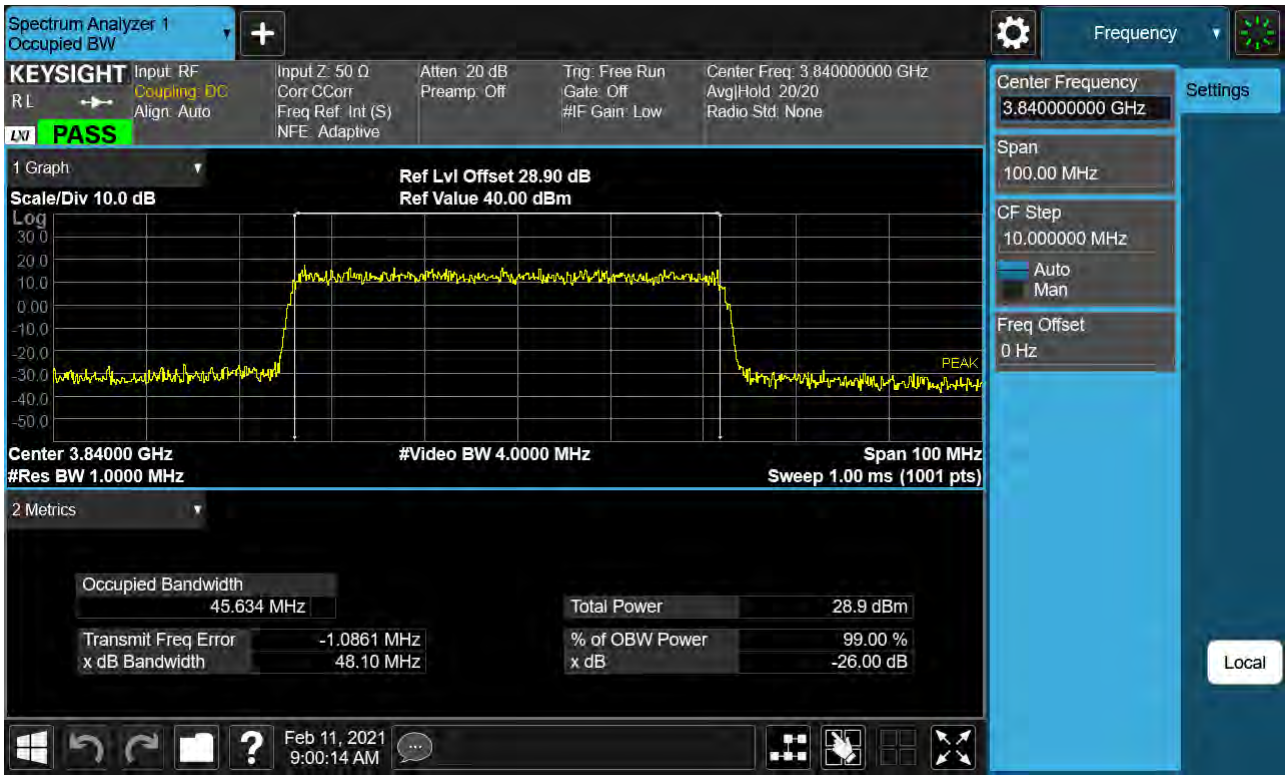
Sub6 n77. Occupied Bandwidth Plot (50M BW Ch.656000 QPSK)



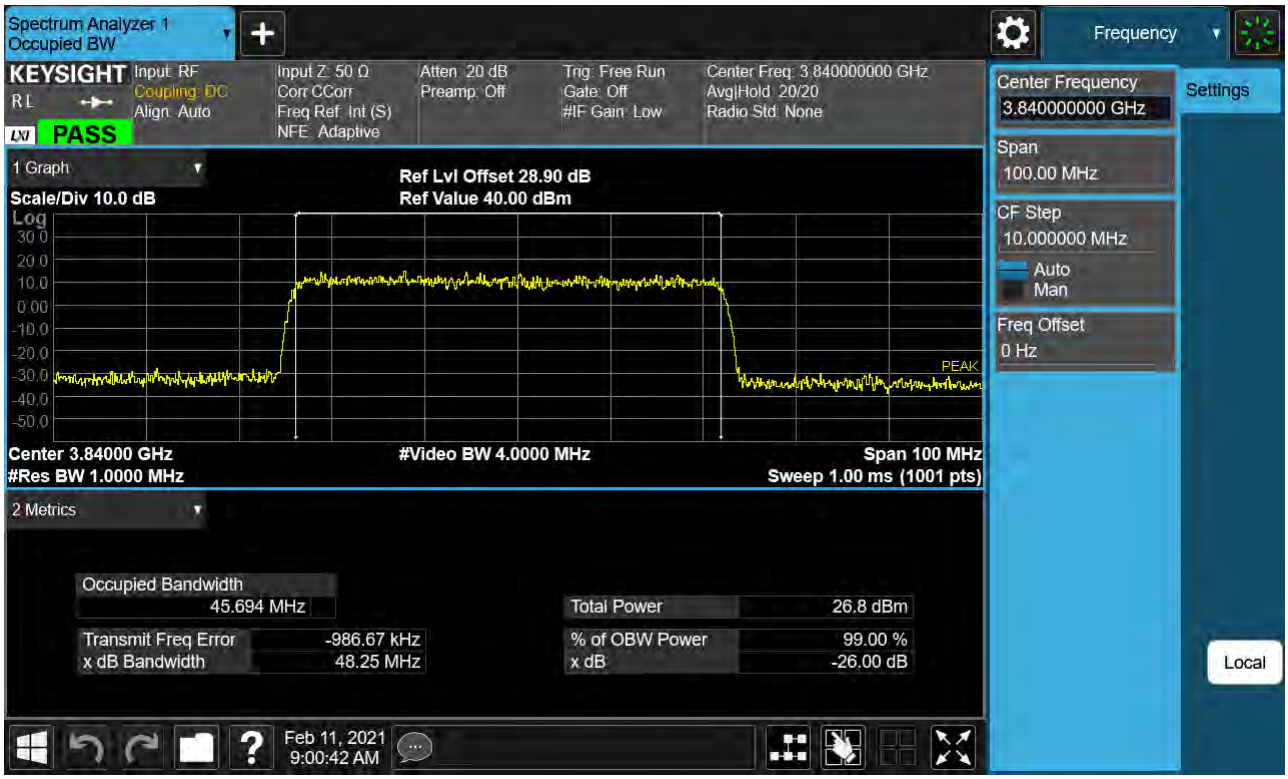
Sub6 n77. Occupied Bandwidth Plot (50M BW Ch.656000 16QAM)



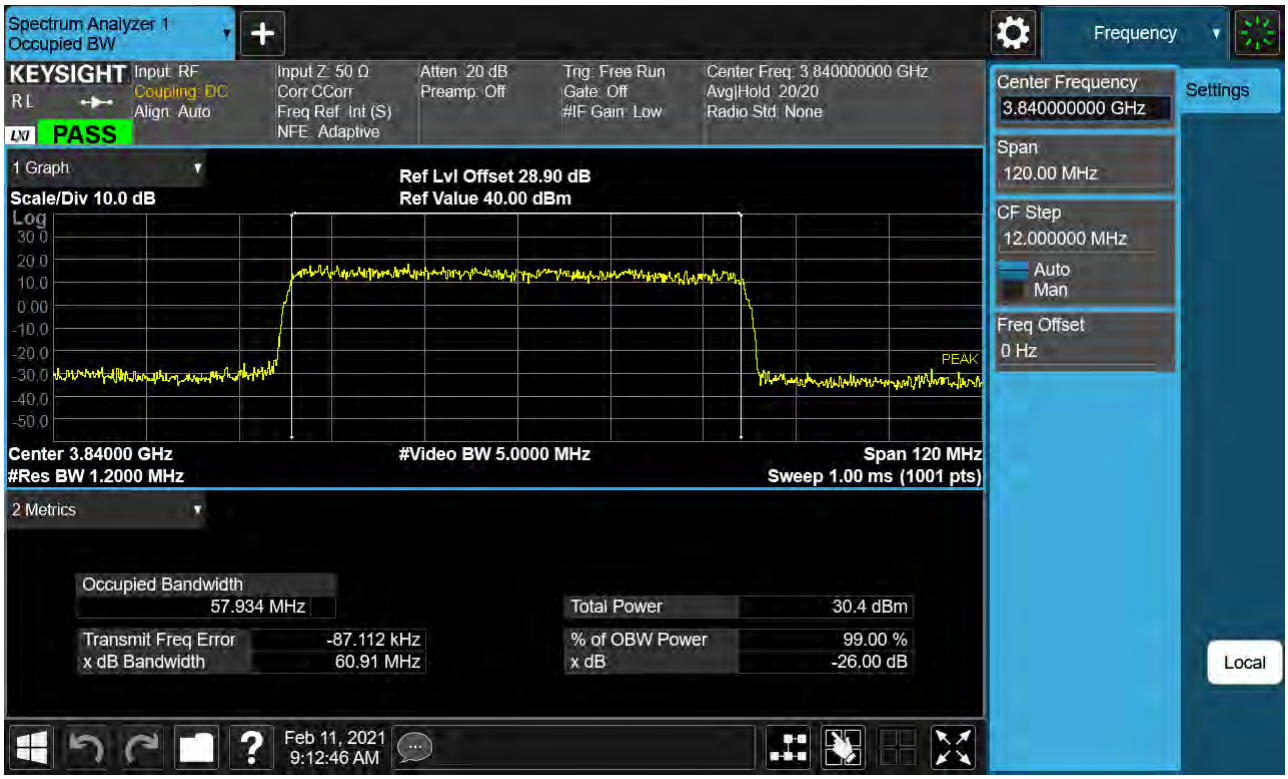
Sub6 n77. Occupied Bandwidth Plot (50M BW Ch.656000 64QAM)



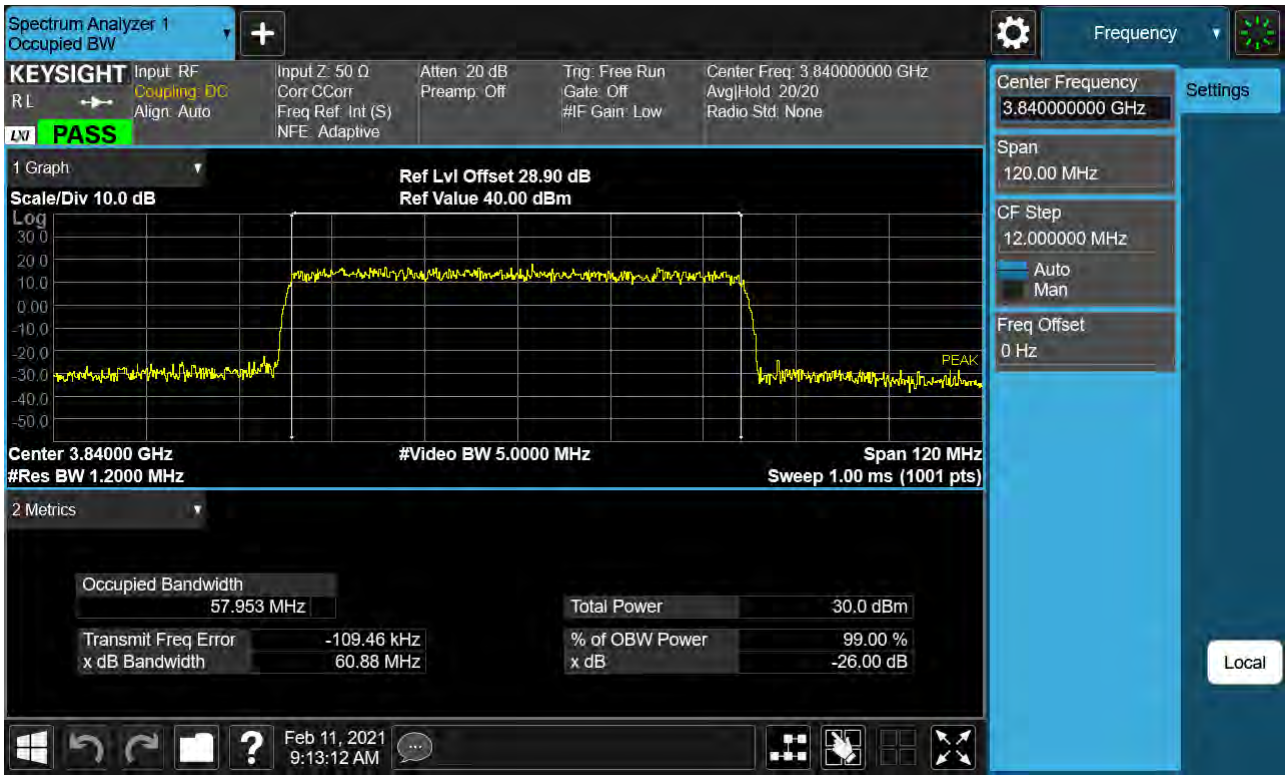
Sub6 n77. Occupied Bandwidth Plot (50M BW Ch.656000 256QAM)



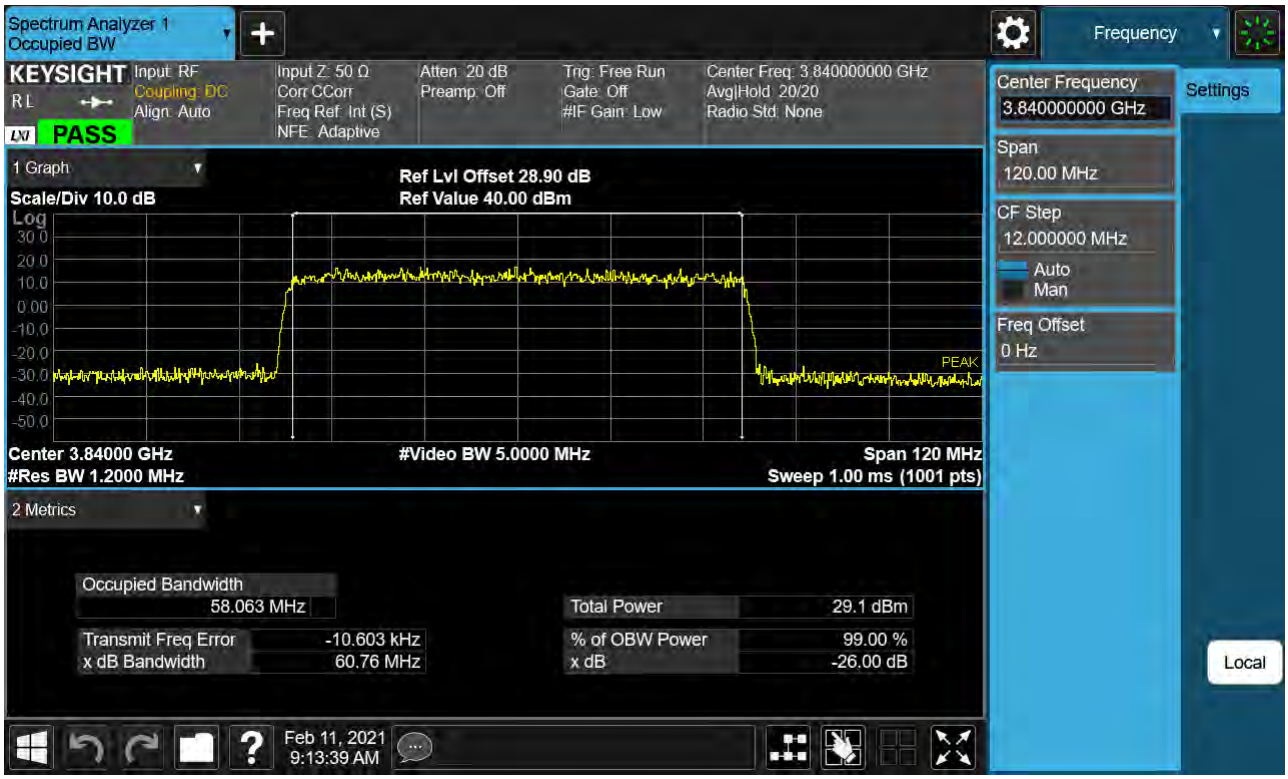
Sub6 n77. Occupied Bandwidth Plot (60M BW Ch.656000 BPSK)



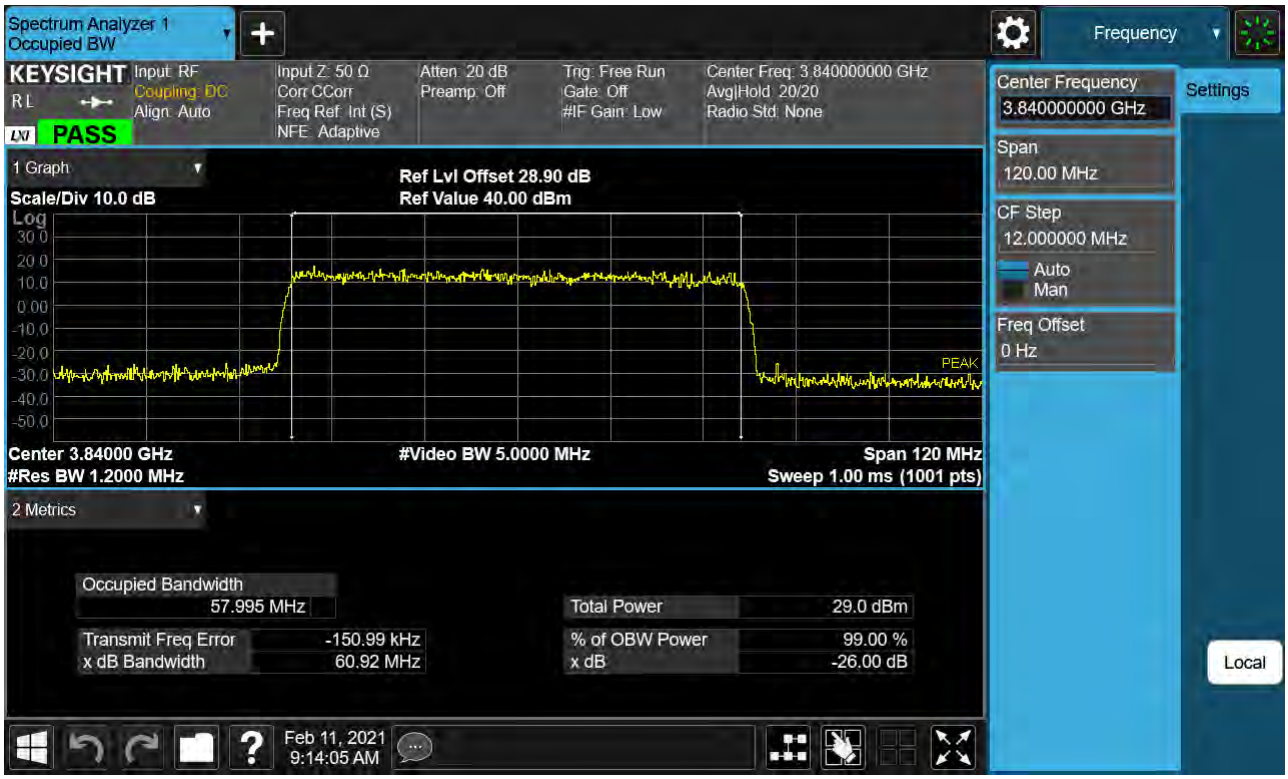
Sub6 n77. Occupied Bandwidth Plot (60M BW Ch.656000 QPSK)



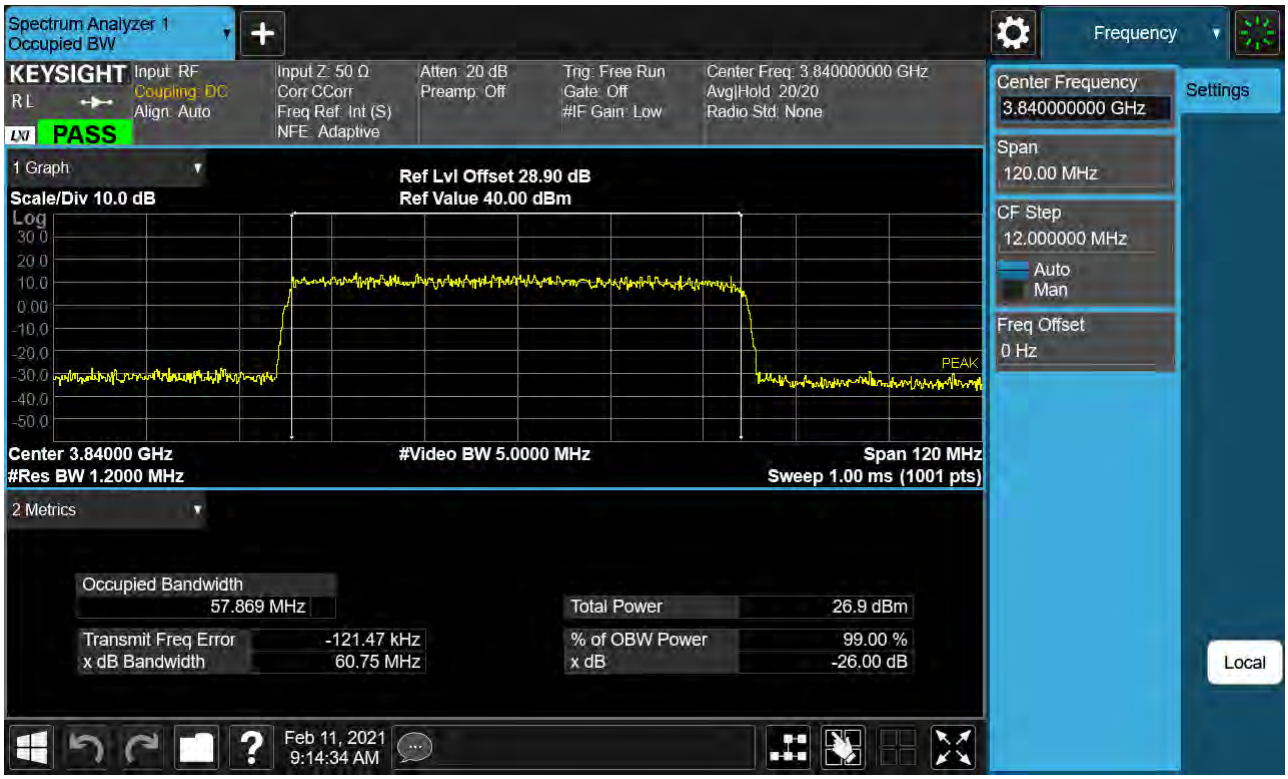
Sub6 n77. Occupied Bandwidth Plot (60M BW Ch.656000 16QAM)



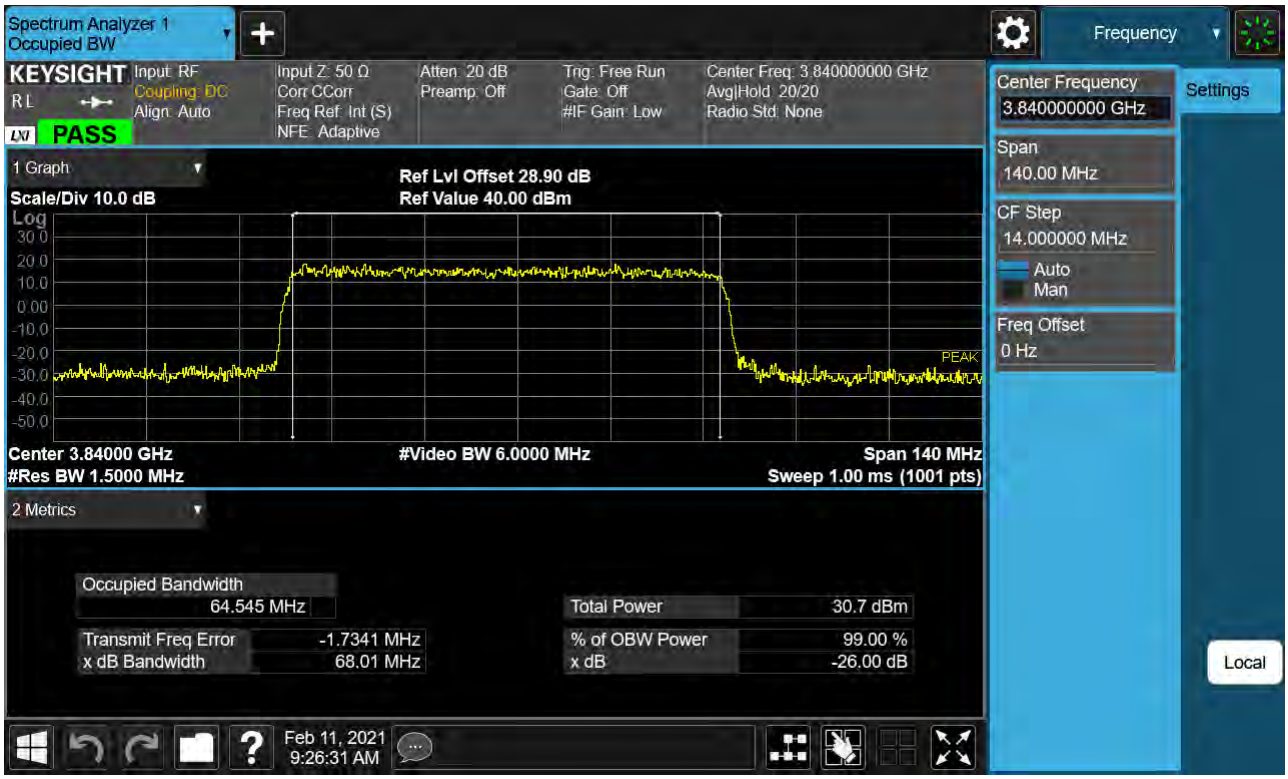
Sub6 n77. Occupied Bandwidth Plot (60M BW Ch.656000 64QAM)



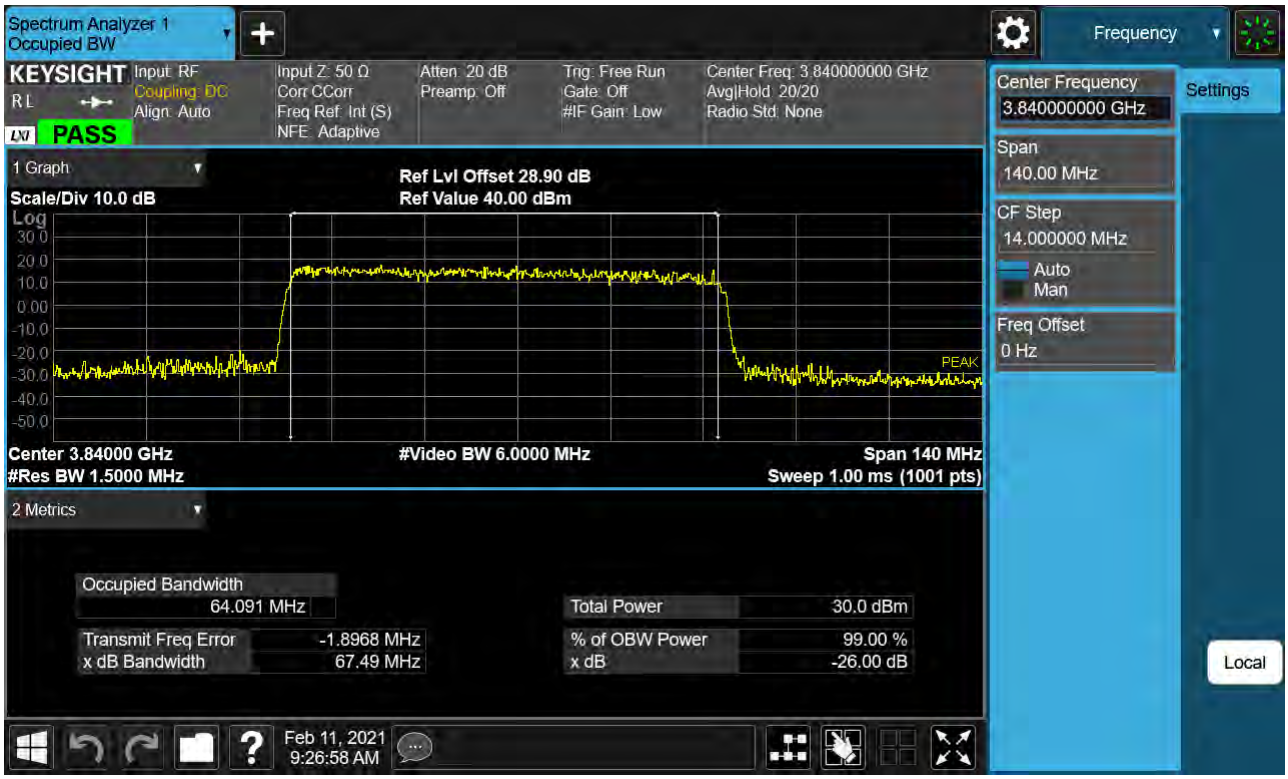
Sub6 n77. Occupied Bandwidth Plot (60M BW Ch.656000 256QAM)



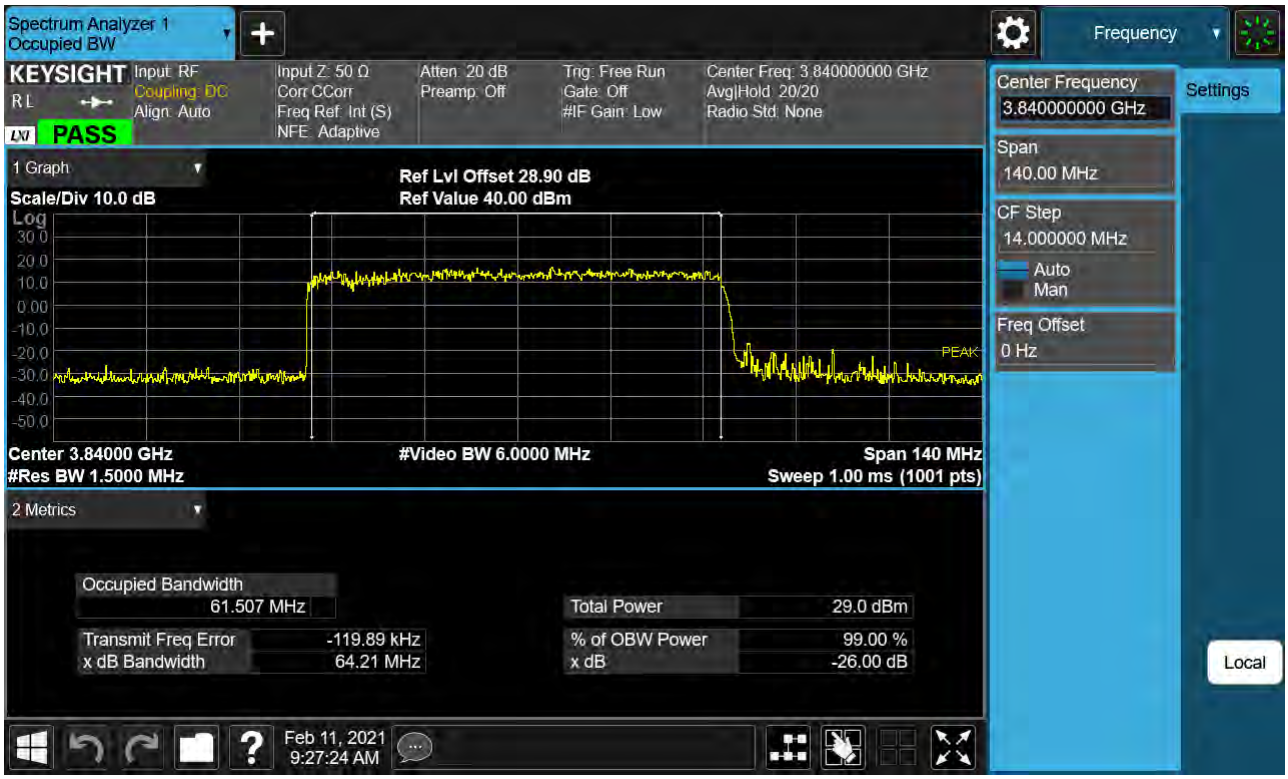
Sub6 n77. Occupied Bandwidth Plot (70M BW Ch.656000 BPSK)



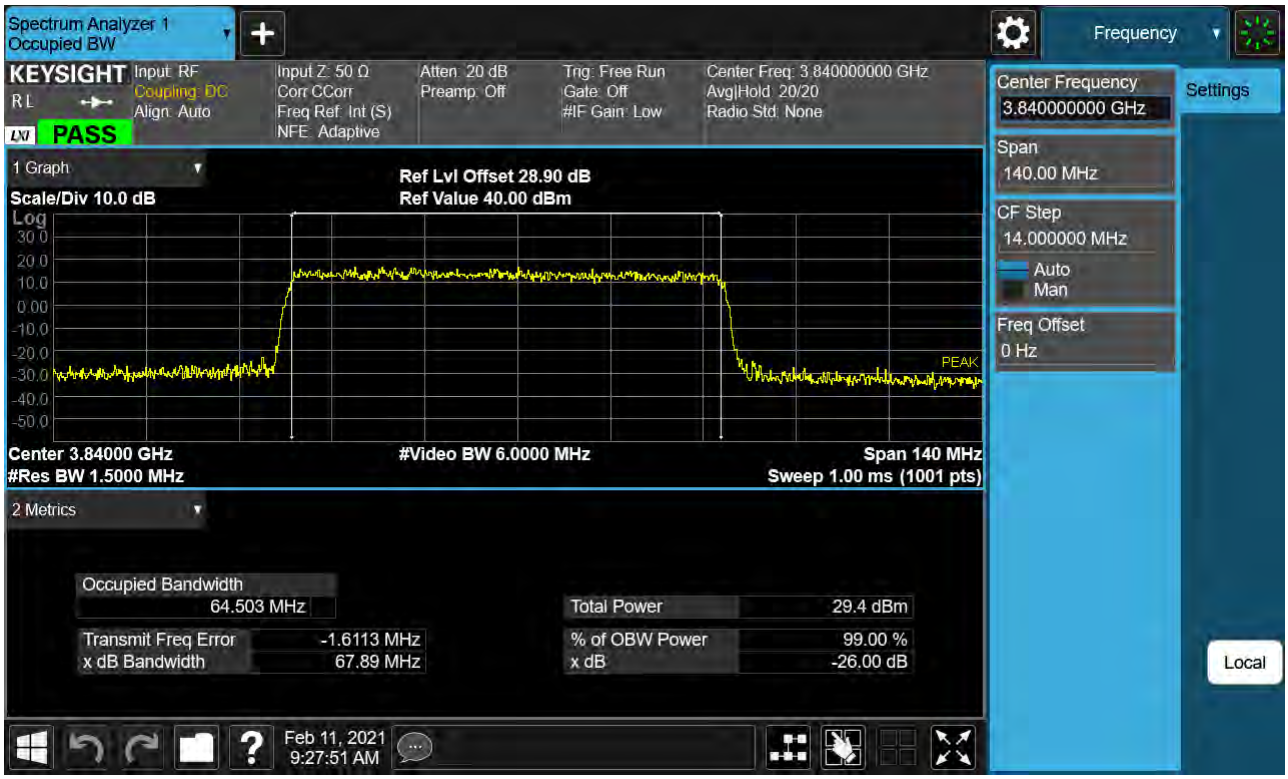
Sub6 n77. Occupied Bandwidth Plot (70M BW Ch.656000 QPSK)



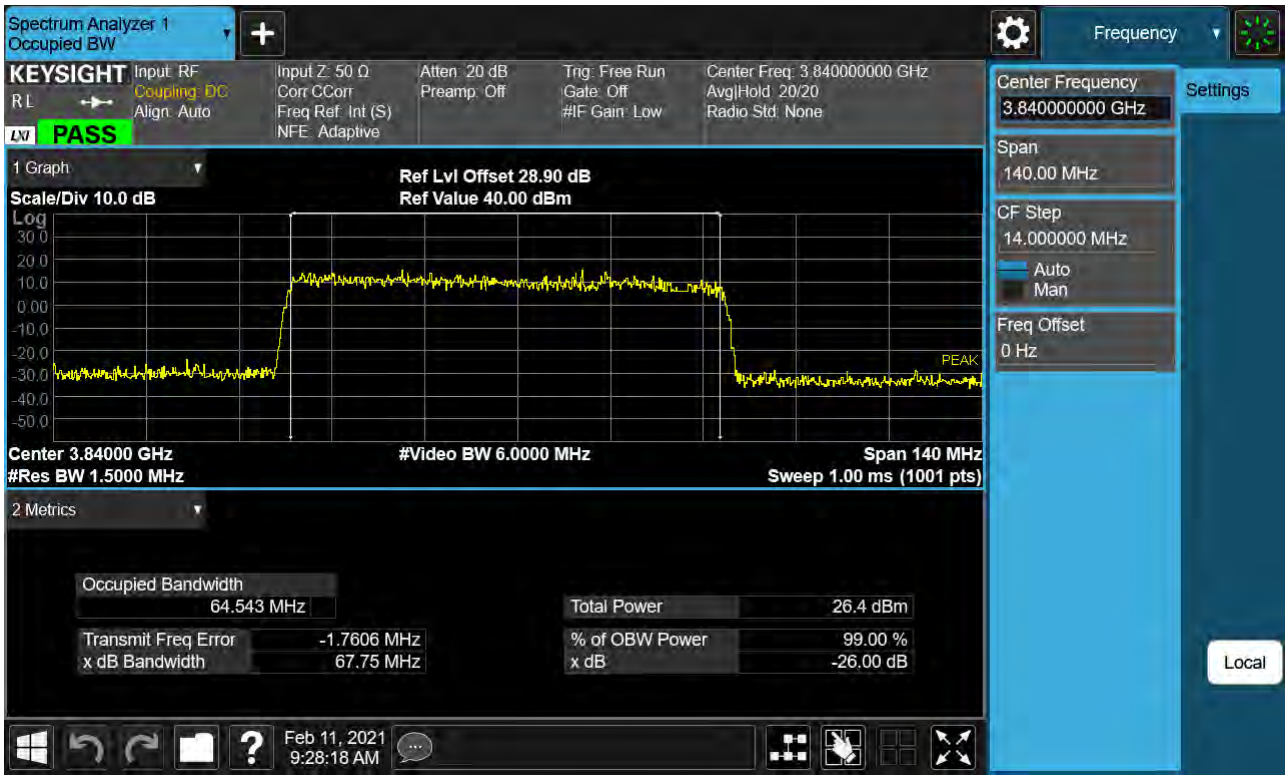
Sub6 n77. Occupied Bandwidth Plot (70M BW Ch.656000 16QAM)



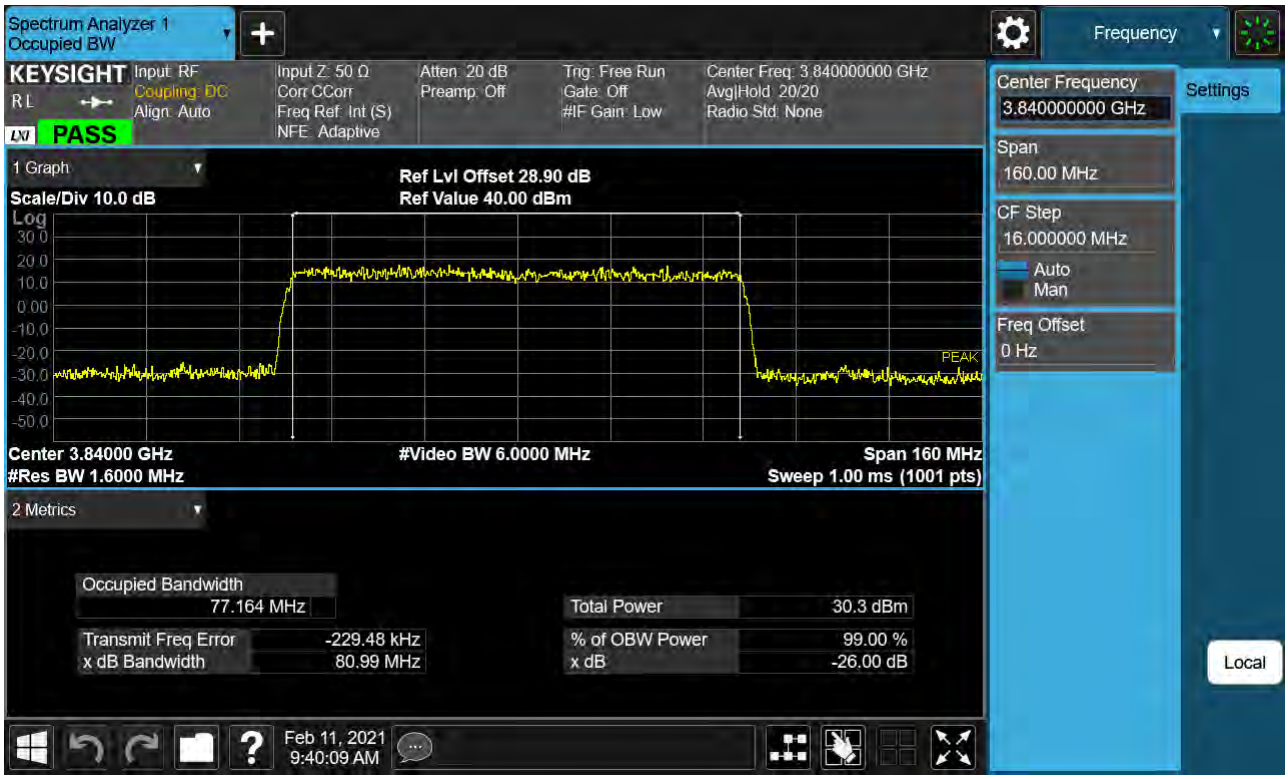
Sub6 n77. Occupied Bandwidth Plot (70M BW Ch.656000 64QAM)



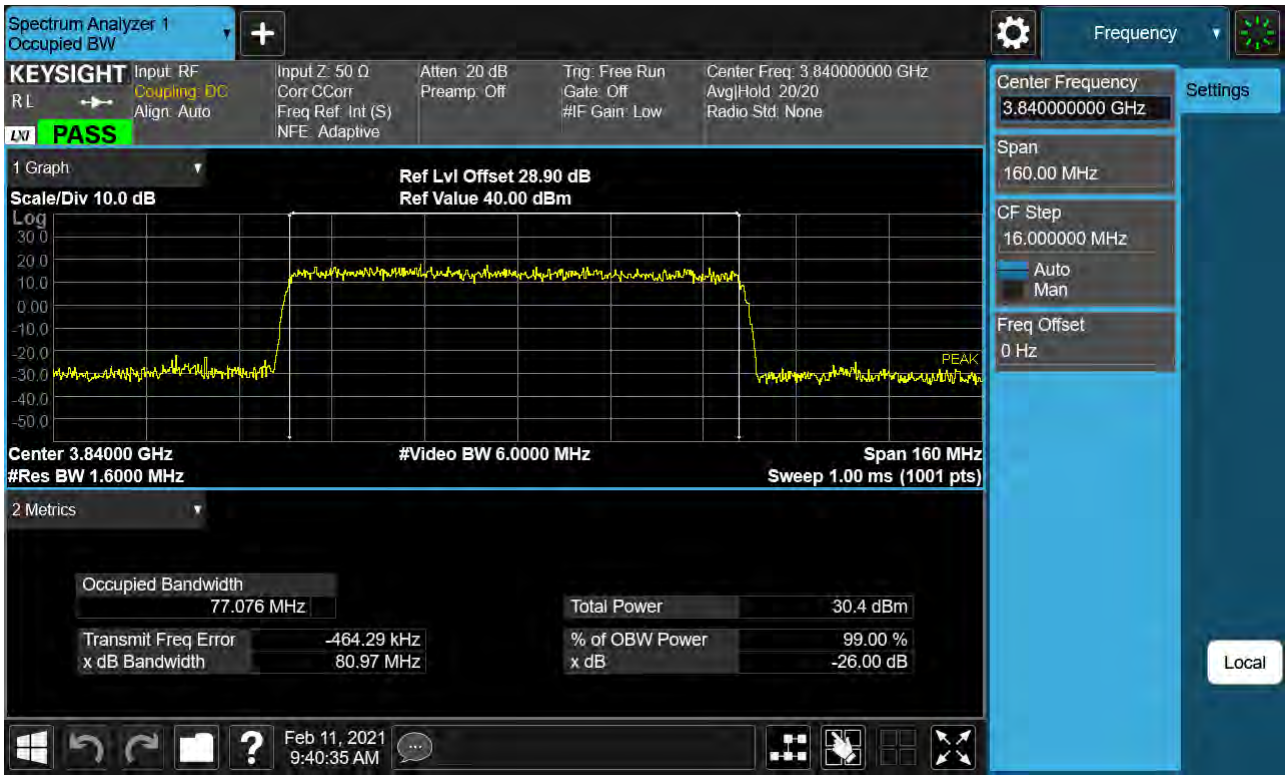
Sub6 n77. Occupied Bandwidth Plot (70M BW Ch.656000 256QAM)



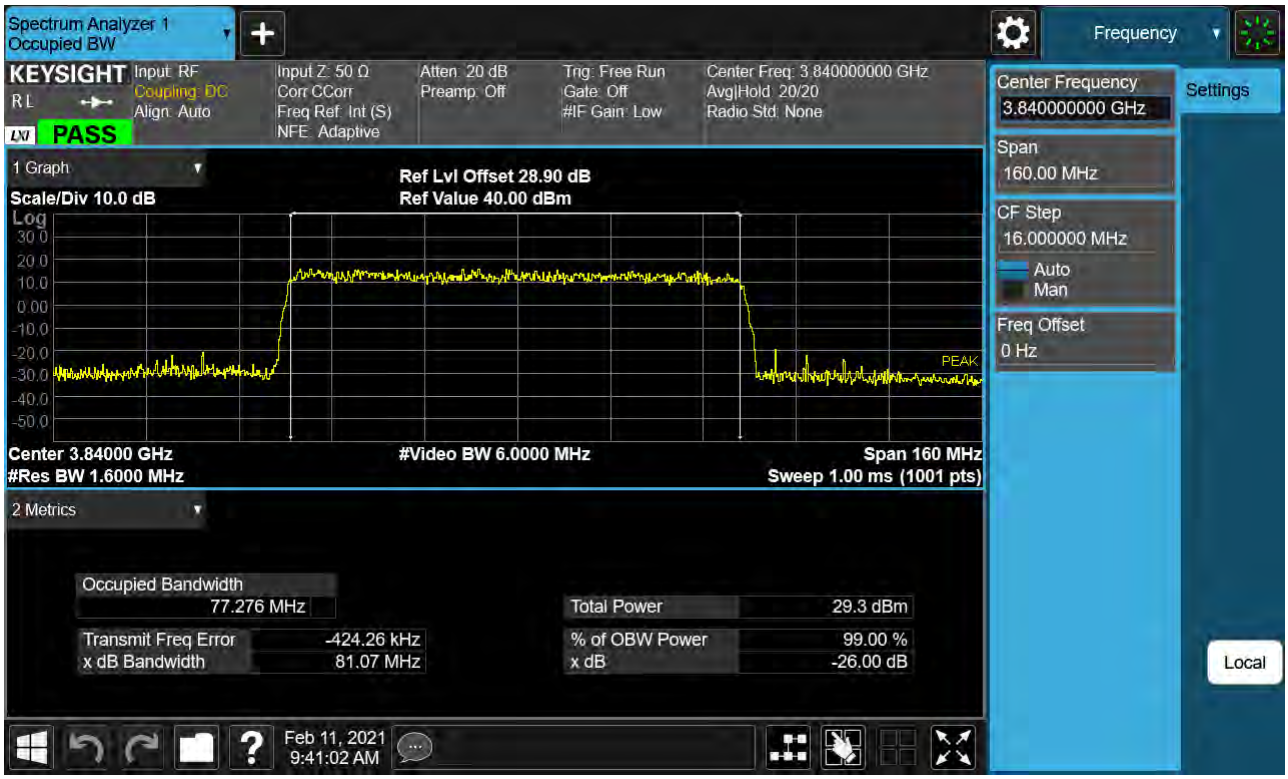
Sub6 n77. Occupied Bandwidth Plot (80M BW Ch.656000 BPSK)



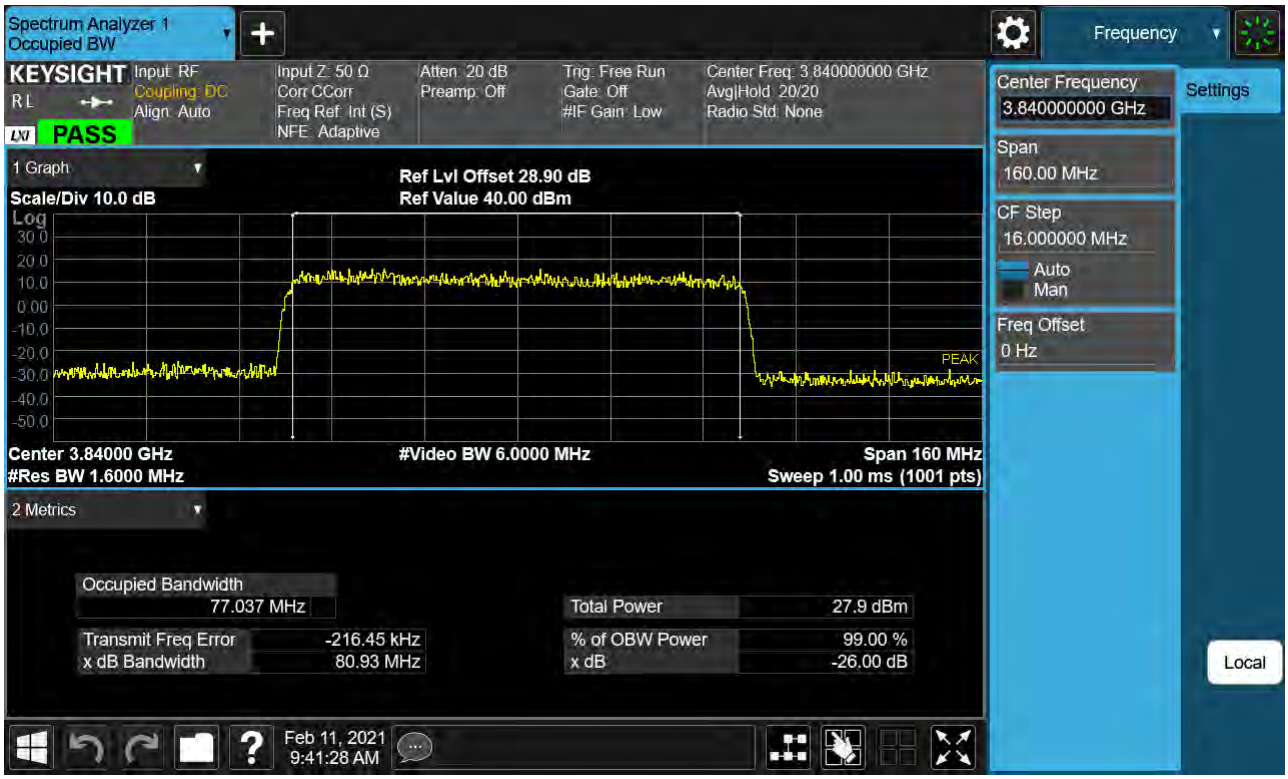
Sub6 n77. Occupied Bandwidth Plot (80M BW Ch.656000 QPSK)



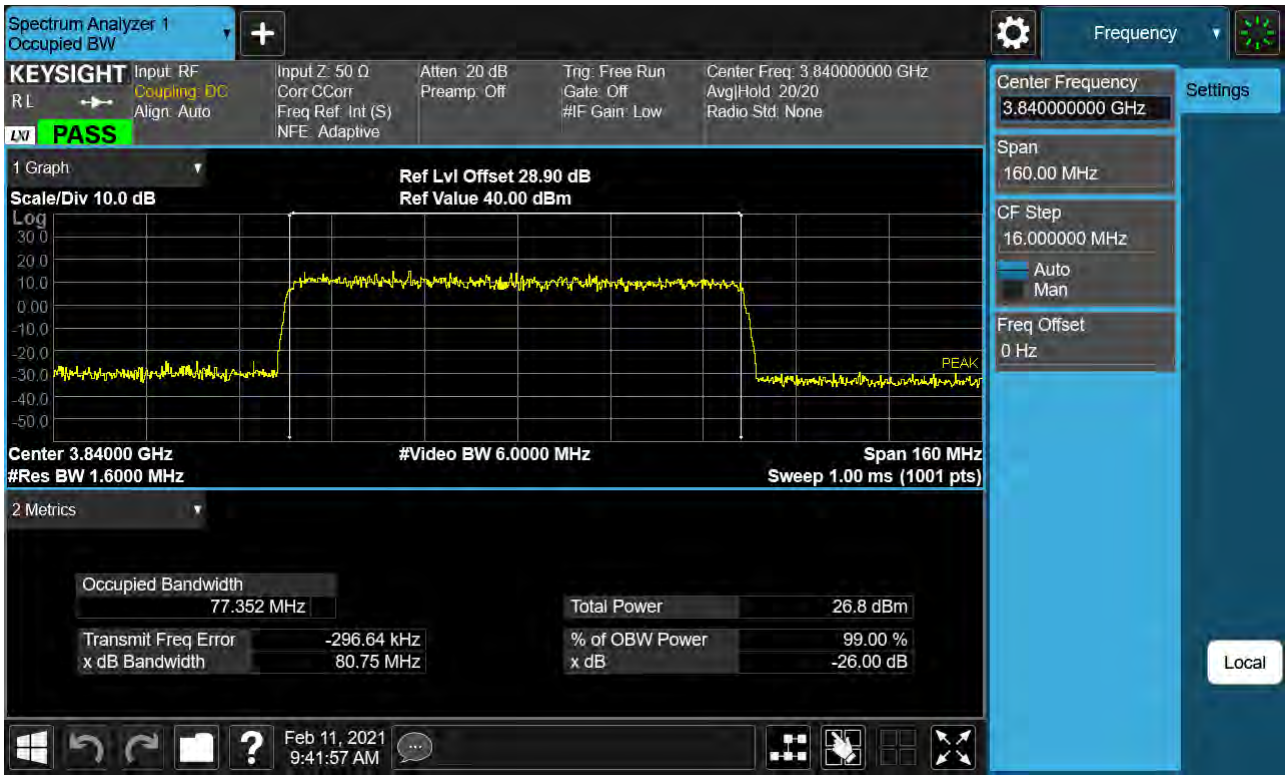
Sub6 n77. Occupied Bandwidth Plot (80M BW Ch.656000 16QAM)



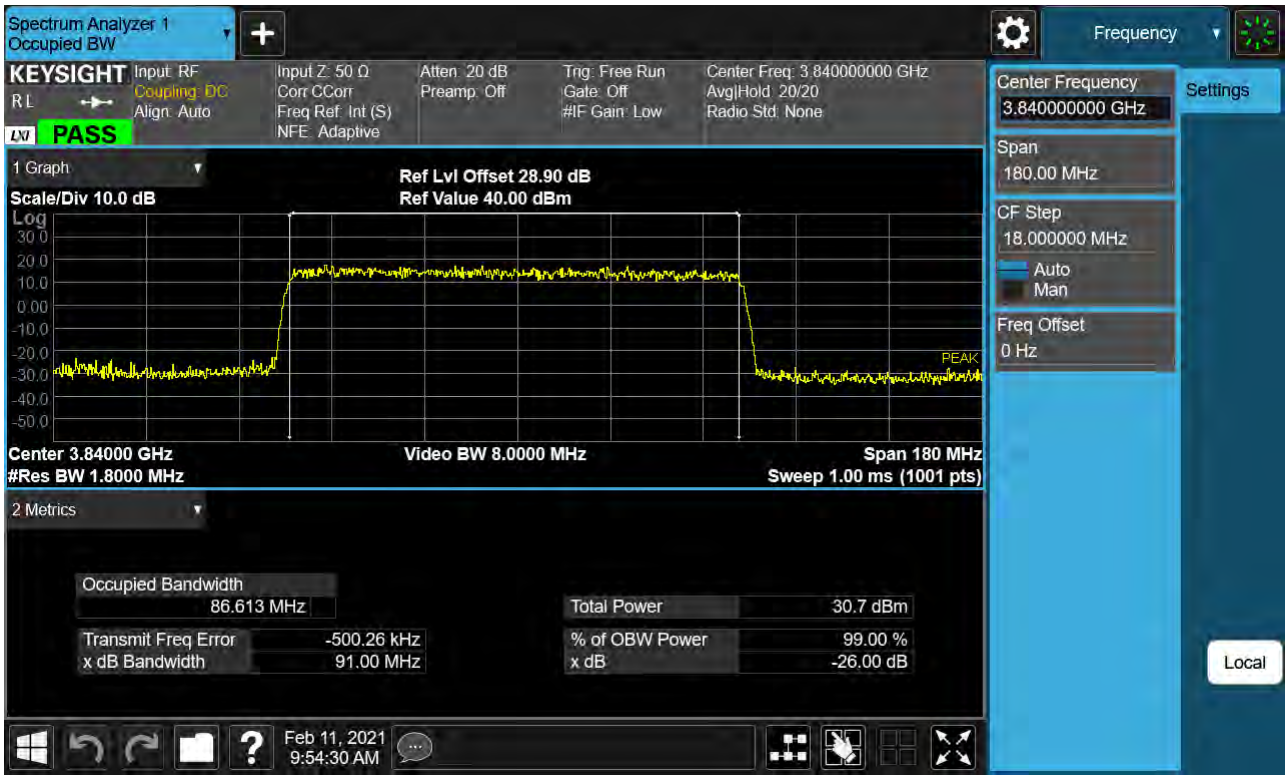
Sub6 n77. Occupied Bandwidth Plot (80M BW Ch.656000 64QAM)



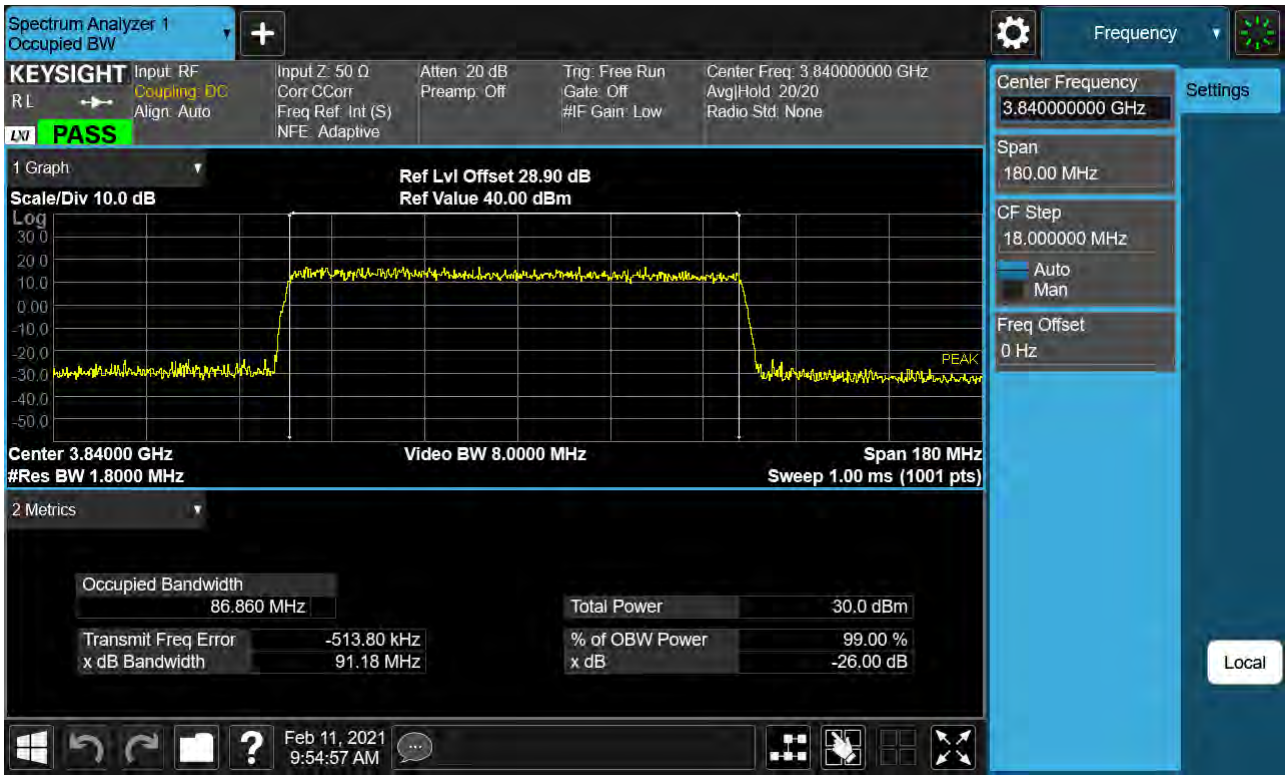
Sub6 n77. Occupied Bandwidth Plot (80M BW Ch.656000 256QAM)



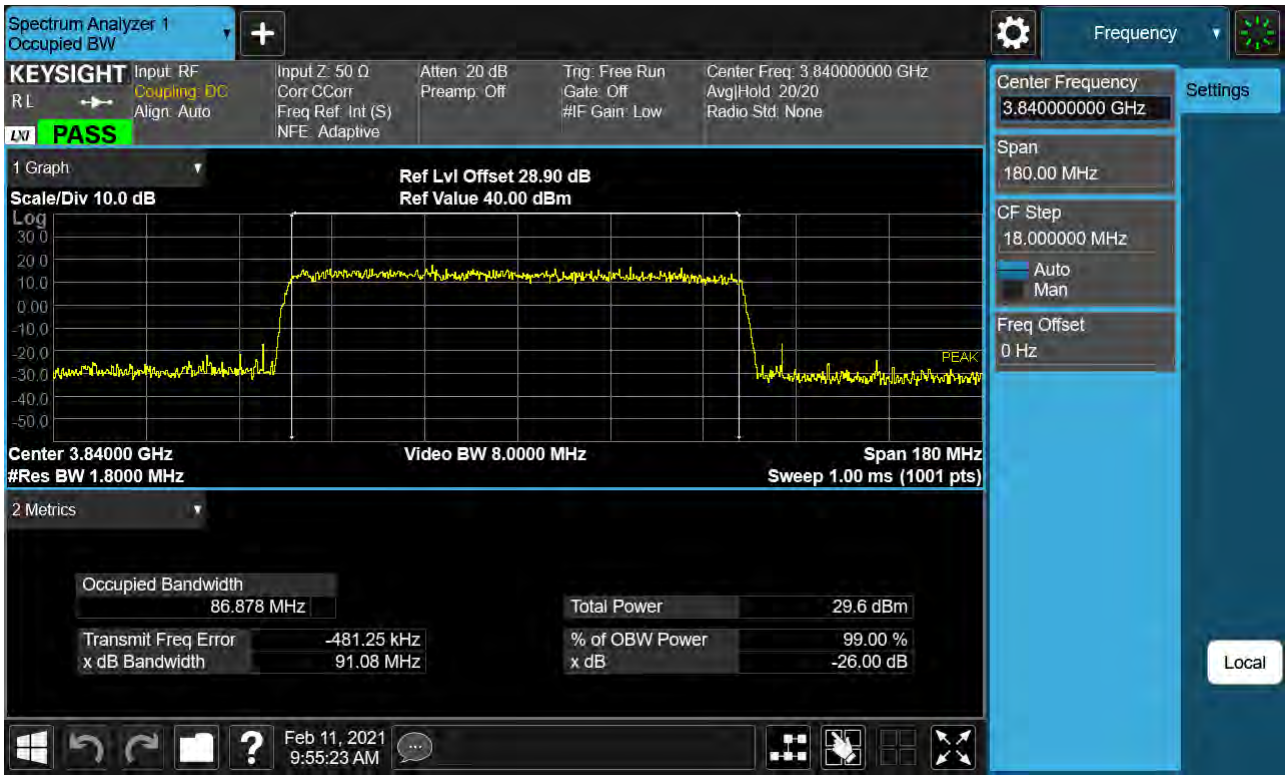
Sub6 n77. Occupied Bandwidth Plot (90M BW Ch.656000 BPSK)



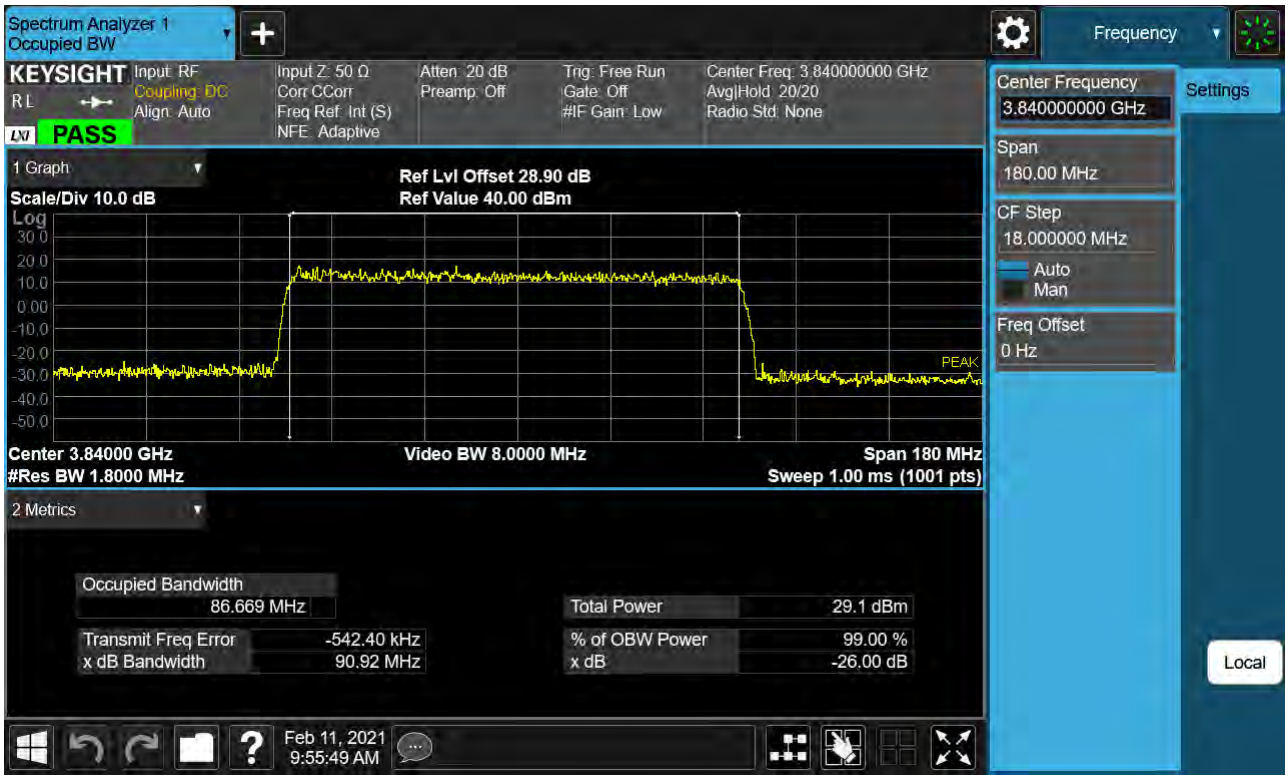
Sub6 n77. Occupied Bandwidth Plot (90M BW Ch.656000 QPSK)



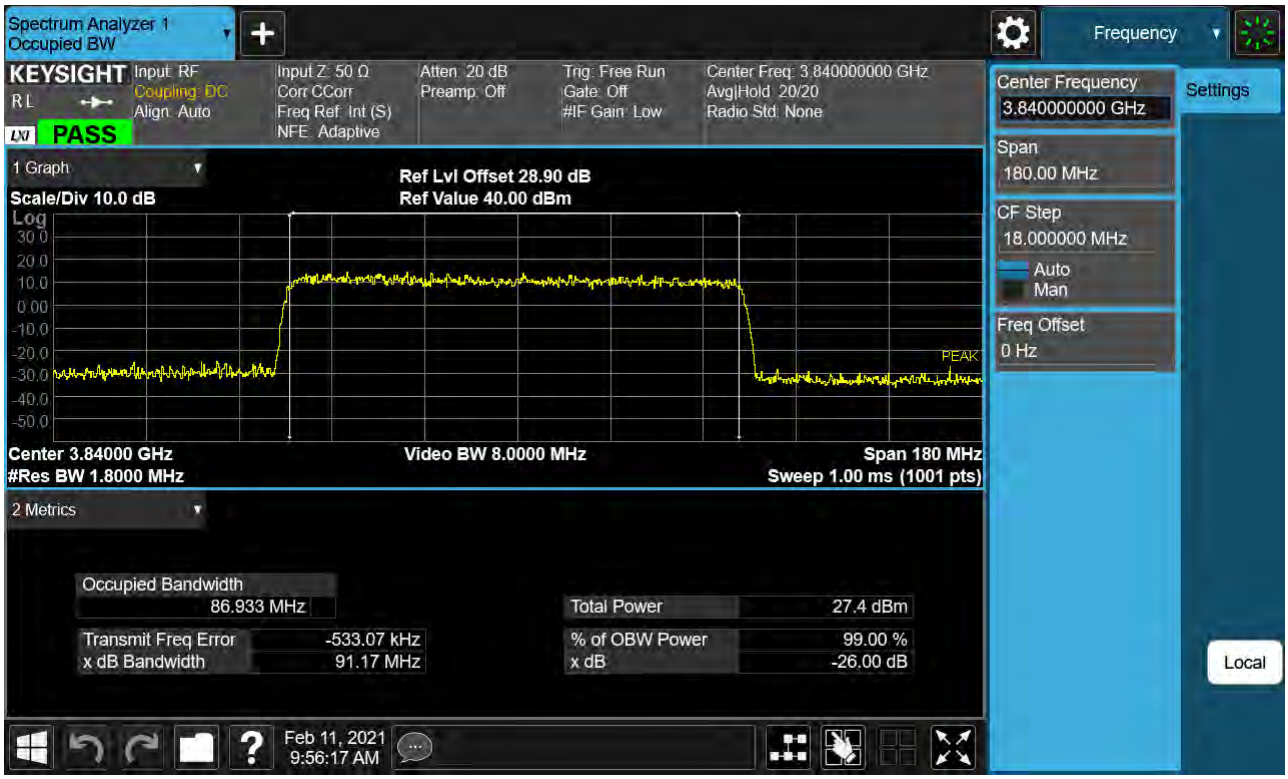
Sub6 n77. Occupied Bandwidth Plot (90M BW Ch.656000 16QAM)



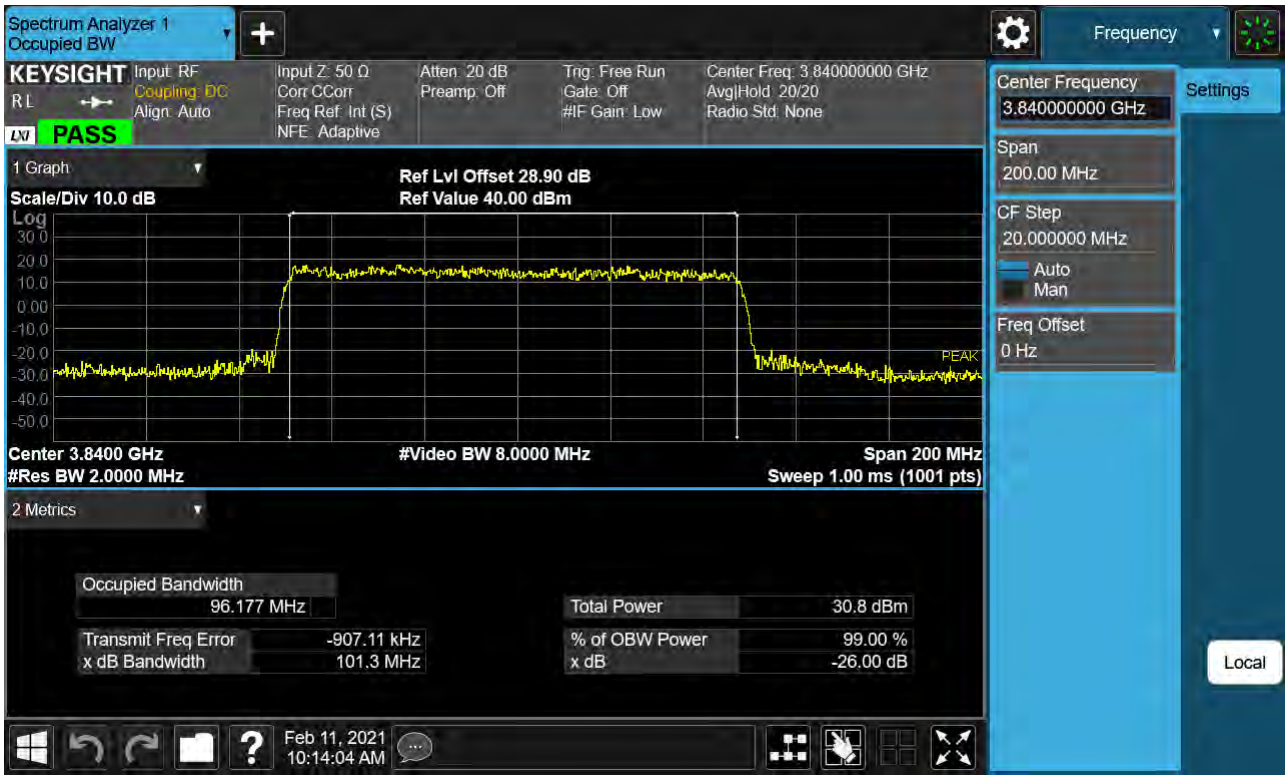
Sub6 n77. Occupied Bandwidth Plot (90M BW Ch.656000 64QAM)



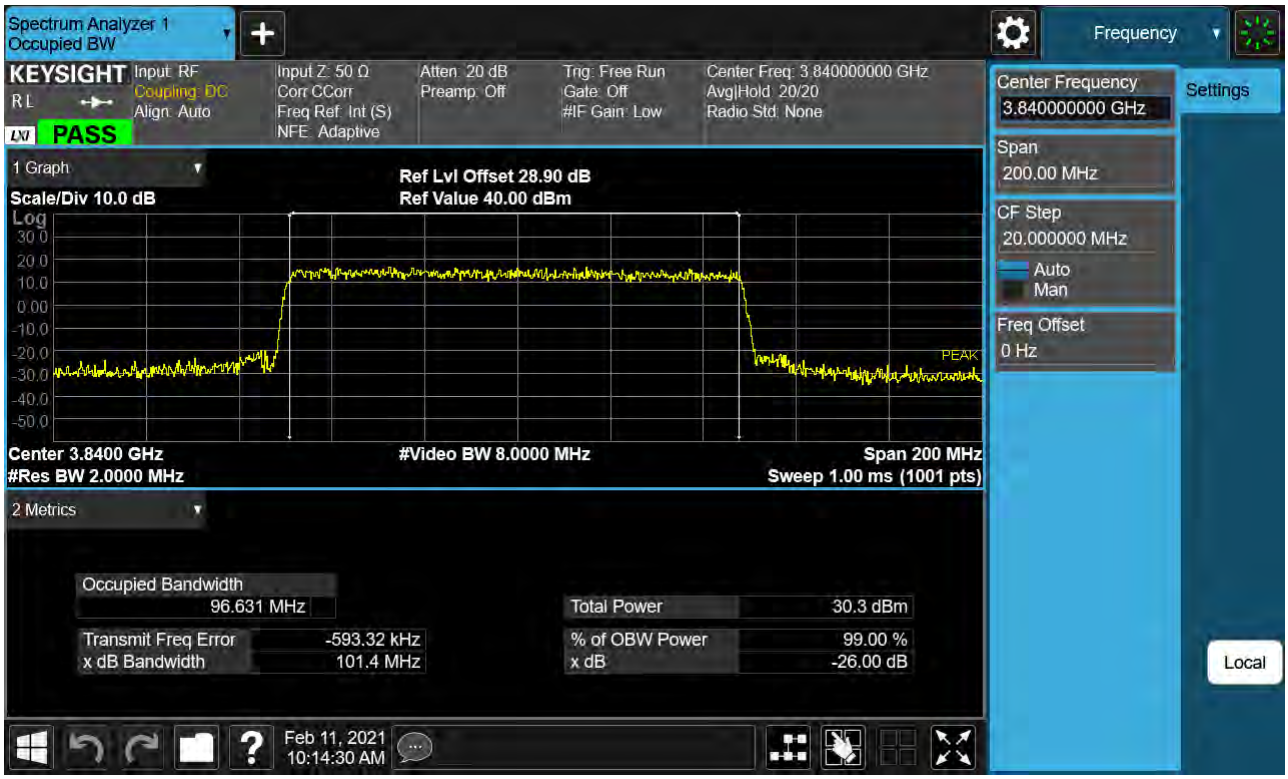
Sub6 n77. Occupied Bandwidth Plot (90M BW Ch.656000 256QAM)



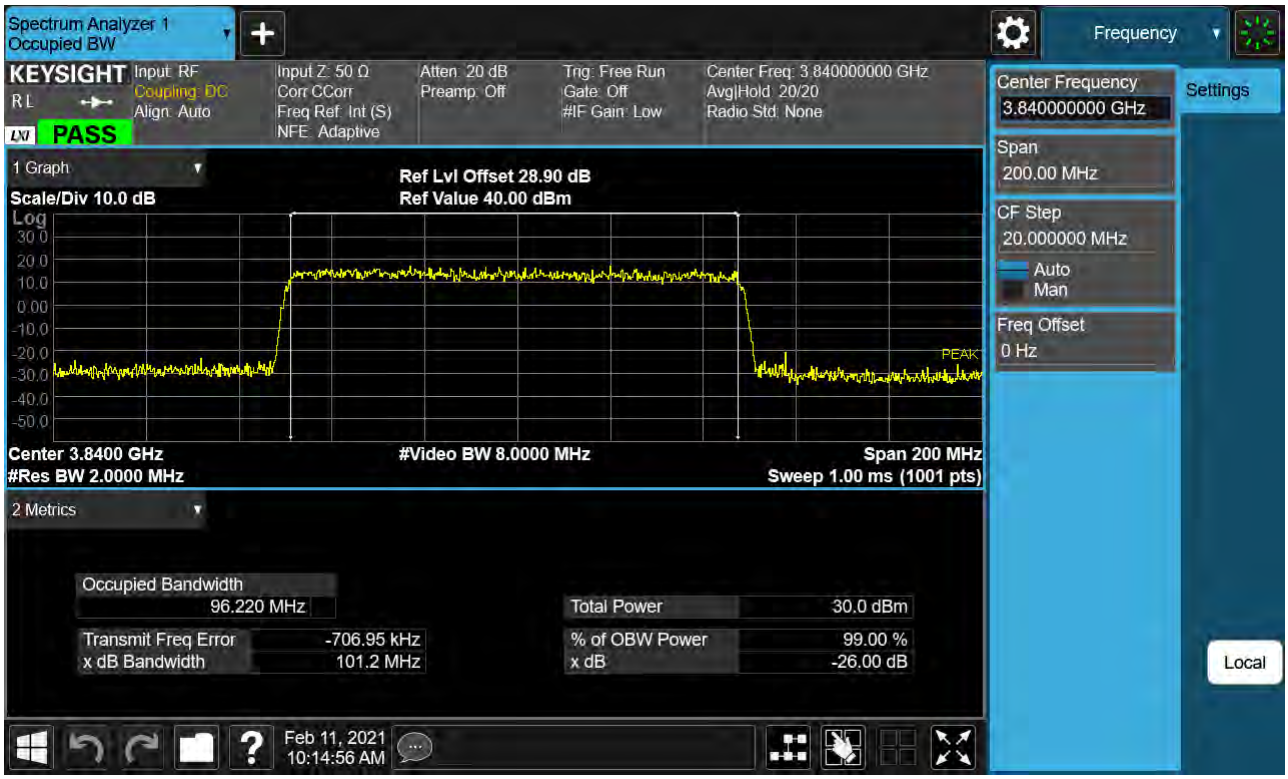
Sub6 n77. Occupied Bandwidth Plot (100M BW Ch.656000 BPSK)



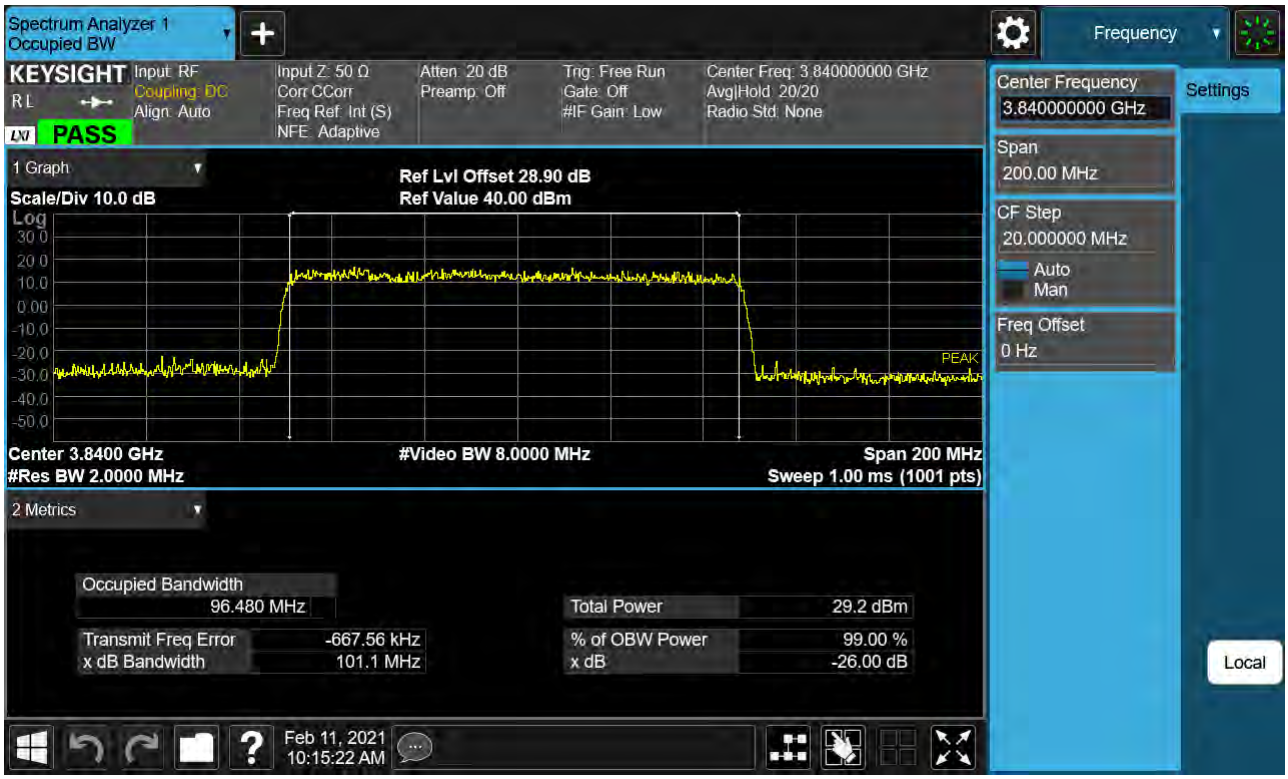
Sub6 n77. Occupied Bandwidth Plot (100M BW Ch.656000 QPSK)



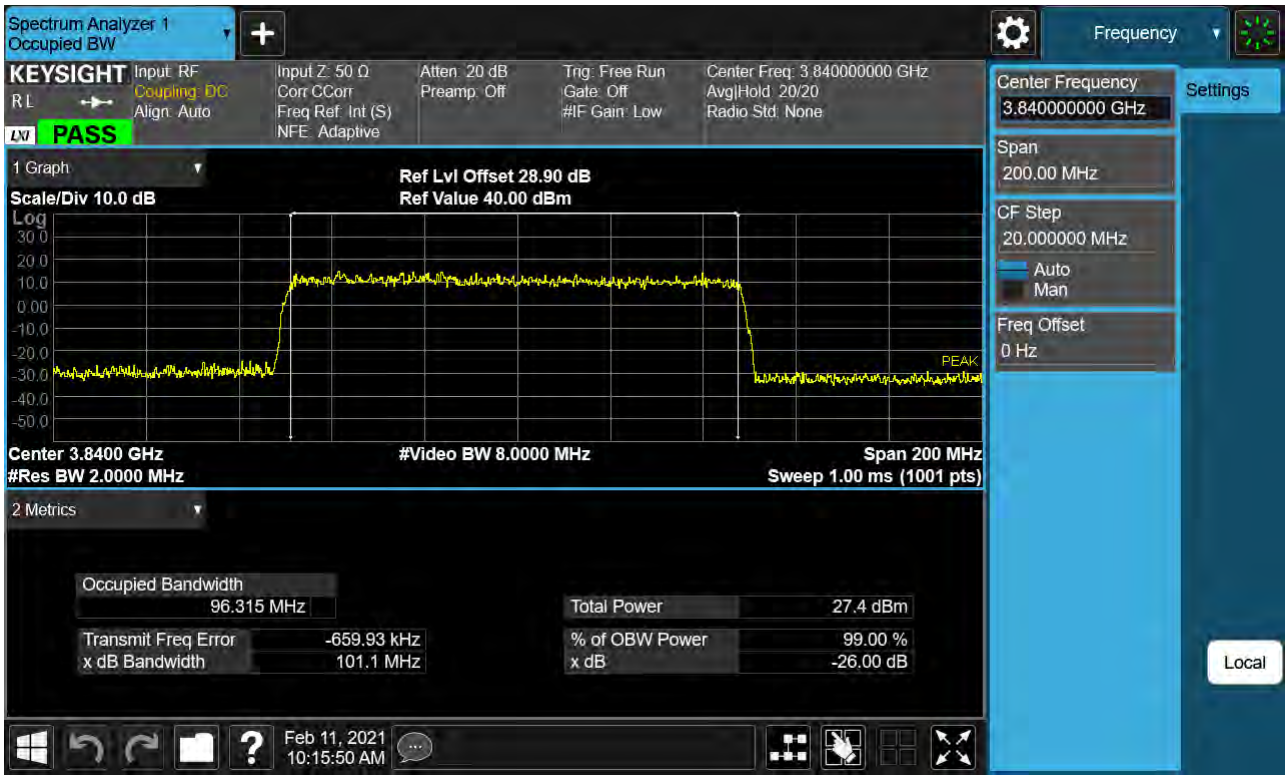
Sub6 n77. Occupied Bandwidth Plot (100M BW Ch.656000 16QAM)



Sub6 n77. Occupied Bandwidth Plot (100M BW Ch.656000 64QAM)



Sub6 n77. Occupied Bandwidth Plot (100M BW Ch.656000 256QAM)



Sub6 n77. PAR Plot (20M BW_Ch.656000_ BPSK)

Sub6 n77. PAR Plot (20M BW_Ch.656000_QPSK)

Sub6 n77. PAR Plot (20M BW_Ch.656000_16QAM)

Sub6 n77. PAR Plot (20M BW_Ch.656000_64QAM)

Sub6 n77. PAR Plot (20M BW_Ch.656000_256QAM)

Sub6 n77. PAR Plot (30M BW_Ch.656000_ BPSK)

Sub6 n77. PAR Plot (30M BW_Ch.656000_QPSK)

Sub6 n77. PAR Plot (30M BW_Ch.656000_16QAM)

Sub6 n77. PAR Plot (30M BW_Ch.656000_64QAM)

Sub6 n77. PAR Plot (30M BW_Ch.656000_256QAM)

Sub6 n77. PAR Plot (40M BW_Ch.656000_ BPSK)

Sub6 n77. PAR Plot (40M BW_Ch.656000_QPSK)

Sub6 n77. PAR Plot (40M BW_Ch.656000_16QAM)

Sub6 n77. PAR Plot (40M BW_Ch.656000_64QAM)

Sub6 n77. PAR Plot (40M BW_Ch.656000_256QAM)

Sub6 n77. PAR Plot (50M BW_Ch.656000_ BPSK)

Sub6 n77. PAR Plot (50M BW_Ch.656000_QPSK)

Sub6 n77. PAR Plot (50M BW_Ch.656000_16QAM)

Sub6 n77. PAR Plot (50M BW_Ch.656000_64QAM)

Sub6 n77. PAR Plot (50M BW_Ch.656000_256QAM)

Sub6 n77. PAR Plot (60M BW_Ch.656000_ BPSK)

Sub6 n77. PAR Plot (60M BW_Ch.656000_QPSK)

Sub6 n77. PAR Plot (60M BW_Ch.656000_16QAM)

Sub6 n77. PAR Plot (60M BW_Ch.656000_64QAM)

Sub6 n77. PAR Plot (60M BW_Ch.656000_256QAM)

Sub6 n77. PAR Plot (70M BW_Ch.656000_ BPSK)

Sub6 n77. PAR Plot (70M BW_Ch.656000_QPSK)

Sub6 n77. PAR Plot (70M BW_Ch.656000_16QAM)

Sub6 n77. PAR Plot (70M BW_Ch.656000_64QAM)

Sub6 n77. PAR Plot (70M BW_Ch.656000_256QAM)

Sub6 n77. PAR Plot (80M BW_Ch.656000_ BPSK)

Sub6 n77. PAR Plot (80M BW_Ch.656000_QPSK)

Sub6 n77. PAR Plot (80M BW_Ch.656000_16QAM)

Sub6 n77. PAR Plot (80M BW_Ch.656000_64QAM)

Sub6 n77. PAR Plot (80M BW_Ch.656000_256QAM)

Sub6 n77. PAR Plot (90M BW_Ch.656000_ BPSK)

Sub6 n77. PAR Plot (90M BW_Ch.656000_QPSK)

Sub6 n77. PAR Plot (90M BW_Ch.656000_16QAM)

Sub6 n77. PAR Plot (90M BW_Ch.656000_64QAM)

Sub6 n77. PAR Plot (90M BW_Ch.656000_256QAM)

Sub6 n77. PAR Plot (100M BW_Ch.656000_ BPSK)

Sub6 n77. PAR Plot (100M BW_Ch.656000_QPSK)

Sub6 n77. PAR Plot (100M BW_Ch.656000_16QAM)

Sub6 n77. PAR Plot (100M BW_Ch.656000_64QAM)

Sub6 n77. PAR Plot (100M BW_Ch.656000_256QAM)

Sub6 n77. Low Band Edge Plot (20M BW Ch.647334 BPSK 1RB)(1)

Sub6 n77. Low Band Edge Plot (20M BW Ch.647334 BPSK FullRB)(1)

Sub6 n77. Low Band Edge Plot (20M BW Ch.647334 BPSK 1RB)(2)

Sub6 n77. Low Band Edge Plot (20M BW Ch.647334 BPSK FullRB)(2)

Sub6 n77. Low Band Edge Plot (20M BW Ch.647334 BPSK 1RB)(3)

Sub6 n77. Low Band Edge Plot (20M BW Ch.647334 BPSK FullRB)(3)