

# FCC Sub6 REPORT

## Certification

**Applicant Name:**

SAMSUNG Electronics Co., Ltd.

**Date of Issue:**

May 09, 2023

**Address:**

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

**Location:**

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

**Report No.:** HCT-RF-2305-FC030

**FCC ID:**

**A3LSMX818U**

**APPLICANT:**

**SAMSUNG Electronics Co., Ltd.**

Model(s): SM-X818U  
EUT Type: Tablet  
FCC Classification: PCS Licensed Transmitter (PCB)  
FCC Rule Part(s): §27, §2

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)

1. 3450 MHz - 3550 MHz

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max. Power (W)	Max. Power (dBm)
Sub6 n77 (10)	3455.01 – 3544.99	8M67G7D	PI/2 BPSK	0.541	27.33
		8M68G7D	QPSK	0.532	27.26
		8M67W7D	16QAM	0.415	26.18
		8M67W7D	64QAM	0.302	24.80
		8M64W7D	256QAM	0.182	22.59
Sub6 n77 (15)	3457.50 – 3542.50	13M0G7D	PI/2 BPSK	0.556	27.45
		13M0G7D	QPSK	0.550	27.40
		13M0W7D	16QAM	0.436	26.39
		13M0W7D	64QAM	0.309	24.90
		13M0W7D	256QAM	0.188	22.74
Sub6 n77 (20)	3460.02 – 3540.00	18M0G7D	PI/2 BPSK	0.565	27.52
		18M0G7D	QPSK	0.562	27.50
		17M9W7D	16QAM	0.441	26.44
		17M9W7D	64QAM	0.321	25.06
		18M0W7D	256QAM	0.194	22.88
Sub6 n77 (30)	3465.00 – 3534.99	26M9G7D	PI/2 BPSK	0.564	27.51
		26M9G7D	QPSK	0.560	27.48
		26M9W7D	16QAM	0.442	26.45
		27M0W7D	64QAM	0.310	24.91
		26M8W7D	256QAM	0.191	22.80
Sub6 n77 (40)	3470.01 – 3529.98	35M8G7D	PI/2 BPSK	0.561	27.49
		35M8G7D	QPSK	0.556	27.45
		35M8W7D	16QAM	0.437	26.40
		35M9W7D	64QAM	0.316	24.99
		35M9W7D	256QAM	0.190	22.79
Sub6 n77 (50)	3475.02 – 3525.00	45M9G7D	PI/2 BPSK	0.543	27.35
		45M8G7D	QPSK	0.537	27.30
		45M9W7D	16QAM	0.426	26.29
		45M7W7D	64QAM	0.308	24.88
		45M9W7D	256QAM	0.185	22.66
Sub6 n77 (60)	3480.00 – 3519.99	57M9G7D	PI/2 BPSK	0.542	27.34
		57M9G7D	QPSK	0.537	27.30
		57M9W7D	16QAM	0.424	26.27
		57M9W7D	64QAM	0.308	24.89
		58M2W7D	256QAM	0.185	22.67
Sub6 n77 (70)	3485.01 – 3514.98	64M6G7D	PI/2 BPSK	0.538	27.31
		65M4G7D	QPSK	0.536	27.29
		64M5W7D	16QAM	0.421	26.24
		64M6W7D	64QAM	0.302	24.80
		64M6W7D	256QAM	0.181	22.57
Sub6 n77 (80)	3490.02 – 3510.00	77M3G7D	PI/2 BPSK	0.558	27.47
		77M3G7D	QPSK	0.548	27.39
		77M2W7D	16QAM	0.437	26.40
		77M3W7D	64QAM	0.316	24.99
		77M5W7D	256QAM	0.188	22.75
Sub6 n77 (90)	3495.00 – 3504.99	87M3G7D	PI/2 BPSK	0.566	27.53
		87M0G7D	QPSK	0.562	27.50
		87M0W7D	16QAM	0.442	26.45
		86M8W7D	64QAM	0.323	25.09
		86M9W7D	256QAM	0.193	22.86
Sub6 n77 (100)	3500.01	96M7G7D	PI/2 BPSK	0.568	27.54
		96M5G7D	QPSK	0.556	27.45
		96M6W7D	16QAM	0.440	26.43
		96M6W7D	64QAM	0.318	25.03
		96M5W7D	256QAM	0.192	22.83

**2. 3700 MHz - 3980 MHz**

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max. Power (W)	Max. Power (dBm)
Sub6 n77 (10)	3705.00 – 3975.00	8M71G7D	PI/2 BPSK	0.521	27.17
		8M69G7D	QPSK	0.511	27.08
		8M66W7D	16QAM	0.403	26.05
		8M64W7D	64QAM	0.286	24.57
		8M63W7D	256QAM	0.178	22.50
Sub6 n77 (15)	3707.51 – 3972.48	13M0G7D	PI/2 BPSK	0.551	27.41
		13M0G7D	QPSK	0.545	27.36
		13M0W7D	16QAM	0.433	26.36
		12M9W7D	64QAM	0.309	24.90
		13M0W7D	256QAM	0.187	22.73
Sub6 n77 (20)	3710.01 – 3969.99	17M9G7D	PI/2 BPSK	0.553	27.43
		17M9G7D	QPSK	0.551	27.41
		17M9W7D	16QAM	0.431	26.34
		17M9W7D	64QAM	0.304	24.83
		17M9W7D	256QAM	0.185	22.68
Sub6 n77 (30)	3715.02 – 3964.98	27M0G7D	PI/2 BPSK	0.570	27.56
		26M9G7D	QPSK	0.569	27.55
		26M9W7D	16QAM	0.446	26.49
		26M9W7D	64QAM	0.315	24.98
		26M9W7D	256QAM	0.192	22.84
Sub6 n77 (40)	3720.00 – 3960.00	35M9G7D	PI/2 BPSK	0.585	27.67
		36M0G7D	QPSK	0.582	27.65
		35M8W7D	16QAM	0.458	26.61
		35M8W7D	64QAM	0.330	25.18
		35M9W7D	256QAM	0.200	23.02
Sub6 n77 (50)	3725.10 – 3954.99	45M8G7D	PI/2 BPSK	0.574	27.59
		45M9G7D	QPSK	0.571	27.57
		45M8W7D	16QAM	0.449	26.52
		45M8W7D	64QAM	0.318	25.02
		45M8W7D	256QAM	0.194	22.88
Sub6 n77 (60)	3730.02 – 3949.98	57M9G7D	PI/2 BPSK	0.564	27.51
		58M0G7D	QPSK	0.560	27.48
		57M9W7D	16QAM	0.440	26.43
		57M9W7D	64QAM	0.321	25.06
		57M9W7D	256QAM	0.193	22.86
Sub6 n77 (70)	3735.00 – 3945.00	64M5G7D	PI/2 BPSK	0.571	27.57
		64M6G7D	QPSK	0.562	27.50
		64M6W7D	16QAM	0.437	26.40
		64M4W7D	64QAM	0.316	24.99
		64M5W7D	256QAM	0.188	22.74
Sub6 n77 (80)	3740.01 – 3939.99	77M2G7D	PI/2 BPSK	0.552	27.42
		77M2G7D	QPSK	0.550	27.40
		77M3W7D	16QAM	0.429	26.32
		77M3W7D	64QAM	0.307	24.87
		77M2W7D	256QAM	0.188	22.74
Sub6 n77 (90)	3745.02 – 3934.98	86M8G7D	PI/2 BPSK	0.536	27.29
		87M0G7D	QPSK	0.530	27.24
		87M0W7D	16QAM	0.414	26.17
		87M1W7D	64QAM	0.297	24.73
		86M9W7D	256QAM	0.182	22.61
Sub6 n77 (100)	3750.00 – 3930.00	96M7G7D	PI/2 BPSK	0.515	27.12
		96M8G7D	QPSK	0.507	27.05
		96M6W7D	16QAM	0.400	26.02
		96M7W7D	64QAM	0.286	24.57
		96M5W7D	256QAM	0.176	22.46

Report No.: HCT-RF-2305-FC030

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REVIEWED BY



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

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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)

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# Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-2305-FC030	May 09, 2023	- First Approval Report

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

## Table of Contents

REVIEWED BY .....	4
1. GENERAL INFORMATION .....	7
2. INTRODUCTION .....	8
2.1. DESCRIPTION OF EUT .....	8
2.2. MEASURING INSTRUMENT CALIBRATION .....	8
2.3. TEST FACILITY .....	8
3. DESCRIPTION OF TESTS.....	9
3.1 TEST PROCEDURE .....	9
3.2 RADIATED POWER.....	10
3.3 RADIATED SPURIOUS EMISSIONS .....	11
3.4 PEAK- TO- AVERAGE RATIO.....	12
3.5 OCCUPIED BANDWIDTH. ....	14
3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL .....	15
3.7 BAND EDGE .....	16
3.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE .....	18
3.9 WORST CASE(RADIATED TEST) .....	19
3.10 WORST CASE(CONDUCTED TEST) .....	20
4. LIST OF TEST EQUIPMENT .....	22
5. MEASUREMENT UNCERTAINTY .....	23
6. SUMMARY OF TEST RESULTS .....	24
7. SAMPLE CALCULATION .....	25
8. TEST DATA (3450 MHz - 3550 MHz).....	27
8.1 EQUIVALENT ISOTROPIC RADIATED POWER.....	27
8.2 RADIATED SPURIOUS EMISSIONS .....	38
8.3 PEAK-TO-AVERAGE RATIO.....	39
8.4 OCCUPIED BANDWIDTH .....	41
8.5 CONDUCTED SPURIOUS EMISSIONS .....	43
8.6 BAND EDGE .....	45
8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE .....	46
9. TEST DATA (3700 MHz - 3980 MHz).....	57
9.1 EQUIVALENT ISOTROPIC RADIATED POWER.....	57
9.2 RADIATED SPURIOUS EMISSIONS .....	68
9.3 PEAK-TO-AVERAGE RATIO.....	69
9.4 OCCUPIED BANDWIDTH .....	71
9.5 CONDUCTED SPURIOUS EMISSIONS .....	73
9.6 BAND EDGE .....	75
9.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE .....	76
10. TEST PLOTS(3450 MHz - 3550 MHz) .....	87
11. TEST PLOTS(3700 MHz - 3980 MHz) .....	392
12. ANNEX A_ TEST SETUP PHOTO.....	701

# MEASUREMENT REPORT

## 1. GENERAL INFORMATION

<b>Applicant Name:</b>	SAMSUNG Electronics Co., Ltd.
<b>Address:</b>	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
<b>FCC ID:</b>	A3LSMX818U
<b>Application Type:</b>	Certification
<b>FCC Classification:</b>	PCS Licensed Transmitter (PCB)
<b>FCC Rule Part(s):</b>	§27, §2
<b>EUT Type:</b>	Tablet
<b>Model(s):</b>	SM-X818U
<b>SCS(kHz):</b>	30
<b>Bandwidth(MHz):</b>	10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100
<b>Waveform:</b>	CP-OFDM, DFT-S-OFDM
<b>Modulation:</b>	DFT-S-OFDM: PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM
<b>Tx Frequency: (3450 MHz - 3550 MHz)</b>	3455.01 MHz – 3544.99 MHz (Sub6 n77(10 MHz)) 3457.50 MHz – 3542.50 MHz (Sub6 n77(15 MHz)) 3460.02 MHz – 3540.00 MHz (Sub6 n77(20 MHz)) 3465.00 MHz – 3534.99 MHz (Sub6 n77(30 MHz)) 3470.01 MHz – 3529.98 MHz (Sub6 n77(40 MHz)) 3475.02 MHz – 3525.00 MHz (Sub6 n77(50 MHz)) 3480.00 MHz – 3519.99 MHz (Sub6 n77(60 MHz)) 3485.01 MHz – 3514.98 MHz (Sub6 n77(70 MHz)) 3490.02 MHz – 3510.00 MHz (Sub6 n77(80 MHz)) 3495.00 MHz – 3504.99 MHz (Sub6 n77(90 MHz)) 3500.01 MHz (Sub6 n77(100 MHz))
<b>Tx Frequency: (3700 MHz - 3980 MHz)</b>	3705.00 MHz – 3975.00 MHz (Sub6 n77(10 MHz)) 3707.51 MHz – 3972.48 MHz (Sub6 n77(15 MHz)) 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)) 3725.10 MHz – 3954.99 MHz (Sub6 n77(50 MHz)) 3730.02 MHz – 3949.98 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)) 3745.02 MHz – 3934.98 MHz (Sub6 n77(90 MHz)) 3745.02 MHz – 3934.98 MHz (Sub6 n77(90 MHz)) 3750.00 MHz – 3930.00 MHz (Sub6 n77(100 MHz))
<b>Date(s) of Tests:</b>	March 15, 2023 ~ May 07, 2023
<b>Serial number:</b>	Radiated: R32W2003H2Z Conducted: R32W2003GWK

## **2. INTRODUCTION**

### **2.1. DESCRIPTION OF EUT**

The EUT was a Tablet with UMTS and LTE, Sub6.

It also supports IEEE 802.11 a/b/g/n/ac/ax (20/40/80/160 MHz),WIFI 6E AIT, Keyboard, S-pen, mmWave.

### **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  $\geq$  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;

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

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

3. The maximum value is calculated by adding the forward power to the calibrated source plus its appropriate gain value. These steps are repeated with the receiving antenna in both vertical and horizontal polarization. the difference between the gain of the horn and an isotropic antenna are taken into consideration
4. The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.
5. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

### 3.3 RADIATED SPURIOUS EMISSIONS

#### Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

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

#### Test Settings

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

#### Test Note

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

The spurious emissions is calculated by the following formula;

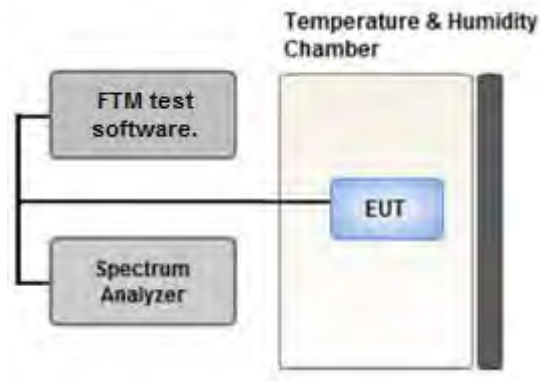
$$\text{Result}_{(dBm)} = P_g_{(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dBi)}$$

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

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

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

### 3.4 PEAK- TO- AVERAGE RATIO



Test setup

#### ① CCDF Procedure for PAPR

##### Test Settings

1. Set resolution/measurement bandwidth  $\geq$  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)**

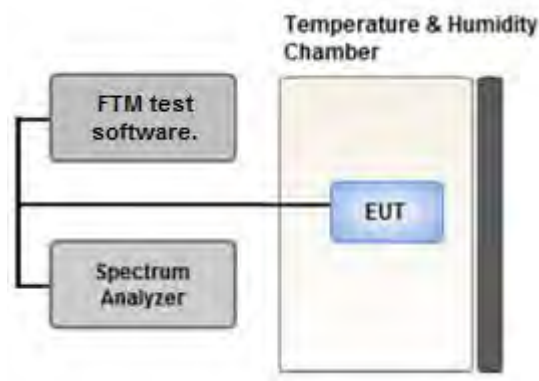
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW  $\geq 3 \times$  RBW.

1. Set the RBW  $\geq$  OBW.
2. Set VBW  $\geq 3 \times$  RBW.
3. Set span  $\geq 2 \times$  OBW.
4. Sweep time  $\geq 10 \times$  (number of points in sweep)  $\times$  (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  $2 \times$  to  $3 \times$  the OBW.
2. Set RBW  $\geq$  OBW.
3. Set VBW  $\geq 3 \times$  RBW.
4. Set number of measurement points in sweep  $\geq 2 \times$  span / RBW.
5. Sweep time:  
Set  $\geq [10 \times (\text{number of points in sweep}) \times (\text{transmission period})]$  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  $[10 \log (1/\text{duty cycle})]$  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.

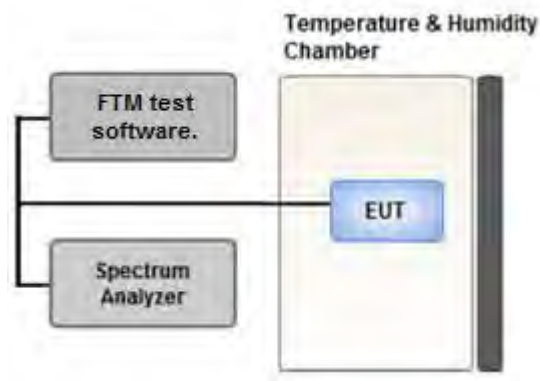
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

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  $\geq$  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.

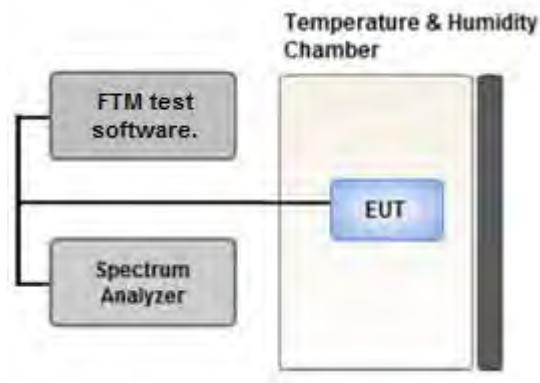
All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

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

### 3.7 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  $\geq 2 \times \text{Span}/\text{RBW}$
7. Trace mode = trace average
8. Sweep time = auto couple
9. The trace was allowed to stabilize



**Test Notes**

For mobile operations in the 3450-3550 MHz band, the conducted power of any emission outside the licensee's authorized bandwidth shall not exceed  $-13$  dBm/MHz.

Compliance with this paragraph is based on the use of 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, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed, but limited to a maximum of 200 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.

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.

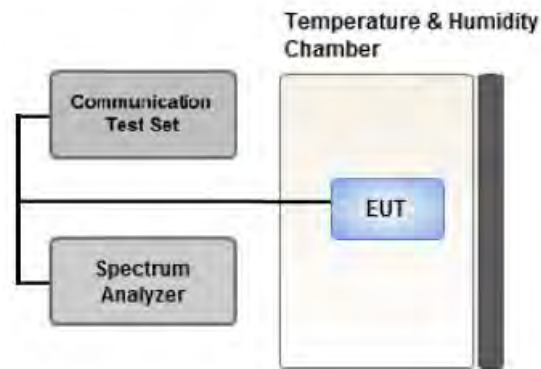
However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz.

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. .

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

### 3.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE



#### Test setup

#### Test Overview

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

The frequency stability of the transmitter is measured by:

1. Temperature:

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

2. Primary Supply Voltage:

- Unless otherwise specified, vary primary supply voltage from 85 % to 115 % of the nominal value for other than hand carried battery equipment.

- For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.

#### Test Settings

1. The carrier frequency of the transmitter is measured at room temperature

(20 °C to provide a reference).

2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter.

Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.

3. Frequency measurements are made at 10 °C intervals ranging from -30 °C to +50 °C. A period of at

least one half-hour is provided to allow stabilization of the equipment at each temperature level.

**3.9 WORST CASE(RADIATED TEST)**

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

(Worst case: DFT-S-OFDM)

- The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.

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

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

Worst case : Stand alone

Mode: SA, NSA

Worst case: SA

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

Mode : Stand alone, Simultaneous transmission scenarios

Worst case : Stand alone

- All power classes were tested, and the results were reported for the worst case PC2.

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

(Worst case: 66A - n77A (10 MHz))

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

Please refer to the table below.

-In the case of radiated spurious emissions, all bandwidth of operation were investigated and the worst case bandwidth results are reported.

(Worst case : 100 MHz (3450 MHz – 3550 MHz), 40 MHz(3700 MHz – 3980 MHz))

[ 3450 MHz - 3550 MHz Worst case ]

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

[ 3700 MHz - 3980 MHz Worst case ]

Test Description	Modulation	RB size	RB offset	Axis
Effective Isotropic Radiated Power	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	See Section 9.1		X
Radiated Spurious and Harmonic Emissions	PI/2 BPSK	See Section 9.2		Z

### 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: SA, NSA

Worst case: SA

- All power classes were tested, and the results were reported for the worst case PC2.

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

Please refer to the table below.

[ Worst case ]

Test Description	Modulation	Bandwidth (MHz)	Frequency	RB size	RB offset
Occupied Bandwidth,	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100	Mid	Full RB	0
Peak-To-Average Ratio	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100	Mid	Full RB	0
Band Edge	PI/2 BPSK	10	Low	1	0
			High	1	23
		15	Low	1	0
			High	1	37
		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		
		10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100	Low, High	Full RB	0
Spurious and Harmonic Emissions at Antenna Terminal	PI/2 BPSK	10, 15, 20, 30, 40, 50, 60, 70, 80, 90, 100	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	03/27/2024	Biennial
Precision Dipole Antenna	UHAP	Schwarzbeck	01274	03/27/2024	Biennial
Horn Antenna(1~18 GHz)	BBHA 9120D	Schwarzbeck	02289	03/21/2024	Biennial
Horn Antenna(1~18 GHz)	BBHA 9120D	Schwarzbeck	9120D-1299	04/27/2025	Biennial
Horn Antenna(15~40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	09/29/2024	Biennial
Horn Antenna(15~40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	03/28/2025	Biennial
Loop Antenna(9 kHz~30 MHz)	FMZB1513	Rohde & Schwarz	1513-175	06/04/2023	Biennial
Bilog Antenna	VULB9160	Schwarzbeck	3150	03/09/2025	Biennial
Hybrid Antenna	VULB9160	Schwarzbeck	760	02/24/2025	Biennial
High Pass Filter	WHKX10-900-1000-15000-40SS	Wainwright Instruments	15	05/18/2023	Annual
High Pass Filter	WHKX10-2700-3000-18000-40SS	Wainwright Instruments	145	05/18/2023	Annual
High Pass Filter	WHNX6-4740-6000-26500-40CC	Wainwright Instruments	11	05/18/2023	Annual
LOW NOISE AMP (100 MHz ~ 18 GHz)	CBLU1183540B-01	CERNEX	26822	05/18/2023	Annual
Power Amplifier	CBL18265035	CERNEX	22966	12/01/2023	Annual
Power Amplifier	CBL26405040	CERNEX	25956	03/02/2024	Annual
DC Power Supply	E3632A	Hewlett Packard	MY40004427	09/05/2023	Annual
Power Splitter(DC~26.5 GHz)	11667B	Hewlett Packard	11275	03/02/2024	Annual
Chamber	SU-642	ESPEC	93008124	02/22/2024	Annual
Signal Analyzer(10 Hz~26.5 GHz)	N9020A	Agilent	MY51110063	04/11/2024	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	04/19/2024	Annual
Spectrum Analyzer(10 Hz~40 GHz)	FSV40	REOHDE & SCHWARZ	101436	02/22/2024	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/18/2023	Annual
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262287700	05/19/2023	Annual
Wideband Radio Communication Tester	MT8000A	Anritsu Corp.	6262302511	05/18/2023	Annual
SIGNAL GENERATOR (100 kHz~40 GHz)	SMB100A	REOHDE & SCHWARZ	177633	07/05/2023	Annual
Signal Analyzer(5 Hz~40.0 GHz)	N9030B	KEYSIGHT	MY55480167	05/30/2023	Annual
4-Way Divider	ZC4PD-K1844+	Mini-Circuits	942907	09/27/2023	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. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2017).

## 5. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4:2014. All measurement uncertainty values are shown with a coverage factor of  $k = 2$  to indicate a 95 % level of confidence. The measurement data shown herein meets or exceeds the  $U_{\text{CISPR}}$  measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty ( $\pm$ dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.90 (Confidence level about 95 %, $k=2$ )
Radiated Disturbance (9 kHz ~ 30 MHz)	4.14 (Confidence level about 95 %, $k=2$ )
Radiated Disturbance (30 MHz ~ 1 GHz)	5.82 (Confidence level about 95 %, $k=2$ )
Radiated Disturbance (1 GHz ~ 18 GHz)	5.74 (Confidence level about 95 %, $k=2$ )
Radiated Disturbance (18 GHz ~ 40 GHz)	5.76 (Confidence level about 95 %, $k=2$ )
Radiated Disturbance (Above 40 GHz)	5.52 (Confidence level about 95 %, $k=2$ )

## 6. SUMMARY OF TEST RESULTS

### 6.1 Test Condition : Conducted Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Occupied Bandwidth	§2.1049	N/A	PASS
Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§2.1051, §27.53(n)(2), §27.53(l)(2)	< -13 dBm	PASS
Conducted Output Power	§2.1046	N/A	<b><u>See Note1</u></b>
Peak- to- Average Ratio	§27.50(k)(4), §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(k)(3), §27.50(j)(3)	< 1 Watts max. EIRP	PASS
Radiated Spurious and Harmonic Emissions	§2.1051, §27.53(n)(2), §27.53(l)(2)	< -13 dBm	PASS

**Note:**

1. Radiated 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 (3450 MHz - 3550 MHz)

#### 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		RB	
									W	W	dBm	Size
3455.01	Sub6 n77/ 10 MHz [30 kHz]	PI/2 BPSK	-18.86	19.08	11.20	2.96	H	< 1.00	0.541	27.33	1	22
		QPSK	-18.93	19.01	11.20	2.96	H		0.532	27.26		
		16-QAM	-20.01	17.93	11.20	2.96	H		0.415	26.18		
		64-QAM	-21.39	16.55	11.20	2.96	H		0.302	24.80		
		256-QAM	-23.60	14.34	11.20	2.96	H		0.182	22.59		
3500.01		PI/2 BPSK	-20.56	17.69	11.30	3.00	H		0.397	25.99	1	1
		QPSK	-20.59	17.66	11.30	3.00	H		0.394	25.96		
		16-QAM	-21.67	16.58	11.30	3.00	H		0.308	24.88		
		64-QAM	-23.00	15.25	11.30	3.00	H		0.226	23.55		
		256-QAM	-25.19	13.06	11.30	3.00	H		0.137	21.36		
3544.99	PI/2 BPSK	-21.08	16.99	11.35	3.02	H	0.340	25.32	1	22		
	QPSK	-21.12	16.95	11.35	3.02	H	0.337	25.28				
	16-QAM	-22.22	15.85	11.35	3.02	H	0.262	24.18				
	64-QAM	-23.65	14.42	11.35	3.02	H	0.188	22.75				
	256-QAM	-25.77	12.30	11.35	3.02	H	0.116	20.63				

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W dBm	Size	Offset
3457.50	Sub6 n77/ 15 MHz [30 kHz]	PI/2 BPSK	-18.71	19.20	11.20	2.95	H	< 1.00	0.555	27.45	1	1
		QPSK	-18.76	19.15	11.20	2.95	H		0.550	27.40		
		16-QAM	-19.77	18.14	11.20	2.95	H		0.436	26.39		
		64-QAM	-21.26	16.65	11.20	2.95	H		0.309	24.90		
		256-QAM	-23.42	14.49	11.20	2.95	H		0.188	22.74		
3500.01		PI/2 BPSK	-20.24	18.01	11.30	3.00	H		0.428	26.31	1	1
		QPSK	-20.28	17.97	11.30	3.00	H		0.424	26.27		
		16-QAM	-21.34	16.91	11.30	3.00	H		0.332	25.21		
		64-QAM	-22.72	15.53	11.30	3.00	H		0.242	23.83		
		256-QAM	-24.86	13.39	11.30	3.00	H		0.148	21.69		
3542.50	PI/2 BPSK	-20.91	17.04	11.30	3.02	H	0.340	25.32	1	36		
	QPSK	-20.93	17.02	11.30	3.02	H	0.339	25.30				
	16-QAM	-22.03	15.92	11.30	3.02	H	0.263	24.20				
	64-QAM	-23.45	14.50	11.30	3.02	H	0.190	22.78				
	256-QAM	-25.69	12.26	11.30	3.02	H	0.113	20.54				

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W dBm	Size	Offset
3460.02	Sub6 n77/ 20 MHz [30 kHz]	PI/2 BPSK	-18.64	19.27	11.20	2.95	H	< 1.00	0.565	27.52	1	1
		QPSK	-18.66	19.25	11.20	2.95	H		0.562	27.50		
		16-QAM	-19.72	18.19	11.20	2.95	H		0.441	26.44		
		64-QAM	-21.10	16.81	11.20	2.95	H		0.321	25.06		
		256-QAM	-23.28	14.63	11.20	2.95	H		0.194	22.88		
3500.01		PI/2 BPSK	-20.07	18.18	11.30	3.00	H		0.445	26.48	1	1
		QPSK	-20.03	18.22	11.30	3.00	H		0.449	26.52		
		16-QAM	-21.02	17.23	11.30	3.00	H		0.357	25.53		
		64-QAM	-22.42	15.83	11.30	3.00	H		0.259	24.13		
		256-QAM	-24.61	13.64	11.30	3.00	H		0.156	21.94		
3540.00	PI/2 BPSK	-20.90	17.05	11.30	3.02	H	0.341	25.33	1	1		
	QPSK	-20.95	17.00	11.30	3.02	H	0.337	25.28				
	16-QAM	-21.98	15.97	11.30	3.02	H	0.266	24.25				
	64-QAM	-23.51	14.44	11.30	3.02	H	0.187	22.72				
	256-QAM	-25.64	12.31	11.30	3.02	H	0.115	20.59				

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W dBm	Size	Offset
3465.00	Sub6 n77/ 30 MHz [30 kHz]	PI/2 BPSK	-18.61	19.26	11.20	2.95	H	< 1.00	0.564	27.51	1	1
		QPSK	-18.64	19.23	11.20	2.95	H		0.560	27.48		
		16-QAM	-19.67	18.20	11.20	2.95	H		0.442	26.45		
		64-QAM	-21.21	16.66	11.20	2.95	H		0.310	24.91		
		256-QAM	-23.32	14.55	11.20	2.95	H		0.191	22.80		
3500.01		PI/2 BPSK	-19.82	18.43	11.30	3.00	H		0.471	26.73	1	1
		QPSK	-19.84	18.41	11.30	3.00	H		0.469	26.71		
		16-QAM	-20.88	17.37	11.30	3.00	H		0.369	25.67		
		64-QAM	-22.38	15.87	11.30	3.00	H		0.261	24.17		
		256-QAM	-24.49	13.76	11.30	3.00	H		0.161	22.06		
3534.99	PI/2 BPSK	-20.67	17.24	11.30	3.01	H	0.358	25.54	1	1		
	QPSK	-20.73	17.18	11.30	3.01	H	0.353	25.48				
	16-QAM	-21.71	16.20	11.30	3.01	H	0.282	24.50				
	64-QAM	-23.25	14.66	11.30	3.01	H	0.198	22.96				
	256-QAM	-25.41	12.50	11.30	3.01	H	0.120	20.80				

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W dBm	Size	Offset
3470.01	Sub6 n77/ 40 MHz [30 kHz]	PI/2 BPSK	-18.59	19.24	11.20	2.95	H	< 1.00	0.561	27.49	1	1
		QPSK	-18.63	19.20	11.20	2.95	H		0.556	27.45		
		16-QAM	-19.68	18.15	11.20	2.95	H		0.437	26.40		
		64-QAM	-21.09	16.74	11.20	2.95	H		0.316	24.99		
		256-QAM	-23.29	14.54	11.20	2.95	H		0.190	22.79		
3500.01		PI/2 BPSK	-19.49	18.76	11.30	3.00	H		0.508	27.06	1	1
		QPSK	-19.53	18.72	11.30	3.00	H		0.504	27.02		
		16-QAM	-20.52	17.73	11.30	3.00	H		0.401	26.03		
		64-QAM	-22.05	16.20	11.30	3.00	H		0.282	24.50		
		256-QAM	-24.21	14.04	11.30	3.00	H		0.171	22.34		
3529.98	PI/2 BPSK	-20.53	17.35	11.30	2.99	H	0.368	25.66	1	1		
	QPSK	-20.56	17.32	11.30	2.99	H	0.366	25.63				
	16-QAM	-21.57	16.31	11.30	2.99	H	0.290	24.62				
	64-QAM	-23.05	14.83	11.30	2.99	H	0.206	23.14				
	256-QAM	-25.20	12.68	11.30	2.99	H	0.126	20.99				

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W dBm	Size	Offset
3475.02	Sub6 n77/ 50 MHz [30 kHz]	PI/2 BPSK	-18.76	19.12	11.20	2.97	H	< 1.00	0.543	27.35	1	1
		QPSK	-18.81	19.07	11.20	2.97	H		0.537	27.30		
		16-QAM	-19.82	18.06	11.20	2.97	H		0.426	26.29		
		64-QAM	-21.23	16.65	11.20	2.97	H		0.308	24.88		
		256-QAM	-23.45	14.43	11.20	2.97	H		0.185	22.66		
3500.01		PI/2 BPSK	-19.41	18.84	11.30	3.00	H		0.518	27.14	1	1
		QPSK	-19.44	18.81	11.30	3.00	H		0.514	27.11		
		16-QAM	-20.49	17.76	11.30	3.00	H		0.404	26.06		
		64-QAM	-21.89	16.36	11.30	3.00	H		0.292	24.66		
		256-QAM	-24.07	14.18	11.30	3.00	H		0.177	22.48		
3525.00	PI/2 BPSK	-20.47	17.43	11.30	2.98	H	0.376	25.75	1	1		
	QPSK	-20.52	17.38	11.30	2.98	H	0.372	25.70				
	16-QAM	-21.52	16.38	11.30	2.98	H	0.295	24.70				
	64-QAM	-22.92	14.98	11.30	2.98	H	0.214	23.30				
	256-QAM	-25.15	12.75	11.30	2.98	H	0.128	21.07				



Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W dBm	Size	Offset
3480.00	Sub6 n77/ 60 MHz [30 kHz]	PI/2 BPSK	-18.83	19.11	11.20	2.99	H	< 1.00	0.540	27.32	1	1
		QPSK	-18.88	19.06	11.20	2.99	H		0.533	27.27		
		16-QAM	-19.95	17.99	11.20	2.99	H		0.417	26.20		
		64-QAM	-21.30	16.64	11.20	2.99	H		0.305	24.85		
		256-QAM	-23.49	14.45	11.20	2.99	H		0.185	22.66		
3500.01		PI/2 BPSK	-19.21	19.04	11.30	3.00	H		0.542	27.34	1	1
		QPSK	-19.25	19.00	11.30	3.00	H		0.537	27.30		
		16-QAM	-20.28	17.97	11.30	3.00	H		0.424	26.27		
		64-QAM	-21.66	16.59	11.30	3.00	H		0.308	24.89		
		256-QAM	-23.88	14.37	11.30	3.00	H		0.185	22.67		
3519.99	PI/2 BPSK	-20.14	17.78	11.30	2.97	H	0.408	26.11	1	1		
	QPSK	-20.16	17.76	11.30	2.97	H	0.406	26.09				
	16-QAM	-21.18	16.74	11.30	2.97	H	0.321	25.07				
	64-QAM	-22.57	15.35	11.30	2.97	H	0.233	23.68				
	256-QAM	-24.79	13.13	11.30	2.97	H	0.140	21.46				

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W dBm	Size	Offset
3485.01	Sub6 n77/ 70 MHz [30 kHz]	PI/2 BPSK	-18.99	19.02	11.20	3.00	H	< 1.00	0.527	27.22	1	1
		QPSK	-19.03	18.98	11.20	3.00	H		0.522	27.18		
		16-QAM	-20.09	17.92	11.20	3.00	H		0.409	26.12		
		64-QAM	-21.54	16.47	11.20	3.00	H		0.293	24.67		
		256-QAM	-23.76	14.25	11.20	3.00	H		0.176	22.45		
3500.01		PI/2 BPSK	-19.24	19.01	11.30	3.00	H		0.538	27.31	1	1
		QPSK	-19.26	18.99	11.30	3.00	H		0.536	27.29		
		16-QAM	-20.31	17.94	11.30	3.00	H		0.421	26.24		
		64-QAM	-21.75	16.50	11.30	3.00	H		0.302	24.80		
		256-QAM	-23.98	14.27	11.30	3.00	H		0.181	22.57		
3514.98	PI/2 BPSK	-19.96	18.10	11.30	2.98	H	0.440	26.43	1	1		
	QPSK	-20.01	18.05	11.30	2.98	H	0.435	26.38				
	16-QAM	-21.03	17.03	11.30	2.98	H	0.344	25.36				
	64-QAM	-22.45	15.61	11.30	2.98	H	0.248	23.94				
	256-QAM	-24.66	13.40	11.30	2.98	H	0.149	21.73				

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W dBm	Size	Offset
3490.02	Sub6 n77/ 80 MHz [30 kHz]	PI/2 BPSK	-19.09	18.99	11.20	3.00	H	< 1.00	0.524	27.19	1	1
		QPSK	-19.13	18.95	11.20	3.00	H		0.519	27.15		
		16-QAM	-20.19	17.89	11.20	3.00	H		0.406	26.09		
		64-QAM	-21.61	16.47	11.20	3.00	H		0.293	24.67		
		256-QAM	-23.83	14.25	11.20	3.00	H		0.176	22.45		
3500.01		PI/2 BPSK	-19.08	19.17	11.30	3.00	H		0.558	27.47	1	1
		QPSK	-19.16	19.09	11.30	3.00	H		0.548	27.39		
		16-QAM	-20.15	18.10	11.30	3.00	H		0.437	26.40		
		64-QAM	-21.56	16.69	11.30	3.00	H		0.316	24.99		
		256-QAM	-23.80	14.45	11.30	3.00	H		0.188	22.75		
3510.00	PI/2 BPSK	-19.60	18.61	11.30	2.98	H	0.493	26.93	1	1		
	QPSK	-19.65	18.56	11.30	2.98	H	0.488	26.88				
	16-QAM	-20.71	17.50	11.30	2.98	H	0.382	25.82				
	64-QAM	-22.09	16.12	11.30	2.98	H	0.278	24.44				
	256-QAM	-24.26	13.95	11.30	2.98	H	0.169	22.27				

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W dBm	Size	Offset
3495.00	Sub6 n77/ 90 MHz [30 kHz]	PI/2 BPSK	-19.10	19.07	11.25	3.00	H	< 1.00	0.540	27.32	1	1
		QPSK	-19.12	19.05	11.25	3.00	H		0.537	27.30		
		16-QAM	-20.19	17.98	11.25	3.00	H		0.420	26.23		
		64-QAM	-21.58	16.59	11.25	3.00	H		0.305	24.84		
		256-QAM	-23.76	14.41	11.25	3.00	H		0.185	22.66		
3500.01		PI/2 BPSK	-19.02	19.23	11.30	3.00	H		0.566	27.53	1	1
		QPSK	-19.05	19.20	11.30	3.00	H		0.562	27.50		
		16-QAM	-20.10	18.15	11.30	3.00	H		0.442	26.45		
		64-QAM	-21.46	16.79	11.30	3.00	H		0.323	25.09		
		256-QAM	-23.69	14.56	11.30	3.00	H		0.193	22.86		
3504.99	PI/2 BPSK	-19.04	19.19	11.30	2.99	H	0.562	27.50	1	1		
	QPSK	-19.09	19.14	11.30	2.99	H	0.556	27.45				
	16-QAM	-20.11	18.12	11.30	2.99	H	0.440	26.43				
	64-QAM	-21.58	16.65	11.30	2.99	H	0.313	24.96				
	256-QAM	-23.79	14.44	11.30	2.99	H	0.188	22.75				

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W	dBm	Size
3500.01	Sub6 n77/ 100 MHz [30 kHz]	PI/2 BPSK	-19.01	19.24	11.30	3.00	H	< 1.00	0.568	27.54	1	1
		QPSK	-19.10	19.15	11.30	3.00	H		0.556	27.45		
		16-QAM	-20.12	18.13	11.30	3.00	H		0.440	26.43		
		64-QAM	-21.52	16.73	11.30	3.00	H		0.318	25.03		
		256-QAM	-23.72	14.53	11.30	3.00	H		0.192	22.83		

**8.2 RADIATED SPURIOUS EMISSIONS**

- NR Band: N77
- Anchor Band: B66
- Bandwidth: 100 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)	RB	
									Size	Offset
633334 (3500.01)	7 000.02	-63.86	10.90	-57.94	4.32	V	-51.36	-13.00	1	1
	10 500.03	-47.84	11.30	-37.24	5.41	V	-31.35	-13.00		
	14 000.04	-59.53	12.30	-50.18	6.35	V	-44.23	-13.00		

ENDC-Mode : 66A(10 MHz)-n77A\_DoD(100 MHz)

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)
132322 (1745.0)	3490.00	-60.23	11.46	-61.54	3.05	V	-53.13	-13.00
	5235.00	-61.27	11.57	-55.96	3.79	H	-48.18	-13.00
	6980.00	-62.01	11.16	-49.78	4.51	V	-43.13	-13.00

**8.3 PEAK-TO-AVERAGE RATIO**

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB )
Sub6 n77	10 MHz	3500.01	BPSK	Full RB	0	4.33
			QPSK			5.32
			16-QAM			6.15
			64-QAM			6.31
			256-QAM			6.75
	15 MHz		BPSK			4.20
			QPSK			5.45
			16-QAM			6.24
			64-QAM			6.46
			256-QAM			6.65
	20 MHz		BPSK			4.03
			QPSK			5.40
			16-QAM			6.15
			64-QAM			6.43
			256-QAM			6.62
	30 MHz		BPSK			4.05
			QPSK			5.40
			16-QAM			6.13
			64-QAM			6.33
			256-QAM			6.63
40 MHz	BPSK	3.98				
	QPSK	5.34				
	16-QAM	6.12				
	64-QAM	6.36				
	256-QAM	6.67				
50 MHz	BPSK	3.98				
	QPSK	5.39				
	16-QAM	6.12				
	64-QAM	6.42				
	256-QAM	6.68				

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB )
	60 MHz		BPSK			4.02
			QPSK			5.37
			16-QAM			6.20
			64-QAM			6.39
			256-QAM			6.52
	70 MHz		BPSK			4.53
			QPSK			5.46
			16-QAM			6.22
			64-QAM			6.43
			256-QAM			6.68
	80 MHz		BPSK			4.06
			QPSK			5.46
			16-QAM			6.11
			64-QAM			6.38
			256-QAM			6.63
	90 MHz		BPSK			4.14
			QPSK			5.62
			16-QAM			6.18
			64-QAM			6.41
			256-QAM			6.66
100 MHz	BPSK	4.01				
	QPSK	5.42				
	16-QAM	6.15				
	64-QAM	6.38				
	256-QAM	6.63				

**Note:**

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 143 ~ 197.



**8.4 OCCUPIED BANDWIDTH**

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data ( MHz )
Sub6 n77	10 MHz	3500.01	BPSK	Full RB	0	8.6651
			QPSK			8.6750
			16-QAM			8.6724
			64-QAM			8.6665
			256-QAM			8.6424
	15 MHz		BPSK			12.982
			QPSK			12.960
			16-QAM			12.975
			64-QAM			12.947
			256-QAM			12.945
	20 MHz		BPSK			17.973
			QPSK			17.999
			16-QAM			17.936
			64-QAM			17.892
			256-QAM			17.986
	30 MHz		BPSK			26.932
			QPSK			26.917
			16-QAM			26.917
			64-QAM			26.981
			256-QAM			26.801
40 MHz	BPSK	35.796				
	QPSK	35.772				
	16-QAM	35.830				
	64-QAM	35.866				
	256-QAM	35.862				
50 MHz	BPSK	45.896				
	QPSK	45.813				
	16-QAM	45.876				
	64-QAM	45.724				
	256-QAM	45.902				

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data ( MHz )
	60 MHz		BPSK			57.882
			QPSK			57.851
			16-QAM			57.889
			64-QAM			57.847
			256-QAM			58.203
	70 MHz		BPSK			64.587
			QPSK			64.406
			16-QAM			64.534
			64-QAM			64.633
			256-QAM			64.626
	80 MHz		BPSK			77.342
			QPSK			77.315
			16-QAM			77.222
			64-QAM			77.269
			256-QAM			77.446
	90 MHz		BPSK			87.260
			QPSK			86.951
			16-QAM			86.961
			64-QAM			86.783
			256-QAM			86.853
100 MHz	BPSK	96.726				
	QPSK	96.526				
	16-QAM	96.547				
	64-QAM	96.577				
	256-QAM	96.490				

**Note:**

1. Plots of the EUT's Occupied Bandwidth are shown Page 88 ~ 142.

**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	10	3455.01	8.0364	37.805	-70.583	-32.778	-13.00
		3500.01	8.0274	37.805	-71.130	-33.325	
		3544.98	9.1580	37.805	-70.875	-33.070	
	15	3457.50	9.7193	37.805	-70.491	-32.686	
		3500.01	9.0972	37.805	-71.357	-33.552	
		3542.49	8.8574	37.805	-70.756	-32.951	
	20	3460.02	9.9422	37.805	-70.361	-32.556	
		3500.01	8.2632	37.805	-70.581	-32.776	
		3540.00	9.4556	37.805	-70.965	-33.160	
	30	3465.00	9.1446	37.805	-70.216	-32.411	
		3500.01	8.5698	37.805	-70.552	-32.747	
		3534.99	8.8510	37.805	-71.125	-33.320	
	40	3470.01	8.3036	37.805	-71.124	-33.319	
		3500.01	8.8814	37.805	-71.577	-33.772	
		3529.98	9.9502	37.805	-70.745	-32.940	
	50	3475.02	8.2338	37.805	-71.285	-33.480	
		3500.01	9.4183	37.805	-70.872	-33.067	
		3525.00	8.8943	37.805	-70.231	-32.426	
	60	3480.00	9.3923	37.805	-71.048	-33.243	
		3500.01	8.2807	37.805	-71.108	-33.303	
		3519.99	8.2647	37.805	-70.718	-32.913	
	70	3485.01	9.6909	37.805	-70.886	-33.081	
		3500.01	9.1665	37.805	-71.195	-33.390	
		3514.98	9.0848	37.805	-71.253	-33.448	
	80	3490.02	8.8315	37.805	-71.313	-33.508	
		3500.01	3.1327	37.190	-72.172	-34.982	
		3510.00	9.7233	37.805	-71.453	-33.648	
	90	3495.00	9.1241	37.805	-70.971	-33.166	
		3500.01	9.6999	37.805	-71.158	-33.353	
		3504.99	4.8595	37.190	-70.469	-33.279	
100	3500.01	8.3036	37.805	-70.639	-32.834		

**Note:**

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 330 ~ 391.
2. Duty Cycle factor already applied on the factor.
  - Duty Cycle Factor(dB) = 6.990



- Factor(dB) = Duty Cycle factor + Cable Loss + Ext. Attenuator + Power Splitter
- Result(dBm) = Reading + Factor

3. Factor(dB)

Frequency Range (GHz)	Factor [dB]
0.03 – 1	34.484
1 – 5	37.190
5 – 10	37.805
10 – 15	38.330
15 – 20	38.703
Above 20	39.345

## 8.6 BAND EDGE

1. Plots of the EUT's Band Edge are shown Page 198 ~ 329.
2. Duty Cycle factor already applied on the factor.
  - Factor(dB) = Duty Cycle factor + Cable Loss + Ext. Attenuator + Power Splitter
  - Result(dBm) = Reading + Factor
  - Duty Cycle Factor(dB) = 6.990

**8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE**

- ▣ BandWidth: 10 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3455.010	100 %	+20(Ref)	3455 010 001	0.0	0.000 000	0.000
	100 %	-30	3455 009 999	-1.9	0.000 000	-0.001
	100 %	-20	3455 009 997	-3.6	0.000 000	-0.001
	100 %	-10	3455 009 998	-2.7	0.000 000	-0.001
	100 %	0	3455 009 996	-5.1	0.000 000	-0.001
	100 %	+10	3455 009 982	-19.0	-0.000 001	-0.005
	100 %	+30	3455 009 995	-5.6	0.000 000	-0.002
	100 %	+40	3455 010 000	-0.6	0.000 000	0.000
	100 %	+50	3455 009 991	-9.6	0.000 000	-0.003
	Batt. Endpoint	+20	3455 009 994	-6.7	0.000 000	-0.002
3544.980	100 %	+20(Ref)	3544 979 987	0.0	0.000 000	0.000
	100 %	-30	3544 979 982	-5.2	0.000 000	-0.001
	100 %	-20	3544 979 969	-17.9	-0.000 001	-0.005
	100 %	-10	3544 979 972	-15.0	0.000 000	-0.004
	100 %	0	3544 979 979	-7.7	0.000 000	-0.002
	100 %	+10	3544 979 975	-12.1	0.000 000	-0.003
	100 %	+30	3544 979 978	-8.3	0.000 000	-0.002
	100 %	+40	3544 979 976	-11.1	0.000 000	-0.003
	100 %	+50	3544 979 974	-13.1	0.000 000	-0.004
	Batt. Endpoint	+20	3544 979 970	-17.0	0.000 000	-0.005

- ▣ BandWidth: 15 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3457.500	100 %	+20(Ref)	3457 499 994	0.0	0.000 000	0.000
	100 %	-30	3457 499 986	-8.2	0.000 000	-0.002
	100 %	-20	3457 499 980	-13.9	0.000 000	-0.004
	100 %	-10	3457 499 989	-4.4	0.000 000	-0.001
	100 %	0	3457 499 985	-9.3	0.000 000	-0.003
	100 %	+10	3457 499 990	-4.0	0.000 000	-0.001
	100 %	+30	3457 499 982	-11.5	0.000 000	-0.003
	100 %	+40	3457 499 977	-16.5	0.000 000	-0.005
	100 %	+50	3457 499 990	-4.2	0.000 000	-0.001
	Batt. Endpoint	+20	3457 499 982	-12.3	0.000 000	-0.004
3542.490	100 %	+20(Ref)	3542 489 994	0.0	0.000 000	0.000
	100 %	-30	3542 489 987	-7.0	0.000 000	-0.002
	100 %	-20	3542 489 982	-11.2	0.000 000	-0.003
	100 %	-10	3542 489 980	-13.2	0.000 000	-0.004
	100 %	0	3542 489 979	-14.3	0.000 000	-0.004
	100 %	+10	3542 489 981	-13.0	0.000 000	-0.004
	100 %	+30	3542 489 981	-12.5	0.000 000	-0.004
	100 %	+40	3542 489 977	-16.5	0.000 000	-0.005
	100 %	+50	3542 489 978	-15.6	0.000 000	-0.004
	Batt. Endpoint	+20	3542 489 983	-11.1	0.000 000	-0.003

- ▣ BandWidth: 20 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3460.020	100 %	+20(Ref)	3460 019 996	0.0	0.000 000	0.000
	100 %	-30	3460 019 988	-7.6	0.000 000	-0.002
	100 %	-20	3460 019 988	-7.2	0.000 000	-0.002
	100 %	-10	3460 019 997	0.9	0.000 000	0.000
	100 %	0	3460 019 995	-0.7	0.000 000	0.000
	100 %	+10	3460 019 991	-4.1	0.000 000	-0.001
	100 %	+30	3460 019 991	-4.8	0.000 000	-0.001
	100 %	+40	3460 019 990	-5.6	0.000 000	-0.002
	100 %	+50	3460 019 995	-0.7	0.000 000	0.000
	Batt. Endpoint	+20	3460 019 990	-5.6	0.000 000	-0.002
3540.000	100 %	+20(Ref)	3539 999 992	0.0	0.000 000	0.000
	100 %	-30	3539 999 989	-3.4	0.000 000	-0.001
	100 %	-20	3539 999 971	-21.6	-0.000 001	-0.006
	100 %	-10	3539 999 975	-17.4	0.000 000	-0.005
	100 %	0	3539 999 982	-10.7	0.000 000	-0.003
	100 %	+10	3539 999 985	-7.2	0.000 000	-0.002
	100 %	+30	3539 999 977	-15.5	0.000 000	-0.004
	100 %	+40	3539 999 976	-16.4	0.000 000	-0.005
	100 %	+50	3539 999 983	-8.8	0.000 000	-0.002
	Batt. Endpoint	+20	3539 999 978	-14.6	0.000 000	-0.004



- ▣ BandWidth: 30 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3465.000	100 %	+20(Ref)	3464 999 992	0.0	0.000 000	0.000
	100 %	-30	3464 999 988	-4.8	0.000 000	-0.001
	100 %	-20	3464 999 986	-6.7	0.000 000	-0.002
	100 %	-10	3464 999 987	-5.2	0.000 000	-0.002
	100 %	0	3464 999 985	-7.6	0.000 000	-0.002
	100 %	+10	3464 999 987	-5.7	0.000 000	-0.002
	100 %	+30	3464 999 987	-5.3	0.000 000	-0.002
	100 %	+40	3464 999 992	-0.6	0.000 000	0.000
	100 %	+50	3464 999 991	-1.1	0.000 000	0.000
	Batt. Endpoint	+20	3464 999 984	-8.6	0.000 000	-0.002
3534.990	100 %	+20(Ref)	3534 989 991	0.0	0.000 000	0.000
	100 %	-30	3534 989 984	-6.3	0.000 000	-0.002
	100 %	-20	3534 989 974	-17.1	0.000 000	-0.005
	100 %	-10	3534 989 977	-13.6	0.000 000	-0.004
	100 %	0	3534 989 982	-8.8	0.000 000	-0.002
	100 %	+10	3534 989 984	-7.0	0.000 000	-0.002
	100 %	+30	3534 989 982	-8.7	0.000 000	-0.002
	100 %	+40	3534 989 977	-14.0	0.000 000	-0.004
	100 %	+50	3534 989 985	-5.8	0.000 000	-0.002
	Batt. Endpoint	+20	3534 989 980	-10.4	0.000 000	-0.003

- ▣ BandWidth: 40 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3470.010	100 %	+20(Ref)	3470 009 992	0.0	0.000 000	0.000
	100 %	-30	3470 009 981	-10.6	0.000 000	-0.003
	100 %	-20	3470 009 987	-4.4	0.000 000	-0.001
	100 %	-10	3470 009 985	-6.7	0.000 000	-0.002
	100 %	0	3470 009 976	-15.6	0.000 000	-0.004
	100 %	+10	3470 009 989	-3.1	0.000 000	-0.001
	100 %	+30	3470 009 987	-4.9	0.000 000	-0.001
	100 %	+40	3470 009 984	-7.8	0.000 000	-0.002
	100 %	+50	3470 009 980	-12.1	0.000 000	-0.003
	Batt. Endpoint	+20	3470 009 984	-7.8	0.000 000	-0.002
3529.980	100 %	+20(Ref)	3529 979 991	0.0	0.000 000	0.000
	100 %	-30	3529 979 983	-8.1	0.000 000	-0.002
	100 %	-20	3529 979 979	-11.3	0.000 000	-0.003
	100 %	-10	3529 979 978	-12.7	0.000 000	-0.004
	100 %	0	3529 979 983	-7.9	0.000 000	-0.002
	100 %	+10	3529 979 981	-9.7	0.000 000	-0.003
	100 %	+30	3529 979 987	-4.0	0.000 000	-0.001
	100 %	+40	3529 979 977	-13.7	0.000 000	-0.004
	100 %	+50	3529 979 974	-16.5	0.000 000	-0.005
	Batt. Endpoint	+20	3529 979 979	-11.7	0.000 000	-0.003

- ▣ BandWidth: 50 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3475.020	100 %	+20(Ref)	3475 020 001	0.0	0.000 000	0.000
	100 %	-30	3475 019 985	-16.8	0.000 000	-0.005
	100 %	-20	3475 020 007	5.3	0.000 000	0.002
	100 %	-10	3475 020 000	-1.8	0.000 000	-0.001
	100 %	0	3475 019 998	-3.4	0.000 000	-0.001
	100 %	+10	3475 020 002	0.8	0.000 000	0.000
	100 %	+30	3475 020 002	0.7	0.000 000	0.000
	100 %	+40	3475 019 996	-5.5	0.000 000	-0.002
	100 %	+50	3475 019 995	-6.9	0.000 000	-0.002
	Batt. Endpoint	+20	3475 019 994	-7.3	0.000 000	-0.002
3525.000	100 %	+20(Ref)	3524 999 989	0.0	0.000 000	0.000
	100 %	-30	3524 999 980	-9.4	0.000 000	-0.003
	100 %	-20	3524 999 975	-14.1	0.000 000	-0.004
	100 %	-10	3524 999 982	-6.7	0.000 000	-0.002
	100 %	0	3524 999 976	-13.1	0.000 000	-0.004
	100 %	+10	3524 999 983	-6.6	0.000 000	-0.002
	100 %	+30	3524 999 982	-7.3	0.000 000	-0.002
	100 %	+40	3524 999 979	-9.8	0.000 000	-0.003
	100 %	+50	3524 999 976	-12.8	0.000 000	-0.004
	Batt. Endpoint	+20	3524 999 978	-10.8	0.000 000	-0.003

- ▣ BandWidth: 60 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3480.000	100 %	+20(Ref)	3480 000 002	0.0	0.000 000	0.000
	100 %	-30	3480 000 001	-1.3	0.000 000	0.000
	100 %	-20	3479 999 998	-4.3	0.000 000	-0.001
	100 %	-10	3479 999 993	-8.9	0.000 000	-0.003
	100 %	0	3479 999 993	-8.9	0.000 000	-0.003
	100 %	+10	3479 999 989	-13.1	0.000 000	-0.004
	100 %	+30	3479 999 989	-13.4	0.000 000	-0.004
	100 %	+40	3479 999 996	-6.5	0.000 000	-0.002
	100 %	+50	3479 999 996	-6.5	0.000 000	-0.002
	Batt. Endpoint	+20	3479 999 997	-4.9	0.000 000	-0.001
3519.990	100 %	+20(Ref)	3519 989 997	0.0	0.000 000	0.000
	100 %	-30	3519 989 987	-10.1	0.000 000	-0.003
	100 %	-20	3519 989 985	-11.5	0.000 000	-0.003
	100 %	-10	3519 989 985	-11.5	0.000 000	-0.003
	100 %	0	3519 989 991	-6.2	0.000 000	-0.002
	100 %	+10	3519 989 987	-10.0	0.000 000	-0.003
	100 %	+30	3519 989 988	-8.9	0.000 000	-0.003
	100 %	+40	3519 989 988	-8.9	0.000 000	-0.003
	100 %	+50	3519 989 988	-9.0	0.000 000	-0.003
	Batt. Endpoint	+20	3519 989 988	-9.0	0.000 000	-0.003

- ▣ BandWidth: 70 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3485.010	100 %	+20(Ref)	3485 009 989	0.0	0.000 000	0.000
	100 %	-30	3485 009 977	-11.4	0.000 000	-0.003
	100 %	-20	3485 009 983	-5.3	0.000 000	-0.002
	100 %	-10	3485 009 983	-6.1	0.000 000	-0.002
	100 %	0	3485 009 983	-6.1	0.000 000	-0.002
	100 %	+10	3485 009 979	-10.0	0.000 000	-0.003
	100 %	+30	3485 009 985	-3.4	0.000 000	-0.001
	100 %	+40	3485 009 983	-5.2	0.000 000	-0.001
	100 %	+50	3485 009 992	3.4	0.000 000	0.001
	Batt. Endpoint	+20	3485 009 992	3.4	0.000 000	0.001
3514.980	100 %	+20(Ref)	3514 979 983	0.0	0.000 000	0.000
	100 %	-30	3514 979 978	-4.8	0.000 000	-0.001
	100 %	-20	3514 979 971	-11.9	0.000 000	-0.003
	100 %	-10	3514 979 976	-7.3	0.000 000	-0.002
	100 %	0	3514 979 976	-7.3	0.000 000	-0.002
	100 %	+10	3514 979 982	-1.4	0.000 000	0.000
	100 %	+30	3514 979 979	-4.1	0.000 000	-0.001
	100 %	+40	3514 979 979	-4.1	0.000 000	-0.001
	100 %	+50	3514 979 961	-21.8	-0.000 001	-0.006
	Batt. Endpoint	+20	3514 979 977	-5.9	0.000 000	-0.002

- ▣ BandWidth: 80 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3490.020	100 %	+20(Ref)	3490 019 996	0.0	0.000 000	0.000
	100 %	-30	3490 019 992	-3.8	0.000 000	-0.001
	100 %	-20	3490 019 999	2.4	0.000 000	0.001
	100 %	-10	3490 020 001	4.8	0.000 000	0.001
	100 %	0	3490 020 001	4.8	0.000 000	0.001
	100 %	+10	3490 019 994	-2.3	0.000 000	-0.001
	100 %	+30	3490 019 992	-4.0	0.000 000	-0.001
	100 %	+40	3490 019 991	-5.2	0.000 000	-0.001
	100 %	+50	3490 019 991	-5.2	0.000 000	-0.001
	Batt. Endpoint	+20	3490 019 988	-8.5	0.000 000	-0.002
3510.000	100 %	+20(Ref)	3509 999 999	0.0	0.000 000	0.000
	100 %	-30	3509 999 996	-2.6	0.000 000	-0.001
	100 %	-20	3509 999 994	-4.1	0.000 000	-0.001
	100 %	-10	3509 999 994	-4.1	0.000 000	-0.001
	100 %	0	3509 999 993	-5.6	0.000 000	-0.002
	100 %	+10	3509 999 993	-6.0	0.000 000	-0.002
	100 %	+30	3509 999 991	-7.8	0.000 000	-0.002
	100 %	+40	3509 999 991	-7.8	0.000 000	-0.002
	100 %	+50	3509 999 991	-7.8	0.000 000	-0.002
	Batt. Endpoint	+20	3509 999 998	-0.2	0.000 000	0.000

- ▣ BandWidth: 90 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3495.000	100 %	+20(Ref)	3494 999 997	0.0	0.000 000	0.000
	100 %	-30	3494 999 994	-3.0	0.000 000	-0.001
	100 %	-20	3494 999 989	-8.1	0.000 000	-0.002
	100 %	-10	3495 000 002	5.2	0.000 000	0.001
	100 %	0	3495 000 002	5.2	0.000 000	0.001
	100 %	+10	3494 999 997	0.2	0.000 000	0.000
	100 %	+30	3494 999 986	-11.4	0.000 000	-0.003
	100 %	+40	3494 999 989	-8.0	0.000 000	-0.002
	100 %	+50	3494 999 989	-8.0	0.000 000	-0.002
	Batt. Endpoint	+20	3494 999 993	-4.4	0.000 000	-0.001
3504.990	100 %	+20(Ref)	3504 989 982	0.0	0.000 000	0.000
	100 %	-30	3504 989 964	-17.8	-0.000 001	-0.005
	100 %	-20	3504 989 971	-10.8	0.000 000	-0.003
	100 %	-10	3504 989 972	-9.9	0.000 000	-0.003
	100 %	0	3504 989 972	-9.9	0.000 000	-0.003
	100 %	+10	3504 989 962	-19.7	-0.000 001	-0.006
	100 %	+30	3504 989 966	-16.4	0.000 000	-0.005
	100 %	+40	3504 989 961	-20.7	-0.000 001	-0.006
	100 %	+50	3504 989 961	-20.7	-0.000 001	-0.006
	Batt. Endpoint	+20	3504 989 973	-8.7	0.000 000	-0.002

- ▣ BandWidth: 100 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3500.010	100 %	+20(Ref)	3500 009 993	0.0	0.000 000	0.000
	100 %	-30	3500 009 985	-7.4	0.000 000	-0.002
	100 %	-20	3500 009 992	-0.5	0.000 000	0.000
	100 %	-10	3500 009 994	1.8	0.000 000	0.001
	100 %	0	3500 009 994	1.8	0.000 000	0.001
	100 %	+10	3500 009 991	-1.5	0.000 000	0.000
	100 %	+30	3500 009 990	-3.1	0.000 000	-0.001
	100 %	+40	3500 009 990	-2.2	0.000 000	-0.001
	100 %	+50	3500 009 990	-2.2	0.000 000	-0.001
	Batt. Endpoint	+20	3500 009 994	1.3	0.000 000	0.000



### 9. TEST DATA (3700 MHz - 3980 MHz)

#### 9.1 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		RB	
									W	W	dBm	Size
3705.00	Sub6 n77/ 10 MHz [30 kHz]	PI/2 BPSK	-19.63	18.86	11.40	3.09	H	< 1.00	0.521	27.17	1	12
		QPSK	-19.72	18.77	11.40	3.09	H		0.511	27.08		
		16-QAM	-20.75	17.74	11.40	3.09	H		0.403	26.05		
		64-QAM	-22.23	16.26	11.40	3.09	H		0.286	24.57		
		256-QAM	-24.30	14.19	11.40	3.09	H		0.178	22.50		
3840.00		PI/2 BPSK	-21.17	18.51	11.10	3.14	H		0.444	26.47	1	12
		QPSK	-21.20	18.48	11.10	3.14	H		0.441	26.44		
		16-QAM	-22.32	17.36	11.10	3.14	H		0.340	25.32		
		64-QAM	-23.71	15.97	11.10	3.14	H		0.247	23.93		
		256-QAM	-25.87	13.81	11.10	3.14	H		0.150	21.77		
3975.00	PI/2 BPSK	-21.56	18.09	10.90	3.20	H	0.379	25.79	1	1		
	QPSK	-21.61	18.04	10.90	3.20	H	0.375	25.74				
	16-QAM	-22.67	16.98	10.90	3.20	H	0.294	24.68				
	64-QAM	-24.11	15.54	10.90	3.20	H	0.211	23.24				
	256-QAM	-26.27	13.38	10.90	3.20	H	0.128	21.08				

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W dBm	Size	Offset
3707.51	Sub6 n77/ 15 MHz [30 kHz]	PI/2 BPSK	-19.39	19.10	11.40	3.09	H	< 1.00	0.551	27.41	1	19
		QPSK	-19.44	19.05	11.40	3.09	H		0.545	27.36		
		16-QAM	-20.44	18.05	11.40	3.09	H		0.433	26.36		
		64-QAM	-21.90	16.59	11.40	3.09	H		0.309	24.90		
		256-QAM	-24.07	14.42	11.40	3.09	H		0.187	22.73		
3840.00		PI/2 BPSK	-20.70	18.98	11.10	3.14	H		0.494	26.94	1	36
		QPSK	-20.77	18.91	11.10	3.14	H		0.486	26.87		
		16-QAM	-21.78	17.90	11.10	3.14	H		0.385	25.86		
		64-QAM	-23.28	16.40	11.10	3.14	H		0.273	24.36		
		256-QAM	-25.42	14.26	11.10	3.14	H		0.167	22.22		
3972.48	PI/2 BPSK	-21.13	18.52	10.90	3.20	H	0.419	26.22	1	1		
	QPSK	-21.20	18.45	10.90	3.20	H	0.412	26.15				
	16-QAM	-22.13	17.52	10.90	3.20	H	0.333	25.22				
	64-QAM	-23.71	15.94	10.90	3.20	H	0.231	23.64				
	256-QAM	-25.93	13.72	10.90	3.20	H	0.139	21.42				

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W dBm	Size	Offset
3710.01	Sub6 n77/ 20 MHz [30 kHz]	PI/2 BPSK	-19.38	19.14	11.40	3.11	H	< 1.00	0.553	27.43	1	49
		QPSK	-19.40	19.12	11.40	3.11	H		0.551	27.41		
		16-QAM	-20.47	18.05	11.40	3.11	H		0.431	26.34		
		64-QAM	-21.98	16.54	11.40	3.11	H		0.304	24.83		
		256-QAM	-24.13	14.39	11.40	3.11	H		0.185	22.68		
3840.00		PI/2 BPSK	-20.80	18.88	11.10	3.14	H		0.483	26.84	1	49
		QPSK	-20.82	18.86	11.10	3.14	H		0.481	26.82		
		16-QAM	-21.91	17.77	11.10	3.14	H		0.374	25.73		
		64-QAM	-23.30	16.38	11.10	3.14	H		0.272	24.34		
		256-QAM	-25.46	14.22	11.10	3.14	H		0.165	22.18		
3969.99	PI/2 BPSK	-20.99	18.60	10.90	3.20	H	0.427	26.30	1	1		
	QPSK	-21.08	18.51	10.90	3.20	H	0.418	26.21				
	16-QAM	-22.08	17.51	10.90	3.20	H	0.332	25.21				
	64-QAM	-23.67	15.92	10.90	3.20	H	0.230	23.62				
	256-QAM	-25.74	13.85	10.90	3.20	H	0.143	21.55				

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W dBm	Size	Offset
3715.02	Sub6 n77/ 30 MHz [30 kHz]	PI/2 BPSK	-19.39	19.28	11.40	3.12	H	< 1.00	0.570	27.56	1	1
		QPSK	-19.40	19.27	11.40	3.12	H		0.569	27.55		
		16-QAM	-20.46	18.21	11.40	3.12	H		0.446	26.49		
		64-QAM	-21.97	16.70	11.40	3.12	H		0.315	24.98		
		256-QAM	-24.11	14.56	11.40	3.12	H		0.192	22.84		
3840.00		PI/2 BPSK	-20.55	19.13	11.10	3.14	H		0.512	27.09	1	76
		QPSK	-20.59	19.09	11.10	3.14	H		0.507	27.05		
		16-QAM	-21.62	18.06	11.10	3.14	H		0.400	26.02		
		64-QAM	-23.06	16.62	11.10	3.14	H		0.287	24.58		
		256-QAM	-25.26	14.42	11.10	3.14	H		0.173	22.38		
3964.98	PI/2 BPSK	-20.88	18.81	10.90	3.21	H	0.447	26.50	1	1		
	QPSK	-20.92	18.77	10.90	3.21	H	0.443	26.46				
	16-QAM	-21.93	17.76	10.90	3.21	H	0.351	25.45				
	64-QAM	-23.40	16.29	10.90	3.21	H	0.250	23.98				
	256-QAM	-25.60	14.09	10.90	3.21	H	0.151	21.78				

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W dBm	Size	Offset
3720.00	Sub6 n77/ 40 MHz [30 kHz]	PI/2 BPSK	-19.28	19.41	11.40	3.14	H	< 1.00	0.585	27.67	1	1
		QPSK	-19.30	19.39	11.40	3.14	H		0.582	27.65		
		16-QAM	-20.34	18.35	11.40	3.14	H		0.458	26.61		
		64-QAM	-21.77	16.92	11.40	3.14	H		0.330	25.18		
		256-QAM	-23.93	14.76	11.40	3.14	H		0.200	23.02		
3840.00		PI/2 BPSK	-20.57	19.11	11.10	3.14	H		0.509	27.07	1	104
		QPSK	-20.60	19.08	11.10	3.14	H		0.506	27.04		
		16-QAM	-21.63	18.05	11.10	3.14	H		0.399	26.01		
		64-QAM	-23.10	16.58	11.10	3.14	H		0.284	24.54		
		256-QAM	-25.25	14.43	11.10	3.14	H		0.173	22.39		
3960.00	PI/2 BPSK	-20.79	18.99	10.90	3.21	H	0.466	26.68	1	1		
	QPSK	-20.85	18.93	10.90	3.21	H	0.459	26.62				
	16-QAM	-21.76	18.02	10.90	3.21	H	0.372	25.71				
	64-QAM	-23.35	16.43	10.90	3.21	H	0.258	24.12				
	256-QAM	-25.55	14.23	10.90	3.21	H	0.156	21.92				

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W dBm	Size	Offset
3725.10	Sub6 n77/ 50 MHz [30 kHz]	PI/2 BPSK	-19.51	19.33	11.40	3.14	H	< 1.00	0.574	27.59	1	1
		QPSK	-19.53	19.31	11.40	3.14	H		0.571	27.57		
		16-QAM	-20.58	18.26	11.40	3.14	H		0.449	26.52		
		64-QAM	-22.08	16.76	11.40	3.14	H		0.318	25.02		
		256-QAM	-24.22	14.62	11.40	3.14	H		0.194	22.88		
3840.00		PI/2 BPSK	-20.67	19.01	11.10	3.14	H		0.498	26.97	1	131
		QPSK	-20.71	18.97	11.10	3.14	H		0.493	26.93		
		16-QAM	-21.74	17.94	11.10	3.14	H		0.389	25.90		
		64-QAM	-23.25	16.43	11.10	3.14	H		0.275	24.39		
		256-QAM	-25.38	14.30	11.10	3.14	H		0.168	22.26		
3954.99	PI/2 BPSK	-20.90	18.89	10.90	3.21	H	0.455	26.58	1	1		
	QPSK	-20.97	18.82	10.90	3.21	H	0.448	26.51				
	16-QAM	-21.91	17.88	10.90	3.21	H	0.361	25.57				
	64-QAM	-23.47	16.32	10.90	3.21	H	0.252	24.01				
	256-QAM	-25.65	14.14	10.90	3.21	H	0.152	21.83				

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W dBm	Size	Offset
3730.02	Sub6 n77/ 60 MHz [30 kHz]	PI/2 BPSK	-19.61	19.25	11.40	3.14	H	< 1.00	0.564	27.51	1	1
		QPSK	-19.64	19.22	11.40	3.14	H		0.560	27.48		
		16-QAM	-20.69	18.17	11.40	3.14	H		0.440	26.43		
		64-QAM	-22.06	16.80	11.40	3.14	H		0.321	25.06		
		256-QAM	-24.26	14.60	11.40	3.14	H		0.193	22.86		
3840.00		PI/2 BPSK	-20.70	18.98	11.10	3.14	H		0.494	26.94	1	160
		QPSK	-20.76	18.92	11.10	3.14	H		0.488	26.88		
		16-QAM	-21.78	17.90	11.10	3.14	H		0.385	25.86		
		64-QAM	-23.19	16.49	11.10	3.14	H		0.279	24.45		
		256-QAM	-25.33	14.35	11.10	3.14	H		0.170	22.31		
3949.98	PI/2 BPSK	-21.17	18.61	10.90	3.20	H	0.428	26.31	1	1		
	QPSK	-21.21	18.57	10.90	3.20	H	0.424	26.27				
	16-QAM	-22.23	17.55	10.90	3.20	H	0.335	25.25				
	64-QAM	-23.70	16.08	10.90	3.20	H	0.239	23.78				
	256-QAM	-25.93	13.85	10.90	3.20	H	0.143	21.55				

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W dBm	Size	Offset
3735.00	Sub6 n77/ 70 MHz [30 kHz]	PI/2 BPSK	-19.57	19.29	11.40	3.12	H	< 1.00	0.571	27.57	1	1
		QPSK	-19.64	19.22	11.40	3.12	H		0.562	27.50		
		16-QAM	-20.74	18.12	11.40	3.12	H		0.437	26.40		
		64-QAM	-22.15	16.71	11.40	3.12	H		0.316	24.99		
		256-QAM	-24.40	14.46	11.40	3.12	H		0.188	22.74		
3840.00		PI/2 BPSK	-20.79	18.89	11.10	3.14	H		0.484	26.85	1	1
		QPSK	-20.82	18.86	11.10	3.14	H		0.481	26.82		
		16-QAM	-21.85	17.83	11.10	3.14	H		0.379	25.79		
		64-QAM	-23.38	16.30	11.10	3.14	H		0.267	24.26		
		256-QAM	-25.54	14.14	11.10	3.14	H		0.162	22.10		
3945.00	PI/2 BPSK	-20.79	19.05	10.85	3.18	H	0.470	26.72	1	1		
	QPSK	-20.86	18.98	10.85	3.18	H	0.462	26.65				
	16-QAM	-21.86	17.98	10.85	3.18	H	0.367	25.65				
	64-QAM	-23.34	16.50	10.85	3.18	H	0.261	24.17				
	256-QAM	-25.53	14.31	10.85	3.18	H	0.158	21.98				



Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W dBm	Size	Offset
3740.01	Sub6 n77/ 80 MHz [30 kHz]	PI/2 BPSK	-19.74	19.12	11.40	3.10	H	< 1.00	0.552	27.42	1	1
		QPSK	-19.76	19.10	11.40	3.10	H		0.550	27.40		
		16-QAM	-20.84	18.02	11.40	3.10	H		0.429	26.32		
		64-QAM	-22.29	16.57	11.40	3.10	H		0.307	24.87		
		256-QAM	-24.42	14.44	11.40	3.10	H		0.188	22.74		
3840.00		PI/2 BPSK	-20.83	18.85	11.10	3.14	H		0.480	26.81	1	215
		QPSK	-20.86	18.82	11.10	3.14	H		0.476	26.78		
		16-QAM	-21.94	17.74	11.10	3.14	H		0.372	25.70		
		64-QAM	-23.41	16.27	11.10	3.14	H		0.265	24.23		
		256-QAM	-25.52	14.16	11.10	3.14	H		0.163	22.12		
3939.99	PI/2 BPSK	-20.84	18.02	11.40	3.10	H	0.429	26.32	1	1		
	QPSK	-20.89	17.97	11.40	3.10	H	0.424	26.27				
	16-QAM	-21.91	16.95	11.40	3.10	H	0.335	25.25				
	64-QAM	-23.35	15.51	11.40	3.10	H	0.240	23.81				
	256-QAM	-25.52	13.34	11.40	3.10	H	0.146	21.64				

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W dBm	Size	Offset
3745.02	Sub6 n77/ 90 MHz [30 kHz]	PI/2 BPSK	-19.71	19.03	11.35	3.09	H	< 1.00	0.536	27.29	1	1
		QPSK	-19.76	18.98	11.35	3.09	H		0.530	27.24		
		16-QAM	-20.83	17.91	11.35	3.09	H		0.414	26.17		
		64-QAM	-22.27	16.47	11.35	3.09	H		0.297	24.73		
		256-QAM	-24.39	14.35	11.35	3.09	H		0.182	22.61		
3840.00		PI/2 BPSK	-20.72	18.96	11.10	3.14	H		0.492	26.92	1	243
		QPSK	-20.75	18.93	11.10	3.14	H		0.489	26.89		
		16-QAM	-21.76	17.92	11.10	3.14	H		0.387	25.88		
		64-QAM	-23.23	16.45	11.10	3.14	H		0.276	24.41		
		256-QAM	-25.34	14.34	11.10	3.14	H		0.170	22.30		
3934.98	PI/2 BPSK	-20.74	19.18	10.80	3.16	H	0.481	26.82	1	122		
	QPSK	-20.79	19.13	10.80	3.16	H	0.475	26.77				
	16-QAM	-21.80	18.12	10.80	3.16	H	0.377	25.76				
	64-QAM	-23.29	16.63	10.80	3.16	H	0.267	24.27				
	256-QAM	-25.48	14.44	10.80	3.16	H	0.161	22.08				

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	W dBm	Size	Offset
3750.00	Sub6 n77/ 100 MHz [30 kHz]	PI/2 BPSK	-19.73	18.90	11.30	3.08	H	< 1.00	0.515	27.12	1	1
		QPSK	-19.80	18.83	11.30	3.08	H		0.507	27.05		
		16-QAM	-20.83	17.80	11.30	3.08	H		0.400	26.02		
		64-QAM	-22.28	16.35	11.30	3.08	H		0.286	24.57		
		256-QAM	-24.39	14.24	11.30	3.08	H		0.176	22.46		
3840.00		PI/2 BPSK	-20.74	18.94	11.10	3.14	H		0.490	26.90	1	271
		QPSK	-20.81	18.87	11.10	3.14	H		0.482	26.83		
		16-QAM	-21.79	17.89	11.10	3.14	H		0.385	25.85		
		64-QAM	-23.30	16.38	11.10	3.14	H		0.272	24.34		
		256-QAM	-25.45	14.23	11.10	3.14	H		0.166	22.19		
3930.00	PI/2 BPSK	-20.72	19.23	10.80	3.16	H	0.486	26.87	1	136		
	QPSK	-20.84	19.11	10.80	3.16	H	0.473	26.75				
	16-QAM	-21.78	18.17	10.80	3.16	H	0.381	25.81				
	64-QAM	-23.32	16.63	10.80	3.16	H	0.267	24.27				
	256-QAM	-25.45	14.50	10.80	3.16	H	0.164	22.14				

**9.2 RADIATED SPURIOUS EMISSIONS**

- NR Band: N77
- Anchor Band: B66
- 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)	RB	
									Size	Offset
348000 (3720.00)	7 440.00	-47.32	10.80	-39.45	4.46	H	-33.11	-13.00	1	1
	11 160.00	-54.87	11.50	-42.46	5.61	H	-36.57	-13.00		
	14 880.00	-58.24	13.30	-52.63	6.60	V	-45.93	-13.00		
656000 (3840.00)	7 680.00	-49.87	11.10	-43.01	4.55	V	-36.46	-13.00	1	104
	11 520.00	-54.25	11.50	-43.11	5.70	V	-37.31	-13.00		
	15 360.00	-60.11	15.10	-54.32	6.72	H	-45.94	-13.00		
334000 (3960.00)	7 920.00	-50.51	10.70	-43.07	4.63	V	-37.00	-13.00	1	1
	11 880.00	-55.05	12.20	-45.01	5.81	H	-38.62	-13.00		
	15 840.00	-56.12	14.90	-49.04	6.84	H	-40.98	-13.00		

■ ENDC-Mode : 66A(10 MHz)-n77A(40 MHz)

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)
132322 (1745.0)	3490.00	-60.23	11.46	-61.54	3.05	V	-53.13	-13.00
	5235.00	-61.09	11.57	-55.78	3.79	V	-48.00	-13.00
	6980.00	-61.57	11.16	-49.34	4.51	V	-42.69	-13.00

**9.3 PEAK-TO-AVERAGE RATIO**

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB )
Sub6 n77	10 MHz	3840.00	BPSK	Full RB	0	4.28
			QPSK			5.39
			16-QAM			6.23
			64-QAM			6.47
			256-QAM			6.76
	15 MHz		BPSK			4.13
			QPSK			5.24
			16-QAM			6.13
			64-QAM			6.45
			256-QAM			6.64
	20 MHz		BPSK			4.12
			QPSK			5.15
			16-QAM			6.03
			64-QAM			6.36
			256-QAM			6.47
	30 MHz		BPSK			4.10
			QPSK			5.39
			16-QAM			6.13
			64-QAM			6.50
			256-QAM			6.58
40 MHz	BPSK	4.16				
	QPSK	5.63				
	16-QAM	6.20				
	64-QAM	6.39				
	256-QAM	6.56				
50 MHz	BPSK	4.02				
	QPSK	5.16				
	16-QAM	5.98				
	64-QAM	6.38				
	256-QAM	6.62				

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB )
	60 MHz		BPSK			4.01
			QPSK			5.48
			16-QAM			6.31
			64-QAM			6.46
			256-QAM			6.61
	70 MHz		BPSK			4.48
			QPSK			5.53
			16-QAM			6.24
			64-QAM			6.49
			256-QAM			6.62
	80 MHz		BPSK			4.26
			QPSK			5.30
			16-QAM			6.17
			64-QAM			6.41
			256-QAM			6.61
	90 MHz		BPSK			4.29
			QPSK			5.29
			16-QAM			6.16
			64-QAM			6.47
			256-QAM			6.66
100 MHz	BPSK	4.17				
	QPSK	5.25				
	16-QAM	6.13				
	64-QAM	6.43				
	256-QAM	6.55				

**Note:**

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 448 ~ 502.

**9.4 OCCUPIED BANDWIDTH**

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data ( MHz )
Sub6 n77	10 MHz	3840.00	BPSK	Full RB	0	8.7125
			QPSK			8.6873
			16-QAM			8.6623
			64-QAM			8.6395
			256-QAM			8.6343
	15 MHz		BPSK			12.969
			QPSK			12.952
			16-QAM			12.953
			64-QAM			12.879
			256-QAM			12.999
	20 MHz		BPSK			17.916
			QPSK			17.944
			16-QAM			17.906
			64-QAM			17.922
			256-QAM			17.936
	30 MHz		BPSK			26.965
			QPSK			26.884
			16-QAM			26.938
			64-QAM			26.904
			256-QAM			26.857
40 MHz	BPSK	35.857				
	QPSK	35.972				
	16-QAM	35.799				
	64-QAM	35.782				
	256-QAM	35.847				
50 MHz	BPSK	45.817				
	QPSK	45.916				
	16-QAM	45.778				
	64-QAM	45.748				
	256-QAM	45.770				

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data ( MHz )
	60 MHz		BPSK			57.911
			QPSK			58.022
			16-QAM			57.924
			64-QAM			57.903
			256-QAM			57.944
	70 MHz		BPSK			64.457
			QPSK			64.567
			16-QAM			64.592
			64-QAM			64.442
			256-QAM			64.497
	80 MHz		BPSK			77.170
			QPSK			77.227
			16-QAM			77.317
			64-QAM			77.279
			256-QAM			77.216
	90 MHz		BPSK			86.830
			QPSK			86.983
			16-QAM			86.973
			64-QAM			87.064
			256-QAM			86.943
100 MHz	BPSK	96.663				
	QPSK	96.777				
	16-QAM	96.641				
	64-QAM	96.731				
	256-QAM	96.482				

**Note:**

1. Plots of the EUT's Occupied Bandwidth are shown Page 393 ~ 447.



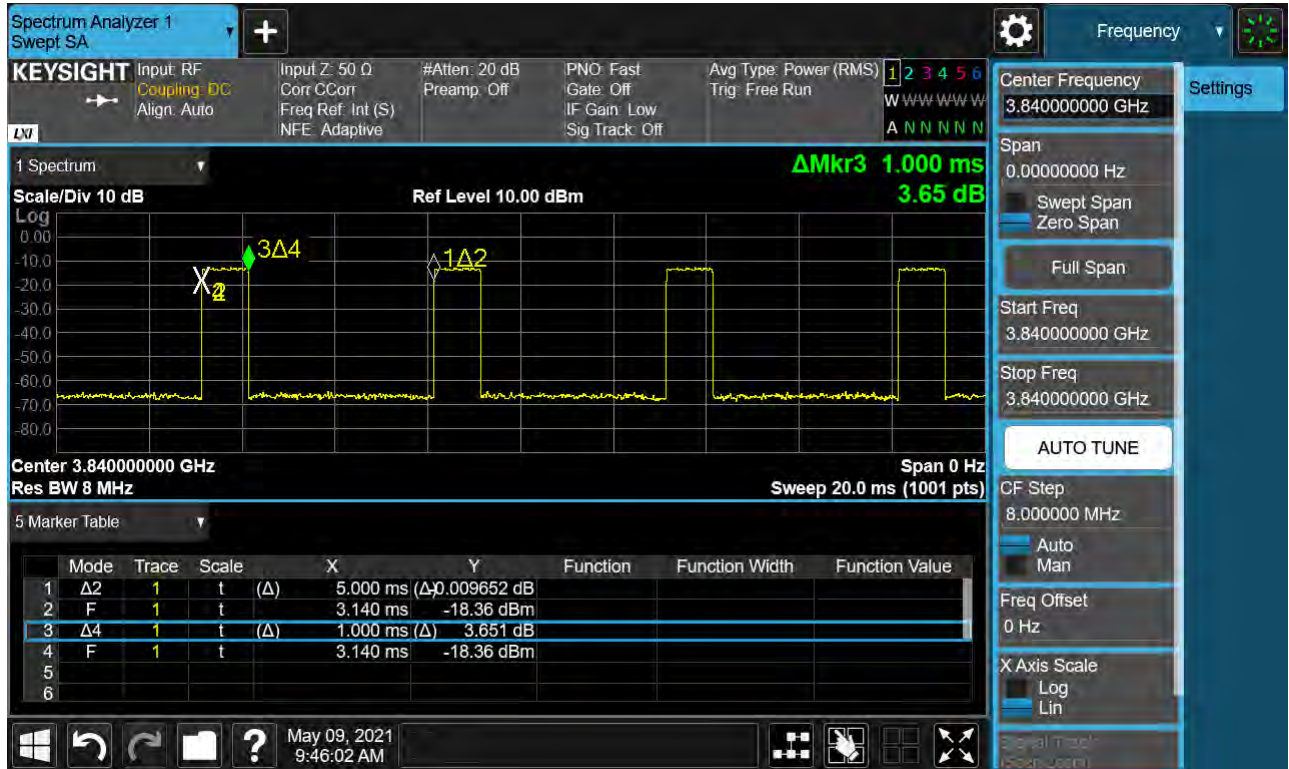
**9.5 CONDUCTED SPURIOUS EMISSIONS**

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
Sub6 n77	10	3705.00	9.9427	37.805	-69.950	-32.145	-13.00
		3840.00	8.8410	37.805	-71.039	-33.234	
		3975.00	9.7084	37.805	-70.480	-32.675	
	15	3707.52	9.3689	37.805	-71.282	-33.477	
		3840.00	8.8619	37.805	-71.218	-33.413	
		3972.48	4.9243	37.190	-70.320	-33.130	
	20	3710.01	9.9442	37.805	-71.246	-33.441	
		3840.00	7.6914	37.805	-70.486	-32.681	
		3969.99	9.4442	37.805	-70.636	-32.831	
	30	3715.02	9.7278	37.805	-71.417	-33.612	
		3840.00	8.8589	37.805	-71.221	-33.416	
		3964.98	7.6760	37.805	-70.741	-32.936	
	40	3720.00	4.6087	37.190	-70.454	-33.264	
		3840.00	6.2443	37.805	-71.135	-33.330	
		3960.00	8.5977	37.805	-70.877	-33.072	
	50	3725.10	8.2971	37.805	-70.387	-32.582	
		3840.00	8.9292	37.805	-70.665	-32.860	
		3954.99	7.9776	37.805	-70.402	-32.597	
	60	3730.02	9.0793	37.805	-70.823	-33.018	
		3840.00	9.9337	37.805	-70.842	-33.037	
		3949.98	8.0539	37.805	-70.797	-32.992	
	70	3735.00	4.9233	37.190	-70.689	-33.499	
		3840.00	8.8859	37.805	-69.611	-31.806	
		3945.00	9.6934	37.805	-70.607	-32.802	
	80	3740.01	9.6899	37.805	-70.747	-32.942	
		3840.00	9.6919	37.805	-69.665	-31.860	
		3939.99	4.9332	37.190	-69.831	-32.641	
	90	3745.02	9.7114	37.805	-70.928	-33.123	
		3840.00	9.6884	37.805	-69.680	-31.875	
		3934.98	8.8868	37.805	-70.442	-32.637	
	100	3750.00	8.8809	37.805	-70.761	-32.956	
		3840.00	9.7238	37.805	-70.383	-32.578	
		3930.00	8.8624	37.805	-70.972	-33.167	

**Note:**

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 635 ~ 700.
2. Duty Cycle factor already applied on the factor.

- Duty Cycle Factor(dB) = 6.990



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

- Result(dBm) = Reading + Factor

3. Factor(dB)

Frequency Range (GHz)	Factor [dB]
0.03 – 1	34.484
1 – 5	37.190
5 – 10	37.805
10 – 15	38.330
15 – 20	38.703
Above 20	39.345

## 9.6 BAND EDGE

1. Plots of the EUT's Band Edge are shown Page 503 ~ 634.
2. Duty Cycle factor already applied on the factor.
  - Factor(dB) = Duty Cycle factor + Cable Loss + Ext. Attenuator + Power Splitter
  - Result(dBm) = Reading + Factor
  - Duty Cycle Factor(dB) = 6.990

**9.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE**

- ▣ BandWidth: 10 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3705.000	100 %	+20(Ref)	3705 000 003	0.0	0.000 000	0.000
	100 %	-30	3704 999 994	-9.2	0.000 000	-0.002
	100 %	-20	3704 999 999	-3.7	0.000 000	-0.001
	100 %	-10	3705 000 003	0.6	0.000 000	0.000
	100 %	0	3704 999 995	-7.9	0.000 000	-0.002
	100 %	+10	3704 999 988	-14.8	0.000 000	-0.004
	100 %	+30	3705 000 000	-3.0	0.000 000	-0.001
	100 %	+40	3704 999 998	-4.3	0.000 000	-0.001
	100 %	+50	3705 000 002	-0.3	0.000 000	0.000
	Batt. Endpoint	+20	3704 999 998	-5.2	0.000 000	-0.001
3975.000	100 %	+20(Ref)	3974 999 987	0.0	0.000 000	0.000
	100 %	-30	3974 999 973	-14.6	0.000 000	-0.004
	100 %	-20	3974 999 978	-8.9	0.000 000	-0.002
	100 %	-10	3974 999 979	-7.8	0.000 000	-0.002
	100 %	0	3974 999 975	-12.2	0.000 000	-0.003
	100 %	+10	3974 999 971	-15.8	0.000 000	-0.004
	100 %	+30	3974 999 980	-6.8	0.000 000	-0.002
	100 %	+40	3974 999 979	-8.5	0.000 000	-0.002
	100 %	+50	3974 999 976	-11.4	0.000 000	-0.003
	Batt. Endpoint	+20	3974 999 985	-2.3	0.000 000	-0.001

- ▣ BandWidth: 15 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3707.520	100 %	+20(Ref)	3707 519 993	0.0	0.000 000	0.000
	100 %	-30	3707 519 983	-10.2	0.000 000	-0.003
	100 %	-20	3707 519 989	-4.2	0.000 000	-0.001
	100 %	-10	3707 519 981	-11.8	0.000 000	-0.003
	100 %	0	3707 519 996	2.4	0.000 000	0.001
	100 %	+10	3707 519 990	-3.0	0.000 000	-0.001
	100 %	+30	3707 519 990	-3.5	0.000 000	-0.001
	100 %	+40	3707 519 989	-4.0	0.000 000	-0.001
	100 %	+50	3707 519 987	-6.0	0.000 000	-0.002
	Batt. Endpoint	+20	3707 519 990	-3.2	0.000 000	-0.001
3972.480	100 %	+20(Ref)	3972 479 990	0.0	0.000 000	0.000
	100 %	-30	3972 479 983	-7.6	0.000 000	-0.002
	100 %	-20	3972 479 984	-6.4	0.000 000	-0.002
	100 %	-10	3972 479 975	-15.2	0.000 000	-0.004
	100 %	0	3972 479 976	-13.8	0.000 000	-0.003
	100 %	+10	3972 479 985	-5.7	0.000 000	-0.001
	100 %	+30	3972 479 972	-17.8	0.000 000	-0.004
	100 %	+40	3972 479 976	-13.9	0.000 000	-0.003
	100 %	+50	3972 479 978	-11.7	0.000 000	-0.003
	Batt. Endpoint	+20	3972 479 978	-12.2	0.000 000	-0.003

- ▣ BandWidth: 20 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3710.010	100 %	+20(Ref)	3710 009 983	0.0	0.000 000	0.000
	100 %	-30	3710 009 974	-8.3	0.000 000	-0.002
	100 %	-20	3710 009 980	-3.3	0.000 000	-0.001
	100 %	-10	3710 009 977	-6.1	0.000 000	-0.002
	100 %	0	3710 009 978	-4.3	0.000 000	-0.001
	100 %	+10	3710 009 974	-8.4	0.000 000	-0.002
	100 %	+30	3710 009 982	-0.9	0.000 000	0.000
	100 %	+40	3710 009 974	-8.4	0.000 000	-0.002
	100 %	+50	3710 009 972	-10.4	0.000 000	-0.003
	Batt. Endpoint	+20	3710 009 974	-8.8	0.000 000	-0.002
3969.990	100 %	+20(Ref)	3969 989 986	0.0	0.000 000	0.000
	100 %	-30	3969 989 970	-16.2	0.000 000	-0.004
	100 %	-20	3969 989 975	-11.2	0.000 000	-0.003
	100 %	-10	3969 989 980	-6.5	0.000 000	-0.002
	100 %	0	3969 989 976	-10.9	0.000 000	-0.003
	100 %	+10	3969 989 973	-13.5	0.000 000	-0.003
	100 %	+30	3969 989 976	-10.7	0.000 000	-0.003
	100 %	+40	3969 989 965	-21.3	-0.000 001	-0.005
	100 %	+50	3969 989 984	-2.2	0.000 000	-0.001
	Batt. Endpoint	+20	3969 989 975	-11.0	0.000 000	-0.003

- ▣ BandWidth: 30 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3715.020	100 %	+20(Ref)	3715 019 999	0.0	0.000 000	0.000
	100 %	-30	3715 019 998	-0.7	0.000 000	0.000
	100 %	-20	3715 019 985	-14.0	0.000 000	-0.004
	100 %	-10	3715 019 995	-3.7	0.000 000	-0.001
	100 %	0	3715 019 996	-3.2	0.000 000	-0.001
	100 %	+10	3715 019 992	-7.1	0.000 000	-0.002
	100 %	+30	3715 019 997	-1.5	0.000 000	0.000
	100 %	+40	3715 019 995	-3.3	0.000 000	-0.001
	100 %	+50	3715 019 994	-4.5	0.000 000	-0.001
	Batt. Endpoint	+20	3715 019 988	-10.8	0.000 000	-0.003
3964.980	100 %	+20(Ref)	3964 979 993	0.0	0.000 000	0.000
	100 %	-30	3964 979 985	-8.9	0.000 000	-0.002
	100 %	-20	3964 979 975	-18.6	0.000 000	-0.005
	100 %	-10	3964 979 982	-11.2	0.000 000	-0.003
	100 %	0	3964 979 982	-11.7	0.000 000	-0.003
	100 %	+10	3964 979 972	-21.0	-0.000 001	-0.005
	100 %	+30	3964 979 977	-16.7	0.000 000	-0.004
	100 %	+40	3964 979 983	-10.4	0.000 000	-0.003
	100 %	+50	3964 979 985	-8.0	0.000 000	-0.002
	Batt. Endpoint	+20	3964 979 979	-14.4	0.000 000	-0.004

- ▣ BandWidth: 40 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3720.000	100 %	+20(Ref)	3720 000 002	0.0	0.000 000	0.000
	100 %	-30	3719 999 987	-14.7	0.000 000	-0.004
	100 %	-20	3719 999 993	-8.5	0.000 000	-0.002
	100 %	-10	3719 999 999	-3.1	0.000 000	-0.001
	100 %	0	3719 999 986	-15.6	0.000 000	-0.004
	100 %	+10	3719 999 993	-9.1	0.000 000	-0.002
	100 %	+30	3719 999 989	-13.0	0.000 000	-0.004
	100 %	+40	3719 999 998	-3.2	0.000 000	-0.001
	100 %	+50	3719 999 993	-8.9	0.000 000	-0.002
	Batt. Endpoint	+20	3719 999 991	-10.3	0.000 000	-0.003
3960.000	100 %	+20(Ref)	3959 999 997	0.0	0.000 000	0.000
	100 %	-30	3959 999 990	-7.0	0.000 000	-0.002
	100 %	-20	3959 999 990	-6.5	0.000 000	-0.002
	100 %	-10	3959 999 980	-16.6	0.000 000	-0.004
	100 %	0	3959 999 985	-11.4	0.000 000	-0.003
	100 %	+10	3959 999 992	-4.7	0.000 000	-0.001
	100 %	+30	3959 999 995	-2.0	0.000 000	-0.001
	100 %	+40	3959 999 987	-10.3	0.000 000	-0.003
	100 %	+50	3959 999 984	-13.1	0.000 000	-0.003
	Batt. Endpoint	+20	3959 999 994	-3.1	0.000 000	-0.001



- ▣ BandWidth: 50 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3725.010	100 %	+20(Ref)	3725 009 997	0.0	0.000 000	0.000
	100 %	-30	3725 009 998	1.5	0.000 000	0.000
	100 %	-20	3725 009 990	-6.6	0.000 000	-0.002
	100 %	-10	3725 009 993	-3.8	0.000 000	-0.001
	100 %	0	3725 009 992	-5.1	0.000 000	-0.001
	100 %	+10	3725 009 993	-3.6	0.000 000	-0.001
	100 %	+30	3725 009 986	-10.6	0.000 000	-0.003
	100 %	+40	3725 009 994	-2.6	0.000 000	-0.001
	100 %	+50	3725 009 994	-3.0	0.000 000	-0.001
	Batt. Endpoint	+20	3725 009 995	-1.4	0.000 000	0.000
3954.990	100 %	+20(Ref)	3954 989 994	0.0	0.000 000	0.000
	100 %	-30	3954 989 987	-6.4	0.000 000	-0.002
	100 %	-20	3954 989 984	-10.0	0.000 000	-0.003
	100 %	-10	3954 989 984	-9.4	0.000 000	-0.002
	100 %	0	3954 989 991	-2.9	0.000 000	-0.001
	100 %	+10	3954 989 988	-5.6	0.000 000	-0.001
	100 %	+30	3954 989 984	-9.4	0.000 000	-0.002
	100 %	+40	3954 989 981	-12.2	0.000 000	-0.003
	100 %	+50	3954 989 992	-2.1	0.000 000	-0.001
	Batt. Endpoint	+20	3954 989 987	-6.5	0.000 000	-0.002

- ▣ BandWidth: 60 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3730.020	100 %	+20(Ref)	3730 019 999	0.0	0.000 000	0.000
	100 %	-30	3730 019 995	-4.1	0.000 000	-0.001
	100 %	-20	3730 019 995	-4.7	0.000 000	-0.001
	100 %	-10	3730 019 995	-4.7	0.000 000	-0.001
	100 %	0	3730 019 985	-14.5	0.000 000	-0.004
	100 %	+10	3730 019 994	-4.9	0.000 000	-0.001
	100 %	+30	3730 019 996	-3.2	0.000 000	-0.001
	100 %	+40	3730 019 996	-3.2	0.000 000	-0.001
	100 %	+50	3730 019 993	-6.3	0.000 000	-0.002
	Batt. Endpoint	+20	3730 019 988	-11.2	0.000 000	-0.003
3949.980	100 %	+20(Ref)	3949 979 983	0.0	0.000 000	0.000
	100 %	-30	3949 979 963	-20.1	-0.000 001	-0.005
	100 %	-20	3949 979 963	-20.1	-0.000 001	-0.005
	100 %	-10	3949 979 976	-7.2	0.000 000	-0.002
	100 %	0	3949 979 973	-9.9	0.000 000	-0.002
	100 %	+10	3949 979 975	-8.5	0.000 000	-0.002
	100 %	+30	3949 979 975	-8.5	0.000 000	-0.002
	100 %	+40	3949 979 977	-6.4	0.000 000	-0.002
	100 %	+50	3949 979 965	-17.9	0.000 000	-0.005
	Batt. Endpoint	+20	3949 979 972	-10.7	0.000 000	-0.003

- ▣ BandWidth: 70 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3735.000	100 %	+20(Ref)	3734 999 995	0.0	0.000 000	0.000
	100 %	-30	3734 999 993	-1.2	0.000 000	0.000
	100 %	-20	3734 999 988	-6.2	0.000 000	-0.002
	100 %	-10	3734 999 983	-11.4	0.000 000	-0.003
	100 %	0	3734 999 983	-11.4	0.000 000	-0.003
	100 %	+10	3734 999 993	-1.7	0.000 000	0.000
	100 %	+30	3734 999 992	-2.8	0.000 000	-0.001
	100 %	+40	3734 999 990	-4.8	0.000 000	-0.001
	100 %	+50	3734 999 990	-4.8	0.000 000	-0.001
	Batt. Endpoint	+20	3734 999 992	-2.0	0.000 000	-0.001
3945.000	100 %	+20(Ref)	3944 999 994	0.0	0.000 000	0.000
	100 %	-30	3944 999 987	-6.3	0.000 000	-0.002
	100 %	-20	3944 999 992	-1.6	0.000 000	0.000
	100 %	-10	3944 999 988	-5.2	0.000 000	-0.001
	100 %	0	3944 999 982	-11.3	0.000 000	-0.003
	100 %	+10	3944 999 982	-11.3	0.000 000	-0.003
	100 %	+30	3944 999 985	-8.8	0.000 000	-0.002
	100 %	+40	3944 999 987	-6.2	0.000 000	-0.002
	100 %	+50	3944 999 987	-6.2	0.000 000	-0.002
	Batt. Endpoint	+20	3944 999 988	-5.3	0.000 000	-0.001

- ▣ BandWidth: 80 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3740.010	100 %	+20(Ref)	3740 009 994	0.0	0.000 000	0.000
	100 %	-30	3740 009 995	1.2	0.000 000	0.000
	100 %	-20	3740 009 984	-9.8	0.000 000	-0.003
	100 %	-10	3740 009 994	0.1	0.000 000	0.000
	100 %	0	3740 009 994	0.1	0.000 000	0.000
	100 %	+10	3740 009 988	-5.8	0.000 000	-0.002
	100 %	+30	3740 009 984	-10.3	0.000 000	-0.003
	100 %	+40	3740 009 988	-6.6	0.000 000	-0.002
	100 %	+50	3740 009 988	-6.6	0.000 000	-0.002
	Batt. Endpoint	+20	3740 009 995	0.5	0.000 000	0.000
3939.990	100 %	+20(Ref)	3939 989 993	0.0	0.000 000	0.000
	100 %	-30	3939 989 985	-7.3	0.000 000	-0.002
	100 %	-20	3939 989 979	-13.8	0.000 000	-0.004
	100 %	-10	3939 989 981	-12.2	0.000 000	-0.003
	100 %	0	3939 989 975	-17.8	0.000 000	-0.005
	100 %	+10	3939 989 975	-17.8	0.000 000	-0.005
	100 %	+30	3939 989 979	-14.0	0.000 000	-0.004
	100 %	+40	3939 989 988	-4.8	0.000 000	-0.001
	100 %	+50	3939 989 988	-4.8	0.000 000	-0.001
	Batt. Endpoint	+20	3939 989 978	-15.2	0.000 000	-0.004

- ▣ BandWidth: 90 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

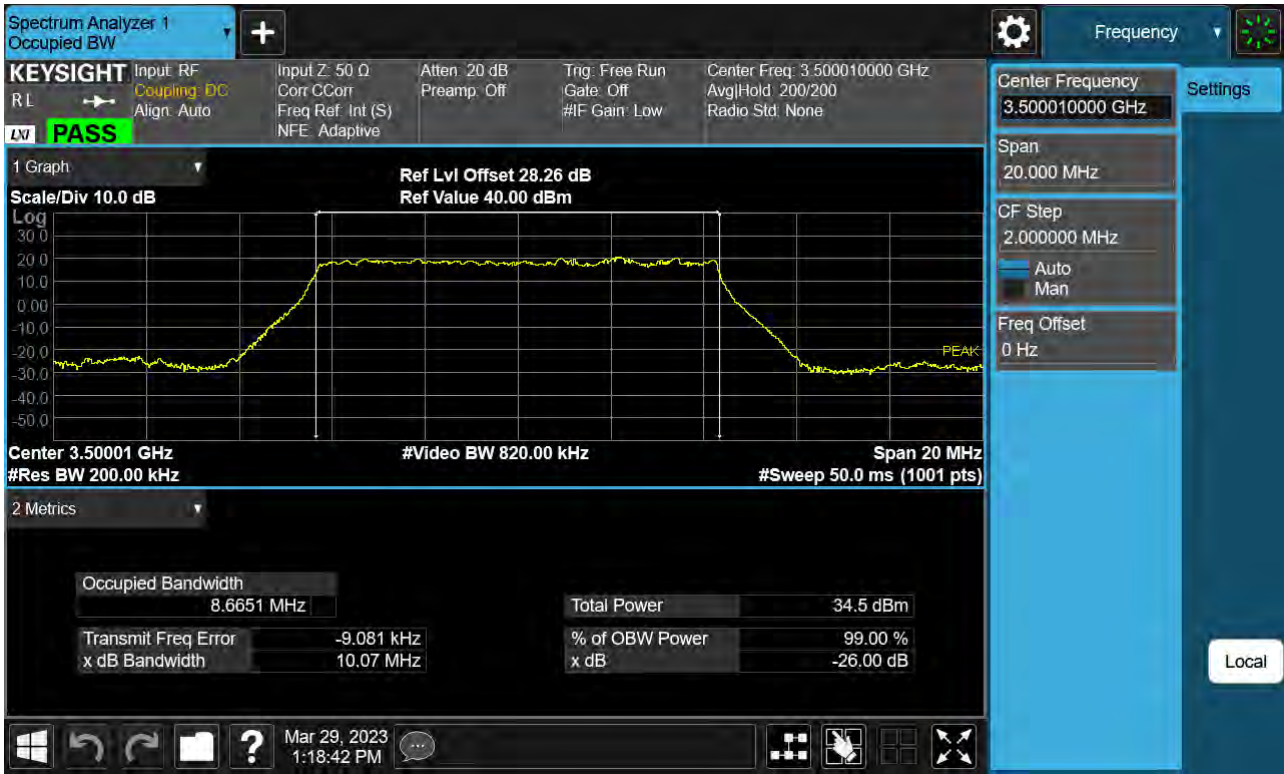
Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3745.020	100 %	+20(Ref)	3745 020 007	0.0	0.000 000	0.000
	100 %	-30	3745 020 004	-2.1	0.000 000	-0.001
	100 %	-20	3745 020 003	-3.5	0.000 000	-0.001
	100 %	-10	3745 020 002	-5.0	0.000 000	-0.001
	100 %	0	3745 020 002	-5.0	0.000 000	-0.001
	100 %	+10	3745 020 004	-2.9	0.000 000	-0.001
	100 %	+30	3745 020 005	-1.8	0.000 000	0.000
	100 %	+40	3745 020 005	-1.8	0.000 000	0.000
	100 %	+50	3745 019 998	-8.7	0.000 000	-0.002
	Batt. Endpoint	+20	3745 020 009	2.8	0.000 000	0.001
3934.980	100 %	+20(Ref)	3934 979 995	0.0	0.000 000	0.000
	100 %	-30	3934 979 987	-7.5	0.000 000	-0.002
	100 %	-20	3934 979 987	-7.5	0.000 000	-0.002
	100 %	-10	3934 979 995	-0.2	0.000 000	0.000
	100 %	0	3934 979 984	-10.9	0.000 000	-0.003
	100 %	+10	3934 979 984	-10.9	0.000 000	-0.003
	100 %	+30	3934 979 991	-4.3	0.000 000	-0.001
	100 %	+40	3934 979 986	-9.0	0.000 000	-0.002
	100 %	+50	3934 979 986	-9.0	0.000 000	-0.002
	Batt. Endpoint	+20	3934 979 993	-1.3	0.000 000	0.000

- ▣ BandWidth: 100 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
3750.000	100 %	+20(Ref)	3749 999 991	0.0	0.000 000	0.000
	100 %	-30	3749 999 996	4.8	0.000 000	0.001
	100 %	-20	3749 999 996	4.5	0.000 000	0.001
	100 %	-10	3749 999 996	4.5	0.000 000	0.001
	100 %	0	3749 999 989	-2.1	0.000 000	-0.001
	100 %	+10	3749 999 991	-0.8	0.000 000	0.000
	100 %	+30	3749 999 987	-4.8	0.000 000	-0.001
	100 %	+40	3749 999 987	-4.8	0.000 000	-0.001
	100 %	+50	3749 999 987	-4.8	0.000 000	-0.001
	Batt. Endpoint	+20	3749 999 992	0.6	0.000 000	0.000
3930.000	100 %	+20(Ref)	3929 999 987	0.0	0.000 000	0.000
	100 %	-30	3929 999 976	-10.6	0.000 000	-0.003
	100 %	-20	3929 999 976	-11.4	0.000 000	-0.003
	100 %	-10	3929 999 976	-11.4	0.000 000	-0.003
	100 %	0	3929 999 973	-14.4	0.000 000	-0.004
	100 %	+10	3929 999 983	-3.8	0.000 000	-0.001
	100 %	+30	3929 999 977	-10.2	0.000 000	-0.003
	100 %	+40	3929 999 977	-10.2	0.000 000	-0.003
	100 %	+50	3929 999 981	-6.2	0.000 000	-0.002
	Batt. Endpoint	+20	3929 999 976	-11.2	0.000 000	-0.003

**10. TEST PLOTS(3450 MHz - 3550 MHz)**

Sub6 n77. Occupied Bandwidth Plot (10 M BW Ch.633334 BPSK )

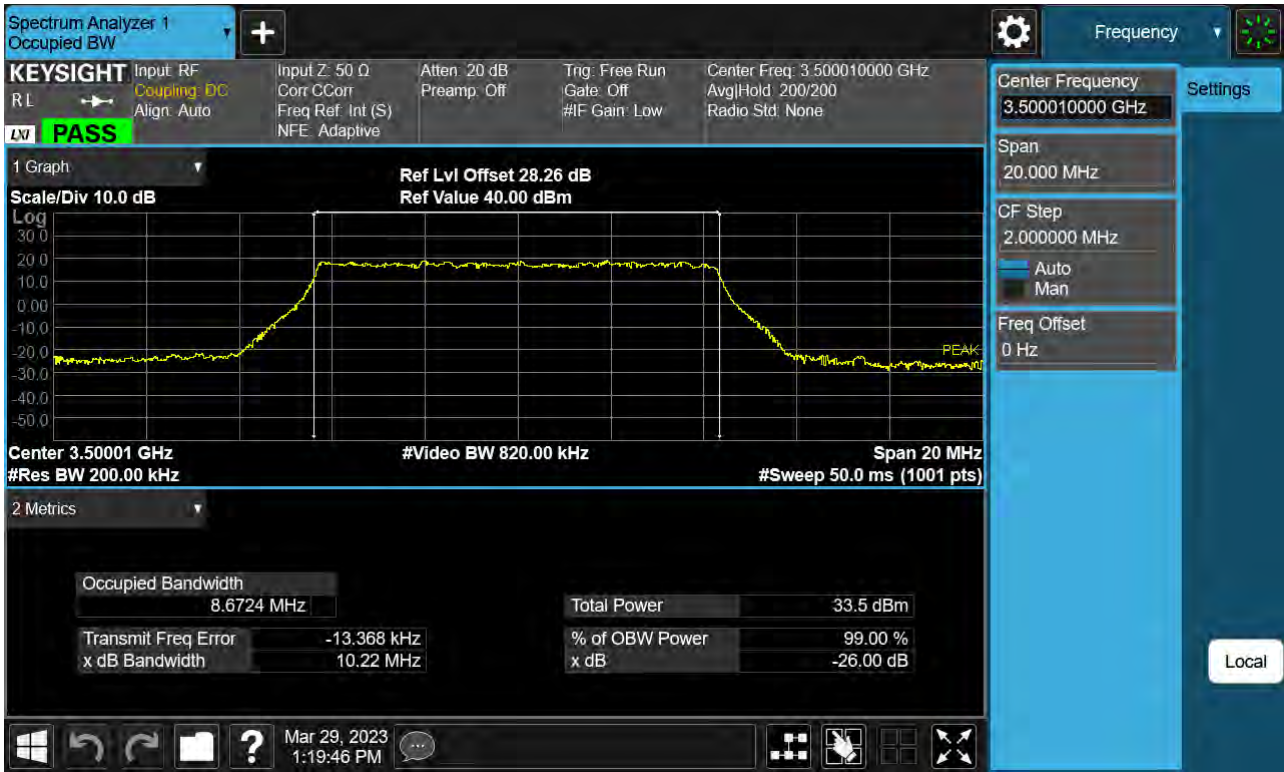




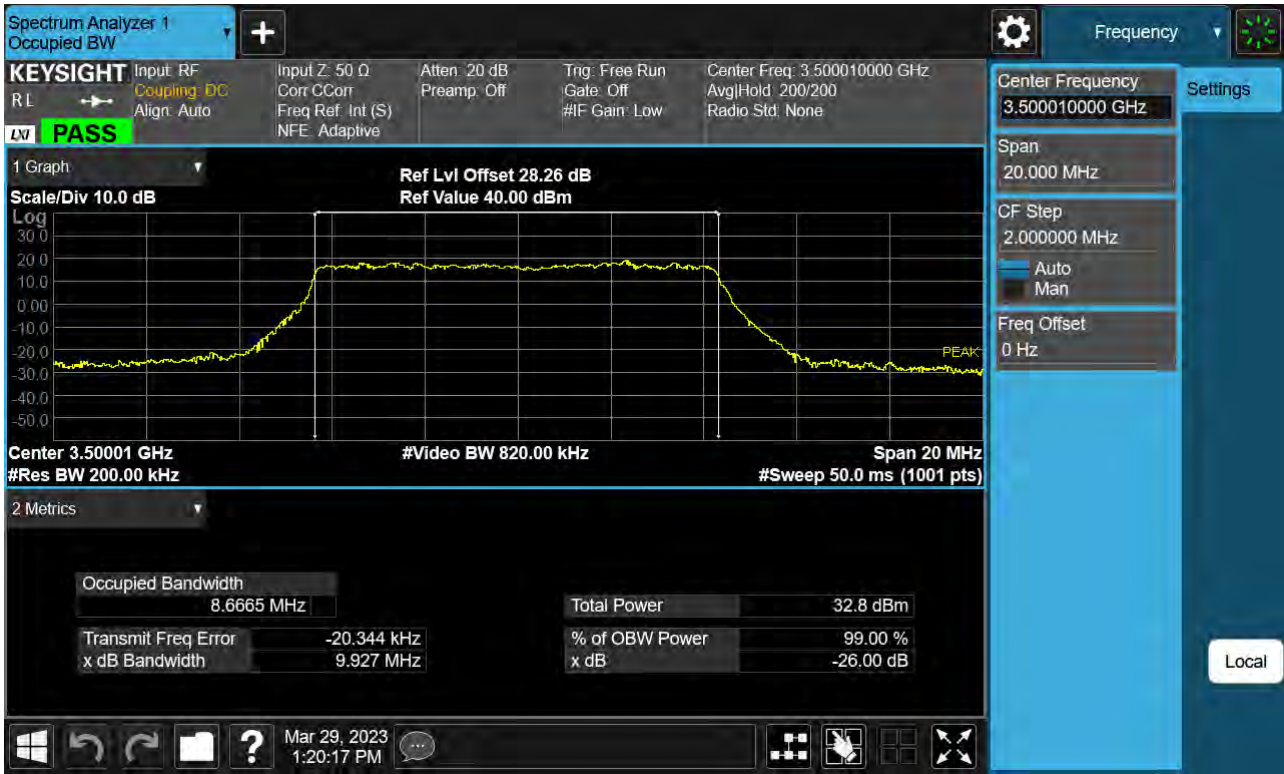
Sub6 n77. Occupied Bandwidth Plot (10 M BW Ch.633334 QPSK )



Sub6 n77. Occupied Bandwidth Plot (10 M BW Ch.633334 16QAM )



Sub6 n77. Occupied Bandwidth Plot (10 M BW Ch.633334 64QAM )

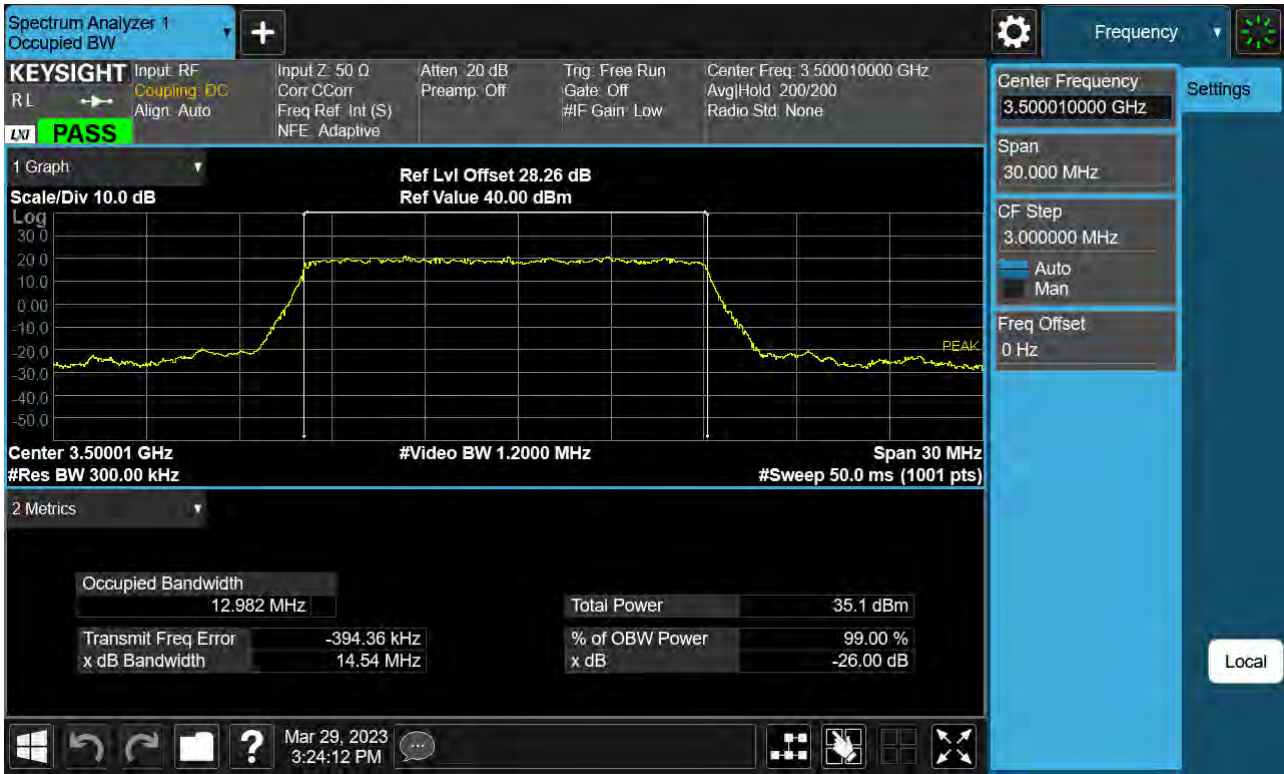


Sub6 n77. Occupied Bandwidth Plot (10 M BW Ch.633334 256QAM )

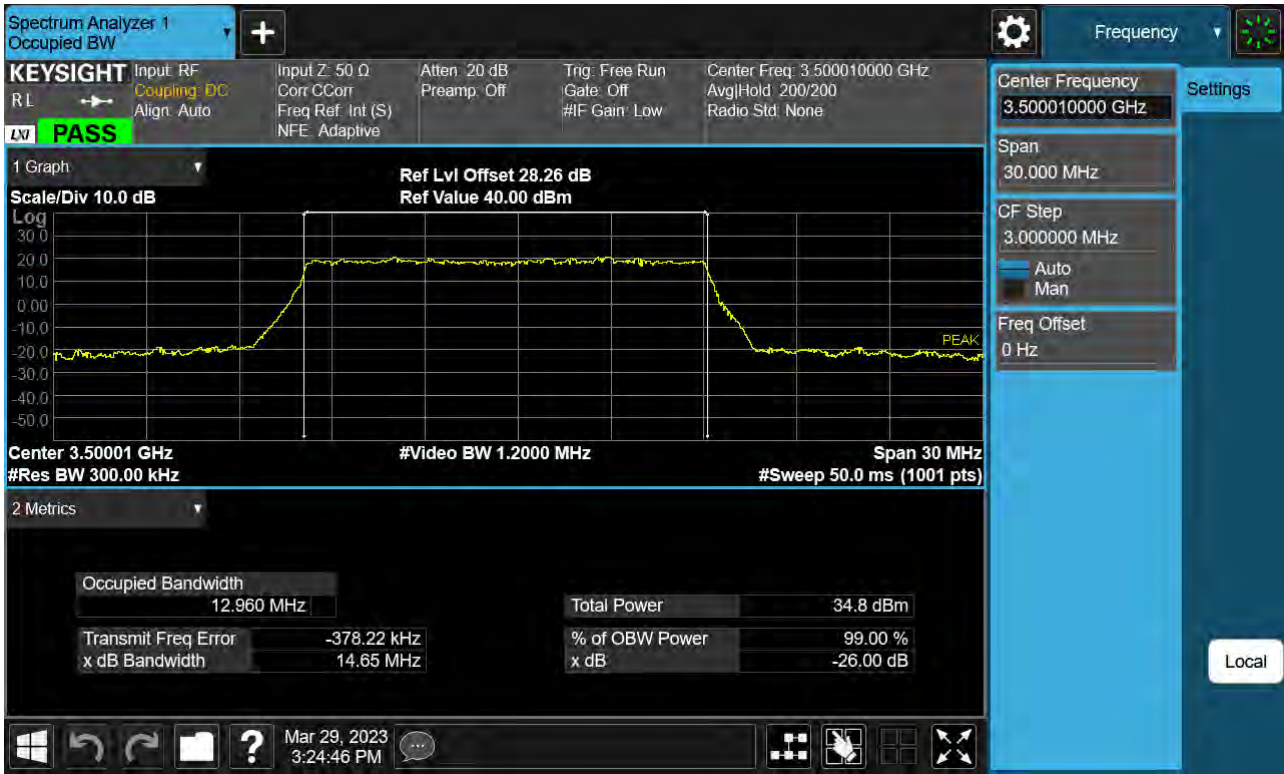




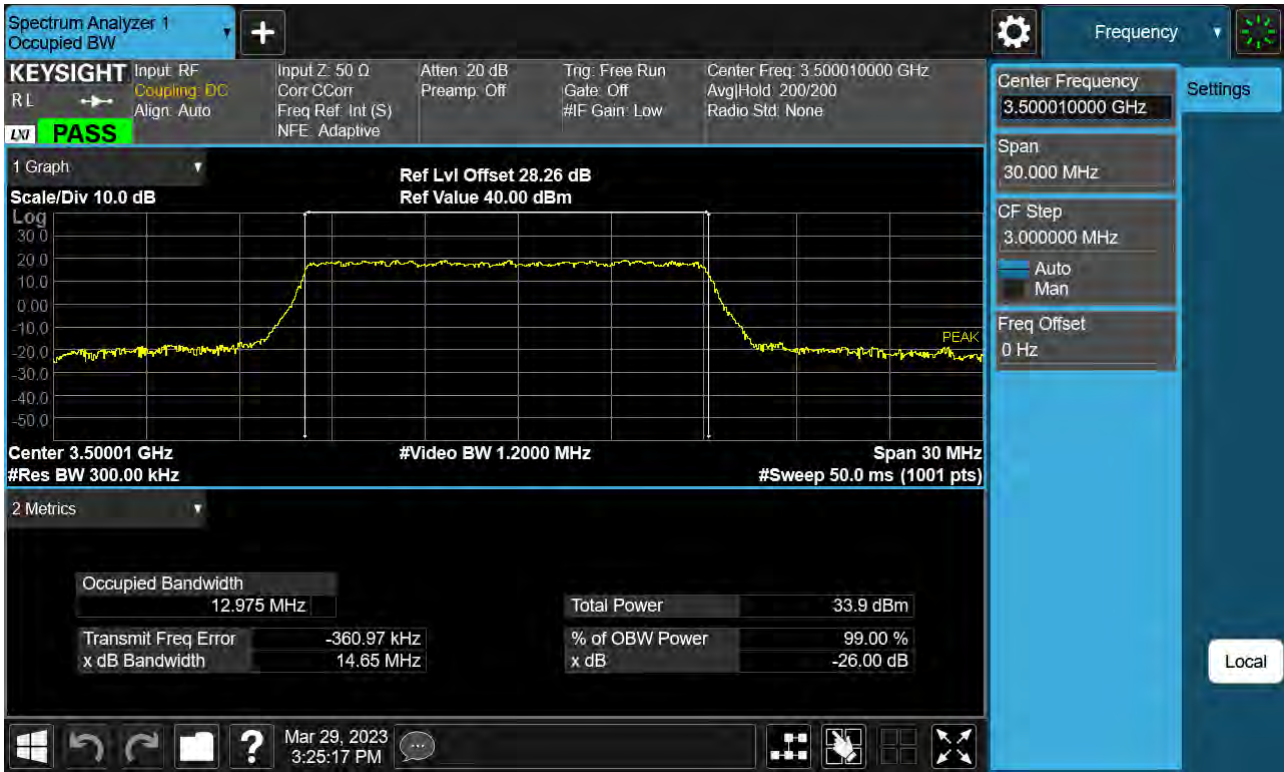
Sub6 n77. Occupied Bandwidth Plot (15 M BW Ch.633334 BPSK )



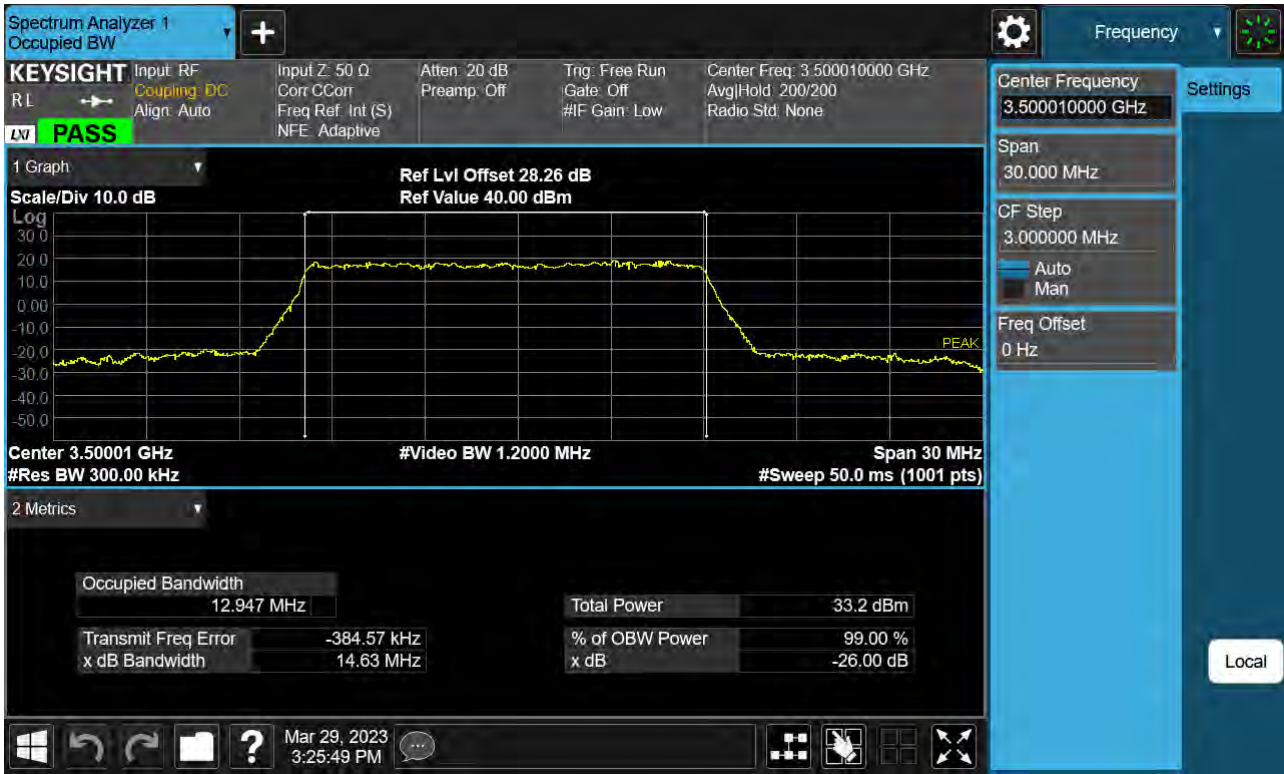
Sub6 n77. Occupied Bandwidth Plot (15 M BW Ch.633334 QPSK)



Sub6 n77. Occupied Bandwidth Plot (15 M BW Ch.633334 16QAM)



Sub6 n77. Occupied Bandwidth Plot (15 M BW Ch.633334 64QAM )

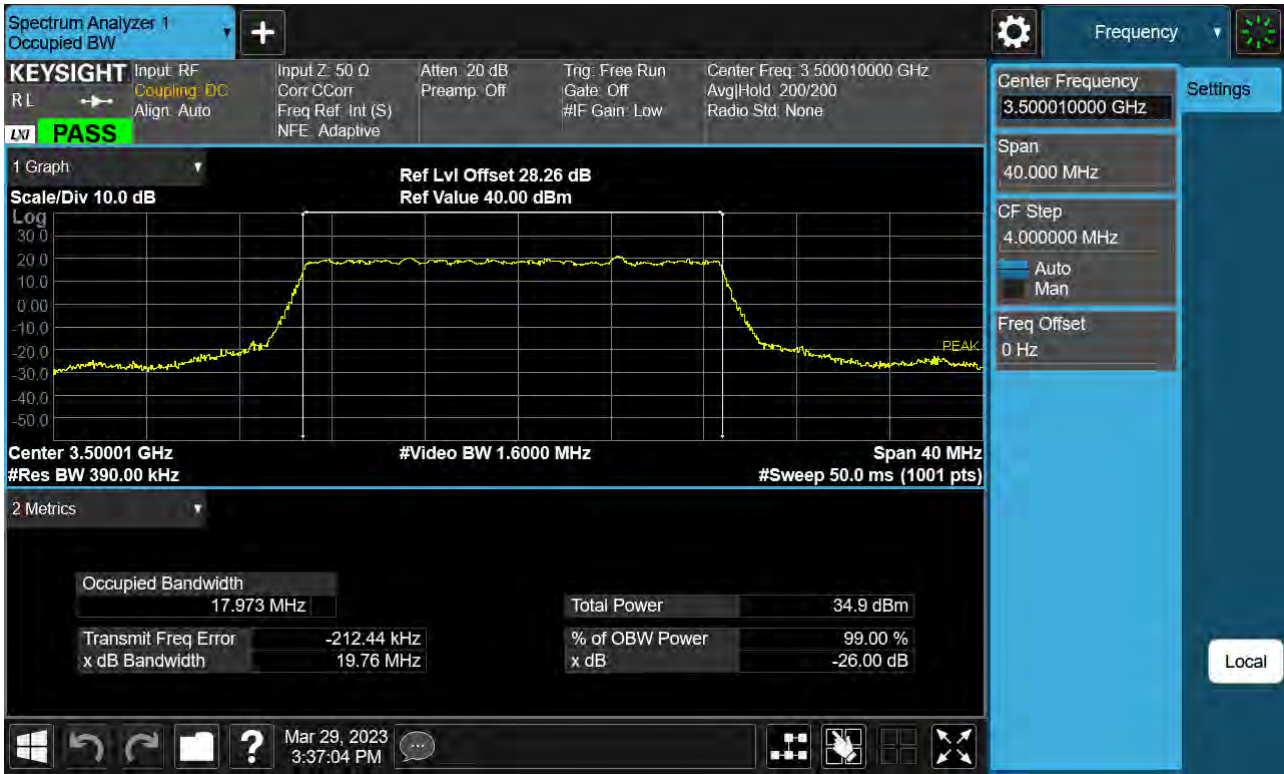




Sub6 n77. Occupied Bandwidth Plot (15 M BW Ch.633334 256QAM )



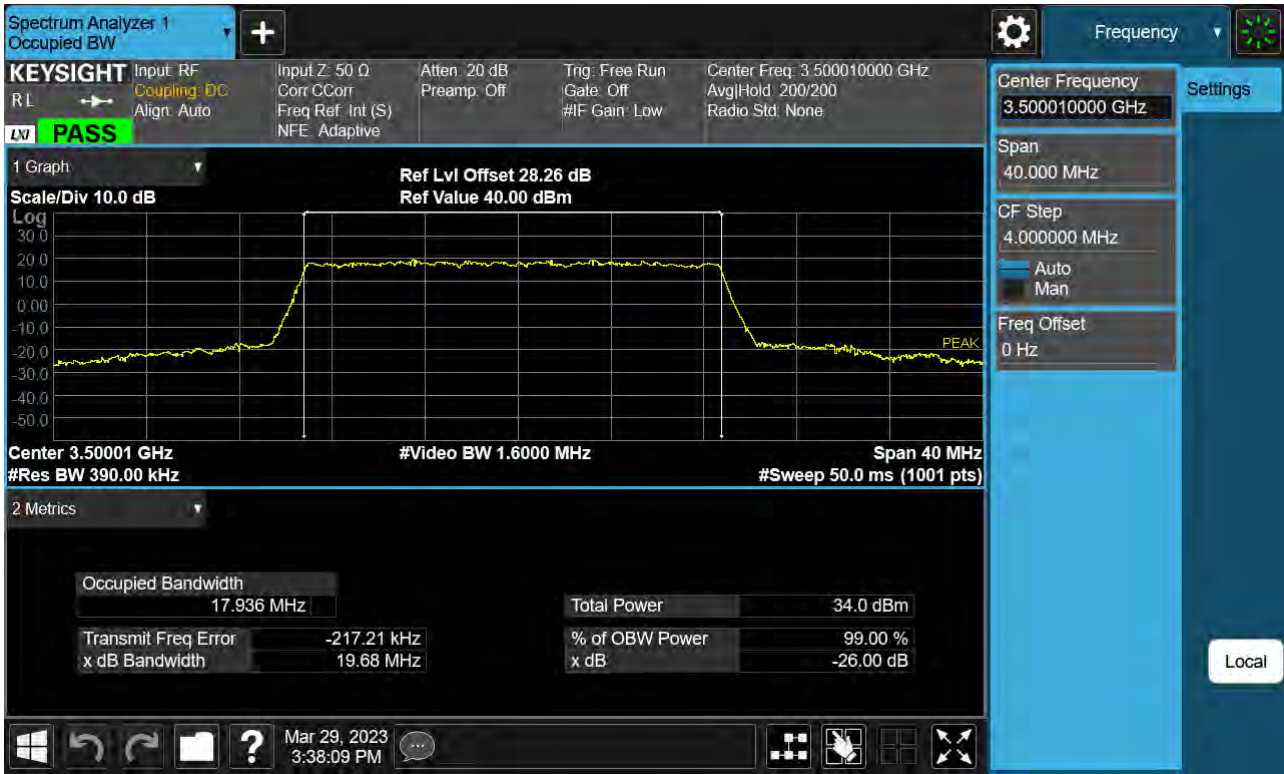
Sub6 n77. Occupied Bandwidth Plot (20 M BW Ch.633334 BPSK )



Sub6 n77. Occupied Bandwidth Plot (20 M BW Ch.633334 QPSK )



Sub6 n77. Occupied Bandwidth Plot (20 M BW Ch.633334 16QAM )

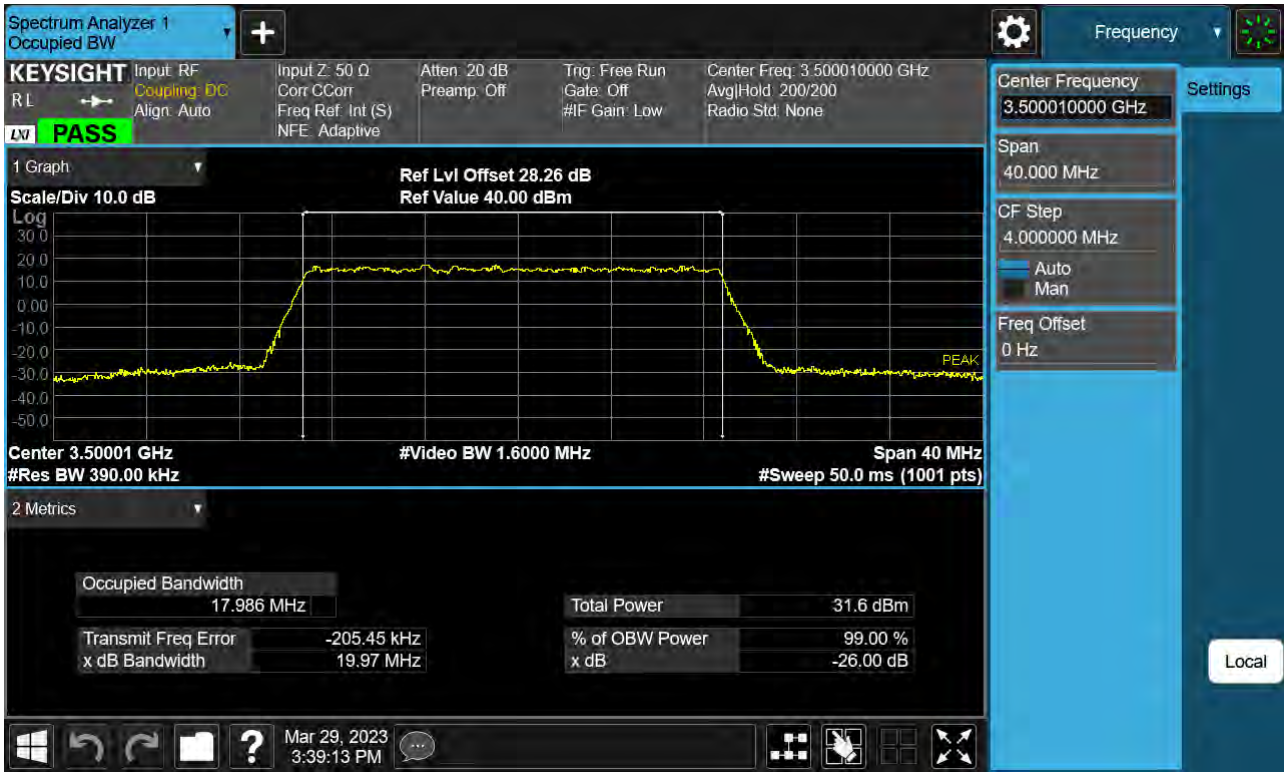




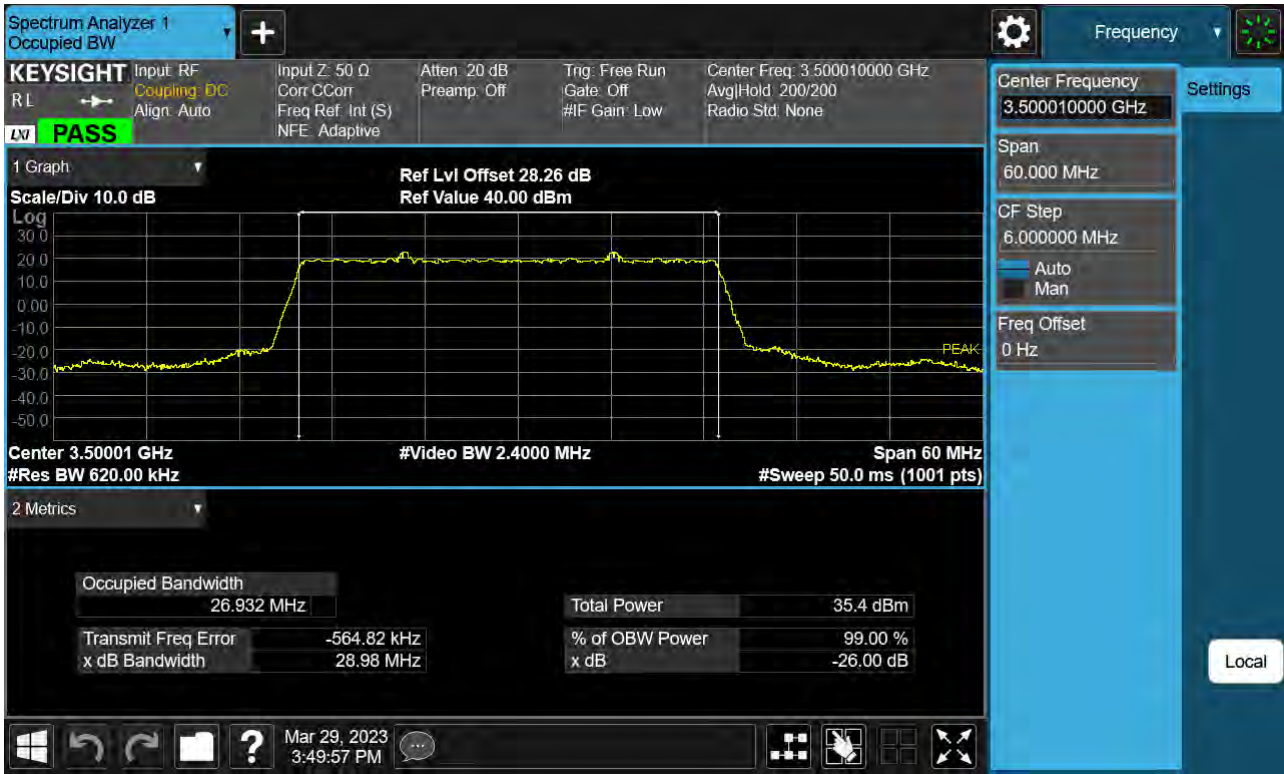
Sub6 n77. Occupied Bandwidth Plot (20 M BW Ch.633334 64QAM )



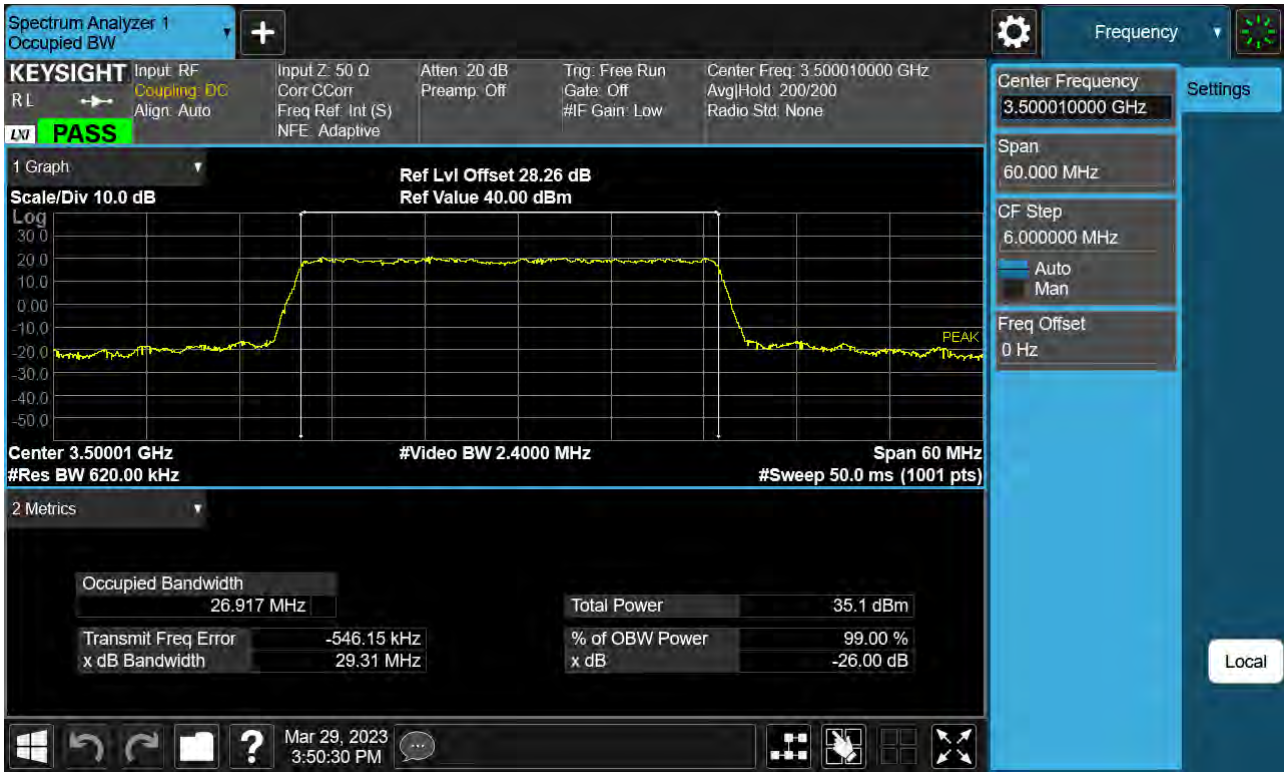
Sub6 n77. Occupied Bandwidth Plot (20 M BW Ch.633334 256QAM)



Sub6 n77. Occupied Bandwidth Plot (30 M BW Ch.633334 BPSK )



Sub6 n77. Occupied Bandwidth Plot (30 M BW Ch.633334 QPSK )





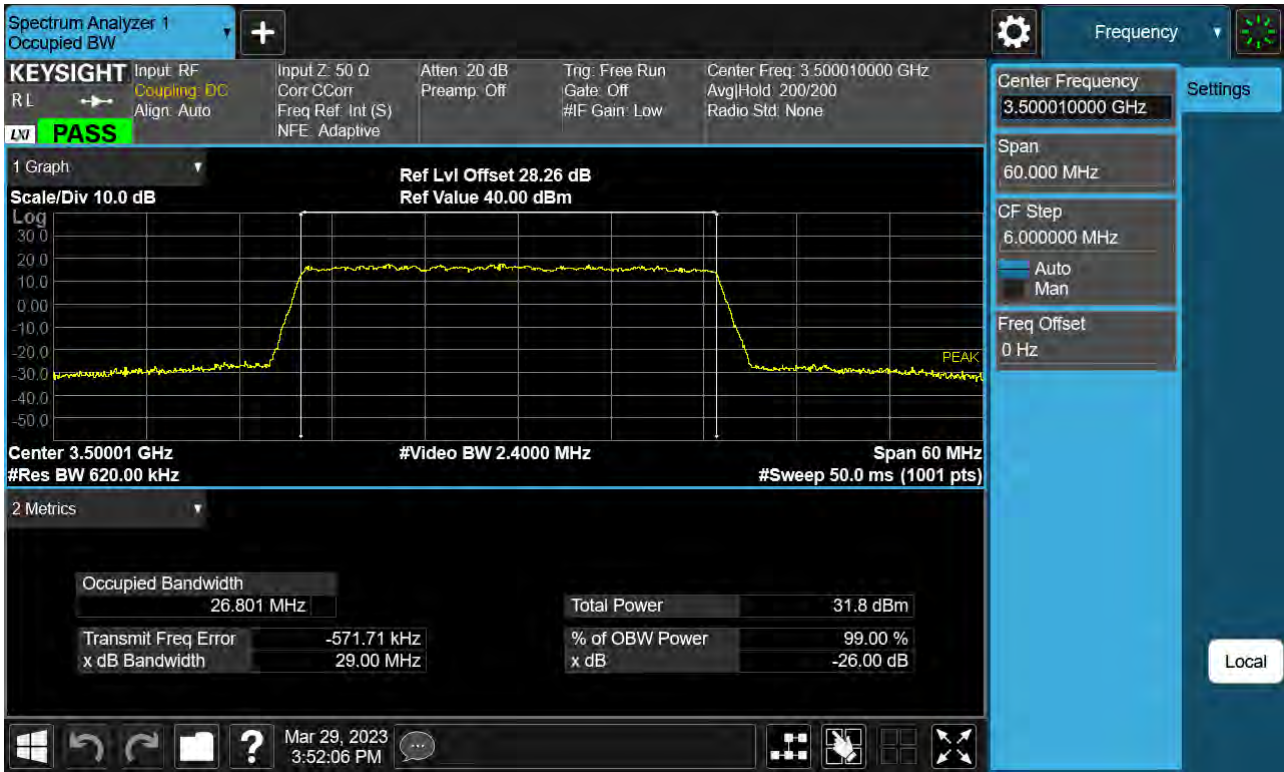
Sub6 n77. Occupied Bandwidth Plot (30 M BW Ch.633334 16QAM )



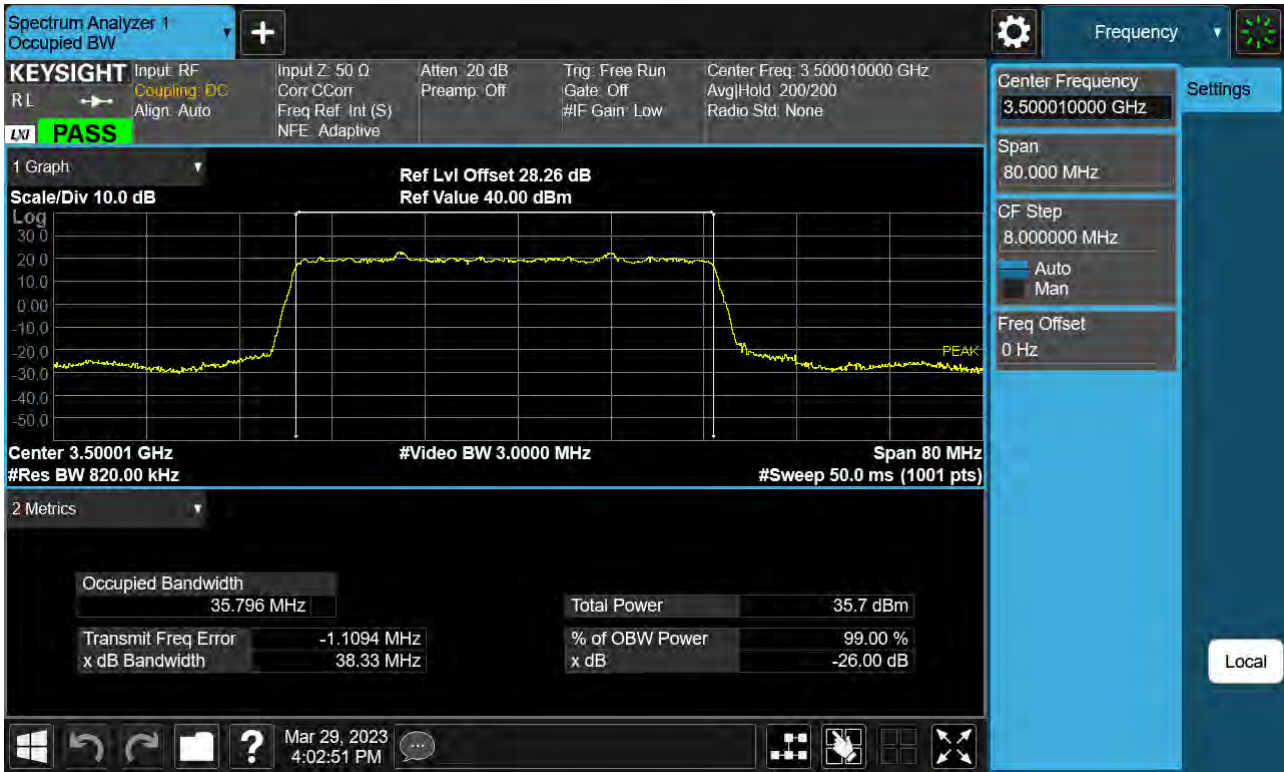
Sub6 n77. Occupied Bandwidth Plot (30 M BW Ch.633334 64QAM )



Sub6 n77. Occupied Bandwidth Plot (30 M BW Ch.633334 256QAM )

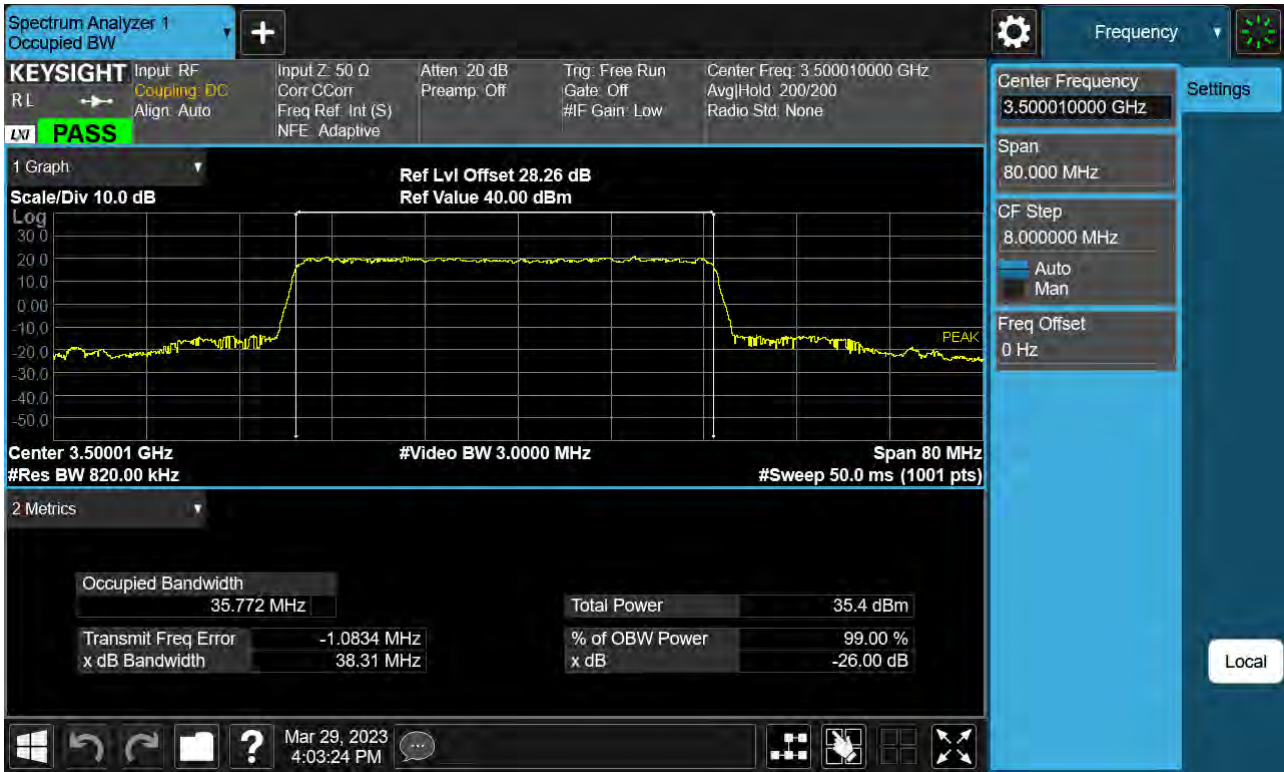


Sub6 n77. Occupied Bandwidth Plot (40 M BW Ch.633334 BPSK )

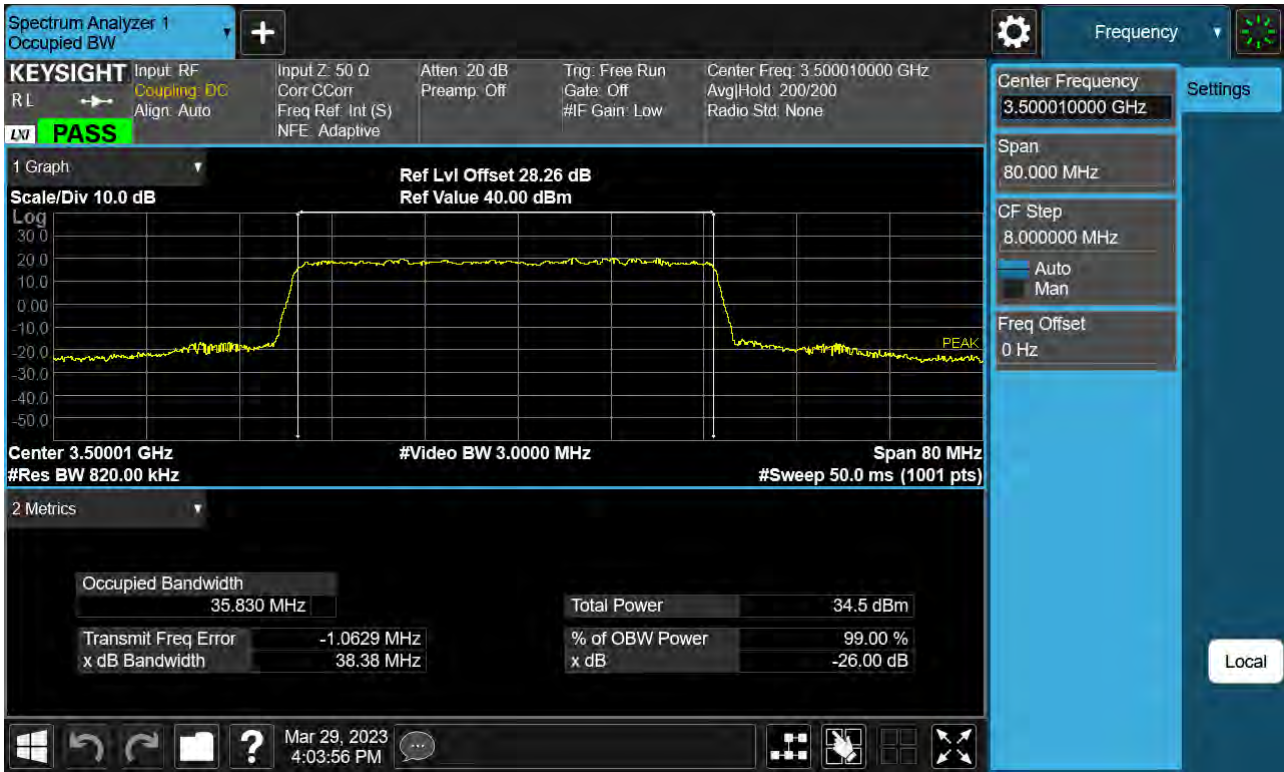




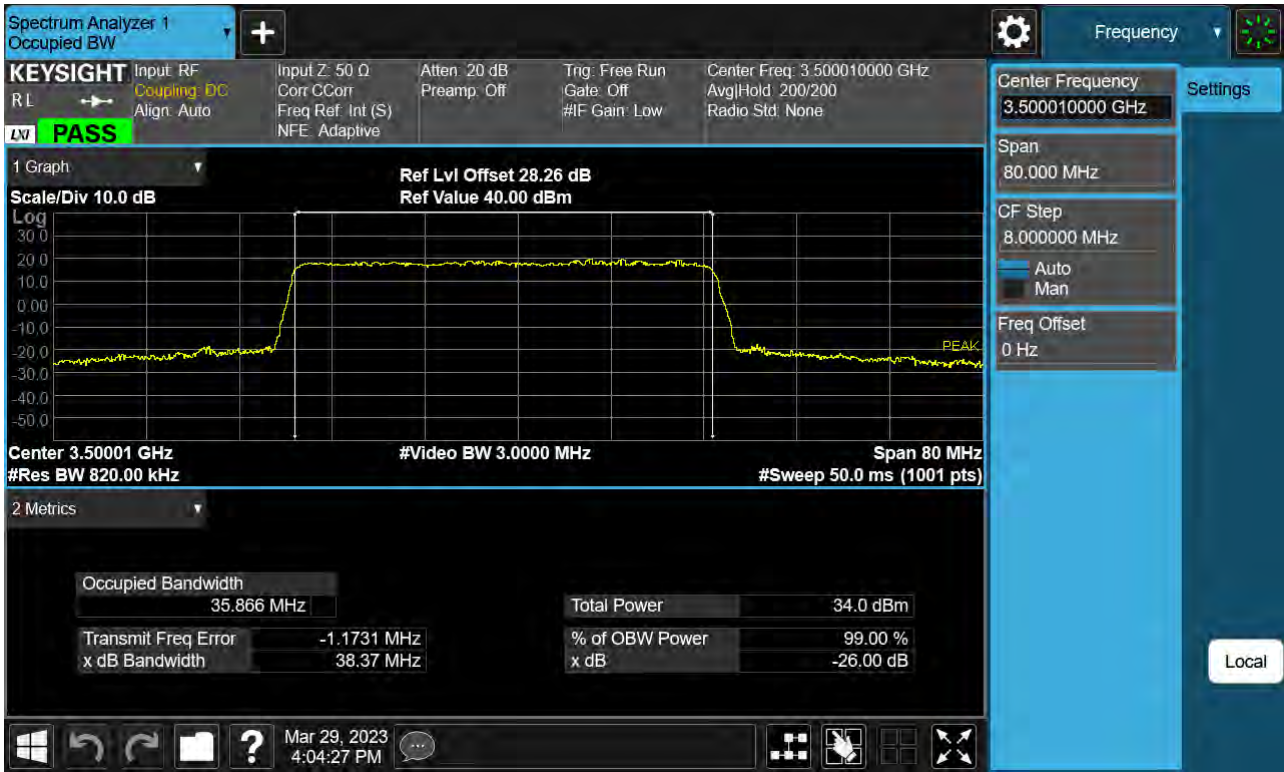
Sub6 n77. Occupied Bandwidth Plot (40 M BW Ch.633334 QPSK )



Sub6 n77. Occupied Bandwidth Plot (40 M BW Ch.633334 16QAM )



Sub6 n77. Occupied Bandwidth Plot (40 M BW Ch.633334 64QAM )



Sub6 n77. Occupied Bandwidth Plot (40 M BW Ch.633334 256QAM)

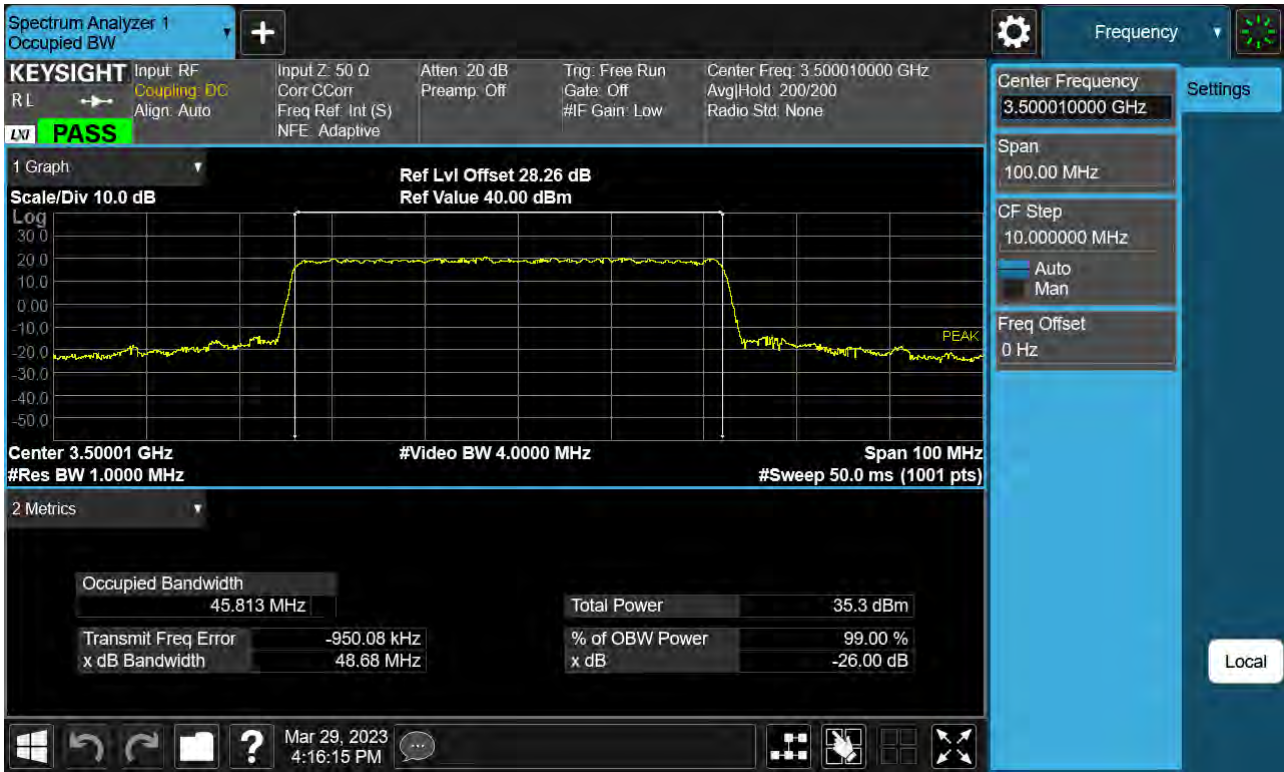




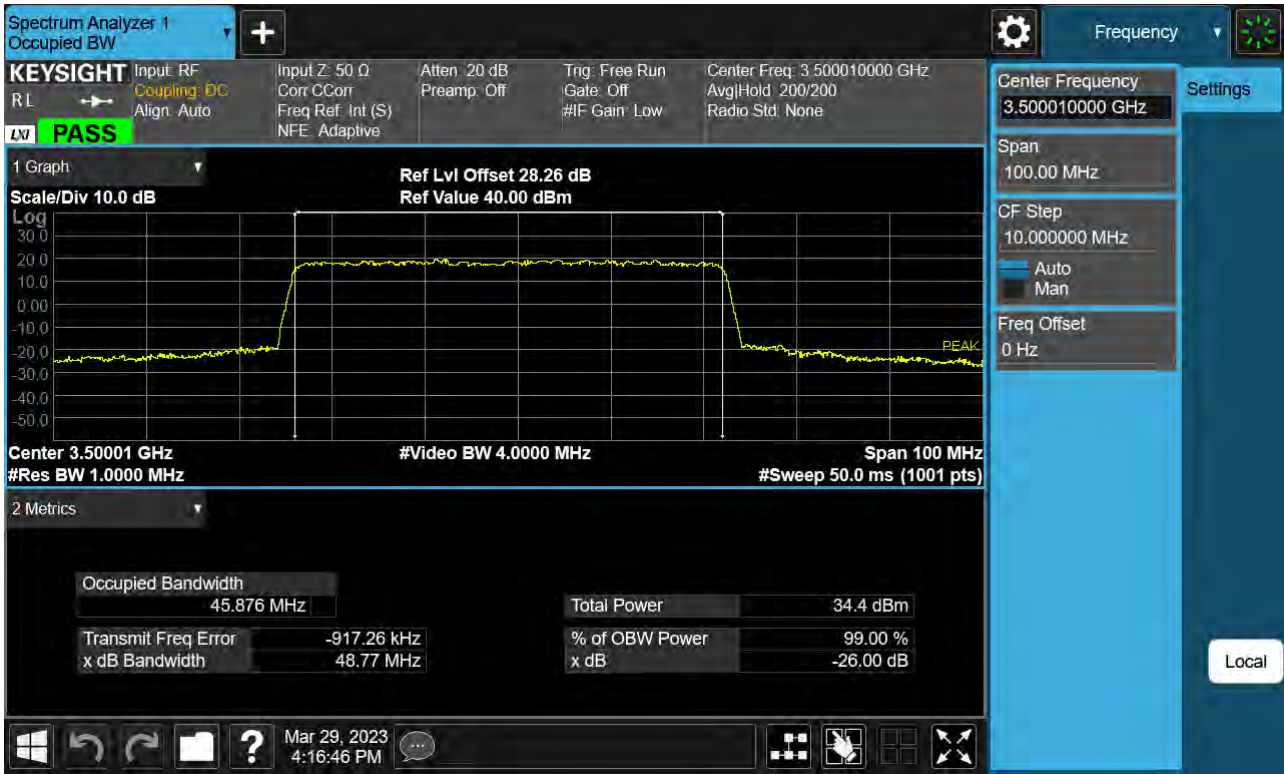
Sub6 n77. Occupied Bandwidth Plot (50 M BW Ch.633334 BPSK )



Sub6 n77. Occupied Bandwidth Plot (50 M BW Ch.633334 QPSK )



Sub6 n77. Occupied Bandwidth Plot (50 M BW Ch.633334 16QAM )

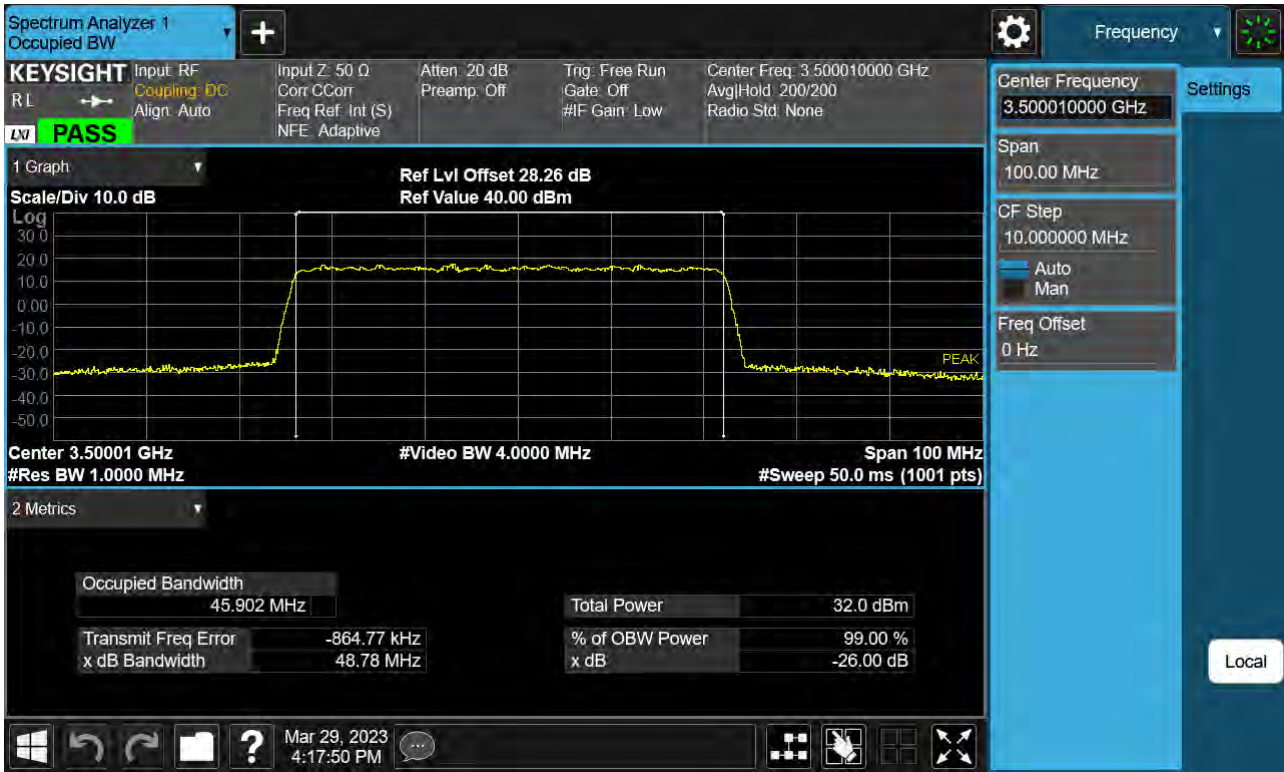


Sub6 n77. Occupied Bandwidth Plot (50 M BW Ch.633334 64QAM )





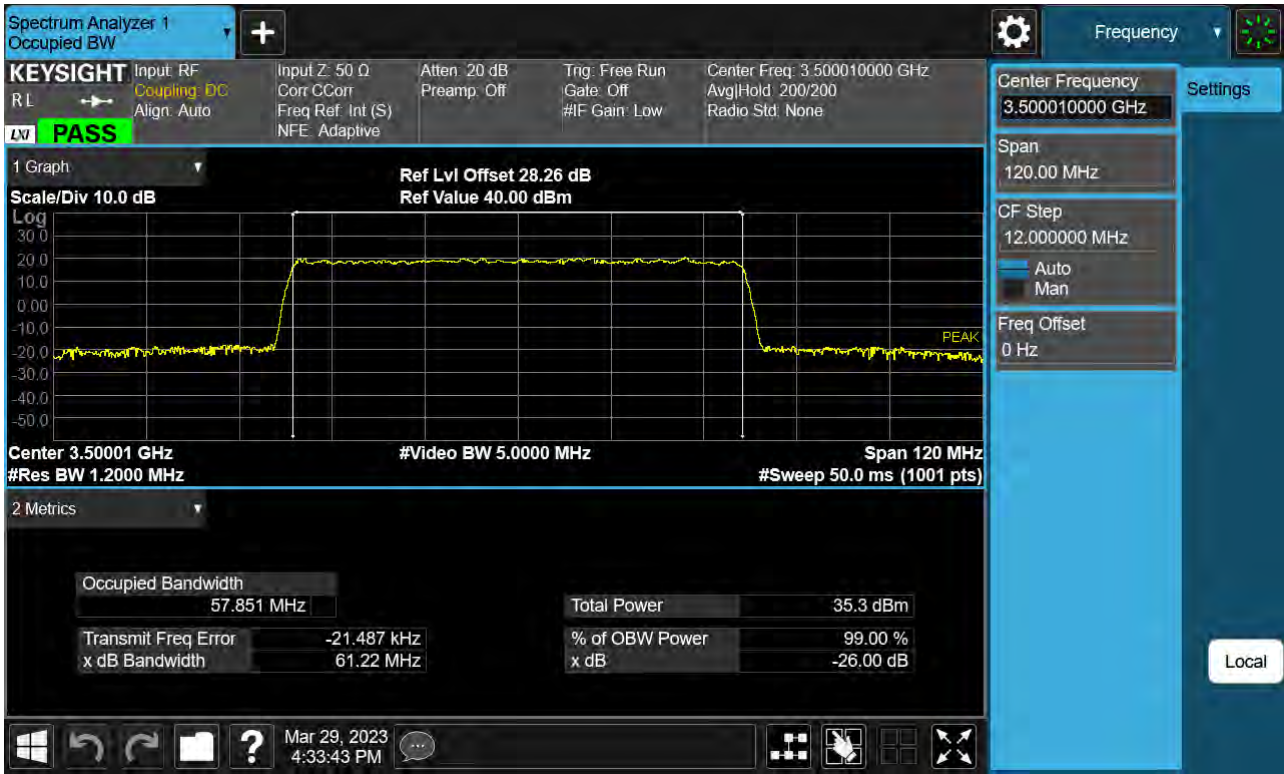
Sub6 n77. Occupied Bandwidth Plot (50 M BW Ch.633334 256QAM)



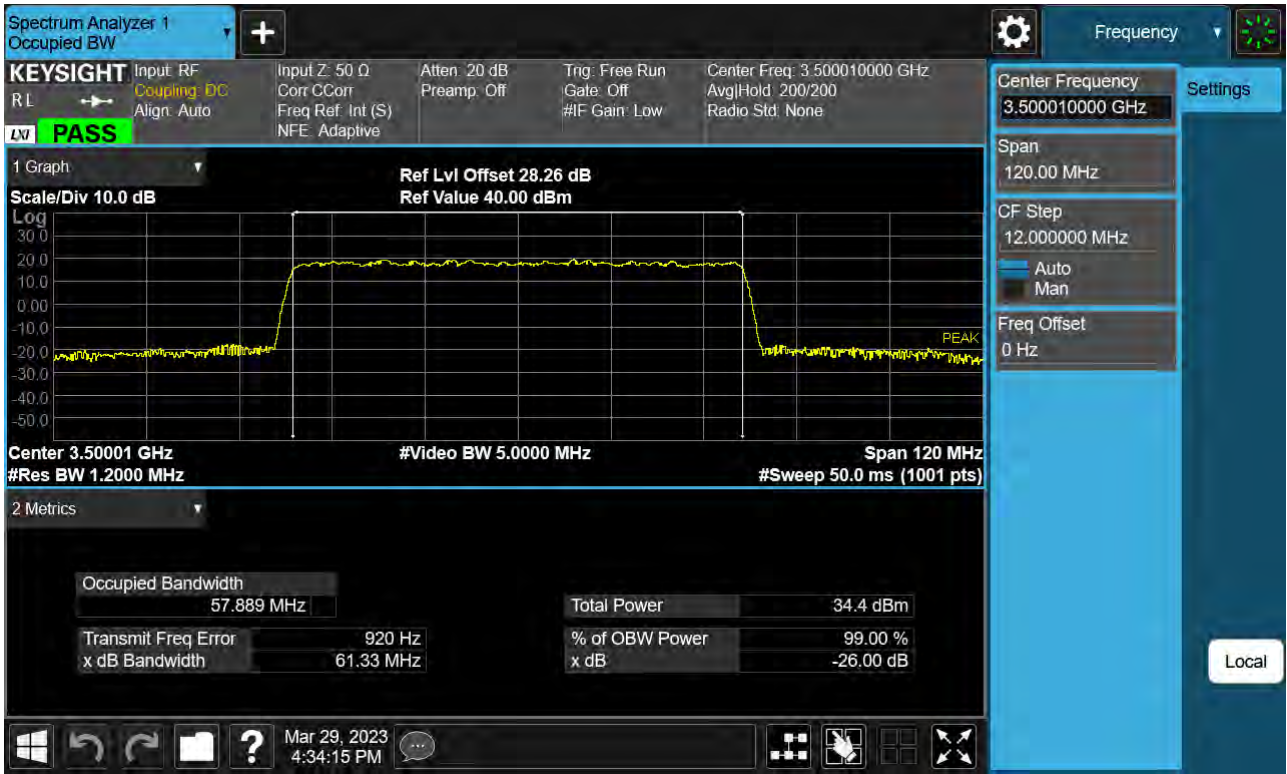
Sub6 n77. Occupied Bandwidth Plot (60 M BW Ch.633334 BPSK )



Sub6 n77. Occupied Bandwidth Plot (60 M BW Ch.633334 QPSK )

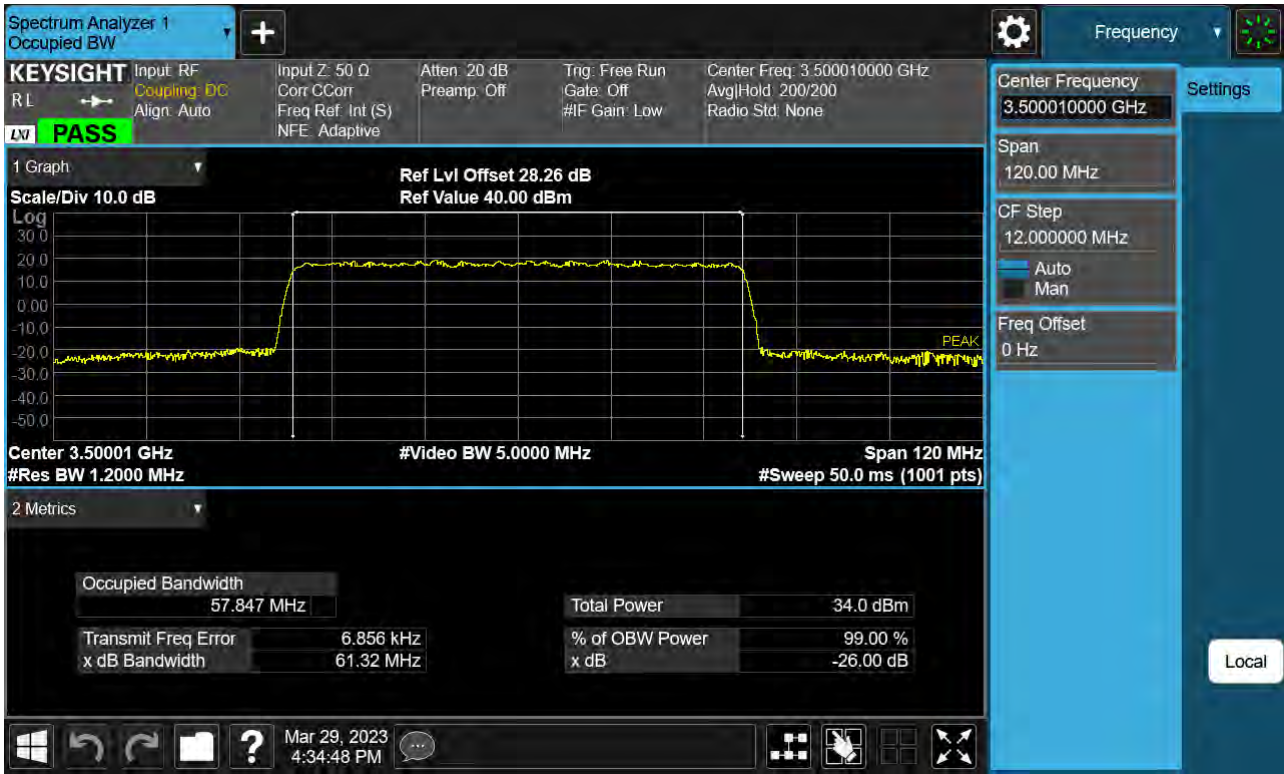


Sub6 n77. Occupied Bandwidth Plot (60 M BW Ch.633334 16QAM )

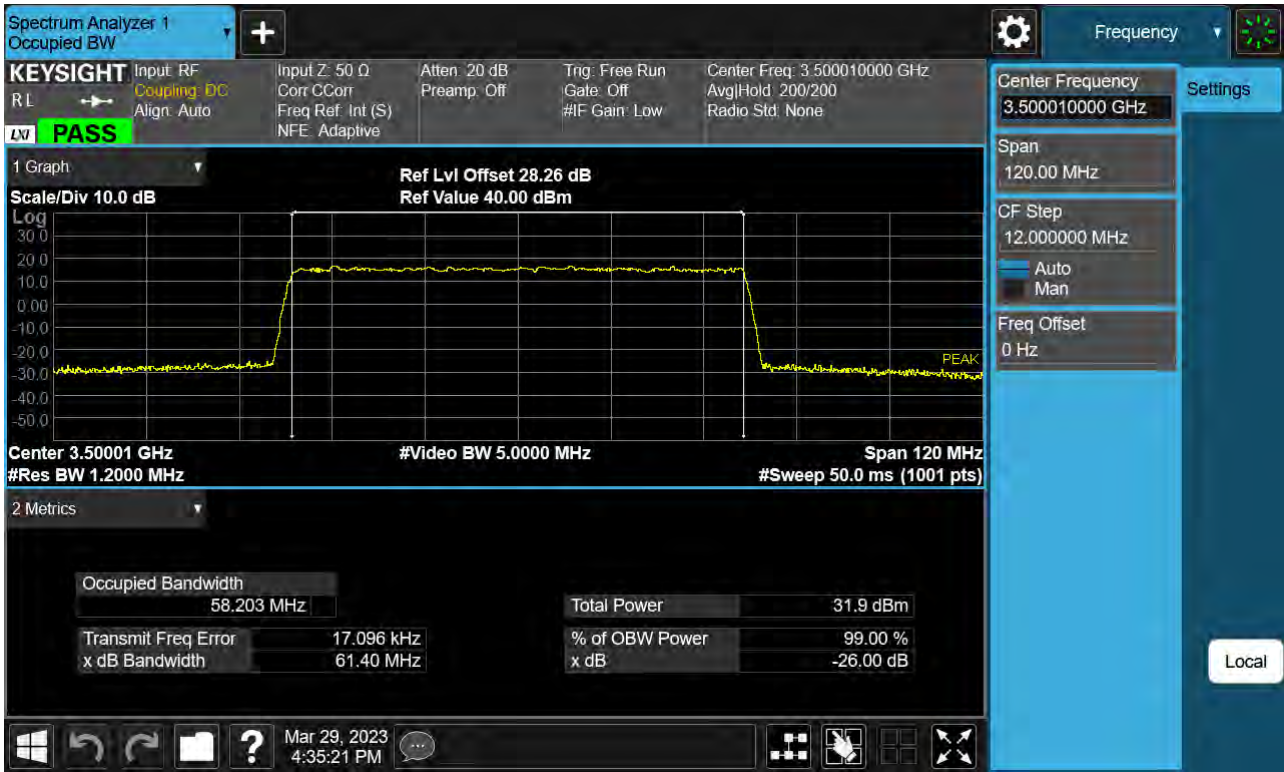




Sub6 n77. Occupied Bandwidth Plot (60 M BW Ch.633334 64QAM )



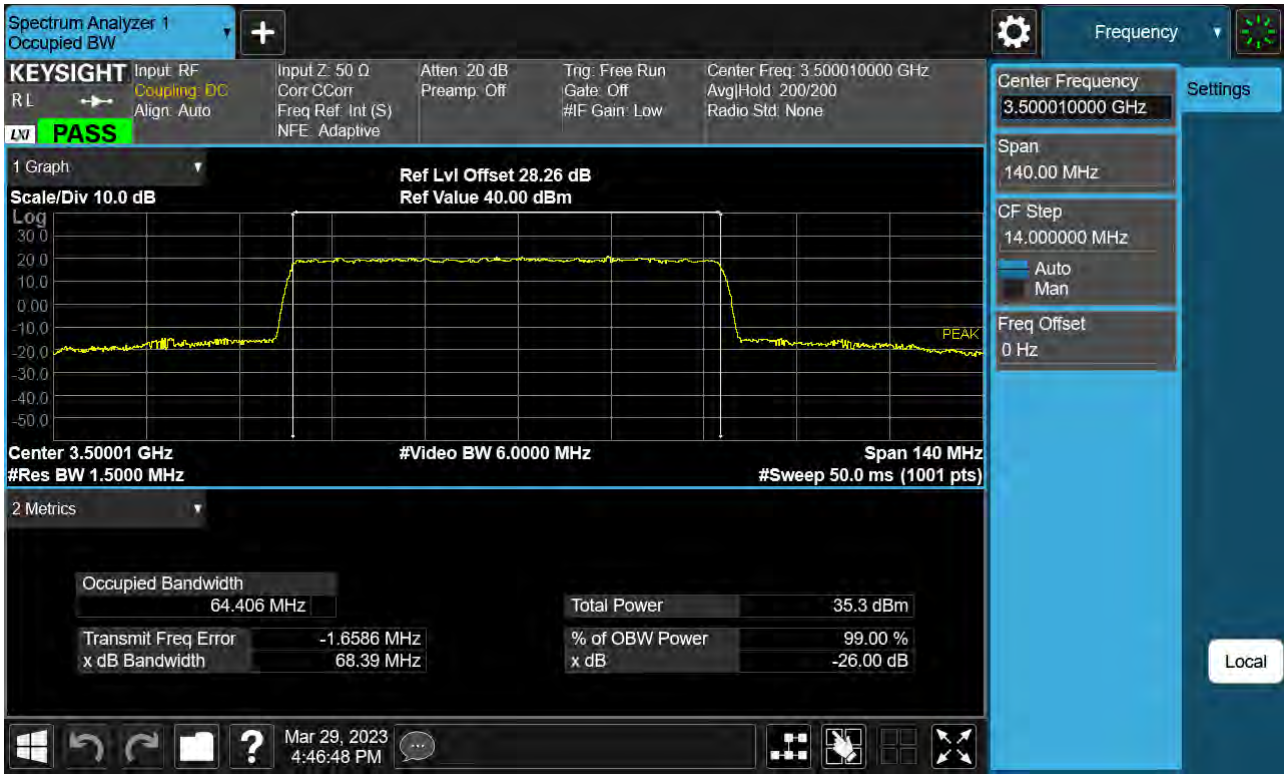
Sub6 n77. Occupied Bandwidth Plot (60 M BW Ch.633334 256QAM)



Sub6 n77. Occupied Bandwidth Plot (70 M BW Ch.633334 BPSK )

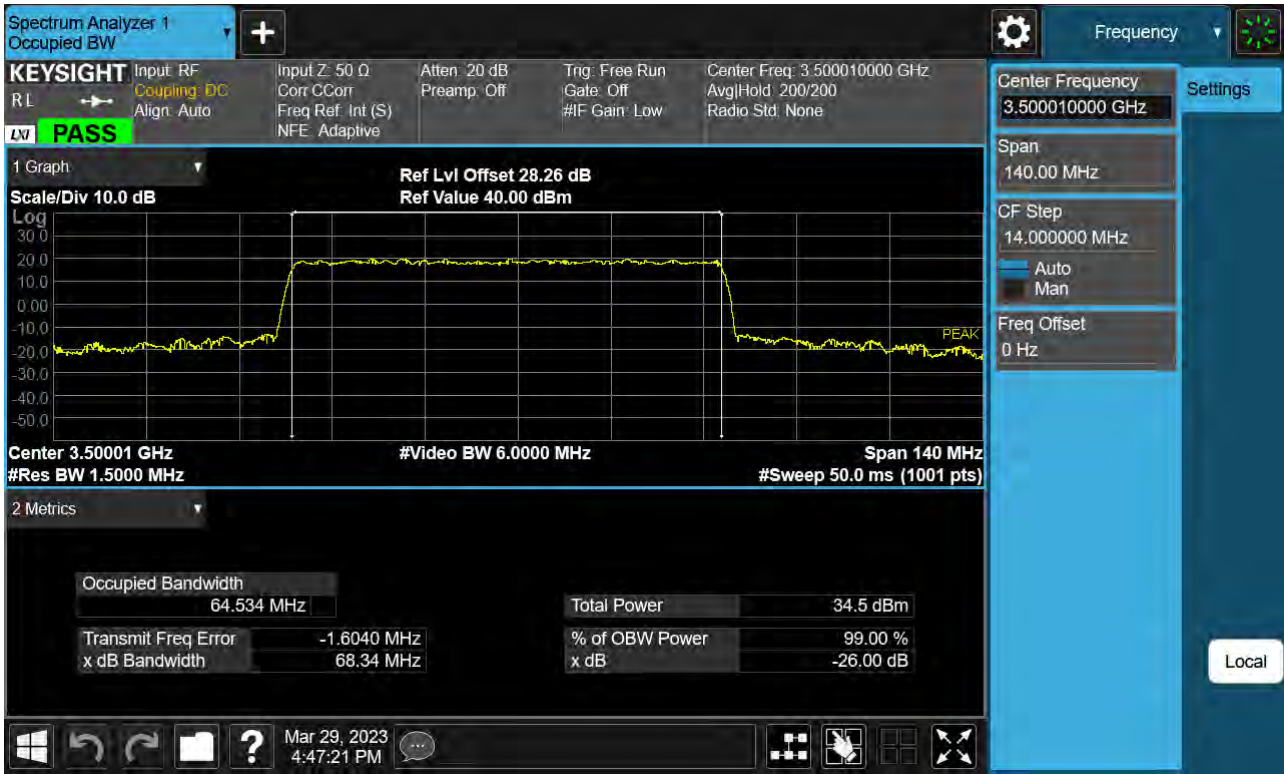


Sub6 n77. Occupied Bandwidth Plot (70 M BW Ch.633334 QPSK )

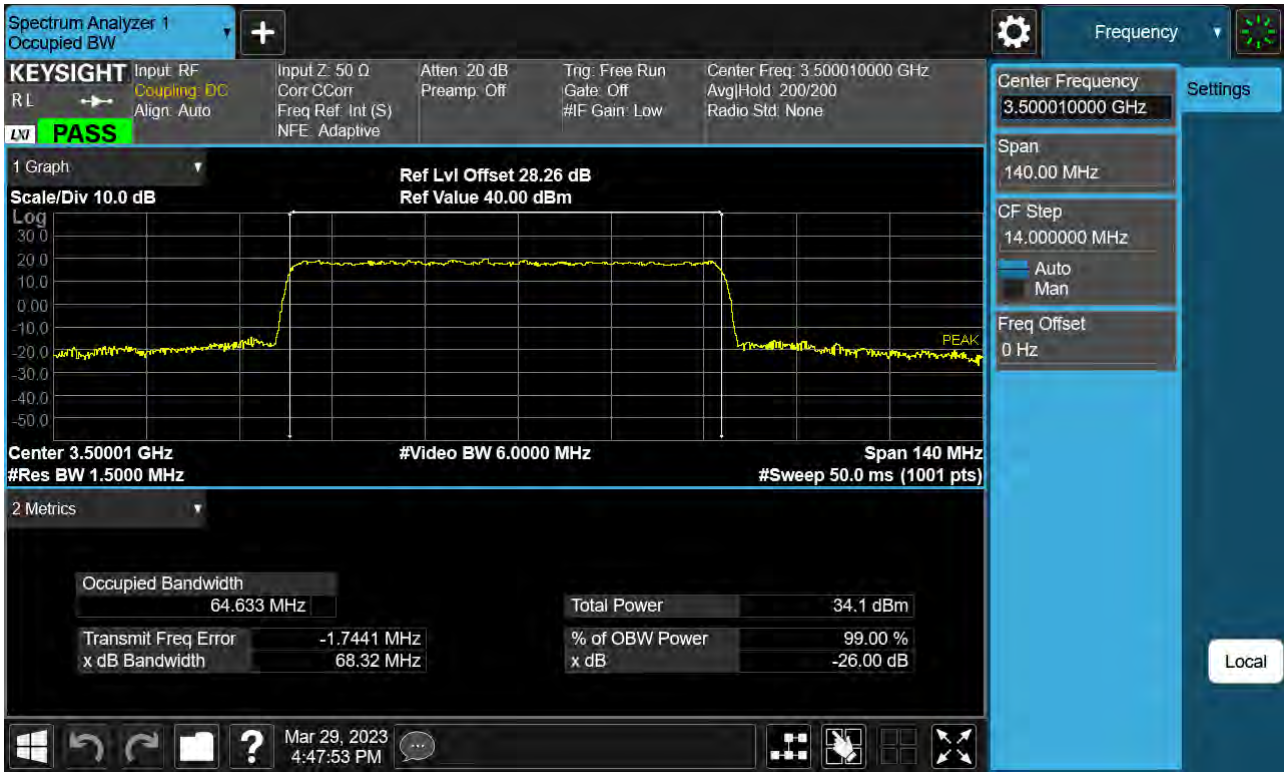




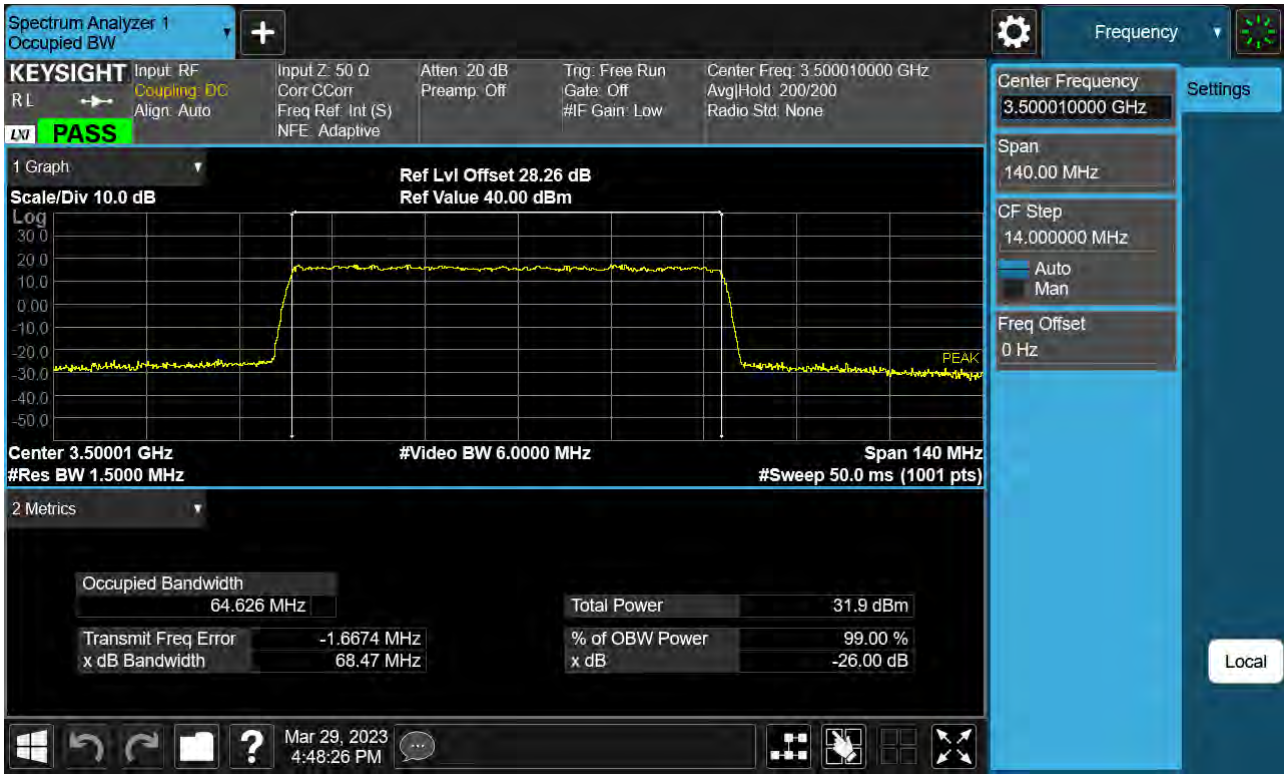
Sub6 n77. Occupied Bandwidth Plot (70 M BW Ch.633334 16QAM)



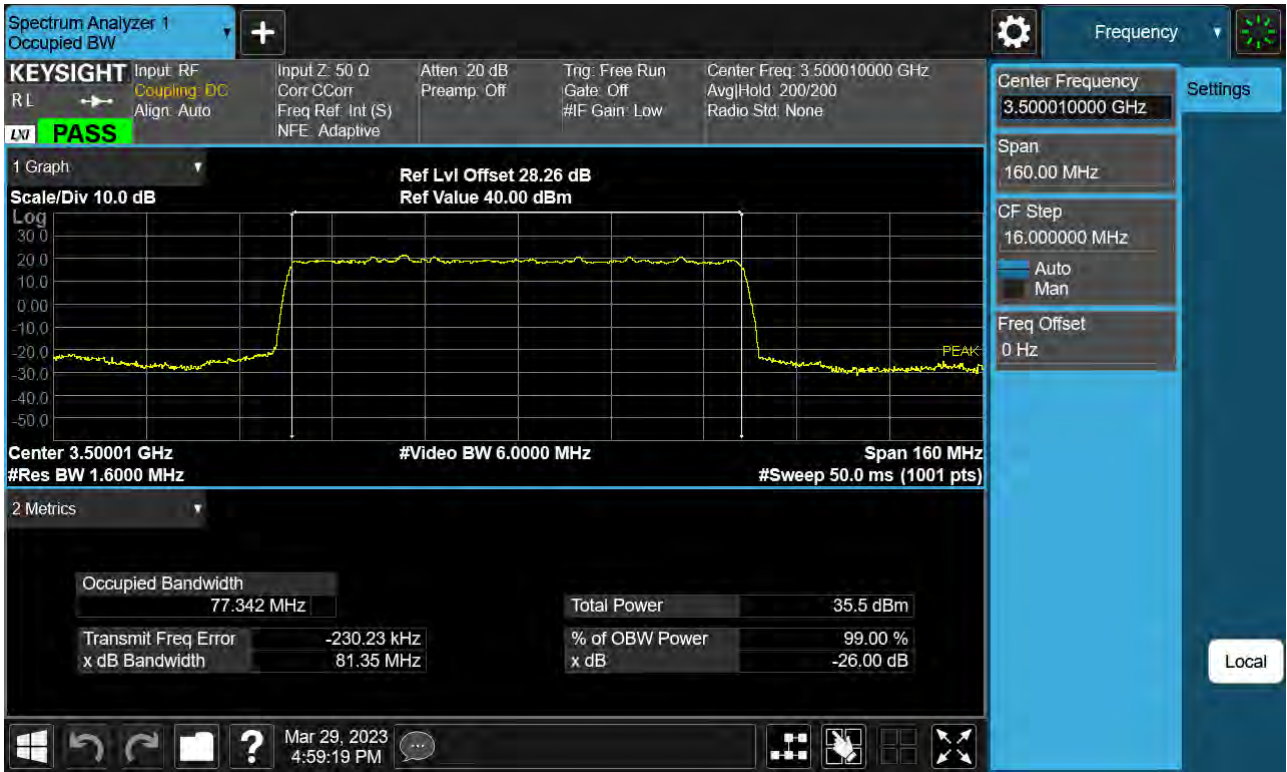
Sub6 n77. Occupied Bandwidth Plot (70 M BW Ch.633334 64QAM )



Sub6 n77. Occupied Bandwidth Plot (70 M BW Ch.633334 256QAM)

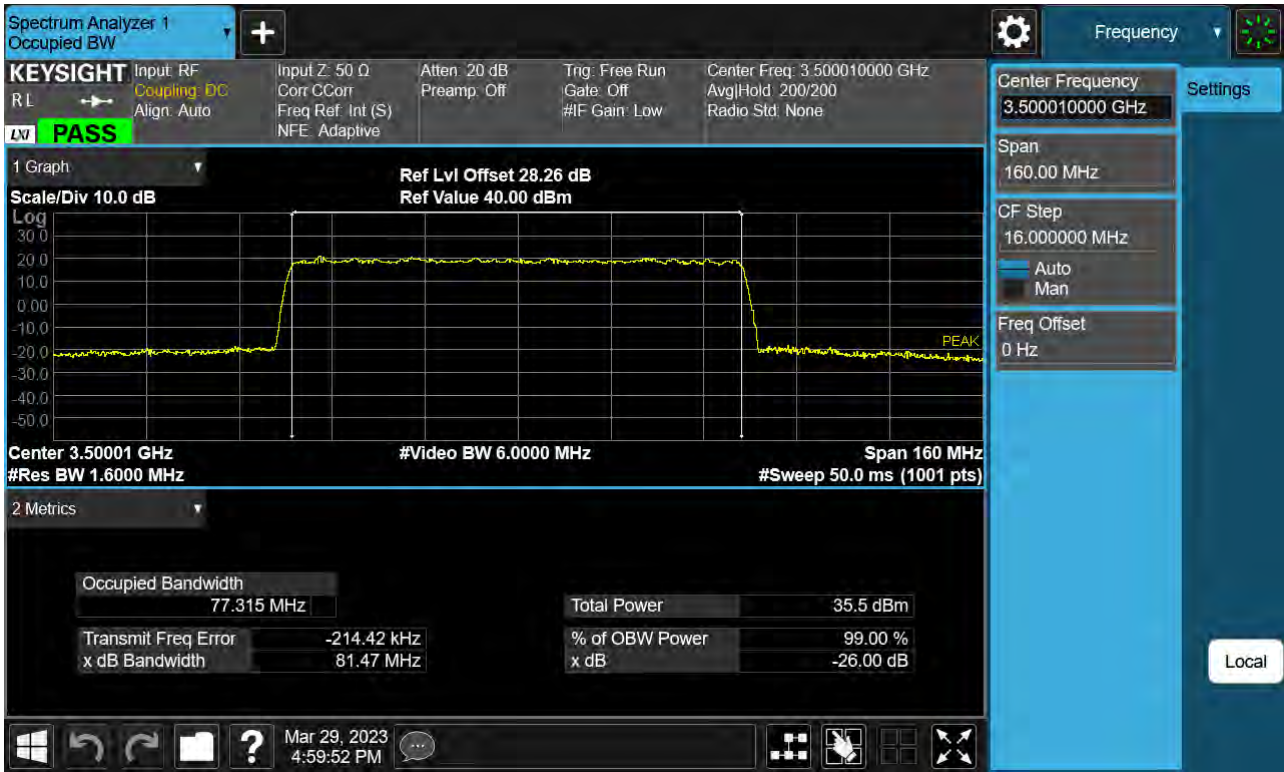


Sub6 n77. Occupied Bandwidth Plot (80 M BW Ch.633334 BPSK )

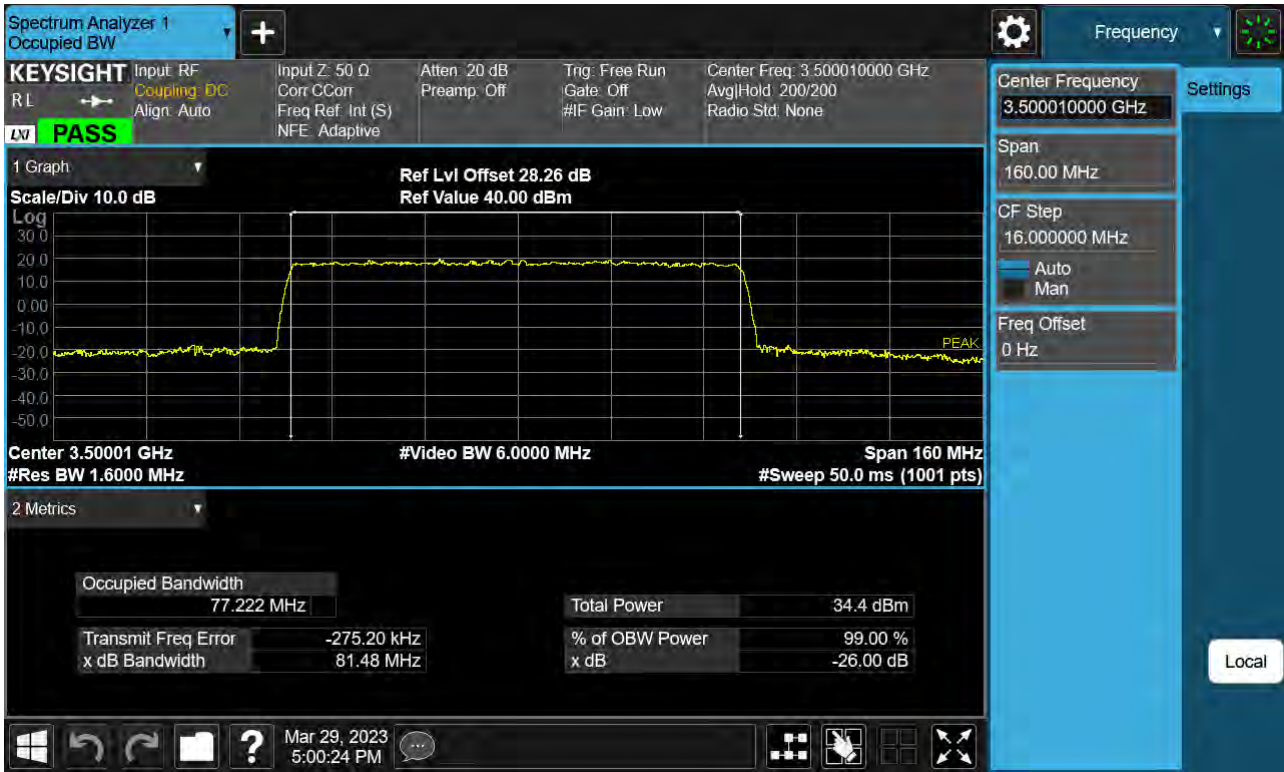




Sub6 n77. Occupied Bandwidth Plot (80 M BW Ch.633334 QPSK )



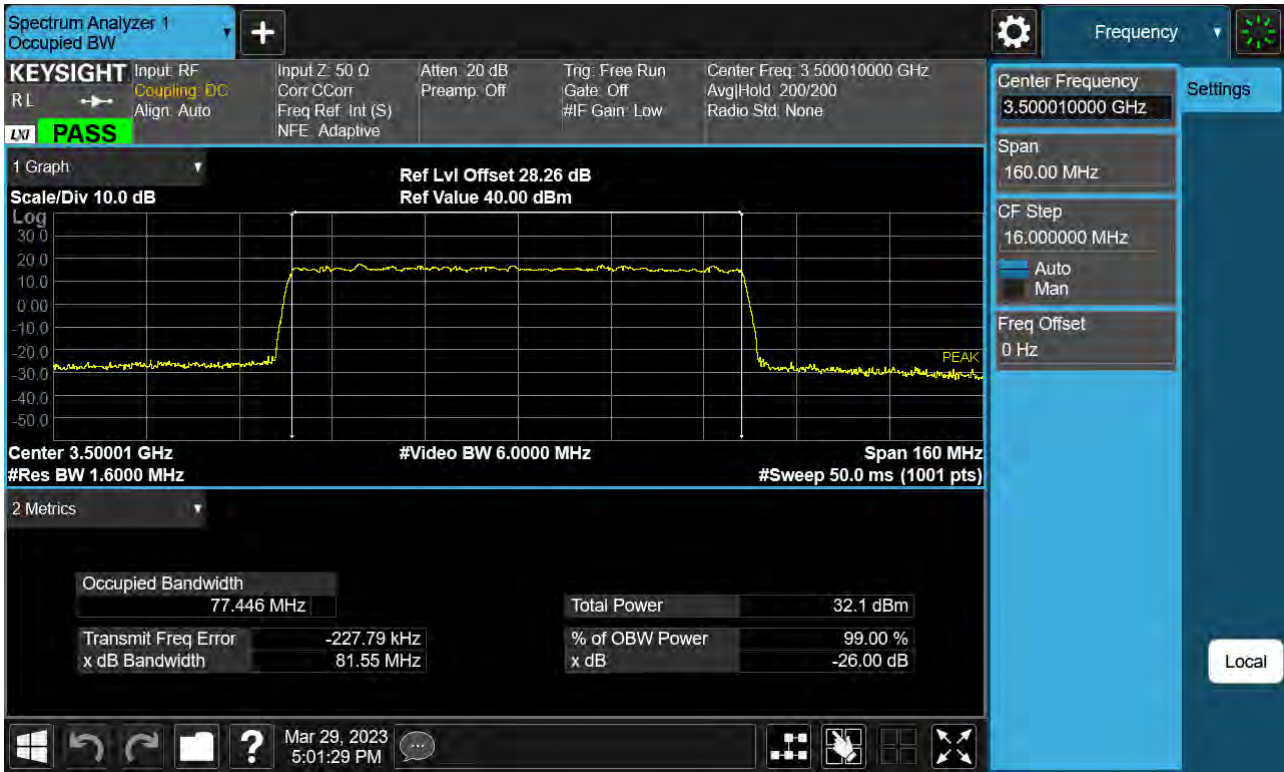
Sub6 n77. Occupied Bandwidth Plot (80 M BW Ch.633334 16QAM )



Sub6 n77. Occupied Bandwidth Plot (80 M BW Ch.633334 64QAM )

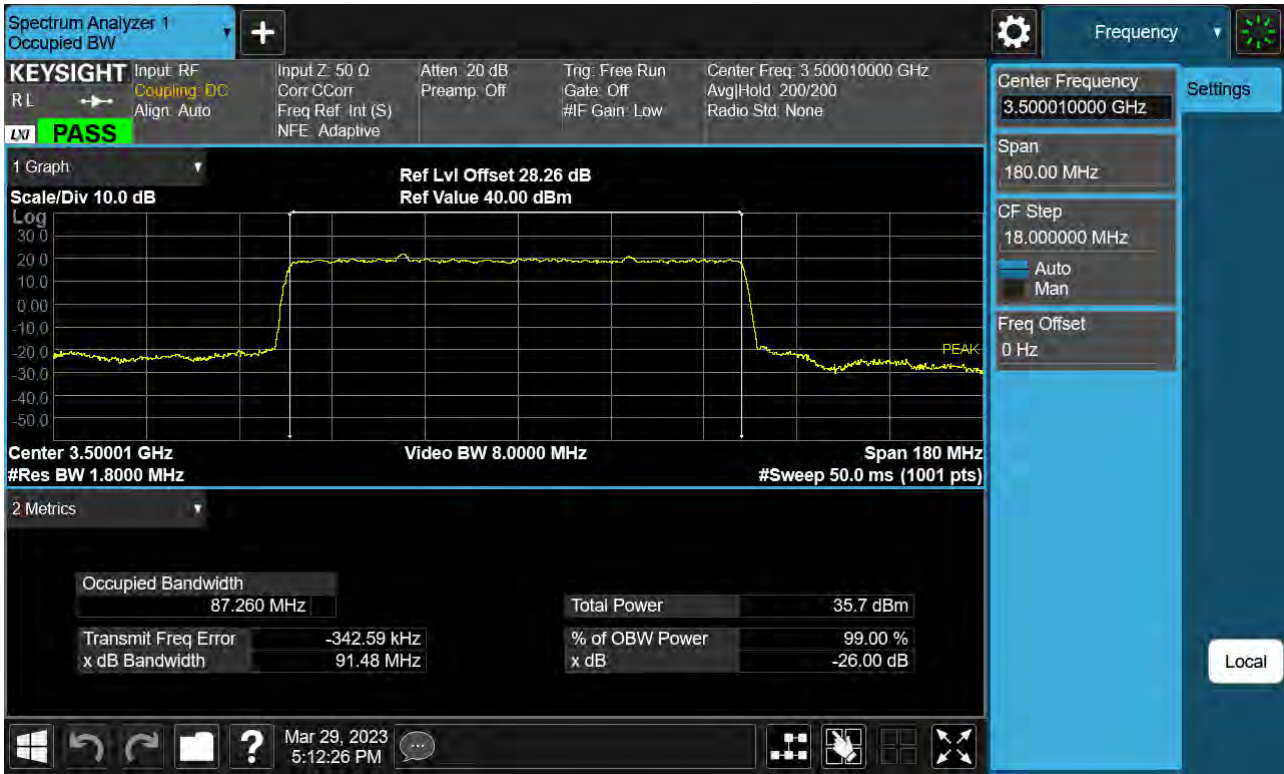


Sub6 n77. Occupied Bandwidth Plot (80 M BW Ch.633334 256QAM)

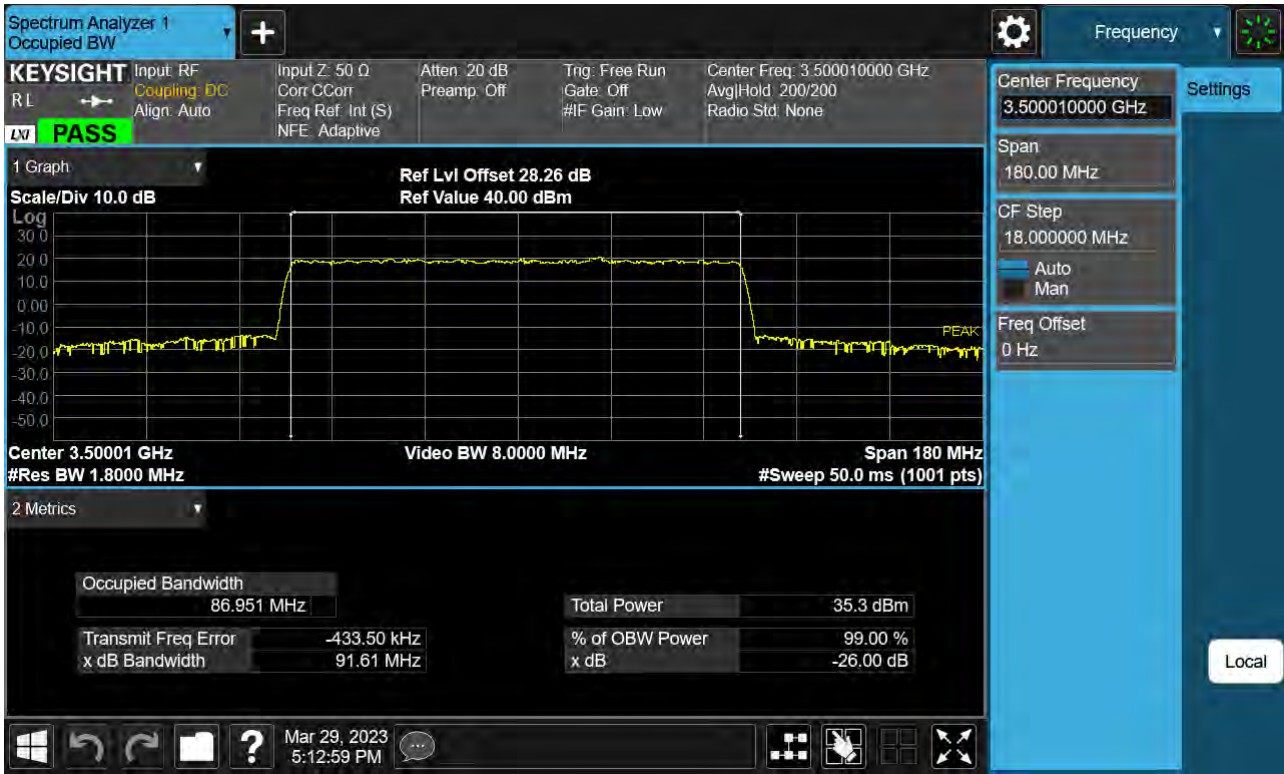




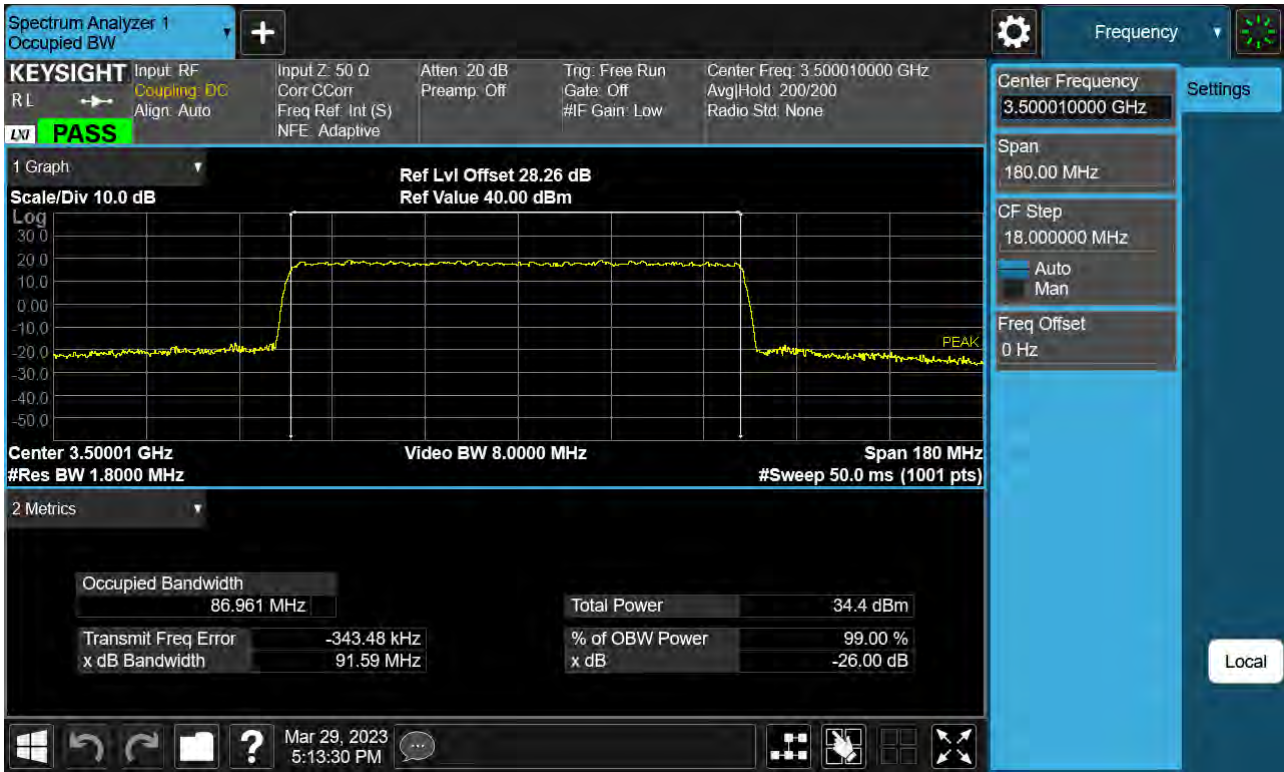
Sub6 n77. Occupied Bandwidth Plot (90 M BW Ch.633334 BPSK )



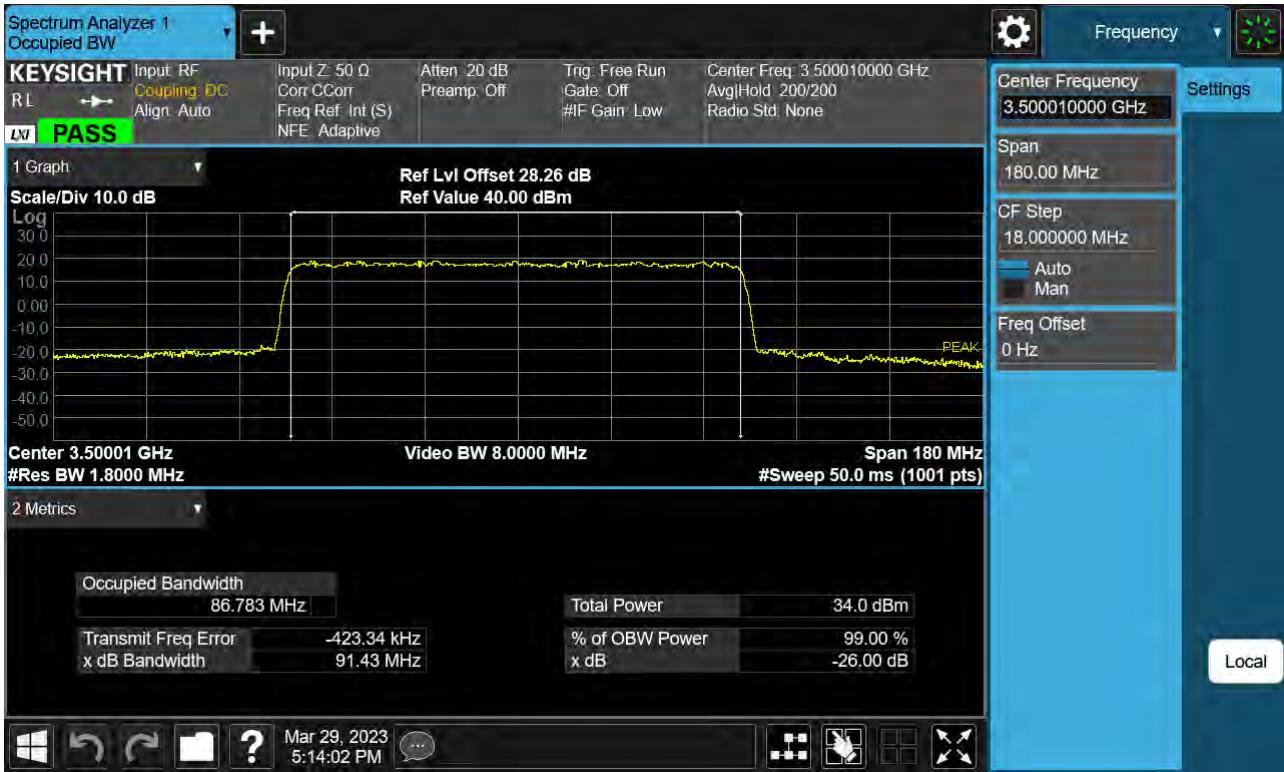
Sub6 n77. Occupied Bandwidth Plot (90 M BW Ch.633334 QPSK )



Sub6 n77. Occupied Bandwidth Plot (90 M BW Ch.633334 16QAM )

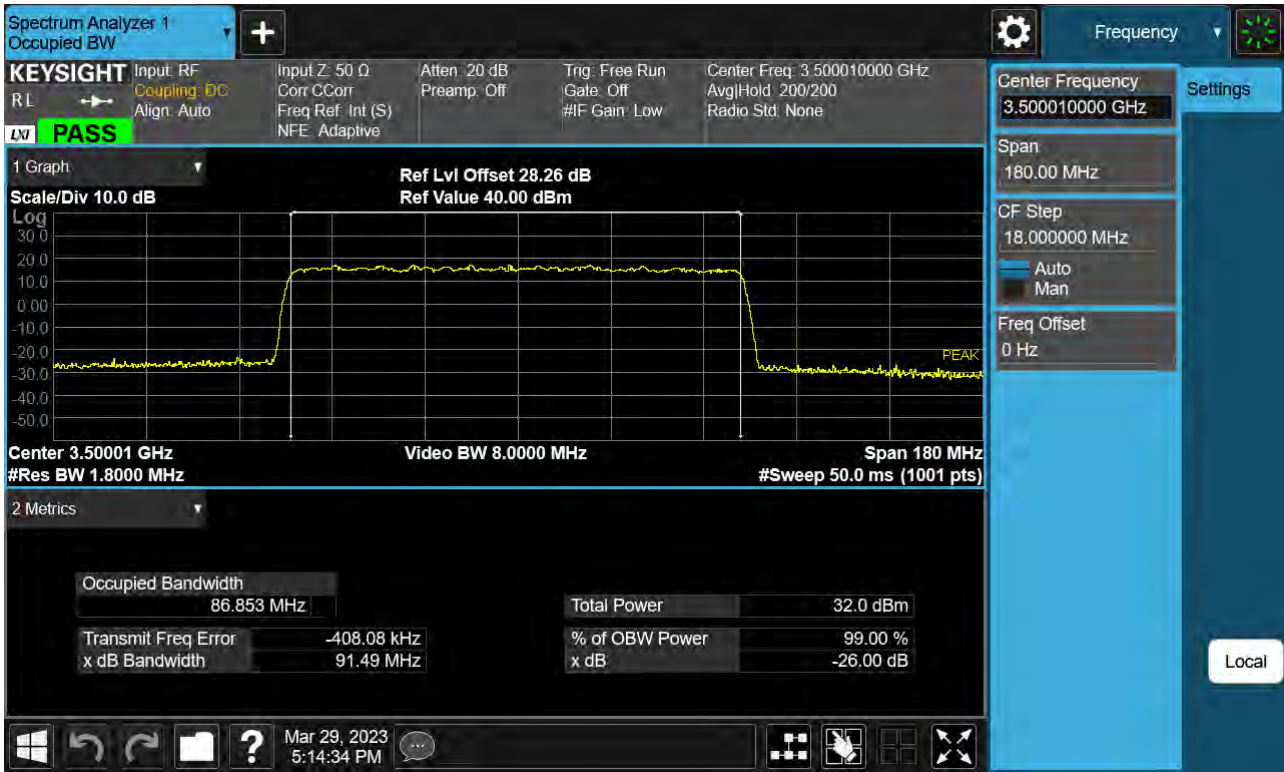


Sub6 n77. Occupied Bandwidth Plot (90 M BW Ch.633334 64QAM )

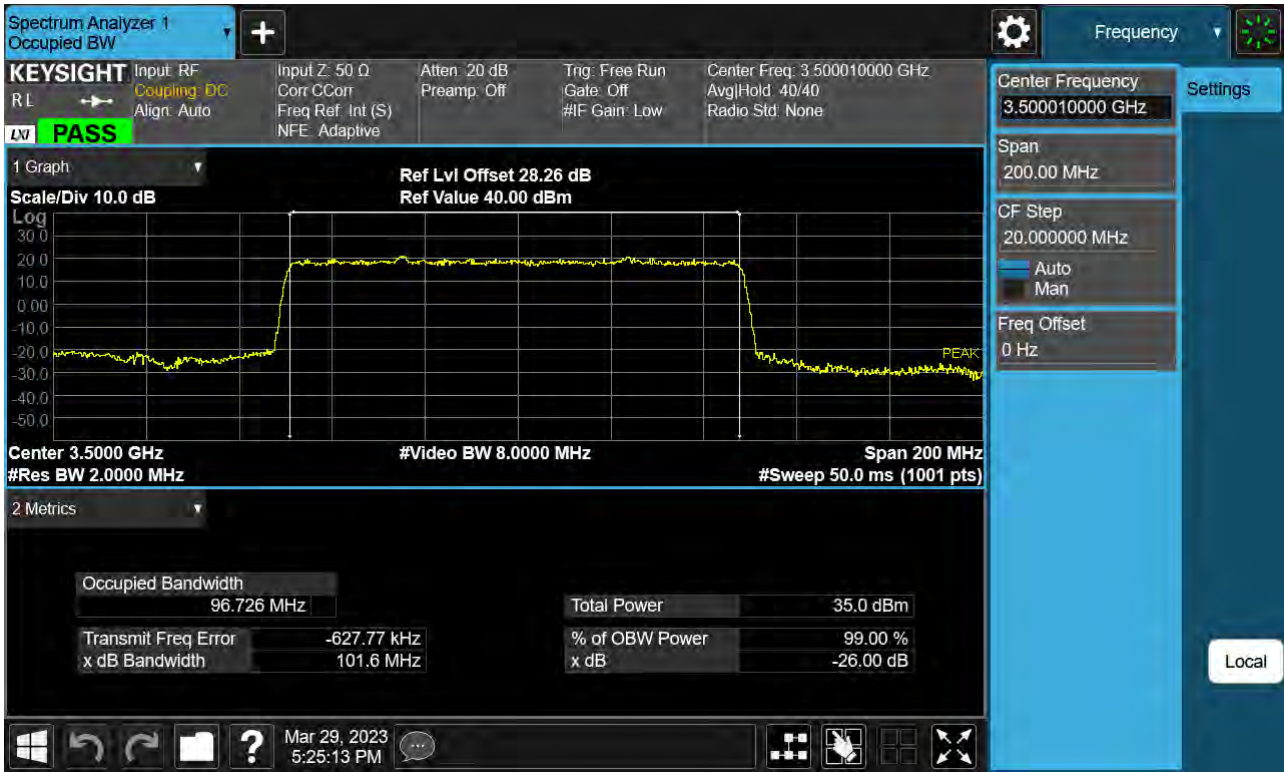




Sub6 n77. Occupied Bandwidth Plot (90 M BW Ch.633334 256QAM)



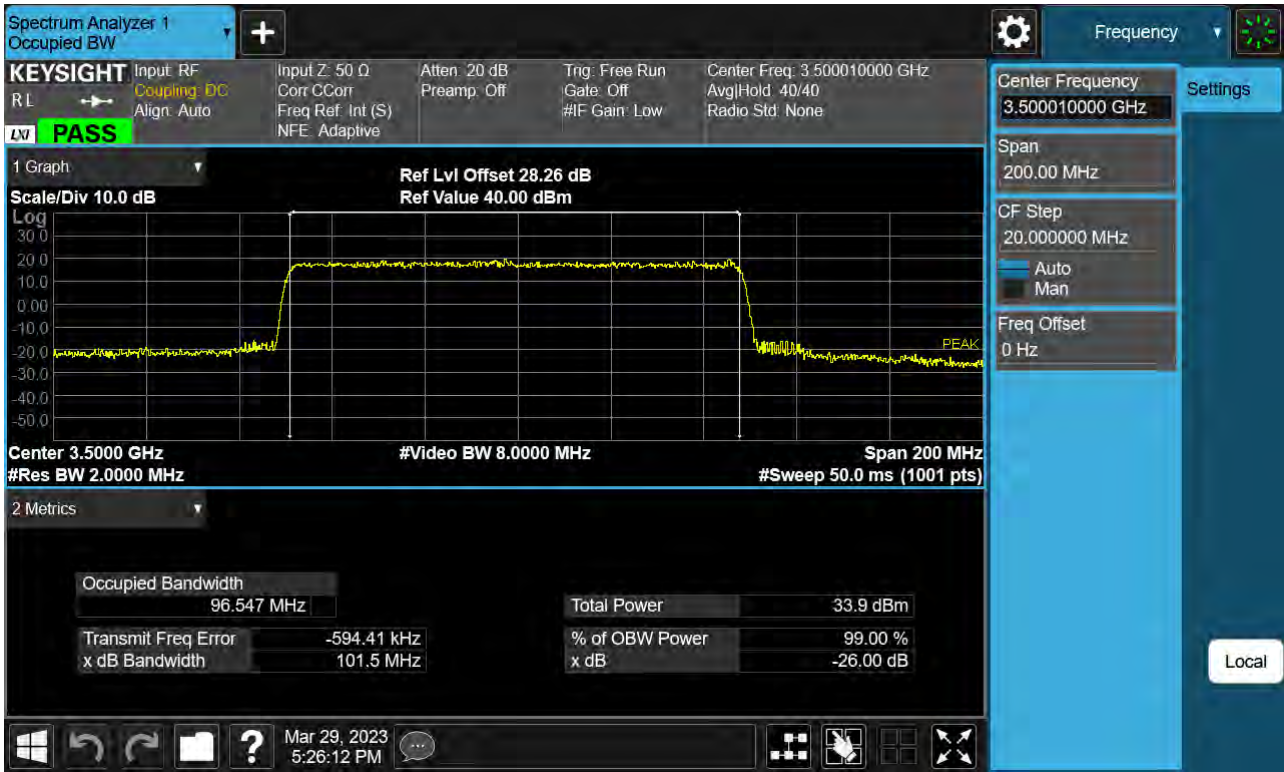
Sub6 n77. Occupied Bandwidth Plot (100 M BW Ch.633334 BPSK )



Sub6 n77. Occupied Bandwidth Plot (100 M BW Ch.633334 QPSK )

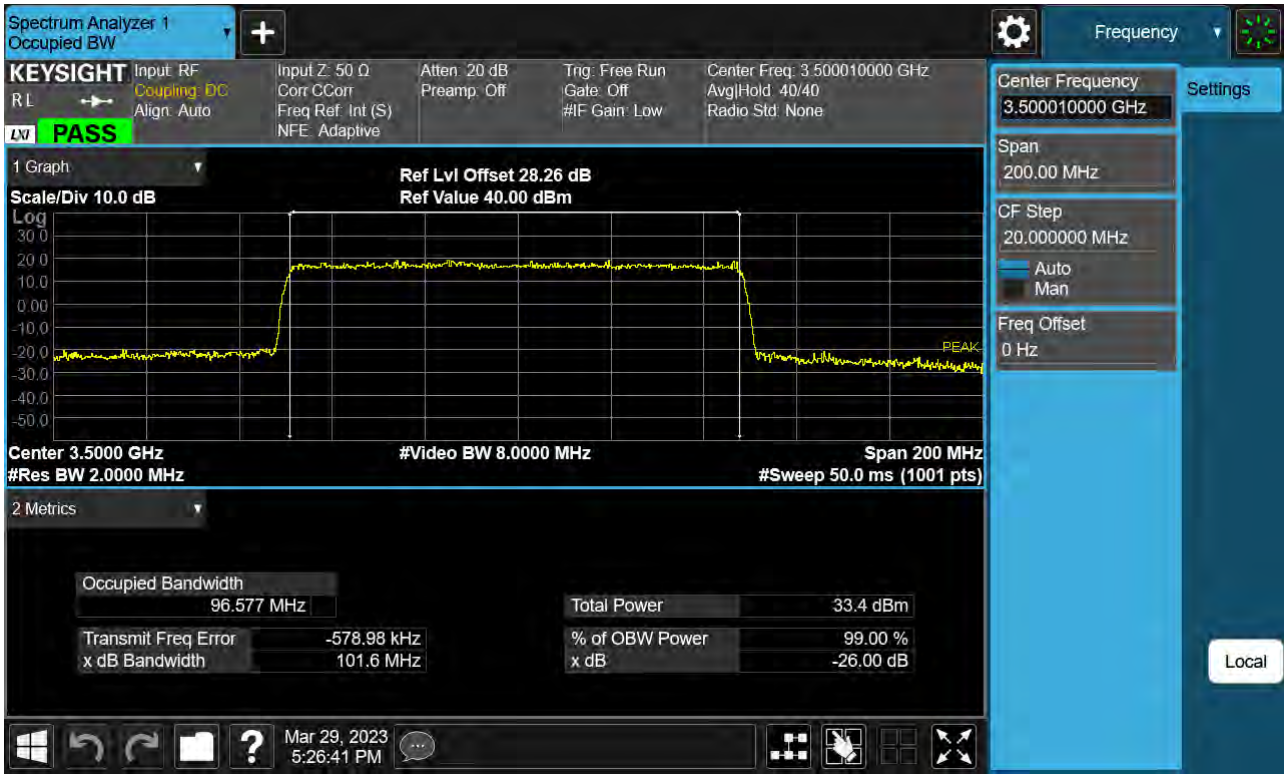


Sub6 n77. Occupied Bandwidth Plot (100 M BW Ch.633334 16QAM)

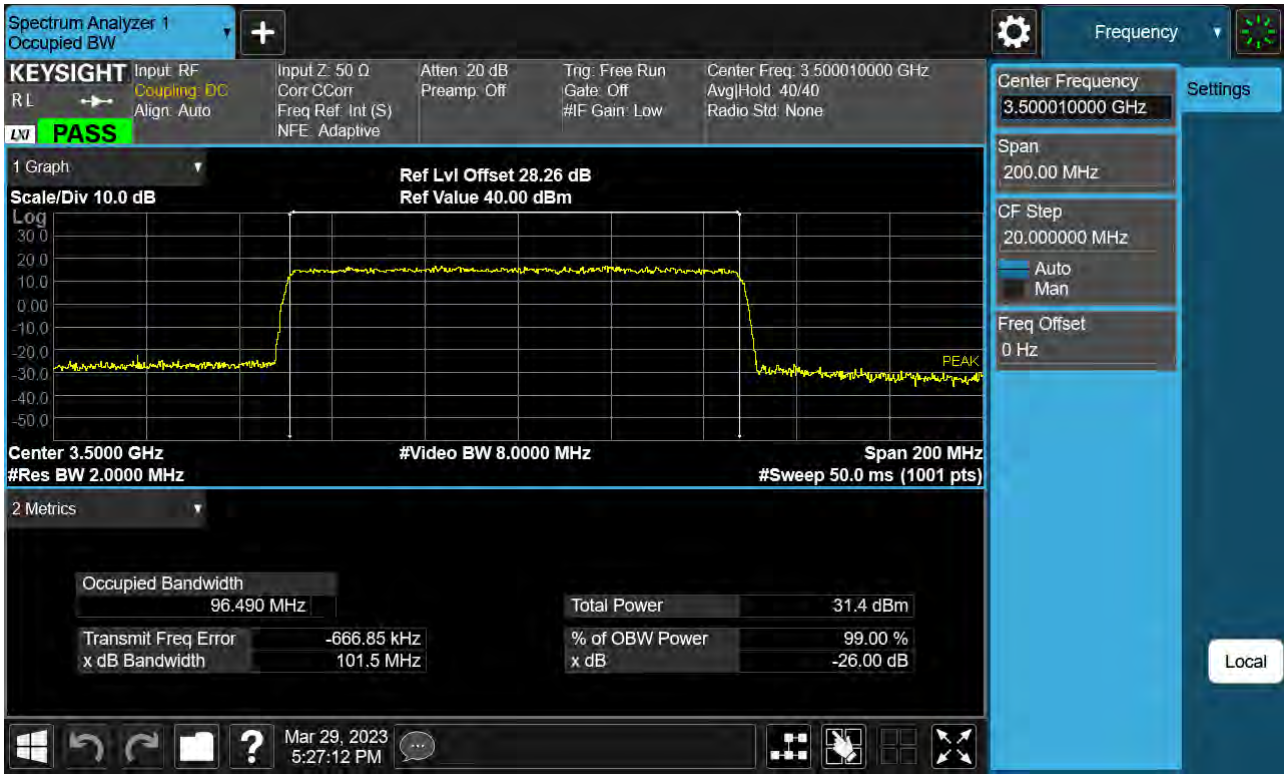




Sub6 n77. Occupied Bandwidth Plot (100 M BW Ch.633334 64QAM)



Sub6 n77. Occupied Bandwidth Plot (100 M BW Ch.633334 256QAM)



Sub6 n77. PAR Plot (10 M BW\_Ch.633334\_ BPSK)

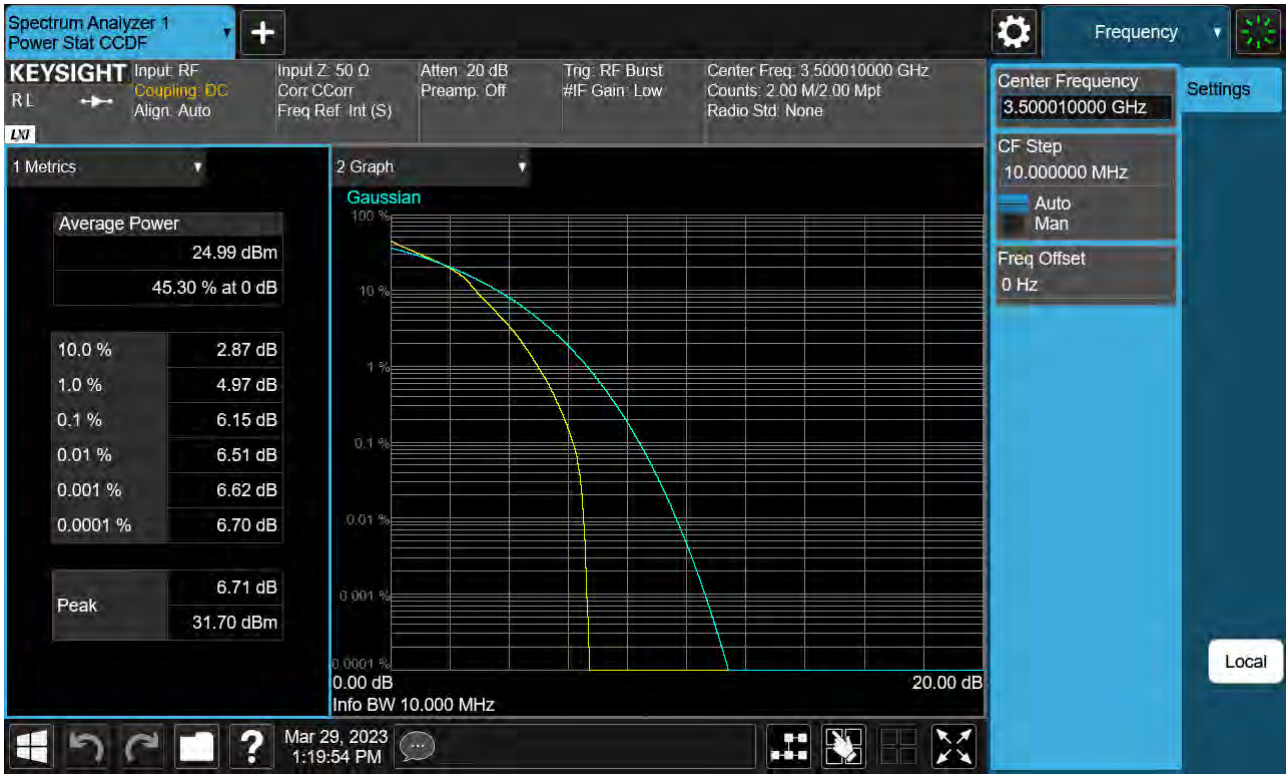


Sub6 n77. PAR Plot (10 M BW\_Ch.633334\_QPSK)

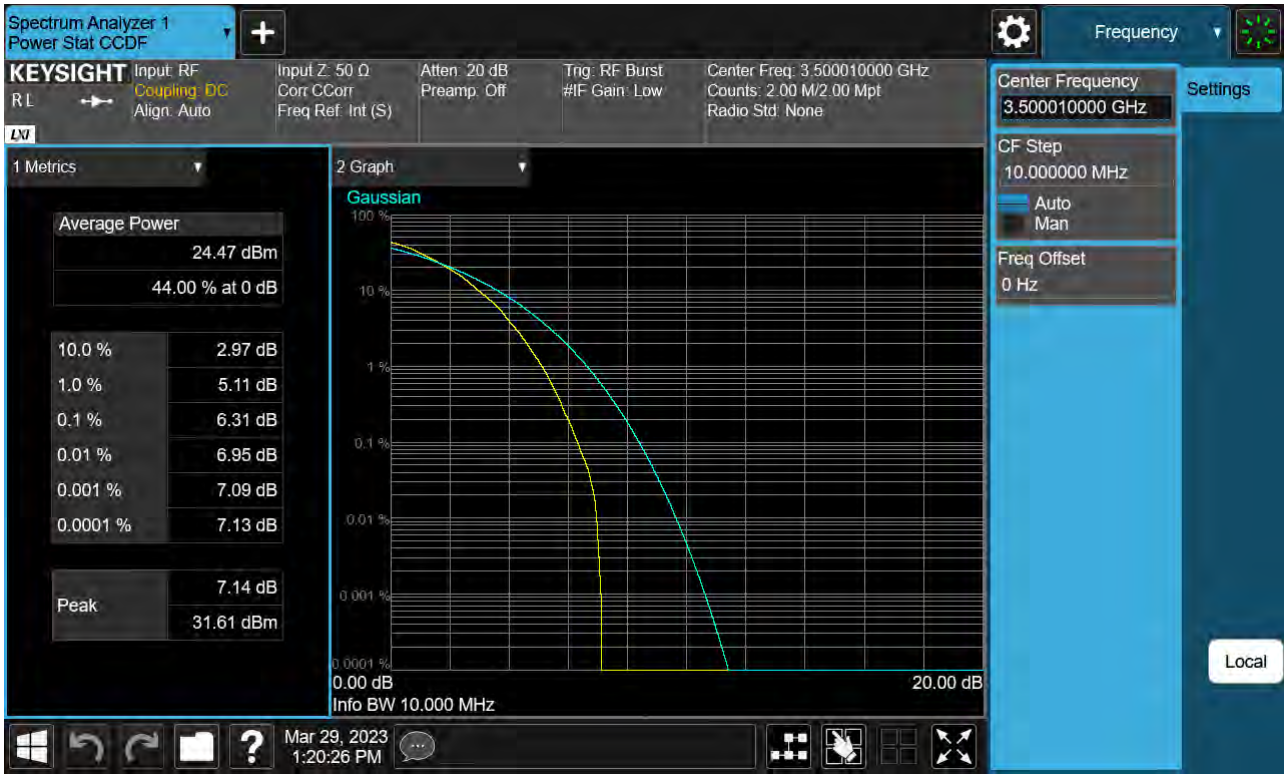




Sub6 n77. PAR Plot (10 M BW\_Ch.633334\_16QAM)



Sub6 n77. PAR Plot (10 M BW\_Ch.633334\_64QAM)



Sub6 n77. PAR Plot (10 M BW\_Ch.633334\_256QAM)



Sub6 n77. PAR Plot (15 M BW\_Ch.633334\_ BPSK)





Sub6 n77. PAR Plot (15 M BW\_Ch.633334\_QPSK)



Sub6 n77. PAR Plot (15 M BW\_Ch.633334\_16QAM)



Sub6 n77. PAR Plot (15 M BW\_Ch.633334\_64QAM)

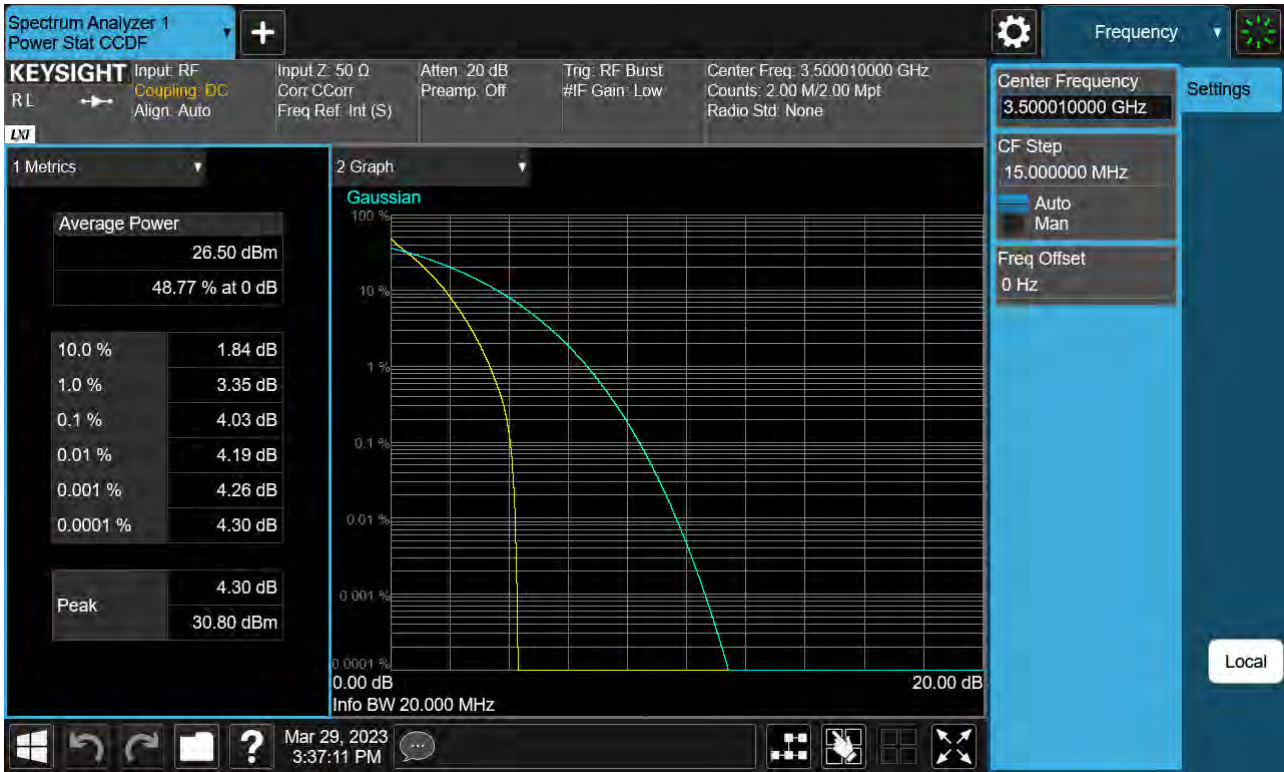


Sub6 n77. PAR Plot (15 M BW\_Ch.633334\_256QAM)





Sub6 n77. PAR Plot (20 M BW\_Ch.633334\_ BPSK)



Sub6 n77. PAR Plot (20 M BW\_Ch.633334\_QPSK)



Sub6 n77. PAR Plot (20 M BW\_Ch.633334\_16QAM)



Sub6 n77. PAR Plot (20 M BW\_Ch.633334\_64QAM)

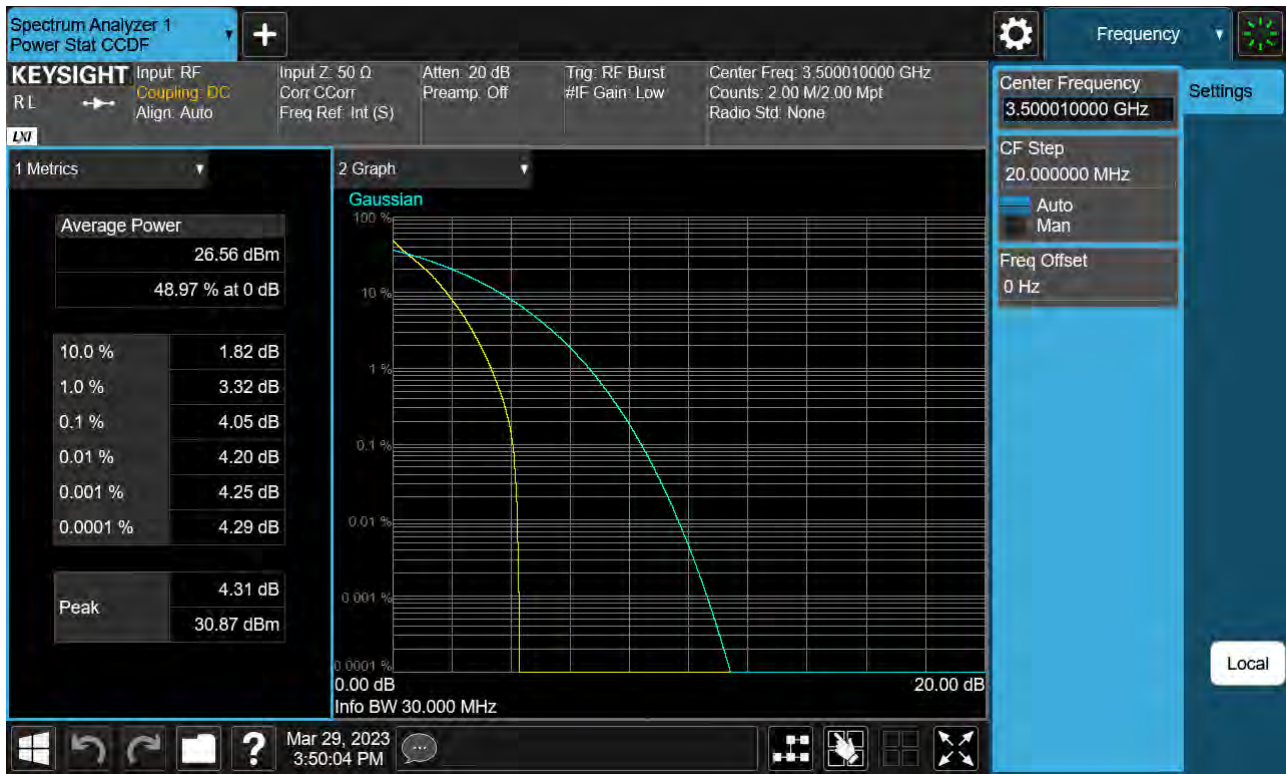




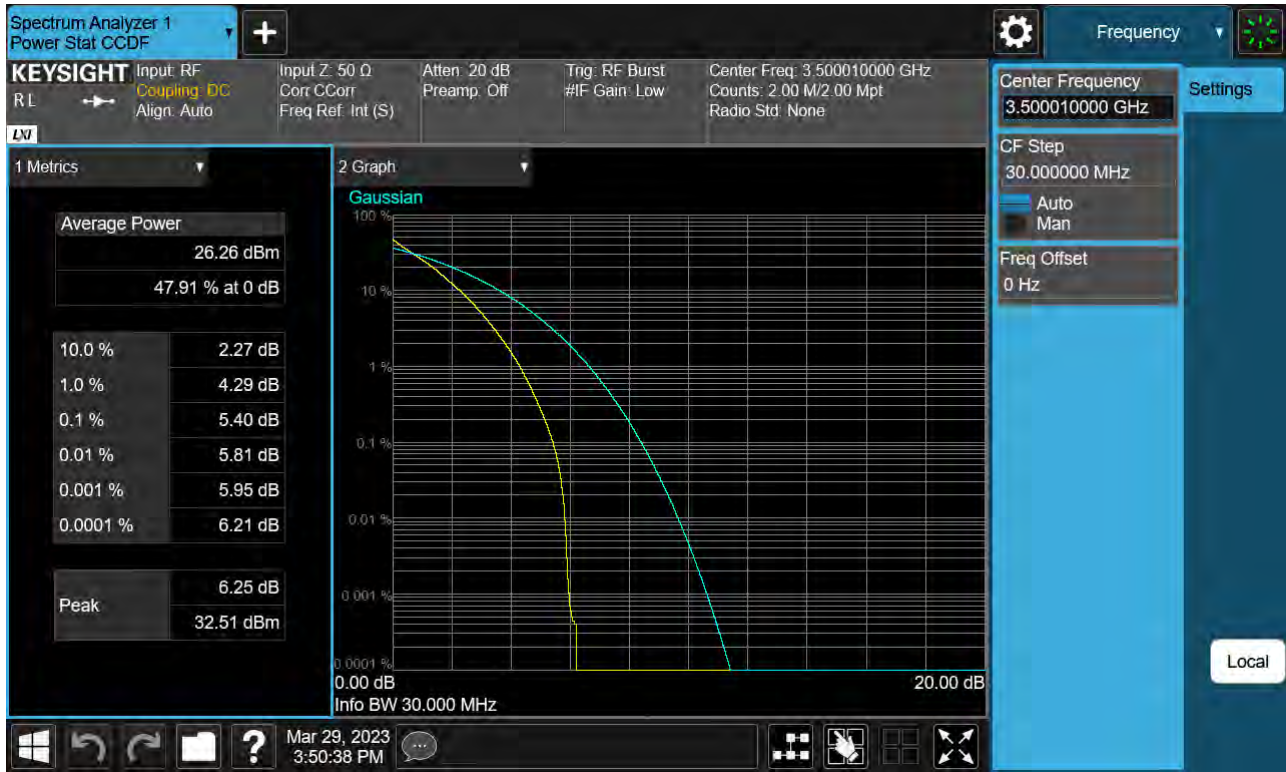
Sub6 n77. PAR Plot (20 M BW\_Ch.633334\_256QAM)



Sub6 n77. PAR Plot (30 M BW\_Ch.633334\_ BPSK)



Sub6 n77. PAR Plot (30 M BW\_Ch.633334\_QPSK)





Sub6 n77. PAR Plot (30 M BW\_Ch.633334\_16QAM)



Sub6 n77. PAR Plot (30 M BW\_Ch.633334\_64QAM)



Sub6 n77. PAR Plot (30 M BW\_Ch.633334\_256QAM)

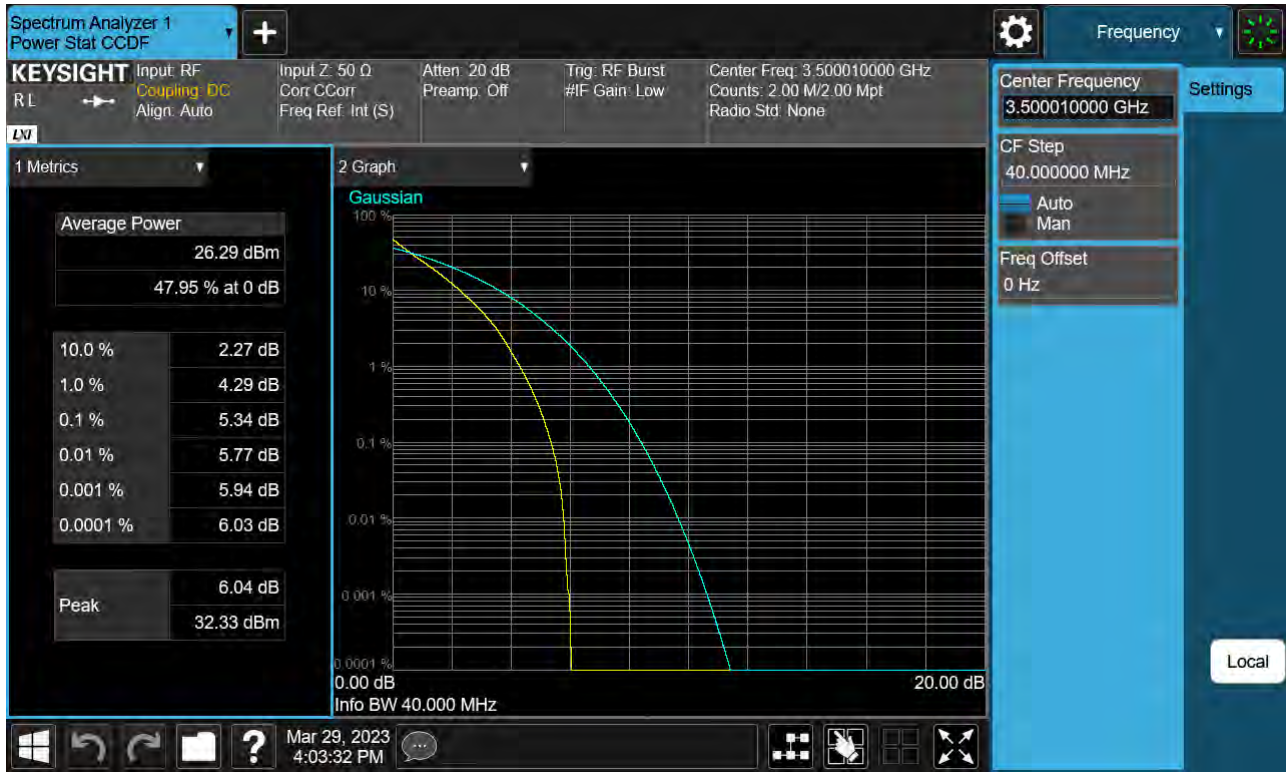


Sub6 n77. PAR Plot (40 M BW\_Ch.633334\_ BPSK)





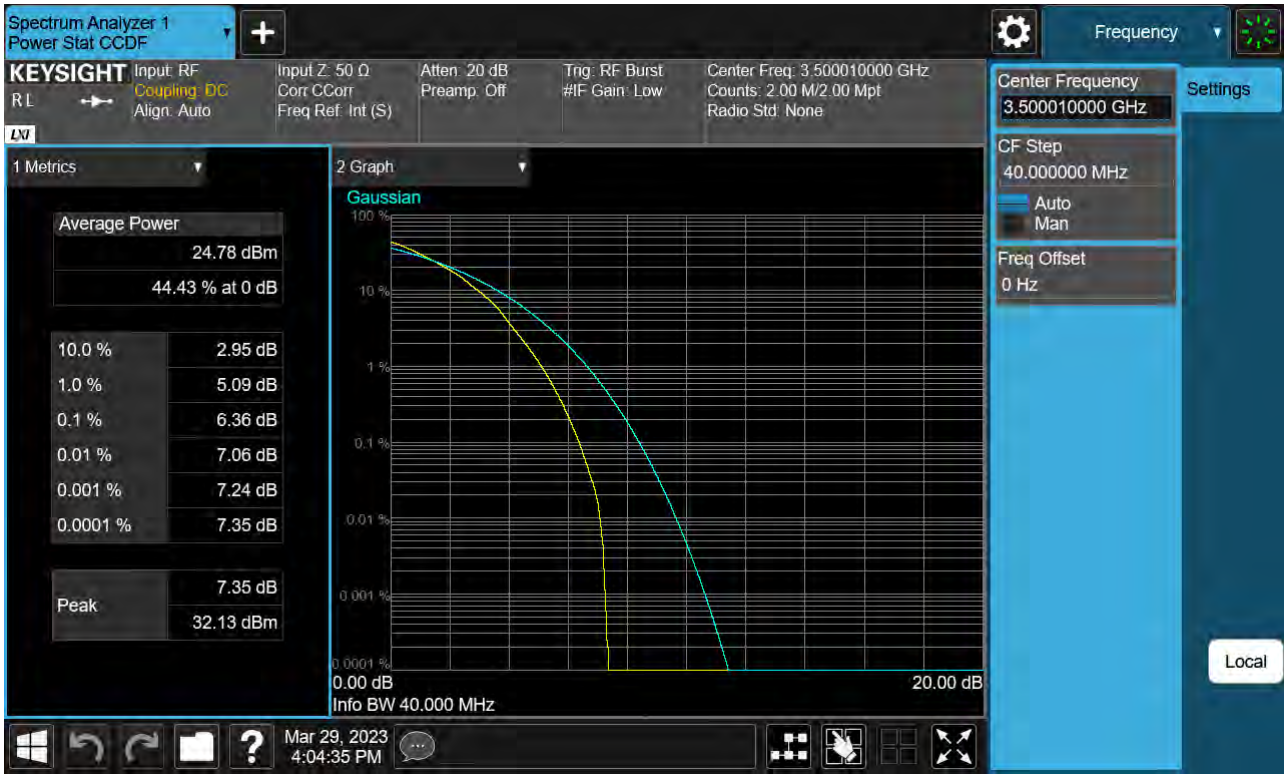
Sub6 n77. PAR Plot (40 M BW\_Ch.633334\_QPSK)



Sub6 n77. PAR Plot (40 M BW\_Ch.633334\_16QAM)



Sub6 n77. PAR Plot (40 M BW\_Ch.633334\_64QAM)

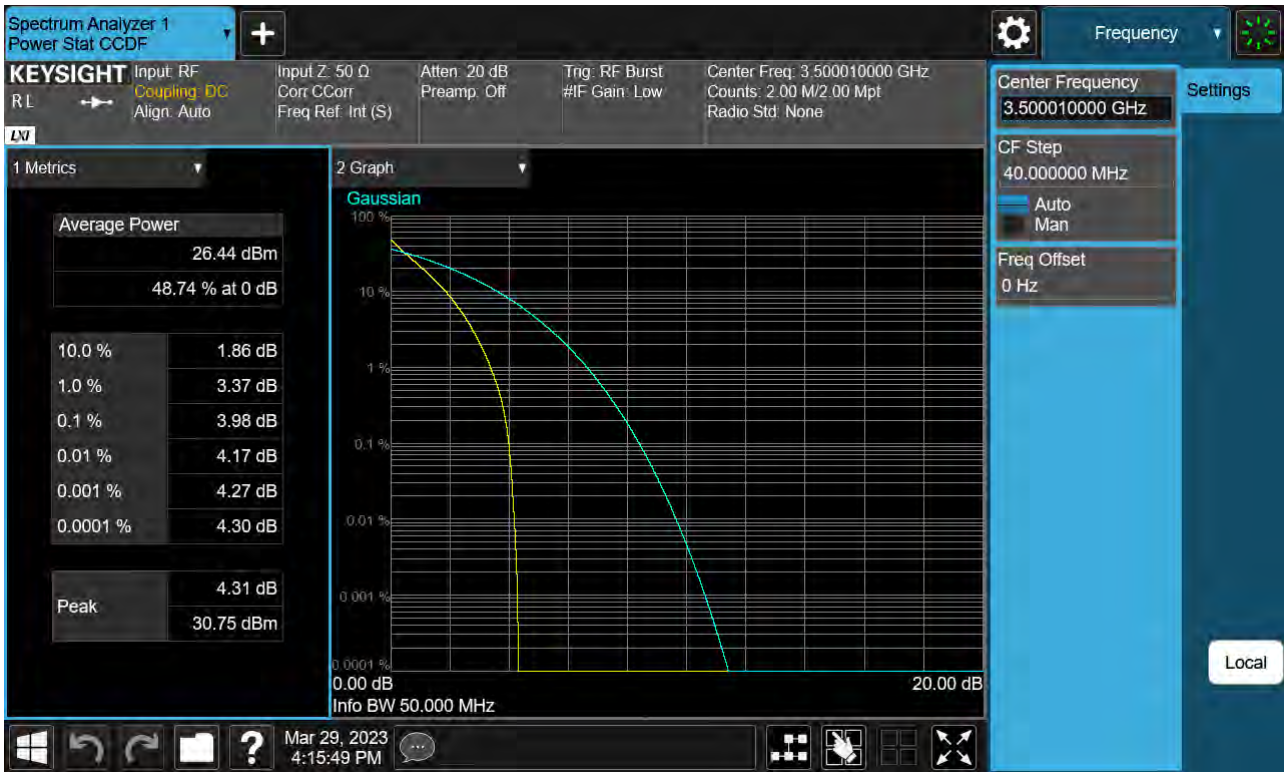




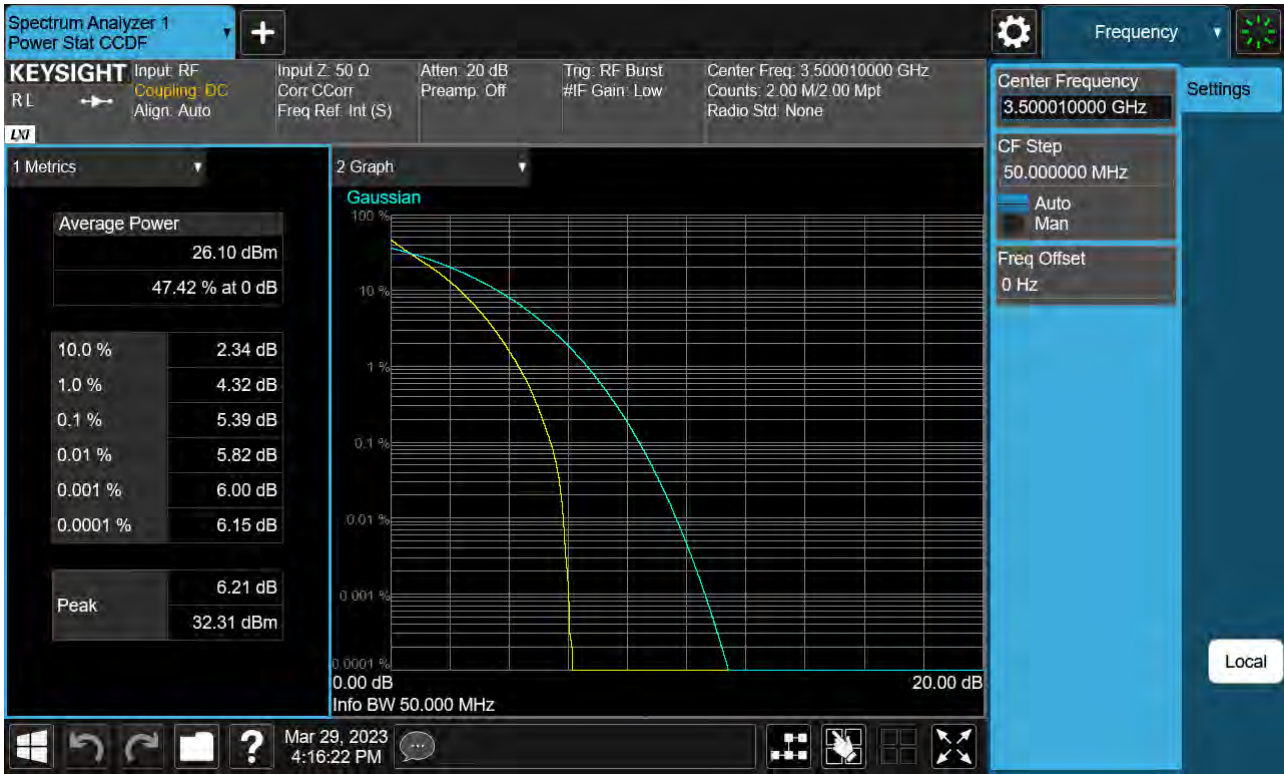
Sub6 n77. PAR Plot (40 M BW\_Ch.633334\_256QAM)



Sub6 n77. PAR Plot (50 M BW\_Ch.633334\_ BPSK)



Sub6 n77. PAR Plot (50 M BW\_Ch.633334\_QPSK)

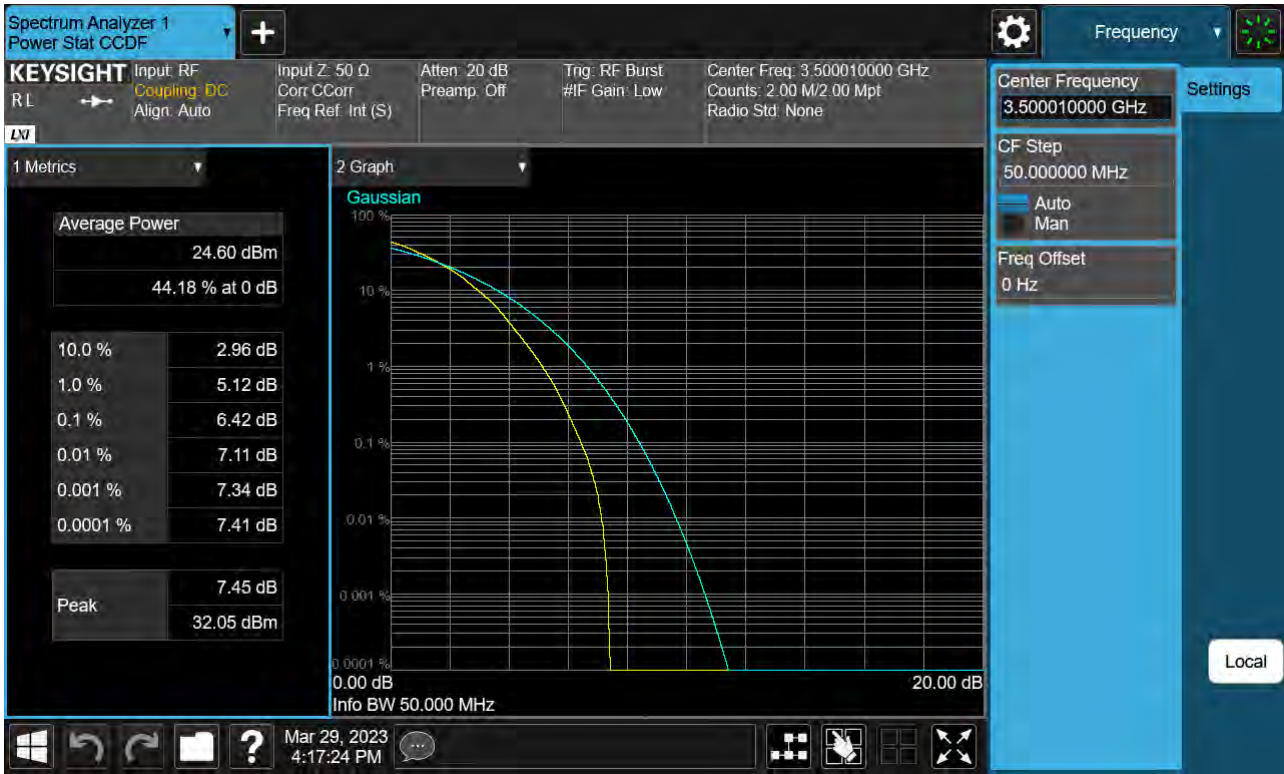


Sub6 n77. PAR Plot (50 M BW\_Ch.633334\_16QAM)





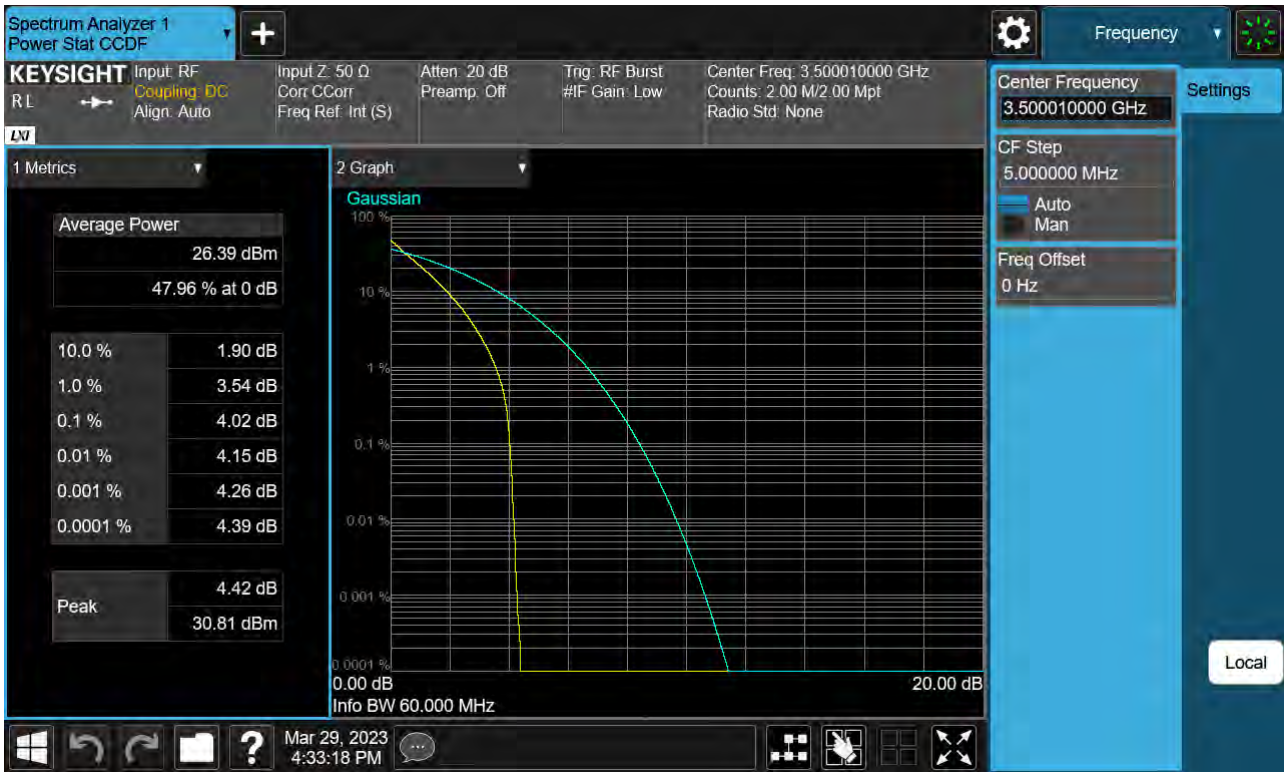
Sub6 n77. PAR Plot (50 M BW\_Ch.633334\_64QAM)



Sub6 n77. PAR Plot (50 M BW\_Ch.633334\_256QAM)

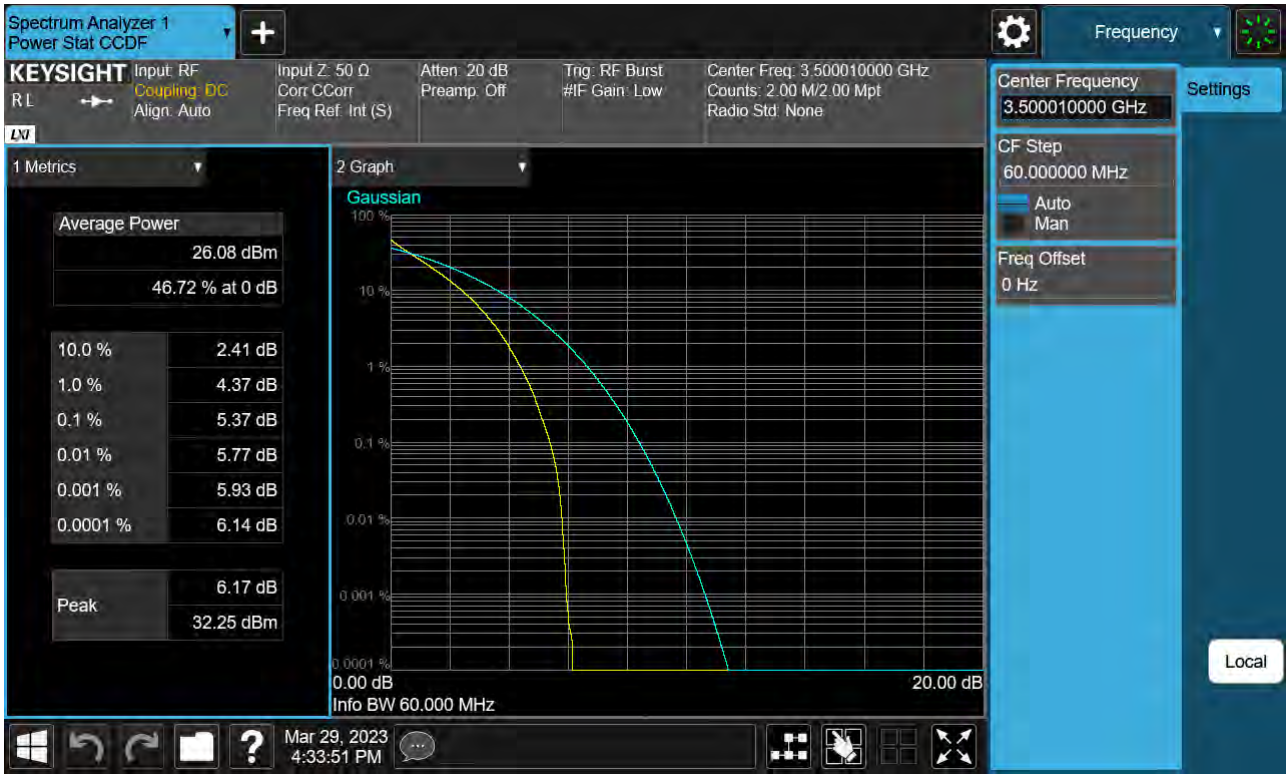


Sub6 n77. PAR Plot (60 M BW\_Ch.633334\_ BPSK)





Sub6 n77. PAR Plot (60 M BW\_Ch.633334\_QPSK)



Sub6 n77. PAR Plot (60 M BW\_Ch.633334\_16QAM)

