

# 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-FC026

**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)

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max. Power (W)	Max. Power (dBm)
Sub6 n41 (10)	2501.010 – 2685.000	8M66G7D	PI/2 BPSK	0.607	27.83
		8M64G7D	QPSK	0.596	27.75
		8M66W7D	16QAM	0.472	26.74
		8M66W7D	64QAM	0.337	25.28
		8M63W7D	256QAM	0.202	23.05
Sub6 n41 (15)	2503.500 – 2682.480	13M0G7D	PI/2 BPSK	0.671	28.27
		13M0G7D	QPSK	0.667	28.24
		12M9W7D	16QAM	0.531	27.25
		13M0W7D	64QAM	0.375	25.74
		13M0W7D	256QAM	0.229	23.59
Sub6 n41 (20)	2506.020 – 2679.990	18M0G7D	PI/2 BPSK	0.750	28.75
		18M0G7D	QPSK	0.731	28.64
		18M0W7D	16QAM	0.592	27.72
		18M0W7D	64QAM	0.417	26.20
		17M9W7D	256QAM	0.248	23.95
Sub6 n41 (30)	2511.000 – 2674.980	27M0G7D	PI/2 BPSK	0.793	28.99
		26M9G7D	QPSK	0.769	28.86
		27M0W7D	16QAM	0.622	27.94
		26M9W7D	64QAM	0.443	26.46
		26M9W7D	256QAM	0.264	24.22
Sub6 n41 (40)	2516.010 – 2670.000	36M9G7D	PI/2 BPSK	0.813	29.10
		36M8G7D	QPSK	0.794	29.00
		35M9W7D	16QAM	0.641	28.07
		35M9W7D	64QAM	0.454	26.57
		36M0W7D	256QAM	0.273	24.36
Sub6 n41 (50)	2521.020 – 2664.990	45M9G7D	PI/2 BPSK	0.706	28.49
		46M1G7D	QPSK	0.697	28.43
		45M8W7D	16QAM	0.560	27.48
		45M9W7D	64QAM	0.394	25.95
		45M8W7D	256QAM	0.235	23.71
Sub6 n41 (60)	2526.000 – 2659.980	58M0G7D	PI/2 BPSK	0.706	28.49
		58M1G7D	QPSK	0.682	28.34
		58M0W7D	16QAM	0.558	27.47
		58M0W7D	64QAM	0.390	25.91
		58M0W7D	256QAM	0.234	23.70
Sub6 n41 (70)	2531.010 – 2655.000	64M5G7D	PI/2 BPSK	0.652	28.14
		64M5G7D	QPSK	0.634	28.02
		64M5W7D	16QAM	0.515	27.12
		64M6W7D	64QAM	0.362	25.59
		64M6W7D	256QAM	0.219	23.41
Sub6 n41 (80)	2536.020 – 2649.990	77M4G7D	PI/2 BPSK	0.714	28.54
		77M4G7D	QPSK	0.684	28.35
		77M4W7D	16QAM	0.562	27.50
		77M3W7D	64QAM	0.396	25.98
		77M4W7D	256QAM	0.237	23.75
Sub6 n41 (90)	2541.000 – 2644.980	87M1G7D	PI/2 BPSK	0.714	28.54
		87M2G7D	QPSK	0.701	28.46
		87M1W7D	16QAM	0.561	27.49
		87M1W7D	64QAM	0.399	26.01
		87M0W7D	256QAM	0.238	23.77
Sub6 n41 (100)	2546.010 – 2640.000	96M7G7D	PI/2 BPSK	0.612	27.87
		96M8G7D	QPSK	0.600	27.78
		96M9W7D	16QAM	0.520	27.16
		96M8W7D	64QAM	0.369	25.67
		96M7W7D	256QAM	0.223	23.49

Report No.: HCT-RF-2305-FC026

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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)

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

## Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-2305-FC026	May 09, 2023	- First Approval Report

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

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# MEASUREMENT REPORT

## 1. GENERAL INFORMATION

<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, 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(SCS 30kHz):</b>	2501.010 – 2685.000 : 10 MHz 2503.500 – 2682.480 : 15 MHz 2506.020 – 2679.990 : 20 MHz 2511.000 – 2674.980 : 30 MHz 2516.010 – 2670.000 : 40 MHz 2521.020 – 2664.990 : 50 MHz 2526.000 – 2659.980 : 60 MHz 2531.010 – 2655.000 : 70 MHz 2536.020 – 2649.990 : 80 MHz 2541.000 – 2644.980 : 90 MHz 2546.010 – 2640.000 : 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
Channel Edge	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Spurious and Harmonic Emissions at Antenna Terminal	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Conducted Output Power	- 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;

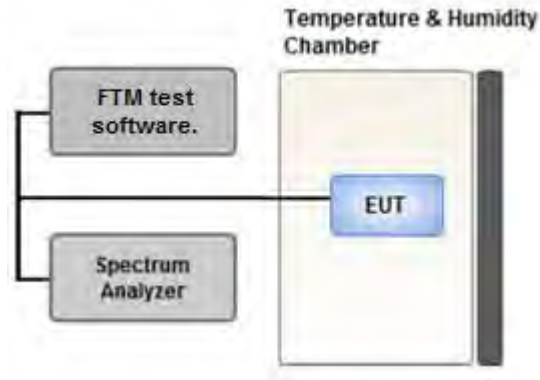
$$\text{Result}_{(dBm)} = P_g_{(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dBi)}$$

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)**

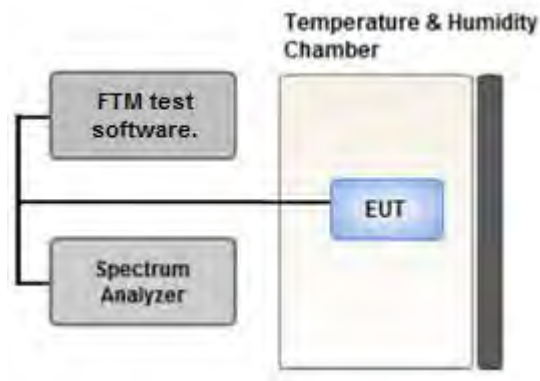
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW  $\geq 3 \times$  RBW.

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  $\geq [10 \times$  (number of points in sweep)  $\times$  (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  $[10 \log (1/0.25)] = 6 \text{ dB}$  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.

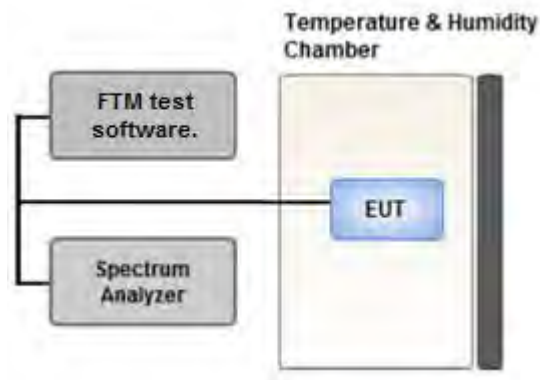
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

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**

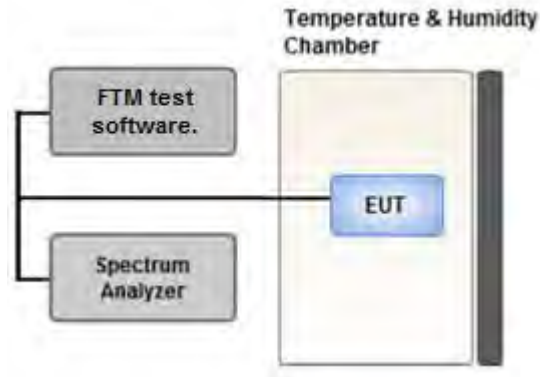
#### **Test Overview**

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 CHANNEL EDGE



**Test setup**

#### **Test Overview**

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum 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. Within 1 MHz of the channel edge the RBW should be 2 % of EBW, then 1 MHz after that.
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

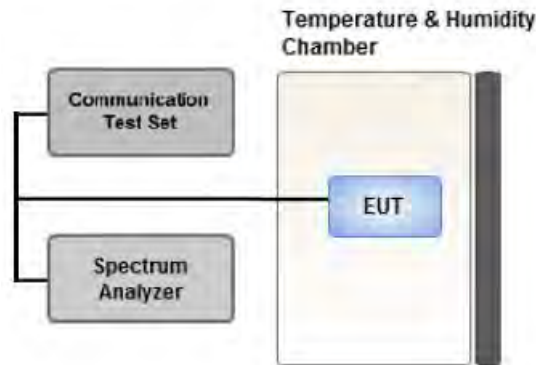
**Test Notes**

1. The attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,
2.  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge.
3.  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge.
4. The attenuation factor shall not be less that  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz.
5.  $55 + 10 \log (P)$  dB at or below 2490.5 MHz.
6. X is the greater of 6MHz or the actual emission bandwidth
7. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer

Where Margin < 1 dB the emission level is either corrected by  $10 \log(1 \text{ MHz/ RB})$  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: SA(PC2,PC3), NSA(PC3), SRS  
Worst case: SA(PC2)  
Mode : Stand alone, Stand alone + External accessories (Earphone, AC adapter, etc)  
Worst case : Stand alone
- We were performed the RSE test in condition of co-location.  
Mode : Stand alone, Simultaneous transmission scenarios  
Worst case : Stand alone
- Radiated Spurious emissions are measured while operating in EN-DC mode with Sub 6 NR carrier as well as an LTE carrier (anchor).  
All EN-DC mode of operation were investigated and the worst case configuration results are reported.  
(Worst case: 66A-n41A)
- 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	RB size	RB offset	Axis
<b>Effective Isotropic Radiated Power</b>	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	See Section 8.1		X
<b>Radiated Spurious and Harmonic Emissions</b>	PI/2 BPSK	See Section 8.2		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(PC2,PC3), NSA(PC3), SRS

Worst case: SA(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, Peak-To-Average Ratio	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	10, 15, 20, 30, 40, 50, 60, 80, 90, 100	Mid	Full RB	0		
Channel 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, 80, 90, 100	Low, Mid High	Full RB	0
		Spurious and Harmonic Emissions at Antenna Terminal	PI/2 BPSK	10, 15, 20, 30, 40, 50, 60, 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	CERNECX	26822	05/18/2023	Annual
Power Amplifier	CBL18265035	CERNECX	22966	12/01/2023	Annual
Power Amplifier	CBL26405040	CERNECX	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(m)(4)	<ul style="list-style-type: none"> <li>■ <math>&lt; 40 + 10\log_{10} (P[\text{Watts}])</math> at Channel edges</li> <li>■ <math>&lt; 43 + 10\log_{10} (P[\text{Watts}])</math> between 5 and X MHz from Channel edges</li> <li>■ <math>&lt; 55 + 10\log_{10} (P[\text{Watts}])</math> beyond X MHz beyond from Channel edges</li> <li>■ <math>&lt; 43 + 10 \log (P)</math> dB on all frequencies between 2490.5 MHz and 2496 MHz</li> </ul>	PASS
Conducted Output Power	§2.1046	N/A	<u>See Note1</u>
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(h)(2)	$< 2$ Watts max. EIRP	PASS
Radiated Spurious and Harmonic Emissions	§2.1053, §27.53(m)(4)	$< 55 + 10\log_{10} (P[\text{Watts}])$	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

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

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

### 7.2 EIRP Sample Calculation

Ch./ Freq.		Measured Level(dBm)	Substitute Level(dBm)	Ant. Gain (dBi)	C.L	Pol.	EIRP	
channel	Freq.(MHz)						W	dBm
518598	2593.0	-15.75	18.45	9.90	1.76	H	0.456	26.59

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

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



7.3. Emission Designator

GSM Emission Designator

Emission Designator = 249KGXW

GSM BW = 249 kHz

G = Phase Modulation

X = Cases not otherwise covered

W = Combination (Audio/Data)

EDGE Emission Designator

Emission Designator = 249KG7W

GSM BW = 249 kHz

G = Phase Modulation

7 = Quantized/Digital Info

W = Combination (Audio/Data)

WCDMA Emission Designator

Emission Designator = 4M17F9W

WCDMA BW = 4.17 MHz

F = Frequency Modulation

9 = Composite Digital Info

W = Combination (Audio/Data)

QPSK Modulation

Emission Designator = 4M48G7D

LTE BW = 4.48 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Data transmission; telemetry; telecommand

QAM Modulation

Emission Designator = 4M48W7D

LTE BW = 4.48 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Data transmission; telemetry; telecommand

## 8. TEST DATA

### 8.1 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	Offset
2501.010	Sub6 41/ 10 MHz [30 kHz]	PI/2 BPSK	-16.64	20.00	10.30	2.47	H	< 2.00	0.607	27.83	1	22
		QPSK	-16.72	19.92	10.30	2.47	H		0.596	27.75		
		16-QAM	-17.73	18.91	10.30	2.47	H		0.472	26.74		
		64-QAM	-19.19	17.45	10.30	2.47	H		0.337	25.28		
		256-QAM	-21.42	15.22	10.30	2.47	H		0.202	23.05		
2592.990		PI/2 BPSK	-18.40	17.90	10.05	2.50	H		0.351	25.45	1	1
		QPSK	-18.45	17.85	10.05	2.50	H		0.347	25.40		
		16-QAM	-19.41	16.89	10.05	2.50	H		0.278	24.44		
		64-QAM	-20.90	15.40	10.05	2.50	H		0.197	22.95		
		256-QAM	-23.12	13.18	10.05	2.50	H		0.118	20.73		
2685.000	PI/2 BPSK	-19.62	17.84	10.10	2.58	H	0.344	25.36	1	12		
	QPSK	-19.64	17.82	10.10	2.58	H	0.342	25.34				
	16-QAM	-20.75	16.71	10.10	2.58	H	0.265	24.23				
	64-QAM	-22.15	15.31	10.10	2.58	H	0.192	22.83				
	256-QAM	-24.37	13.09	10.10	2.58	H	0.115	20.61				

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
									W	dBm	Size	Offset
2503.500	Sub6 41/ 15 MHz [30 kHz]	PI/2 BPSK	-16.18	20.45	10.30	2.48	H	< 2.00	0.671	28.27	1	36
		QPSK	-16.21	20.42	10.30	2.48	H		0.667	28.24		
		16-QAM	-17.20	19.43	10.30	2.48	H		0.531	27.25		
		64-QAM	-18.71	17.92	10.30	2.48	H		0.375	25.74		
		256-QAM	-20.86	15.77	10.30	2.48	H		0.229	23.59		
2592.990		PI/2 BPSK	-18.17	18.13	10.05	2.50	H		0.370	25.68	1	1
		QPSK	-18.22	18.08	10.05	2.50	H		0.366	25.63		
		16-QAM	-19.17	17.13	10.05	2.50	H		0.294	24.68		
		64-QAM	-20.67	15.63	10.05	2.50	H		0.208	23.18		
		256-QAM	-22.90	13.40	10.05	2.50	H		0.124	20.95		
2682.480		PI/2 BPSK	-20.43	17.28	10.10	2.58	H		0.302	24.80	1	36
		QPSK	-20.49	17.22	10.10	2.58	H		0.298	24.74		
		16-QAM	-21.58	16.13	10.10	2.58	H		0.232	23.65		
		64-QAM	-22.98	14.73	10.10	2.58	H		0.168	22.25		
		256-QAM	-25.14	12.57	10.10	2.58	H		0.102	20.09		

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
2506.020	Sub6 41/ 20 MHz [30 kHz]	PI/2 BPSK	-15.70	20.93	10.30	2.48	H	< 2.00	0.750	28.75	1	49
		QPSK	-15.81	20.82	10.30	2.48	H		0.731	28.64		
		16-QAM	-16.73	19.90	10.30	2.48	H		0.592	27.72		
		64-QAM	-18.25	18.38	10.30	2.48	H		0.417	26.20		
		256-QAM	-20.50	16.13	10.30	2.48	H		0.248	23.95		
2592.990		PI/2 BPSK	-18.21	18.09	10.05	2.50	H		0.366	25.64	1	1
		QPSK	-18.32	17.98	10.05	2.50	H		0.357	25.53		
		16-QAM	-19.30	17.00	10.05	2.50	H		0.285	24.55		
		64-QAM	-20.73	15.57	10.05	2.50	H		0.205	23.12		
		256-QAM	-22.93	13.37	10.05	2.50	H		0.124	20.92		
2679.990	PI/2 BPSK	-20.41	17.30	10.10	2.58	H	0.303	24.82	1	49		
	QPSK	-20.49	17.22	10.10	2.58	H	0.298	24.74				
	16-QAM	-21.44	16.27	10.10	2.58	H	0.239	23.79				
	64-QAM	-22.94	14.77	10.10	2.58	H	0.169	22.29				
	256-QAM	-25.17	12.54	10.10	2.58	H	0.101	20.06				

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
2511.000	Sub6 41/ 30 MHz [30 kHz]	PI/2 BPSK	-15.43	21.19	10.30	2.50	H	< 2.00	0.793	28.99	1	76
		QPSK	-15.56	21.06	10.30	2.50	H		0.769	28.86		
		16-QAM	-16.48	20.14	10.30	2.50	H		0.622	27.94		
		64-QAM	-17.96	18.66	10.30	2.50	H		0.443	26.46		
		256-QAM	-20.20	16.42	10.30	2.50	H		0.264	24.22		
2592.990		PI/2 BPSK	-16.91	19.39	10.05	2.50	H		0.494	26.94	1	1
		QPSK	-16.97	19.33	10.05	2.50	H		0.488	26.88		
		16-QAM	-17.90	18.40	10.05	2.50	H		0.394	25.95		
		64-QAM	-19.39	16.91	10.05	2.50	H		0.279	24.46		
		256-QAM	-21.67	14.63	10.05	2.50	H		0.165	22.18		
2674.980	PI/2 BPSK	-20.33	17.08	10.10	2.58	H	0.288	24.60	1	76		
	QPSK	-20.39	17.02	10.10	2.58	H	0.284	24.54				
	16-QAM	-21.41	16.00	10.10	2.58	H	0.225	23.52				
	64-QAM	-22.85	14.56	10.10	2.58	H	0.161	22.08				
	256-QAM	-25.04	12.37	10.10	2.58	H	0.097	19.89				

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
2516.010	Sub6 41/ 40 MHz [30 kHz]	PI/2 BPSK	-15.18	21.31	10.30	2.51	H	< 2.00	0.813	29.10	1	104
		QPSK	-15.28	21.21	10.30	2.51	H		0.794	29.00		
		16-QAM	-16.21	20.28	10.30	2.51	H		0.641	28.07		
		64-QAM	-17.71	18.78	10.30	2.51	H		0.454	26.57		
		256-QAM	-19.92	16.57	10.30	2.51	H		0.273	24.36		
2592.990		PI/2 BPSK	-16.89	19.41	10.05	2.50	H		0.497	26.96	1	1
		QPSK	-16.97	19.33	10.05	2.50	H		0.488	26.88		
		16-QAM	-17.98	18.32	10.05	2.50	H		0.386	25.87		
		64-QAM	-19.40	16.90	10.05	2.50	H		0.279	24.45		
		256-QAM	-21.60	14.70	10.05	2.50	H		0.168	22.25		
2670.000	PI/2 BPSK	-20.34	16.78	10.10	2.58	H	0.269	24.30	1	104		
	QPSK	-20.38	16.74	10.10	2.58	H	0.267	24.26				
	16-QAM	-21.37	15.75	10.10	2.58	H	0.212	23.27				
	64-QAM	-22.81	14.31	10.10	2.58	H	0.152	21.83				
	256-QAM	-25.03	12.09	10.10	2.58	H	0.091	19.61				

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
2521.020	Sub6 41/ 50 MHz [30 kHz]	PI/2 BPSK	-15.65	21.02	10.00	2.53	H	< 2.00	0.706	28.49	1	131
		QPSK	-15.71	20.96	10.00	2.53	H		0.697	28.43		
		16-QAM	-16.66	20.01	10.00	2.53	H		0.560	27.48		
		64-QAM	-18.19	18.48	10.00	2.53	H		0.394	25.95		
		256-QAM	-20.43	16.24	10.00	2.53	H		0.235	23.71		
2592.990		PI/2 BPSK	-16.89	19.41	10.05	2.50	H		0.497	26.96	1	1
		QPSK	-16.94	19.36	10.05	2.50	H		0.491	26.91		
		16-QAM	-17.91	18.39	10.05	2.50	H		0.393	25.94		
		64-QAM	-19.40	16.90	10.05	2.50	H		0.279	24.45		
		256-QAM	-21.63	14.67	10.05	2.50	H		0.167	22.22		
2664.990	PI/2 BPSK	-20.43	16.66	10.10	2.60	H	0.261	24.16	1	131		
	QPSK	-20.51	16.58	10.10	2.60	H	0.256	24.08				
	16-QAM	-21.47	15.62	10.10	2.60	H	0.205	23.12				
	64-QAM	-23.02	14.07	10.10	2.60	H	0.144	21.57				
	256-QAM	-25.16	11.93	10.10	2.60	H	0.088	19.43				

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
2526.000	Sub6 41/ 60 MHz [30 kHz]	PI/2 BPSK	-15.54	20.72	10.30	2.53	H	< 2.00	0.706	28.49	1	81
		QPSK	-15.69	20.57	10.30	2.53	H		0.682	28.34		
		16-QAM	-16.56	19.70	10.30	2.53	H		0.558	27.47		
		64-QAM	-18.12	18.14	10.30	2.53	H		0.390	25.91		
		256-QAM	-20.33	15.93	10.30	2.53	H		0.234	23.70		
2592.990		PI/2 BPSK	-16.25	20.05	10.05	2.50	H		0.575	27.60	1	1
		QPSK	-16.28	20.02	10.05	2.50	H		0.571	27.57		
		16-QAM	-17.26	19.04	10.05	2.50	H		0.456	26.59		
		64-QAM	-18.73	17.57	10.05	2.50	H		0.325	25.12		
		256-QAM	-20.95	15.35	10.05	2.50	H		0.195	22.90		
2659.980	PI/2 BPSK	-20.56	16.29	10.10	2.61	H	0.239	23.78	1	1		
	QPSK	-20.61	16.24	10.10	2.61	H	0.236	23.73				
	16-QAM	-21.55	15.30	10.10	2.61	H	0.190	22.79				
	64-QAM	-23.05	13.80	10.10	2.61	H	0.135	21.29				
	256-QAM	-25.25	11.60	10.10	2.61	H	0.081	19.09				



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
2531.010	Sub6 41/ 70 MHz [30 kHz]	PI/2 BPSK	-15.76	20.36	10.30	2.52	H	< 2.00	0.652	28.14	1	94
		QPSK	-15.88	20.24	10.30	2.52	H		0.634	28.02		
		16-QAM	-16.78	19.34	10.30	2.52	H		0.515	27.12		
		64-QAM	-18.31	17.81	10.30	2.52	H		0.362	25.59		
		256-QAM	-20.49	15.63	10.30	2.52	H		0.219	23.41		
2592.990		PI/2 BPSK	-16.40	19.90	10.05	2.50	H		0.556	27.45	1	1
		QPSK	-16.50	19.80	10.05	2.50	H		0.543	27.35		
		16-QAM	-17.38	18.92	10.05	2.50	H		0.444	26.47		
		64-QAM	-18.89	17.41	10.05	2.50	H		0.313	24.96		
		256-QAM	-21.11	15.19	10.05	2.50	H		0.188	22.74		
2655.000	PI/2 BPSK	-19.90	16.86	10.10	2.63	H	0.271	24.33	1	1		
	QPSK	-19.93	16.83	10.10	2.63	H	0.269	24.30				
	16-QAM	-20.93	15.83	10.10	2.63	H	0.214	23.30				
	64-QAM	-22.35	14.41	10.10	2.63	H	0.154	21.88				
	256-QAM	-24.59	12.17	10.10	2.63	H	0.092	19.64				

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
2536.020	Sub6 41/ 80 MHz [30 kHz]	PI/2 BPSK	-15.48	20.76	10.30	2.52	H	< 2.00	0.714	28.54	1	108
		QPSK	-15.67	20.57	10.30	2.52	H		0.684	28.35		
		16-QAM	-16.52	19.72	10.30	2.52	H		0.562	27.50		
		64-QAM	-18.04	18.20	10.30	2.52	H		0.396	25.98		
		256-QAM	-20.27	15.97	10.30	2.52	H		0.237	23.75		
2592.990		PI/2 BPSK	-16.34	19.96	10.05	2.50	H		0.564	27.51	1	1
		QPSK	-16.42	19.88	10.05	2.50	H		0.553	27.43		
		16-QAM	-17.33	18.97	10.05	2.50	H		0.449	26.52		
		64-QAM	-18.82	17.48	10.05	2.50	H		0.318	25.03		
		256-QAM	-21.04	15.26	10.05	2.50	H		0.191	22.81		
2649.990	PI/2 BPSK	-19.22	17.45	10.10	2.65	H	0.309	24.90	1	1		
	QPSK	-19.26	17.41	10.10	2.65	H	0.306	24.86				
	16-QAM	-20.19	16.48	10.10	2.65	H	0.247	23.93				
	64-QAM	-21.67	15.00	10.10	2.65	H	0.176	22.45				
	256-QAM	-23.95	12.72	10.10	2.65	H	0.104	20.17				

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
2541.000	Sub6 41/ 90 MHz [30 kHz]	PI/2 BPSK	-15.60	20.76	10.30	2.52	H	< 2.00	0.714	28.54	1	122
		QPSK	-15.68	20.68	10.30	2.52	H		0.701	28.46		
		16-QAM	-16.65	19.71	10.30	2.52	H		0.561	27.49		
		64-QAM	-18.13	18.23	10.30	2.52	H		0.399	26.01		
		256-QAM	-20.37	15.99	10.30	2.52	H		0.238	23.77		
2592.990		PI/2 BPSK	-15.79	20.51	10.05	2.50	H		0.640	28.06	1	1
		QPSK	-15.85	20.45	10.05	2.50	H		0.631	28.00		
		16-QAM	-16.78	19.52	10.05	2.50	H		0.509	27.07		
		64-QAM	-18.24	18.06	10.05	2.50	H		0.364	25.61		
		256-QAM	-20.48	15.82	10.05	2.50	H		0.217	23.37		
2644.980	PI/2 BPSK	-18.53	18.28	10.00	2.66	H	0.365	25.62	1	1		
	QPSK	-18.56	18.25	10.00	2.66	H	0.362	25.59				
	16-QAM	-19.54	17.27	10.00	2.66	H	0.289	24.61				
	64-QAM	-21.04	15.77	10.00	2.66	H	0.205	23.11				
	256-QAM	-23.20	13.61	10.00	2.66	H	0.124	20.95				

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
2546.010	Sub6 41/ 100 MHz [30 kHz]	PI/2 BPSK	-16.21	20.16	10.25	2.54	H	< 2.00	0.612	27.87	1	136
		QPSK	-16.30	20.07	10.25	2.54	H		0.600	27.78		
		16-QAM	-16.92	19.45	10.25	2.54	H		0.520	27.16		
		64-QAM	-18.41	17.96	10.25	2.54	H		0.369	25.67		
		256-QAM	-20.59	15.78	10.25	2.54	H		0.223	23.49		
2592.990		PI/2 BPSK	-16.23	20.07	10.05	2.50	H		0.578	27.62	1	1
		QPSK	-16.31	19.99	10.05	2.50	H		0.568	27.54		
		16-QAM	-17.52	18.78	10.05	2.50	H		0.430	26.33		
		64-QAM	-18.78	17.52	10.05	2.50	H		0.321	25.07		
		256-QAM	-20.92	15.38	10.05	2.50	H		0.196	22.93		
2640.000	PI/2 BPSK	-17.99	18.96	9.90	2.67	H	0.416	26.19	1	1		
	QPSK	-18.00	18.95	9.90	2.67	H	0.415	26.18				
	16-QAM	-19.04	17.91	9.90	2.67	H	0.327	25.14				
	64-QAM	-20.55	16.40	9.90	2.67	H	0.231	23.63				
	256-QAM	-22.75	14.20	9.90	2.67	H	0.139	21.43				

**8.2 RADIATED SPURIOUS EMISSIONS**

- ▣ NR Band: N41
- ▣ Bandwidth: 10 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
500202 (2501.010)	5 002.02	-61.99	10.70	-63.34	3.63	H	-56.27	-25.00	1	22
	7 503.03	-51.23	11.10	-44.22	4.50	V	-37.62	-25.00		
	10 004.04	-62.28	11.20	-53.82	5.26	H	-47.88	-25.00		
	12 505.05	-60.58	12.10	-51.24	6.04	H	-45.18	-25.00		
	15 006.06	-57.95	13.80	-51.35	6.65	H	-44.20	-25.00		
518598 (2592.990)	5 185.98	-61.72	11.00	-63.22	3.70	V	-55.92	-25.00	1	1
	7 778.97	-58.37	10.90	-50.99	4.61	V	-44.70	-25.00		
	10 371.96	-64.92	11.20	-54.22	5.41	V	-48.43	-25.00		
	12 964.95	-63.57	12.00	-53.64	6.11	V	-47.75	-25.00		
	15 557.94	-61.77	15.40	-56.44	6.77	V	-47.81	-25.00		
537000 (2685.000)	5 370.00	-60.90	11.50	-63.42	3.74	H	-55.66	-25.00	1	12
	8 055.00	-58.33	10.90	-51.12	4.71	H	-44.93	-25.00		
	10 740.00	-63.51	11.10	-52.91	5.50	H	-47.31	-25.00		
	13 425.00	-61.75	11.80	-50.90	6.22	H	-45.32	-25.00		
	16 110.00	-65.35	15.70	-56.21	6.91	H	-47.42	-25.00		

- NR Band: N41
- Bandwidth: 15 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
500700 (2503.500)	5 007.00	-61.07	10.70	-62.35	3.61	V	-55.26	-25.00	1	36
	7 510.50	-55.17	11.10	-48.10	4.50	H	-41.50	-25.00		
	10 014.00	-61.95	11.20	-53.34	5.27	V	-47.41	-25.00		
	12 517.50	-62.28	12.10	-52.65	6.04	V	-46.59	-25.00		
	15 021.00	-56.29	13.80	-49.81	6.65	V	-42.66	-25.00		
518598 (2592.990)	5 185.98	-62.08	11.00	-63.58	3.70	H	-56.28	-25.00	1	1
	7 778.97	-60.80	10.90	-53.42	4.61	H	-47.13	-25.00		
	10 371.96	-62.96	11.20	-52.26	5.41	H	-46.47	-25.00		
	12 964.95	-63.80	12.00	-53.87	6.11	H	-47.98	-25.00		
	15 557.94	-59.85	15.40	-54.52	6.77	H	-45.89	-25.00		
536496 (2682.480)	5 364.96	-61.11	11.50	-63.40	3.75	V	-55.65	-25.00	1	36
	8 047.44	-57.88	10.85	-50.70	4.69	H	-44.54	-25.00		
	10 729.92	-63.45	11.10	-52.22	5.47	V	-46.59	-25.00		
	13 412.40	-62.39	11.80	-51.72	6.21	V	-46.13	-25.00		
	16 094.88	-61.14	15.60	-51.68	6.91	V	-42.99	-25.00		

- NR Band: N41
- Bandwidth: 20 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
501204 (2506.020)	5 012.04	-60.54	10.70	-61.75	3.59	V	-54.64	-25.00	1	49
	7 518.06	-56.14	11.10	-49.03	4.51	H	-42.44	-25.00		
	10 024.08	-61.50	11.20	-52.68	5.27	V	-46.75	-25.00		
	12 530.10	-62.06	12.10	-52.24	6.01	V	-46.15	-25.00		
	15 036.12	-58.27	13.80	-52.03	6.65	V	-44.88	-25.00		
518598 (2592.990)	5 185.98	-62.32	11.00	-63.82	3.70	H	-56.52	-25.00	1	1
	7 778.97	-62.74	10.90	-55.36	4.61	H	-49.07	-25.00		
	10 371.96	-62.82	11.20	-52.12	5.41	H	-46.33	-25.00		
	12 964.95	-63.27	12.00	-53.34	6.11	H	-47.45	-25.00		
	15 557.94	-59.67	15.40	-54.34	6.77	H	-45.71	-25.00		
535998 (2679.990)	5 359.98	-61.37	11.50	-63.43	3.76	H	-55.69	-25.00	1	49
	8 039.97	-57.41	10.80	-50.24	4.68	H	-44.12	-25.00		
	10 719.96	-63.28	11.10	-51.65	5.46	H	-46.01	-25.00		
	13 399.95	-62.00	11.80	-51.65	6.22	H	-46.07	-25.00		
	16 079.94	-57.62	15.50	-48.34	6.90	H	-39.74	-25.00		

- NR Band: N41
- Bandwidth: 30 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
502200 (2511.000)	5 022.00	-61.26	10.70	-62.79	3.55	H	-55.64	-25.00	1	76
	7 533.00	-51.98	11.10	-44.50	4.50	V	-37.90	-25.00		
	10 044.00	-61.93	11.15	-53.08	5.27	H	-47.20	-25.00		
	12 555.00	-63.41	12.10	-54.10	6.00	H	-48.00	-25.00		
	15 066.00	-58.81	14.00	-53.20	6.65	H	-45.85	-25.00		
518598 (2592.990)	5 185.98	-61.31	11.00	-62.81	3.70	V	-55.51	-25.00	1	1
	7 778.97	-59.62	10.90	-52.24	4.61	H	-45.95	-25.00		
	10 371.96	-61.72	11.20	-51.02	5.41	V	-45.23	-25.00		
	12 964.95	-60.50	12.00	-50.57	6.11	V	-44.68	-25.00		
	15 557.94	-60.35	15.40	-55.02	6.77	V	-46.39	-25.00		
534996 (2674.980)	5 349.96	-61.62	11.50	-63.27	3.75	V	-55.52	-25.00	1	76
	8 024.94	-62.00	10.80	-55.29	4.62	V	-49.11	-25.00		
	10 699.92	-62.06	11.10	-50.38	5.48	V	-44.76	-25.00		
	13 374.90	-61.49	11.90	-51.43	6.23	V	-45.76	-25.00		
	16 049.88	-61.07	15.50	-52.22	6.90	V	-43.62	-25.00		



- NR Band: N41
- 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
503202 (2516.010)	5 032.02	-61.58	10.70	-63.68	3.56	V	-56.54	-25.00	1	104
	7 548.03	-54.33	11.10	-46.99	4.50	V	-40.39	-25.00		
	10 064.04	-63.74	11.10	-54.93	5.28	V	-49.11	-25.00		
	12 580.05	-63.70	12.10	-54.07	6.06	V	-48.03	-25.00		
	15 096.06	-61.34	14.05	-56.01	6.67	V	-48.63	-25.00		
518598 (2592.990)	5 185.98	-60.86	11.00	-62.36	3.70	H	-55.06	-25.00	1	1
	7 778.97	-60.27	10.90	-52.89	4.61	H	-46.60	-25.00		
	10 371.96	-63.29	11.20	-52.59	5.41	H	-46.80	-25.00		
	12 964.95	-63.14	12.00	-53.21	6.11	H	-47.32	-25.00		
	15 557.94	-59.14	15.40	-53.81	6.77	H	-45.18	-25.00		
534000 (2670.000)	5 340.00	-61.31	11.40	-63.01	3.75	H	-55.36	-25.00	1	104
	8 010.00	-59.25	10.80	-52.18	4.62	H	-46.00	-25.00		
	10 680.00	-62.81	11.10	-51.35	5.46	H	-45.71	-25.00		
	13 350.00	-62.83	11.90	-52.78	6.21	H	-47.09	-25.00		
	16 020.00	-62.17	15.20	-53.82	6.68	H	-45.30	-25.00		

- NR Band: N41
- Bandwidth: 50 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
504204 (2521.020)	5 042.04	-62.11	10.70	-64.08	3.60	V	-56.98	-25.00	1	131
	7 563.06	-56.82	11.10	-50.00	4.52	V	-43.42	-25.00		
	10 084.08	-62.84	11.10	-53.62	5.30	V	-47.82	-25.00		
	12 605.10	-63.21	12.00	-53.71	6.05	V	-47.76	-25.00		
	15 126.12	-60.64	14.10	-54.68	6.67	V	-47.25	-25.00		
518598 (2592.990)	5 185.98	-61.53	11.00	-63.03	3.70	H	-55.73	-25.00	1	1
	7 778.97	-62.68	10.90	-55.30	4.61	H	-49.01	-25.00		
	10 371.96	-62.64	11.20	-51.94	5.41	H	-46.15	-25.00		
	12 964.95	-63.62	12.00	-53.69	6.11	H	-47.80	-25.00		
	15 557.94	-60.15	15.40	-54.82	6.77	H	-46.19	-25.00		
532998 (2664.990)	5 329.98	-61.45	11.40	-63.42	3.71	H	-55.73	-25.00	1	131
	7 994.97	-57.93	10.75	-50.52	4.66	H	-44.43	-25.00		
	10 659.96	-64.26	11.10	-52.10	5.49	H	-46.49	-25.00		
	13 324.95	-61.32	12.00	-50.61	6.19	H	-44.80	-25.00		
	15 989.94	-61.46	15.10	-53.64	6.88	H	-45.42	-25.00		

- NR Band: N41
- Bandwidth: 60 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
505200 (2526.000)	5 052.00	-60.37	10.70	-62.02	3.63	H	-54.95	-25.00	1	81
	7 578.00	-57.18	11.10	-50.39	4.54	H	-43.83	-25.00		
	10 104.00	-62.63	11.10	-53.79	5.29	H	-47.98	-25.00		
	12 630.00	-63.49	12.00	-54.26	6.02	H	-48.28	-25.00		
	15 156.00	-58.08	14.20	-52.59	6.67	H	-45.06	-25.00		
518598 (2592.990)	5 185.98	-61.61	11.00	-63.11	3.70	V	-55.81	-25.00	1	1
	7 778.97	-62.79	10.90	-55.41	4.61	V	-49.12	-25.00		
	10 371.96	-63.21	11.20	-52.51	5.41	V	-46.72	-25.00		
	12 964.95	-61.61	12.00	-51.68	6.11	V	-45.79	-25.00		
	15 557.94	-59.53	15.40	-54.20	6.77	V	-45.57	-25.00		
531996 (2659.980)	5 319.96	-60.32	11.40	-63.06	3.66	V	-55.32	-25.00	1	1
	7 979.94	-62.65	10.70	-55.40	4.67	V	-49.37	-25.00		
	10 639.92	-63.61	11.20	-52.18	5.49	V	-46.47	-25.00		
	13 299.90	-62.22	12.00	-52.07	6.19	V	-46.26	-25.00		
	15 959.88	-61.99	15.10	-53.33	6.87	V	-45.10	-25.00		

- NR Band: N41
- Bandwidth: 70 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
506202 (2531.010)	5 062.02	-61.91	10.70	-62.89	3.65	V	-55.84	-25.00	1	94
	7 593.03	-55.32	11.15	-48.28	4.53	V	-41.66	-25.00		
	10 124.04	-62.93	11.10	-54.05	5.30	V	-48.25	-25.00		
	12 655.05	-60.46	11.90	-50.95	6.03	V	-45.08	-25.00		
	15 186.06	-59.75	14.20	-54.50	6.67	V	-46.97	-25.00		
518598 (2592.990)	5 185.98	-60.22	11.00	-61.72	3.70	H	-54.42	-25.00	1	1
	7 778.97	-63.17	10.90	-55.79	4.61	H	-49.50	-25.00		
	10 371.96	-62.31	11.20	-51.61	5.41	H	-45.82	-25.00		
	12 964.95	-62.69	12.00	-52.76	6.11	H	-46.87	-25.00		
	15 557.94	-59.27	15.40	-53.94	6.77	H	-45.31	-25.00		
531000 (2655.000)	5 310.00	-61.24	11.40	-63.48	3.65	V	-55.73	-25.00	1	1
	7 965.00	-62.83	10.70	-55.66	4.65	V	-49.61	-25.00		
	10 620.00	-63.30	11.20	-52.61	5.41	V	-46.82	-25.00		
	13 275.00	-63.04	12.10	-52.71	6.22	V	-46.83	-25.00		
	15 930.00	-62.17	15.00	-53.90	6.88	V	-45.78	-25.00		

- NR Band: N41
- Bandwidth: 80 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
507204 (2536.020)	5 072.04	-60.88	10.70	-62.16	3.62	H	-55.08	-25.00	1	108
	7 608.06	-57.40	11.20	-50.39	4.52	H	-43.71	-25.00		
	10 144.08	-62.90	11.05	-53.43	5.32	H	-47.70	-25.00		
	12 680.10	-63.19	11.90	-52.98	6.06	H	-47.14	-25.00		
	15 216.12	-60.10	14.40	-55.14	6.69	H	-47.43	-25.00		
518598 (2592.990)	5 185.98	-60.61	11.00	-62.11	3.70	V	-54.81	-25.00	1	1
	7 778.97	-63.79	10.90	-56.41	4.61	V	-50.12	-25.00		
	10 371.96	-62.37	11.20	-51.67	5.41	V	-45.88	-25.00		
	12 964.95	-63.25	12.00	-53.32	6.11	V	-47.43	-25.00		
	15 557.94	-59.46	15.40	-54.13	6.77	V	-45.50	-25.00		
529998 (2649.990)	5 299.98	-61.94	11.40	-64.05	3.69	V	-56.34	-25.00	1	1
	7 949.97	-61.79	10.70	-54.48	4.64	V	-48.42	-25.00		
	10 599.96	-62.92	11.20	-51.73	5.41	V	-45.94	-25.00		
	13 249.95	-63.79	12.10	-53.73	6.18	V	-47.81	-25.00		
	15 899.94	-61.26	15.00	-53.43	6.87	V	-45.30	-25.00		

- NR Band: N41
- Bandwidth: 90 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
508200 (2541.000)	5 082.00	-61.72	10.70	-63.36	3.61	V	-56.27	-25.00	1	122
	7 623.00	-57.33	11.20	-50.93	4.52	H	-44.25	-25.00		
	10 164.00	-62.66	11.00	-53.58	5.33	V	-47.91	-25.00		
	12 705.00	-62.96	11.90	-52.44	6.06	V	-46.60	-25.00		
	15 246.00	-60.23	14.50	-54.35	6.73	V	-46.58	-25.00		
518598 (2592.990)	5 185.98	-61.13	11.00	-62.63	3.70	H	-55.33	-25.00	1	1
	7 778.97	-57.54	10.90	-50.16	4.61	H	-43.87	-25.00		
	10 371.96	-61.53	11.20	-50.83	5.41	H	-45.04	-25.00		
	12 964.95	-63.18	12.00	-53.25	6.11	H	-47.36	-25.00		
	15 557.94	-58.08	15.40	-52.75	6.77	H	-44.12	-25.00		
528996 (2644.980)	5 289.96	-61.12	11.30	-62.59	3.73	H	-55.02	-25.00	1	1
	7 934.94	-61.60	10.70	-54.25	4.64	H	-48.19	-25.00		
	10 579.92	-63.49	11.20	-53.04	5.46	H	-47.30	-25.00		
	13 224.90	-63.25	12.10	-53.22	6.16	H	-47.28	-25.00		
	15 869.88	-60.06	14.90	-53.31	6.85	H	-45.26	-25.00		

- NR Band: N41
- 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
509202 (2546.010)	5 092.02	-60.68	10.70	-62.83	3.64	H	-55.77	-25.00	1	136
	7 638.03	-59.23	11.20	-52.84	4.53	H	-46.17	-25.00		
	10 184.04	-62.71	11.00	-53.25	5.33	H	-47.58	-25.00		
	12 730.05	-63.48	11.90	-53.03	6.02	H	-47.15	-25.00		
	15 276.06	-60.00	14.60	-54.13	6.71	H	-46.24	-25.00		
518598 (2592.990)	5 185.98	-61.37	11.00	-62.87	3.70	V	-55.57	-25.00	1	1
	7 778.97	-63.49	10.90	-56.11	4.61	V	-49.82	-25.00		
	10 371.96	-62.43	11.20	-51.73	5.41	V	-45.94	-25.00		
	12 964.95	-63.09	12.00	-53.16	6.11	V	-47.27	-25.00		
	15 557.94	-59.64	15.40	-54.31	6.77	V	-45.68	-25.00		
528000 (2640.000)	5 280.00	-61.55	11.30	-63.46	3.75	V	-55.91	-25.00	1	1
	7 920.00	-62.25	10.70	-55.07	4.63	V	-49.00	-25.00		
	10 560.00	-63.66	11.20	-53.75	5.45	V	-48.00	-25.00		
	13 200.00	-62.46	12.10	-52.02	6.19	V	-46.11	-25.00		
	15 840.00	-58.79	14.90	-51.68	6.84	V	-43.62	-25.00		

- ENDC-Mode : 66A(10 MHz)-n41A(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	-60.42	11.46	-61.73	3.05	V	-53.32	-13.00
	5235.00	-61.45	11.57	-56.14	3.79	V	-48.36	-13.00
	6980.00	-61.53	11.16	-49.30	4.51	V	-42.65	-13.00

**8.3 PEAK-TO-AVERAGE RATIO**

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data ( dB )
Sub6 n41	10 MHz	2592.990	BPSK	24	0	4.13
			QPSK			4.81
			16-QAM			5.81
			64-QAM			6.11
			256-QAM			6.64
	15 MHz		BPSK	36		3.93
			QPSK			4.58
			16-QAM			5.48
			64-QAM			6.03
			256-QAM			6.48
	20 MHz		BPSK	50		3.89
			QPSK			4.60
			16-QAM			5.58
			64-QAM			6.00
			256-QAM			6.46
	30 MHz		BPSK	75		3.79
			QPSK			4.34
			16-QAM			5.39
			64-QAM			5.94
			256-QAM			6.45
	40 MHz		BPSK	100		3.86
			QPSK			4.42
			16-QAM			5.44
			64-QAM			5.89
			256-QAM			6.55
	50 MHz		BPSK	128		3.83
			QPSK			4.43
			16-QAM			5.75
			64-QAM			6.10
			256-QAM			6.62
	60 MHz		BPSK	162		4.12
			QPSK			4.92
			16-QAM			5.80
			64-QAM			5.85
			256-QAM			6.48
	70 MHz		BPSK	180		4.04
			QPSK			4.96
			16-QAM			5.33
			64-QAM			5.86
			256-QAM			6.50
80 MHz	BPSK	216	3.79			
	QPSK		4.40			
	16-QAM		5.39			
	64-QAM		5.90			
	256-QAM		6.48			
90 MHz	BPSK	243	3.84			
	QPSK		4.44			
	16-QAM		5.43			
	64-QAM		5.88			
	256-QAM		6.55			
100 MHz	BPSK	270	4.30			
	QPSK		4.84			
	16-QAM		5.77			
	64-QAM		6.06			
	256-QAM		6.50			

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 122 ~ 176.



**8.4 OCCUPIED BANDWIDTH**

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data ( MHz )
Sub6 n41	10 MHz	2592.990	BPSK	24	0	8.6562
			QPSK			8.6440
			16-QAM			8.6625
			64-QAM			8.6634
			256-QAM			8.6269
	15 MHz		BPSK	36		13.023
			QPSK			12.987
			16-QAM			12.932
			64-QAM			12.997
			256-QAM			12.969
	20 MHz		BPSK	50		18.005
			QPSK			17.984
			16-QAM			17.966
			64-QAM			17.949
			256-QAM			17.937
	30 MHz		BPSK	75		26.948
			QPSK			26.930
			16-QAM			26.997
			64-QAM			26.897
			256-QAM			26.846
	40 MHz		BPSK	100		35.942
			QPSK			35.777
			16-QAM			35.931
			64-QAM			35.850
			256-QAM			35.990
	50 MHz		BPSK	128		45.858
			QPSK			46.112
			16-QAM			45.820
			64-QAM			45.915
			256-QAM			45.777
	60 MHz		BPSK	162		58.023
			QPSK			58.060
			16-QAM			58.003
			64-QAM			57.958
			256-QAM			57.974
	70 MHz		BPSK	180		64.470
			QPSK			64.535
			16-QAM			64.536
			64-QAM			64.629
			256-QAM			64.593
80 MHz	BPSK	216	77.339			
	QPSK		77.345			
	16-QAM		77.379			
	64-QAM		77.324			
	256-QAM		77.411			
90 MHz	BPSK	243	87.086			
	QPSK		87.214			
	16-QAM		87.106			
	64-QAM		87.127			
	256-QAM		86.999			
100 MHz	BPSK	270	96.679			
	QPSK		96.768			
	16-QAM		96.857			
	64-QAM		96.745			
	256-QAM		96.719			

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 67 ~ 121.

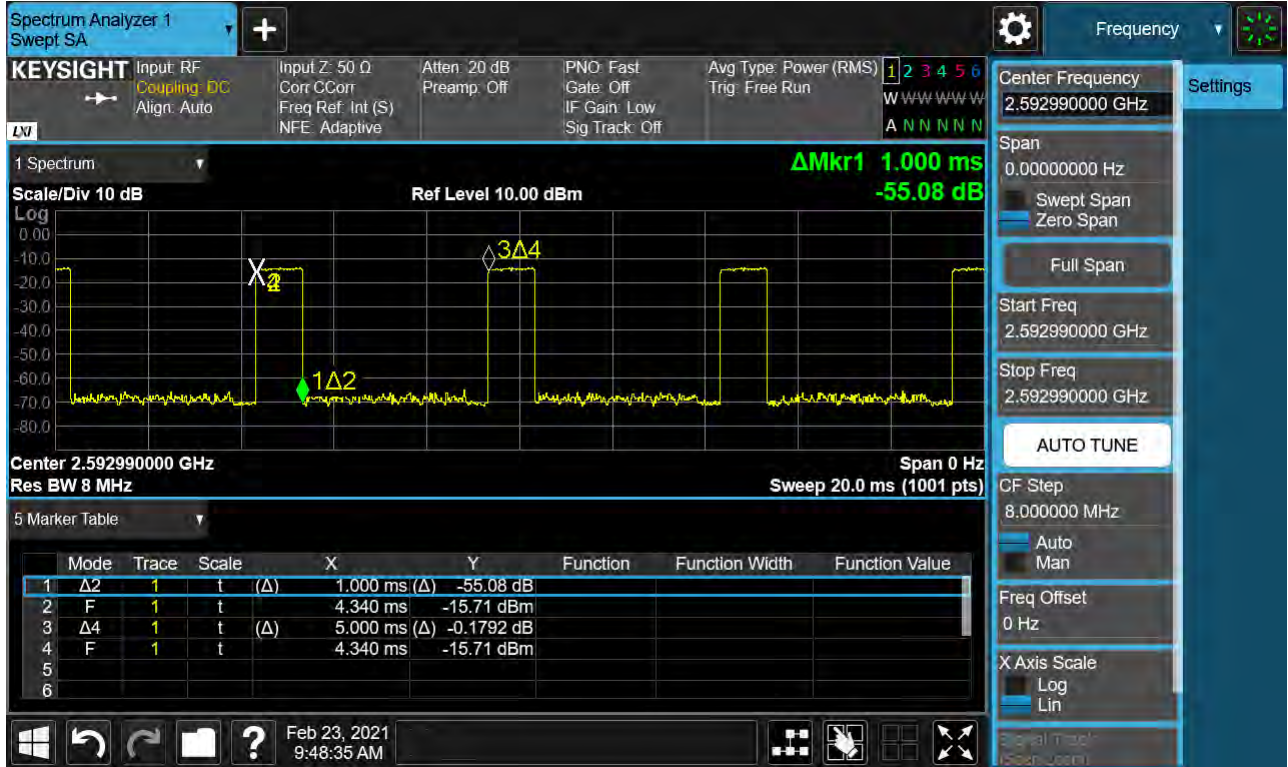
**8.5 CONDUCTED SPURIOUS EMISSIONS**

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
Sub6 n41	10	2501.010	7.4841	37.805	-71.281	-33.476	-25.00
		2592.990	8.5932	37.805	-71.021	-33.216	
		2685.000	3.9836	37.190	-71.557	-34.367	
	15	2503.500	9.6715	37.805	-71.285	-33.480	
		2592.990	6.0255	37.805	-70.311	-32.506	
		2682.480	8.2837	37.805	-70.680	-32.875	
	20	2506.020	4.0439	37.190	-70.852	-33.662	
		2592.990	8.8888	37.805	-70.885	-33.080	
		2679.990	8.0668	37.805	-70.112	-32.307	
	30	2511.000	3.7648	37.190	-70.808	-33.618	
		2592.990	9.1560	37.805	-70.349	-32.544	
		2674.980	9.1022	37.805	-70.842	-33.037	
	40	2516.010	9.1506	37.805	-70.210	-32.405	
		2592.990	4.0454	37.190	-71.152	-33.962	
		2670.000	7.9851	37.805	-71.247	-33.442	
	50	2521.020	9.7742	37.805	-71.408	-33.603	
		2592.990	4.3405	37.190	-70.758	-33.568	
		2664.990	4.5863	37.190	-71.417	-34.227	
	60	2526.000	5.9916	37.805	-70.786	-32.981	
		2592.990	8.8654	37.805	-70.837	-33.032	
		2659.980	8.8465	37.805	-70.556	-32.751	
	70	2531.010	3.7822	37.190	-70.554	-33.364	
		2592.990	4.0225	37.190	-70.942	-33.752	
		2655.000	8.3021	37.805	-70.792	-32.987	
	80	2536.020	8.8544	37.805	-71.055	-33.250	
		2592.990	3.7533	37.190	-70.681	-33.491	
		2649.990	9.1241	37.805	-71.135	-33.330	
	90	2541.000	9.1471	37.805	-70.377	-32.572	
		2592.990	9.7059	37.805	-69.963	-32.158	
		2644.980	8.5887	37.805	-70.222	-32.417	
100	2546.010	9.1012	37.805	-70.560	-32.755		
	2592.990	8.2792	37.805	-70.845	-33.040		
	2640.000	4.9228	37.190	-70.619	-33.429		

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 254 ~ 319.
2. Duty Cycle factor already applied on the factor.

- Duty Cycle Factor(dB) = 6.99



- 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 CHANNEL EDGE

BW (MHz)	Frequency (MHz)	Mod	RB (Size/Offset)	2 495 MHz ~ 2 496 MHz	C.E ~ (C.E +1MHz)	2 490.5 MHz ~ 2 495 MHz	(C.E + 1 MHz) ~ (C.E + 5 MHz)	Below 2 490.5 MHz	(C.E + 5 MHz) ~ (C.E + X MHz)	Above (C.E + X MHz)
				Lower	Upper	Lower	Upper	Lower	Upper	Upper
10	2501.010	BPSK	Full RB	-25.55	-24.82	-30.99	-30.68	-34.89	-35.22	-41.45
15	2503.500	BPSK	Full RB	-25.13	-35.63	-31.86	-34.53	-35.45	-32.42	-41.97
20	2506.020	BPSK	Full RB	-27.87	-31.07	-32.11	-33.59	-35.15	-35.29	-43.86
30	2511.000	BPSK	Full RB	-28.15	-35.66	-34.80	-33.88	-37.11	-36.11	-42.10
40	2520.000	BPSK	Full RB	-28.34	-37.36	-35.65	-37.27	-37.45	-37.07	-45.26
50	2525.010	BPSK	Full RB	-27.50	-35.42	-37.94	-35.91	-37.74	-36.83	-44.11
60	2530.020	BPSK	Full RB	-20.08	-21.40	-31.56	-32.71	-32.64	-30.41	-41.78
70	2531.010	BPSK	Full RB	-27.90	-34.64	-35.76	-36.15	-36.67	-34.74	-44.54
80	2540.010	BPSK	Full RB	-26.46	-33.41	-36.65	-37.35	-37.38	-35.57	-46.62
90	2545.020	BPSK	Full RB	-24.95	-37.67	-38.03	-39.49	-37.98	-36.95	-45.28
100	2550.000	BPSK	Full RB	-23.55	-38.49	-37.87	-39.41	-36.98	-35.19	-44.82
Limit				-13.0	-10.0	-13.0	-10.0	-25.0	-13.0	-25.0

Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	C.E ~ (C.E ± 1 MHz)		(C.E ± 1 MHz) ~ (C.E ± 5 MHz)	
					Lower	Upper	Lower	Upper
10 MHz	2592.990	BPSK	Full RB	0	-21.46	-20.91	-23.48	-23.43
	2685.000	BPSK	Full RB	0	-17.85	-20.84	-19.08	-20.41
15 MHz	2592.990	BPSK	Full RB	0	-21.20	-27.08	-23.47	-25.42
	2682.480	BPSK	Full RB	0	-18.85	-25.99	-20.64	-24.16
20 MHz	2592.990	BPSK	Full RB	0	-21.46	-25.34	-23.87	-24.98
	2679.990	BPSK	Full RB	0	-20.06	-22.84	-20.70	-23.67
30 MHz	2592.990	BPSK	Full RB	0	-20.32	-24.80	-22.71	-25.17
	2679.990	BPSK	Full RB	0	-20.98	-26.12	-22.90	-25.28
40 MHz	2592.990	BPSK	Full RB	0	-20.22	-23.51	-22.79	-25.79
	2670.000	BPSK	Full RB	0	-21.35	-23.90	-22.00	-24.72
50 MHz	2592.990	BPSK	Full RB	0	-21.74	-27.69	-25.42	-28.72
	2664.990	BPSK	Full RB	0	-21.11	-24.77	-23.16	-26.00
60 MHz	2592.990	BPSK	Full RB	0	-15.75	-18.30	-24.02	-24.98
	2659.980	BPSK	Full RB	0	-15.60	-18.49	-22.47	-22.59
70 MHz	2592.990	BPSK	Full RB	0	-20.38	-25.47	-24.24	-27.03
	2655.000	BPSK	Full RB	0	-22.35	-27.93	-27.69	-28.60
80 MHz	2592.990	BPSK	Full RB	0	-20.84	-23.75	-24.46	-25.37
	2649.990	BPSK	Full RB	0	-21.36	-26.46	-26.95	-28.37
90 MHz	2592.990	BPSK	Full RB	0	-20.02	-24.63	-25.49	-22.88
	2644.980	BPSK	Full RB	0	-20.68	-29.42	-27.80	-31.96
100 MHz	2592.990	BPSK	Full RB	0	-18.41	-24.38	-26.04	-25.17
	2640.000	BPSK	Full RB	0	-19.72	-30.05	-28.79	-30.32
Limit					-10.0		-10.0	

Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	(C.E ± 5 MHz) ~ (C.E ± X MHz)		Above (C.E ± X MHz)	
					Lower	Upper	Lower	Upper
10 MHz	2592.990	BPSK	Full RB	0	-24.31	-23.75	-40.27	-37.89
	2685.000	BPSK	Full RB	0	-21.00	-22.77	-41.58	-37.19
15 MHz	2592.990	BPSK	Full RB	0	-24.23	-23.04	-41.70	-39.55
	2682.480	BPSK	Full RB	0	-19.72	-22.63	-43.42	-40.20
20 MHz	2592.990	BPSK	Full RB	0	-25.48	-25.99	-42.53	-38.62
	2679.990	BPSK	Full RB	0	-20.91	-24.51	-42.11	-43.33
30 MHz	2592.990	BPSK	Full RB	0	-24.66	-25.64	-42.71	-39.41
	2679.990	BPSK	Full RB	0	-23.75	-26.44	-43.18	-45.33
40 MHz	2592.990	BPSK	Full RB	0	-25.81	-26.84	-43.26	-39.19
	2670.000	BPSK	Full RB	0	-23.99	-26.06	-40.80	-45.07
50 MHz	2592.990	BPSK	Full RB	0	-27.42	-27.86	-45.77	-43.58
	2664.990	BPSK	Full RB	0	-26.46	-28.70	-44.23	-48.05
60 MHz	2592.990	BPSK	Full RB	0	-23.10	-24.37	-40.59	-39.18
	2659.980	BPSK	Full RB	0	-24.40	-24.29	-39.19	-47.73
70 MHz	2592.990	BPSK	Full RB	0	-27.49	-27.84	-42.34	-37.87
	2655.000	BPSK	Full RB	0	-29.46	-31.49	-43.77	-47.52
80 MHz	2592.990	BPSK	Full RB	0	-26.43	-24.15	-46.67	-43.14
	2649.990	BPSK	Full RB	0	-25.61	-28.06	-43.12	-47.52
90 MHz	2592.990	BPSK	Full RB	0	-25.27	-24.43	-47.97	-43.59
	2644.980	BPSK	Full RB	0	-28.75	-32.35	-44.24	-47.71
100 MHz	2592.990	BPSK	Full RB	0	-25.72	-24.89	-48.12	-47.47
	2640.000	BPSK	Full RB	0	-29.04	-30.86	-44.10	-47.53
Limit					-13.0		-25.0	

**Note:**

1. C.E = Channel Edge
2. X = X is the greater of 6 MHz or the actual emission bandwidth
3. 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) = 6.99
4. Plots of the EUT's Channel Edge are shown Page 177 ~ 253. (1RB & Full RB)

**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
2501.010	100 %	+20(Ref)	2501 009 996	0.0	0.000 000	0.000
	100 %	-30	2501 009 987	-8.7	0.000 000	-0.003
	100 %	-20	2501 009 991	-4.7	0.000 000	-0.002
	100 %	-10	2501 009 988	-8.3	0.000 000	-0.003
	100 %	0	2501 009 986	-9.7	0.000 000	-0.004
	100 %	+10	2501 009 986	-10.3	0.000 000	-0.004
	100 %	+30	2501 009 991	-5.0	0.000 000	-0.002
	100 %	+40	2501 009 990	-5.7	0.000 000	-0.002
	100 %	+50	2501 009 989	-6.7	0.000 000	-0.003
	Batt. Endpoint	+20	2501 009 992	-3.8	0.000 000	-0.002
2685.000	100 %	+20(Ref)	2684 999 994	0.0	0.000 000	0.000
	100 %	-30	2684 999 983	-11.8	0.000 000	-0.004
	100 %	-20	2684 999 990	-3.9	0.000 000	-0.001
	100 %	-10	2684 999 991	-3.6	0.000 000	-0.001
	100 %	0	2684 999 992	-2.8	0.000 000	-0.001
	100 %	+10	2684 999 987	-7.1	0.000 000	-0.003
	100 %	+30	2684 999 991	-3.1	0.000 000	-0.001
	100 %	+40	2684 999 986	-8.1	0.000 000	-0.003
	100 %	+50	2684 999 986	-8.4	0.000 000	-0.003
	Batt. Endpoint	+20	2684 999 990	-4.4	0.000 000	-0.002

- ▣ 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
2503.500	100 %	+20(Ref)	2503 500 004	0.0	0.000 000	0.000
	100 %	-30	2503 499 995	-9.5	0.000 000	-0.004
	100 %	-20	2503 499 995	-9.7	0.000 000	-0.004
	100 %	-10	2503 500 004	-0.5	0.000 000	0.000
	100 %	0	2503 500 003	-1.7	0.000 000	-0.001
	100 %	+10	2503 500 001	-3.6	0.000 000	-0.001
	100 %	+30	2503 499 996	-8.4	0.000 000	-0.003
	100 %	+40	2503 500 003	-1.7	0.000 000	-0.001
	100 %	+50	2503 499 998	-6.6	0.000 000	-0.003
	Batt. Endpoint	+20	2503 499 998	-6.0	0.000 000	-0.002
2682.480	100 %	+20(Ref)	2682 480 001	0.0	0.000 000	0.000
	100 %	-30	2682 480 005	3.8	0.000 000	0.001
	100 %	-20	2682 480 002	1.2	0.000 000	0.000
	100 %	-10	2682 480 007	6.2	0.000 000	0.002
	100 %	0	2682 479 997	-4.1	0.000 000	-0.002
	100 %	+10	2682 479 994	-6.8	0.000 000	-0.003
	100 %	+30	2682 480 002	0.9	0.000 000	0.000
	100 %	+40	2682 479 996	-4.9	0.000 000	-0.002
	100 %	+50	2682 479 995	-6.6	0.000 000	-0.002
	Batt. Endpoint	+20	2682 480 001	-0.7	0.000 000	0.000



- ▣ 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
2506.020	100 %	+20(Ref)	2506 019 992	0.0	0.000 000	0.000
	100 %	-30	2506 019 980	-12.4	0.000 000	-0.005
	100 %	-20	2506 019 986	-6.1	0.000 000	-0.002
	100 %	-10	2506 019 990	-1.8	0.000 000	-0.001
	100 %	0	2506 019 989	-3.3	0.000 000	-0.001
	100 %	+10	2506 019 990	-2.4	0.000 000	-0.001
	100 %	+30	2506 019 987	-5.6	0.000 000	-0.002
	100 %	+40	2506 019 987	-5.5	0.000 000	-0.002
	100 %	+50	2506 019 990	-2.3	0.000 000	-0.001
	Batt. Endpoint	+20	2506 019 987	-5.3	0.000 000	-0.002
2679.990	100 %	+20(Ref)	2679 989 992	0.0	0.000 000	0.000
	100 %	-30	2679 989 986	-6.4	0.000 000	-0.002
	100 %	-20	2679 989 989	-3.5	0.000 000	-0.001
	100 %	-10	2679 989 990	-2.4	0.000 000	-0.001
	100 %	0	2679 989 978	-14.2	-0.000 001	-0.005
	100 %	+10	2679 989 984	-7.7	0.000 000	-0.003
	100 %	+30	2679 989 983	-8.9	0.000 000	-0.003
	100 %	+40	2679 989 981	-11.5	0.000 000	-0.004
	100 %	+50	2679 989 988	-3.8	0.000 000	-0.001
	Batt. Endpoint	+20	2679 989 992	0.2	0.000 000	0.000

- ▣ 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
2511.000	100 %	+20(Ref)	2510 999 993	0.0	0.000 000	0.000
	100 %	-30	2510 999 986	-7.4	0.000 000	-0.003
	100 %	-20	2510 999 987	-6.2	0.000 000	-0.002
	100 %	-10	2510 999 987	-6.2	0.000 000	-0.002
	100 %	0	2510 999 990	-3.3	0.000 000	-0.001
	100 %	+10	2510 999 993	-0.1	0.000 000	0.000
	100 %	+30	2510 999 984	-9.4	0.000 000	-0.004
	100 %	+40	2510 999 983	-10.4	0.000 000	-0.004
	100 %	+50	2510 999 996	2.1	0.000 000	0.001
	Batt. Endpoint	+20	2510 999 981	-12.5	0.000 000	-0.005
2674.980	100 %	+20(Ref)	2674 979 990	0.0	0.000 000	0.000
	100 %	-30	2674 979 982	-7.7	0.000 000	-0.003
	100 %	-20	2674 979 980	-9.9	0.000 000	-0.004
	100 %	-10	2674 979 988	-1.7	0.000 000	-0.001
	100 %	0	2674 979 982	-7.8	0.000 000	-0.003
	100 %	+10	2674 979 979	-11.5	0.000 000	-0.004
	100 %	+30	2674 979 983	-6.9	0.000 000	-0.003
	100 %	+40	2674 979 986	-4.1	0.000 000	-0.002
	100 %	+50	2674 979 981	-9.5	0.000 000	-0.004
	Batt. Endpoint	+20	2674 979 979	-10.6	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
2516.010	100 %	+20(Ref)	2516 009 996	0.0	0.000 000	0.000
	100 %	-30	2516 009 993	-2.3	0.000 000	-0.001
	100 %	-20	2516 009 997	1.6	0.000 000	0.001
	100 %	-10	2516 009 994	-1.5	0.000 000	-0.001
	100 %	0	2516 009 993	-2.5	0.000 000	-0.001
	100 %	+10	2516 009 991	-4.3	0.000 000	-0.002
	100 %	+30	2516 009 988	-8.0	0.000 000	-0.003
	100 %	+40	2516 009 990	-5.7	0.000 000	-0.002
	100 %	+50	2516 009 995	-0.1	0.000 000	0.000
	Batt. Endpoint	+20	2516 009 989	-6.9	0.000 000	-0.003
2670.000	100 %	+20(Ref)	2670 000 001	0.0	0.000 000	0.000
	100 %	-30	2669 999 994	-6.3	0.000 000	-0.002
	100 %	-20	2669 999 998	-2.3	0.000 000	-0.001
	100 %	-10	2669 999 999	-1.9	0.000 000	-0.001
	100 %	0	2669 999 993	-7.1	0.000 000	-0.003
	100 %	+10	2669 999 995	-5.1	0.000 000	-0.002
	100 %	+30	2669 999 994	-6.3	0.000 000	-0.002
	100 %	+40	2669 999 992	-9.0	0.000 000	-0.003
	100 %	+50	2669 999 991	-9.7	0.000 000	-0.004
	Batt. Endpoint	+20	2669 999 988	-12.4	0.000 000	-0.005

- ▣ 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
2521.020	100 %	+20(Ref)	2521 019 990	0.0	0.000 000	0.000
	100 %	-30	2521 019 991	0.2	0.000 000	0.000
	100 %	-20	2521 019 983	-7.6	0.000 000	-0.003
	100 %	-10	2521 019 985	-5.3	0.000 000	-0.002
	100 %	0	2521 019 984	-5.9	0.000 000	-0.002
	100 %	+10	2521 019 989	-1.5	0.000 000	-0.001
	100 %	+30	2521 019 987	-3.9	0.000 000	-0.002
	100 %	+40	2521 019 987	-3.7	0.000 000	-0.001
	100 %	+50	2521 019 989	-1.0	0.000 000	0.000
	Batt. Endpoint	+20	2521 019 980	-10.4	0.000 000	-0.004
2664.990	100 %	+20(Ref)	2664 989 990	0.0	0.000 000	0.000
	100 %	-30	2664 989 984	-6.0	0.000 000	-0.002
	100 %	-20	2664 989 986	-4.4	0.000 000	-0.002
	100 %	-10	2664 989 985	-5.0	0.000 000	-0.002
	100 %	0	2664 989 987	-3.5	0.000 000	-0.001
	100 %	+10	2664 989 983	-7.9	0.000 000	-0.003
	100 %	+30	2664 989 983	-7.6	0.000 000	-0.003
	100 %	+40	2664 989 977	-13.4	-0.000 001	-0.005
	100 %	+50	2664 989 987	-3.6	0.000 000	-0.001
	Batt. Endpoint	+20	2664 989 993	2.2	0.000 000	0.001

- ▣ 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
2526.000	100 %	+20(Ref)	2525 999 987	0.0	0.000 000	0.000
	100 %	-30	2525 999 980	-7.2	0.000 000	-0.003
	100 %	-20	2525 999 978	-8.9	0.000 000	-0.004
	100 %	-10	2525 999 978	-8.9	0.000 000	-0.004
	100 %	0	2525 999 983	-4.1	0.000 000	-0.002
	100 %	+10	2525 999 979	-8.3	0.000 000	-0.003
	100 %	+30	2525 999 979	-8.3	0.000 000	-0.003
	100 %	+40	2525 999 972	-15.3	-0.000 001	-0.006
	100 %	+50	2525 999 981	-6.3	0.000 000	-0.002
	Batt. Endpoint	+20	2525 999 978	-9.8	0.000 000	-0.004
2659.980	100 %	+20(Ref)	2659 980 001	0.0	0.000 000	0.000
	100 %	-30	2659 979 997	-3.2	0.000 000	-0.001
	100 %	-20	2659 979 994	-6.1	0.000 000	-0.002
	100 %	-10	2659 979 994	-6.1	0.000 000	-0.002
	100 %	0	2659 979 990	-10.7	0.000 000	-0.004
	100 %	+10	2659 979 997	-3.5	0.000 000	-0.001
	100 %	+30	2659 980 003	2.2	0.000 000	0.001
	100 %	+40	2659 980 003	2.2	0.000 000	0.001
	100 %	+50	2659 980 000	-0.3	0.000 000	0.000
	Batt. Endpoint	+20	2659 979 996	-4.5	0.000 000	-0.002

- ▣ 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
2531.010	100 %	+20(Ref)	2531 009 995	0.0	0.000 000	0.000
	100 %	-30	2531 009 989	-5.5	0.000 000	-0.002
	100 %	-20	2531 009 991	-3.9	0.000 000	-0.002
	100 %	-10	2531 009 986	-8.9	0.000 000	-0.004
	100 %	0	2531 009 986	-8.9	0.000 000	-0.004
	100 %	+10	2531 009 986	-8.9	0.000 000	-0.004
	100 %	+30	2531 009 993	-1.5	0.000 000	-0.001
	100 %	+40	2531 009 990	-4.9	0.000 000	-0.002
	100 %	+50	2531 009 990	-4.9	0.000 000	-0.002
	Batt. Endpoint	+20	2531 009 990	-4.9	0.000 000	-0.002
2655.000	100 %	+20(Ref)	2654 999 994	0.0	0.000 000	0.000
	100 %	-30	2654 999 986	-8.7	0.000 000	-0.003
	100 %	-20	2654 999 986	-8.7	0.000 000	-0.003
	100 %	-10	2654 999 988	-6.4	0.000 000	-0.002
	100 %	0	2654 999 986	-8.1	0.000 000	-0.003
	100 %	+10	2654 999 986	-8.1	0.000 000	-0.003
	100 %	+30	2654 999 988	-6.1	0.000 000	-0.002
	100 %	+40	2654 999 988	-5.9	0.000 000	-0.002
	100 %	+50	2654 999 988	-5.9	0.000 000	-0.002
	Batt. Endpoint	+20	2654 999 990	-4.5	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
2536.020	100 %	+20(Ref)	2536 019 995	0.0	0.000 000	0.000
	100 %	-30	2536 019 991	-4.7	0.000 000	-0.002
	100 %	-20	2536 019 989	-6.3	0.000 000	-0.002
	100 %	-10	2536 019 989	-6.3	0.000 000	-0.002
	100 %	0	2536 019 991	-4.1	0.000 000	-0.002
	100 %	+10	2536 019 990	-5.2	0.000 000	-0.002
	100 %	+30	2536 019 989	-6.1	0.000 000	-0.002
	100 %	+40	2536 019 989	-6.1	0.000 000	-0.002
	100 %	+50	2536 019 990	-5.7	0.000 000	-0.002
	Batt. Endpoint	+20	2536 019 987	-8.5	0.000 000	-0.003
2649.990	100 %	+20(Ref)	2649 989 989	0.0	0.000 000	0.000
	100 %	-30	2649 989 982	-7.9	0.000 000	-0.003
	100 %	-20	2649 989 980	-8.9	0.000 000	-0.003
	100 %	-10	2649 989 980	-8.9	0.000 000	-0.003
	100 %	0	2649 989 980	-9.0	0.000 000	-0.003
	100 %	+10	2649 989 983	-6.2	0.000 000	-0.002
	100 %	+30	2649 989 983	-6.2	0.000 000	-0.002
	100 %	+40	2649 989 981	-8.7	0.000 000	-0.003
	100 %	+50	2649 989 980	-9.6	0.000 000	-0.004
	Batt. Endpoint	+20	2649 989 980	-9.6	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
2541.000	100 %	+20(Ref)	2540 999 989	0.0	0.000 000	0.000
	100 %	-30	2540 999 986	-3.0	0.000 000	-0.001
	100 %	-20	2540 999 989	-0.7	0.000 000	0.000
	100 %	-10	2540 999 989	-0.7	0.000 000	0.000
	100 %	0	2540 999 979	-10.8	0.000 000	-0.004
	100 %	+10	2540 999 989	-0.6	0.000 000	0.000
	100 %	+30	2540 999 989	-0.6	0.000 000	0.000
	100 %	+40	2540 999 981	-8.3	0.000 000	-0.003
	100 %	+50	2540 999 985	-4.7	0.000 000	-0.002
	Batt. Endpoint	+20	2540 999 985	-4.7	0.000 000	-0.002
2644.980	100 %	+20(Ref)	2644 979 994	0.0	0.000 000	0.000
	100 %	-30	2644 979 988	-6.1	0.000 000	-0.002
	100 %	-20	2644 979 991	-2.5	0.000 000	-0.001
	100 %	-10	2644 979 989	-4.9	0.000 000	-0.002
	100 %	0	2644 979 989	-4.9	0.000 000	-0.002
	100 %	+10	2644 979 990	-3.6	0.000 000	-0.001
	100 %	+30	2644 979 982	-12.1	0.000 000	-0.005
	100 %	+40	2644 979 982	-12.1	0.000 000	-0.005
	100 %	+50	2644 979 981	-13.0	0.000 000	-0.005
	Batt. Endpoint	+20	2644 979 985	-8.6	0.000 000	-0.003

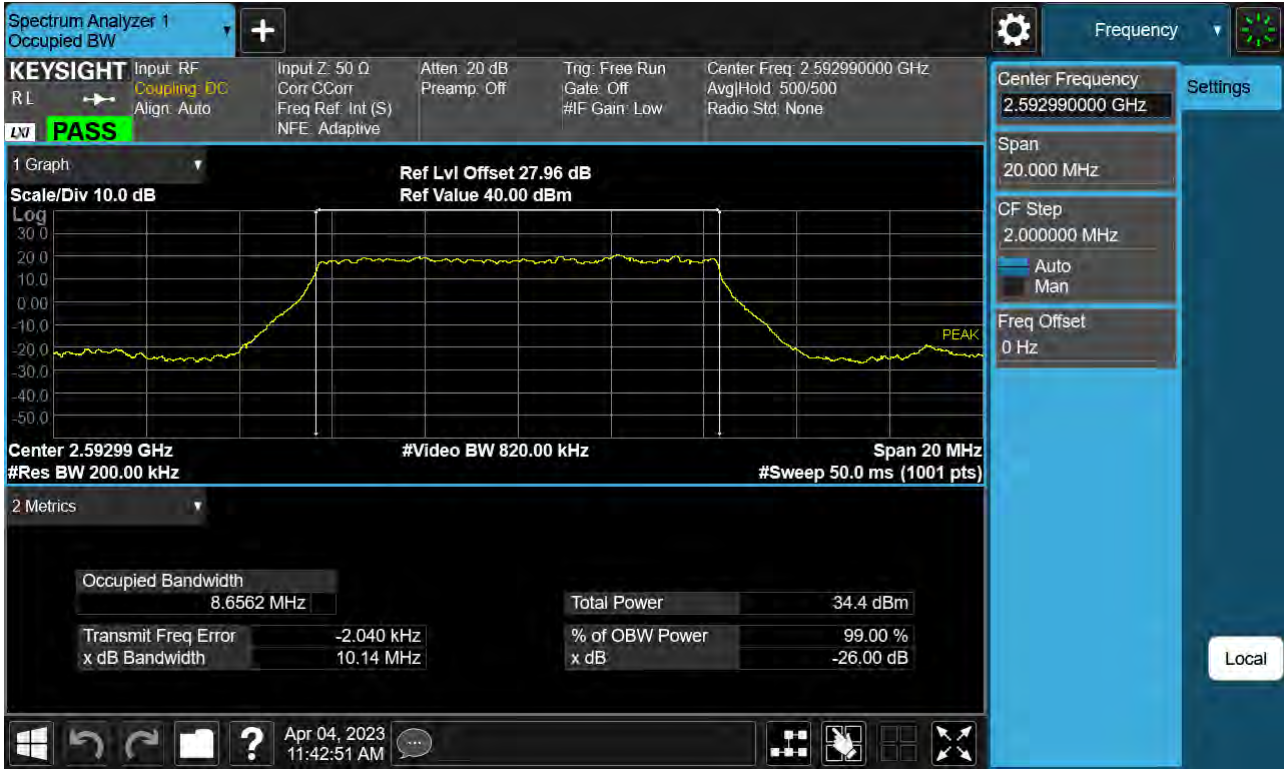


- ▣ BandWidth: 100 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency (MHz)	Voltage (%)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
2546.010	100 %	+20(Ref)	2546 009 997	0.0	0.000 000	0.000
	100 %	-30	2546 009 990	-6.6	0.000 000	-0.003
	100 %	-20	2546 009 990	-6.6	0.000 000	-0.003
	100 %	-10	2546 009 991	-5.5	0.000 000	-0.002
	100 %	0	2546 009 990	-6.8	0.000 000	-0.003
	100 %	+10	2546 009 990	-6.8	0.000 000	-0.003
	100 %	+30	2546 009 986	-11.3	0.000 000	-0.004
	100 %	+40	2546 009 990	-7.0	0.000 000	-0.003
	100 %	+50	2546 009 990	-7.0	0.000 000	-0.003
	Batt. Endpoint	+20	2546 009 992	-4.8	0.000 000	-0.002
2640.000	100 %	+20(Ref)	2639 999 997	0.0	0.000 000	0.000
	100 %	-30	2639 999 993	-3.5	0.000 000	-0.001
	100 %	-20	2639 999 987	-9.4	0.000 000	-0.004
	100 %	-10	2639 999 994	-2.3	0.000 000	-0.001
	100 %	0	2639 999 994	-2.3	0.000 000	-0.001
	100 %	+10	2639 999 988	-8.6	0.000 000	-0.003
	100 %	+30	2639 999 993	-3.5	0.000 000	-0.001
	100 %	+40	2639 999 993	-3.5	0.000 000	-0.001
	100 %	+50	2639 999 988	-8.0	0.000 000	-0.003
	Batt. Endpoint	+20	2639 999 990	-7.0	0.000 000	-0.003

## 9. TEST PLOTS

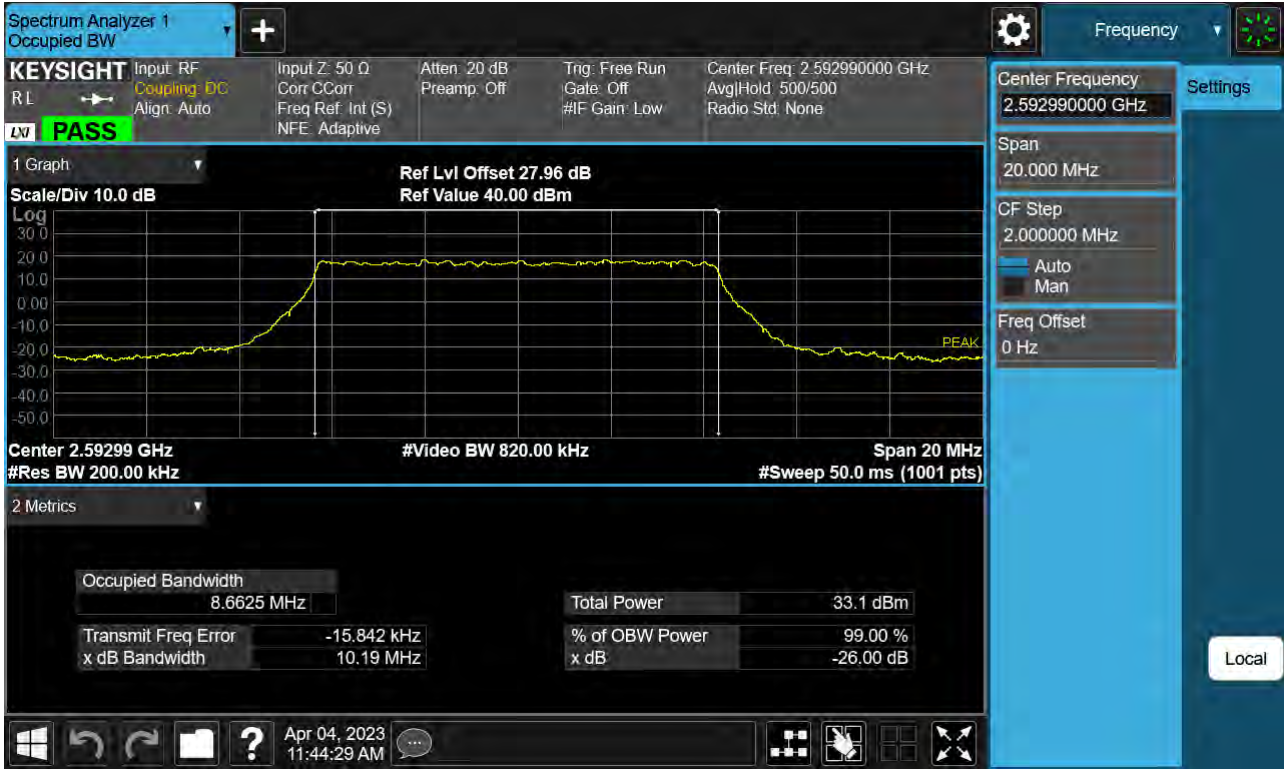
Sub6 n41. Occupied Bandwidth Plot (10 MHz Ch.518598 BPSK )



Sub6 n41. Occupied Bandwidth Plot (10 MHz Ch.518598 QPSK )



Sub6 n41. Occupied Bandwidth Plot (10 MHz Ch.518598 16-QAM )



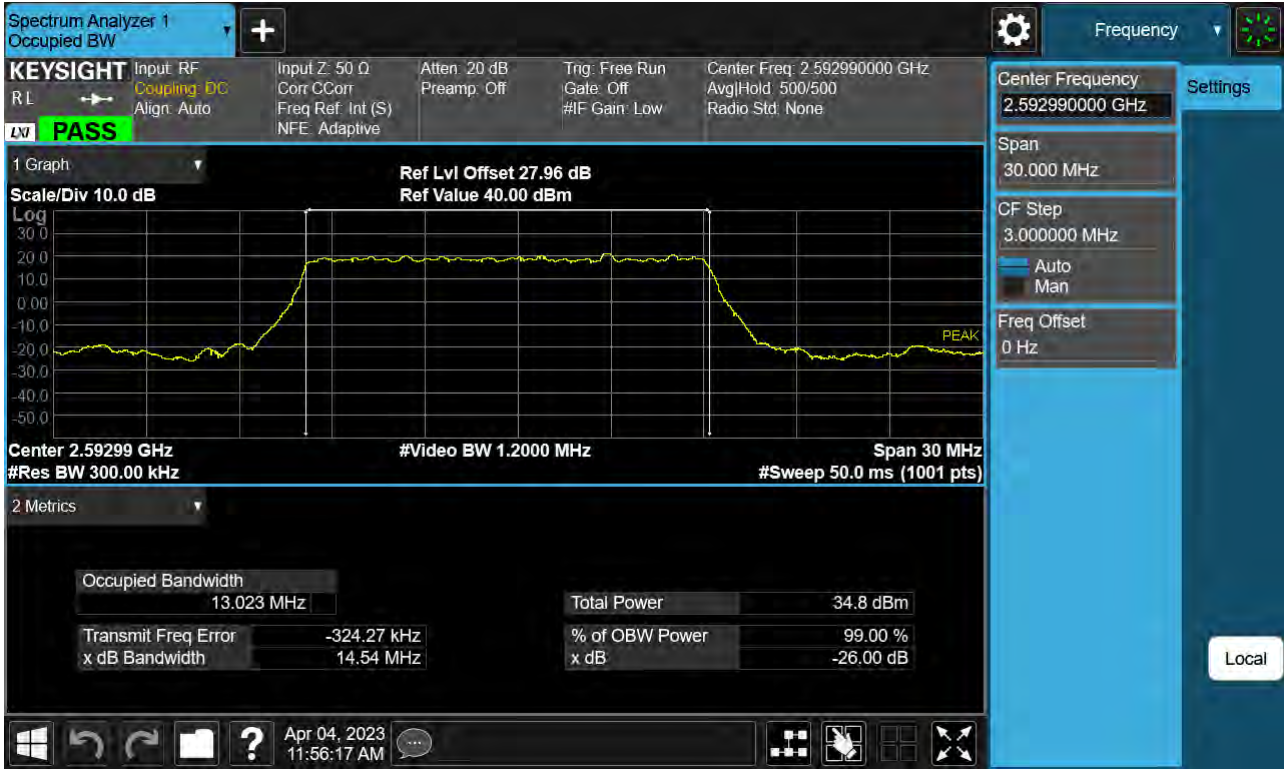
Sub6 n41. Occupied Bandwidth Plot (10 MHz Ch.518598 64-QAM )



Sub6 n41. Occupied Bandwidth Plot (10 MHz Ch.518598 256-QAM )

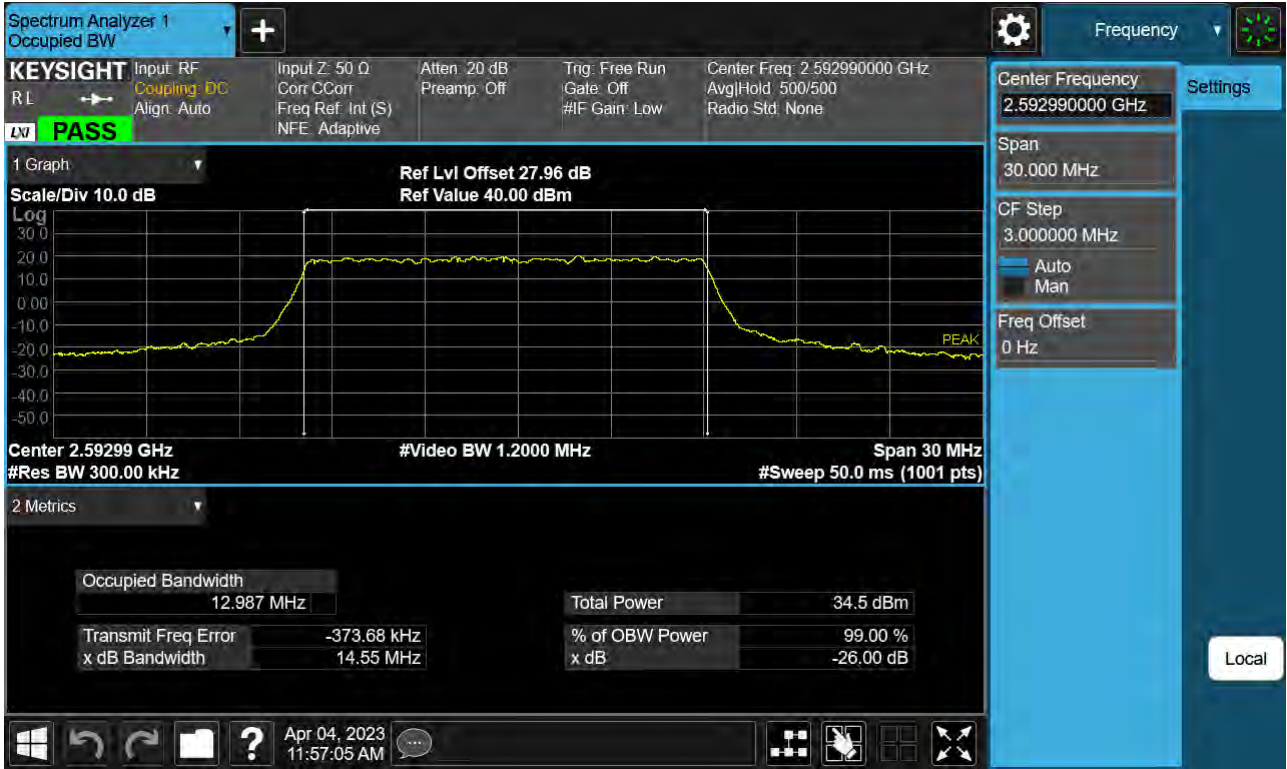


Sub6 n41. Occupied Bandwidth Plot (15 MHz Ch.518598 BPSK )





Sub6 n41. Occupied Bandwidth Plot (15 MHz Ch.518598 QPSK )



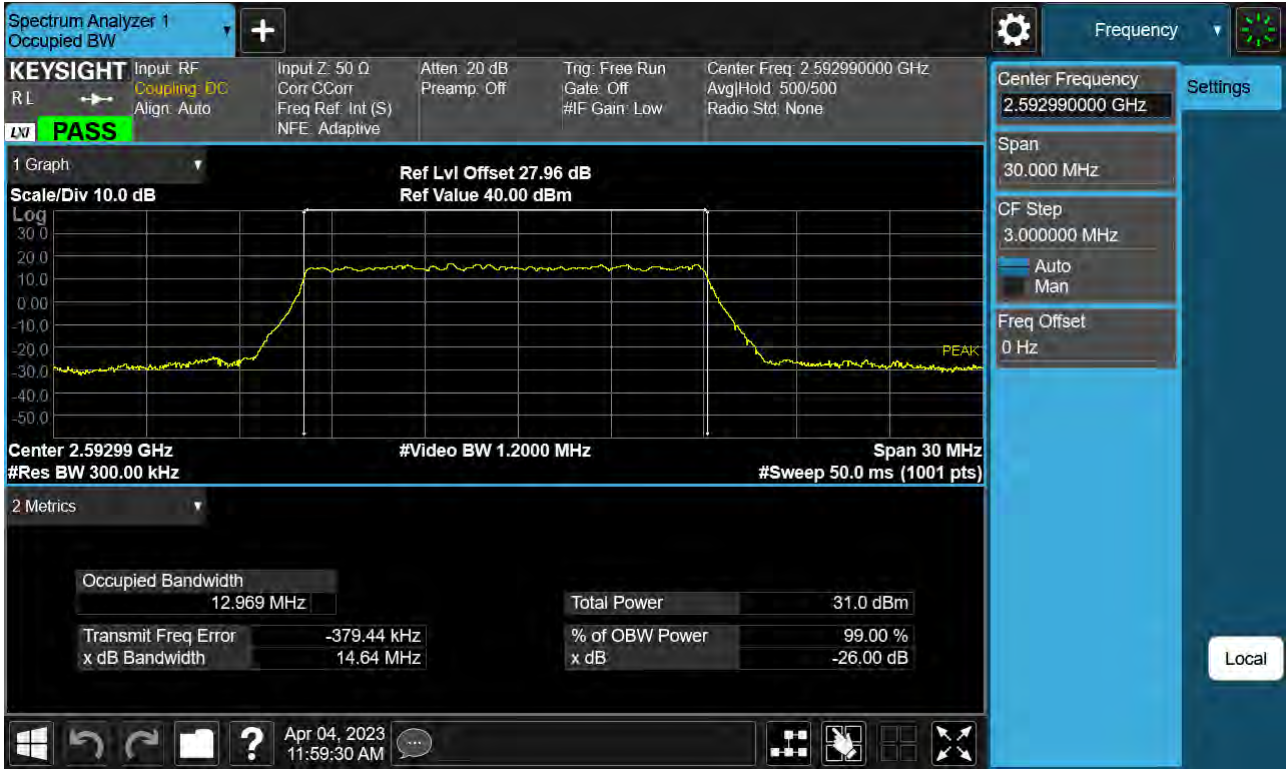
Sub6 n41. Occupied Bandwidth Plot (15 MHz Ch.518598 16-QAM )



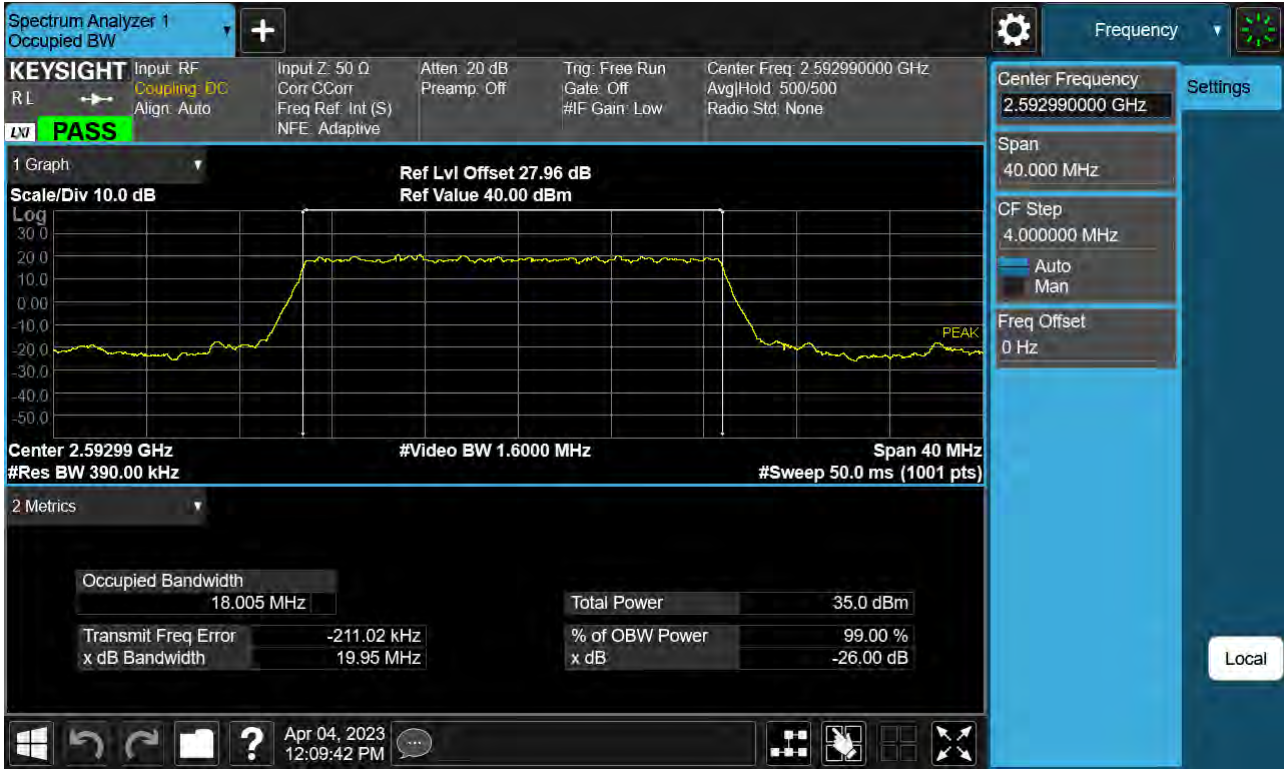
Sub6 n41. Occupied Bandwidth Plot (15 MHz Ch.518598 64-QAM )



Sub6 n41. Occupied Bandwidth Plot (15 MHz Ch.518598 256-QAM )



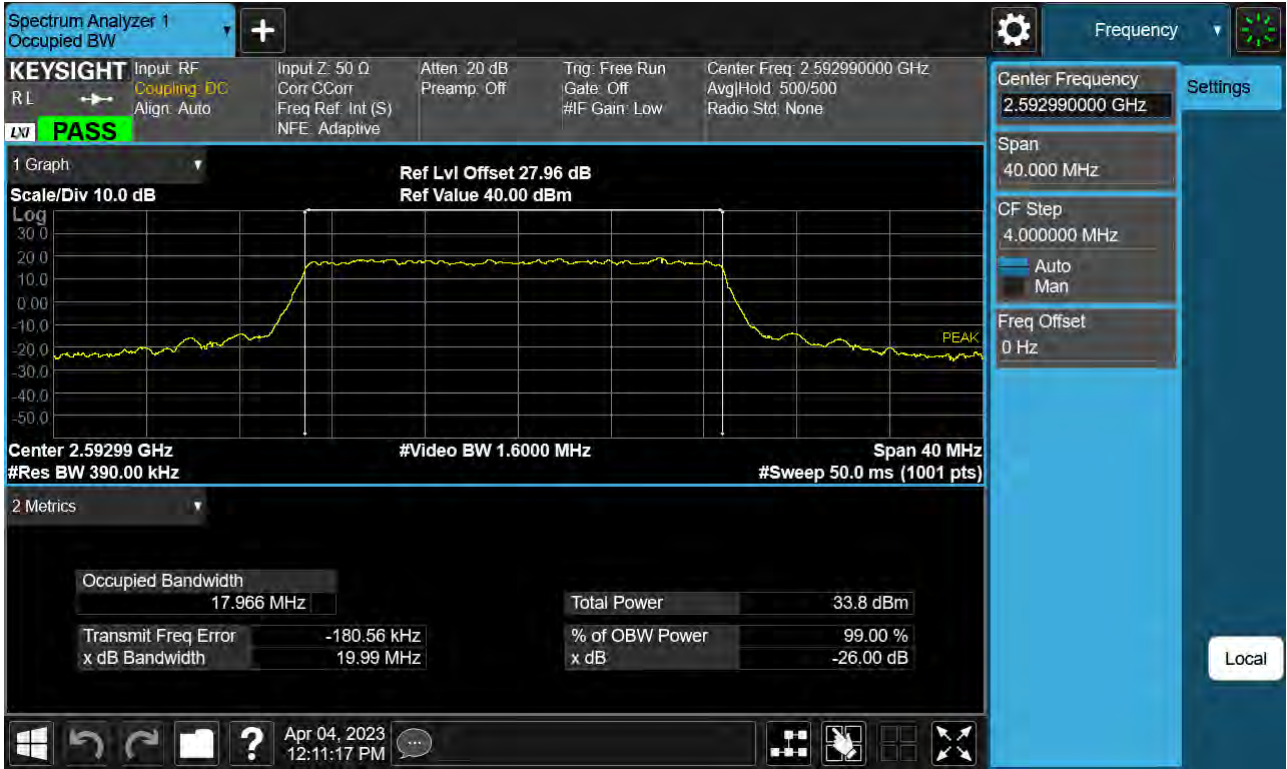
Sub6 n41. Occupied Bandwidth Plot (20 MHz Ch.518598 BPSK )



Sub6 n41. Occupied Bandwidth Plot (20 MHz Ch.518598 QPSK )



Sub6 n41. Occupied Bandwidth Plot (20 MHz Ch.518598 16-QAM )



Sub6 n41. Occupied Bandwidth Plot (20 MHz Ch.518598 64-QAM )





Sub6 n41. Occupied Bandwidth Plot (20 MHz Ch.518598 256-QAM )



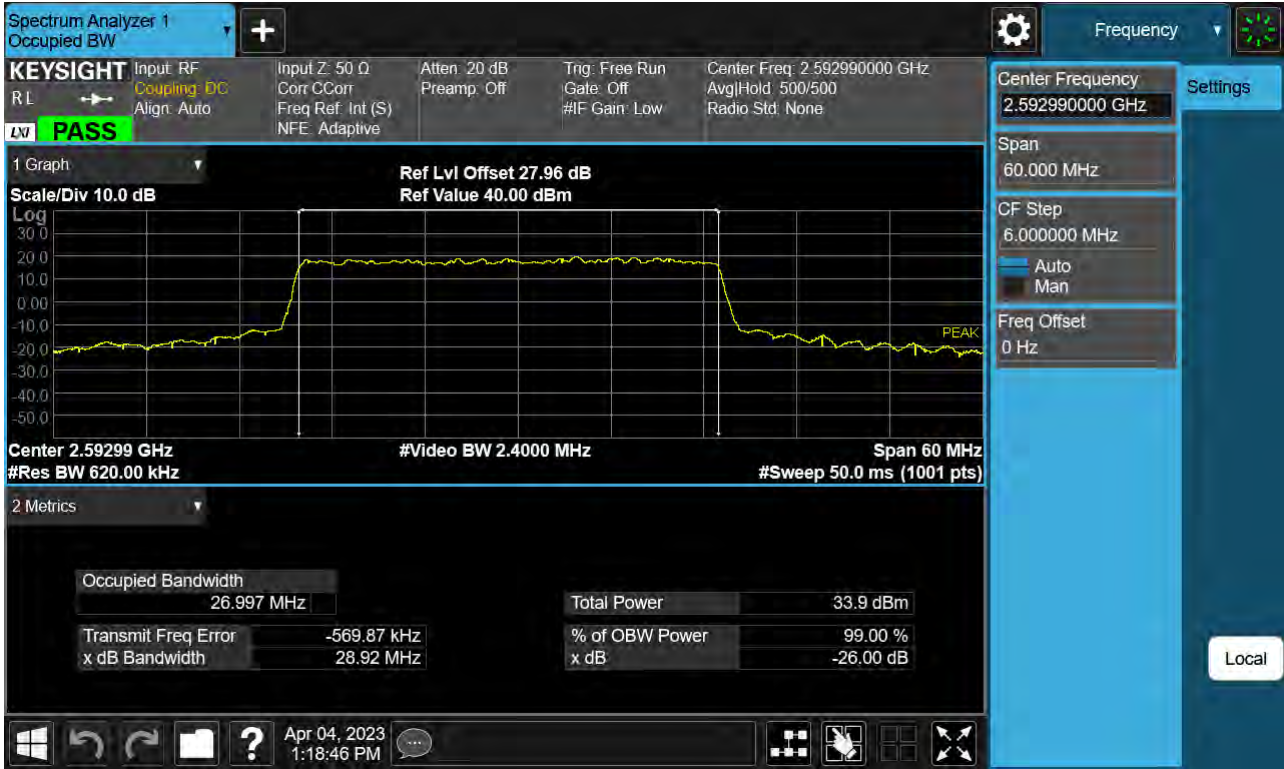
Sub6 n41. Occupied Bandwidth Plot (30 MHz Ch.518598 BPSK )



Sub6 n41. Occupied Bandwidth Plot (30 MHz Ch.518598 QPSK )



Sub6 n41. Occupied Bandwidth Plot (30 MHz Ch.518598 16-QAM )



Sub6 n41. Occupied Bandwidth Plot (30 MHz Ch.518598 64-QAM )



Sub6 n41. Occupied Bandwidth Plot (30 MHz Ch.518598 256-QAM )



Sub6 n41. Occupied Bandwidth Plot (40 MHz Ch.518598 BPSK )



Sub6 n41. Occupied Bandwidth Plot (40 MHz Ch.518598 QPSK )





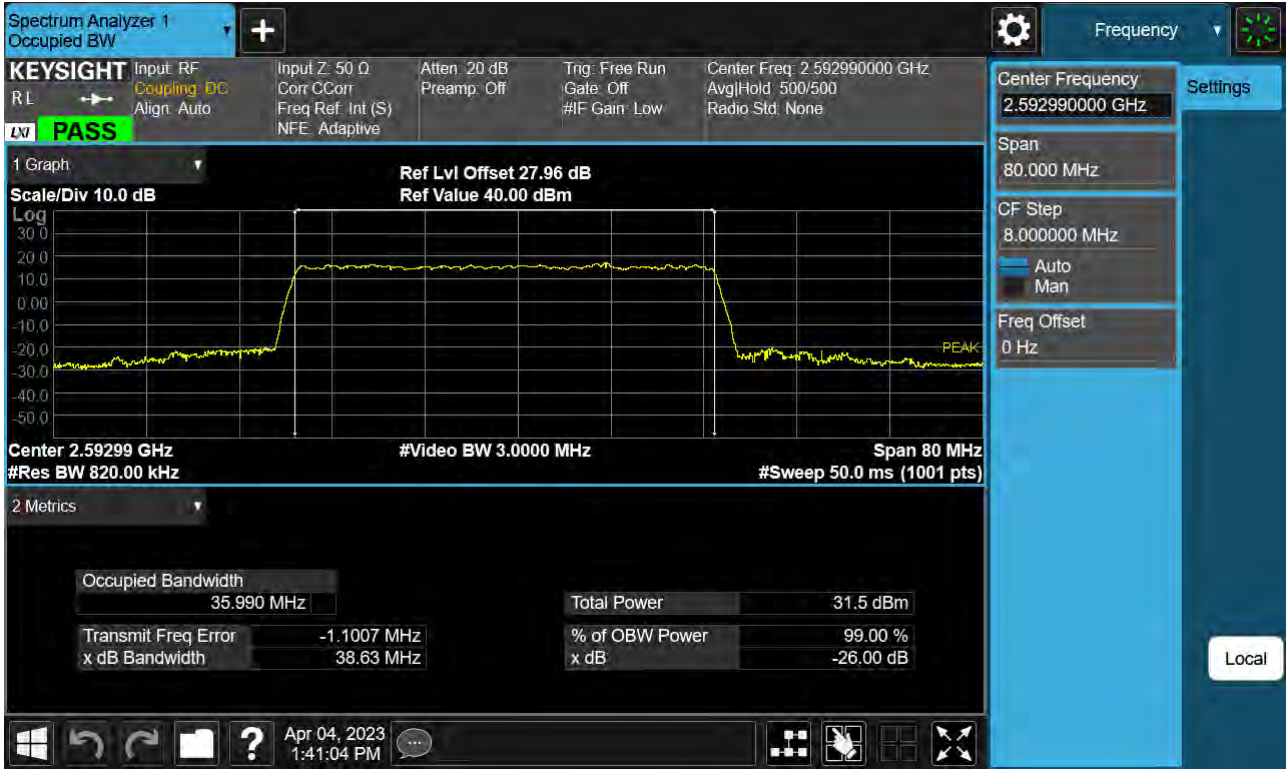
Sub6 n41. Occupied Bandwidth Plot (40 MHz Ch.518598 16-QAM )



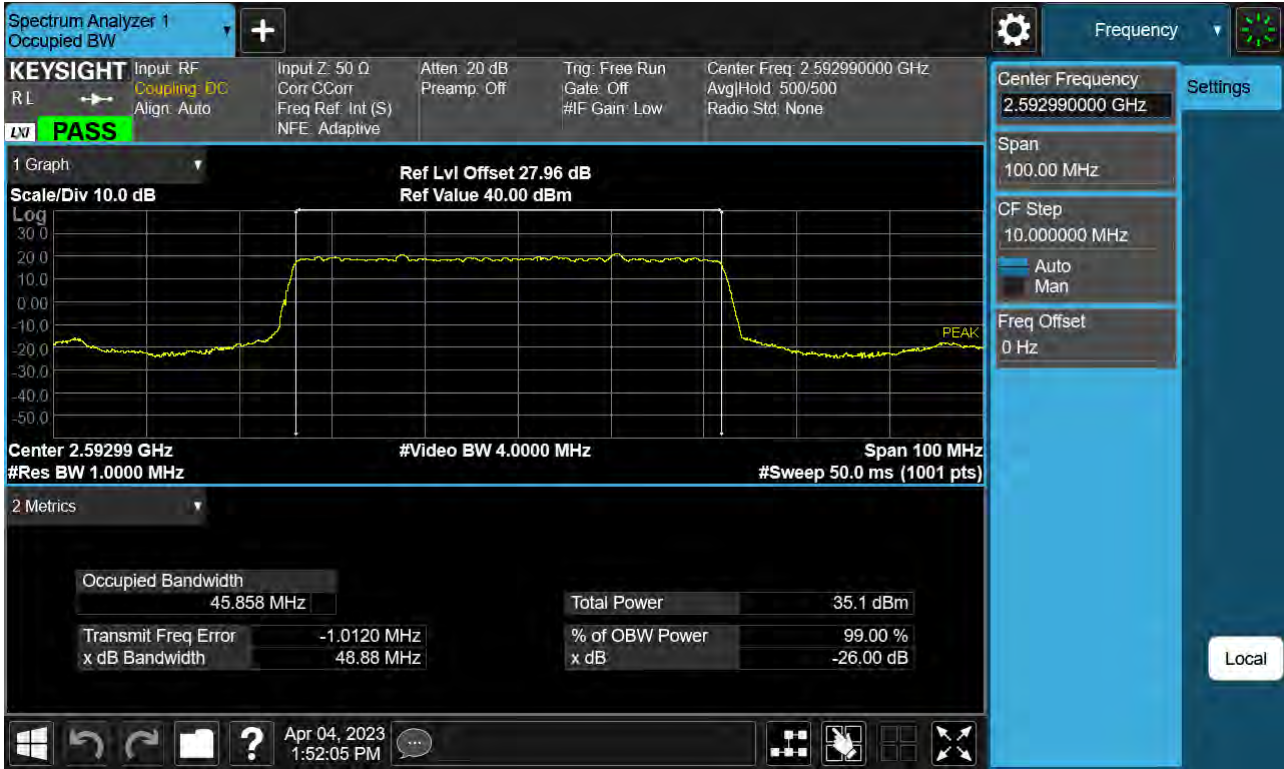
Sub6 n41. Occupied Bandwidth Plot (40 MHz Ch.518598 64-QAM )



Sub6 n41. Occupied Bandwidth Plot (40 MHz Ch.518598 256-QAM )



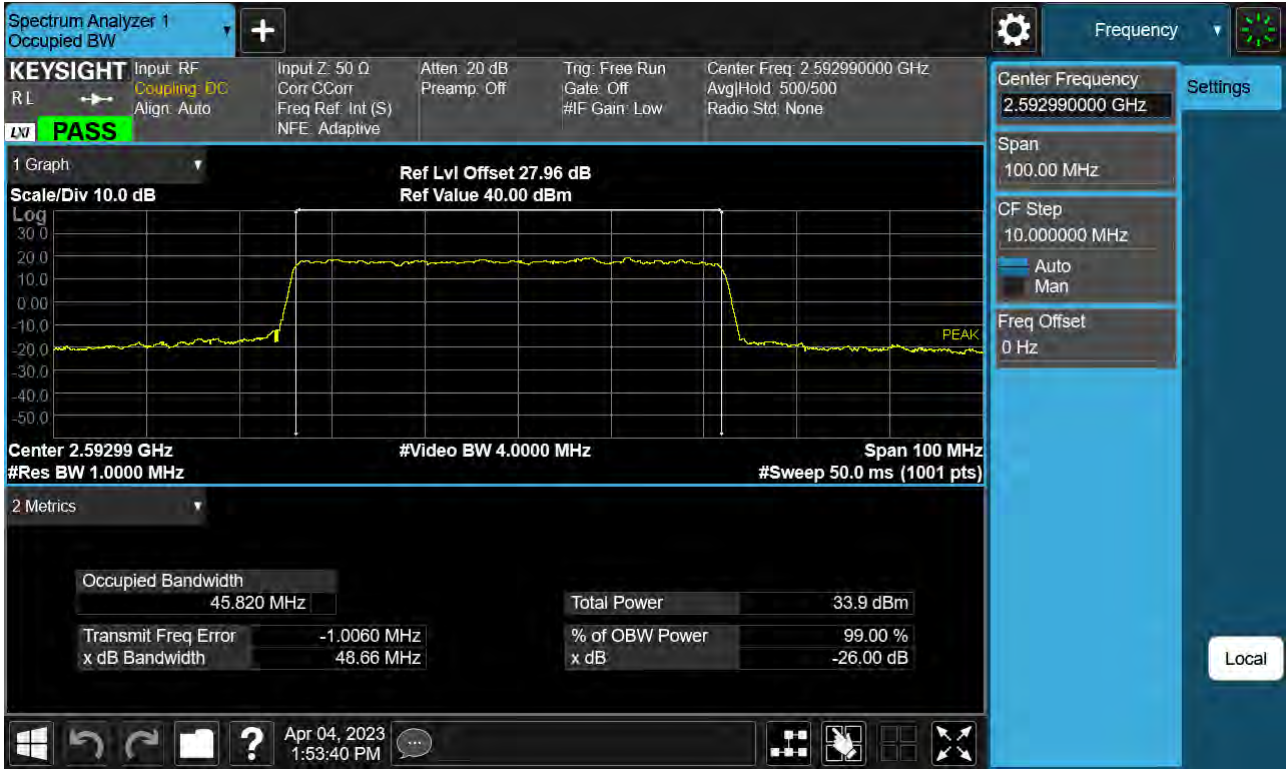
Sub6 n41. Occupied Bandwidth Plot (50 MHz Ch.518598 BPSK )



Sub6 n41. Occupied Bandwidth Plot (50 MHz Ch.518598 QPSK )



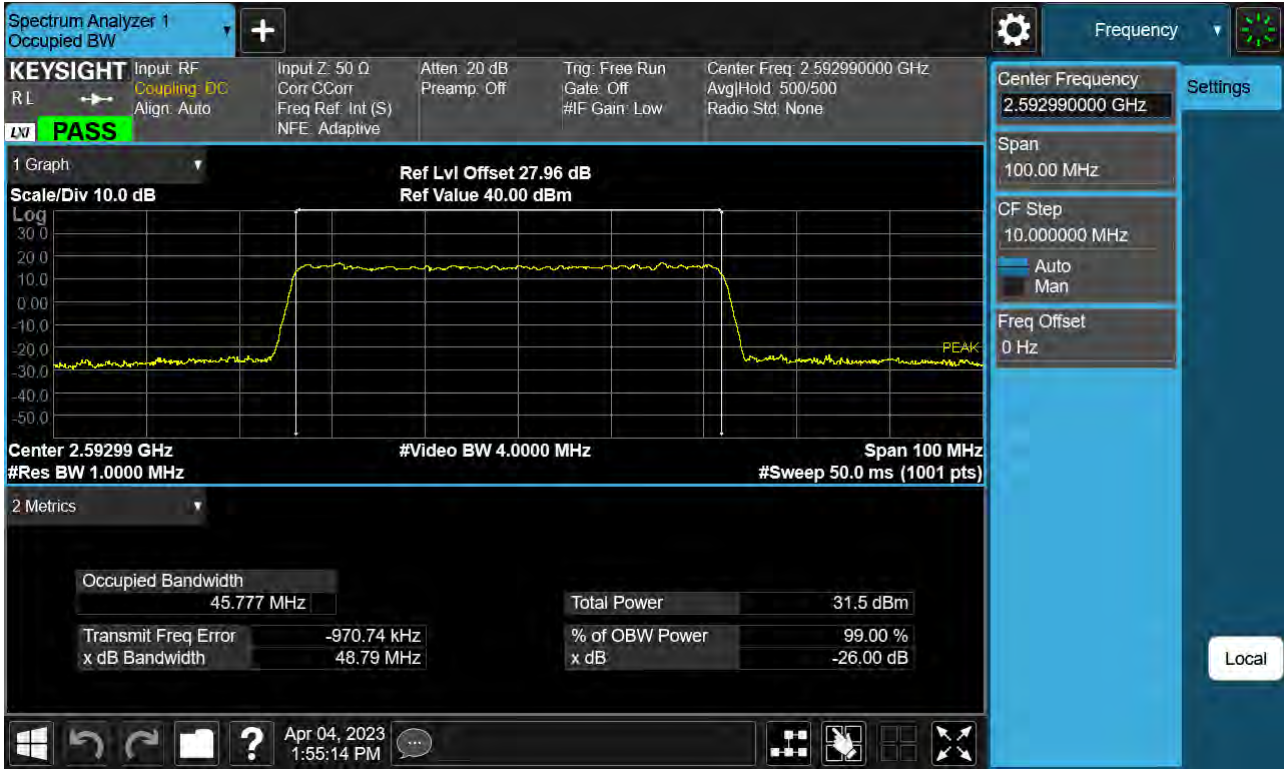
Sub6 n41. Occupied Bandwidth Plot (50 MHz Ch.518598 16-QAM )



Sub6 n41. Occupied Bandwidth Plot (50 MHz Ch.518598 64-QAM )

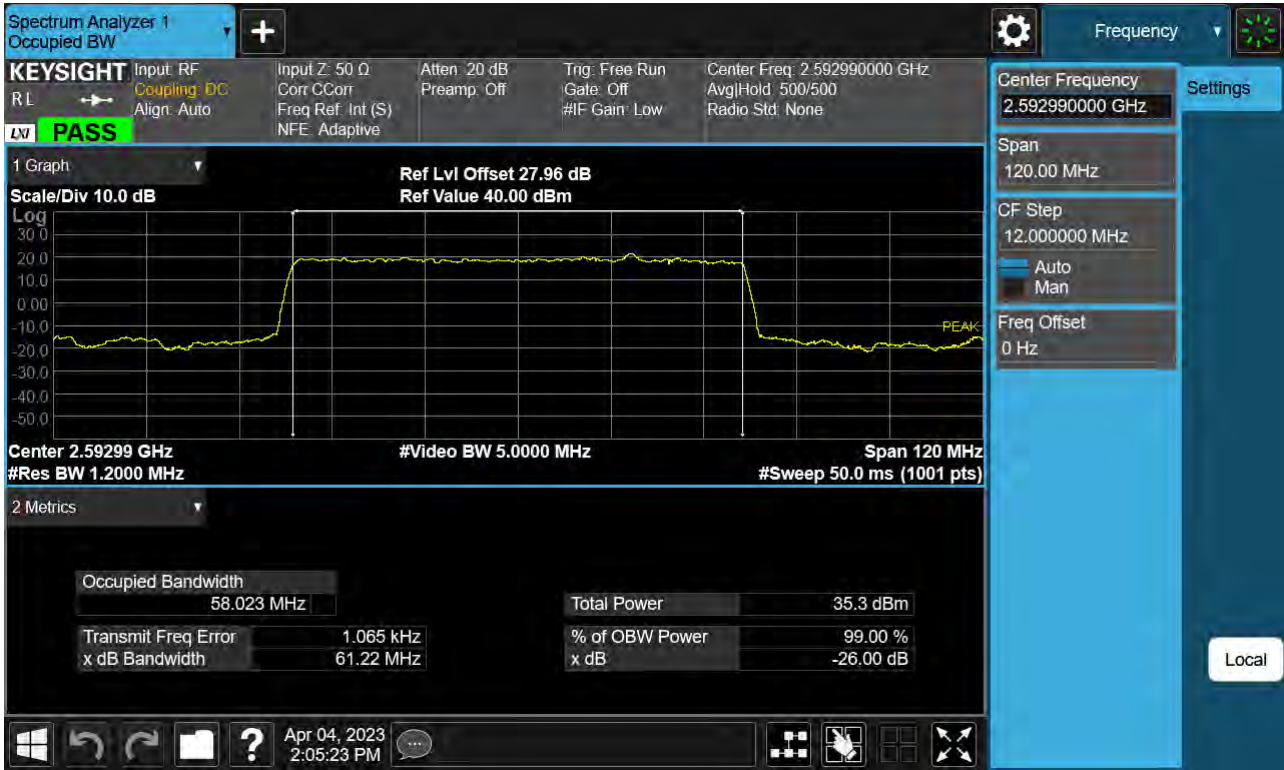


Sub6 n41. Occupied Bandwidth Plot (50 MHz Ch.518598 256-QAM )

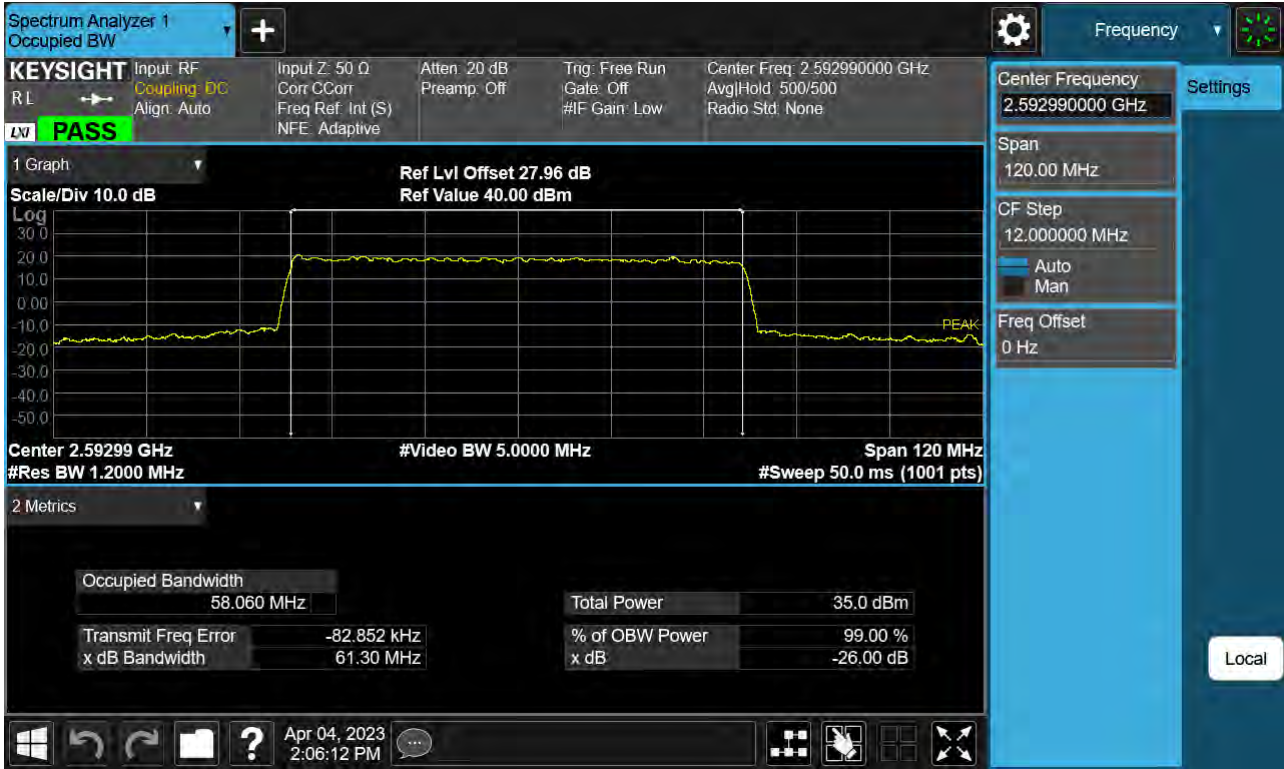




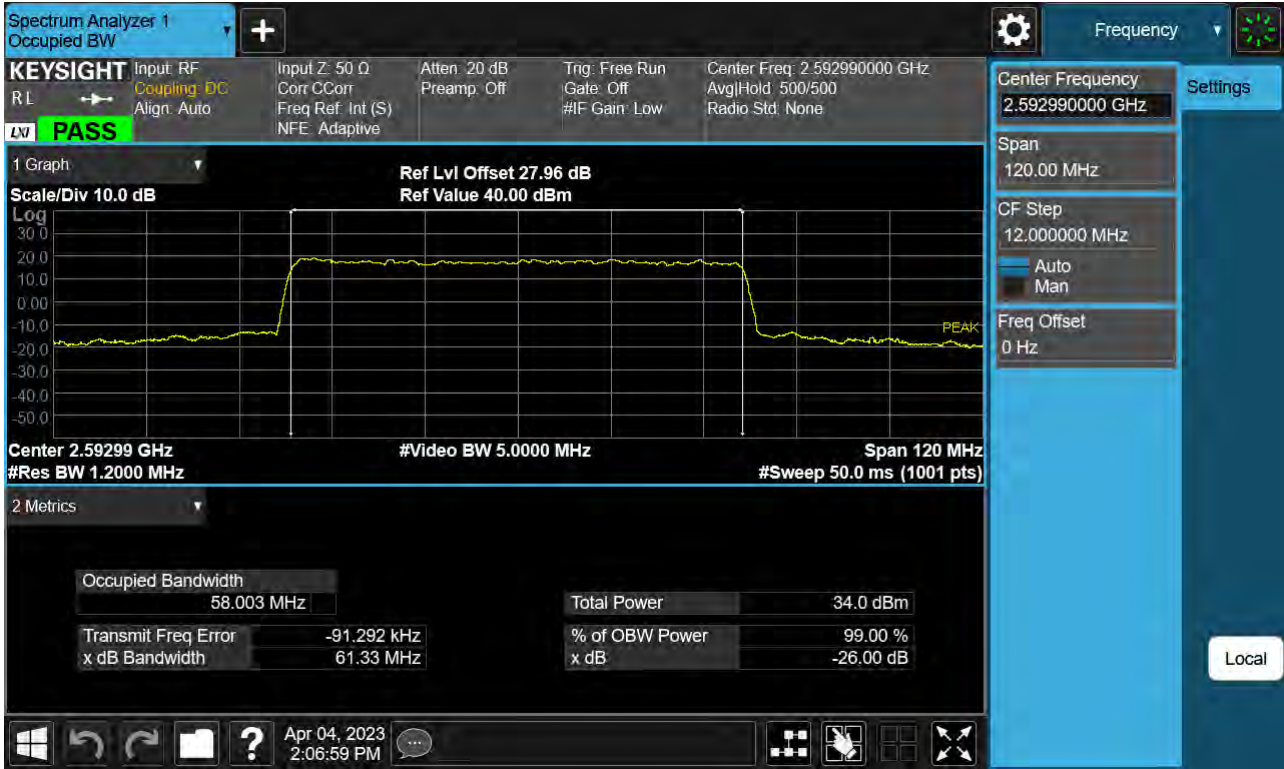
Sub6 n41. Occupied Bandwidth Plot (60 MHz Ch.518598 BPSK )



Sub6 n41. Occupied Bandwidth Plot (60 MHz Ch.518598 QPSK )



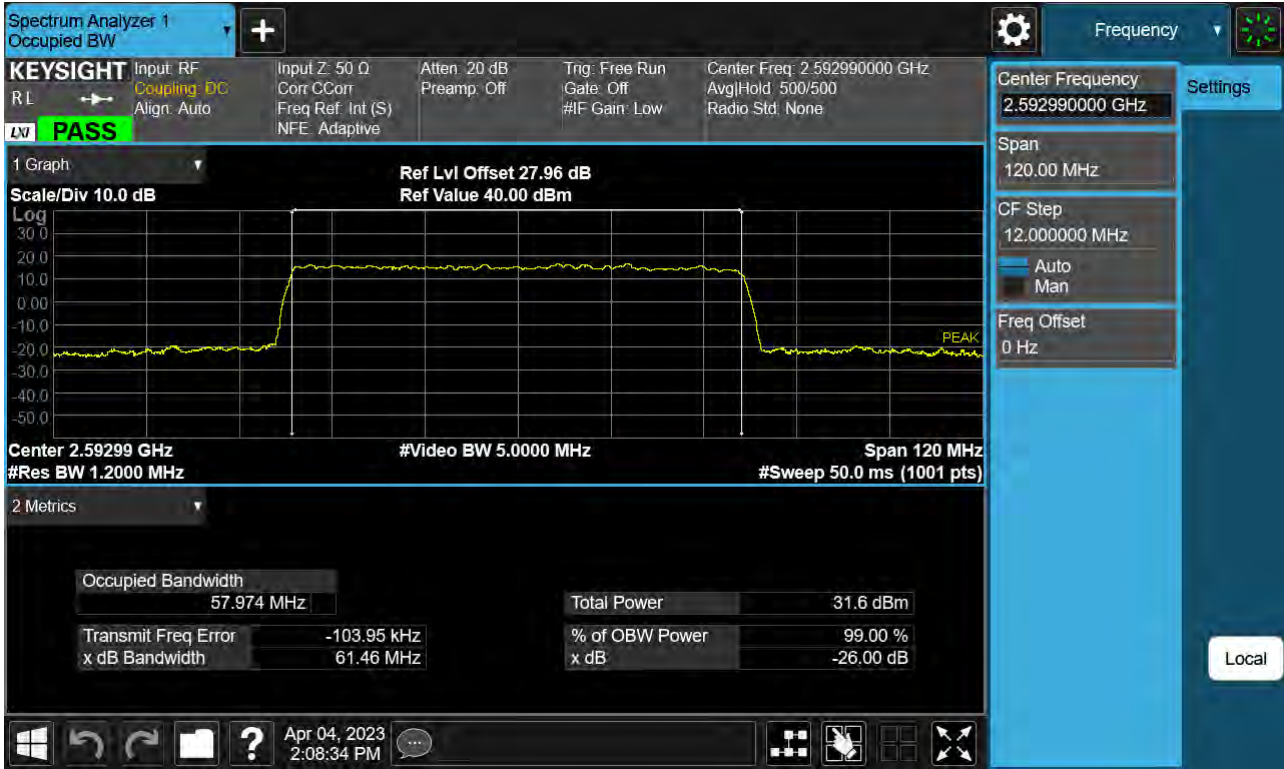
Sub6 n41. Occupied Bandwidth Plot (60 MHz Ch.518598 16-QAM )



Sub6 n41. Occupied Bandwidth Plot (60 MHz Ch.518598 64-QAM )



Sub6 n41. Occupied Bandwidth Plot (60 MHz Ch.518598 256-QAM )



Sub6 n41. Occupied Bandwidth Plot (70 MHz Ch.518598 BPSK )



Sub6 n41. Occupied Bandwidth Plot (70 MHz Ch.518598 QPSK )



Sub6 n41. Occupied Bandwidth Plot (70 MHz Ch.518598 16-QAM )

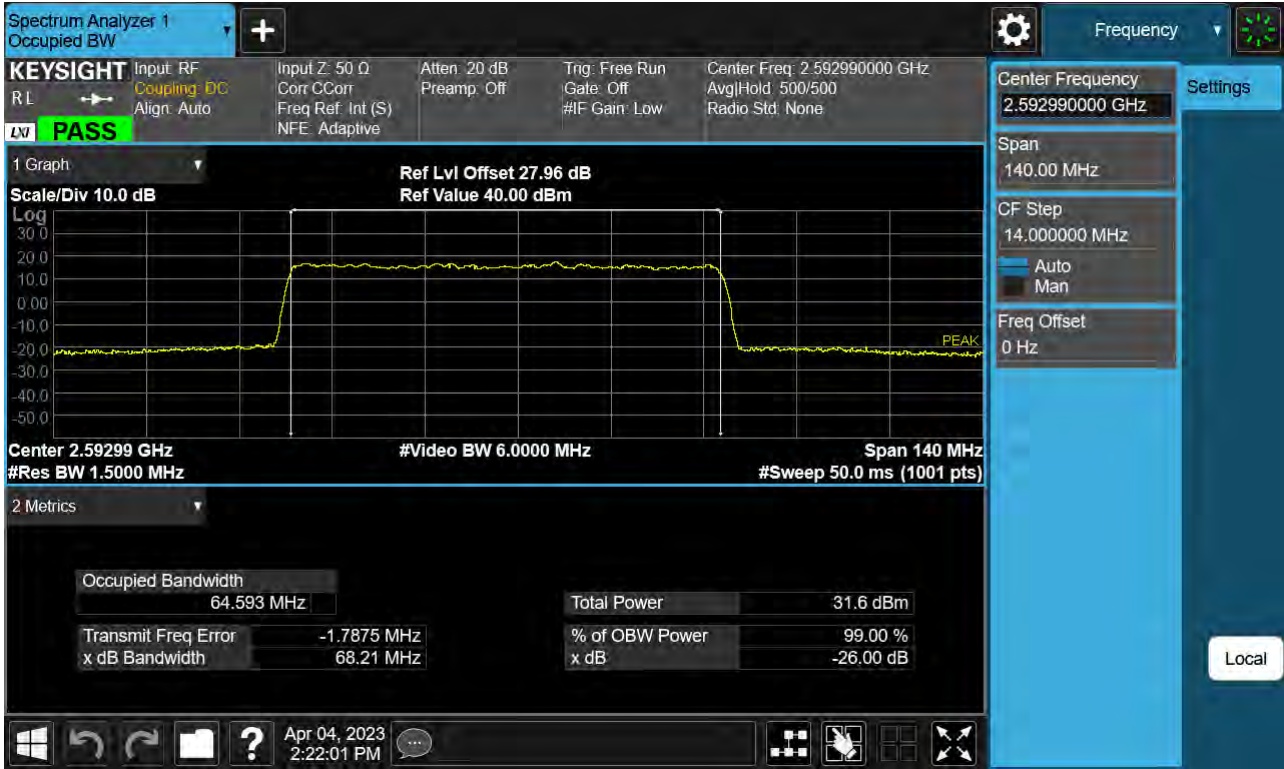




Sub6 n41. Occupied Bandwidth Plot (70 MHz Ch.518598 64-QAM )



Sub6 n41. Occupied Bandwidth Plot (70 MHz Ch.518598 256-QAM )



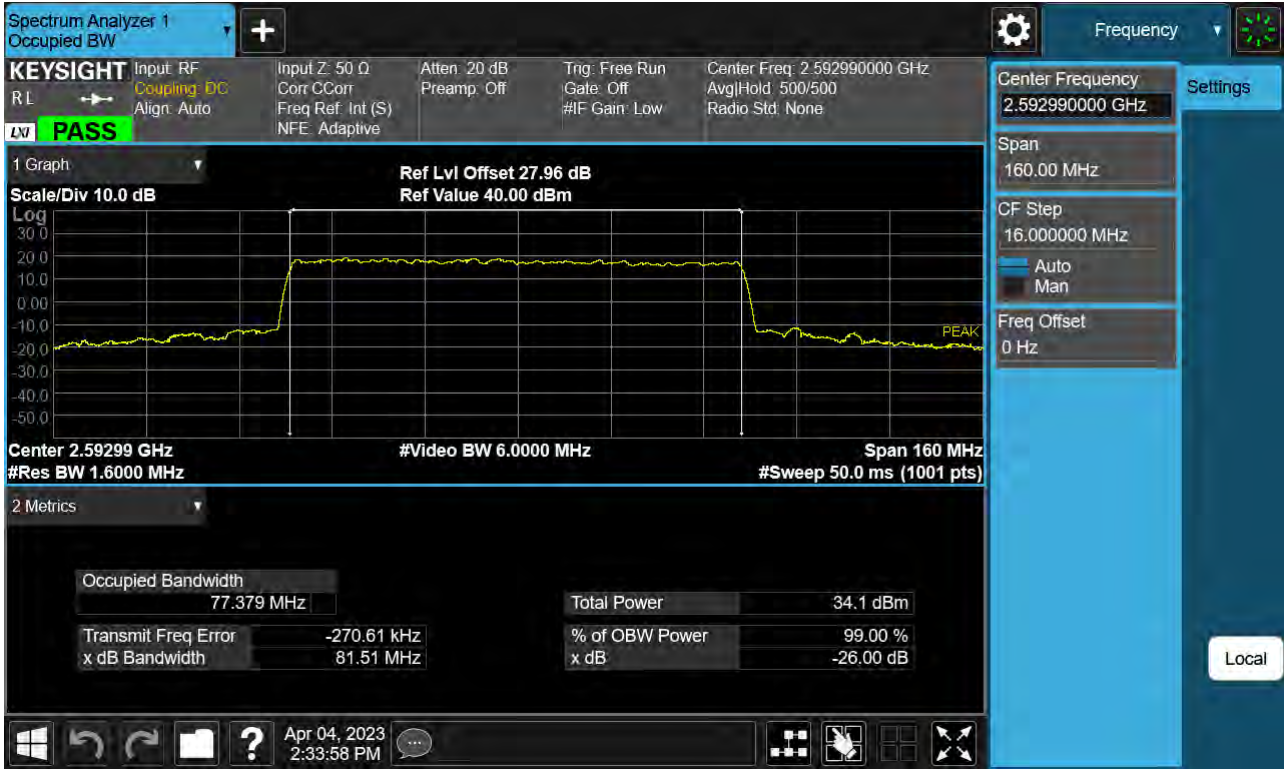
Sub6 n41. Occupied Bandwidth Plot (80 MHz Ch.518598 BPSK )



Sub6 n41. Occupied Bandwidth Plot (80 MHz Ch.518598 QPSK )



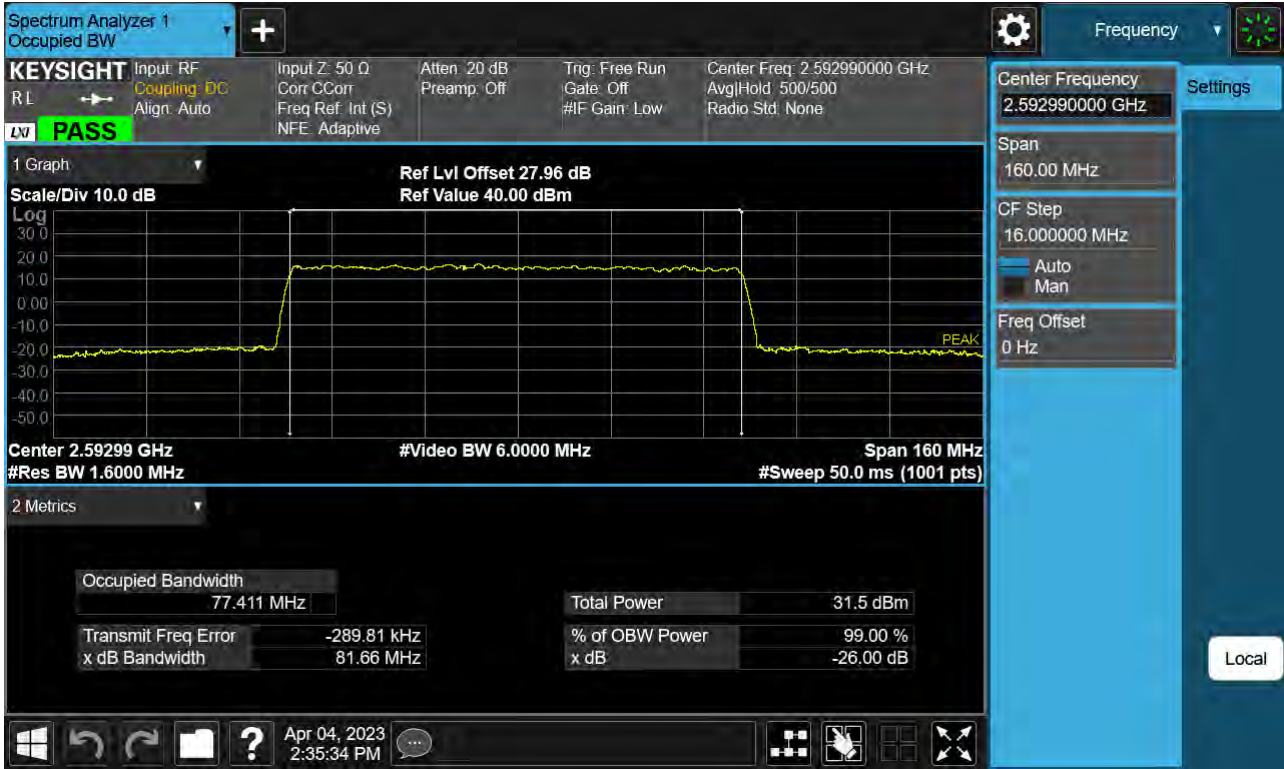
Sub6 n41. Occupied Bandwidth Plot (80 MHz Ch.518598 16-QAM )



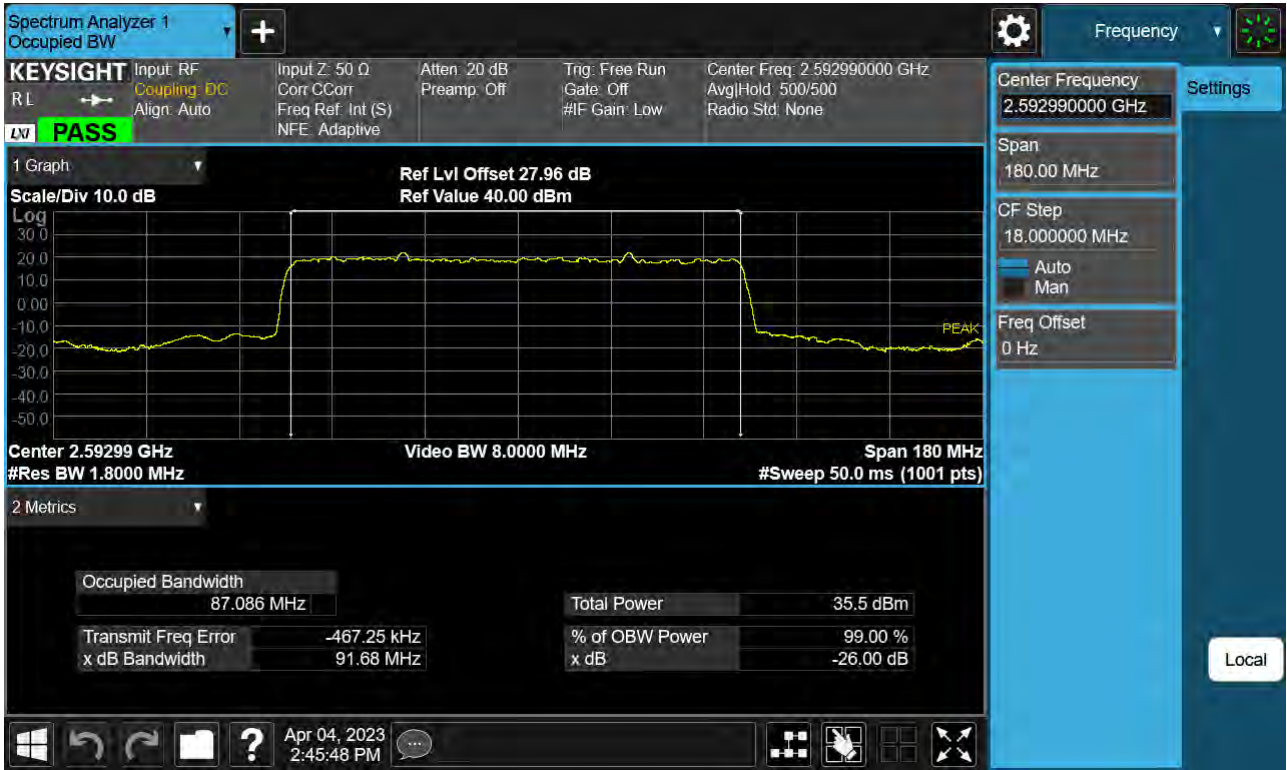
Sub6 n41. Occupied Bandwidth Plot (80 MHz Ch.518598 64-QAM )



Sub6 n41. Occupied Bandwidth Plot (80 MHz Ch.518598 256-QAM )

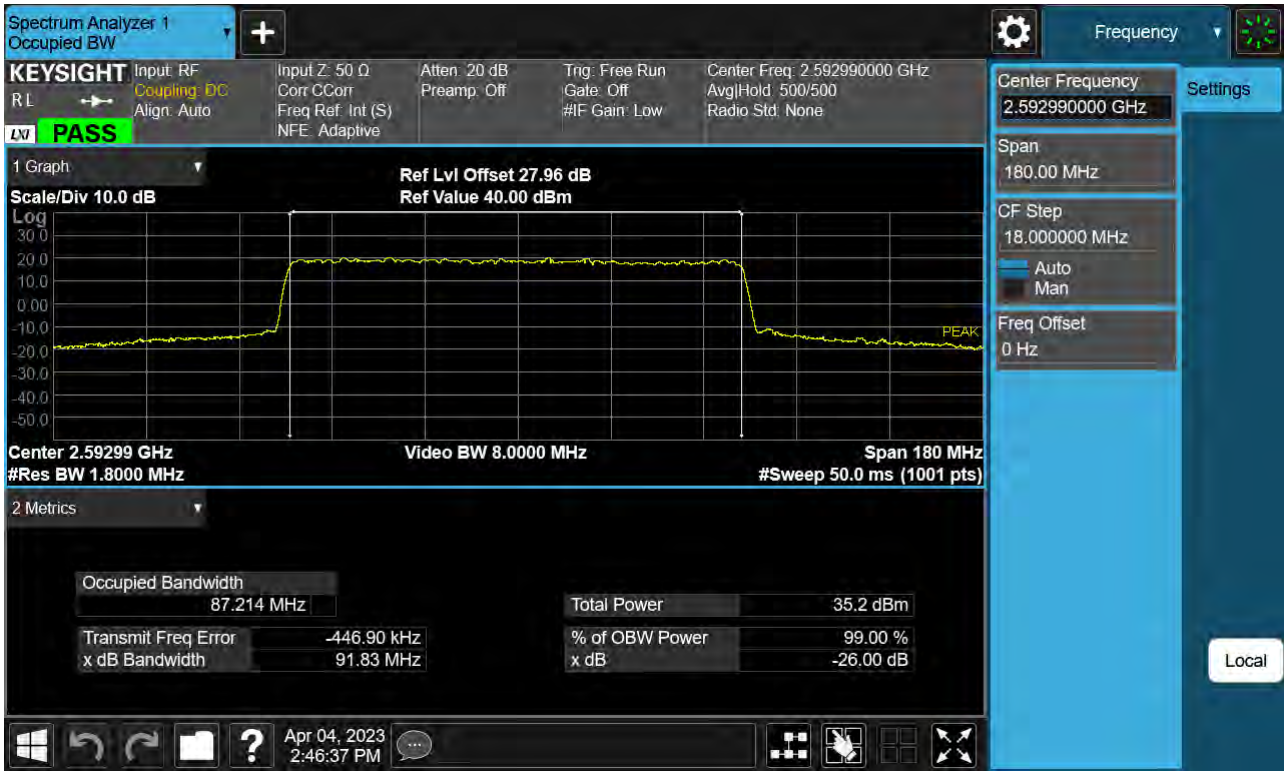


Sub6 n41. Occupied Bandwidth Plot (90 MHz Ch.518598 BPSK )

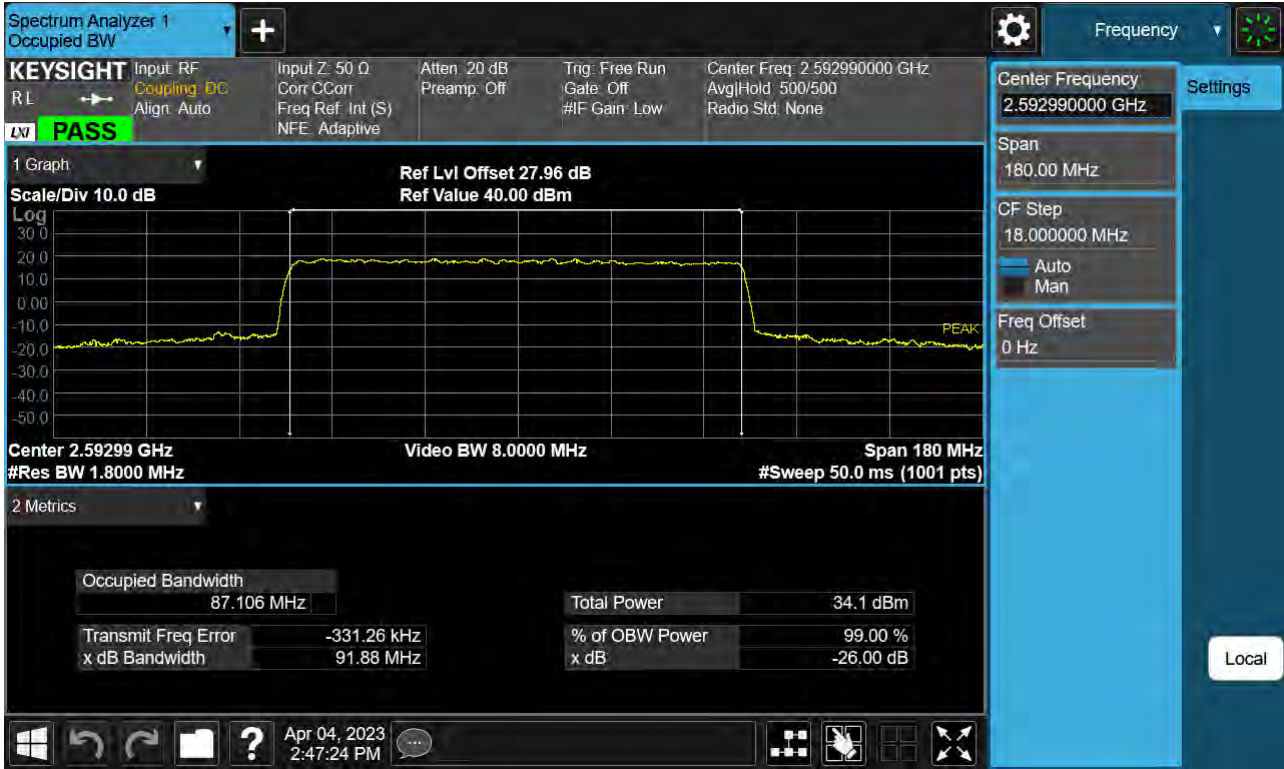




Sub6 n41. Occupied Bandwidth Plot (90 MHz Ch.518598 QPSK )



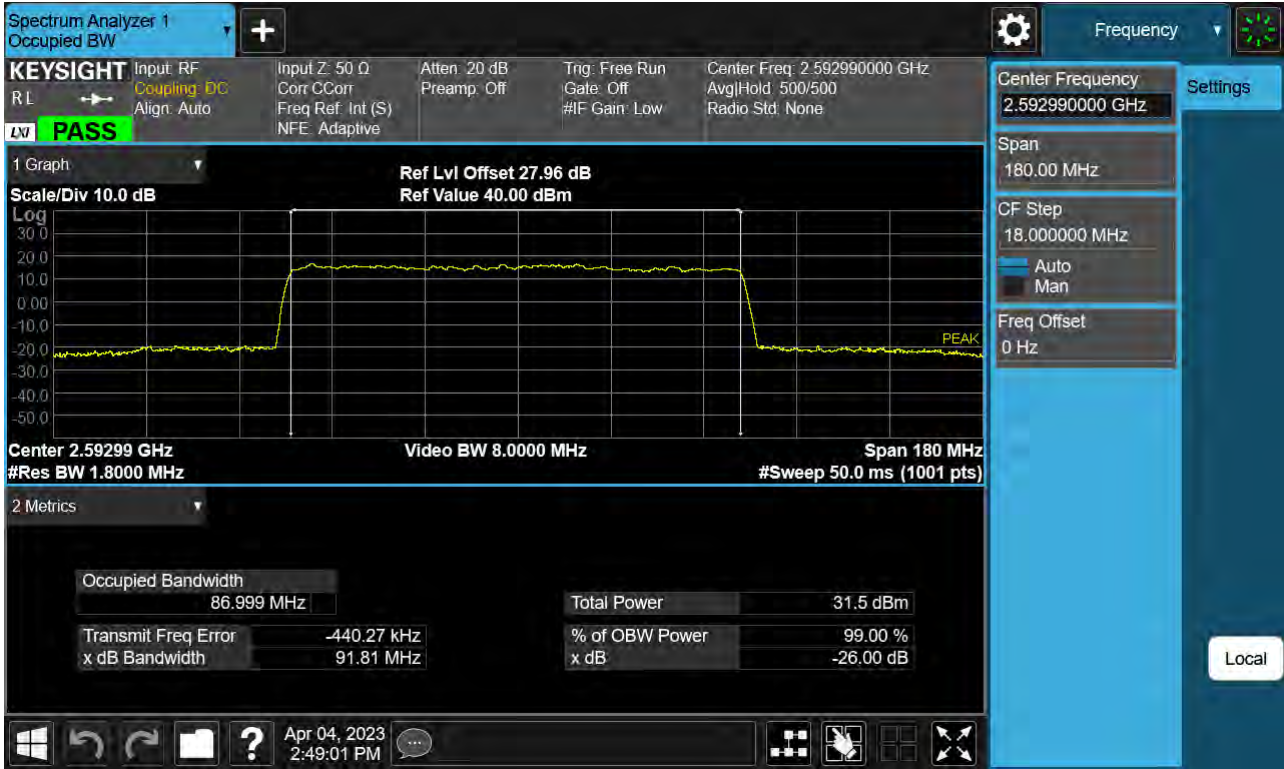
Sub6 n41. Occupied Bandwidth Plot (90 MHz Ch.518598 16-QAM )



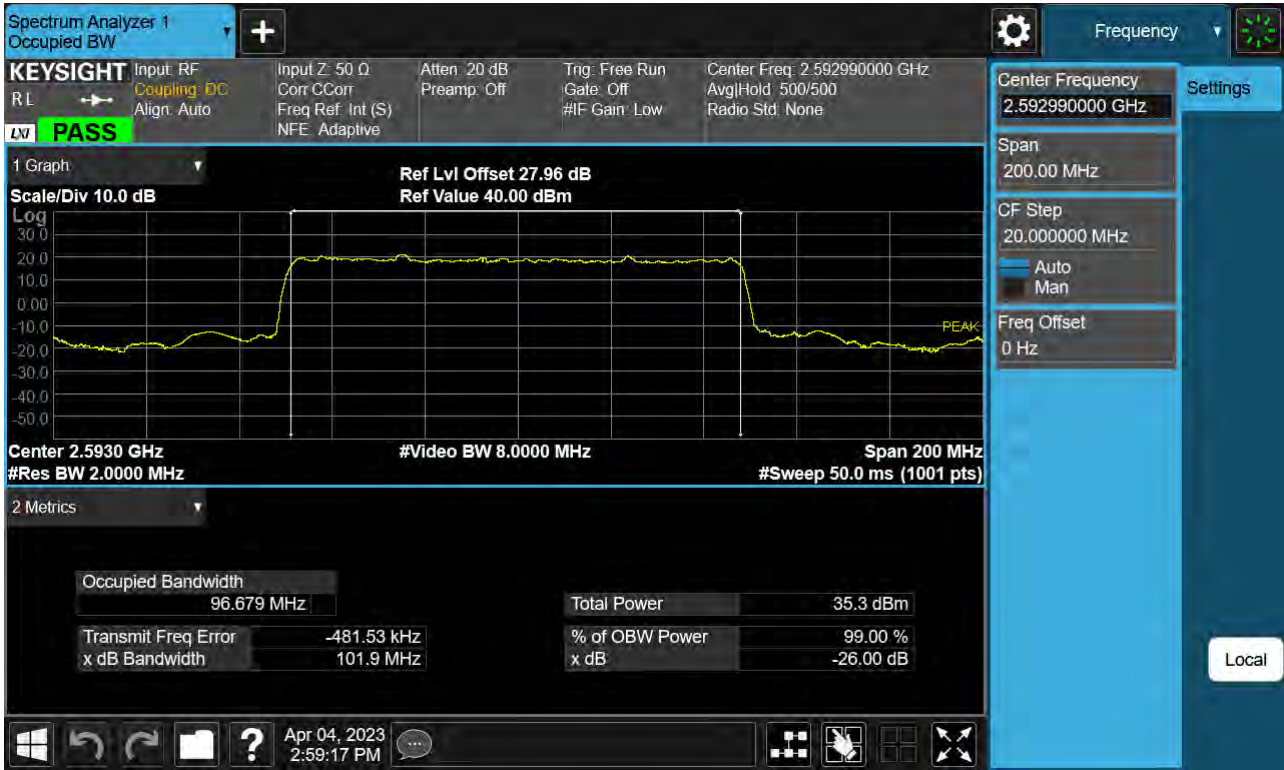
Sub6 n41. Occupied Bandwidth Plot (90 MHz Ch.518598 64-QAM )



Sub6 n41. Occupied Bandwidth Plot (90 MHz Ch.518598 256-QAM )



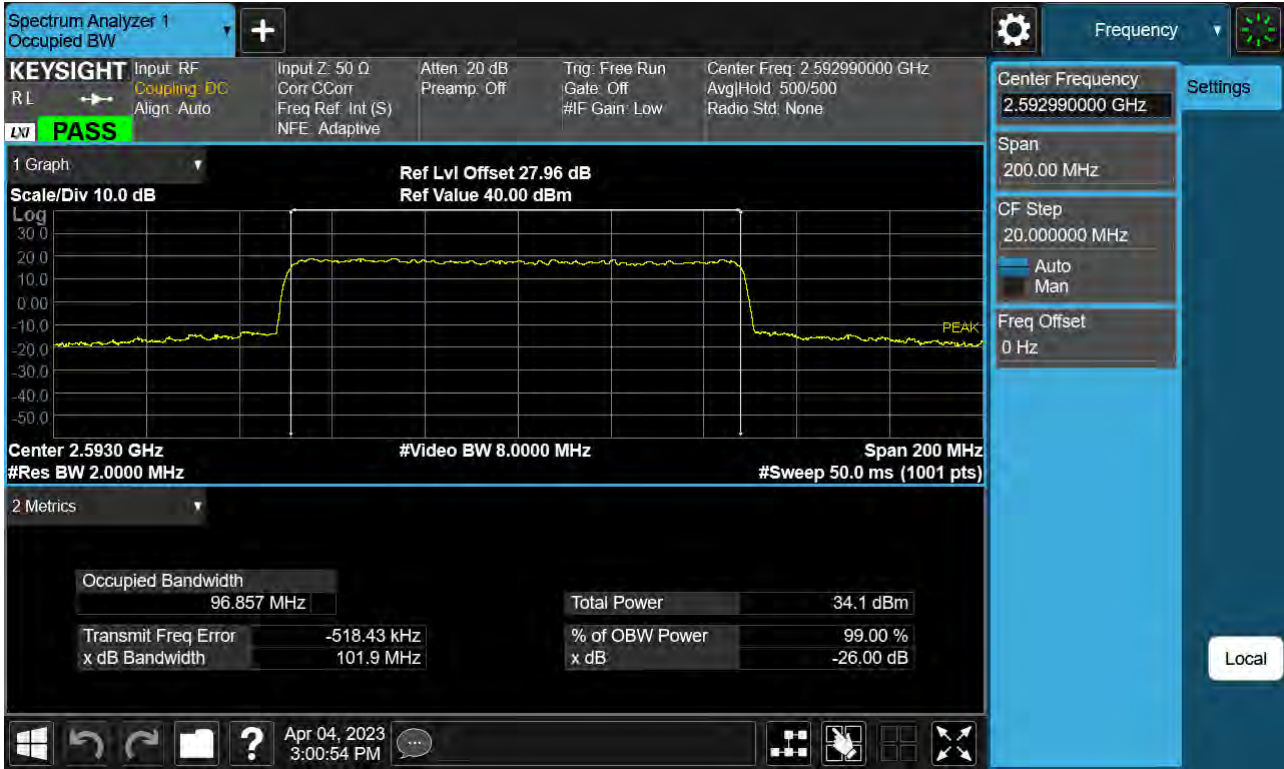
Sub6 n41. Occupied Bandwidth Plot (100 MHz Ch.518598 BPSK )



Sub6 n41. Occupied Bandwidth Plot (100 MHz Ch.518598 QPSK )



Sub6 n41. Occupied Bandwidth Plot (100 MHz Ch.518598 16-QAM )

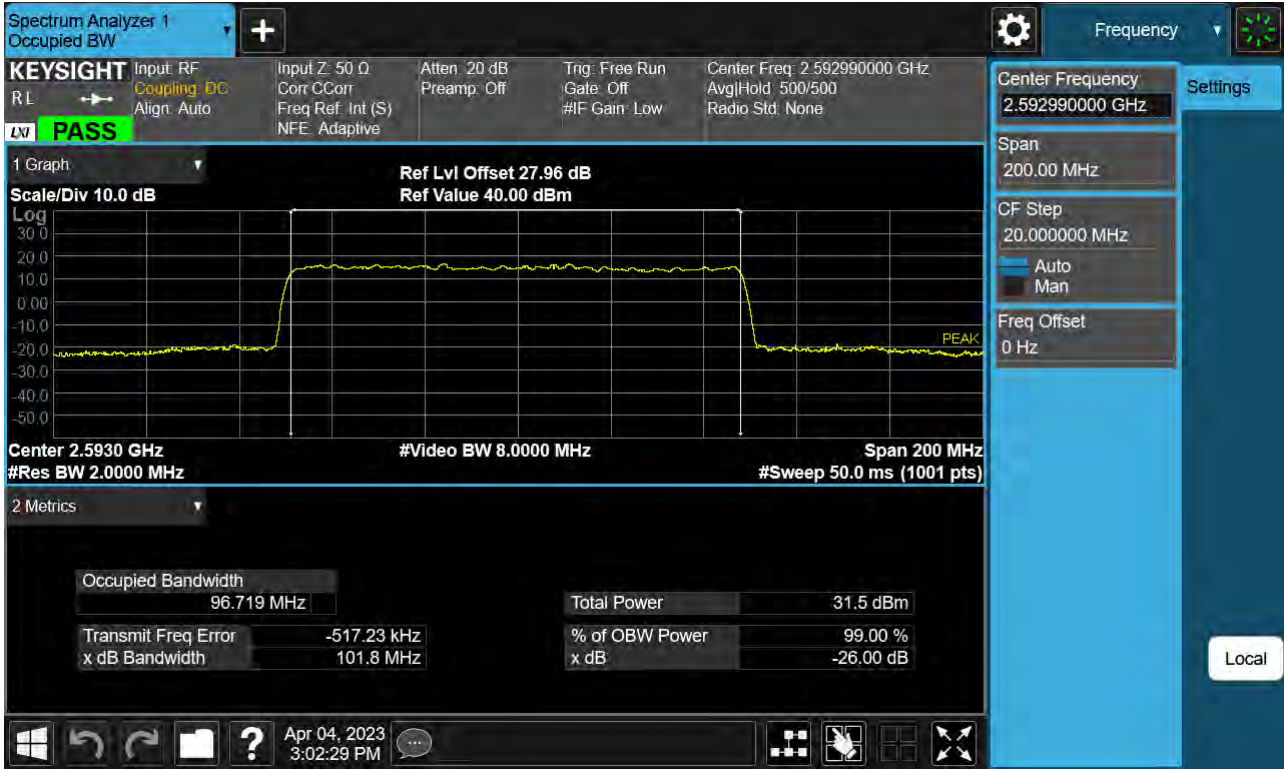


Sub6 n41. Occupied Bandwidth Plot (100 MHz Ch.518598 64-QAM )





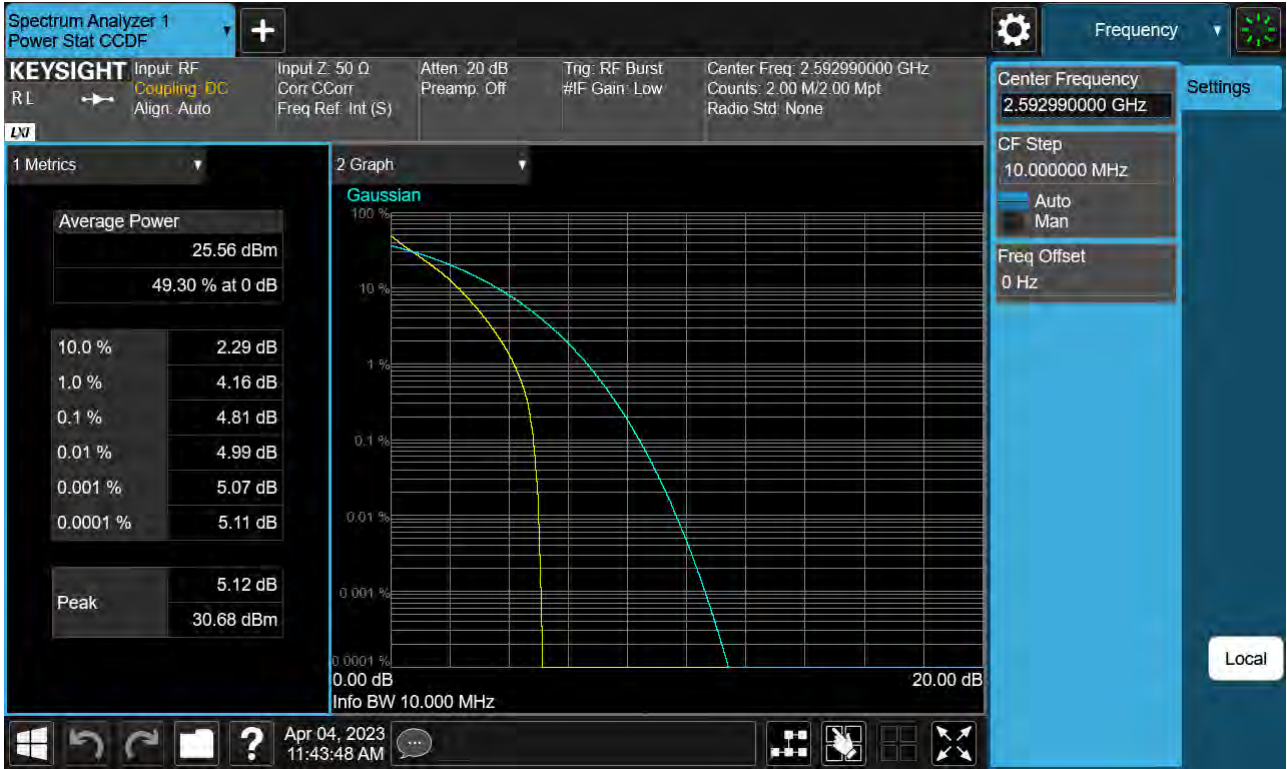
Sub6 n41. Occupied Bandwidth Plot (100 MHz Ch.518598 256-QAM )



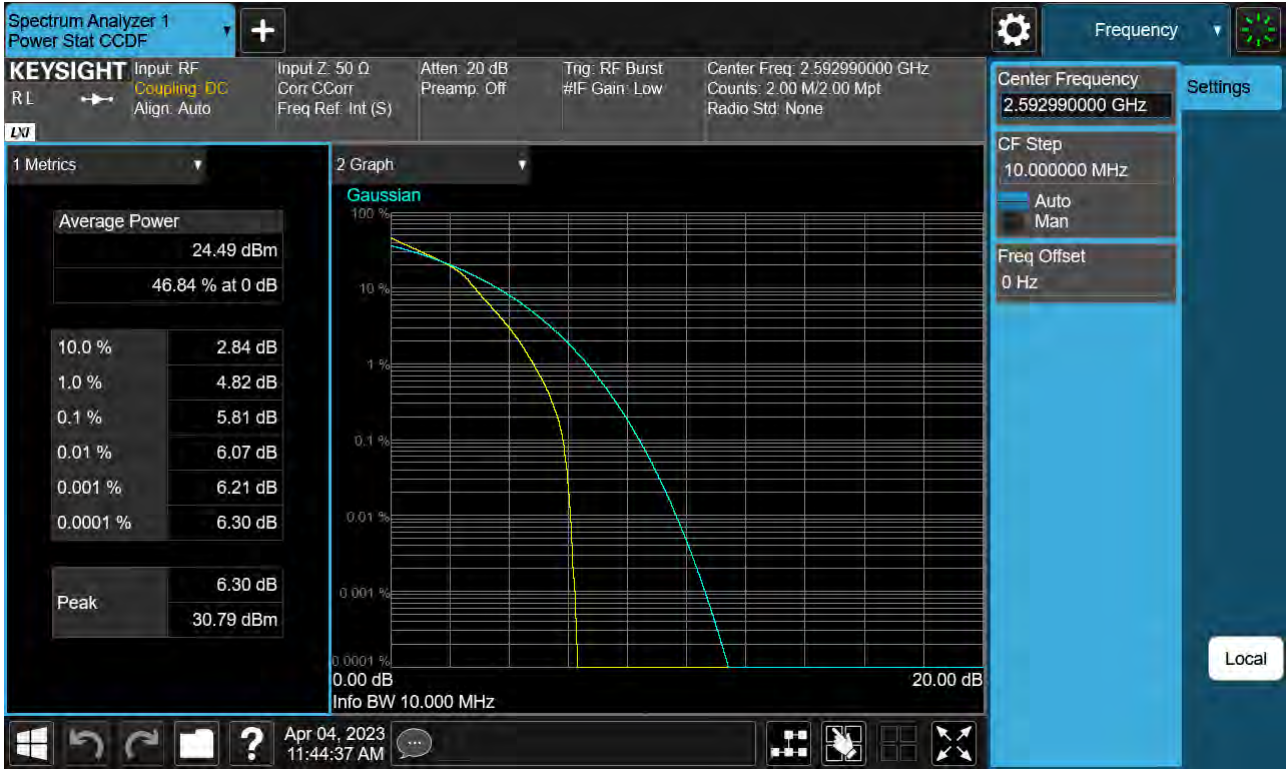
Sub6 n41. PAR Plot (10 M BW\_Ch.518598\_BPSK)



Sub6 n41. PAR Plot (10 M BW\_Ch.518598\_QPSK)



Sub6 n41. PAR Plot (10 M BW\_Ch.518598\_16QAM)



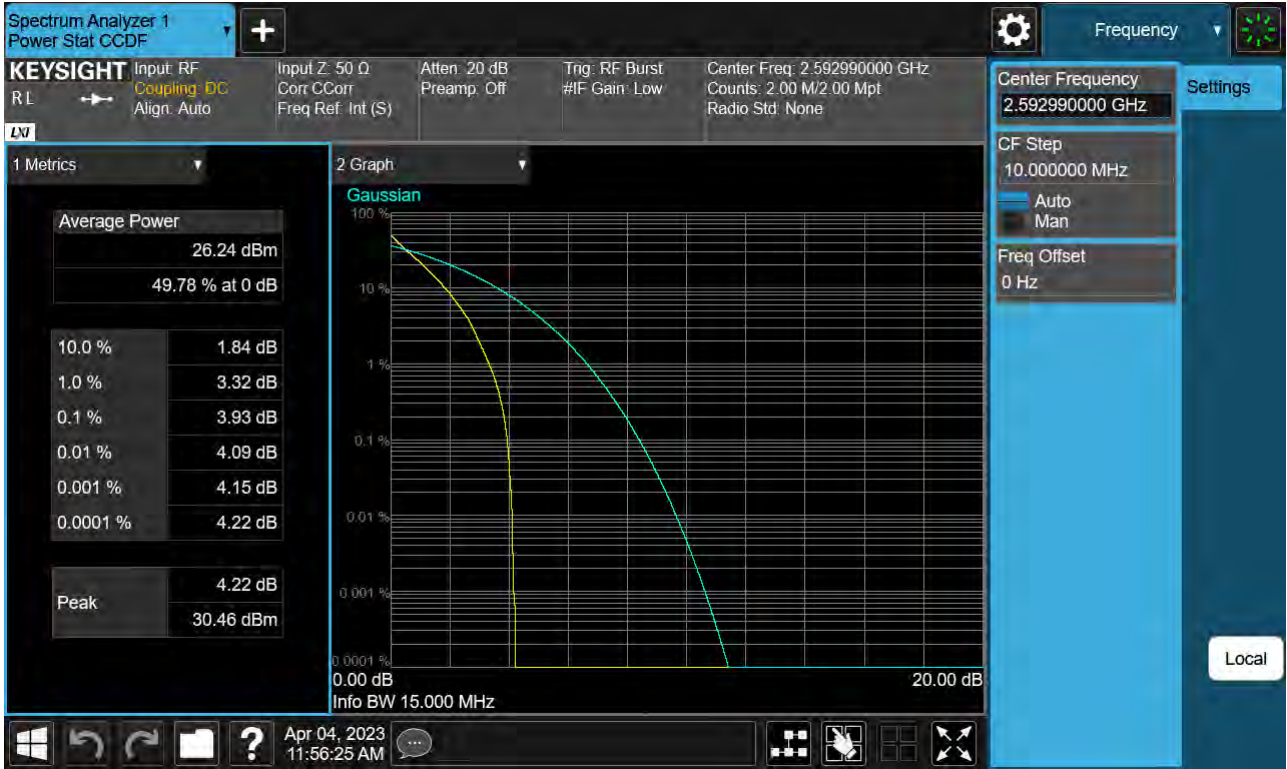
Sub6 n41. PAR Plot (10 M BW\_Ch.518598\_64QAM)



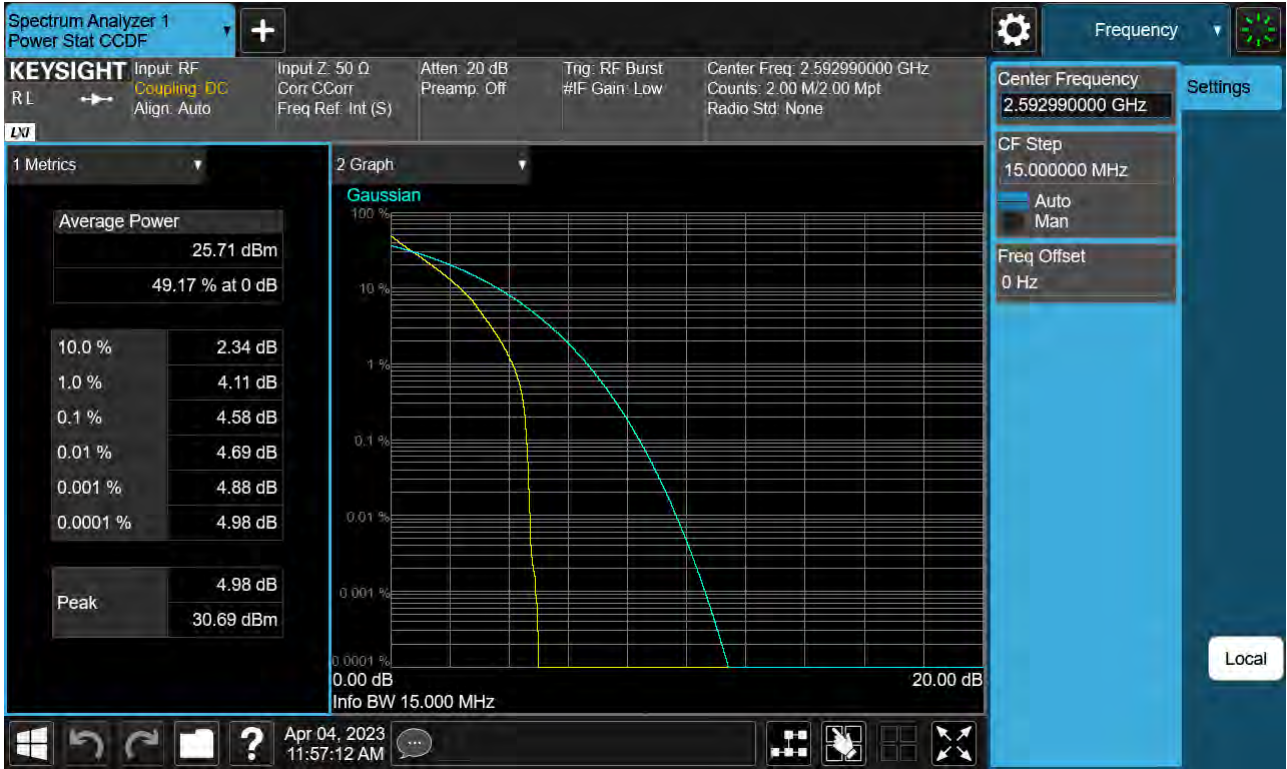
Sub6 n41. PAR Plot (10 M BW\_Ch.518598\_256QAM)



Sub6 n41. PAR Plot (15 M BW\_Ch.518598\_BPSK)



Sub6 n41. PAR Plot (15 M BW\_Ch.518598\_QPSK)





Sub6 n41. PAR Plot (15 M BW\_Ch.518598\_16QAM)



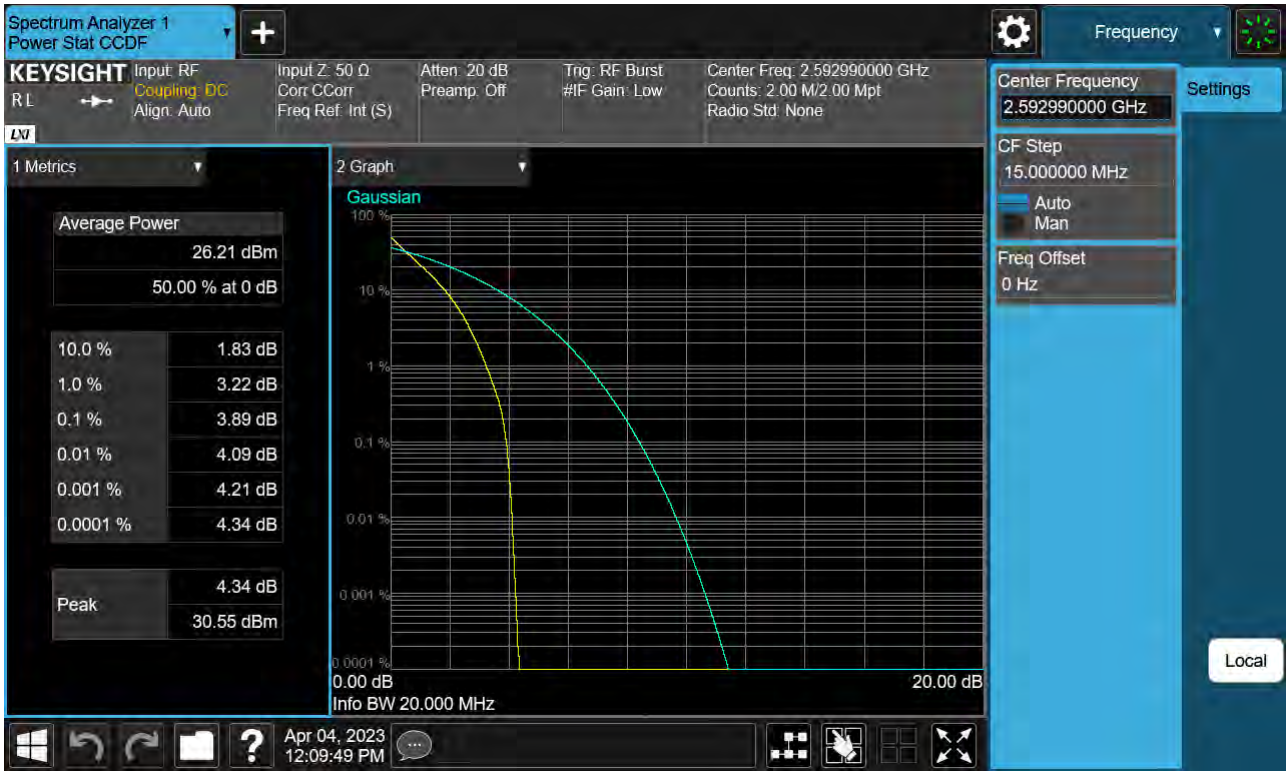
Sub6 n41. PAR Plot (15 M BW\_Ch.518598\_64QAM)



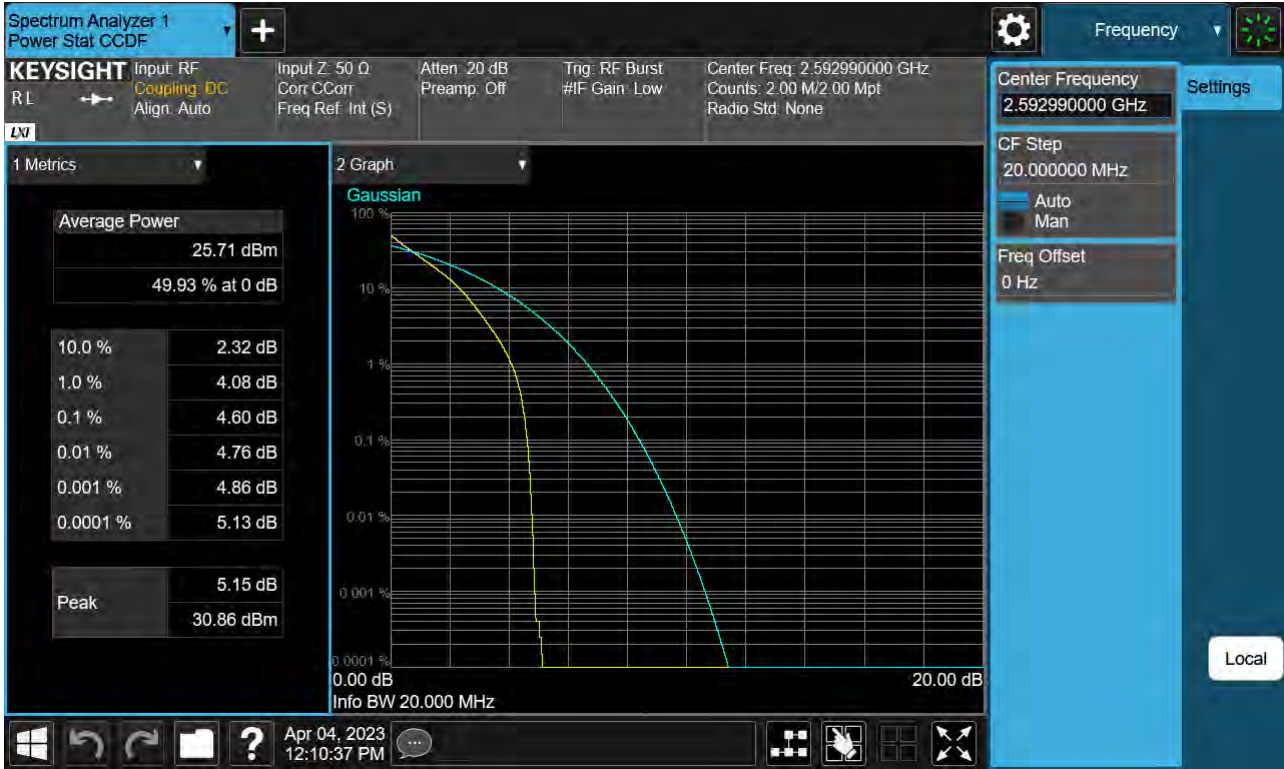
Sub6 n41. PAR Plot (15 M BW\_Ch.518598\_256QAM)



Sub6 n41. PAR Plot (20 M BW\_Ch.518598\_BPSK)



Sub6 n41. PAR Plot (20 M BW\_Ch.518598\_QPSK)



Sub6 n41. PAR Plot (20 M BW\_Ch.518598\_16QAM)



Sub6 n41. PAR Plot (20 M BW\_Ch.518598\_64QAM)



Sub6 n41. PAR Plot (20 M BW\_Ch.518598\_256QAM)

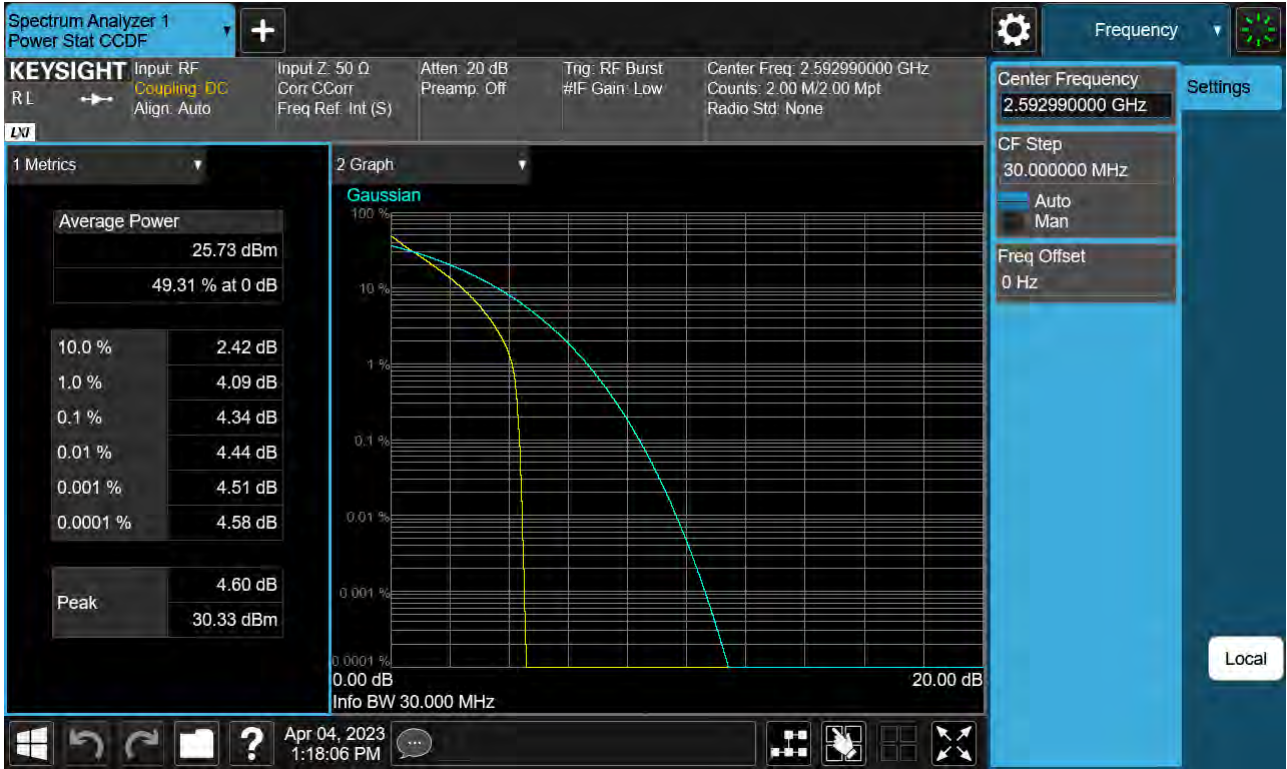




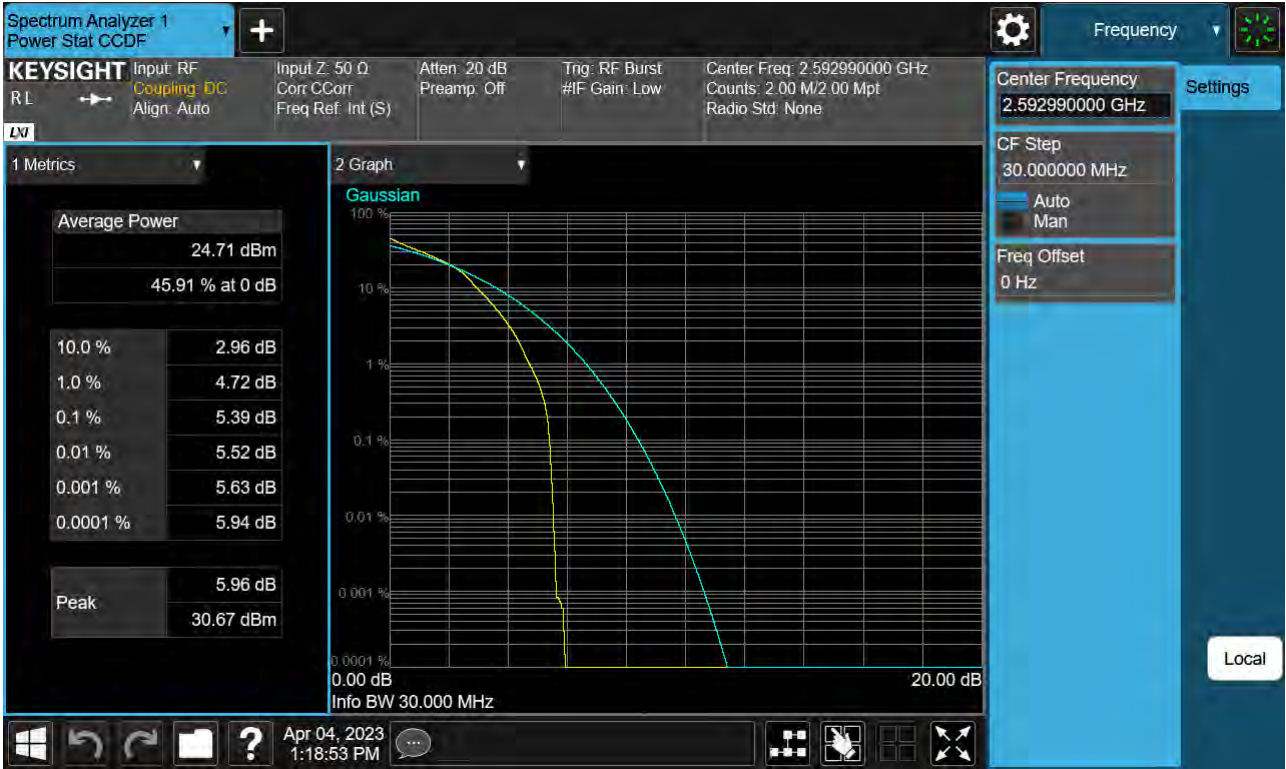
Sub6 n41. PAR Plot (30 M BW\_Ch.518598\_BPSK)



Sub6 n41. PAR Plot (30 M BW\_Ch.518598\_QPSK)



Sub6 n41. PAR Plot (30 M BW\_Ch.518598\_16QAM)



Sub6 n41. PAR Plot (30 M BW\_Ch.518598\_64QAM)



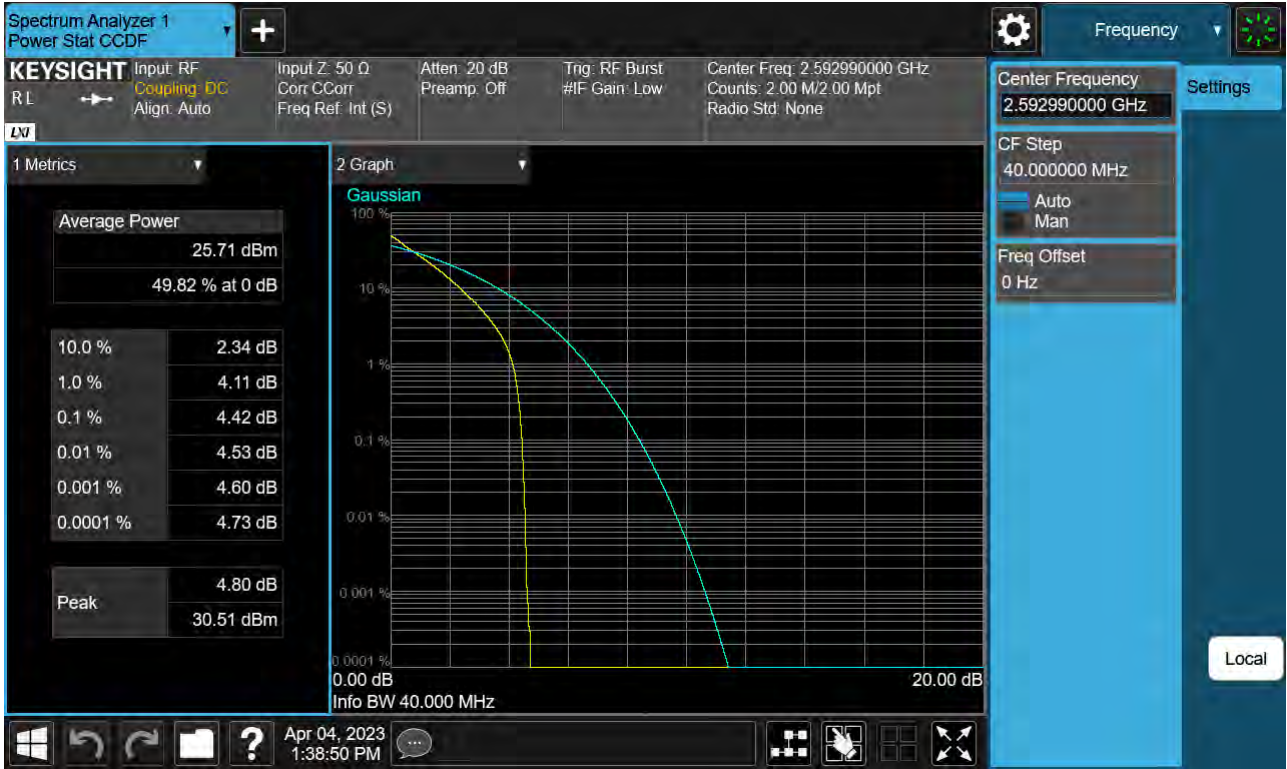
Sub6 n41. PAR Plot (30 M BW\_Ch.518598\_256QAM)



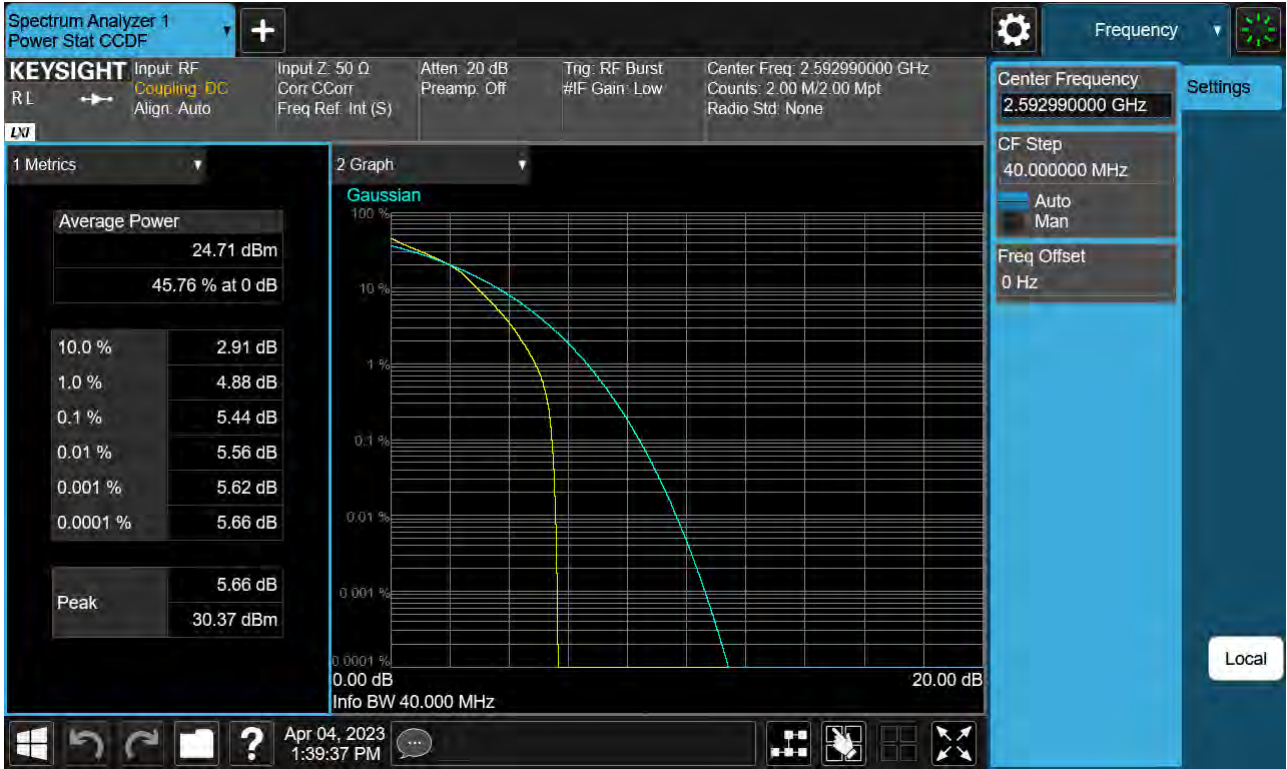
Sub6 n41. PAR Plot (40 M BW\_Ch.518598\_BPSK)



Sub6 n41. PAR Plot (40 M BW\_Ch.518598\_QPSK)

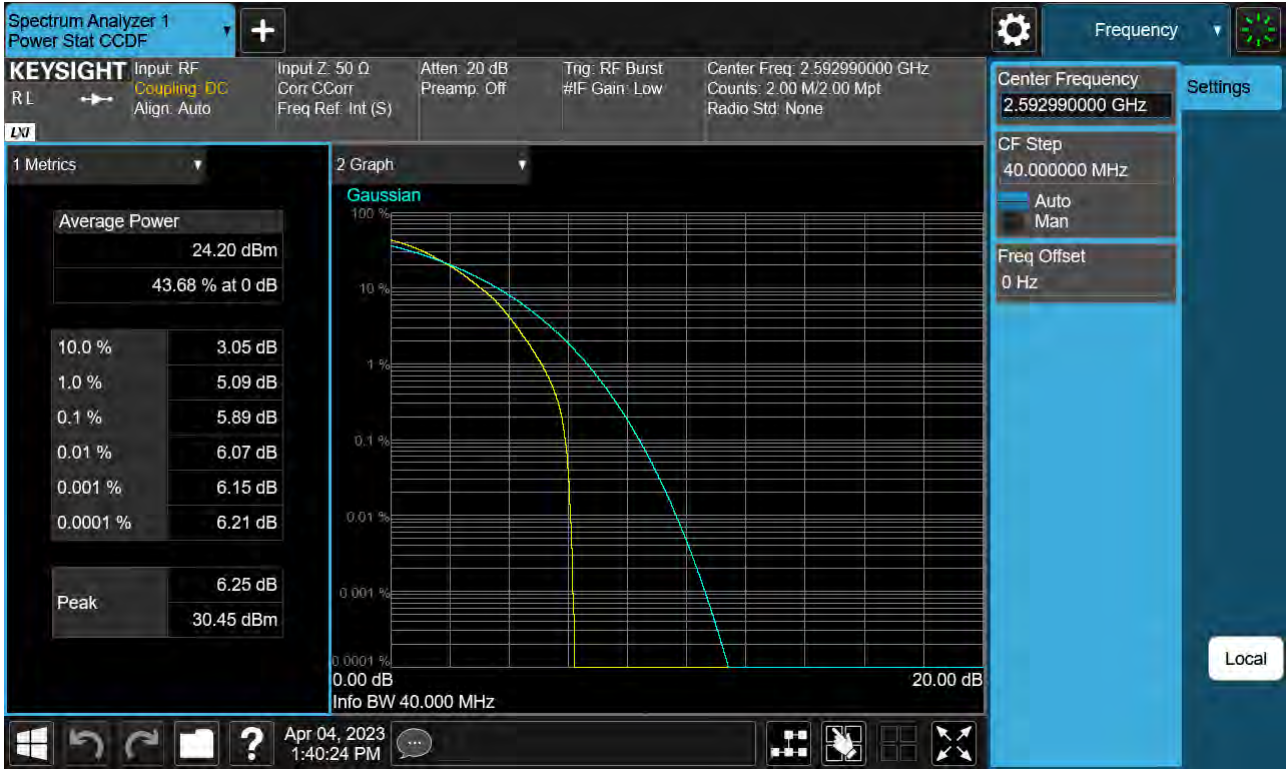


Sub6 n41. PAR Plot (40 M BW\_Ch.518598\_16QAM)





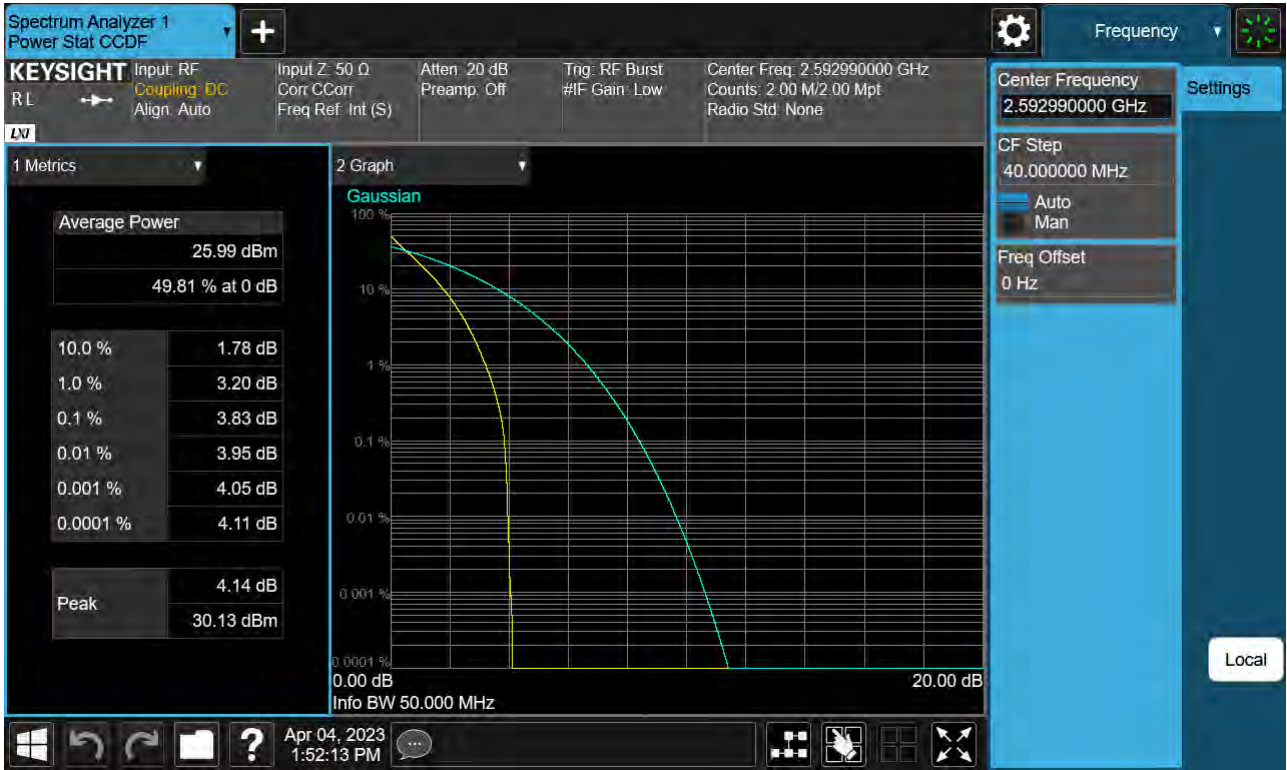
Sub6 n41. PAR Plot (40 M BW\_Ch.518598\_64QAM)



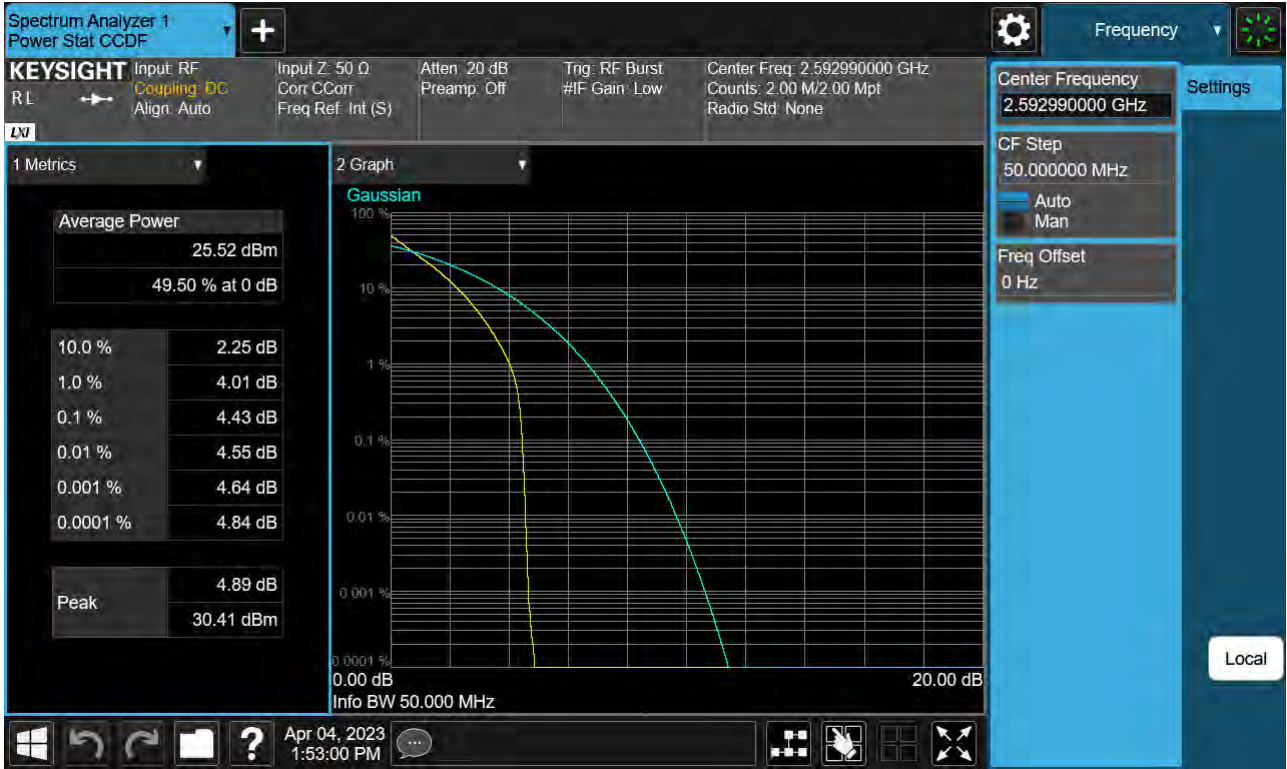
Sub6 n41. PAR Plot (40 M BW\_Ch.518598\_256QAM)



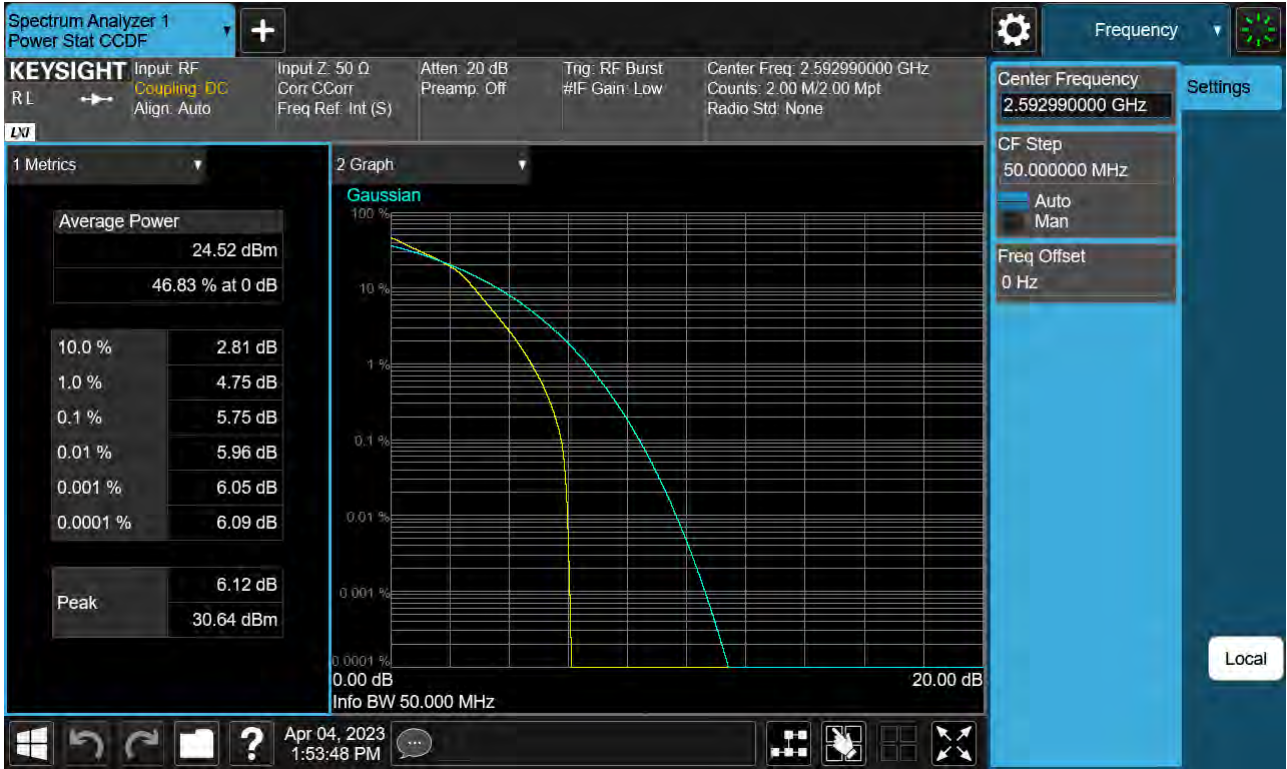
Sub6 n41. PAR Plot (50 M BW\_Ch.518598\_BPSK)



Sub6 n41. PAR Plot (50 M BW\_Ch.518598\_QPSK)



Sub6 n41. PAR Plot (50 M BW\_Ch.518598\_16QAM)



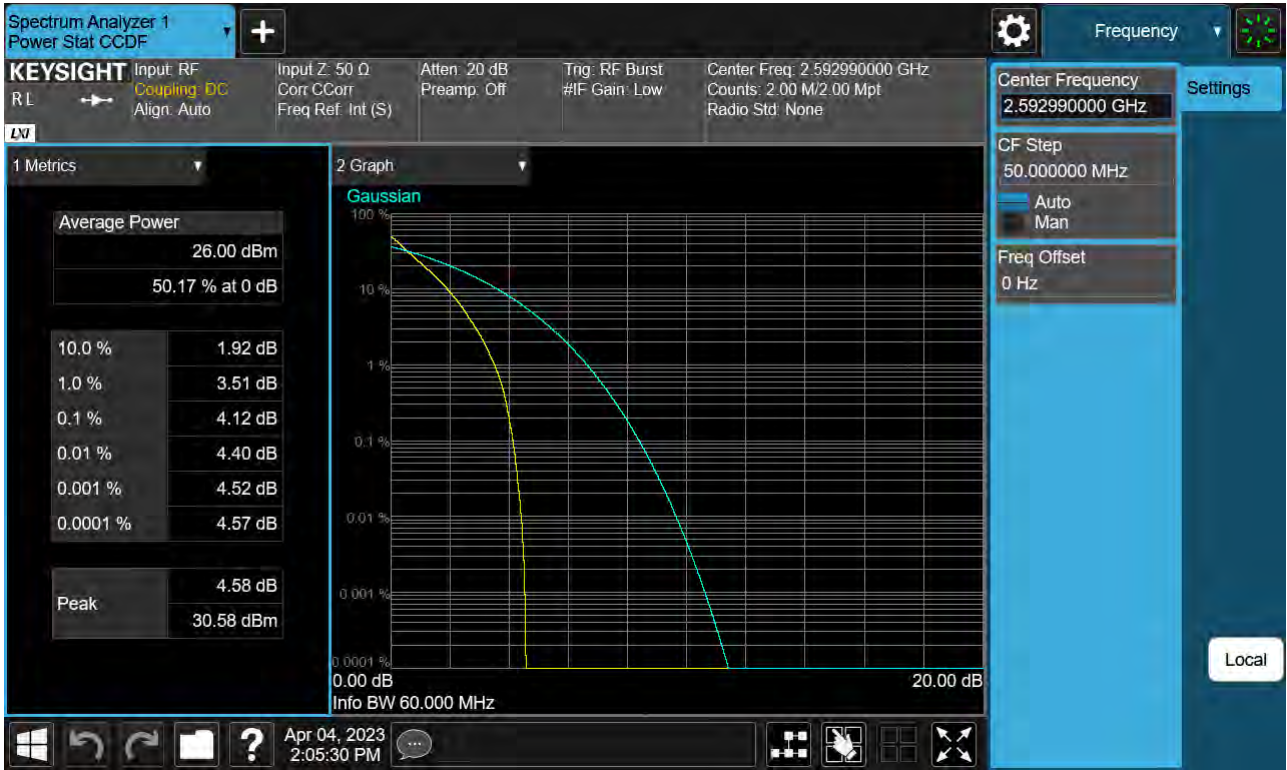
Sub6 n41. PAR Plot (50 M BW\_Ch.518598\_64QAM)



Sub6 n41. PAR Plot (50 M BW\_Ch.518598\_256QAM)



Sub6 n41. PAR Plot (60 M BW\_Ch.518598\_BPSK)

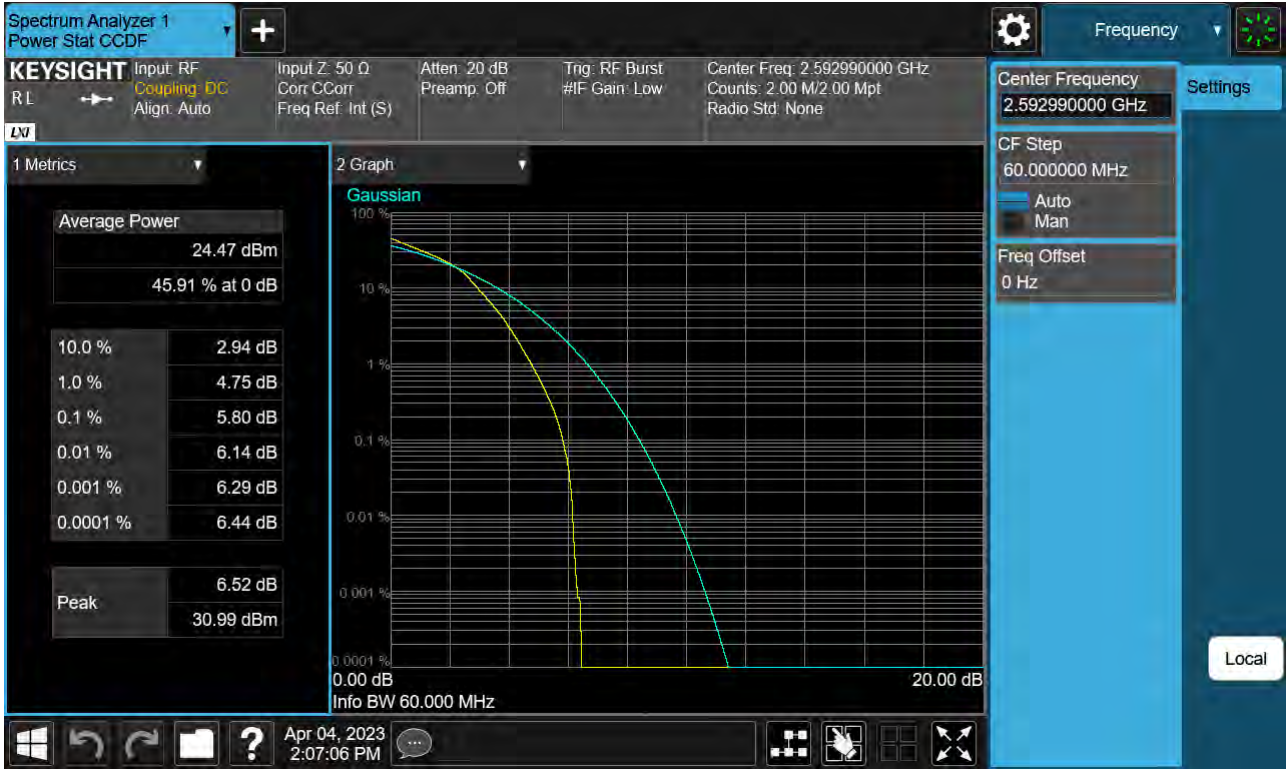




Sub6 n41. PAR Plot (60 M BW\_Ch.518598\_QPSK)



Sub6 n41. PAR Plot (60 M BW\_Ch.518598\_16QAM)



Sub6 n41. PAR Plot (60 M BW\_Ch.518598\_64QAM)



Sub6 n41. PAR Plot (60 M BW\_Ch.518598\_256QAM)



Sub6 n41. PAR Plot (70 M BW\_Ch.518598\_BPSK)



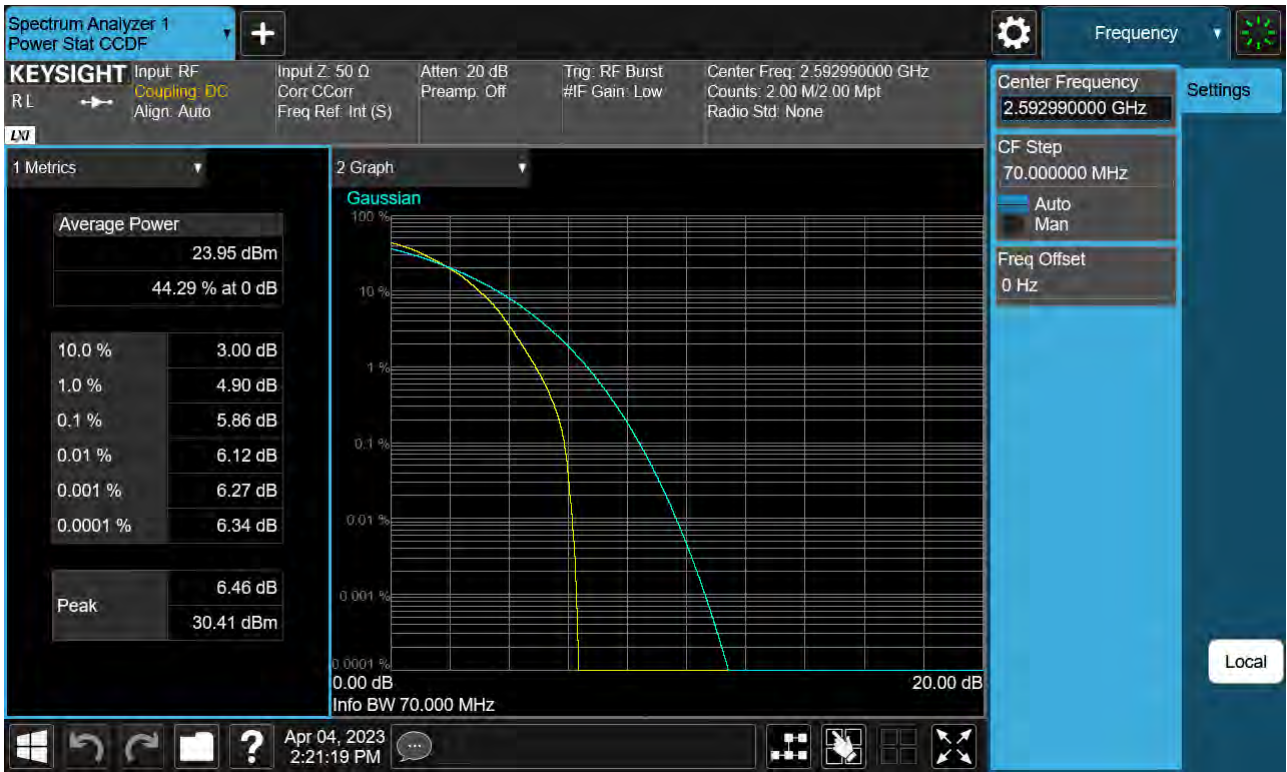
Sub6 n41. PAR Plot (70 M BW\_Ch.518598\_QPSK)



Sub6 n41. PAR Plot (70 M BW\_Ch.518598\_16QAM)



Sub6 n41. PAR Plot (70 M BW\_Ch.518598\_64QAM)





Sub6 n41. PAR Plot (70 M BW\_Ch.518598\_256QAM)

