

TEST REPORT

FCC Sub6 n77 Test for SM-S721B/DS
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2407-FC065

DATE OF ISSUE
July 24, 2024

Tested by
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**TEST
REPORT****REPORT NO.**

HCT-RF-2407-FC065

DATE OF ISSUE

July 24, 2024

Additional Model

SM-S721B

Applicant**SAMSUNG Electronics Co., Ltd.**

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

Product Name

Mobile Phone

Model Name

SM-S721B/DS

Date of Test

May 21, 2024 ~ July 23, 2024

FCC ID

A3LSMS721B

Location of Test☒ Permanent Testing Lab ☐ On Site Testing

(Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 Republic of Korea)

FCC Classification:

PCS Licensed Transmitter Held to Ear (PCE)

Test Standard Used

FCC Rule Part : § 27

Test Results

PASS

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	July 24, 2024	Initial Release

Notice

Content

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)

The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated.

The test results have only been applied with the test methods required by the standard(s).

The laboratory is not accredited for the test results marked *.

Information provided by the applicant is marked **.

Test results provided by external providers are marked ***.

When confirmation of authenticity of this test report is required, please contact www.hct.co.kr

The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

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MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	SAMSUNG Electronics Co., Ltd.
Address:	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
FCC ID:	A3LSMS721B
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§ 27
EUT Type:	Mobile phone
Model(s):	SM-S721B/DS
Additional Model(s)	SM-S721B
SCS(kHz):	30
Bandwidth(MHz):	10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100
Waveform:	CP-OFDM, DFT-S-OFDM
Modulation:	DFT-S-OFDM: PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM
Tx Frequency: (3450 MHz - 3550 MHz)	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))
Tx Frequency: (3700 MHz - 3980 MHz)	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))
Date(s) of Tests:	May 21, 2024 ~ July 23, 2024
Serial number:	Radiated : R3CX40LGCGM Conducted : R3CX503EC4V

1.1. MAXIMUM OUTPUT POWER

1. 3450 MHz - 3550 MHz

	Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
					Max. Power (W)	Max. Power (dBm)
Power Class 3	Sub6 n77 (10)	3455.01 – 3544.99	8M70G7D	PI/2 BPSK	0.098	19.93
			8M71G7D	QPSK	0.097	19.87
			8M65W7D	16QAM	0.079	18.96
			8M71W7D	64QAM	0.054	17.35
			8M69W7D	256QAM	0.036	15.51
	Sub6 n77 (15)	3457.50 – 3542.50	13M0G7D	PI/2 BPSK	0.099	19.96
			13M0G7D	QPSK	0.097	19.88
			13M0W7D	16QAM	0.080	19.01
			13M0W7D	64QAM	0.056	17.49
			12M9W7D	256QAM	0.035	15.40
	Sub6 n77 (20)	3460.02 – 3540.00	18M0G7D	PI/2 BPSK	0.097	19.86
			18M0G7D	QPSK	0.096	19.83
			18M0G7D	16QAM	0.080	19.03
			18M0G7D	64QAM	0.056	17.51
			17M9G7D	256QAM	0.035	15.40
	Sub6 n77 (30)	3465.00 – 3534.99	27M0G7D	PI/2 BPSK	0.097	19.87
			27M0G7D	QPSK	0.094	19.72
			27M0G7D	16QAM	0.076	18.79
			26M9G7D	64QAM	0.053	17.24
			26M9G7D	256QAM	0.035	15.40
	Sub6 n77 (40)	3470.01 – 3529.98	35M9G7D	PI/2 BPSK	0.097	19.89
			36M0G7D	QPSK	0.095	19.78
			35M9G7D	16QAM	0.076	18.81
			35M9G7D	64QAM	0.053	17.28
			36M0G7D	256QAM	0.035	15.44
	Sub6 n77 (50)	3475.02 – 3525.00	46M1G7D	PI/2 BPSK	0.097	19.86
			46M0G7D	QPSK	0.098	19.91
			45M9W7D	16QAM	0.077	18.89
			46M0W7D	64QAM	0.054	17.32
			46M0W7D	256QAM	0.035	15.42
	Sub6 n77 (60)	3480.00 – 3519.99	58M2G7D	PI/2 BPSK	0.100	19.99
			58M3G7D	QPSK	0.097	19.86
			58M1W7D	16QAM	0.078	18.90
			58M2W7D	64QAM	0.055	17.44
			58M2W7D	256QAM	0.036	15.52
	Sub6 n77 (70)	3485.01 – 3514.98	64M7G7D	PI/2 BPSK	0.100	19.98
			64M8G7D	QPSK	0.099	19.94
			64M7W7D	16QAM	0.077	18.89
			64M7W7D	64QAM	0.057	17.56
			65M0W7D	256QAM	0.035	15.49
	Sub6 n77 (80)	3490.02 – 3510.00	77M8G7D	PI/2 BPSK	0.100	20.00
			77M7G7D	QPSK	0.098	19.90
			77M5W7D	16QAM	0.077	18.86
			77M5W7D	64QAM	0.055	17.43
			77M4W7D	256QAM	0.034	15.35
	Sub6 n77 (90)	3495.00 – 3504.99	87M3G7D	PI/2 BPSK	0.099	19.94
			87M2G7D	QPSK	0.098	19.93
			87M3W7D	16QAM	0.079	18.97
			87M2W7D	64QAM	0.056	17.47
			87M4W7D	256QAM	0.036	15.52
	Sub6 n77 (100)	3500.01	96M7G7D	PI/2 BPSK	0.104	20.16
			96M8G7D	QPSK	0.103	20.13
			96M7W7D	16QAM	0.084	19.22
			96M6W7D	64QAM	0.059	17.68
			96M8W7D	256QAM	0.037	15.72

2. 3700 MHz - 3980 MHz

	Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
					Max. Power (W)	Max. Power (dBm)
Power Class 3	Sub6 n77 (10)	3705.00 – 3975.00	8M69G7D	PI/2 BPSK	0.128	21.07
			8M69G7D	QPSK	0.126	21.02
			8M67W7D	16QAM	0.100	19.98
			8M68W7D	64QAM	0.069	18.38
			8M65W7D	256QAM	0.045	16.55
	Sub6 n77 (15)	3707.51 – 3972.48	13M0G7D	PI/2 BPSK	0.123	20.91
			13M0G7D	QPSK	0.121	20.83
			13M0G7D	16QAM	0.095	19.77
			13M0G7D	64QAM	0.066	18.21
			12M9G7D	256QAM	0.043	16.35
	Sub6 n77 (20)	3710.01 – 3969.99	18M0G7D	PI/2 BPSK	0.120	20.80
			18M0G7D	QPSK	0.120	20.78
			18M0G7D	16QAM	0.096	19.82
			18M0G7D	64QAM	0.068	18.31
			18M0G7D	256QAM	0.044	16.44
	Sub6 n77 (30)	3715.02 – 3964.98	27M0G7D	PI/2 BPSK	0.120	20.79
			27M0G7D	QPSK	0.119	20.74
			27M0G7D	16QAM	0.092	19.65
			27M1G7D	64QAM	0.067	18.24
			26M9G7D	256QAM	0.044	16.44
	Sub6 n77 (40)	3720.00 – 3960.00	35M9G7D	PI/2 BPSK	0.119	20.74
			35M9G7D	QPSK	0.117	20.70
			35M9G7D	16QAM	0.092	19.63
			36M0W7D	64QAM	0.067	18.28
			35M9W7D	256QAM	0.044	16.43
	Sub6 n77 (50)	3725.10 – 3954.99	46M1G7D	PI/2 BPSK	0.126	21.02
			46M0G7D	QPSK	0.124	20.95
			46M0G7D	16QAM	0.098	19.90
			45M9G7D	64QAM	0.071	18.49
			45M9G7D	256QAM	0.045	16.57
	Sub6 n77 (60)	3730.02 – 3949.98	58M1G7D	PI/2 BPSK	0.124	20.95
			58M2G7D	QPSK	0.124	20.94
			58M3W7D	16QAM	0.097	19.87
			58M3W7D	64QAM	0.070	18.47
			58M3W7D	256QAM	0.045	16.50
	Sub6 n77 (70)	3735.00 – 3945.00	64M8G7D	PI/2 BPSK	0.128	21.07
			64M6G7D	QPSK	0.126	21.01
			64M7W7D	16QAM	0.104	20.17
			64M8W7D	64QAM	0.070	18.42
			64M7W7D	256QAM	0.047	16.70
	Sub6 n77 (80)	3740.01 – 3939.99	77M5G7D	PI/2 BPSK	0.119	20.76
			77M5G7D	QPSK	0.118	20.72
			77M4W7D	16QAM	0.095	19.80
			77M6W7D	64QAM	0.066	18.20
			77M6W7D	256QAM	0.042	16.25
	Sub6 n77 (90)	3745.02 – 3934.98	87M0G7D	PI/2 BPSK	0.121	20.84
			87M1G7D	QPSK	0.120	20.78
			87M0W7D	16QAM	0.097	19.88
			87M0W7D	64QAM	0.068	18.30
			87M0W7D	256QAM	0.043	16.35
	Sub6 n77 (100)	3750.00 – 3930.00	96M7G7D	PI/2 BPSK	0.121	20.83
			96M5G7D	QPSK	0.120	20.80
			96M6W7D	16QAM	0.100	19.98
			96M7W7D	64QAM	0.069	18.37
			96M5W7D	256QAM	0.044	16.48

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

The EUT was a Mobile Phone with GSM/GPRS/EGPRS/UMTS and LTE, Sub 6. It also supports IEEE 802.11 a/b/g/n/ac/ax (20/40/80/160 MHz), Bluetooth(ePA), BT LE(ePA), NFC, WPT, WIFI 6E.

2.2. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

2.3. TEST FACILITY

The Fully-anechoic chamber and conducted measurement facility used to collect the radiated data are located at the **74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA.**

3. DESCRIPTION OF TESTS

3.1 TEST PROCEDURE

Test Description	Test Procedure Used
Occupied Bandwidth	- KDB 971168 D01 v03r01 – Section 4.3 - ANSI C63.26-2015 – Section 5.4.4
Band Edge	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Spurious and Harmonic Emissions at Antenna Terminal	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Conducted Output Power	- N/A (See SAR Report)
Peak- to- Average Ratio	- KDB 971168 D01 v03r01 – Section 5.7 - ANSI C63.26-2015 – Section 5.2.3.4
Frequency stability	- ANSI C63.26-2015 – Section 5.6
Effective Radiated Power/ Effective Isotropic Radiated Power	- KDB 971168 D01 v03r01 – Section 5.2 & 5.8 - ANSI/TIA-603-E-2016 – Section 2.2.17
Radiated Spurious and Harmonic Emissions	- KDB 971168 D01 v03r01 – Section 6.2 - ANSI/TIA-603-E-2016 – Section 2.2.12

3.2 RADIATED POWER

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

The equipment under test is placed on a non-conductive table 3-meters away from the receive antenna in accordance with ANSI/TIA-603-E-2016 Clause 2.2.17.

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5 % of the expected OBW, not to exceed 1 MHz
3. VBW $\geq$ 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 10th harmonics from 9 kHz.

Test Note

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

The spurious emissions is calculated by the following formula;

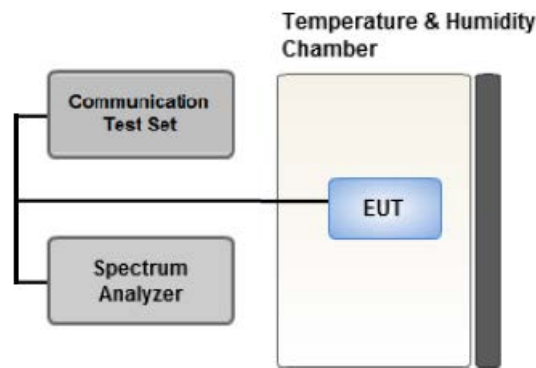
$$\text{Result}_{(\text{dBm})} = P_g_{(\text{dBm})} - \text{cable loss}_{(\text{dB})} + \text{antenna gain}_{(\text{dBi})}$$

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.

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

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)

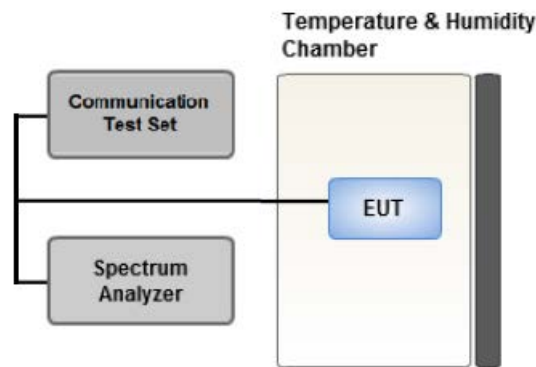
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW $\geq 3 \times$ RBW.

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 $[10 \log (1/0.25)] = 6 \text{ dB}$ 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.

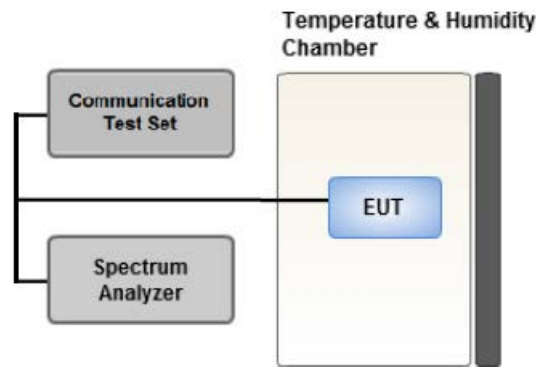
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

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 $\geq 3 \times$ 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

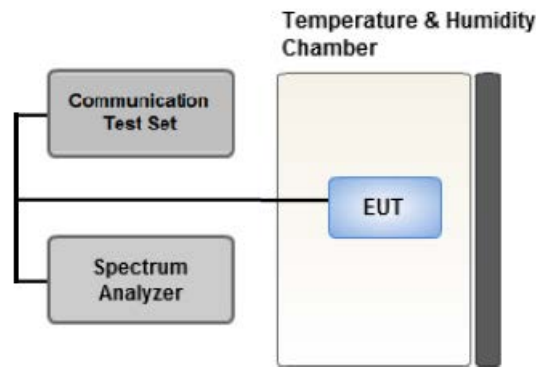
Test Overview

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 $\geq 2 \times \text{Span/RBW}$
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.

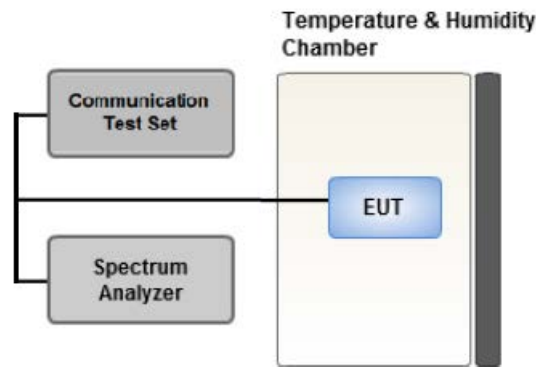
However, in the 1 megahertz bands immediately outside and adjacent to the licensee's frequency block, the minimum resolution bandwidth for the measurement shall be either one percent of the emission bandwidth of the fundamental emission of the transmitter or 350 kHz.

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 $\text{Margin} < 1$ 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: PC3 Only (SA, NSA)
Worst case: SA mode
Mode : Stand alone, Stand alone + External accessories (Earphone, AC adapter, etc)
Worst case : Stand alone
- All simultaneous transmission scenarios of operation were investigated, and the test results showed no additional significant emissions relative to the least restrictive limit were observed.
Therefore, only the worst case(stand-alone) results were reported.
- Radiated Spurious emissions are measured while operating in EN-DC mode with Sub 6 NR carrier as well as an LTE carrier (anchor).
All EN-DC mode of operation (=anchor) were investigated and the test results were measured No Peak Found.
The test results which are attenuated more than 20 dB below the permissible value, so it was not reported.
- All power classes were tested, and the results were reported for the worst case PC3. (PC3 Only)
- 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), 10 MHz(3700 MHz - 3980 MHz))
- SM-S721B/DS & additional models were tested and the worst case results are reported.
(Worst case : SM-S721B/DS)

[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		X

[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		Z
Radiated Spurious and Harmonic Emissions	PI/2 BPSK	See Section 9.2		X

3.10 WORST CASE(CONDUCTED TEST)

- Waveform : All Waveform of operation were investigated and the worst case configuration results are reported.
(Worst case: DFT-S-OFDM)
- Modulation : All Modulation of operation were investigated and the worst case configuration results are reported.
(Worst case: PI/2 BPSK)
- All modes of operation were investigated and the worst case configuration results are reported.
Mode: PC3 Only (SA, NSA)
Worst case: SA mode
- All power classes were tested, and the results were reported for the worst case PC3. (PC3 Only)
- All RB sizes, offsets of operation were investigated and the worst case configuration results are reported.
Please refer to the table below.
- SM-S721B/DS & additional models were tested and the worst case results are reported.
(Worst case : SM-S721B/DS)

[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	03/10/2026	Biennial
Precision Dipole Antenna	UHAP	Schwarzbeck	01274	03/10/2026	Biennial
Horn Antenna(1~18 GHz)	BBHA 9120D	Schwarzbeck	02289	02/14/2026	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	01/16/2025	Biennial
Bilog Antenna	VULB9160	Schwarzbeck	3150	03/09/2025	Biennial
Hybrid Antenna	VULB9160	Schwarzbeck	760	02/24/2025	Biennial
RF Switching System	FBSR-06B (1G HPF + LNA)	T&M SYSTEM	F3L1	05/14/2025	Annual
RF Switching System	FBSR-06B (3G HPF + LNA)	T&M SYSTEM	F3L2	05/14/2025	Annual
RF Switching System	FBSR-06B (6G HPF + LNA)	T&M SYSTEM	F3L3	05/14/2025	Annual
RF Switching System	FBSR-06B (LNA)	T&M SYSTEM	F3L4	05/14/2025	Annual
Power Amplifier	CBL18265035	CERNEX	22966	11/17/2024	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/26/2025	Annual
DC Power Supply	E3632A	Hewlett Packard	MY40004427	08/25/2024	Annual
Power Splitter(DC~26.5 GHz)	11667B	Hewlett Packard	11275	02/29/2025	Annual
Chamber	SU-642	ESPEC	93008124	02/19/2025	Annual
Signal Analyzer(10 Hz~26.5 GHz)	N9020A	Agilent	MY51110063	04/04/2025	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	04/17/2025	Annual
Spectrum Analyzer(10 Hz~40 GHz)	FSV40	REOHDE & SCHWARZ	101436	02/13/2025	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/10/2024	Annual
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262287701	05/16/2025	Annual
Wideband Radio Communication Tester	MT8000A	Anritsu Corp.	6262302511	05/14/2025	Annual
Signal Analyzer(5 Hz~40.0 GHz)	N9030B	KEYSIGHT	MY55480167	05/17/2025	Annual
4-Way Divider	ZC4PD-K1844+	Mini-Circuits	942907	09/19/2024	Annual
FCC LTE Mobile Conducted RF Automation Test Software	-	HCT CO., LTD.,	-	-	-

Note:

- Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.
- Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2017).

5. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4:2014.

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

Parameter	Expanded Uncertainty ($\pm$ dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.98 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.36 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.70 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.52 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.66 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (Above 40 GHz)	5.58 (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	<u>See Note1</u>
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

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

- 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
20175	1,732.50	-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(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	Offset
3455.01	Sub6 n77/ 10 MHz [30 kHz]	PI/2 BPSK	-26.26	11.68	11.20	2.96	H	< 1.00	0.098	19.93	1	1
		QPSK	-26.32	11.62	11.20	2.96	H		0.097	19.87		
		16-QAM	-27.23	10.71	11.20	2.96	H		0.079	18.96		
		64-QAM	-28.85	9.09	11.20	2.96	H		0.054	17.34		
		256-QAM	-30.68	7.26	11.20	2.96	H		0.036	15.51		
3500.01		PI/2 BPSK	-26.66	11.59	11.30	3.00	H		0.098	19.89	1	22
		QPSK	-26.76	11.49	11.30	3.00	H		0.095	19.79		
		16-QAM	-27.62	10.63	11.30	3.00	H		0.078	18.93		
		64-QAM	-29.20	9.05	11.30	3.00	H		0.054	17.35		
		256-QAM	-31.21	7.04	11.30	3.00	H		0.034	15.34		
3544.98		PI/2 BPSK	-26.90	11.17	11.35	3.02	H		0.089	19.50	1	12
		QPSK	-26.91	11.16	11.35	3.02	H		0.089	19.49		
		16-QAM	-27.94	10.13	11.35	3.02	H		0.070	18.46		
		64-QAM	-29.50	8.57	11.35	3.02	H		0.049	16.90		
		256-QAM	-31.41	6.66	11.35	3.02	H		0.032	14.99		

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
3457.50		PI/2 BPSK	-26.26	11.65	11.20	2.95	H	< 1.00	0.098	19.90	1	1
		QPSK	-26.28	11.63	11.20	2.95	H		0.097	19.88		
		16-QAM	-27.34	10.57	11.20	2.95	H		0.076	18.82		
		64-QAM	-28.67	9.24	11.20	2.95	H		0.056	17.49		
		256-QAM	-30.76	7.15	11.20	2.95	H		0.035	15.40		
3500.01	Sub6 n77/ 15 MHz [30 kHz]	PI/2 BPSK	-26.59	11.66	11.30	3.00	H	< 1.00	0.099	19.96	1	19
		QPSK	-26.75	11.50	11.30	3.00	H		0.096	19.80		
		16-QAM	-27.54	10.71	11.30	3.00	H		0.080	19.01		
		64-QAM	-29.17	9.08	11.30	3.00	H		0.055	17.38		
		256-QAM	-31.17	7.08	11.30	3.00	H		0.035	15.38		
3542.50		PI/2 BPSK	-26.86	11.09	11.30	3.02	H	< 1.00	0.087	19.37	1	19
		QPSK	-26.87	11.08	11.30	3.02	H		0.086	19.36		
		16-QAM	-27.94	10.01	11.30	3.02	H		0.067	18.29		
		64-QAM	-29.35	8.60	11.30	3.02	H		0.049	16.88		
		256-QAM	-31.36	6.59	11.30	3.02	H		0.031	14.87		

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		PI/2 BPSK	-26.30	11.61	11.20	2.95	H	< 1.00	0.097	19.86	1	1
		QPSK	-26.33	11.58	11.20	2.95	H		0.096	19.83		
		16-QAM	-27.13	10.78	11.20	2.95	H		0.080	19.03		
		64-QAM	-28.77	9.14	11.20	2.95	H		0.055	17.39		
		256-QAM	-30.85	7.06	11.20	2.95	H		0.034	15.31		
3500.01	Sub6 n77/ 20 MHz [30 kHz]	PI/2 BPSK	-26.70	11.55	11.30	3.00	H	< 1.00	0.097	19.85	1	25
		QPSK	-26.74	11.51	11.30	3.00	H		0.096	19.81		
		16-QAM	-27.53	10.72	11.30	3.00	H		0.080	19.02		
		64-QAM	-29.04	9.21	11.30	3.00	H		0.056	17.51		
		256-QAM	-31.15	7.10	11.30	3.00	H		0.035	15.40		
3540.00		PI/2 BPSK	-26.90	11.05	11.30	3.02	H	< 1.00	0.086	19.33	1	25
		QPSK	-26.93	11.02	11.30	3.02	H		0.085	19.30		
		16-QAM	-27.68	10.27	11.30	3.02	H		0.072	18.55		
		64-QAM	-29.37	8.58	11.30	3.02	H		0.049	16.86		
		256-QAM	-31.41	6.54	11.30	3.02	H		0.030	14.82		

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	-26.37	11.50	11.20	2.95	H	< 1.00	0.094	19.75	1	1
		QPSK	-26.43	11.44	11.20	2.95	H		0.093	19.69		
		16-QAM	-27.41	10.46	11.20	2.95	H		0.074	18.71		
		64-QAM	-28.92	8.95	11.20	2.95	H		0.052	17.20		
		256-QAM	-30.83	7.04	11.20	2.95	H		0.034	15.29		
3500.01		PI/2 BPSK	-26.68	11.57	11.30	3.00	H		0.097	19.87	1	39
		QPSK	-26.83	11.42	11.30	3.00	H		0.094	19.72		
		16-QAM	-27.76	10.49	11.30	3.00	H		0.076	18.79		
		64-QAM	-29.31	8.94	11.30	3.00	H		0.053	17.24		
		256-QAM	-31.15	7.10	11.30	3.00	H		0.035	15.40		
3534.99		PI/2 BPSK	-26.88	11.03	11.30	3.01	H	0.086	19.33	1	39	
		QPSK	-26.90	11.01	11.30	3.01	H	0.085	19.31			
		16-QAM	-28.00	9.91	11.30	3.01	H	0.066	18.21			
		64-QAM	-29.51	8.40	11.30	3.01	H	0.047	16.70			
		256-QAM	-31.36	6.55	11.30	3.01	H	0.031	14.85			

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	-26.35	11.48	11.20	2.95	H	< 1.00	0.094	19.73	1	1
		QPSK	-26.40	11.43	11.20	2.95	H		0.093	19.68		
		16-QAM	-27.47	10.36	11.20	2.95	H		0.073	18.61		
		64-QAM	-28.95	8.88	11.20	2.95	H		0.052	17.13		
		256-QAM	-30.83	7.00	11.20	2.95	H		0.034	15.25		
3500.01		PI/2 BPSK	-26.66	11.59	11.30	3.00	H		0.097	19.89	1	53
		QPSK	-26.77	11.48	11.30	3.00	H		0.095	19.78		
		16-QAM	-27.74	10.51	11.30	3.00	H		0.076	18.81		
		64-QAM	-29.27	8.98	11.30	3.00	H		0.053	17.28		
		256-QAM	-31.11	7.14	11.30	3.00	H		0.035	15.44		
3529.98		PI/2 BPSK	-26.86	11.02	11.30	2.99	H		0.086	19.33	1	53
		QPSK	-26.95	10.93	11.30	2.99	H		0.084	19.24		
		16-QAM	-28.09	9.79	11.30	2.99	H		0.065	18.10		
		64-QAM	-29.40	8.48	11.30	2.99	H		0.048	16.79		
		256-QAM	-31.27	6.61	11.30	2.99	H		0.031	14.92		

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
3475.02	Sub6 n77/ 50 MHz [30 kHz]	PI/2 BPSK	-26.29	11.59	11.20	2.97	H	< 1.00	0.096	19.82	1	1
		QPSK	-26.30	11.58	11.20	2.97	H		0.096	19.81		
		16-QAM	-27.29	10.59	11.20	2.97	H		0.076	18.82		
		64-QAM	-28.79	9.09	11.20	2.97	H		0.054	17.32		
		256-QAM	-30.70	7.18	11.20	2.97	H		0.035	15.41		
3500.01		PI/2 BPSK	-26.69	11.56	11.30	3.00	H		0.097	19.86	1	66
		QPSK	-26.64	11.61	11.30	3.00	H		0.098	19.91		
		16-QAM	-27.66	10.59	11.30	3.00	H		0.077	18.89		
		64-QAM	-29.25	9.00	11.30	3.00	H		0.054	17.30		
		256-QAM	-31.13	7.12	11.30	3.00	H		0.035	15.42		
3525.00		PI/2 BPSK	-26.73	11.17	11.30	2.98	H		0.089	19.49	1	66
		QPSK	-26.85	11.05	11.30	2.98	H		0.087	19.37		
		16-QAM	-27.68	10.22	11.30	2.98	H		0.071	18.54		
		64-QAM	-29.29	8.61	11.30	2.98	H		0.049	16.93		
		256-QAM	-31.28	6.62	11.30	2.98	H		0.031	14.94		

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	-26.33	11.61	11.20	2.99	H	< 1.00	0.096	19.82	1	1
		QPSK	-26.34	11.60	11.20	2.99	H		0.096	19.81		
		16-QAM	-27.28	10.66	11.20	2.99	H		0.077	18.87		
		64-QAM	-28.71	9.23	11.20	2.99	H		0.055	17.44		
		256-QAM	-30.72	7.22	11.20	2.99	H		0.035	15.43		
3500.01		PI/2 BPSK	-26.56	11.69	11.30	3.00	H		0.100	19.99	1	81
		QPSK	-26.69	11.56	11.30	3.00	H		0.097	19.86		
		16-QAM	-27.65	10.60	11.30	3.00	H		0.078	18.90		
		64-QAM	-29.14	9.11	11.30	3.00	H		0.055	17.41		
		256-QAM	-31.03	7.22	11.30	3.00	H		0.036	15.52		
3519.99		PI/2 BPSK	-26.47	11.45	11.30	2.97	H		0.095	19.78	1	81
		QPSK	-26.57	11.35	11.30	2.97	H		0.093	19.68		
		16-QAM	-27.63	10.29	11.30	2.97	H		0.073	18.62		
		64-QAM	-28.97	8.95	11.30	2.97	H		0.053	17.28		
		256-QAM	-31.08	6.84	11.30	2.97	H		0.033	15.17		

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	Offset
3485.01	Sub6 n77/ 70 MHz [30 kHz]	PI/2 BPSK	-26.23	11.78	11.20	3.00	H	< 1.00	0.100	19.98	1	1
		QPSK	-26.27	11.74	11.20	3.00	H		0.099	19.94		
		16-QAM	-27.33	10.68	11.20	3.00	H		0.077	18.88		
		64-QAM	-28.74	9.27	11.20	3.00	H		0.056	17.47		
		256-QAM	-30.73	7.28	11.20	3.00	H		0.035	15.48		
3500.01		PI/2 BPSK	-26.70	11.55	11.30	3.00	H		0.097	19.85	1	94
		QPSK	-26.71	11.54	11.30	3.00	H		0.096	19.84		
		16-QAM	-27.75	10.50	11.30	3.00	H		0.076	18.80		
		64-QAM	-28.99	9.26	11.30	3.00	H		0.057	17.56		
		256-QAM	-31.06	7.19	11.30	3.00	H		0.035	15.49		
3514.98		PI/2 BPSK	-26.52	11.54	11.30	2.98	H		0.097	19.87	1	94
		QPSK	-26.63	11.43	11.30	2.98	H		0.095	19.76		
		16-QAM	-27.50	10.56	11.30	2.98	H		0.077	18.89		
		64-QAM	-29.15	8.91	11.30	2.98	H		0.053	17.24		
		256-QAM	-31.04	7.02	11.30	2.98	H		0.034	15.35		

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		PI/2 BPSK	-26.44	11.64	11.20	3.00	H	< 1.00	0.096	19.84	1	1
		QPSK	-26.45	11.63	11.20	3.00	H		0.096	19.83		
		16-QAM	-27.59	10.49	11.20	3.00	H		0.074	18.69		
		64-QAM	-28.85	9.23	11.20	3.00	H		0.055	17.43		
		256-QAM	-30.93	7.15	11.20	3.00	H		0.034	15.35		
3500.01	Sub6 n77/ 80 MHz [30 kHz]	PI/2 BPSK	-26.71	11.54	11.30	3.00	H	< 1.00	0.096	19.84	1	108
		QPSK	-26.73	11.52	11.30	3.00	H		0.096	19.82		
		16-QAM	-27.76	10.49	11.30	3.00	H		0.076	18.79		
		64-QAM	-29.13	9.12	11.30	3.00	H		0.055	17.42		
		256-QAM	-31.20	7.05	11.30	3.00	H		0.034	15.35		
3510.00		PI/2 BPSK	-26.53	11.68	11.30	2.98	H	< 1.00	0.100	20.00	1	108
		QPSK	-26.63	11.58	11.30	2.98	H		0.098	19.90		
		16-QAM	-27.67	10.54	11.30	2.98	H		0.077	18.86		
		64-QAM	-29.24	8.97	11.30	2.98	H		0.054	17.29		
		256-QAM	-31.20	7.01	11.30	2.98	H		0.034	15.33		

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	-26.52	11.65	11.25	3.00	H	< 1.00	0.098	19.90	1	1
		QPSK	-26.56	11.61	11.25	3.00	H		0.097	19.86		
		16-QAM	-27.55	10.62	11.25	3.00	H		0.077	18.87		
		64-QAM	-29.20	8.97	11.25	3.00	H		0.053	17.22		
		256-QAM	-30.96	7.21	11.25	3.00	H		0.035	15.46		
3500.01		PI/2 BPSK	-26.67	11.58	11.30	3.00	H		0.097	19.88	1	1
		QPSK	-26.68	11.57	11.30	3.00	H		0.097	19.87		
		16-QAM	-27.74	10.51	11.30	3.00	H		0.076	18.81		
		64-QAM	-29.21	9.04	11.30	3.00	H		0.054	17.34		
		256-QAM	-31.21	7.04	11.30	3.00	H		0.034	15.34		
3504.99		PI/2 BPSK	-26.60	11.63	11.30	2.99	H		0.099	19.94	1	122
		QPSK	-26.61	11.62	11.30	2.99	H		0.098	19.93		
		16-QAM	-27.57	10.66	11.30	2.99	H		0.079	18.97		
		64-QAM	-29.07	9.16	11.30	2.99	H		0.056	17.47		
		256-QAM	-31.02	7.21	11.30	2.99	H		0.036	15.52		

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
3500.01	Sub6 n77/ 100 MHz [30 kHz]	PI/2 BPSK	-26.39	11.86	11.30	3.00	H	< 1.00	0.104	20.16	1	1
		QPSK	-26.42	11.83	11.30	3.00	H		0.103	20.13		
		16-QAM	-27.33	10.92	11.30	3.00	H		0.084	19.22		
		64-QAM	-28.87	9.38	11.30	3.00	H		0.059	17.68		
		256-QAM	-30.83	7.42	11.30	3.00	H		0.037	15.72		

8.2 RADIATED SPURIOUS EMISSIONS

■ NR Band:	<u>N77(78)</u>
■ Bandwidth:	<u>100 MHz</u>
■ Modulation:	<u>PI/2 BPSK</u>
■ Distance:	<u>1 meters</u>
■ SCS:	<u>30 kHz</u>

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	-65.44	10.90	-59.52	4.32	V	-52.94	-13.00	1	1
	10 500.03	-64.15	11.30	-53.55	5.41	V	-47.66	-13.00		
	14 000.04	-61.29	12.30	-51.94	6.35	V	-45.99	-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	4.25
			QPSK			5.26
			16-QAM			5.76
			64-QAM			5.99
			256-QAM			5.93
	15 MHz		BPSK			4.96
			QPSK			5.26
			16-QAM			5.69
			64-QAM			5.77
			256-QAM			5.97
	20 MHz		BPSK			5.25
			QPSK			5.40
			16-QAM			5.71
			64-QAM			6.05
			256-QAM			6.04
	30 MHz		BPSK			4.36
			QPSK			5.33
			16-QAM			5.73
			64-QAM			6.00
			256-QAM			6.02
	40 MHz		BPSK			5.70
			QPSK			5.74
			16-QAM			5.93
			64-QAM			6.10
			256-QAM			6.16
	50 MHz		BPSK			4.28
			QPSK			5.34
			16-QAM			5.78
			64-QAM			5.98
			256-QAM			6.10
	60 MHz		BPSK			4.29
			QPSK			5.31
			16-QAM			5.74
			64-QAM			5.98
			256-QAM			6.10
	70 MHz		BPSK			4.55
			QPSK			5.35
			16-QAM			5.73
			64-QAM			5.99
			256-QAM			6.05
	80 MHz		BPSK			4.87
			QPSK			5.34
			16-QAM			5.76
			64-QAM			5.96

			256-QAM			6.08
	90 MHz		BPSK			4.63
			QPSK			5.31
			16-QAM			5.76
			64-QAM			5.96
			256-QAM			6.09
	100 MHz		BPSK			4.24
			QPSK			5.31
			16-QAM			5.73
			64-QAM			5.96
			256-QAM			6.00

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 87 ~ 141.

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	8.7022
			QPSK			8.7126
			16-QAM			8.6511
			64-QAM			8.7075
			256-QAM			8.6888
	15 MHz		BPSK			12.959
			QPSK			12.974
			16-QAM			12.998
			64-QAM			12.988
			256-QAM			12.931
	20 MHz		BPSK			17.990
			QPSK			18.002
			16-QAM			17.964
			64-QAM			18.020
			256-QAM			17.919
	30 MHz		BPSK			27.029
			QPSK			26.968
			16-QAM			27.002
			64-QAM			26.930
			256-QAM			26.934
	40 MHz		BPSK			35.881
			QPSK			35.983
			16-QAM			35.891
			64-QAM			35.879
			256-QAM			35.983
	50 MHz		BPSK			46.064
			QPSK			45.961
			16-QAM			45.934
			64-QAM			45.945
			256-QAM			45.997
	60 MHz		BPSK			58.242
			QPSK			58.283
			16-QAM			58.098
			64-QAM			58.232
			256-QAM			58.209
	70 MHz		BPSK			64.685
			QPSK			64.832
			16-QAM			64.709
			64-QAM			64.668
			256-QAM			64.966
	80 MHz		BPSK			77.771

			QPSK			77.646	
			16-QAM			77.446	
			64-QAM			77.501	
			256-QAM			77.409	
	90 MHz		BPSK			87.297	
			QPSK			87.196	
			16-QAM			87.321	
			64-QAM			87.154	
			256-QAM			87.358	
			100 MHz			BPSK	96.674
						QPSK	96.777
						16-QAM	96.675
						64-QAM	96.599
	256-QAM					96.790	

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 142 ~ 196.

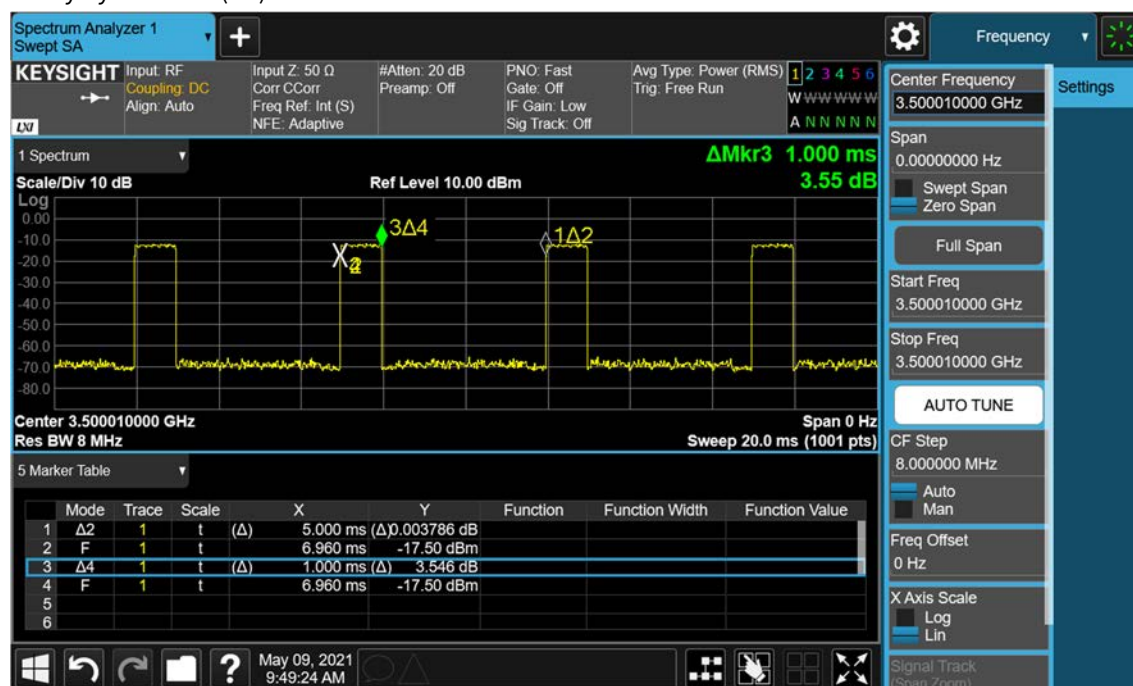
8.5 CONDUCTED SPURIOUS EMISSIONS

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
Sub6 n77	10	3455.010	4.9213	37.190	-70.527	-33.337	-13.00
		3500.010	9.7114	37.805	-70.719	-32.914	
		3544.980	9.6894	37.805	-70.879	-33.074	
	15	3457.500	8.8634	37.805	-70.830	-33.025	
		3500.010	9.1077	37.805	-70.233	-32.428	
		3542.490	8.3006	37.805	-71.039	-33.234	
	20	3460.020	8.2882	37.805	-70.832	-33.027	
		3500.010	6.0484	37.805	-70.434	-32.629	
		3540.000	9.9502	37.805	-70.878	-33.073	
	30	3465.000	9.6770	37.805	-70.169	-32.364	
		3500.010	5.1960	37.805	-70.857	-33.052	
		3534.990	9.6989	37.805	-69.810	-32.005	
	40	3470.010	10.0000	37.805	-70.315	-32.510	
		3500.010	8.8794	37.805	-70.480	-32.675	
		3529.980	9.0429	37.805	-71.153	-33.348	
	50	3475.020	8.8490	37.805	-70.316	-32.511	
		3500.010	8.8654	37.805	-70.648	-32.843	
		3525.000	5.2014	37.805	-71.172	-33.367	
	60	3480.000	9.7149	37.805	-70.730	-32.925	
		3500.010	8.0484	37.805	-70.169	-32.364	
		3519.990	9.9477	37.805	-70.350	-32.545	
	70	3485.010	9.1182	37.805	-70.284	-32.479	
		3500.010	9.6949	37.805	-70.703	-32.898	
		3514.980	9.7074	37.805	-70.373	-32.568	
	80	3490.020	9.6904	37.805	-70.513	-32.708	
		3500.010	8.2842	37.805	-70.152	-32.347	
		3510.000	6.0265	37.805	-70.594	-32.789	
	90	3495.000	8.2792	37.805	-69.915	-32.110	
		3500.010	9.4222	37.805	-71.219	-33.414	
		3504.990	9.0907	37.805	-69.325	-31.520	
	100	3500.010	5.9801	37.805	-70.663	-32.858	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 197 ~ 258.
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 259 ~ 390.
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: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3455.010	100%	+20(Ref)	3455 009 998	0.0	0.000 000	0.000
	100%	-30	3455 009 995	-2.6	0.000 000	-0.001
	100%	-20	3455 009 997	-0.2	0.000 000	0.000
	100%	-10	3455 009 994	-3.3	0.000 000	-0.001
	100%	0	3455 009 998	0.1	0.000 000	0.000
	100%	+10	3455 009 994	-4.0	0.000 000	-0.001
	100%	+30	3455 009 993	-4.3	0.000 000	-0.001
	100%	+40	3455 009 995	-2.5	0.000 000	-0.001
	100%	+50	3455 009 994	-3.7	0.000 000	-0.001
	Batt. Endpoint	+20	3455 009 995	-2.6	0.000 000	-0.001
3544.980	100%	+20(Ref)	3544 979 999	0.0	0.000 000	0.000
	100%	-30	3544 979 997	-2.7	0.000 000	-0.001
	100%	-20	3544 979 996	-2.9	0.000 000	-0.001
	100%	-10	3544 979 999	-0.2	0.000 000	0.000
	100%	0	3544 979 998	-1.7	0.000 000	0.000
	100%	+10	3544 979 998	-1.1	0.000 000	0.000
	100%	+30	3544 979 998	-1.7	0.000 000	0.000
	100%	+40	3544 979 999	-0.6	0.000 000	0.000
	100%	+50	3544 979 997	-1.9	0.000 000	-0.001
	Batt. Endpoint	+20	3544 980 000	0.7	0.000 000	0.000

- ▣ BandWidth: 15 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3457.500	100%	+20(Ref)	3457 499 999	0.0	0.000 000	0.000
	100%	-30	3457 499 998	-0.5	0.000 000	0.000
	100%	-20	3457 499 997	-1.6	0.000 000	0.000
	100%	-10	3457 500 000	1.1	0.000 000	0.000
	100%	0	3457 500 000	1.5	0.000 000	0.000
	100%	+10	3457 500 000	1.0	0.000 000	0.000
	100%	+30	3457 499 999	0.0	0.000 000	0.000
	100%	+40	3457 499 999	0.4	0.000 000	0.000
	100%	+50	3457 499 998	-1.1	0.000 000	0.000
	Batt. Endpoint	+20	3457 499 997	-1.7	0.000 000	0.000
3542.490	100%	+20(Ref)	3542 489 998	0.0	0.000 000	0.000
	100%	-30	3542 489 993	-4.7	0.000 000	-0.001
	100%	-20	3542 489 994	-4.1	0.000 000	-0.001
	100%	-10	3542 489 996	-2.4	0.000 000	-0.001
	100%	0	3542 489 995	-2.9	0.000 000	-0.001
	100%	+10	3542 489 997	-1.2	0.000 000	0.000
	100%	+30	3542 489 996	-2.1	0.000 000	-0.001
	100%	+40	3542 489 994	-3.6	0.000 000	-0.001
	100%	+50	3542 489 994	-3.7	0.000 000	-0.001
	Batt. Endpoint	+20	3542 489 994	-3.8	0.000 000	-0.001

- ▣ BandWidth: 20 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3460.020	100%	+20(Ref)	3460 019 998	0.0	0.000 000	0.000
	100%	-30	3460 019 995	-2.2	0.000 000	-0.001
	100%	-20	3460 019 996	-1.1	0.000 000	0.000
	100%	-10	3460 019 994	-3.5	0.000 000	-0.001
	100%	0	3460 019 998	0.5	0.000 000	0.000
	100%	+10	3460 019 997	-0.6	0.000 000	0.000
	100%	+30	3460 019 996	-1.6	0.000 000	0.000
	100%	+40	3460 019 996	-1.1	0.000 000	0.000
	100%	+50	3460 019 996	-1.6	0.000 000	0.000
	Batt. Endpoint	+20	3460 019 994	-3.1	0.000 000	-0.001
3540.000	100%	+20(Ref)	3539 999 996	0.0	0.000 000	0.000
	100%	-30	3539 999 994	-1.9	0.000 000	-0.001
	100%	-20	3539 999 993	-3.5	0.000 000	-0.001
	100%	-10	3539 999 993	-3.1	0.000 000	-0.001
	100%	0	3539 999 994	-2.5	0.000 000	-0.001
	100%	+10	3539 999 993	-3.3	0.000 000	-0.001
	100%	+30	3539 999 994	-2.4	0.000 000	-0.001
	100%	+40	3539 999 995	-1.1	0.000 000	0.000
	100%	+50	3539 999 994	-2.4	0.000 000	-0.001
	Batt. Endpoint	+20	3539 999 993	-3.2	0.000 000	-0.001

- ▣ BandWidth: 30 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3465.000	100%	+20(Ref)	3464 999 998	0.0	0.000 000	0.000
	100%	-30	3464 999 994	-4.1	0.000 000	-0.001
	100%	-20	3464 999 997	-1.3	0.000 000	0.000
	100%	-10	3464 999 999	0.4	0.000 000	0.000
	100%	0	3464 999 999	0.9	0.000 000	0.000
	100%	+10	3464 999 999	0.1	0.000 000	0.000
	100%	+30	3464 999 996	-2.1	0.000 000	-0.001
	100%	+40	3464 999 998	-0.3	0.000 000	0.000
	100%	+50	3464 999 995	-3.3	0.000 000	-0.001
	Batt. Endpoint	+20	3464 999 997	-1.6	0.000 000	0.000
3534.990	100%	+20(Ref)	3534 989 997	0.0	0.000 000	0.000
	100%	-30	3534 989 996	-1.0	0.000 000	0.000
	100%	-20	3534 989 994	-2.6	0.000 000	-0.001
	100%	-10	3534 989 997	0.1	0.000 000	0.000
	100%	0	3534 989 997	-0.2	0.000 000	0.000
	100%	+10	3534 989 996	-0.8	0.000 000	0.000
	100%	+30	3534 989 995	-1.7	0.000 000	0.000
	100%	+40	3534 989 996	-1.0	0.000 000	0.000
	100%	+50	3534 989 999	2.1	0.000 000	0.001
	Batt. Endpoint	+20	3534 989 996	-1.1	0.000 000	0.000

- ▣ BandWidth: 40 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3470.010	100%	+20(Ref)	3470 009 998	0.0	0.000 000	0.000
	100%	-30	3470 009 997	-0.7	0.000 000	0.000
	100%	-20	3470 009 995	-2.5	0.000 000	-0.001
	100%	-10	3470 009 994	-3.6	0.000 000	-0.001
	100%	0	3470 009 998	0.5	0.000 000	0.000
	100%	+10	3470 009 994	-3.2	0.000 000	-0.001
	100%	+30	3470 009 994	-3.5	0.000 000	-0.001
	100%	+40	3470 009 995	-2.4	0.000 000	-0.001
	100%	+50	3470 009 996	-1.8	0.000 000	-0.001
	Batt. Endpoint	+20	3470 009 994	-3.2	0.000 000	-0.001
3529.980	100%	+20(Ref)	3529 979 998	0.0	0.000 000	0.000
	100%	-30	3529 979 996	-2.0	0.000 000	-0.001
	100%	-20	3529 979 996	-1.8	0.000 000	-0.001
	100%	-10	3529 979 994	-4.0	0.000 000	-0.001
	100%	0	3529 979 997	-0.7	0.000 000	0.000
	100%	+10	3529 979 997	-0.2	0.000 000	0.000
	100%	+30	3529 979 998	0.0	0.000 000	0.000
	100%	+40	3529 979 994	-3.4	0.000 000	-0.001
	100%	+50	3529 979 995	-2.7	0.000 000	-0.001
	Batt. Endpoint	+20	3529 979 998	0.1	0.000 000	0.000

- ▣ BandWidth: 50 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3475.020	100%	+20(Ref)	3475 019 998	0.0	0.000 000	0.000
	100%	-30	3475 019 994	-3.4	0.000 000	-0.001
	100%	-20	3475 019 995	-3.1	0.000 000	-0.001
	100%	-10	3475 019 993	-5.1	0.000 000	-0.001
	100%	0	3475 019 994	-3.4	0.000 000	-0.001
	100%	+10	3475 019 993	-4.5	0.000 000	-0.001
	100%	+30	3475 019 996	-1.8	0.000 000	-0.001
	100%	+40	3475 019 998	0.4	0.000 000	0.000
	100%	+50	3475 019 997	-0.3	0.000 000	0.000
	Batt. Endpoint	+20	3475 019 996	-1.9	0.000 000	-0.001
3525.000	100%	+20(Ref)	3524 999 997	0.0	0.000 000	0.000
	100%	-30	3524 999 995	-2.6	0.000 000	-0.001
	100%	-20	3524 999 996	-1.6	0.000 000	0.000
	100%	-10	3524 999 998	0.7	0.000 000	0.000
	100%	0	3524 999 998	0.9	0.000 000	0.000
	100%	+10	3524 999 995	-1.7	0.000 000	0.000
	100%	+30	3524 999 995	-1.8	0.000 000	-0.001
	100%	+40	3524 999 997	-0.3	0.000 000	0.000
	100%	+50	3524 999 996	-1.0	0.000 000	0.000
	Batt. Endpoint	+20	3524 999 998	0.9	0.000 000	0.000

- ▣ BandWidth: 60 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3480.000	100%	+20(Ref)	3479 999 998	0.0	0.000 000	0.000
	100%	-30	3479 999 995	-2.1	0.000 000	-0.001
	100%	-20	3479 999 997	-0.5	0.000 000	0.000
	100%	-10	3479 999 996	-1.2	0.000 000	0.000
	100%	0	3479 999 993	-4.6	0.000 000	-0.001
	100%	+10	3479 999 994	-3.9	0.000 000	-0.001
	100%	+30	3479 999 996	-1.2	0.000 000	0.000
	100%	+40	3479 999 996	-2.1	0.000 000	-0.001
	100%	+50	3479 999 995	-2.6	0.000 000	-0.001
	Batt. Endpoint	+20	3479 999 997	-0.9	0.000 000	0.000
3519.990	100%	+20(Ref)	3519 989 999	0.0	0.000 000	0.000
	100%	-30	3519 989 998	-0.8	0.000 000	0.000
	100%	-20	3519 989 997	-1.1	0.000 000	0.000
	100%	-10	3519 989 999	0.3	0.000 000	0.000
	100%	0	3519 989 998	-0.5	0.000 000	0.000
	100%	+10	3519 989 994	-4.1	0.000 000	-0.001
	100%	+30	3519 989 996	-2.3	0.000 000	-0.001
	100%	+40	3519 989 998	-0.7	0.000 000	0.000
	100%	+50	3519 989 997	-1.8	0.000 000	-0.001
	Batt. Endpoint	+20	3519 989 996	-2.6	0.000 000	-0.001

- ▣ BandWidth: 70 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3485.010	100%	+20(Ref)	3485 009 999	0.0	0.000 000	0.000
	100%	-30	3485 009 998	-0.6	0.000 000	0.000
	100%	-20	3485 009 996	-2.4	0.000 000	-0.001
	100%	-10	3485 009 995	-4.2	0.000 000	-0.001
	100%	0	3485 009 996	-2.9	0.000 000	-0.001
	100%	+10	3485 009 995	-4.0	0.000 000	-0.001
	100%	+30	3485 009 995	-4.0	0.000 000	-0.001
	100%	+40	3485 009 995	-3.8	0.000 000	-0.001
	100%	+50	3485 009 996	-3.1	0.000 000	-0.001
	Batt. Endpoint	+20	3485 009 997	-1.7	0.000 000	0.000
3514.980	100%	+20(Ref)	3514 979 996	0.0	0.000 000	0.000
	100%	-30	3514 979 991	-4.7	0.000 000	-0.001
	100%	-20	3514 979 993	-2.9	0.000 000	-0.001
	100%	-10	3514 979 994	-2.6	0.000 000	-0.001
	100%	0	3514 979 996	-0.2	0.000 000	0.000
	100%	+10	3514 979 992	-4.4	0.000 000	-0.001
	100%	+30	3514 979 992	-4.4	0.000 000	-0.001
	100%	+40	3514 979 994	-1.9	0.000 000	-0.001
	100%	+50	3514 979 994	-2.6	0.000 000	-0.001
	Batt. Endpoint	+20	3514 979 994	-1.9	0.000 000	-0.001

- ▣ BandWidth: 80 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3490.020	100%	+20(Ref)	3490 019 998	0.0	0.000 000	0.000
	100%	-30	3490 019 996	-1.9	0.000 000	-0.001
	100%	-20	3490 019 997	-1.3	0.000 000	0.000
	100%	-10	3490 019 996	-1.8	0.000 000	-0.001
	100%	0	3490 019 997	-1.1	0.000 000	0.000
	100%	+10	3490 019 997	-0.8	0.000 000	0.000
	100%	+30	3490 019 997	-1.4	0.000 000	0.000
	100%	+40	3490 019 996	-2.2	0.000 000	-0.001
	100%	+50	3490 019 998	-0.3	0.000 000	0.000
	Batt. Endpoint	+20	3490 019 995	-2.9	0.000 000	-0.001
3510.000	100%	+20(Ref)	3509 999 998	0.0	0.000 000	0.000
	100%	-30	3509 999 997	-1.8	0.000 000	-0.001
	100%	-20	3509 999 996	-2.6	0.000 000	-0.001
	100%	-10	3509 999 998	-0.5	0.000 000	0.000
	100%	0	3509 999 995	-3.0	0.000 000	-0.001
	100%	+10	3509 999 997	-1.2	0.000 000	0.000
	100%	+30	3509 999 997	-1.2	0.000 000	0.000
	100%	+40	3509 999 996	-2.4	0.000 000	-0.001
	100%	+50	3509 999 997	-1.6	0.000 000	0.000
	Batt. Endpoint	+20	3509 999 997	-1.1	0.000 000	0.000

- ▣ BandWidth: 90 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3495.000	100%	+20(Ref)	3494 999 997	0.0	0.000 000	0.000
	100%	-30	3494 999 997	-0.4	0.000 000	0.000
	100%	-20	3494 999 994	-3.3	0.000 000	-0.001
	100%	-10	3494 999 997	-0.7	0.000 000	0.000
	100%	0	3494 999 994	-3.5	0.000 000	-0.001
	100%	+10	3494 999 994	-3.2	0.000 000	-0.001
	100%	+30	3494 999 994	-3.2	0.000 000	-0.001
	100%	+40	3494 999 996	-1.7	0.000 000	0.000
	100%	+50	3494 999 995	-2.1	0.000 000	-0.001
	Batt. Endpoint	+20	3494 999 995	-2.1	0.000 000	-0.001
3504.990	100%	+20(Ref)	3504 989 999	0.0	0.000 000	0.000
	100%	-30	3504 989 998	-1.2	0.000 000	0.000
	100%	-20	3504 989 998	-1.0	0.000 000	0.000
	100%	-10	3504 989 995	-3.9	0.000 000	-0.001
	100%	0	3504 989 999	0.0	0.000 000	0.000
	100%	+10	3504 989 999	0.0	0.000 000	0.000
	100%	+30	3504 989 997	-1.5	0.000 000	0.000
	100%	+40	3504 989 997	-1.8	0.000 000	-0.001
	100%	+50	3504 989 998	-0.9	0.000 000	0.000
	Batt. Endpoint	+20	3504 990 000	0.9	0.000 000	0.000

- ▣ BandWidth: 100 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3500.010	100%	+20(Ref)	3500 009 996	0.0	0.000 000	0.000
	100%	-30	3500 009 994	-2.6	0.000 000	-0.001
	100%	-20	3500 009 992	-4.8	0.000 000	-0.001
	100%	-10	3500 009 992	-4.8	0.000 000	-0.001
	100%	0	3500 009 994	-2.8	0.000 000	-0.001
	100%	+10	3500 009 994	-2.8	0.000 000	-0.001
	100%	+30	3500 009 995	-1.8	0.000 000	-0.001
	100%	+40	3500 009 994	-2.6	0.000 000	-0.001
	100%	+50	3500 009 996	-0.9	0.000 000	0.000
	Batt. Endpoint	+20	3500 009 991	-5.2	0.000 000	-0.001

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	Offset
3705.00	Sub6 n77/ 10 MHz [30 kHz]	PI/2 BPSK	-26.14	12.35	11.40	3.09	H	< 1.00	0.116	20.66	1	1
		QPSK	-26.23	12.26	11.40	3.09	H		0.114	20.57		
		16-QAM	-27.10	11.39	11.40	3.09	H		0.093	19.70		
		64-QAM	-28.64	9.85	11.40	3.09	H		0.066	18.16		
		256-QAM	-30.65	7.84	11.40	3.09	H		0.041	16.15		
3840.00		PI/2 BPSK	-26.57	13.11	11.10	3.14	H		0.128	21.07	1	12
		QPSK	-26.62	13.06	11.10	3.14	H		0.126	21.02		
		16-QAM	-27.66	12.02	11.10	3.14	H		0.100	19.98		
		64-QAM	-29.26	10.42	11.10	3.14	H		0.069	18.38		
		256-QAM	-31.09	8.59	11.10	3.14	H		0.045	16.55		
3975.00		PI/2 BPSK	-27.05	12.60	10.90	3.20	H		0.107	20.30	1	1
		QPSK	-27.11	12.54	10.90	3.20	H		0.106	20.24		
		16-QAM	-28.11	11.54	10.90	3.20	H		0.084	19.24		
		64-QAM	-29.66	9.99	10.90	3.20	H		0.059	17.69		
		256-QAM	-31.51	8.14	10.90	3.20	H		0.038	15.84		

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	-26.07	12.42	11.40	3.09	H	< 1.00	0.118	20.73	1	1
		QPSK	-26.12	12.37	11.40	3.09	H		0.117	20.68		
		16-QAM	-27.25	11.24	11.40	3.09	H		0.090	19.55		
		64-QAM	-28.59	9.90	11.40	3.09	H		0.066	18.21		
		256-QAM	-30.59	7.90	11.40	3.09	H		0.042	16.21		
3840.00		PI/2 BPSK	-26.73	12.95	11.10	3.14	H		0.123	20.91	1	19
		QPSK	-26.81	12.87	11.10	3.14	H		0.121	20.83		
		16-QAM	-27.87	11.81	11.10	3.14	H		0.095	19.77		
		64-QAM	-29.46	10.22	11.10	3.14	H		0.066	18.18		
		256-QAM	-31.29	8.39	11.10	3.14	H		0.043	16.35		
3972.48		PI/2 BPSK	-26.95	12.70	10.90	3.20	H		0.110	20.40	1	1
		QPSK	-26.96	12.69	10.90	3.20	H		0.109	20.39		
		16-QAM	-27.91	11.74	10.90	3.20	H		0.088	19.44		
		64-QAM	-29.54	10.11	10.90	3.20	H		0.060	17.81		
		256-QAM	-31.57	8.08	10.90	3.20	H		0.038	15.78		

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
3710.01	Sub6 n77/ 20 MHz [30 kHz]	PI/2 BPSK	-26.15	12.37	11.40	3.11	H	< 1.00	0.116	20.66	1	1
		QPSK	-26.16	12.36	11.40	3.11	H		0.116	20.65		
		16-QAM	-27.09	11.43	11.40	3.11	H		0.094	19.72		
		64-QAM	-28.78	9.74	11.40	3.11	H		0.064	18.03		
		256-QAM	-30.64	7.88	11.40	3.11	H		0.041	16.17		
3840.00		PI/2 BPSK	-26.84	12.84	11.10	3.14	H		0.120	20.80	1	49
		QPSK	-26.86	12.82	11.10	3.14	H		0.120	20.78		
		16-QAM	-27.82	11.86	11.10	3.14	H		0.096	19.82		
		64-QAM	-29.33	10.35	11.10	3.14	H		0.068	18.31		
		256-QAM	-31.20	8.48	11.10	3.14	H		0.044	16.44		
3969.99		PI/2 BPSK	-27.01	12.61	10.90	3.20	H	0.107	20.31	1	25	
		QPSK	-27.16	12.46	10.90	3.20	H	0.104	20.16			
		16-QAM	-28.12	11.50	10.90	3.20	H	0.083	19.20			
		64-QAM	-29.73	9.89	10.90	3.20	H	0.057	17.59			
		256-QAM	-31.68	7.94	10.90	3.20	H	0.037	15.64			

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
3715.02		PI/2 BPSK	-26.20	12.47	11.40	3.12	H	< 1.00	0.119	20.75	1	1
		QPSK	-26.25	12.42	11.40	3.12	H		0.118	20.70		
		16-QAM	-27.31	11.36	11.40	3.12	H		0.092	19.64		
		64-QAM	-28.82	9.85	11.40	3.12	H		0.065	18.13		
		256-QAM	-30.51	8.16	11.40	3.12	H		0.044	16.44		
3840.00	Sub6 n77/ 30 MHz [30 kHz]	PI/2 BPSK	-26.85	12.83	11.10	3.14	H	< 1.00	0.120	20.79	1	76
		QPSK	-26.90	12.78	11.10	3.14	H		0.119	20.74		
		16-QAM	-27.99	11.69	11.10	3.14	H		0.092	19.65		
		64-QAM	-29.40	10.28	11.10	3.14	H		0.067	18.24		
		256-QAM	-31.36	8.32	11.10	3.14	H		0.043	16.28		
3964.98		PI/2 BPSK	-27.14	12.55	10.90	3.21	H	< 1.00	0.106	20.24	1	39
		QPSK	-27.15	12.54	10.90	3.21	H		0.105	20.23		
		16-QAM	-28.22	11.47	10.90	3.21	H		0.082	19.16		
		64-QAM	-29.58	10.11	10.90	3.21	H		0.060	17.80		
		256-QAM	-31.56	8.13	10.90	3.21	H		0.038	15.82		

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	-26.23	12.46	11.40	3.14	H	< 1.00	0.118	20.72	1	1
		QPSK	-26.27	12.42	11.40	3.14	H		0.117	20.68		
		16-QAM	-27.35	11.34	11.40	3.14	H		0.091	19.60		
		64-QAM	-28.78	9.91	11.40	3.14	H		0.066	18.17		
		256-QAM	-30.64	8.05	11.40	3.14	H		0.043	16.31		
3840.00		PI/2 BPSK	-26.90	12.78	11.10	3.14	H		0.119	20.74	1	104
		QPSK	-26.94	12.74	11.10	3.14	H		0.117	20.70		
		16-QAM	-28.01	11.67	11.10	3.14	H		0.092	19.63		
		64-QAM	-29.36	10.32	11.10	3.14	H		0.067	18.28		
		256-QAM	-31.21	8.47	11.10	3.14	H		0.044	16.43		
3960.00	PI/2 BPSK	-26.98	12.80	10.90	3.21	H	0.112	20.49	1	53		
	QPSK	-27.13	12.65	10.90	3.21	H	0.108	20.34				
	16-QAM	-28.06	11.72	10.90	3.21	H	0.087	19.41				
	64-QAM	-29.73	10.05	10.90	3.21	H	0.059	17.74				
	256-QAM	-31.38	8.40	10.90	3.21	H	0.041	16.09				

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
3725.10	Sub6 n77/ 50 MHz [30 kHz]	PI/2 BPSK	-26.08	12.76	11.40	3.14	H	< 1.00	0.126	21.02	1	1
		QPSK	-26.15	12.69	11.40	3.14	H		0.124	20.95		
		16-QAM	-27.20	11.64	11.40	3.14	H		0.098	19.90		
		64-QAM	-28.61	10.23	11.40	3.14	H		0.071	18.49		
		256-QAM	-30.53	8.31	11.40	3.14	H		0.045	16.57		
3840.00		PI/2 BPSK	-26.81	12.87	11.10	3.14	H		0.121	20.83	1	131
		QPSK	-26.87	12.81	11.10	3.14	H		0.120	20.77		
		16-QAM	-27.92	11.76	11.10	3.14	H		0.094	19.72		
		64-QAM	-29.33	10.35	11.10	3.14	H		0.068	18.31		
		256-QAM	-31.20	8.48	11.10	3.14	H		0.044	16.44		
3954.99		PI/2 BPSK	-26.96	12.83	10.90	3.21	H		0.113	20.52	1	66
		QPSK	-27.06	12.73	10.90	3.21	H		0.110	20.42		
		16-QAM	-28.03	11.76	10.90	3.21	H		0.088	19.45		
		64-QAM	-29.54	10.25	10.90	3.21	H		0.062	17.94		
		256-QAM	-31.64	8.15	10.90	3.21	H		0.038	15.84		

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	-26.17	12.69	11.40	3.14	H	< 1.00	0.124	20.95	1	1
		QPSK	-26.18	12.68	11.40	3.14	H		0.124	20.94		
		16-QAM	-27.25	11.61	11.40	3.14	H		0.097	19.87		
		64-QAM	-28.65	10.21	11.40	3.14	H		0.070	18.47		
		256-QAM	-30.62	8.24	11.40	3.14	H		0.045	16.50		
3840.00		PI/2 BPSK	-26.70	12.98	11.10	3.14	H		0.124	20.94	1	160
		QPSK	-26.71	12.97	11.10	3.14	H		0.124	20.93		
		16-QAM	-27.77	11.91	11.10	3.14	H		0.097	19.87		
		64-QAM	-29.32	10.36	11.10	3.14	H		0.068	18.32		
		256-QAM	-31.23	8.45	11.10	3.14	H		0.044	16.41		
3949.98		PI/2 BPSK	-27.03	12.75	10.90	3.20	H		0.111	20.45	1	81
		QPSK	-27.05	12.73	10.90	3.20	H		0.110	20.43		
		16-QAM	-28.10	11.68	10.90	3.20	H		0.087	19.38		
		64-QAM	-29.65	10.13	10.90	3.20	H		0.061	17.83		
		256-QAM	-31.50	8.28	10.90	3.20	H		0.040	15.98		

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
3735.00	Sub6 n77/ 70 MHz [30 kHz]	PI/2 BPSK	-26.07	12.79	11.40	3.12	H	< 1.00	0.128	21.07	1	1
		QPSK	-26.13	12.73	11.40	3.12	H		0.126	21.01		
		16-QAM	-26.97	11.89	11.40	3.12	H		0.104	20.17		
		64-QAM	-28.72	10.14	11.40	3.12	H		0.070	18.42		
		256-QAM	-30.44	8.42	11.40	3.12	H		0.047	16.70		
3840.00		PI/2 BPSK	-26.64	13.04	11.10	3.14	H		0.126	21.00	1	187
		QPSK	-26.67	13.01	11.10	3.14	H		0.125	20.97		
		16-QAM	-27.68	12.00	11.10	3.14	H		0.099	19.96		
		64-QAM	-29.33	10.35	11.10	3.14	H		0.068	18.31		
		256-QAM	-31.09	8.59	11.10	3.14	H		0.045	16.55		
3945.00		PI/2 BPSK	-27.06	12.78	10.85	3.18	H		0.111	20.45	1	94
		QPSK	-27.07	12.77	10.85	3.18	H		0.111	20.44		
		16-QAM	-27.89	11.95	10.85	3.18	H		0.092	19.62		
		64-QAM	-29.49	10.35	10.85	3.18	H		0.063	18.02		
		256-QAM	-31.55	8.29	10.85	3.18	H		0.039	15.96		

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	-26.66	12.20	11.40	3.10	H	< 1.00	0.112	20.50	1	1
		QPSK	-26.71	12.15	11.40	3.10	H		0.111	20.45		
		16-QAM	-27.68	11.18	11.40	3.10	H		0.089	19.48		
		64-QAM	-29.24	9.62	11.40	3.10	H		0.062	17.92		
		256-QAM	-31.13	7.73	11.40	3.10	H		0.040	16.03		
3840.00		PI/2 BPSK	-26.88	12.80	11.10	3.14	H		0.119	20.76	1	215
		QPSK	-26.92	12.76	11.10	3.14	H		0.118	20.72		
		16-QAM	-27.84	11.84	11.10	3.14	H		0.095	19.80		
		64-QAM	-29.44	10.24	11.10	3.14	H		0.066	18.20		
		256-QAM	-31.39	8.29	11.10	3.14	H		0.042	16.25		
3939.99		PI/2 BPSK	-26.84	12.39	11.40	3.10	H		0.117	20.69	1	108
		QPSK	-26.87	12.36	11.40	3.10	H		0.116	20.66		
		16-QAM	-28.05	11.18	11.40	3.10	H		0.089	19.48		
		64-QAM	-29.52	9.71	11.40	3.10	H		0.063	18.01		
		256-QAM	-31.43	7.80	11.40	3.10	H		0.041	16.10		

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	-26.64	12.10	11.35	3.09	H	< 1.00	0.109	20.36	1	1
		QPSK	-26.65	12.09	11.35	3.09	H		0.108	20.35		
		16-QAM	-27.66	11.08	11.35	3.09	H		0.086	19.34		
		64-QAM	-29.07	9.67	11.35	3.09	H		0.062	17.93		
		256-QAM	-31.03	7.71	11.35	3.09	H		0.040	15.97		
3840.00		PI/2 BPSK	-26.84	12.84	11.10	3.14	H		0.120	20.80	1	243
		QPSK	-26.88	12.80	11.10	3.14	H		0.119	20.76		
		16-QAM	-27.76	11.92	11.10	3.14	H		0.097	19.88		
		64-QAM	-29.34	10.34	11.10	3.14	H		0.068	18.30		
		256-QAM	-31.29	8.39	11.10	3.14	H		0.043	16.35		
3934.98		PI/2 BPSK	-26.72	13.20	10.80	3.16	H		0.121	20.84	1	122
		QPSK	-26.78	13.14	10.80	3.16	H		0.120	20.78		
		16-QAM	-27.91	12.01	10.80	3.16	H		0.092	19.65		
		64-QAM	-29.42	10.50	10.80	3.16	H		0.065	18.14		
		256-QAM	-31.24	8.68	10.80	3.16	H		0.043	16.32		

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	-26.64	11.99	11.30	3.08	H	< 1.00	0.105	20.21	1	1
		QPSK	-26.68	11.95	11.30	3.08	H		0.104	20.17		
		16-QAM	-27.55	11.08	11.30	3.08	H		0.085	19.30		
		64-QAM	-29.15	9.48	11.30	3.08	H		0.059	17.70		
		256-QAM	-31.10	7.53	11.30	3.08	H		0.038	15.75		
3840.00		PI/2 BPSK	-26.84	12.84	11.10	3.14	H		0.120	20.80	1	136
		QPSK	-26.86	12.82	11.10	3.14	H		0.120	20.78		
		16-QAM	-27.66	12.02	11.10	3.14	H		0.100	19.98		
		64-QAM	-29.32	10.36	11.10	3.14	H		0.068	18.32		
		256-QAM	-31.24	8.44	11.10	3.14	H		0.044	16.40		
3930.00		PI/2 BPSK	-26.76	13.19	10.80	3.16	H		0.121	20.83	1	136
		QPSK	-26.79	13.16	10.80	3.16	H		0.120	20.80		
		16-QAM	-27.66	12.29	10.80	3.16	H		0.099	19.93		
		64-QAM	-29.22	10.73	10.80	3.16	H		0.069	18.37		
		256-QAM	-31.11	8.84	10.80	3.16	H		0.044	16.48		

9.2 RADIATED SPURIOUS EMISSIONS

■ NR Band:	<u>N77(78)</u>
■ Bandwidth:	<u>10 MHz</u>
■ Modulation:	<u>PI/2 BPSK</u>
■ Distance:	<u>1 meters</u>
■ SCS:	<u>30 kHz</u>

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offset
647000 (3705.000)	7 410.00	-63.86	10.80	-56.30	4.47	V	-49.97	-13.00	1	1
	11 115.00	-62.31	11.30	-50.86	5.61	V	-45.17	-13.00		
	14 820.00	-57.91	13.20	-52.83	6.59	V	-46.22	-13.00		
656000 (3840.00)	7 680.00	-63.76	11.10	-56.90	4.55	V	-50.35	-13.00	1	12
	11 520.00	-65.56	11.50	-54.42	5.70	V	-48.62	-13.00		
	15 360.00	-60.59	15.10	-54.80	6.72	V	-46.42	-13.00		
665000 (3975.000)	7 950.00	-62.93	10.70	-54.80	4.64	V	-48.74	-13.00	1	1
	11 925.00	-61.44	12.10	-51.21	5.87	V	-44.98	-13.00		
	15 900.00	-63.50	15.00	-55.99	6.87	V	-47.86	-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	4.22
			QPSK			5.30
			16-QAM			5.77
			64-QAM			6.05
			256-QAM			6.16
	15 MHz		BPSK			4.33
			QPSK			5.26
			16-QAM			5.73
			64-QAM			5.99
			256-QAM			6.11
	20 MHz		BPSK			4.16
			QPSK			5.26
			16-QAM			5.78
			64-QAM			6.06
			256-QAM			6.03
	30 MHz		BPSK			4.26
			QPSK			5.24
			16-QAM			5.78
			64-QAM			6.06
			256-QAM			6.12
	40 MHz		BPSK			4.34
			QPSK			5.19
			16-QAM			5.77
			64-QAM			5.98
			256-QAM			6.01
	50 MHz		BPSK			4.72
			QPSK			5.26
			16-QAM			5.75
			64-QAM			6.00
			256-QAM			6.00
	60 MHz		BPSK			5.71
			QPSK			5.78
			16-QAM			5.99
			64-QAM			6.13
			256-QAM			6.19
	70 MHz		BPSK			4.24
			QPSK			5.31
			16-QAM			5.81
			64-QAM			5.98
			256-QAM			6.10
	80 MHz		BPSK			4.33
			QPSK			5.28
			16-QAM			5.78
			64-QAM			5.98
			256-QAM			6.13

	90 MHz		BPSK			4.17
			QPSK			5.28
			16-QAM			5.73
			64-QAM			5.93
			256-QAM			6.00
	100 MHz		BPSK			4.82
			QPSK			5.22
			16-QAM			5.72
			64-QAM			5.90
			256-QAM			6.01

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 392 ~ 446.

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	8.6877
			QPSK			8.6926
			16-QAM			8.6664
			64-QAM			8.6747
			256-QAM			8.6470
	15 MHz		BPSK			12.950
			QPSK			12.956
			16-QAM			12.966
			64-QAM			12.998
			256-QAM			12.931
	20 MHz		BPSK			18.012
			QPSK			17.965
			16-QAM			17.952
			64-QAM			18.018
			256-QAM			17.995
	30 MHz		BPSK			26.995
			QPSK			26.959
			16-QAM			26.978
			64-QAM			27.052
			256-QAM			26.932
	40 MHz		BPSK			35.935
			QPSK			35.885
			16-QAM			35.877
			64-QAM			35.957
			256-QAM			35.873
	50 MHz		BPSK			46.065
			QPSK			45.984
			16-QAM			45.948
			64-QAM			45.848
			256-QAM			45.855
	60 MHz		BPSK			58.132
			QPSK			58.158
			16-QAM			58.324
			64-QAM			58.290
			256-QAM			58.254
	70 MHz		BPSK			64.795
			QPSK			64.596
			16-QAM			64.669
			64-QAM			64.842
			256-QAM			64.736
	80 MHz		BPSK			77.456

			QPSK			77.524	
			16-QAM			77.364	
			64-QAM			77.572	
			256-QAM			77.588	
	90 MHz		BPSK			86.986	
			QPSK			87.107	
			16-QAM			86.970	
			64-QAM			86.993	
			256-QAM			86.998	
			100 MHz			BPSK	96.740
						QPSK	96.514
						16-QAM	96.600
	64-QAM					96.711	
	256-QAM					96.508	

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 447 ~ 501.

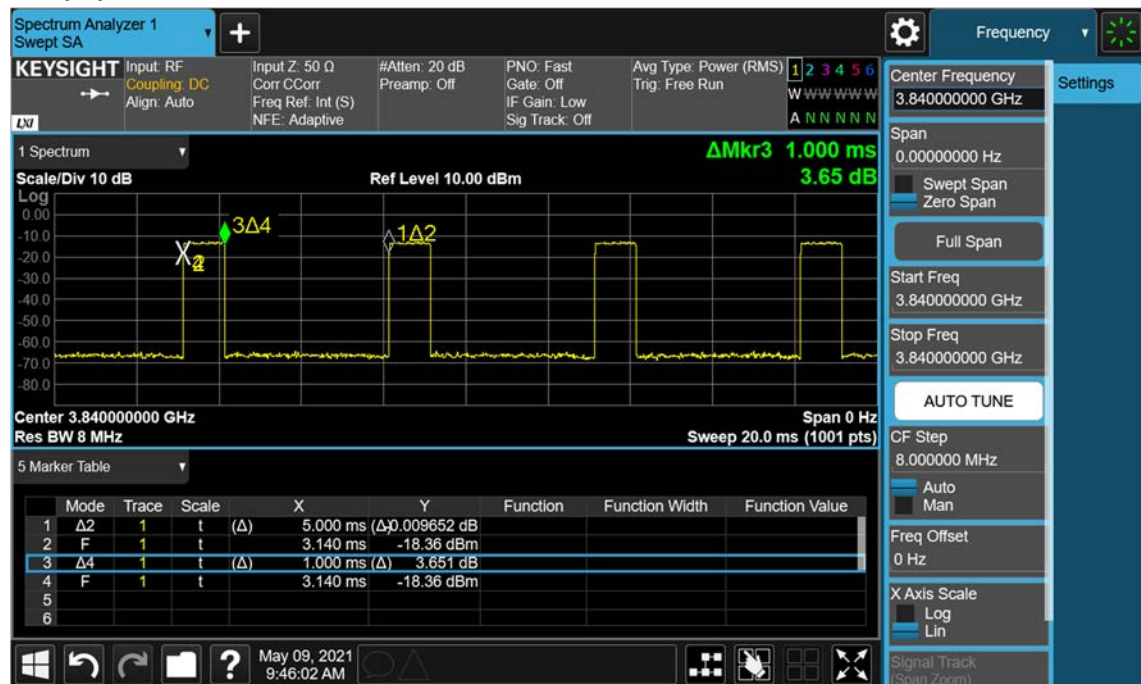
9.5 CONDUCTED SPURIOUS EMISSIONS

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
Sub6 n77	10	3705.000	8.8928	37.805	-70.414	-32.609	-13.00
		3840.000	9.9606	37.805	-70.963	-33.158	
		3975.000	4.9437	37.190	-70.526	-33.336	
	15	3707.520	8.2652	37.805	-70.710	-32.905	
		3840.000	9.7099	37.805	-70.073	-32.268	
		3972.480	9.4222	37.805	-70.160	-32.355	
	20	3710.010	9.7263	37.805	-70.620	-32.815	
		3840.000	9.1800	37.805	-70.818	-33.013	
		3969.990	5.9946	37.805	-70.633	-32.828	
	30	3715.020	8.8420	37.805	-70.679	-32.874	
		3840.000	9.4791	37.805	-70.591	-32.786	
		3964.980	8.5668	37.805	-69.651	-31.846	
	40	3720.000	9.7049	37.805	-70.950	-33.145	
		3840.000	4.8974	37.190	-70.760	-33.570	
		3960.000	8.2647	37.805	-71.218	-33.413	
	50	3725.010	8.0165	37.805	-71.068	-33.263	
		3840.000	8.8903	37.805	-70.028	-32.223	
		3954.990	5.4936	37.805	-69.828	-32.023	
	60	3730.020	9.1296	37.805	-69.701	-31.896	
		3840.000	8.9013	37.805	-70.256	-32.451	
		3949.980	4.9826	37.190	-70.658	-33.468	
	70	3735.000	8.0259	37.805	-70.703	-32.898	
		3840.000	9.4442	37.805	-70.513	-32.708	
		3945.000	8.2538	37.805	-70.109	-32.304	
	80	3740.010	9.9821	37.805	-69.918	-32.113	
		3840.000	9.1795	37.805	-70.831	-33.026	
		3939.990	9.1660	37.805	-71.145	-33.340	
	90	3745.020	9.1226	37.805	-70.737	-32.932	
		3840.000	8.9013	37.805	-70.552	-32.747	
		3934.980	4.3829	37.190	-70.008	-32.818	
	100	3750.000	5.2124	37.805	-70.105	-32.300	
		3840.000	9.4207	37.805	-70.590	-32.785	
		3930.000	9.7084	37.805	-70.711	-32.906	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 502 ~ 567.
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 568 ~ 699.
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: 3.300 VDC
- LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3705.000	100%	+20(Ref)	3704 999 999	0.0	0.000 000	0.000
	100%	-30	3704 999 995	-3.2	0.000 000	-0.001
	100%	-20	3704 999 998	-0.5	0.000 000	0.000
	100%	-10	3704 999 996	-2.5	0.000 000	-0.001
	100%	0	3704 999 998	-0.7	0.000 000	0.000
	100%	+10	3704 999 997	-1.2	0.000 000	0.000
	100%	+30	3704 999 996	-2.5	0.000 000	-0.001
	100%	+40	3704 999 998	-1.0	0.000 000	0.000
	100%	+50	3704 999 996	-3.1	0.000 000	-0.001
	Batt. Endpoint	+20	3704 999 995	-3.8	0.000 000	-0.001
3975.000	100%	+20(Ref)	3974 999 993	0.0	0.000 000	0.000
	100%	-30	3974 999 984	-8.4	0.000 000	-0.002
	100%	-20	3974 999 984	-8.8	0.000 000	-0.002
	100%	-10	3974 999 985	-7.7	0.000 000	-0.002
	100%	0	3974 999 986	-7.1	0.000 000	-0.002
	100%	+10	3974 999 986	-6.7	0.000 000	-0.002
	100%	+30	3974 999 984	-8.9	0.000 000	-0.002
	100%	+40	3974 999 988	-5.0	0.000 000	-0.001
	100%	+50	3974 999 986	-6.6	0.000 000	-0.002
	Batt. Endpoint	+20	3974 999 984	-8.8	0.000 000	-0.002

- ▣ BandWidth: 15 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3707.520	100%	+20(Ref)	3707 519 996	0.0	0.000 000	0.000
	100%	-30	3707 519 994	-2.8	0.000 000	-0.001
	100%	-20	3707 519 996	-0.9	0.000 000	0.000
	100%	-10	3707 519 994	-2.6	0.000 000	-0.001
	100%	0	3707 519 993	-3.5	0.000 000	-0.001
	100%	+10	3707 519 991	-5.5	0.000 000	-0.001
	100%	+30	3707 519 994	-2.4	0.000 000	-0.001
	100%	+40	3707 519 994	-2.9	0.000 000	-0.001
	100%	+50	3707 519 993	-3.2	0.000 000	-0.001
	Batt. Endpoint	+20	3707 519 992	-4.4	0.000 000	-0.001
3972.480	100%	+20(Ref)	3972 479 999	0.0	0.000 000	0.000
	100%	-30	3972 479 995	-4.2	0.000 000	-0.001
	100%	-20	3972 480 000	0.8	0.000 000	0.000
	100%	-10	3972 479 998	-1.0	0.000 000	0.000
	100%	0	3972 479 997	-2.3	0.000 000	-0.001
	100%	+10	3972 480 000	0.9	0.000 000	0.000
	100%	+30	3972 479 997	-2.6	0.000 000	-0.001
	100%	+40	3972 479 999	-0.4	0.000 000	0.000
	100%	+50	3972 480 000	1.3	0.000 000	0.000
	Batt. Endpoint	+20	3972 479 996	-3.3	0.000 000	-0.001

- ▣ BandWidth: 20 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3710.010	100%	+20(Ref)	3710 009 999	0.0	0.000 000	0.000
	100%	-30	3710 009 994	-4.1	0.000 000	-0.001
	100%	-20	3710 009 998	-0.7	0.000 000	0.000
	100%	-10	3710 009 997	-1.8	0.000 000	0.000
	100%	0	3710 009 998	-0.9	0.000 000	0.000
	100%	+10	3710 009 993	-6.1	0.000 000	-0.002
	100%	+30	3710 009 995	-3.3	0.000 000	-0.001
	100%	+40	3710 009 998	-0.3	0.000 000	0.000
	100%	+50	3710 009 998	-0.7	0.000 000	0.000
	Batt. Endpoint	+20	3710 009 996	-2.3	0.000 000	-0.001
3969.990	100%	+20(Ref)	3969 989 998	0.0	0.000 000	0.000
	100%	-30	3969 989 995	-3.1	0.000 000	-0.001
	100%	-20	3969 989 996	-2.2	0.000 000	-0.001
	100%	-10	3969 989 995	-2.9	0.000 000	-0.001
	100%	0	3969 989 998	-0.5	0.000 000	0.000
	100%	+10	3969 989 999	0.1	0.000 000	0.000
	100%	+30	3969 989 997	-1.2	0.000 000	0.000
	100%	+40	3969 989 999	1.0	0.000 000	0.000
	100%	+50	3969 989 998	-0.4	0.000 000	0.000
	Batt. Endpoint	+20	3969 989 996	-2.8	0.000 000	-0.001

- ▣ BandWidth: 30 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3715.020	100%	+20(Ref)	3715 019 997	0.0	0.000 000	0.000
	100%	-30	3715 019 995	-2.1	0.000 000	-0.001
	100%	-20	3715 019 993	-3.7	0.000 000	-0.001
	100%	-10	3715 019 993	-3.8	0.000 000	-0.001
	100%	0	3715 019 993	-3.7	0.000 000	-0.001
	100%	+10	3715 019 994	-2.8	0.000 000	-0.001
	100%	+30	3715 019 993	-4.1	0.000 000	-0.001
	100%	+40	3715 019 994	-2.5	0.000 000	-0.001
	100%	+50	3715 019 995	-1.9	0.000 000	-0.001
	Batt. Endpoint	+20	3715 019 994	-3.2	0.000 000	-0.001
3964.980	100%	+20(Ref)	3964 979 998	0.0	0.000 000	0.000
	100%	-30	3964 979 994	-3.8	0.000 000	-0.001
	100%	-20	3964 979 996	-2.2	0.000 000	-0.001
	100%	-10	3964 979 998	-0.1	0.000 000	0.000
	100%	0	3964 979 999	1.1	0.000 000	0.000
	100%	+10	3964 979 997	-0.7	0.000 000	0.000
	100%	+30	3964 979 995	-2.6	0.000 000	-0.001
	100%	+40	3964 980 000	1.5	0.000 000	0.000
	100%	+50	3964 979 996	-1.7	0.000 000	0.000
	Batt. Endpoint	+20	3964 979 998	0.1	0.000 000	0.000

- ▣ BandWidth: 40 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3720.000	100%	+20(Ref)	3719 999 999	0.0	0.000 000	0.000
	100%	-30	3719 999 997	-1.9	0.000 000	-0.001
	100%	-20	3719 999 999	-0.6	0.000 000	0.000
	100%	-10	3719 999 997	-2.0	0.000 000	-0.001
	100%	0	3719 999 996	-3.7	0.000 000	-0.001
	100%	+10	3719 999 999	-0.5	0.000 000	0.000
	100%	+30	3719 999 997	-2.6	0.000 000	-0.001
	100%	+40	3719 999 996	-3.4	0.000 000	-0.001
	100%	+50	3719 999 997	-2.6	0.000 000	-0.001
	Batt. Endpoint	+20	3719 999 997	-2.3	0.000 000	-0.001
3960.000	100%	+20(Ref)	3959 999 998	0.0	0.000 000	0.000
	100%	-30	3959 999 998	0.6	0.000 000	0.000
	100%	-20	3959 999 996	-1.4	0.000 000	0.000
	100%	-10	3959 999 999	0.7	0.000 000	0.000
	100%	0	3959 999 997	-0.7	0.000 000	0.000
	100%	+10	3959 999 997	-0.7	0.000 000	0.000
	100%	+30	3959 999 997	-1.2	0.000 000	0.000
	100%	+40	3959 999 999	1.5	0.000 000	0.000
	100%	+50	3959 999 996	-1.6	0.000 000	0.000
	Batt. Endpoint	+20	3959 999 995	-3.1	0.000 000	-0.001

- ▣ BandWidth: 50 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3725.010	100%	+20(Ref)	3725 010 000	0.0	0.000 000	0.000
	100%	-30	3725 009 997	-2.4	0.000 000	-0.001
	100%	-20	3725 009 997	-3.0	0.000 000	-0.001
	100%	-10	3725 009 998	-1.9	0.000 000	-0.001
	100%	0	3725 009 999	-0.8	0.000 000	0.000
	100%	+10	3725 009 997	-2.5	0.000 000	-0.001
	100%	+30	3725 009 999	-0.8	0.000 000	0.000
	100%	+40	3725 009 997	-2.2	0.000 000	-0.001
	100%	+50	3725 009 998	-1.4	0.000 000	0.000
	Batt. Endpoint	+20	3725 009 999	-0.8	0.000 000	0.000
3954.990	100%	+20(Ref)	3954 990 001	0.0	0.000 000	0.000
	100%	-30	3954 990 001	0.5	0.000 000	0.000
	100%	-20	3954 989 998	-2.4	0.000 000	-0.001
	100%	-10	3954 989 999	-1.2	0.000 000	0.000
	100%	0	3954 989 999	-1.8	0.000 000	0.000
	100%	+10	3954 990 001	0.5	0.000 000	0.000
	100%	+30	3954 990 001	0.8	0.000 000	0.000
	100%	+40	3954 990 000	-0.9	0.000 000	0.000
	100%	+50	3954 989 997	-3.2	0.000 000	-0.001
	Batt. Endpoint	+20	3954 989 997	-3.3	0.000 000	-0.001

- BandWidth: 60 MHz
- Voltage(100 %): 3.880 VDC
- Batt. Endpoint: 3.300 VDC
- LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3730.020	100%	+20(Ref)	3730 020 000	0.0	0.000 000	0.000
	100%	-30	3730 019 997	-2.9	0.000 000	-0.001
	100%	-20	3730 020 000	-0.4	0.000 000	0.000
	100%	-10	3730 019 999	-1.4	0.000 000	0.000
	100%	0	3730 019 997	-3.7	0.000 000	-0.001
	100%	+10	3730 019 999	-1.6	0.000 000	0.000
	100%	+30	3730 019 998	-2.2	0.000 000	-0.001
	100%	+40	3730 019 998	-2.1	0.000 000	-0.001
	100%	+50	3730 019 998	-2.7	0.000 000	-0.001
	Batt. Endpoint	+20	3730 019 999	-1.3	0.000 000	0.000
3949.980	100%	+20(Ref)	3949 979 997	0.0	0.000 000	0.000
	100%	-30	3949 979 996	-0.9	0.000 000	0.000
	100%	-20	3949 979 995	-1.5	0.000 000	0.000
	100%	-10	3949 979 995	-1.5	0.000 000	0.000
	100%	0	3949 979 996	-1.2	0.000 000	0.000
	100%	+10	3949 979 995	-1.6	0.000 000	0.000
	100%	+30	3949 979 995	-1.8	0.000 000	0.000
	100%	+40	3949 979 995	-2.3	0.000 000	-0.001
	100%	+50	3949 979 998	1.2	0.000 000	0.000
	Batt. Endpoint	+20	3949 979 996	-1.2	0.000 000	0.000

- BandWidth: 70 MHz
- Voltage(100 %): 3.880 VDC
- Batt. Endpoint: 3.300 VDC
- LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3735.000	100%	+20(Ref)	3734 999 995	0.0	0.000 000	0.000
	100%	-30	3734 999 993	-2.7	0.000 000	-0.001
	100%	-20	3734 999 993	-2.7	0.000 000	-0.001
	100%	-10	3734 999 991	-4.1	0.000 000	-0.001
	100%	0	3734 999 992	-3.2	0.000 000	-0.001
	100%	+10	3734 999 990	-5.4	0.000 000	-0.001
	100%	+30	3734 999 992	-3.2	0.000 000	-0.001
	100%	+40	3734 999 993	-2.3	0.000 000	-0.001
	100%	+50	3734 999 991	-4.3	0.000 000	-0.001
	Batt. Endpoint	+20	3734 999 994	-1.8	0.000 000	0.000
3945.000	100%	+20(Ref)	3944 999 999	0.0	0.000 000	0.000
	100%	-30	3944 999 996	-2.7	0.000 000	-0.001
	100%	-20	3944 999 996	-2.7	0.000 000	-0.001
	100%	-10	3944 999 996	-2.7	0.000 000	-0.001
	100%	0	3944 999 996	-3.4	0.000 000	-0.001
	100%	+10	3944 999 998	-0.7	0.000 000	0.000
	100%	+30	3944 999 998	-1.5	0.000 000	0.000
	100%	+40	3944 999 997	-2.3	0.000 000	-0.001
	100%	+50	3944 999 998	-1.6	0.000 000	0.000
	Batt. Endpoint	+20	3945 000 000	0.5	0.000 000	0.000

- ▣ BandWidth: 80 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3740.010	100%	+20(Ref)	3740 009 996	0.0	0.000 000	0.000
	100%	-30	3740 009 994	-1.8	0.000 000	0.000
	100%	-20	3740 009 993	-3.3	0.000 000	-0.001
	100%	-10	3740 009 993	-3.3	0.000 000	-0.001
	100%	0	3740 009 992	-4.7	0.000 000	-0.001
	100%	+10	3740 009 995	-1.2	0.000 000	0.000
	100%	+30	3740 009 993	-2.9	0.000 000	-0.001
	100%	+40	3740 009 992	-4.7	0.000 000	-0.001
	100%	+50	3740 009 993	-2.9	0.000 000	-0.001
	Batt. Endpoint	+20	3740 009 994	-2.2	0.000 000	-0.001
3939.990	100%	+20(Ref)	3939 990 000	0.0	0.000 000	0.000
	100%	-30	3939 989 997	-2.8	0.000 000	-0.001
	100%	-20	3939 990 000	-0.6	0.000 000	0.000
	100%	-10	3939 989 999	-1.4	0.000 000	0.000
	100%	0	3939 990 000	-0.7	0.000 000	0.000
	100%	+10	3939 990 000	-0.3	0.000 000	0.000
	100%	+30	3939 989 998	-2.2	0.000 000	-0.001
	100%	+40	3939 989 999	-0.9	0.000 000	0.000
	100%	+50	3939 990 000	0.0	0.000 000	0.000
	Batt. Endpoint	+20	3939 990 000	0.0	0.000 000	0.000

- ▣ BandWidth: 90 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

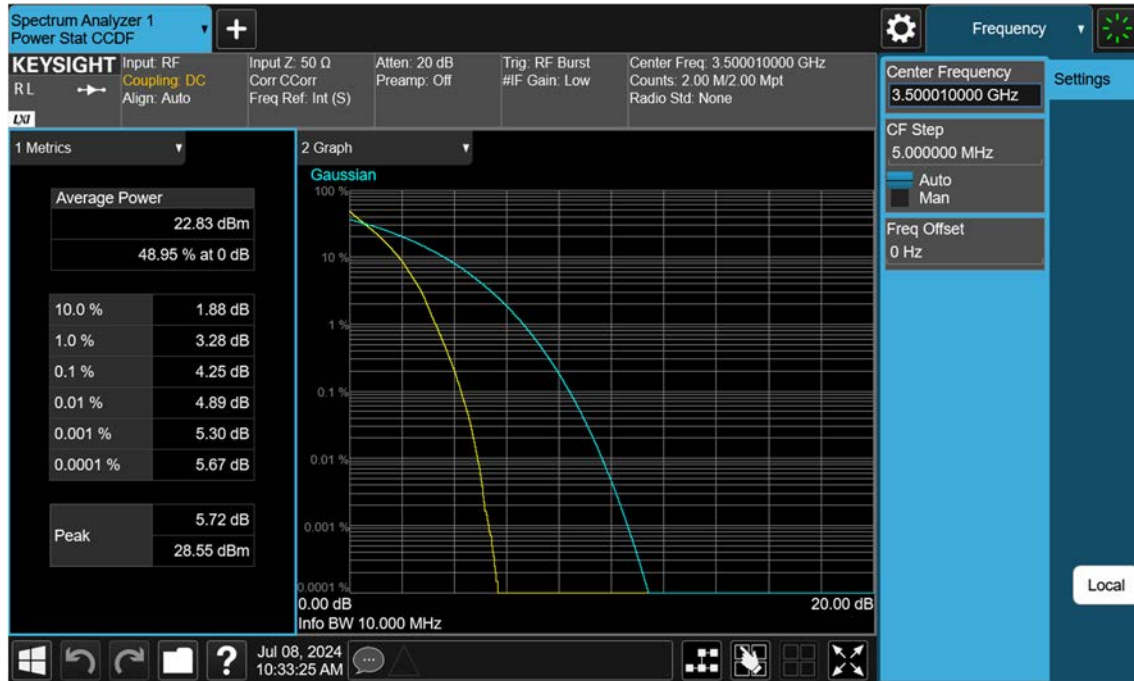
Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3745.020	100%	+20(Ref)	3745 019 997	0.0	0.000 000	0.000
	100%	-30	3745 019 995	-2.1	0.000 000	-0.001
	100%	-20	3745 019 995	-2.1	0.000 000	-0.001
	100%	-10	3745 019 996	-1.1	0.000 000	0.000
	100%	0	3745 019 995	-2.2	0.000 000	-0.001
	100%	+10	3745 019 994	-3.1	0.000 000	-0.001
	100%	+30	3745 019 993	-3.6	0.000 000	-0.001
	100%	+40	3745 019 994	-2.6	0.000 000	-0.001
	100%	+50	3745 019 998	1.2	0.000 000	0.000
	Batt. Endpoint	+20	3745 019 993	-3.5	0.000 000	-0.001
3934.980	100%	+20(Ref)	3934 979 997	0.0	0.000 000	0.000
	100%	-30	3934 979 996	-1.8	0.000 000	0.000
	100%	-20	3934 979 993	-4.7	0.000 000	-0.001
	100%	-10	3934 979 997	0.0	0.000 000	0.000
	100%	0	3934 979 996	-1.1	0.000 000	0.000
	100%	+10	3934 979 993	-4.6	0.000 000	-0.001
	100%	+30	3934 979 996	-1.8	0.000 000	0.000
	100%	+40	3934 979 998	0.1	0.000 000	0.000
	100%	+50	3934 979 996	-1.9	0.000 000	0.000
	Batt. Endpoint	+20	3934 979 997	-0.2	0.000 000	0.000

- ▣ BandWidth: 100 MHz
- ▣ Voltage(100 %): 3.880 VDC
- ▣ Batt. Endpoint: 3.300 VDC
- ▣ LIMIT: Emission must remain in band

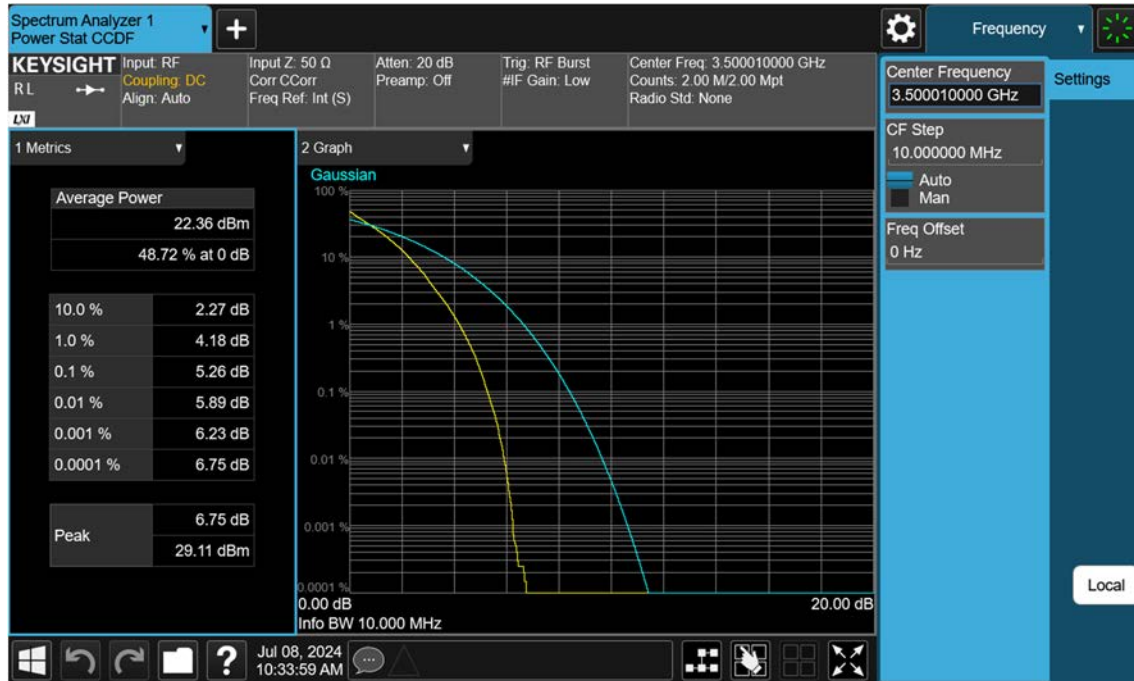
Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
3750.000	100%	+20(Ref)	3749 999 999	0.0	0.000 000	0.000
	100%	-30	3749 999 997	-2.4	0.000 000	-0.001
	100%	-20	3749 999 997	-2.1	0.000 000	-0.001
	100%	-10	3750 000 000	0.9	0.000 000	0.000
	100%	0	3750 000 000	0.9	0.000 000	0.000
	100%	+10	3749 999 999	-0.6	0.000 000	0.000
	100%	+30	3749 999 995	-4.7	0.000 000	-0.001
	100%	+40	3749 999 998	-1.8	0.000 000	0.000
	100%	+50	3749 999 994	-5.2	0.000 000	-0.001
	Batt. Endpoint	+20	3749 999 997	-2.3	0.000 000	-0.001
3930.000	100%	+20(Ref)	3929 999 998	0.0	0.000 000	0.000
	100%	-30	3929 999 996	-1.8	0.000 000	0.000
	100%	-20	3929 999 994	-4.5	0.000 000	-0.001
	100%	-10	3929 999 997	-0.8	0.000 000	0.000
	100%	0	3929 999 997	-0.8	0.000 000	0.000
	100%	+10	3929 999 996	-2.0	0.000 000	-0.001
	100%	+30	3929 999 996	-2.4	0.000 000	-0.001
	100%	+40	3929 999 999	0.5	0.000 000	0.000
	100%	+50	3929 999 999	0.5	0.000 000	0.000
	Batt. Endpoint	+20	3929 999 994	-3.9	0.000 000	-0.001

10. TEST PLOTS(3450 MHz - 3550 MHz)

n77(3450~3550 MHz)_10 M_PAR_Mid_BPSK_FullRB



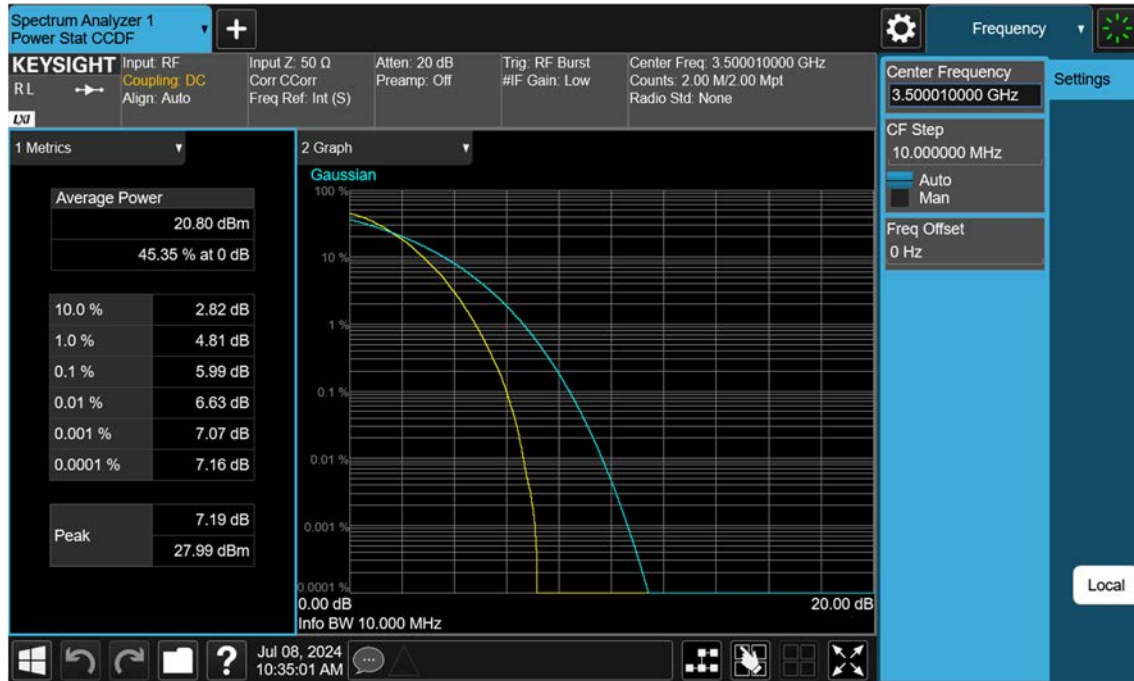
n77(3450~3550 MHz)_10 M_PAR_Mid_QPSK_FullRB



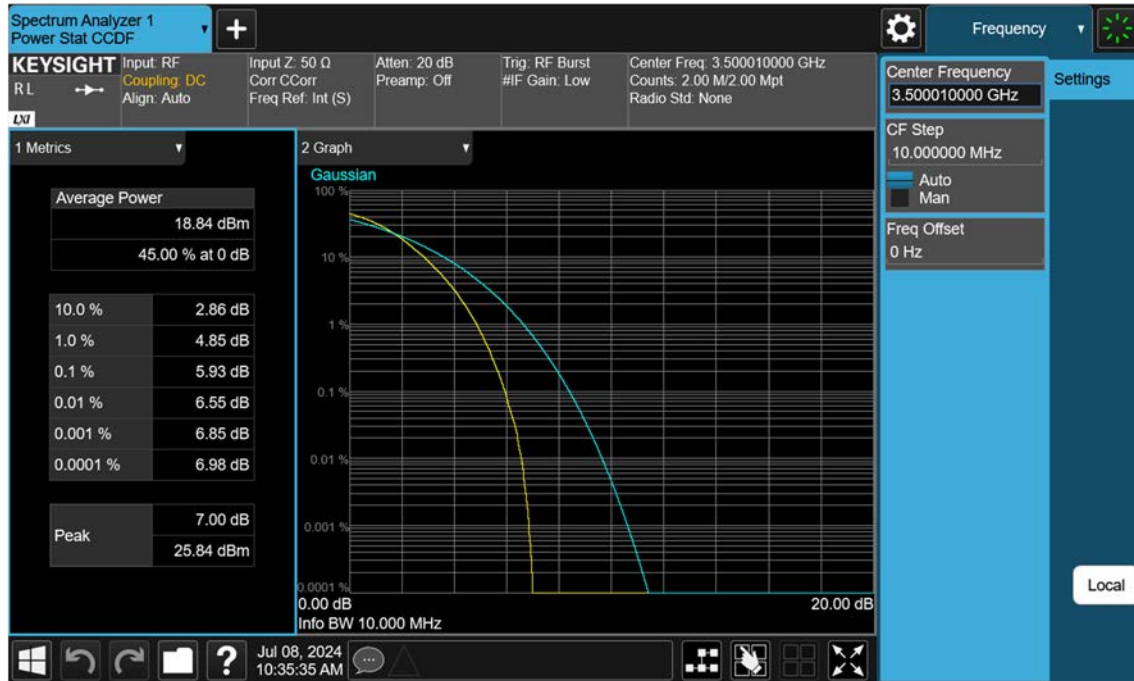
n77(3450~3550 MHz)_10 M_PAR_Mid_16QAM_FullRB



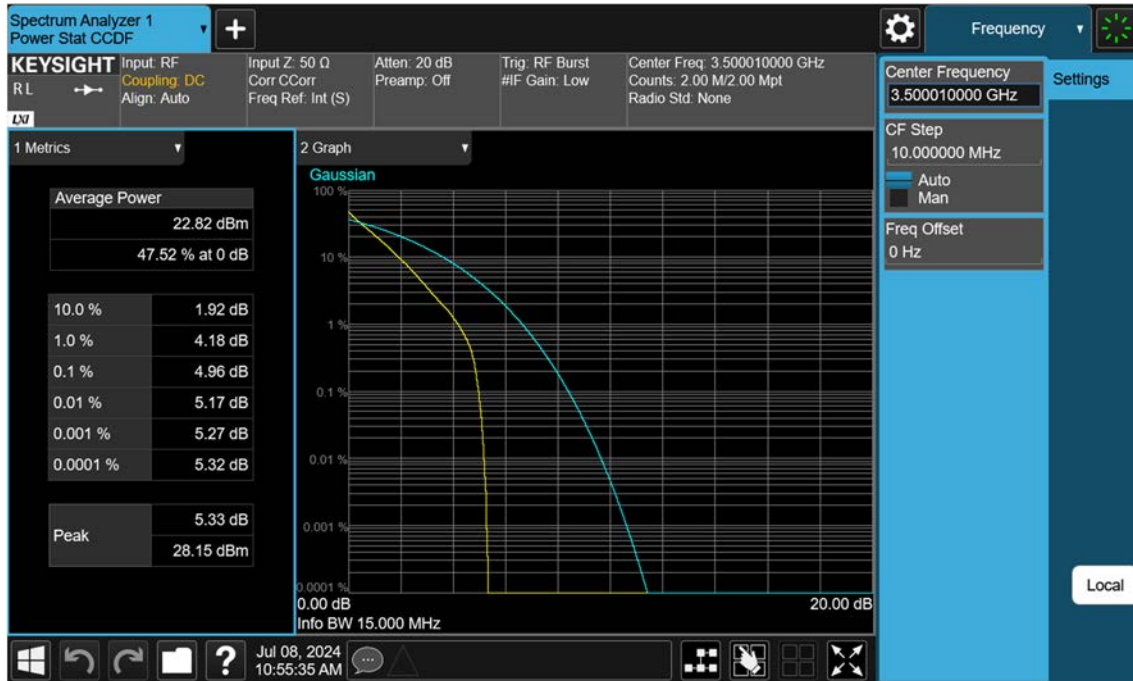
n77(3450~3550 MHz)_10 M_PAR_Mid_64QAM_FullRB



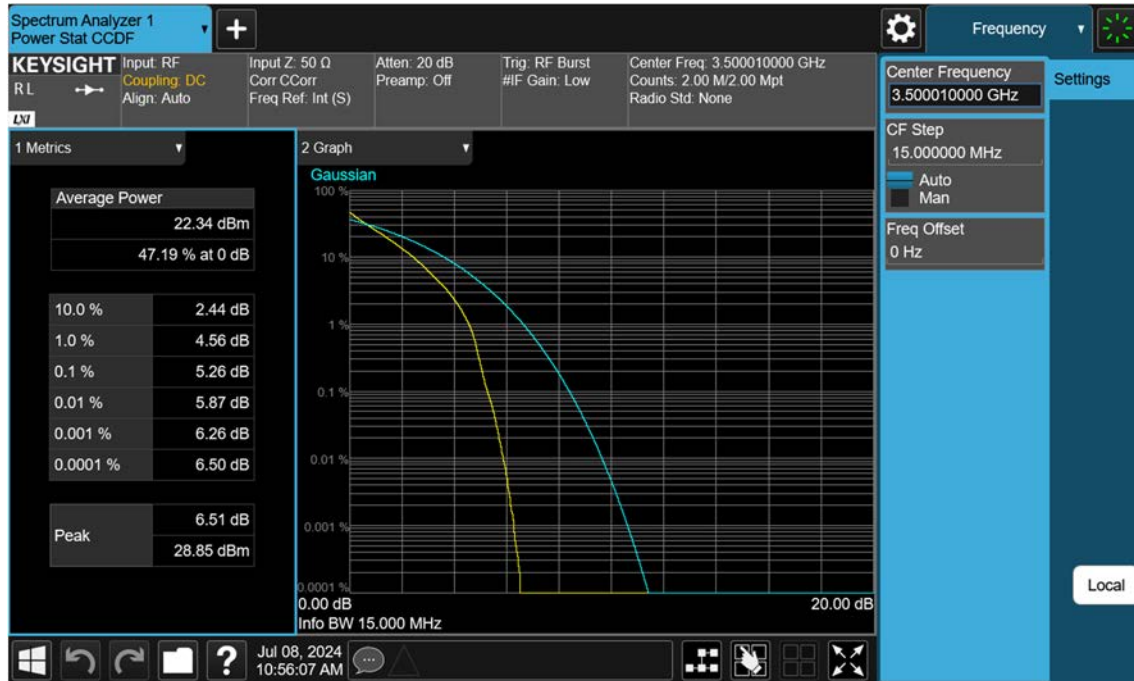
n77(3450~3550 MHz)_10 M_PAR_Mid_256QAM_FullRB



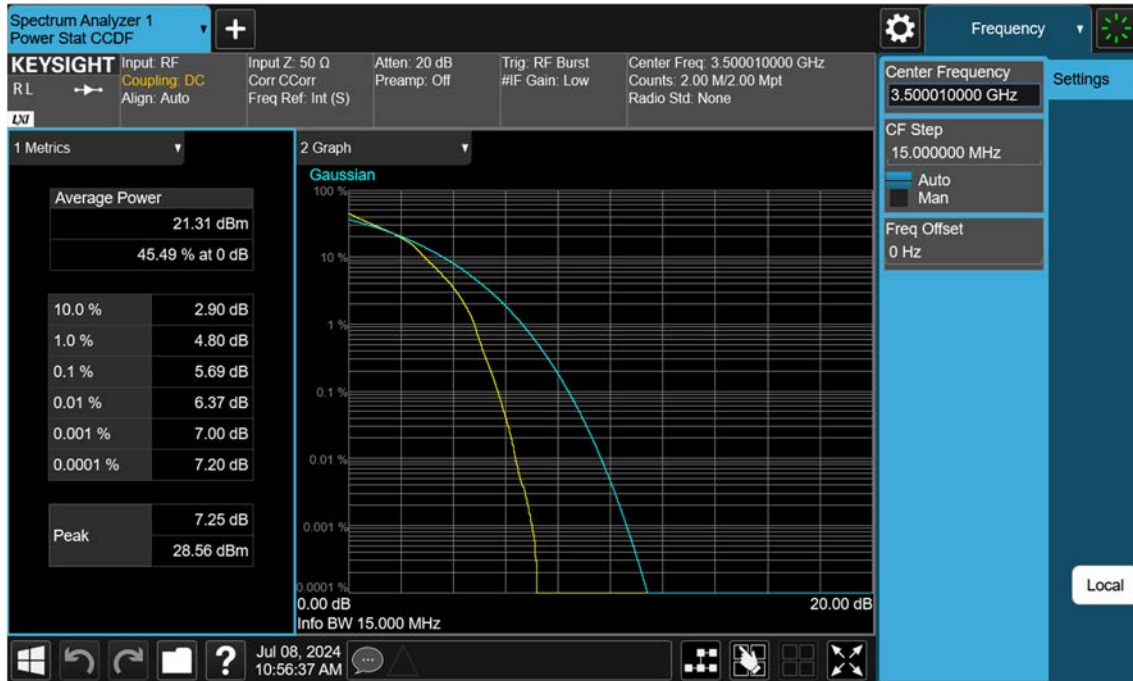
n77(3450~3550 MHz)_15 M_PAR_Mid_BPSK_FullRB



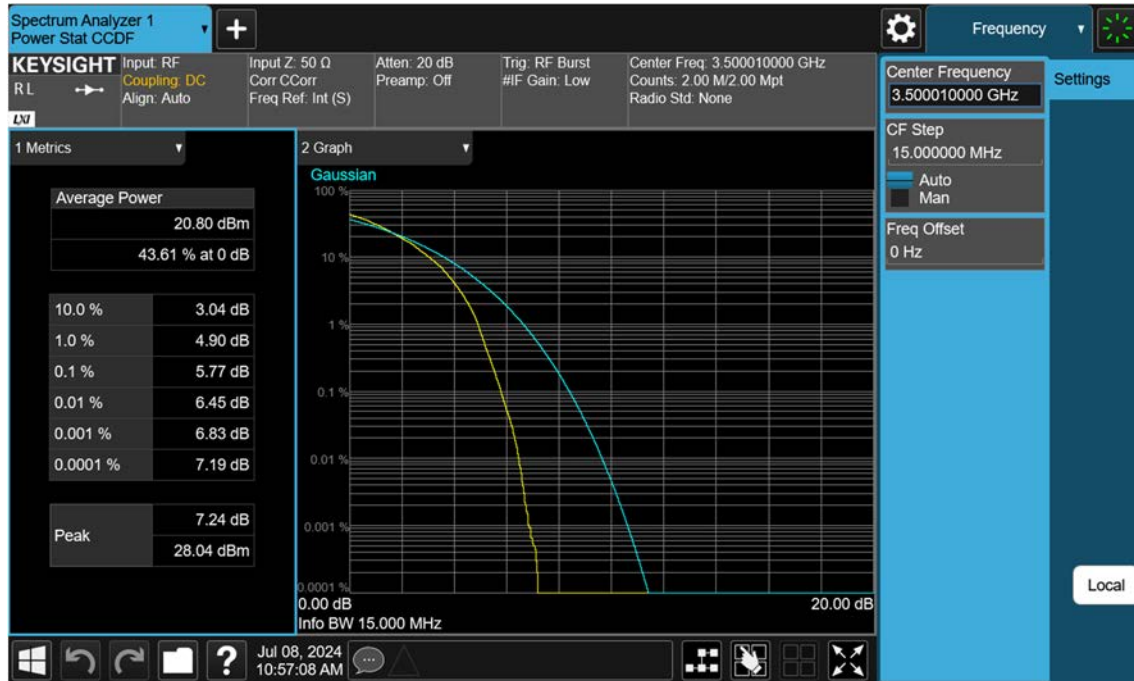
n77(3450~3550 MHz)_15 M_PAR_Mid_QPSK_FullRB



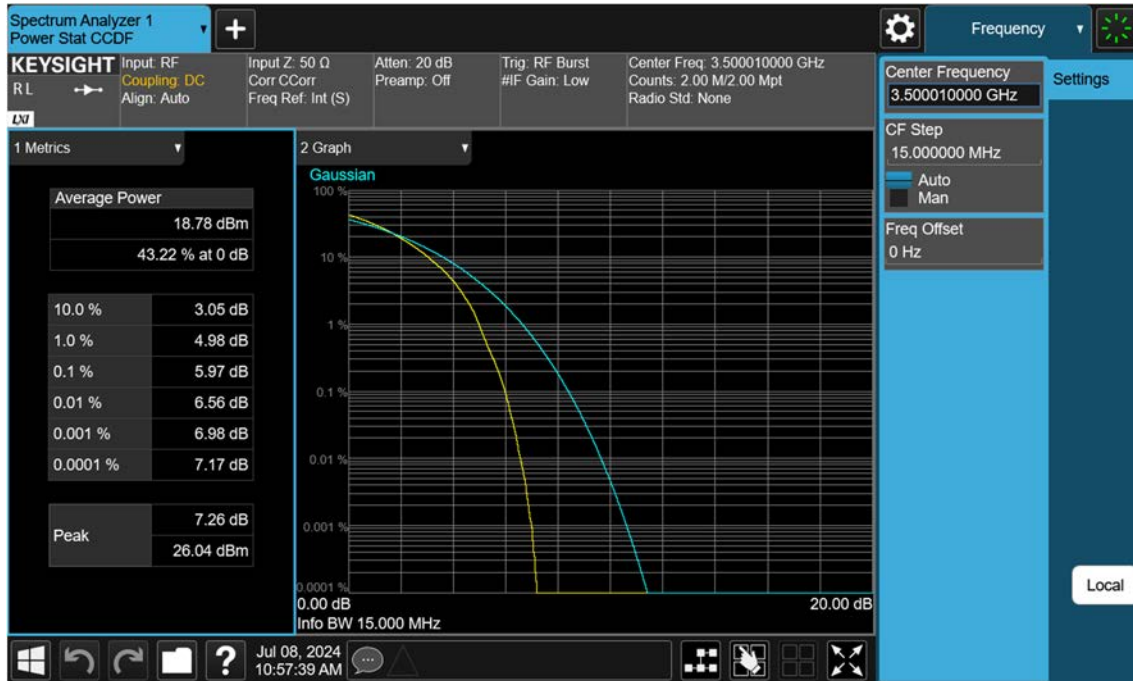
n77(3450~3550 MHz)_15 M_PAR_Mid_16QAM_FullRB



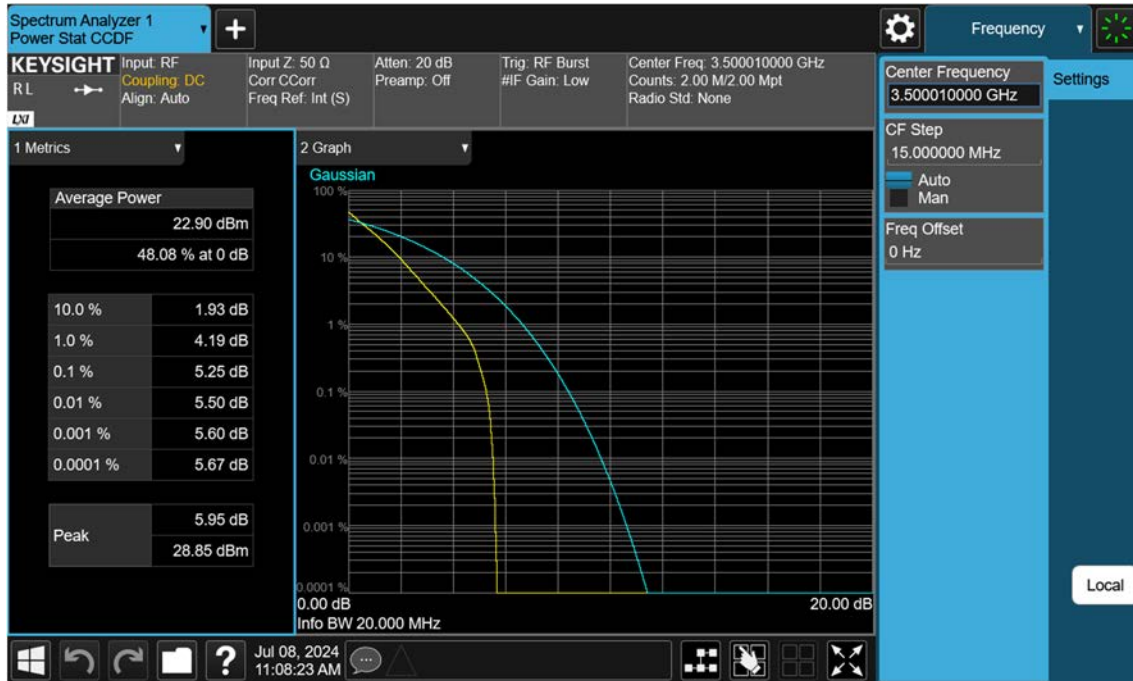
n77(3450~3550 MHz)_15 M_PAR_Mid_64QAM_FullRB



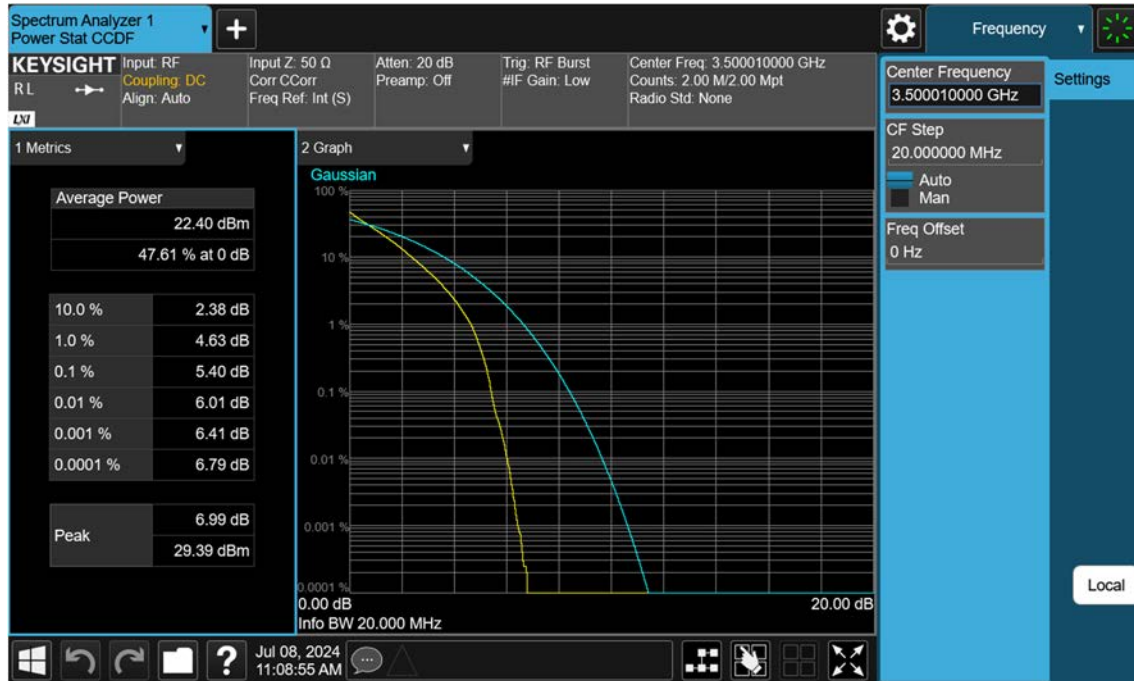
n77(3450~3550 MHz)_15 M_PAR_Mid_256QAM_FullRB



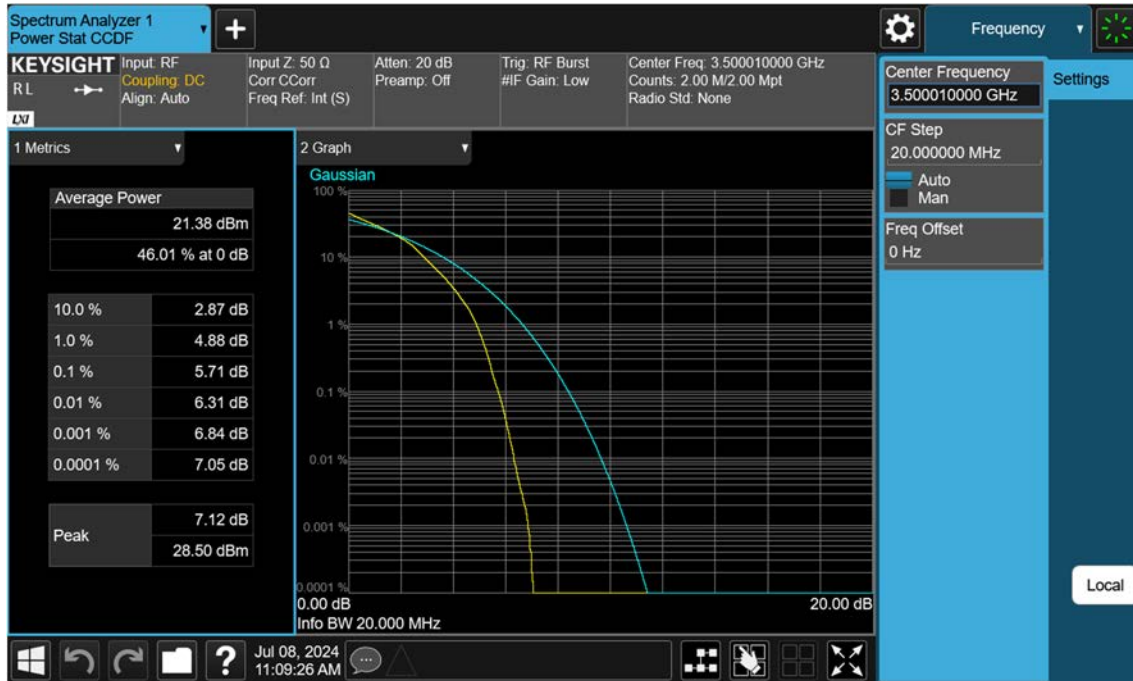
n77(3450~3550 MHz)_20 M_PAR_Mid_BPSK_FullRB



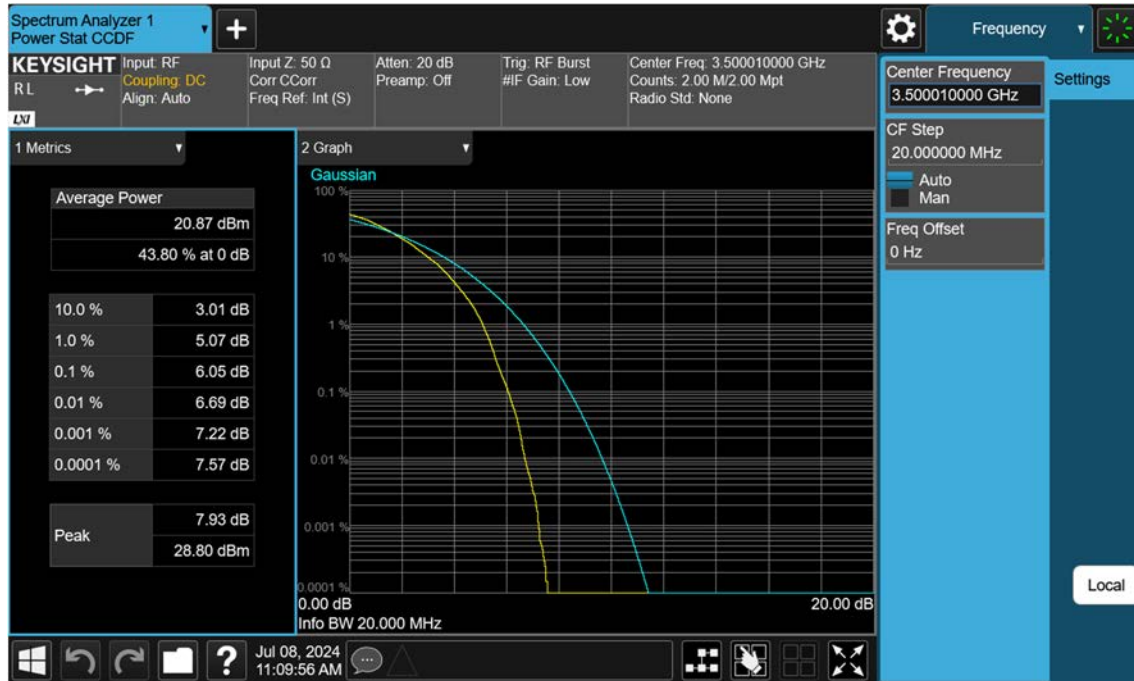
n77(3450~3550 MHz)_20 M_PAR_Mid_QPSK_FullRB



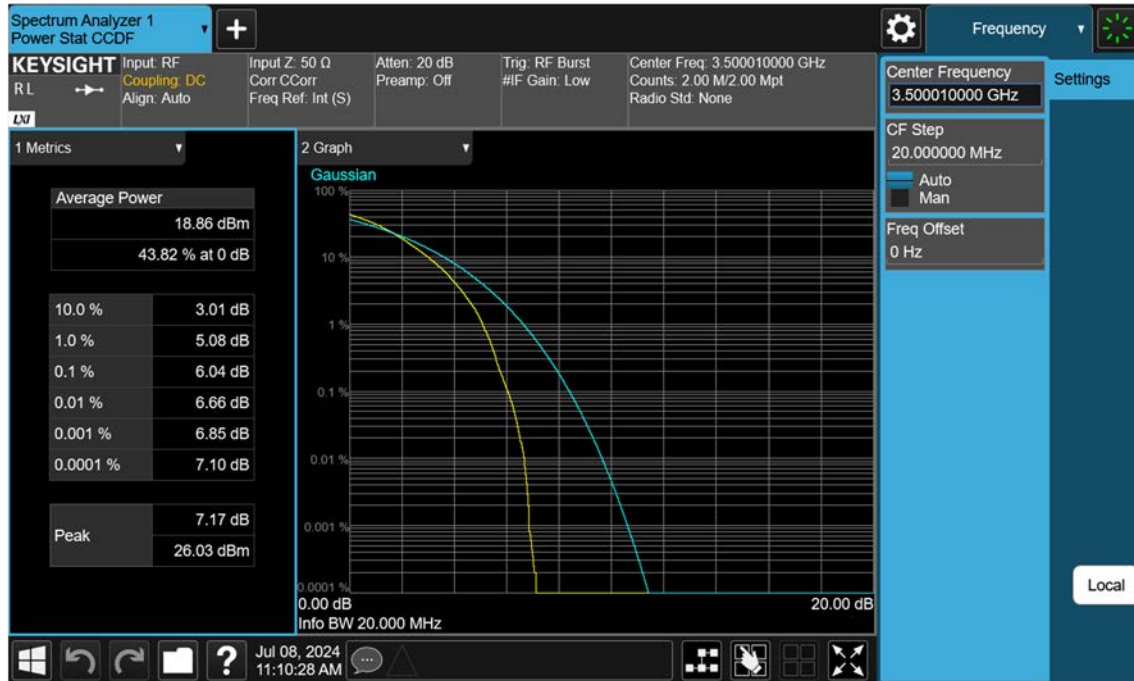
n77(3450~3550 MHz)_20 M_PAR_Mid_16QAM_FullRB



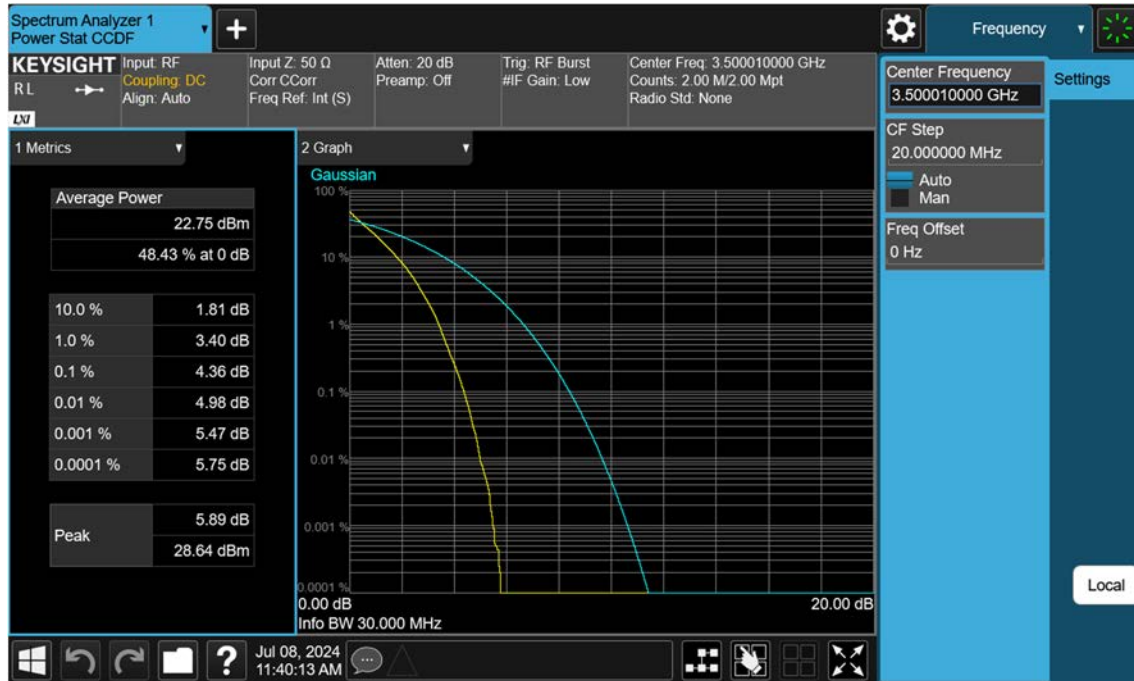
n77(3450~3550 MHz)_20 M_PAR_Mid_64QAM_FullRB



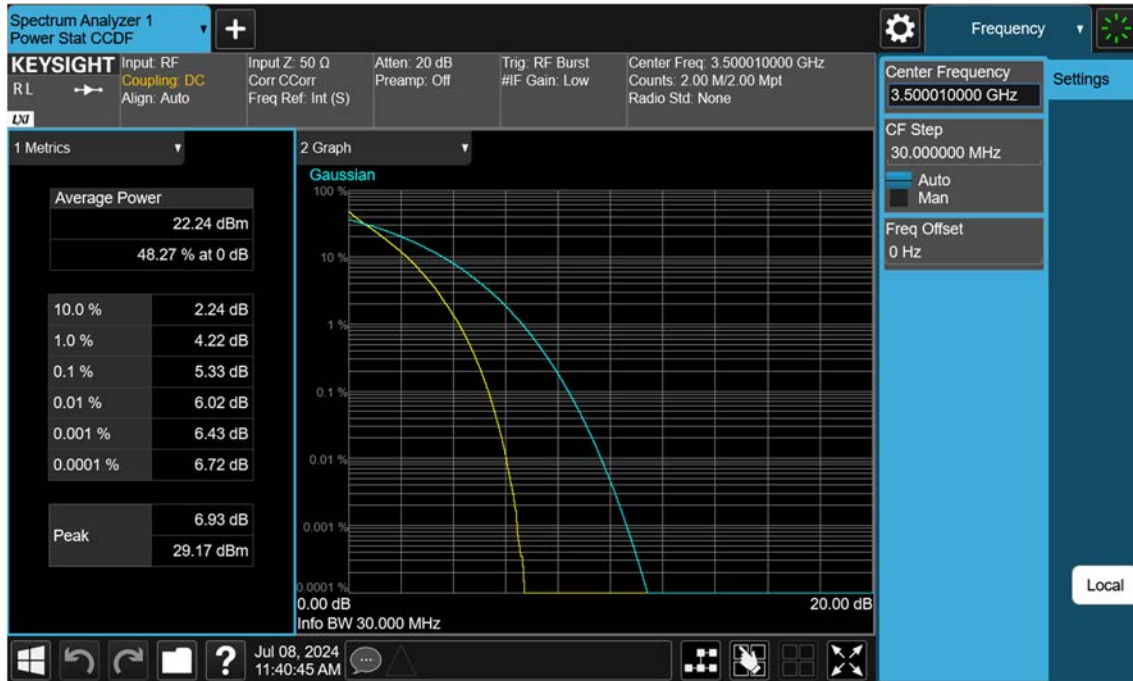
n77(3450~3550 MHz)_20 M_PAR_Mid_256QAM_FullRB



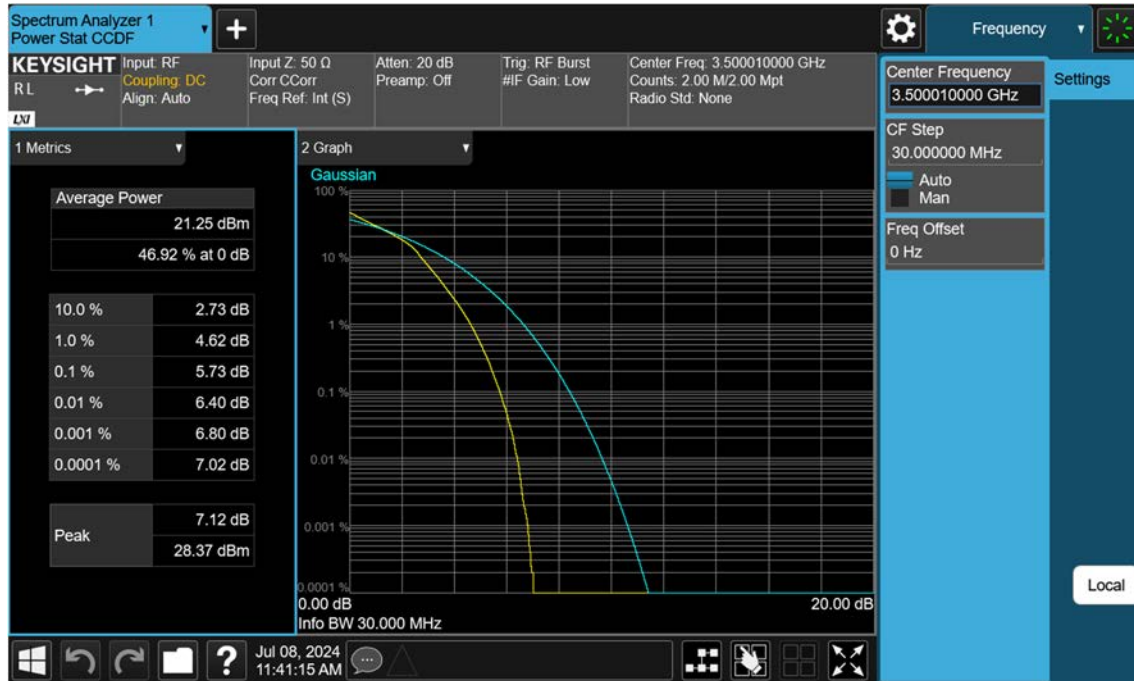
n77(3450~3550 MHz)_30 M_PAR_Mid_BPSK_FullIRB



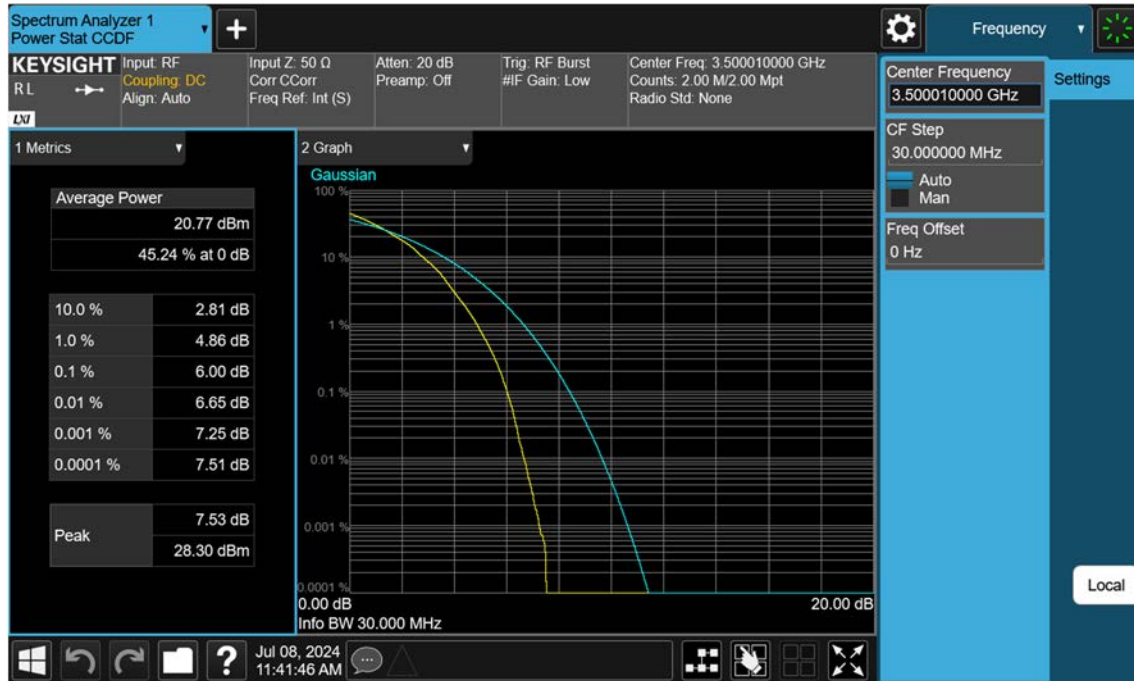
n77(3450~3550 MHz)_30 M_PAR_Mid_QPSK_FullRB



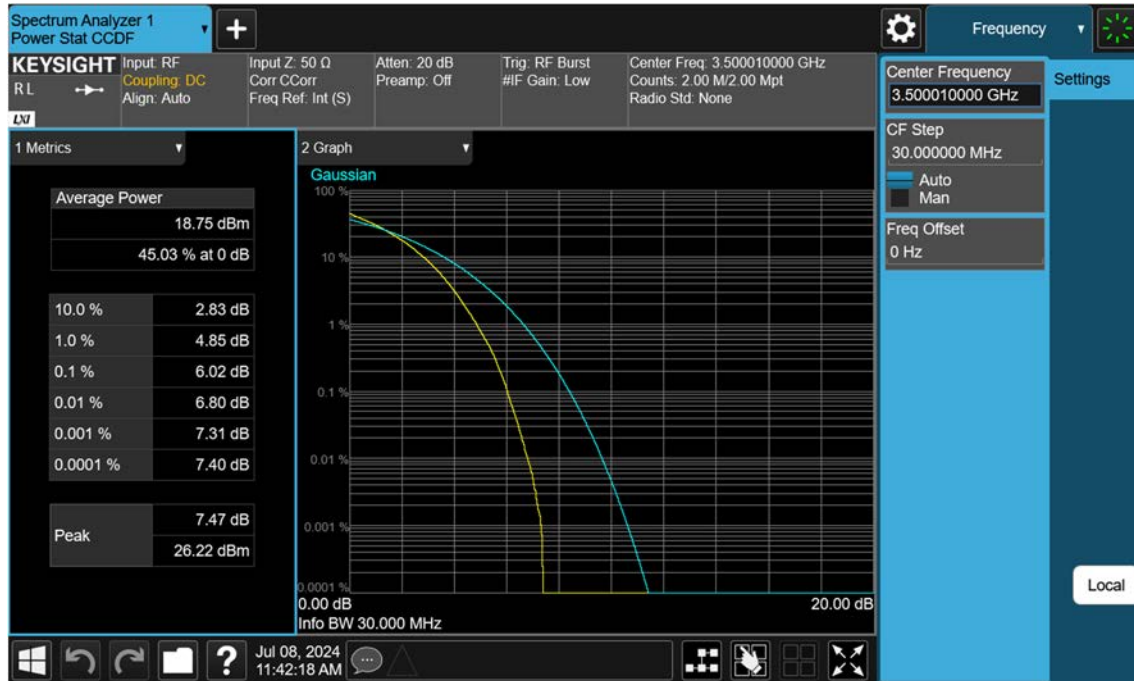
n77(3450~3550 MHz)_30 M_PAR_Mid_16QAM_FullRB



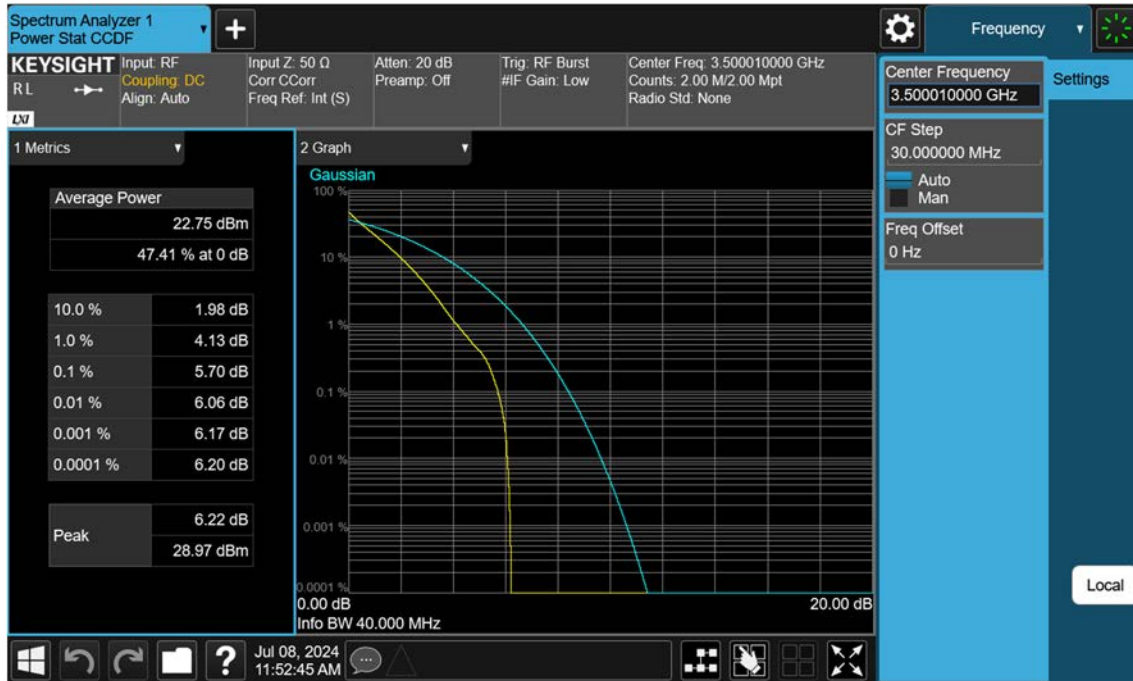
n77(3450~3550 MHz)_30 M_PAR_Mid_64QAM_FullRB



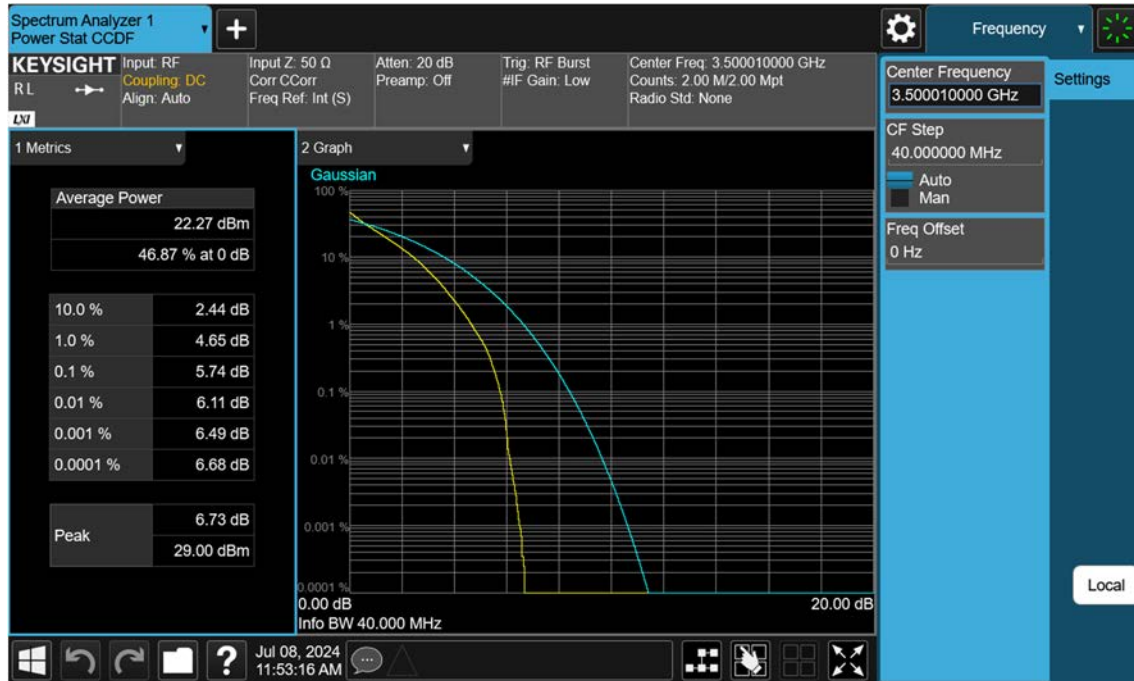
n77(3450~3550 MHz)_30 M_PAR_Mid_256QAM_FullRB



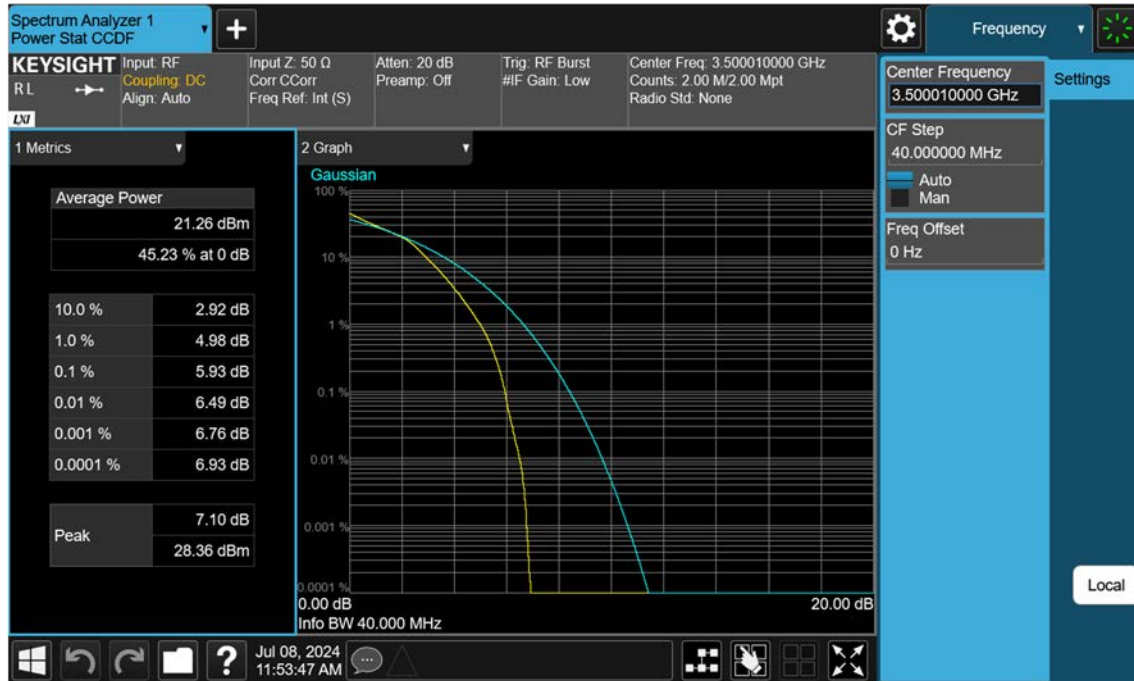
n77(3450~3550 MHz)_40 M_PAR_Mid_BPSK_FullRB



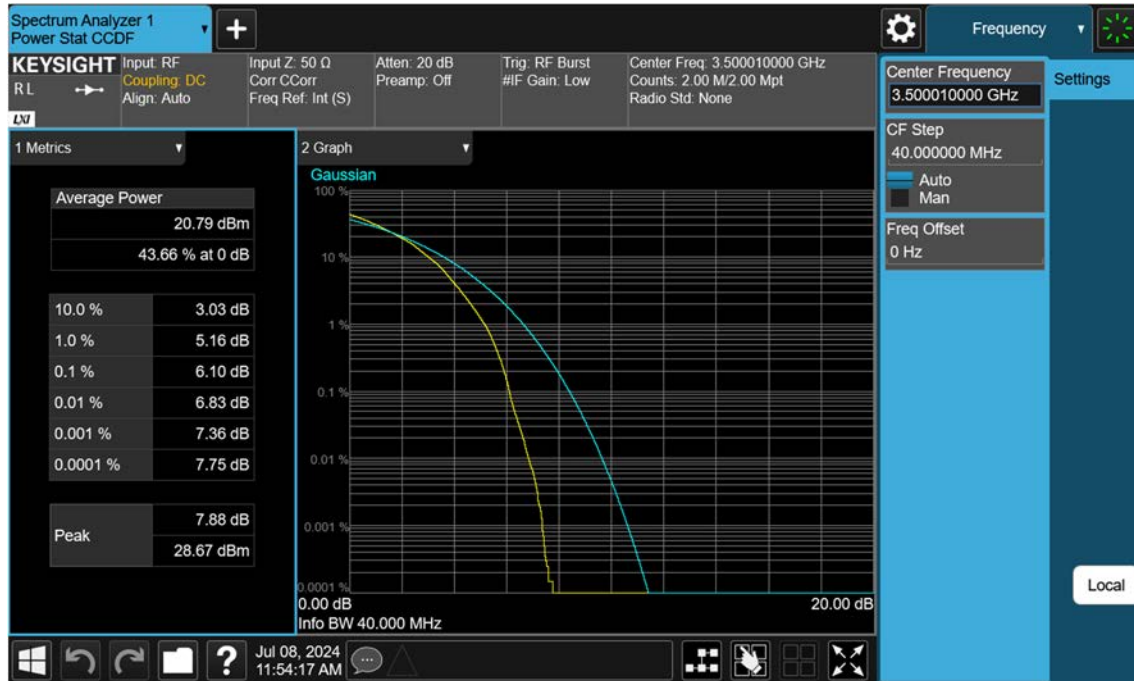
n77(3450~3550 MHz)_40 M_PAR_Mid_QPSK_FullRB



n77(3450~3550 MHz)_40 M_PAR_Mid_16QAM_FullRB



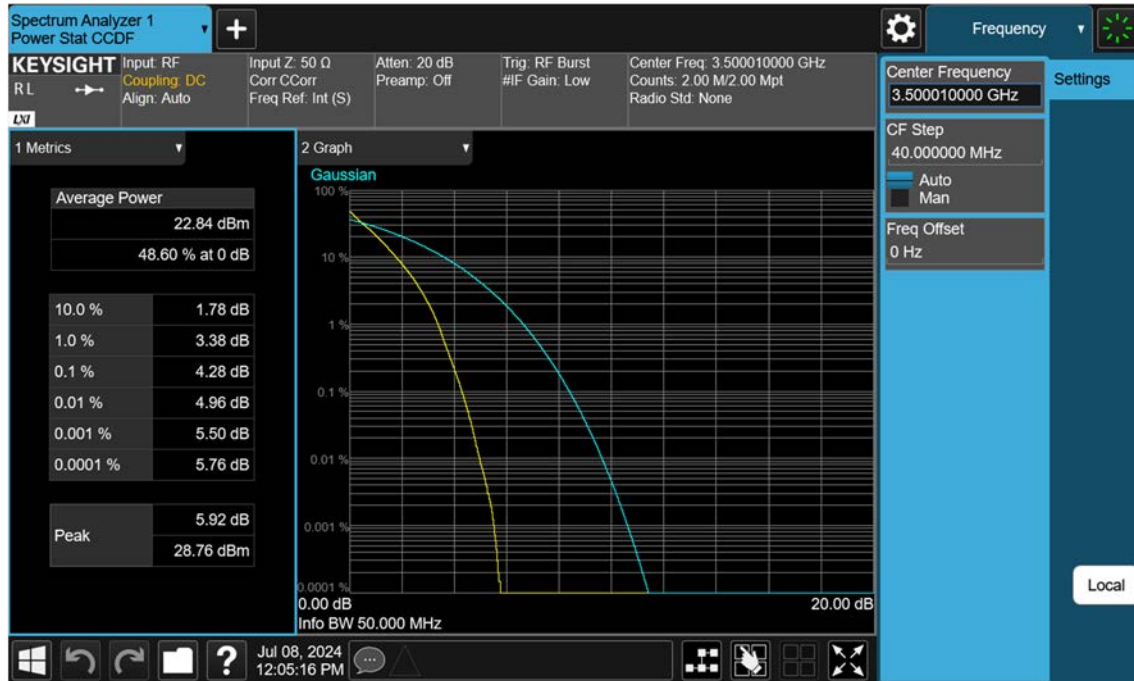
n77(3450~3550 MHz)_40 M_PAR_Mid_64QAM_FullRB



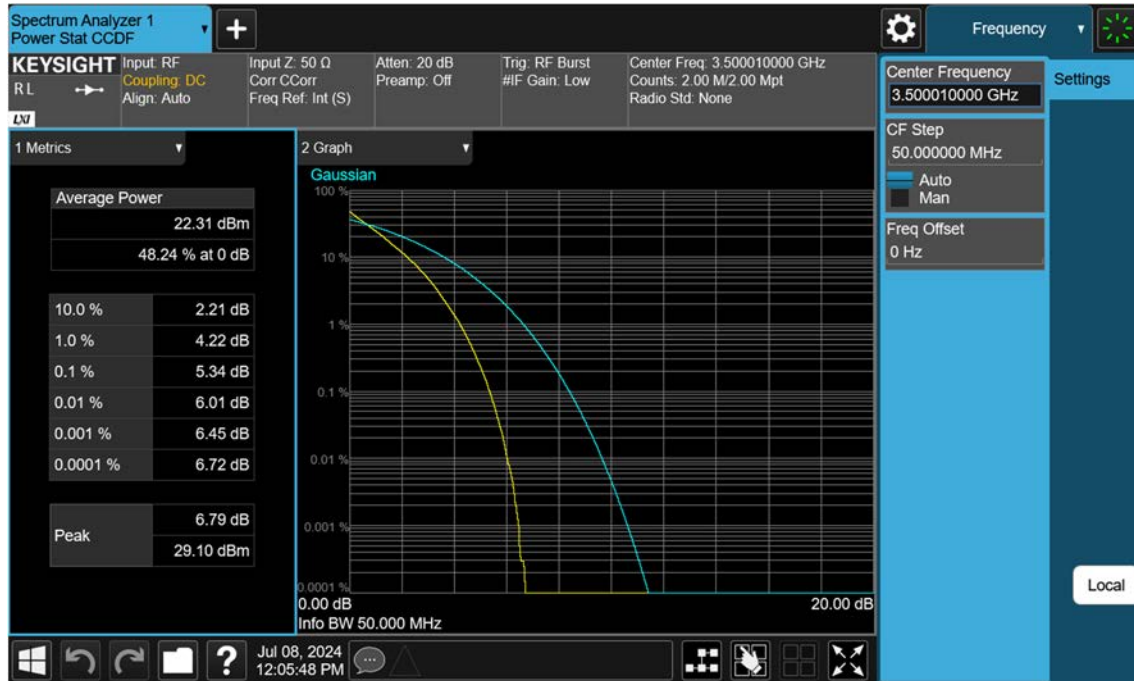
n77(3450~3550 MHz)_40 M_PAR_Mid_256QAM_FullRB



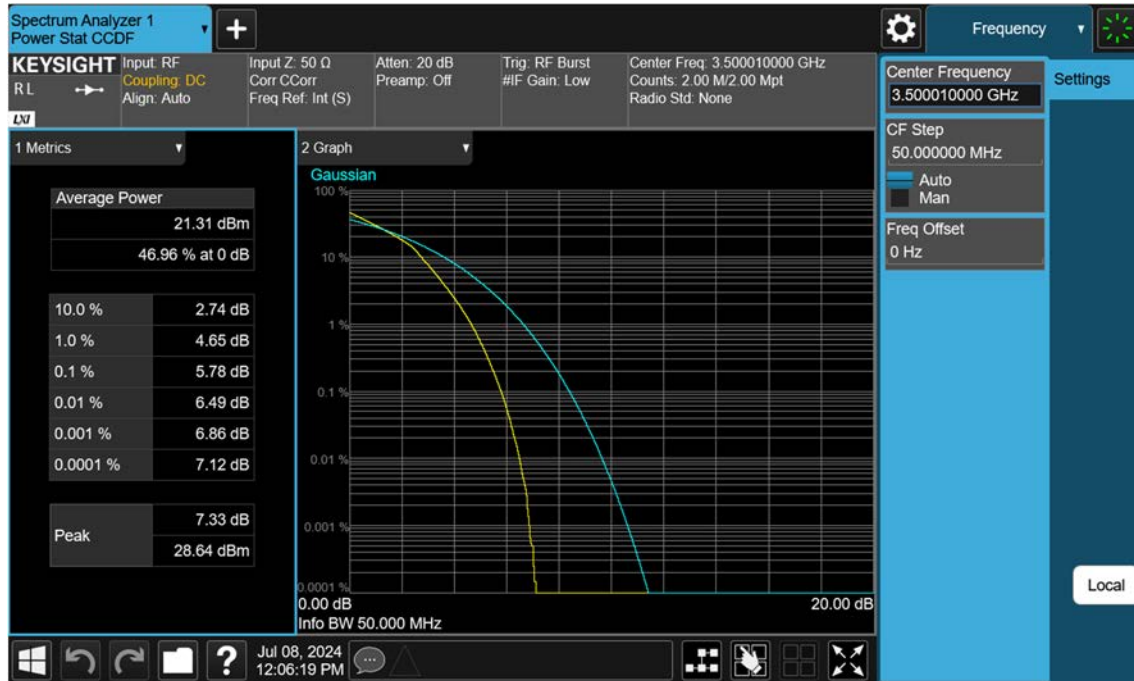
n77(3450~3550 MHz)_50 M_PAR_Mid_BPSK_FullRB



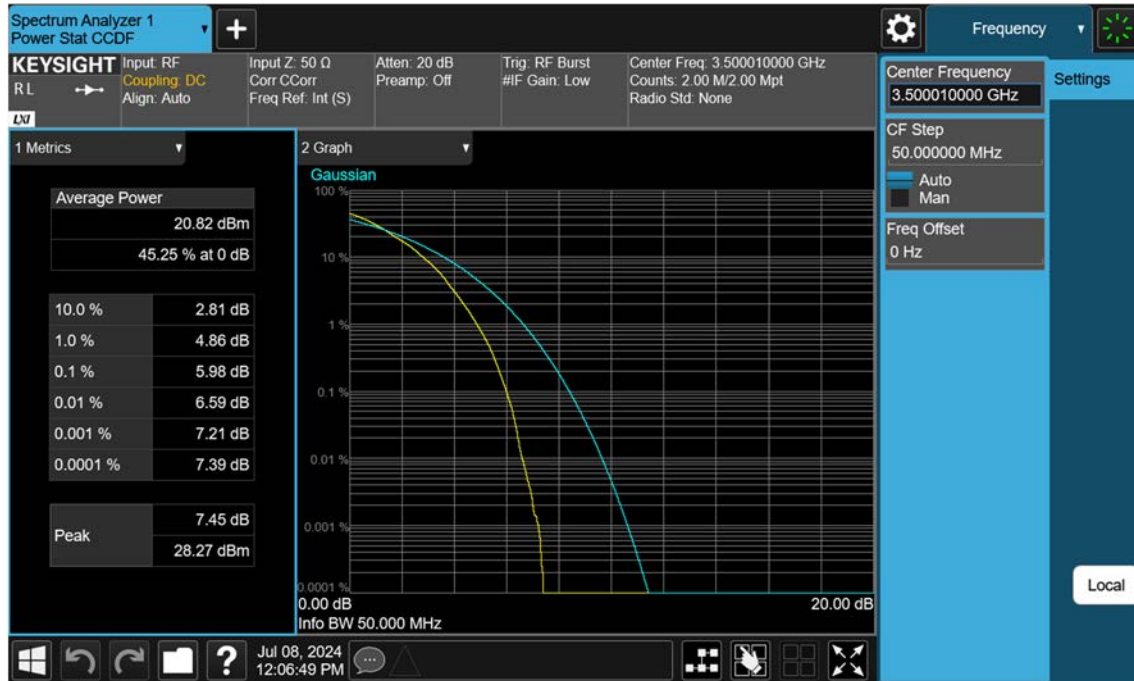
n77(3450~3550 MHz)_50 M_PAR_Mid_QPSK_FullRB



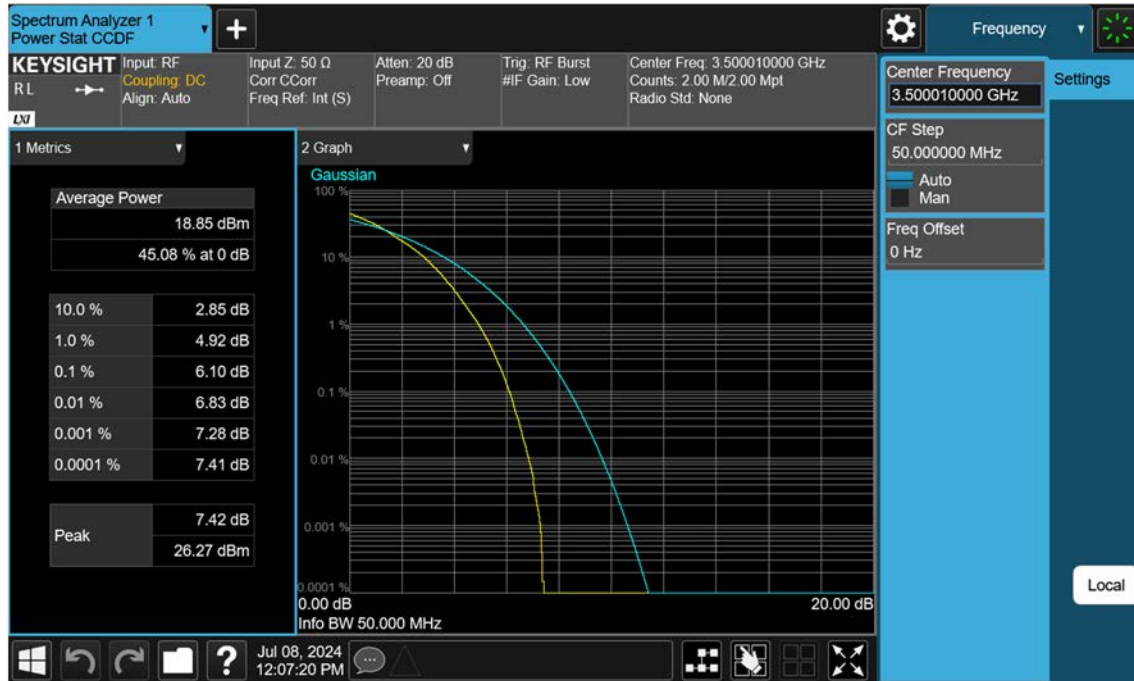
n77(3450~3550 MHz)_50 M_PAR_Mid_16QAM_FullRB



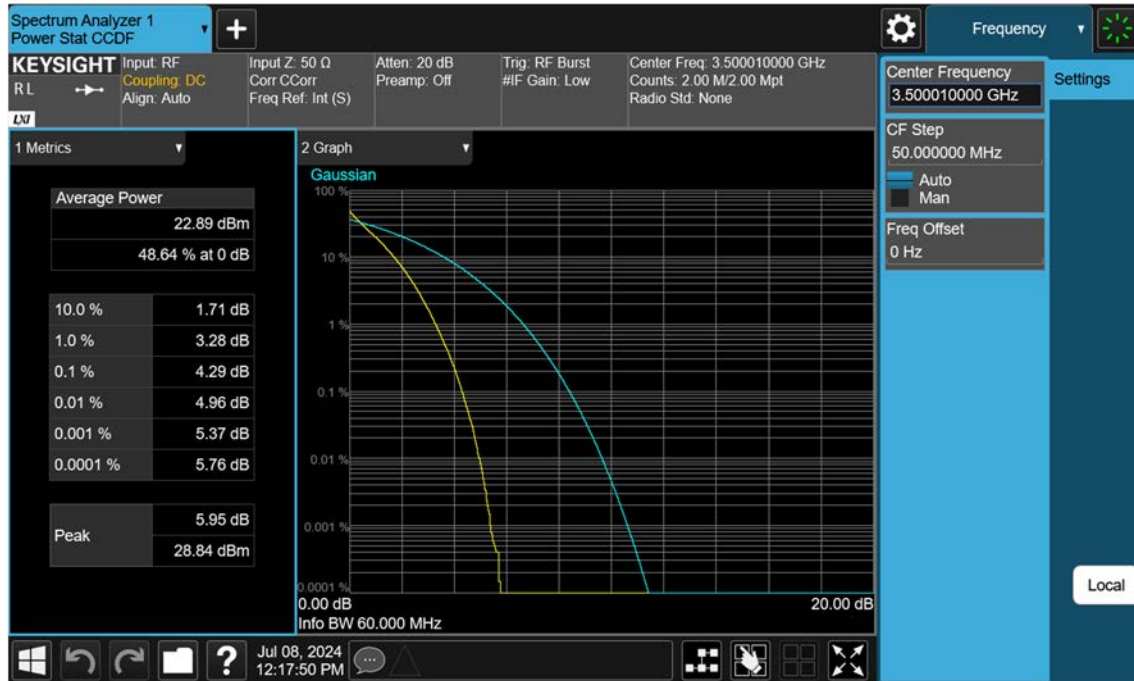
n77(3450~3550 MHz)_50 M_PAR_Mid_64QAM_FullRB



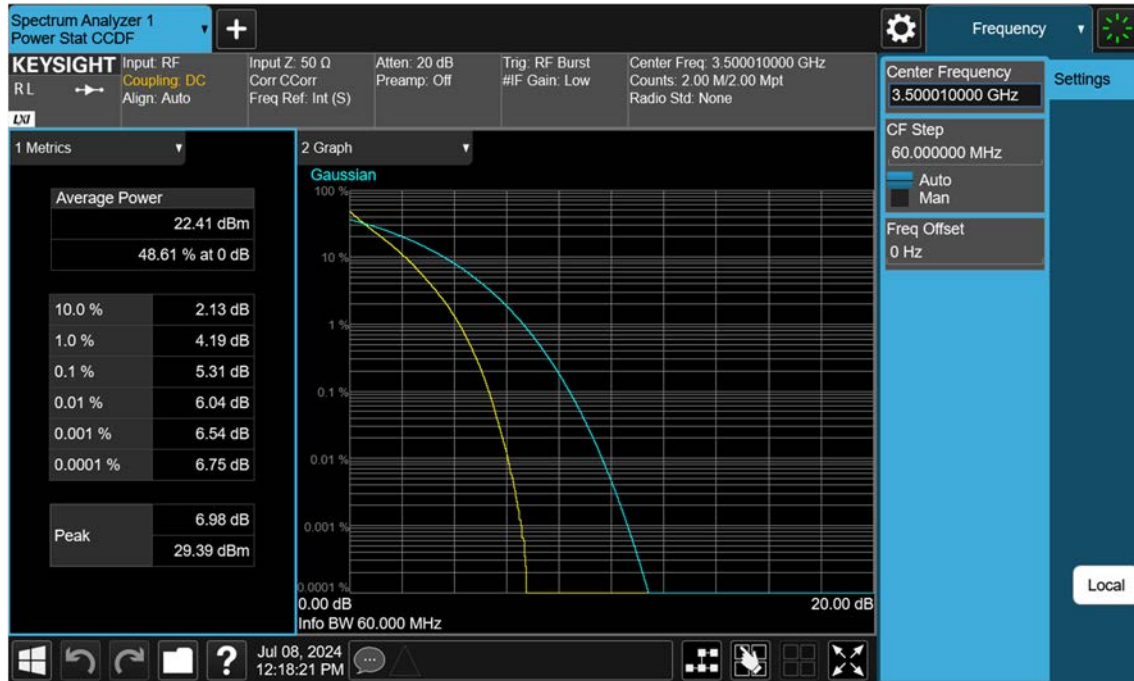
n77(3450~3550 MHz)_50 M_PAR_Mid_256QAM_FullRB



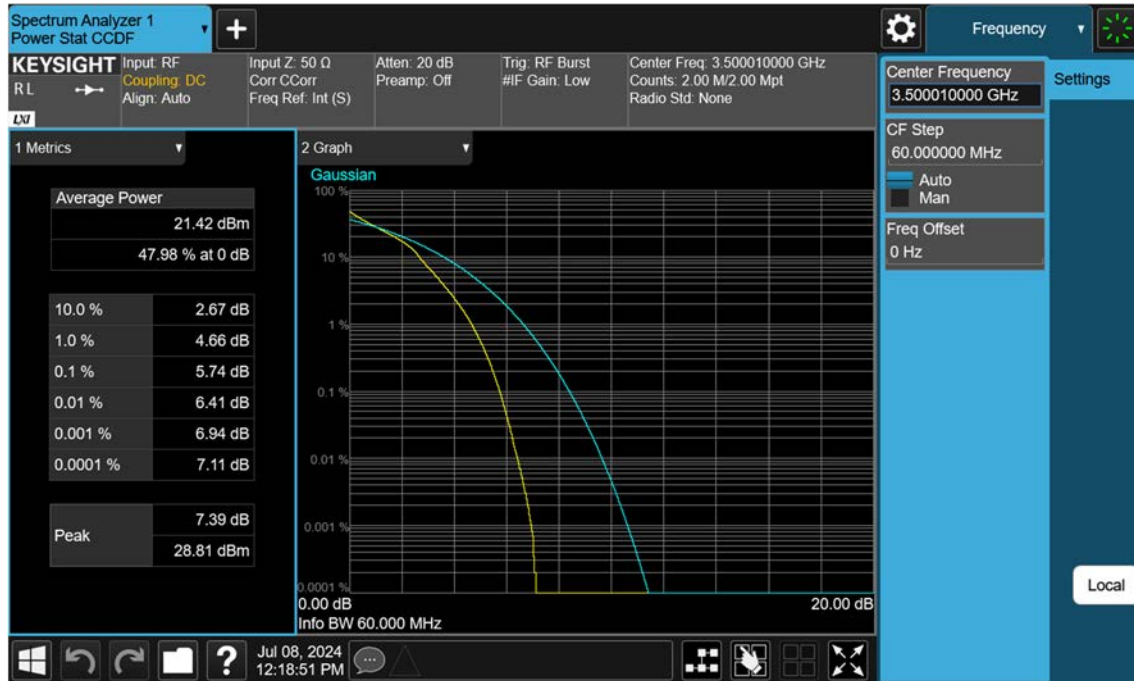
n77(3450~3550 MHz)_60 M_PAR_Mid_BPSK_FullIRB



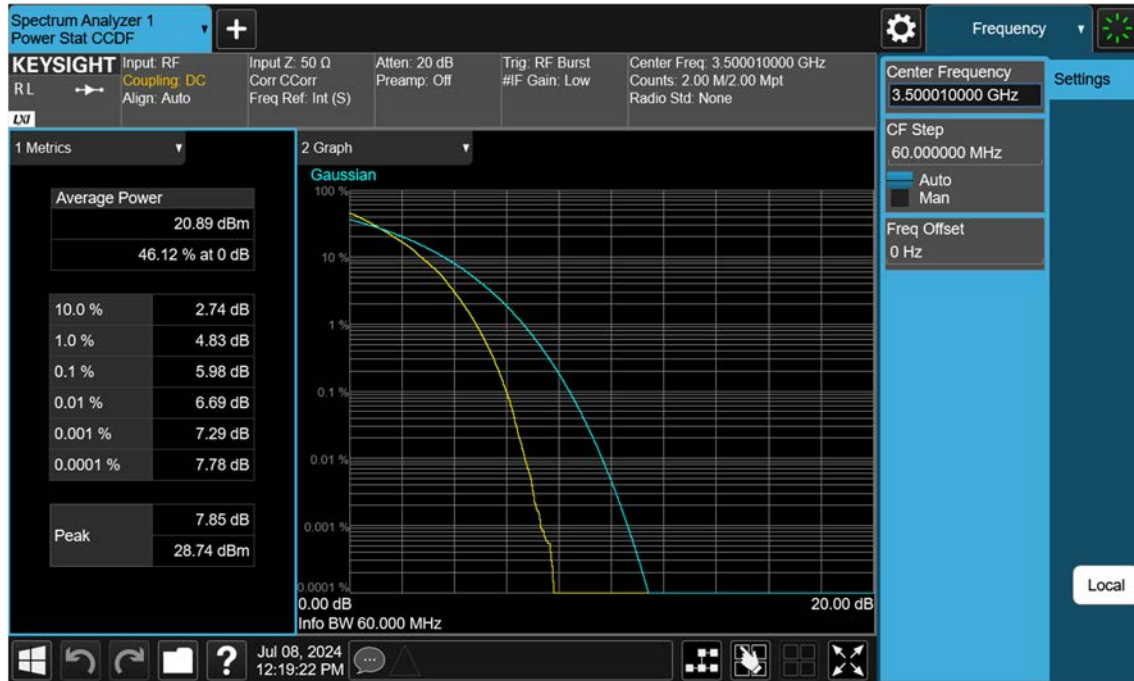
n77(3450~3550 MHz)_60 M_PAR_Mid_QPSK_FullRB



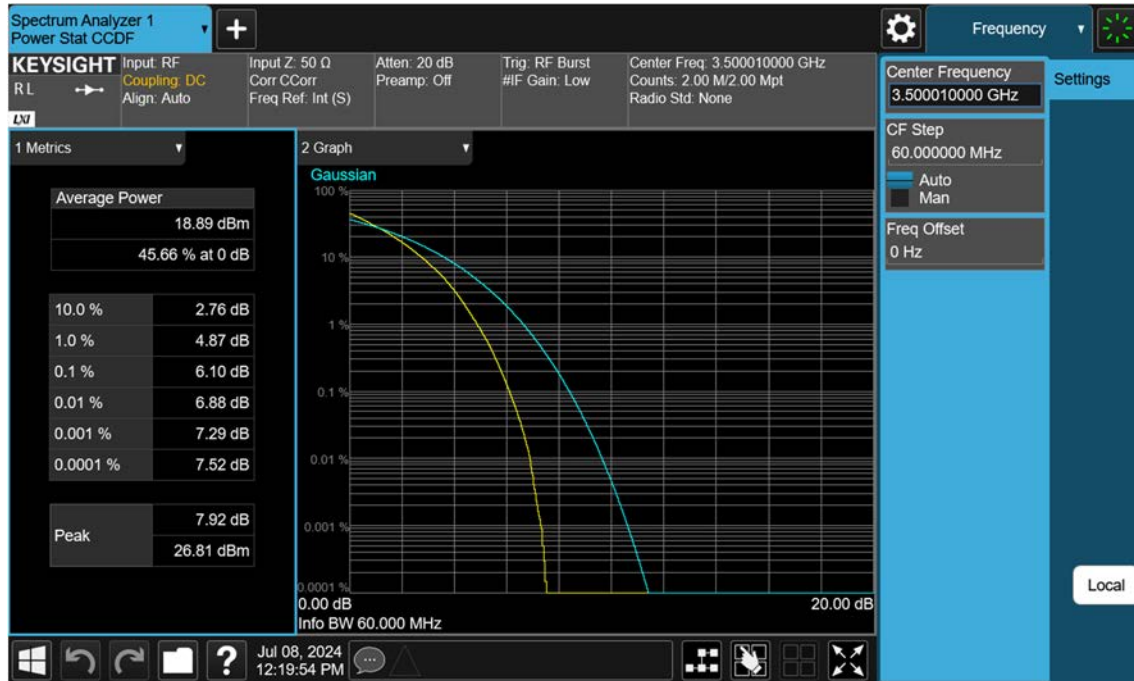
n77(3450~3550 MHz)_60 M_PAR_Mid_16QAM_FullRB



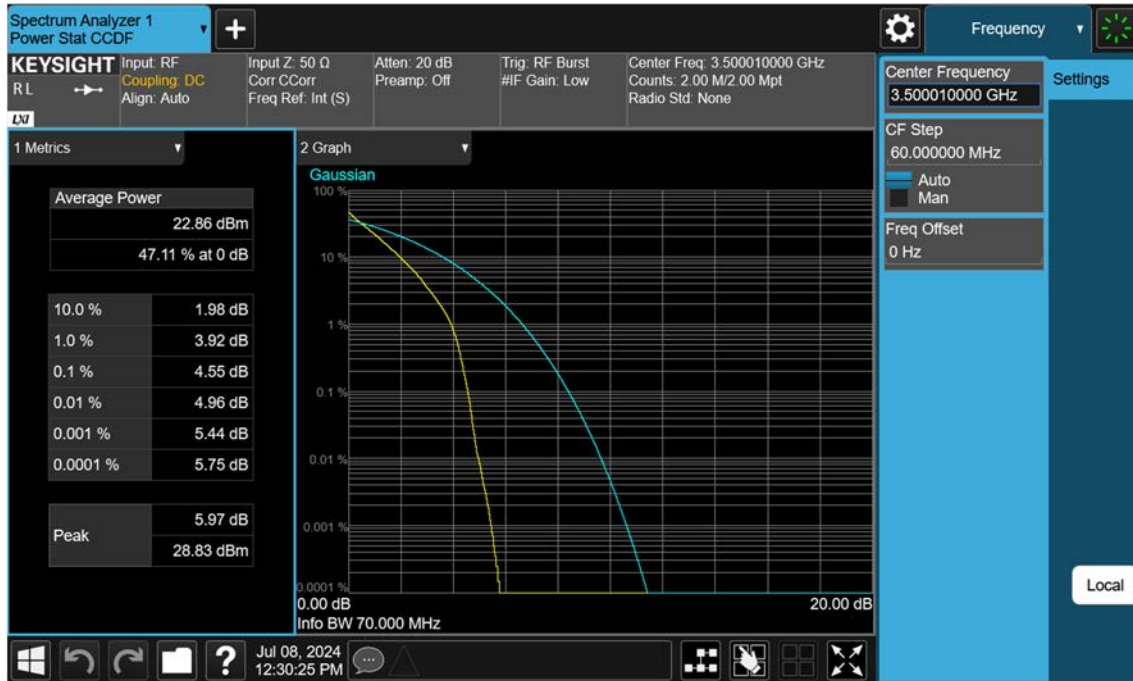
n77(3450~3550 MHz)_60 M_PAR_Mid_64QAM_FullRB



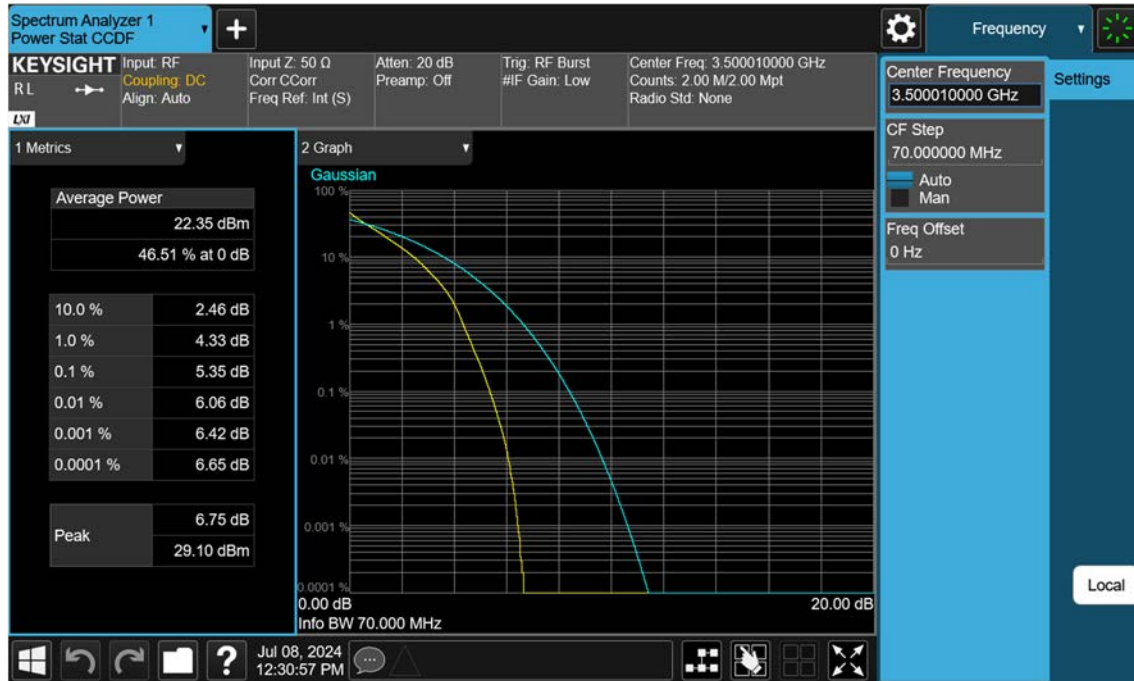
n77(3450~3550 MHz)_60 M_PAR_Mid_256QAM_FullRB



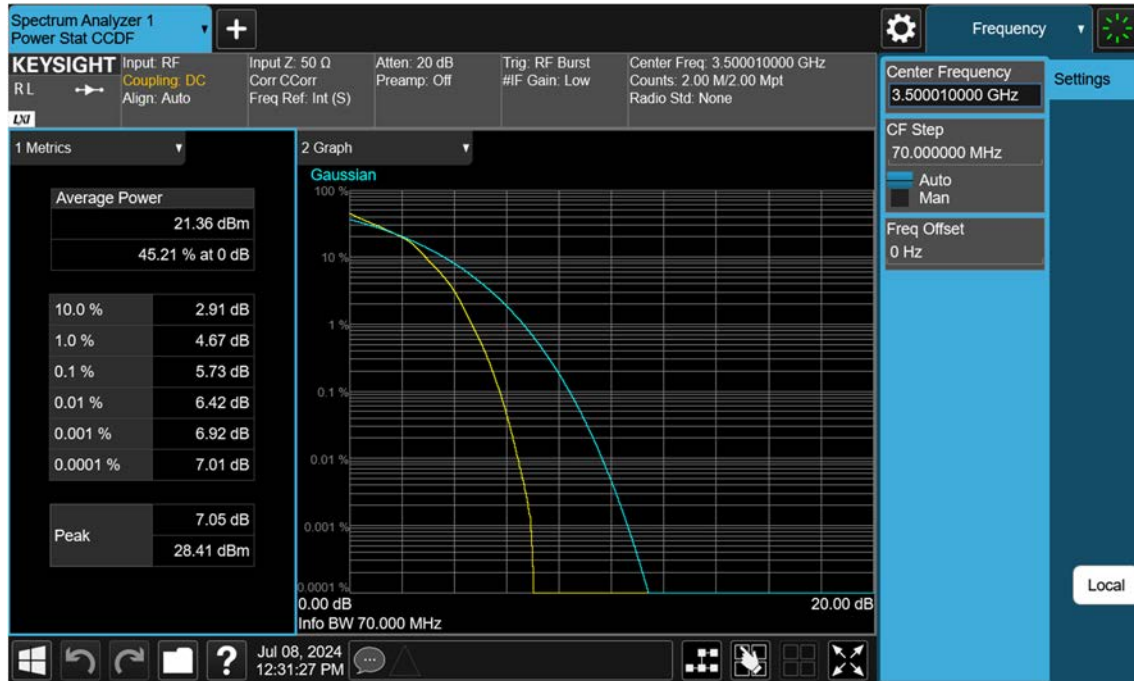
n77(3450~3550 MHz)_70 M_PAR_Mid_BPSK_FullRB



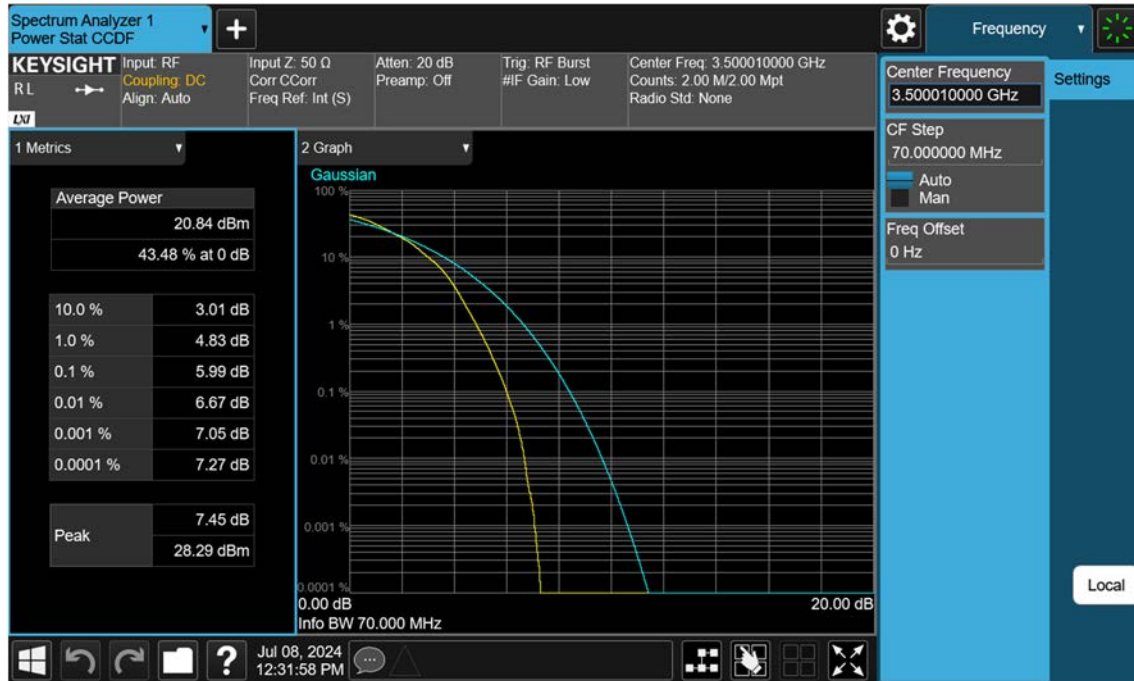
n77(3450~3550 MHz)_70 M_PAR_Mid_QPSK_FullRB



n77(3450~3550 MHz)_70 M_PAR_Mid_16QAM_FullRB



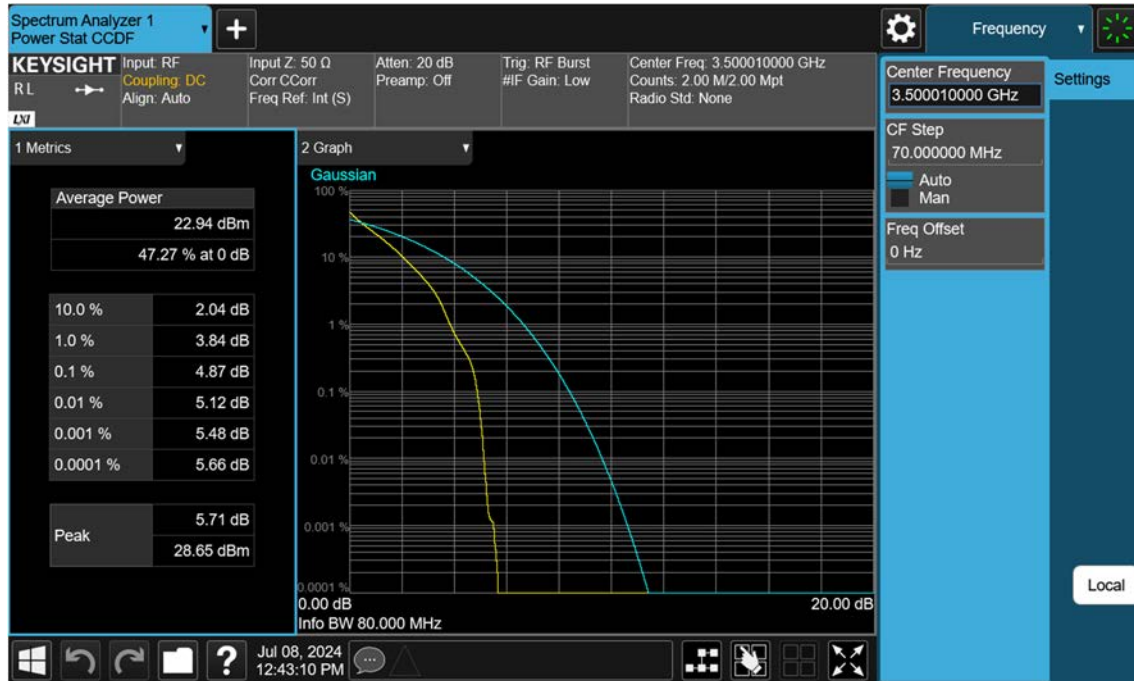
n77(3450~3550 MHz)_70 M_PAR_Mid_64QAM_FullRB



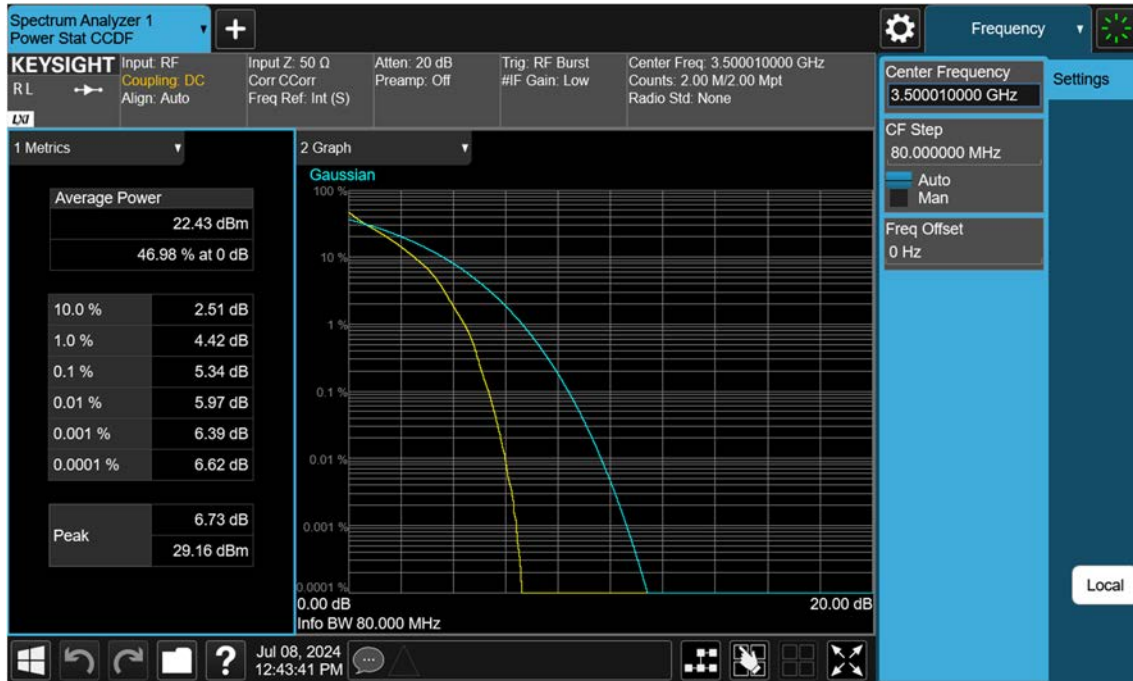
n77(3450~3550 MHz)_70 M_PAR_Mid_256QAM_FullRB



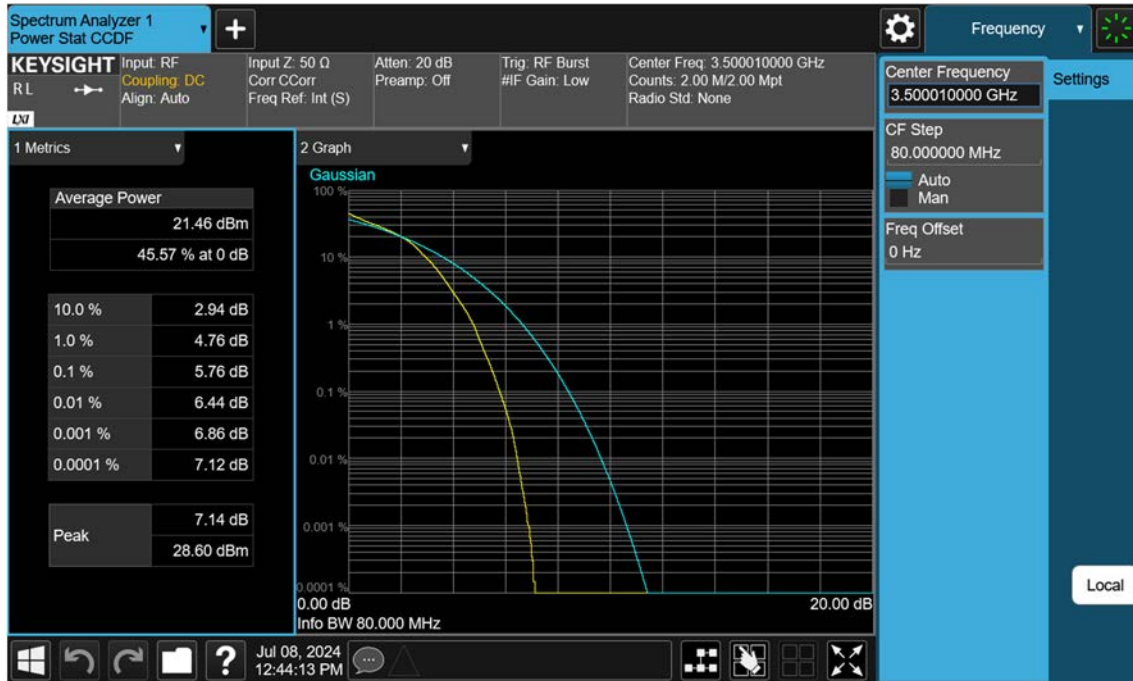
n77(3450~3550 MHz)_80 M_PAR_Mid_BPSK_FullRB



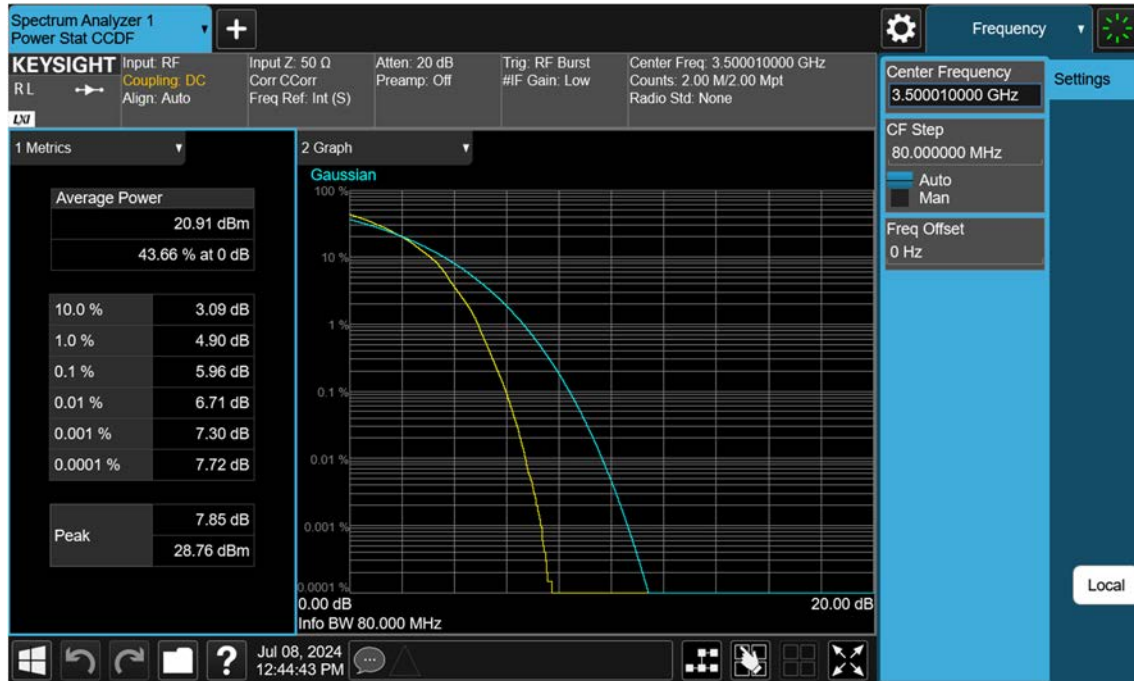
n77(3450~3550 MHz)_80 M_PAR_Mid_QPSK_FullRB



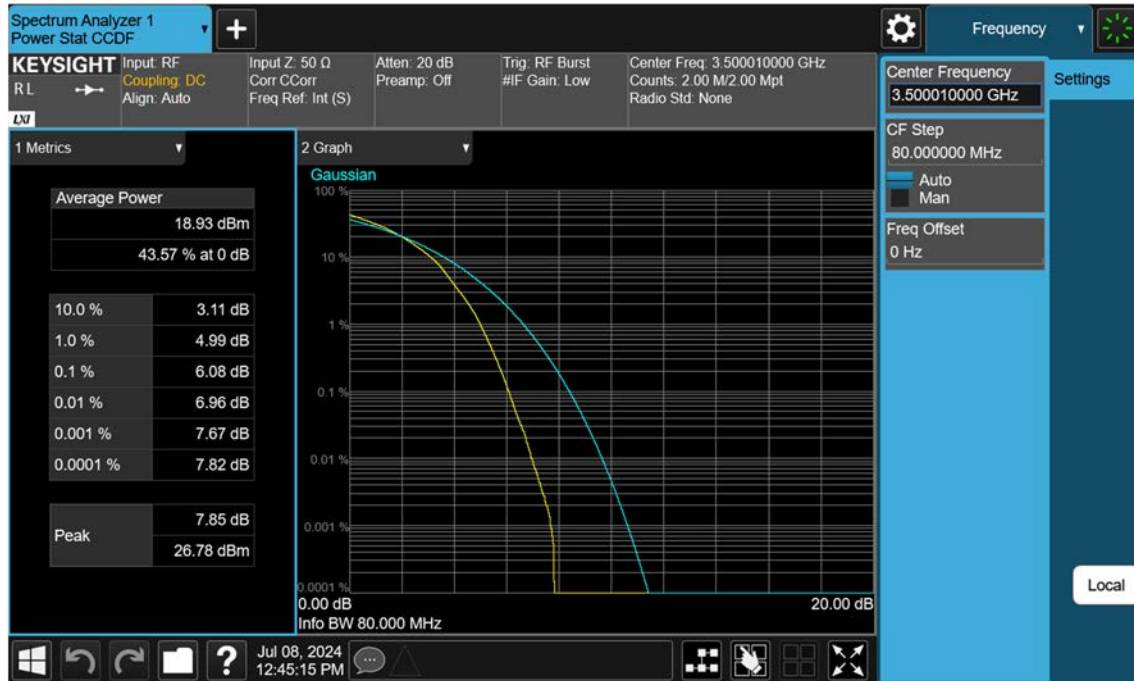
n77(3450~3550 MHz)_80 M_PAR_Mid_16QAM_FullRB



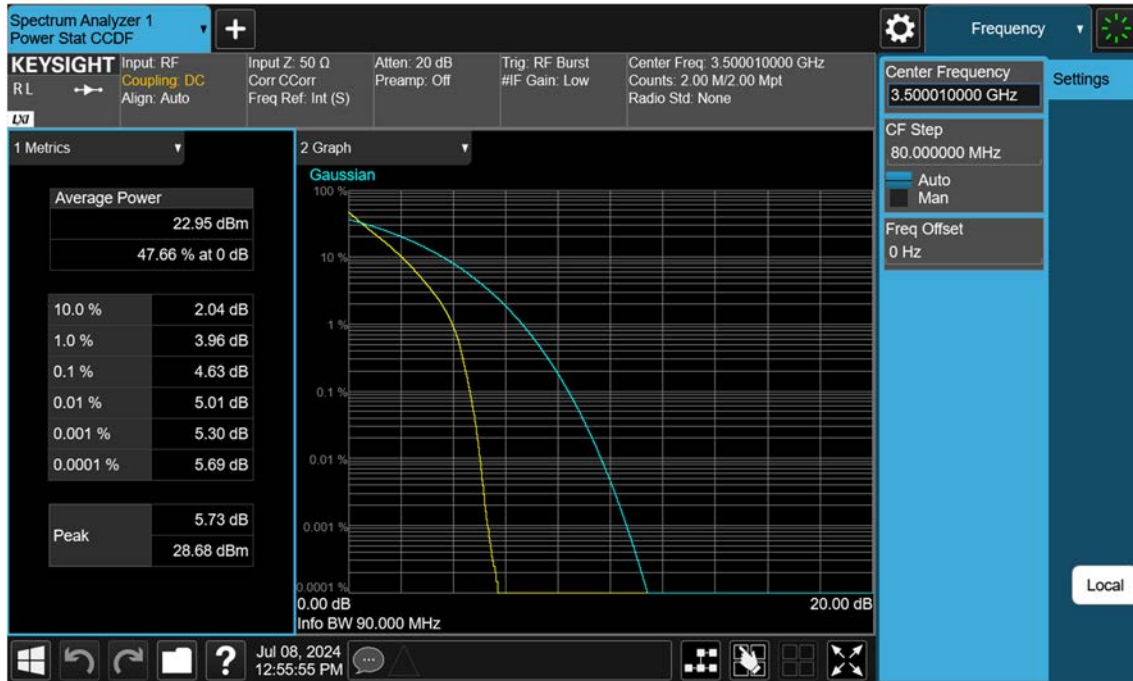
n77(3450~3550 MHz)_80 M_PAR_Mid_64QAM_FullRB



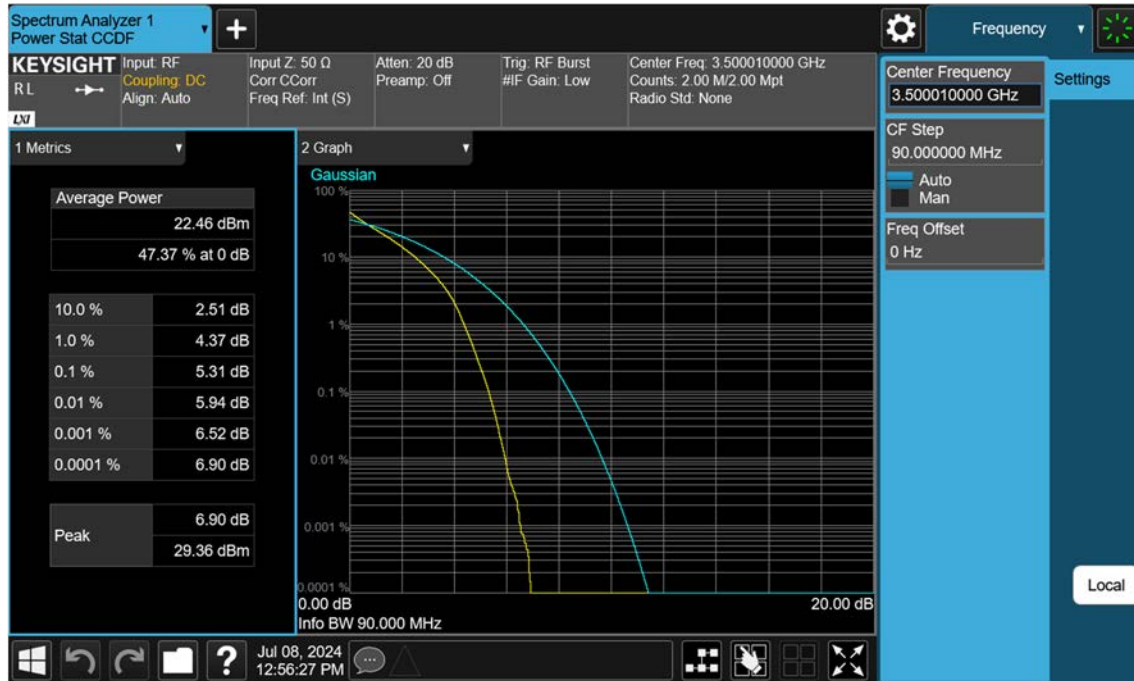
n77(3450~3550 MHz)_80 M_PAR_Mid_256QAM_FullRB



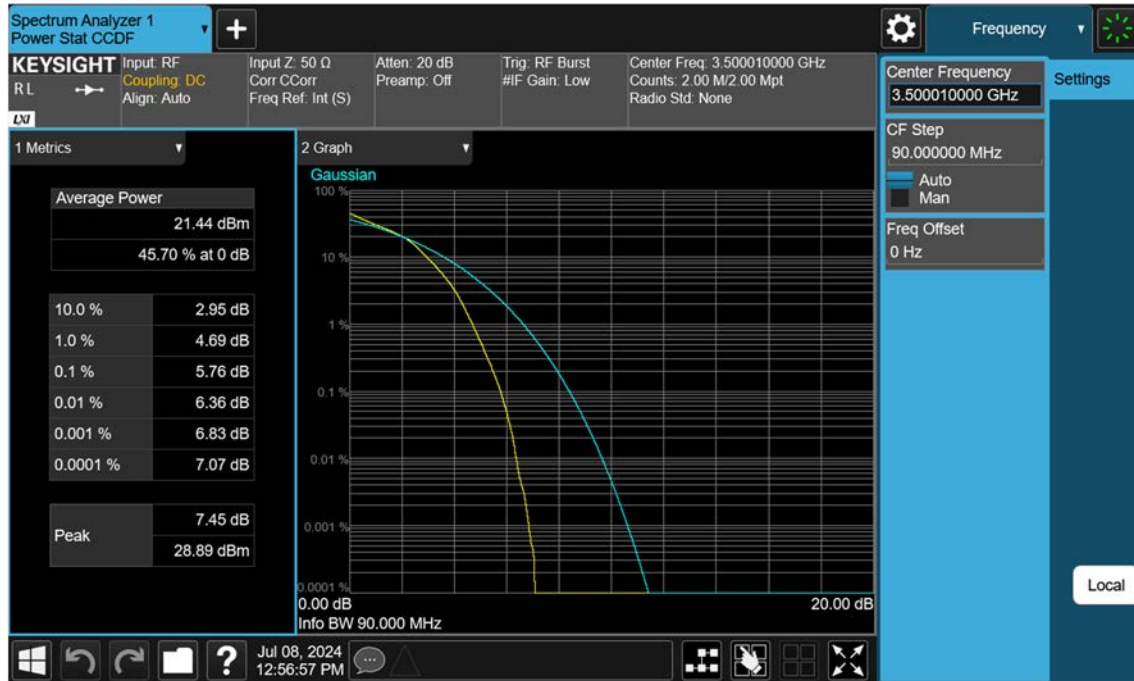
n77(3450~3550 MHz)_90 M_PAR_Mid_BPSK_FullIRB



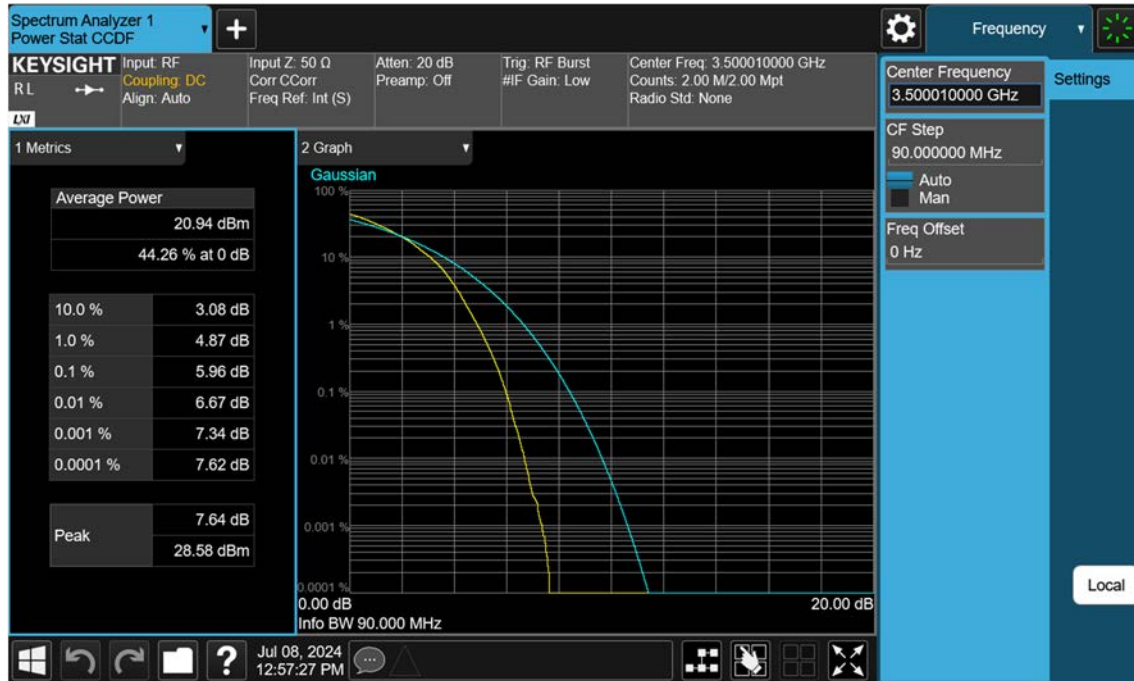
n77(3450~3550 MHz)_90 M_PAR_Mid_QPSK_FullRB



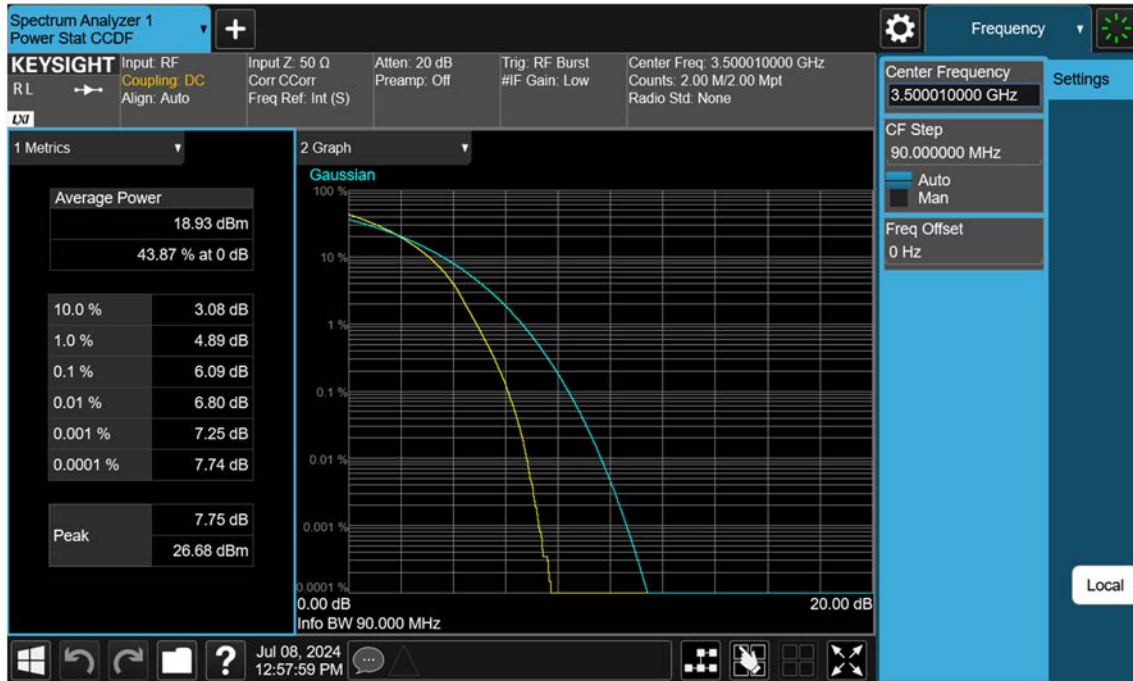
n77(3450~3550 MHz)_90 M_PAR_Mid_16QAM_FullRB



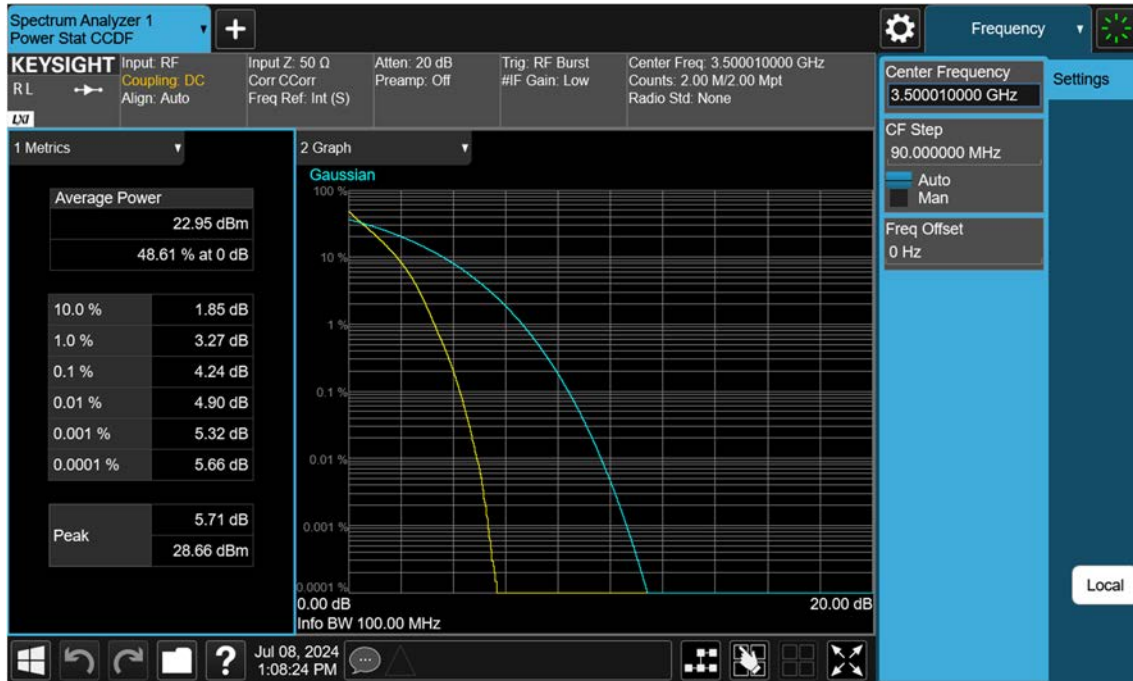
n77(3450~3550 MHz)_90 M_PAR_Mid_64QAM_FullRB



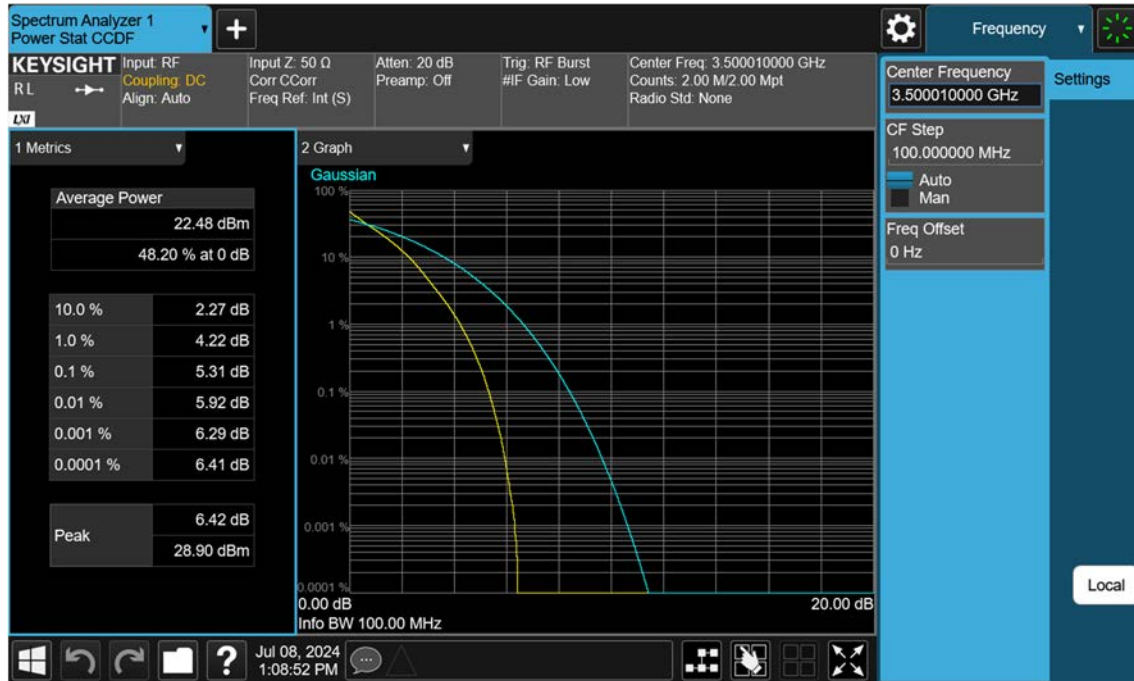
n77(3450~3550 MHz)_90 M_PAR_Mid_256QAM_FullRB



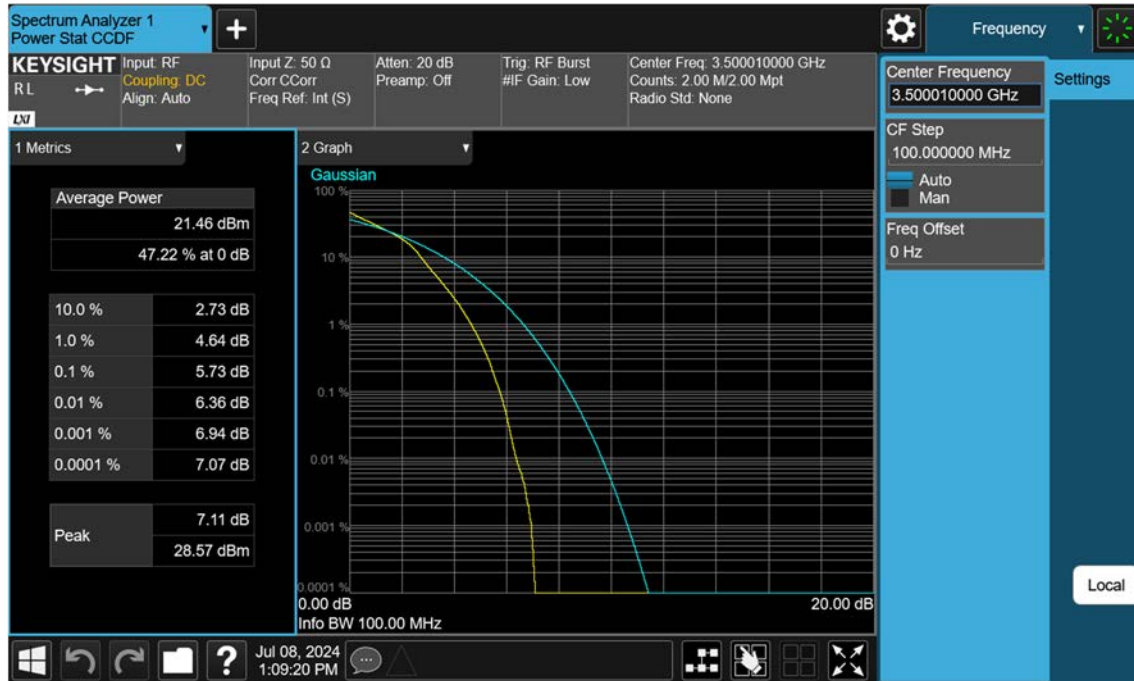
n77(3450~3550 MHz)_100 M_PAR_Mid_BPSK_FullIRB



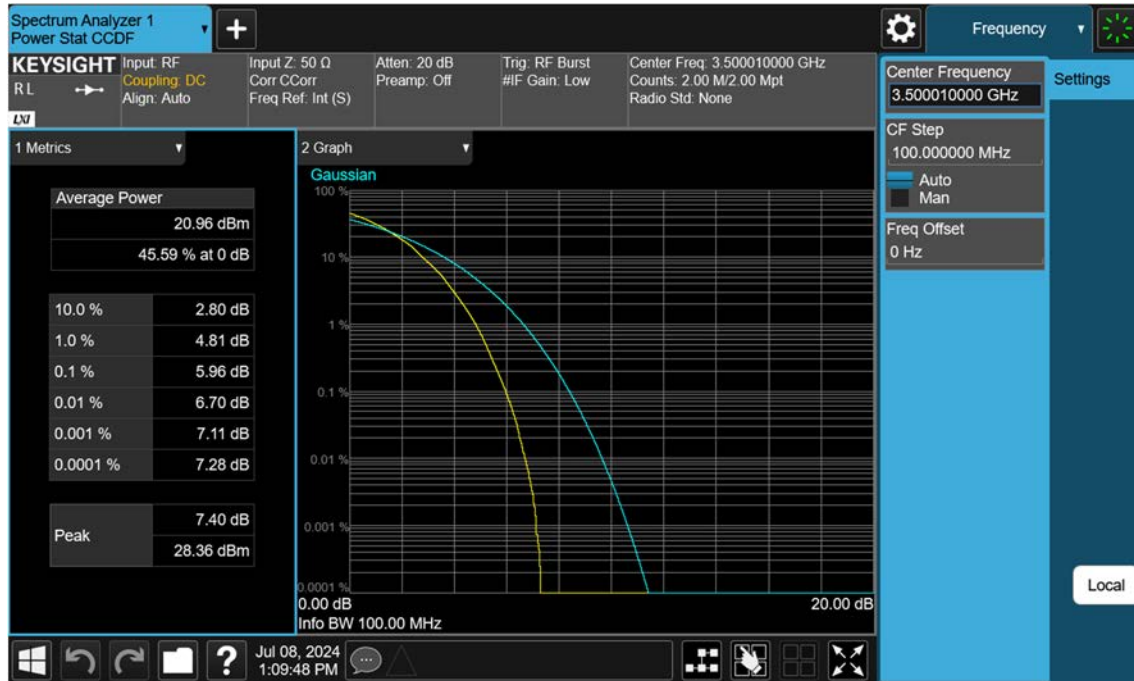
n77(3450~3550 MHz)_100 M_PAR_Mid_QPSK_FullRB



n77(3450~3550 MHz)_100 M_PAR_Mid_16QAM_FullRB



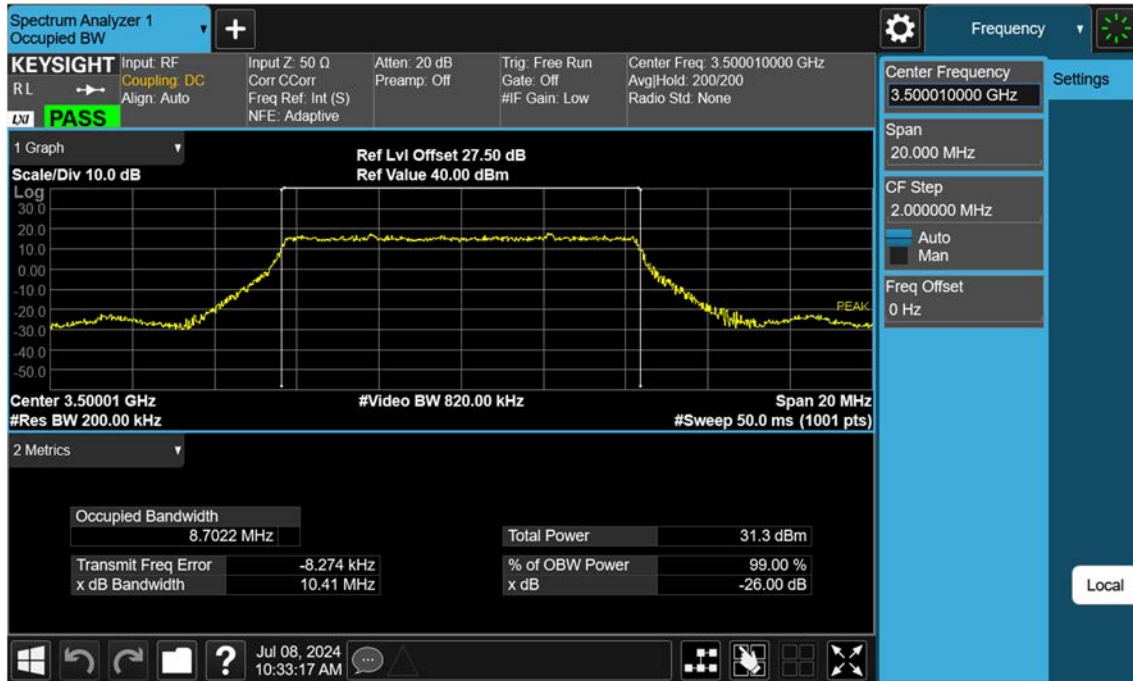
n77(3450~3550 MHz)_100 M_PAR_Mid_64QAM_FullRB



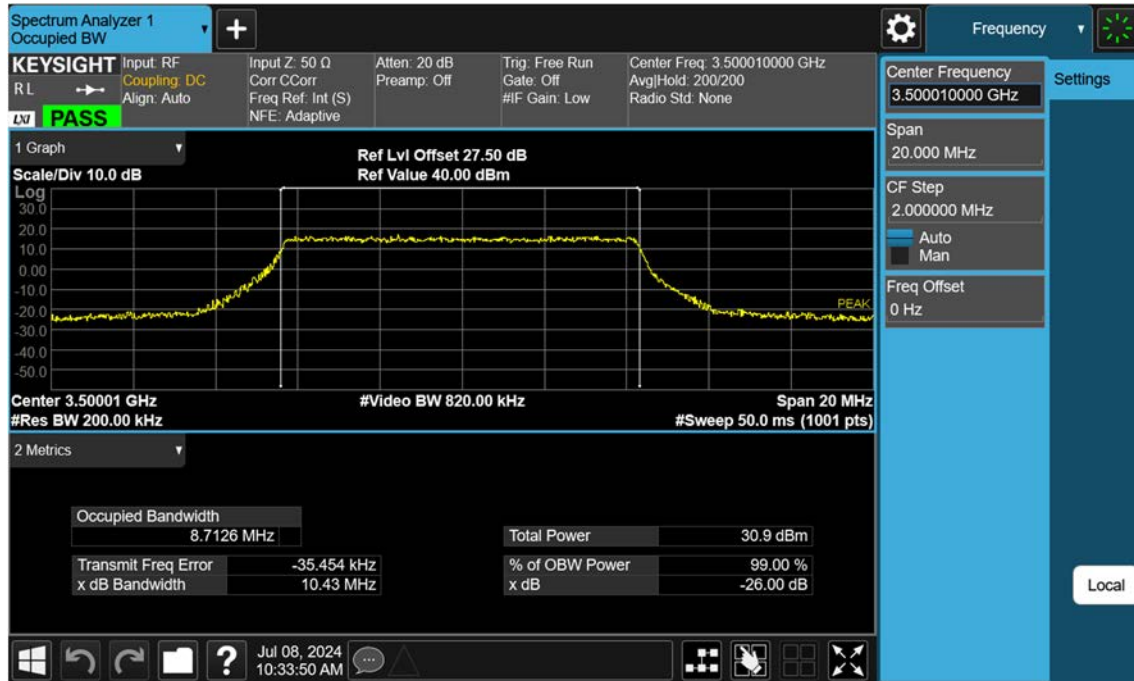
n77(3450~3550 MHz)_100 M_PAR_Mid_256QAM_FullRB



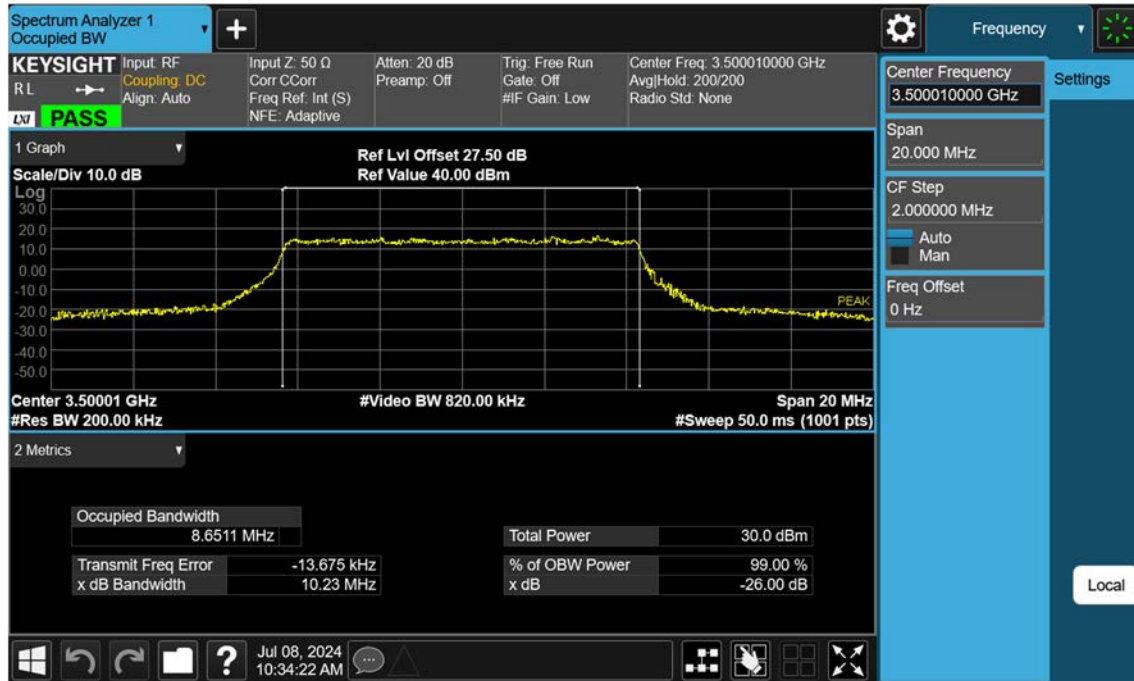
n77(3450~3550 MHz)_10 M_OBW_Mid_BPSK_FullIRB



n77(3450~3550 MHz)_10 M_OBW_Mid_QPSK_FullRB



n77(3450~3550 MHz)_10 M_OBW_Mid_16QAM_FullRB



n77(3450~3550 MHz)_10 M_OBW_Mid_64QAM_FullRB

