TEST REPORT

FCC Sub6 n7 Test for TM19FNEUHD2
Certification

APPLICANT
LG Electronics Inc.

REPORT NO.
HCT-RF-2412-FC058

DATE OF ISSUE
December 20, 2024

Tested by
Jung Ki Lim

Technical Manager
Jong Seok Lee

Accredited by KOLAS, Republic of KOREA

HCT CO., LTD.
BongJai Huh / CEO

HCT CO., LTD. 2-6, 73, 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea Tel. +82 31 645 6300 Fax. +82 31 645 6401

HCT CO.,LTD.
2-6, 73, 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea
Tel. +82 31 645 6300 Fax. +82 31 645 6401

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Applicant	**LG Electronics Inc.** 128, Yeoui-daero, Yeongdeungpo-gu, Seoul, Republic of Korea
Product Name Model Name	Telematics TM19FNEUHD2
Date of Test	September 30, 2024 ~ December 10, 2024
Location of Test	■ Permanent Testing Lab ☐ On Site Testing (Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea)
FCC ID	BEJTM19FNEUHD2
FCC Classification	PCS Licensed Transmitter (PCB)
Test Standard Used	FCC Rule Part(s) : § 27
Test Results	PASS

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	December 20, 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
This test report provides test result(s) under the scope accredited by the Korea Laboratory Accreditation Scheme (KOLAS), which signed the ILAC-MRA. (KOLAS (KS Q ISO/IEC 17025) Accreditation No. KT197)

CONTENTS

MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	LG Electronics Inc.
Address:	128, Yeoui-daero, Yeongdeungpo-gu, Seoul, Republic of Korea
FCC ID:	BEJTM19FNEUHD2
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§ 27
EUT Type:	Telematics
Model(s):	TM19FNEUHD2
SCS(kHz):	15
Bandwidth(MHz):	5, 10, 15, 20, 25, 30, 40
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:	2502.5 MHz – 2567.5 MHz : 5 MHz 2505.0 MHz – 2565.0 MHz : 10 MHz 2507.5 MHz – 2562.5 MHz : 15 MHz 2510.0 MHz – 2560.0 MHz : 20 MHz 2512.5 MHz – 2557.5 MHz : 25 MHz 2515.0 MHz – 2555.0 MHz : 30 MHz 2520.0 MHz – 2555.0 MHz : 40 MHz
Date(s) of Tests:	September 30, 2024 ~ December 10, 2024
EUT Serial number:	Radiated : Honda MY26 #02 Conducted : Honda MY26 #01
Antenna Information	Please refer to the Antenna Approval Specification document.

1.1. MAXIMUM OUTPUT POWER

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	Conducted Output Power	
				Max. Power (W)	Max. Power (dBm)
Sub6 n7 (5)	2502.5 – 2567.5	4M51G7D	PI/2 BPSK	0.226	23.55
		4M51G7D	QPSK	0.225	23.53
		4M51W7D	16QAM	0.179	22.52
		4M51W7D	64QAM	0.126	21.00
		4M50W7D	256QAM	0.079	19.00
Sub6 n7 (10)	2505.0 – 2565.0	8M98G7D	PI/2 BPSK	0.229	23.60
		9M00G7D	QPSK	0.221	23.45
		8M99W7D	16QAM	0.179	22.53
		8M99W7D	64QAM	0.127	21.05
		8M97W7D	256QAM	0.082	19.13
Sub6 n7 (15)	2507.5 – 2562.5	13M5G7D	PI/2 BPSK	0.237	23.75
		13M5G7D	QPSK	0.234	23.70
		13M5W7D	16QAM	0.187	22.73
		13M5W7D	64QAM	0.132	21.19
		13M5W7D	256QAM	0.083	19.21
Sub6 n7 (20)	2510.0 – 2560.0	17M9G7D	PI/2 BPSK	0.238	23.76
		17M9G7D	QPSK	0.234	23.70
		17M9W7D	16QAM	0.185	22.67
		18M0W7D	64QAM	0.135	21.31
		17M9W7D	256QAM	0.083	19.19
Sub6 n7 (25)	2512.5 – 2557.5	22M9G7D	PI/2 BPSK	0.243	23.85
		22M9G7D	QPSK	0.239	23.79
		23M0W7D	16QAM	0.192	22.83
		23M0W7D	64QAM	0.134	21.26
		22M9W7D	256QAM	0.087	19.38
Sub6 n7 (30)	2515.0 – 2555.0	28M6G7D	PI/2 BPSK	0.245	23.89
		28M7G7D	QPSK	0.244	23.88
		28M6W7D	16QAM	0.190	22.79
		28M6W7D	64QAM	0.134	21.28
		28M6W7D	256QAM	0.088	19.45
Sub6 n7 (40)	2520.0 – 2555.0	38M6G7D	PI/2 BPSK	0.247	23.92
		38M7G7D	QPSK	0.242	23.83
		38M7W7D	16QAM	0.191	22.82
		38M7W7D	64QAM	0.140	21.47
		38M7W7D	256QAM	0.089	19.48

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

The EUT was a Telematics with GSM/GPRS/EGPRS/UMTS and LTE, Sub 6.

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

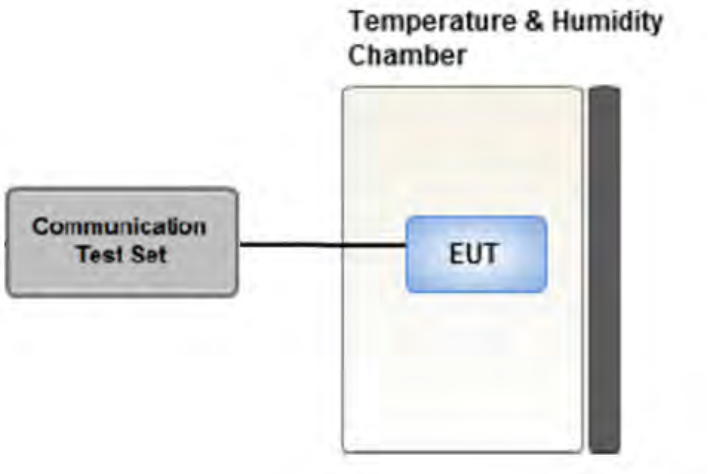
The Fully-anechoic chamber and conducted measurement facility used to collect the radiated data are located at the **74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea**

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	- KDB 971168 D01 v03r01 – Section 5.2
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
Radiated Power	- ANSI C63.26-2015 – Section 5.2.4.4 - KDB 971168 D01 v03r01 – Section 5.8
Radiated Spurious and Harmonic Emissions	- ANSI C63.26-2015 – Section 5.5.3 - KDB 971168 D01 v03r01 – Section 5.8

3.2 CONDUCTED OUTPUT POWER



Test setup

Test Overview

When an average power meter is used to perform RF output power measurements, the fundamental condition that measurements be performed only over durations of active transmissions at maximum output power level applies.

Conducted Output Power was tested in accordance with KDB971168 D01 Power Meas License Digital Systems v03r01, Section 5.2.

3.3 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.

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5 % of the expected OBW, not to exceed 1 MHz
3. VBW ≥ 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points > 2 x span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

Test Note

1. The turntable is rotated through 360 degrees, and the receiving antenna scans in order to determine the level of the maximized emission.
2. A half wave dipole is then substituted in place of the EUT. For emissions above 1 GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator and the previously recorded signal was duplicated.
   The power is calculated by the following formula;

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

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

3.4 RADIATED SPURIOUS EMISSIONS

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

Radiated Spurious Emission Measurements at 3 meters by Substitution Method.

Test Settings

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

Test Note

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

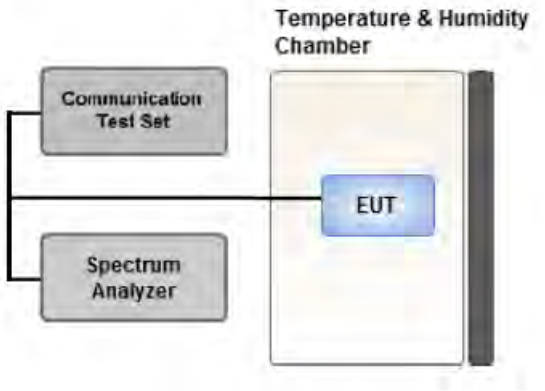
$$\text{Result}_{(dBm)} = \text{Pg}_{(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dBi)}$$

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

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

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

3.5 PEAK- TO- AVERAGE RATIO



Test setup

① CCDF Procedure for PAPR

Test Settings

1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Set the measurement interval as follows:
   .- for continuous transmissions, set to 1 ms,
   .- or burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.
4. Record the maximum PAPR level associated with a probability of 0.1 %.

② Alternate Procedure for PAPR

Use one of the procedures presented in 5.2(ANSI C63.26-2015) to measure the total peak power and record as P_{Pk}.

Use one of the applicable procedures presented 5.2(ANSI C63.26-2015) to measure the total average power and record as P_{Avg}. Determine the P.A.R. from:

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

Test Settings(Peak Power)

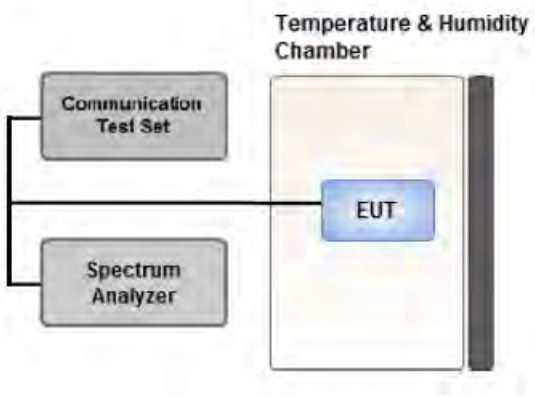
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW ≥ 3 × RBW.

1. Set the RBW ≥ OBW.
2. Set VBW ≥ 3 × RBW.
3. Set span ≥ 2 × OBW.
4. Sweep time ≥ 10 × (number of points in sweep) × (transmission symbol period).
5. Detector = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the peak amplitude level.

Test Settings(Average Power)

1. Set span to 2 × to 3 × the OBW.
2. Set RBW ≥ OBW.
3. Set VBW ≥ 3 × RBW.
4. Set number of measurement points in sweep ≥ 2 × span / RBW.
5. Sweep time:
   Set ≥ [10 × (number of points in sweep) × (transmission period)] for single sweep (automation-compatible) measurement. The transmission period is the (on + off) time.
6. Detector = power averaging (rms).
7. Set sweep trigger to "free run."
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. (To accurately determine the average power over the on and off period of the transmitter, it can be necessary to increase the number of traces to be averaged above 100 or, if using a manually configured sweep time, increase the sweep time.)
9. Use the peak marker function to determine the maximum amplitude level.
10. Add [10 log (1/duty cycle)] to the measured maximum power level to compute the average power during continuous transmission. For example, add [10 log (1/0.25)] = 6 dB if the duty cycle is a constant 25 %.

3.6 OCCUPIED BANDWIDTH.



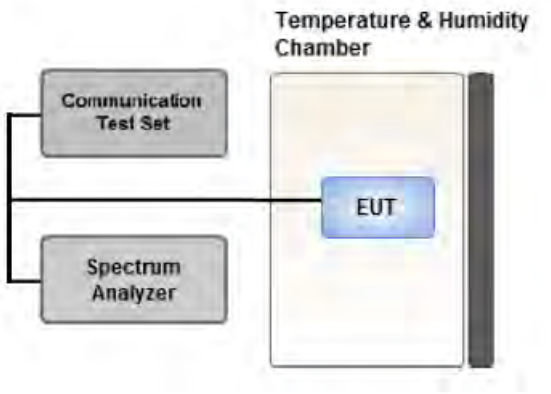
Test setup

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.
The EUT makes a call to the communication simulator.
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth

Test Settings

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

3.7 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL



Test setup

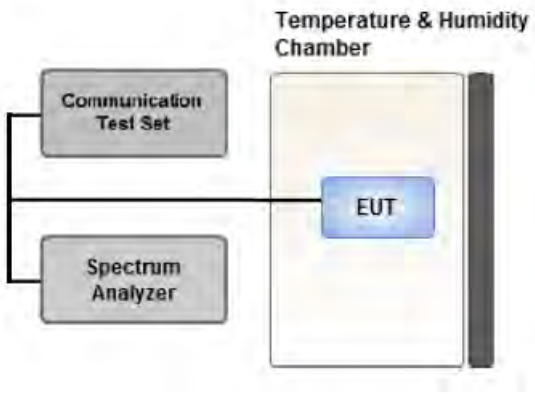
Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Settings

1. RBW = 1 MHz
2. VBW ≥ 3 MHz
3. Detector = Peak
4. Trace Mode = Max Hold
5. Sweep time = auto
6. Number of points in sweep ≥ 2 x Span / RBW

3.8 CHANNEL EDGE



Test setup

Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum power and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Settings

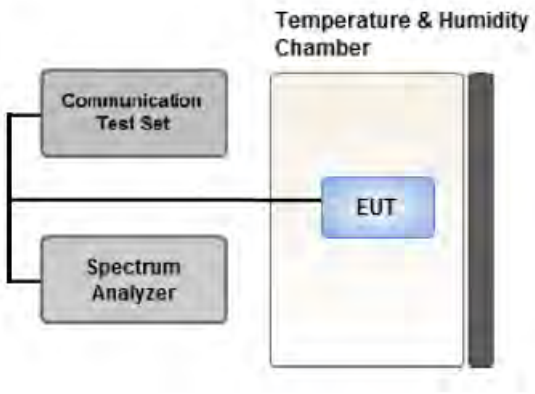
1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. Within 1MHz of the channel edge the RBW should be 2 % of EBW, then 1 MHz after that.
4. VBW > 3 x RBW
5. Detector = RMS
6. Number of sweep points ≥ 2 x Span/RBW
7. Trace mode = trace average
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Test Notes

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

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

3.9 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.

3.10 WORST CASE(RADIATED TEST)

- The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.
- All modes of operation were investigated and the worst case configuration results are reported.
  Mode : SA, NSA
  Worst case : SA
- 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.
- The worst case is reported with the EUT positioning, modulations, and paging service configurations shown in the test data.
- All RB sizes, offsets of operation were investigated and the worst case configuration results are reported.
  Please refer to the table below.

[Worst case]

Test Description	Modulation	RB size	RB offset	Axis
Equivalent Isotropic Radiated Power	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	See Section 8.2		Z
Radiated Spurious Emissions	PI/2 BPSK	See Section 8.3		Z

3.11 WORST CASE(CONDUCTED TEST)

- Waveform : All Waveform of operation were investigated and the worst case configuration results are reported. (Worst case: DFT-S-OFDM)
- Modulation : All Modulation of operation were investigated and the worst case configuration results are reported. (Worst case: PI/2 BPSK)
- All modes of operation were investigated and the worst case configuration results are reported.
  Mode: SA, NSA
  Worst case: SA
- All RB sizes, offsets of operation were investigated and the worst case configuration results are reported.
  Please refer to the table below.

[Worst case]

Test Description	Modulation	Bandwidth (MHz)	Frequency	RB size	RB offset
Occupied Bandwidth Peak- to- Average Ratio	PI/2 BPSK, QPSK, 16QAM, 64QAM, 256QAM	5, 10, 15, 20, 25, 30, 40	Mid	Full RB	0
Channel Edge	PI/2 BPSK	5	Low	1	0
			High	1	24
		10	Low	1	0
			High	1	51
		15	Low	1	0
			High	1	78
		20	Low	1	0
			High	1	105
		25	Low	1	0
			High	1	132
		30	Low	1	0
			High	1	159
		40	Low	1	0
			High	1	215
		5, 10, 15, 20, 25, 30, 40	Low, High	Full RB	0
Spurious and Harmonic Emissions at Antenna Terminal	PI/2 BPSK	5, 10, 15, 20, 25, 30, 40	Low, Mid, High	1	1

4. LIST OF TEST EQUIPMENT

Equipment	Model	Manufacturer	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	09/20/2026	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	11/07/2025	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/26/2025	Annual
DC Power Supply	E3632A	Hewlett Packard	MY40004427	08/22/2025	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
Signal & Spectrum Analyzer (2 Hz~67 GHz)	FSW67	REOHDE & SCHWARZ	101736	23/05/2025	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/05/2025	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	09/10/2025	Annual
FCC LTE Mobile Conducted RF Automation Test Software	-	HCT CO., LTD.,	-	-	-

Note:

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

5. MEASUREMENT UNCERTAINTY

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

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

Parameter	Expanded Uncertainty (±dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.98 (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(m)(4)	■ < 40 + 10log10 (P[Watts]) at Channel edges ■ < 43 + 10log10 (P[Watts]) between 5 and X MHz from Channel edges ■ < 55 + 10log10 (P[Watts]) beyond X MHz beyond from Channel edges ■ < 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz	PASS
Conducted Output Power	§2.1046	N/A	PASS
Frequency stability / variation of ambient temperature	§2.1055, §27.54	Emission must remain in band	PASS

Note:

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

6.2 Test Condition : Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Equivalent Isotropic Radiated Power	§27.50(h)(2)	< 2 Watts max. EIRP	PASS
Radiated Spurious and Harmonic Emissions	§2.1053, §27.53(m)(4)	< 55 + 10log10 (P[Watts])	PASS

Note:

1. Radiated tests were tested using 5G Wireless Tester.

6.3. Data Referencing

Rule Part	Test item	Data Referencing	Comments
§2.1049	Occupied Bandwidth	Y	-
§2.1051, §27.53(m)(4)	Band Edge / Spurious and Harmonic Emissions at Antenna Terminal..	Y	-
§2.1055, §27.54	Frequency stability / variation of ambient temperature	Y	-
§27.50(h)(2)	Equivalent Isotropic Radiated Power	Y	Spot-check
§2.1053, §27.53(m)(4)	Radiated Spurious and Harmonic Emissions	Y	Spot-check
§2.1046	Conducted Output Power	Y	-

Spot-Check Result

1. Data was leveraged from model TM19FNNAHD4 for the certification of TM19FNEUHD2
2. Please refer to the [FCC Evaluation] Report.

7. SAMPLE CALCULATION

7.1 ERP Sample Calculation

Ch./ Freq.		Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol.	ERP	
channel	Freq.(MHz)						W	dBm
128	824.20	-21.37	38.40	-10.61	0.95	H	0.483	26.84

ERP = Substitute LEVEL(dBm) + Ant. Gain – CL(Cable Loss)

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

7.2 EIRP Sample Calculation

Ch./ Freq.		Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol.	EIRP	
channel	Freq.(MHz)						W	dBm
20175	1,732.50	-15.75	18.45	9.90	1.76	H	0.456	26.59

EIRP = Substitute LEVEL(dBm) + Ant. Gain – CL(Cable Loss)

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

7.3. Emission Designator

GSM Emission Designator

Emission Designator = 249KGXW
GSM BW = 249 kHz
G = Phase Modulation
X = Cases not otherwise covered
W = Combination (Audio/Data)

EDGE Emission Designator

Emission Designator = 249KG7W
GSM BW = 249 kHz
G = Phase Modulation
7 = Quantized/Digital Info
W = Combination (Audio/Data)

WCDMA Emission Designator

Emission Designator = 4M17F9W
WCDMA BW = 4.17 MHz
F = Frequency Modulation
9 = Composite Digital Info
W = Combination (Audio/Data)

QPSK Modulation

Emission Designator = 4M48G7D
LTE BW = 4.48 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Data transmission; telemetry; telecommand

QAM Modulation

Emission Designator = 4M48W7D
LTE BW = 4.48 MHz
W = Amplitude/Angle Modulated
7 = Quantized/Digital Info
D = Data transmission; telemetry; telecommand

8. TEST DATA

8.1 Conducted Output Power

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
						500500	507000	513500
						2502.5 MHz	2535 MHz	2567.5 MHz
5 MHz	15	DFT-s	pi/2 BPSK	1	1	23.55	23.39	23.28
				1	13	23.44	23.43	23.35
				1	23	23.40	23.40	23.27
				12	0	23.07	22.99	22.78
				12	7	23.43	23.41	23.37
				12	13	23.05	22.90	22.87
				25	0	23.00	22.92	22.89
			QPSK	1	1	23.53	23.46	23.36
			16QAM	1	1	22.52	22.34	22.33
			64QAM	1	1	21.00	20.94	20.79
			256QAM	1	1	19.00	18.97	18.83
		CP	QPSK	1	1	22.01	21.92	22.05

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
						501000	507000	513000
						2505 MHz	2535 MHz	2565 MHz
10 MHz	15	DFT-s	pi/2 BPSK	1	1	23.60	23.46	23.42
				1	26	23.46	23.46	23.37
				1	50	23.50	23.38	23.47
				25	0	23.00	22.87	22.94
				25	14	23.57	23.48	23.44
				25	27	23.02	22.86	23.01
				50	0	23.02	23.03	22.93
			QPSK	1	1	23.44	23.45	23.40
			16QAM	1	1	22.53	22.50	22.44
			64QAM	1	1	21.05	21.03	20.91
			256QAM	1	1	19.07	19.13	19.05
		CP	QPSK	1	1	21.98	22.09	21.91

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
						501500	507000	512500
						2507.5 MHz	2535 MHz	2562.5 MHz
15 MHz	15	DFT-s	pi/2 BPSK	1	1	23.75	23.69	23.47
				1	40	23.69	23.62	23.50
				1	77	23.72	23.47	23.53
				36	0	23.14	23.21	23.02
				36	22	23.65	23.60	23.45
				36	43	23.20	23.08	22.99
				75	0	23.22	23.10	22.97
			QPSK	1	1	23.70	23.69	23.44
			16QAM	1	1	22.73	22.63	22.34
			64QAM	1	1	21.13	21.19	20.88
			256QAM	1	1	19.16	19.21	18.93
		CP	QPSK	1	1	22.20	22.17	22.10

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
						502000	507000	512000
						2510 MHz	2535 MHz	2560 MHz
20 MHz	15	DFT-s	pi/2 BPSK	1	1	23.74	23.76	23.51
				1	53	23.69	23.67	23.52
				1	104	23.70	23.46	23.55
				50	0	23.24	23.19	22.94
				50	28	23.72	23.63	23.48
				50	56	23.23	23.04	22.99
				100	0	23.21	23.17	22.96
			QPSK	1	1	23.65	23.70	23.46
			16QAM	1	1	22.60	22.67	22.51
			64QAM	1	1	21.12	21.31	21.00
			256QAM	1	1	19.10	19.19	18.95
		CP	QPSK	1	1	22.13	22.33	22.00

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
						502500	507000	511500
						2510 MHz	2535 MHz	2557 MHz
25 MHz	15	DFT-s	pi/2 BPSK	1	1	23.85	23.78	23.67
				1	64	23.85	23.69	23.66
				1	131	23.84	23.77	23.75
				64	0	23.28	23.35	23.10
				64	35	23.77	23.76	23.65
				64	69	23.33	23.28	23.12
				128	0	23.32	23.24	23.18
			QPSK	1	1	23.79	23.77	23.66
			16QAM	1	1	22.78	22.83	22.65
			64QAM	1	1	21.26	21.19	21.17
			256QAM	1	1	19.38	19.38	19.29
		CP	QPSK	1	1	22.25	22.33	22.17

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
						503000	507000	511000
						2515 MHz	2535 MHz	2555 MHz
30 MHz	15	DFT-s	pi/2 BPSK	1	1	23.86	23.89	23.73
				1	80	23.81	23.76	23.70
				1	158	23.80	23.68	23.74
				80	0	23.26	23.38	23.18
				80	40	23.78	23.74	23.68
				80	80	23.36	23.3	23.21
				160	0	23.39	23.32	23.27
			QPSK	1	1	23.88	23.81	23.70
			16QAM	1	1	22.79	22.70	22.75
			64QAM	1	1	21.28	21.23	21.25
			256QAM	1	1	19.39	19.45	19.43
		CP	QPSK	1	1	22.30	22.42	22.26

Bandwidth	SCS(kHz)	OFDM	Modulation	RB Size	RB Offset	Max.Average Power (dBm)		
						504000	507000	510000
						2520 MHz	2535 MHz	2550 MHz
40 MHz	15	DFT-s	pi/2 BPSK	1	1	23.80	23.92	23.86
				1	108	23.77	23.72	23.67
				1	214	23.71	23.74	23.74
				108	0	23.29	23.38	23.21
				108	54	23.79	23.78	23.67
				108	108	23.37	23.30	23.24
				216	0	23.34	23.27	23.21
			QPSK	1	1	23.79	23.83	23.81
			16QAM	1	1	22.81	22.82	22.75
			64QAM	1	1	21.23	21.47	21.37
			256QAM	1	1	19.31	19.48	19.36
		CP	QPSK	1	1	22.29	22.50	22.35

8.2 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
2502.5	Sub6 n7/ 5 MHz [15 kHz]	PI/2 BPSK	-19.26	17.60	10.58	2.51	H	< 2.00	0.369	25.67	1	1
		QPSK	-19.39	17.47	10.58	2.51	H		0.358	25.54		
		16-QAM	-20.29	16.57	10.58	2.51	H		0.291	24.64		
		64-QAM	-21.77	15.09	10.58	2.51	H		0.207	23.16		
		256-QAM	-23.76	13.10	10.58	2.51	H		0.131	21.17		
2535.0		PI/2 BPSK	-19.43	17.03	10.59	2.54	H		0.322	25.08	1	1
		QPSK	-19.51	16.95	10.59	2.54	H		0.316	25.00		
		16-QAM	-20.42	16.04	10.59	2.54	H		0.256	24.09		
		64-QAM	-21.90	14.56	10.59	2.54	H		0.182	22.61		
		256-QAM	-23.80	12.66	10.59	2.54	H		0.118	20.71		
2567.5		PI/2 BPSK	-20.06	17.03	10.83	2.65	H		0.332	25.21	1	1
		QPSK	-20.16	16.93	10.83	2.65	H		0.324	25.11		
		16-QAM	-21.11	15.98	10.83	2.65	H		0.261	24.16		
		64-QAM	-22.62	14.47	10.83	2.65	H		0.184	22.65		
		256-QAM	-24.54	12.55	10.83	2.65	H		0.118	20.73		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
2505.0	Sub6 n7/ 10 MHz [15 kHz]	PI/2 BPSK	-19.07	17.79	10.58	2.51	H	< 2.00	0.386	25.86	1	1
		QPSK	-19.15	17.71	10.58	2.51	H		0.378	25.78		
		16-QAM	-20.14	16.72	10.58	2.51	H		0.301	24.79		
		64-QAM	-21.61	15.25	10.58	2.51	H		0.215	23.32		
		256-QAM	-23.57	13.29	10.58	2.51	H		0.137	21.36		
2535.0		PI/2 BPSK	-19.68	16.78	10.59	2.54	H		0.304	24.83	1	1
		QPSK	-19.71	16.75	10.59	2.54	H		0.302	24.80		
		16-QAM	-20.69	15.77	10.59	2.54	H		0.241	23.82		
		64-QAM	-22.18	14.28	10.59	2.54	H		0.171	22.33		
		256-QAM	-24.12	12.34	10.59	2.54	H		0.109	20.39		
2565.0		PI/2 BPSK	-20.93	16.15	10.79	2.62	H		0.270	24.32	1	1
		QPSK	-20.97	16.11	10.79	2.62	H		0.268	24.28		
		16-QAM	-21.97	15.11	10.79	2.62	H		0.213	23.28		
		64-QAM	-23.44	13.64	10.79	2.62	H		0.152	21.81		
		256-QAM	-25.39	11.69	10.79	2.62	H		0.097	19.86		

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
2507.5	Sub6 n7/ 15 MHz [15 kHz]	PI/2 BPSK	-18.95	17.97	10.55	2.51	H	< 2.00	0.399	26.01	1	1
		QPSK	-18.96	17.96	10.55	2.51	H		0.398	26.00		
		16-QAM	-20.07	16.85	10.55	2.51	H		0.308	24.89		
		64-QAM	-21.53	15.39	10.55	2.51	H		0.220	23.43		
		256-QAM	-23.56	13.36	10.55	2.51	H		0.138	21.40		
2535.0		PI/2 BPSK	-19.45	17.01	10.59	2.54	H		0.321	25.06	1	1
		QPSK	-19.48	16.98	10.59	2.54	H		0.318	25.03		
		16-QAM	-20.48	15.98	10.59	2.54	H		0.253	24.03		
		64-QAM	-21.93	14.53	10.59	2.54	H		0.181	22.58		
		256-QAM	-23.98	12.48	10.59	2.54	H		0.113	20.53		
2562.5		PI/2 BPSK	-20.60	16.48	10.79	2.62	H		0.292	24.65	1	1
		QPSK	-20.64	16.44	10.79	2.62	H		0.289	24.61		
		16-QAM	-21.68	15.40	10.79	2.62	H		0.228	23.57		
		64-QAM	-23.11	13.97	10.79	2.62	H		0.164	22.14		
		256-QAM	-25.16	11.92	10.79	2.62	H		0.102	20.09		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
2510.0	Sub6 n7/ 20 MHz [15 kHz]	PI/2 BPSK	-18.98	17.94	10.55	2.51	H	< 2.00	0.396	25.98	1	1
		QPSK	-18.99	17.93	10.55	2.51	H		0.395	25.97		
		16-QAM	-20.09	16.83	10.55	2.51	H		0.307	24.87		
		64-QAM	-21.56	15.36	10.55	2.51	H		0.219	23.40		
		256-QAM	-23.59	13.33	10.55	2.51	H		0.137	21.37		
2535.0		PI/2 BPSK	-19.27	17.19	10.59	2.54	H		0.334	25.24	1	1
		QPSK	-19.28	17.18	10.59	2.54	H		0.333	25.23		
		16-QAM	-20.26	16.20	10.59	2.54	H		0.266	24.25		
		64-QAM	-21.73	14.73	10.59	2.54	H		0.190	22.78		
		256-QAM	-23.76	12.70	10.59	2.54	H		0.119	20.75		
2560.0		PI/2 BPSK	-20.45	16.61	10.76	2.59	H		0.301	24.78	1	1
		QPSK	-20.47	16.59	10.76	2.59	H		0.299	24.76		
		16-QAM	-21.60	15.46	10.76	2.59	H		0.231	23.63		
		64-QAM	-23.08	13.98	10.76	2.59	H		0.164	22.15		
		256-QAM	-25.10	11.96	10.76	2.59	H		0.103	20.13		

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
2512.5	Sub6 n7/ 25 MHz [15 kHz]	PI/2 BPSK	-18.83	18.10	10.52	2.53	H	< 2.00	0.406	26.09	1	1
		QPSK	-18.85	18.08	10.52	2.53	H		0.405	26.07		
		16-QAM	-20.00	16.93	10.52	2.53	H		0.311	24.92		
		64-QAM	-21.49	15.44	10.52	2.53	H		0.220	23.43		
		256-QAM	-23.40	13.53	10.52	2.53	H		0.142	21.52		
2535.0		PI/2 BPSK	-19.10	17.36	10.59	2.54	H		0.348	25.41	1	1
		QPSK	-19.12	17.34	10.59	2.54	H		0.346	25.39		
		16-QAM	-20.23	16.23	10.59	2.54	H		0.268	24.28		
		64-QAM	-21.67	14.79	10.59	2.54	H		0.192	22.84		
		256-QAM	-23.61	12.85	10.59	2.54	H		0.123	20.90		
2557.5		PI/2 BPSK	-20.27	16.79	10.76	2.59	H		0.313	24.96	1	1
		QPSK	-20.35	16.71	10.76	2.59	H		0.308	24.88		
		16-QAM	-21.35	15.71	10.76	2.59	H		0.244	23.88		
		64-QAM	-22.83	14.23	10.76	2.59	H		0.174	22.40		
		256-QAM	-24.74	12.32	10.76	2.59	H		0.112	20.49		

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
2515.0	Sub6 n7/ 30 MHz [15 kHz]	PI/2 BPSK	-18.85	18.08	10.52	2.53	H	< 2.00	0.405	26.07	1	80
		QPSK	-18.90	18.03	10.52	2.53	H		0.400	26.02		
		16-QAM	-19.90	17.03	10.52	2.53	H		0.318	25.02		
		64-QAM	-21.36	15.57	10.52	2.53	H		0.227	23.56		
		256-QAM	-23.38	13.55	10.52	2.53	H		0.143	21.54		
2535.0		PI/2 BPSK	-18.97	17.49	10.59	2.54	H		0.358	25.54	1	1
		QPSK	-19.08	17.38	10.59	2.54	H		0.349	25.43		
		16-QAM	-20.08	16.38	10.59	2.54	H		0.277	24.43		
		64-QAM	-21.54	14.92	10.59	2.54	H		0.198	22.97		
		256-QAM	-23.45	13.01	10.59	2.54	H		0.128	21.06		
2555.0		PI/2 BPSK	-19.52	17.28	10.72	2.56	H		0.350	25.44	1	1
		QPSK	-19.56	17.24	10.72	2.56	H		0.347	25.40		
		16-QAM	-20.56	16.24	10.72	2.56	H		0.275	24.40		
		64-QAM	-22.02	14.78	10.72	2.56	H		0.197	22.94		
		256-QAM	-23.95	12.85	10.72	2.56	H		0.126	21.01		

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
2520.0	Sub6 n7/ 40 MHz [15 kHz]	PI/2 BPSK	-18.92	18.01	10.49	2.54	H	< 2.00	0.395	25.96	1	108
		QPSK	-19.00	17.93	10.49	2.54	H		0.387	25.88		
		16-QAM	-20.06	16.87	10.49	2.54	H		0.303	24.82		
		64-QAM	-21.53	15.40	10.49	2.54	H		0.216	23.35		
		256-QAM	-23.52	13.41	10.49	2.54	H		0.137	21.36		
2535.0		PI/2 BPSK	-18.75	17.71	10.59	2.54	H		0.377	25.76	1	1
		QPSK	-18.88	17.58	10.59	2.54	H		0.366	25.63		
		16-QAM	-19.86	16.60	10.59	2.54	H		0.292	24.65		
		64-QAM	-21.33	15.13	10.59	2.54	H		0.208	23.18		
		256-QAM	-23.17	13.29	10.59	2.54	H		0.136	21.34		
2550.0		PI/2 BPSK	-19.09	17.44	10.69	2.53	H		0.363	25.60	1	1
		QPSK	-19.10	17.43	10.69	2.53	H		0.362	25.59		
		16-QAM	-20.19	16.34	10.69	2.53	H		0.282	24.50		
		64-QAM	-21.66	14.87	10.69	2.53	H		0.201	23.03		
		256-QAM	-24.38	12.15	10.69	2.53	H		0.107	20.31		

8.3 RADIATED SPURIOUS EMISSIONS

▣ NR Band: N7

▣ Bandwidth: 5 MHz

▣ Modulation: PI/2 BPSK

▣ Distance: 3 meters

▣ SCS: 15 kHz

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offset
500500 (2502.5)	5 005.00	-55.33	11.20	-56.76	3.71	V	-49.27	-25.00	1	1
	7 507.50	-61.40	11.55	-53.86	4.60	H	-46.91	-25.00		
	10 010.00	-62.16	11.47	-53.08	5.47	H	-47.08	-25.00		
507000 (2535.0)	5 070.00	-60.31	11.25	-61.47	3.80	H	-54.02	-25.00	1	1
	7 605.00	-62.34	11.60	-55.29	4.64	H	-48.33	-25.00		
	10 140.00	-62.57	11.36	-52.63	5.48	H	-46.75	-25.00		
513500 (2567.5)	5 135.00	-60.94	11.43	-61.87	3.81	H	-54.25	-25.00	1	1
	7 702.50	-63.25	11.42	-55.72	4.66	H	-48.96	-25.00		
	10 270.00	-63.03	11.51	-51.77	5.57	H	-45.83	-25.00		

▣ NR Band: N7

▣ Bandwidth: 10 MHz

▣ Modulation: PI/2 BPSK

▣ Distance: 3 meters

▣ SCS: 15 kHz

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offset
501000 (2505.0)	5 010.00	-57.80	11.18	-58.94	3.72	V	-51.48	-25.00	1	1
	7 515.00	-61.37	11.56	-53.79	4.60	V	-46.83	-25.00		
	10 020.00	-62.08	11.46	-52.40	5.47	V	-46.41	-25.00		
507000 (2535.0)	5 070.00	-53.92	11.25	-55.08	3.80	V	-47.63	-25.00	1	1
	7 605.00	-62.33	11.60	-55.28	4.64	V	-48.32	-25.00		
	10 140.00	-62.18	11.36	-52.24	5.48	V	-46.36	-25.00		
513000 (2565.0)	5 130.00	-52.16	11.41	-53.13	3.81	V	-45.53	-25.00	1	1
	7 695.00	-62.22	11.44	-54.49	4.66	V	-47.71	-25.00		
	10 260.00	-62.09	11.49	-51.47	5.56	V	-45.54	-25.00		

▣ NR Band: N7

▣ Bandwidth: 15 MHz

▣ Modulation: PI/2 BPSK

▣ Distance: 3 meters

▣ SCS: 15 kHz

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offset
501500 (2507.5)	5 015.00	-56.40	11.17	-57.32	3.70	V	-49.85	-25.00	1	1
	7 522.50	-61.99	11.57	-54.34	4.61	V	-47.38	-25.00		
	10 030.00	-62.39	11.45	-53.35	5.47	V	-47.37	-25.00		
507000 (2535.0)	5 070.00	-53.60	11.25	-54.76	3.80	V	-47.31	-25.00	1	1
	7 605.00	-62.18	11.60	-55.13	4.64	V	-48.17	-25.00		
	10 140.00	-62.00	11.36	-52.06	5.48	V	-46.18	-25.00		
512500 (2562.5)	5 125.00	-51.71	11.40	-52.88	3.81	V	-45.29	-25.00	1	1
	7 687.50	-61.87	11.45	-54.11	4.66	V	-47.32	-25.00		
	10 250.00	-62.54	11.47	-51.32	5.54	V	-45.39	-25.00		

▣ NR Band: N7

▣ Bandwidth: 20 MHz

▣ Modulation: PI/2 BPSK

▣ Distance: 3 meters

▣ SCS: 15 kHz

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offset
502000 (2510.0)	5 020.00	-57.09	11.17	-57.79	3.69	V	-50.31	-25.00	1	1
	7 530.00	-61.88	11.57	-54.22	4.60	V	-47.25	-25.00		
	10 040.00	-62.02	11.44	-52.56	5.49	V	-46.61	-25.00		
507000 (2535.0)	5 070.00	-54.04	11.25	-55.20	3.80	V	-47.75	-25.00	1	1
	7 605.00	-62.55	11.60	-55.50	4.64	V	-48.54	-25.00		
	10 140.00	-62.36	11.36	-52.42	5.48	V	-46.54	-25.00		
512000 (2560.0)	5 120.00	-53.56	11.38	-54.93	3.81	V	-47.36	-25.00	1	1
	7 680.00	-62.17	11.47	-54.51	4.70	V	-47.74	-25.00		
	10 240.00	-62.29	11.45	-51.62	5.54	V	-45.71	-25.00		

▣ NR Band: N7

▣ Bandwidth: 25 MHz

▣ Modulation: PI/2 BPSK

▣ Distance: 3 meters

▣ SCS: 15 kHz

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offset
502500 (2512.5)	5 025.00	-60.35	11.18	-61.12	3.68	V	-53.62	-25.00	1	1
	7 537.50	-63.02	11.58	-55.49	4.61	V	-48.52	-25.00		
	10 050.00	-63.41	11.43	-54.21	5.48	V	-48.26	-25.00		
507000 (2535.0)	5 070.00	-57.36	11.25	-58.52	3.80	V	-51.07	-25.00	1	1
	7 605.00	-62.38	11.60	-55.33	4.64	V	-48.37	-25.00		
	10 140.00	-63.08	11.36	-53.14	5.48	V	-47.26	-25.00		
511500 (2557.5)	5 115.00	-60.31	11.36	-61.69	3.80	V	-54.13	-25.00	1	1
	7 672.50	-63.75	11.48	-56.18	4.70	V	-49.40	-25.00		
	10 230.00	-63.02	11.43	-52.11	5.54	V	-46.22	-25.00		

▣ NR Band: N7

▣ Bandwidth: 30 MHz

▣ Modulation: PI/2 BPSK

▣ Distance: 3 meters

▣ SCS: 15 kHz

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offset
503000 (2515.0)	5 030.00	-63.09	11.19	-63.93	3.67	V	-56.41	-25.00	1	80
	7 545.00	-62.27	11.58	-54.81	4.62	V	-47.85	-25.00		
	10 060.00	-63.33	11.42	-54.21	5.48	V	-48.27	-25.00		
507000 (2535.0)	5 070.00	-55.34	11.25	-56.50	3.80	V	-49.05	-25.00	1	1
	7 605.00	-62.17	11.60	-55.12	4.64	V	-48.16	-25.00		
	10 140.00	-63.09	11.36	-53.15	5.48	V	-47.27	-25.00		
511000 (2555.0)	5 110.00	-61.18	11.34	-62.57	3.79	V	-55.02	-25.00	1	1
	7 665.00	-62.58	11.50	-55.29	4.70	V	-48.49	-25.00		
	10 220.00	-63.17	11.42	-52.79	5.54	V	-46.91	-25.00		

▣ NR Band: N7

▣ Bandwidth: 40 MHz

▣ Modulation: PI/2 BPSK

▣ Distance: 3 meters

▣ SCS: 15 kHz

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offset
504000 (2520.0)	5 040.00	-54.78	11.20	-55.82	3.68	V	-48.30	-25.00	1	108
	7 560.00	-63.10	11.60	-55.56	4.64	V	-48.60	-25.00		
	10 080.00	-63.85	11.41	-54.84	5.47	V	-48.90	-25.00		
507000 (2535.0)	5 070.00	-57.14	11.25	-58.30	3.80	V	-50.85	-25.00	1	1
	7 605.00	-61.11	11.60	-54.06	4.64	V	-47.10	-25.00		
	10 140.00	-62.38	11.36	-52.44	5.48	V	-46.56	-25.00		
510000 (2550.0)	5 100.00	-62.57	11.31	-63.76	3.78	V	-56.23	-25.00	1	1
	7 650.00	-63.33	11.52	-56.20	4.68	V	-49.36	-25.00		
	10 200.00	-63.17	11.38	-53.01	5.54	V	-47.17	-25.00		

8.4 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
Sub6 n7	5 MHz	2535.0	BPSK	25	0	4.14
			QPSK			4.76
			16-QAM			5.98
			64-QAM			6.30
			256-QAM			6.96
	10 MHz		BPSK	50		4.16
			QPSK			4.69
			16-QAM			5.69
			64-QAM			6.20
			256-QAM			6.77
	15 MHz		BPSK	75		4.03
			QPSK			4.64
			16-QAM			5.59
			64-QAM			6.11
			256-QAM			6.73
	20 MHz		BPSK	100		3.86
			QPSK			4.61
			16-QAM			5.63
			64-QAM			6.13
			256-QAM			6.75
	25 MHz		BPSK	128		3.98
			QPSK			4.64
			16-QAM			5.61
			64-QAM			6.18
			256-QAM			6.75
	30 MHz		BPSK	160		3.94
			QPSK			4.63
			16-QAM			5.69
			64-QAM			6.26
			256-QAM			6.78
	40 MHz		BPSK	216		4.00
			QPSK			4.71
			16-QAM			5.70
			64-QAM			6.17
			256-QAM			6.73

Note:
1. Plots of the EUT's Peak- to- Average Ratio are shown Page 92 ~ 126.

8.5 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Sub6 n7	5 MHz	2535.0	BPSK	25	0	4.5071
			QPSK			4.5096
			16-QAM			4.5051
			64-QAM			4.5124
			256-QAM			4.5020
	10 MHz		BPSK	50		8.9843
			QPSK			8.9947
			16-QAM			8.9914
			64-QAM			8.9849
			256-QAM			8.9694
	15 MHz		BPSK	75		13.475
			QPSK			13.479
			16-QAM			13.451
			64-QAM			13.460
			256-QAM			13.445
	20 MHz		BPSK	100		17.922
			QPSK			17.922
			16-QAM			17.887
			64-QAM			17.953
			256-QAM			17.914
	25 MHz		BPSK	128		22.882
			QPSK			22.930
			16-QAM			22.957
			64-QAM			22.969
			256-QAM			22.934
	30 MHz		BPSK	160		28.616
			QPSK			28.685
			16-QAM			28.626
			64-QAM			28.633
			256-QAM			28.632
	40 MHz		BPSK	216		38.576
			QPSK			38.683
			16-QAM			38.676
			64-QAM			38.674
			256-QAM			38.699

Note:
1. Plots of the EUT's Occupied Bandwidth are shown Page 57 ~ 91.

8.6 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 n7	5	2502.500	4.0579	30.200	-62.986	-32.786	-25.00
		2535.000	9.9701	30.815	-62.916	-32.101	
		2567.500	5.2443	30.815	-62.826	-32.011	
	10	2505.000	8.7936	30.815	-62.410	-31.595	
		2535.000	6.0020	30.815	-62.602	-31.787	
		2565.000	9.6710	30.815	-62.914	-32.099	
	15	2507.500	8.2553	30.815	-62.991	-32.176	
		2535.000	8.8634	30.815	-62.413	-31.598	
		2562.500	3.2005	30.200	-62.135	-31.935	
	20	2510.000	9.4517	30.815	-62.854	-32.039	
		2535.000	3.8086	30.200	-62.311	-32.111	
		2560.000	3.7987	30.200	-63.310	-33.110	
	25	2512.500	9.8804	30.815	-62.334	-31.519	
		2535.000	9.6909	30.815	-62.722	-31.907	
		2557.500	9.8006	30.815	-63.098	-32.283	
	30	2515.000	6.0220	30.815	-62.448	-31.633	
		2535.000	4.5863	30.200	-62.771	-32.571	
		2555.000	4.9352	30.200	-62.589	-32.389	
	40	2520.000	3.8086	30.200	-63.183	-32.983	
		2535.000	9.6511	30.815	-63.498	-32.683	
		2550.000	5.7727	30.815	-62.419	-31.604	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 176 ~ 217.
2. Result (dBm) = Measurement Maximum Data (dBm) + Factor (dB)
3. Factor(dB) = Cable Loss + Attenuator + Power Splitter

Frequency Range (GHz)	Factor [dB]
0.03 – 1	27.494
1 – 5	30.200
5 – 10	30.815
10 – 15	31.340
15 – 20	31.713
Above 20	32.355

8.7 CHANNEL EDGE

BW (MHz)	Frequency (MHz)	Mod	RB (Size/ Offset)	2 500 MHz ~ 2 496 MHz	C.E ~ (C.E +1 MHz)	2 490.5 MHz ~ 2 496 MHz	(C.E + 1 MHz) ~ (C.E + 5 MHz)	Below 2 490.5 MHz	(C.E + 5 MHz) ~ (C.E + X MHz)	Above (C.E + X MHz)
				Lower	Upper	Lower	Upper	Lower	Upper	Upper
5	2502.500	BPSK	Full RB	-25.45	-25.64	-37.25	-30.66	-45.49	-36.84	-37.35
10	2505.000	BPSK	Full RB	-25.42	-33.55	-25.39	-27.30	-39.18	-33.23	-36.25
15	2507.500	BPSK	Full RB	-27.29	-32.99	-30.24	-31.28	-32.85	-31.98	-37.02
20	2510.000	BPSK	Full RB	-26.77	-30.86	-29.45	-27.35	-34.80	-31.17	-39.48
25	2512.500	BPSK	Full RB	-30.03	-34.67	-32.95	-33.30	-32.80	-34.79	-38.73
30	2515.000	BPSK	Full RB	-28.10	-29.57	-28.21	-30.78	-28.91	-33.03	-38.10
40	2520.000	BPSK	Full RB	-16.40	-17.97	-29.26	-28.19	-29.40	-28.31	-37.52
Limit				-10.0	-10.0	-13.0	-10.0	-25.0	-13.0	-25.0

BW (MHz)	Frequency (MHz)	Mod	RB (Size/ Offset)	C.E ~ (C.E ± 1 MHz)		(C.E ± 1 MHz) ~ (C.E ± 5 MHz)	
				Lower	Upper	Lower	Upper
5	2535.000	BPSK	Full RB	-27.16	-26.42	-31.29	-31.46
	2567.500	BPSK	Full RB	-26.07	-25.65	-29.60	-29.28
10	2535.000	BPSK	Full RB	-26.54	-34.87	-27.80	-29.02
	2565.000	BPSK	Full RB	-26.37	-34.48	-29.73	-31.40
15	2535.000	BPSK	Full RB	-28.23	-34.98	-29.32	-31.48
	2562.500	BPSK	Full RB	-27.11	-35.92	-29.72	-31.60
20	2535.000	BPSK	Full RB	-28.37	-33.12	-32.06	-31.27
	2560.000	BPSK	Full RB	-29.03	-33.66	-32.24	-33.13
25	2535.000	BPSK	Full RB	-28.63	-34.53	-29.96	-31.38
	2557.500	BPSK	Full RB	-27.94	-35.49	-30.08	-31.47
30	2535.000	BPSK	Full RB	-27.71	-29.48	-32.65	-29.50
	2555.000	BPSK	Full RB	-27.61	-30.23	-32.01	-33.30
40	2535.000	BPSK	Full RB	-15.56	-17.58	-31.13	-28.50
	2550.000	BPSK	Full RB	-15.98	-18.13	-34.42	-35.35
Limit				-10.0		-10.0	

BW (MHz)	Frequency (MHz)	Mod	RB (Size/ Offset)	(C.E ± 5 MHz) ~ (C.E ± X MHz)		Above (C.E ± X MHz)	
				Lower	Upper	Lower	Upper
5	2535.000	BPSK	Full RB	-40.27	-40.17	-40.50	-41.11
	2567.500	BPSK	Full RB	-37.31	-39.86	-37.97	-40.11
10	2535.000	BPSK	Full RB	-33.90	-35.08	-41.12	-39.44
	2565.000	BPSK	Full RB	-35.17	-37.66	-38.26	-43.32
15	2535.000	BPSK	Full RB	-29.92	-32.71	-40.86	-36.15
	2562.500	BPSK	Full RB	-33.28	-31.20	-41.00	-47.13
20	2535.000	BPSK	Full RB	-29.18	-32.44	-45.70	-38.21
	2560.000	BPSK	Full RB	-34.15	-32.14	-41.42	-50.35
25	2535.000	BPSK	Full RB	-31.17	-32.17	-42.43	-41.05
	2557.500	BPSK	Full RB	-31.76	-30.19	-38.93	-54.89
30	2535.000	BPSK	Full RB	-31.87	-31.94	-43.24	-41.19
	2555.000	BPSK	Full RB	-34.66	-33.72	-39.76	-63.02
40	2535.000	BPSK	Full RB	-29.86	-29.54	-58.17	-50.26
	2550.000	BPSK	Full RB	-33.14	-34.59	-42.74	-63.87
Limit				-13.0		-25.0	

Note:
1. C.E = Channel Edge
2. X = X is the greater of 6 MHz or the actual emission bandwidth
3. Duty Cycle factor already applied on the factor.
   - Factor(dB) = Cable Loss + Ext. Attenuator + Power Splitter
   - Result(dBm) = Reading + Factor
4. Plots of the EUT's Channel Edge are shown Page 127 ~ 175.

8.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

▣ BandWidth: 5 MHz

▣ Voltage(100 %): 13.200 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
2502.500	100 %	+20(Ref)	2502 499 988	0.0	0.000 000	0.000
	100 %	-30	2502 499 970	-18.1	-0.000 001	-0.007
	100 %	-20	2502 499 982	-6.1	0.000 000	-0.002
	100 %	-10	2502 499 975	-13.2	-0.000 001	-0.005
	100 %	0	2502 499 987	-1.3	0.000 000	-0.001
	100 %	+10	2502 499 980	-8.0	0.000 000	-0.003
	100 %	+30	2502 499 975	-13.6	-0.000 001	-0.005
	100 %	+40	2502 499 990	1.7	0.000 000	0.001
	100 %	+50	2502 499 982	-6.0	0.000 000	-0.002
	85 %	+20	2502 499 983	-5.2	0.000 000	-0.002
	115 %	+20	2502 499 985	-3.3	0.000 000	-0.001
2567.500	100 %	+20(Ref)	2567 499 996	0.0	0.000 000	0.000
	100 %	-30	2567 499 989	-7.2	0.000 000	-0.003
	100 %	-20	2567 499 983	-13.6	-0.000 001	-0.005
	100 %	-10	2567 500 001	5.0	0.000 000	0.002
	100 %	0	2567 499 998	1.3	0.000 000	0.001
	100 %	+10	2567 499 994	-2.0	0.000 000	-0.001
	100 %	+30	2567 499 990	-6.1	0.000 000	-0.002
	100 %	+40	2567 499 987	-9.6	0.000 000	-0.004
	100 %	+50	2567 499 984	-12.4	0.000 000	-0.005
	85 %	+20	2567 499 988	-8.5	0.000 000	-0.003
	115 %	+20	2567 499 992	-4.2	0.000 000	-0.002

▣ BandWidth: 10 MHz

▣ Voltage(100 %): 13.200 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
2505.000	100 %	+20(Ref)	2504 999 998	0.0	0.000 000	0.000
	100 %	-30	2504 999 991	-6.6	0.000 000	-0.003
	100 %	-20	2505 000 006	7.6	0.000 000	0.003
	100 %	-10	2505 000 003	5.0	0.000 000	0.002
	100 %	0	2504 999 998	0.3	0.000 000	0.000
	100 %	+10	2504 999 995	-3.0	0.000 000	-0.001
	100 %	+30	2504 999 992	-6.4	0.000 000	-0.003
	100 %	+40	2505 000 007	9.2	0.000 000	0.004
	100 %	+50	2505 000 005	7.3	0.000 000	0.003
	85 %	+20	2505 000 002	4.0	0.000 000	0.002
	115 %	+20	2505 000 004	5.5	0.000 000	0.002
2565.000	100 %	+20(Ref)	2564 999 999	0.0	0.000 000	0.000
	100 %	-30	2564 999 996	-3.3	0.000 000	-0.001
	100 %	-20	2564 999 994	-4.7	0.000 000	-0.002
	100 %	-10	2565 000 009	10.5	0.000 000	0.004
	100 %	0	2564 999 991	-8.4	0.000 000	-0.003
	100 %	+10	2565 000 012	12.8	0.000 000	0.005
	100 %	+30	2565 000 010	11.0	0.000 000	0.004
	100 %	+40	2565 000 008	8.8	0.000 000	0.003
	100 %	+50	2565 000 007	8.4	0.000 000	0.003
	85 %	+20	2565 000 006	6.7	0.000 000	0.003
	115 %	+20	2565 000 008	9.5	0.000 000	0.004

▣ BandWidth: 15 MHz

▣ Voltage(100 %): 13.200 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
2507.500	100 %	+20(Ref)	2507 500 016	0.0	0.000 000	0.000
	100 %	-30	2507 500 030	13.9	0.000 001	0.006
	100 %	-20	2507 500 029	12.6	0.000 001	0.005
	100 %	-10	2507 500 027	10.5	0.000 000	0.004
	100 %	0	2507 500 025	9.0	0.000 000	0.004
	100 %	+10	2507 500 024	7.2	0.000 000	0.003
	100 %	+30	2507 500 023	6.2	0.000 000	0.002
	100 %	+40	2507 500 021	5.0	0.000 000	0.002
	100 %	+50	2507 500 020	3.4	0.000 000	0.001
	85 %	+20	2507 500 022	5.8	0.000 000	0.002
	115 %	+20	2507 500 021	4.7	0.000 000	0.002
2562.500	100 %	+20(Ref)	2562 499 993	0.0	0.000 000	0.000
	100 %	-30	2562 499 984	-8.6	0.000 000	-0.003
	100 %	-20	2562 499 984	-8.4	0.000 000	-0.003
	100 %	-10	2562 499 983	-9.1	0.000 000	-0.004
	100 %	0	2562 500 005	12.2	0.000 000	0.005
	100 %	+10	2562 499 982	-10.0	0.000 000	-0.004
	100 %	+30	2562 499 986	-7.0	0.000 000	-0.003
	100 %	+40	2562 499 980	-12.5	0.000 000	-0.005
	100 %	+50	2562 500 002	9.5	0.000 000	0.004
	85 %	+20	2562 499 989	-3.5	0.000 000	-0.001
	115 %	+20	2562 499 998	5.0	0.000 000	0.002

▣ BandWidth: 20 MHz

▣ Voltage(100 %): 13.200 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
2510.000	100 %	+20(Ref)	2510 000 003	0.0	0.000 000	0.000
	100 %	-30	2509 999 986	-17.6	-0.000 001	-0.007
	100 %	-20	2510 000 002	-1.0	0.000 000	0.000
	100 %	-10	2510 000 001	-1.8	0.000 000	-0.001
	100 %	0	2509 999 999	-3.7	0.000 000	-0.001
	100 %	+10	2509 999 999	-4.5	0.000 000	-0.002
	100 %	+30	2509 999 997	-6.2	0.000 000	-0.002
	100 %	+40	2509 999 995	-7.7	0.000 000	-0.003
	100 %	+50	2509 999 994	-9.1	0.000 000	-0.004
	85 %	+20	2509 999 999	-4.4	0.000 000	-0.002
	115 %	+20	2510 000 001	-1.9	0.000 000	-0.001
2560.000	100 %	+20(Ref)	2560 000 003	0.0	0.000 000	0.000
	100 %	-30	2560 000 005	2.2	0.000 000	0.001
	100 %	-20	2560 000 006	3.1	0.000 000	0.001
	100 %	-10	2560 000 006	2.7	0.000 000	0.001
	100 %	0	2560 000 006	2.7	0.000 000	0.001
	100 %	+10	2560 000 006	2.8	0.000 000	0.001
	100 %	+30	2560 000 005	2.1	0.000 000	0.001
	100 %	+40	2560 000 009	5.8	0.000 000	0.002
	100 %	+50	2560 000 005	1.6	0.000 000	0.001
	85 %	+20	2560 000 003	-0.5	0.000 000	0.000
	115 %	+20	2560 000 007	3.9	0.000 000	0.002

▣ BandWidth: 25 MHz

▣ Voltage(100 %): 13.200 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
2512.500	100 %	+20(Ref)	2512 499 999	0.0	0.000 000	0.000
	100 %	-30	2512 499 997	-2.2	0.000 000	-0.001
	100 %	-20	2512 499 994	-4.9	0.000 000	-0.002
	100 %	-10	2512 500 008	8.3	0.000 000	0.003
	100 %	0	2512 500 009	9.8	0.000 000	0.004
	100 %	+10	2512 500 007	8.1	0.000 000	0.003
	100 %	+30	2512 500 006	7.1	0.000 000	0.003
	100 %	+40	2512 500 000	0.6	0.000 000	0.000
	100 %	+50	2512 500 002	3.3	0.000 000	0.001
	85 %	+20	2512 500 002	2.6	0.000 000	0.001
	115 %	+20	2512 500 003	3.8	0.000 000	0.002
2557.500	100 %	+20(Ref)	2557 500 000	0.0	0.000 000	0.000
	100 %	-30	2557 500 000	0.4	0.000 000	0.000
	100 %	-20	2557 499 998	-1.6	0.000 000	-0.001
	100 %	-10	2557 499 998	-1.7	0.000 000	-0.001
	100 %	0	2557 499 998	-1.9	0.000 000	-0.001
	100 %	+10	2557 499 998	-2.1	0.000 000	-0.001
	100 %	+30	2557 499 997	-2.5	0.000 000	-0.001
	100 %	+40	2557 500 001	0.8	0.000 000	0.000
	100 %	+50	2557 499 996	-4.3	0.000 000	-0.002
	85 %	+20	2557 499 999	-1.1	0.000 000	0.000
	115 %	+20	2557 499 998	-2.0	0.000 000	-0.001

▣ BandWidth: 30 MHz

▣ Voltage(100 %): 13.200 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
2515.000	100 %	+20(Ref)	2515 000 014	0.0	0.000 000	0.000
	100 %	-30	2515 000 026	11.7	0.000 000	0.005
	100 %	-20	2515 000 026	11.3	0.000 000	0.004
	100 %	-10	2515 000 026	11.8	0.000 000	0.005
	100 %	0	2515 000 025	10.2	0.000 000	0.004
	100 %	+10	2515 000 025	10.4	0.000 000	0.004
	100 %	+30	2515 000 024	9.2	0.000 000	0.004
	100 %	+40	2515 000 024	9.3	0.000 000	0.004
	100 %	+50	2515 000 023	8.3	0.000 000	0.003
	85 %	+20	2515 000 018	3.8	0.000 000	0.002
	115 %	+20	2515 000 022	8.1	0.000 000	0.003
2555.000	100 %	+20(Ref)	2554 999 990	0.0	0.000 000	0.000
	100 %	-30	2554 999 979	-11.1	0.000 000	-0.004
	100 %	-20	2554 999 978	-11.3	0.000 000	-0.004
	100 %	-10	2554 999 978	-11.6	0.000 000	-0.005
	100 %	0	2554 999 978	-12.2	0.000 000	-0.005
	100 %	+10	2554 999 977	-12.8	-0.000 001	-0.005
	100 %	+30	2554 999 977	-13.2	-0.000 001	-0.005
	100 %	+40	2554 999 997	7.7	0.000 000	0.003
	100 %	+50	2554 999 997	7.0	0.000 000	0.003
	85 %	+20	2554 999 997	6.9	0.000 000	0.003
	115 %	+20	2554 999 986	-3.8	0.000 000	-0.001

▣ BandWidth: 40 MHz

▣ Voltage(100 %): 13.200 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
2520.000	100 %	+20(Ref)	2519 999 996	0.0	0.000 000	0.000
	100 %	-30	2519 999 993	-3.8	0.000 000	-0.001
	100 %	-20	2519 999 991	-5.2	0.000 000	-0.002
	100 %	-10	2520 000 011	14.2	0.000 001	0.006
	100 %	0	2519 999 990	-6.2	0.000 000	-0.002
	100 %	+10	2520 000 006	9.6	0.000 000	0.004
	100 %	+30	2519 999 989	-7.3	0.000 000	-0.003
	100 %	+40	2519 999 989	-7.0	0.000 000	-0.003
	100 %	+50	2519 999 989	-7.8	0.000 000	-0.003
	85 %	+20	2519 999 992	-4.4	0.000 000	-0.002
	115 %	+20	2519 999 993	-2.9	0.000 000	-0.001
2550.000	100 %	+20(Ref)	2549 999 995	0.0	0.000 000	0.000
	100 %	-30	2549 999 990	-5.2	0.000 000	-0.002
	100 %	-20	2549 999 989	-5.9	0.000 000	-0.002
	100 %	-10	2549 999 989	-6.1	0.000 000	-0.002
	100 %	0	2549 999 989	-5.9	0.000 000	-0.002
	100 %	+10	2549 999 989	-5.9	0.000 000	-0.002
	100 %	+30	2549 999 989	-6.3	0.000 000	-0.002
	100 %	+40	2549 999 990	-5.7	0.000 000	-0.002
	100 %	+50	2549 999 989	-6.4	0.000 000	-0.002
	85 %	+20	2549 999 994	-1.5	0.000 000	-0.001
	115 %	+20	2549 999 989	-6.6	0.000 000	-0.003

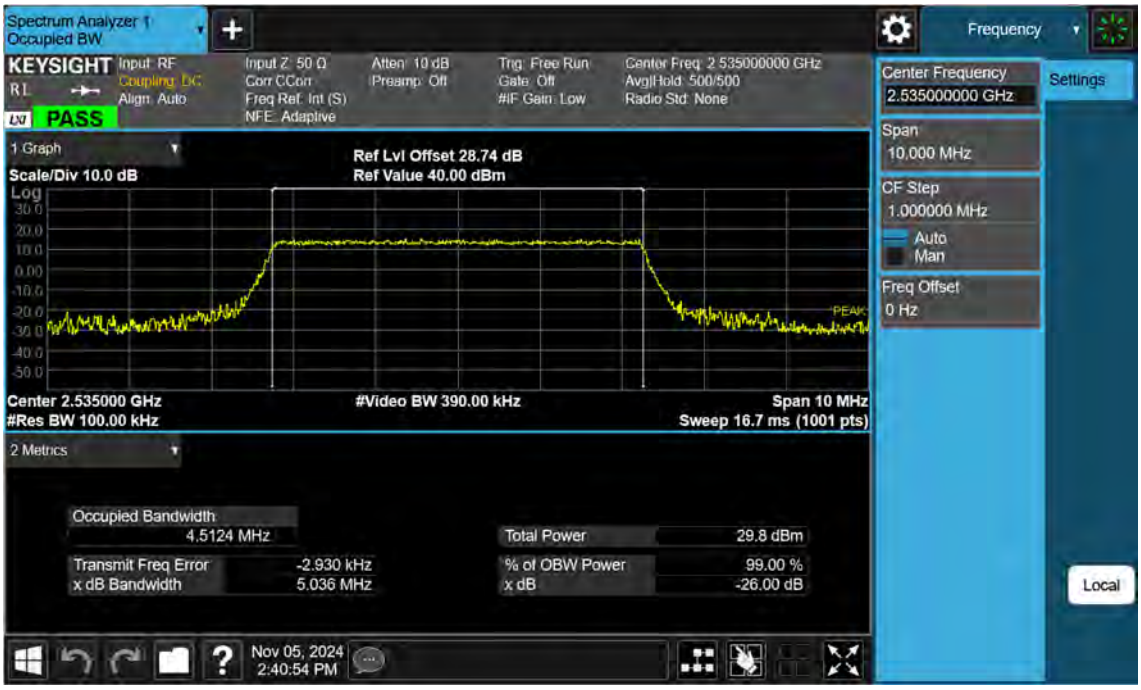
9. TEST PLOTS

Sub6 n7. Occupied Bandwidth Plot (5 M BW Ch.507000 BPSK)

Sub6 n7. Occupied Bandwidth Plot (5 M BW Ch.507000 QPSK)

Sub6 n7. Occupied Bandwidth Plot (5 M BW Ch.507000 16QAM)

Sub6 n7. Occupied Bandwidth Plot (5 M BW Ch.507000 64QAM)



Sub6 n7. Occupied Bandwidth Plot (5 M BW Ch.507000 256QAM)

Sub6 n7. Occupied Bandwidth Plot (10 M BW Ch.507000 BPSK)

Sub6 n7. Occupied Bandwidth Plot (10 M BW Ch.507000 QPSK)

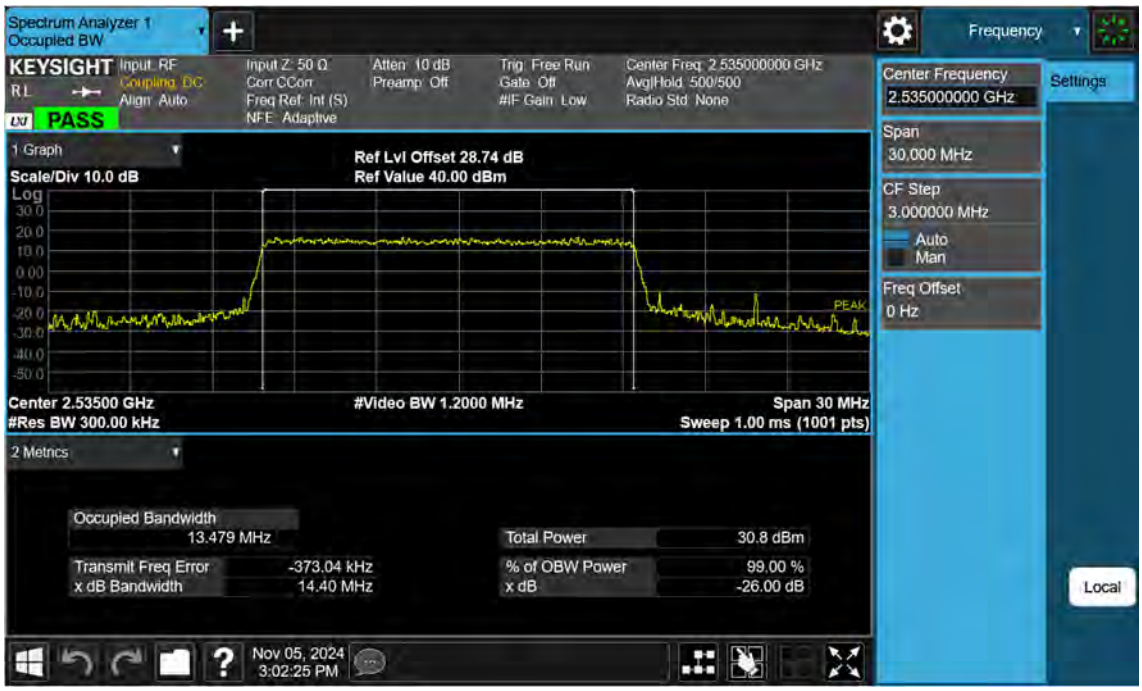
Sub6 n7. Occupied Bandwidth Plot (10 M BW Ch.507000 16QAM)

Sub6 n7. Occupied Bandwidth Plot (10 M BW Ch.507000 64QAM)

Sub6 n7. Occupied Bandwidth Plot (10 M BW Ch.507000 256QAM)

Sub6 n7. Occupied Bandwidth Plot (15 M BW Ch.507000 BPSK)

Sub6 n7. Occupied Bandwidth Plot (15 M BW Ch.507000 QPSK)



Sub6 n7. Occupied Bandwidth Plot (15 M BW Ch.507000 16QAM)

Sub6 n7. Occupied Bandwidth Plot (15 M BW Ch.507000 64QAM)

Sub6 n7. Occupied Bandwidth Plot (15 M BW Ch.507000 256QAM)

Sub6 n7. Occupied Bandwidth Plot (20 M BW Ch.507000 BPSK)

Sub6 n7. Occupied Bandw idth Plot (20 M BW Ch.507000 QPSK)

Sub6 n7. Occupied Bandwidth Plot (20 M BW Ch.507000 16QAM)

Sub6 n7. Occupied Bandwidth Plot (20 M BW Ch.507000 64QAM)

Sub6 n7. Occupied Bandwidth Plot (20 M BW Ch.507000 256QAM)

Sub6 n7. Occupied Bandwidth Plot (25 M BW Ch.507000 BPSK)

Sub6 n7. Occupied Bandwidth Plot (25 M BW Ch.507000 QPSK)

Sub6 n7. Occupied Bandwidth Plot (25 M BW Ch.507000 16QAM)

Sub6 n7. Occupied Bandwidth Plot (25 M BW Ch.507000 64QAM)

Sub6 n7. Occupied Bandwidth Plot (25 M BW Ch.507000 256QAM)

Sub6 n7. Occupied Bandwidth Plot (30 M BW Ch.507000 BPSK)

Sub6 n7. Occupied Bandwidth Plot (30 M BW Ch.507000 QPSK)

Sub6 n7. Occupied Bandwidth Plot (30 M BW Ch.507000 16QAM)

Sub6 n7. Occupied Bandwidth Plot (30 M BW Ch.507000 64QAM)

Sub6 n7. Occupied Bandwidth Plot (30 M BW Ch.507000 256QAM)

Sub6 n7. Occupied Bandwidth Plot (40 M BW Ch.507000 BPSK)

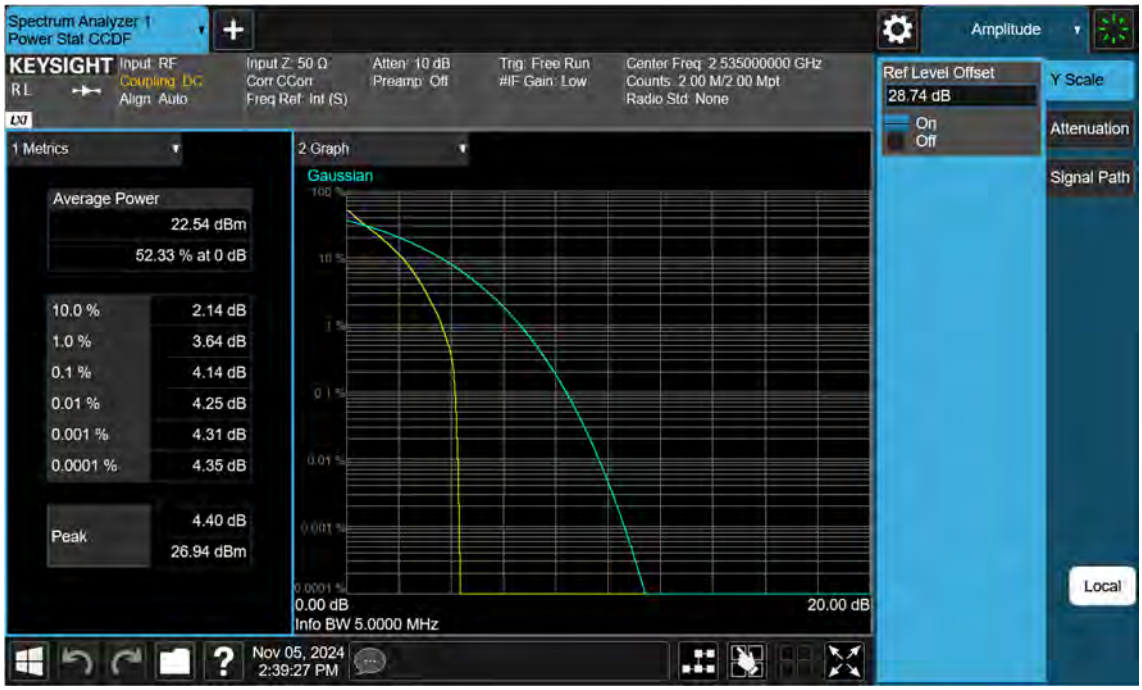
Sub6 n7. Occupied Bandwidth Plot (40 M BW Ch.507000 QPSK)

Sub6 n7. Occupied Bandwidth Plot (40 M BW Ch.507000 16QAM)

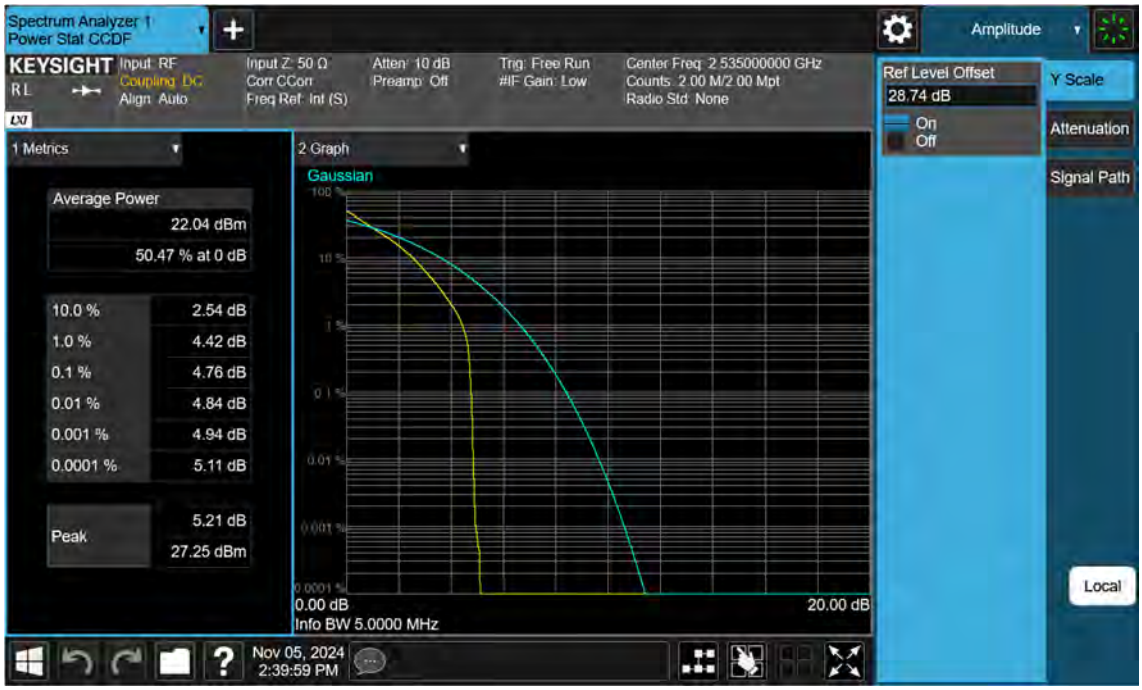
Sub6 n7. Occupied Bandwidth Plot (40 M BW Ch.507000 64QAM)

Sub6 n7. Occupied Bandwidth Plot (40 M BW Ch.507000 256QAM)

Sub6 n7. PAR Plot (5 M BW_Ch.507000_ BPSK)



Sub6 n7. PAR Plot (5 M BW_Ch.507000_QPSK)

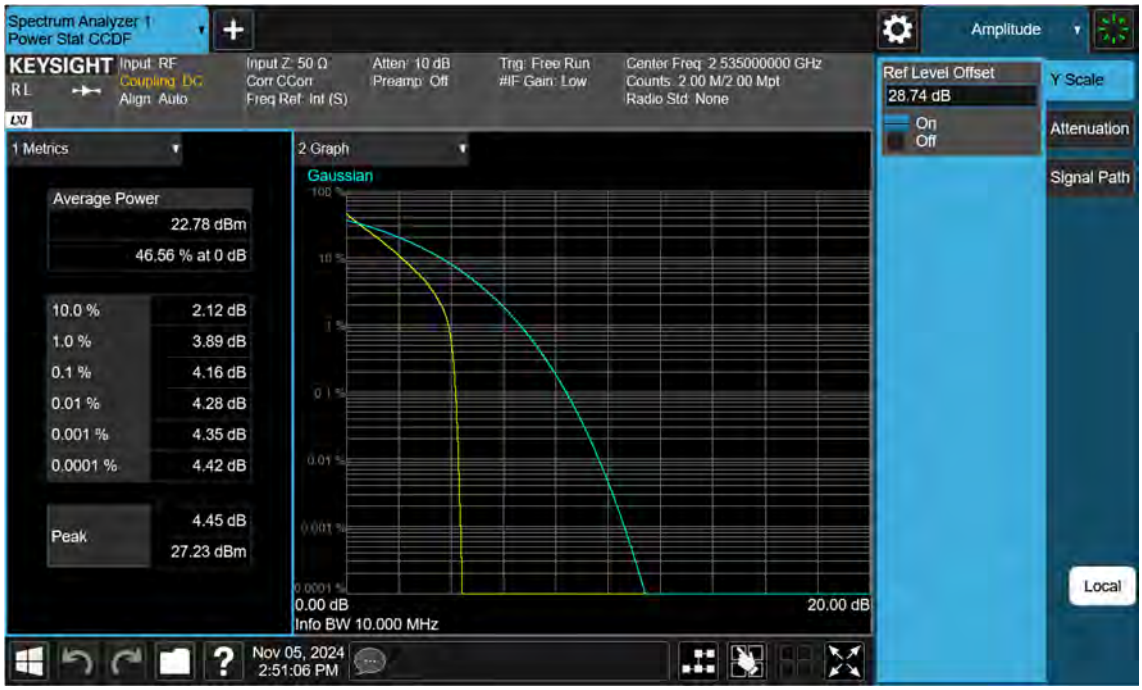


Sub6 n7. PAR Plot (5 M BW_Ch.507000_16QAM)

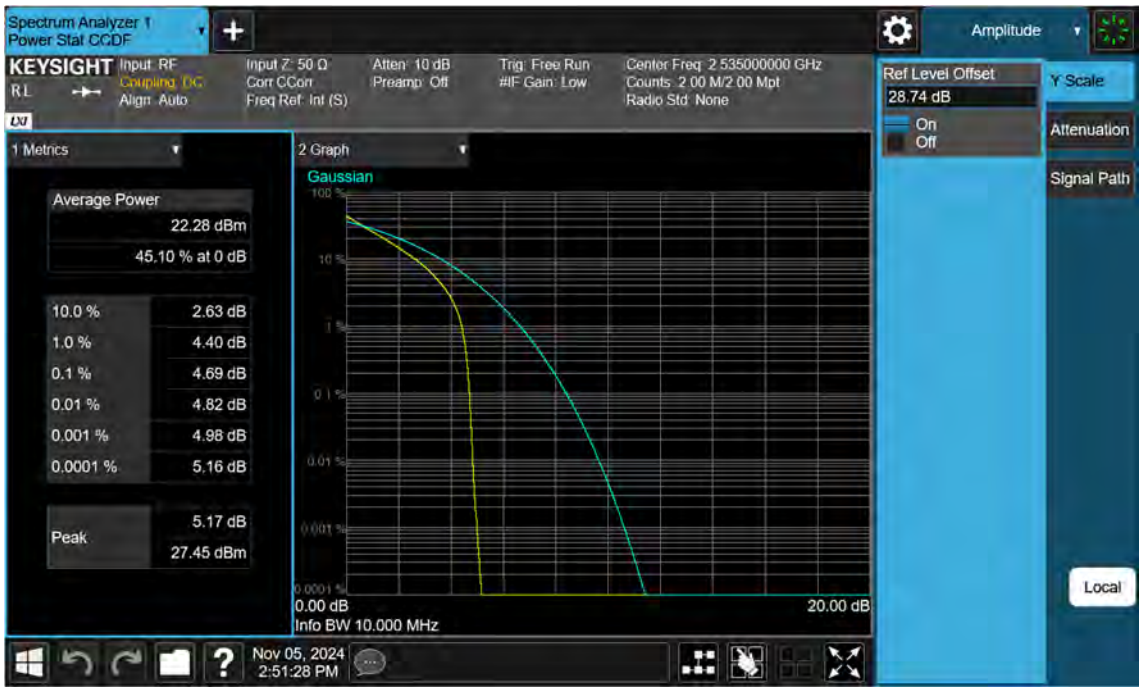
Sub6 n7. PAR Plot (5 M BW_Ch.507000_64QAM)

Sub6 n7. PAR Plot (5 M BW_Ch.507000_256QAM)

Sub6 n7. PAR Plot (10 M BW_Ch.507000_ BPSK)



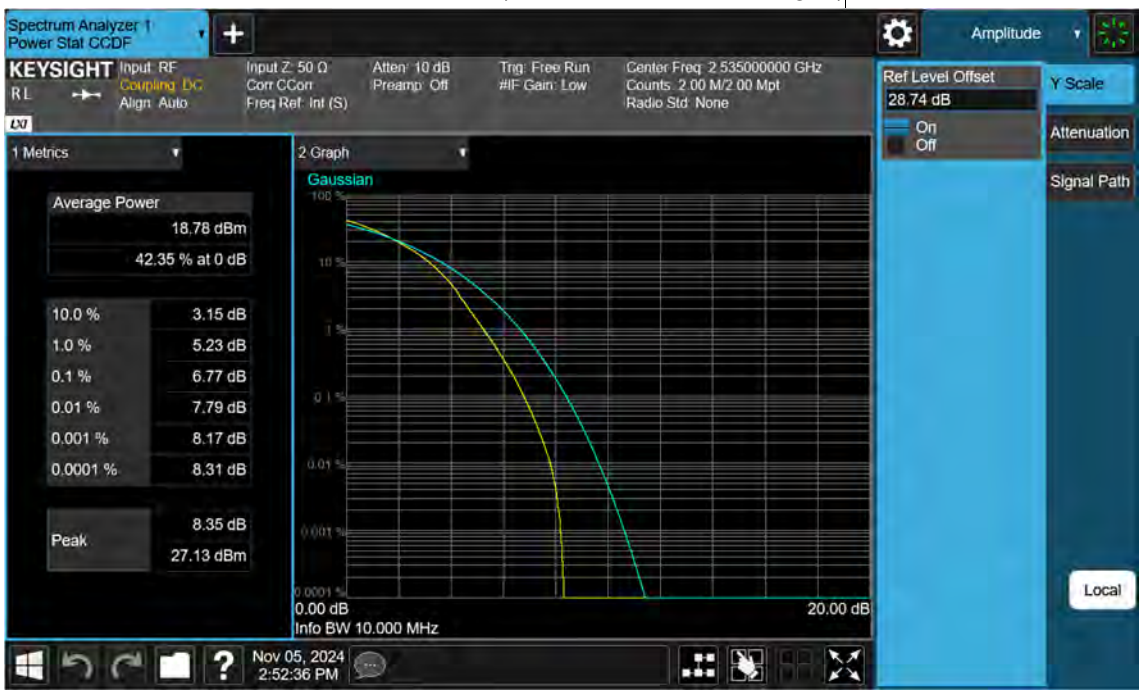
Sub6 n7. PAR Plot (10 M BW_Ch.507000_QPSK)



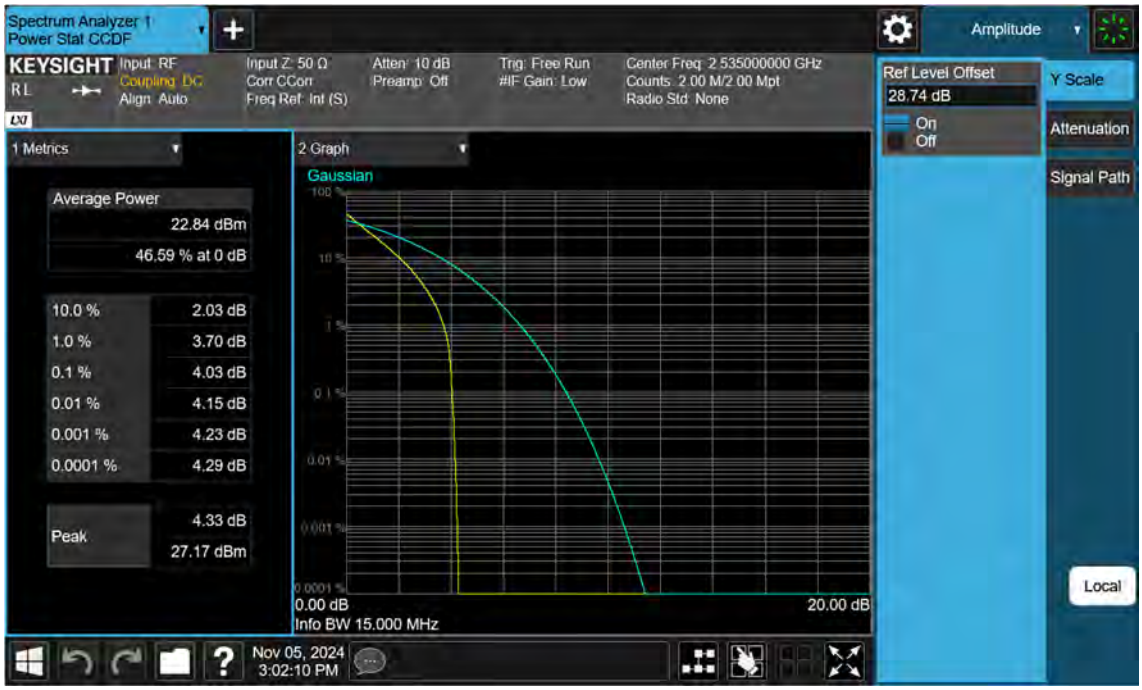
Sub6 n7. PAR Plot (10 M BW_Ch.507000_16QAM)

Sub6 n7. PAR Plot (10 M BW_Ch.507000_64QAM)

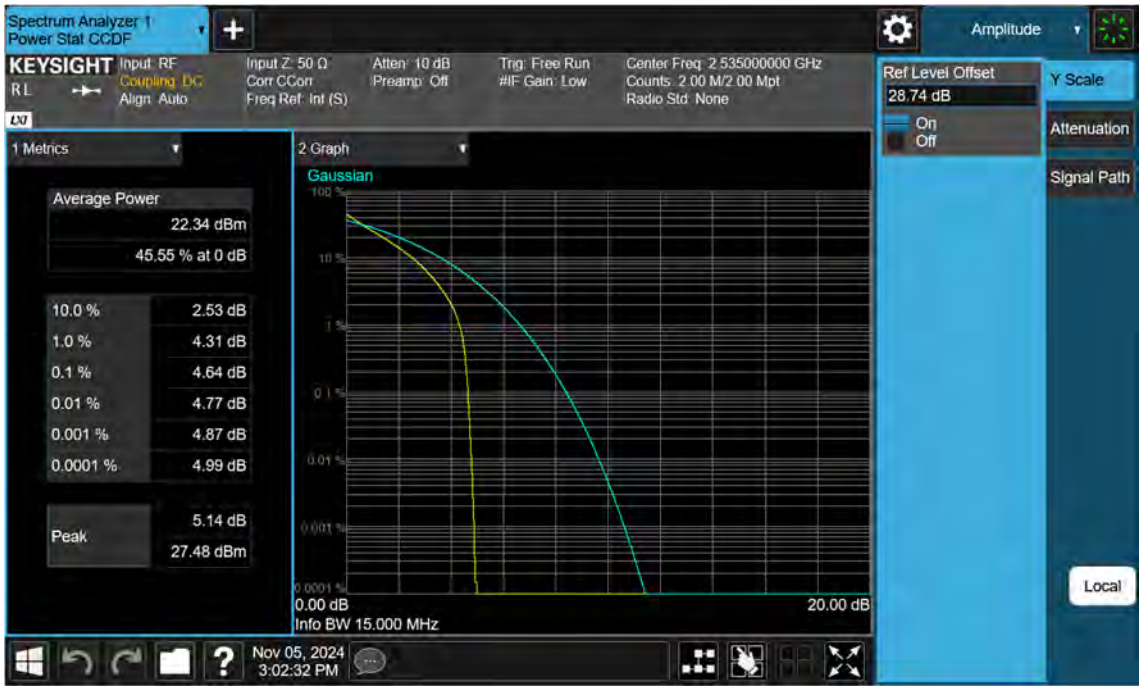
Sub6 n7. PAR Plot (10 M BW_Ch.507000_256QAM)



Sub6 n7. PAR Plot (15 M BW_Ch.507000_ BPSK)



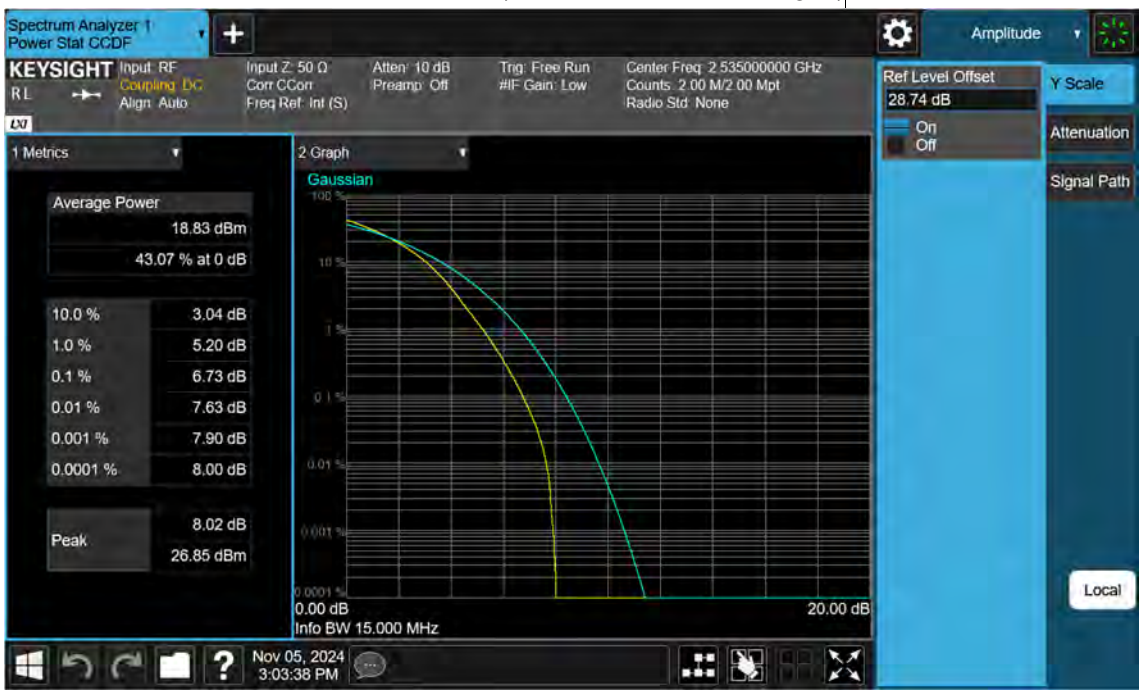
Sub6 n7. PAR Plot (15 M BW_Ch.507000_QPSK)



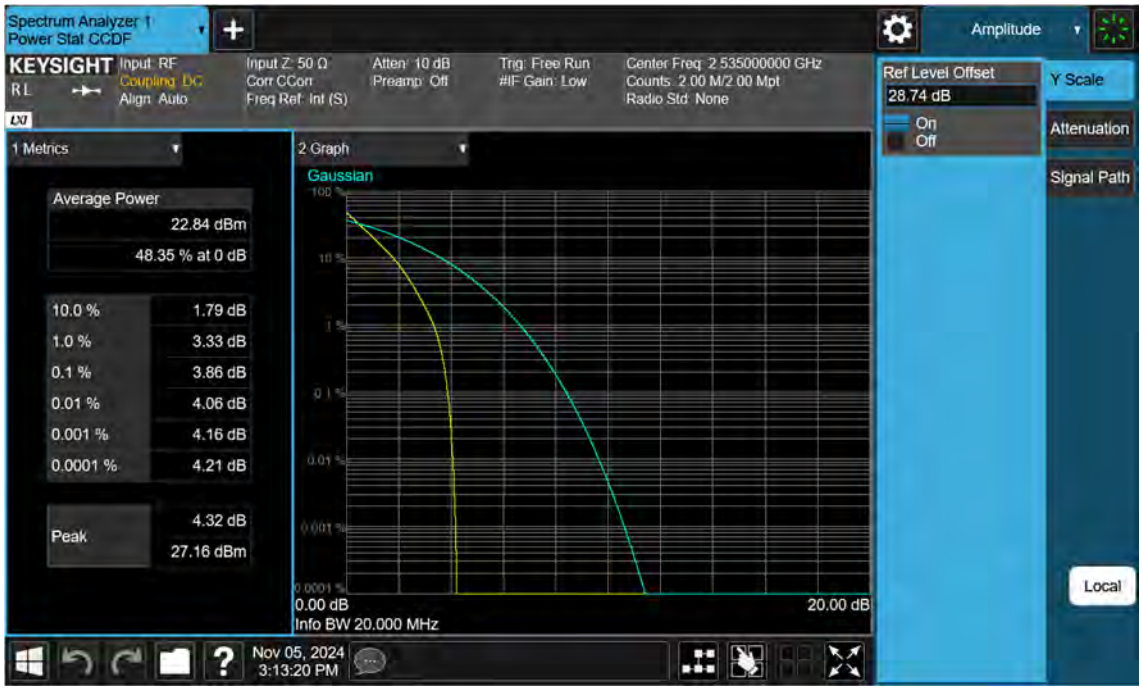
Sub6 n7. PAR Plot (15 M BW_Ch.507000_16QAM)

Sub6 n7. PAR Plot (15 M BW_Ch.507000_64QAM)

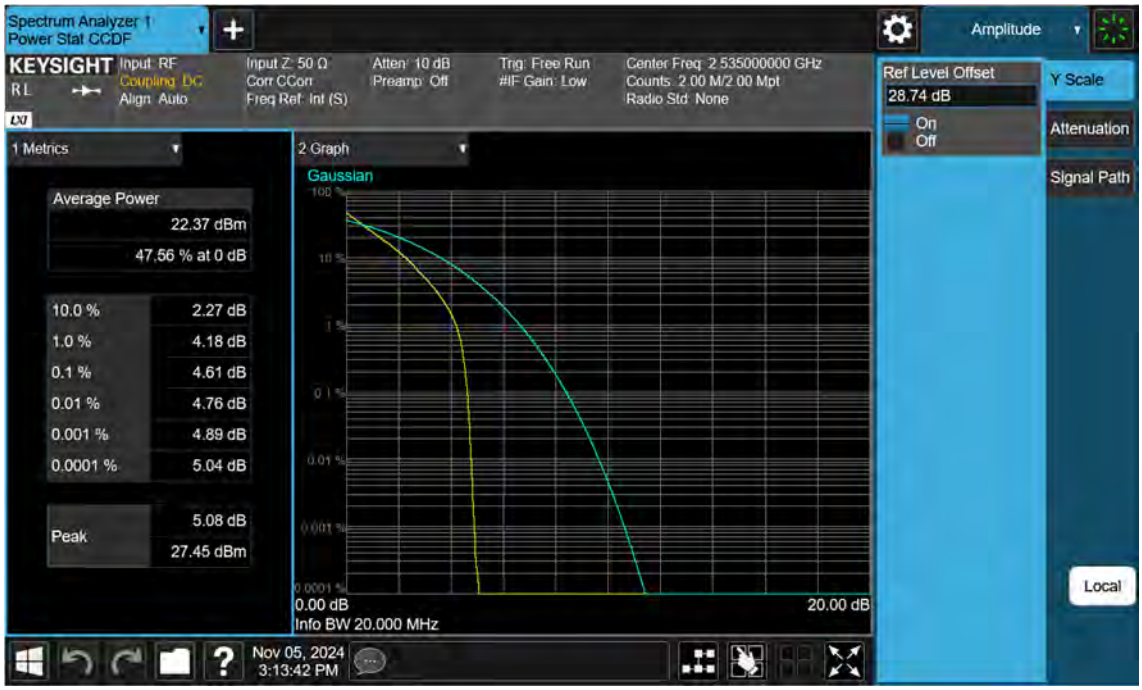
Sub6 n7. PAR Plot (15 M BW_Ch.507000_256QAM)



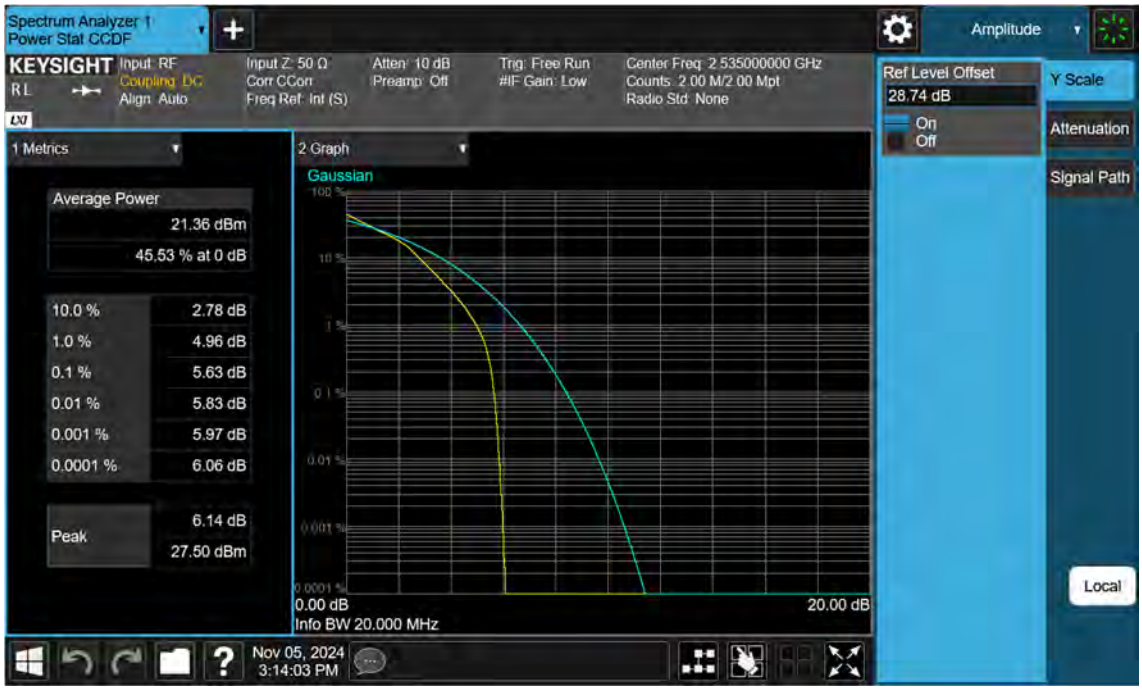
Sub6 n7. PAR Plot (20 M BW_Ch.507000_ BPSK)



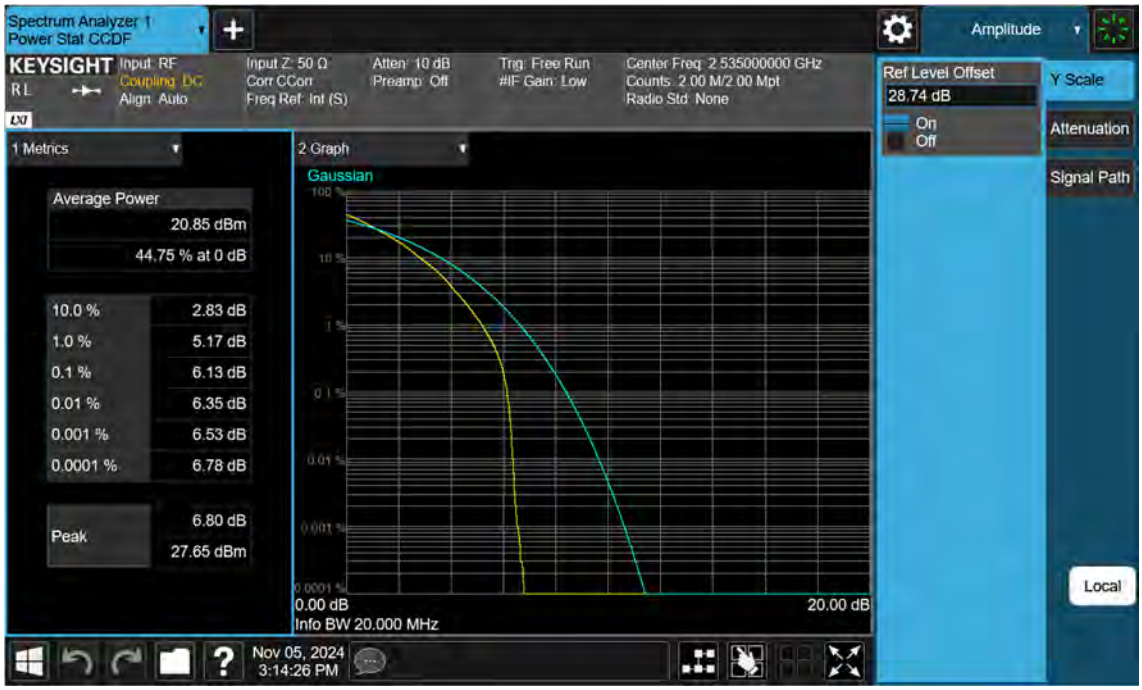
Sub6 n7. PAR Plot (20 M BW_Ch.507000_QPSK)



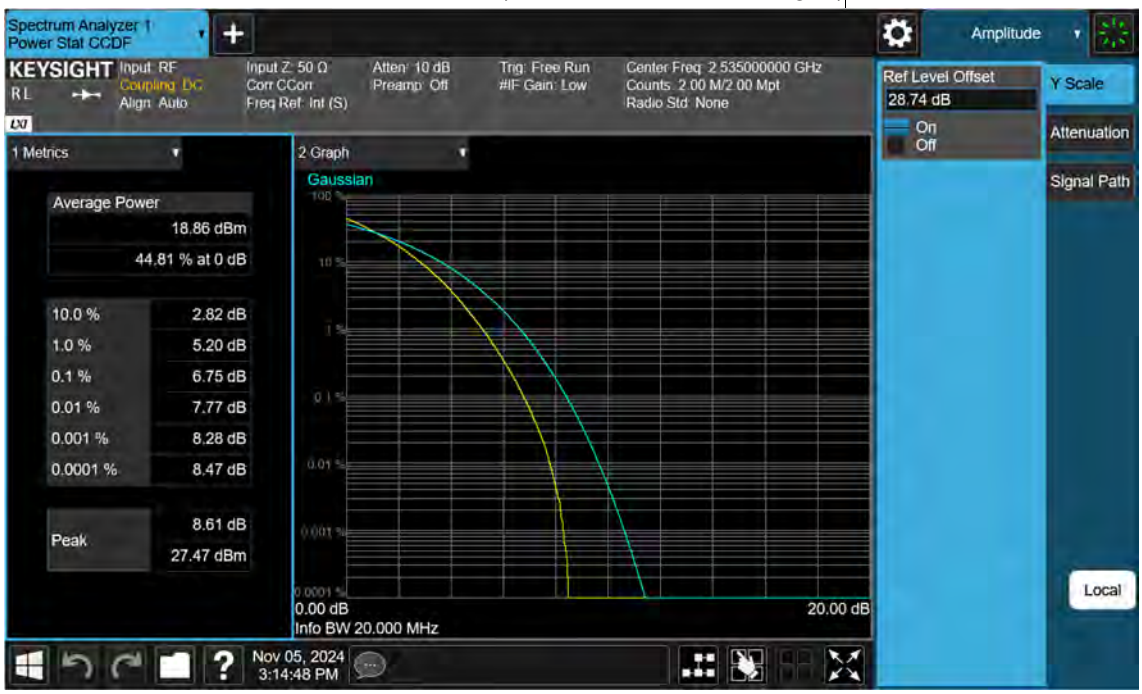
Sub6 n7. PAR Plot (20 M BW_Ch.507000_16QAM)



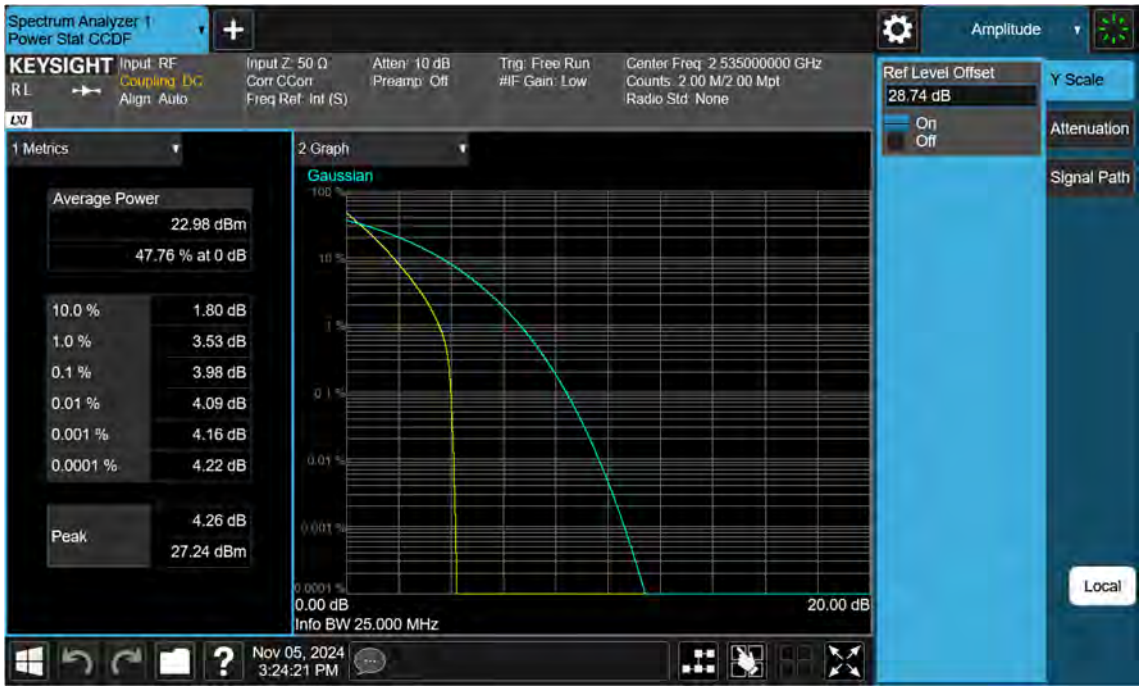
Sub6 n7. PAR Plot (20 M BW_Ch.507000_64QAM)



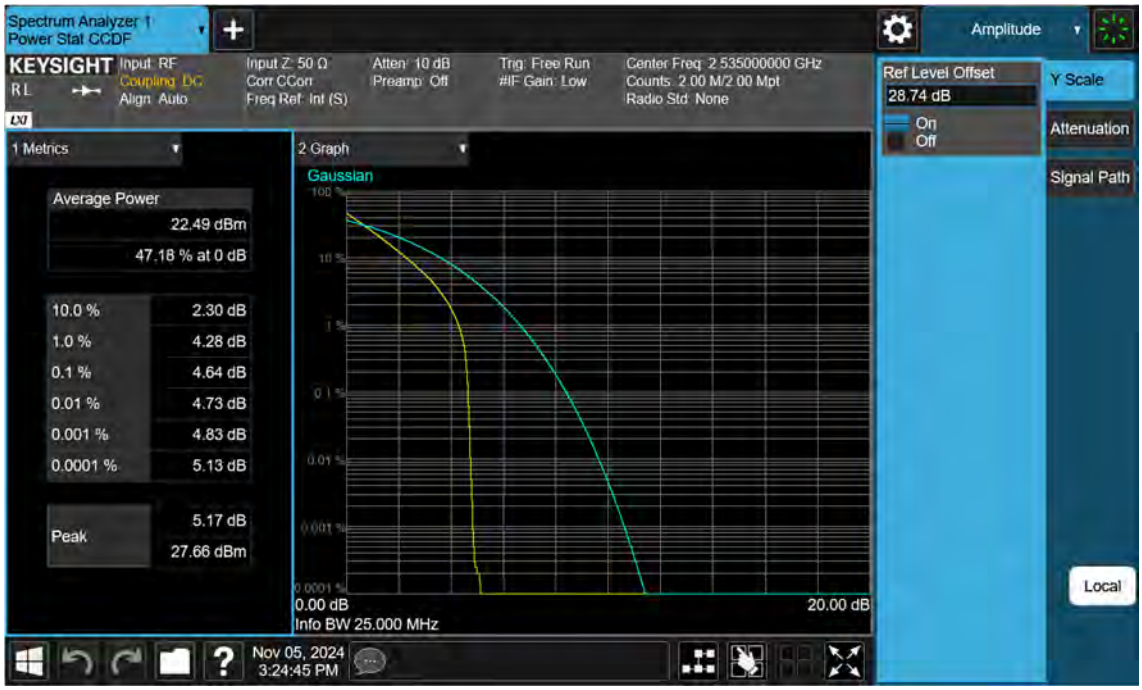
Sub6 n7. PAR Plot (20 M BW_Ch.507000_256QAM)



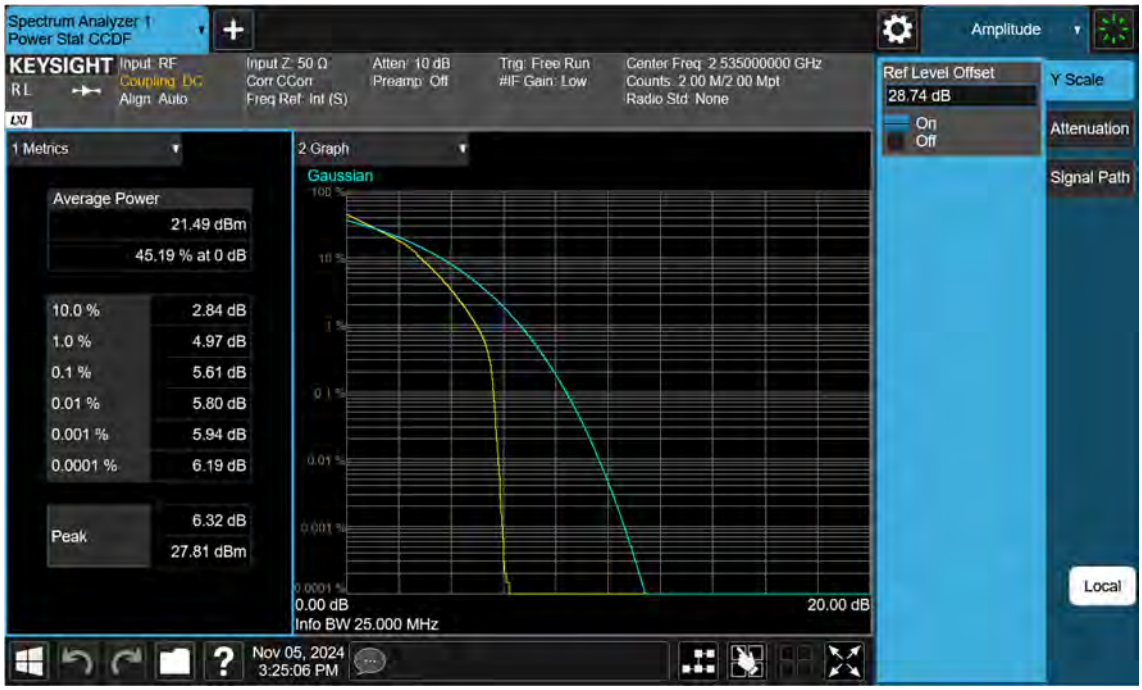
Sub6 n7. PAR Plot (25 M BW_Ch.507000_ BPSK)



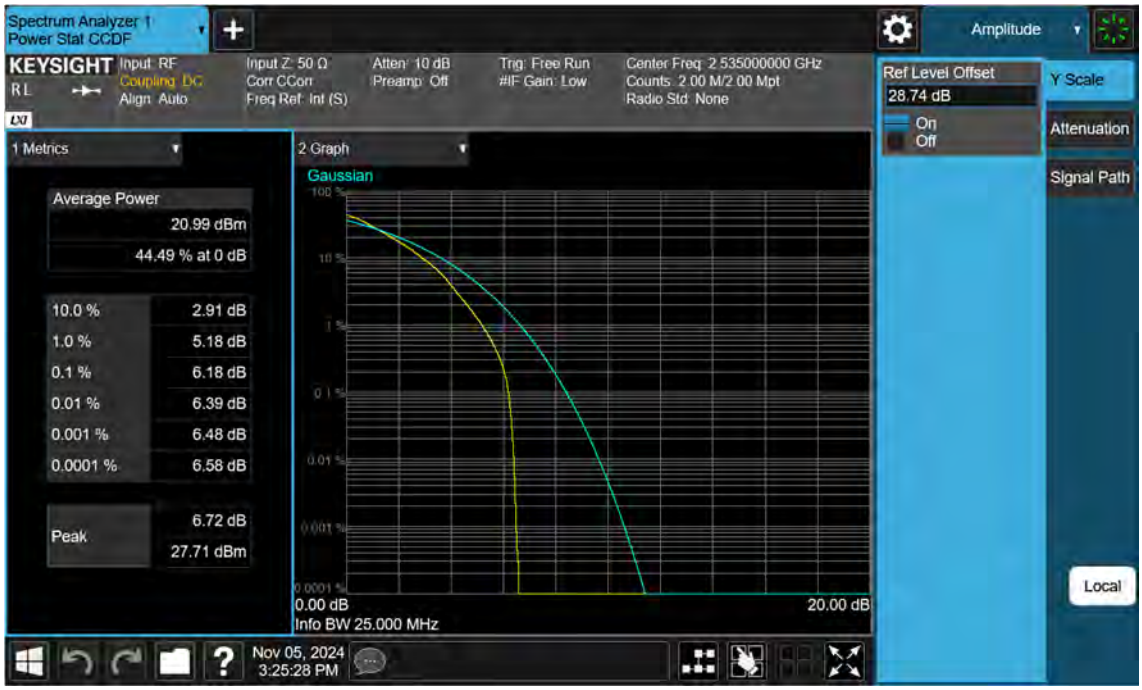
Sub6 n7. PAR Plot (25 M BW_Ch.507000_QPSK)



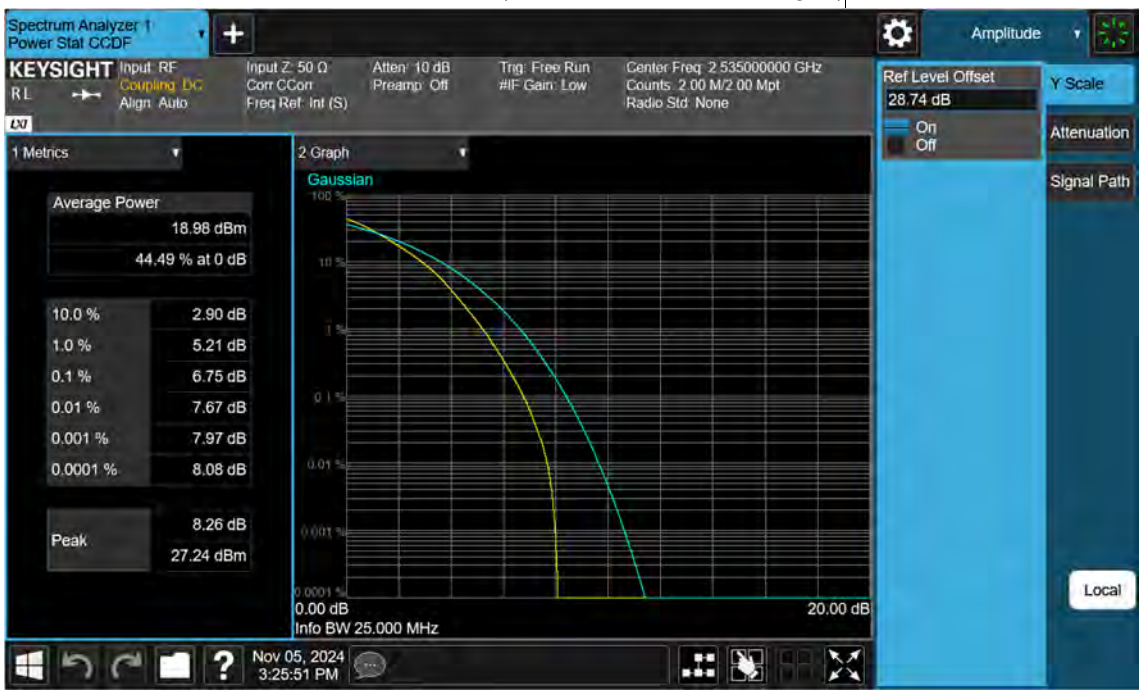
Sub6 n7. PAR Plot (25 M BW_Ch.507000_16QAM)



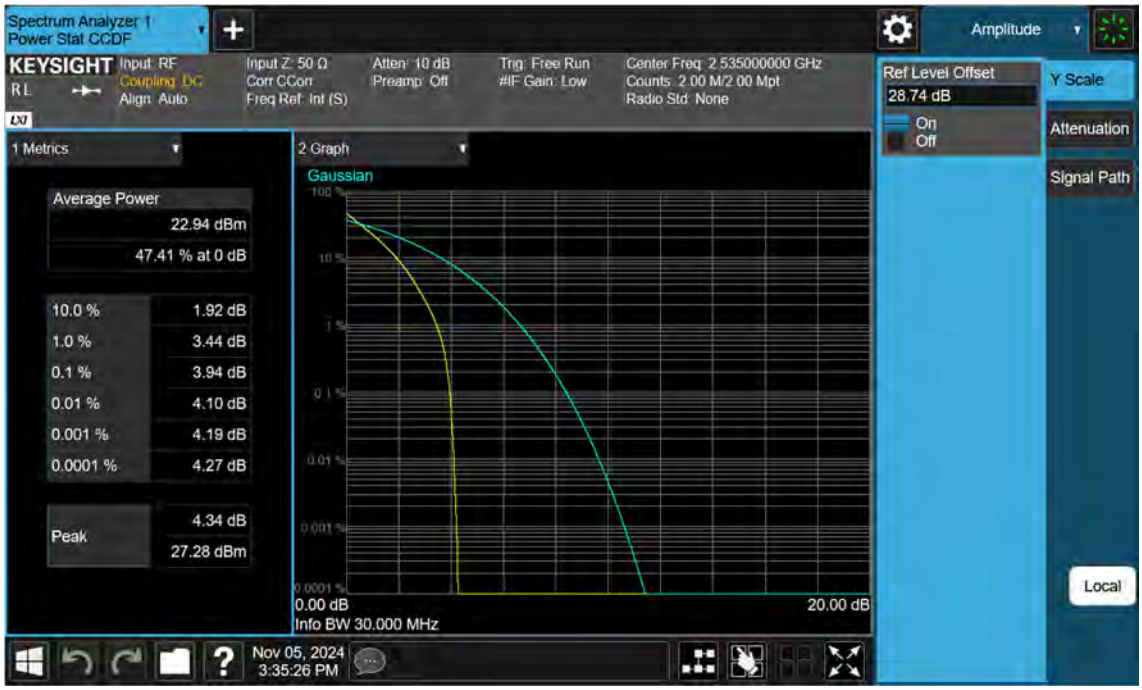
Sub6 n7. PAR Plot (25 M BW_Ch.507000_64QAM)



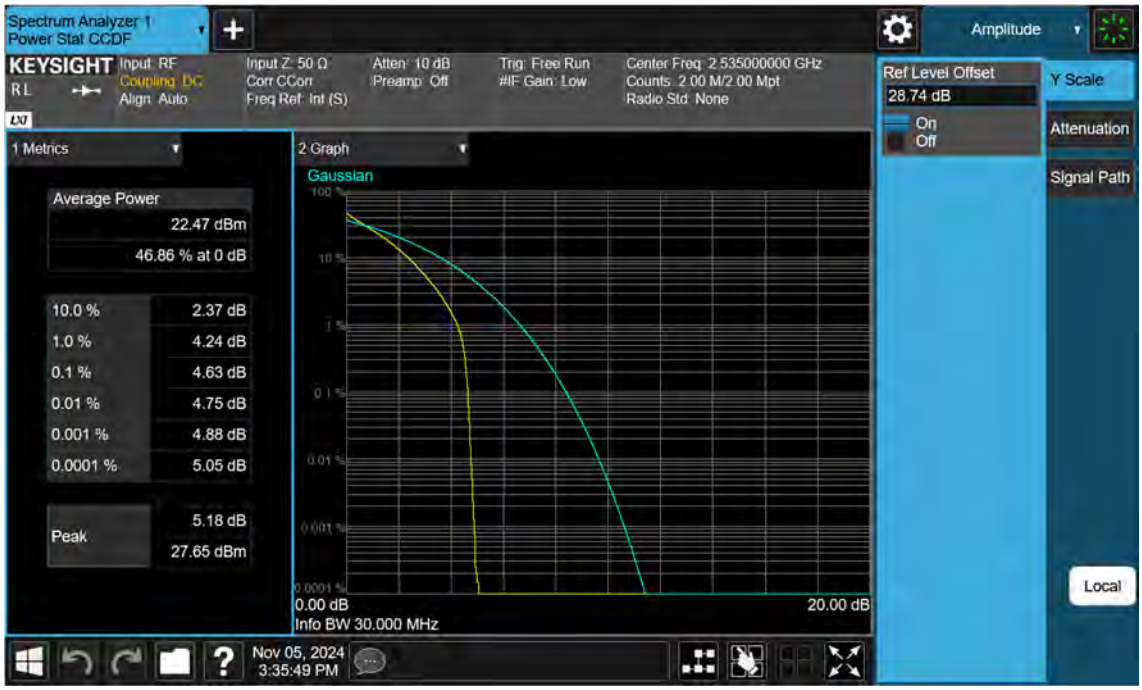
Sub6 n7. PAR Plot (25 M BW_Ch.507000_256QAM)



Sub6 n7. PAR Plot (30 M BW_Ch.507000_ BPSK)



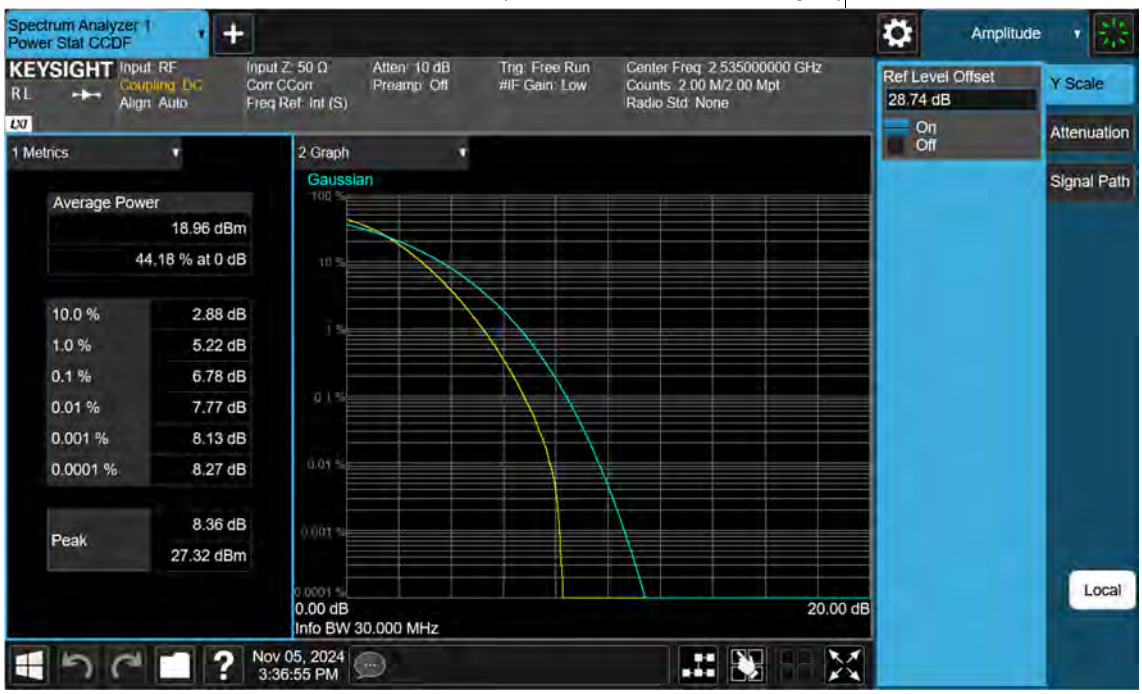
Sub6 n7. PAR Plot (30 M BW_Ch.507000_QPSK)



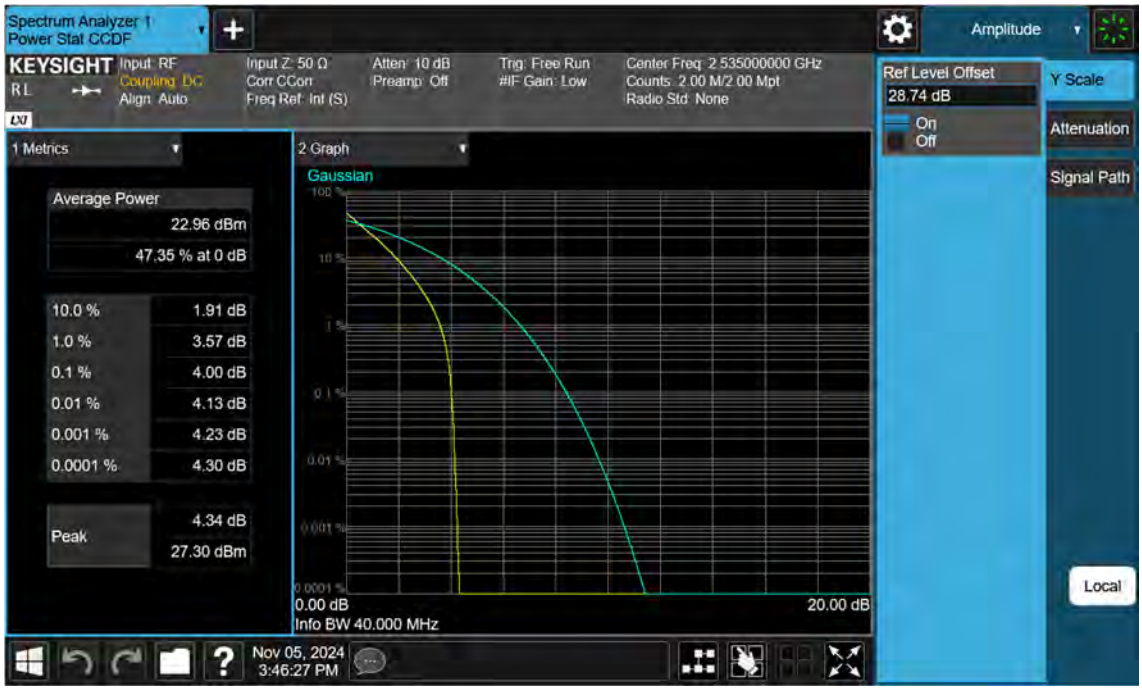
Sub6 n7. PAR Plot (30 M BW_Ch.507000_16QAM)

Sub6 n7. PAR Plot (30 M BW_Ch.507000_64QAM)

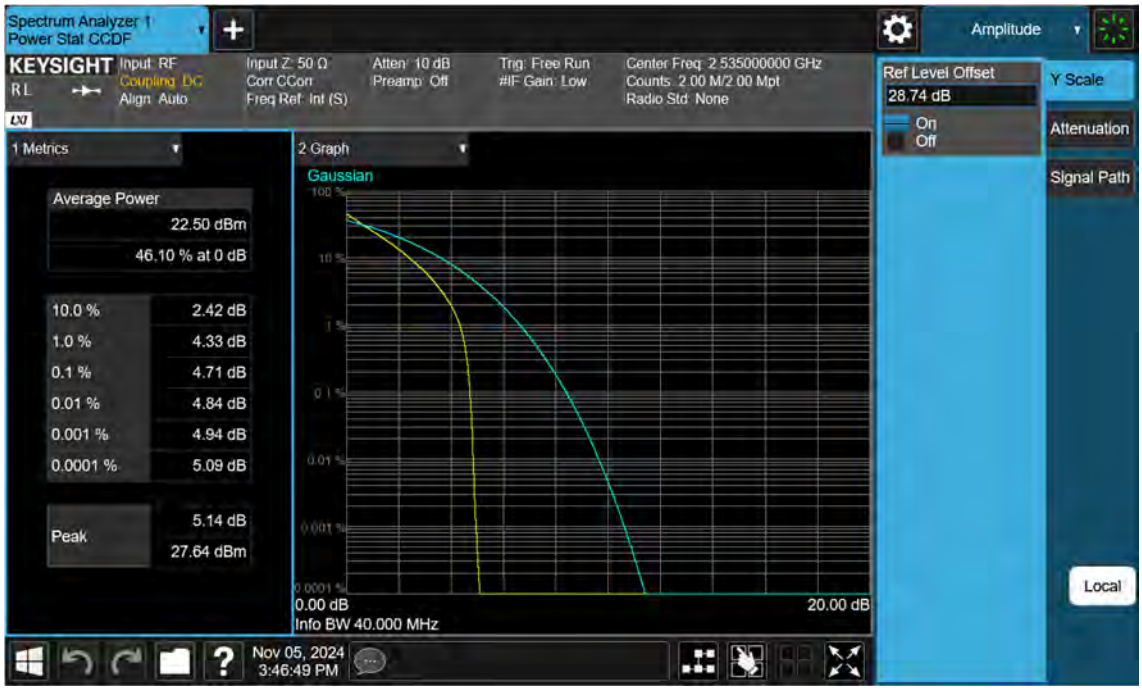
Sub6 n7. PAR Plot (30 M BW_Ch.507000_256QAM)



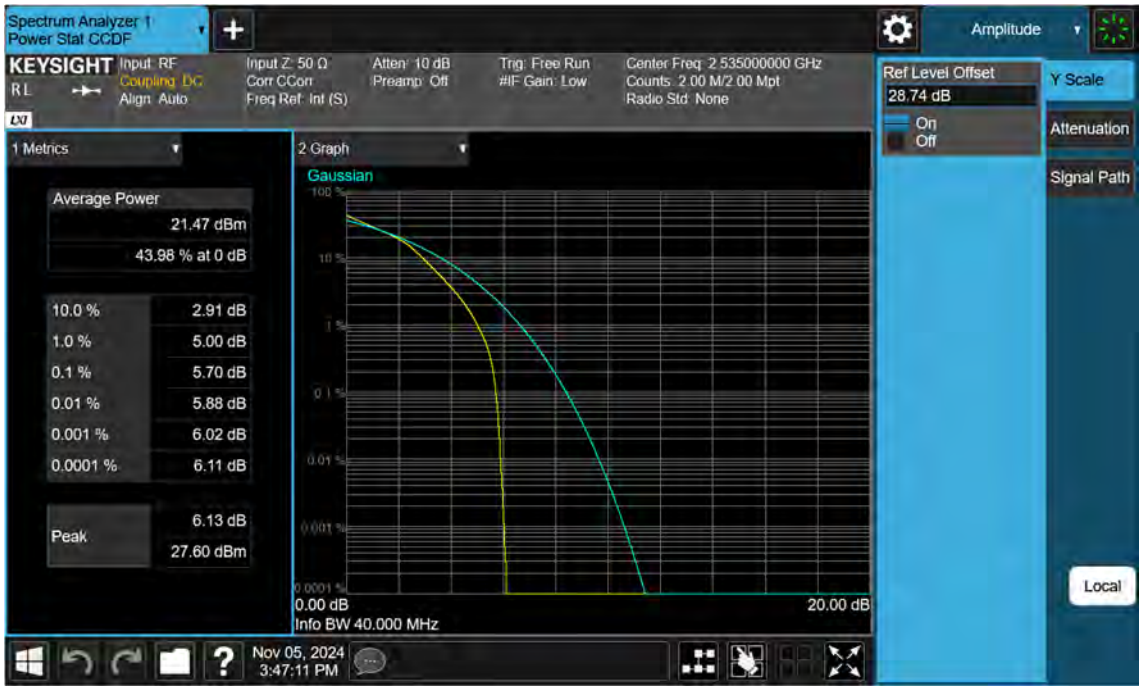
Sub6 n7. PAR Plot (40 M BW_Ch.507000_ BPSK)



Sub6 n7. PAR Plot (40 M BW_Ch.507000_QPSK)

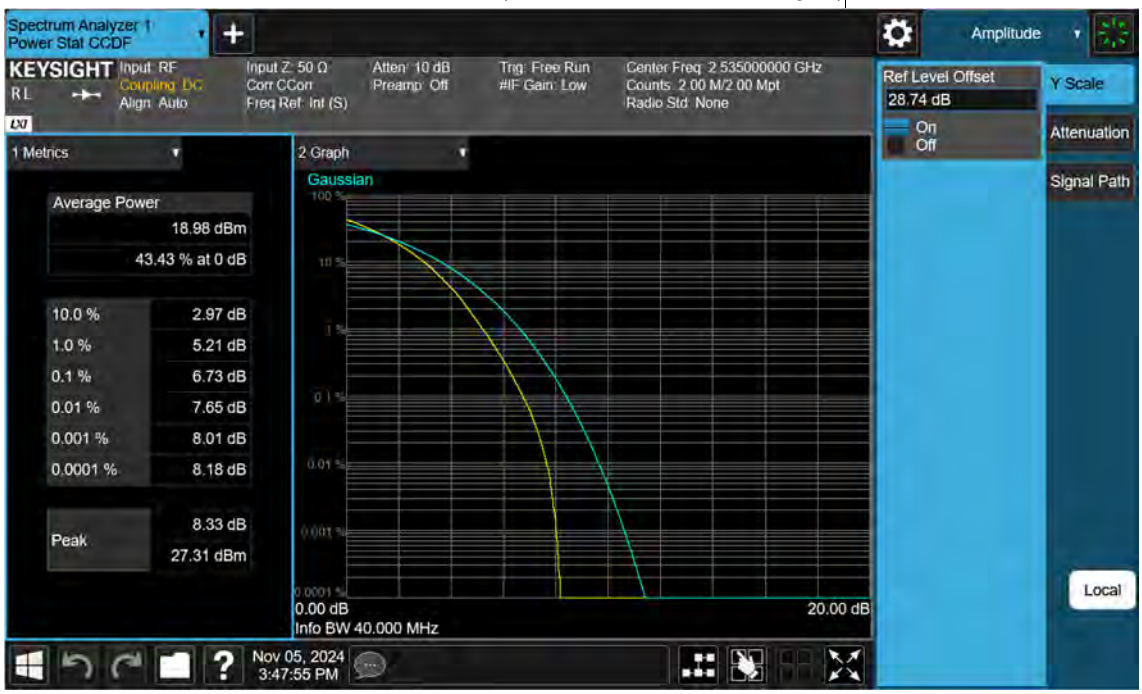


Sub6 n7. PAR Plot (40 M BW_Ch.507000_16QAM)



Sub6 n7. PAR Plot (40 M BW_Ch.507000_64QAM)

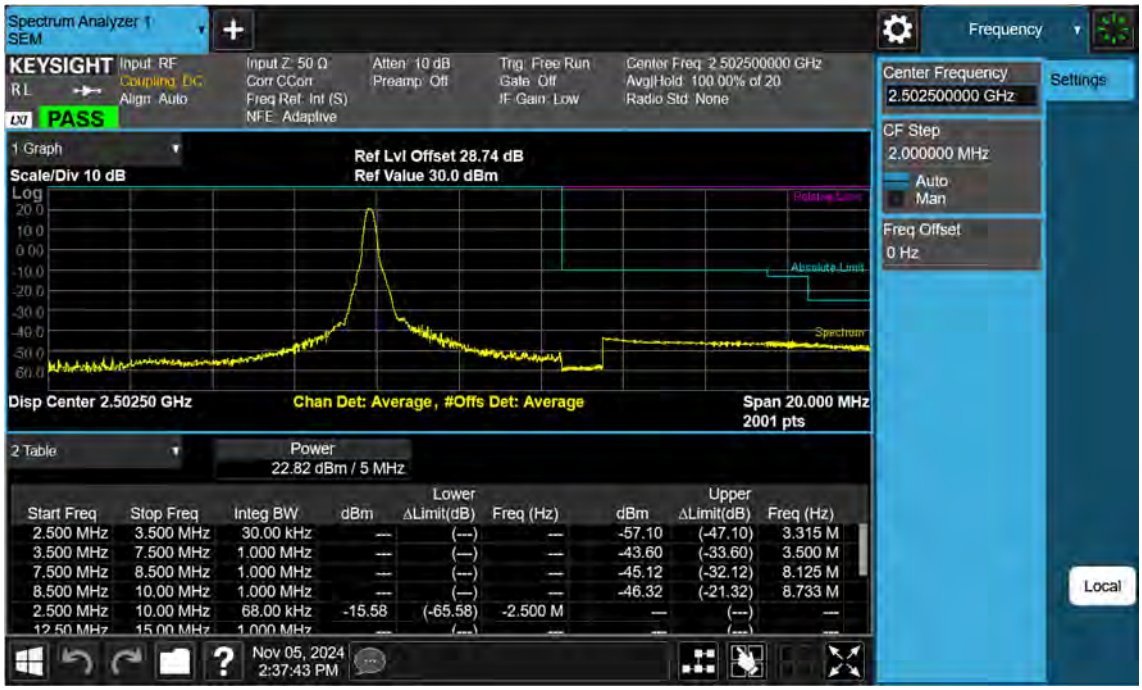
Sub6 n7. PAR Plot (40 M BW_Ch.507000_256QAM)



Sub6 n7. Low Channel Edge Plot (5 MHz Ch.500500 BPSK RB 1)-1

Sub6 n7. Low Channel Edge Plot (5 MHz Ch.500500 BPSK)-1

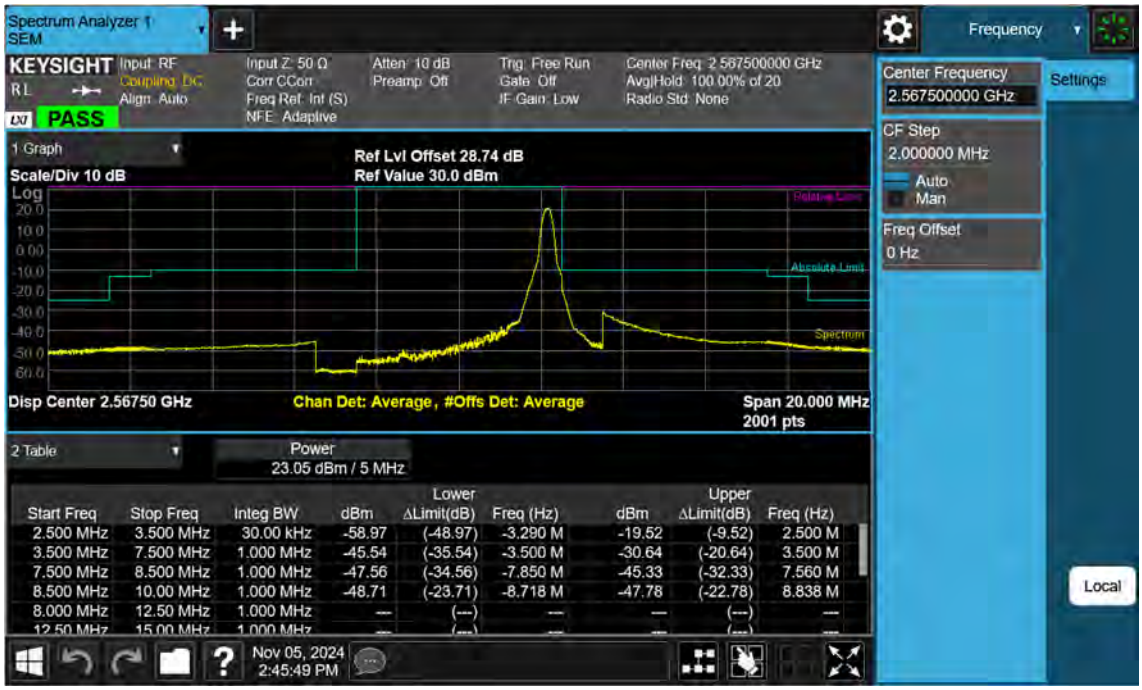
Sub6 n7. Low Channel Edge Plot (5 MHz Ch.500500 BPSK_RB 1)-2



Sub6 n7. Low Channel Edge Plot (5 MHz Ch.500500 BPSK)-2

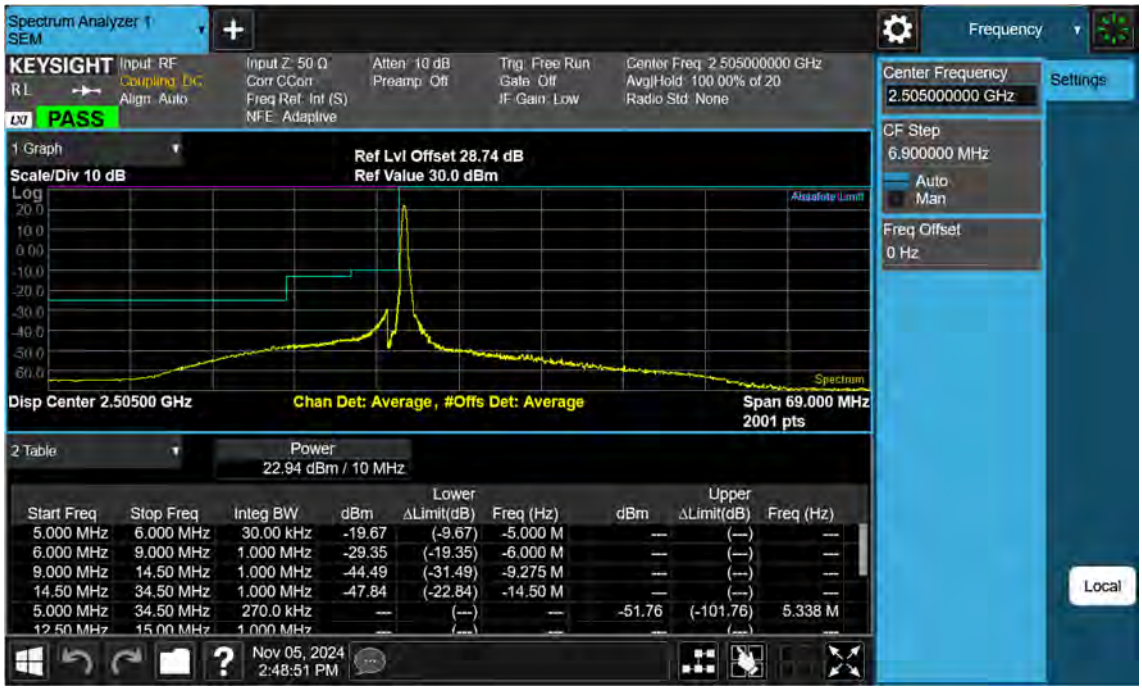
Sub6 n7. Mid Channel Edge Plot (5 MHz Ch.507000 BPSK)

Sub6 n7. High Channel Edge Plot (5 MHz Ch.513500 BPSK RB 1)



Sub6 n7. High Channel Edge Plot (5 MHz Ch.513500 BPSK)

Sub6 n7. Low Channel Edge Plot (10 MHz Ch.501000 BPSK RB 1)-1



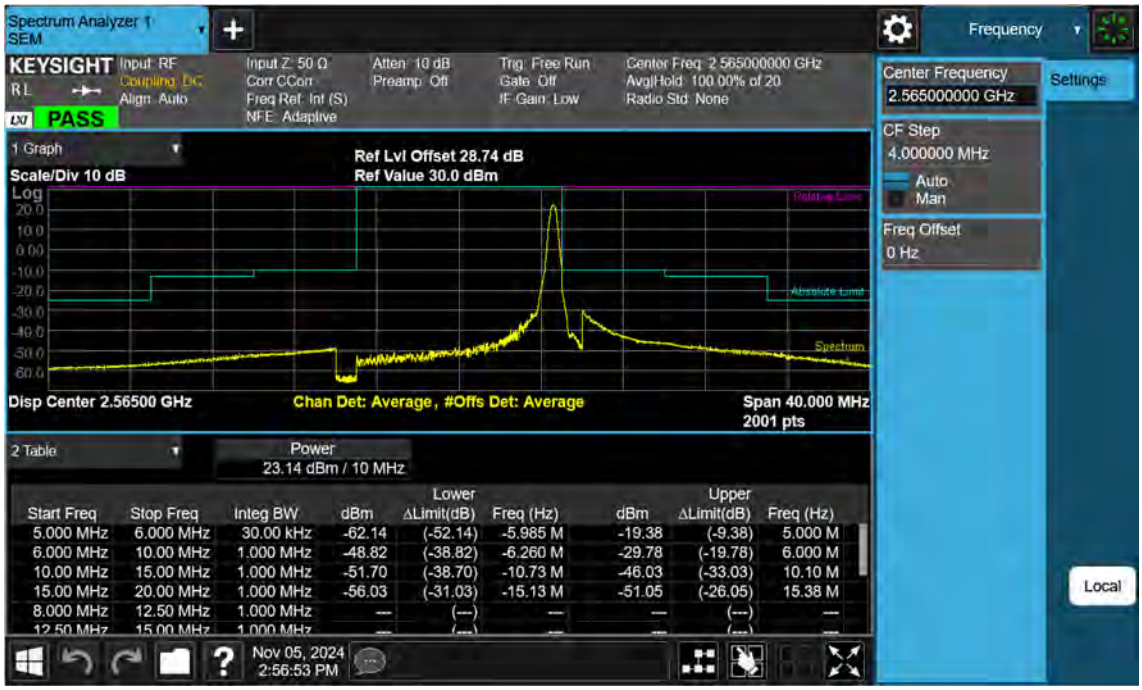
Sub6 n7. Low Channel Edge Plot (10 MHz Ch.501000 BPSK)-1

Sub6 n7. Low Channel Edge Plot (10 MHz Ch.501000 BPSK RB 1)-2

Sub6 n7. Low Channel Edge Plot (10 MHz Ch.501000 BPSK)-2

Sub6 n7. Mid Channel Edge Plot (10 MHz Ch.507000 BPSK)

Sub6 n7. High Channel Edge Plot (10 MHz Ch.513000 BPSK RB 1)

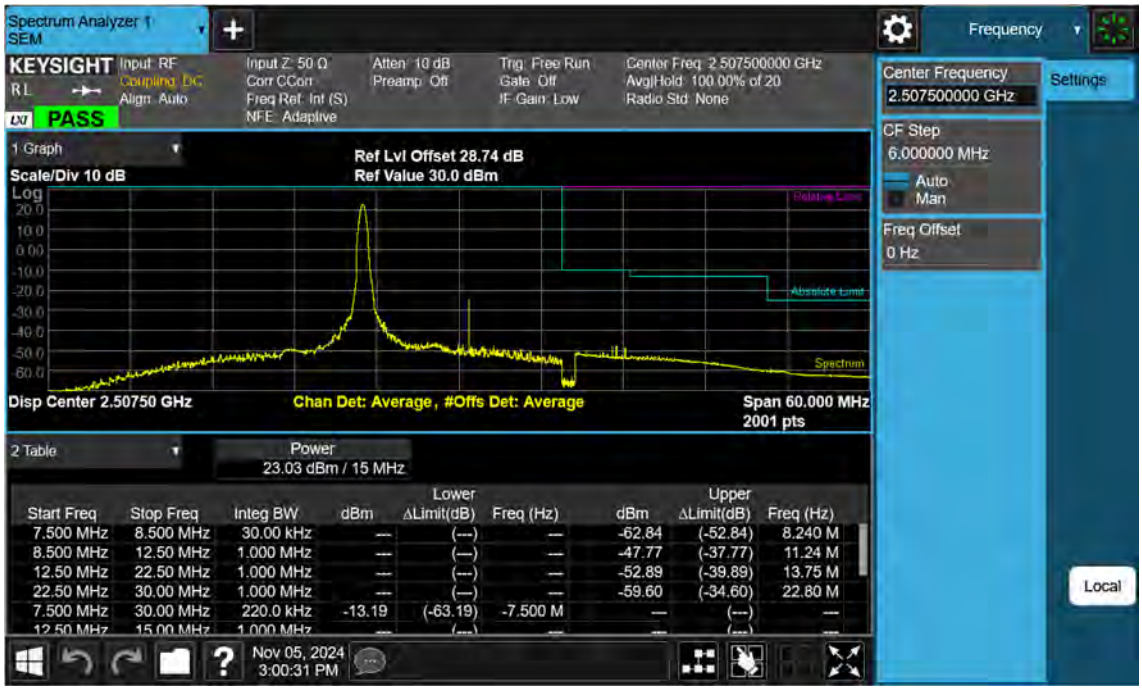


Sub6 n7. High Channel Edge Plot (10 MHz Ch.513000 BPSK)

Sub6 n7. Low Channel Edge Plot (15 MHz Ch.501500 BPSK RB 1)-1

Sub6 n7. Low Channel Edge Plot (15 MHz Ch.501500 BPSK)-1

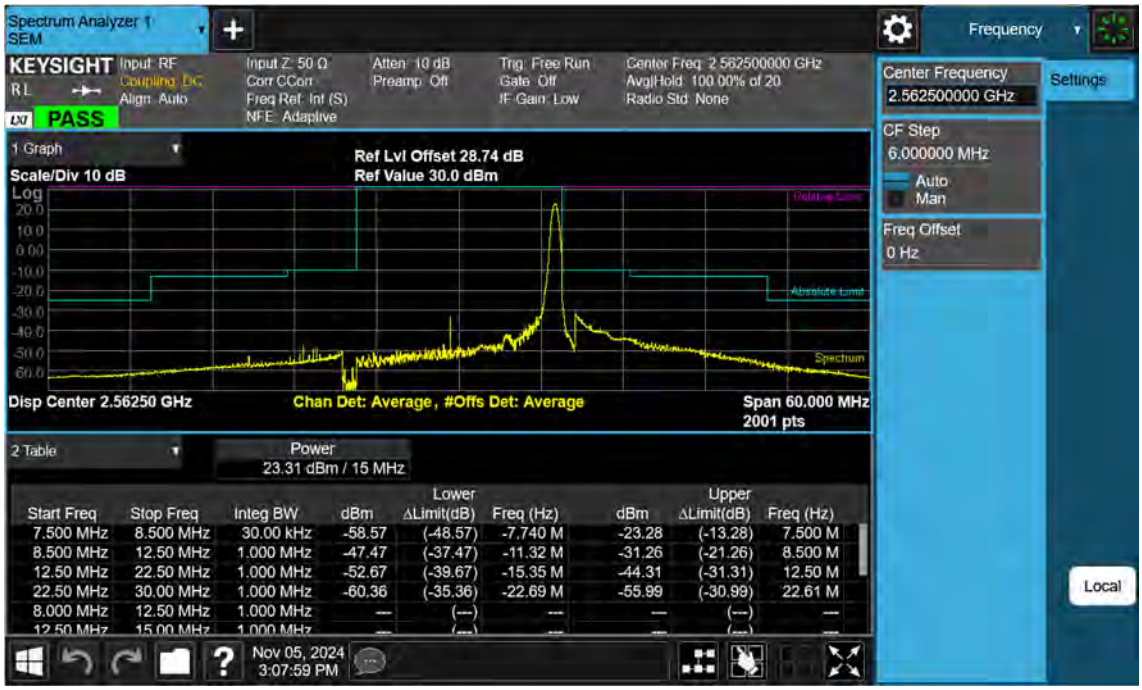
Sub6 n7. Low Channel Edge Plot (15 MHz Ch.501500 BPSK_RB1)-2



Sub6 n7. Low Channel Edge Plot (15 MHz Ch.501500 BPSK)-2

Sub6 n7. Mid Channel Edge Plot (15 MHz Ch.507000 BPSK)

Sub6 n7. High Channel Edge Plot (15 MHz Ch.512500 BPSK RB 1)

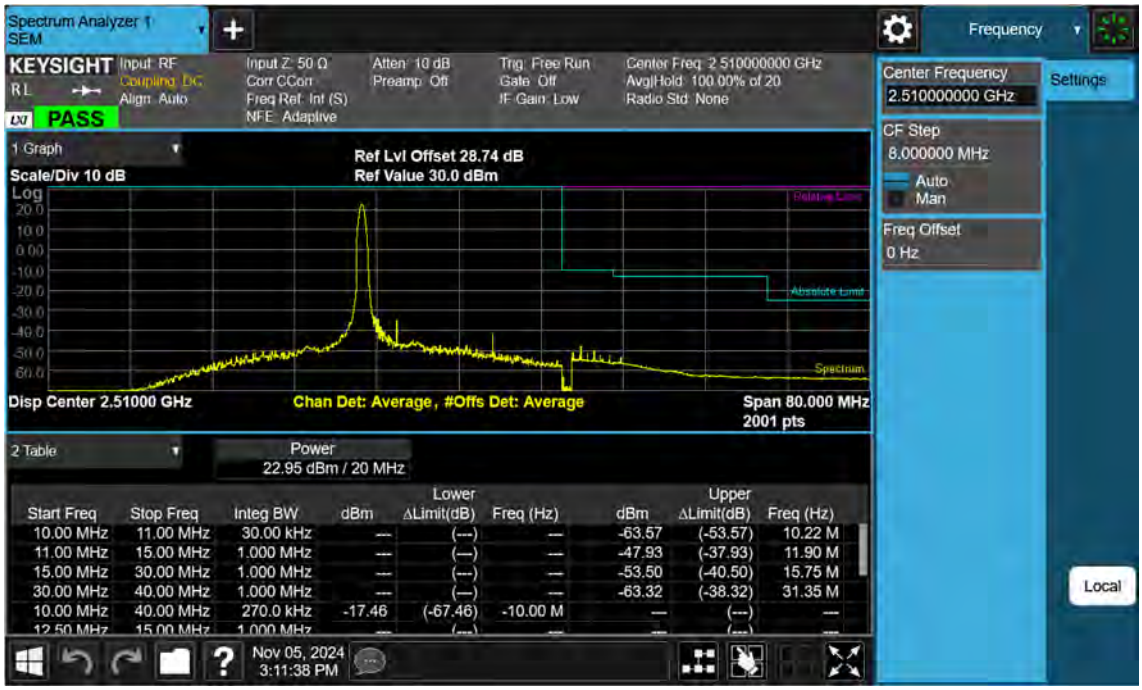


Sub6 n7. High Channel Edge Plot (15 MHz Ch.512500 BPSK)

Sub6 n7. Low Channel Edge Plot (20 MHz Ch.502000 BPSK RB 1)-1

Sub6 n7. Low Channel Edge Plot (20 MHz Ch.502000 BPSK)-1

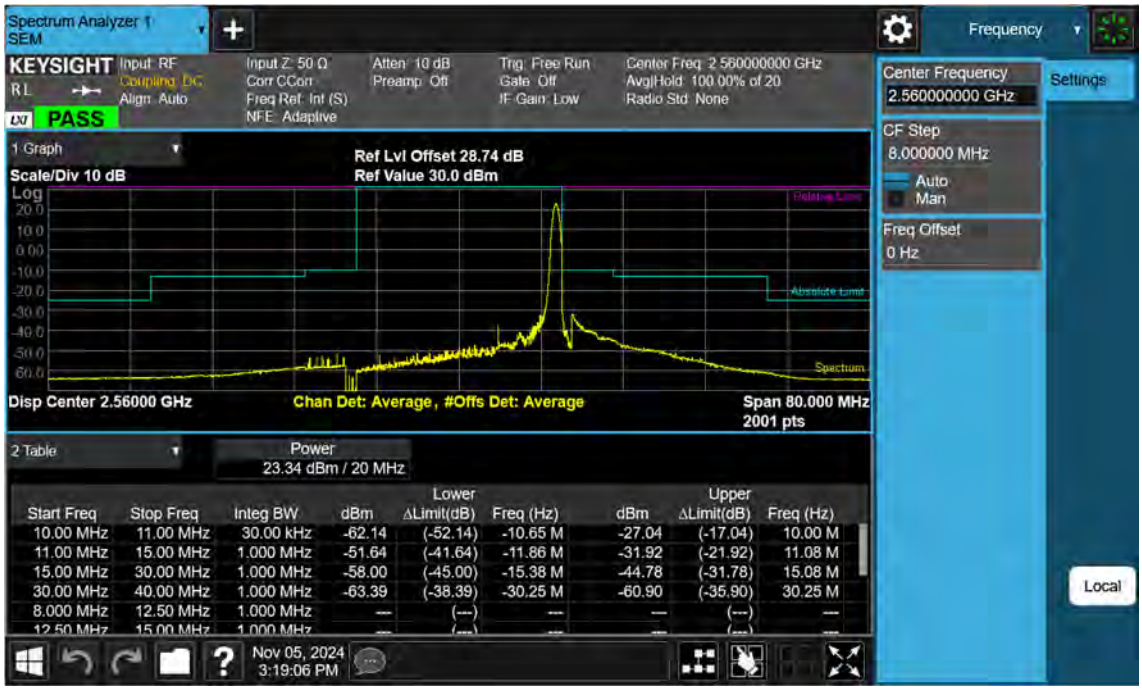
Sub6 n7. Low Channel Edge Plot (20 MHz Ch.502000 BPSK_RB1)-2



Sub6 n7. Low Channel Edge Plot (20 MHz Ch.502000 BPSK)-2

Sub6 n7. Mid Channel Edge Plot (20 MHz Ch.507000 BPSK)

Sub6 n7. High Channel Edge Plot (20 MHz Ch.512000 BPSK RB 1)



Sub6 n7. High Channel Edge Plot (20 MHz Ch.512000 BPSK)

Sub6 n7. Low Channel Edge Plot (25 MHz Ch.502500 BPSK RB 1)-1

Sub6 n7. Low Channel Edge Plot (25 MHz Ch.502500 BPSK)-1

Sub6 n7. Low Channel Edge Plot (25 MHz Ch.502500 BPSK_RB1)-2

Sub6 n7. Low Channel Edge Plot (25 MHz Ch.502500 BPSK)-2

Sub6 n7. Mid Channel Edge Plot (25 MHz Ch.507000 BPSK)

Sub6 n7. High Channel Edge Plot (25 MHz Ch.511500 BPSK RB 1)

Sub6 n7. High Channel Edge Plot (25 MHz Ch.511500 BPSK)

Sub6 n7. Low Channel Edge Plot (30 MHz Ch.503000 BPSK RB 1)-1

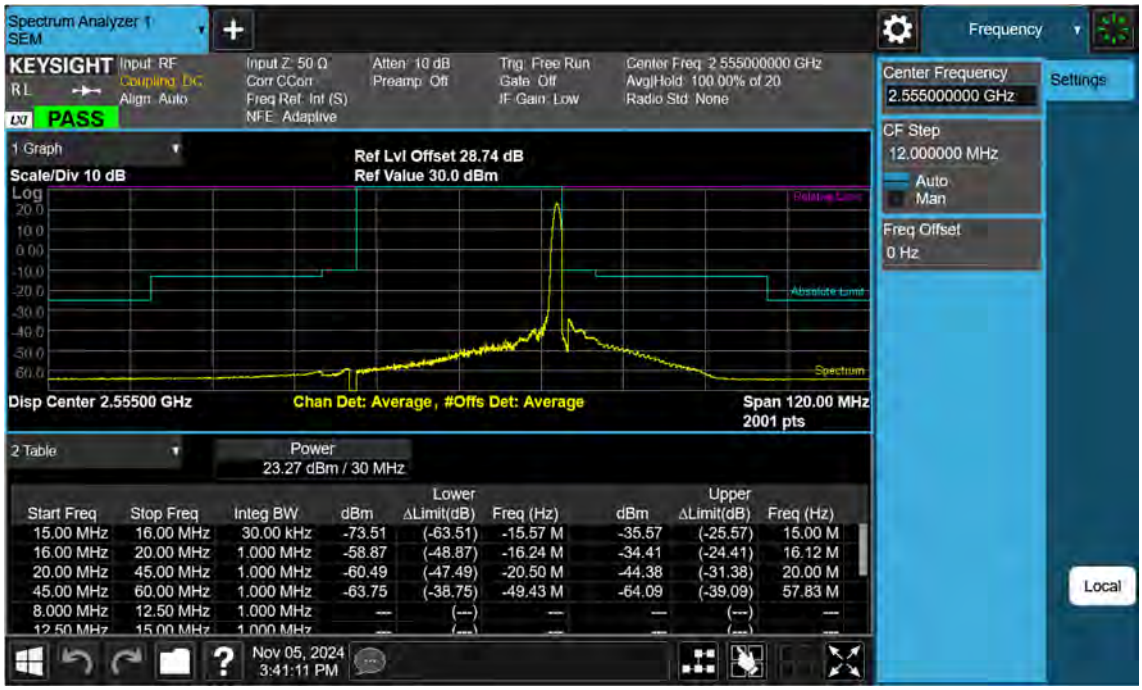
Sub6 n7. Low Channel Edge Plot (30 MHz Ch.503000 BPSK)-1

Sub6 n7. Low Channel Edge Plot (30 MHz Ch.503000 BPSK_RB1)-2

Sub6 n7. Low Channel Edge Plot (30 MHz Ch.503000 BPSK)-2

Sub6 n7. Mid Channel Edge Plot (30 MHz Ch.507000 BPSK)

Sub6 n7. High Channel Edge Plot (30 MHz Ch.511000 BPSK RB 1)



Sub6 n7. High Channel Edge Plot (30 MHz Ch.511000 BPSK)

Sub6 n7. Low Channel Edge Plot (40 MHz Ch.504000 BPSK RB 1)-1

Sub6 n7. Low Channel Edge Plot (40 MHz Ch.504000 BPSK)-1

Sub6 n7. Low Channel Edge Plot (40 MHz Ch.504000 BPSK_RB1)-2

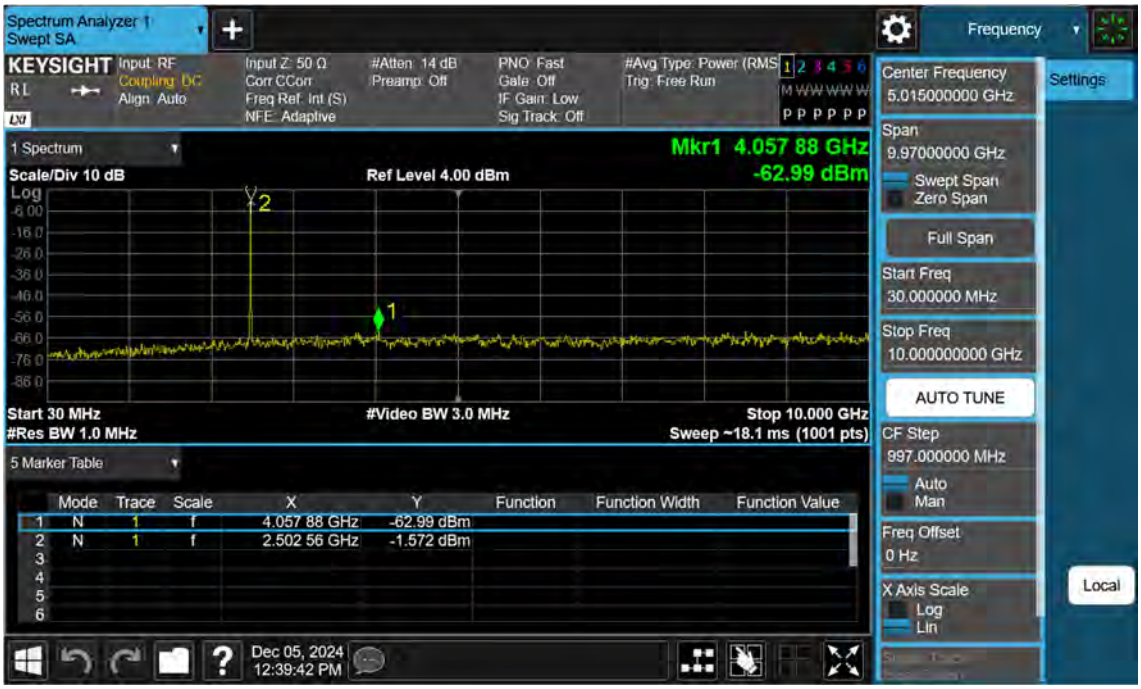
Sub6 n7. Low Channel Edge Plot (40 MHz Ch.504000 BPSK)-2

Sub6 n7. Mid Channel Edge Plot (40 MHz Ch.507000 BPSK)

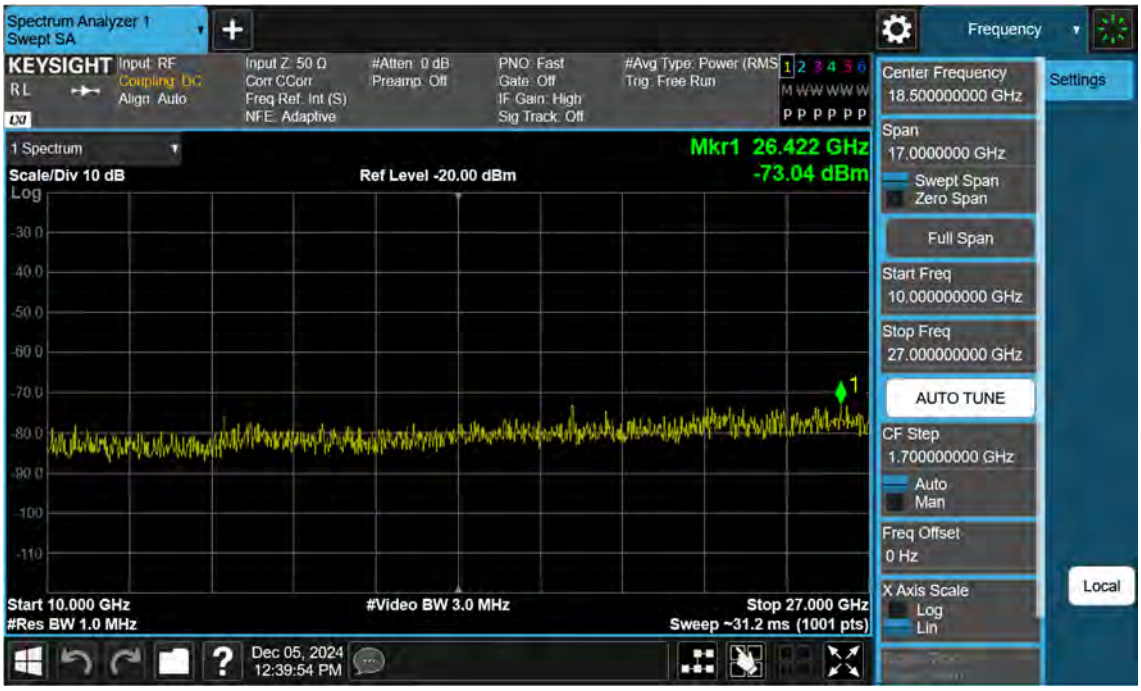
Sub6 n7. High Channel Edge Plot (40 MHz Ch.510000 BPSK RB 1)

Sub6 n7. High Channel Edge Plot (40 MHz Ch.510000 BPSK)

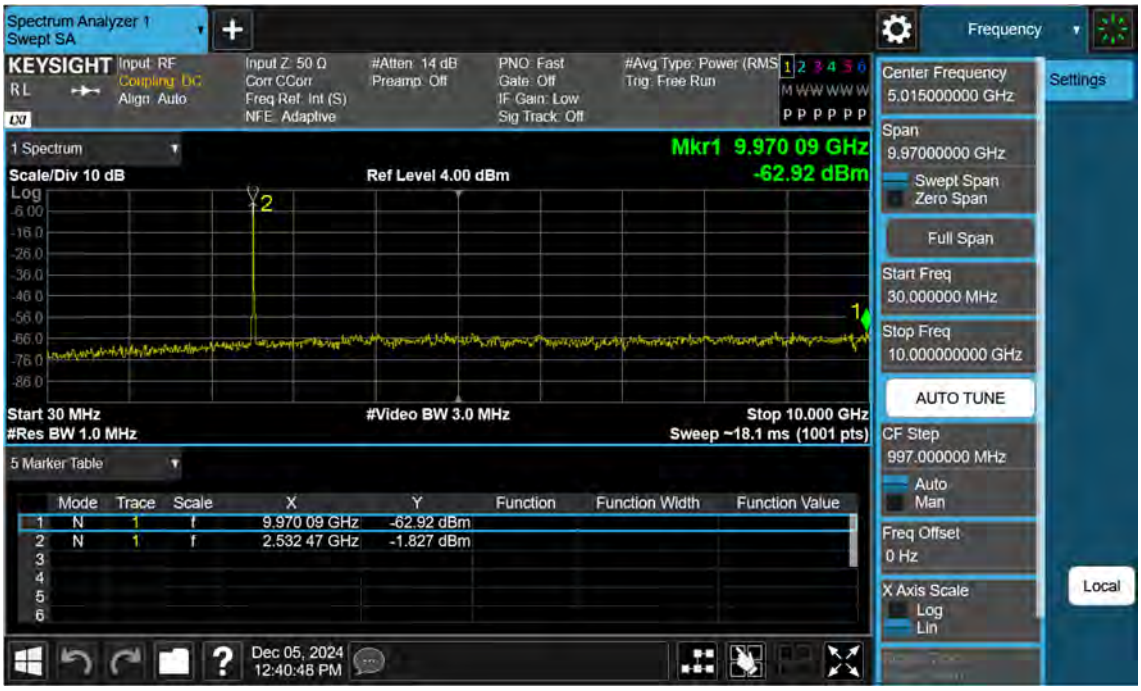
Sub6 n7. Conducted Spurious_1 (500500ch_5 MHz_BPSK_RB 1)



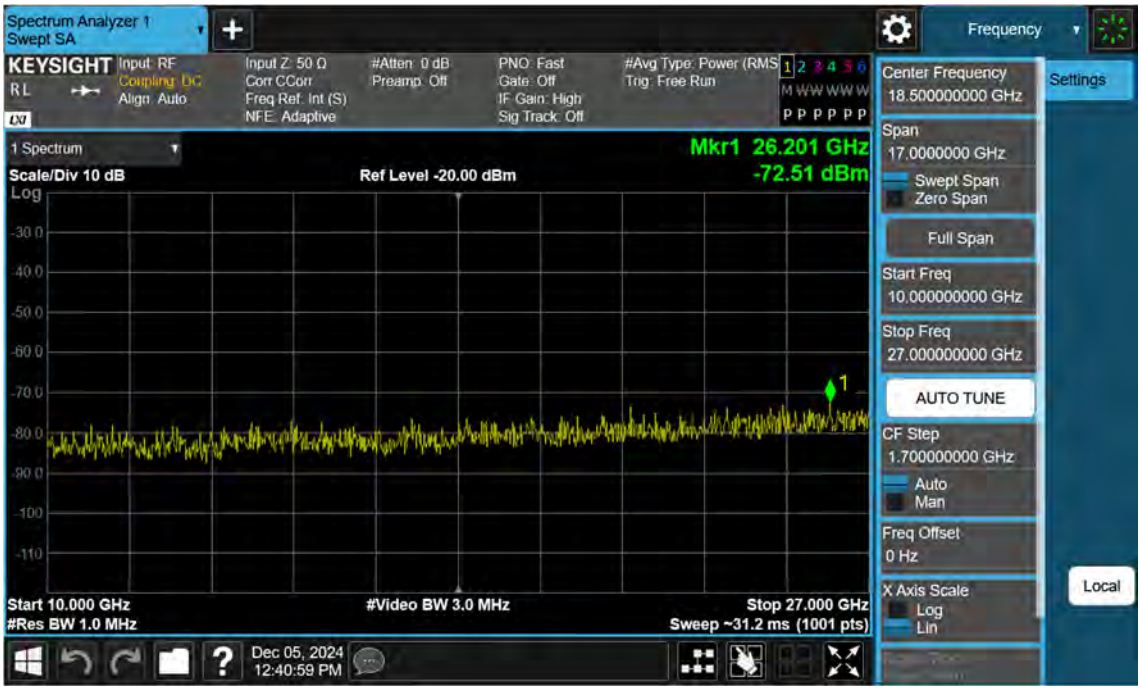
Sub6 n7. Conducted Spurious_2 (500500ch_5 MHz_BPSK_RB 1)



Sub6 n7. Conducted Spurious_1 (507000ch_5 MHz_BPSK_RB 1)



Sub6 n7. Conducted Spurious_2 (507000ch_5 MHz_BPSK_RB 1)



Sub6 n7. Conducted Spurious_1 (513500ch_5 MHz_BPSK_RB 1)