TEST REPORT

FCC Sub6 n7 Test for TM15FNEUJL1
Certification

APPLICANT
LG Electronics Inc.

REPORT NO.
HCT-RF-2502-FC093-R1

DATE OF ISSUE
April 8, 2025

Tested by
Beom Jin Cho

Technical Manager
Jong Seok Lee

Accredited by KOLAS, Republic of KOREA

HCT CO., LTD.
BongJai Huh
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 TM15FNEUJL1
Date of Test	December 9, 2024 ~ February 24, 2025
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	BEJTM15FNEUJL1
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	February 24, 2025	Initial Release
1	April 08, 2025	Revised the Product Name.

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:	BEJTM15FNEUJL1
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§ 27
EUT Type:	Telematics
Model(s):	TM15FNEUJL1
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:	December 9, 2024 ~ February 24, 2025
EUT Serial number:	Radiated : 410VIXV000304(NAD) Conducted : 410VIXV000305(NAD)
Antenna Information	Please refer to the Antenna 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	0.221	23.45
		4M50G7D	QPSK	0.222	23.46
		4M51W7D	16QAM	0.177	22.48
		4M49W7D	64QAM	0.125	20.97
		4M50W7D	256QAM	0.079	18.97
Sub6 n7 (10)	2505.0 – 2565.0	8M98G7D	PI/2 BPSK	0.224	23.50
		8M99G7D	QPSK	0.226	23.55
		9M00W7D	16QAM	0.177	22.47
		8M97W7D	64QAM	0.126	21.02
		8M97W7D	256QAM	0.079	18.99
Sub6 n7 (15)	2507.5 – 2562.5	13M5G7D	PI/2 BPSK	0.231	23.64
		13M5G7D	QPSK	0.231	23.63
		13M5W7D	16QAM	0.182	22.60
		13M5W7D	64QAM	0.128	21.07
		13M4W7D	256QAM	0.081	19.06
Sub6 n7 (20)	2510.0 – 2560.0	17M9G7D	PI/2 BPSK	0.233	23.67
		18M0G7D	QPSK	0.232	23.65
		17M9W7D	16QAM	0.180	22.56
		17M9W7D	64QAM	0.126	21.02
		17M9W7D	256QAM	0.082	19.12
Sub6 n7 (25)	2512.5 – 2557.5	22M9G7D	PI/2 BPSK	0.238	23.77
		22M9G7D	QPSK	0.237	23.74
		22M9W7D	16QAM	0.184	22.64
		23M0W7D	64QAM	0.131	21.16
		23M0W7D	256QAM	0.085	19.27
Sub6 n7 (30)	2515.0 – 2555.0	28M6G7D	PI/2 BPSK	0.241	23.82
		28M7G7D	QPSK	0.237	23.75
		28M6W7D	16QAM	0.182	22.60
		28M6W7D	64QAM	0.127	21.04
		28M7W7D	256QAM	0.084	19.23
Sub6 n7 (40)	2520.0 – 2550.0	38M6G7D	PI/2 BPSK	0.234	23.70
		38M7G7D	QPSK	0.237	23.74
		38M7W7D	16QAM	0.176	22.45
		38M6W7D	64QAM	0.129	21.12
		38M7W7D	256QAM	0.085	19.28

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

Please refer to the [2G3G] Test Report.

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
Channel Edge	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Spurious and Harmonic Emissions at Antenna Terminal	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Conducted Output Power	- N/A (See SAR Report)
Peak- to- Average Ratio	- KDB 971168 D01 v03r01 – Section 5.7 - ANSI C63.26-2015 – Section 5.2.3.4
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 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.

3.3 RADIATED SPURIOUS EMISSIONS

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

Radiated Spurious Emission Measurements at 3 meters by Substitution Method.

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;

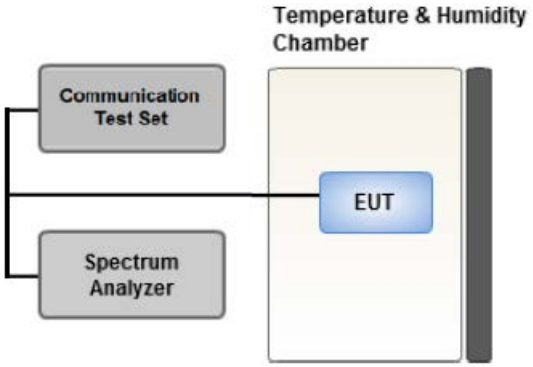
$$\text{Result}_{(dBm)} = \text{Pg}_{(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dBi)}$$

   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.

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

3.4 PEAK- TO- AVERAGE RATIO



Test setup

① CCDF Procedure for PAPR

Test Settings

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

② Alternate Procedure for PAPR

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

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

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

Test Settings(Peak Power)

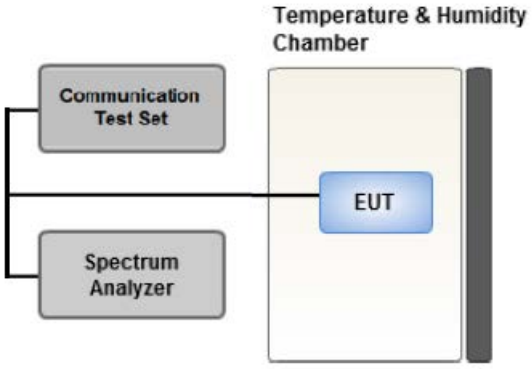
The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW ≥ 3 × RBW.

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

Test Settings(Average Power)

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

3.5 OCCUPIED BANDWIDTH.



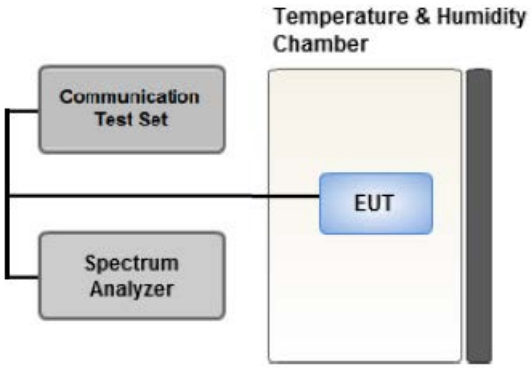
Test setup

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

Test Settings

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99 %
   occupied bandwidth and the 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

3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL



Test setup

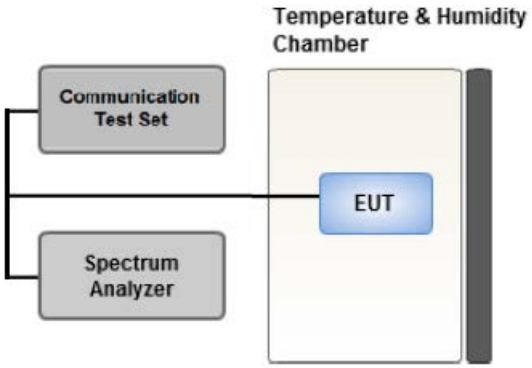
Test Overview

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

Test Settings

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

3.7 CHANNEL EDGE



Test setup

Test Overview

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

Test Settings

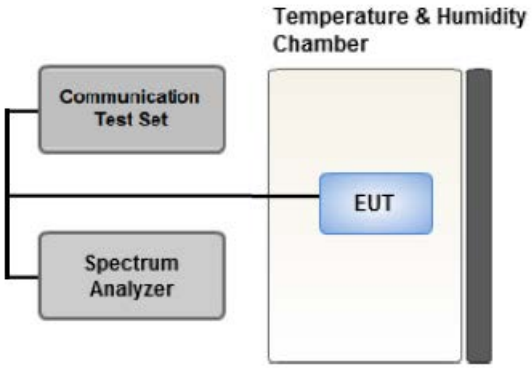
1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. Within 1MHz of the channel edge the RBW should be 2 % of EBW, then 1 MHz after that.
4. VBW > 3 x RBW
5. 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.

3.8 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)

- 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
- JIG was used to test the EUT. (EUT + JIG)
- 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 8.1		Y
Radiated Spurious Emissions	PI/2 BPSK	See Section 8.2		Y

3.10 WORST CASE(CONDUCTED TEST)

- Waveform : All Waveform of operation were investigated and the worst case configuration results are reported. (Worst case: DFT-S-OFDM)
- Modulation : All Modulation of operation were investigated and the worst case configuration results are reported. (Worst case: PI/2 BPSK)
- All modes of operation were investigated and the worst case configuration results are reported.
  Mode: SA, NSA
  Worst case: SA
- JIG was used to test the EUT. (EUT + JIG)
- 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
RF Switching System	Switch box(1 G HPF+LNA)	HCT CO., LTD.,	F2L2	12/12/2025	Annual
RF Switching System	Switch box(3 G HPF+LNA)	HCT CO., LTD.,	F2L3	12/12/2025	Annual
RF Switching System	Switch box(LNA)	HCT CO., LTD.,	F2L5	12/12/2025	Annual
RF Switching System	Switch box(6 G HPF+LNA)	HCT CO., LTD.,	F2L14	12/12/2025	Annual
Power Amplifier	CBL18265035	CERNEX	22966	11/07/2025	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/26/2025	Annual
Power Splitter(DC ~ 26.5 GHz)	11667B	Hewlett Packard	5001	04/17/2025	Annual
DC Power Supply	E3632A	Agilent	MY40010147	08/06/2025	Annual
Dipole Antenna	UHAP	Schwarzbeck	01274	03/10/2026	Biennial
Dipole Antenna	UHAP	Schwarzbeck	01288	08/07/2026	Biennial
Chamber	SU-642	ESPEC	93022487	06/27/2025	Annual
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	03197	11/28/2025	Biennial
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	03201	11/28/2025	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
Signal Analyzer(10 Hz ~ 26.5 GHz)	N9020A	Agilent	MY52090906	04/19/2025	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	04/17/2025	Annual
Spectrum Analyzer(10 Hz ~ 40 GHz)	FSV40	ROHDE & SCHWARZ	101733	09/19/2025	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/05/2025	Annual
Loop Antenna(9 kHz ~ 30 MHz)	FMZB1513	Schwarzbeck	1513-333	03/07/2026	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	895	08/28/2026	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	1135	08/19/2026	Biennial
Radio Communication Test Station	MT8000A	Anritsu Corp.	6272613402	08/28/2025	Annual
SIGNAL GENERATOR (100 kHz ~ 40 GHz)	SMB100A	REOHDE & SCHWARZ	177633	07/26/2025	Annual
Signal Analyzer(5 Hz ~ 40.0 GHz)	N9030B	KEYSIGHT	MY55480167	05/17/2025	Annual
Signal & Spectrum Analyzer (2 Hz~67 GHz)	FSW67	REOHDE & SCHWARZ	101736	05/23/2025	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 (±kHz)
Occupied Bandwidth	95 (Confidence level about 95 %, k=2)
Frequency stability	28 (Confidence level about 95 %, k=2)

Parameter	Expanded Uncertainty (±dB)
Block Edge	0.70 (Confidence level about 95 %, k=2)
Conducted Spurious Emissions	1.18 (Confidence level about 95 %, k=2)
Peak- to- Average Ratio	0.68 (Confidence level about 95 %, k=2)
Radiated Power	4.74 (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

Note. The decision rule applies 'simple acceptance'

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	See Note1
Frequency stability / variation of ambient temperature	§ 2.1055, § 27.54	Emission must remain in band	PASS

Note:

1. See SAR Report
2. All conducted tests were tested using 5G Wireless Tester.

6.2 Test Condition : Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Equivalent Isotropic Radiated Power	§ 27.50(h)(2)	< 2 Watts max. EIRP	PASS
Radiated Spurious and Harmonic Emissions	§ 2.1053, § 27.53(m)(4)	< 55 + 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)	Block Edge / Spurious and Harmonic Emissions at Antenna Terminal..	Y	-
§2.1055, §27.54	Frequency stability / variation of ambient temperature	Y	-
§27.50(h)(2)	Effective Radiated Power 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 TM15FNEUJL0 for the certification of TM15FNEUJL1.
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 EQUIVALENT ISOTROPIC RADIATED POWER

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitude 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	-18.80	19.65	10.26	2.51	H	< 2.00	0.549	27.40	1	23
		QPSK	-18.83	19.62	10.26	2.51	H		0.546	27.37		
		16-QAM	-19.79	18.66	10.26	2.51	H		0.438	26.41		
		64-QAM	-21.31	17.14	10.26	2.51	H		0.309	24.89		
		256-QAM	-23.25	15.20	10.26	2.51	H		0.197	22.95		
2535.0		PI/2 BPSK	-18.78	20.06	10.25	2.54	H		0.599	27.77	1	1
		QPSK	-18.91	19.93	10.25	2.54	H		0.580	27.64		
		16-QAM	-19.90	18.94	10.25	2.54	H		0.462	26.65		
		64-QAM	-21.37	17.47	10.25	2.54	H		0.330	25.18		
		256-QAM	-23.42	15.42	10.25	2.54	H		0.206	23.13		
2567.5		PI/2 BPSK	-19.43	19.65	10.27	2.65	H		0.534	27.27	1	1
		QPSK	-19.51	19.57	10.27	2.65	H		0.524	27.19		
		16-QAM	-20.57	18.51	10.27	2.65	H		0.410	26.13		
		64-QAM	-21.99	17.09	10.27	2.65	H		0.296	24.71		
		256-QAM	-24.06	15.02	10.27	2.65	H		0.184	22.64		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitude 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	-18.39	20.06	10.26	2.51	H	< 2.00	0.605	27.81	1	50
		QPSK	-18.52	19.93	10.26	2.51	H		0.587	27.68		
		16-QAM	-19.49	18.96	10.26	2.51	H		0.469	26.71		
		64-QAM	-21.04	17.41	10.26	2.51	H		0.328	25.16		
		256-QAM	-22.90	15.55	10.26	2.51	H		0.214	23.30		
2535.0		PI/2 BPSK	-18.80	20.04	10.25	2.54	H		0.595	27.75	1	1
		QPSK	-18.82	20.02	10.25	2.54	H		0.593	27.73		
		16-QAM	-19.88	18.96	10.25	2.54	H		0.465	26.67		
		64-QAM	-21.39	17.45	10.25	2.54	H		0.328	25.16		
		256-QAM	-23.32	15.52	10.25	2.54	H		0.210	23.23		
2565.0		PI/2 BPSK	-19.45	19.61	10.26	2.62	H		0.531	27.25	1	26
		QPSK	-19.46	19.60	10.26	2.62	H		0.530	27.24		
		16-QAM	-20.52	18.54	10.26	2.62	H		0.415	26.18		
		64-QAM	-21.96	17.10	10.26	2.62	H		0.298	24.74		
		256-QAM	-24.00	15.06	10.26	2.62	H		0.186	22.70		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitude 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	-18.08	20.45	10.26	2.51	H	< 2.00	0.660	28.20	1	77
		QPSK	-18.22	20.31	10.26	2.51	H		0.640	28.06		
		16-QAM	-19.19	19.34	10.26	2.51	H		0.512	27.09		
		64-QAM	-20.77	17.76	10.26	2.51	H		0.356	25.51		
		256-QAM	-22.62	15.91	10.26	2.51	H		0.232	23.66		
2535.0		PI/2 BPSK	-18.72	20.12	10.25	2.54	H		0.606	27.83	1	1
		QPSK	-18.77	20.07	10.25	2.54	H		0.600	27.78		
		16-QAM	-19.71	19.13	10.25	2.54	H		0.483	26.84		
		64-QAM	-21.24	17.60	10.25	2.54	H		0.340	25.31		
		256-QAM	-23.30	15.54	10.25	2.54	H		0.211	23.25		
2562.5		PI/2 BPSK	-19.20	19.86	10.26	2.62	H		0.562	27.50	1	1
		QPSK	-19.26	19.80	10.26	2.62	H		0.555	27.44		
		16-QAM	-20.21	18.85	10.26	2.62	H		0.446	26.49		
		64-QAM	-21.65	17.41	10.26	2.62	H		0.320	25.05		
		256-QAM	-23.70	15.36	10.26	2.62	H		0.200	23.00		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitude 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	-18.32	20.21	10.26	2.51	H	< 2.00	0.625	27.96	1	53
		QPSK	-18.38	20.15	10.26	2.51	H		0.617	27.90		
		16-QAM	-19.42	19.11	10.26	2.51	H		0.485	26.86		
		64-QAM	-20.84	17.69	10.26	2.51	H		0.350	25.44		
		256-QAM	-22.86	15.67	10.26	2.51	H		0.220	23.42		
2535.0		PI/2 BPSK	-18.49	20.35	10.25	2.54	H		0.639	28.06	1	1
		QPSK	-18.61	20.23	10.25	2.54	H		0.622	27.94		
		16-QAM	-19.66	19.18	10.25	2.54	H		0.489	26.89		
		64-QAM	-21.04	17.80	10.25	2.54	H		0.356	25.51		
		256-QAM	-23.10	15.74	10.25	2.54	H		0.221	23.45		
2560.0		PI/2 BPSK	-19.24	19.80	10.26	2.59	H		0.559	27.47	1	1
		QPSK	-19.26	19.78	10.26	2.59	H		0.556	27.45		
		16-QAM	-20.21	18.83	10.26	2.59	H		0.447	26.50		
		64-QAM	-21.76	17.28	10.26	2.59	H		0.313	24.95		
		256-QAM	-23.70	15.34	10.26	2.59	H		0.200	23.01		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitude 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	-18.13	20.44	10.26	2.53	H	< 2.00	0.656	28.17	1	66
		QPSK	-18.29	20.28	10.26	2.53	H		0.633	28.01		
		16-QAM	-19.33	19.24	10.26	2.53	H		0.498	26.97		
		64-QAM	-20.73	17.84	10.26	2.53	H		0.361	25.57		
		256-QAM	-22.65	15.92	10.26	2.53	H		0.232	23.65		
2535.0		PI/2 BPSK	-18.37	20.47	10.25	2.54	H		0.658	28.18	1	1
		QPSK	-18.41	20.43	10.25	2.54	H		0.651	28.14		
		16-QAM	-19.46	19.38	10.25	2.54	H		0.512	27.09		
		64-QAM	-20.94	17.90	10.25	2.54	H		0.364	25.61		
		256-QAM	-22.96	15.88	10.25	2.54	H		0.228	23.59		
2557.5		PI/2 BPSK	-19.03	20.01	10.26	2.59	H		0.587	27.68	1	66
		QPSK	-19.19	19.85	10.26	2.59	H		0.564	27.52		
		16-QAM	-20.18	18.86	10.26	2.59	H		0.450	26.53		
		64-QAM	-21.66	17.38	10.26	2.59	H		0.320	25.05		
		256-QAM	-23.64	15.40	10.26	2.59	H		0.203	23.07		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitude 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	-18.21	20.36	10.26	2.53	H	< 2.00	0.644	28.09	1	80
		QPSK	-18.23	20.34	10.26	2.53	H		0.642	28.07		
		16-QAM	-19.44	19.13	10.26	2.53	H		0.486	26.86		
		64-QAM	-20.79	17.78	10.26	2.53	H		0.356	25.51		
		256-QAM	-22.83	15.74	10.26	2.53	H		0.222	23.47		
2535.0		PI/2 BPSK	-18.34	20.50	10.25	2.54	H		0.663	28.21	1	1
		QPSK	-18.43	20.41	10.25	2.54	H		0.648	28.12		
		16-QAM	-19.55	19.29	10.25	2.54	H		0.502	27.00		
		64-QAM	-20.83	18.01	10.25	2.54	H		0.373	25.72		
		256-QAM	-22.82	16.02	10.25	2.54	H		0.236	23.73		
2555.0		PI/2 BPSK	-18.94	20.09	10.25	2.56	H		0.600	27.78	1	1
		QPSK	-19.00	20.03	10.25	2.56	H		0.591	27.72		
		16-QAM	-19.97	19.06	10.25	2.56	H		0.474	26.75		
		64-QAM	-21.46	17.57	10.25	2.56	H		0.336	25.26		
		256-QAM	-23.38	15.65	10.25	2.56	H		0.216	23.34		

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	-18.37	20.23	10.26	2.54	H	< 2.00	0.623	27.95	1	108
		QPSK	-18.49	20.11	10.26	2.54	H		0.606	27.83		
		16-QAM	-19.47	19.13	10.26	2.54	H		0.485	26.85		
		64-QAM	-20.98	17.62	10.26	2.54	H		0.342	25.34		
		256-QAM	-22.93	15.67	10.26	2.54	H		0.218	23.39		
2535.0		PI/2 BPSK	-18.37	20.47	10.25	2.54	H		0.658	28.18	1	1
		QPSK	-18.50	20.34	10.25	2.54	H		0.638	28.05		
		16-QAM	-19.53	19.31	10.25	2.54	H		0.503	27.02		
		64-QAM	-20.95	17.89	10.25	2.54	H		0.363	25.60		
		256-QAM	-22.60	16.24	10.25	2.54	H		0.248	23.95		
2550.0		PI/2 BPSK	-19.13	19.88	10.24	2.53	H		0.574	27.59	1	1
		QPSK	-19.19	19.82	10.24	2.53	H		0.566	27.53		
		16-QAM	-20.17	18.84	10.24	2.53	H		0.451	26.55		
		64-QAM	-21.49	17.52	10.24	2.53	H		0.333	25.23		
		256-QAM	-22.93	16.08	10.24	2.53	H		0.239	23.79		

8.2 RADIATED SPURIOUS EMISSIONS

▣ NR Band: N7

▣ Bandwidth: 5 MHz

▣ Modulation: PI/2 BPSK

▣ Distance: 1 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	-53.95	10.91	-60.49	3.71	H	-53.29	-25.00	1	23
	7 507.50	-55.46	11.59	-57.57	4.60	H	-50.58	-25.00		
	10 010.00	-55.91	11.39	-55.50	5.47	H	-49.58	-25.00		
	12 512.50	-55.90	13.16	-52.38	6.09	H	-45.31	-25.00		
	15 015.00	-64.72	14.28	-46.60	6.76	H	-39.08	-25.00		
507000 (2535.0)	5 070.00	-55.40	10.92	-62.16	3.80	H	-55.04	-25.00	1	1
	7 605.00	-55.40	11.66	-57.59	4.64	H	-50.57	-25.00		
	10 140.00	-55.49	11.34	-54.85	5.48	H	-48.99	-25.00		
	12 675.00	-53.41	12.88	-49.38	6.24	H	-42.74	-25.00		
	15 210.00	-65.60	14.81	-47.18	6.81	H	-39.18	-25.00		
513500 (2567.5)	5 135.00	-54.67	11.04	-61.78	3.81	H	-54.55	-25.00	1	1
	7 702.50	-53.42	11.56	-55.08	4.66	H	-48.18	-25.00		
	10 270.00	-57.00	11.46	-56.36	5.57	H	-50.47	-25.00		
	12 837.50	-56.79	12.73	-52.17	6.24	H	-45.68	-25.00		
	15 405.00	-65.05	15.34	-45.90	6.85	H	-37.41	-25.00		

▣ NR Band: N7

▣ Bandwidth: 10 MHz

▣ Modulation: PI/2 BPSK

▣ Distance: 1 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	-53.80	10.91	-60.39	3.72	H	-53.20	-25.00	1	50
	7 515.00	-55.46	11.59	-57.70	4.60	H	-50.71	-25.00		
	10 020.00	-54.79	11.39	-53.94	5.47	H	-48.02	-25.00		
	12 525.00	-56.79	13.14	-53.31	6.09	H	-46.26	-25.00		
	15 030.00	-65.88	14.32	-48.07	6.73	H	-40.48	-25.00		
507000 (2535.0)	5 070.00	-54.29	10.92	-61.05	3.80	H	-53.93	-25.00	1	1
	7 605.00	-55.02	11.66	-57.21	4.64	H	-50.19	-25.00		
	10 140.00	-54.01	11.34	-53.37	5.48	H	-47.51	-25.00		
	12 675.00	-57.01	12.88	-52.98	6.24	H	-46.34	-25.00		
	15 210.00	-66.56	14.81	-48.14	6.81	H	-40.14	-25.00		
513000 (2565.0)	5 130.00	-53.69	11.02	-60.60	3.81	H	-53.39	-25.00	1	26
	7 695.00	-55.21	11.58	-57.04	4.66	H	-50.12	-25.00		
	10 260.00	-54.05	11.44	-53.38	5.56	H	-47.50	-25.00		
	12 825.00	-56.58	12.74	-52.23	6.21	H	-45.70	-25.00		
	15 390.00	-65.87	15.30	-46.64	6.85	H	-38.19	-25.00		

▣ NR Band: N7

▣ Bandwidth: 15 MHz

▣ Modulation: PI/2 BPSK

▣ Distance: 1 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	-53.13	10.91	-59.68	3.70	H	-52.47	-25.00	1	77
	7 522.50	-55.16	11.60	-57.54	4.61	H	-50.55	-25.00		
	10 030.00	-54.51	11.39	-53.86	5.47	H	-47.94	-25.00		
	12 537.50	-57.05	13.13	-53.47	6.13	H	-46.47	-25.00		
	15 045.00	-66.47	14.35	-48.58	6.75	H	-40.98	-25.00		
507000 (2535.0)	5 070.00	-53.29	10.92	-60.05	3.80	H	-52.93	-25.00	1	1
	7 605.00	-55.15	11.66	-57.34	4.64	H	-50.32	-25.00		
	10 140.00	-54.69	11.34	-54.05	5.48	H	-48.19	-25.00		
	12 675.00	-57.35	12.88	-53.32	6.24	H	-46.68	-25.00		
	15 210.00	-66.31	14.81	-47.89	6.81	H	-39.89	-25.00		
512500 (2562.5)	5 125.00	-53.75	11.01	-60.76	3.81	H	-53.56	-25.00	1	1
	7 687.50	-55.35	11.58	-57.23	4.66	H	-50.31	-25.00		
	10 250.00	-54.76	11.42	-54.39	5.54	H	-48.51	-25.00		
	12 812.50	-57.58	12.74	-53.32	6.20	H	-46.78	-25.00		
	15 375.00	-66.17	15.26	-46.94	6.87	H	-38.55	-25.00		

▣ NR Band: N7

▣ Bandwidth: 20 MHz

▣ Modulation: PI/2 BPSK

▣ Distance: 1 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	-56.23	10.90	-62.71	3.69	H	-55.50	-25.00	1	53
	7 530.00	-57.58	11.61	-59.99	4.60	H	-52.98	-25.00		
	10 040.00	-55.12	11.38	-54.60	5.49	H	-48.71	-25.00		
	12 550.00	-57.29	13.11	-53.65	6.19	H	-46.73	-25.00		
	15 060.00	-66.92	14.39	-48.96	6.78	H	-41.35	-25.00		
507000 (2535.0)	5 070.00	-56.09	10.92	-62.85	3.80	H	-55.73	-25.00	1	1
	7 605.00	-59.13	11.66	-61.32	4.64	H	-54.30	-25.00		
	10 140.00	-53.73	11.34	-53.09	5.48	H	-47.23	-25.00		
	12 675.00	-57.62	12.88	-53.59	6.24	H	-46.95	-25.00		
	15 210.00	-68.81	14.81	-50.39	6.81	H	-42.39	-25.00		
512000 (2560.0)	5 120.00	-56.78	11.00	-63.89	3.81	H	-56.70	-25.00	1	1
	7 680.00	-55.62	11.60	-57.59	4.70	H	-50.69	-25.00		
	10 240.00	-56.72	11.41	-56.29	5.54	H	-50.42	-25.00		
	12 800.00	-58.98	12.75	-54.72	6.21	H	-48.18	-25.00		
	15 360.00	-67.22	15.21	-47.66	6.88	H	-39.33	-25.00		

▣ NR Band: N7

▣ Bandwidth: 25 MHz

▣ Modulation: PI/2 BPSK

▣ Distance: 1 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)	5 024.99	-55.16	10.90	-61.87	3.68	H	-54.65	-25.00	1	66
	7 537.48	-55.30	11.62	-57.74	4.61	H	-50.73	-25.00		
	10 049.97	-54.92	11.38	-54.48	5.48	H	-48.58	-25.00		
	12 562.46	-56.43	13.09	-52.77	6.24	H	-45.92	-25.00		
	15 074.96	-67.30	14.42	-49.26	6.82	H	-41.66	-25.00		
507000 (2535.0)	5 046.59	-54.31	10.92	-61.07	3.80	H	-53.95	-25.00	1	1
	7 569.88	-55.39	11.66	-57.58	4.64	H	-50.56	-25.00		
	10 093.17	-53.13	11.34	-52.49	5.48	H	-46.63	-25.00		
	12 616.46	-57.26	12.88	-53.23	6.24	H	-46.59	-25.00		
	15 139.76	-67.32	14.81	-48.90	6.81	H	-40.90	-25.00		
511500 (2557.5)	5 114.99	-56.32	10.98	-63.45	3.80	H	-56.27	-25.00	1	66
	7 672.48	-55.83	11.60	-57.80	4.70	H	-50.90	-25.00		
	10 229.97	-55.49	11.39	-55.02	5.54	H	-49.17	-25.00		
	12 787.46	-56.80	12.76	-52.53	6.22	H	-45.99	-25.00		
	15 344.96	-67.74	15.17	-48.66	6.86	H	-40.35	-25.00		

▣ NR Band: N7

▣ Bandwidth: 30 MHz

▣ Modulation: PI/2 BPSK

▣ Distance: 1 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	-53.46	10.90	-60.40	3.67	H	-53.17	-25.00	1	80
	7 545.00	-55.24	11.63	-57.66	4.62	H	-50.65	-25.00		
	10 060.00	-54.58	11.37	-53.95	5.48	H	-48.06	-25.00		
	12 575.00	-57.08	13.07	-53.41	6.25	H	-46.59	-25.00		
	15 090.00	-66.44	14.46	-48.72	6.81	H	-41.07	-25.00		
507000 (2535.0)	5 070.00	-53.21	10.92	-59.97	3.80	H	-52.85	-25.00	1	1
	7 605.00	-55.16	11.66	-57.35	4.64	H	-50.33	-25.00		
	10 140.00	-54.67	11.34	-54.03	5.48	H	-48.17	-25.00		
	12 675.00	-57.21	12.88	-53.18	6.24	H	-46.54	-25.00		
	15 210.00	-66.38	14.81	-47.96	6.81	H	-39.96	-25.00		
511000 (2555.0)	5 110.00	-53.86	10.97	-61.02	3.79	H	-53.84	-25.00	1	1
	7 665.00	-55.21	11.62	-57.18	4.70	H	-50.26	-25.00		
	10 220.00	-54.46	11.38	-54.00	5.54	H	-48.16	-25.00		
	12 775.00	-57.68	12.76	-53.48	6.23	H	-46.95	-25.00		
	15 330.00	-66.19	15.13	-47.44	6.82	H	-39.13	-25.00		

▣ NR Band: N7

▣ Bandwidth: 40 MHz

▣ Modulation: PI/2 BPSK

▣ Distance: 1 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	-55.10	10.90	-61.77	3.68	H	-54.55	-25.00	1	108
	7 560.00	-55.64	11.64	-57.83	4.64	H	-50.83	-25.00		
	10 080.00	-54.61	11.37	-54.24	5.47	H	-48.34	-25.00		
	12 600.00	-56.04	13.03	-52.26	6.18	H	-45.41	-25.00		
	15 120.00	-64.11	14.54	-46.10	6.80	H	-38.36	-25.00		
507000 (2535.0)	5 070.00	-55.49	10.92	-62.25	3.80	H	-55.13	-25.00	1	1
	7 605.00	-55.75	11.66	-57.94	4.64	H	-50.92	-25.00		
	10 140.00	-53.75	11.34	-53.11	5.48	H	-47.25	-25.00		
	12 675.00	-57.05	12.88	-53.02	6.24	H	-46.38	-25.00		
	15 210.00	-67.09	14.81	-48.67	6.81	H	-40.67	-25.00		
510000 (2550.0)	5 100.00	-54.11	10.95	-60.83	3.78	H	-53.66	-25.00	1	1
	7 650.00	-54.45	11.64	-56.52	4.68	H	-49.56	-25.00		
	10 200.00	-54.34	11.35	-53.82	5.54	H	-48.01	-25.00		
	12 750.00	-53.93	12.78	-49.80	6.23	H	-43.25	-25.00		
	15 300.00	-66.25	15.06	-47.44	6.83	H	-39.21	-25.00		

8.3 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	4.22
			QPSK			4.67
			16-QAM			5.94
			64-QAM			6.29
			256-QAM			7.00
	10 MHz		BPSK	50		4.25
			QPSK			4.77
			16-QAM			5.71
			64-QAM			6.17
			256-QAM			6.77
	15 MHz		BPSK	75		4.03
			QPSK			4.62
			16-QAM			5.55
			64-QAM			6.09
			256-QAM			6.77
	20 MHz		BPSK	100		4.16
			QPSK			4.72
			16-QAM			5.65
			64-QAM			6.13
			256-QAM			6.72
	25 MHz		BPSK	128		3.99
			QPSK			4.63
			16-QAM			5.55
			64-QAM			6.14
			256-QAM			6.74
	30 MHz		BPSK	160		4.17
			QPSK			4.70
			16-QAM			5.66
			64-QAM			6.21
			256-QAM			6.73
	40 MHz		BPSK	216		3.93
			QPSK			4.65
			16-QAM			5.67
			64-QAM			6.09
			256-QAM			6.70

Note:
1. Plots of the EUT's Peak- to- Average Ratio are shown Page 88 ~ 122.

8.4 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	4.5056
			QPSK			4.4998
			16-QAM			4.5106
			64-QAM			4.4932
			256-QAM			4.4996
	10 MHz		BPSK	50		8.9833
			QPSK			8.9902
			16-QAM			9.0018
			64-QAM			8.9718
			256-QAM			8.9730
	15 MHz		BPSK	75		13.455
			QPSK			13.509
			16-QAM			13.468
			64-QAM			13.484
			256-QAM			13.447
	20 MHz		BPSK	100		17.891
			QPSK			17.951
			16-QAM			17.908
			64-QAM			17.895
			256-QAM			17.871
	25 MHz		BPSK	128		22.943
			QPSK			22.916
			16-QAM			22.923
			64-QAM			22.948
			256-QAM			22.962
	30 MHz		BPSK	160		28.643
			QPSK			28.701
			16-QAM			28.630
			64-QAM			28.576
			256-QAM			28.698
	40 MHz		BPSK	216		38.585
			QPSK			38.701
			16-QAM			38.710
			64-QAM			38.628
			256-QAM			38.661

Note:
1. Plots of the EUT's Occupied Bandwidth are shown Page 53 ~ 87.

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 n7	5	2502.500	4.9452	26.600	-61.454	-34.854	-25.00
		2535.000	7.8565	27.520	-62.626	-35.106	
		2567.500	3.6990	26.600	-61.118	-34.518	
	10	2505.000	3.7987	26.600	-59.684	-33.084	
		2535.000	4.9053	26.600	-61.413	-34.813	
		2565.000	4.3171	26.600	-62.201	-35.601	
	15	2507.500	4.9153	26.600	-61.762	-35.162	
		2535.000	4.9352	26.600	-61.185	-34.585	
		2562.500	4.0379	26.600	-60.069	-33.469	
	20	2510.000	9.7707	27.520	-61.138	-33.618	
		2535.000	9.7807	27.520	-61.921	-34.401	
		2560.000	4.7658	26.600	-61.175	-34.575	
	25	2512.500	3.9682	26.600	-60.740	-34.140	
		2535.000	3.7388	26.600	-61.246	-34.646	
		2557.500	4.9253	26.600	-61.463	-34.863	
	30	2515.000	3.7787	26.600	-60.513	-33.913	
		2535.000	3.8186	26.600	-60.541	-33.941	
		2555.000	5.5035	27.520	-62.071	-34.551	
	40	2520.000	6.9791	27.520	-61.238	-33.718	
		2535.000	4.8754	26.600	-61.007	-34.407	
		2550.000	9.1625	27.520	-61.603	-34.083	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 172 ~ 213.
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	26.080
1 – 5	26.600
5 – 10	27.520
10 – 15	29.120
15 – 20	31.710
Above 20	32.350

8.6 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	-26.79	-26.34	-34.77	-31.42	-41.65	-36.02	-36.63
10	2505.000	BPSK	Full RB	-25.73	-35.01	-29.14	-28.21	-35.97	-30.53	-36.99
15	2507.500	BPSK	Full RB	-28.29	-36.25	-32.83	-30.56	-32.89	-30.67	-36.89
20	2510.000	BPSK	Full RB	-28.60	-35.36	-30.46	-31.74	-31.16	-31.27	-37.76
25	2512.500	BPSK	Full RB	-31.05	-32.40	-30.74	-30.42	-31.78	-31.38	-38.14
30	2515.000	BPSK	Full RB	-28.27	-27.52	-33.94	-26.63	-33.79	-30.52	-38.56
40	2520.000	BPSK	Full RB	-16.92	-18.34	-29.07	-26.65	-31.60	-29.10	-40.34
Limit (dBm)				-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	-27.24	-27.24	-31.97	-31.15
	2567.500	BPSK	Full RB	-26.84	-27.16	-32.44	-31.93
10	2535.000	BPSK	Full RB	-25.97	-29.73	-27.03	-25.77
	2565.000	BPSK	Full RB	-27.09	-36.72	-30.86	-31.98
15	2535.000	BPSK	Full RB	-27.71	-35.73	-32.38	-32.45
	2562.500	BPSK	Full RB	-28.96	-35.31	-30.68	-30.97
20	2535.000	BPSK	Full RB	-25.33	-27.27	-26.51	-25.54
	2560.000	BPSK	Full RB	-28.91	-32.96	-28.43	-30.52
25	2535.000	BPSK	Full RB	-29.23	-36.28	-30.21	-34.47
	2557.500	BPSK	Full RB	-27.93	-32.84	-26.79	-30.52
30	2535.000	BPSK	Full RB	-26.57	-27.50	-26.77	-26.88
	2555.000	BPSK	Full RB	-27.19	-29.70	-30.82	-30.12
40	2535.000	BPSK	Full RB	-15.41	-17.88	-29.98	-35.14
	2550.000	BPSK	Full RB	-16.47	-18.53	-28.29	-32.16
Limit (dBm)				-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	-38.88	-38.98	-38.90	-39.28
	2567.500	BPSK	Full RB	-38.86	-39.32	-39.19	-39.86
10	2535.000	BPSK	Full RB	-31.92	-33.58	-38.70	-37.80
	2565.000	BPSK	Full RB	-33.73	-36.56	-42.50	-41.02
15	2535.000	BPSK	Full RB	-32.16	-33.60	-41.34	-38.37
	2562.500	BPSK	Full RB	-33.85	-32.96	-40.74	-40.58
20	2535.000	BPSK	Full RB	-30.36	-30.62	-37.53	-38.16
	2560.000	BPSK	Full RB	-30.85	-31.55	-37.54	-41.18
25	2535.000	BPSK	Full RB	-34.32	-35.98	-42.24	-43.00
	2557.500	BPSK	Full RB	-27.44	-30.56	-36.14	-49.54
30	2535.000	BPSK	Full RB	-32.72	-33.74	-44.58	-45.90
	2555.000	BPSK	Full RB	-30.30	-35.44	-42.72	-61.66
40	2535.000	BPSK	Full RB	-36.99	-35.39	-53.35	-55.83
	2550.000	BPSK	Full RB	-29.49	-27.99	-40.18	-63.06
Limit (dBm)				-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 123 ~ 171.

8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

▣ BandWidth: 5 MHz

▣ Voltage(100 %): 12.000 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 500 002	0.0	0.000 000	0.000
	100 %	-30	2502 500 002	0.0	0.000 000	0.000
	100 %	-20	2502 500 001	-1.3	0.000 000	-0.001
	100 %	-10	2502 499 999	-3.0	0.000 000	-0.001
	100 %	0	2502 499 997	-5.0	0.000 000	-0.002
	100 %	+10	2502 499 995	-7.1	0.000 000	-0.003
	100 %	+30	2502 499 994	-8.2	0.000 000	-0.003
	100 %	+40	2502 499 992	-10.0	0.000 000	-0.004
	100 %	+50	2502 499 991	-11.2	0.000 000	-0.004
	85 %	+20	2502 499 990	-11.6	0.000 000	-0.005
	115 %	+20	2502 499 988	-13.8	-0.000 001	-0.006
2567.500	100 %	+20(Ref)	2567 499 992	0.0	0.000 000	0.000
	100 %	-30	2567 499 983	-9.3	0.000 000	-0.004
	100 %	-20	2567 499 983	-9.4	0.000 000	-0.004
	100 %	-10	2567 499 982	-9.7	0.000 000	-0.004
	100 %	0	2567 499 980	-11.9	0.000 000	-0.005
	100 %	+10	2567 500 003	10.7	0.000 000	0.004
	100 %	+30	2567 499 980	-12.3	0.000 000	-0.005
	100 %	+40	2567 499 978	-14.2	-0.000 001	-0.006
	100 %	+50	2567 499 978	-14.2	-0.000 001	-0.006
	85 %	+20	2567 499 980	-11.6	0.000 000	-0.005
	115 %	+20	2567 499 978	-13.8	-0.000 001	-0.006

▣ BandWidth: 10 MHz

▣ Voltage(100 %): 12.000 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)	2505 000 002	0.0	0.000 000	0.000
	100 %	-30	2505 000 004	2.1	0.000 000	0.001
	100 %	-20	2505 000 003	0.6	0.000 000	0.000
	100 %	-10	2505 000 002	-0.8	0.000 000	0.000
	100 %	0	2505 000 000	-2.5	0.000 000	-0.001
	100 %	+10	2504 999 999	-3.4	0.000 000	-0.001
	100 %	+30	2504 999 999	-3.8	0.000 000	-0.002
	100 %	+40	2505 000 016	13.8	0.000 001	0.005
	100 %	+50	2505 000 011	8.6	0.000 000	0.003
	85 %	+20	2505 000 009	6.9	0.000 000	0.003
	115 %	+20	2505 000 014	11.2	0.000 000	0.004
2565.000	100 %	+20(Ref)	2565 000 008	0.0	0.000 000	0.000
	100 %	-30	2565 000 014	5.9	0.000 000	0.002
	100 %	-20	2565 000 013	5.2	0.000 000	0.002
	100 %	-10	2565 000 014	6.0	0.000 000	0.002
	100 %	0	2565 000 013	5.1	0.000 000	0.002
	100 %	+10	2565 000 013	4.9	0.000 000	0.002
	100 %	+30	2565 000 014	5.9	0.000 000	0.002
	100 %	+40	2565 000 013	5.3	0.000 000	0.002
	100 %	+50	2565 000 013	5.0	0.000 000	0.002
	85 %	+20	2565 000 013	5.5	0.000 000	-0.005
	115 %	+20	2565 000 015	7.2	-0.000 001	-0.006

▣ BandWidth: 15 MHz

▣ Voltage(100 %): 12.000 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 500 015	0.0	0.000 000	0.000
	100 %	-30	2507 500 030	14.9	0.000 001	0.006
	100 %	-20	2507 500 029	13.3	0.000 001	0.005
	100 %	-10	2507 500 027	11.9	0.000 000	0.005
	100 %	0	2507 500 027	11.6	0.000 000	0.005
	100 %	+10	2507 500 026	10.5	0.000 000	0.004
	100 %	+30	2507 500 024	8.9	0.000 000	0.004
	100 %	+40	2507 500 023	8.2	0.000 000	0.003
	100 %	+50	2507 500 023	7.8	0.000 000	0.003
	85 %	+20	2507 500 021	6.3	0.000 000	0.003
	115 %	+20	2507 500 024	8.5	0.000 000	0.003
2562.500	100 %	+20(Ref)	2562 500 001	0.0	0.000 000	0.000
	100 %	-30	2562 500 001	0.0	0.000 000	0.000
	100 %	-20	2562 500 001	-0.3	0.000 000	0.000
	100 %	-10	2562 500 000	-0.9	0.000 000	0.000
	100 %	0	2562 500 000	-1.1	0.000 000	0.000
	100 %	+10	2562 500 001	-0.5	0.000 000	0.000
	100 %	+30	2562 500 000	-1.1	0.000 000	0.000
	100 %	+40	2562 500 000	-1.1	0.000 000	0.000
	100 %	+50	2562 500 000	-1.3	0.000 000	-0.001
	85 %	+20	2562 500 000	-1.5	0.000 000	-0.001
	115 %	+20	2562 500 000	-1.2	0.000 000	0.000

▣ BandWidth: 20 MHz

▣ Voltage(100 %): 12.000 VDC

▣ LIMIT: Emission must remain in band

Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(℃)	(Hz)	Error (Hz)	(%)	
2510.000	100 %	+20(Ref)	2510 000 002	0.0	0.000 000	0.000
	100 %	-30	2510 000 003	0.9	0.000 000	0.000
	100 %	-20	2510 000 003	0.9	0.000 000	0.000
	100 %	-10	2510 000 001	-0.8	0.000 000	0.000
	100 %	0	2510 000 000	-1.2	0.000 000	0.000
	100 %	+10	2509 999 999	-2.4	0.000 000	-0.001
	100 %	+30	2509 999 998	-3.2	0.000 000	-0.001
	100 %	+40	2509 999 998	-4.1	0.000 000	-0.002
	100 %	+50	2509 999 997	-4.4	0.000 000	-0.002
	85 %	+20	2510 000 004	2.5	0.000 000	0.001
	115 %	+20	2509 999 998	-3.4	0.000 000	-0.001
2560.000	100 %	+20(Ref)	2560 000 004	0.0	0.000 000	0.000
	100 %	-30	2560 000 007	2.8	0.000 000	0.001
	100 %	-20	2560 000 006	2.2	0.000 000	0.001
	100 %	-10	2560 000 006	1.6	0.000 000	0.001
	100 %	0	2560 000 006	1.8	0.000 000	0.001
	100 %	+10	2560 000 006	1.4	0.000 000	0.001
	100 %	+30	2560 000 005	1.3	0.000 000	0.000
	100 %	+40	2560 000 005	0.8	0.000 000	0.000
	100 %	+50	2560 000 005	1.1	0.000 000	0.000
	85 %	+20	2560 000 007	2.9	0.000 000	0.001
	115 %	+20	2560 000 006	1.6	0.000 000	0.001

▣ BandWidth: 25 MHz

▣ Voltage(100 %): 12.000 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 500 007	0.0	0.000 000	0.000
	100 %	-30	2512 500 013	6.3	0.000 000	0.003
	100 %	-20	2512 500 011	4.3	0.000 000	0.002
	100 %	-10	2512 500 011	3.9	0.000 000	0.002
	100 %	0	2512 500 009	2.6	0.000 000	0.001
	100 %	+10	2512 500 009	2.1	0.000 000	0.001
	100 %	+30	2512 500 007	-0.1	0.000 000	0.000
	100 %	+40	2512 500 006	-1.0	0.000 000	0.000
	100 %	+50	2512 500 005	-2.3	0.000 000	-0.001
	85 %	+20	2512 500 005	-2.2	0.000 000	-0.001
	115 %	+20	2512 500 010	3.5	0.000 000	0.001
2557.500	100 %	+20(Ref)	2557 499 998	0.0	0.000 000	0.000
	100 %	-30	2557 499 997	-1.0	0.000 000	0.000
	100 %	-20	2557 499 996	-2.3	0.000 000	-0.001
	100 %	-10	2557 499 996	-2.7	0.000 000	-0.001
	100 %	0	2557 499 996	-2.3	0.000 000	-0.001
	100 %	+10	2557 499 995	-3.0	0.000 000	-0.001
	100 %	+30	2557 499 995	-3.3	0.000 000	-0.001
	100 %	+40	2557 499 995	-3.6	0.000 000	-0.001
	100 %	+50	2557 499 994	-4.7	0.000 000	-0.002
	85 %	+20	2557 500 003	4.8	0.000 000	0.002
	115 %	+20	2557 499 995	-2.9	0.000 000	-0.001

▣ BandWidth: 30 MHz

▣ Voltage(100 %): 12.000 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 000 015	0.0	0.000 000	0.000
	100 %	-30	2515 000 030	15.1	0.000 001	0.006
	100 %	-20	2515 000 029	14.0	0.000 001	0.006
	100 %	-10	2515 000 028	13.4	0.000 001	0.005
	100 %	0	2515 000 028	13.0	0.000 001	0.005
	100 %	+10	2515 000 028	13.2	0.000 001	0.005
	100 %	+30	2515 000 027	12.2	0.000 000	0.005
	100 %	+40	2515 000 027	12.0	0.000 000	0.005
	100 %	+50	2515 000 026	10.8	0.000 000	0.004
	85 %	+20	2515 000 025	9.8	0.000 000	0.004
	115 %	+20	2515 000 022	7.2	0.000 000	0.003
2555.000	100 %	+20(Ref)	2555 000 004	0.0	0.000 000	0.000
	100 %	-30	2555 000 004	-0.1	0.000 000	0.000
	100 %	-20	2554 999 987	-17.1	-0.000 001	-0.007
	100 %	-10	2555 000 008	4.0	0.000 000	0.002
	100 %	0	2555 000 008	4.3	0.000 000	0.002
	100 %	+10	2554 999 987	-17.2	-0.000 001	-0.007
	100 %	+30	2554 999 987	-16.4	-0.000 001	-0.006
	100 %	+40	2555 000 009	4.9	0.000 000	0.002
	100 %	+50	2555 000 009	5.6	0.000 000	0.002
	85 %	+20	2555 000 003	-0.7	0.000 000	0.000
	115 %	+20	2555 000 009	5.6	0.000 000	0.002

▣ BandWidth: 40 MHz

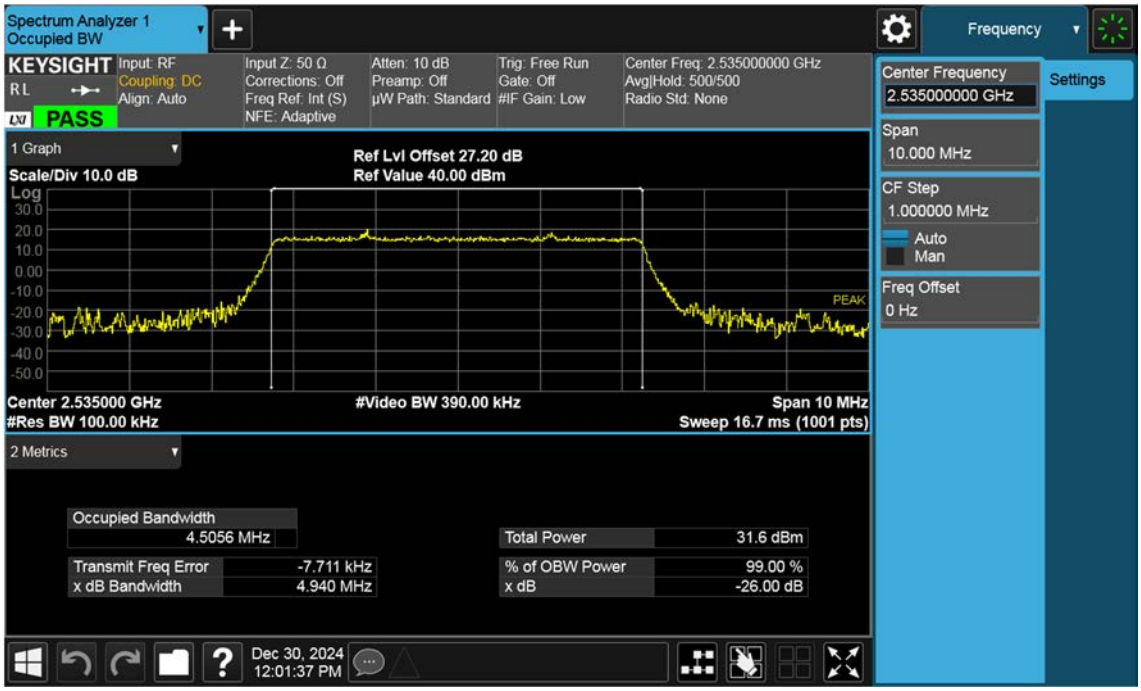
▣ Voltage(100 %): 12.000 VDC

▣ LIMIT: Emission must remain in band

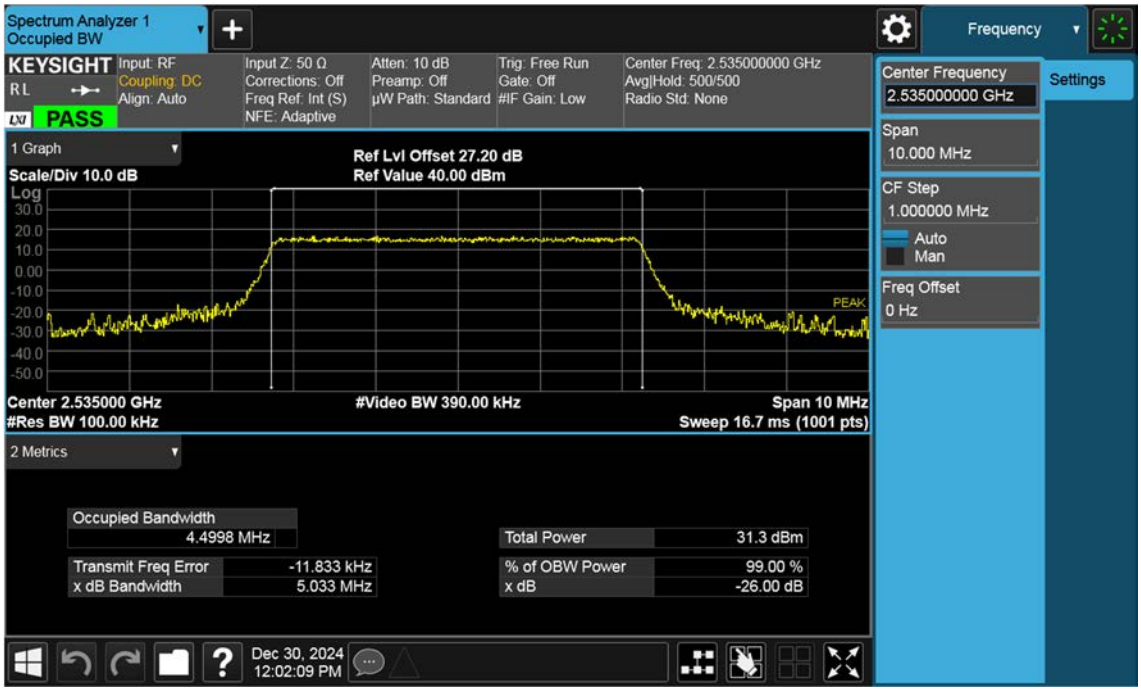
Test. Frequncy	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
2520.000	100 %	+20(Ref)	2519 999 987	0.0	0.000 000	0.000
	100 %	-30	2519 999 977	-10.6	0.000 000	-0.004
	100 %	-20	2519 999 991	4.2	0.000 000	0.002
	100 %	-10	2519 999 991	3.4	0.000 000	0.001
	100 %	0	2519 999 988	1.2	0.000 000	0.000
	100 %	+10	2519 999 988	0.5	0.000 000	0.000
	100 %	+30	2519 999 987	-0.5	0.000 000	0.000
	100 %	+40	2519 999 985	-1.8	0.000 000	-0.001
	100 %	+50	2519 999 984	-3.0	0.000 000	-0.001
	85 %	+20	2519 999 985	-2.4	0.000 000	-0.001
	115 %	+20	2519 999 988	1.1	0.000 000	0.000
2550.000	100 %	+20(Ref)	2550 000 006	0.0	0.000 000	0.000
	100 %	-30	2550 000 013	7.2	0.000 000	0.003
	100 %	-20	2550 000 014	7.6	0.000 000	0.003
	100 %	-10	2550 000 013	7.0	0.000 000	0.003
	100 %	0	2550 000 013	6.7	0.000 000	0.003
	100 %	+10	2550 000 013	6.9	0.000 000	0.003
	100 %	+30	2550 000 013	6.9	0.000 000	0.003
	100 %	+40	2550 000 012	5.6	0.000 000	0.002
	100 %	+50	2550 000 010	3.7	0.000 000	0.001
	85 %	+20	2550 000 011	4.9	0.000 000	0.002
	115 %	+20	2550 000 012	5.9	0.000 000	0.002

9. TEST PLOTS

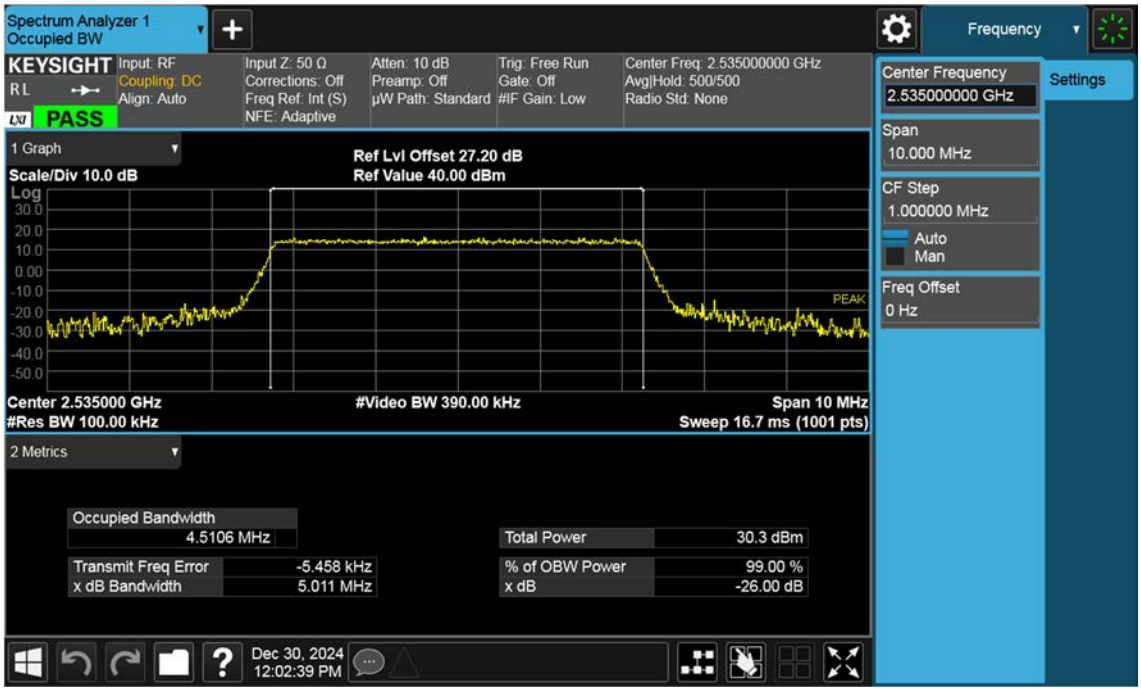
Sub6 n7. Occupied Bandwidth Plot (5 M BW Ch.507000 BPSK)



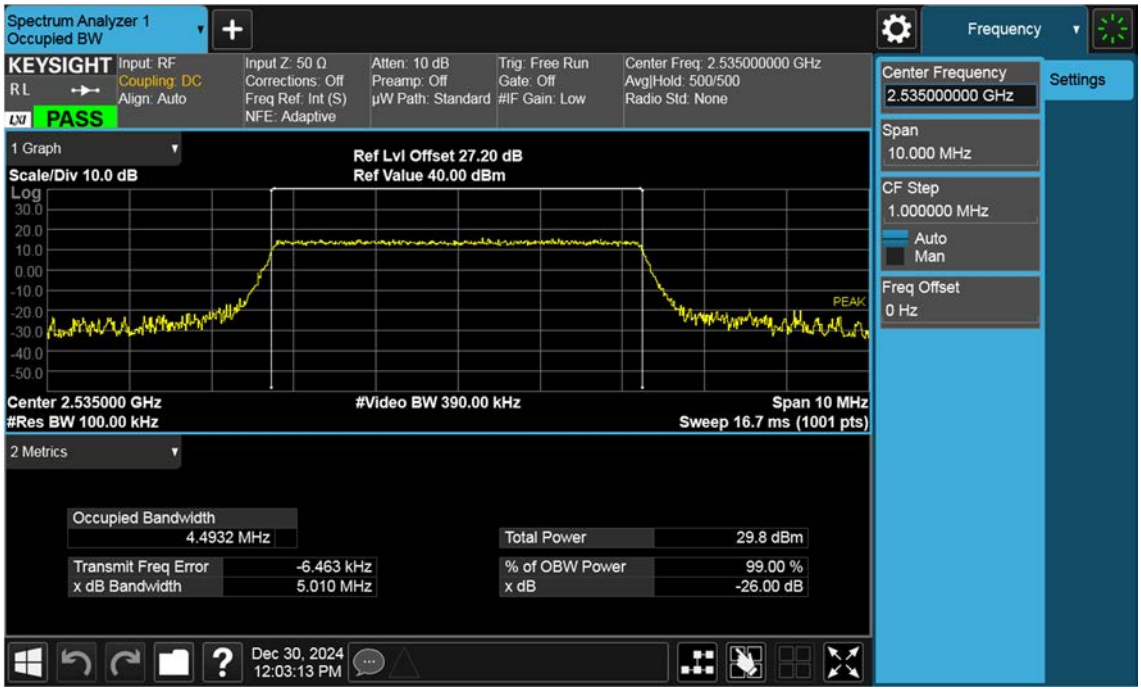
Sub6 n7. Occupied Bandwidth Plot (5 M BW Ch.507000 QPSK)



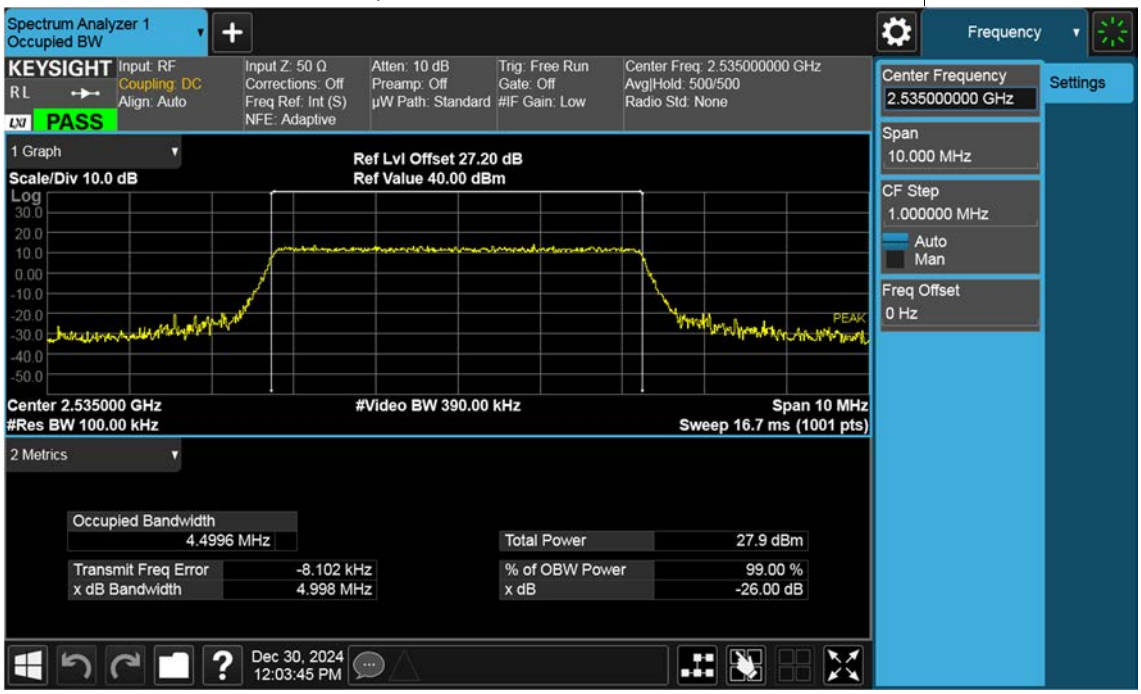
Sub6 n7. Occupied Bandwidth Plot (5 M BW Ch.507000 16QAM)



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



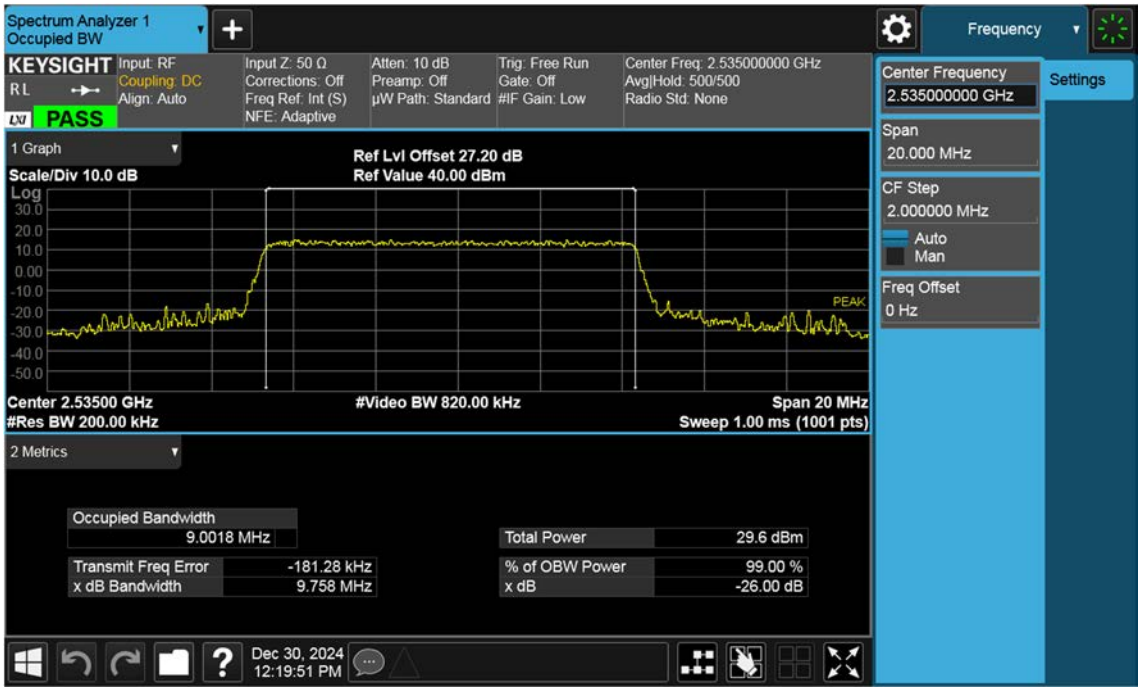
Sub6 n7. Occupied Bandwidth Plot (5 M BW Ch.507000 256QAM)



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)



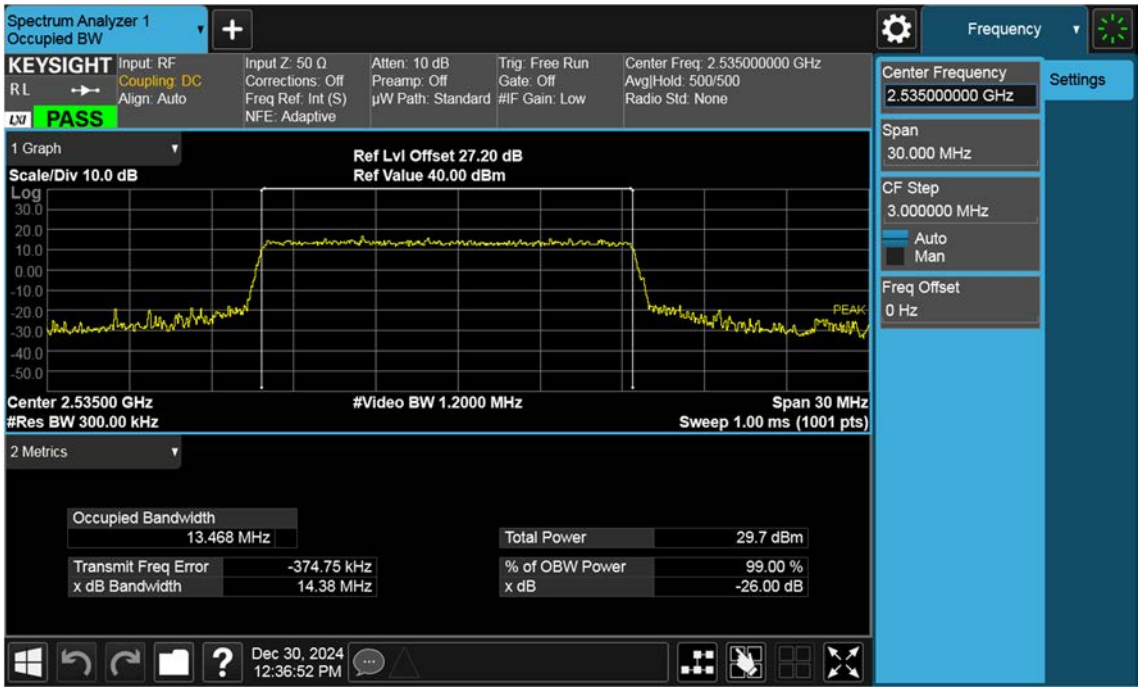
Sub6 n7. Occupied Bandwidth Plot (10 M BW Ch.507000 64QAM)

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

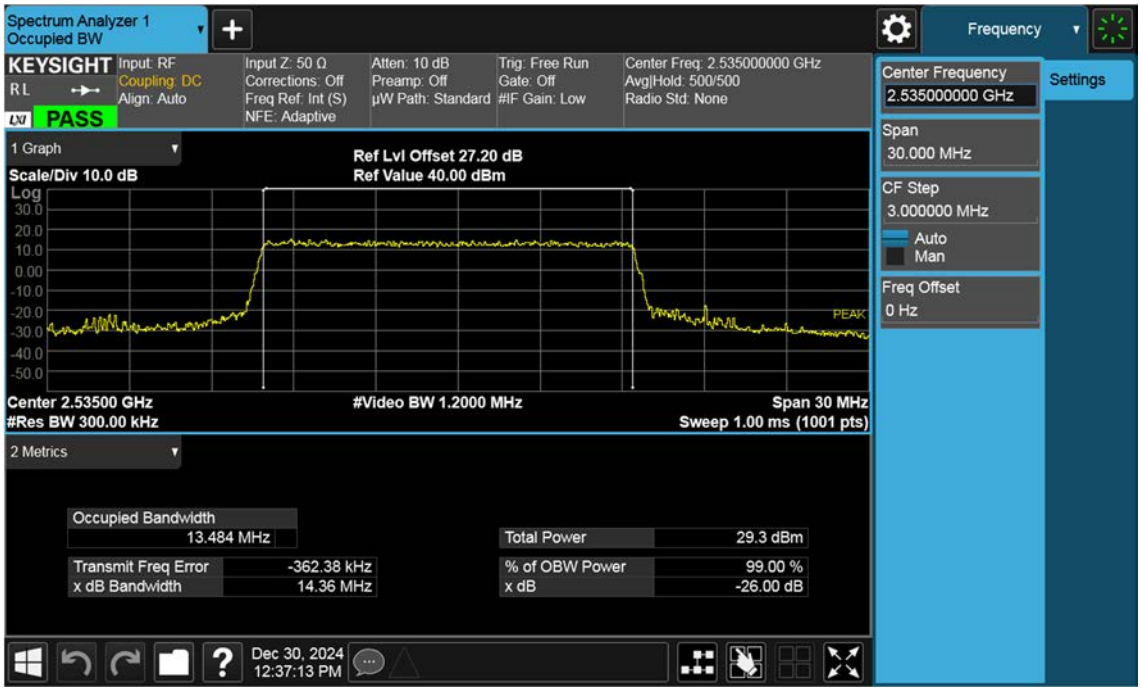
Sub6 n7. Occupied Bandwidth Plot (15 M BW Ch.507000 BPSK)

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

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

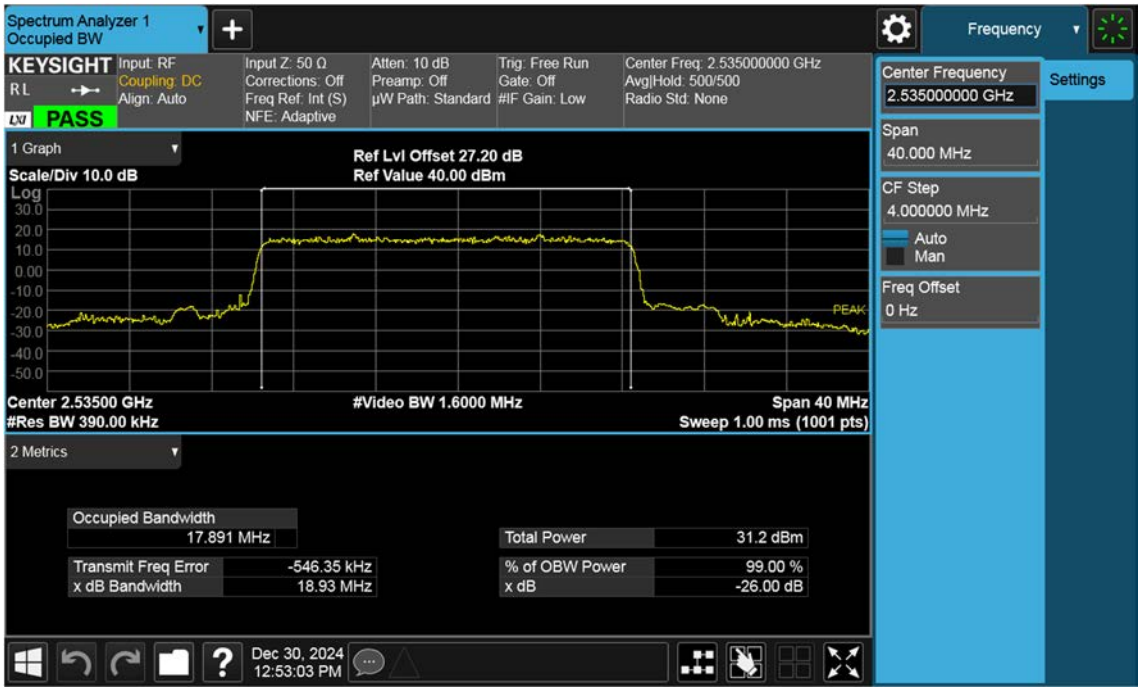


Sub6 n7. Occupied Bandwidth Plot (15 M BW Ch.507000 64QAM)



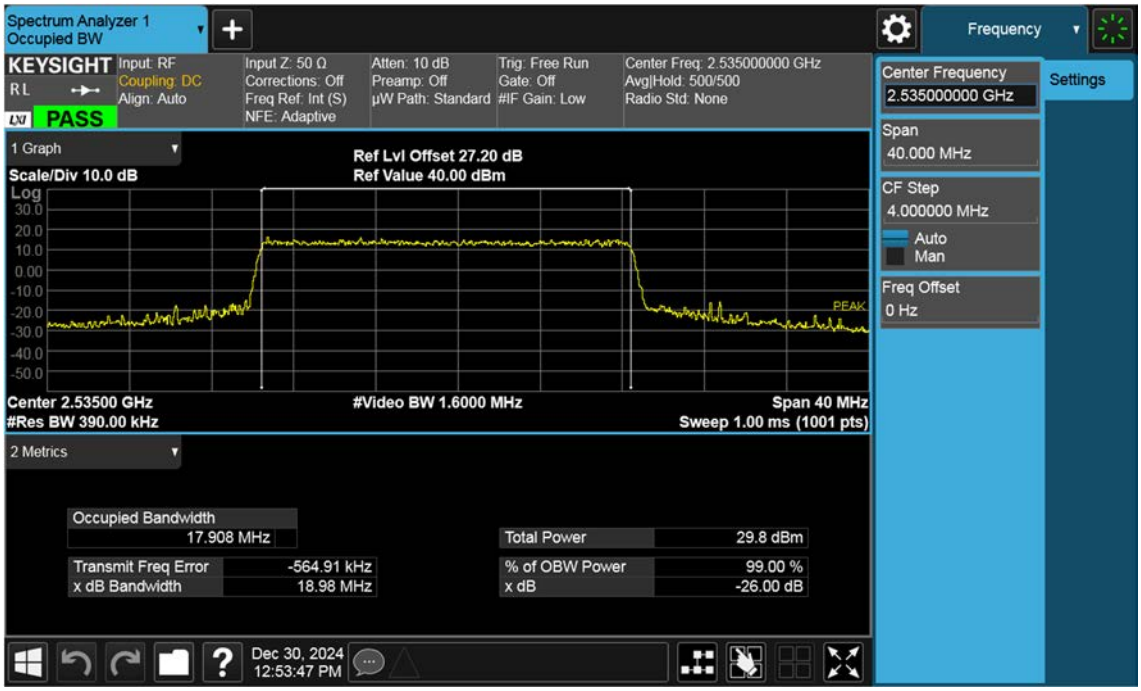
Sub6 n7. Occupied Bandwidth Plot (15 M BW Ch.507000 256QAM)

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



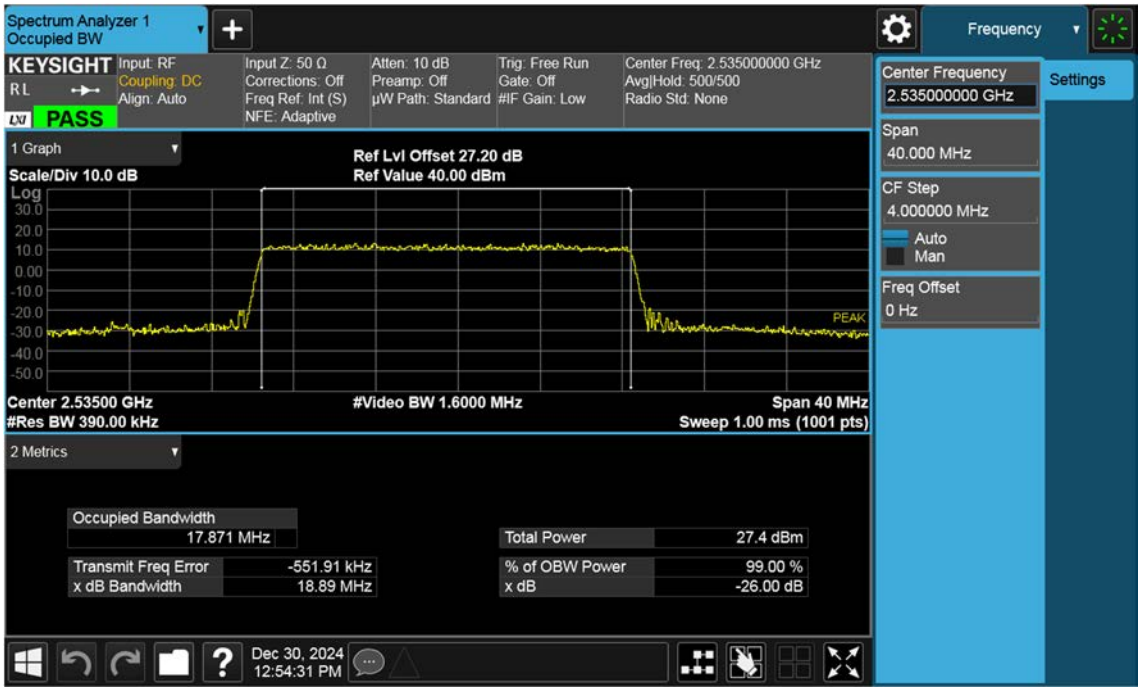
Sub6 n7. Occupied Bandw idth Plot (20 M BW Ch.507000 QPSK)

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)

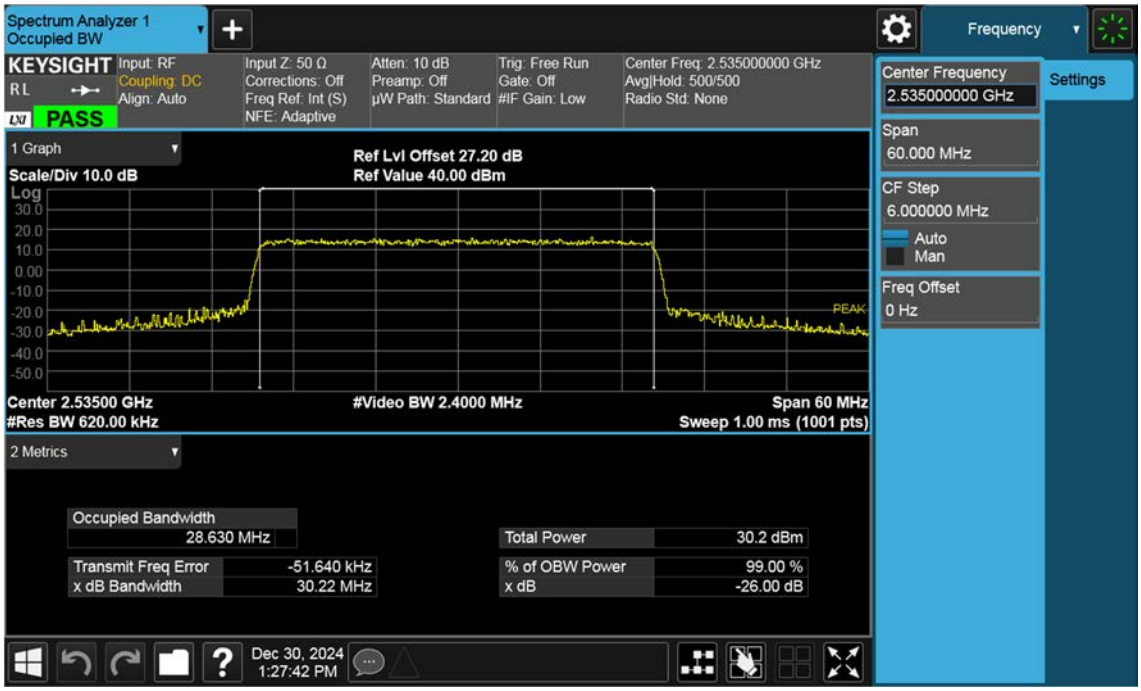
Sub6 n7. Occupied Bandwidth Plot (25 M BW Ch.507000 64QAM)

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

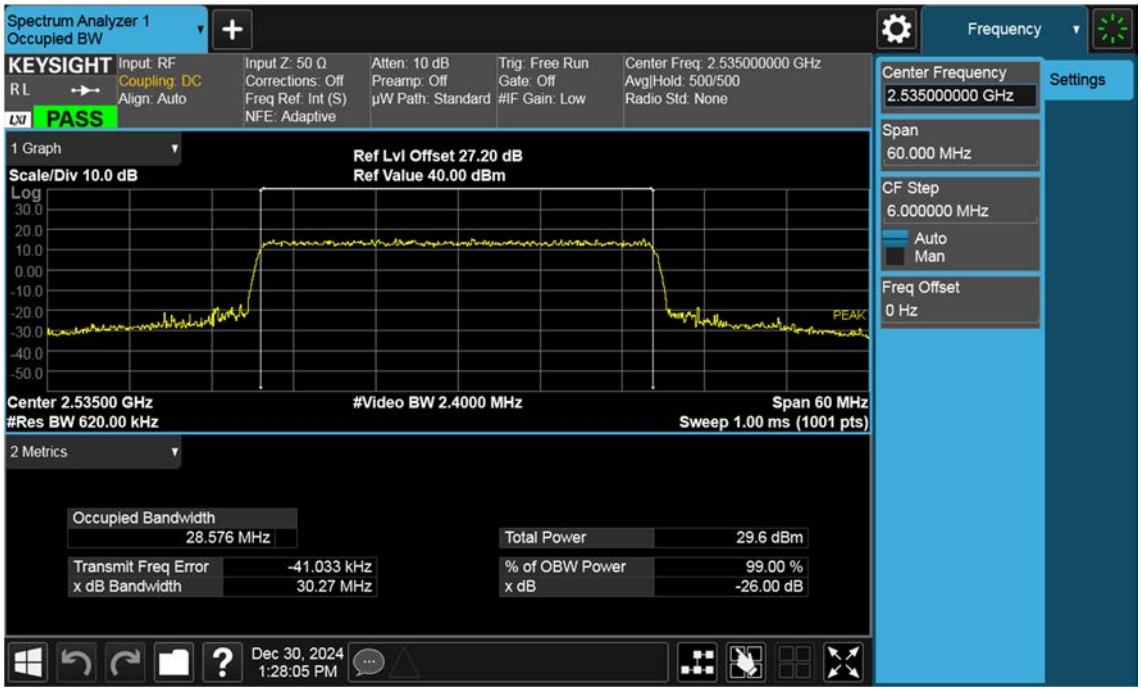
Sub6 n7. Occupied Bandwidth Plot (30 M BW Ch.507000 BPSK)

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

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



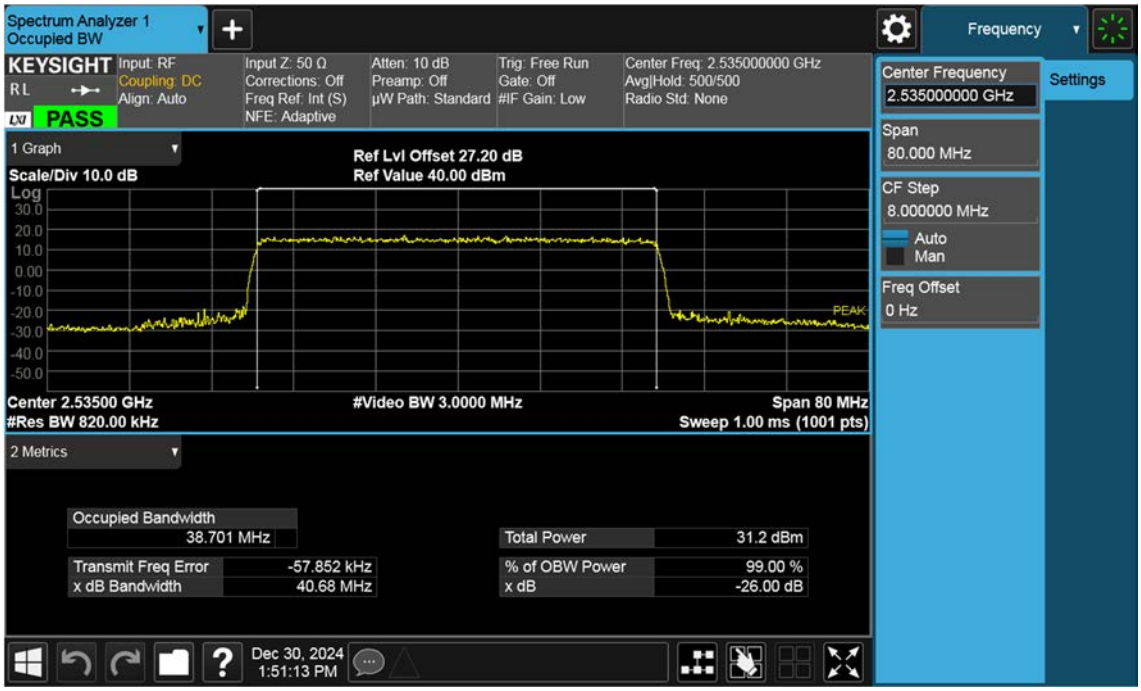
Sub6 n7. Occupied Bandwidth Plot (30 M BW Ch.507000 64QAM)



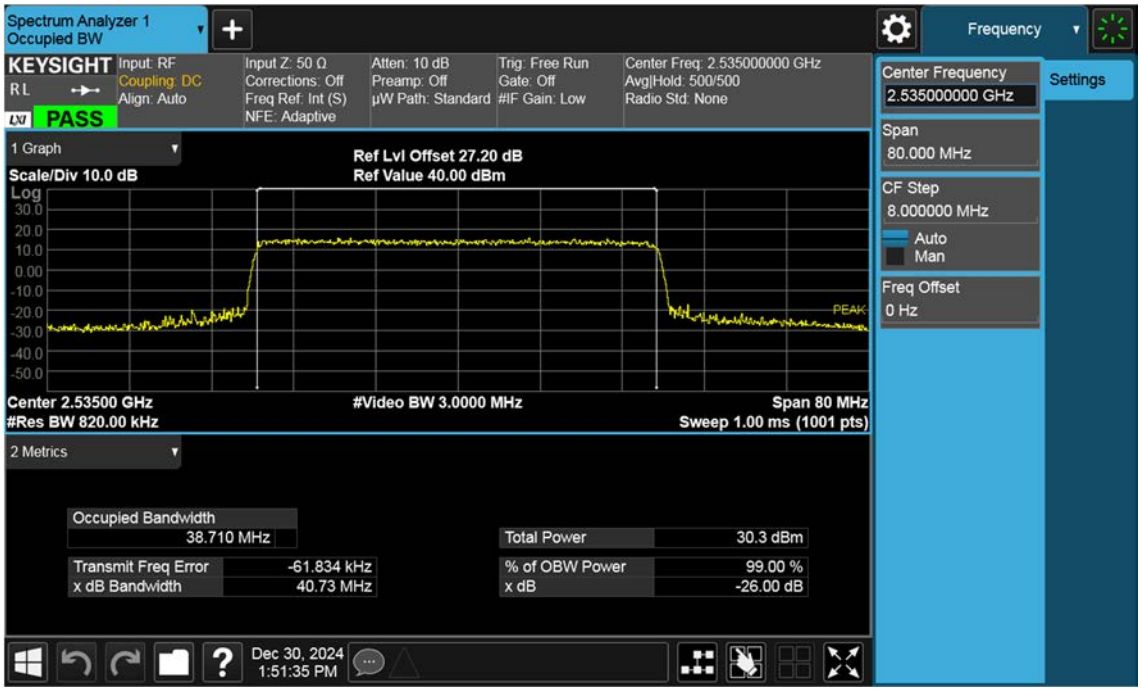
Sub6 n7. Occupied Bandwidth Plot (30 M BW Ch.507000 256QAM)

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

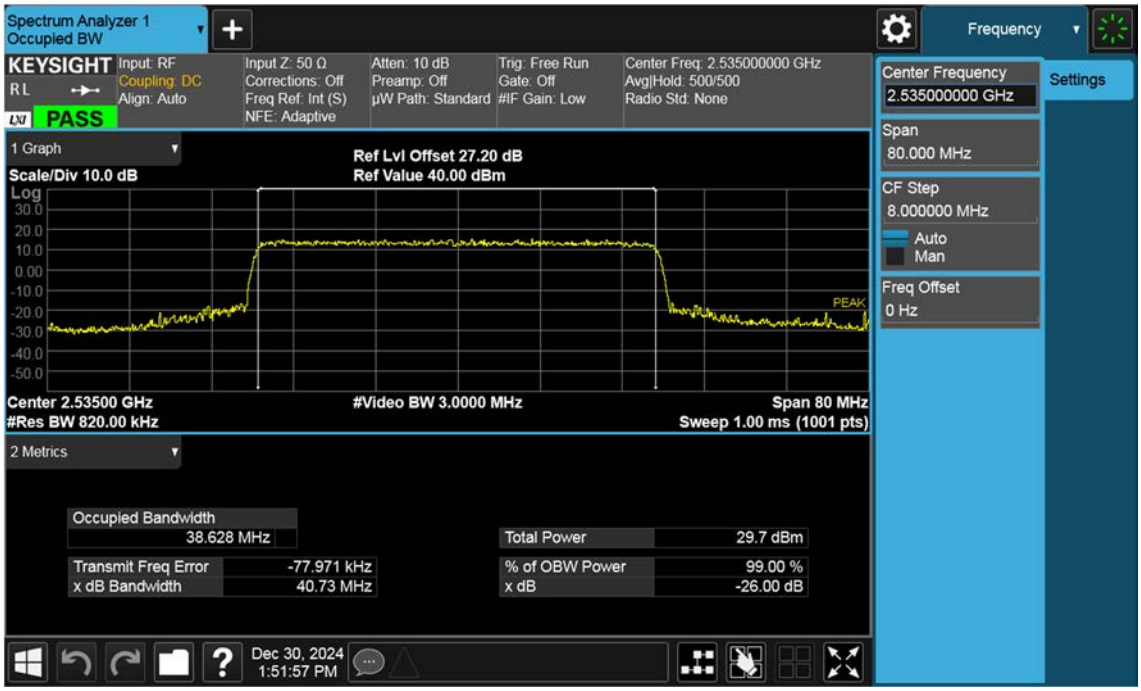
Sub6 n7. Occupied Bandwidth Plot (40 M BW Ch.507000 QPSK)



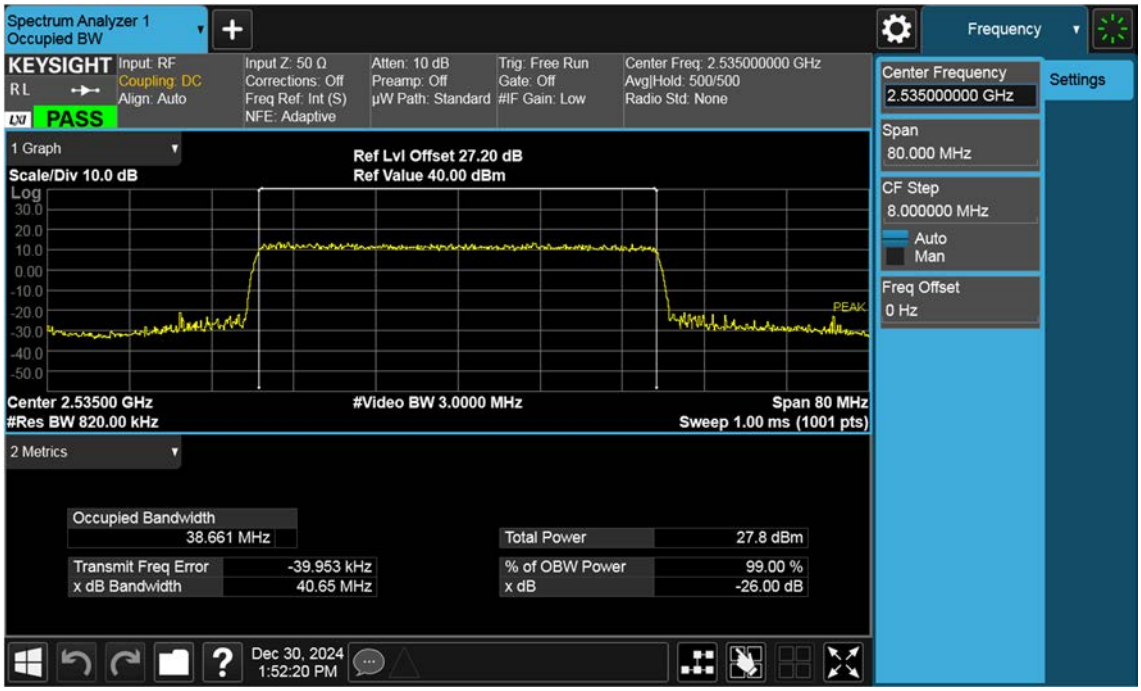
Sub6 n7. Occupied Bandwidth Plot (40 M BW Ch.507000 16QAM)



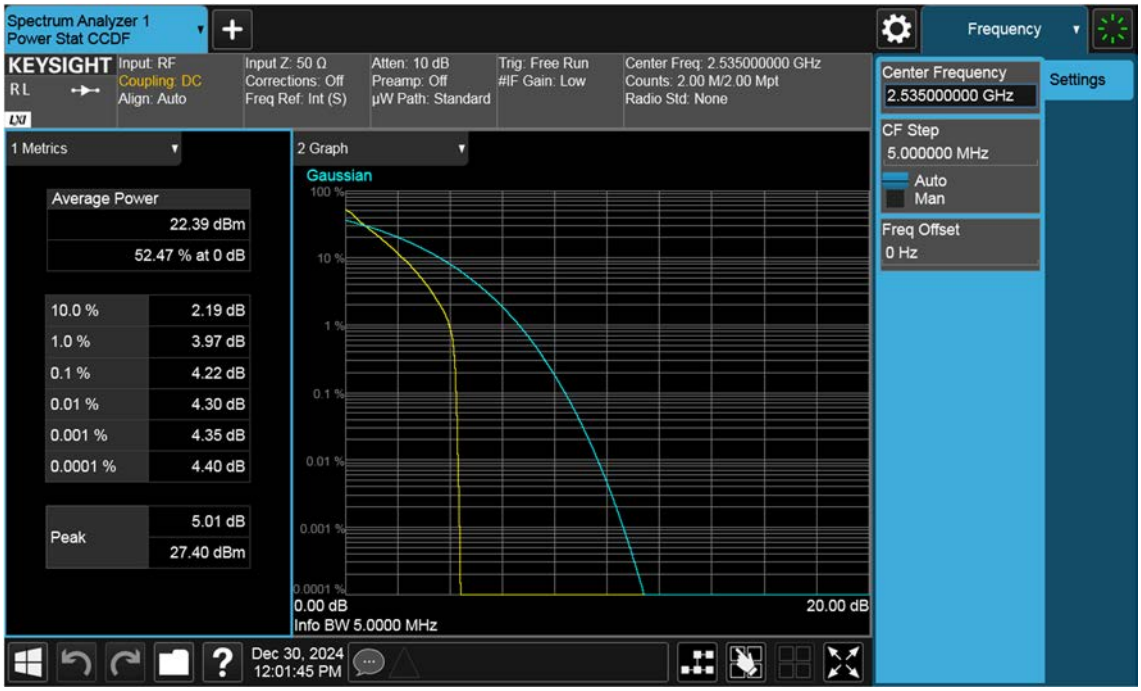
Sub6 n7. Occupied Bandwidth Plot (40 M BW Ch.507000 64QAM)



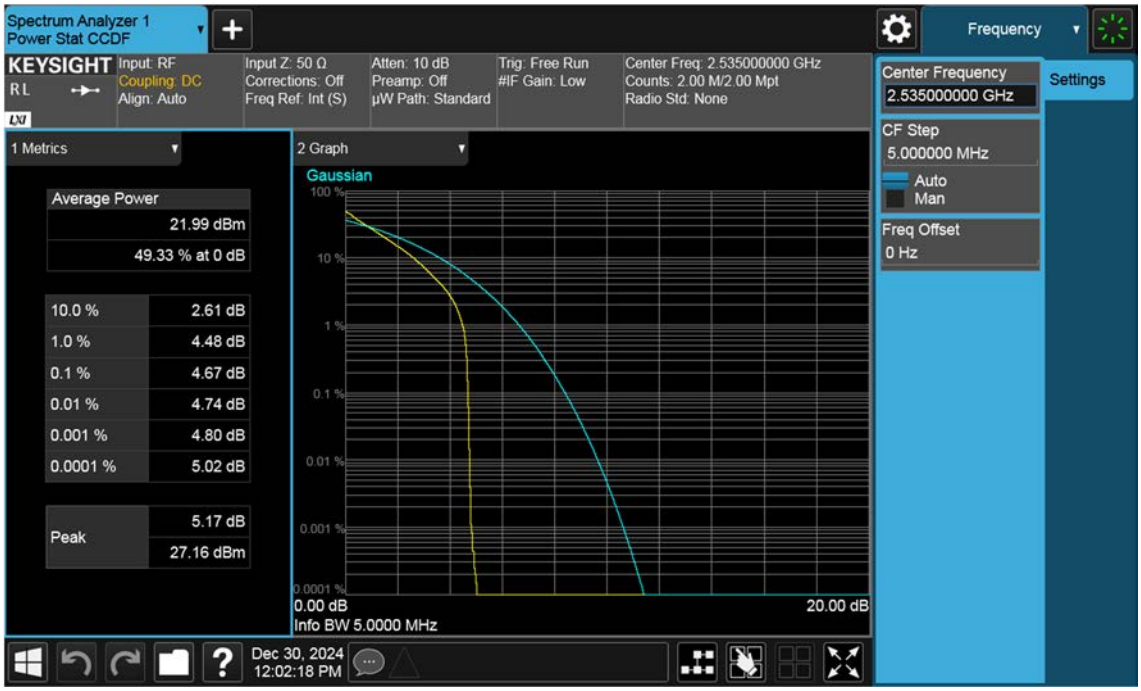
Sub6 n7. Occupied Bandwidth Plot (40 M BW Ch.507000 256QAM)



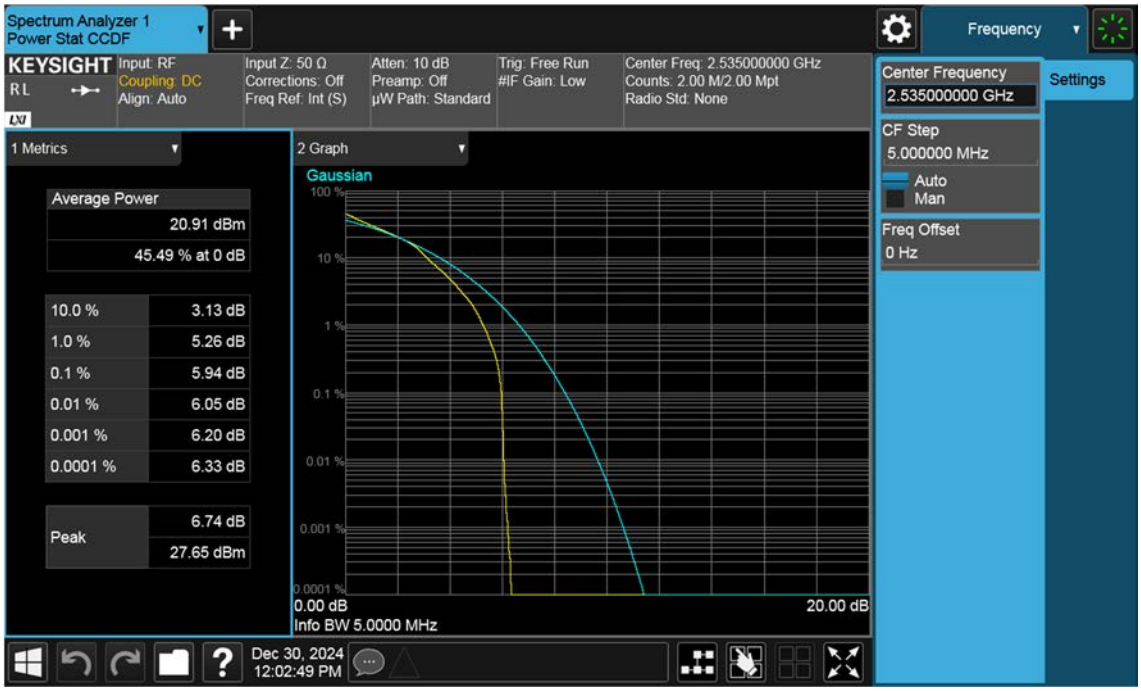
Sub6 n7. PAR Plot (5 M BW_Ch.507000_ BPSK)



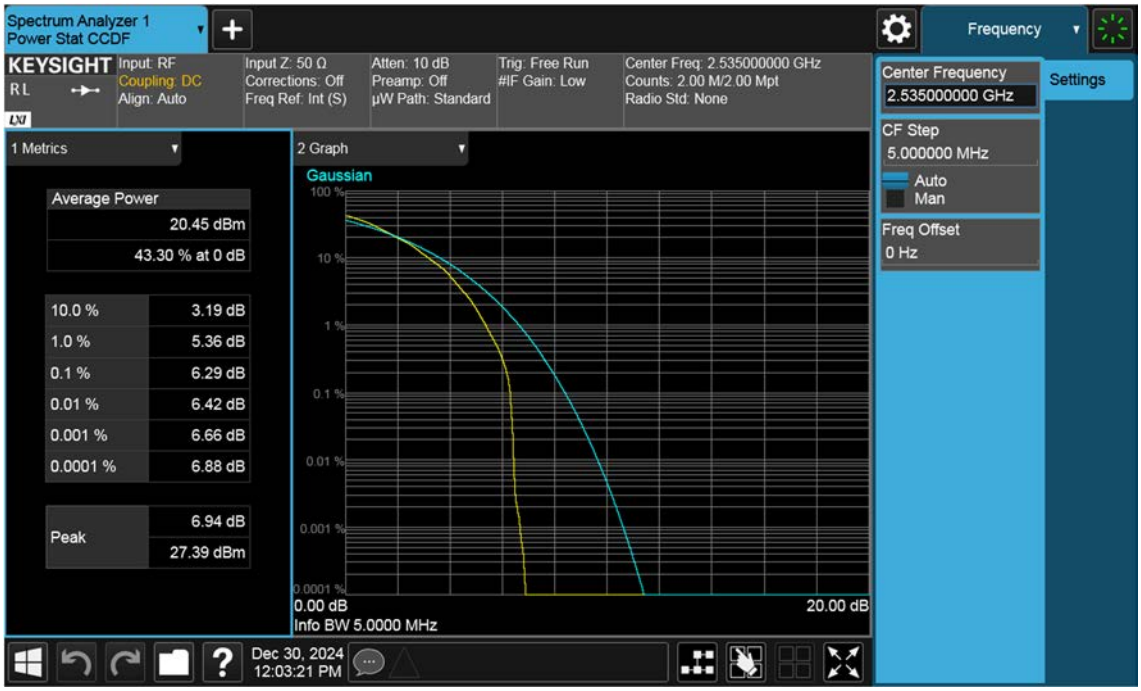
Sub6 n7. PAR Plot (5 M BW_Ch.507000_QPSK)



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

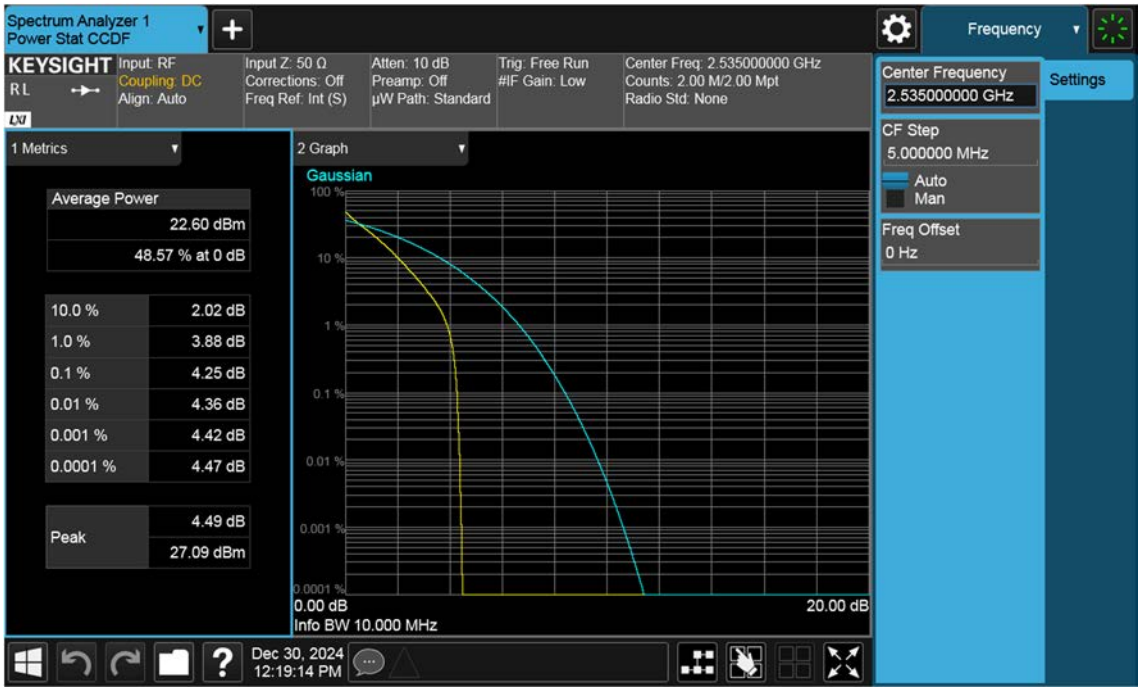


Sub6 n7. PAR Plot (5 M BW_Ch.507000_64QAM)

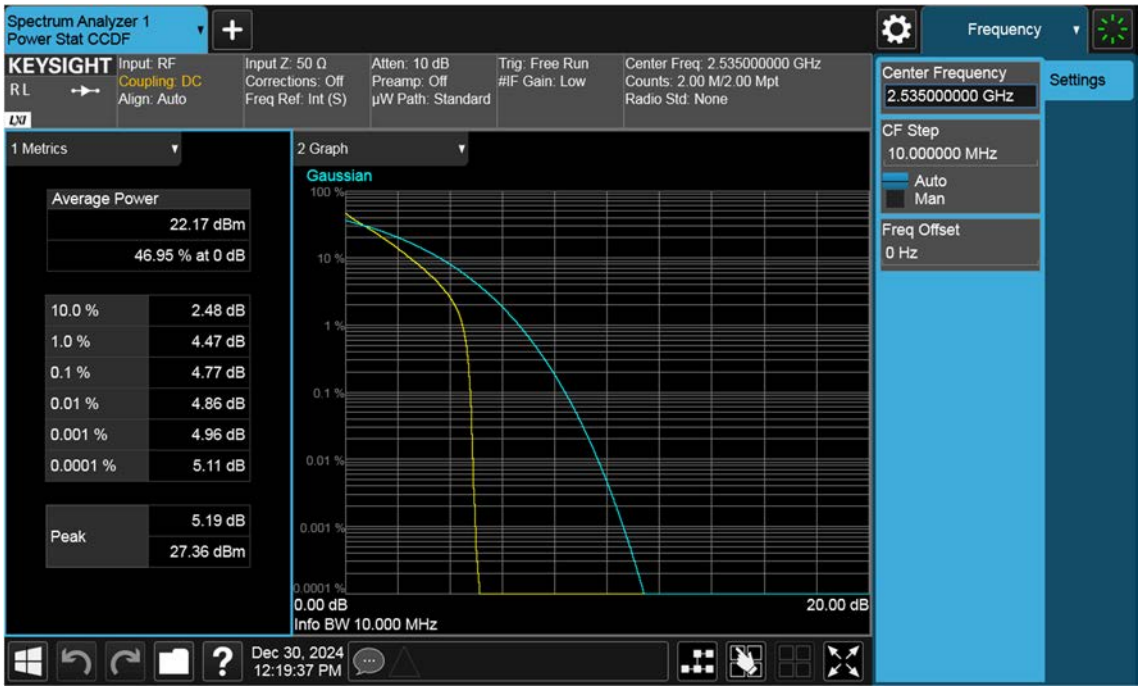


Sub6 n7. PAR Plot (5 M BW_Ch.507000_256QAM)

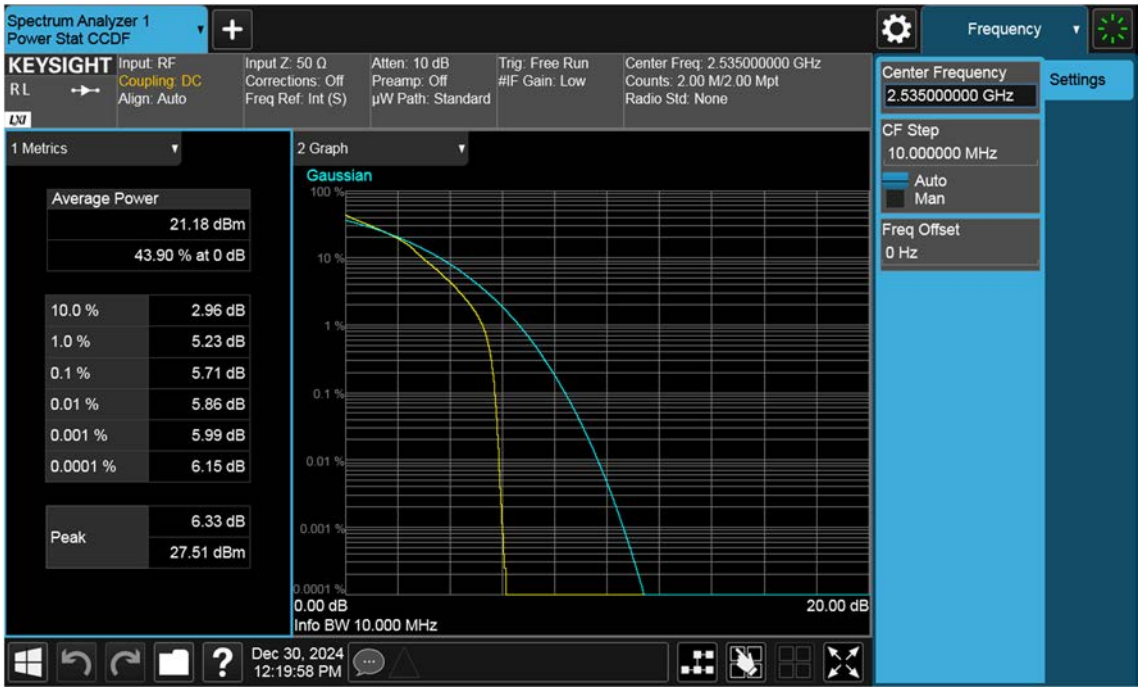
Sub6 n7. PAR Plot (10 M BW_Ch.507000_ BPSK)



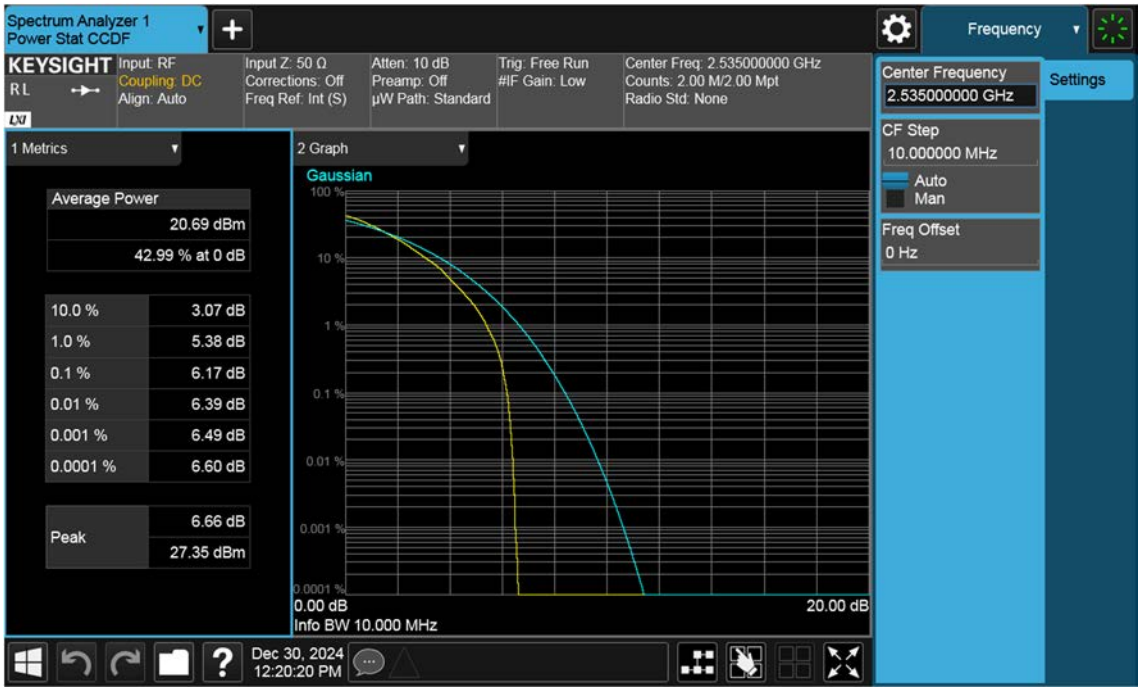
Sub6 n7. PAR Plot (10 M BW_Ch.507000_QPSK)



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

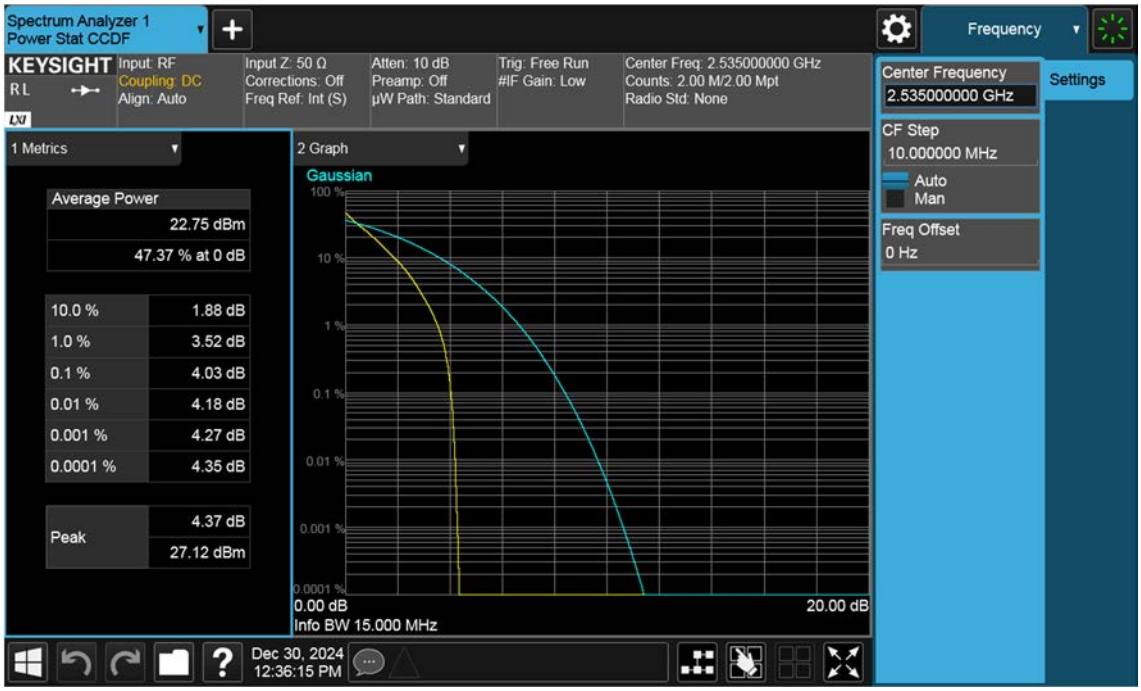


Sub6 n7. PAR Plot (10 M BW_Ch.507000_64QAM)

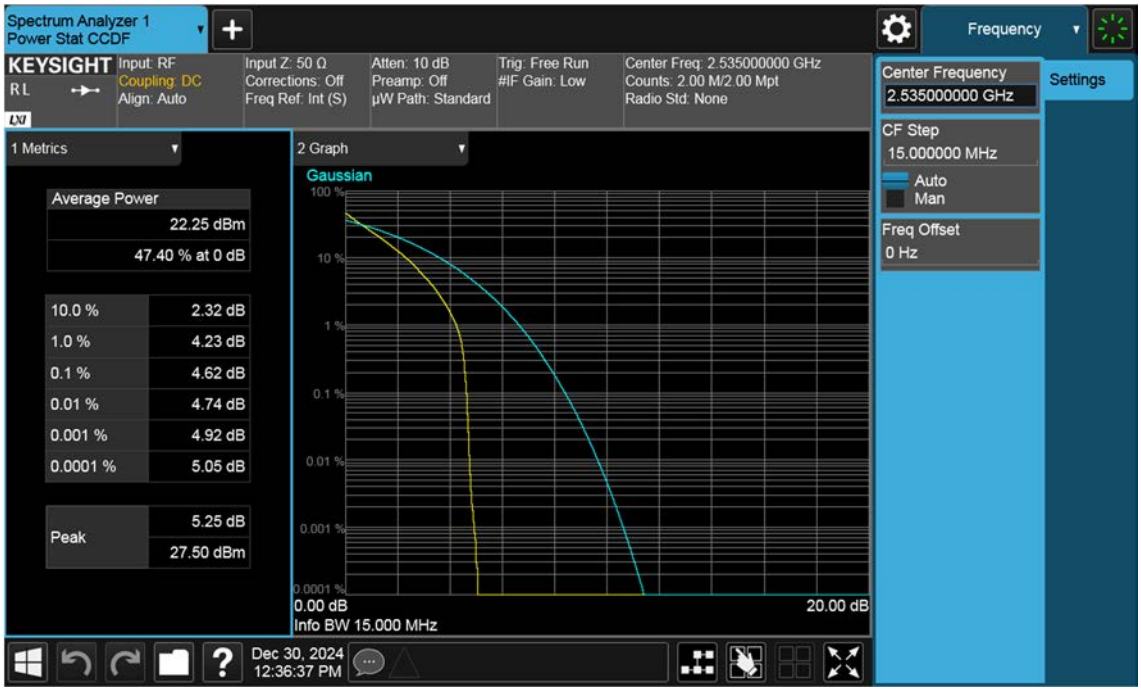


Sub6 n7. PAR Plot (10 M BW_Ch.507000_256QAM)

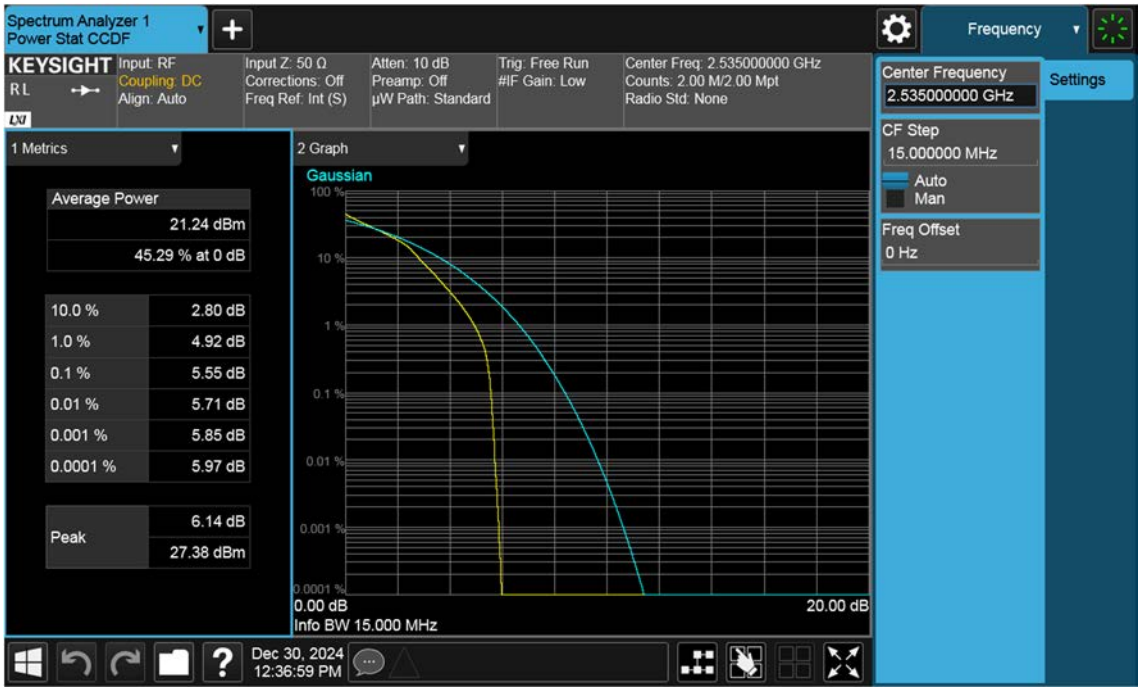
Sub6 n7. PAR Plot (15 M BW_Ch.507000_ BPSK)



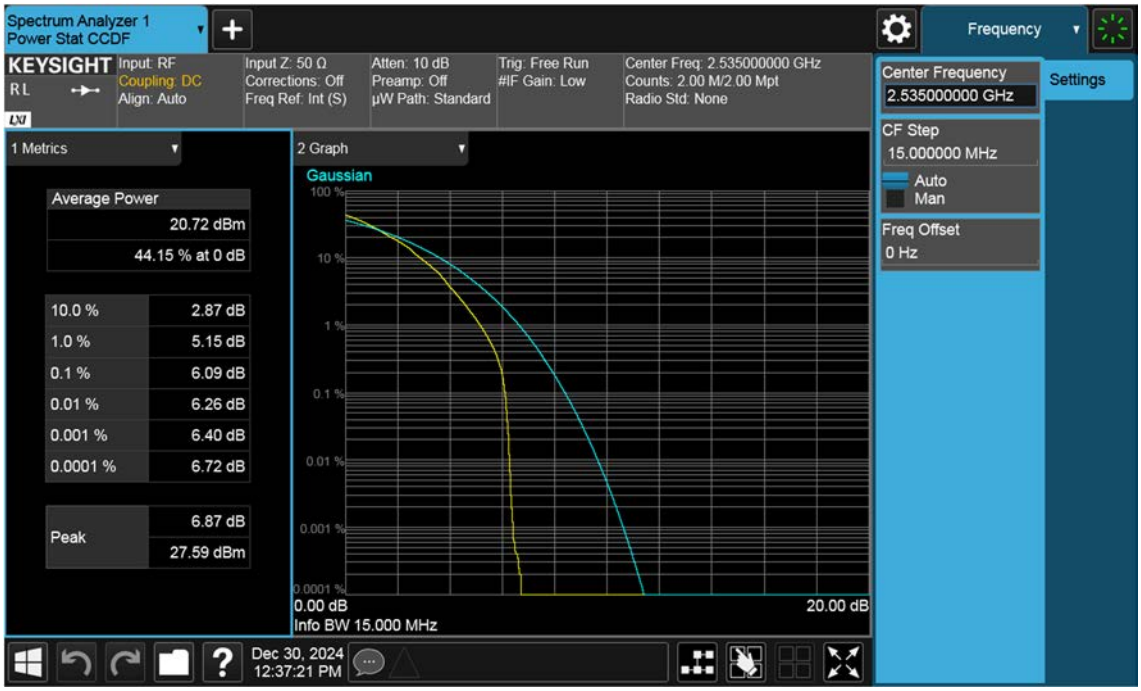
Sub6 n7. PAR Plot (15 M BW_Ch.507000_QPSK)



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

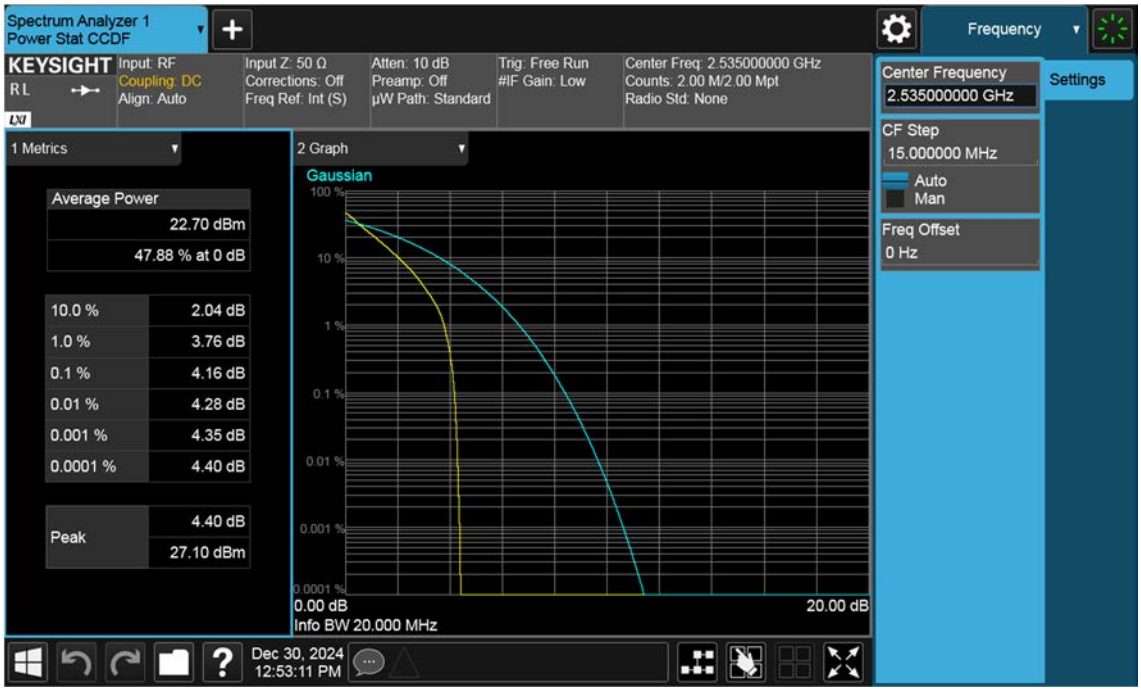


Sub6 n7. PAR Plot (15 M BW_Ch.507000_64QAM)

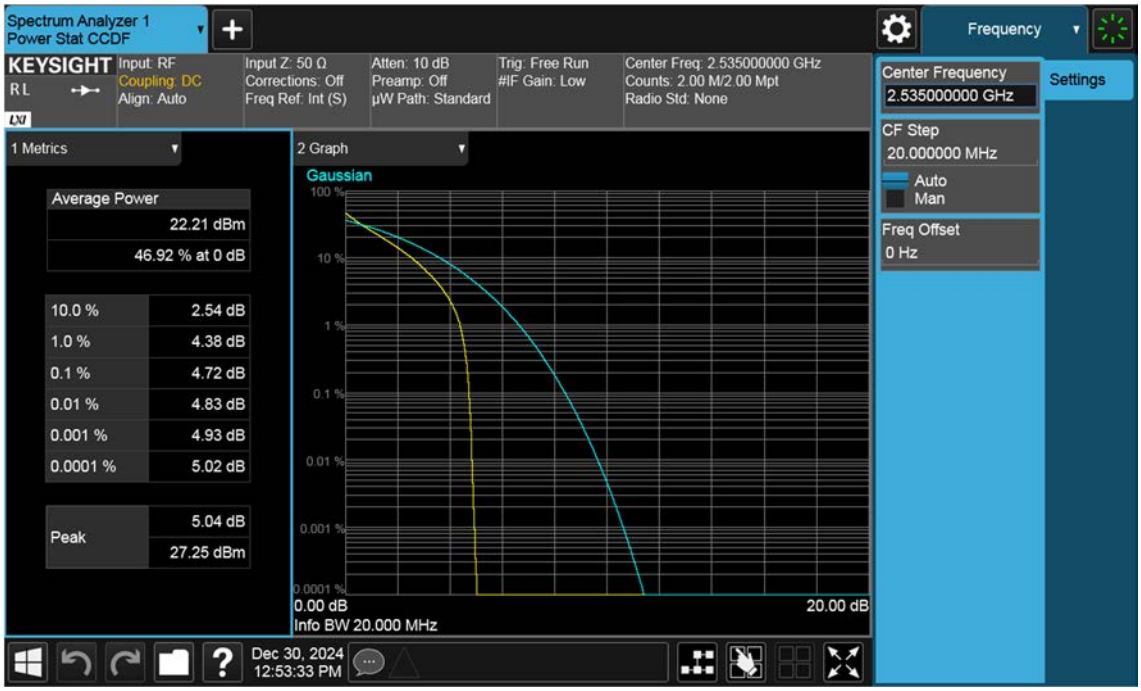


Sub6 n7. PAR Plot (15 M BW_Ch.507000_256QAM)

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

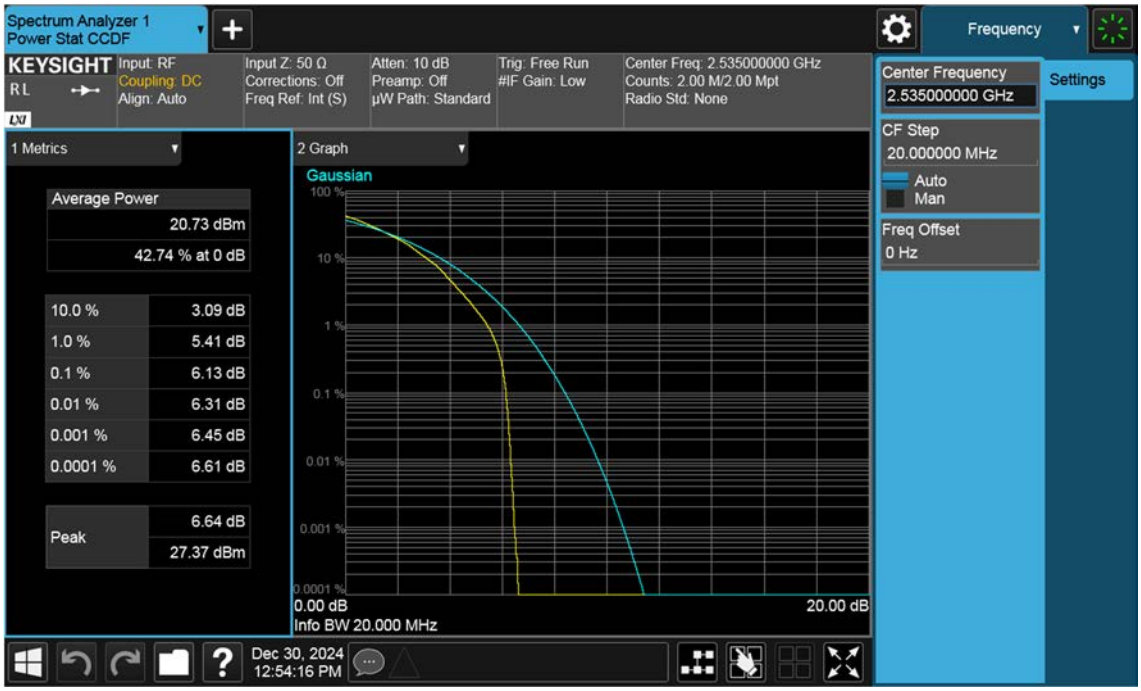


Sub6 n7. PAR Plot (20 M BW_Ch.507000_QPSK)



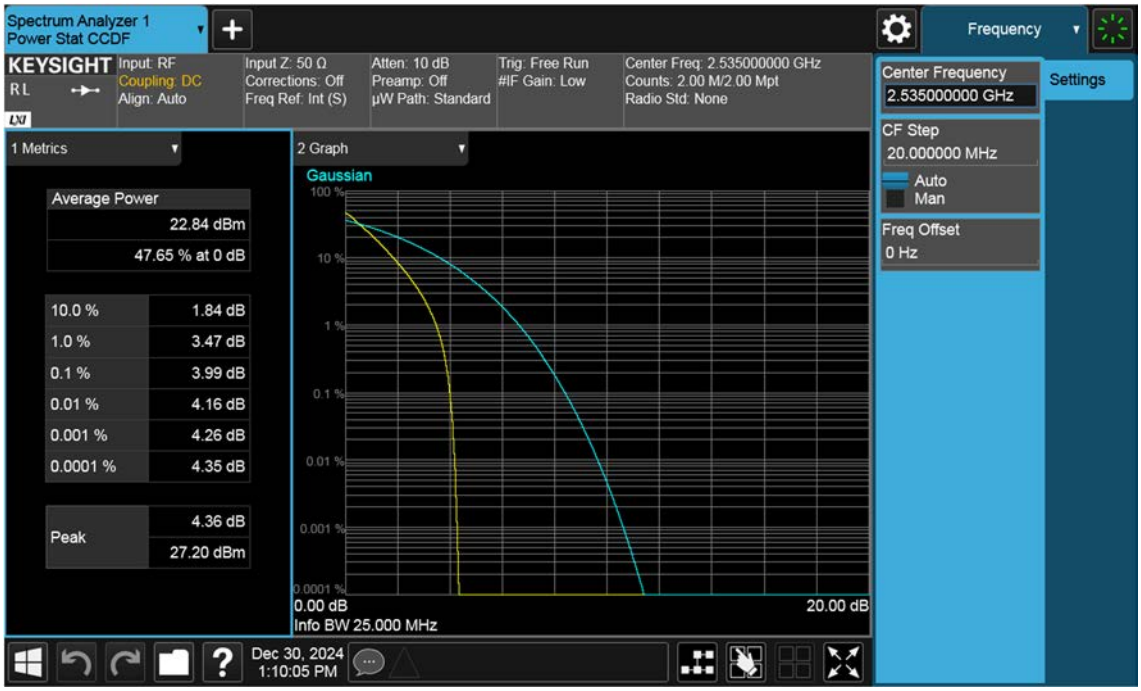
Sub6 n7. PAR Plot (20 M BW_Ch.507000_16QAM)

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

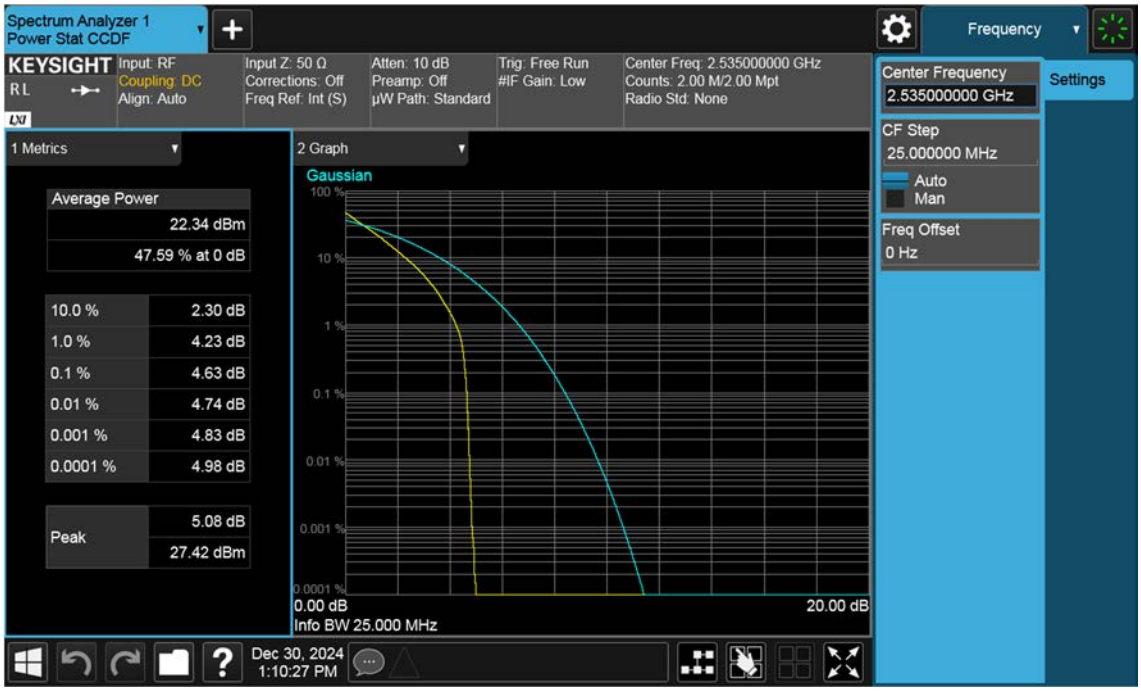


Sub6 n7. PAR Plot (20 M BW_Ch.507000_256QAM)

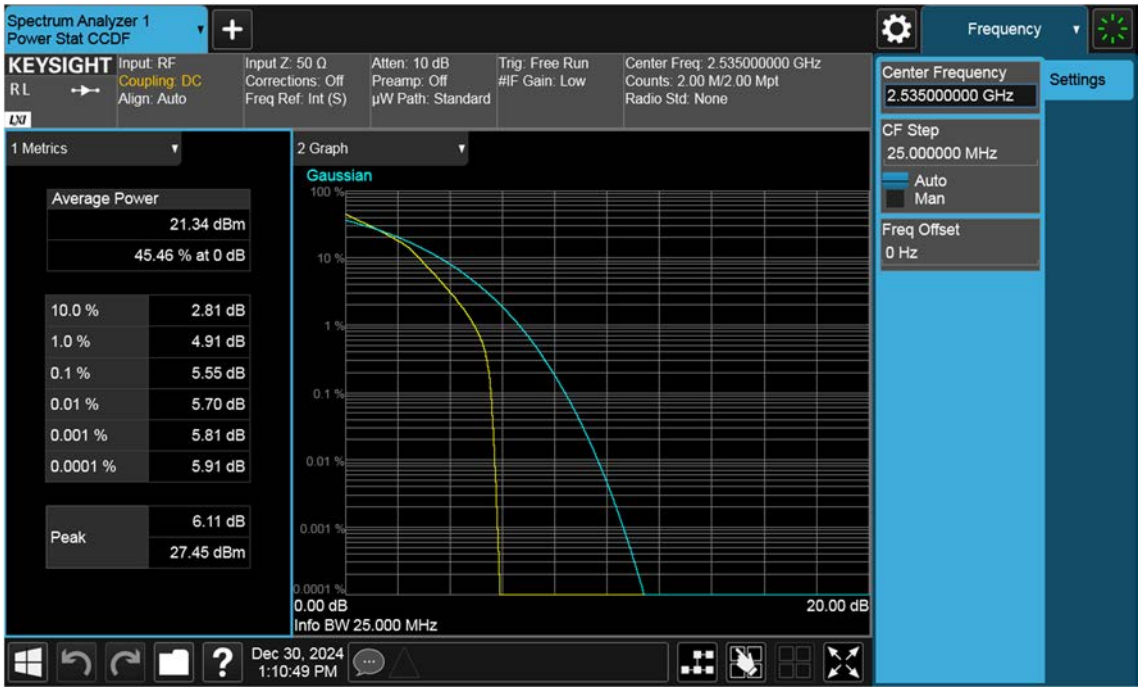
Sub6 n7. PAR Plot (25 M BW_Ch.507000_ BPSK)



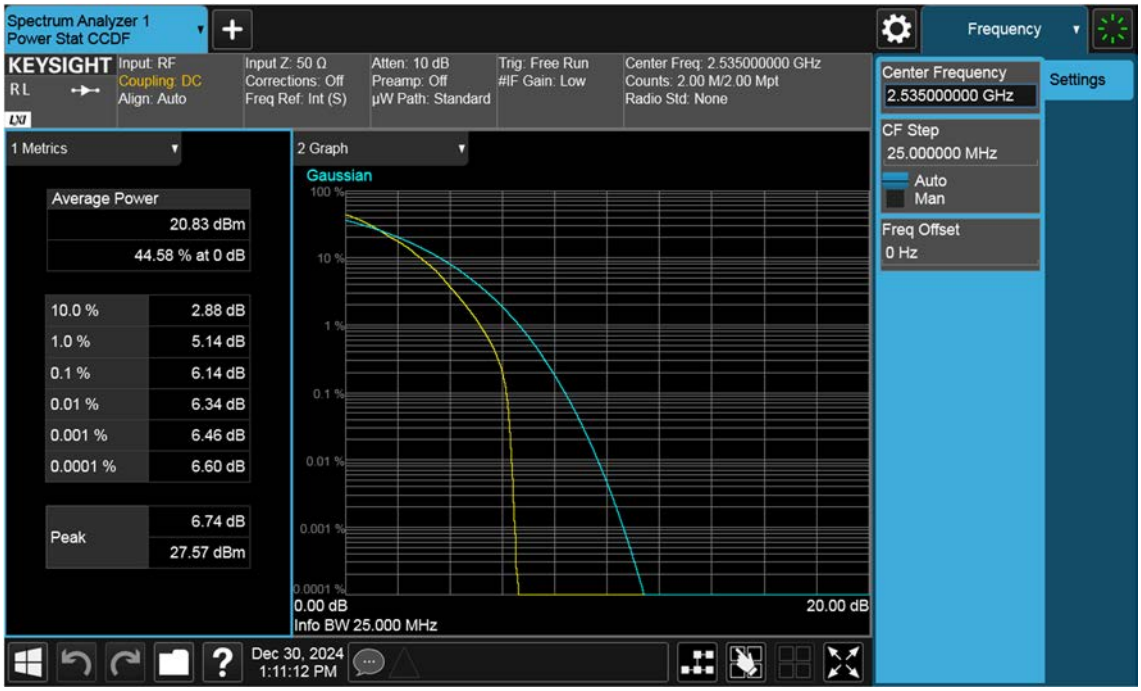
Sub6 n7. PAR Plot (25 M BW_Ch.507000_QPSK)



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

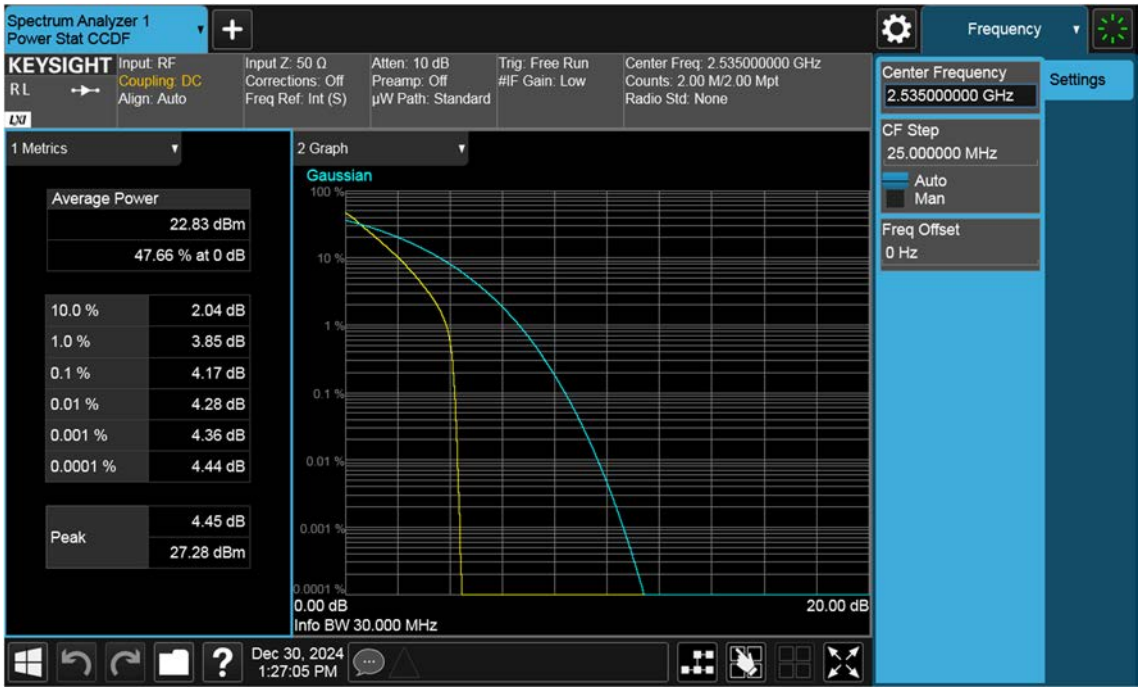


Sub6 n7. PAR Plot (25 M BW_Ch.507000_64QAM)

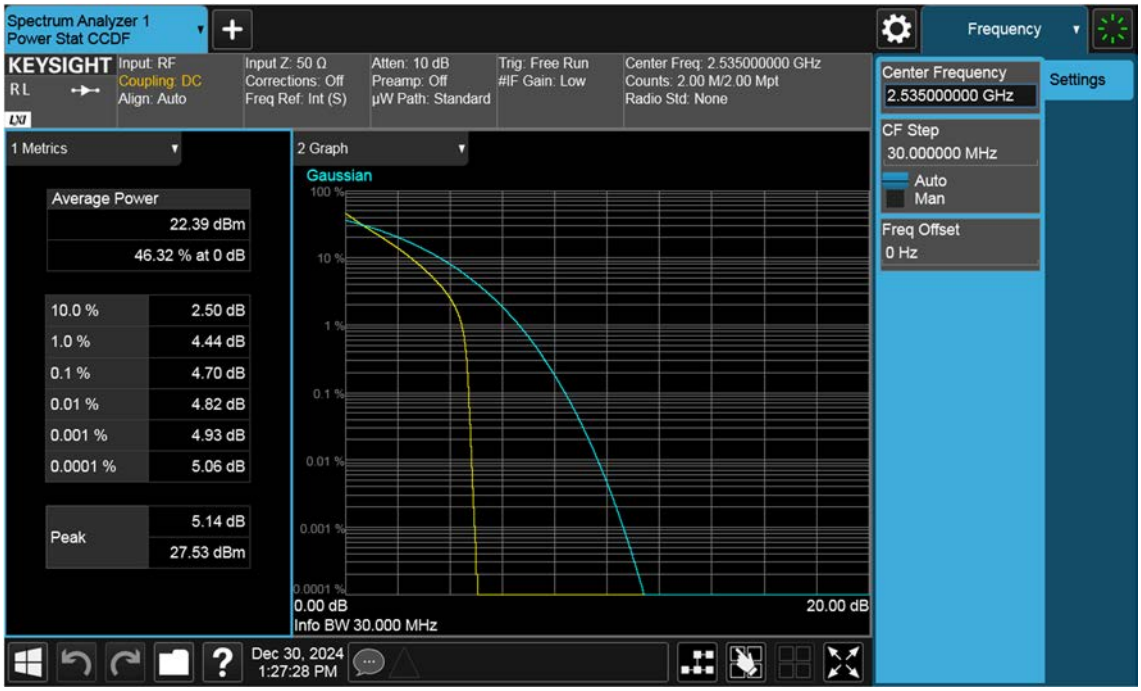


Sub6 n7. PAR Plot (25 M BW_Ch.507000_256QAM)

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

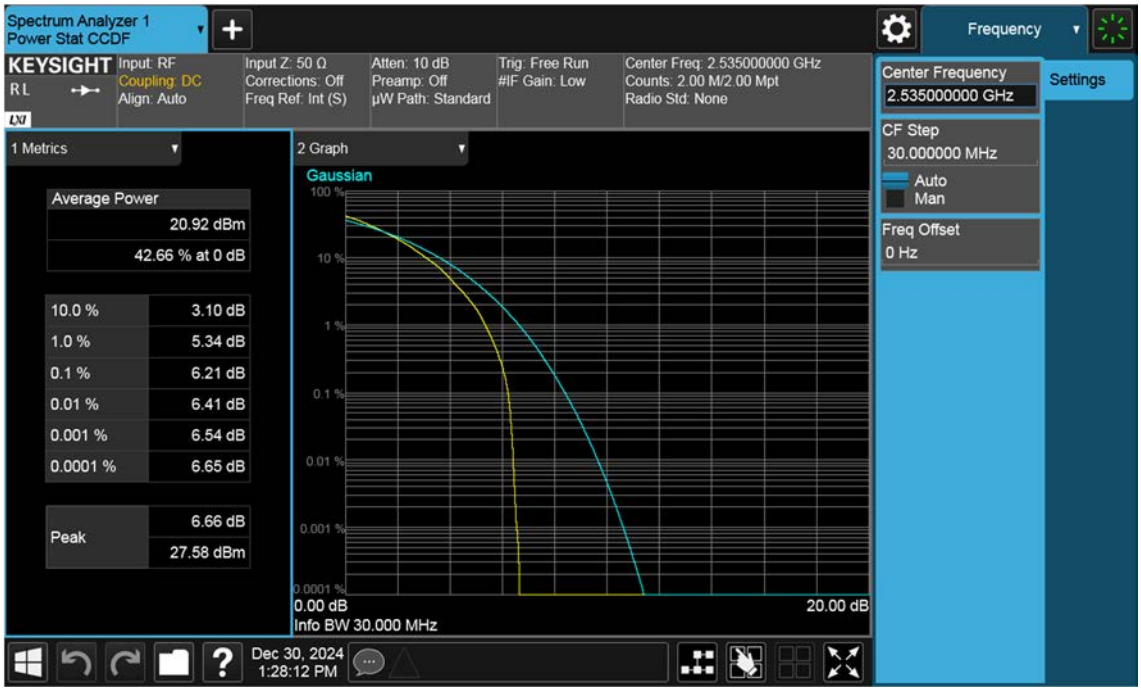


Sub6 n7. PAR Plot (30 M BW_Ch.507000_QPSK)



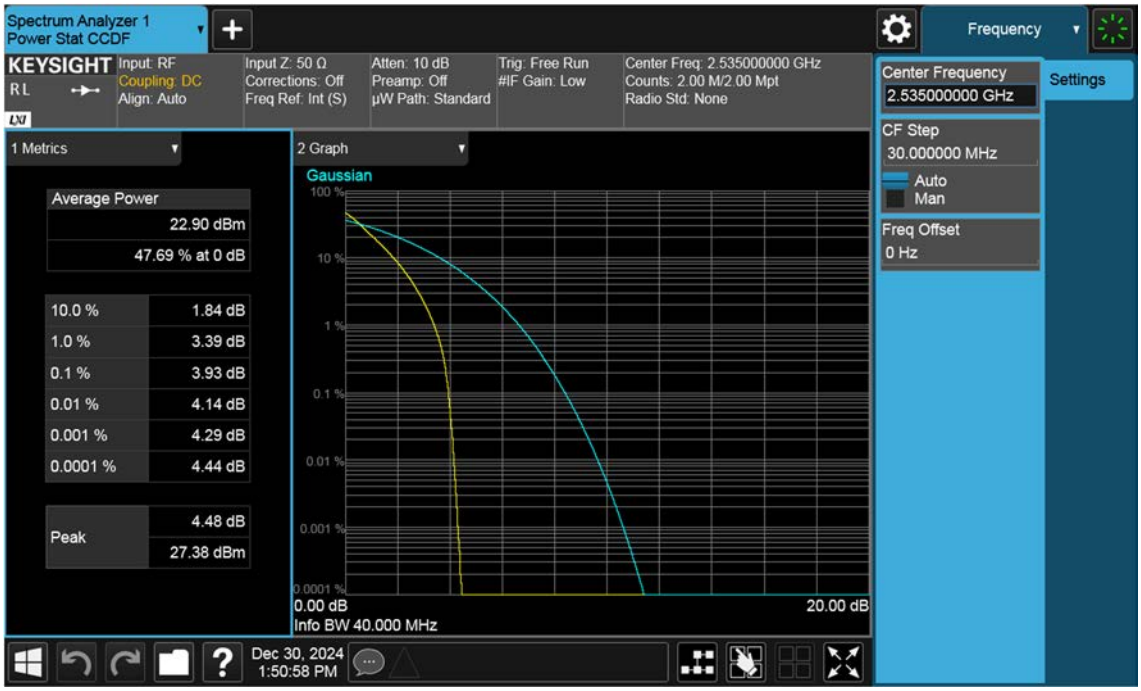
Sub6 n7. PAR Plot (30 M BW_Ch.507000_16QAM)

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

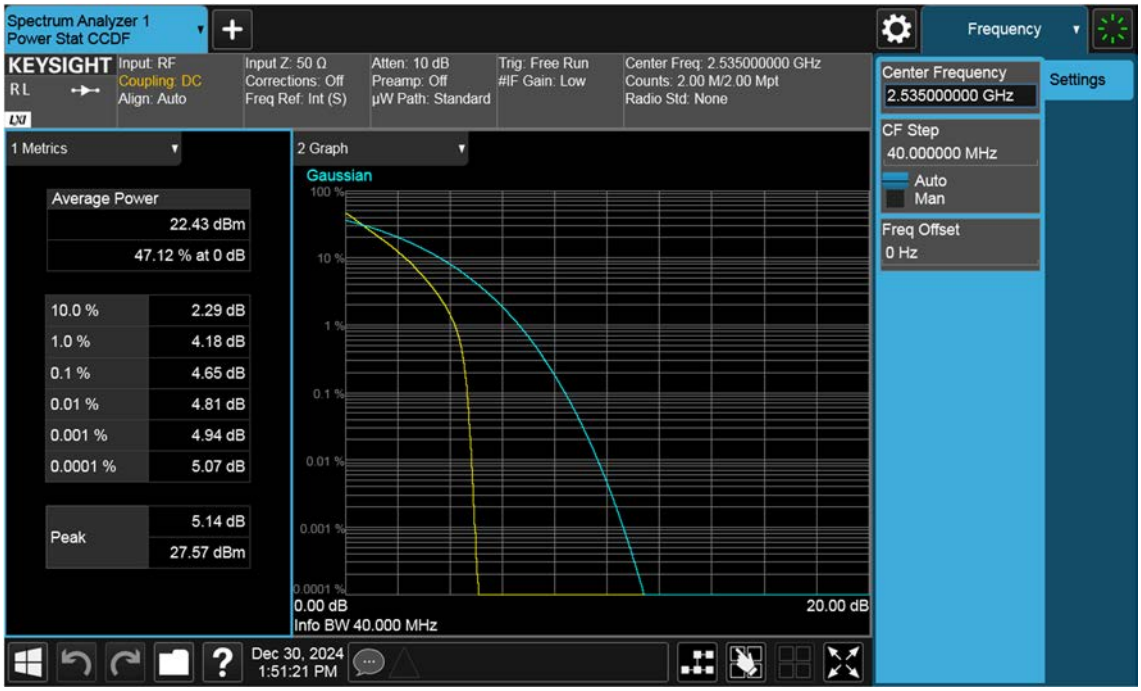


Sub6 n7. PAR Plot (30 M BW_Ch.507000_256QAM)

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)