

TEST REPORT

FCC Sub6 n5 Test for TM18FNNABM0
Certification

APPLICANT
LG Electronics Inc.

REPORT NO.
HCT-RF-2506-FC064

DATE OF ISSUE
June 17, 2025

Tested by
Jae Ryang Do



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



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Applicant

LG Electronics Inc.

128, Yeoui-daero, Yeongdeungpo-gu, Seoul, Republic of Korea

Product Name

Telematics

Model Name

TM18FNNABM0

Date of Test

February 08, 2025 ~ June 13, 2025

FCC ID

2B03LTM18FNNABM0

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 Classification:

PCS Licensed Transmitter (PCB)

Test Standard Used

FCC Rule Part: § 22

Test Results

PASS

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	June 17, 2025	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)

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MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	LG Electronics Inc.
Address:	128, Yeoui-daero, Yeongdeungpo-gu, Seoul, Republic of Korea
FCC ID:	2BO3LTM18FNNABM0
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§ 22
EUT Type:	Telematics
Model(s):	TM18FNNABM0
Voltage:	4.2V
SCS(kHz):	15
Bandwidth(MHz):	5, 10, 15, 20
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:	826.5 MHz – 846.5 MHz (Sub6 n5(5 MHz)) 829.0 MHz – 844.0 MHz (Sub6 n5(10 MHz)) 831.5 MHz – 841.5 MHz (Sub6 n5(15 MHz)) 834.0 MHz – 839.0 MHz (Sub6 n5(20 MHz))
Date(s) of Tests:	February 08, 2025 ~ June 13, 2025
EUT Serial number:	Radiated : BMW ICON-25SF Radiated #6 Conducted : BMW ICON-25SF Conducted #5
Antenna Information	Please refer to the Antenna Specification document.

1.1. SUPPORTED BANDS PER ANTENNA PORT

Antenna Port	Supported bands
MIMO 1	- WCDMA: B2, 5 - LTE: B2, 4, 5, 7, 12, 13, 17, 25, 66, 26, 38, 42, 48, 71 - NR: n2, 5, 7, 12, 25, 41, 48, 66, 71, 77, 78
MIMO 2	- LTE: B42, 48 - NR: n48, 77, 78
MIMO 3	Only RX
MIMO 4	Only RX
Int. BUA (Back Up Antenna)	- WCDMA: B2, 5 - LTE: B2, 4, 5, 7, 25, 26, 38, 66 - NR: n2, 5, 7, 25, 41, 66

Note:

1. Since the Int. BUA uses the same antenna port as MIMO1, only radiated testing was performed.

1.2 MAXIMUM OUTPUT POWER

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	Conducted Output Power	
				Max. Power (W)	Max. Power (dBm)
Sub6 n5 (5)	826.5 – 846.5	4M47G7D	PI/2 BPSK	0.282	24.51
		4M52G7D	QPSK	0.282	24.51
		4M49W7D	16QAM	0.237	23.74
		4M46W7D	64QAM	0.165	22.17
		4M50W7D	256QAM	0.108	20.34
Sub6 n5 (10)	829.0 – 844.0	8M98G7D	PI/2 BPSK	0.283	24.52
		9M05G7D	QPSK	0.282	24.51
		8M95W7D	16QAM	0.226	23.55
		9M00W7D	64QAM	0.154	21.88
		8M97W7D	256QAM	0.102	20.08
Sub6 n5 (15)	831.5 – 841.5	13M4G7D	PI/2 BPSK	0.289	24.61
		13M4G7D	QPSK	0.290	24.63
		13M4W7D	16QAM	0.227	23.56
		13M4W7D	64QAM	0.152	21.83
		13M4W7D	256QAM	0.151	21.79
Sub6 n5 (20)	834.0 – 839.0	17M9G7D	PI/2 BPSK	0.282	24.51
		17M9G7D	QPSK	0.299	24.75
		17M9W7D	16QAM	0.238	23.76
		17M9W7D	64QAM	0.165	22.18
		17M9W7D	256QAM	0.101	20.06

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

Please refer to the [3G] 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
Band Edge	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Spurious and Harmonic Emissions at Antenna Terminal	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Conducted Output Power	- N/A (See SAR Report)
Peak- to- Average Ratio	- KDB 971168 D01 v03r01 – Section 5.7 - ANSI C63.26-2015 – Section 5.2.3.4
Frequency stability	- ANSI C63.26-2015 – Section 5.6
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

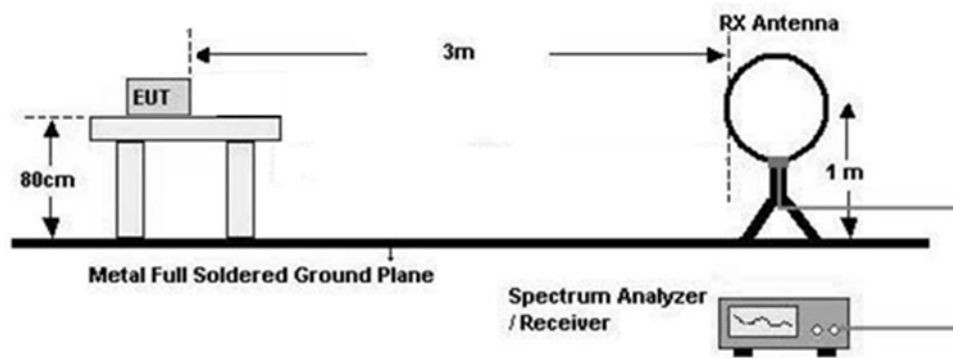
3.2 RADIATED POWER

Test Overview

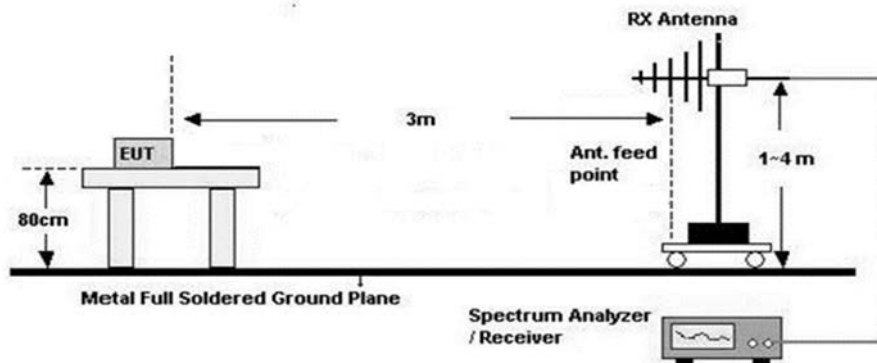
Radiated tests are performed in the semi-anechoic chamber. The equipment under test is placed on a non-conductive table on semi-anechoic chamber.

Test Configuration

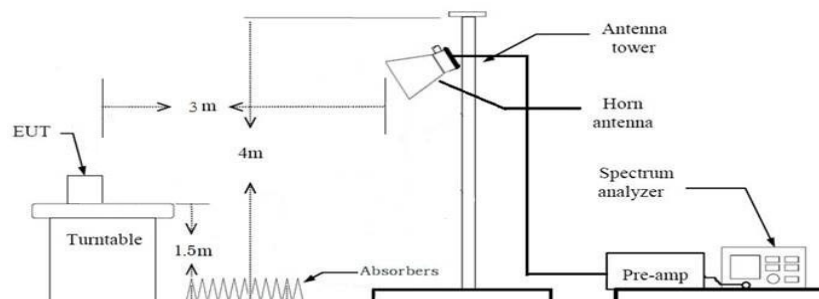
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



Test Settings

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

Test Note

1. The EUT is placed on a turntable, which is 0.8 m above ground plane. (Below 1 GHz)
2. The EUT is placed on a turntable, which is 1.5 m above ground plane. (Above 1 GHz)
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
4. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
5. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
6. 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.
7. $\text{Total(dB}\mu\text{V/m)} = \text{Measured Value(dB}\mu\text{V)} + \text{Cable Loss(dB)} + \text{Antenna Factor(dB/m)} + \text{Distance Factor(D.F)}$
8. EIRP (dBm)
 $= \text{Total (dB}\mu\text{V/m)} + 20 \log D - 104.8$ (where D is the measurement distance in meters. $D=3$)
 $= \text{Total (dB}\mu\text{V/m)} - 95.2(\text{dB})$
9. $\text{ERP(dBm)} = \text{EIRP(dBm)} - 2.15(\text{dB})$

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

Test Note

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

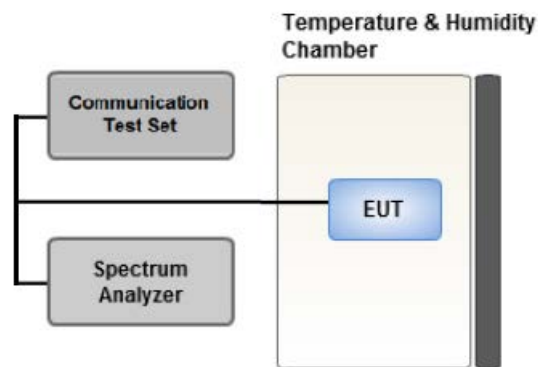
$$\text{Result}_{(\text{dBm})} = P_g_{(\text{dBm})} - \text{cable loss}_{(\text{dB})} + \text{antenna gain}_{(\text{dBi})}$$

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

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

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

3.4 PEAK- TO- AVERAGE RATIO



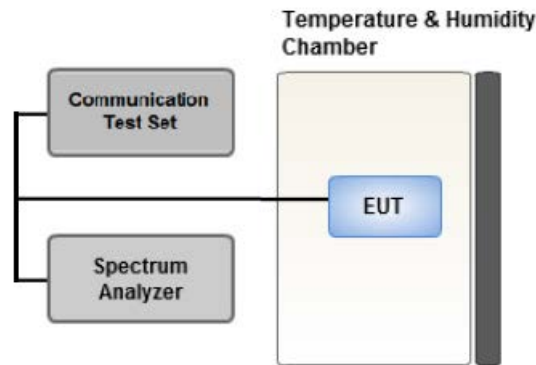
Test setup

CCDF Procedure for PAPR

Test Settings

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

3.5 OCCUPIED BANDWIDTH.



Test setup

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

The EUT makes a call to the communication simulator.

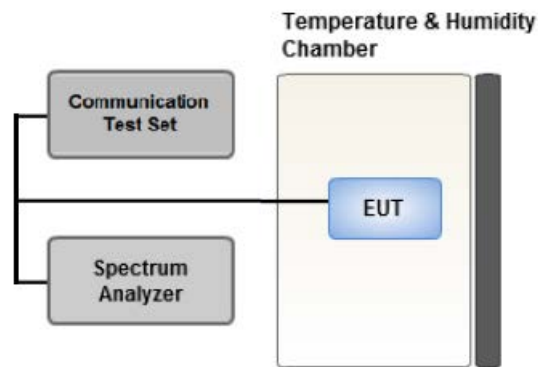
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth

Test Settings

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

3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL



Test setup

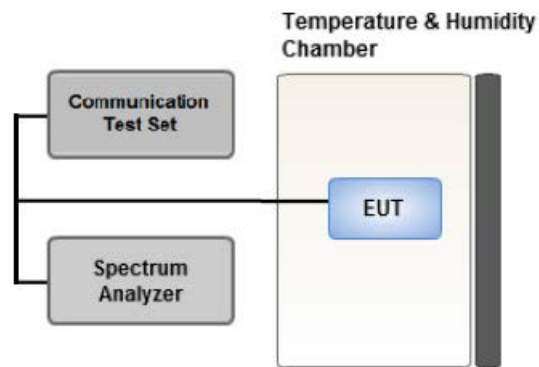
Test Overview

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

Test Settings

1. RBW = 1 MHz
2. VBW \geq 3 MHz
3. Detector = Peak
4. Trace Mode = Max Hold
5. Sweep time = auto
6. Number of points in sweep $\geq 2 \times \text{Span} / \text{RBW}$

3.7 BAND EDGE



Test setup

Test Overview

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

Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW > 1 % of the emission bandwidth
4. VBW > 3 x RBW
5. Detector = RMS
6. Number of sweep points $\geq 2 \times \text{Span/RBW}$
7. Trace mode = trace average
8. Sweep time > Number of points in sweep Symbol period
9. The trace was allowed to stabilize

Test Notes

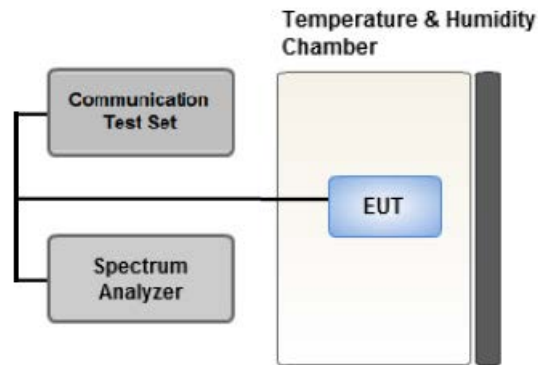
According to FCC 22.917, 24.238, 27.53 specified that power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

All measurements were done at 2 channels(low and high operational frequency range.)

The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

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

3.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE



Test setup

Test Overview

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

The frequency stability of the transmitter is measured by:

1. Temperature:

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

2. Primary Supply Voltage:

- .- Unless otherwise specified, vary primary supply voltage from 85 % to 115 % of the nominal value for other than hand carried battery equipment.
- .- For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20 °C to provide a reference).
2. The equipment is turned on in a “standby” condition for fifteen minutes before applying power to the transmitter.
Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10 °C intervals ranging from -30 °C to +50 °C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

3.9 WORST CASE(RADIATED TEST)

- Waveform : All Waveform of operation were investigated and the worst case configuration results are reported. (Worst case: DFT-S-OFDM)
- The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.
- All modes of operation were investigated and the worst case configuration results are reported.
Mode: NSA, SA (Worst case: SA)
- Radiated Spurious emissions are measured while operating in EN-DC mode with Sub 6 NR carrier as well as an LTE carrier (anchor).
All EN-DC mode of operation (=anchor) were investigated and the test results were measured No Peak Found.
The test results which are attenuated more than 20 dB below the permissible value, so it was not reported.
- All RB sizes, offsets of operation were investigated and the worst case configuration results are reported.
Please refer to the table below.
- In the case of radiated spurious emissions, all bandwidth of operation was investigated and the worst case bandwidth results are reported. (Worst case : 15 MHz(External(MIMO1)), 5 MHz (Internal(BUA)))
- MIMO3 and MIMO4 have three types of Rx antennas. Operating modes were investigated for all Rx antennas, and the worst-case configuration results were reported.
(Worst-case: HKL antenna(Maximum gain: 5dBi))

[External(MIMO1) Worst case]

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

[Internal(BUA) Worst case]

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

3.10 WORST CASE(CONDUCTED TEST)

- Waveform : All Waveform of operation were investigated and the worst case configuration results are reported.(Worst case: DFT-S-OFDM)
- Modulation : All Modulation of operation were investigated and the worst case configuration results are reported.(Worst case: PI/2 BPSK)
- All modes of operation were investigated and the worst case configuration results are reported.
Mode: NSA, SA(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.
- Both 85% and 115% conditions were measured for the Frequency Stability test, and results for the worst-case configuration (85%) were reported.
- In accordance with the customer's specification of 3.7V as the lowest operating voltage, testing was performed at 3.7V instead of 85% (3.57V).

[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	Mid	Full RB	0
Band 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
		5, 10, 15, 20	Low, High	Full RB	0
Spurious and Harmonic Emissions at Antenna Terminal	PI/2 BPSK	5, 10, 15, 20	Low, Mid, High	1	1

4. LIST OF TEST EQUIPMENT

[Radiated]

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
RF Switch System	FBSR-04C(3G HPF+LNA)	TNM System	S4L1	03/12/2026	Annual
RF Switch System	FBSR-04C(7G HPF+LNA)	TNM System	S4L5	03/12/2026	Annual
RF Switch System	FBSR-04C(LNA)	TNM System	S4L4	03/12/2026	Annual
RF Switch System	FBSR-04C(Thru)	TNM System	S4L6	03/12/2026	Annual
Antenna Position Tower	MA4640	Innco systems	S4AM	08/07/2025	Annual
Turn Table	DS2000-S	Innco systems	N/A	N/A	-
Controller (Antenna mast & Turn Table)	CO3000	Innco systems	CO3000/1251/489 20320/P	N/A	-
Amp & Filter Bank Switch Controller	FBSM-01B	TNM system	TM20090002	N/A	-
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
HIGHPASS FILTER	WHKX10-900-1000-15000-40SS	WAINWRIGHT INSTRUMENTS	16	07/24/2025	Annual
LOW NOISE AMPLIFIER	310N	SONOMA Instrument	186169	02/05/2026	Annual
LOW NOISE AMPLIFIER	TK-PA1840H	TESTEK	170011-L	10/11/2025	Annual
Power Amplifier	CBL18265035	CERNEX	22966	11/07/2025	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/19/2026	Annual
Power Splitter(DC ~ 26.5 GHz)	11667B	Hewlett Packard	5001	04/10/2026	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
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(1 ~ 18 GHz)	BBHA 9120	Schwarzbeck	937	02/07/2027	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	03/23/2027	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	09/20/2026	Biennial

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Spectrum Analyzer(10 Hz ~ 40 GHz)	FSV40	ROHDE & SCHWARZ	101733	09/19/2025	Annual
Spectrum Analyzer(10 Hz ~ 40 GHz)	FSV40	REOHDE & SCHWARZ	101436	02/04/2026	Annual
Signal & Spectrum Analyzer (2 Hz~67 GHz)	FSW67	REOHDE & SCHWARZ	101736	05/27/2026	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	VULB 9168	Schwarzbeck	9168-0895	08/28/2026	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	895	08/28/2026	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	1135	08/19/2026	Biennial
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262287701	05/14/2026	Annual
Wideband Radio Communication Tester	MT8000A	Anritsu Corp.	6272613402	08/28/2025	Annual
SIGNAL GENERATOR (100 kHz ~ 40 GHz)	SMB100A	REOHDE & SCHWARZ	177633	07/26/2025	Annual
Automation Software	FCC LTE Radiated	HCT CO., LTD	-	-	-
Automation Software	FCC NR Radiated	HCT CO., LTD	-	-	-

[Conducted]

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Power Splitter (DC ~ 26.5 GHz)	11667B	Hewlett Packard	5001	04/10/2026	Annual
DC Power Supply	E3632A	Agilent	MY40010147	08/06/2025	Annual
Chamber	SU-642	ESPEC	93008124	02/11/2026	Annual
ATTENUATOR (20 dB)	8493C	Hewlett Packard	17280	04/10/2026	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/05/2025	Annual
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262094331	11/13/2025	Annual
UXM 5G Wireless Test Platform	E7515B	KEYSIGHT	MY60101126	02/10/2026	Annual
Signal Analyzer (2 Hz ~ 50.0 GHz)	N9030B	KEYSIGHT	MY56320554	02/03/2026	Annual
FCC LTE Mobile Conducted RF Automation Test Software	-	HCT CO., LTD.	-	-	-
Automation Software	FCC 2G/3G/4G Conducted	HCT CO., LTD	-	-	-
Automation Software	FCC NR Conducted	HCT CO., LTD	-	-	-

Note:

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

5. MEASUREMENT UNCERTAINTY

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

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

Parameter	Expanded Uncertainty (\pm kHz)
Occupied Bandwidth	95 (Confidence level about 95 %, $k=2$)
Frequency stability	28 (Confidence level about 95 %, $k=2$)

Parameter	Expanded Uncertainty (\pm 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)	5.68 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.75 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.82 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (Above 40 GHz)	5.58 (Confidence level about 95 %, $k=2$)

6. SUMMARY OF TEST RESULTS

-. 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, § 22.917(a)	< 43 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions	PASS
Conducted Output Power	§ 2.1046	N/A	Note ¹
Frequency stability / variation of ambient temperature	§ 2.1055, § 22.355	< 2.5 ppm	PASS

Note:

1. Refer to the SAR report.
2. Conducted tests were tested using 5G Wireless Tester.

6.2 Test Condition: Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Effective Radiated Power	§ 22.913(a)(5)	< 7 Watts max. ERP	PASS
Radiated Spurious and Harmonic Emissions	§ 2.1053, § 22.917(a)	< 43 + 10log10 (P[Watts]) for all out-of band emissions	PASS

Note:

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

7. SAMPLE CALCULATION

7.1 ERP Sample Calculation

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

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

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

7.2 EIRP Sample Calculation

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

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

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

7.3. Emission Designator

GSM Emission Designator

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

EDGE Emission Designator

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

WCDMA Emission Designator

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

QPSK Modulation

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

QAM Modulation

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

8. TEST DATA (MIMO1)

8.1 EFFECTIVE RADIATED POWER

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured (dBμV/m)	Ant. Factor + Dis. Factor(dB)	Cable loss(dB)	Total (dBμV/m)	Pol.	Limit	ERP		RB	
								W	W	dBm	Size	Offset
826.5	Sub6 n5/ 5 MHz [15 kHz]	PI/2 BPSK	93.61	30.04	2.50	126.15	H	< 7.00	0.759	28.80	1	1
		QPSK	93.61	30.04	2.50	126.14	H		0.757	28.79		
		16-QAM	93.05	30.04	2.50	125.59	H		0.667	28.24		
		64-QAM	91.36	30.04	2.50	123.90	H		0.452	26.55		
		256-QAM	89.07	30.04	2.50	121.60	H		0.266	24.25		
836.5		PI/2 BPSK	94.78	30.14	2.50	127.42	H		1.017	30.07	1	1
		QPSK	94.76	30.14	2.50	127.40	H		1.011	30.05		
		16-QAM	94.07	30.14	2.50	126.71	H		0.863	29.36		
		64-QAM	92.21	30.14	2.50	124.85	H		0.562	27.50		
		256-QAM	90.05	30.14	2.50	122.69	H		0.342	25.34		
846.5		PI/2 BPSK	93.48	30.24	2.50	126.22	H		0.771	28.87	1	12
		QPSK	93.39	30.24	2.50	126.13	H		0.755	28.78		
		16-QAM	92.76	30.24	2.50	125.50	H		0.653	28.15		
		64-QAM	91.23	30.24	2.50	123.97	H		0.459	26.62		
		256-QAM	89.08	30.24	2.50	121.82	H		0.280	24.47		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured (dBμV/m)	Ant. Factor + Dis. Factor(dB)	Cable loss(dB)	Total (dBμV/m)	Pol.	Limit	ERP		RB	
								W	W	dBm	Size	Offset
829.0	Sub6 n5/ 10 MHz [15 kHz]	PI/2 BPSK	94.87	30.04	2.50	127.41	H	< 7.00	1.014	30.06	1	50
		QPSK	94.84	30.04	2.50	127.38	H		1.007	30.03		
		16-QAM	94.19	30.04	2.50	126.73	H		0.868	29.38		
		64-QAM	92.32	30.04	2.50	124.86	H		0.564	27.51		
		256-QAM	90.18	30.04	2.50	122.71	H		0.344	25.36		
836.5		PI/2 BPSK	94.72	30.14	2.50	127.36	H		1.002	30.01	1	26
		QPSK	94.71	30.14	2.50	127.35	H		1.000	30.00		
		16-QAM	93.75	30.14	2.50	126.39	H		0.801	29.04		
		64-QAM	92.20	30.14	2.50	124.84	H		0.561	27.49		
		256-QAM	90.21	30.14	2.50	122.85	H		0.355	25.50		
844.0		PI/2 BPSK	94.53	30.24	2.50	127.27	H		0.982	29.92	1	1
		QPSK	94.51	30.24	2.50	127.24	H		0.976	29.89		
		16-QAM	93.92	30.24	2.50	126.66	H		0.854	29.31		
		64-QAM	92.34	30.24	2.50	125.08	H		0.593	27.73		
		256-QAM	89.85	30.24	2.50	122.58	H		0.334	25.23		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured (dBμV/m)	Ant. Factor + Dis. Factor(dB)	Cable loss(dB)	Total (dBμV/m)	Pol.	Limit	ERP		RB	
								W	W	dBm	Size	Offset
831.5	Sub6 n5/ 15 MHz [15 kHz]	PI/2 BPSK	94.97	30.04	2.50	127.50	H	< 7.00	1.036	30.15	1	77
		QPSK	94.60	30.04	2.50	127.14	H		0.953	29.79		
		16-QAM	93.87	30.04	2.50	126.40	H		0.804	29.05		
		64-QAM	92.14	30.04	2.50	124.67	H		0.540	27.32		
		256-QAM	90.07	30.04	2.50	122.61	H		0.336	25.26		
836.5		PI/2 BPSK	94.68	30.14	2.50	127.32	H		0.992	29.97	1	39
		QPSK	94.58	30.14	2.50	127.22	H		0.970	29.87		
		16-QAM	94.03	30.14	2.50	126.67	H		0.855	29.32		
		64-QAM	92.19	30.14	2.50	124.83	H		0.560	27.48		
		256-QAM	90.08	30.14	2.50	122.72	H		0.344	25.37		
841.5		PI/2 BPSK	94.74	30.24	2.50	127.48	H		1.031	30.13	1	1
		QPSK	94.74	30.24	2.50	127.48	H		1.030	30.13		
		16-QAM	93.95	30.24	2.50	126.69	H		0.859	29.34		
		64-QAM	92.25	30.24	2.50	124.98	H		0.580	27.63		
		256-QAM	90.08	30.24	2.50	122.82	H		0.352	25.47		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured (dBμV/m)	Ant. Factor + Dis. Factor(dB)	Cable loss(dB)	Total (dBμV/m)	Pol.	Limit	ERP		RB	
								W	W	dBm	Size	Offset
834.0	Sub6 n5/ 20 MHz [15 kHz]	PI/2 BPSK	94.85	30.04	2.50	127.39	H	< 7.00	1.008	30.04	1	53
		QPSK	94.71	30.04	2.50	127.25	H		0.978	29.90		
		16-QAM	94.04	30.04	2.50	126.58	H		0.837	29.23		
		64-QAM	92.19	30.04	2.50	124.73	H		0.547	27.38		
		256-QAM	90.06	30.04	2.50	122.60	H		0.335	25.25		
836.5		PI/2 BPSK	94.75	30.14	2.50	127.39	H		1.009	30.04	1	53
		QPSK	94.69	30.14	2.50	127.33	H		0.996	29.98		
		16-QAM	93.88	30.14	2.50	126.52	H		0.826	29.17		
		64-QAM	92.15	30.14	2.50	124.79	H		0.555	27.44		
		256-QAM	90.13	30.14	2.50	122.77	H		0.348	25.42		
839.0		PI/2 BPSK	94.57	30.24	2.50	127.31	H		0.991	29.96	1	53
		QPSK	94.49	30.24	2.50	127.22	H		0.972	29.87		
		16-QAM	93.96	30.24	2.50	126.70	H		0.861	29.35		
		64-QAM	92.07	30.24	2.50	124.80	H		0.556	27.45		
		256-QAM	90.27	30.24	2.50	123.01	H		0.368	25.66		

8.2 RADIATED SPURIOUS EMISSIONS

NR Band:	<u>N5</u>
Bandwidth:	<u>15 MHz</u>
Modulation:	<u>PI/2 BPSK</u>
Distance:	<u>3 meters</u>
SCS:	<u>15 kHz</u>

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offset
166300 (831.5)	1 663.00	-46.37	9.54	-61.55	2.04	V	-54.05	-13.00	1	77
	2 494.50	-21.98	10.28	-33.22	2.50	V	-25.44	-13.00		
	3 326.00	-53.16	11.10	-61.67	2.99	V	-53.56	-13.00		
	4 157.50	-54.25	11.72	-60.15	3.38	V	-51.81	-13.00		
	4 989.00	-54.22	11.18	-55.55	3.70	V	-48.07	-13.00		
167300 (836.5)	1 673.00	-49.83	9.60	-65.10	2.05	V	-57.55	-13.00	1	39
	2 509.50	-39.95	10.26	-51.23	2.51	H	-43.48	-13.00		
	3 346.00	-54.14	11.10	-62.80	2.96	V	-54.66	-13.00		
	4 182.50	-54.75	11.72	-60.41	3.40	V	-52.09	-13.00		
	5 019.00	-56.18	11.15	-57.28	3.69	V	-49.82	-13.00		
168300 (841.5)	1 683.00	-51.57	9.66	-66.85	2.06	V	-59.25	-13.00	1	1
	2 524.50	-36.00	10.25	-47.28	2.54	H	-39.57	-13.00		
	3 366.00	-55.25	11.13	-64.15	2.96	V	-55.98	-13.00		
	4 207.50	-55.28	11.71	-60.89	3.45	V	-52.63	-13.00		
	5 049.00	-56.13	11.14	-57.47	3.73	V	-50.06	-13.00		

8.3 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
Sub6 n5	5 MHz	836.5	BPSK	25	0	4.45
			QPSK			5.59
			16-QAM			6.10
			64-QAM			6.25
			256-QAM			6.91
	10 MHz		BPSK	50		4.61
			QPSK			5.53
			16-QAM			6.23
			64-QAM			6.26
			256-QAM			6.52
	15 MHz		BPSK	75		4.16
			QPSK			5.57
			16-QAM			6.00
			64-QAM			6.10
			256-QAM			6.44
	20 MHz		BPSK	100		4.20
			QPSK			5.36
			16-QAM			6.25
			64-QAM			6.30
			256-QAM			6.42

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 46 ~ 65.

8.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Sub6 n5	5 MHz	836.5	BPSK	25	0	4.4743
			QPSK			4.5158
			16-QAM			4.4899
			64-QAM			4.4603
			256-QAM			4.5021
	10 MHz		BPSK	50		8.9842
			QPSK			9.0463
			16-QAM			8.9486
			64-QAM			8.9971
			256-QAM			8.9660
	15 MHz		BPSK	75		13.421
			QPSK			13.399
			16-QAM			13.416
			64-QAM			13.423
			256-QAM			13.399
	20 MHz		BPSK	100		17.918
			QPSK			17.870
			16-QAM			17.885
			64-QAM			17.928
			256-QAM			17.892

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 66 ~ 85.

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 n5	5	826.5	9.7109	30.410	-62.050	-31.640	-13.00
		836.5	3.8485	29.820	-61.888	-32.068	
		846.5	9.9701	30.410	-60.623	-30.213	
	10	829.0	3.7787	29.820	-61.831	-32.011	
		836.5	4.0379	29.820	-62.617	-32.797	
		844.0	3.7787	29.820	-62.149	-32.329	
	15	831.5	3.9881	29.820	-62.421	-32.601	
		836.5	4.9352	29.820	-61.928	-32.108	
		841.5	8.1157	30.410	-62.467	-32.057	
	20	834.0	9.1924	30.410	-62.385	-31.975	
		836.5	5.5235	30.410	-61.879	-31.469	
		839.0	8.7139	30.410	-62.688	-32.278	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 86 ~ 97.
2. Result (dBm) = Measurement Maximum Data (dBm) + Factor (dB)
3. Factor(dB) = Cable Loss + Ext. Attenuator + Power Splitter

Frequency Range (GHz)	Factor [dB]
0.03 – 1	27.750
1 – 5	29.820
5 – 10	30.410
10 – 15	31.030
15 – 20	32.340
Above 20(26.5)	33.020

8.6 BAND EDGE

- Plots of the EUT's Band Edge are shown Page 98 ~ 121.

8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

BandWidth:	<u>5 MHz</u>
Voltage(100 %):	<u>4.200 VDC</u>
Lowest voltage:	<u>3.700 VDC</u>
Deviation Limit:	<u>± 0.000 25 % or 2.5 ppm</u>

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
836.5	100 %	+20(Ref)	836 499 991	0.0	0.000 000	0.000
	100 %	-30	836 499 982	-9.1	-0.000 001	-0.011
	100 %	-20	836 499 984	-7.0	-0.000 001	-0.008
	100 %	-10	836 499 986	-5.1	-0.000 001	-0.006
	100 %	0	836 499 990	-1.5	0.000 000	-0.002
	100 %	+10	836 499 987	-4.8	-0.000 001	-0.006
	100 %	+30	836 499 986	-5.5	-0.000 001	-0.007
	100 %	+40	836 499 988	-3.4	0.000 000	-0.004
	100 %	+50	836 499 990	-1.5	0.000 000	-0.002
	Lowest voltage	+20	836 499 988	-3.2	0.000 000	-0.004

BandWidth:	<u>10 MHz</u>
Voltage(100 %):	<u>4.200 VDC</u>
Lowest voltage:	<u>3.700 VDC</u>
Deviation Limit:	<u>± 0.000 25 % or 2.5 ppm</u>

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
836.5	100 %	+20(Ref)	836 499 995	0.0	0.000 000	0.000
	100 %	-30	836 499 989	-6.2	-0.000 001	-0.007
	100 %	-20	836 499 990	-5.1	-0.000 001	-0.006
	100 %	-10	836 499 989	-6.0	-0.000 001	-0.007
	100 %	0	836 499 990	-5.1	-0.000 001	-0.006
	100 %	+10	836 499 988	-6.5	-0.000 001	-0.008
	100 %	+30	836 499 988	-6.8	-0.000 001	-0.008
	100 %	+40	836 499 989	-5.4	-0.000 001	-0.006
	100 %	+50	836 499 990	-5.2	-0.000 001	-0.006
	Lowest voltage	+20	836 499 993	-2.2	0.000 000	-0.003

- ▣ BandWidth: 15 MHz
- ▣ Voltage(100 %): 4.200 VDC
- ▣ Lowest voltage: 3.700 VDC
- ▣ Deviation Limit: ± 0.000 25 % or 2.5 ppm

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
836.5	100 %	+20(Ref)	836 499 993	0.0	0.000 000	0.000
	100 %	-30	836 499 987	-6.8	-0.000 001	-0.008
	100 %	-20	836 499 990	-3.7	0.000 000	-0.004
	100 %	-10	836 499 987	-6.4	-0.000 001	-0.008
	100 %	0	836 499 989	-4.3	-0.000 001	-0.005
	100 %	+10	836 499 988	-5.3	-0.000 001	-0.006
	100 %	+30	836 499 987	-5.9	-0.000 001	-0.007
	100 %	+40	836 499 987	-6.5	-0.000 001	-0.008
	100 %	+50	836 499 988	-4.8	-0.000 001	-0.006
	Lowest voltage	+20	836 499 988	-5.1	-0.000 001	-0.006

▣ BandWidth:	<u>20 MHz</u>
▣ Voltage(100 %):	<u>4.200 VDC</u>
▣ Lowest voltage:	<u>3.700 VDC</u>
▣ Deviation Limit:	<u>± 0.000 25 % or 2.5 ppm</u>

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
836.5	100 %	+20(Ref)	836 499 995	0.0	0.000 000	0.000
	100 %	-30	836 499 990	-5.2	-0.000 001	-0.006
	100 %	-20	836 499 989	-5.7	-0.000 001	-0.007
	100 %	-10	836 499 991	-4.6	-0.000 001	-0.006
	100 %	0	836 499 990	-5.3	-0.000 001	-0.006
	100 %	+10	836 499 990	-4.9	-0.000 001	-0.006
	100 %	+30	836 499 990	-5.5	-0.000 001	-0.007
	100 %	+40	836 499 989	-6.3	-0.000 001	-0.007
	100 %	+50	836 499 990	-5.6	-0.000 001	-0.007
	Lowest voltage	+20	836 499 990	-5.2	-0.000 001	-0.006

9. TEST DATA (Internal(BUA))

9.1 EFFECTIVE RADIATED POWER

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured (dBμV/m)	Ant. Factor + Dis. Factor(dB)	Cable loss(dB)	Total (dBμV/m)	Pol.	Limit	ERP		RB	
								W	W	dBm	Size	Offset
826.5	Sub6 n5/ 5 MHz [15 kHz]	PI/2 BPSK	84.06	30.04	2.50	116.59	H	< 7.00	0.084	19.24	1	23
		QPSK	83.88	30.04	2.50	116.42	H		0.081	19.07		
		16-QAM	83.48	30.04	2.50	116.01	H		0.074	18.66		
		64-QAM	81.98	30.04	2.50	114.52	H		0.052	17.17		
		256-QAM	79.67	30.04	2.50	112.21	H		0.031	14.86		
836.5		PI/2 BPSK	84.96	30.14	2.50	117.60	H		0.106	20.25	1	23
		QPSK	84.76	30.14	2.50	117.39	H		0.101	20.04		
		16-QAM	84.16	30.14	2.50	116.79	H		0.088	19.44		
		64-QAM	80.37	30.14	2.50	113.01	H		0.037	15.66		
		256-QAM	78.28	30.14	2.50	110.92	H		0.023	13.57		
846.5		PI/2 BPSK	85.06	30.24	2.50	117.79	H		0.111	20.44	1	1
		QPSK	84.80	30.24	2.50	117.54	H		0.104	20.19		
		16-QAM	84.07	30.24	2.50	116.81	H		0.088	19.46		
		64-QAM	82.38	30.24	2.50	115.12	H		0.060	17.77		
		256-QAM	80.17	30.24	2.50	112.91	H		0.036	15.56		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured (dBμV/m)	Ant. Factor + Dis. Factor(dB)	Cable loss(dB)	Total (dBμV/m)	Pol.	Limit	ERP		RB	
								W	W	dBm	Size	Offset
829.0	Sub6 n5/ 10 MHz [15 kHz]	PI/2 BPSK	84.06	30.04	2.50	116.60	H	< 7.00	0.084	19.25	1	26
		QPSK	83.85	30.04	2.50	116.39	H		0.080	19.04		
		16-QAM	83.14	30.04	2.50	115.68	H		0.068	18.33		
		64-QAM	82.36	30.04	2.50	114.90	H		0.057	17.55		
		256-QAM	79.70	30.04	2.50	112.24	H		0.031	14.89		
836.5		PI/2 BPSK	84.81	30.14	2.50	117.44	H		0.102	20.09	1	50
		QPSK	84.79	30.14	2.50	117.43	H		0.102	20.08		
		16-QAM	83.71	30.14	2.50	116.35	H		0.079	19.00		
		64-QAM	82.52	30.14	2.50	115.15	H		0.060	17.80		
		256-QAM	80.26	30.14	2.50	112.90	H		0.036	15.55		
844.0		PI/2 BPSK	84.85	30.24	2.50	117.59	H		0.106	20.24	1	1
		QPSK	84.83	30.24	2.50	117.57	H		0.105	20.22		
		16-QAM	83.82	30.24	2.50	116.55	H		0.083	19.20		
		64-QAM	82.61	30.24	2.50	115.35	H		0.063	18.00		
		256-QAM	80.39	30.24	2.50	113.12	H		0.038	15.77		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured (dBμV/m)	Ant. Factor + Dis. Factor(dB)	Cable loss(dB)	Total (dBμV/m)	Pol.	Limit	ERP		RB	
								W	W	dBm	Size	Offset
831.5	Sub6 n5/ 15 MHz [15 kHz]	PI/2 BPSK	84.86	30.04	2.50	117.40	H	< 7.00	0.101	20.05	1	77
		QPSK	84.83	30.04	2.50	117.37	H		0.101	20.02		
		16-QAM	83.76	30.04	2.50	116.30	H		0.079	18.95		
		64-QAM	82.59	30.04	2.50	115.13	H		0.060	17.78		
		256-QAM	80.29	30.04	2.50	112.83	H		0.035	15.48		
836.5		PI/2 BPSK	84.74	30.14	2.50	117.38	H		0.101	20.03	1	77
		QPSK	84.50	30.14	2.50	117.13	H		0.095	19.78		
		16-QAM	83.55	30.14	2.50	116.19	H		0.077	18.84		
		64-QAM	82.62	30.14	2.50	115.26	H		0.062	17.91		
		256-QAM	80.23	30.14	2.50	112.87	H		0.036	15.52		
841.5		PI/2 BPSK	84.70	30.24	2.50	117.44	H		0.102	20.09	1	39
		QPSK	84.68	30.24	2.50	117.42	H		0.102	20.07		
		16-QAM	83.70	30.24	2.50	116.43	H		0.081	19.08		
		64-QAM	82.60	30.24	2.50	115.34	H		0.063	17.99		
		256-QAM	80.27	30.24	2.50	113.01	H		0.037	15.66		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured (dBμV/m)	Ant. Factor + Dis. Factor(dB)	Cable loss(dB)	Total (dBμV/m)	Pol.	Limit	ERP		RB	
								W	W	dBm	Size	Offset
834.0	Sub6 n5/ 20 MHz [15 kHz]	PI/2 BPSK	84.77	30.04	2.50	117.31	H	< 7.00	0.099	19.96	1	104
		QPSK	84.56	30.04	2.50	117.09	H		0.094	19.74		
		16-QAM	83.53	30.04	2.50	116.07	H		0.075	18.72		
		64-QAM	82.69	30.04	2.50	115.23	H		0.061	17.88		
		256-QAM	80.27	30.04	2.50	112.81	H		0.035	15.46		
836.5		PI/2 BPSK	84.53	30.14	2.50	117.17	H		0.096	19.82	1	53
		QPSK	84.46	30.14	2.50	117.10	H		0.094	19.75		
		16-QAM	83.77	30.14	2.50	116.41	H		0.081	19.06		
		64-QAM	82.60	30.14	2.50	115.24	H		0.062	17.89		
		256-QAM	80.22	30.14	2.50	112.85	H		0.036	15.50		
839.0		PI/2 BPSK	84.89	30.24	2.50	117.63	H		0.107	20.28	1	53
		QPSK	84.76	30.24	2.50	117.49	H		0.103	20.14		
		16-QAM	83.76	30.24	2.50	116.50	H		0.082	19.15		
		64-QAM	82.44	30.24	2.50	115.18	H		0.061	17.83		
		256-QAM	80.21	30.24	2.50	112.95	H		0.036	15.60		

9.2 RADIATED SPURIOUS EMISSIONS

NR Band:	<u>N5</u>
Bandwidth:	<u>5 MHz</u>
Modulation:	<u>PI/2 BPSK</u>
Distance:	<u>3 meters</u>
SCS:	<u>15 kHz</u>

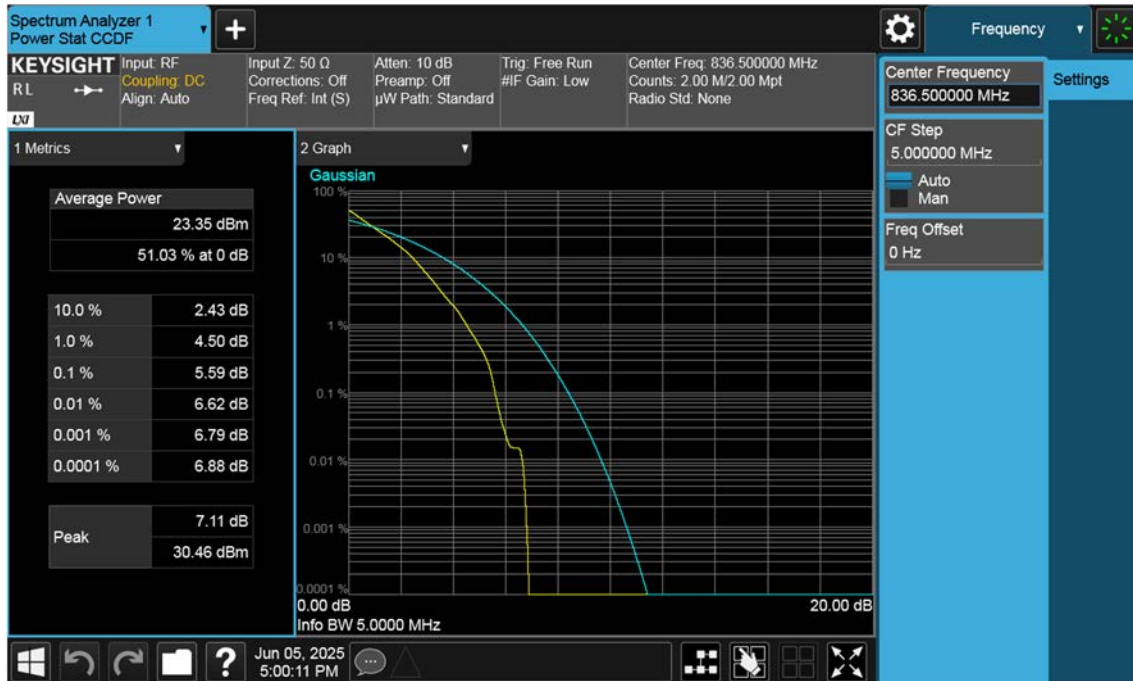
Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit (dBm)	RB	
									Size	Offset
165300 (826.5)	1 653.00	-52.13	9.47	-67.16	2.02	V	-59.71	-13.00	1	23
	2 479.50	-52.58	10.32	-63.72	2.55	H	-55.95	-13.00		
	3 306.00	-54.57	11.09	-62.83	2.97	V	-54.71	-13.00		
	4 132.50	-54.49	11.69	-60.73	3.34	V	-52.38	-13.00		
	4 959.00	-55.51	11.25	-57.11	3.69	H	-49.55	-13.00		
167300 (836.5)	1 673.00	-51.82	9.60	-67.09	2.05	V	-59.54	-13.00	1	23
	2 509.50	-52.48	10.26	-63.76	2.51	H	-56.01	-13.00		
	3 346.00	-54.08	11.10	-62.74	2.96	H	-54.60	-13.00		
	4 182.50	-54.60	11.72	-60.26	3.40	V	-51.94	-13.00		
	5 019.00	-56.36	11.15	-57.46	3.69	H	-50.00	-13.00		
169300 (846.5)	1 693.00	-50.98	9.73	-66.20	2.07	V	-58.54	-13.00	1	1
	2 539.50	-52.65	10.25	-63.75	2.53	H	-56.03	-13.00		
	3 386.00	-55.05	11.18	-64.00	2.99	V	-55.81	-13.00		
	4 232.50	-55.14	11.69	-60.93	3.36	H	-52.60	-13.00		
	5 079.00	-55.66	11.15	-57.04	3.81	V	-49.70	-13.00		

10. TEST PLOTS

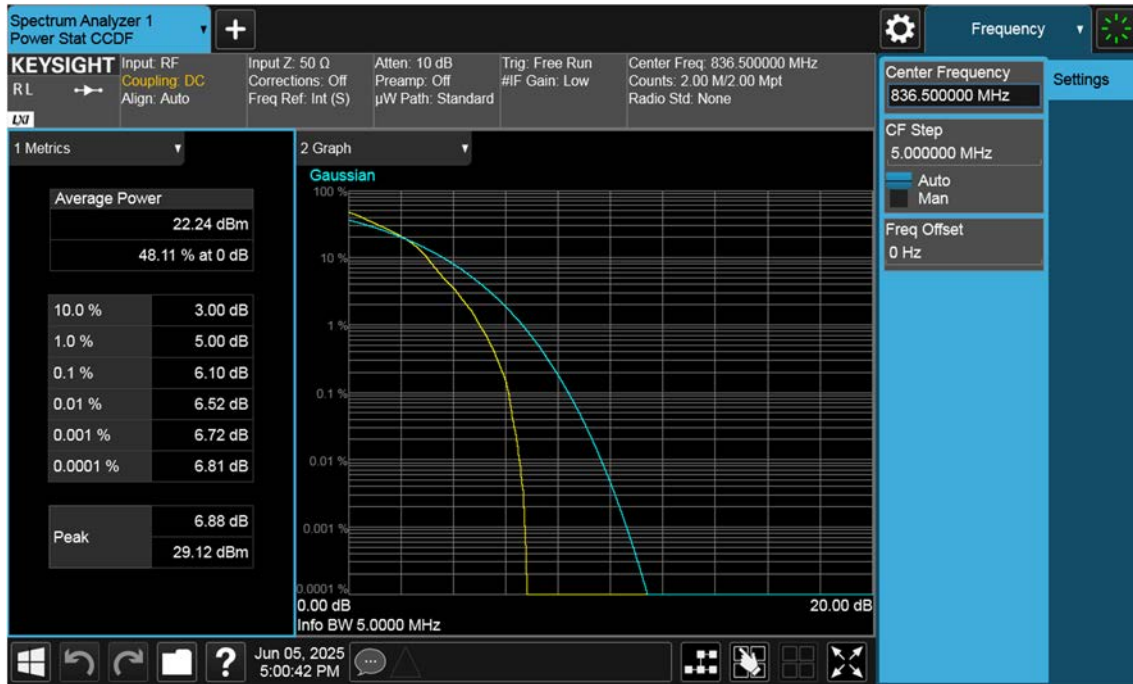
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NR5_5 M_PAR_Mid_QPSK_FullRB



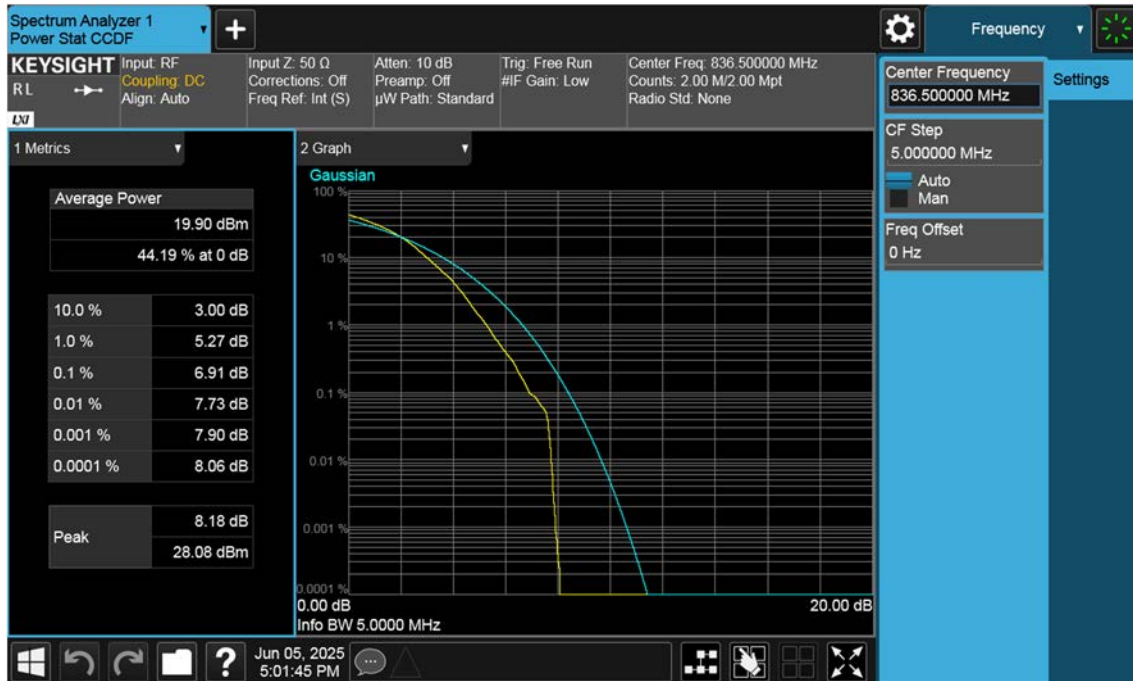
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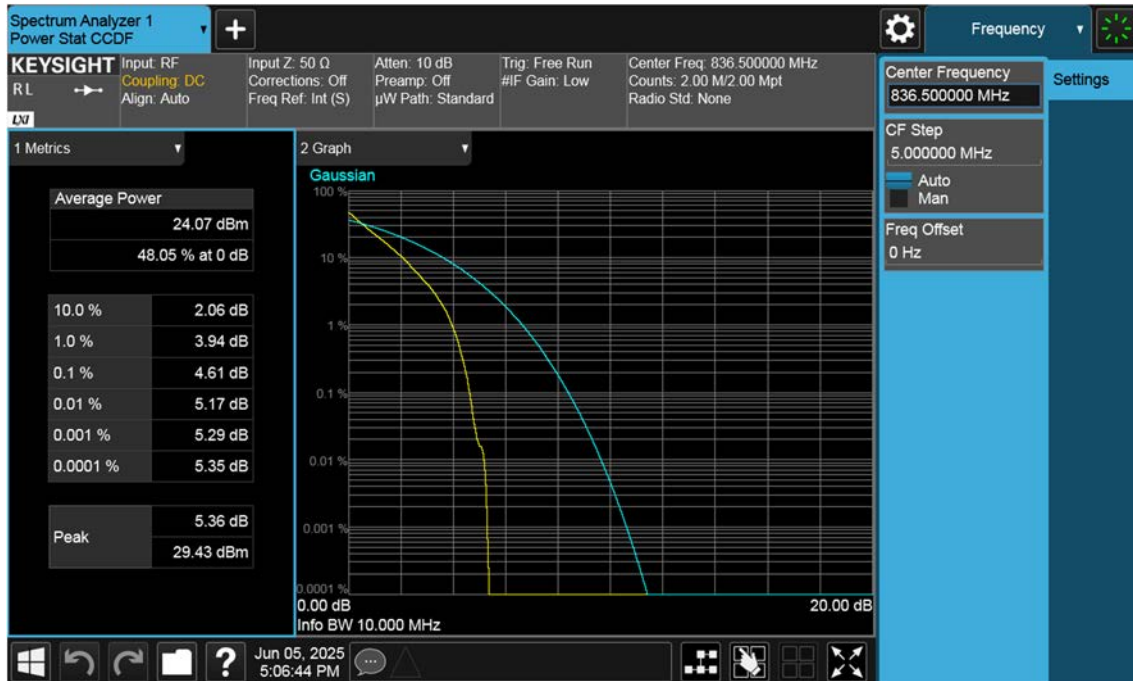
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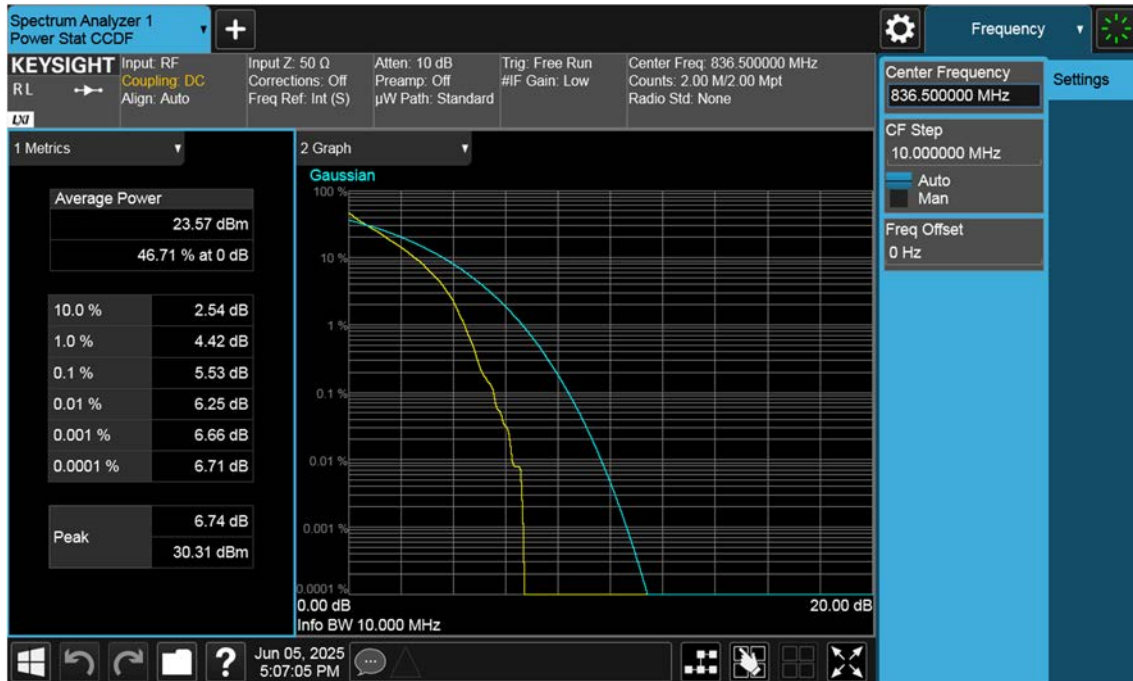
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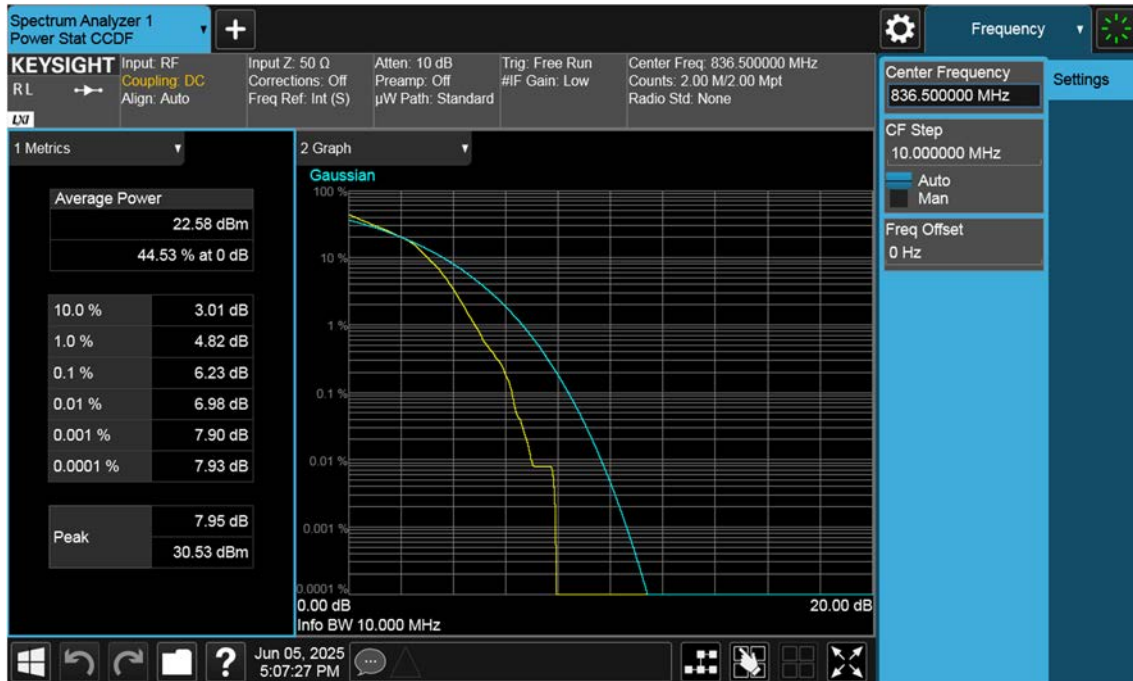
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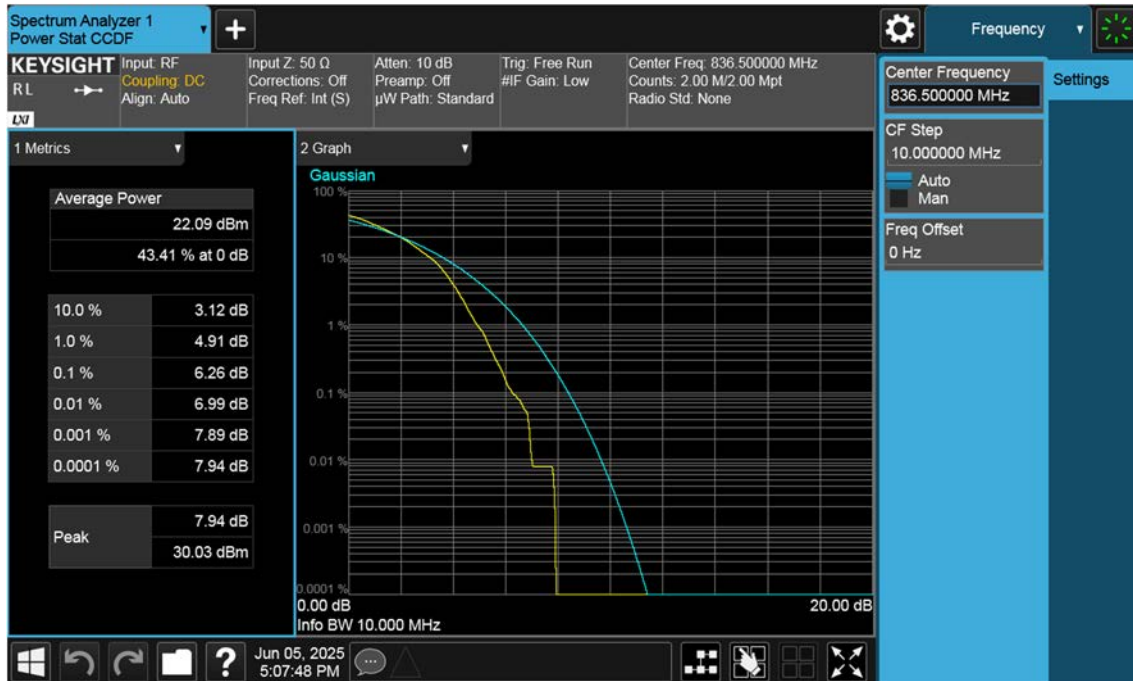
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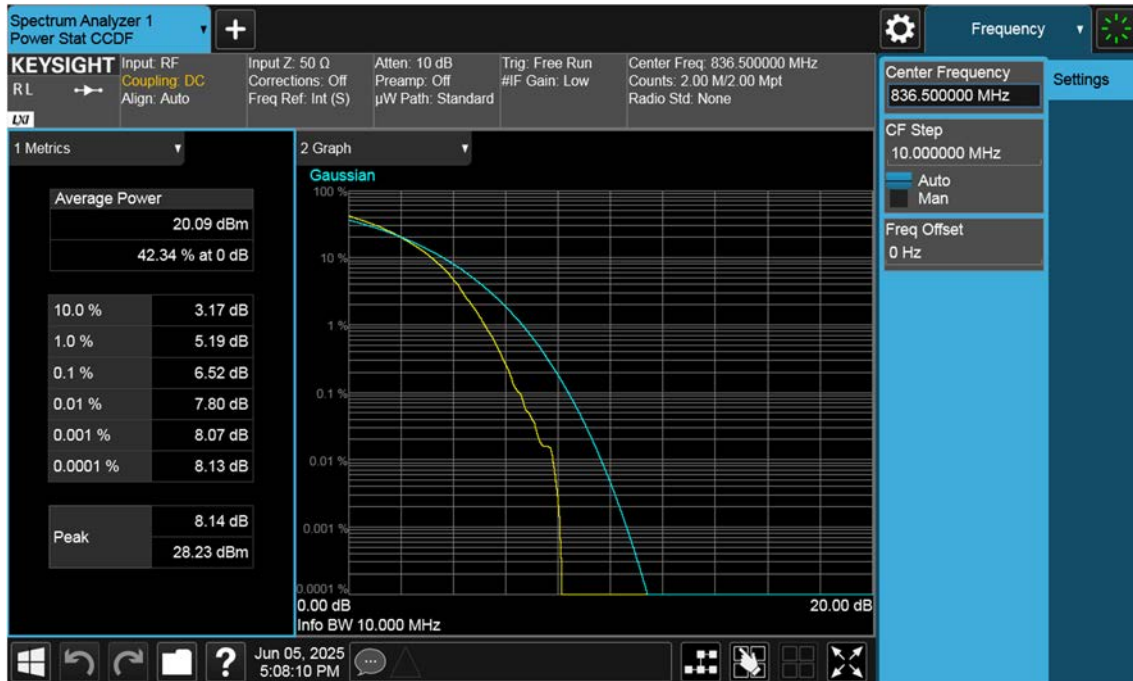
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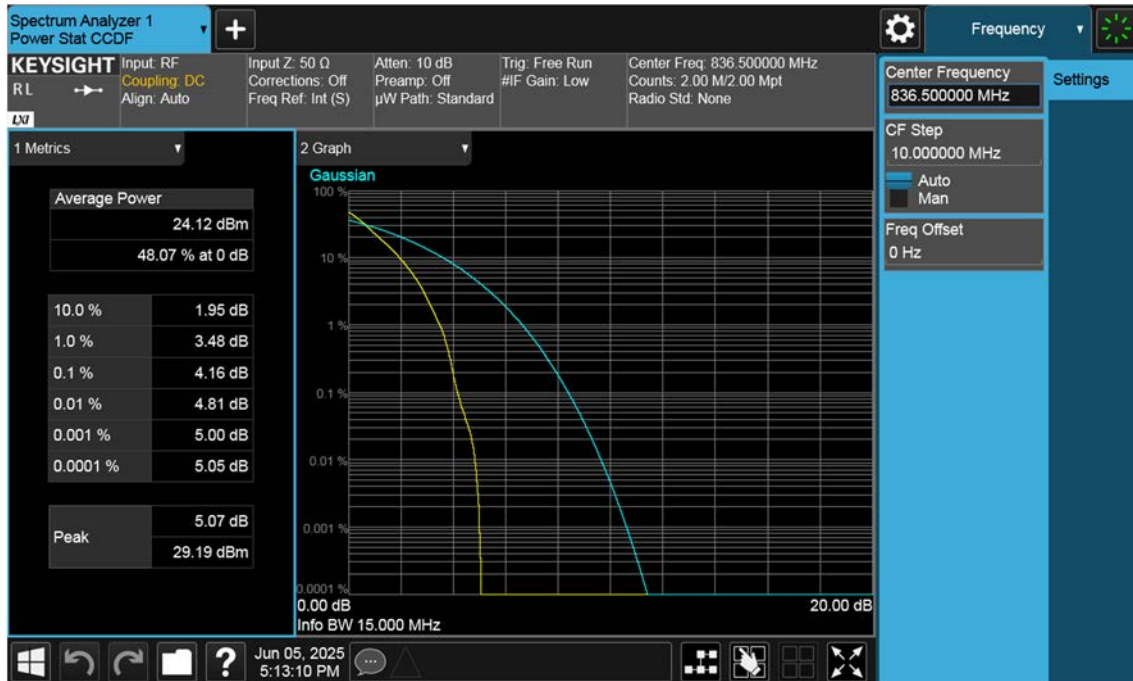
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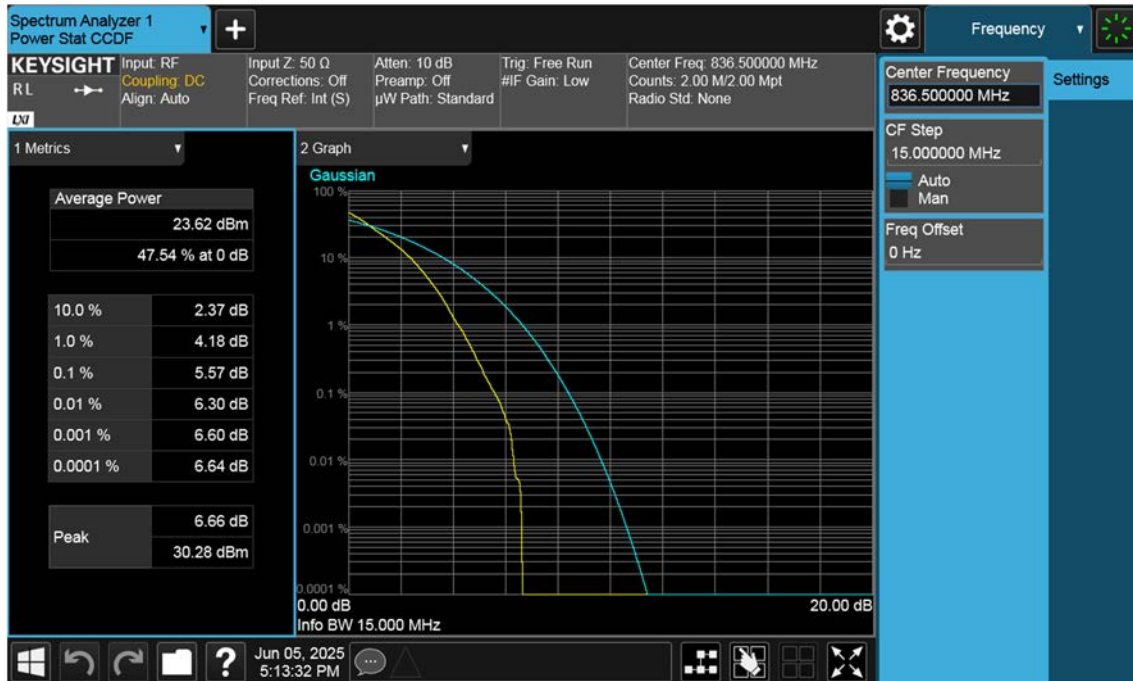
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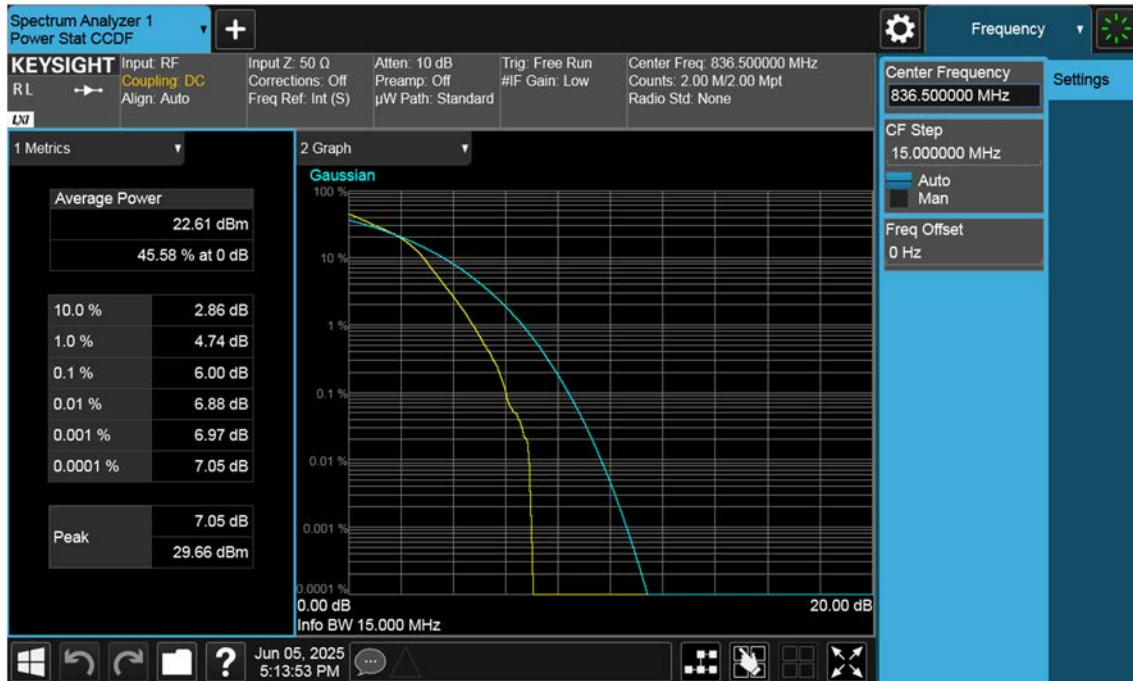
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NR5_15 M_PAR_Mid_QPSK_FullIRB



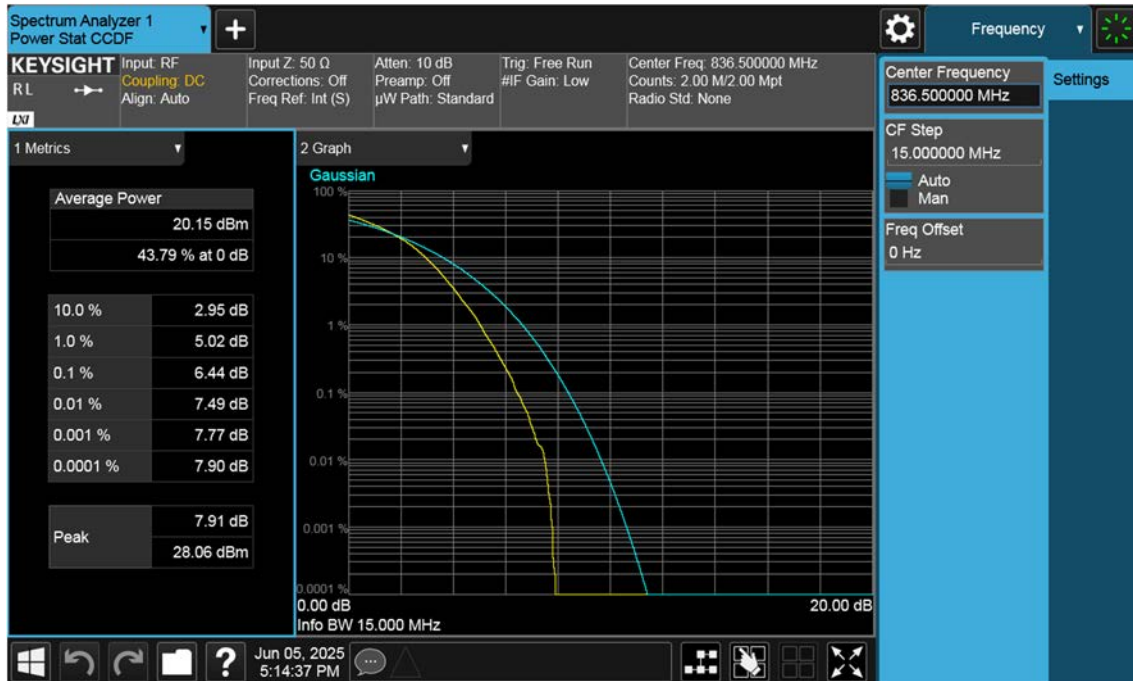
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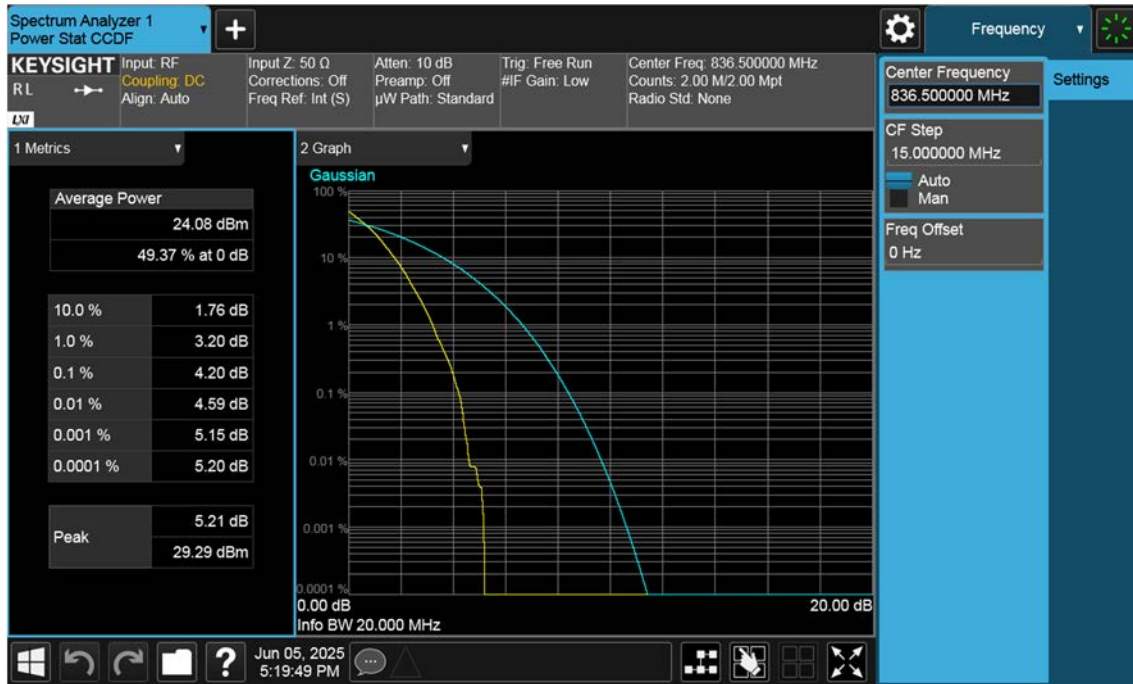
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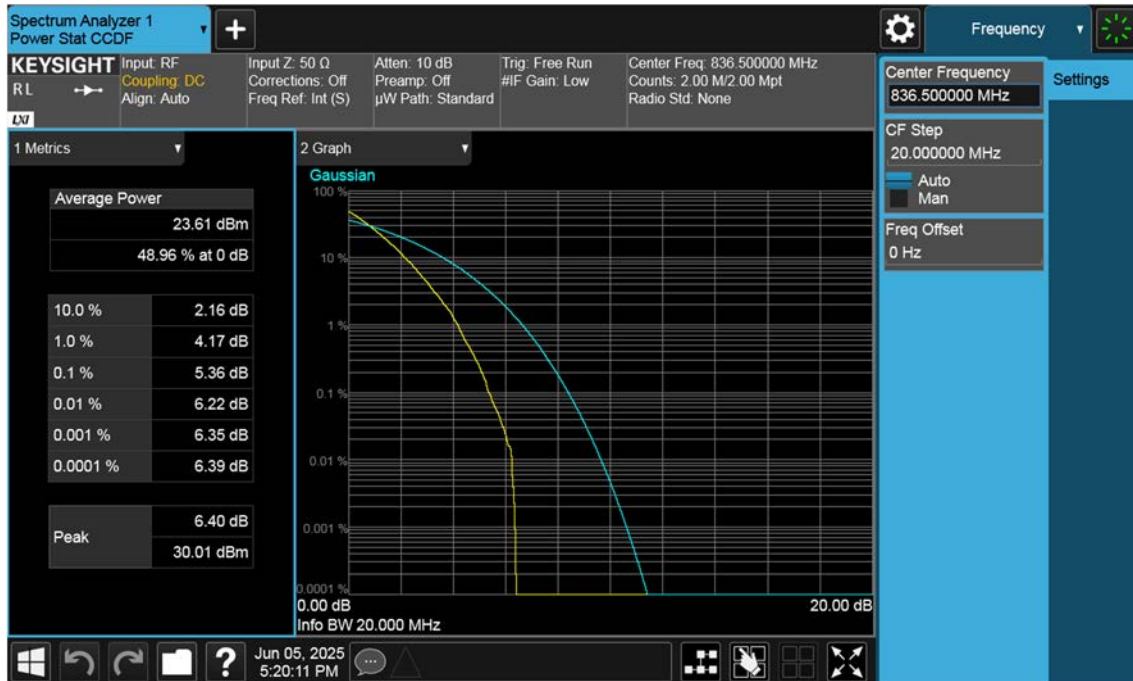
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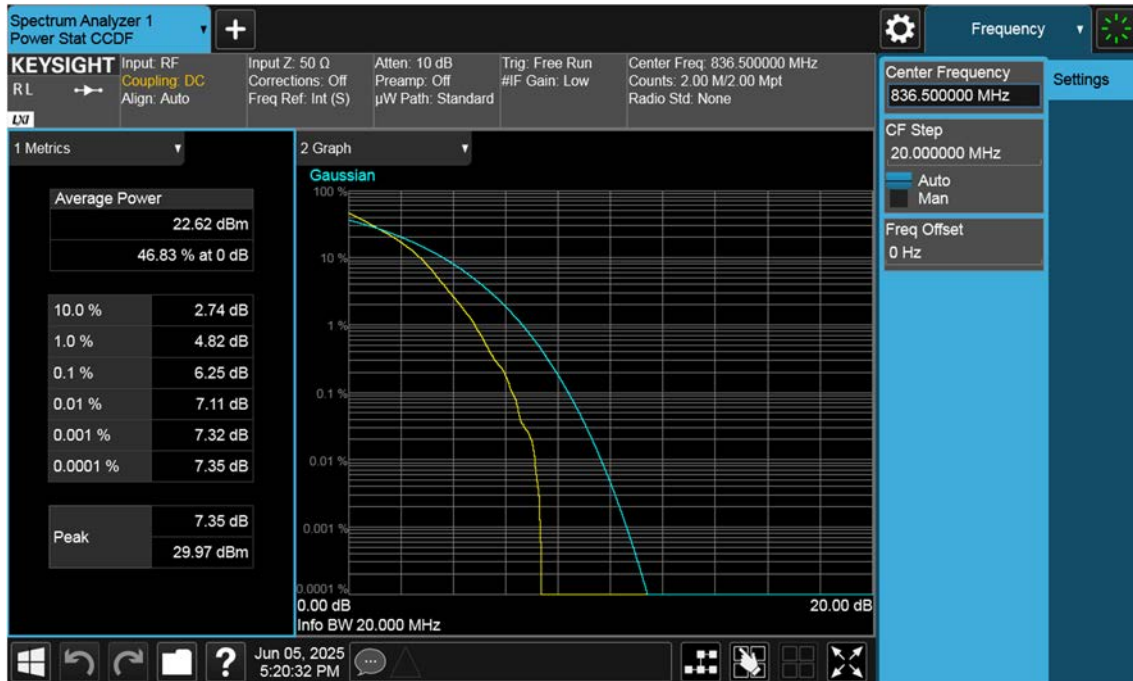
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NR5_20 M_PAR_Mid_QPSK_FullIRB



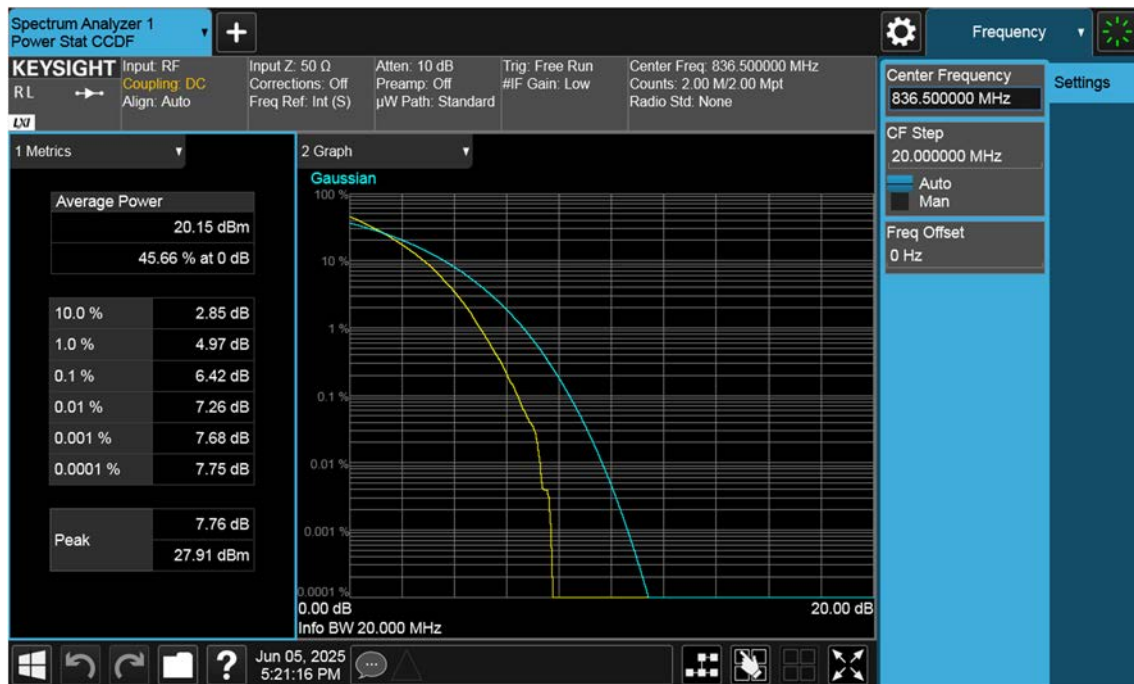
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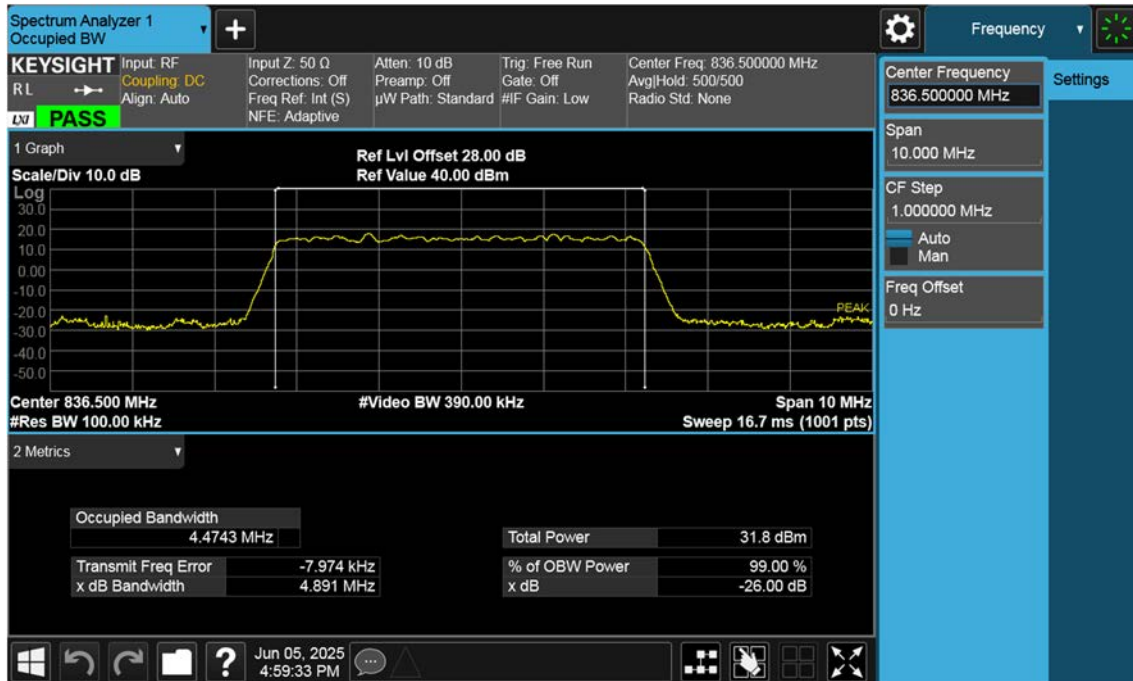
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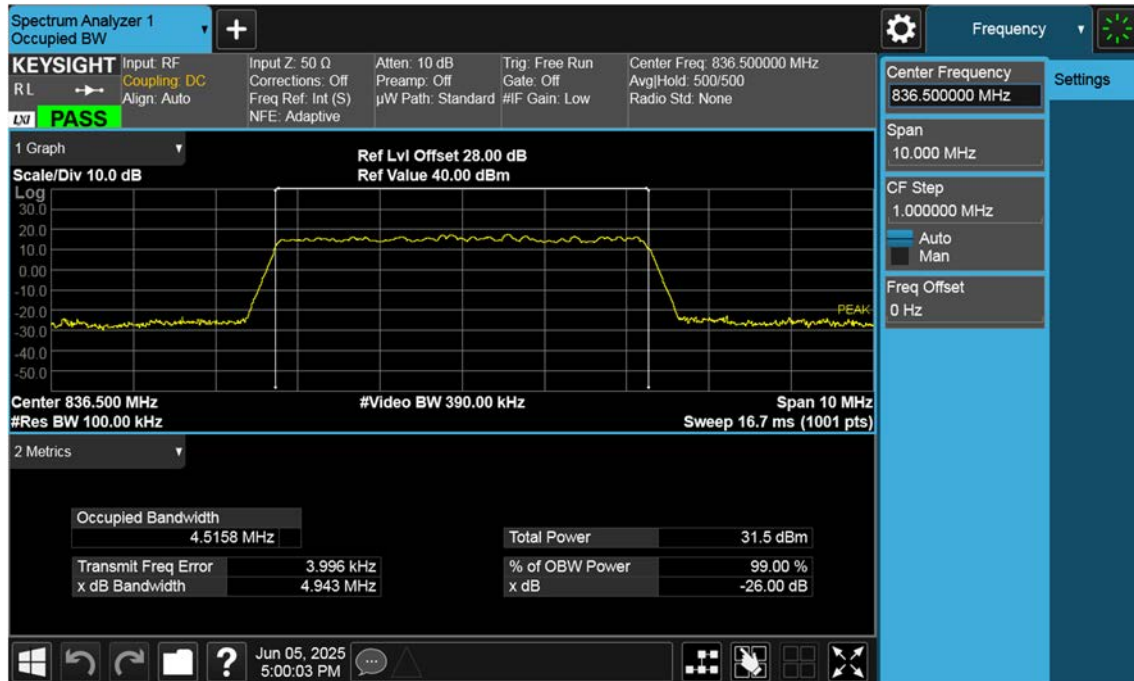
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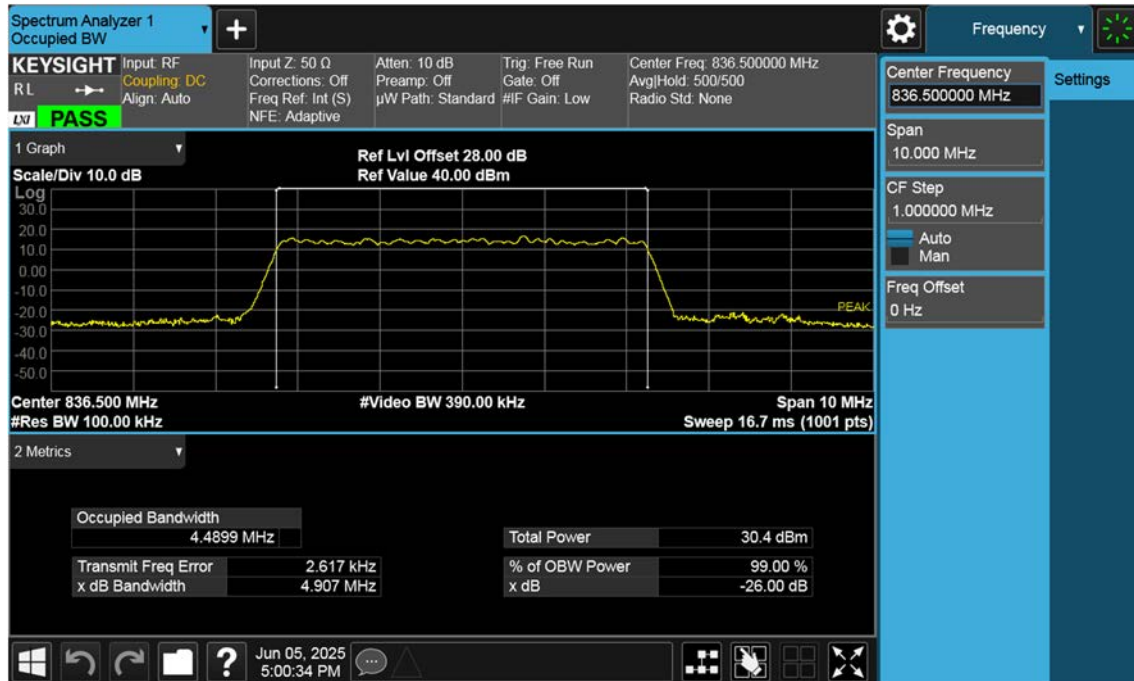
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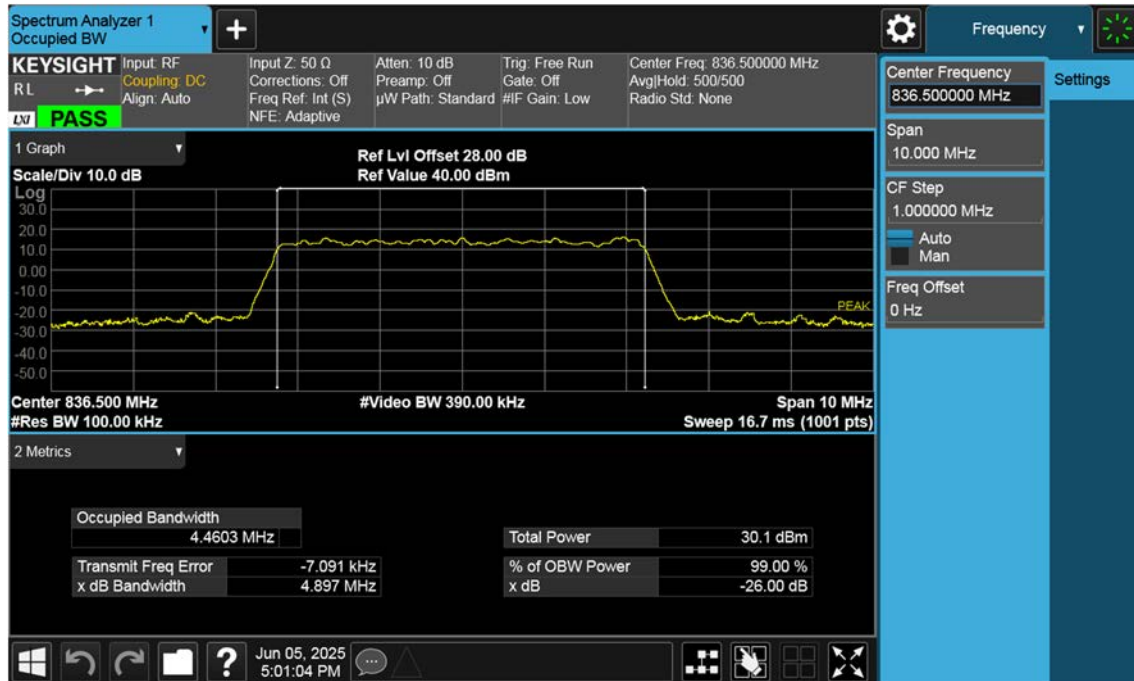
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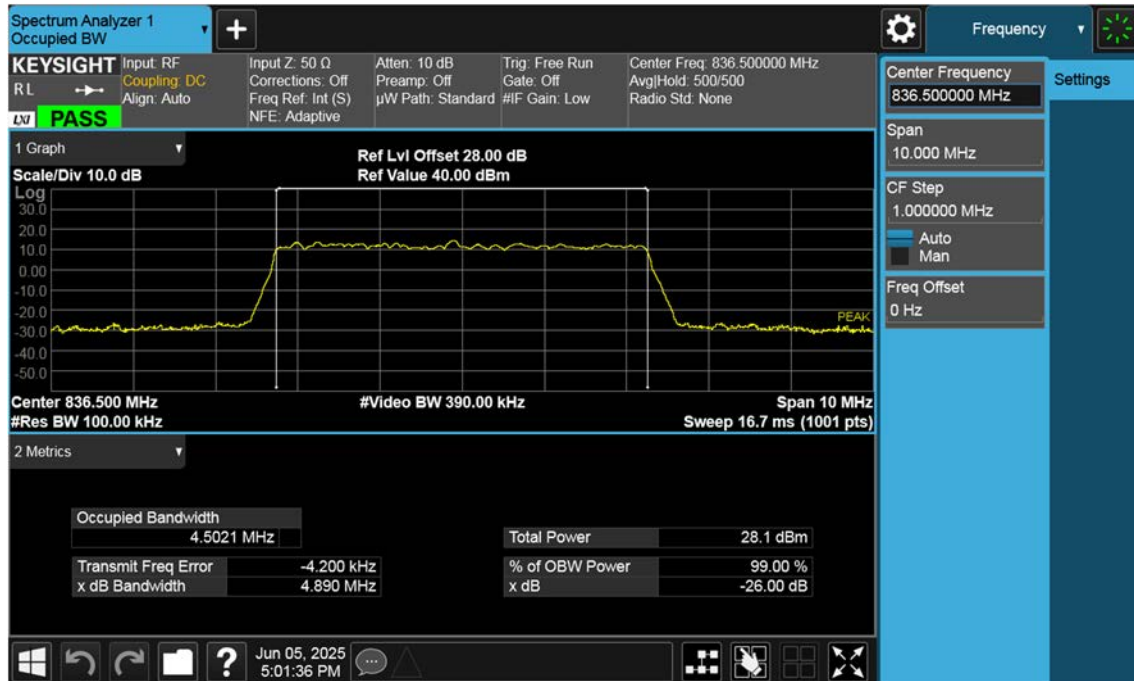
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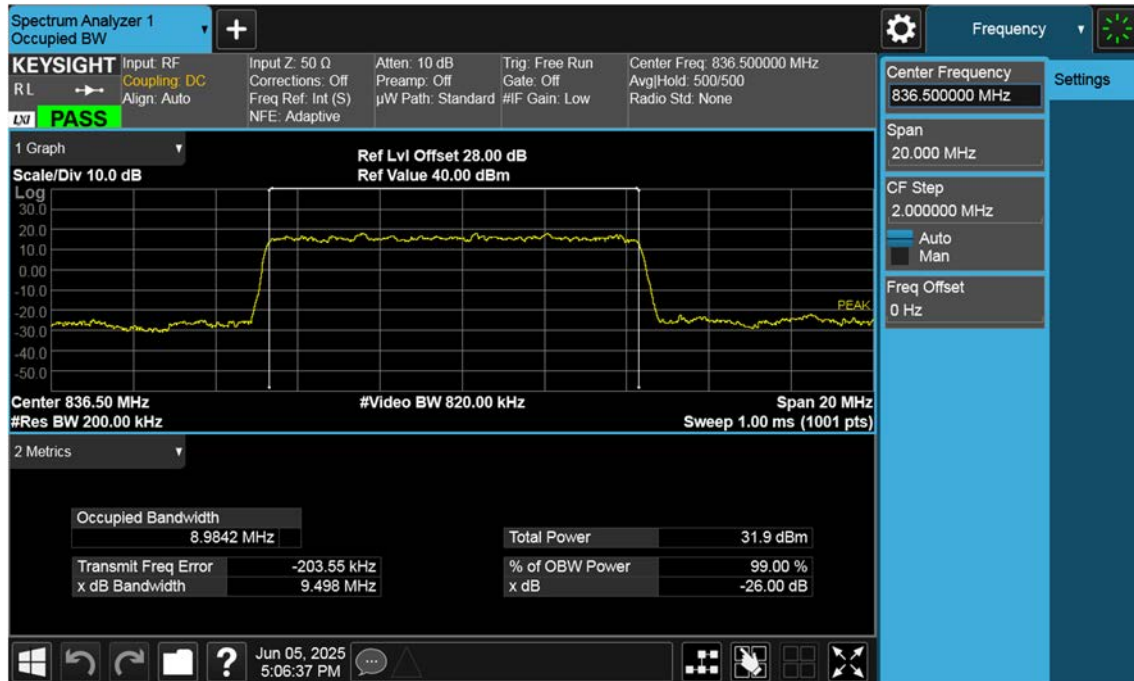
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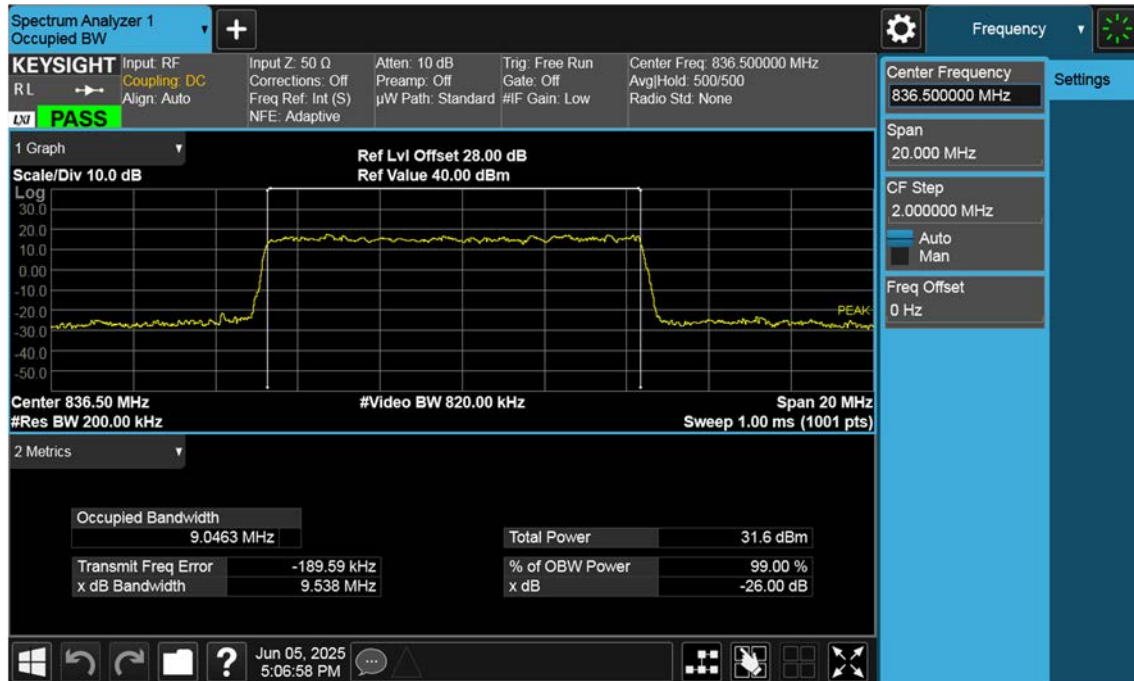
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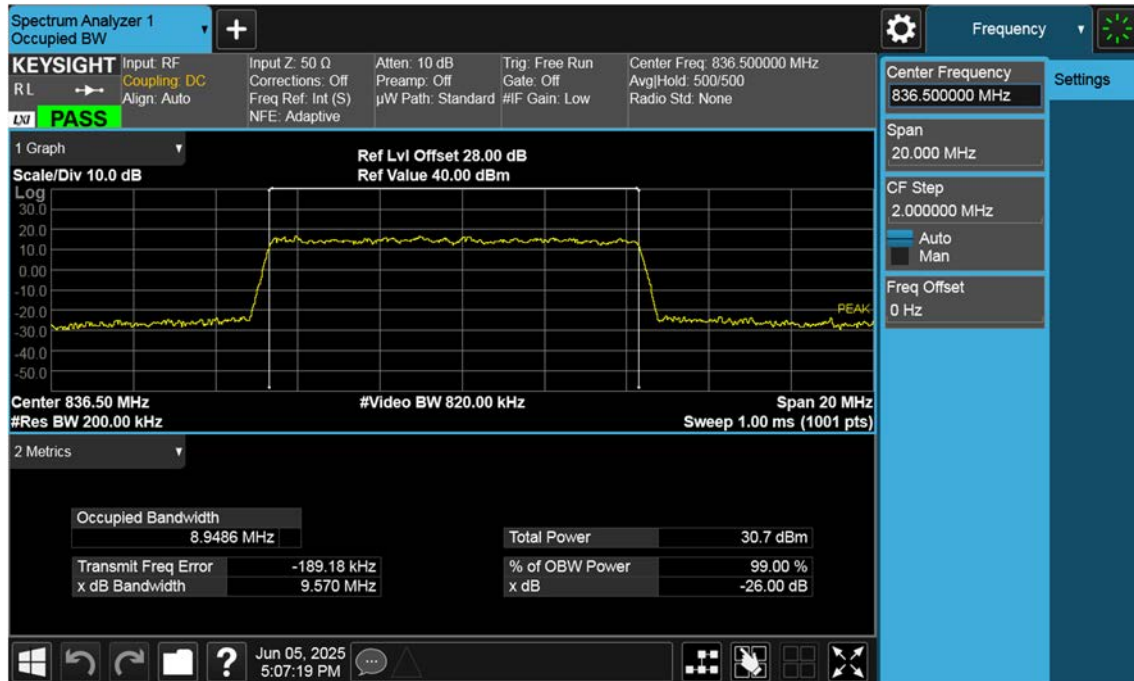
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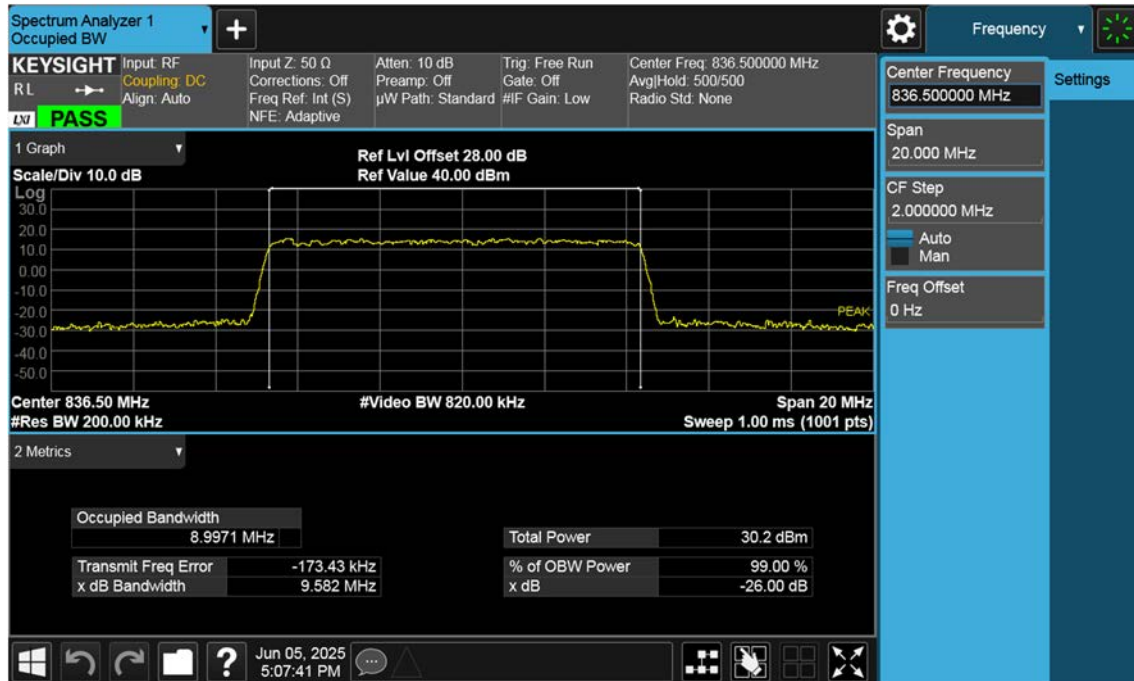
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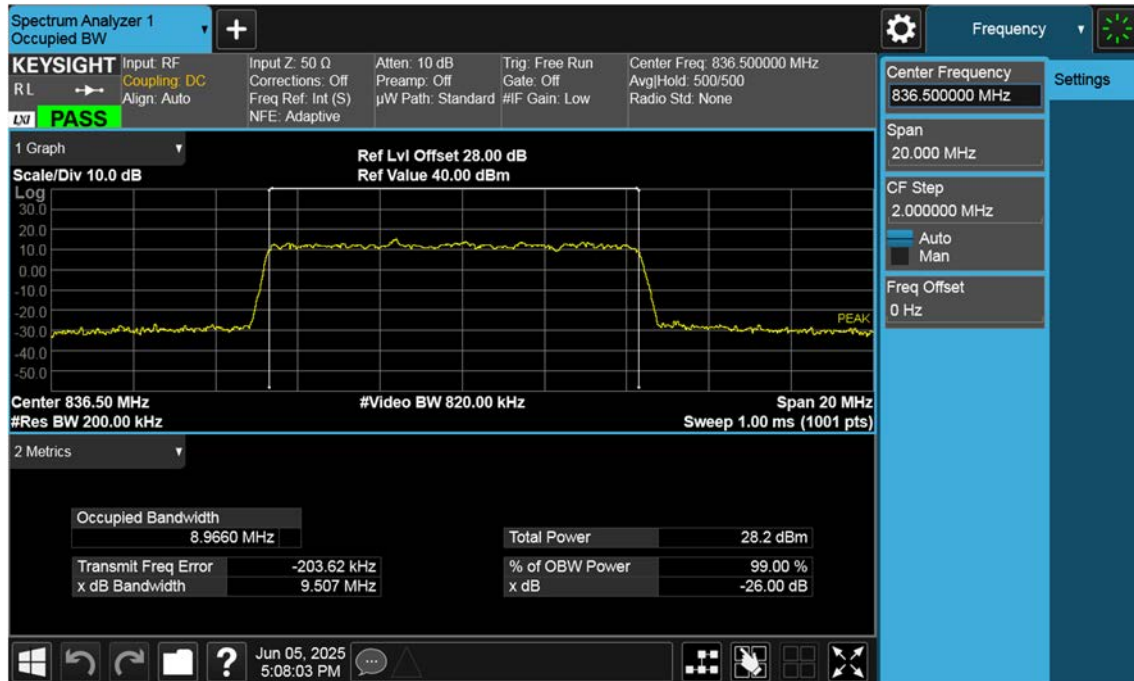
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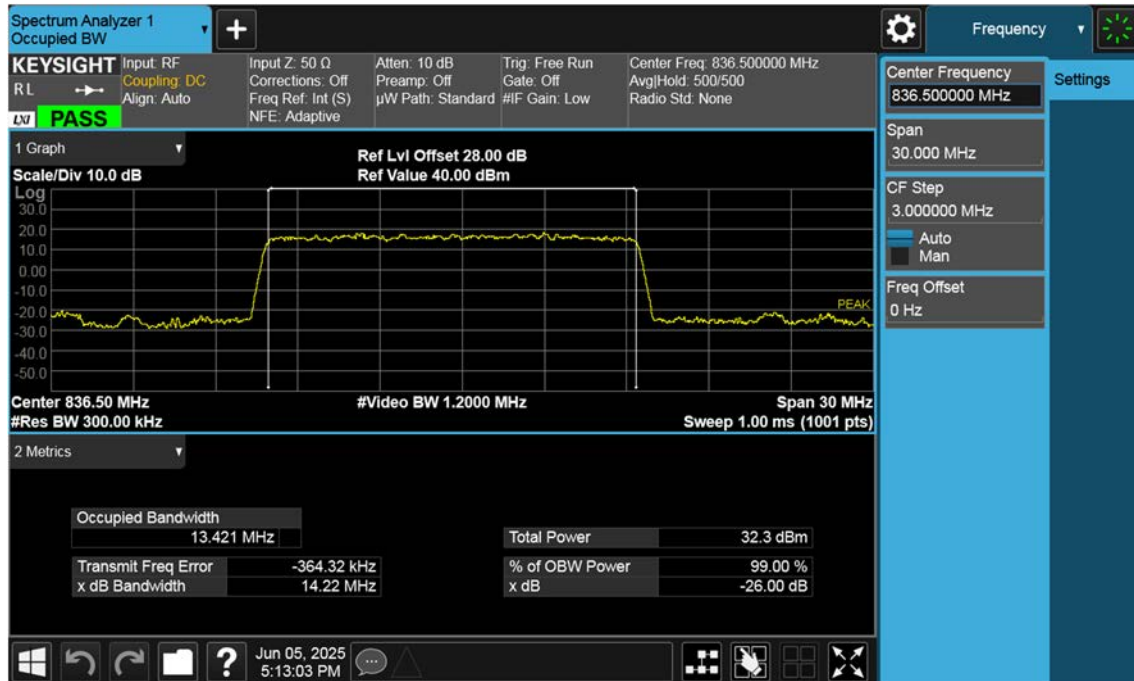
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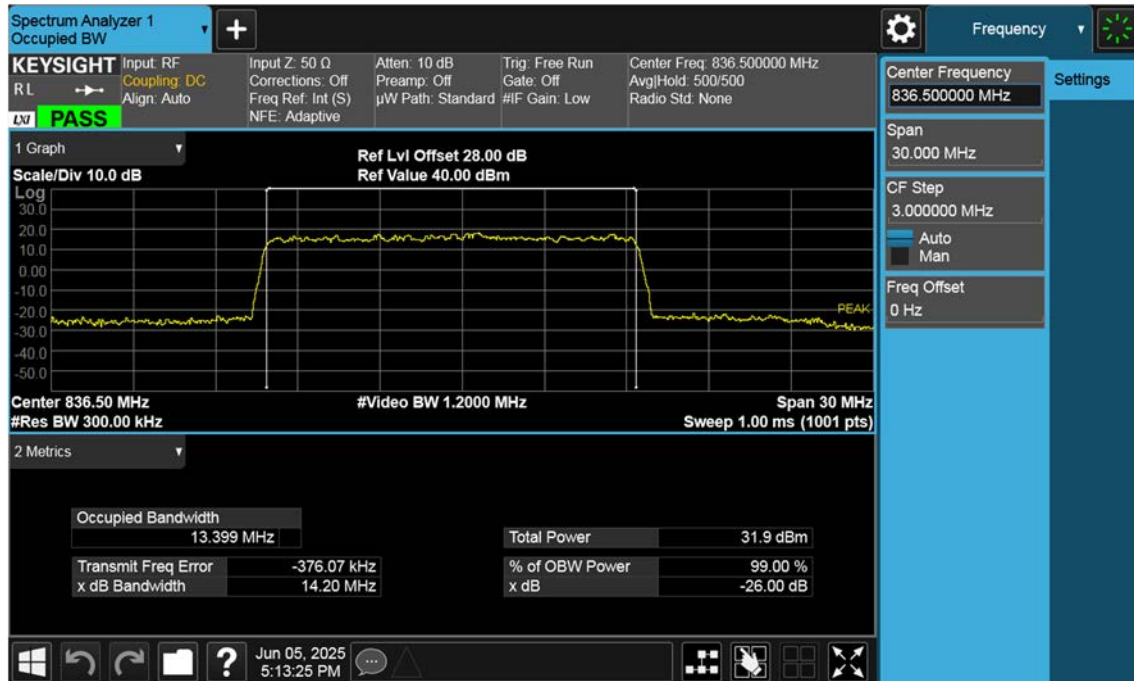
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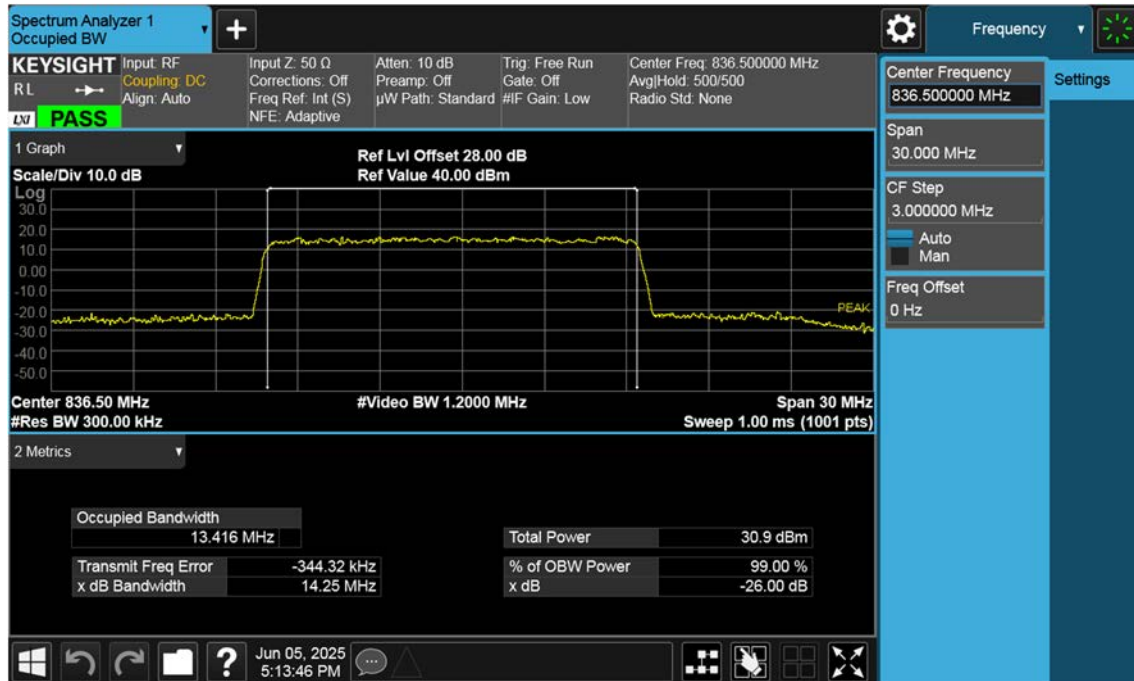
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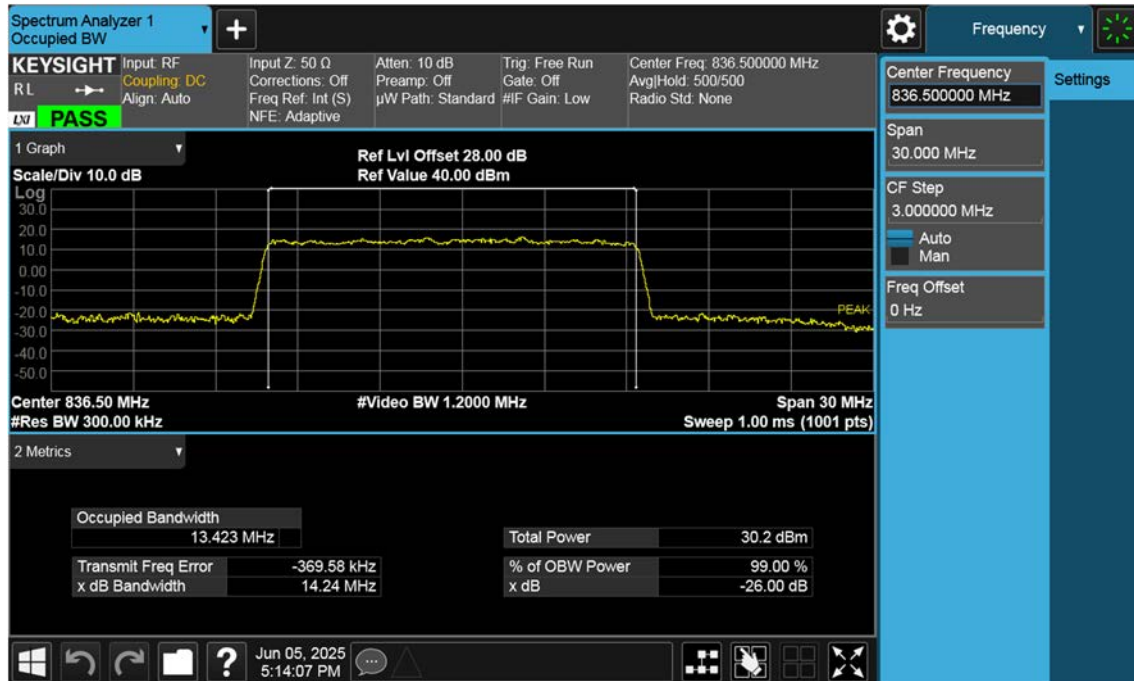
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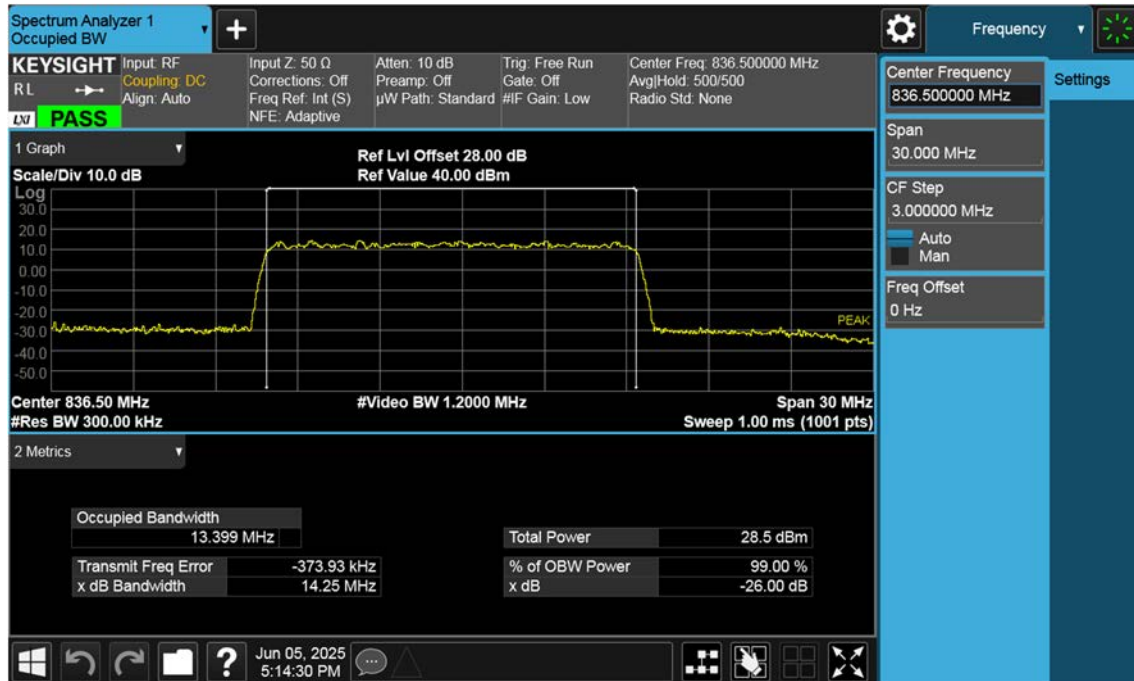
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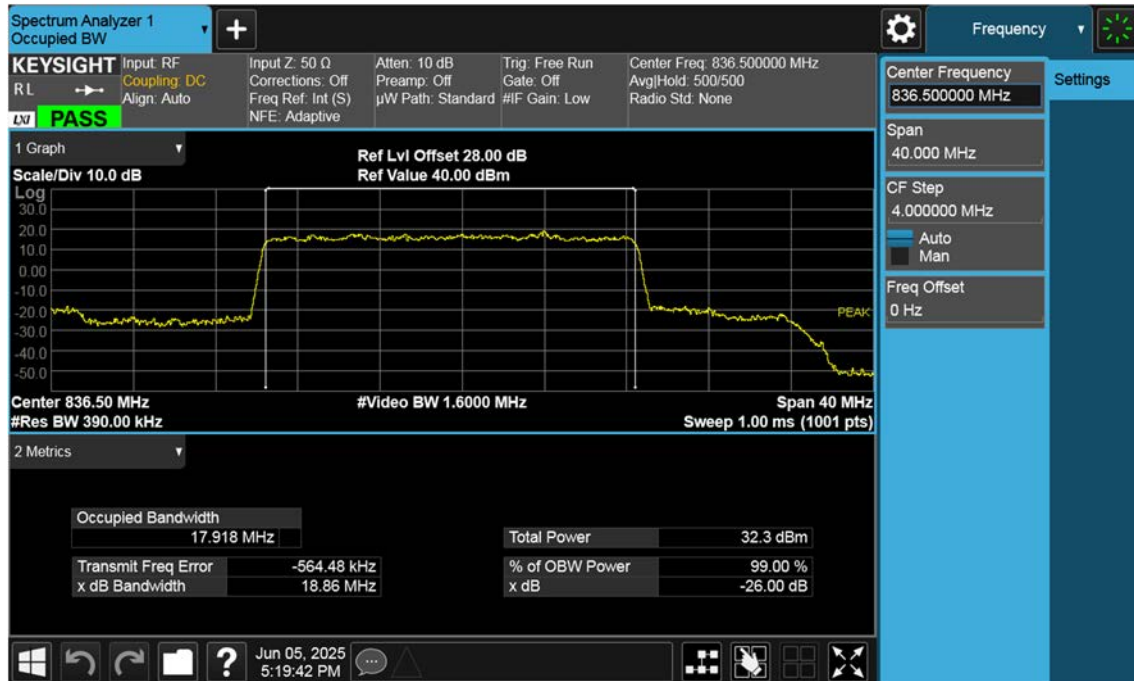
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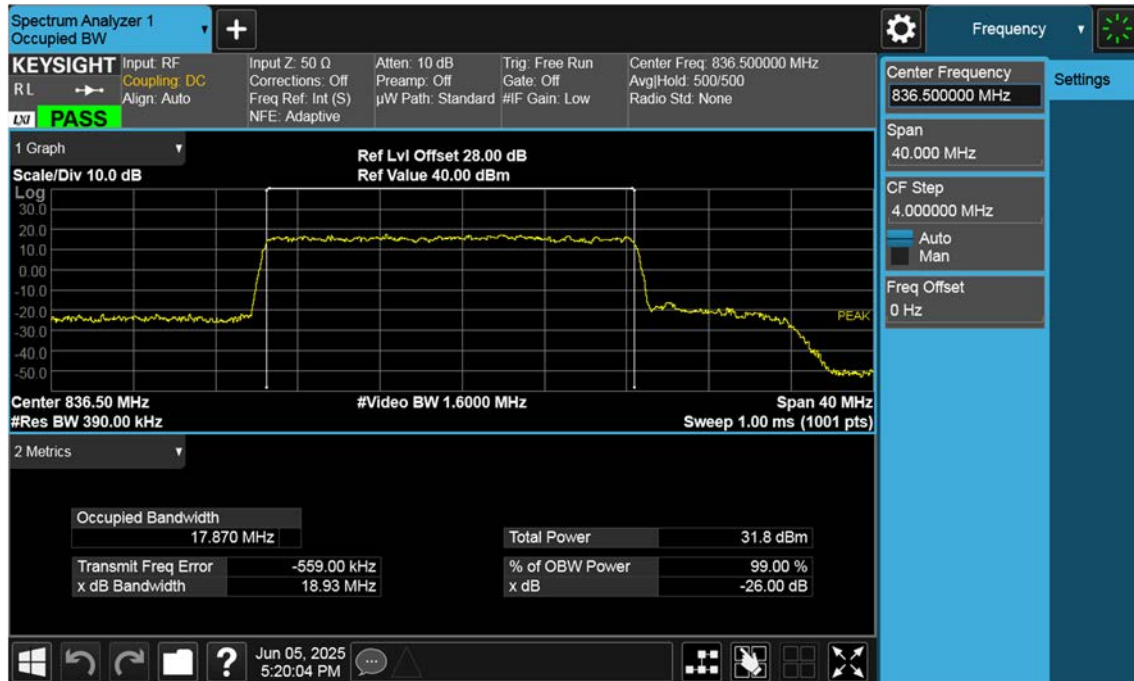
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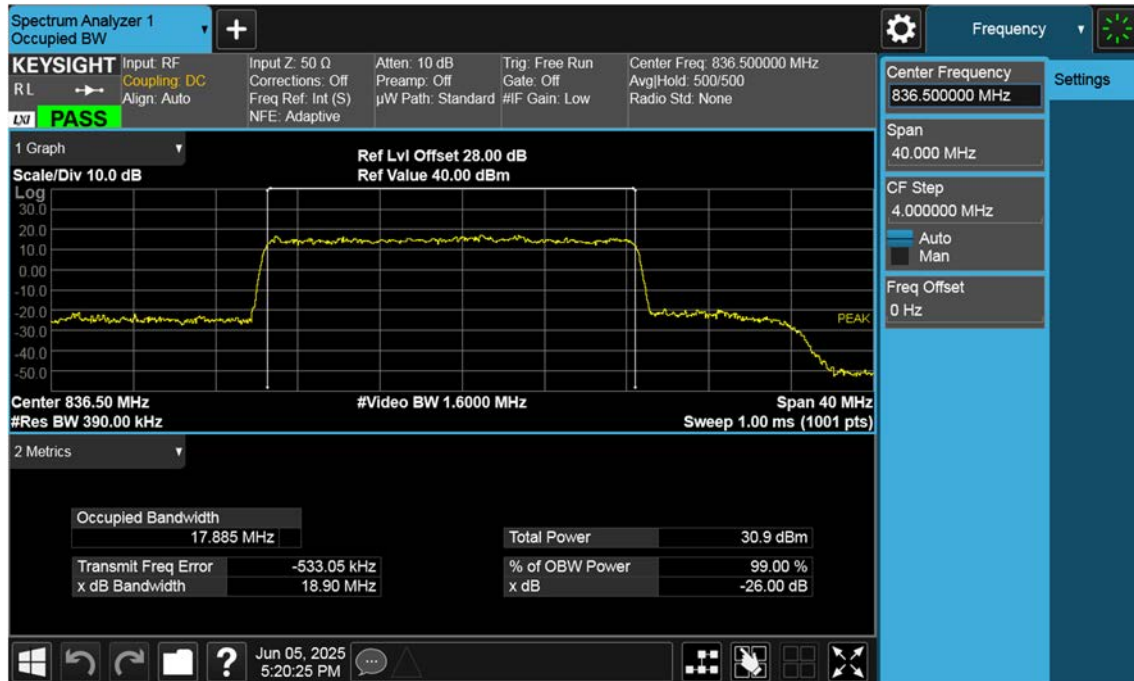
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NR5_20 M_OBW_Mid_QPSK_FullRB



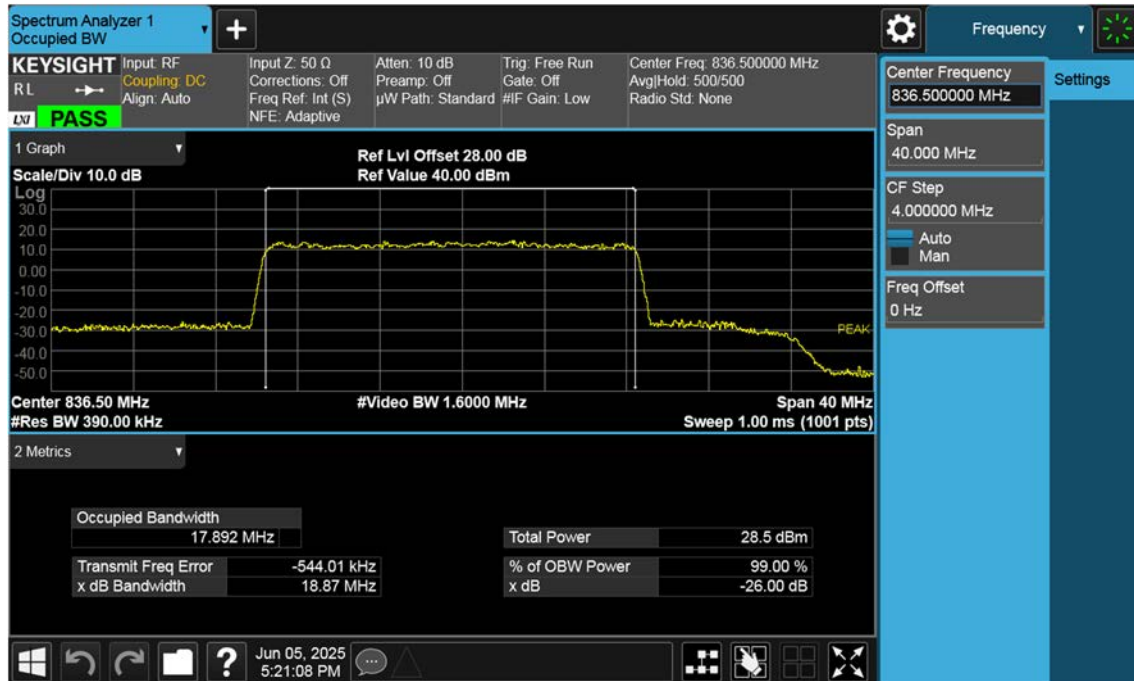
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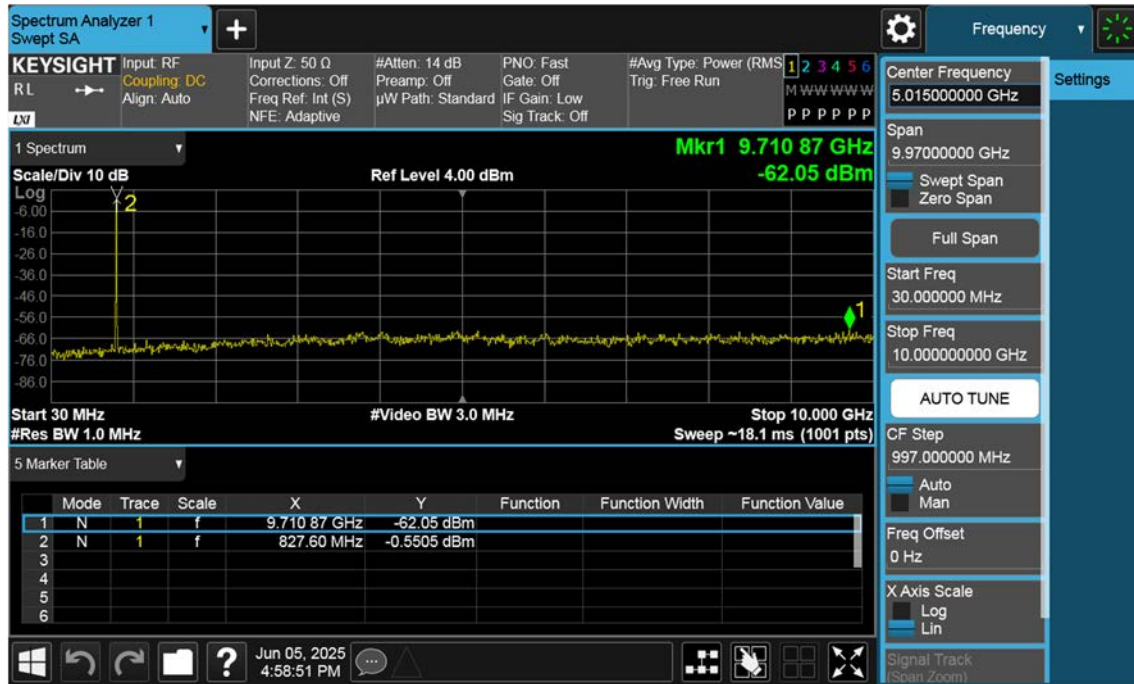
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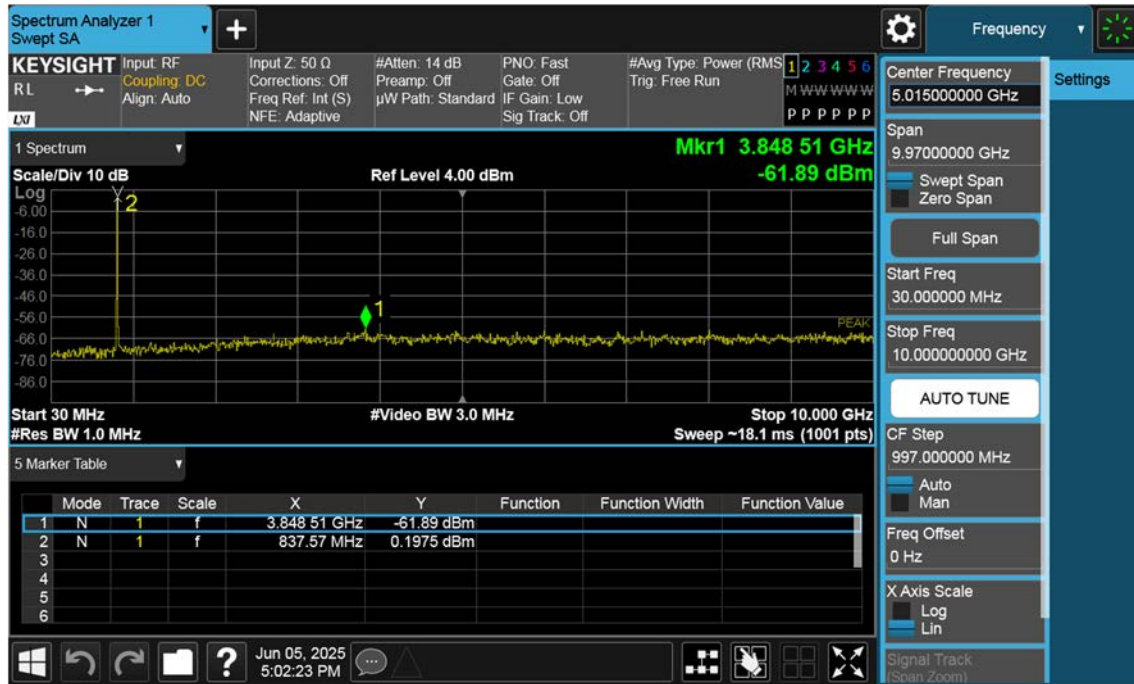
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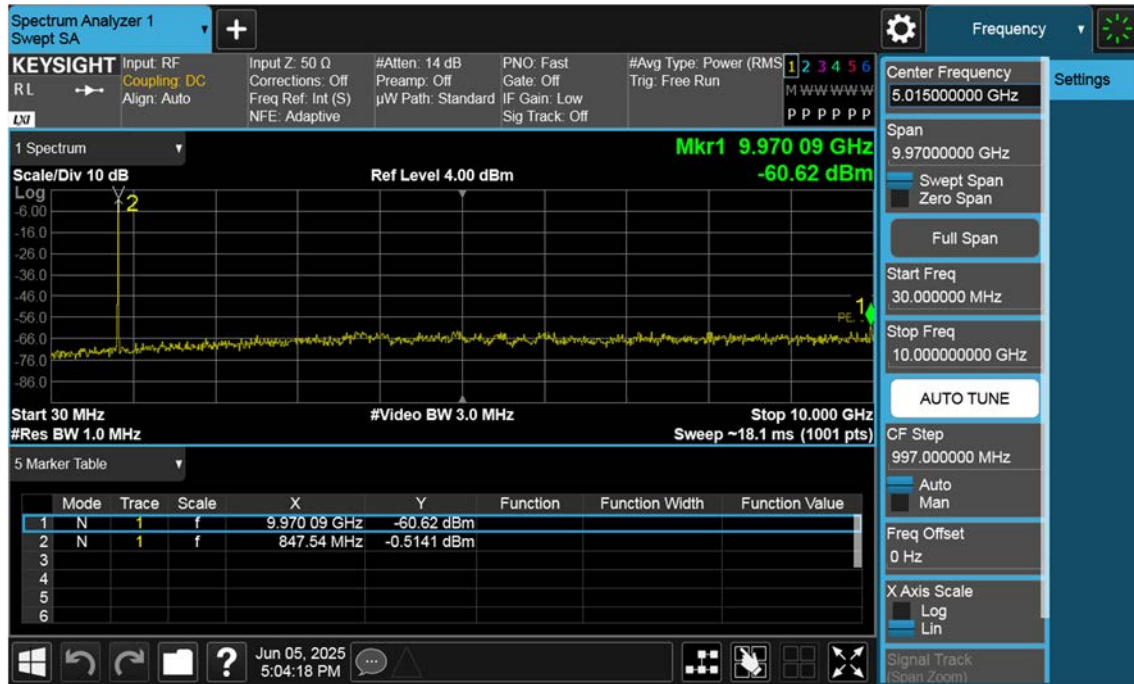
NR5_5 M_Conducted Spurious(30 M-10 G)_Low_BPSK_1RB



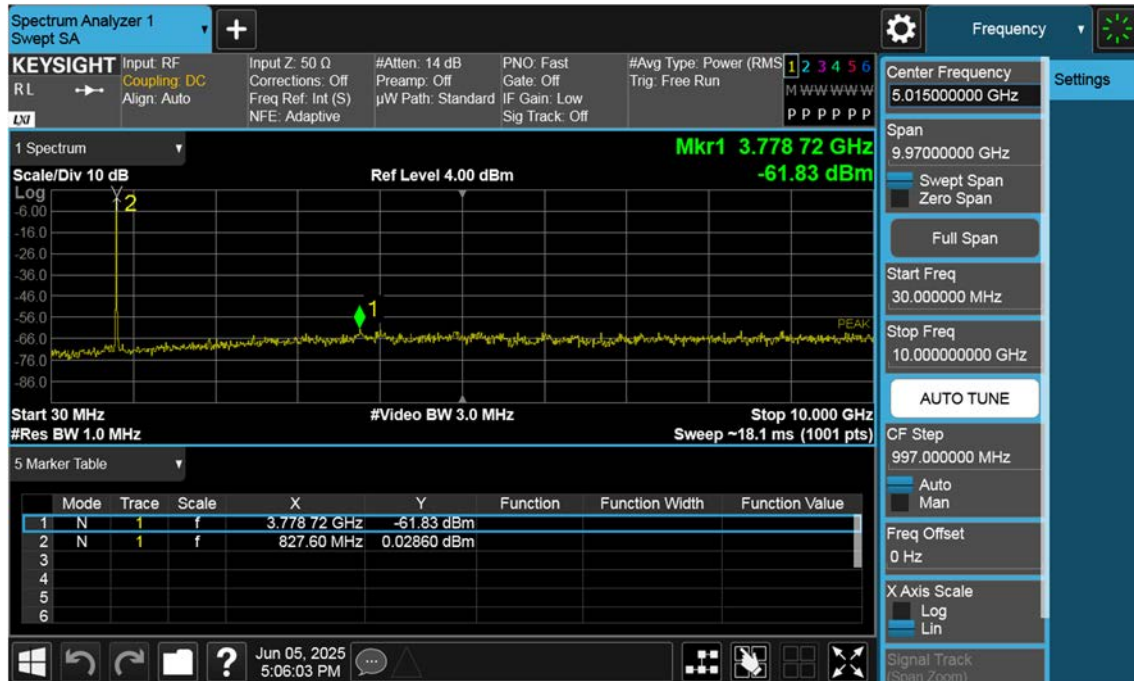
NR5_5 M_Conducted Spurious(30 M-10 G)_Mid_BPSK_1RB



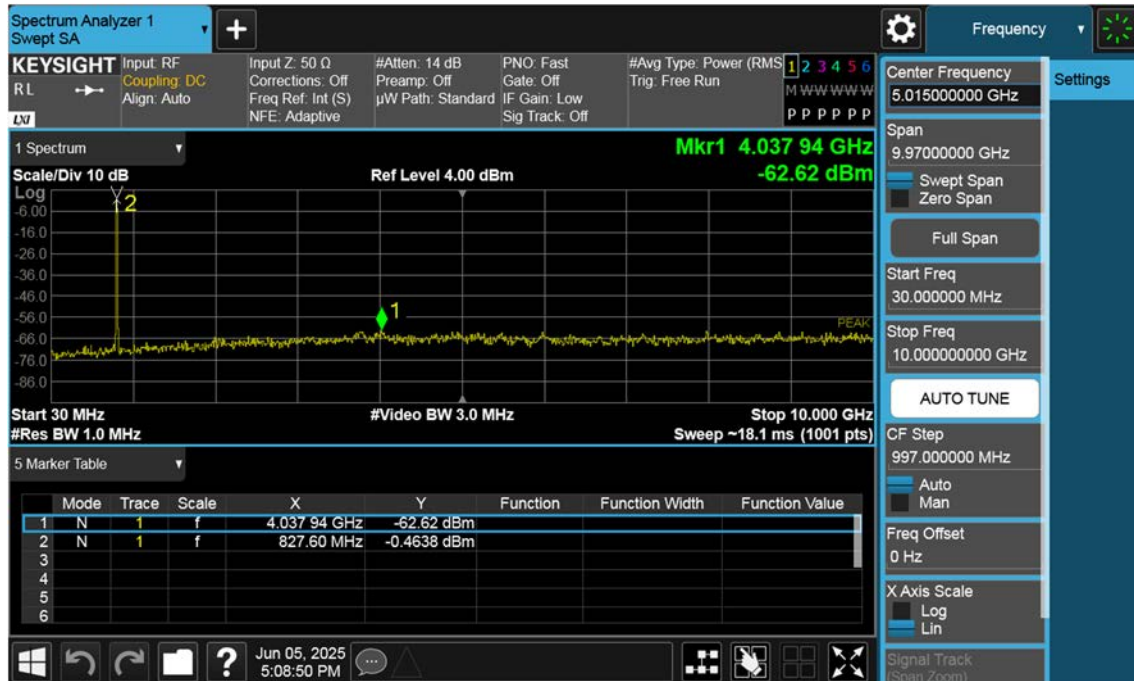
NR5_5 M_Conducted Spurious(30 M-10 G)_High_BPSK_1RB



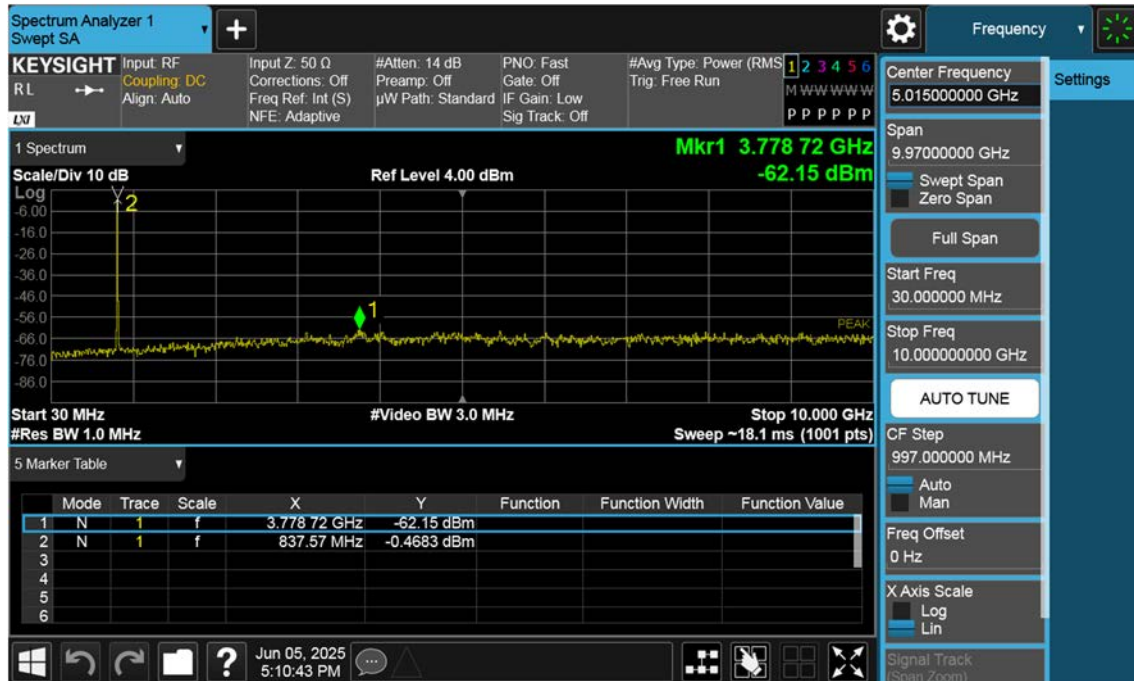
NR5_10 M_Conducted Spurious(30 M-10 G)_Low_BPSK_1RB



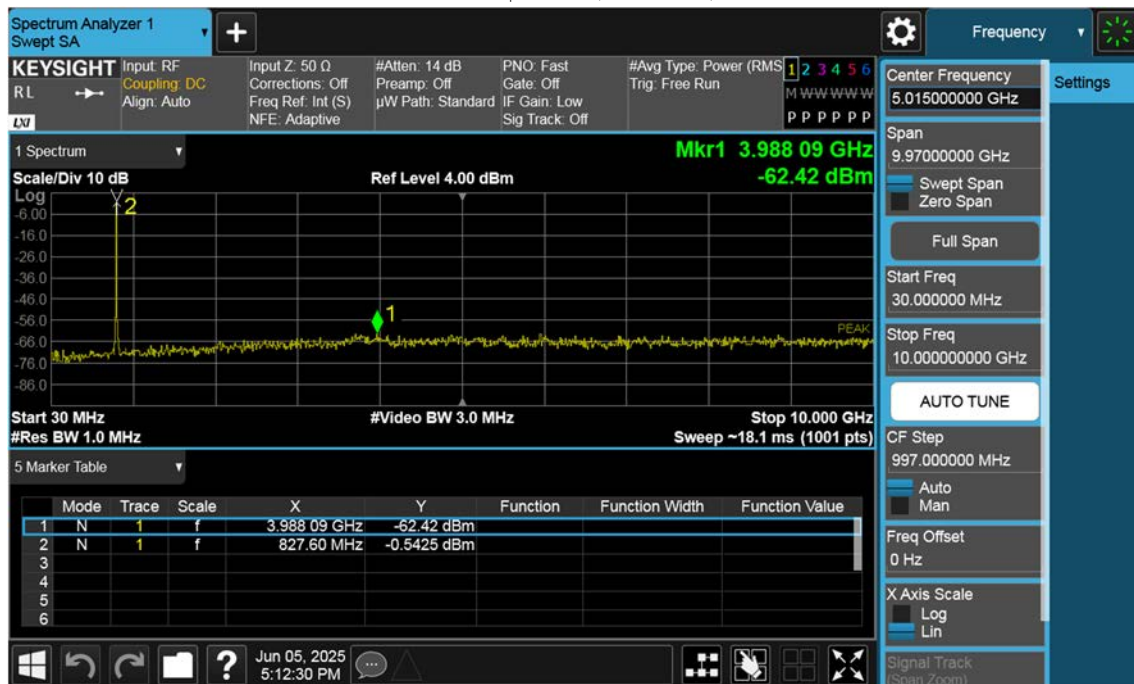
NR5_10 M_Conducted Spurious(30 M-10 G)_Mid_BPSK_1RB



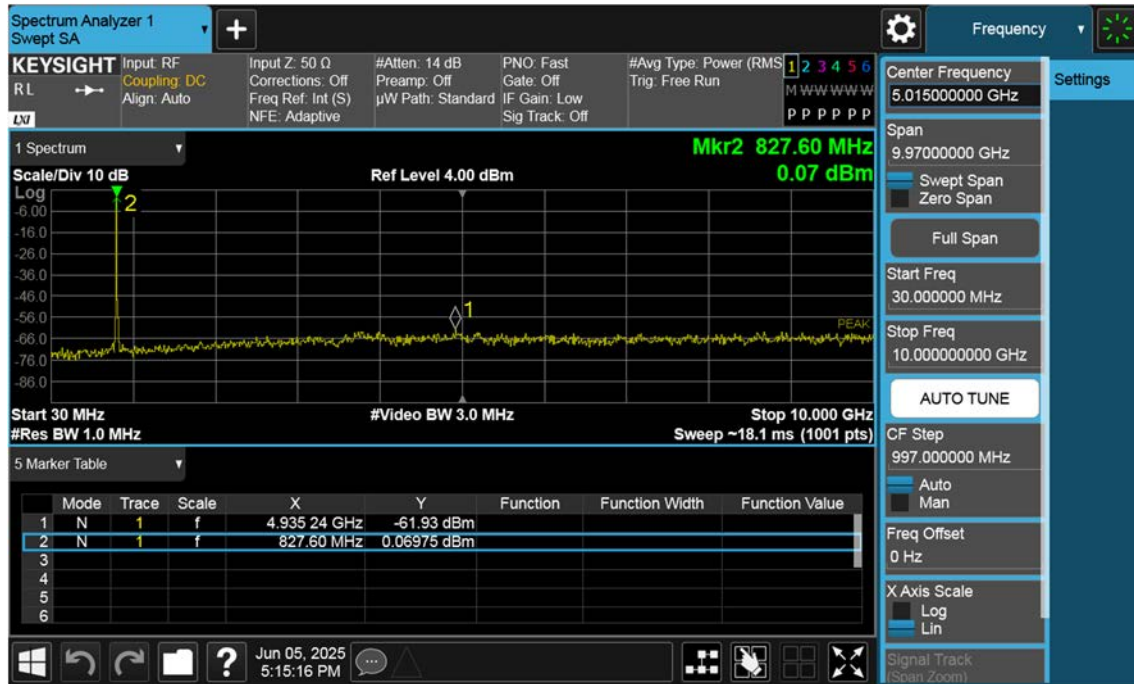
NR5_10 M_Conducted Spurious(30 M-10 G)_High_BPSK_1RB



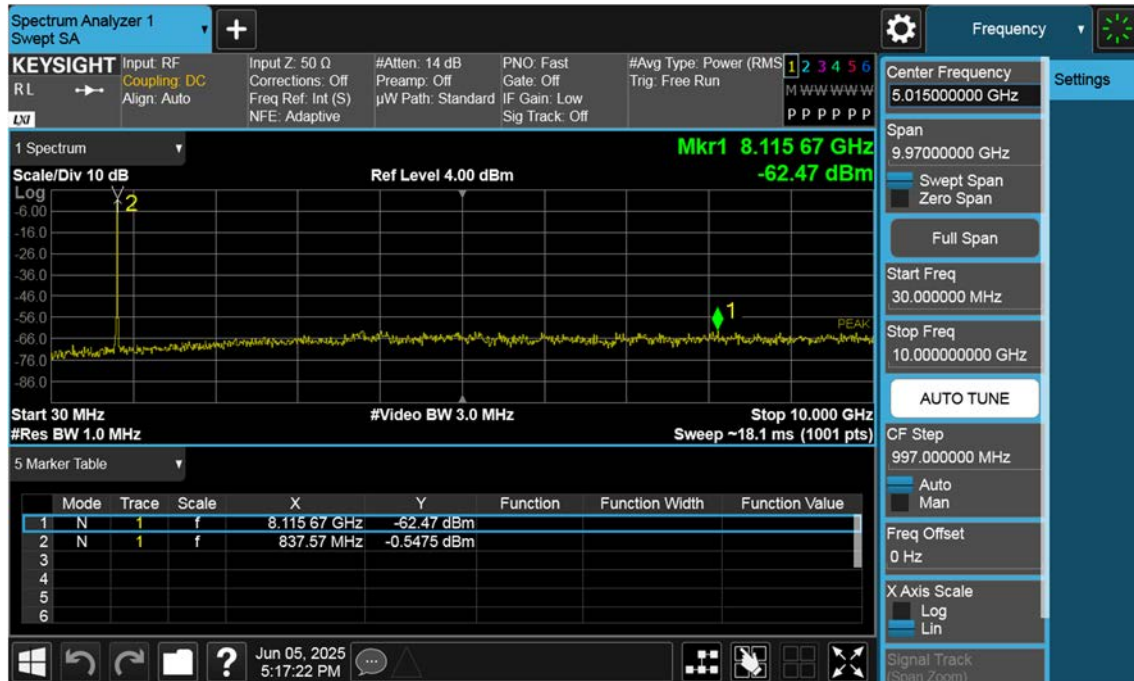
NR5_15 M_Conducted Spurious(30 M-10 G)_Low_BPSK_1RB



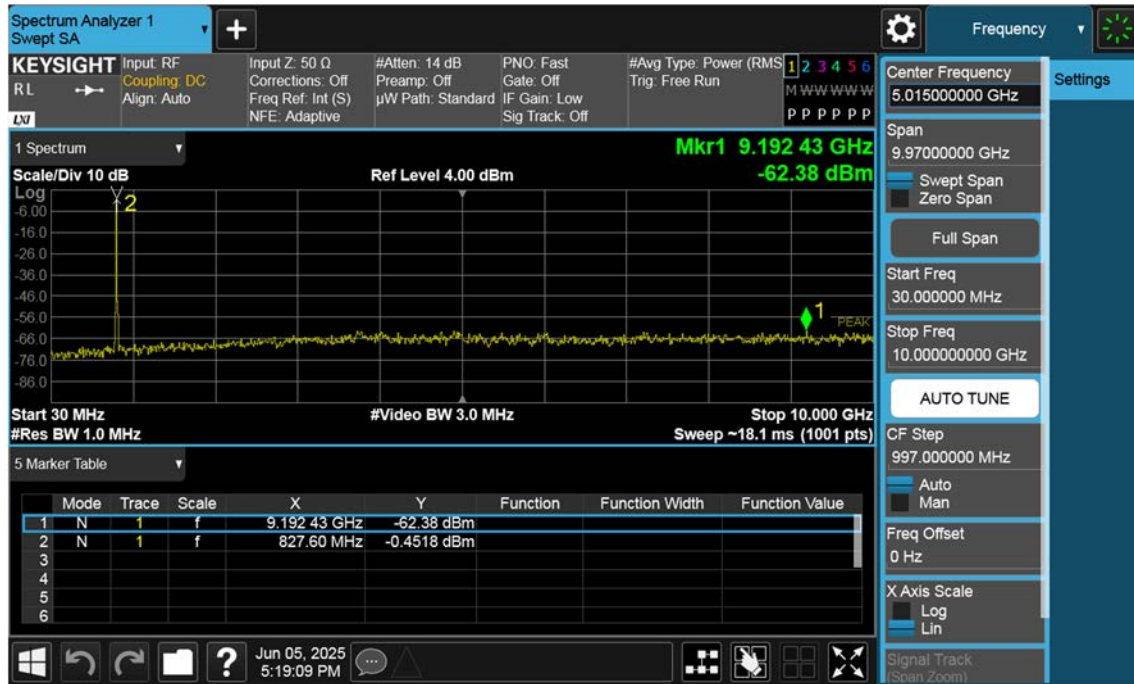
NR5_15 M_Conducted Spurious(30 M-10 G)_Mid_BPSK_1RB



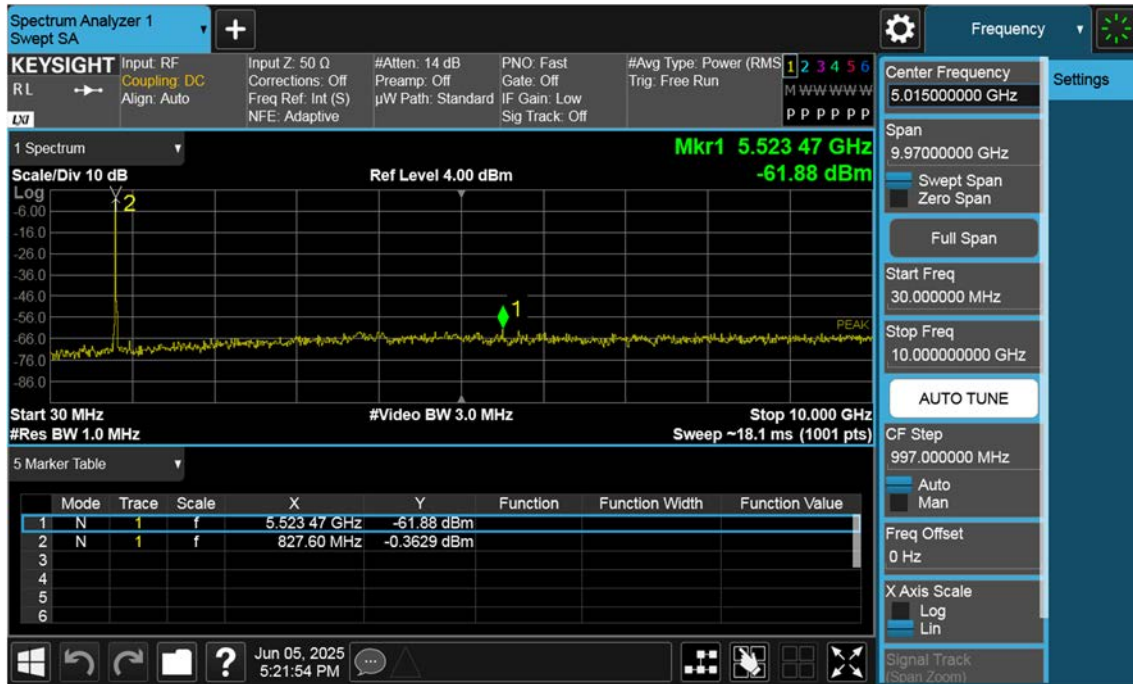
NR5_15 M_Conducted Spurious(30 M-10 G)_High_BPSK_1RB



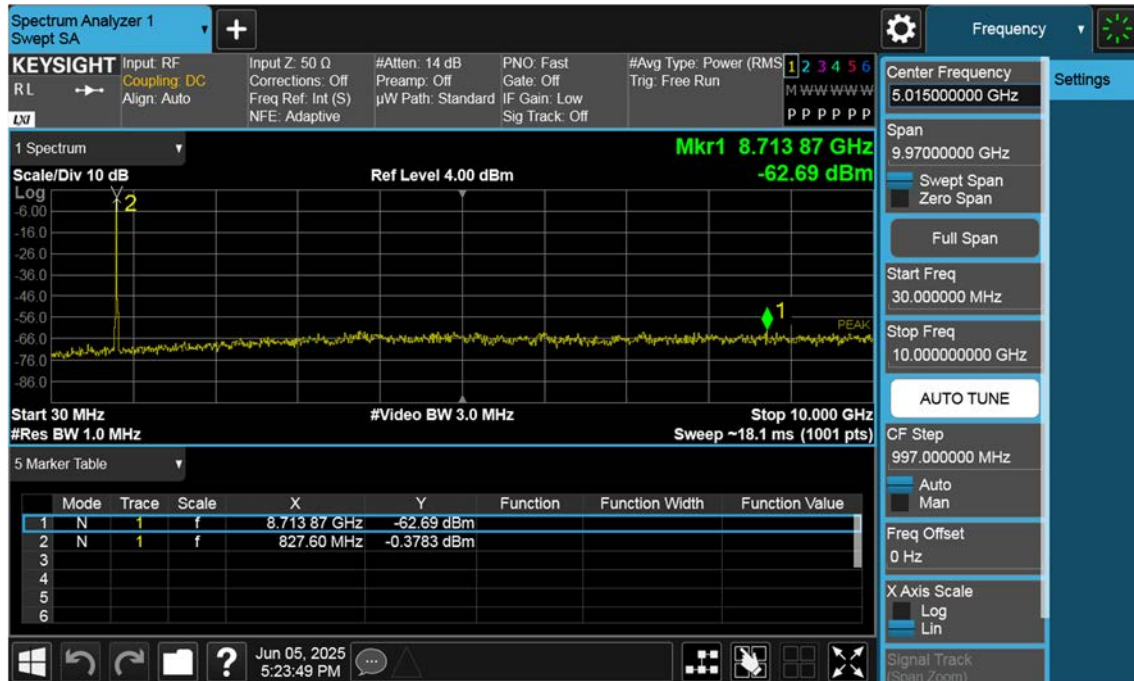
NR5_20 M_Conducted Spurious(30 M-10 G)_Low_BPSK_1RB



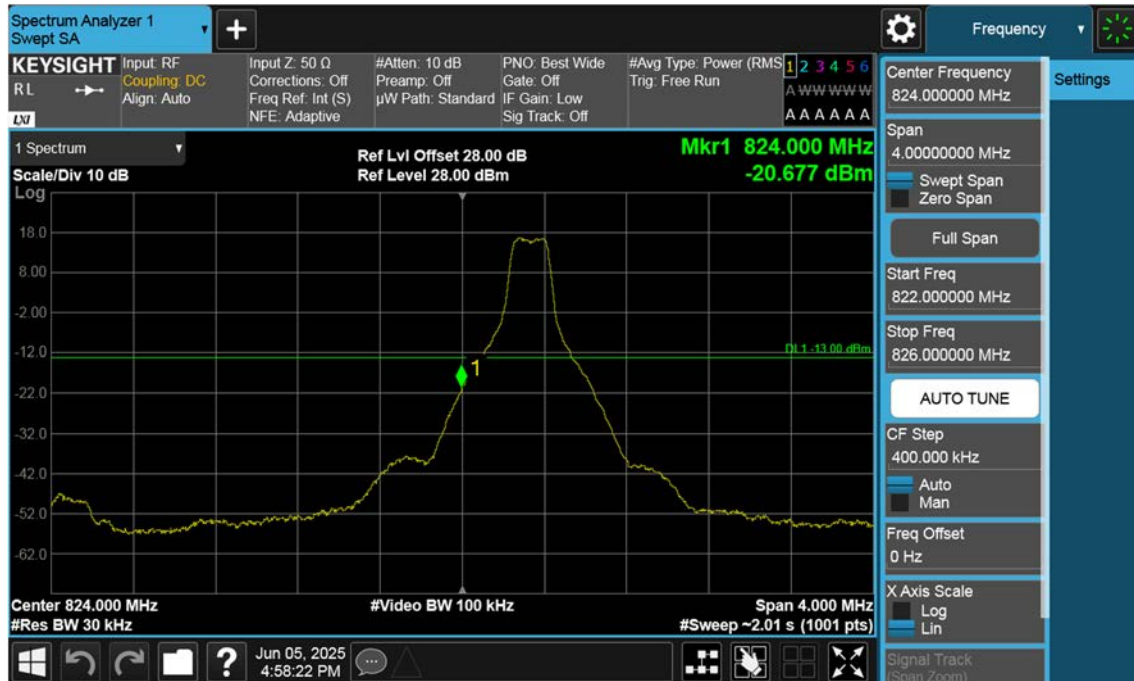
NR5_20 M_Conducted Spurious(30 M-10 G)_Mid_BPSK_1RB



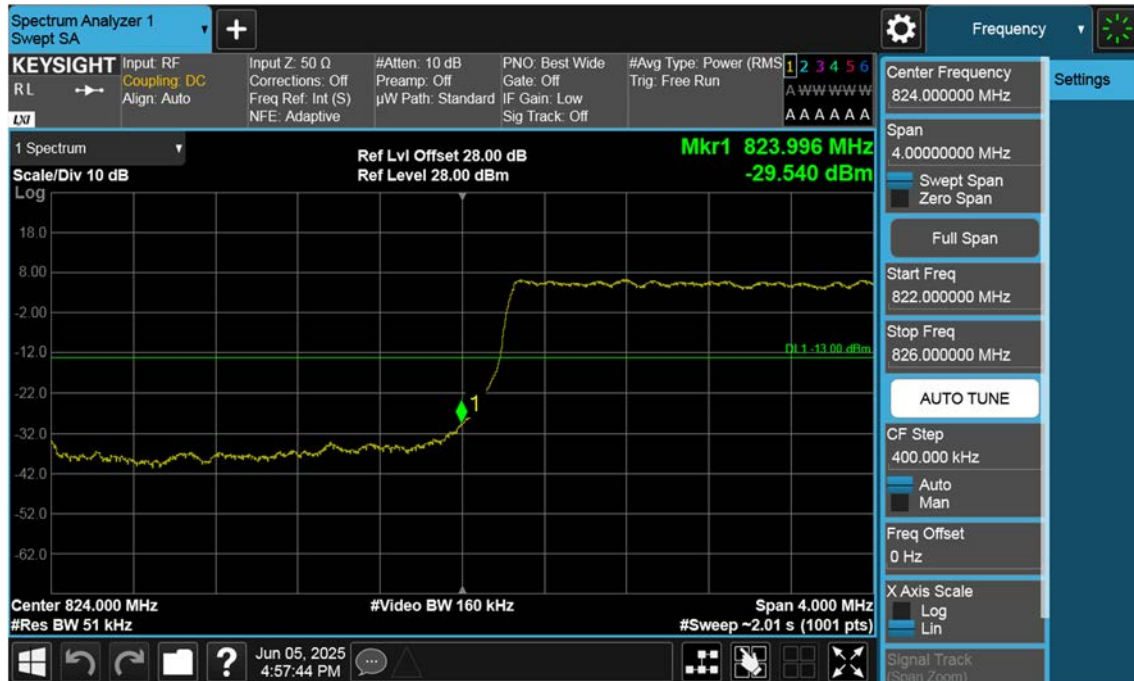
NR5_20 M_Conducted Spurious(30 M-10 G)_High_BPSK_1RB



NR5_5 M_Band Edge_Low_BPSK_1RB



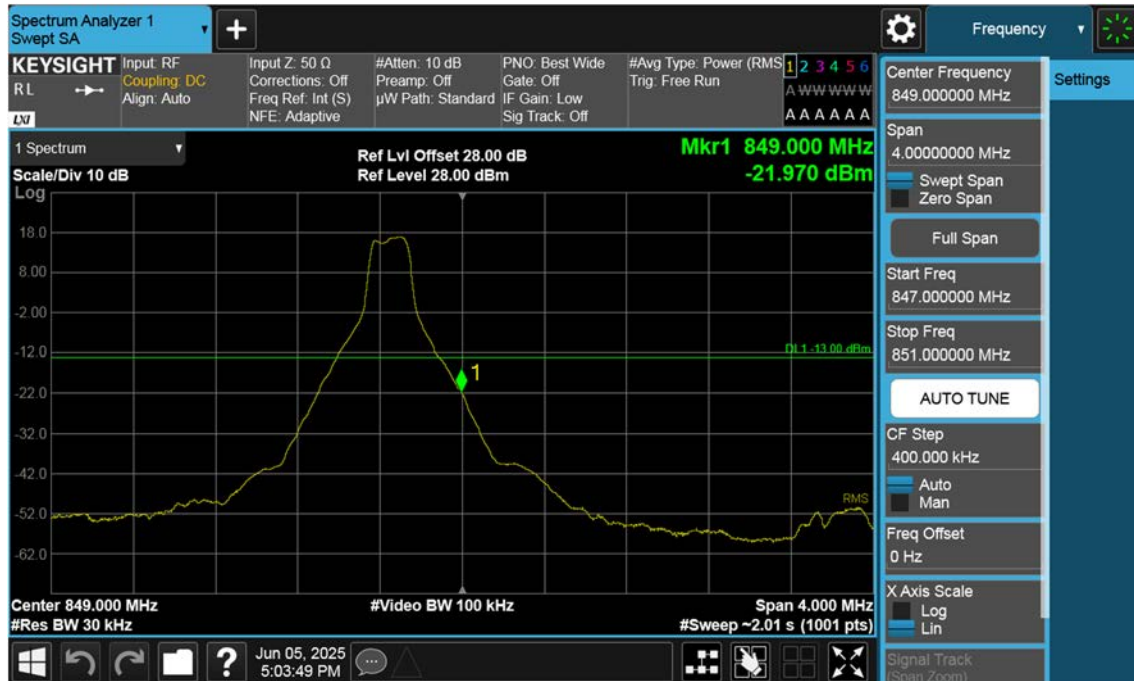
NR5_5 M_Band Edge_Low_BPSK_FullIRB



NR5_5 M_Extended Band Edge_Low_BPSK_FullRB



NR5_5 M_Band Edge_High_BPSK_1RB



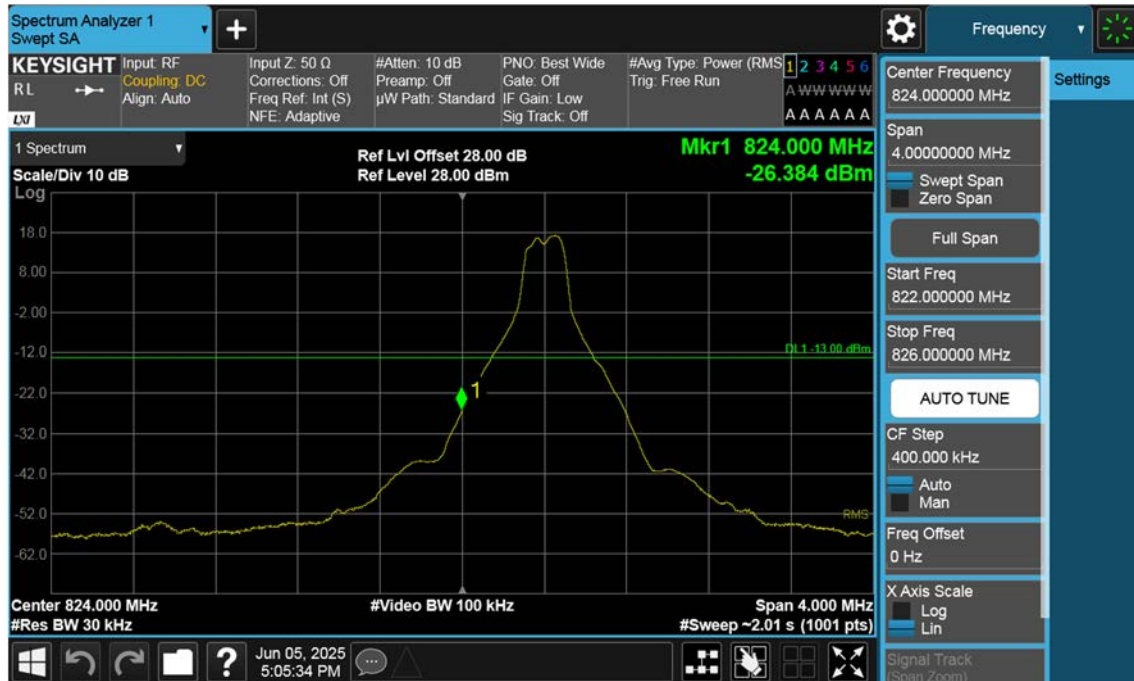
NR5_5 M_Band Edge_High_BPSK_FullRB



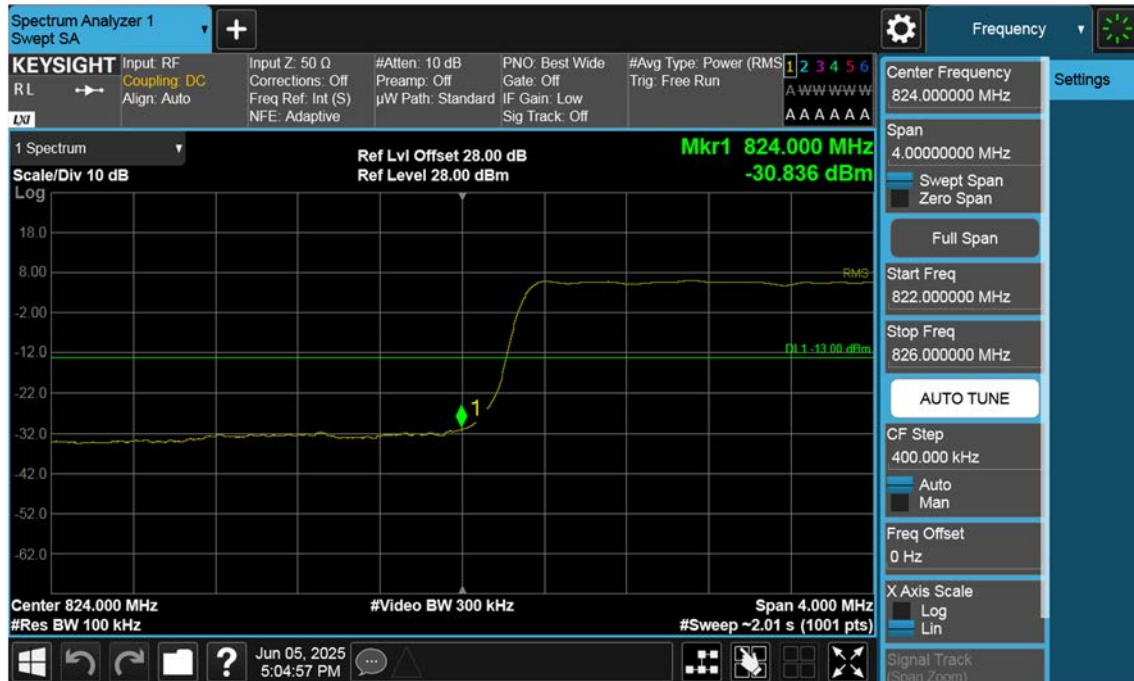
NR5_5 M_Extended Band Edge_High_BPSK_FullRB



NR5_10 M_Band Edge_Low_BPSK_1RB



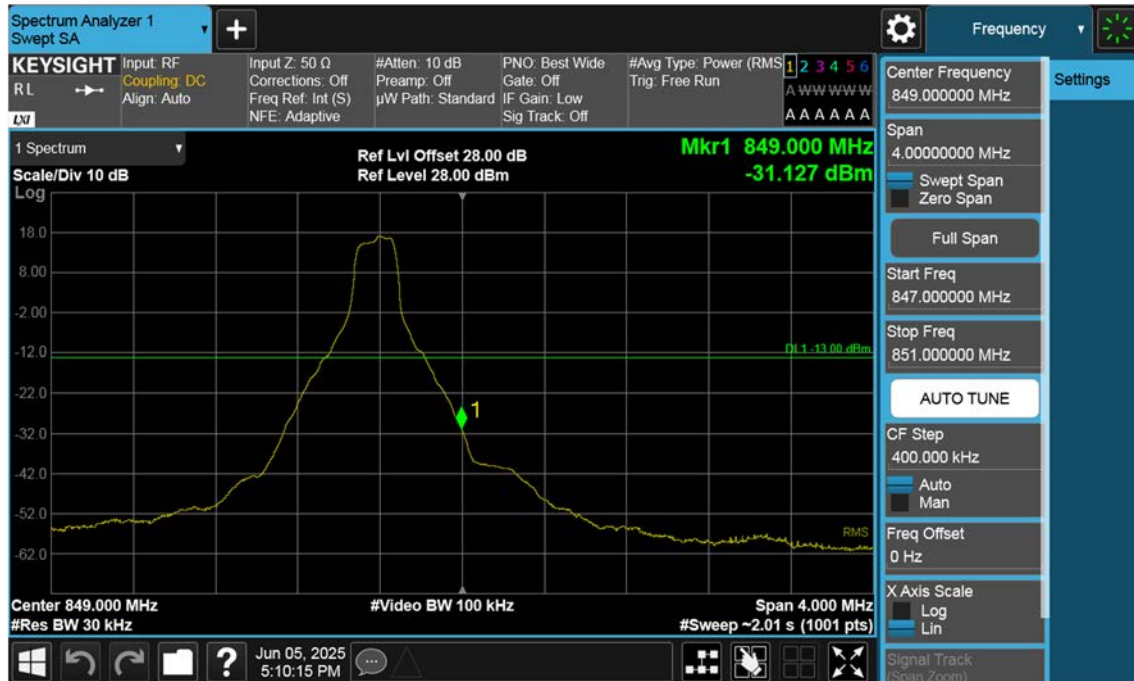
NR5_10 M_Band Edge_Low_BPSK_FullRB



NR5_10 M_Extended Band Edge_Low_BPSK_FullRB



NR5_10 M_Band Edge_High_BPSK_1RB



NR5_10 M_Band Edge_High_BPSK_FullRB



NR5_10 M_Extended Band Edge_High_BPSK_FullRB



NR5_15 M_Band Edge_Low_BPSK_1RB

