

TEST REPORT

FCC Sub6 n70 Test for SM-A376U
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2512-FC028

DATE OF ISSUE
December 15, 2025

Tested by
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TEST REPORT

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HCT-RF-2512-FC028

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Additional Model

SM-A376U1, SM-S376V

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

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

Product Name

Mobile Phone

Model Name

SM-A376U

Date of Test

October 29, 2025 ~ December 15, 2025

FCC ID

A3LSMA376U

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 Held to Ear (PCE)

Test Standard Used

FCC Rule Part: § 27

Test Results

PASS

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	December 15, 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

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

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MEASUREMENT REPORT

1. GENERAL INFORMATION

Model(s):	SM-A376U
Additional Model	SM-A376U1, SM-S376V
SCS(kHz):	15
Bandwidth(MHz):	5, 10, 15
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:	1697.5 MHz – 1707.5 MHz (Sub6 n70(5 MHz)) 1700.0 MHz – 1705.0 MHz (Sub6 n70(10 MHz)) 1705.5 MHz (Sub6 n70(15 MHz))
Serial number:	Radiated : R3CY90Z80EZ Conducted : R3CY90Z80TK
Antenna Information	Please refer to the Antenna Specification document.

1.1 MAXIMUM OUTPUT POWER

Ant B

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max. Power (W)	Max. Power (dBm)
Sub6 n70 (5)	1697.5 – 1707.5	4M62G7D	PI/2 BPSK	0.083	19.20
		4M66G7D	QPSK	0.083	19.19
		4M59W7D	16QAM	0.064	18.08
		4M68W7D	64QAM	0.046	16.65
		4M71W7D	256QAM	0.029	14.61
Sub6 n70 (10)	1700.0 – 1705.0	9M02G7D	PI/2 BPSK	0.085	19.27
		8M99G7D	QPSK	0.083	19.18
		8M99W7D	16QAM	0.066	18.22
		9M01W7D	64QAM	0.047	16.73
		8M98W7D	256QAM	0.030	14.77
Sub6 n70 (15)	1702.5	13M5G7D	PI/2 BPSK	0.079	19.00
		13M5G7D	QPSK	0.079	18.99
		13M5W7D	16QAM	0.064	18.03
		13M4W7D	64QAM	0.045	16.56
		13M4W7D	256QAM	0.029	14.57

Ant F

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
				Max. Power (W)	Max. Power (dBm)
Sub6 n70 (5)	1697.5 – 1707.5	4M60G7D	PI/2 BPSK	0.137	21.37
		4M64G7D	QPSK	0.133	21.25
		4M60W7D	16QAM	0.108	20.35
		4M72W7D	64QAM	0.077	18.86
		4M70W7D	256QAM	0.048	16.81
Sub6 n70 (10)	1700.0 – 1705.0	9M01G7D	PI/2 BPSK	0.138	21.41
		8M99G7D	QPSK	0.136	21.35
		8M97W7D	16QAM	0.112	20.51
		8M97W7D	64QAM	0.079	18.98
		8M96W7D	256QAM	0.050	17.02
Sub6 n70 (15)	1702.5	13M5G7D	PI/2 BPSK	0.136	21.33
		13M4G7D	QPSK	0.133	21.24
		13M5W7D	16QAM	0.104	20.15
		13M5W7D	64QAM	0.074	18.71
		13M5W7D	256QAM	0.048	16.82

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
Detailed description of test facility was submitted to the Commission and accepted dated March 11, 2024 (Registration Number: KR0032).

2.4. EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to ANSI/USEMCSC C63.2-2023, "American National Standard for Specifications of Electromagnetic Interference and Field Strength Measuring Instrumentation in the Frequency Range 9 kHz to 40 GHz".

3. DESCRIPTION OF TESTS

3.1 TEST PROCEDURE

Test Description	Test Procedure Used
Occupied Bandwidth	- KDB 971168 D01 v03r01 – Section 4.3 - ANSI C63.26-2015 – Section 5.4.4
Band Edge	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Spurious and Harmonic Emissions at Antenna Terminal	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Conducted Output Power	- KDB 971168 D01 v03r01 - Section 5.2.4 - ANSI C63.26-2015 - Section 5.2.1 & 5.2.4.2
Peak- to- Average Ratio	- KDB 971168 D01 v03r01 – Section 5.7 - ANSI C63.26-2015 – Section 5.2.3.4 - ANSI C63.26-2015 – Section 5.2.6(only GSM)
Frequency stability	- ANSI C63.26-2015 – Section 5.6
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 $\geq$ 3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points > 2 x span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

Test Note

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

The power is calculated by the following formula;

$$P_d \text{ (dBm)} = P_g \text{ (dBm)} - \text{cable loss (dB)} + \text{antenna gain (dB)}$$

Where: P_d is the dipole equivalent power and P_g is the generator output power into the substitution antenna.

3. The maximum value is calculated by adding the forward power to the calibrated source plus its appropriate gain value.

These steps are repeated with the receiving antenna in both vertical and horizontal polarization. the difference between the gain of the horn and an isotropic antenna are taken into consideration

4. The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.
5. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

3.3 RADIATED SPURIOUS EMISSIONS

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

Radiated Spurious Emission Measurements at 3 meters by Substitution Method.

Test Settings

1. RBW = 100 kHz for emissions below 1 GHz and 1 MHz for emissions above 1 GHz
2. VBW $\geq$ 3 x RBW
3. No. of sweep points > 2 x span / RBW
4. Detector = Peak
5. Trace mode = Max Hold
6. The trace was allowed to stabilize
7. Test channel : Low/ Middle/ High
8. 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;

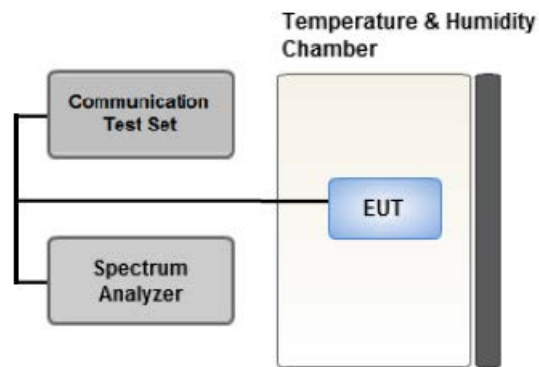
$$\text{Result}_{(\text{dBm})} = P_g_{(\text{dBm})} - \text{cable loss}_{(\text{dB})} + \text{antenna gain}_{(\text{dBi})}$$

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

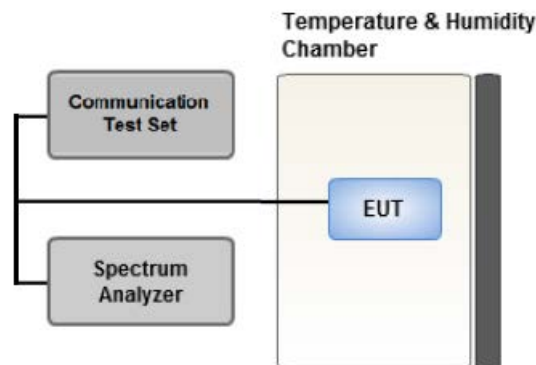


Test setup

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.

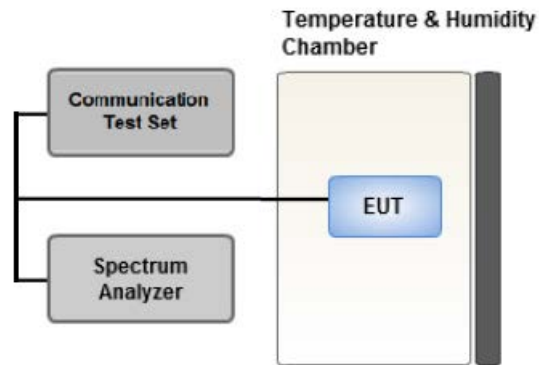
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

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

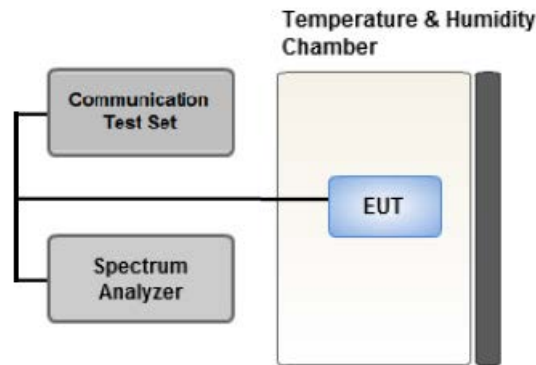
Test Overview

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 = 1001 pts

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) $\times$ (Symbol Period)
9. The trace was allowed to stabilize

Test Notes

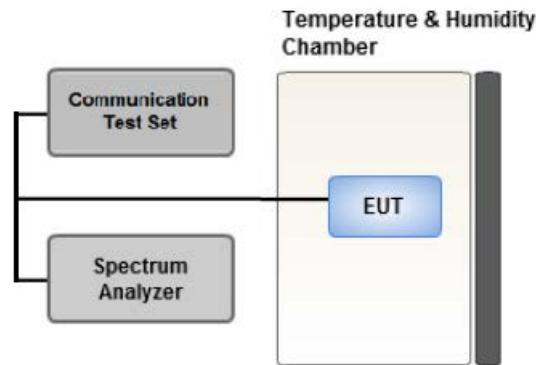
According to FCC 22.917, 24.238, 27.53 specified that power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. In the 1 MHz bands immediately outside and adjacent to the frequency block 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: SA Only
Worst case: SA
Mode : Stand alone, Stand alone + External accessories (Earphone, AC adapter, etc)
Worst case : Stand alone
- All simultaneous transmission scenarios of operation were investigated, and the test results showed no additional significant emissions relative to the least restrictive limit were observed.
Therefore, only the worst case(stand-alone) results were reported.
- 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 : 10 MHz)
- SM-A376U & additional models were tested and the worst case results are reported.
(Worst case : SM-A376U)

[Ant B 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		X
Radiated Spurious and Harmonic Emissions	PI/2 BPSK	See Section 8.2		Z

[Ant F Worst case]

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

3.10 WORST CASE(CONDUCTED TEST)

- Waveform : All Waveform of operation were investigated and the worst case configuration results are reported.
(Worst case: DFT-S-OFDM)
- Modulation : All Modulation of operation were investigated and the worst case configuration results are reported.
(Worst case: PI/2 BPSK)
- All modes of operation were investigated and the worst case configuration results are reported.
Mode: SA Only
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.
- SM-A376U & additional models were tested and the worst case results are reported.
(Worst case : SM-A376U)

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

4. LIST OF TEST EQUIPMENT

Equipment	Model	Manufacture	Serial No.	Due to Calibration	Calibration Interval
Precision Dipole Antenna	UHAP	Schwarzbeck	01273	03/10/2026	Biennial
Precision Dipole Antenna	UHAP	Schwarzbeck	01274	03/10/2026	Biennial
Horn Antenna(1~18 GHz)	BBHA 9120D	Schwarzbeck	02289	02/14/2026	Biennial
Horn Antenna(1~18 GHz)	BBHA 9120D	Schwarzbeck	9120D-1299	04/17/2026	Biennial
Horn Antenna(15~40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	09/20/2026	Biennial
Horn Antenna(15~40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	03/23/2027	Biennial
Loop Antenna(9 kHz~30 MHz)	FMZB1513	Rohde & Schwarz	1513-175	01/06/2027	Biennial
Bilog Antenna	VULB9160	Schwarzbeck	3150	03/05/2027	Biennial
Hybrid Antenna	VULB9160	Schwarzbeck	760	02/17/2027	Biennial
RF Switching System	FBSR-06B (1G HPF + LNA)	T&M SYSTEM	F3L1	05/08/2026	Annual
RF Switching System	FBSR-06B (3G HPF + LNA)	T&M SYSTEM	F3L2	05/08/2026	Annual
RF Switching System	FBSR-06B (6G HPF + LNA)	T&M SYSTEM	F3L3	05/08/2026	Annual
RF Switching System	FBSR-06B (LNA)	T&M SYSTEM	F3L4	05/08/2026	Annual
Power Amplifier	CBL18265035	CERNEX	22966	10/21/2026	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/19/2026	Annual
DC Power Supply	E3632A	Hewlett Packard	MY40004427	08/11/2026	Annual
Power Splitter(DC~26.5 GHz)	11667B	Hewlett Packard	11275	02/04/2026	Annual
Chamber	SU-642	ESPEC	93008124	02/11/2026	Annual
Signal Analyzer(10 Hz~26.5 GHz)	N9020A	Agilent	MY51110063	03/21/2026	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	04/10/2026	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	07/29/2026	Annual
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262287701	05/14/2026	Annual
Wideband Radio Communication Tester	MT8000A	Anritsu Corp.	6262302511	05/08/2026	Annual
Signal Analyzer(5 Hz~40.0 GHz)	N9030B	KEYSIGHT	MY55480167	05/14/2026	Annual
UXM 5G Wireless Test Platform	E7515B	KEYSIGHT	MY60101126	02/10/2026	Annual
4-Way Divider	ZC4PD-K1844+	Mini-Circuits	942907	09/05/2026	Annual
SIGNAL GENERATOR (100 kHz ~ 40 GHz)	SMB100A	REOHDE & SCHWARZ	177633	07/22/2026	Annual
Automation Software	FCC 2G/3G/4G Conducted	HCT CO., LTD	-	-	-
Automation Software	FCC NR Conducted	HCT CO., LTD	-	-	-
Automation Software	FCC LTE Radiated	HCT CO., LTD	-	-	-
Automation Software	FCC NR Radiated	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 C63.5-2017.

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, § 27.53(h)	$< 43 + 10\log_{10}(P[\text{Watts}])$ at Band Edge and for all out-of-band emissions	PASS
Conducted Output Power	§ 2.1046	N/A	PASS Note1
Peak- to- Average Ratio	§ 27.50(d)(5)	$< 13 \text{ dB}$	PASS
Frequency stability / variation of ambient temperature	§ 2.1055, § 27.54	Emission must remain in band	PASS

Note:

1. Refer to the 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(d)(4)	$< 1 \text{ Watts max. EIRP}$	PASS
Radiated Spurious and Harmonic Emissions	§ 2.1053, § 27.53(h)	$< 43 + 10\log_{10}(P[\text{Watts}])$ 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(Ant B)

8.1 EQUIVALENT ISOTROPIC RADIATED POWER

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1697.5	Sub6 n70/ 5 MHz [15 kHz]	PI/2 BPSK	-22.10	11.11	9.96	2.06	H	< 1.00	0.080	19.01	1	12
		QPSK	-22.18	11.03	9.96	2.06	H		0.078	18.93		
		16-QAM	-23.09	10.12	9.96	2.06	H		0.063	18.02		
		64-QAM	-24.84	8.37	9.96	2.06	H		0.042	16.27		
		256-QAM	-26.74	6.47	9.96	2.06	H		0.027	14.37		
1702.5		PI/2 BPSK	-22.06	11.19	10.02	2.06	H		0.082	19.15	1	23
		QPSK	-22.07	11.18	10.02	2.06	H		0.082	19.14		
		16-QAM	-23.18	10.07	10.02	2.06	H		0.064	18.03		
		64-QAM	-24.63	8.62	10.02	2.06	H		0.045	16.58		
		256-QAM	-26.66	6.59	10.02	2.06	H		0.029	14.55		
1707.5		PI/2 BPSK	-22.10	11.19	10.07	2.06	H		0.083	19.20	1	1
		QPSK	-22.11	11.18	10.07	2.06	H		0.083	19.19		
		16-QAM	-23.22	10.07	10.07	2.06	H		0.064	18.08		
		64-QAM	-24.65	8.64	10.07	2.06	H		0.046	16.65		
		256-QAM	-26.69	6.60	10.07	2.06	H		0.029	14.61		

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1700.0		PI/2 BPSK	-22.07	11.14	9.96	2.06	H		0.080	19.04	1	50
		QPSK	-22.08	11.13	9.96	2.06	H		0.080	19.03		
		16-QAM	-23.11	10.10	9.96	2.06	H		0.063	18.00		
		64-QAM	-24.63	8.58	9.96	2.06	H		0.044	16.48		
		256-QAM	-26.70	6.51	9.96	2.06	H		0.028	14.41		
1702.5	Sub6 n70/ 10 MHz [15 kHz]	PI/2 BPSK	-22.05	11.20	10.02	2.06	H	< 1.00	0.082	19.16	1	26
		QPSK	-22.15	11.10	10.02	2.06	H		0.081	19.06		
		16-QAM	-23.23	10.02	10.02	2.06	H		0.063	17.98		
		64-QAM	-24.65	8.60	10.02	2.06	H		0.045	16.56		
		256-QAM	-26.71	6.54	10.02	2.06	H		0.028	14.50		
1705.0		PI/2 BPSK	-21.94	11.31	10.02	2.06	H		0.085	19.27	1	26
		QPSK	-22.03	11.22	10.02	2.06	H		0.083	19.18		
		16-QAM	-22.99	10.26	10.02	2.06	H		0.066	18.22		
		64-QAM	-24.48	8.77	10.02	2.06	H		0.047	16.73		
		256-QAM	-26.44	6.81	10.02	2.06	H		0.030	14.77		

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
1702.5	Sub6 n70/ 15 MHz [15 kHz]	PI/2 BPSK	-22.21	11.04	10.02	2.06	H	< 1.00	0.079	19.00	1	39
		QPSK	-22.22	11.03	10.02	2.06	H		0.079	18.99		
		16-QAM	-23.18	10.07	10.02	2.06	H		0.064	18.03		
		64-QAM	-24.65	8.60	10.02	2.06	H		0.045	16.56		
		256-QAM	-26.64	6.61	10.02	2.06	H		0.029	14.57		

8.2 RADIATED SPURIOUS EMISSIONS

▣ NR Band:	<u>N70</u>
▣ Bandwidth:	<u>10 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
340000 (1700.0)	3 400.00	-59.96	11.60	-60.18	3.01	H	-51.59	-13.00	1	50
	5 100.00	-51.67	11.31	-45.14	3.81	H	-37.64	-13.00		
	6 800.00	-62.96	10.96	-50.15	4.48	H	-43.67	-13.00		
340500 (1702.5)	3 405.00	-59.72	11.63	-59.88	3.02	H	-51.27	-13.00	1	26
	5 107.50	-54.79	11.34	-48.42	3.82	H	-40.90	-13.00		
	6 810.00	-62.84	10.97	-49.92	4.49	H	-43.44	-13.00		
341000 (1705.0)	3 410.00	-58.62	11.66	-58.73	3.02	H	-50.09	-13.00	1	26
	5 115.00	-53.59	11.36	-47.18	3.82	H	-39.64	-13.00		
	6 820.00	-63.41	10.98	-50.46	4.49	H	-43.97	-13.00		

8.3 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)	Limit (dB)
Sub6 n70	5 MHz	1702.5	PI/2 BPSK	25	0	4.32	13.00
			QPSK			5.58	
			16-QAM			6.21	
			64-QAM			6.54	
			256-QAM			6.33	
	10 MHz		PI/2 BPSK	50		4.52	
			QPSK			5.42	
			16-QAM			6.27	
			64-QAM			6.54	
			256-QAM			6.90	
	15 MHz		PI/2 BPSK	75		4.57	
			QPSK			5.46	
			16-QAM			6.26	
			64-QAM			6.43	
			256-QAM			6.69	

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 45 ~ 59.

8.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Sub6 n70	5 MHz	1702.5	PI/2 BPSK	25	0	4.6217
			QPSK			4.6641
			16-QAM			4.5908
			64-QAM			4.6813
			256-QAM			4.7133
	10 MHz		PI/2 BPSK	50		9.0244
			QPSK			8.9927
			16-QAM			8.9906
			64-QAM			9.0049
			256-QAM			8.9782
	15 MHz		PI/2 BPSK	75		13.548
			QPSK			13.485
			16-QAM			13.473
			64-QAM			13.439
			256-QAM			13.432

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 60 ~ 74.

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 n70	5	1697.5	3.8086	28.533	-63.650	-35.117	-13.00
		1702.5	7.1785	29.116	-62.418	-33.302	
		1707.5	8.8535	29.116	-63.529	-34.413	
	10	1700.0	4.0080	28.533	-63.378	-34.845	
		1702.5	9.9402	29.116	-62.785	-33.669	
		1705.0	4.8555	28.533	-62.215	-33.682	
	15	1702.5	3.8186	28.533	-63.380	-34.847	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 75 ~ 88.
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	27.012
1 – 5	28.533
5 – 10	29.116
10 – 15	30.025
15 – 20	31.052
Above 20	31.613

8.6 BAND EDGE

- Plots of the EUT's Band Edge are shown Page 89 ~ 106.

8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

- ▣ BandWidth: 5 MHz
- ▣ Voltage(100 %): 3.900 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1697.5	100 %	+20(Ref)	1697 500 001	0.0	0.000 000	0.000
	100 %	-30	1697 500 002	0.9	0.000 000	0.001
	100 %	-20	1697 500 003	1.9	0.000 000	0.001
	100 %	-10	1697 500 001	0.2	0.000 000	0.000
	100 %	0	1697 500 002	1.0	0.000 000	0.001
	100 %	+10	1697 500 000	-1.0	0.000 000	-0.001
	100 %	+30	1697 500 002	1.3	0.000 000	0.001
	100 %	+40	1697 500 001	0.1	0.000 000	0.000
	100 %	+50	1697 500 001	0.1	0.000 000	0.000
	Batt. Endpoint	+20	1697 500 001	0.5	0.000 000	0.000
1707.5	100 %	+20(Ref)	1707 500 001	0.0	0.000 000	0.000
	100 %	-30	1707 500 002	1.0	0.000 000	0.001
	100 %	-20	1707 500 002	0.6	0.000 000	0.000
	100 %	-10	1707 500 001	-0.1	0.000 000	0.000
	100 %	0	1707 500 002	0.5	0.000 000	0.000
	100 %	+10	1707 500 003	1.8	0.000 000	0.001
	100 %	+30	1707 500 002	0.7	0.000 000	0.000
	100 %	+40	1707 500 001	0.0	0.000 000	0.000
	100 %	+50	1707 500 001	0.4	0.000 000	0.000
	Batt. Endpoint	+20	1707 500 002	0.8	0.000 000	0.000

- ▣ BandWidth: 10 MHz
- ▣ Voltage(100 %): 3.900 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1700.0	100 %	+20(Ref)	1699 999 999	0.0	0.000 000	0.000
	100 %	-30	1699 999 999	-0.3	0.000 000	0.000
	100 %	-20	1699 999 998	-1.0	0.000 000	-0.001
	100 %	-10	1700 000 000	0.9	0.000 000	0.001
	100 %	0	1700 000 000	1.0	0.000 000	0.001
	100 %	+10	1699 999 999	0.1	0.000 000	0.000
	100 %	+30	1699 999 999	-0.6	0.000 000	0.000
	100 %	+40	1699 999 999	-0.5	0.000 000	0.000
	100 %	+50	1699 999 999	-0.6	0.000 000	0.000
	Batt. Endpoint	+20	1699 999 999	-0.5	0.000 000	0.000
1705.0	100 %	+20(Ref)	1705 000 000	0.0	0.000 000	0.000
	100 %	-30	1705 000 000	0.1	0.000 000	0.000
	100 %	-20	1705 000 001	0.4	0.000 000	0.000
	100 %	-10	1705 000 002	1.8	0.000 000	0.001
	100 %	0	1704 999 998	-1.8	0.000 000	-0.001
	100 %	+10	1705 000 000	-0.3	0.000 000	0.000
	100 %	+30	1705 000 001	1.3	0.000 000	0.001
	100 %	+40	1705 000 000	0.2	0.000 000	0.000
	100 %	+50	1705 000 000	-0.1	0.000 000	0.000
	Batt. Endpoint	+20	1705 000 002	1.4	0.000 000	0.001

- ▣ BandWidth: 15 MHz
- ▣ Voltage(100 %): 3.900 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1702.5	100 %	+20(Ref)	1702 499 999	0.0	0.000 000	0.000
	100 %	-30	1702 499 999	-0.7	0.000 000	0.000
	100 %	-20	1702 499 999	-0.5	0.000 000	0.000
	100 %	-10	1702 500 000	0.4	0.000 000	0.000
	100 %	0	1702 499 999	-0.5	0.000 000	0.000
	100 %	+10	1702 500 000	0.4	0.000 000	0.000
	100 %	+30	1702 500 001	1.3	0.000 000	0.001
	100 %	+40	1702 500 000	0.6	0.000 000	0.000
	100 %	+50	1702 499 998	-1.0	0.000 000	-0.001
	Batt. Endpoint	+20	1702 499 999	0.0	0.000 000	0.000

9. TEST DATA(Ant F)

9.1 EQUIVALENT ISOTROPIC RADIATED POWER

Freq (MHz)	Mod/ Bandwidth [SCS (kHz)]	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBi)	C.L	Pol	Limit	EIRP		RB	
								W	W	dBm	Size	Offset
1697.5	Sub6 n70/ 5 MHz [15 kHz]	PI/2 BPSK	-19.79	13.42	9.96	2.06	H	< 1.00	0.136	21.32	1	12
		QPSK	-19.94	13.27	9.96	2.06	H		0.131	21.17		
		16-QAM	-20.90	12.31	9.96	2.06	H		0.105	20.21		
		64-QAM	-22.45	10.76	9.96	2.06	H		0.073	18.66		
		256-QAM	-24.35	8.86	9.96	2.06	H		0.047	16.76		
1702.5		PI/2 BPSK	-19.97	13.28	10.02	2.06	H		0.133	21.24	1	23
		QPSK	-20.00	13.25	10.02	2.06	H		0.132	21.21		
		16-QAM	-21.00	12.25	10.02	2.06	H		0.105	20.21		
		64-QAM	-22.47	10.78	10.02	2.06	H		0.075	18.74		
		256-QAM	-24.60	8.65	10.02	2.06	H		0.046	16.61		
1707.5		PI/2 BPSK	-19.93	13.36	10.07	2.06	H		0.137	21.37	1	1
		QPSK	-20.05	13.24	10.07	2.06	H		0.133	21.25		
		16-QAM	-20.95	12.34	10.07	2.06	H		0.108	20.35		
		64-QAM	-22.44	10.85	10.07	2.06	H		0.077	18.86		
		256-QAM	-24.49	8.80	10.07	2.06	H		0.048	16.81		

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
1700.0		PI/2 BPSK	-19.88	13.33	9.96	2.06	H	< 1.00	0.133	21.23	1	26
		QPSK	-19.98	13.23	9.96	2.06	H		0.130	21.13		
		16-QAM	-20.96	12.25	9.96	2.06	H		0.104	20.15		
		64-QAM	-22.59	10.62	9.96	2.06	H		0.071	18.52		
		256-QAM	-24.39	8.82	9.96	2.06	H		0.047	16.72		
1702.5	Sub6 n70/ 10 MHz [15 kHz]	PI/2 BPSK	-19.84	13.41	10.02	2.06	H	< 1.00	0.137	21.37	1	1
		QPSK	-19.91	13.34	10.02	2.06	H		0.135	21.30		
		16-QAM	-20.70	12.55	10.02	2.06	H		0.112	20.51		
		64-QAM	-22.27	10.98	10.02	2.06	H		0.078	18.94		
		256-QAM	-24.31	8.94	10.02	2.06	H		0.049	16.90		
1705.0		PI/2 BPSK	-19.80	13.45	10.02	2.06	H	< 1.00	0.138	21.41	1	26
		QPSK	-19.86	13.39	10.02	2.06	H		0.136	21.35		
		16-QAM	-20.94	12.31	10.02	2.06	H		0.106	20.27		
		64-QAM	-22.23	11.02	10.02	2.06	H		0.079	18.98		
		256-QAM	-24.19	9.06	10.02	2.06	H		0.050	17.02		

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
1702.5	Sub6 n70/ 15 MHz [15 kHz]	PI/2 BPSK	-19.88	13.37	10.02	2.06	H	< 1.00	0.136	21.33	1	39
		QPSK	-19.97	13.28	10.02	2.06	H		0.133	21.24		
		16-QAM	-21.06	12.19	10.02	2.06	H		0.104	20.15		
		64-QAM	-22.50	10.75	10.02	2.06	H		0.074	18.71		
		256-QAM	-24.39	8.86	10.02	2.06	H		0.048	16.82		

9.2 RADIATED SPURIOUS EMISSIONS

▣ NR Band:	<u>N70</u>
▣ Bandwidth:	<u>10 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
340000 (1700.0)	3 400.00	-60.95	11.60	-61.17	3.01	H	-52.58	-13.00	1	26
	5 100.00	-61.74	11.31	-55.21	3.81	H	-47.71	-13.00		
	6 800.00	-63.72	10.96	-50.91	4.48	H	-44.43	-13.00		
340500 (1702.5)	3 405.00	-61.47	11.63	-61.63	3.02	H	-53.02	-13.00	1	1
	5 107.50	-62.42	11.34	-56.05	3.82	H	-48.53	-13.00		
	6 810.00	-62.38	10.97	-49.46	4.49	H	-42.98	-13.00		
341000 (1705.0)	3 410.00	-60.32	11.66	-60.43	3.02	H	-51.79	-13.00	1	26
	5 115.00	-61.56	11.36	-55.15	3.82	H	-47.61	-13.00		
	6 820.00	-63.87	10.98	-50.92	4.49	H	-44.43	-13.00		

9.3 PEAK-TO-AVERAGE RATIO

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)	Limit (dB)
Sub6 n70	5 MHz	1702.5	PI/2 BPSK	25	0	4.63	13.00
			QPSK			5.37	
			16-QAM			5.60	
			64-QAM			5.96	
			256-QAM			6.66	
	10 MHz		PI/2 BPSK	50		5.17	
			QPSK			5.46	
			16-QAM			6.05	
			64-QAM			6.30	
			256-QAM			6.48	
	15 MHz		PI/2 BPSK	75		4.24	
			QPSK			5.33	
			16-QAM			5.98	
			64-QAM			6.26	
			256-QAM			6.56	

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 108 ~ 122.

9.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Sub6 n70	5 MHz	1702.5	PI/2 BPSK	25	0	4.6028
			QPSK			4.6351
			16-QAM			4.5981
			64-QAM			4.7150
			256-QAM			4.6968
	10 MHz		PI/2 BPSK	50		9.0104
			QPSK			8.9897
			16-QAM			8.9645
			64-QAM			8.9700
			256-QAM			8.9636
	15 MHz		PI/2 BPSK	75		13.473
			QPSK			13.434
			16-QAM			13.471
			64-QAM			13.474
			256-QAM			13.452

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 123 ~ 137.

9.5 CONDUCTED SPURIOUS EMISSIONS

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
Sub6 n70	5	1697.5	8.6441	29.116	-63.609	-34.493	-13.00
		1702.5	6.2812	29.116	-62.452	-33.336	
		1707.5	4.5165	28.533	-63.387	-34.854	
	10	1700.0	8.8734	29.116	-62.513	-33.397	
		1702.5	4.8954	28.533	-63.387	-34.854	
		1705.0	9.7009	29.116	-63.194	-34.078	
	15	1702.5	7.9661	29.116	-63.300	-34.184	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 138 ~ 151.
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	27.012
1 – 5	28.533
5 – 10	29.116
10 – 15	30.025
15 – 20	31.052
Above 20	31.613

9.6 BAND EDGE

- Plots of the EUT's Band Edge are shown Page 152 ~ 169.

9.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

- ▣ BandWidth: 5 MHz
- ▣ Voltage(100 %): 3.900 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1697.5	100 %	+20(Ref)	1697 500 001	0.0	0.000 000	0.000
	100 %	-30	1697 500 001	0.3	0.000 000	0.000
	100 %	-20	1697 500 003	1.7	0.000 000	0.001
	100 %	-10	1697 500 002	1.1	0.000 000	0.001
	100 %	0	1697 500 000	-0.9	0.000 000	-0.001
	100 %	+10	1697 500 000	-0.6	0.000 000	0.000
	100 %	+30	1697 500 001	-0.1	0.000 000	0.000
	100 %	+40	1697 500 001	-0.3	0.000 000	0.000
	100 %	+50	1697 500 001	0.4	0.000 000	0.000
	Batt. Endpoint	+20	1697 500 000	-0.5	0.000 000	0.000
1707.5	100 %	+20(Ref)	1707 500 001	0.0	0.000 000	0.000
	100 %	-30	1707 500 001	-0.4	0.000 000	0.000
	100 %	-20	1707 500 002	0.3	0.000 000	0.000
	100 %	-10	1707 500 001	-0.2	0.000 000	0.000
	100 %	0	1707 500 002	0.8	0.000 000	0.000
	100 %	+10	1707 500 003	1.3	0.000 000	0.001
	100 %	+30	1707 500 001	-0.8	0.000 000	0.000
	100 %	+40	1707 500 002	0.7	0.000 000	0.000
	100 %	+50	1707 500 002	0.4	0.000 000	0.000
	Batt. Endpoint	+20	1707 500 001	-0.2	0.000 000	0.000

- ▣ BandWidth: 10 MHz
- ▣ Voltage(100 %): 3.900 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1700.0	100 %	+20(Ref)	1700 000 001	0.0	0.000 000	0.000
	100 %	-30	1700 000 001	0.5	0.000 000	0.000
	100 %	-20	1700 000 000	-0.4	0.000 000	0.000
	100 %	-10	1700 000 000	-0.3	0.000 000	0.000
	100 %	0	1700 000 002	1.0	0.000 000	0.001
	100 %	+10	1700 000 000	-0.3	0.000 000	0.000
	100 %	+30	1700 000 001	1.0	0.000 000	0.001
	100 %	+40	1700 000 001	0.7	0.000 000	0.000
	100 %	+50	1700 000 000	-0.4	0.000 000	0.000
	Batt. Endpoint	+20	1700 000 002	1.2	0.000 000	0.001
1705.0	100 %	+20(Ref)	1704 999 999	0.0	0.000 000	0.000
	100 %	-30	1705 000 000	0.4	0.000 000	0.000
	100 %	-20	1705 000 000	0.2	0.000 000	0.000
	100 %	-10	1704 999 999	0.2	0.000 000	0.000
	100 %	0	1705 000 000	0.5	0.000 000	0.000
	100 %	+10	1705 000 000	0.2	0.000 000	0.000
	100 %	+30	1704 999 999	0.1	0.000 000	0.000
	100 %	+40	1705 000 000	0.5	0.000 000	0.000
	100 %	+50	1704 999 999	-0.6	0.000 000	0.000
	Batt. Endpoint	+20	1704 999 999	-0.4	0.000 000	0.000

- ▣ BandWidth: 15 MHz
- ▣ Voltage(100 %): 3.900 VDC
- ▣ Batt. Endpoint: 3.400 VDC
- ▣ LIMIT: Emission must remain in band

Test. Frequency	Voltage	Temp.	Frequency	Frequency	Deviation	ppm
(MHz)	(%)	(°C)	(Hz)	Error (Hz)	(%)	
1702.5	100 %	+20(Ref)	1702 500 001	0.0	0.000 000	0.000
	100 %	-30	1702 500 002	1.1	0.000 000	0.001
	100 %	-20	1702 500 001	0.2	0.000 000	0.000
	100 %	-10	1702 500 000	-1.0	0.000 000	-0.001
	100 %	0	1702 500 002	0.9	0.000 000	0.001
	100 %	+10	1702 500 000	-0.3	0.000 000	0.000
	100 %	+30	1702 500 001	0.6	0.000 000	0.000
	100 %	+40	1702 500 001	0.0	0.000 000	0.000
	100 %	+50	1702 500 001	0.8	0.000 000	0.000
	Batt. Endpoint	+20	1702 500 001	-0.1	0.000 000	0.000

10. TEST PLOTS(Ant B)

NR n70_5 M_PAR_Mid_PI/2 BPSK_FullRB



NR n70_5 M_PAR_Mid_QPSK_FullRB



NR n70_5 M_PAR_Mid_16QAM_FullRB



NR n70_5 M_PAR_Mid_64QAM_FullRB



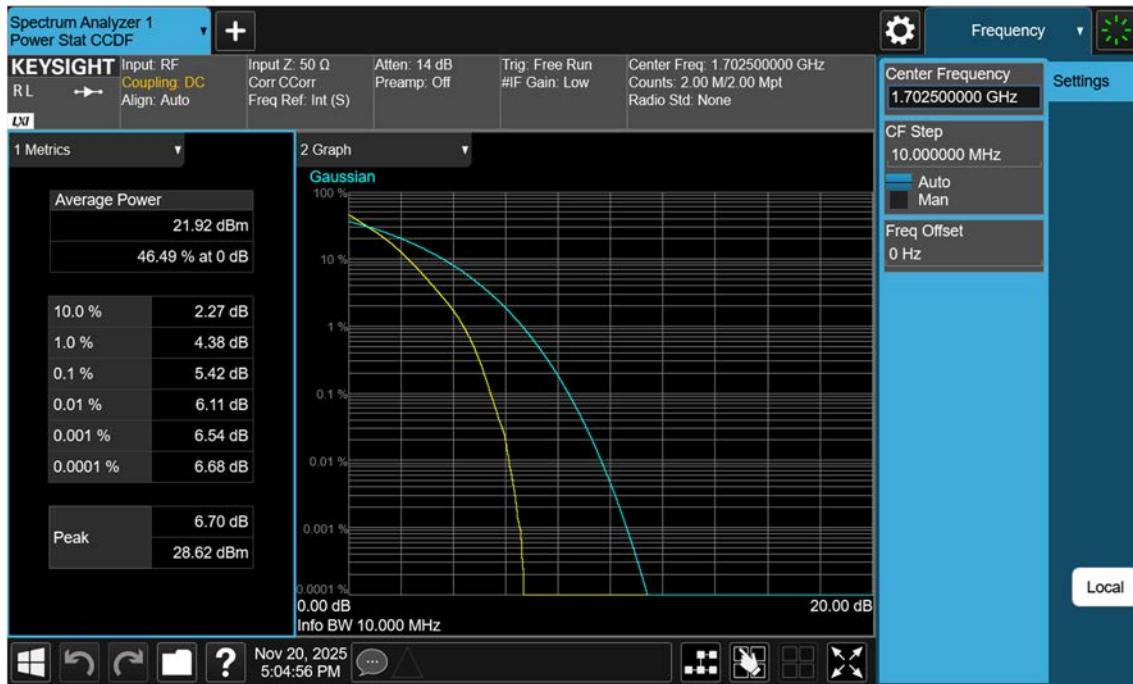
NR n70_5 M_PAR_Mid_256QAM_FullRB



NR n70_10 M_PAR_Mid_PI/2 BPSK_FullRB



NR n70_10 M_PAR_Mid_QPSK_FullRB



NR n70_10 M_PAR_Mid_16QAM_FullRB



NR n70_10 M_PAR_Mid_64QAM_FullRB



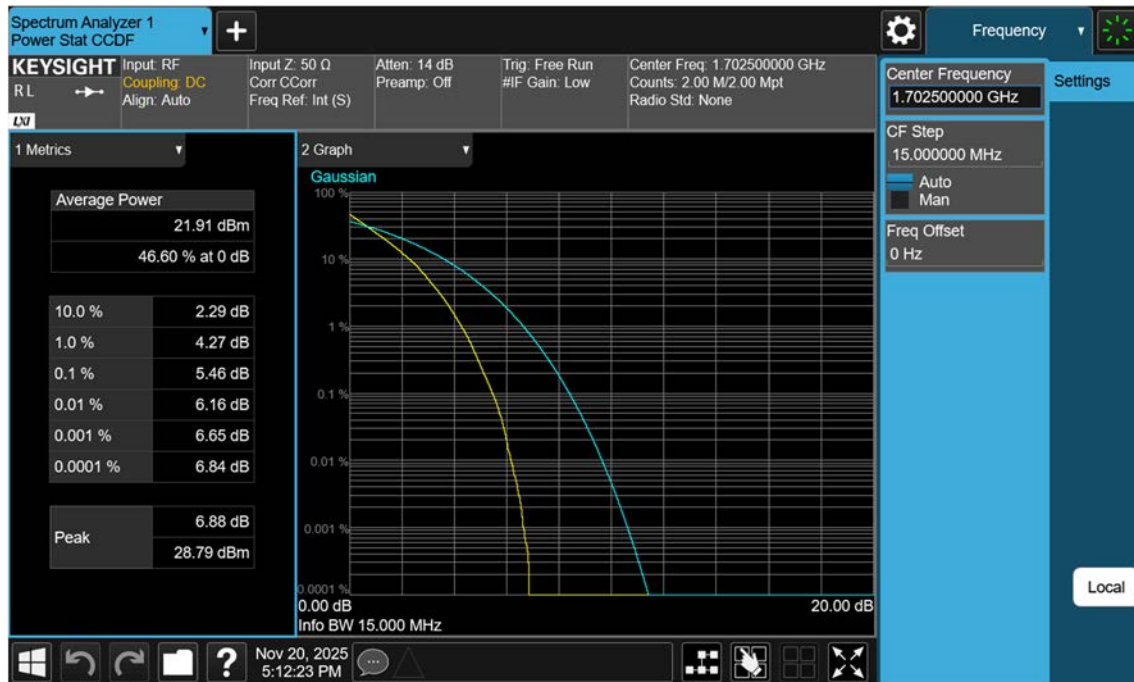
NR n70_10 M_PAR_Mid_256QAM_FullRB



NR n70_15 M_PAR_Mid_PI/2 BPSK_FullRB



NR n70_15 M_PAR_Mid_QPSK_FullRB



NR n70_15 M_PAR_Mid_16QAM_FullRB



NR n70_15 M_PAR_Mid_64QAM_FullRB



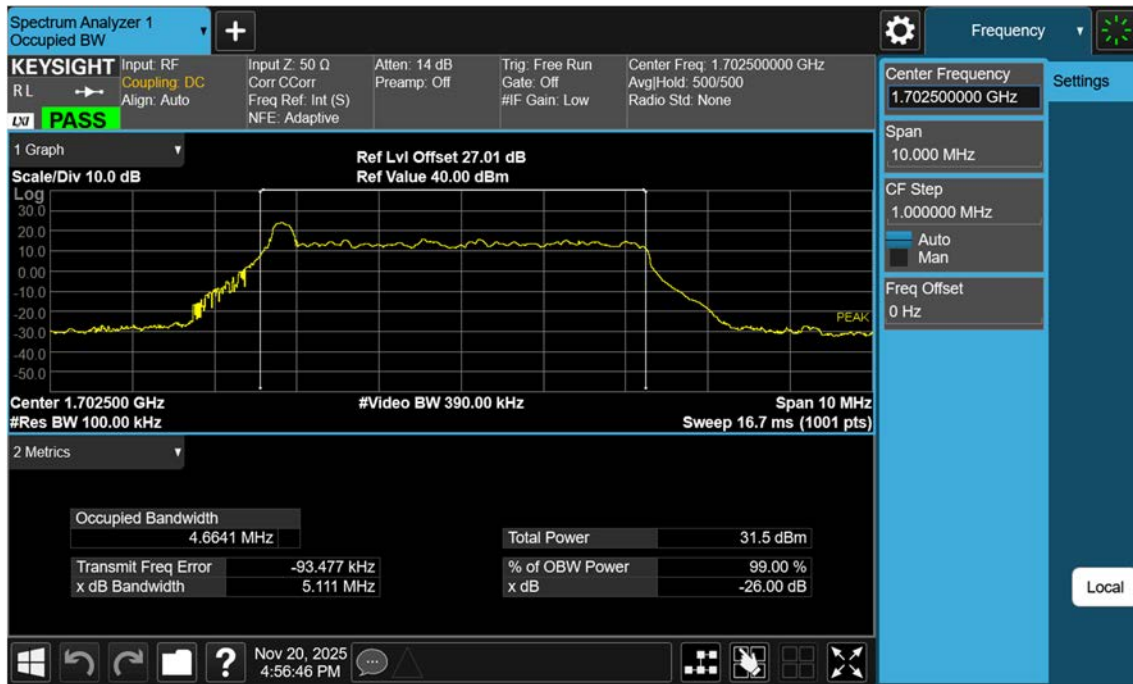
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NR n70_5 M_OBW_Mid_PI/2 BPSK_FullRB



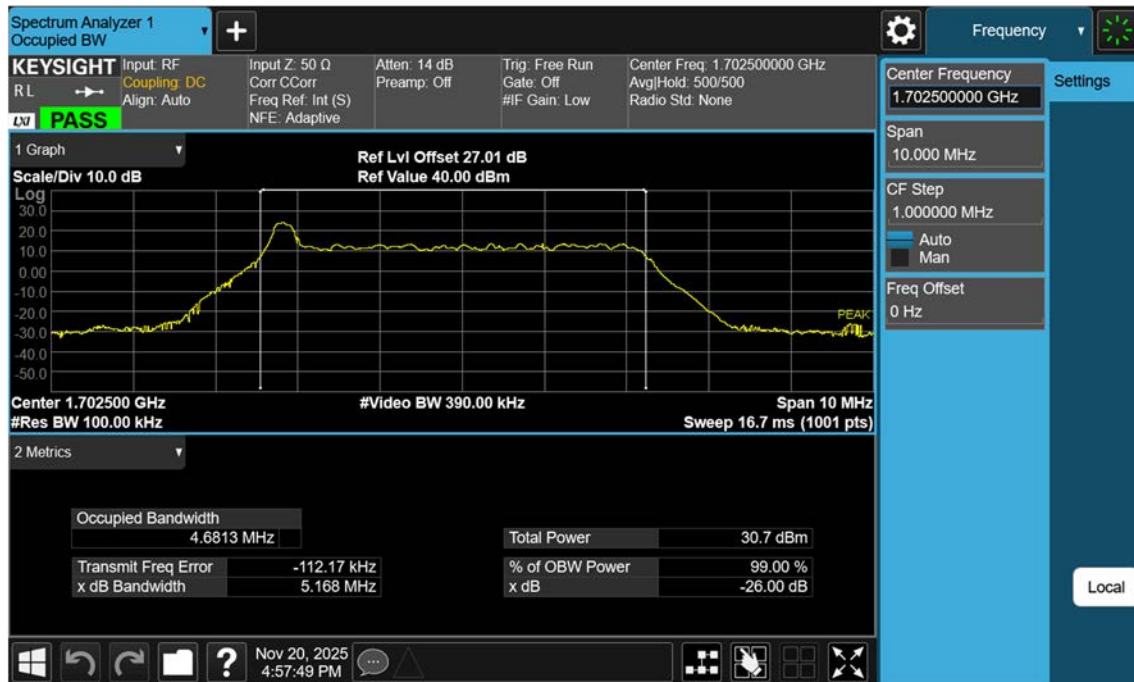
NR n70_5 M_OBW_Mid_QPSK_FullRB



NR n70_5 M_OBW_Mid_16QAM_FullRB



NR n70_5 M_OBW_Mid_64QAM_FullRB



NR n70_5 M_OBW_Mid_256QAM_FullRB



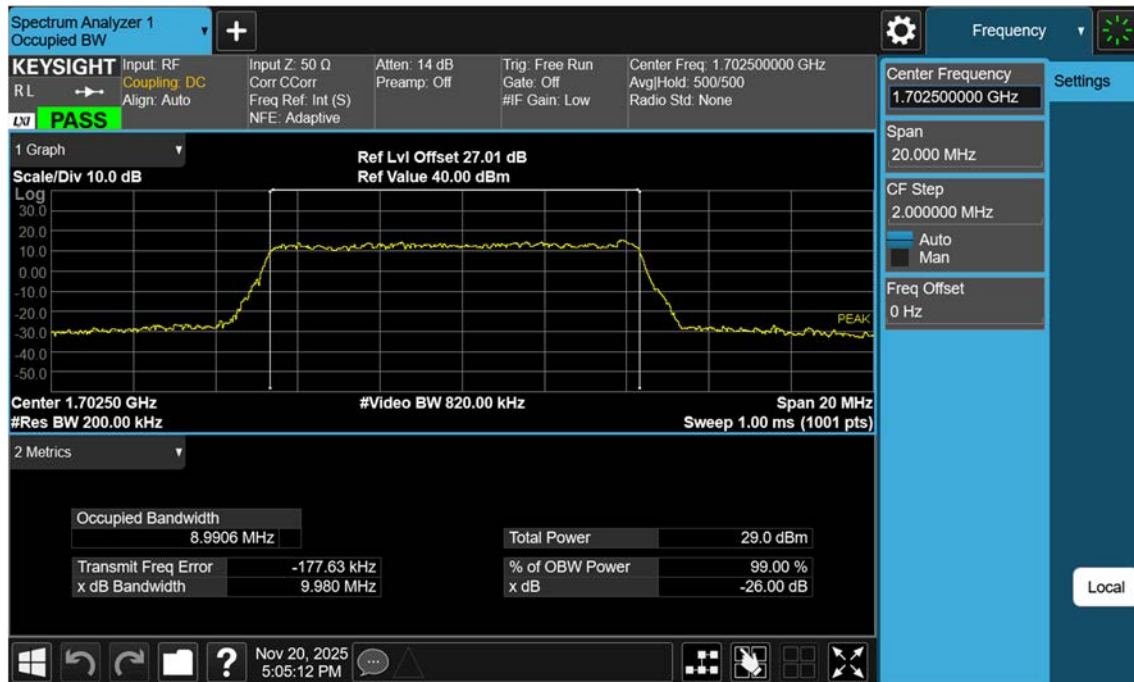
NR n70_10 M_OBW_Mid_PI/2 BPSK_FullRB



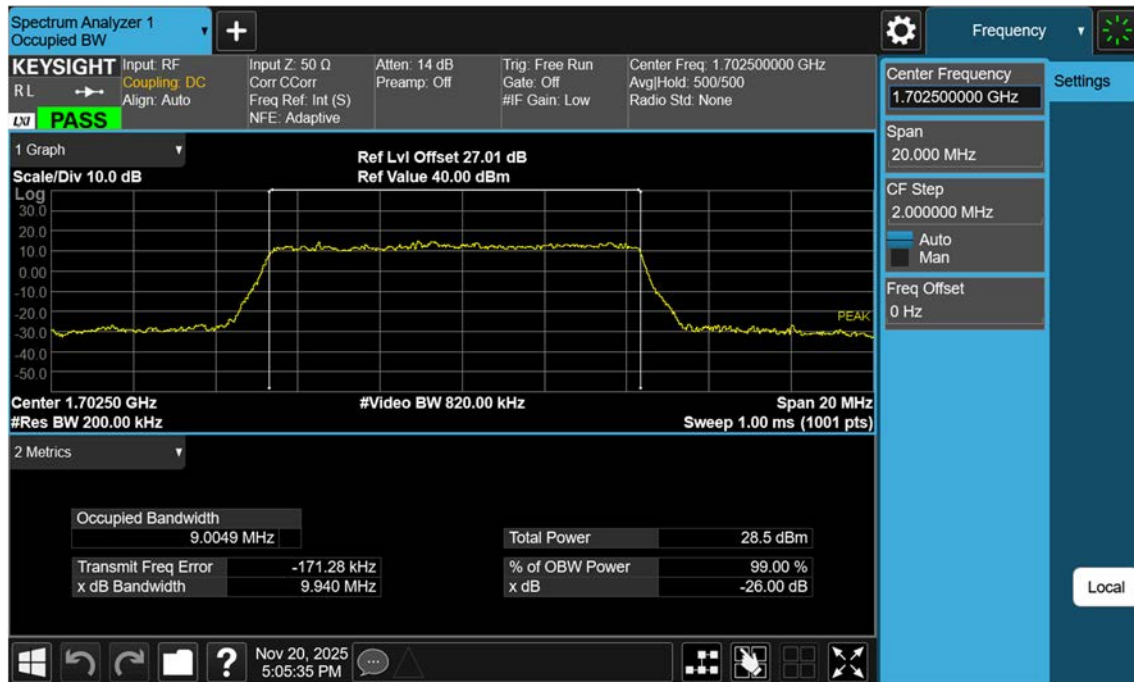
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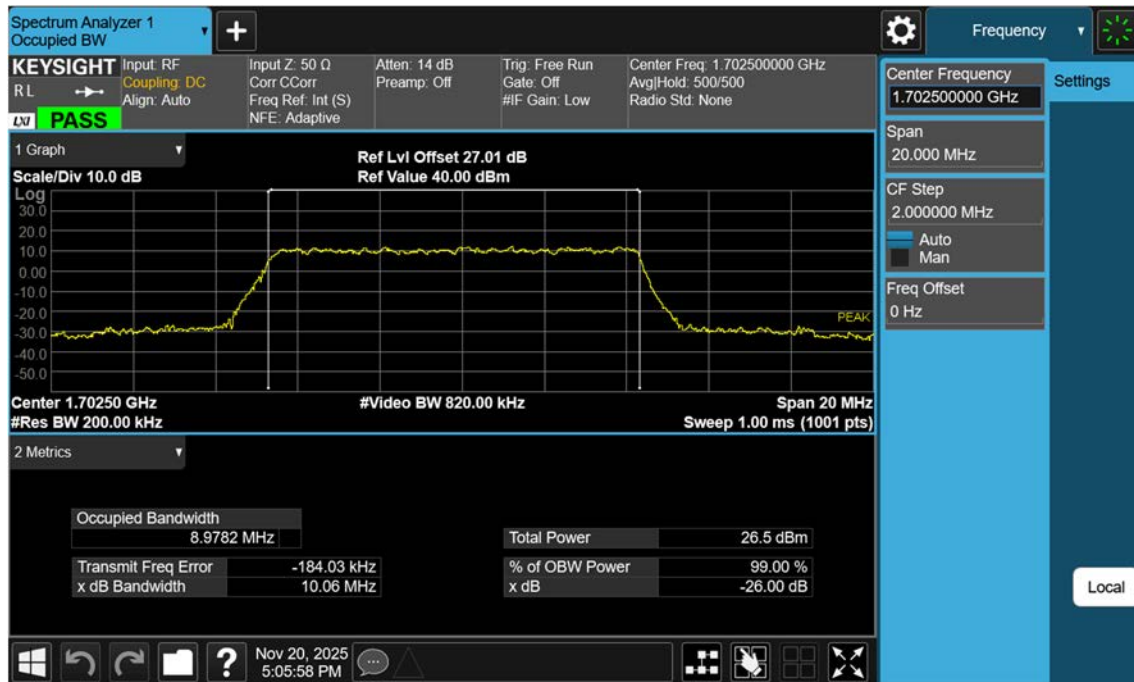
NR n70_10 M_OBW_Mid_16QAM_FullRB



NR n70_10 M_OBW_Mid_64QAM_FullRB



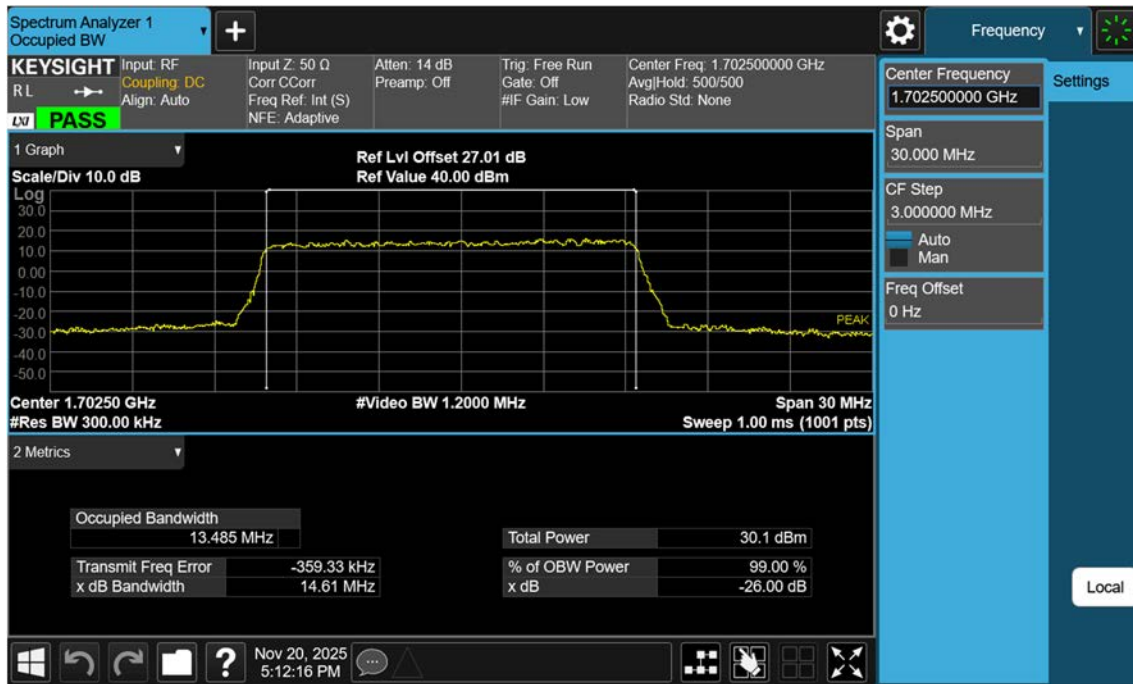
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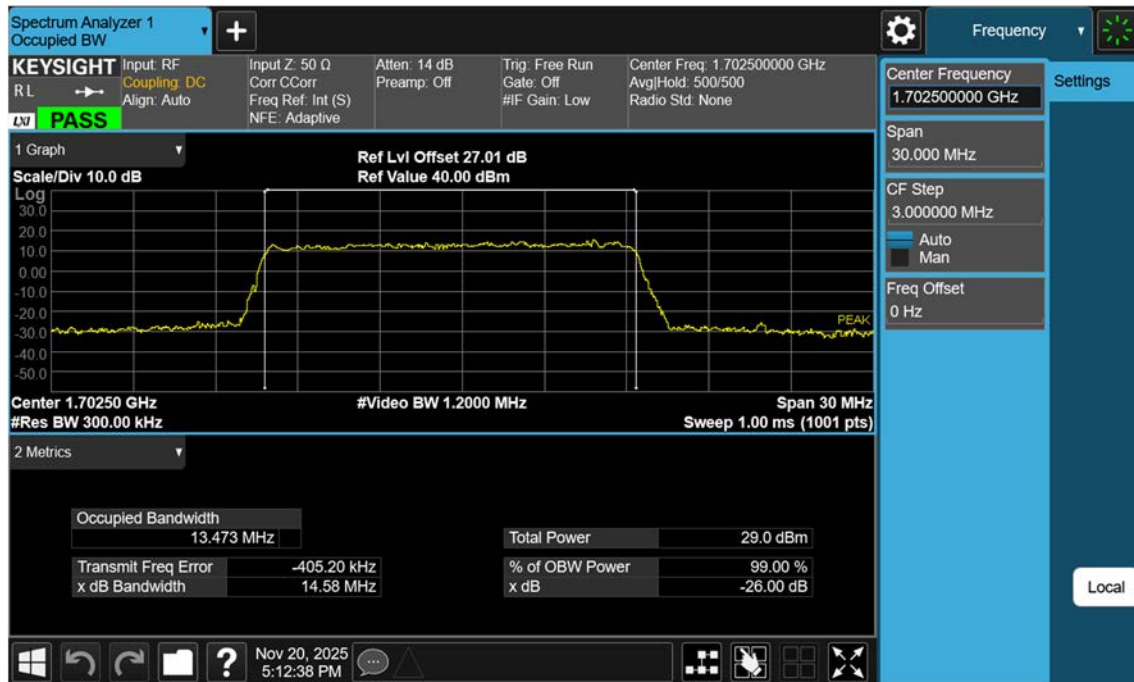
NR n70_15 M_OBW_Mid_PI/2 BPSK_FullRB



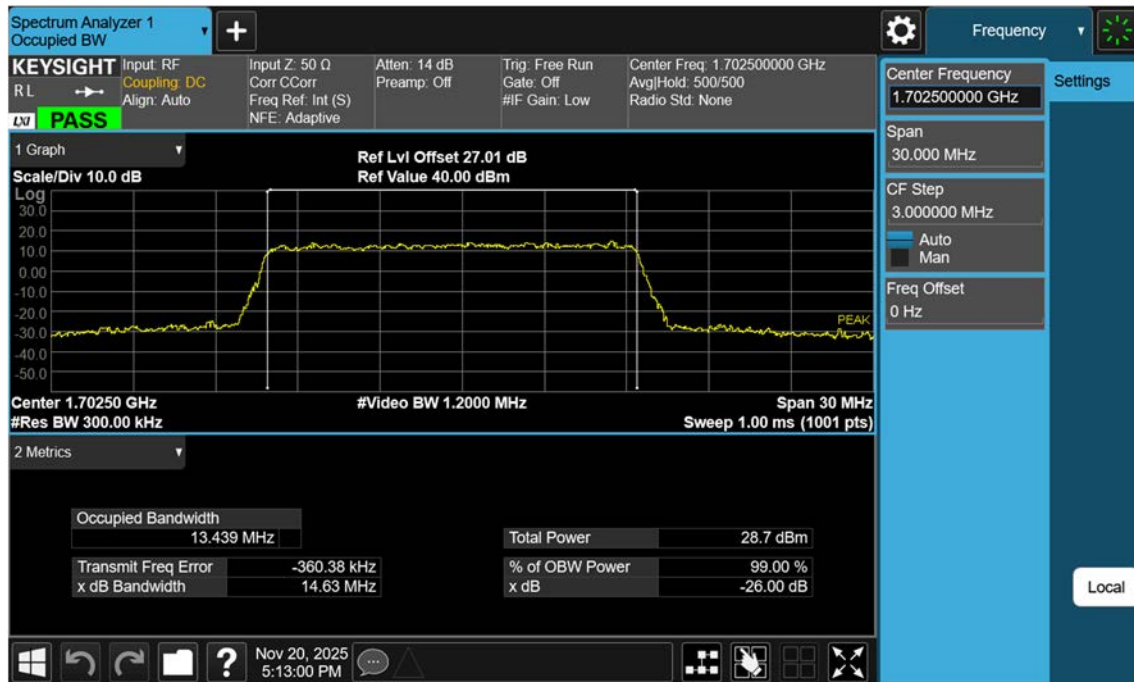
NR n70_15 M_OBW_Mid_QPSK_FullRB



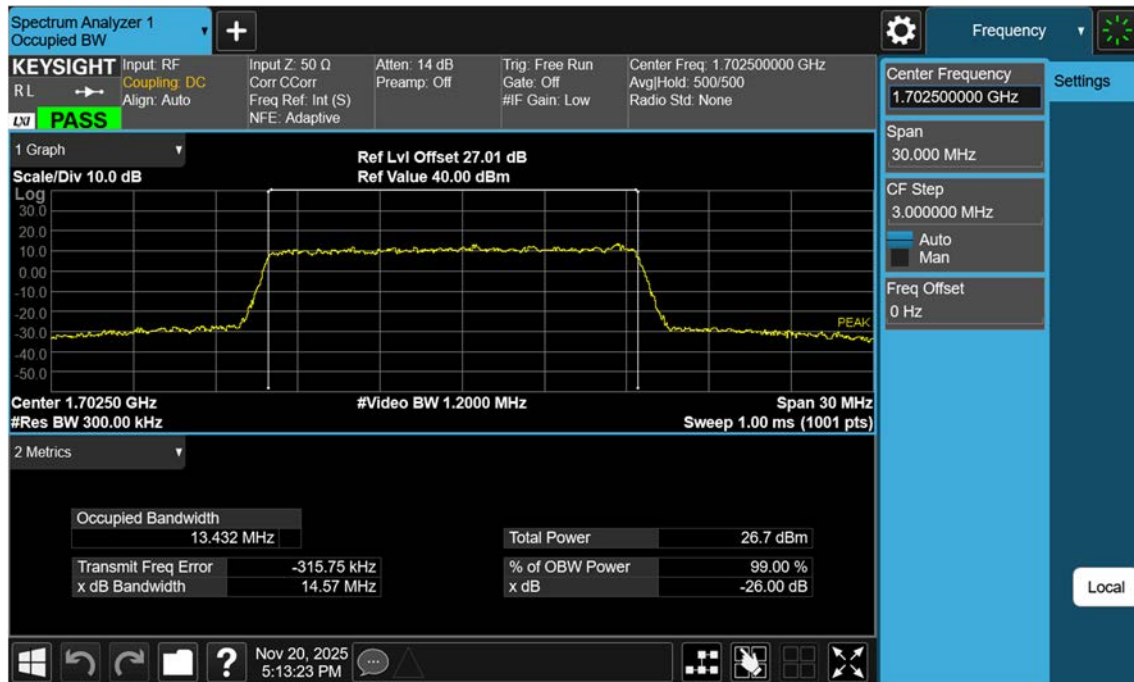
NR n70_15 M_OBW_Mid_16QAM_FullRB



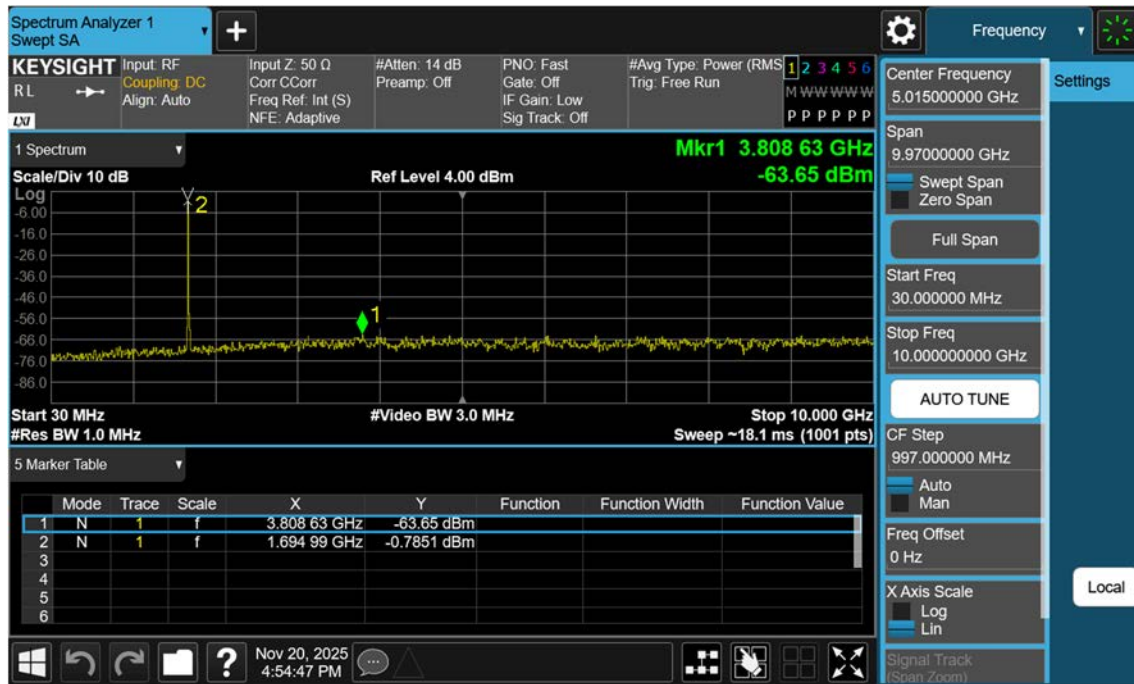
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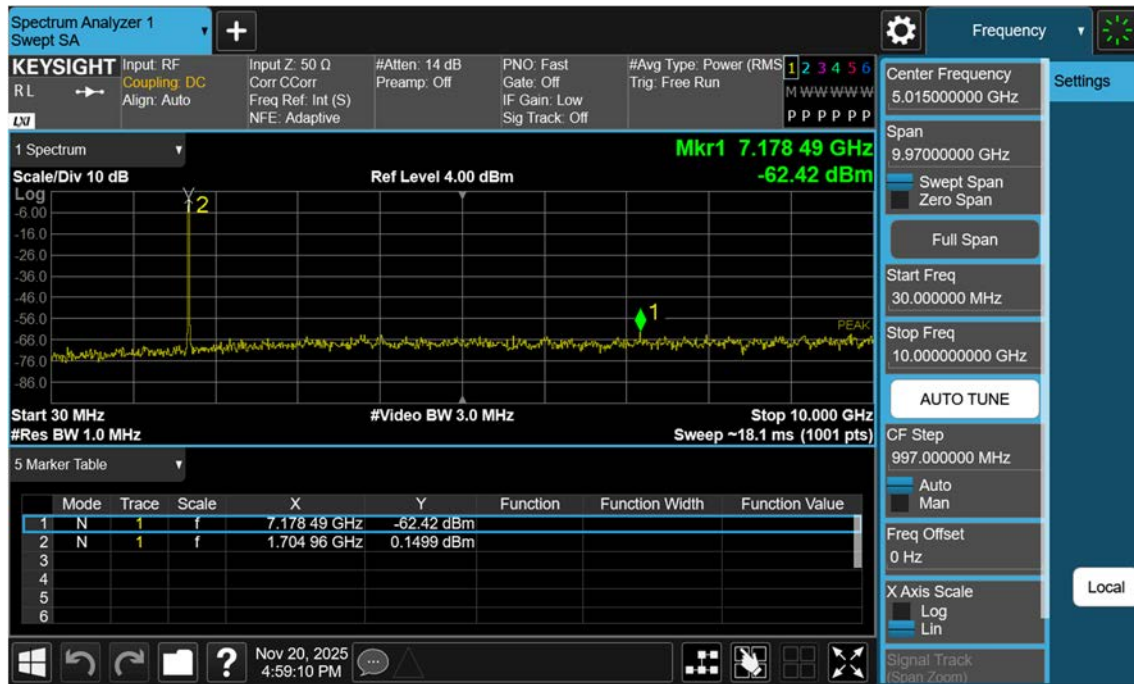
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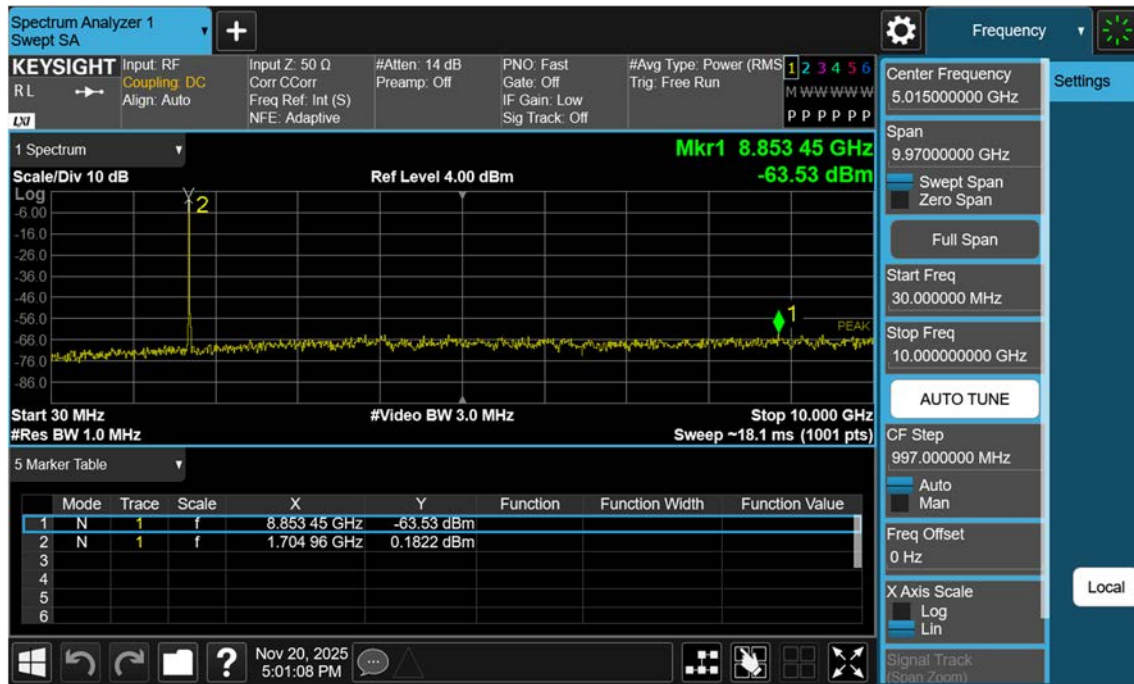
NR n70_5 M_Conducted Spurious Emissions(30 M-10 G)_Low_PI/2 BPSK_1RB



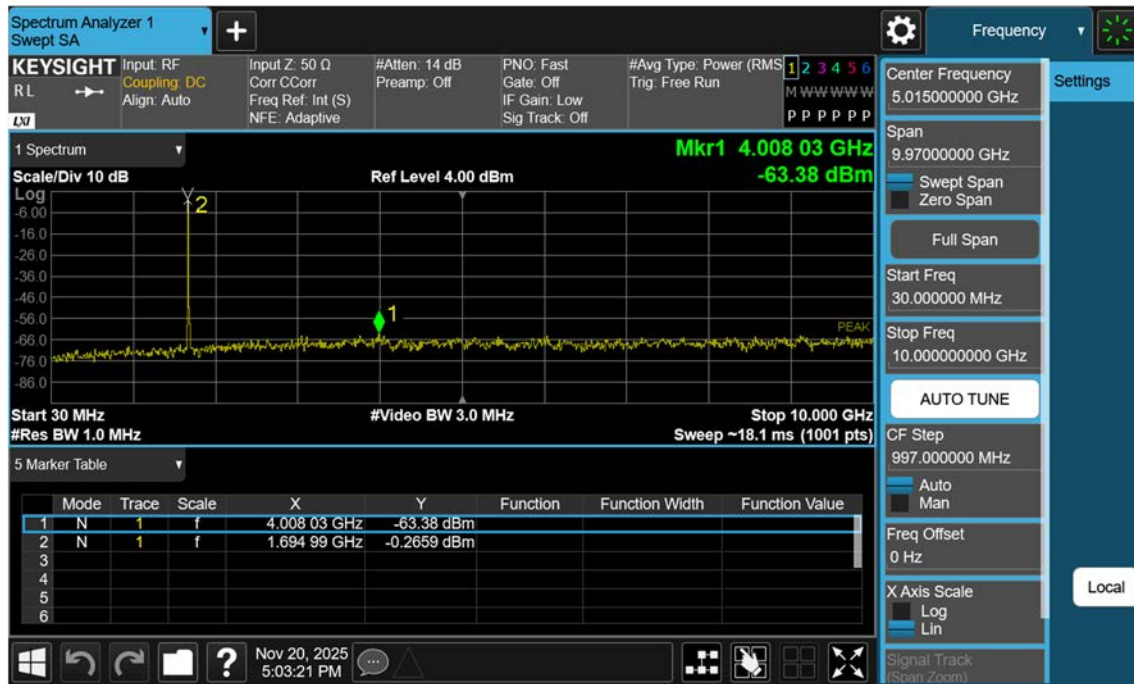
NR n70_5 M_Conducted Spurious Emissions(30 M-10 G)_Mid_PI/2 BPSK_1RB



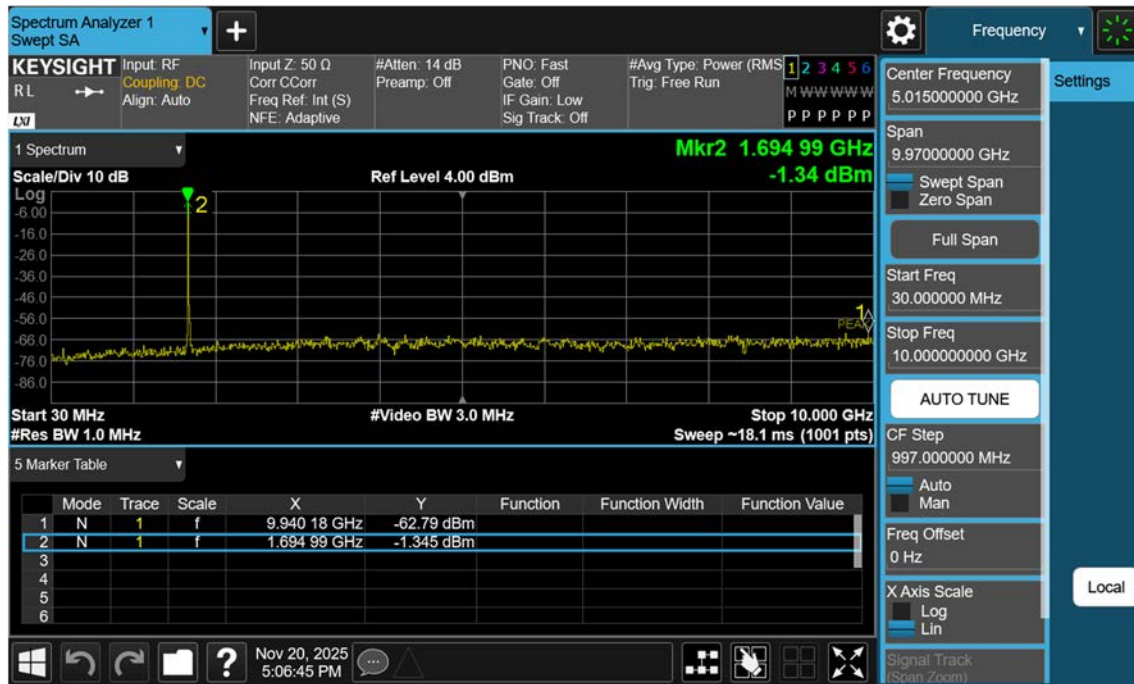
NR n70_5 M_Conducted Spurious Emissions(30 M-10 G)_High_PI/2 BPSK_1RB



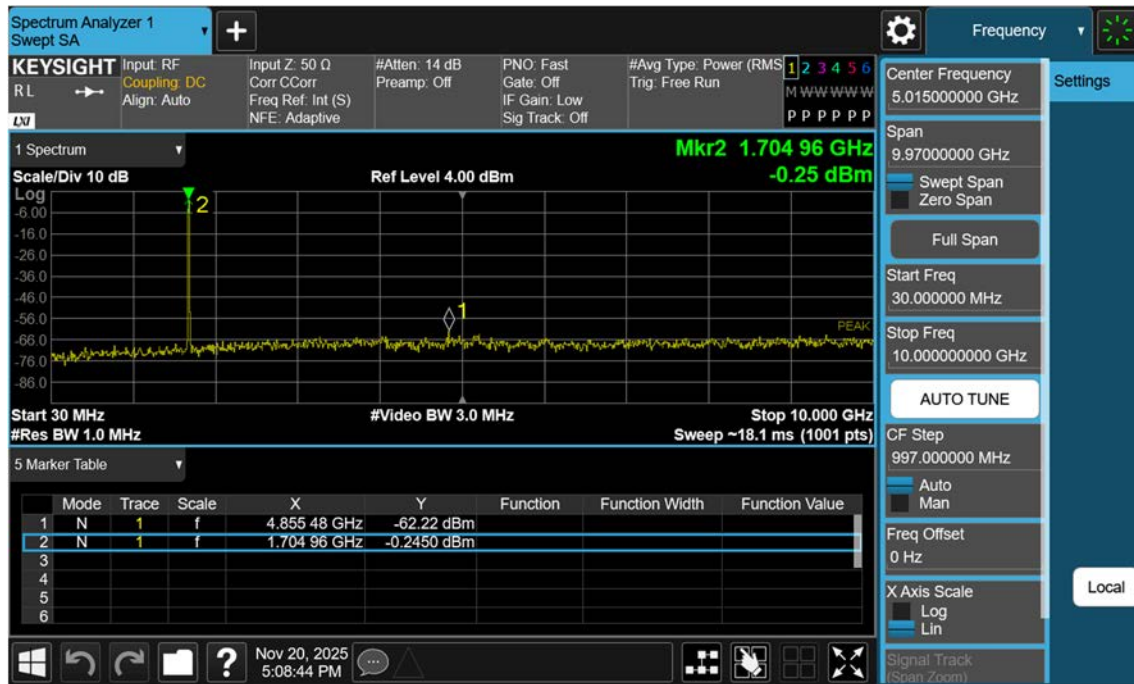
NR n70_10 M_Conducted Spurious Emissions(30 M-10 G)_Low_PI/2 BPSK_1RB



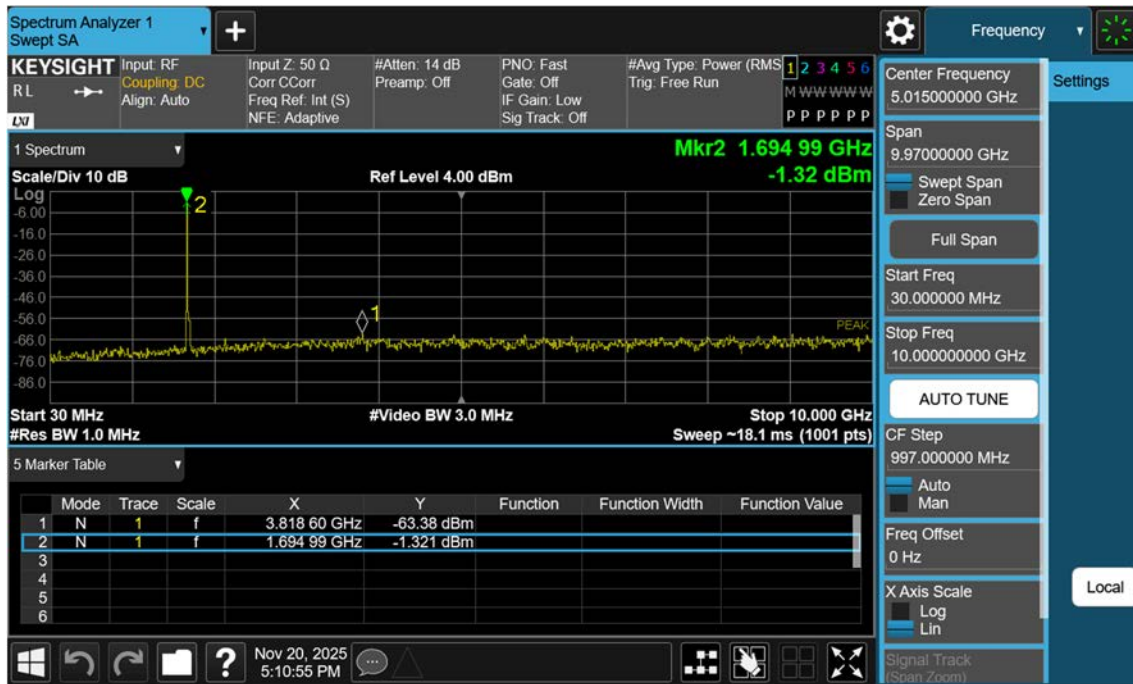
NR n70_10 M_Conducted Spurious Emissions(30 M-10 G)_Mid_PI/2 BPSK_1RB



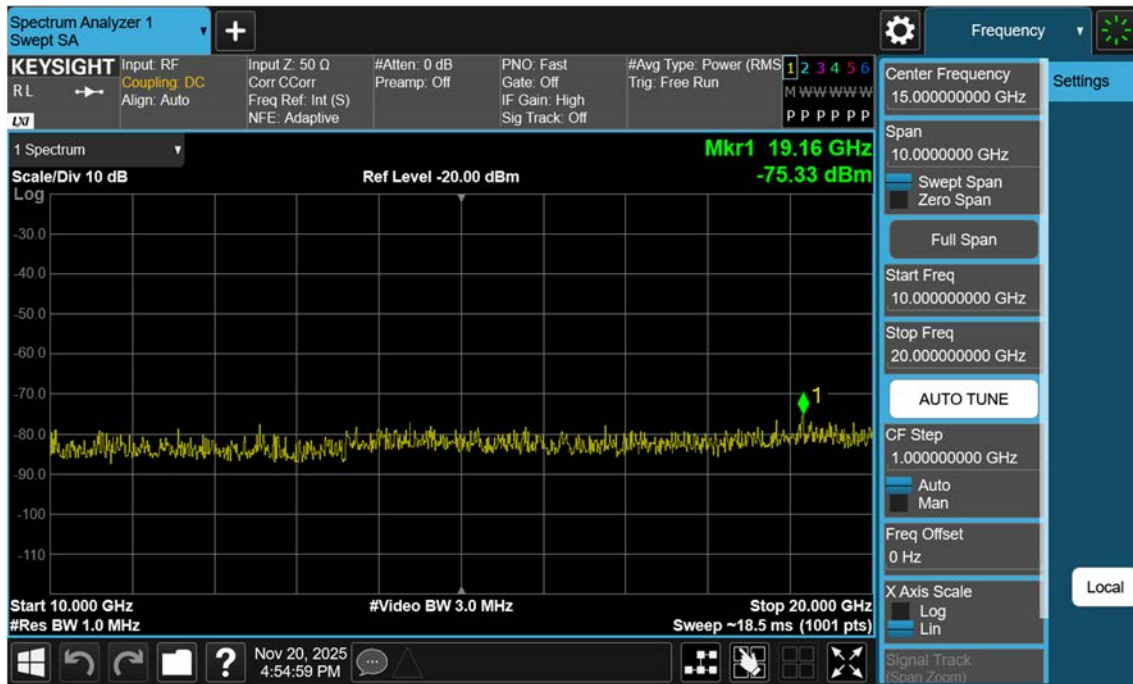
NR n70_10 M_Conducted Spurious Emissions(30 M-10 G)_High_PI/2 BPSK_1RB



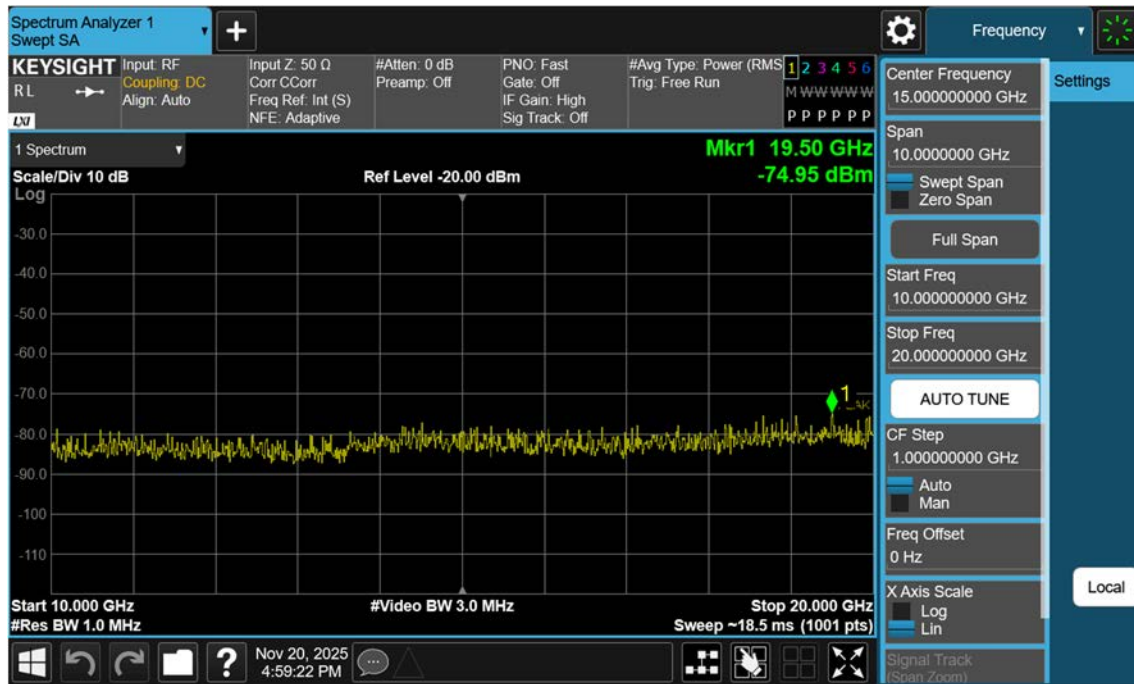
NR n70_15 M_Conducted Spurious Emissions(30 M-10 G)_Low_PI/2 BPSK_1RB



NR n70_5 M_Conducted Spurious Emissions(Above10 G)_Low_PI/2 BPSK_1RB



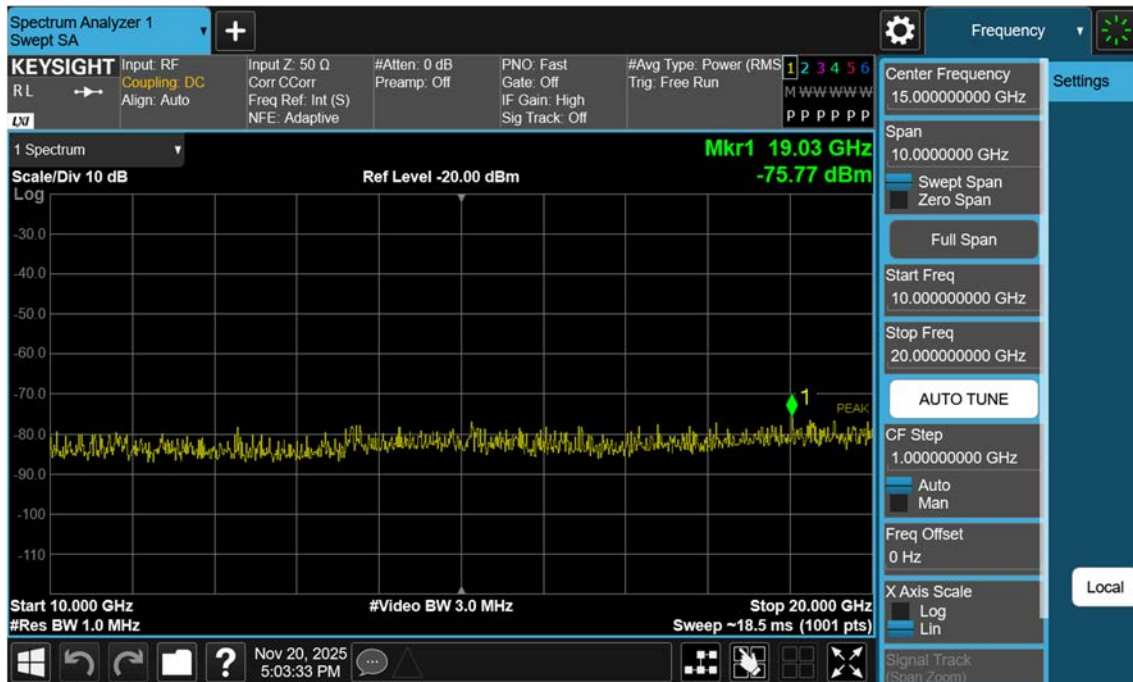
NR n70_5 M_Conducted Spurious Emissions(Above10 G)_Mid_PI/2 BPSK_1RB



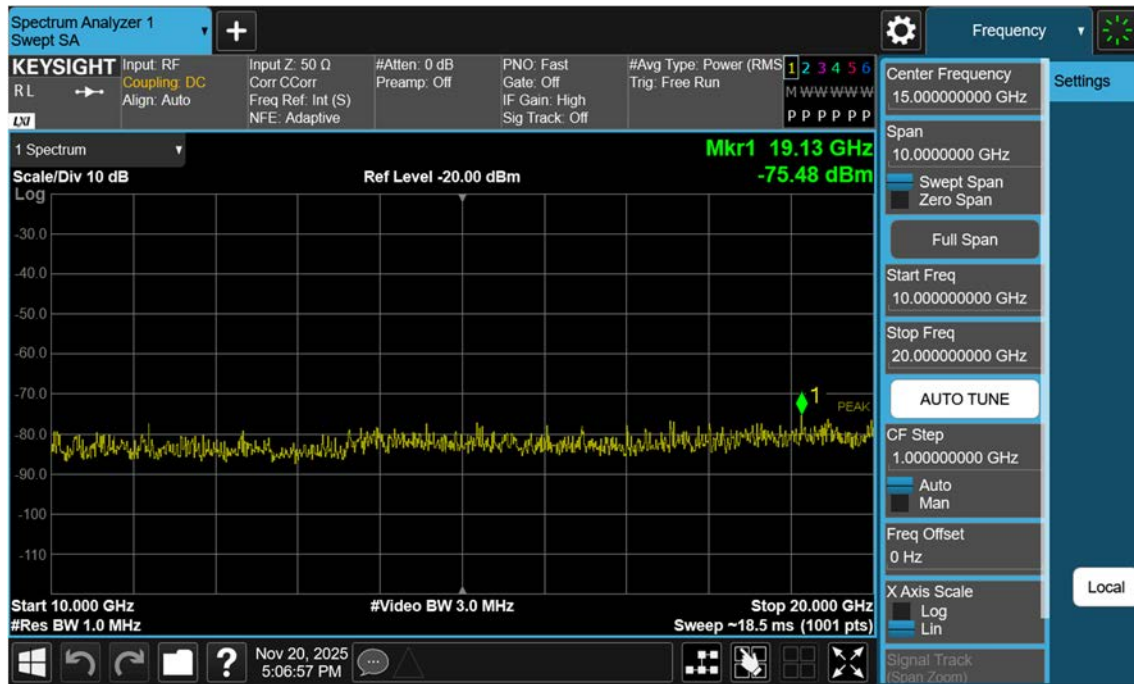
NR n70_5 M_Conducted Spurious Emissions(Above10 G)_High_PI/2 BPSK_1RB



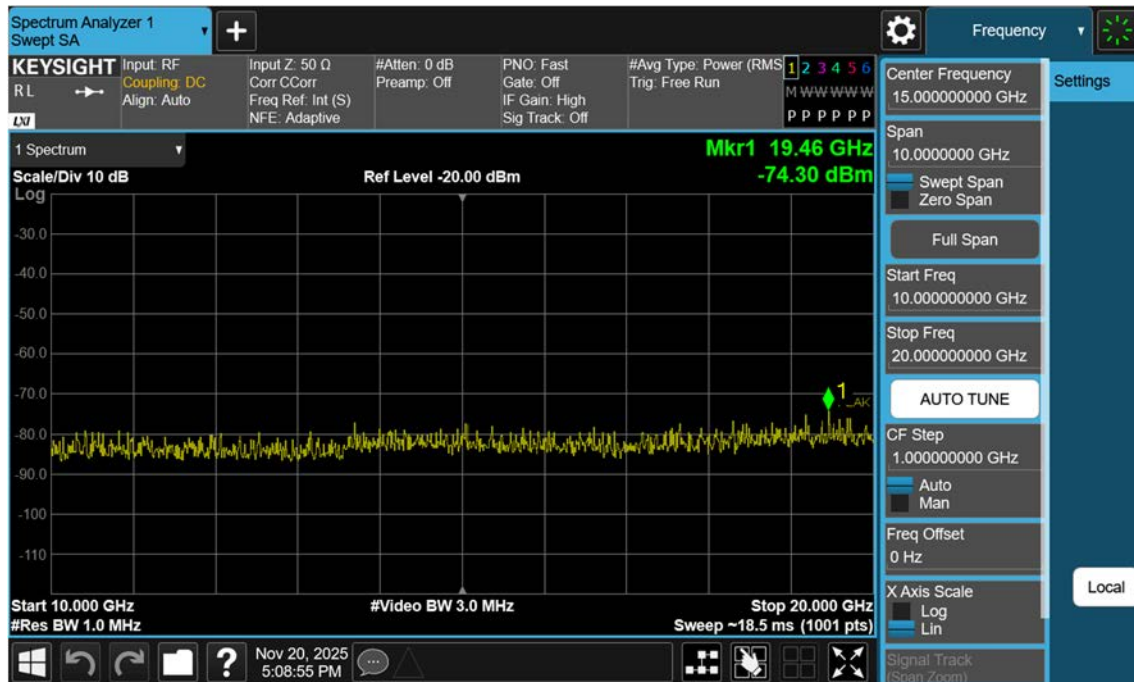
NR n70_10 M_Conducted Spurious Emissions(Above10 G)_Low_PI/2 BPSK_1RB



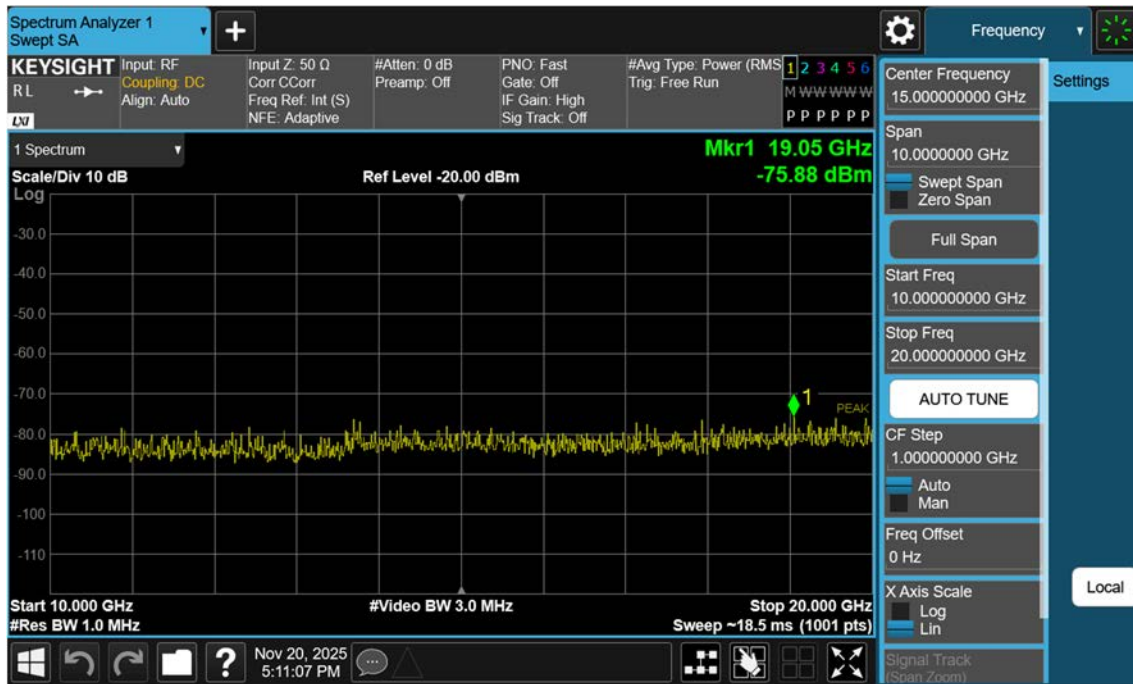
NR n70_10 M_Conducted Spurious Emissions(Above10 G)_Mid_PI/2 BPSK_1RB



NR n70_10 M_Conducted Spurious Emissions(Above10 G)_High_PI/2 BPSK_1RB



NR n70_15 M_Conducted Spurious Emissions(Above10 G)_Low_PI/2 BPSK_1RB



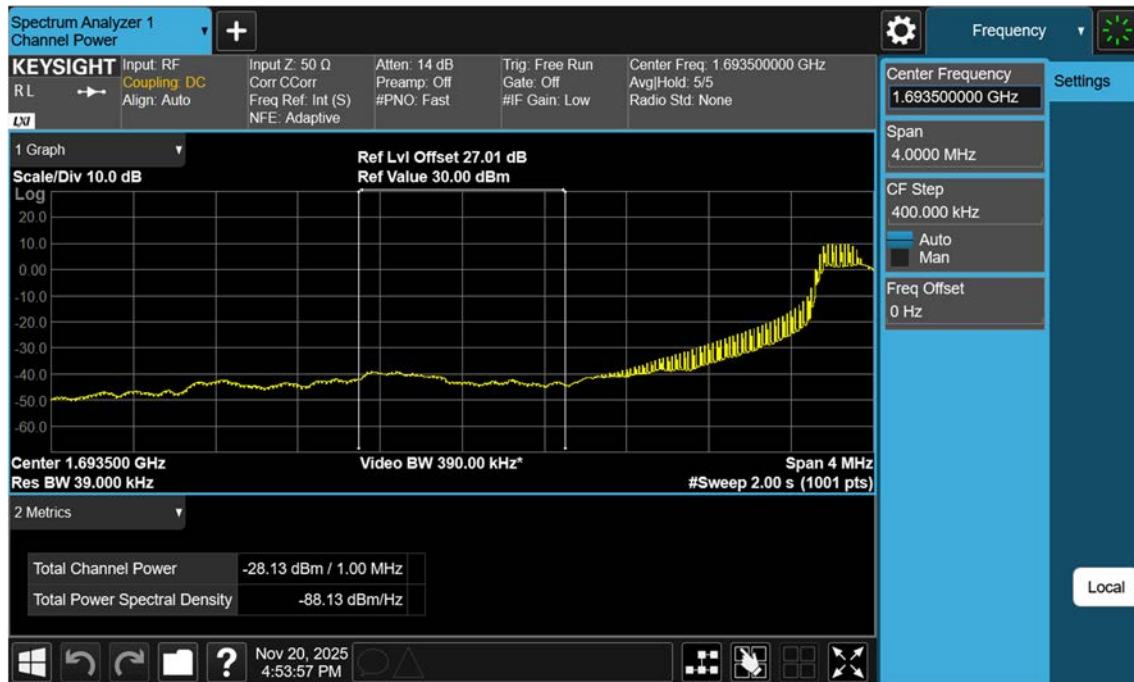
NR n70_5 M_Band Edge_Low_PI/2 BPSK_1RB



NR n70_5 M_Band Edge_Low_PI/2 BPSK_FullRB



NR n70_5 M_Extended Band Edge_Low_PI/2 BPSK_FullIRB



NR n70_5 M_Band Edge_High_PI/2 BPSK_1RB



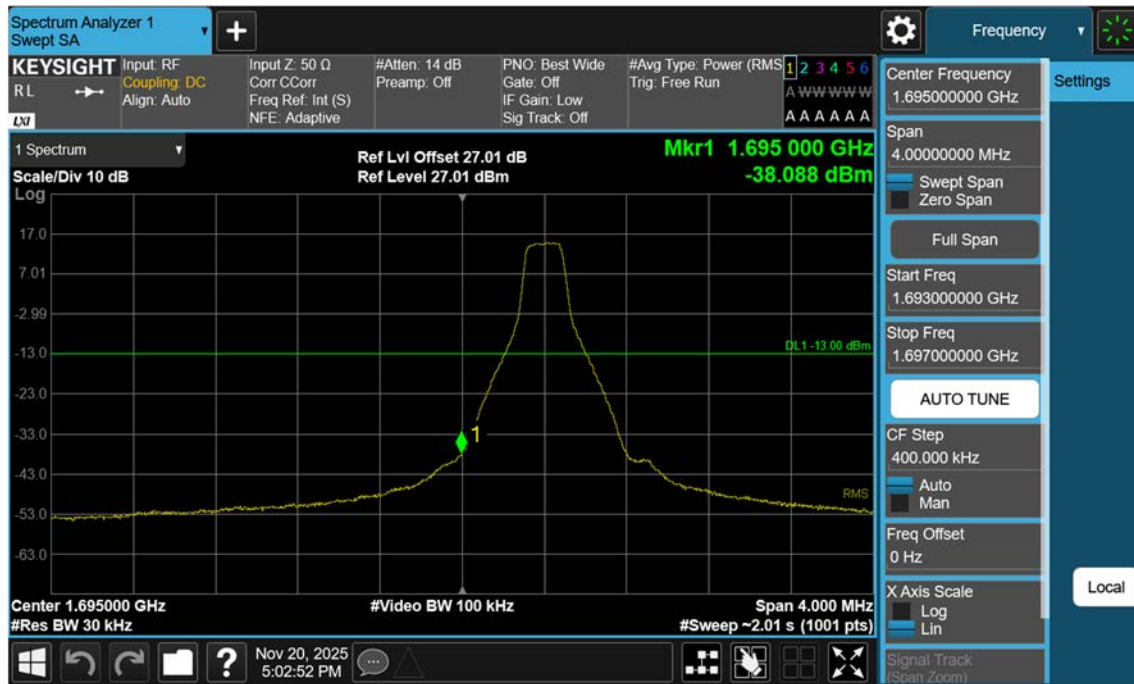
NR n70_5 M_Band Edge_High_PI/2 BPSK_FullRB



NR n70_5 M_Extended Band Edge_High_PI/2 BPSK_FullIRB



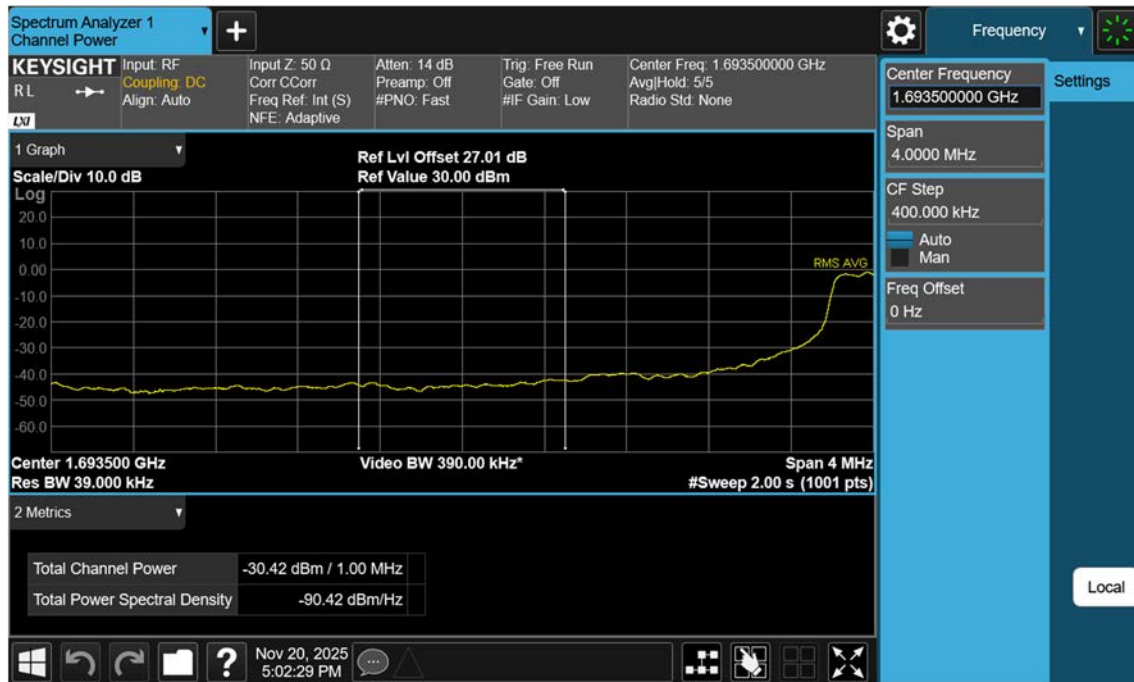
NR n70_10 M_Band Edge_Low_PI/2 BPSK_1RB



NR n70_10 M_Band Edge_Low_PI/2 BPSK_FullRB



NR n70_10 M_Extended Band Edge_Low_PI/2 BPSK_FullRB



NR n70_10 M_Band Edge_High_PI/2 BPSK_1RB



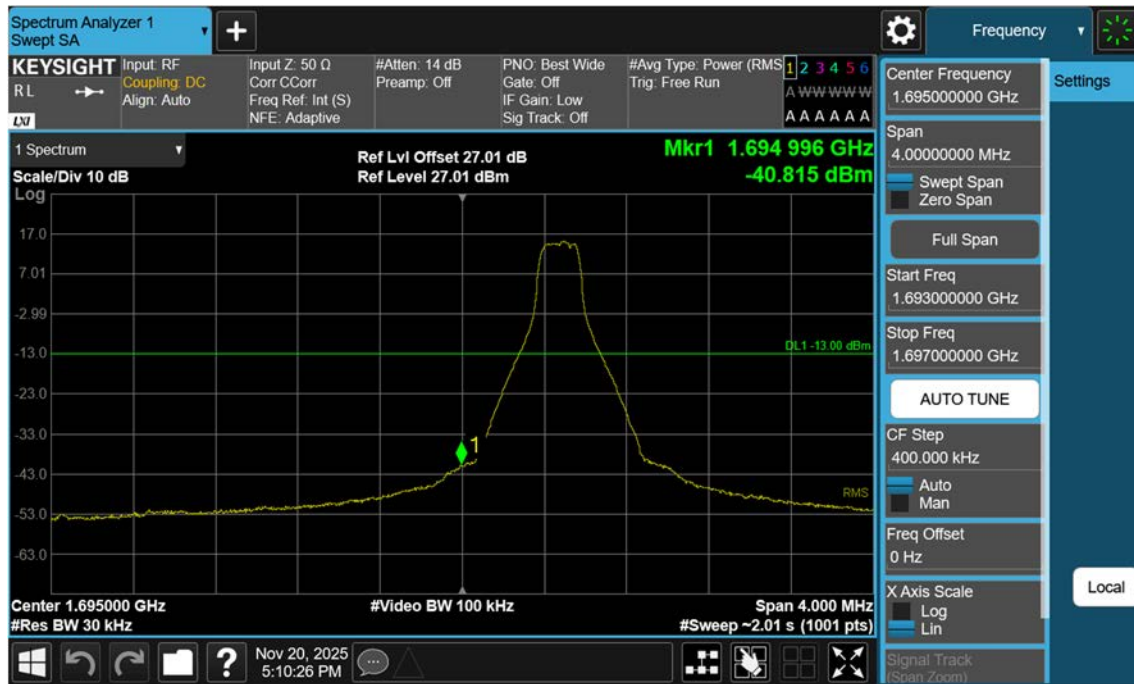
NR n70_10 M_Band Edge_High_PI/2 BPSK_FullRB



NR n70_10 M_Extended Band Edge_High_PI/2 BPSK_FullRB



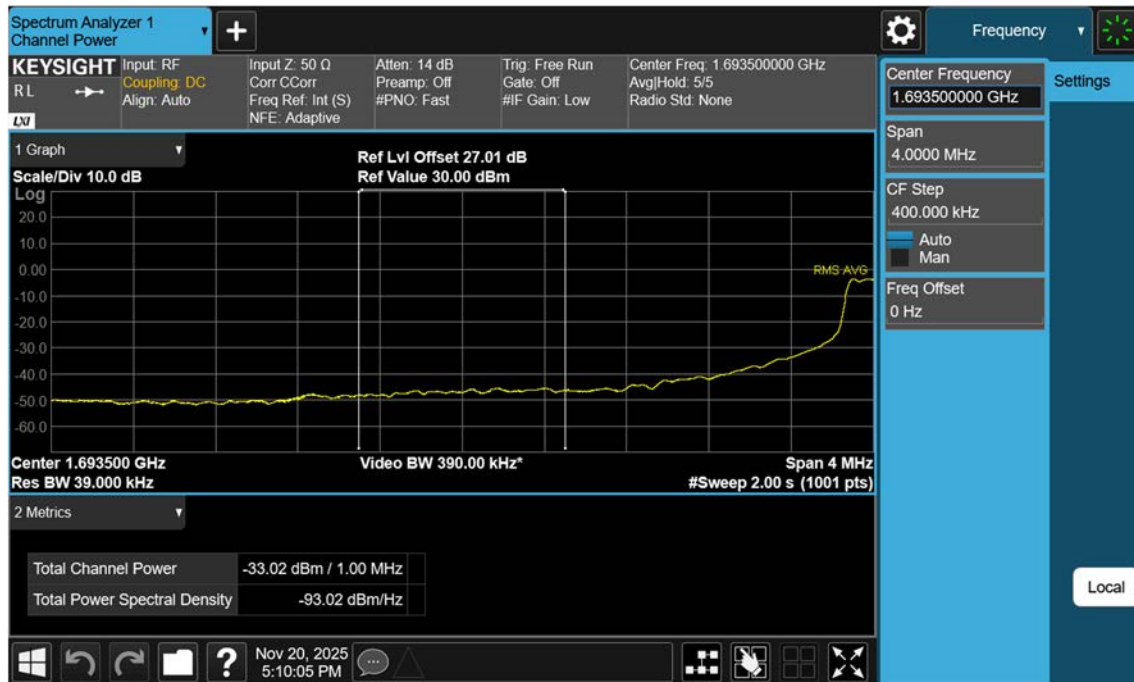
NR n70_15 M_Band Edge_Low_PI/2 BPSK_1RB



NR n70_15 M_Band Edge_Low_PI/2 BPSK_FullRB



NR n70_15 M_Extended Band Edge_Low_PI/2 BPSK_FullRB



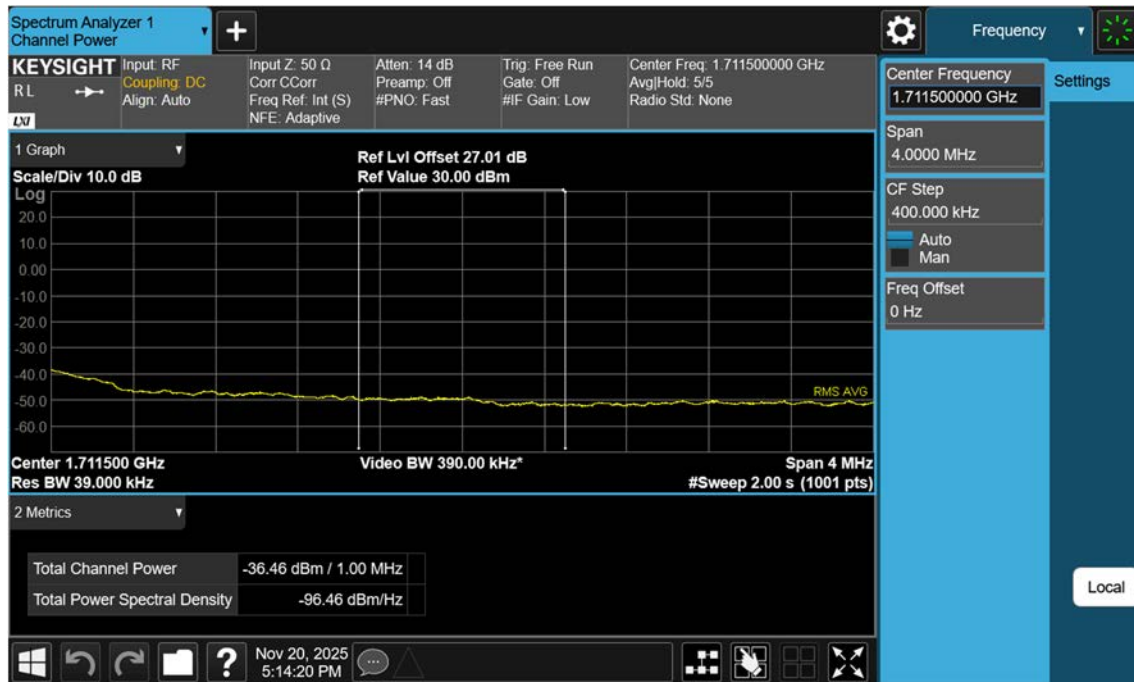
NR n70_15 M_Band Edge_High_PI/2 BPSK_1RB



NR n70_15 M_Band Edge_High_PI/2 BPSK_FullRB



NR n70_15 M_Extended Band Edge_High_PI/2 BPSK_FullRB



11. TEST PLOTS(Ant F)

NR n70_5 M_PAR_Mid_PI/2 BPSK_FullRB



NR n70_5 M_PAR_Mid_QPSK_FullRB



NR n70_5 M_PAR_Mid_16QAM_FullRB



NR n70_5 M_PAR_Mid_64QAM_FullRB



NR n70_5 M_PAR_Mid_256QAM_FullRB



NR n70_10 M_PAR_Mid_PI/2 BPSK_FullRB



NR n70_10 M_PAR_Mid_QPSK_FullRB



NR n70_10 M_PAR_Mid_16QAM_FullRB



Spectrum Analyzer 1
Power Stat CCDF

KEYSIGHT Input: RF
R L → Coupling: DC
Align: Auto

Input Z: 50 Ω
Corr C: Corr
Freq Ref: Int (S)

Atten: 14 dB
Preamp: Off

Trig: Free Run
#F Gain: Low

Center Freq: 1.702500000 GHz
Counts: 2.00 M/2.00 Mpt
Radio Std: None

1 Metrics

Average Power

20.24 dBm	
42.62 % at 0 dB	

10.0 % 3.13 dB
1.0 % 5.29 dB
0.1 % 6.30 dB
0.01 % 6.96 dB
0.001 % 7.58 dB
0.0001 % 7.78 dB

Peak 7.80 dB
28.04 dBm

2 Graph

Gaussian

0.0001 %
0.001 %
0.01 %
0.1 %
1 %
10 %
100 %

0.00 dB
0.00 dB
20.00 dB

Info BW 10.000 MHz

Settings

Center Frequency
1.702500000 GHz

CF Step
10.000000 MHz

☒ Auto
☐ Man

Freq Offset
0 Hz

Local

Nov 21, 2025
9:08:49 AM