TEST REPORT

FCC LTE B26(Part90) Test for TM19FNNAHD2
Certification

APPLICANT
LG Electronics Inc.

REPORT NO.
HCT-RF-2412-FC036

DATE OF ISSUE
December 13, 2024

Tested by
Jae Ryang Do

Technical Manager
Jong Seok Lee

HCT CO., LTD.
BongJai Huh / CEO

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

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

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Applicant	**LG Electronics Inc.** 128, Yeoui-daero, Yeongdeungpo-gu, Seoul, Republic of Korea
Product Name Model Name	Telematics TM19FNNAHD2
Date of Test	September 30, 2024 ~ December 10, 2024
FCC ID	BEJTM19FNNAHD2
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:	PCB Licensed Transmitter (PCB)
Test Standard Used	FCC Rule Part: § 90, § 22
Test Results	PASS

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	December 13, 2024	Initial Release

Notice

Content
The measurements shown in this report were made in accordance with the procedures specified in CFR47 section § 2.947. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)
The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated. The test results have only been applied with the test methods required by the standard(s).
The laboratory is not accredited for the test results marked *. Information provided by the applicant is marked **. Test results provided by external providers are marked ***.
When confirmation of authenticity of this test report is required, please contact www.hct.co.kr
The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

CONTENTS

MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	LG Electronics Inc.
Address:	128, Yeoui-daero, Yeongdeungpo-gu, Seoul, Republic of Korea
FCC ID:	BEJTM19FNNAHD2
Application Type:	Certification
FCC Classification:	PCB Licensed Transmitter (PCB)
FCC Rule Part(s):	§ 90, § 22
EUT Type:	Telematics
Model(s):	TM19FNNAHD2
Tx Frequency:	814.7 MHz – 824.0 MHz (LTE – Band 26 (1.4 MHz)) 815.5 MHz – 824.0 MHz (LTE – Band 26 (3 MHz)) 816.5 MHz – 824.0 MHz (LTE – Band 26 (5 MHz)) 819.0 MHz – 824.0 MHz (LTE – Band 26 (10 MHz)) 821.5 MHz (LTE – Band 26 (15 MHz))
Date(s) of Tests:	September 30, 2024 ~ December 10, 2024
Serial number:	Radiated : Honda MY26 #03 Conducted : Honda MY26 #01
Antenna Information	Please refer to the Antenna Approval Specification document.

1.1. MAXIMUM OUTPUT POWER

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	Conducted Output Power	
				Max. Power (W)	Max. Power (dBm)
LTE – Band26 (1.4)	814.7 – 824.0	1M10G7D	QPSK	0.185	22.68
		1M09W7D	16QAM	0.160	22.05
		1M09W7D	64QAM	0.135	21.29
		1M09W7D	256QAM	0.065	18.11
LTE – Band26 (3)	815.5 – 824.0	2M71G7D	QPSK	0.188	22.74
		2M70W7D	16QAM	0.161	22.06
		2M72W7D	64QAM	0.133	21.24
		2M72W7D	256QAM	0.062	17.89
LTE – Band26 (5)	816.5 – 824.0	4M52G7D	QPSK	0.190	22.78
		4M52W7D	16QAM	0.167	22.23
		4M51W7D	64QAM	0.133	21.25
		4M51W7D	256QAM	0.064	18.04
LTE – Band26 (10)	819.0 – 824.0	8M97G7D	QPSK	0.190	22.79
		9M00W7D	16QAM	0.162	22.10
		8M99W7D	64QAM	0.131	21.16
		8M98W7D	256QAM	0.065	18.13
LTE – Band26 (15)	821.5	13M5G7D	QPSK	0.187	22.71
		13M5W7D	16QAM	0.163	22.12
		13M5W7D	64QAM	0.126	21.02
		13M4W7D	256QAM	0.064	18.07

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

The EUT was a Telematics with LTE, Sub 6..

2.2. MEASURING INSTRUMENT CALIBRATION

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

2.3. TEST FACILITY

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

3. DESCRIPTION OF TESTS

3.1 TEST PROCEDURE

Test Description	Test Procedure Used
Occupied Bandwidth	- KDB 971168 D01 v03r01 – Section 4.3 - ANSI C63.26-2015 – Section 5.4.4
Channel Edge	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Spurious and Harmonic Emissions at Antenna Terminal	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Conducted Output Power	- KDB 971168 D01 v03r01 - Section 5.2.4 - ANSI C63.26-2015 - Section 5.2.1 & 5.2.4.2
Frequency stability	- ANSI C63.26-2015 – Section 5.6
Radiated Power	- ANSI C63.26-2015 – Section 5.2.4.4 - KDB 971168 D01 v03r01 – Section 5.8
Radiated Spurious and Harmonic Emissions	- ANSI C63.26-2015 – Section 5.5.3 - KDB 971168 D01 v03r01 – Section 5.8

3.2 CONDUCTED OUTPUT POWER

Test Overview

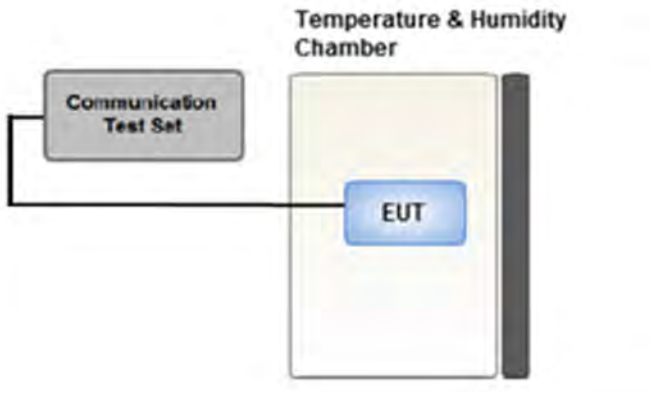
According to ANSI C63.26-2015 Section 5.2.1 when measuring the maximum RF output power from such devices, control over the EUT must be provided either through special test software (provided by manufacturer specifically for compliance testing, but not accessible by an end user) or through use of a base station emulator, communications test set, call box, or similar instrumentation that is capable of establishing a communications link with the EUT to enable control over variable parameters (e.g., output power, OBW, etc.).

In some cases, these instruments also include basic digital spectrum analyzer and/or power meter capabilities that can be utilized to measure the RF output power if the specified detectors and requirements can be realized and the measurement functions have been calibrated.

Test Procedure

1. The RF port of the EUT was connected to the Communication Tester via an RF cable.
2. Conducted average power was measured using a calibrated Radio Communication Tester.

Test setup



3.3 RADIATED POWER

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.
The equipment under test is placed on a non-conductive table 3-meters away from the receive antenna.

Test Settings

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

Test Note

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

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

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

3.4 RADIATED SPURIOUS EMISSIONS

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

Radiated Spurious Emission Measurements at 3 meters by Substitution Method.

Test Settings

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

Test Note

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

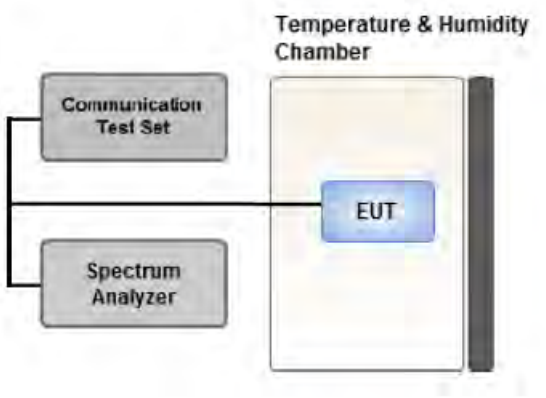
$$\text{Result}_{(dBm)} = \text{Pg}_{(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dBi)}$$

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

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

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

3.5 OCCUPIED BANDWIDTH.



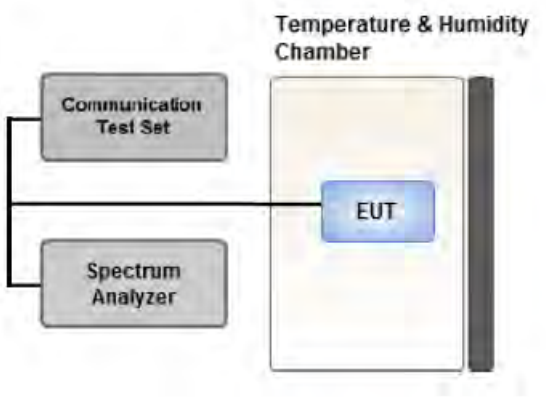
Test setup

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

Test Settings

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

3.6 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL



Test setup

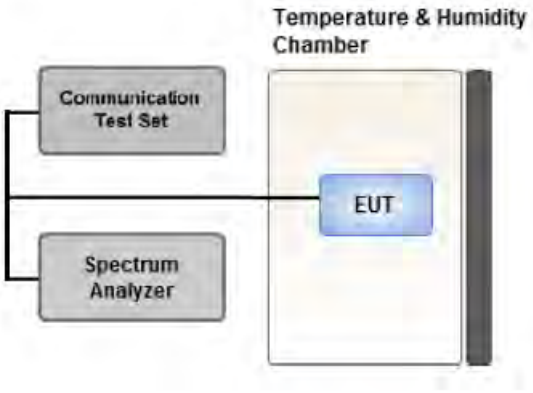
Test Overview

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

Test Settings

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

3.7 CHANNEL EDGE



Test setup

Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum 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

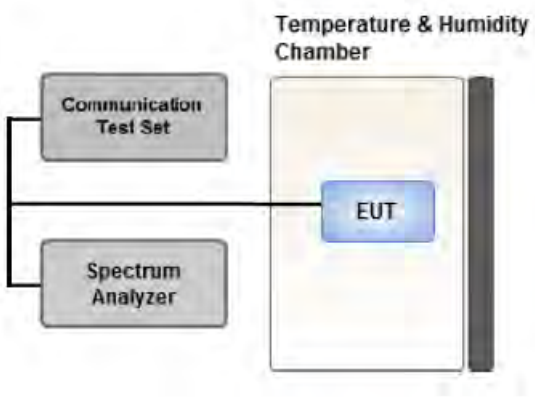
1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW :
   .- EA licensee's frequency block by up to and including 37.5 kHz : 300 Hz
   .- EA licensee's frequency block greater than 37.5 kHz : 100 kHz
4. VBW > 3 x RBW
5. Detector = RMS
6. Number of sweep points ≥ 2 x Span/RBW
7. Trace mode = trace average
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Test Notes

For 90.691(a), RBW=300 Hz for offset less than 37.5 kHz from channel edge and RBW=100 kHz for offsets greater than 37.5 kHz is allowed.

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

3.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE



Test setup

Test Overview

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26-2015.
The frequency stability of the transmitter is measured by:

1. Temperature:
   The temperature is varied from -30 °C to +50 °C in 10 °C increments using an environmental chamber.
2. Primary Supply Voltage:
   .- Unless otherwise specified, vary primary supply voltage from 85 % to 115 % of the nominal value for other than hand carried battery equipment.
   .- For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.

Test Settings

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

3.9 WORST CASE(RADIATED TEST)

- The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.
- All modes of operation were investigated and the worst case configuration results are reported.
- 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.
- In the case of radiated spurious emissions, all bandwidth of operation were investigated and the worst case bandwidth results are reported. (Worst case : 10 MHz)
- The worst case is reported with the EUT positioning, modulations, and paging service configurations shown in the test data.
- All modes of operation were tested and the worst case results are reported.
- Please refer to the table below.

[Worst case]

Test Description	Modulation	RB size	RB offset	Axis
Effective Radiated Power	QPSK, 16QAM, 64QAM, 256QAM	See Section 8.2		Z
Radiated Spurious and Harmonic Emissions	QPSK	See Section 8.3		Y

3.10 WORST CASE(CONDUCTED TEST)

- Worst case : Of all modulation, We have tested modulation of the high Conducted Output Power.

[Worst case]

Test Description	Modulation	Bandwidth (MHz)	Frequency	RB size	RB offset
Occupied Bandwidth	QPSK, 16QAM, 64QAM, 256QAM	1.4, 3, 5	High	Full RB	0
	QPSK, 16QAM, 64QAM, 256QAM	10, 15	Mid	Full RB	0
Channel Edge	QPSK	1.4	Low	1	0
			High	1	5
		3	Low	1	0
			High	1	14
		5	Low	1	0
			High	1	24
		10	Mid	1	0
				1	49
		15	Mid	1	0
				1	74
		1.4, 3, 5	Low, High	Full RB	0
		10, 15	Mid	Full RB	0
Band Edge (Straddle Channel)	QPSK	1.4	Mid	1	5
		3	Mid	1	14
		5	Mid	1	24
		10	Mid	1	49
		1.4, 3, 5, 10	Mid	Full RB	0
Spurious and Harmonic Emissions at Antenna Terminal	QPSK	1.4, 3, 5	Low, High	1	0
		10, 15	Mid	1	0

4. LIST OF TEST EQUIPMENT

Equipment	Model	Manufacture	Serial No.	Due to Calibration	Calibration Interval
RF Switching System	Switch box(1.2 G HPF+LNA)	HCT CO., LTD.,	F1L1	11/11/2025	Annual
RF Switching System	Switch box(3.3 G HPF+LNA)	HCT CO., LTD.,	F1L2	11/11/2025	Annual
RF Switching System	Switch box(LNA)	HCT CO., LTD.,	F1L4	11/11/2025	Annual
RF Switching System	Switch box(6 G HPF+LNA)	HCT CO., LTD.,	F1L7	11/11/2025	Annual
Power Splitter(DC ~ 26.5 GHz)	11667B	Hewlett Packard	5001	04/17/2025	Annual
DC Power Supply	E3632A	Agilent	MY40010147	08/06/2025	Annual
Dipole Antenna	UHAP	Schwarzbeck	01274	03/10/2026	Biennial
Dipole Antenna	UHAP	Schwarzbeck	01288	08/07/2026	Biennial
Chamber	SU-642	ESPEC	93008124	02/19/2025	Annual
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	147	08/17/2025	Biennial
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	9120D-1298	09/11/2025	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	09/20/2026	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	03/28/2025	Biennial
Signal Analyzer(10 Hz ~ 26.5 GHz)	N9020A	Agilent	MY52090906	04/19/2025	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	04/17/2025	Annual
Spectrum Analyzer(10 Hz ~ 40 GHz)	FSV40	REOHDE & SCHWARZ	100931	08/06/2025	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/05/2025	Annual
Loop Antenna(9 kHz ~ 30 MHz)	FMZB1513	Schwarzbeck	1513-333	03/07/2026	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	895	08/28/2026	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	1135	08/19/2026	Biennial
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262094331	11/13/2025	Annual
Wideband Radio Communication Tester	MT8820C	Anritsu Corp.	6201026545	12/11/2024	Annual
SIGNAL GENERATOR (100 kHz ~ 40 GHz)	SMB100A	REOHDE & SCHWARZ	177633	07/26/2025	Annual
Signal Analyzer(5 Hz ~ 40.0 GHz)	N9030B	KEYSIGHT	MY55480167	05/17/2025	Annual
FCC LTE Mobile Conducted RF Automation Test Software	-	HCT CO., LTD.,	-	-	-

Note:

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

5. MEASUREMENT UNCERTAINTY

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

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

Parameter	Expanded Uncertainty (±dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.98 (Confidence level about 95 %, k=2)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.36 (Confidence level about 95 %, k=2)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.70 (Confidence level about 95 %, k=2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.52 (Confidence level about 95 %, k=2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.66 (Confidence level about 95 %, k=2)
Radiated Disturbance (Above 40 GHz)	5.58 (Confidence level about 95 %, k=2)

6. SUMMARY OF TEST RESULTS

6.1 Test Condition : Conducted Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Occupied Bandwidth	§ 2.1049	N/A	PASS
Channel Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§ 2.1051, § 90.691	< 50 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions within 37.5 kHz of Block Edge	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 § 90.635	< 100 Watts	PASS
Frequency stability / variation of ambient temperature	§ 2.1055, § 90.213 § 22.355	< 2.5 ppm	PASS

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 (Only 15 MHz B.W)	PASS
Radiated Spurious and Harmonic Emissions	§ 2.1053, § 90.691 § 22.917(a)	< 43 + 10log10 (P[Watts]) for all out-of band emissions	PASS

7. SAMPLE CALCULATION

7.1 ERP Sample Calculation

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

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

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

7.2 EIRP Sample Calculation

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

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

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

7.3. Emission Designator

GSM Emission Designator

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

EDGE Emission Designator

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

WCDMA Emission Designator

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

QPSK Modulation

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

QAM Modulation

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

8. TEST DATA

8.1 CONDUCTED OUTPUT POWER

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)				Limit (W)
				814.7 MHz		823.3 MHz		
				dBm	W	dBm	W	
1.4	QPSK	1	0	22.57	0.181	22.55	0.180	100
		1	3	22.61	0.182	22.65	0.184	100
		1	5	22.51	0.178	22.56	0.180	100
		3	0	22.56	0.180	22.60	0.182	100
		3	1	22.68	0.185	22.67	0.185	100
		3	3	22.54	0.179	22.58	0.181	100
		6	0	21.75	0.150	21.67	0.147	100
	16QAM	1	0	21.88	0.154	21.89	0.155	100
		1	3	22.04	0.160	22.05	0.160	100
		1	5	22.01	0.159	22.05	0.160	100
		3	0	21.69	0.148	21.73	0.149	100
		3	1	21.72	0.149	21.72	0.149	100
		3	3	21.66	0.147	21.73	0.149	100
		6	0	20.82	0.121	20.85	0.122	100
	64QAM	1	0	21.23	0.133	21.18	0.131	100
		1	3	21.29	0.135	21.20	0.132	100
		1	5	21.12	0.129	21.14	0.130	100
		3	0	20.97	0.125	21.00	0.126	100
		3	1	20.95	0.124	21.10	0.129	100
		3	3	20.91	0.123	21.07	0.128	100
		6	0	20.04	0.101	20.05	0.101	100
	256QAM	1	0	17.84	0.061	18.11	0.065	100
		1	3	17.95	0.062	17.97	0.063	100
		1	5	17.96	0.063	17.87	0.061	100
		3	0	17.71	0.059	17.86	0.061	100
		3	1	17.61	0.058	17.92	0.062	100
		3	3	17.94	0.062	17.88	0.061	100
		6	0	17.88	0.061	17.68	0.059	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)				Limit (W)
				815.5 MHz		822.5 MHz		
				dBm	W	dBm	W	
3	QPSK	1	0	22.58	0.181	22.69	0.186	100
		1	7	22.60	0.182	22.74	0.188	100
		1	14	22.57	0.181	22.72	0.187	100
		8	0	21.76	0.150	21.74	0.149	100
		8	3	21.82	0.152	21.84	0.153	100
		8	7	21.69	0.148	21.81	0.152	100
		15	0	21.77	0.150	21.83	0.152	100
	16QAM	1	0	22.00	0.158	22.02	0.159	100
		1	7	21.93	0.156	22.06	0.161	100
		1	14	21.90	0.155	21.99	0.158	100
		8	0	20.88	0.122	20.85	0.122	100
		8	3	20.89	0.123	20.95	0.124	100
		8	7	20.83	0.121	20.92	0.124	100
		15	0	20.81	0.121	20.83	0.121	100
	64QAM	1	0	21.22	0.132	21.23	0.133	100
		1	7	21.22	0.132	21.23	0.133	100
		1	14	21.17	0.131	21.24	0.133	100
		8	0	20.11	0.103	20.07	0.102	100
		8	3	20.13	0.103	20.13	0.103	100
		8	7	20.07	0.102	20.07	0.102	100
		15	0	20.10	0.102	20.08	0.102	100
	256QAM	1	0	17.80	0.060	17.76	0.060	100
		1	7	17.74	0.059	17.89	0.062	100
		1	14	17.78	0.060	17.77	0.060	100
		8	0	17.82	0.061	17.75	0.060	100
		8	3	17.86	0.061	17.84	0.061	100
		8	7	17.72	0.059	17.80	0.060	100
		15	0	17.72	0.059	17.75	0.060	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)				Limit (W)
				816.5 MHz		821.5 MHz		
				dBm	W	dBm	W	
5	QPSK	1	0	22.70	0.186	22.70	0.186	100
		1	12	22.66	0.185	22.78	0.190	100
		1	24	22.60	0.182	22.74	0.188	100
		12	0	21.78	0.151	21.86	0.153	100
		12	6	21.90	0.155	21.88	0.154	100
		12	11	21.80	0.151	21.81	0.152	100
		25	0	21.78	0.151	21.87	0.154	100
	16QAM	1	0	22.23	0.167	22.09	0.162	100
		1	12	22.09	0.162	22.06	0.161	100
		1	24	21.99	0.158	22.08	0.161	100
		12	0	20.86	0.122	20.87	0.122	100
		12	6	20.93	0.124	20.88	0.122	100
		12	11	20.82	0.121	20.82	0.121	100
		25	0	20.87	0.122	20.88	0.122	100
	64QAM	1	0	21.24	0.133	21.18	0.131	100
		1	12	21.21	0.132	21.25	0.133	100
		1	24	21.20	0.132	21.24	0.133	100
		12	0	20.05	0.101	20.02	0.100	100
		12	6	20.15	0.104	20.11	0.103	100
		12	11	20.07	0.102	20.06	0.101	100
		25	0	20.07	0.102	20.09	0.102	100
	256QAM	1	0	17.84	0.061	18.02	0.063	100
		1	12	17.95	0.062	18.04	0.064	100
		1	24	17.90	0.062	17.99	0.063	100
		12	0	17.74	0.059	17.76	0.060	100
		12	6	17.79	0.060	17.84	0.061	100
		12	11	17.79	0.060	17.79	0.060	100
		25	0	17.79	0.060	17.88	0.061	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)		Limit (W)
				819 MHz		
				dBm	W	
10	QPSK	1	0	22.72	0.187	100
		1	24	22.79	0.190	100
		1	49	22.74	0.188	100
		25	0	21.80	0.151	100
		25	12	21.83	0.152	100
		25	24	21.82	0.152	100
		50	0	21.79	0.151	100
	16QAM	1	0	22.10	0.162	100
		1	24	22.03	0.160	100
		1	49	22.09	0.162	100
		25	0	20.89	0.123	100
		25	12	20.91	0.123	100
		25	24	20.79	0.120	100
		50	0	20.92	0.124	100
	64QAM	1	0	21.00	0.126	100
		1	24	21.02	0.126	100
		1	49	21.16	0.131	100
		25	0	19.90	0.098	100
		25	12	19.86	0.097	100
		25	24	19.97	0.099	100
		50	0	19.94	0.099	100
	256QAM	1	0	17.83	0.061	100
		1	24	18.13	0.065	100
		1	49	17.85	0.061	100
		25	0	17.84	0.061	100
		25	12	17.86	0.061	100
		25	24	17.75	0.060	100
		50	0	17.84	0.061	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)		Limit (W)
				821.5 MHz		
				dBm	W	
15	QPSK	1	0	22.70	0.186	100
		1	36	22.71	0.187	100
		1	74	22.60	0.182	100
		36	0	21.83	0.152	100
		36	18	21.79	0.151	100
		36	39	21.70	0.148	100
		75	0	21.95	0.157	100
	16QAM	1	0	22.12	0.163	100
		1	36	22.10	0.162	100
		1	74	22.00	0.158	100
		36	0	20.81	0.121	100
		36	18	20.79	0.120	100
		36	39	20.82	0.121	100
		75	0	20.85	0.122	100
	64QAM	1	0	20.84	0.121	100
		1	36	21.02	0.126	100
		1	74	20.88	0.122	100
		36	0	19.86	0.097	100
		36	18	19.81	0.096	100
		36	39	19.85	0.097	100
		75	0	19.95	0.099	100
	256QAM	1	0	18.01	0.063	100
		1	36	17.97	0.063	100
		1	74	18.07	0.064	100
		36	0	17.86	0.061	100
		36	18	17.76	0.060	100
		36	39	17.91	0.062	100
		75	0	17.88	0.061	100

8.2 EFFECTIVE RADIATED POWER

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol	Limit	ERP		RB	
								W	W	dBm	Size	Offset
814.7	LTE B26/ 1.4 MHz	QPSK	-28.27	34.17	-10.29	1.44	H	< 100	0.175	22.44	1	0
		16QAM	-29.02	33.42	-10.29	1.44	H		0.148	21.69		
		64QAM	-29.99	32.45	-10.29	1.44	H		0.118	20.72		
		256QAM	-33.00	29.44	-10.29	1.44	H		0.059	17.71		
823.3		QPSK	-28.43	33.91	-10.25	1.44	H		0.167	22.22	1	3
		16QAM	-29.15	33.19	-10.25	1.44	H		0.141	21.50		
		64QAM	-30.12	32.22	-10.25	1.44	H		0.113	20.53		
		256QAM	-33.14	29.20	-10.25	1.44	H		0.056	17.51		

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol	Limit	ERP		RB	
								W	W	dBm	Size	Offset
815.5	LTE B26/ 3 MHz	QPSK	-28.15	34.25	-10.29	1.44	H	< 100	0.179	22.52	1	8
		16QAM	-28.82	33.58	-10.29	1.44	H		0.153	21.85		
		64QAM	-29.85	32.55	-10.29	1.44	H		0.121	20.82		
		256QAM	-32.94	29.46	-10.29	1.44	H		0.059	17.73		
822.5		QPSK	-28.31	34.07	-10.25	1.44	H		0.173	22.38	1	8
		16QAM	-28.95	33.43	-10.25	1.44	H		0.149	21.74		
		64QAM	-30.05	32.33	-10.25	1.44	H		0.116	20.64		
		256QAM	-33.09	29.29	-10.25	1.44	H		0.058	17.60		

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol	Limit	ERP		RB	
								W	W	dBm	Size	Offset
816.5	LTE B26/ 5 MHz	QPSK	-28.18	34.17	-10.28	1.44	H	< 100	0.176	22.45	1	0
		16QAM	-28.80	33.55	-10.28	1.44	H		0.152	21.83		
		64QAM	-29.92	32.43	-10.28	1.44	H		0.118	20.71		
		256QAM	-32.93	29.42	-10.28	1.44	H		0.059	17.70		
821.5		QPSK	-28.34	34.10	-10.26	1.44	H		0.174	22.40	1	13
		16QAM	-28.99	33.45	-10.26	1.44	H		0.150	21.75		
		64QAM	-30.05	32.39	-10.26	1.44	H		0.117	20.69		
		256QAM	-33.09	29.35	-10.26	1.44	H		0.058	17.65		

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol	Limit	ERP		RB	
								W	W	dBm	Size	Offset
819.0	LTE B26/ 10 MHz	QPSK	-28.14	34.28	-10.27	1.44	H	< 100	0.181	22.57	1	0
		16QAM	-28.73	33.69	-10.27	1.44	H		0.158	21.98		
		64QAM	-29.98	32.44	-10.27	1.44	H		0.118	20.73		
		256QAM	-33.01	29.41	-10.27	1.44	H		0.059	17.70		

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol	Limit	ERP		RB	
								W	W	dBm	Size	Offset
821.5	LTE B26/ 15 MHz	QPSK	-28.26	34.18	-10.26	1.44	H	< 7.00	0.177	22.48	1	0
		16QAM	-28.88	33.56	-10.26	1.44	H		0.153	21.86		
		64QAM	-30.00	32.44	-10.26	1.44	H		0.119	20.74		
		256QAM	-33.04	29.40	-10.26	1.44	H		0.059	17.70		

Note

1. Limit: None (for reporting purposes only)

8.3 RADIATED SPURIOUS EMISSIONS

▣ MODE: LTE B26

▣ MODULATION SIGNAL: 10 MHz QPSK

▣ DISTANCE: 3 meters

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit	Size	
									Size	Offset
26740 (819.0)	1 638.00	-45.63	9.54	-60.97	1.98	V	-53.41	-13.00	1	0
	2 457.00	-46.82	10.13	-58.05	2.56	H	-50.48	-13.00		
	3 276.00	-47.70	11.96	-56.96	2.95	V	-47.95	-13.00		

8.4 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Band 26	1.4 MHz	823.3	QPSK	6	0	1.0954
			16QAM			1.0892
			64QAM			1.0898
			256QAM			1.0887
	3 MHz	822.5	QPSK	15		2.7107
			16QAM			2.7014
			64QAM			2.7172
			256QAM			2.7158
	5 MHz	821.5	QPSK	25		4.5163
			16QAM			4.5161
			64QAM			4.5048
			256QAM			4.5090
	10 MHz	819.0	QPSK	50		8.9744
			16QAM			8.9965
			64QAM			8.9927
			256QAM			8.9814
	15 MHz	821.5	QPSK	75		13.461
			16QAM			13.464
			64QAM			13.462
			256QAM			13.438

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 46 ~ 65.

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)
26	1.4	814.7	2.7005	28.112	-57.511	-29.399	-13.00
		823.3	2.6965	28.112	-57.316	-29.204	
	3	815.5	2.5090	28.112	-58.031	-29.919	
		822.5	3.0320	28.112	-56.847	-28.735	
	5	816.5	2.5724	28.112	-57.434	-29.322	
		821.5	2.7174	28.112	-56.741	-28.629	
	10	819.0	3.6960	28.112	-56.939	-28.827	
	15	821.5	3.0659	28.112	-57.102	-28.990	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 86 ~ 93.
2. Conducted Spurious Emissions was Tested QPSK Modulation, Resource Block Size 1 and Resource Block Offset 0
3. Result (dBm) = Measurement Maximum Data (dBm) + Factor (dB)
4. Factor (dB) = Cable Loss + Ext. Attenuator + Power Splitter

Frequency Range (GHz)	Factor [dB]
0.03 – 1	27.500
1 – 5	28.112
5 – 10	28.634
10 – 15	29.245
15 – 20	29.511
Above 20(26.5)	30.210

8.6 CHANNEL EDGE

- Plots of the EUT's Band Edge are shown Page 66 ~ 85.

8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

▣ MODE: LTE 26

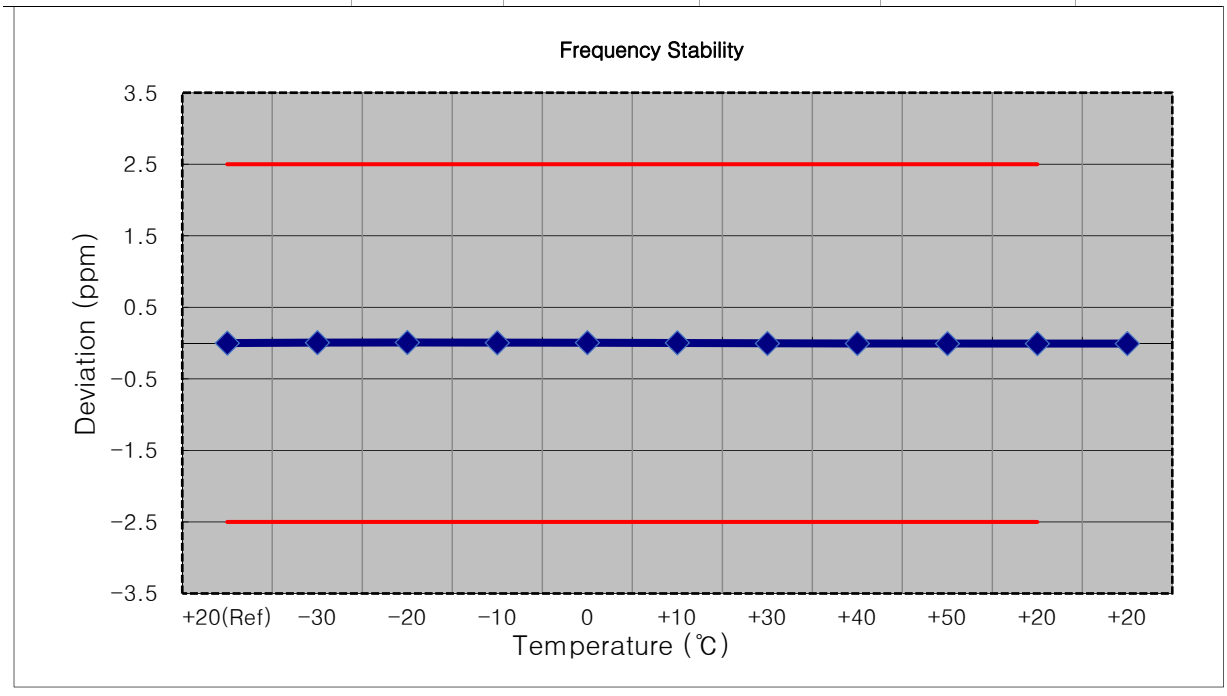
▣ OPERATING FREQUENCY: 814,700,000 Hz

▣ CHANNEL: 26697(1.4 MHz)

▣ REFERENCE VOLTAGE: 13.200 VDC

▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(VDC)	(℃)	(Hz)	Error (Hz)	(%)	
100 %	13.200	+20(Ref)	814 700 007	0.0	0.000 000	0.000
100 %		-30	814 700 012	5.1	0.000 001	0.006
100 %		-20	814 700 013	6.5	0.000 001	0.008
100 %		-10	814 700 010	3.7	0.000 000	0.005
100 %		0	814 700 012	5.0	0.000 001	0.006
100 %		+10	814 700 010	3.6	0.000 000	0.004
100 %		+30	814 700 003	-4.1	-0.000 001	-0.005
100 %		+40	814 700 002	-4.4	-0.000 001	-0.005
100 %		+50	814 700 000	-6.8	-0.000 001	-0.008
115 %		+20	814 700 001	-5.5	-0.000 001	-0.007
85 %		+20	814 700 000	-6.6	-0.000 001	-0.008



▣ MODE: LTE 26

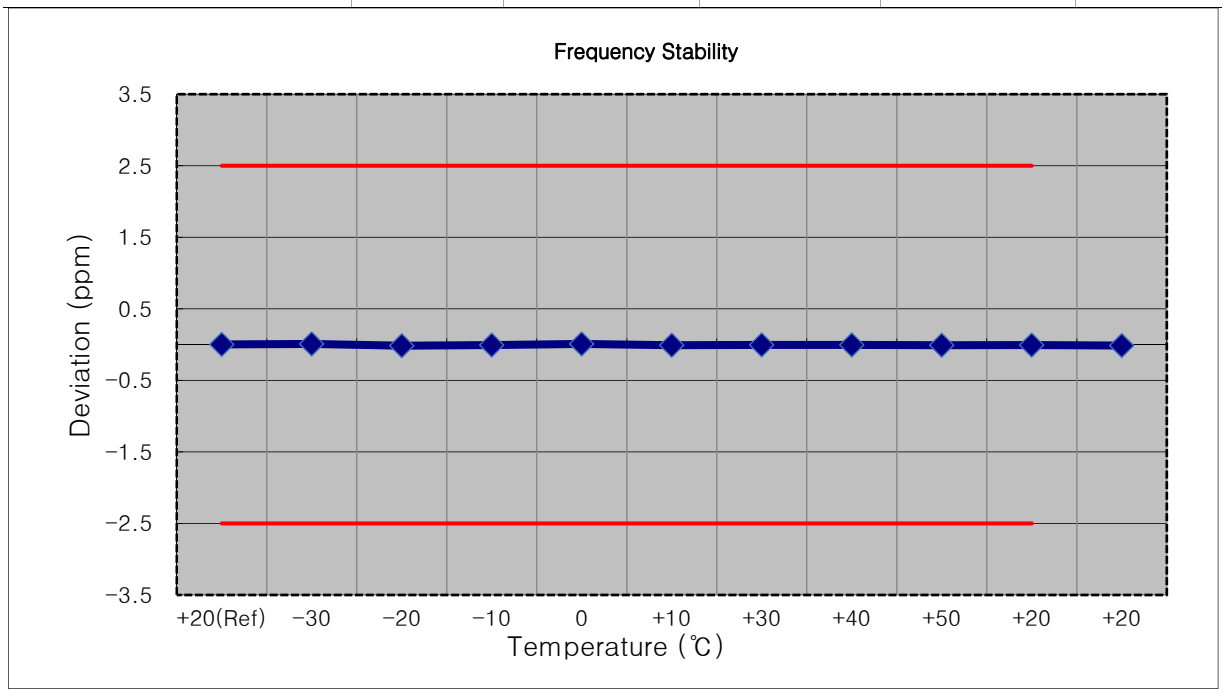
▣ OPERATING FREQUENCY: 815,500,000 Hz

▣ CHANNEL: 26705(3 MHz)

▣ REFERENCE VOLTAGE: 13.200 VDC

▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	Error (Hz)	(%)	
100 %	13.200	+20(Ref)	815 499 990	0.0	0.000 000	0.000
100 %		-30	815 499 996	6.2	0.000 001	0.008
100 %		-20	815 499 977	-13.2	-0.000 002	-0.016
100 %		-10	815 499 984	-5.8	-0.000 001	-0.007
100 %		0	815 499 995	5.6	0.000 001	0.007
100 %		+10	815 499 982	-7.5	-0.000 001	-0.009
100 %		+30	815 499 985	-5.2	-0.000 001	-0.006
100 %		+40	815 499 984	-5.6	-0.000 001	-0.007
100 %		+50	815 499 982	-7.7	-0.000 001	-0.009
115 %		+20	815 499 983	-7.1	-0.000 001	-0.009
85 %		+20	815 499 979	-11.1	-0.000 001	-0.014



▣ MODE: LTE 26

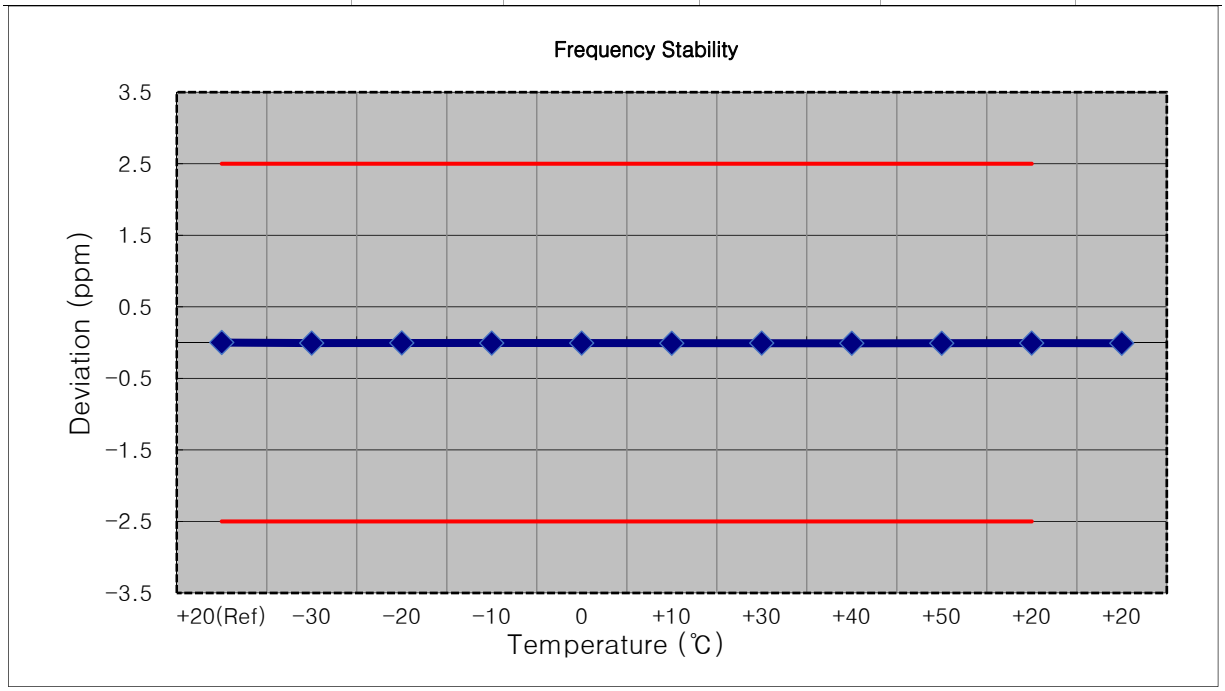
▣ OPERATING FREQUENCY: 816,500,000 Hz

▣ CHANNEL: 26715(5 MHz)

▣ REFERENCE VOLTAGE: 13.200 VDC

▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	Error (Hz)	(%)	
100 %	13.200	+20(Ref)	816 499 995	0.0	0.000 000	0.000
100 %		-30	816 499 990	-5.9	-0.000 001	-0.007
100 %		-20	816 499 990	-5.2	-0.000 001	-0.006
100 %		-10	816 499 989	-6.6	-0.000 001	-0.008
100 %		0	816 499 988	-7.3	-0.000 001	-0.009
100 %		+10	816 499 988	-7.8	-0.000 001	-0.010
100 %		+30	816 499 989	-6.9	-0.000 001	-0.008
100 %		+40	816 499 987	-8.5	-0.000 001	-0.010
100 %		+50	816 499 986	-9.1	-0.000 001	-0.011
115 %		+20	816 499 988	-7.3	-0.000 001	-0.009
85 %		+20	816 499 986	-9.0	-0.000 001	-0.011



▣ MODE: LTE 26

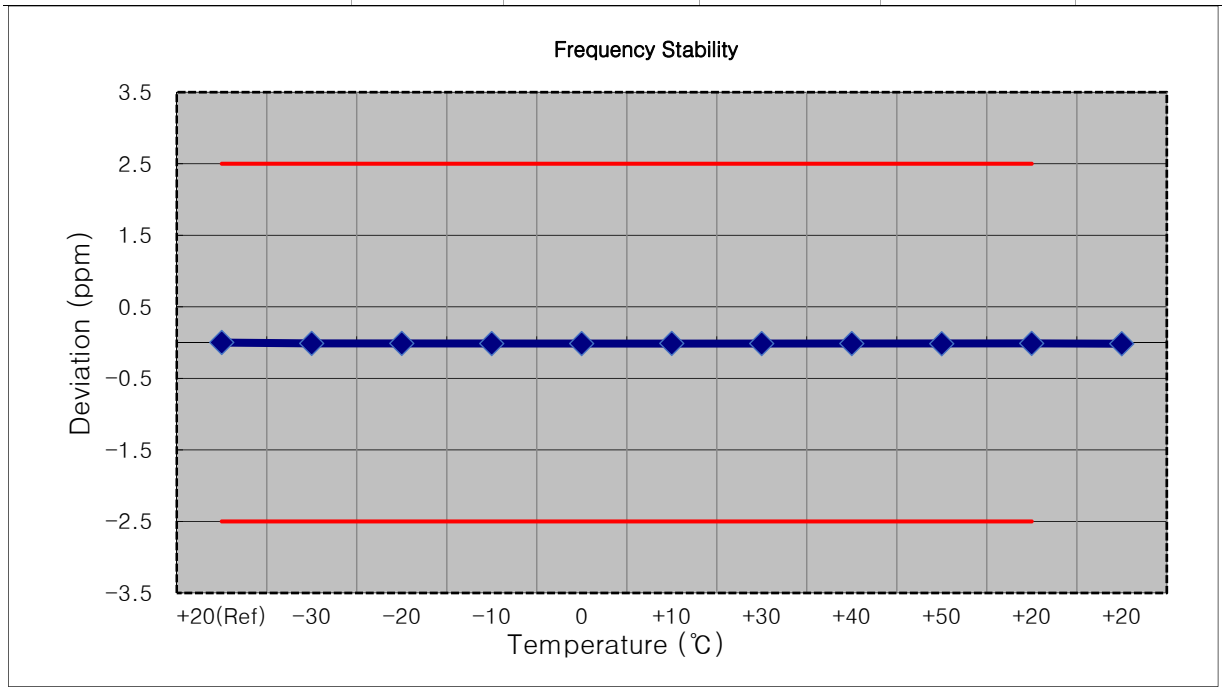
▣ OPERATING FREQUENCY: 819,000,000 Hz

▣ CHANNEL: 26740(10 MHz)

▣ REFERENCE VOLTAGE: 13.200 VDC

▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	Error (Hz)	(%)	
100 %	13.200	+20(Ref)	818 999 990	0.0	0.000 000	0.000
100 %		-30	818 999 980	-9.9	-0.000 001	-0.012
100 %		-20	818 999 980	-10.6	-0.000 001	-0.013
100 %		-10	818 999 978	-11.9	-0.000 001	-0.015
100 %		0	818 999 978	-11.7	-0.000 001	-0.014
100 %		+10	818 999 980	-10.2	-0.000 001	-0.012
100 %		+30	818 999 979	-11.6	-0.000 001	-0.014
100 %		+40	818 999 977	-12.9	-0.000 002	-0.016
100 %		+50	818 999 977	-13.6	-0.000 002	-0.017
115 %		+20	818 999 980	-10.3	-0.000 001	-0.013
85 %		+20	818 999 977	-13.0	-0.000 002	-0.016



▣ MODE: LTE 26

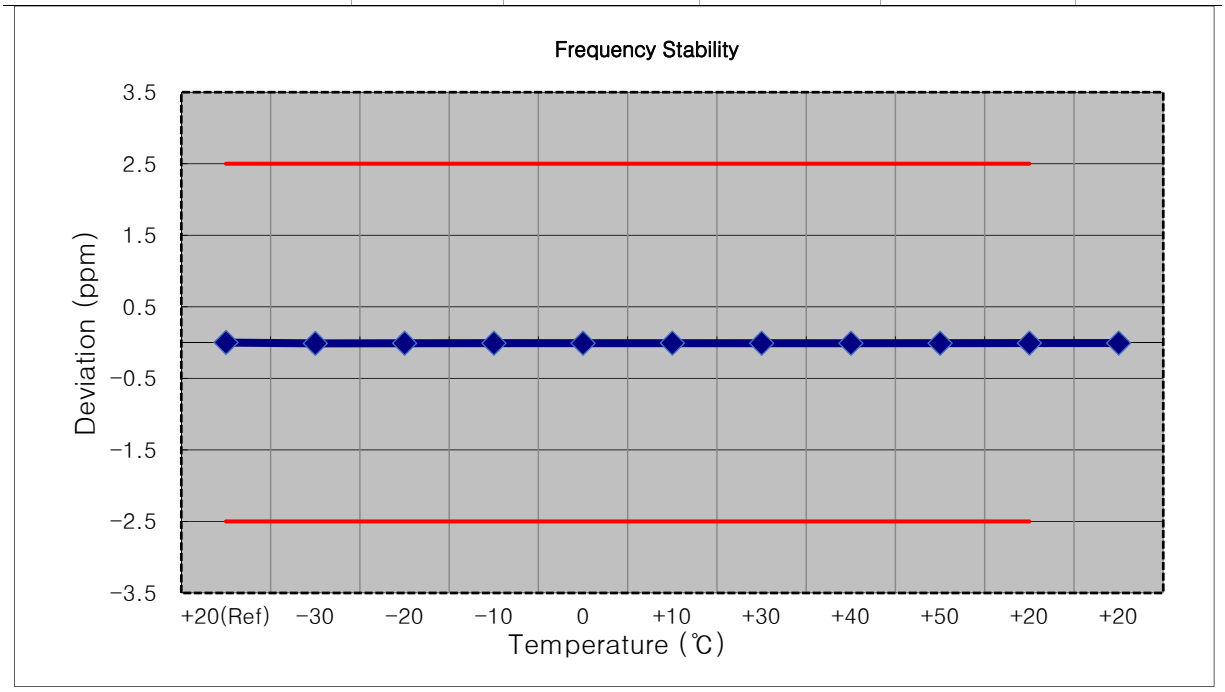
▣ OPERATING FREQUENCY: 821,500,000 Hz

▣ CHANNEL: 26765(15 MHz)

▣ REFERENCE VOLTAGE: 13.200 VDC

▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	Error (Hz)	(%)	
100 %	13.200	+20(Ref)	821 499 991	0.0	0.000 000	0.000
100 %		-30	821 499 982	-9.5	-0.000 001	-0.012
100 %		-20	821 499 983	-7.6	-0.000 001	-0.009
100 %		-10	821 499 982	-9.3	-0.000 001	-0.011
100 %		0	821 499 983	-8.0	-0.000 001	-0.010
100 %		+10	821 499 984	-7.3	-0.000 001	-0.009
100 %		+30	821 499 983	-8.0	-0.000 001	-0.010
100 %		+40	821 499 982	-8.8	-0.000 001	-0.011
100 %		+50	821 499 983	-7.8	-0.000 001	-0.009
115 %		+20	821 499 985	-5.7	-0.000 001	-0.007
85 %		+20	821 499 984	-7.4	-0.000 001	-0.009



8.8 STRADDLE CHANNEL

8.8.1 CONDUCTED OUTPUT POWER

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)		Limit (W)
				824 MHz		
				dBm	W	
1.4	QPSK	1	0	22.63	0.183	100
		1	3	22.69	0.186	100
		1	5	22.59	0.182	100
		3	0	22.63	0.183	100
		3	1	22.73	0.187	100
		3	3	22.67	0.185	100
		6	0	21.78	0.151	100
	16QAM	1	0	21.96	0.157	100
		1	3	22.10	0.162	100
		1	5	21.99	0.158	100
		3	0	21.82	0.152	100
		3	1	21.92	0.156	100
		3	3	21.76	0.150	100
		6	0	20.82	0.121	100
	64QAM	1	0	20.69	0.117	100
		1	3	20.88	0.122	100
		1	5	20.92	0.124	100
		3	0	20.86	0.122	100
		3	1	20.79	0.120	100
		3	3	20.82	0.121	100
		6	0	19.81	0.096	100
	256QAM	1	0	17.84	0.061	100
		1	3	18.00	0.063	100
		1	5	17.94	0.062	100
		3	0	17.87	0.061	100
		3	1	17.98	0.063	100
		3	3	17.91	0.062	100
		6	0	17.85	0.061	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm) 824 MHz		Limit (W)
				dBm	W	
3	QPSK	1	0	22.66	0.185	100
		1	7	22.71	0.187	100
		1	14	22.69	0.186	100
		8	0	21.73	0.149	100
		8	3	21.85	0.153	100
		8	7	21.82	0.152	100
		15	0	21.80	0.151	100
	16QAM	1	0	22.00	0.158	100
		1	7	21.87	0.154	100
		1	14	21.96	0.157	100
		8	0	20.87	0.122	100
		8	3	20.91	0.123	100
		8	7	20.86	0.122	100
		15	0	20.82	0.121	100
	64QAM	1	0	20.84	0.121	100
		1	7	20.97	0.125	100
		1	14	20.94	0.124	100
		8	0	19.85	0.097	100
		8	3	19.93	0.098	100
		8	7	19.91	0.098	100
		15	0	19.90	0.098	100
	256QAM	1	0	17.89	0.062	100
		1	7	18.01	0.063	100
		1	14	17.90	0.062	100
		8	0	17.85	0.061	100
		8	3	17.95	0.062	100
		8	7	17.79	0.060	100
		15	0	17.86	0.061	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)		Limit (W)
				824 MHz		
				dBm	W	
5	QPSK	1	0	22.74	0.188	100
		1	12	22.73	0.187	100
		1	24	22.71	0.187	100
		12	0	21.81	0.152	100
		12	6	21.86	0.153	100
		12	11	21.83	0.152	100
		25	0	21.81	0.152	100
	16QAM	1	0	22.03	0.160	100
		1	12	22.07	0.161	100
		1	24	22.01	0.159	100
		12	0	20.86	0.122	100
		12	6	20.92	0.124	100
		12	11	20.77	0.119	100
		25	0	20.81	0.121	100
	64QAM	1	0	20.83	0.121	100
		1	12	20.93	0.124	100
		1	24	20.97	0.125	100
		12	0	19.87	0.097	100
		12	6	19.91	0.098	100
		12	11	19.96	0.099	100
		25	0	19.88	0.097	100
	256QAM	1	0	17.94	0.062	100
		1	12	18.05	0.064	100
		1	24	17.80	0.060	100
		12	0	17.81	0.060	100
		12	6	17.90	0.062	100
		12	11	17.80	0.060	100
		25	0	17.82	0.061	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)		Limit (W)
				824 MHz		
				dBm	W	
10	QPSK	1	0	22.69	0.186	100
		1	24	22.78	0.190	100
		1	49	22.71	0.187	100
		25	0	21.83	0.152	100
		25	12	21.85	0.153	100
		25	24	21.79	0.151	100
		50	0	21.81	0.152	100
	16QAM	1	0	21.91	0.155	100
		1	24	22.13	0.163	100
		1	49	22.13	0.163	100
		25	0	20.75	0.119	100
		25	12	20.93	0.124	100
		25	24	20.81	0.121	100
		50	0	20.83	0.121	100
	64QAM	1	0	20.88	0.122	100
		1	24	20.94	0.124	100
		1	49	20.81	0.121	100
		25	0	19.95	0.099	100
		25	12	19.98	0.100	100
		25	24	19.91	0.098	100
		50	0	19.87	0.097	100
	256QAM	1	0	18.01	0.063	100
		1	24	17.94	0.062	100
		1	49	18.00	0.063	100
		25	0	17.90	0.062	100
		25	12	17.91	0.062	100
		25	24	17.85	0.061	100
		50	0	17.77	0.060	100

8.8.2 EFFECTIVE RADIATED POWER_

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol	Limit	ERP		RB	
								W	W	dBm	Size	Offset
824.0	LTE B26/ 1.4 MHz	QPSK	-28.44	33.86	-10.24	1.44	H	< 7.00	0.165	22.18	1	3
		16QAM	-29.07	33.23	-10.24	1.44	H		0.143	21.55		
		64QAM	-30.13	32.17	-10.24	1.44	H		0.112	20.49		
		256QAM	-33.15	29.15	-10.24	1.44	H		0.056	17.47		

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol	Limit	ERP		RB	
								W	W	dBm	Size	Offset
824.0	LTE B26/ 3 MHz	QPSK	-28.35	33.95	-10.24	1.44	H	< 7.00	0.169	22.27	1	0
		16QAM	-29.03	33.27	-10.24	1.44	H		0.144	21.59		
		64QAM	-30.14	32.16	-10.24	1.44	H		0.112	20.48		
		256QAM	-33.16	29.14	-10.24	1.44	H		0.056	17.46		

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol	Limit	ERP		RB	
								W	W	dBm	Size	Offset
824.0	LTE B26/ 5 MHz	QPSK	-28.39	33.91	-10.24	1.44	H	< 7.00	0.167	22.23	1	0
		16QAM	-29.00	33.30	-10.24	1.44	H		0.145	21.62		
		64QAM	-30.09	32.21	-10.24	1.44	H		0.113	20.53		
		256QAM	-33.12	29.18	-10.24	1.44	H		0.056	17.50		

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol	Limit	ERP		RB	
								W	W	dBm	Size	Offset
824.0	LTE B26/ 10 MHz	QPSK	-28.21	34.09	-10.24	1.44	H	< 7.00	0.174	22.41	1	49
		16QAM	-28.82	33.48	-10.24	1.44	H		0.151	21.80		
		64QAM	-30.00	32.30	-10.24	1.44	H		0.115	20.62		
		256QAM	-32.95	29.35	-10.24	1.44	H		0.059	17.67		

8.8.3 RADIATED SPURIOUS EMISSIONS

▣ MODE: LTE B26(Straddle)

▣ MODULATION SIGNAL: 10 MHz QPSK

▣ DISTANCE: 3 meters

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit	RB	
									Size	Offset
26790 (824.0)	1 648.00	-39.52	9.58	-55.11	2.02	H	-47.55	-13.00	1	49
	2 472.00	-46.23	10.26	-57.58	2.59	H	-49.91	-13.00		
	3 296.00	-47.91	12.13	-57.10	2.95	V	-47.92	-13.00		

8.8.4 CONDUCTED SPURIOUS EMISSIONS

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
26	824.0	824.0	3.7109	28.112	-67.478	-39.366	-13.00
	824.0		3.7154	28.112	-67.115	-39.003	
	824.0		3.6720	28.112	-67.537	-39.425	
	824.0		3.6885	28.112	-66.938	-38.826	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 100 ~ 103.
2. Conducted Spurious Emissions was Tested QPSK Modulation, Resource Block Size 1 and Resource Block Offset 0
3. Result (dBm) = Measurement Maximum Data (dBm) + Factor (dB)
4. Factor (dB) = Cable Loss + Attenuator + Power Splitter

Frequency Range (GHz)	Factor [dB]
0.03 – 1	27.500
1 – 5	28.112
5 – 10	28.634
10 – 15	29.245
15 – 20	29.511
0.03 – 1	27.500

8.8.5 CHANNEL EDGE(Part90)

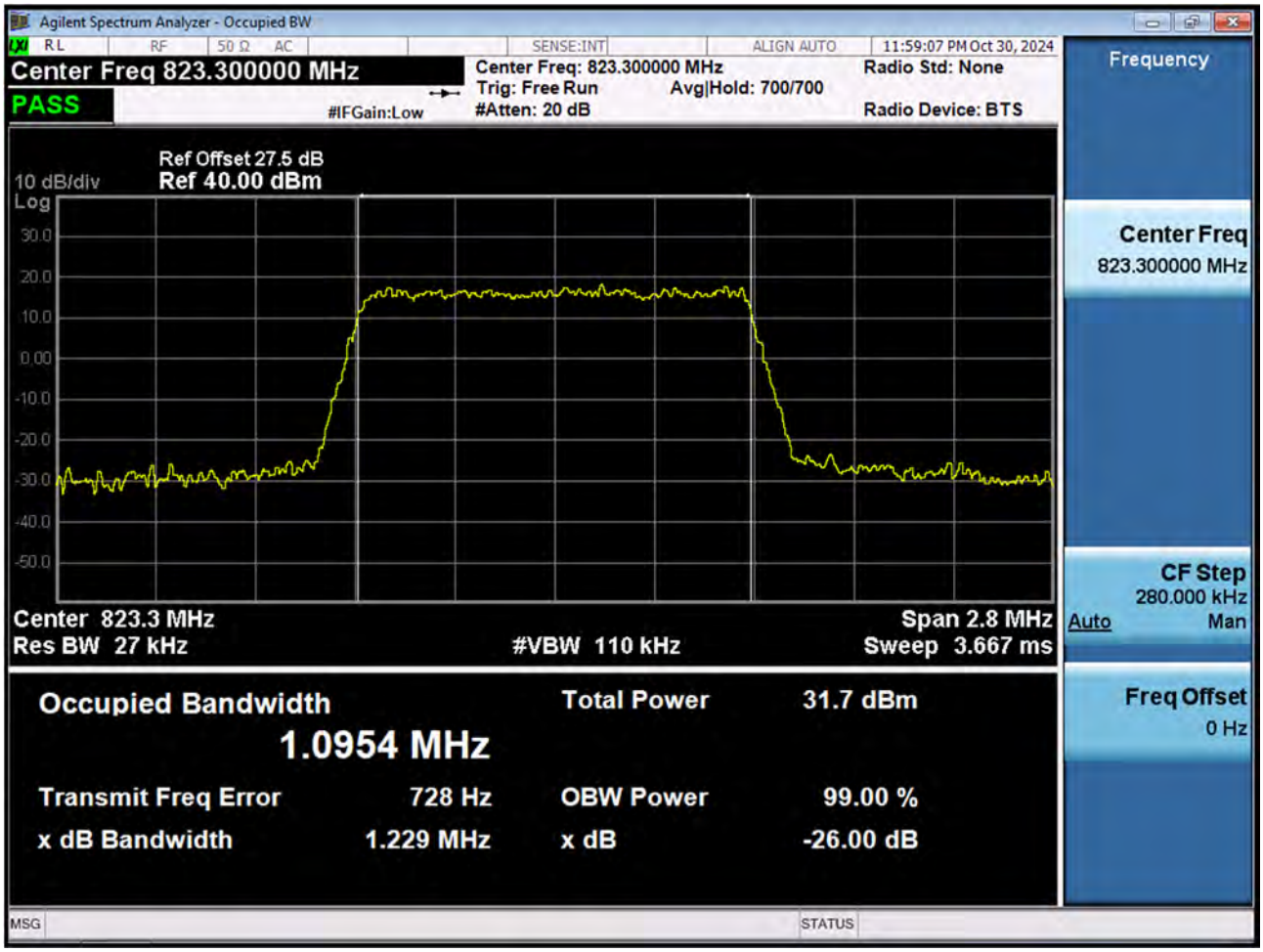
- Test Channel : 26790(824.0MHz)
- Plots of the EUT's Band Edge are shown Page 104 ~ 115.

8.8.6 BAND EDGE(Part22)

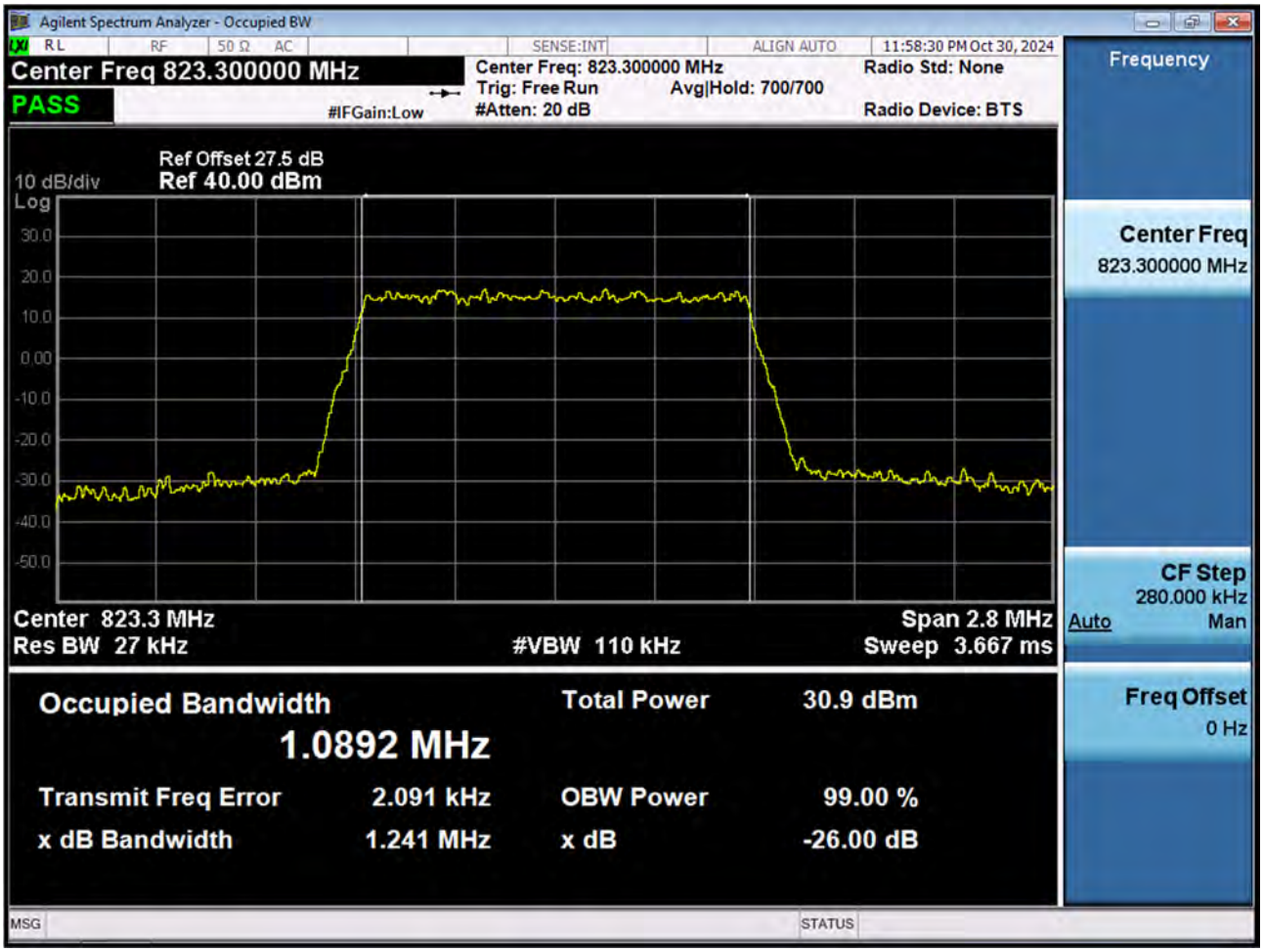
- Test Channel : 26790(824.0 MHz)
- Plots of the EUT's Band Edge are shown Page 116 ~ 123.

9. TEST PLOTS

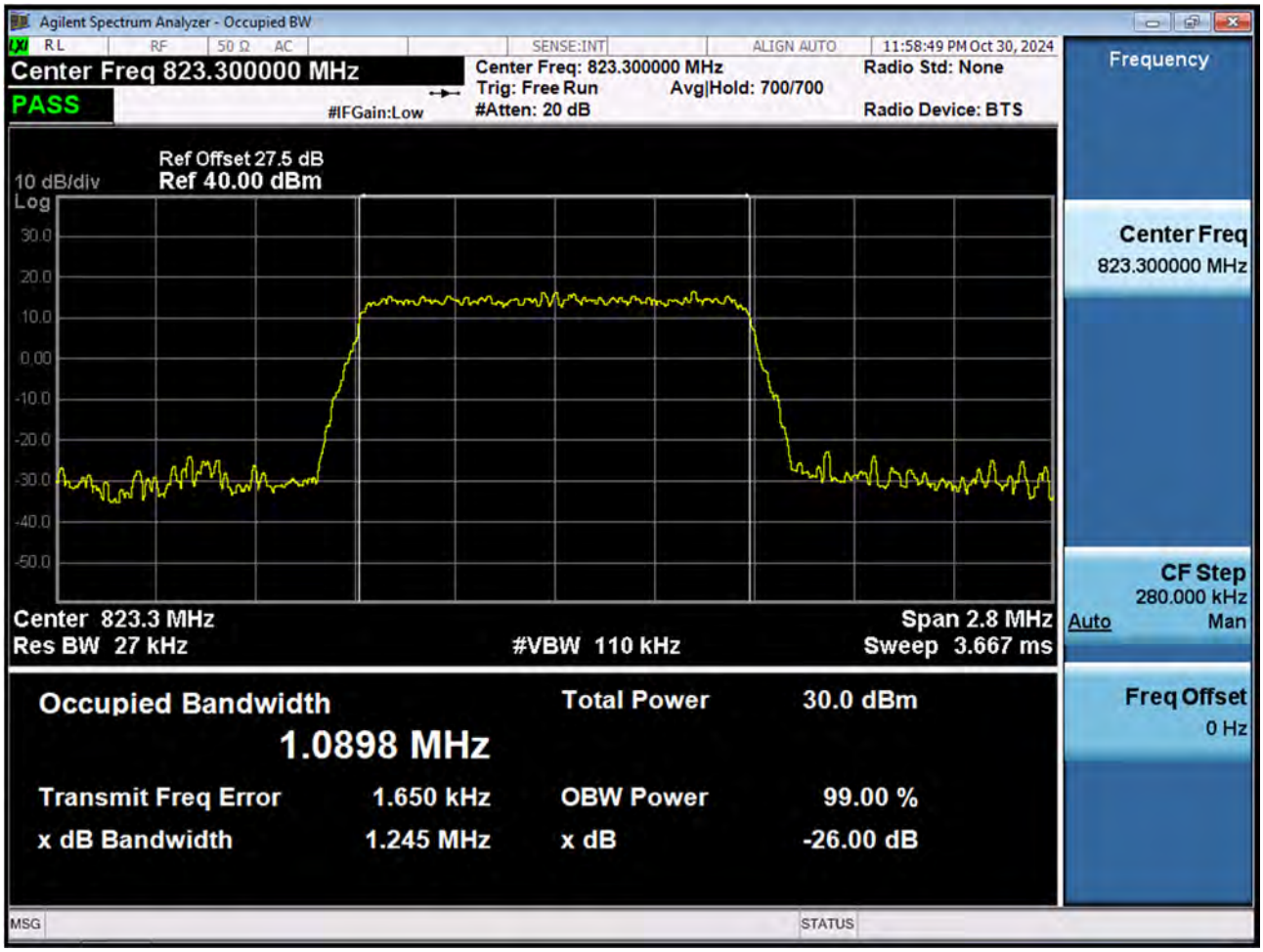
BAND 26. Occupied Bandwidth Plot (1.4 M BW Ch.26783 QPSK RB 6_0)



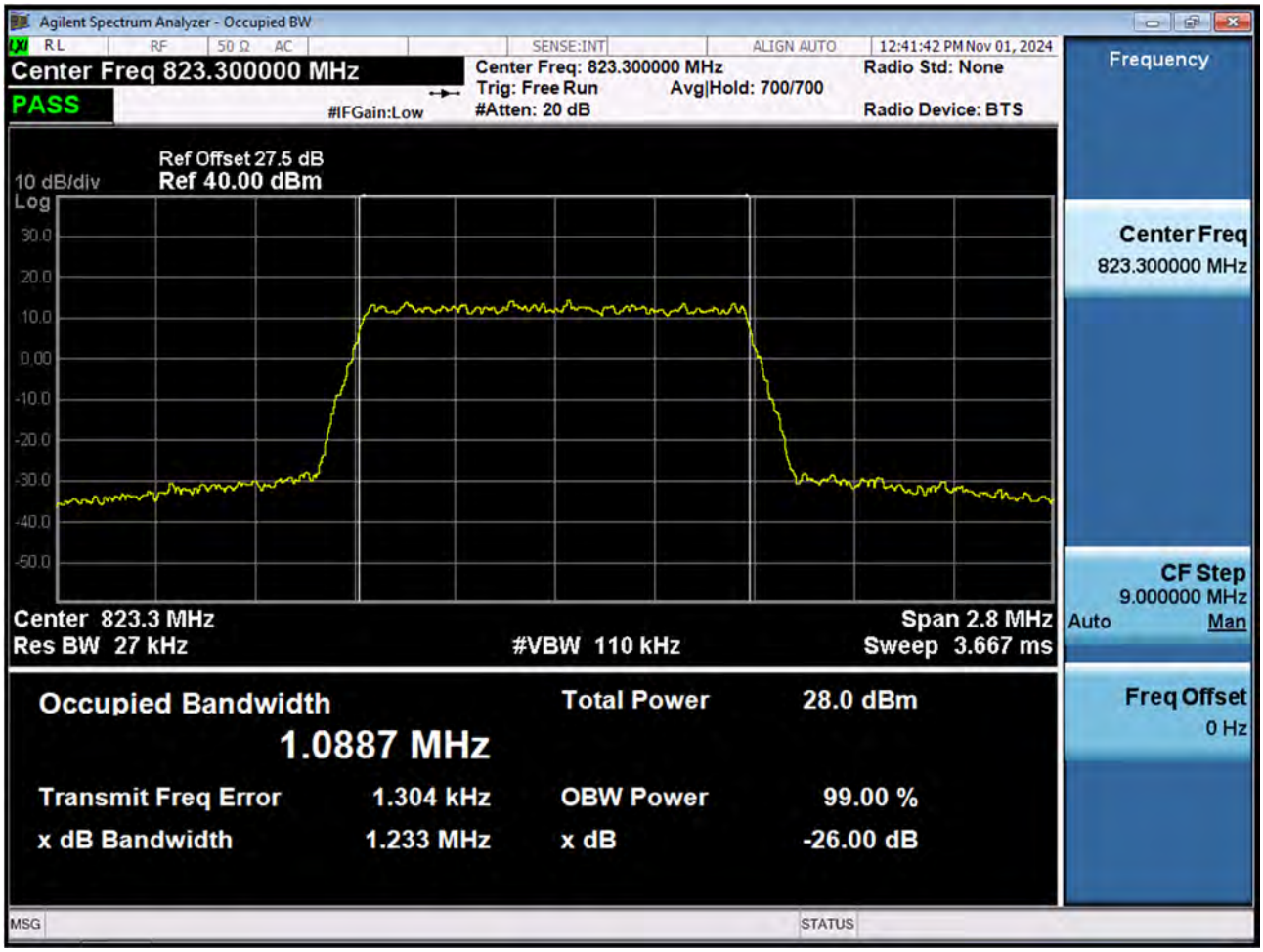
BAND 26. Occupied Bandwidth Plot (1.4 M BW Ch.26783 16QAM RB 6_0)



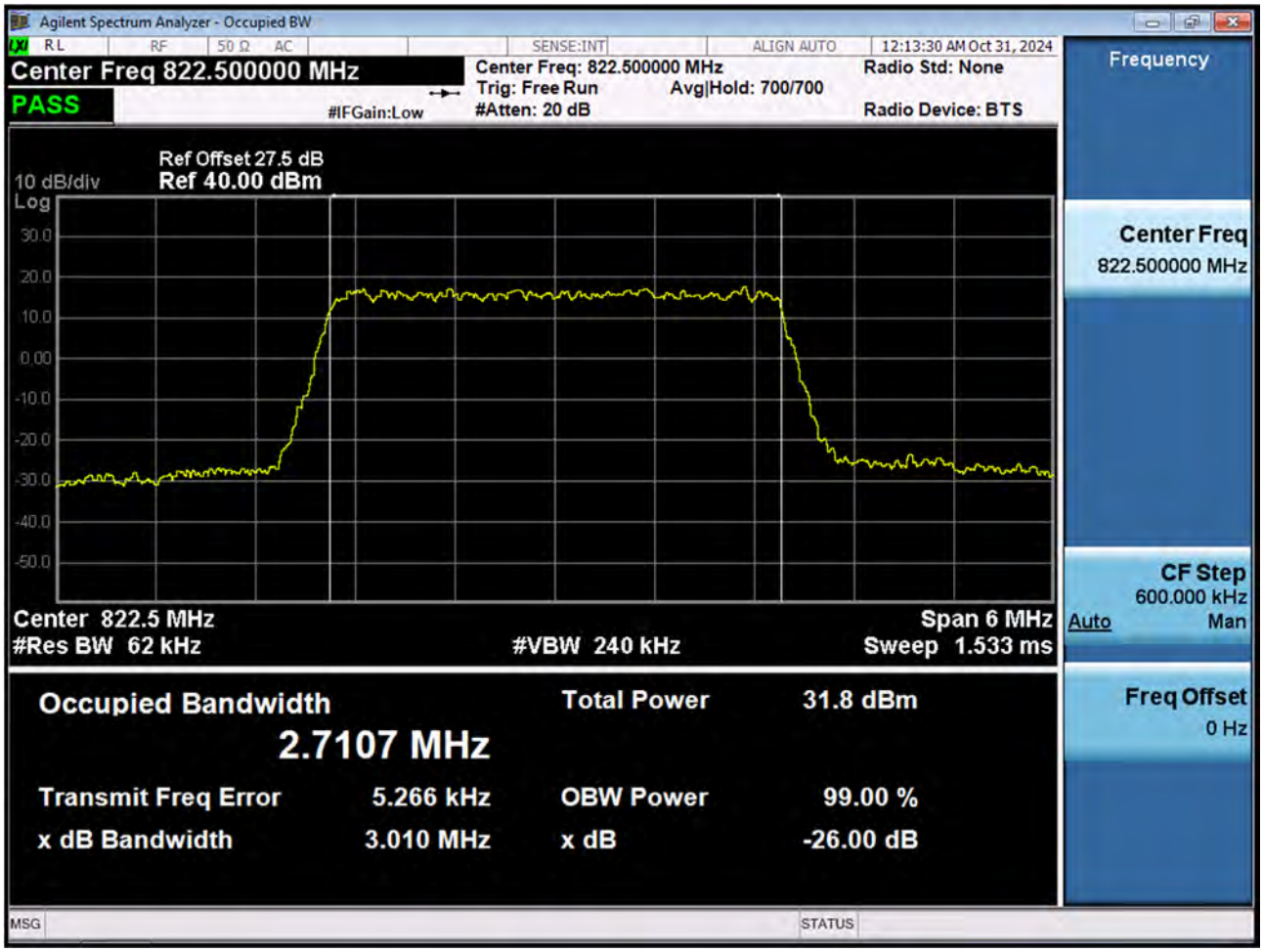
BAND 26. Occupied Bandwidth Plot (1.4 M BW Ch.26783 64QAM RB 6_0)



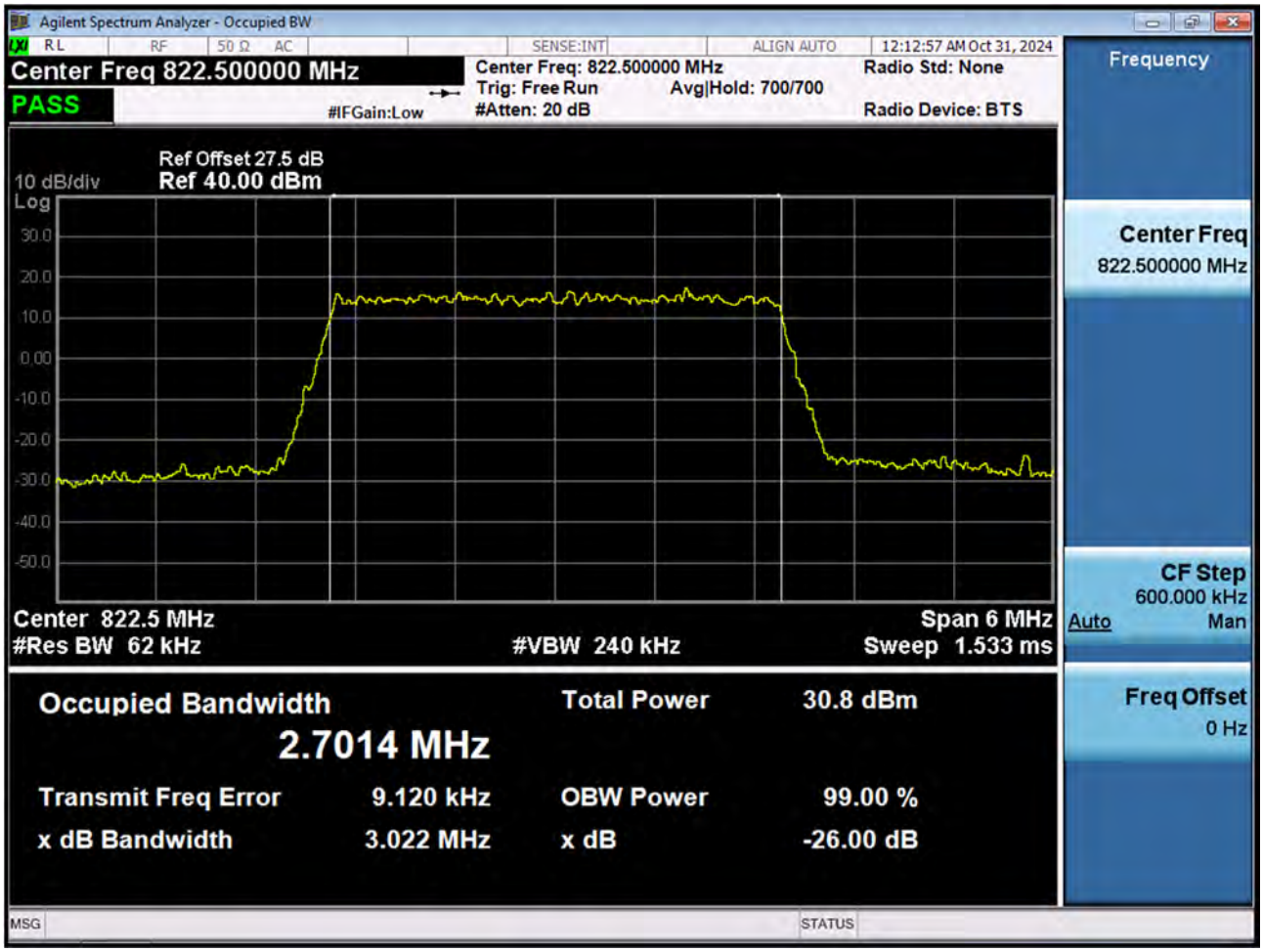
BAND 26. Occupied Bandwidth Plot (1.4 M BW Ch.26783 256QAM RB 6_0)



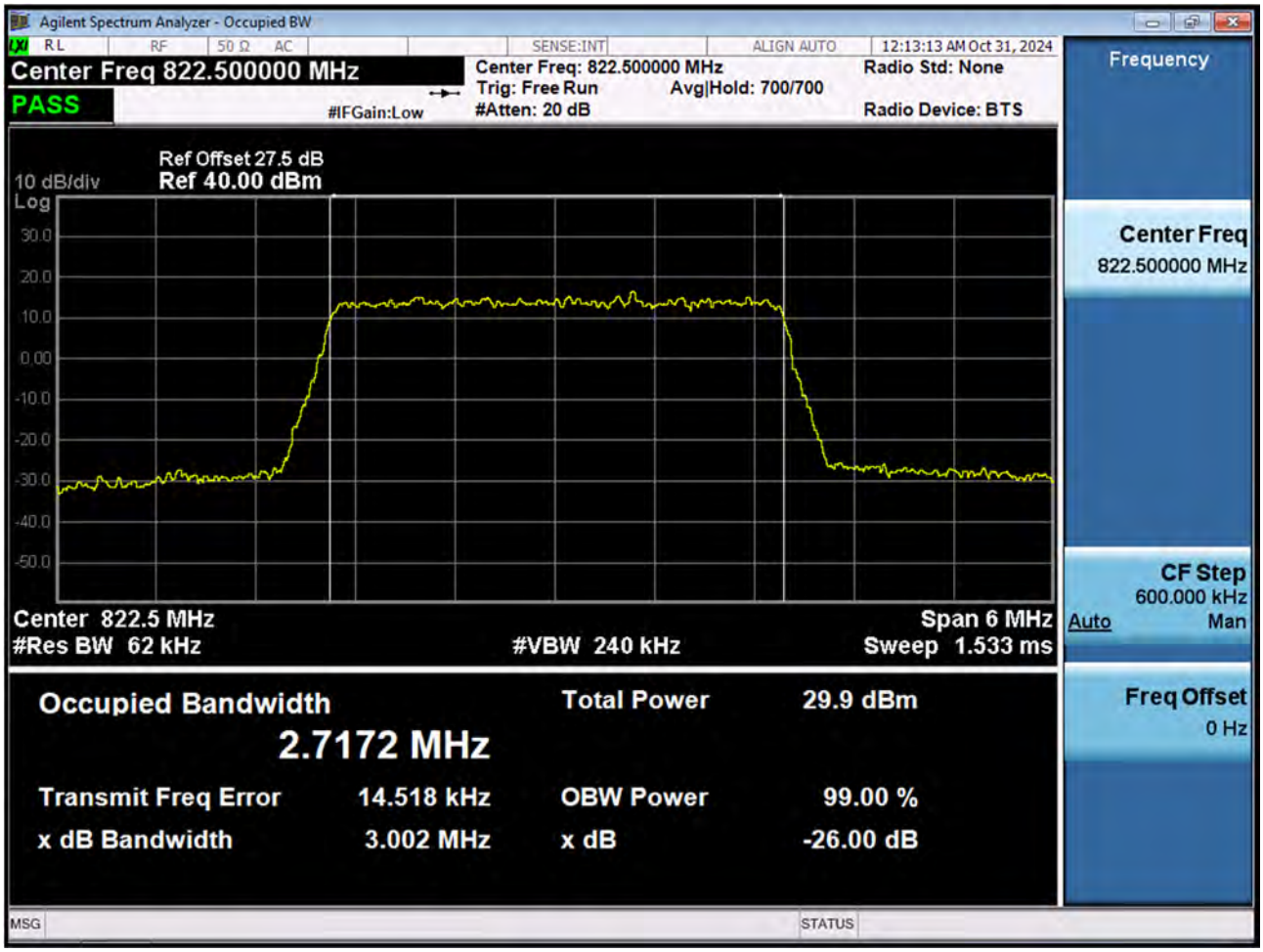
BAND 26. Occupied Bandwidth Plot (3 M BW Ch.26775 QPSK RB 15_0)



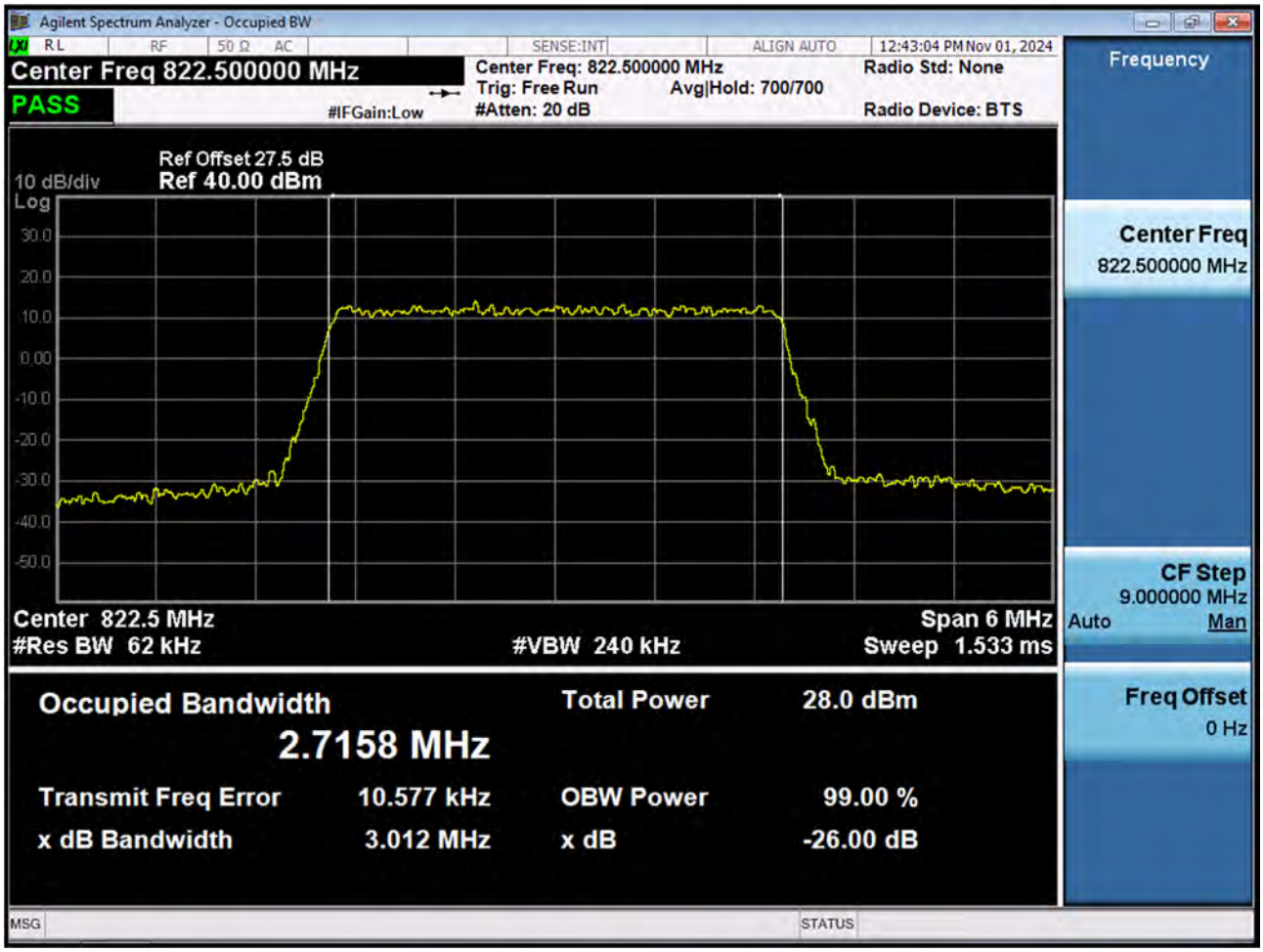
BAND 26. Occupied Bandwidth Plot (3 M BW Ch.26775 16QAM RB 15_0)



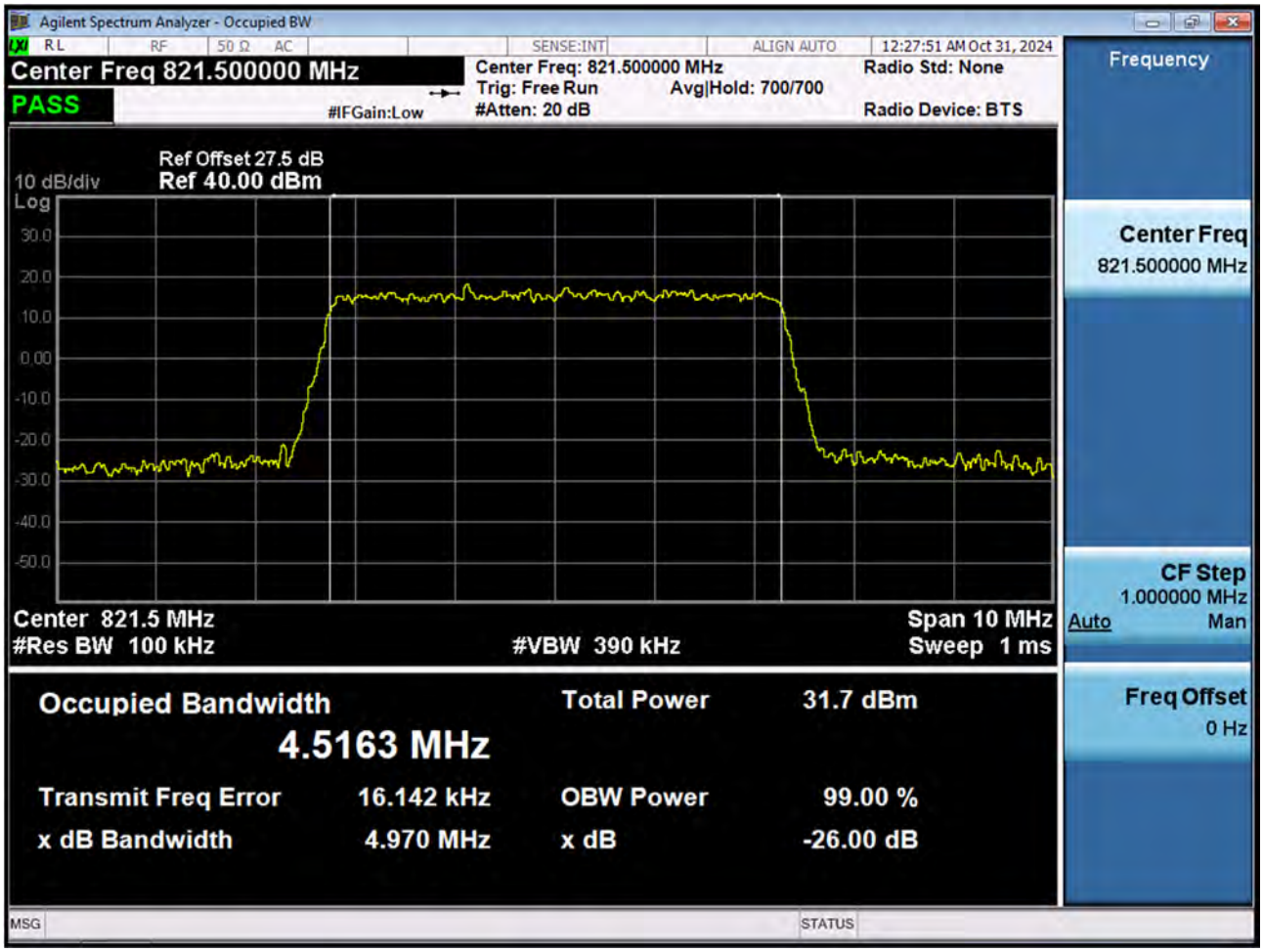
BAND 26. Occupied Bandwidth Plot (3 M BW Ch.26775 64QAM RB 15_0)



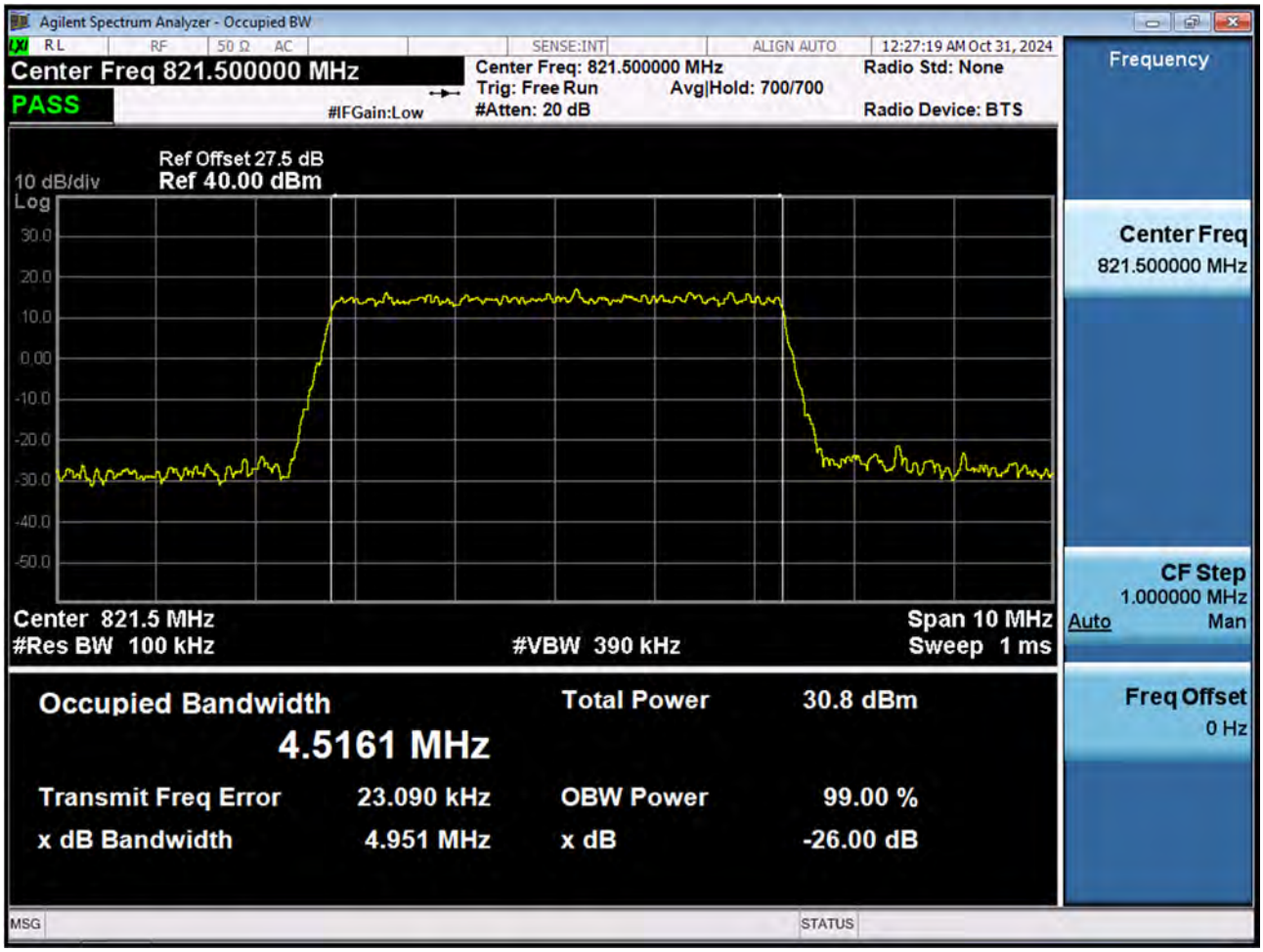
BAND 26. Occupied Bandwidth Plot (3 M BW Ch.26775 256QAM RB 15_0)



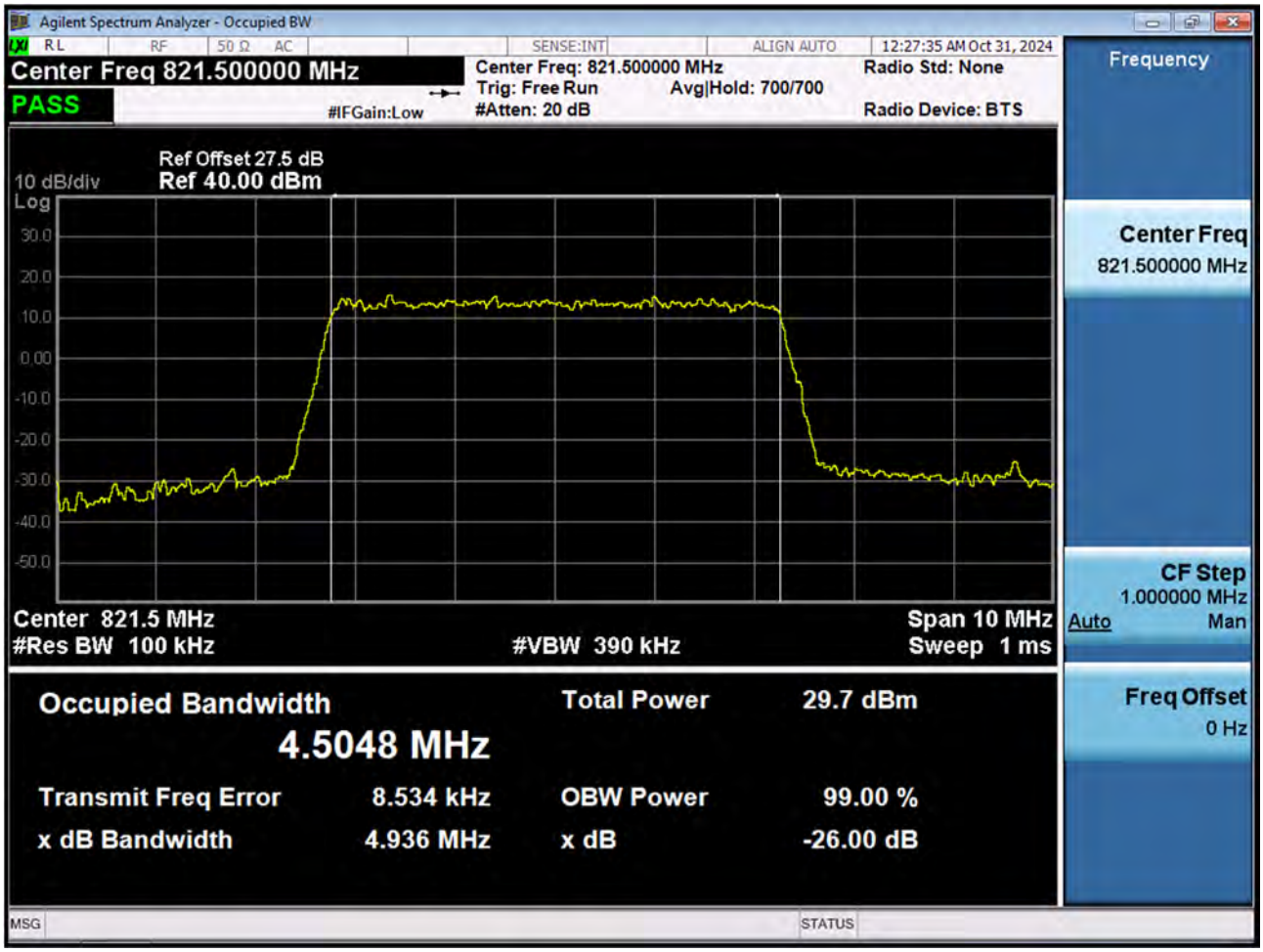
BAND 26. Occupied Bandwidth Plot (5 M BW Ch.26765 QPSK RB 25_0)



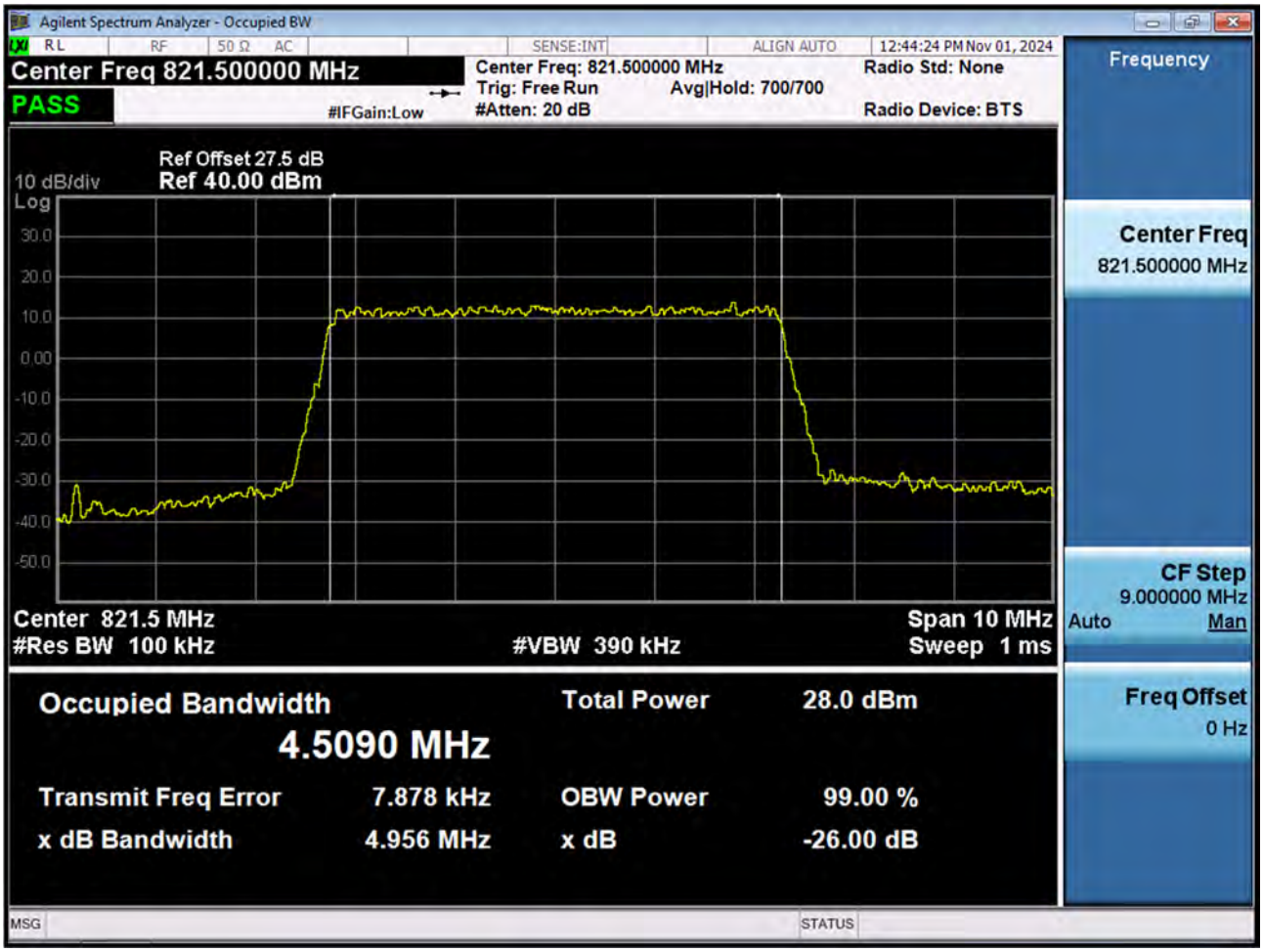
BAND 26. Occupied Bandwidth Plot (5 M BW Ch.26765 16QAM RB 25_0)



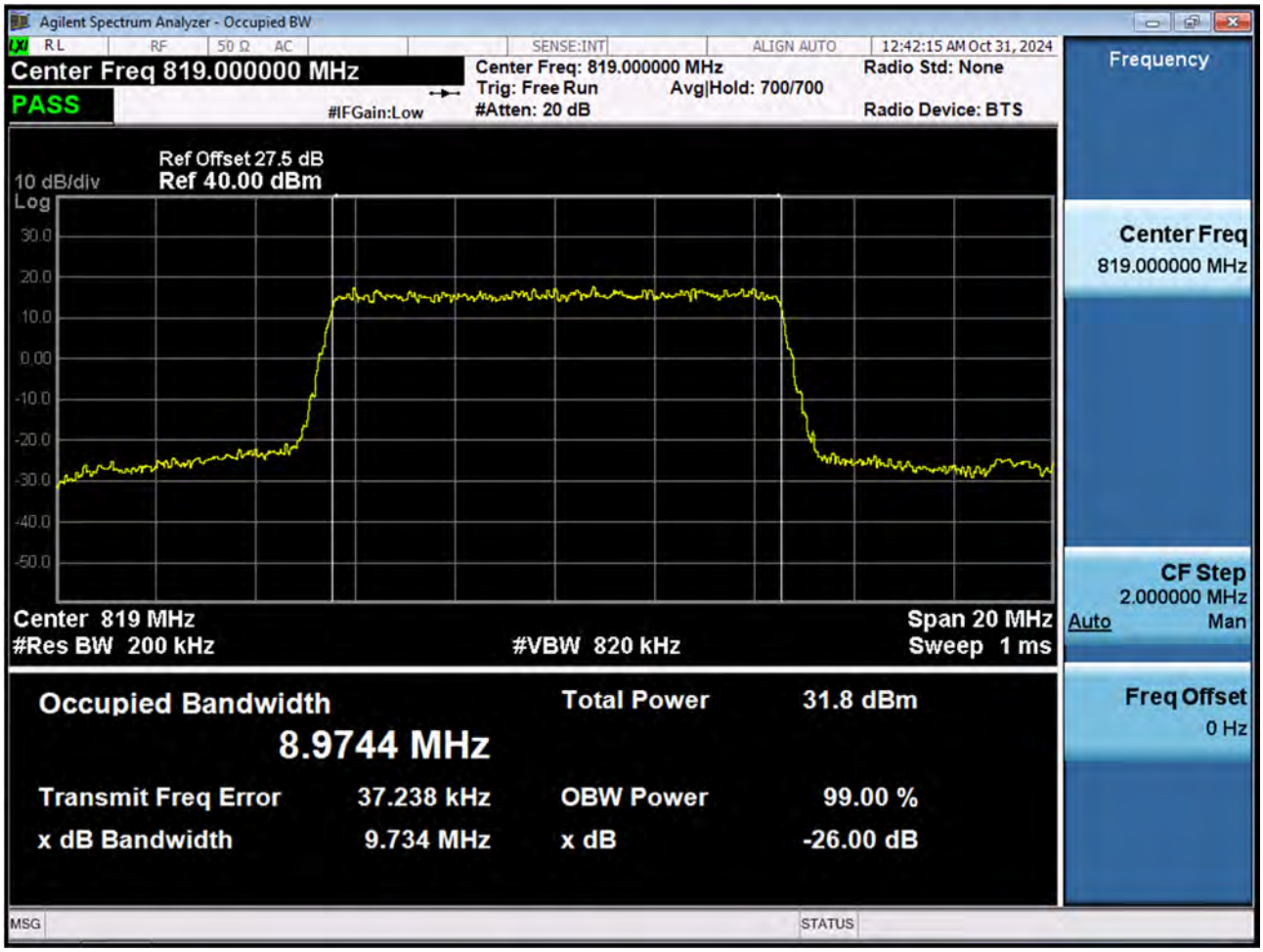
BAND 26. Occupied Bandwidth Plot (5 M BW Ch.26765 64QAM RB 25_0)



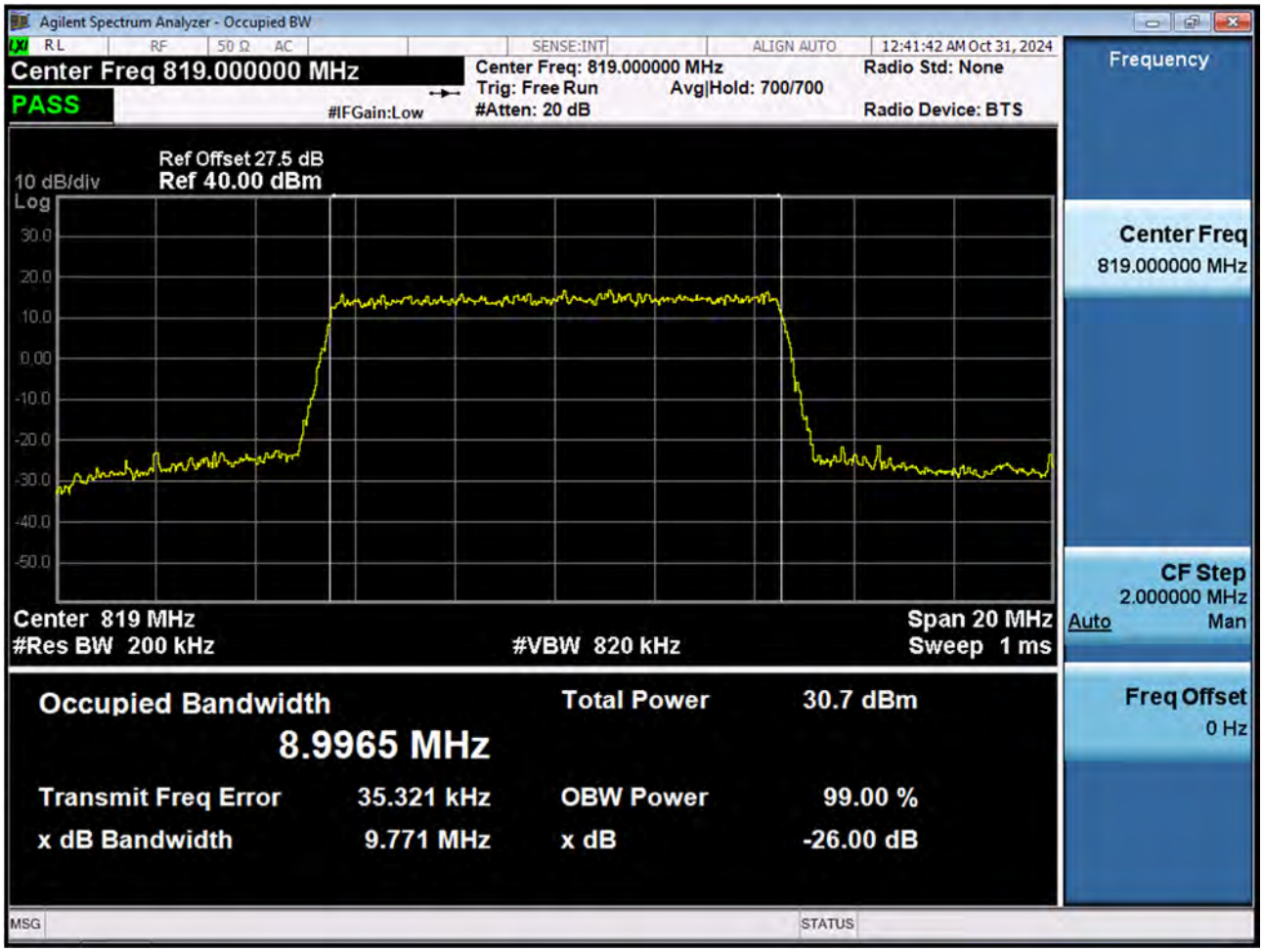
BAND 26. Occupied Bandwidth Plot (5 M BW Ch.26765 256QAM RB 25_0)



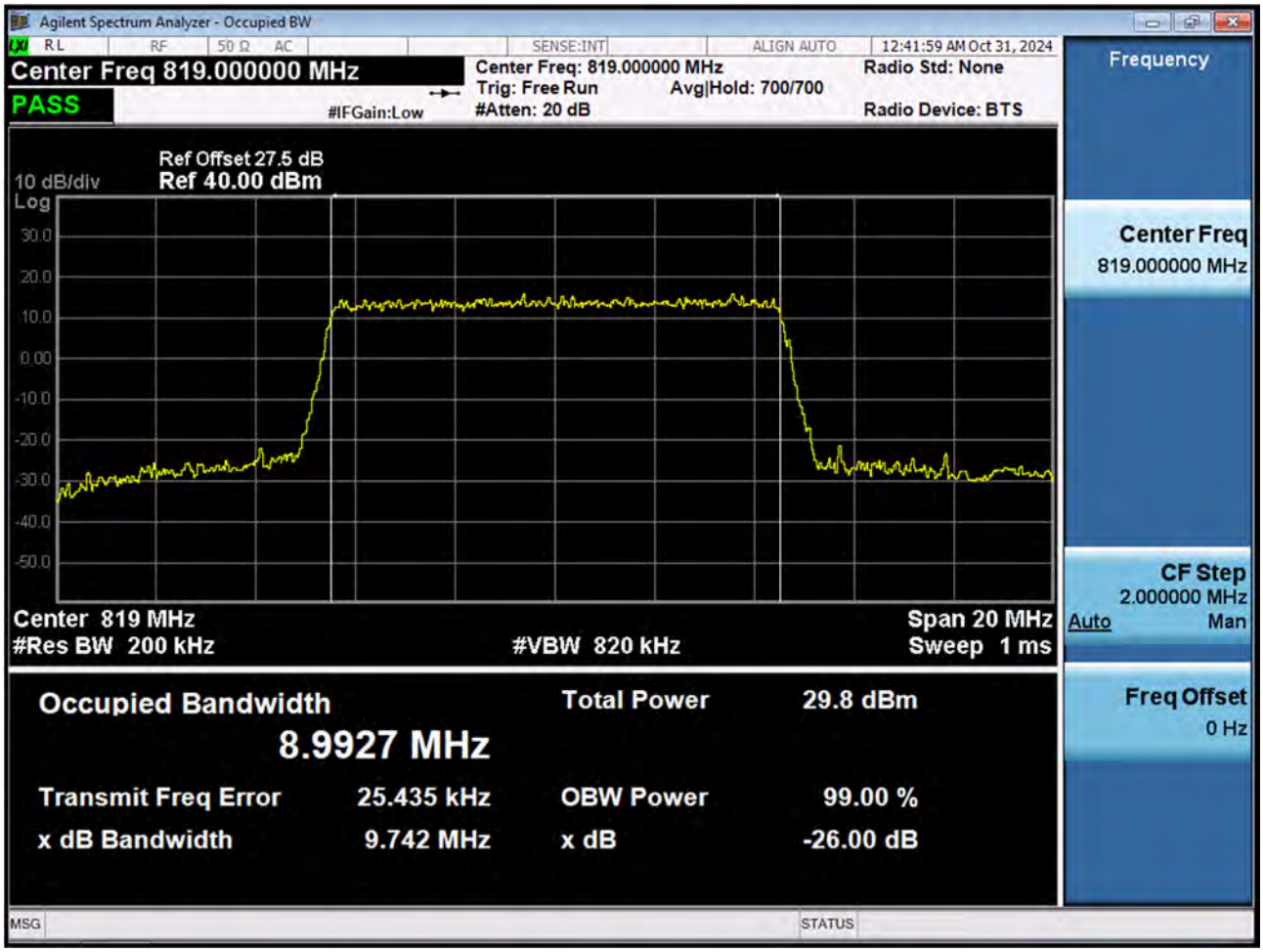
BAND 26. Occupied Bandwidth Plot (10 M BW Ch.26740 QPSK RB 50_0)



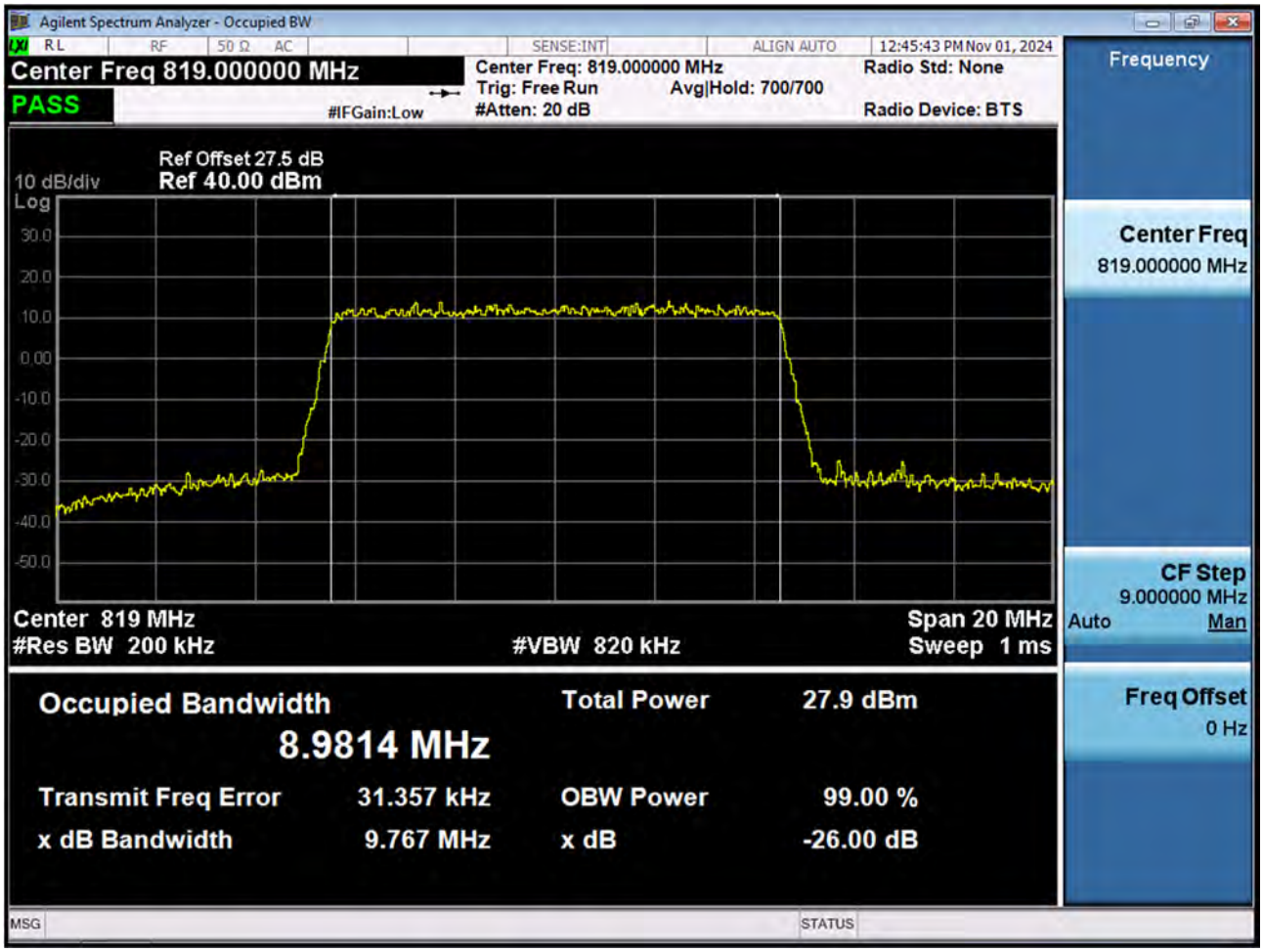
BAND 26. Occupied Bandwidth Plot (10 M BW Ch.26740 16QAM RB 50_0)



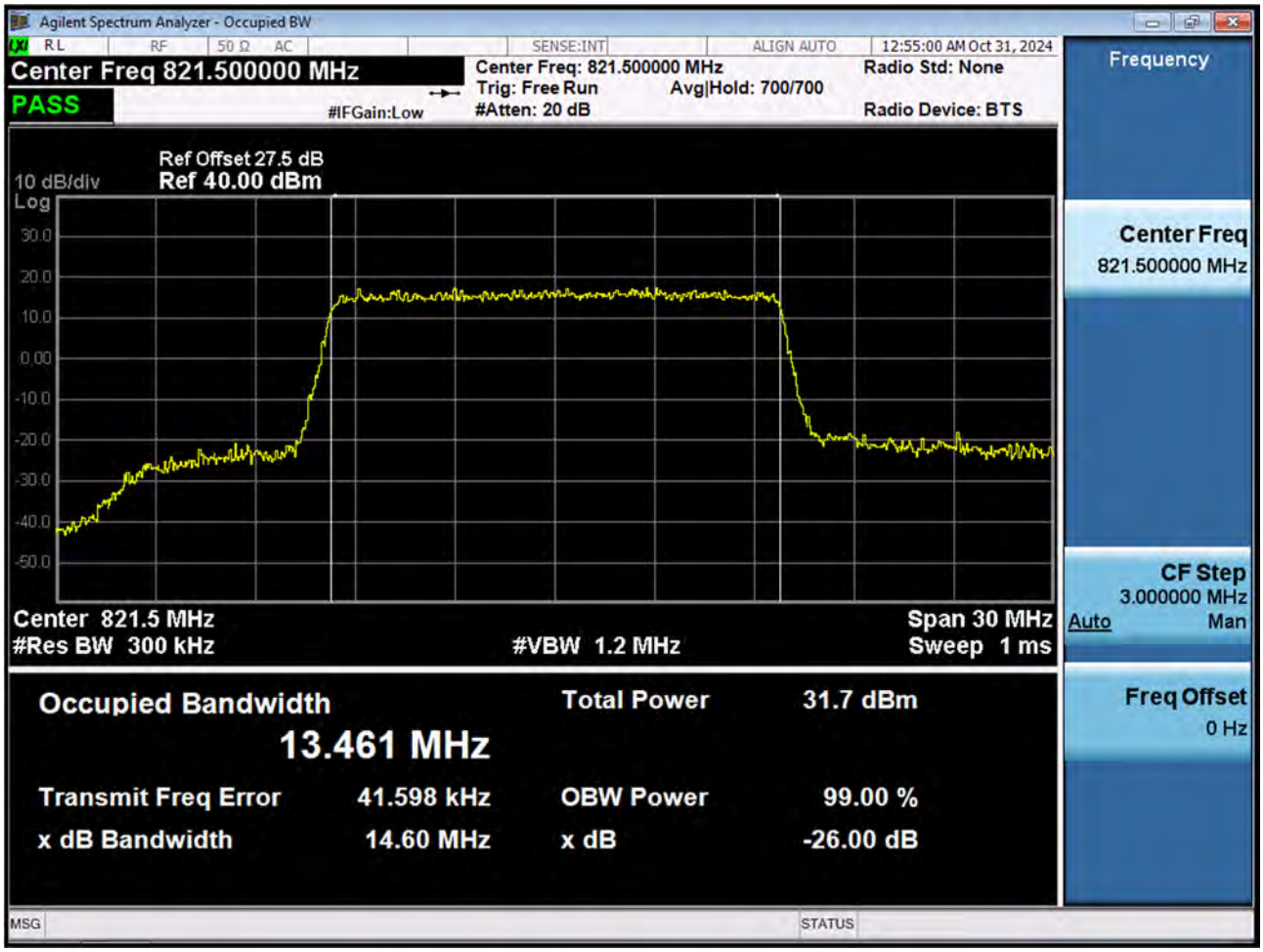
BAND 26. Occupied Bandwidth Plot (10 M BW Ch.26740 64QAM RB 50_0)



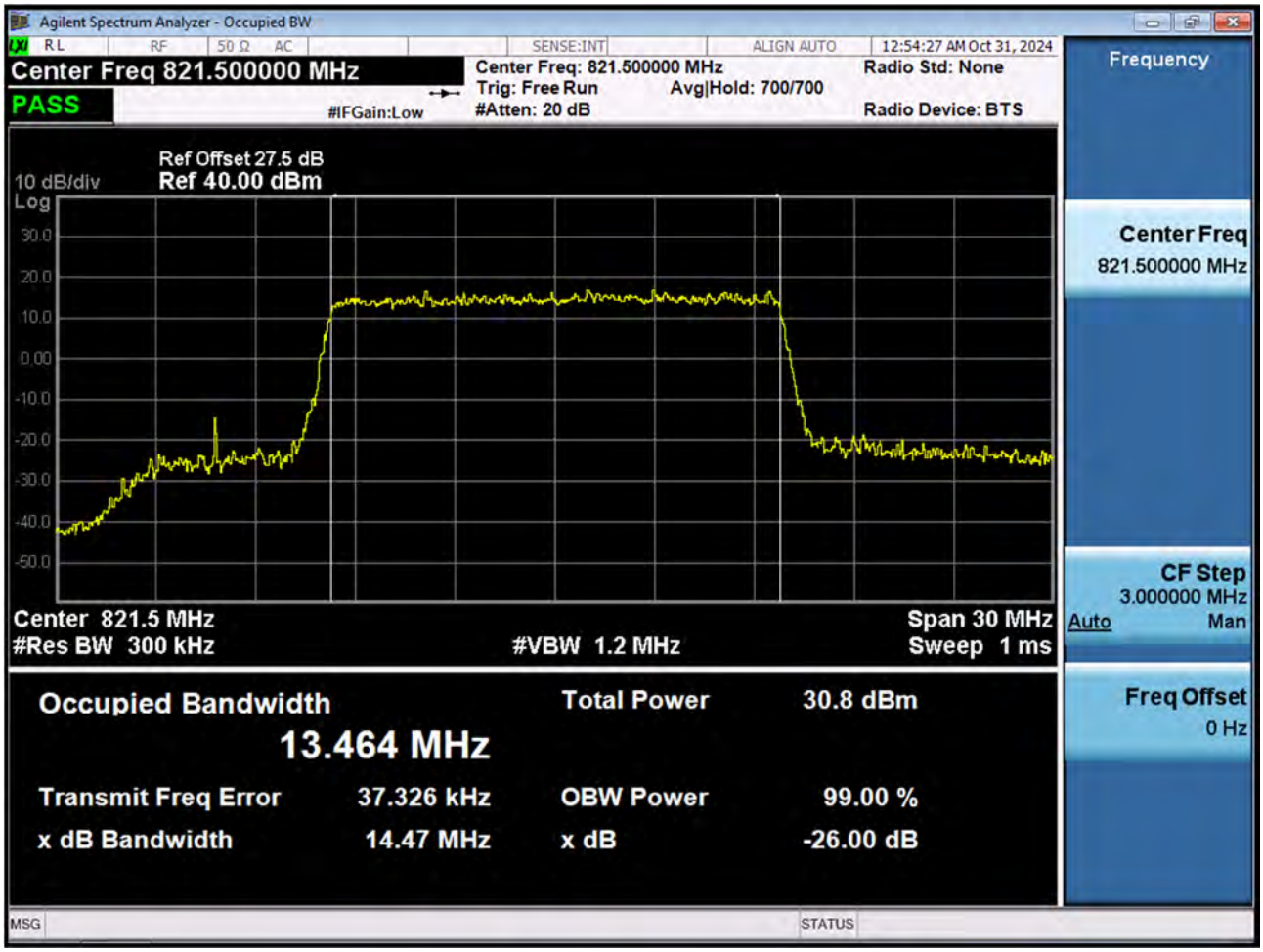
BAND 26. Occupied Bandwidth Plot (10 M BW Ch.26740 256QAM RB 50_0)



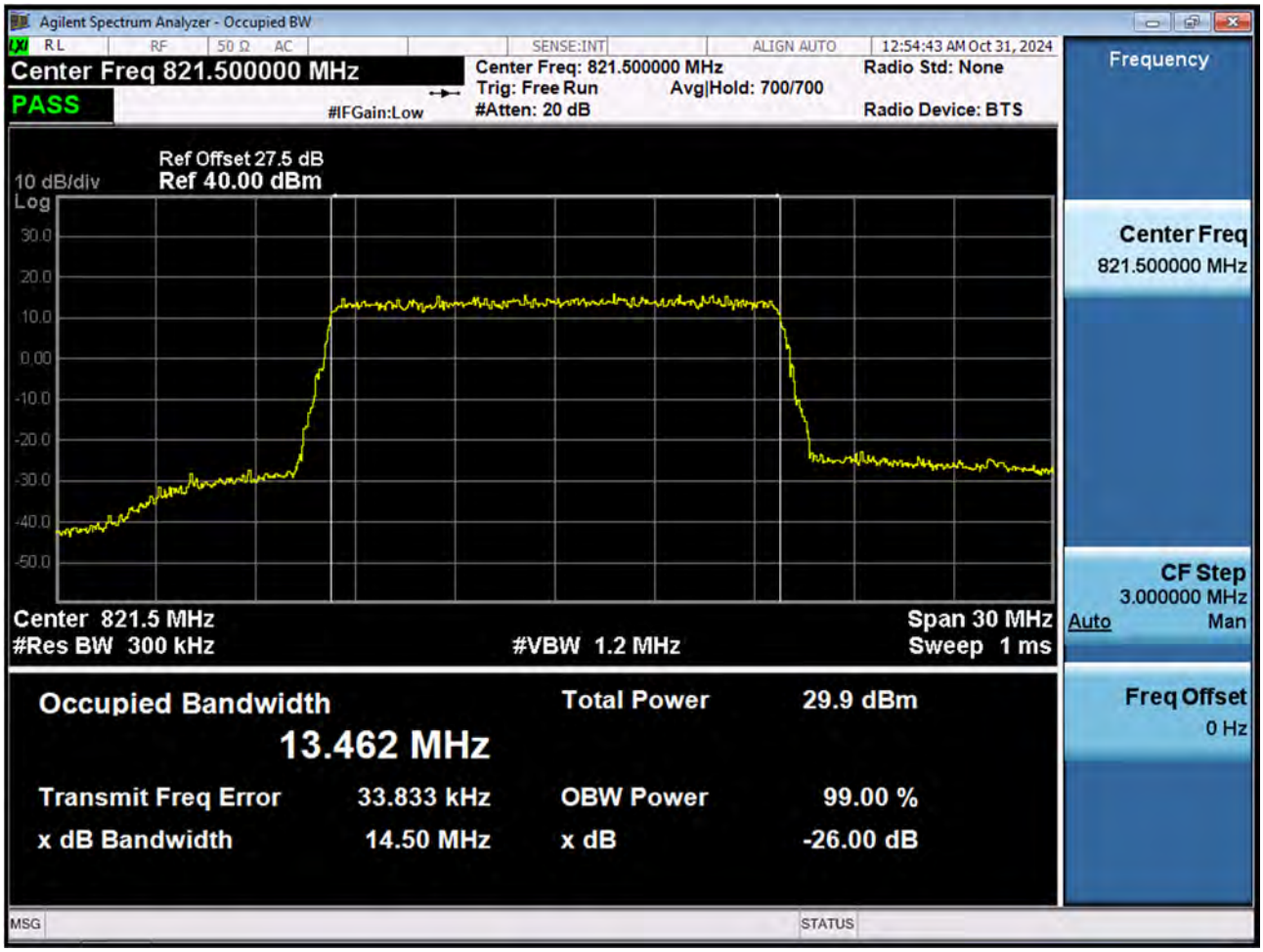
BAND 26. Occupied Bandwidth Plot (15 M BW Ch.26765 QPSK RB 75_0)



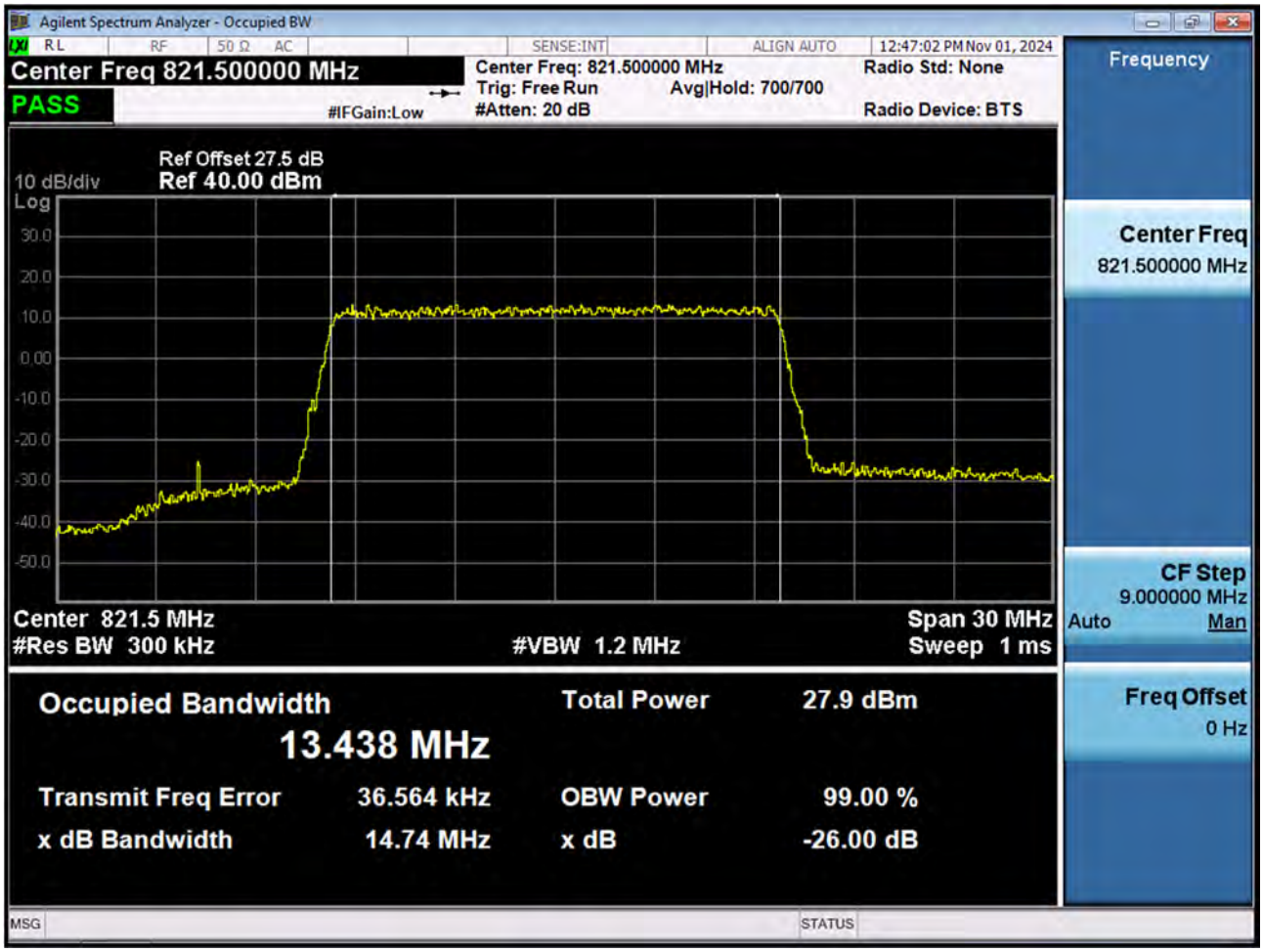
BAND 26. Occupied Bandwidth Plot (15 M BW Ch.26765 16QAM RB 75_0)



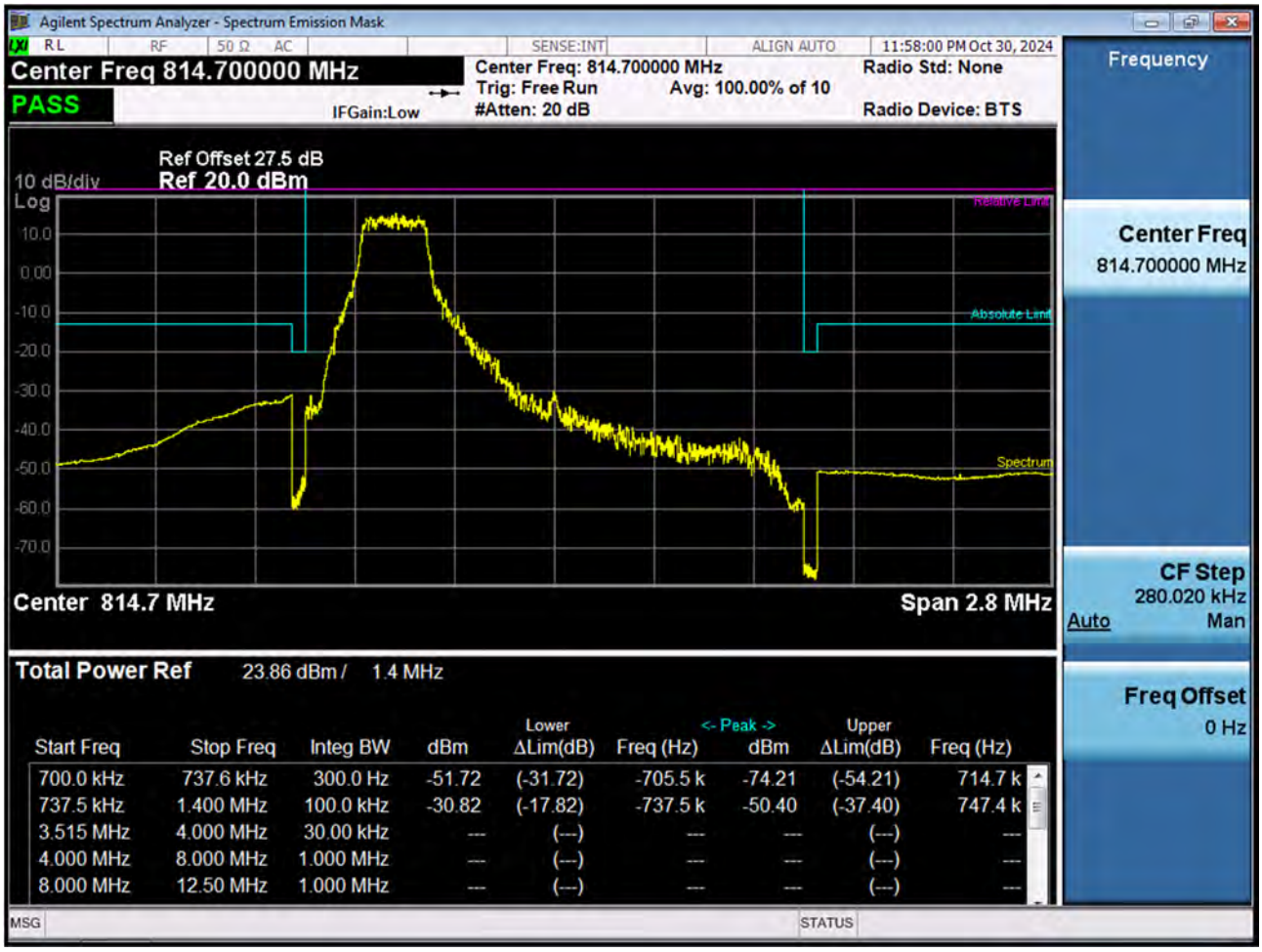
BAND 26. Occupied Bandwidth Plot (15 M BW Ch.26765 64QAM RB 75_0)



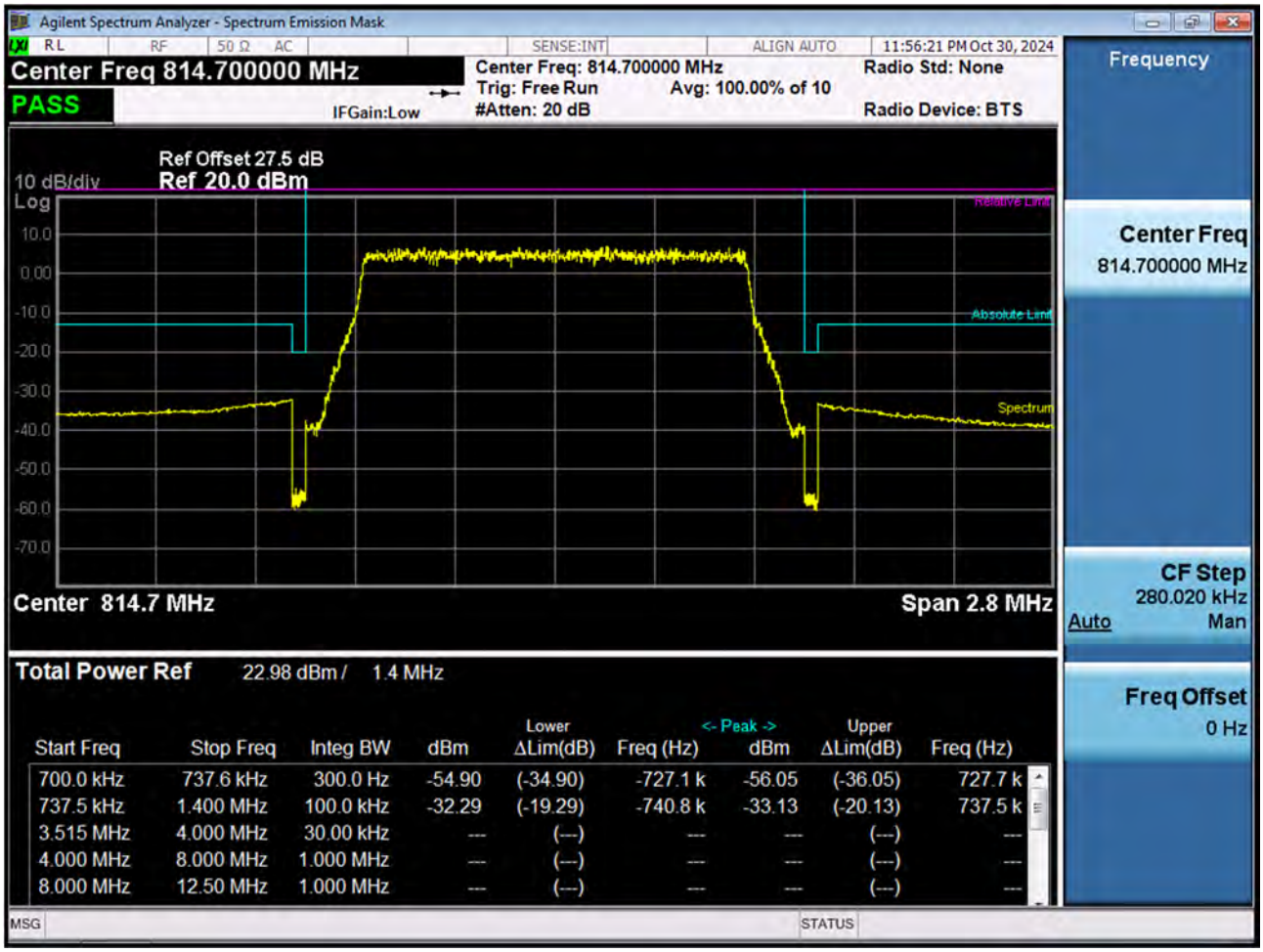
BAND 26. Occupied Bandwidth Plot (15 M BW Ch.26765 256QAM RB 75_0)



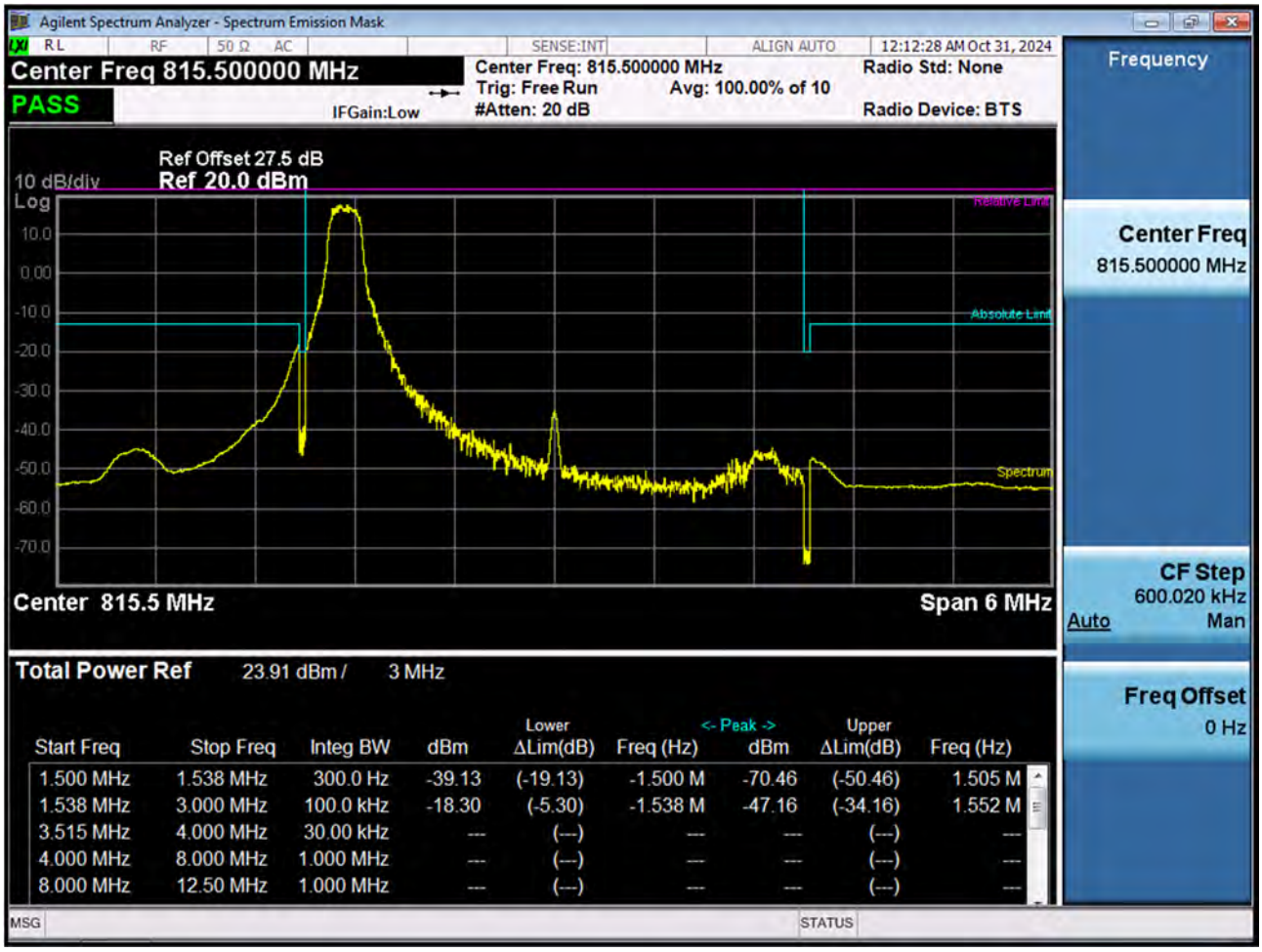
BAND 26. Lower Channel Edge Plot (1.4 M BW Ch.26697 QPSK RB 1, Offset 0)



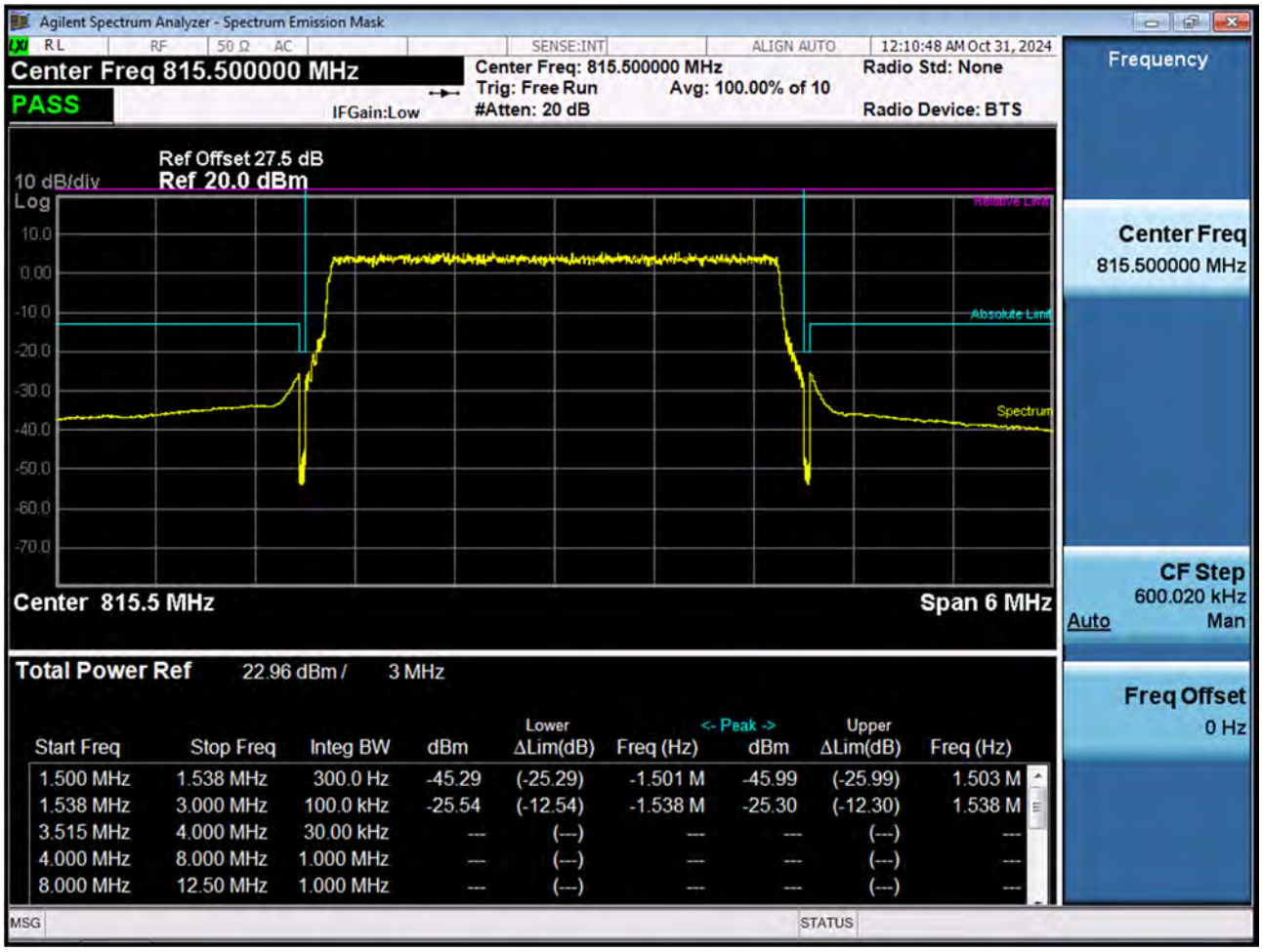
BAND 26. Lower Channel Edge Plot (1.4 M BW Ch.26697 QPSK_RB6_Offset 0)



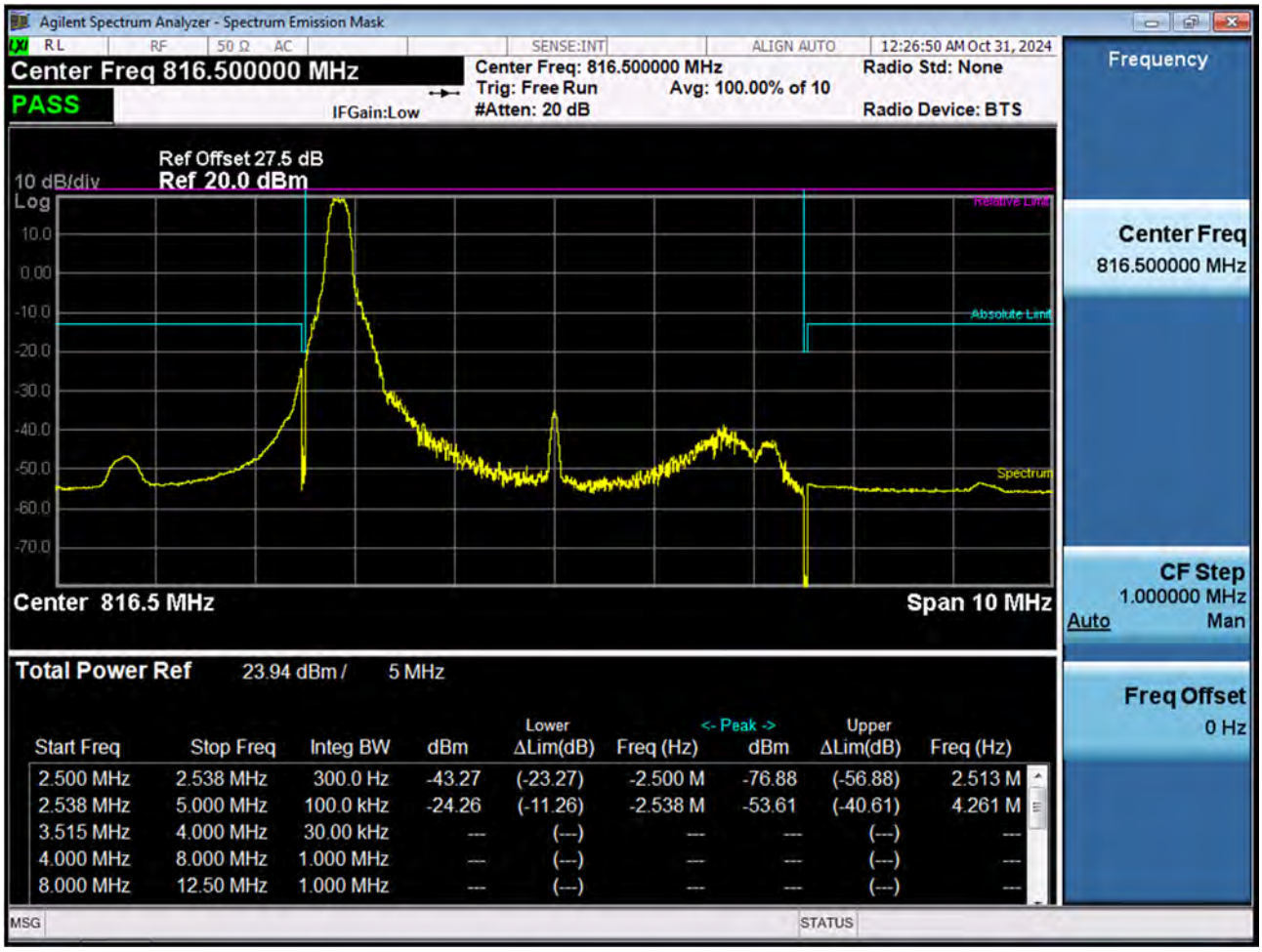
BAND 26. Lower Channel Edge Plot (3 M BW Ch.26705 QPSK RB 1, Offset 0)



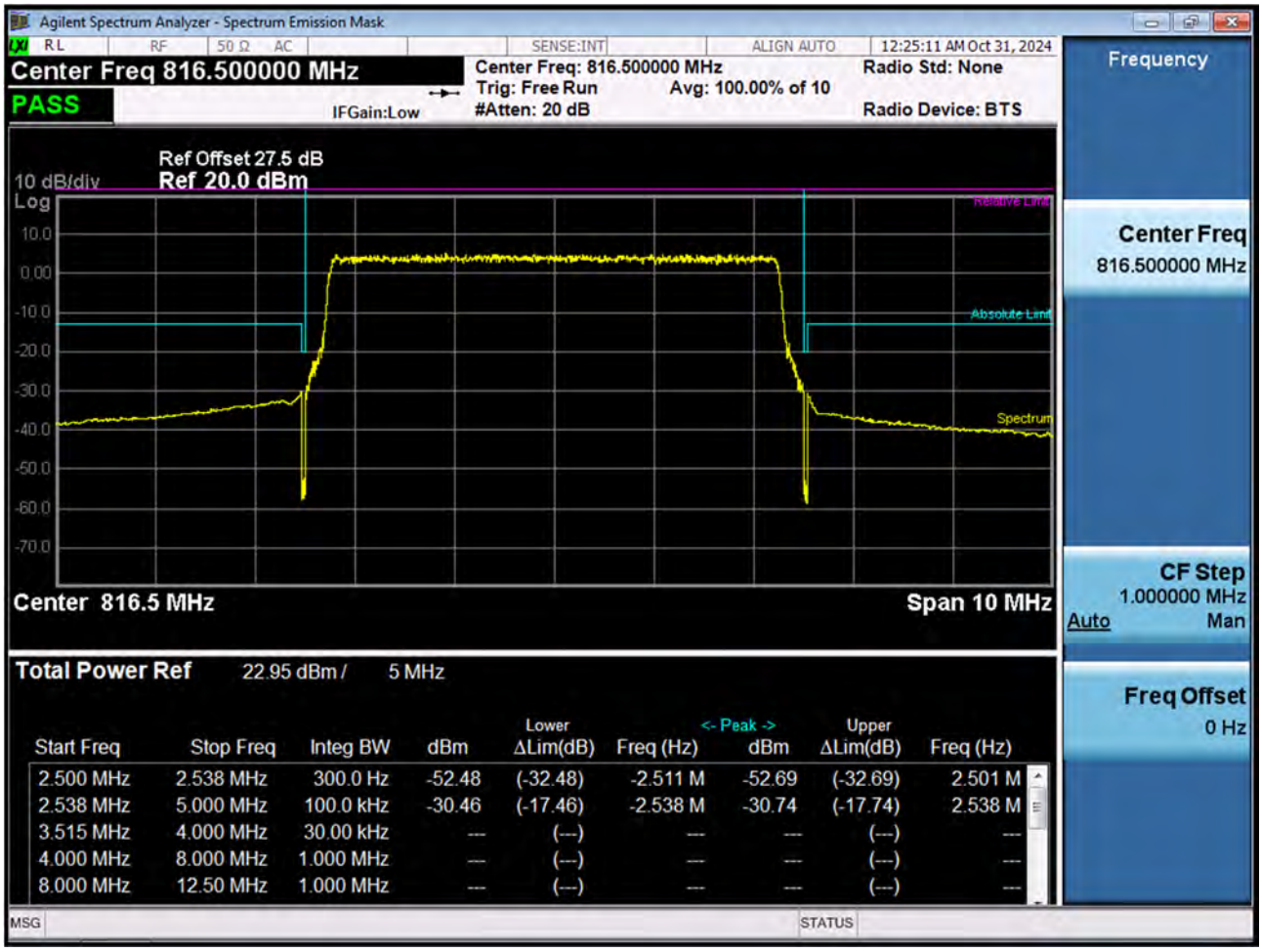
BAND 26. Lower Channel Edge Plot (3 M BW Ch.26705 QPSK_RB15_Offset 0)



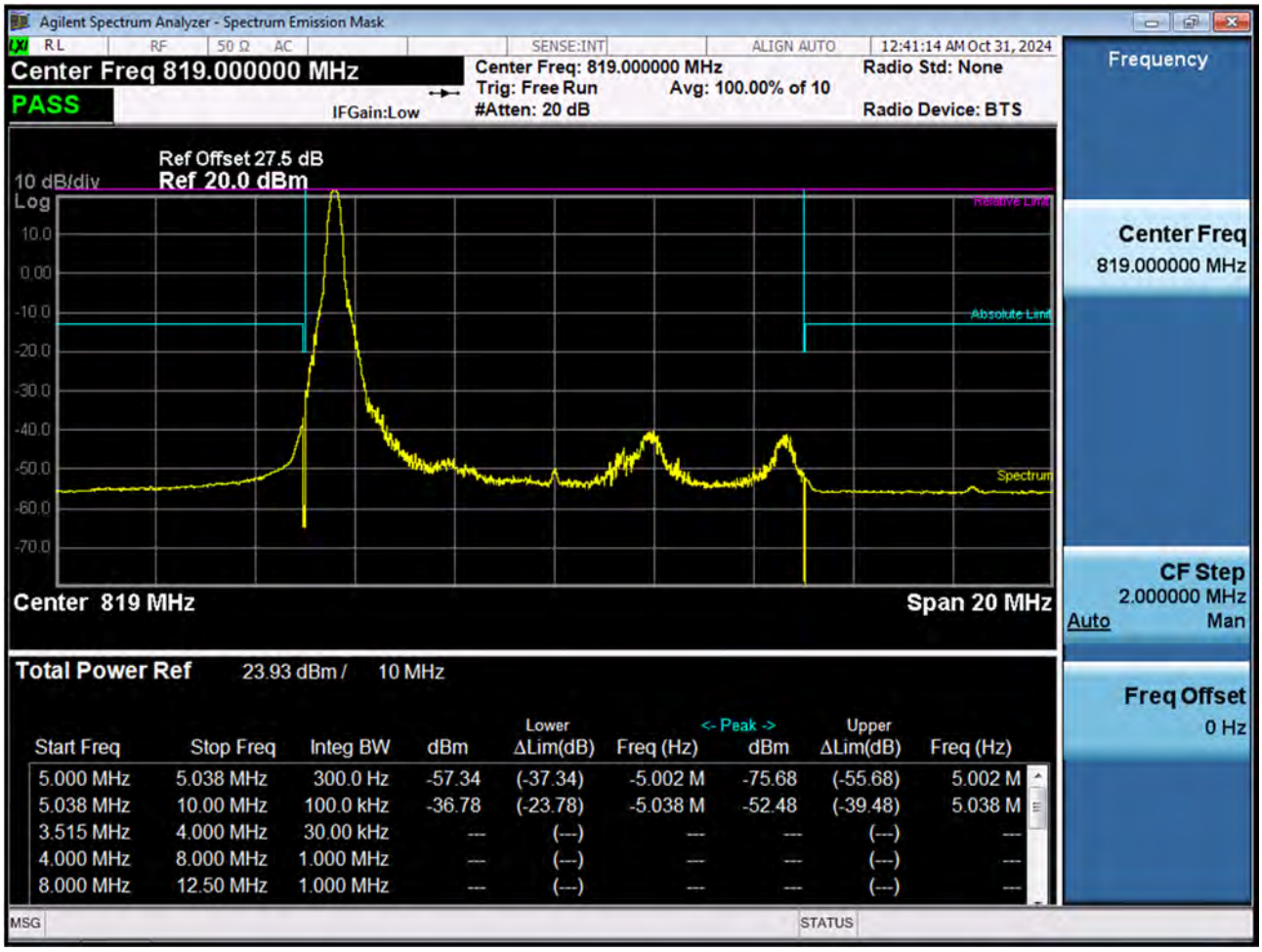
BAND 26. Lower Channel Edge Plot (5 M BW Ch.26715 QPSK RB 1, Offset 0)



BAND 26. Lower Channel Edge Plot (5 M BW Ch.26715 QPSK_RB25_Offset 0)

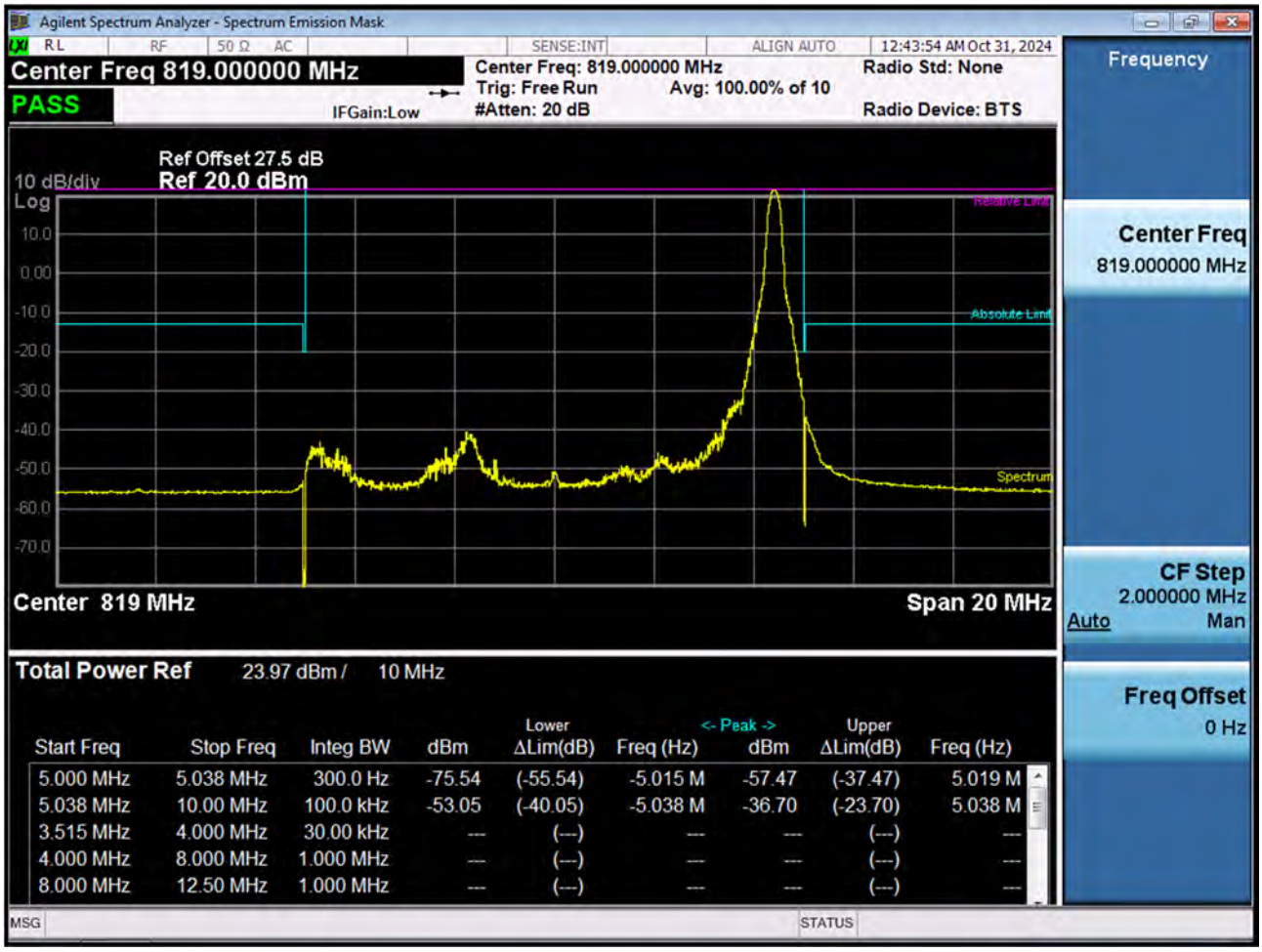


BAND 26. Low Channel Edge Plot (10 M BW Ch.26740 QPSK RB 1, Offset 0)

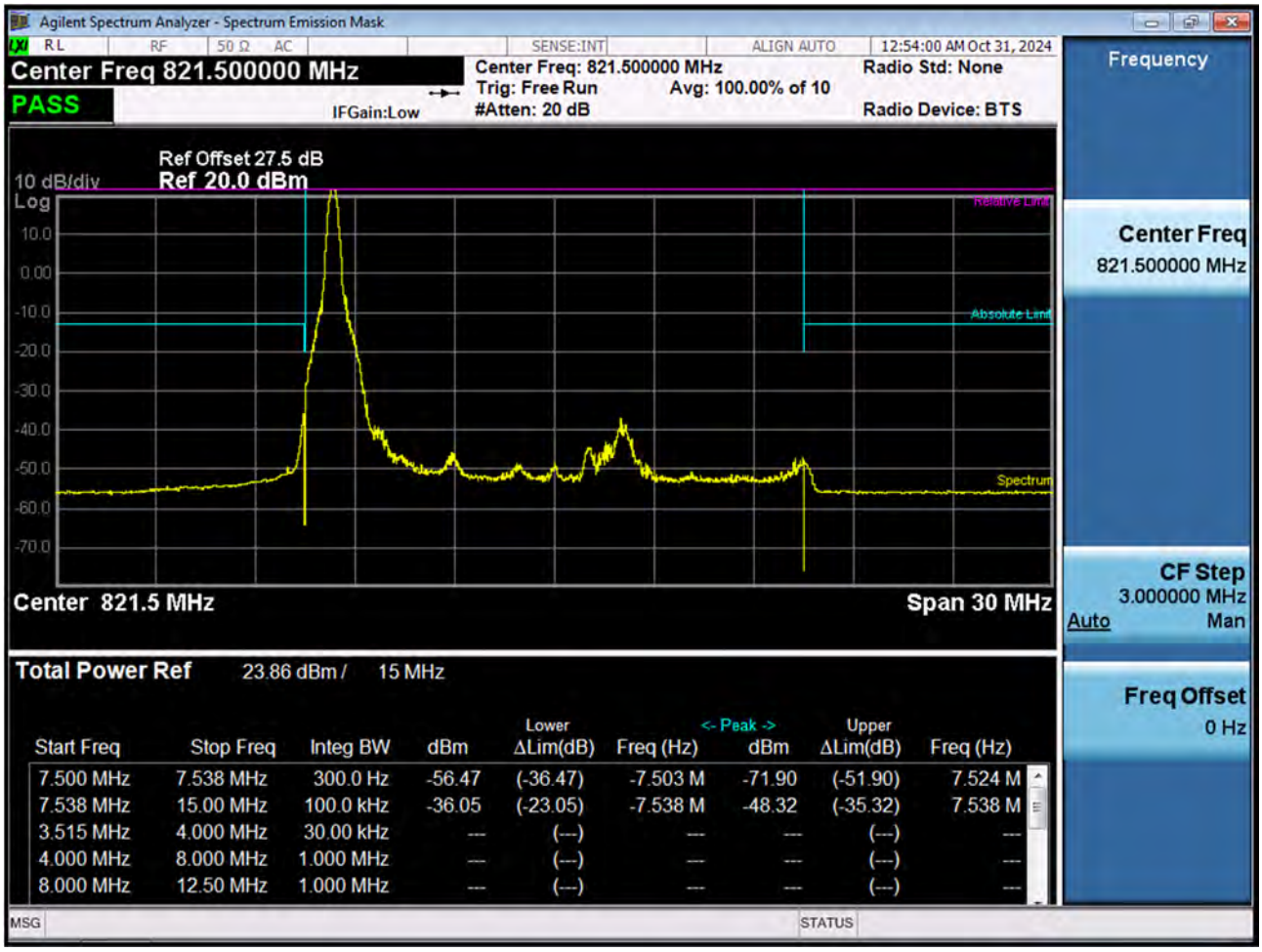


BAND 26. Low Channel Edge Plot (10 M BW Ch.26740 QPSK_RB50_Offset 0)

BAND 26. Mid Channel Edge Plot (10 M BW Ch. 26740 QPSK_RB1_Offset 49)

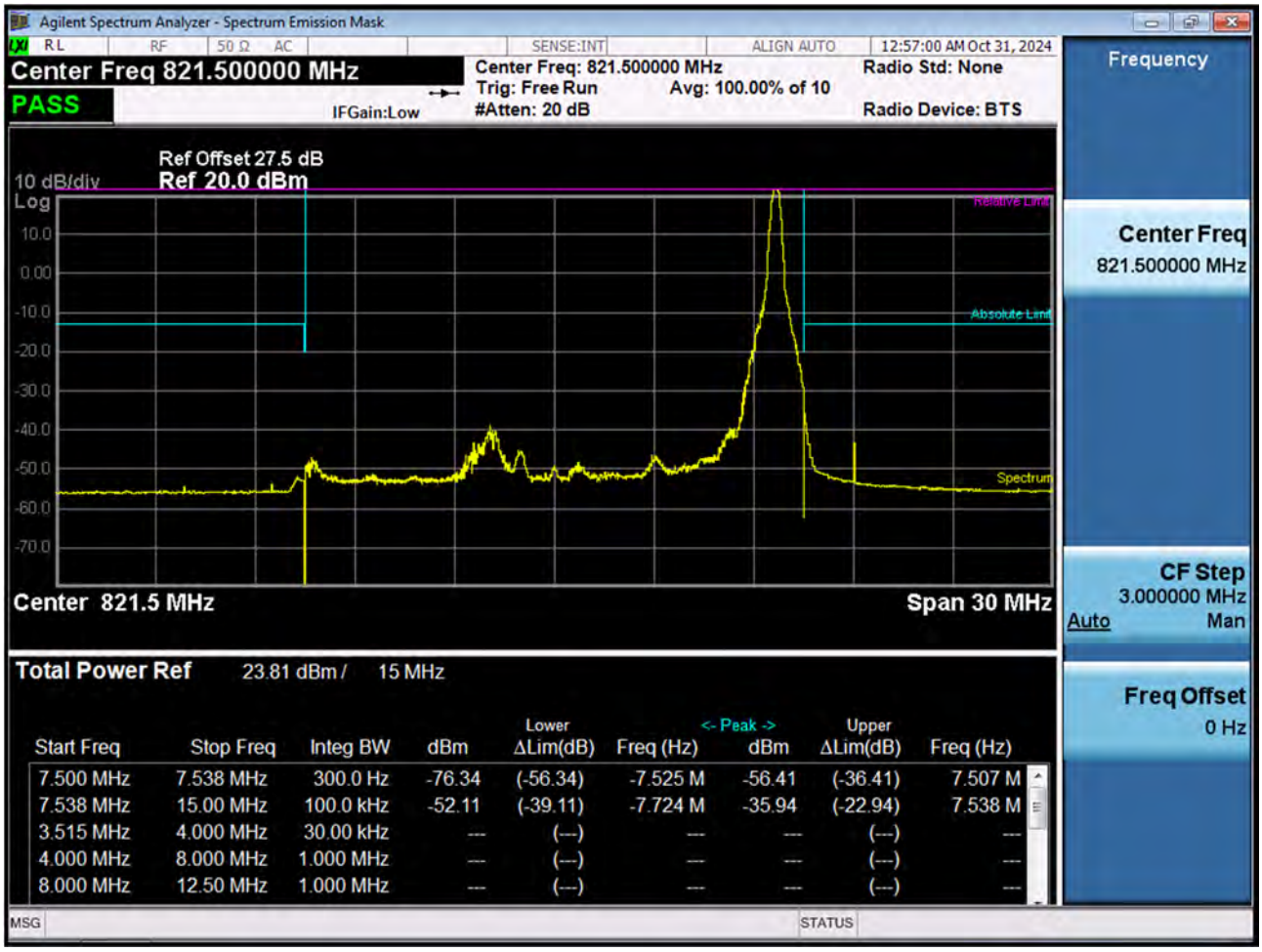


BAND 26. Low Channel Edge Plot (15 M BW Ch.26765 QPSK RB 1, Offset 0)

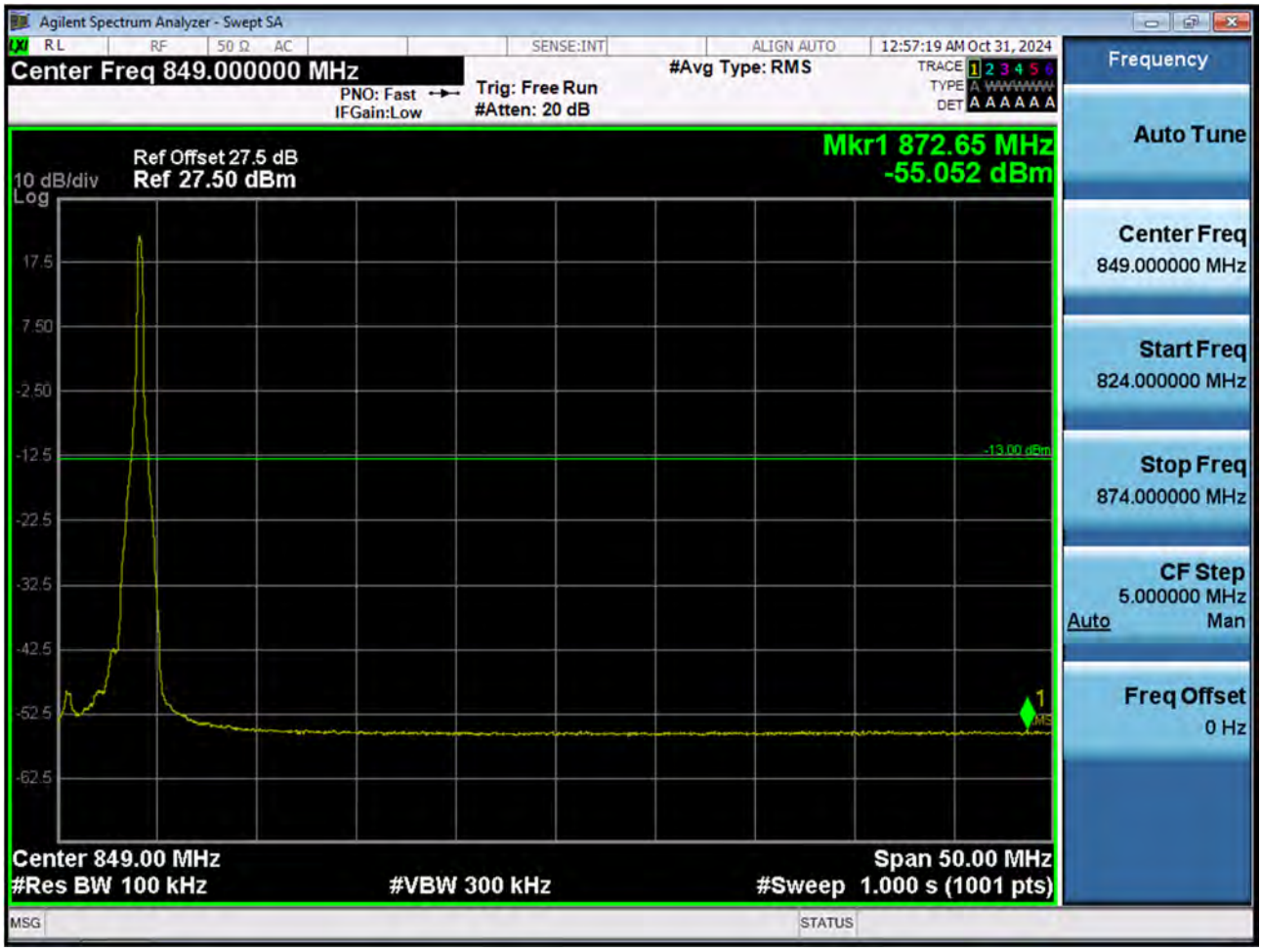


BAND 26. Low Channel Edge Plot (15 M BW Ch.26765 QPSK RB 75, Offset0)

BAND 26. Mid Channel Edge Plot (15 M BW Ch.26765 QPSK_RB1_Offset 74)

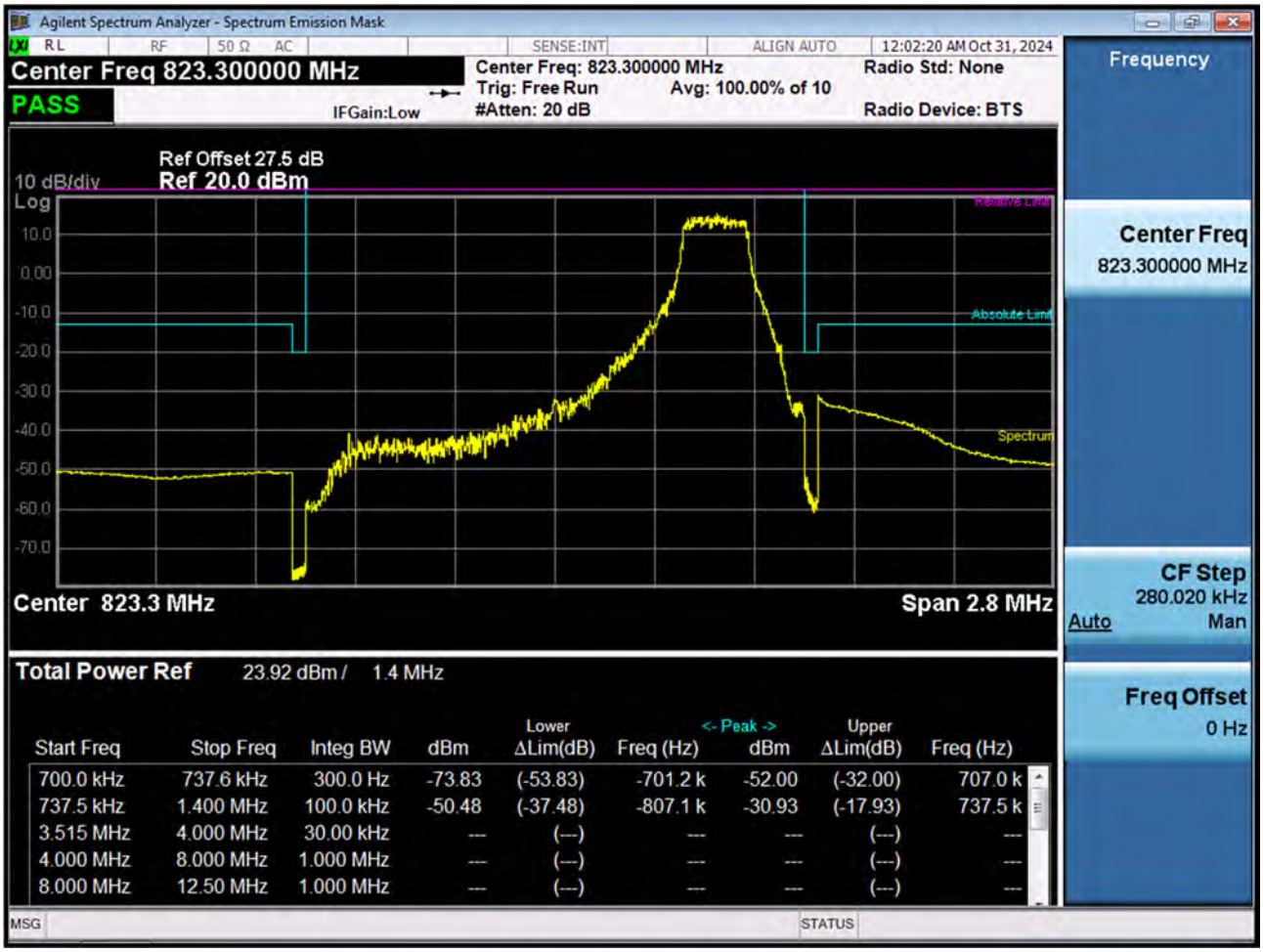


BAND 26. Mid Band Edge Plot (15 M BW Ch.26765 QPSK RB 1, Offset74)

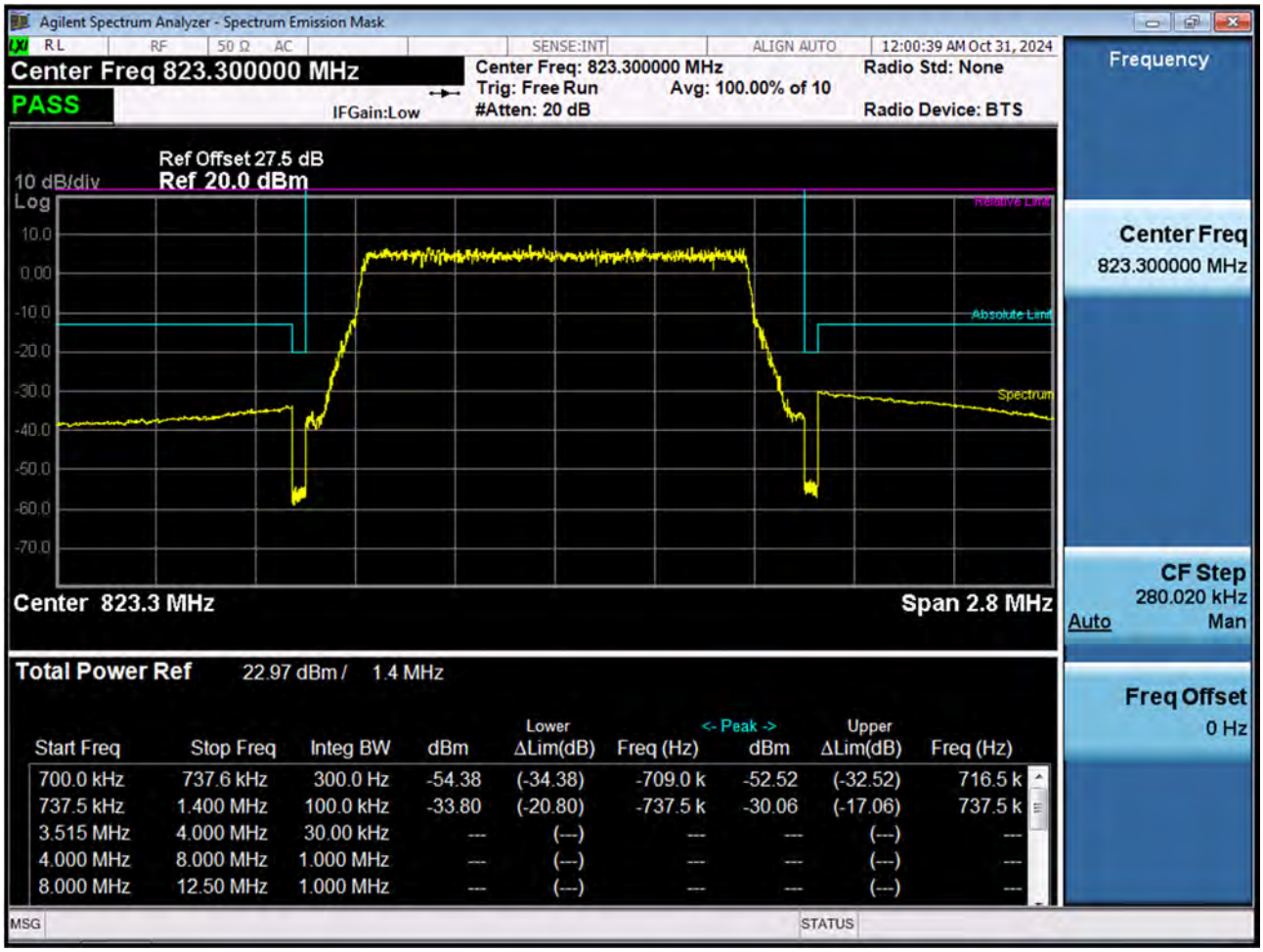


BAND 26. Mid Band Edge Plot (15 M BW Ch.26765 QPSK_RB75_Offset 0)

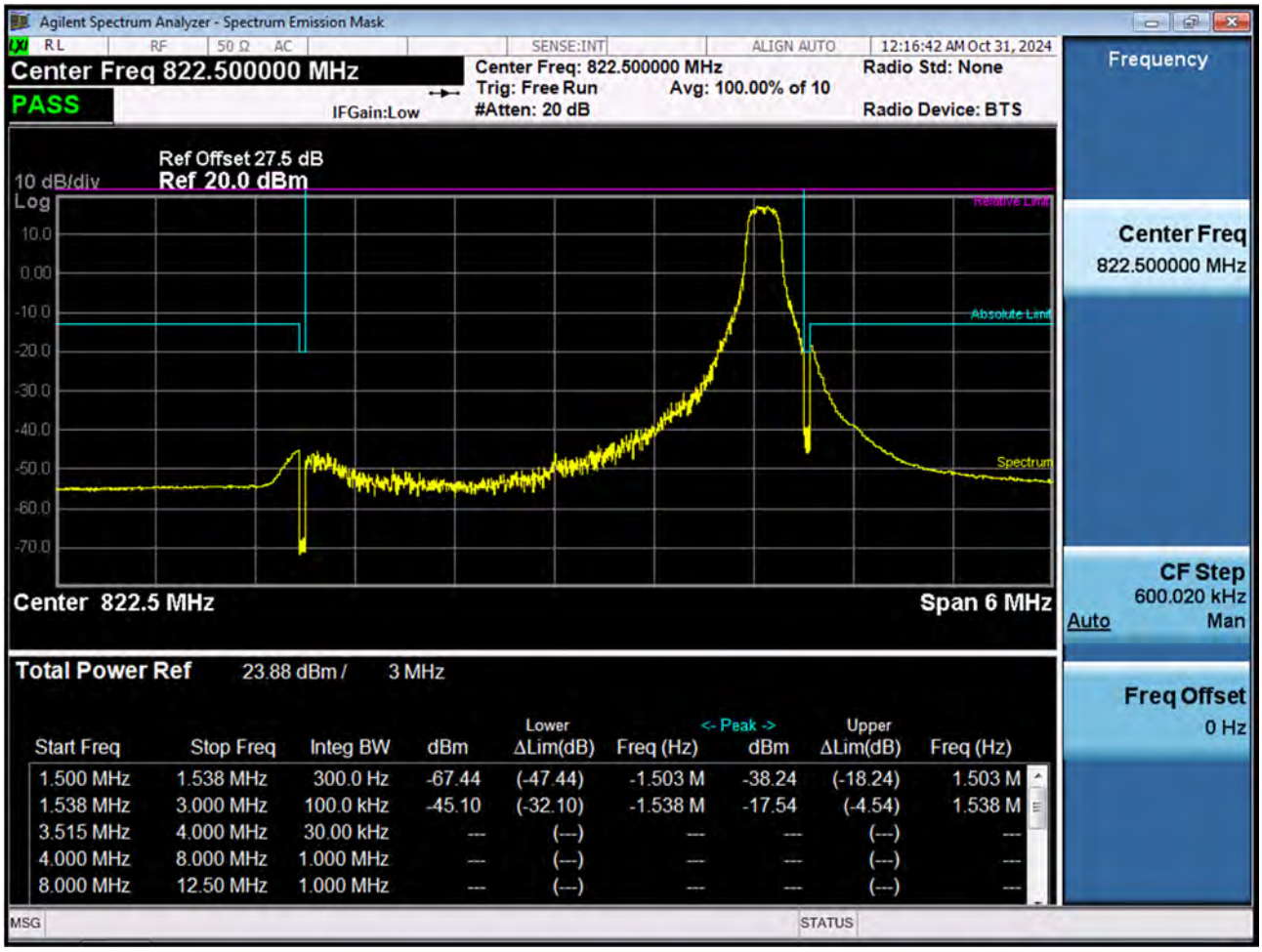
BAND 26. Upper Channel Edge Plot (1.4 M BW Ch.26783 QPSK_RB1_Offset 5)



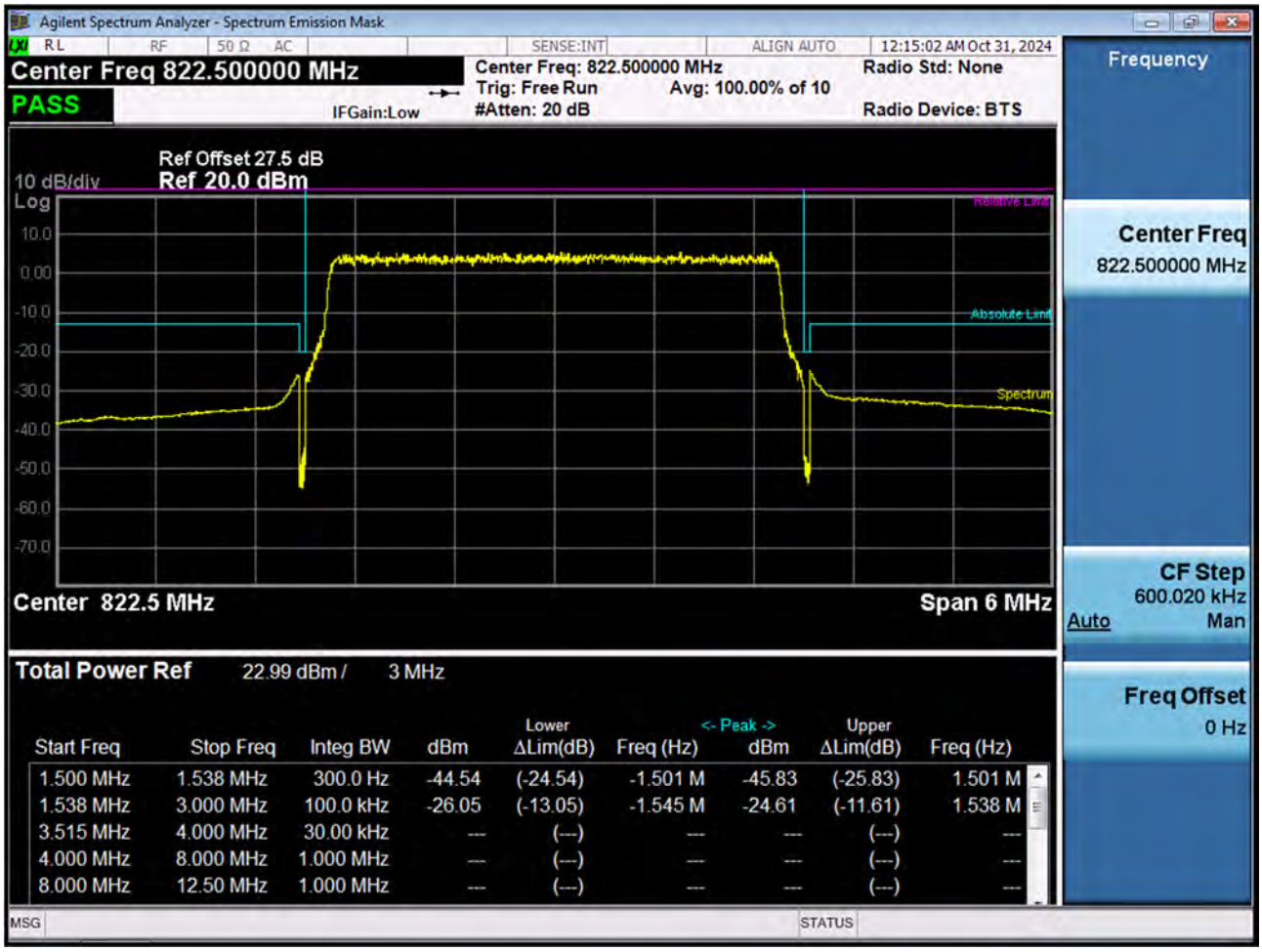
BAND 26. Upper Channel Edge Plot (1.4 M BW Ch.26783 QPSK_RB6_Offset 0)



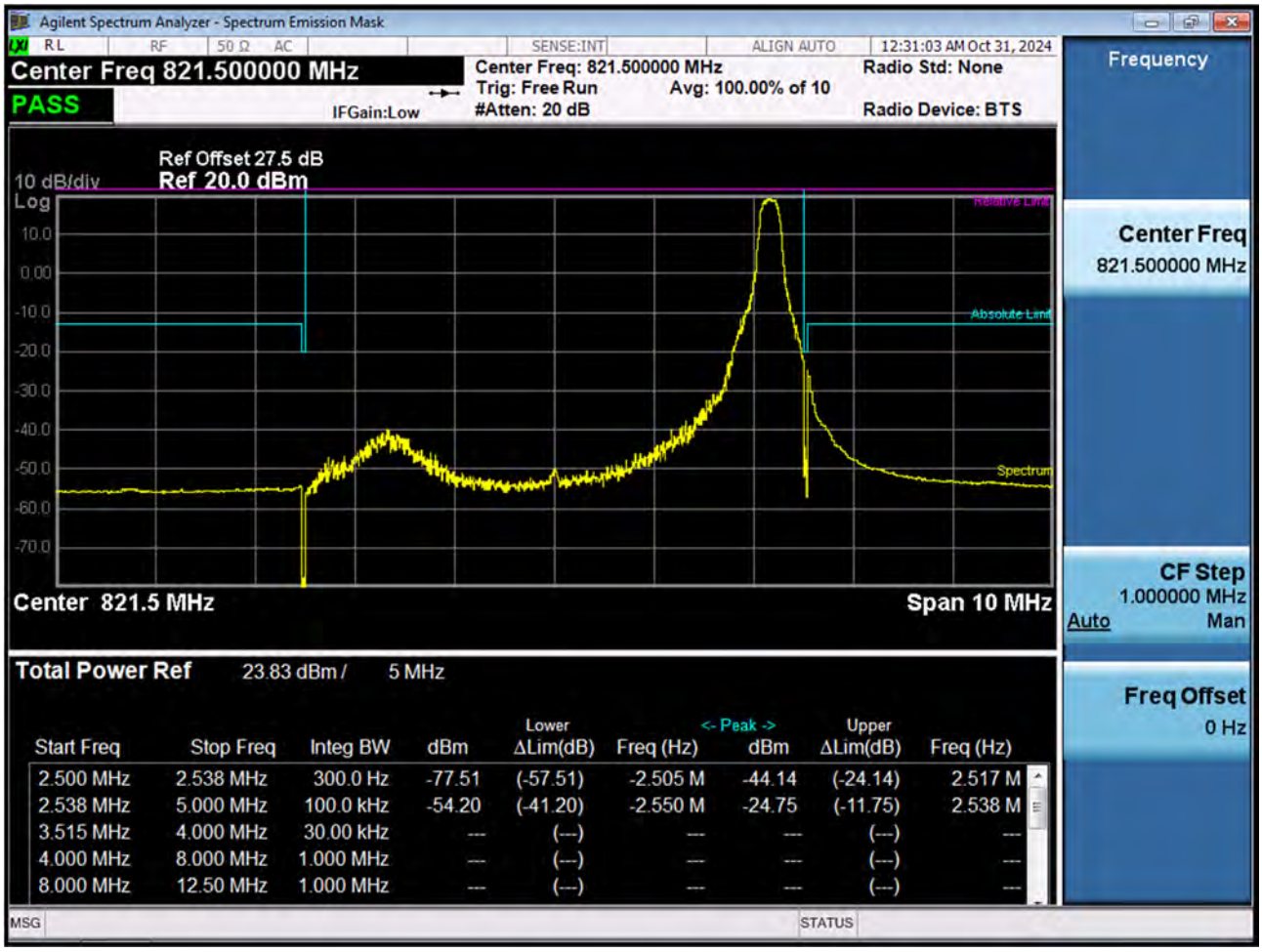
BAND 26. Upper Channel Edge Plot (3 M BW Ch.26775 QPSK_RB1_Offset 14)



BAND 26. Upper Channel Edge Plot (3 M BW Ch.26775 QPSK_RB15_Offset 0)

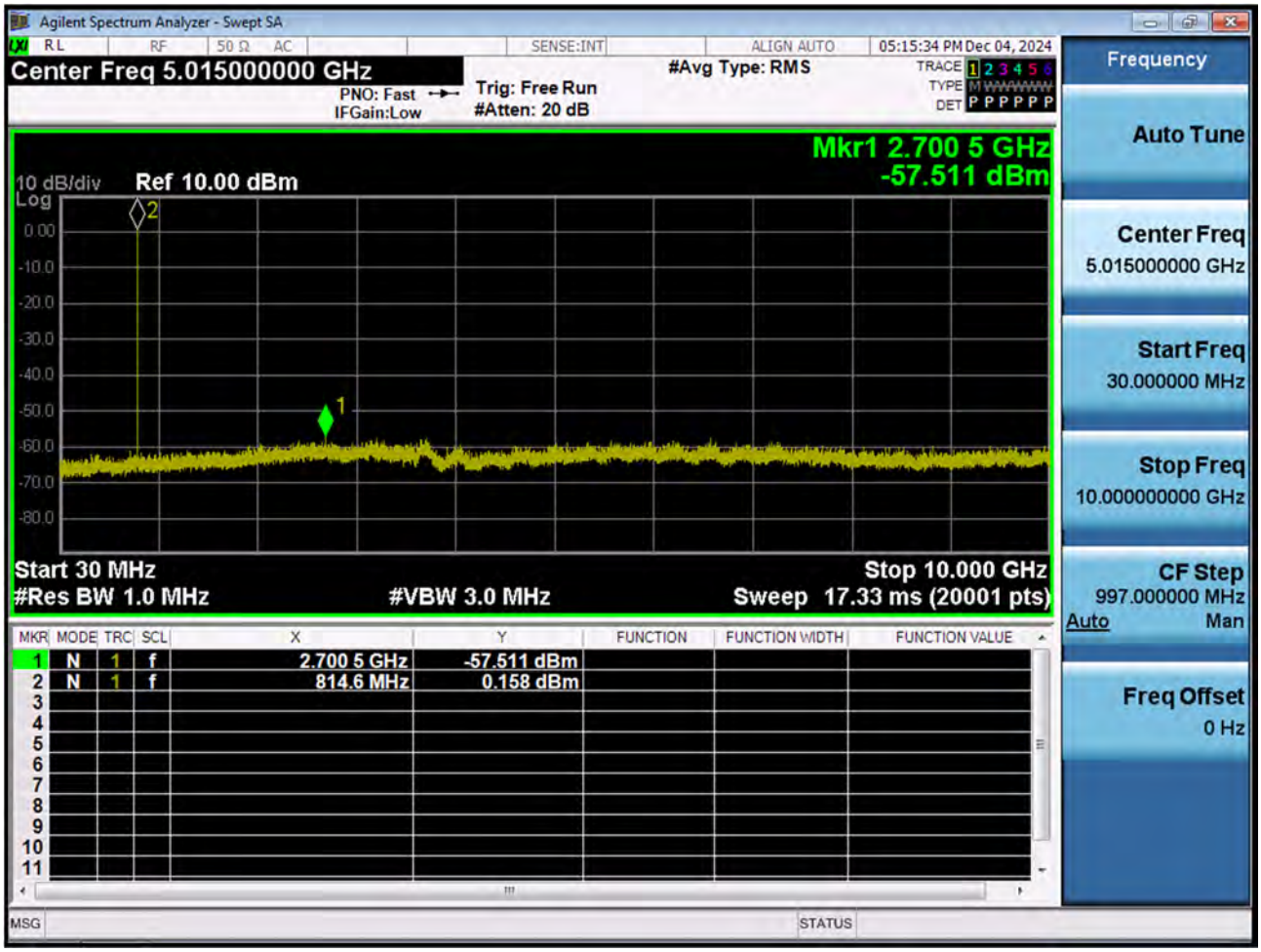


BAND 26. Upper Channel Edge Plot (5 M BW Ch.26765 QPSK_RB1_Offset 24)

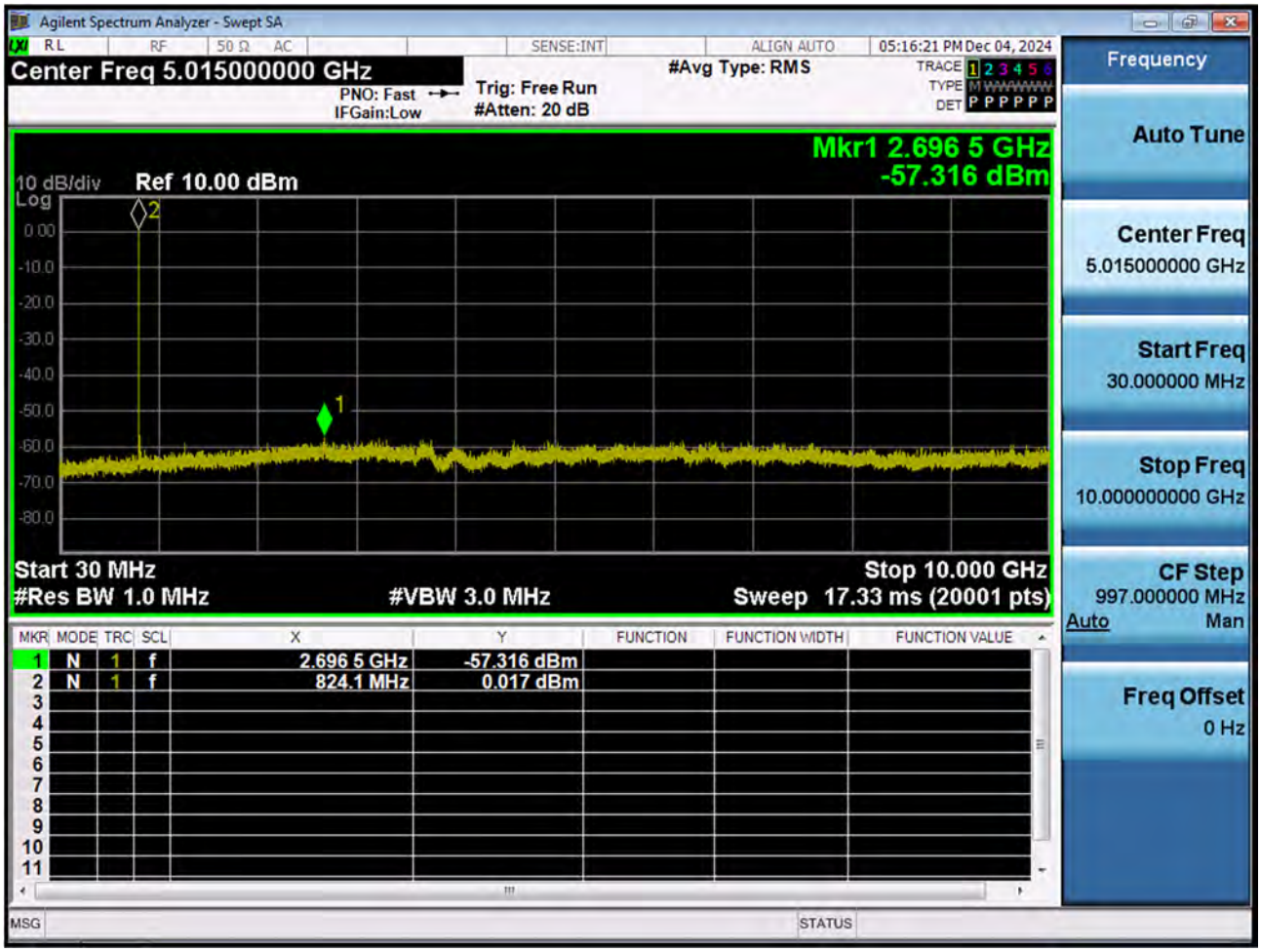


BAND 26. Upper Channel Edge Plot (5 M BW Ch.26765 QPSK_RB25_Offset 0)

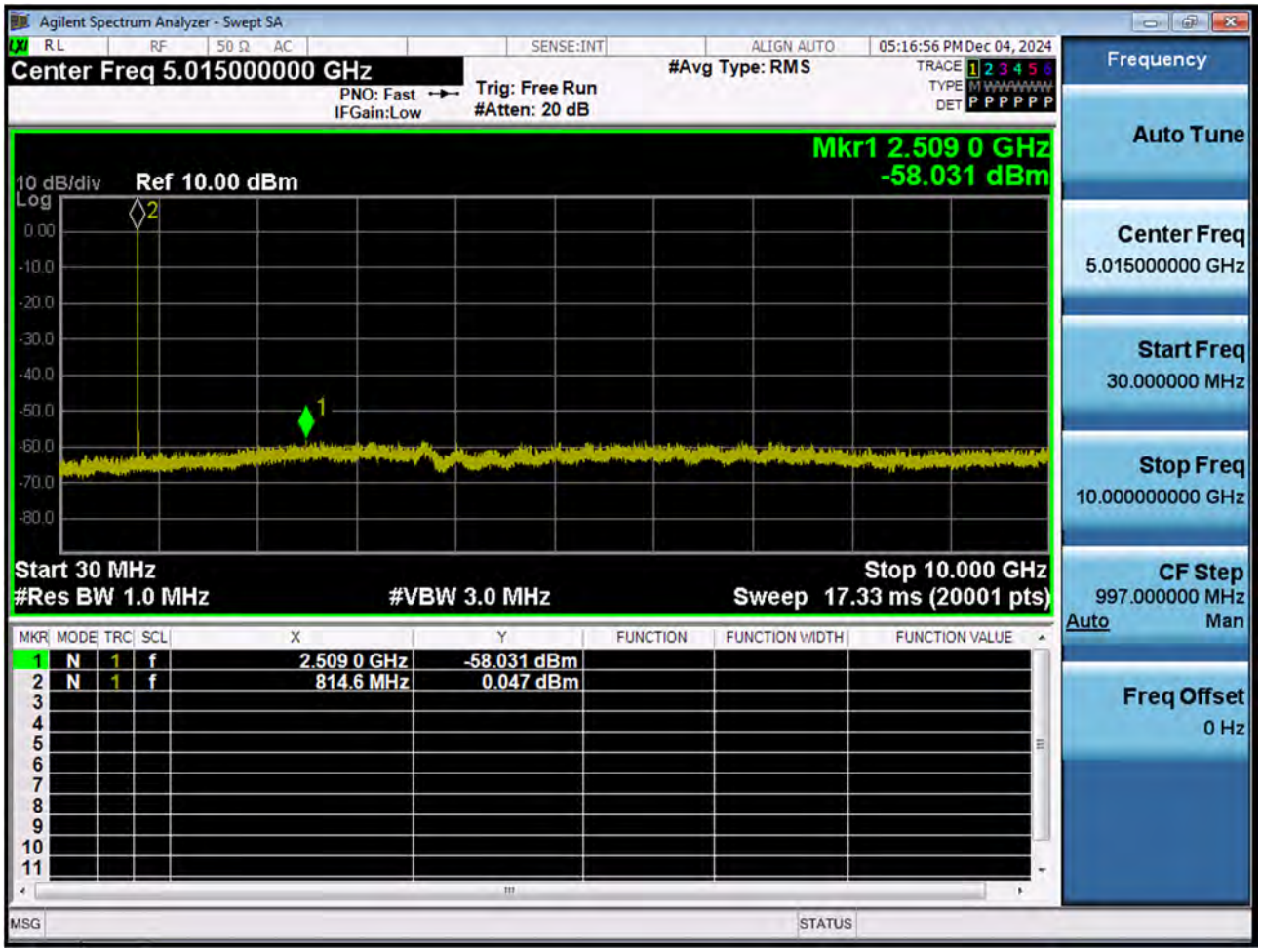
BAND 26. Conducted Spurious (26697 ch_1.4 MHz_QPSK_RB 1_0)



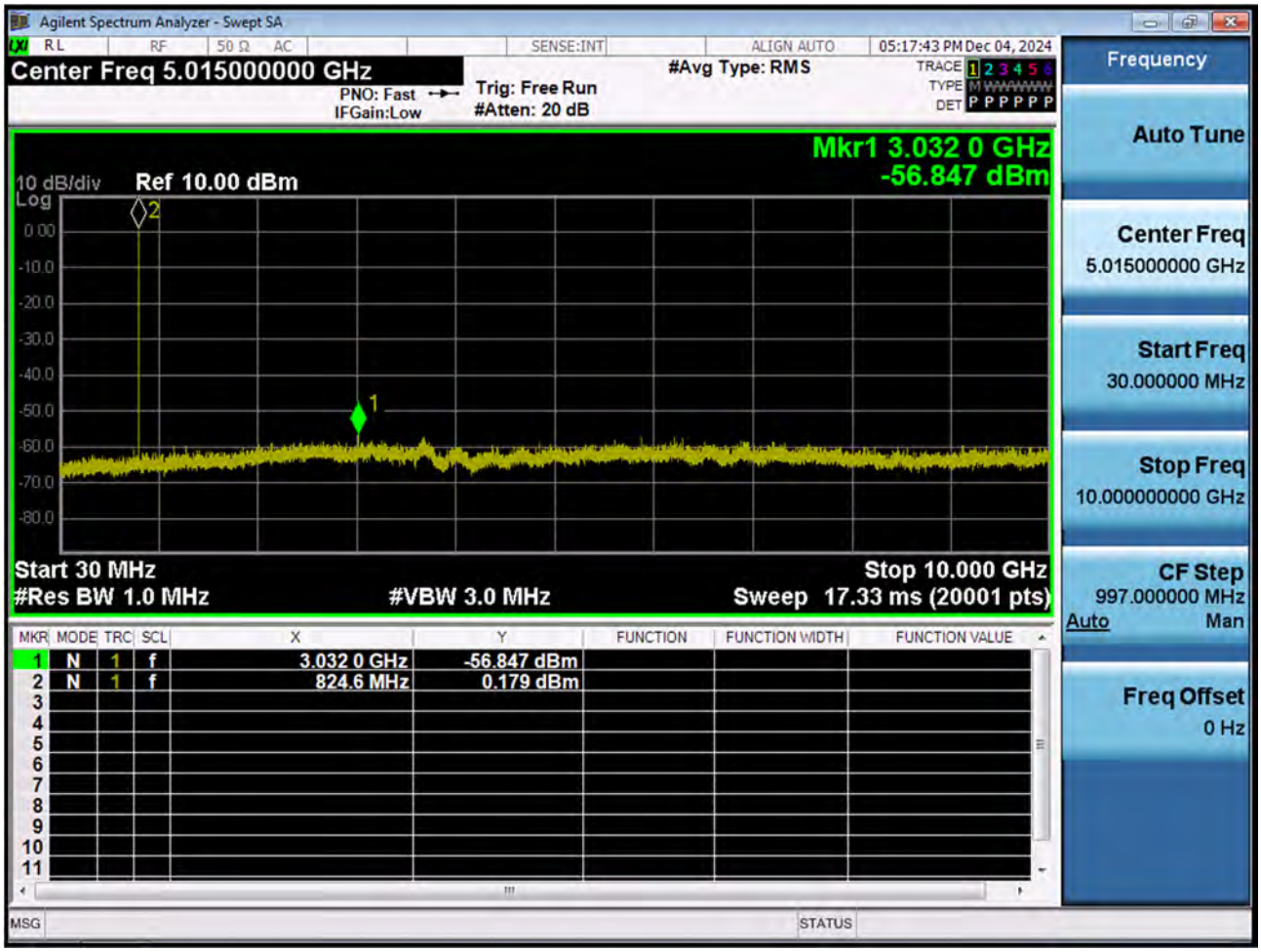
BAND 26. Conducted Spurious (26783 ch_1.4 MHz_QPSK_RB 1_0)



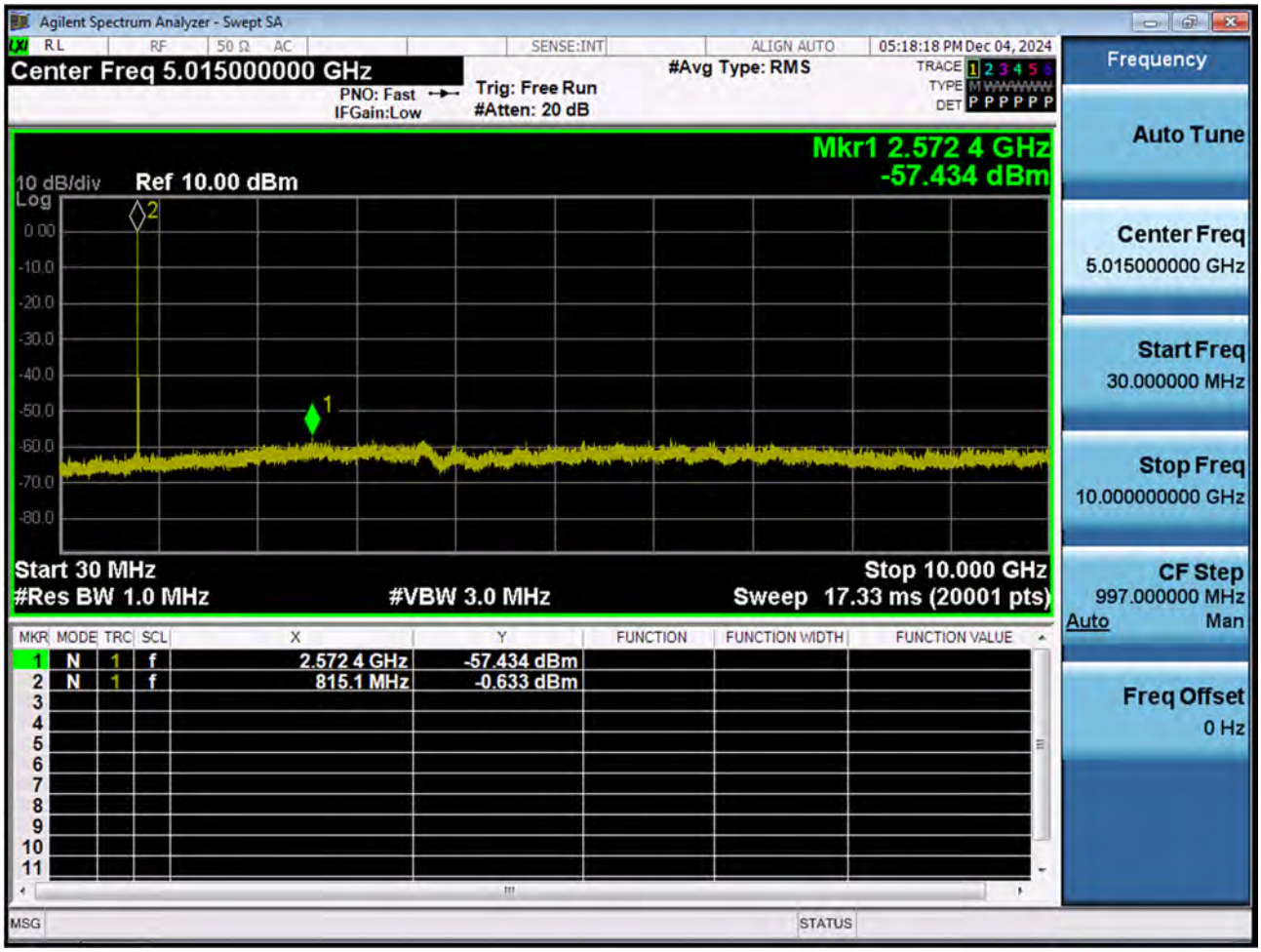
BAND 26. Conducted Spurious (26705 ch_3 MHz_QPSK_RB 1_0)



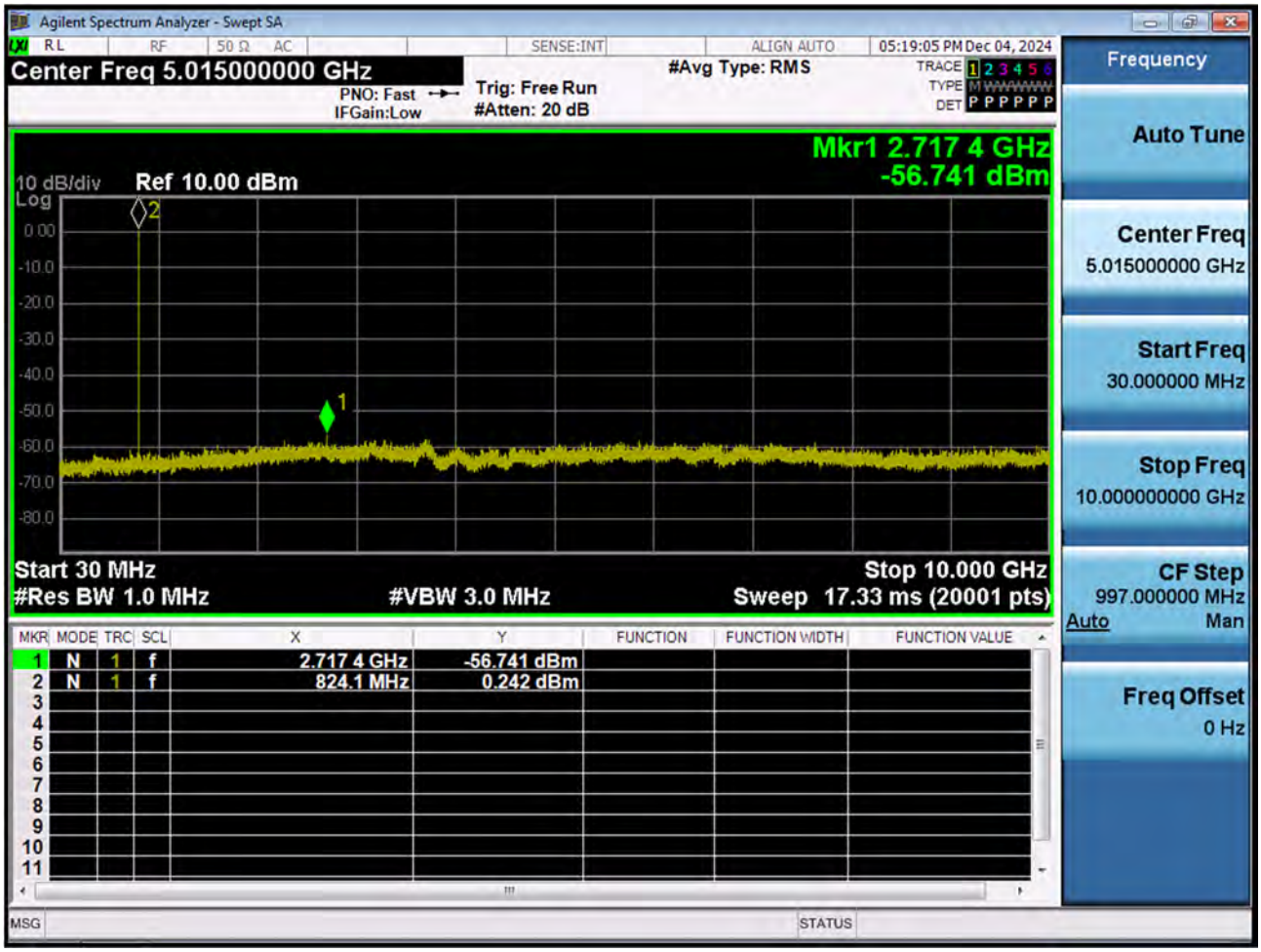
BAND 26. Conducted Spurious (26775 ch_3 MHz_QPSK_RB 1_0)



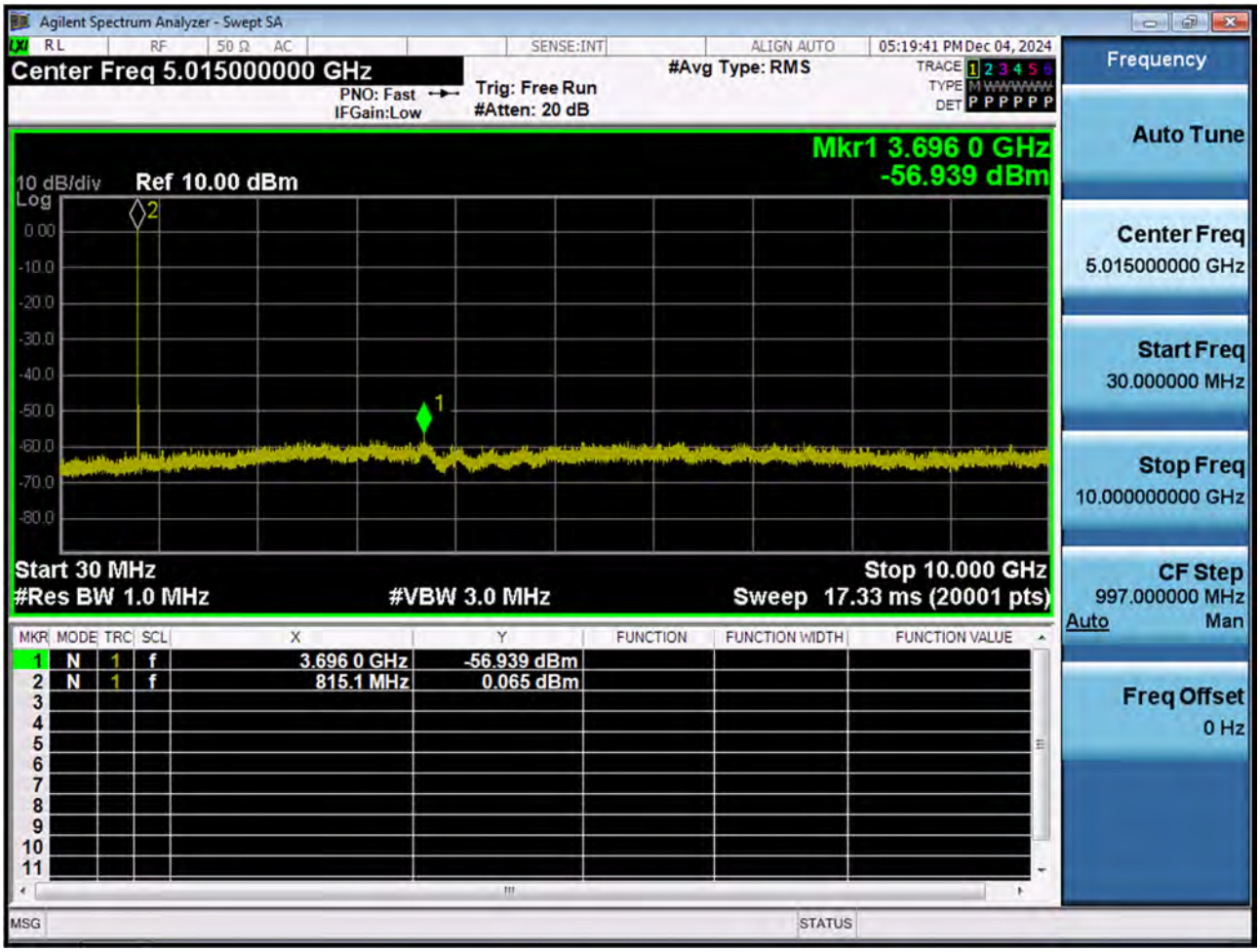
BAND 26. Conducted Spurious (26715 ch_5 MHz_QPSK_RB 1_0)



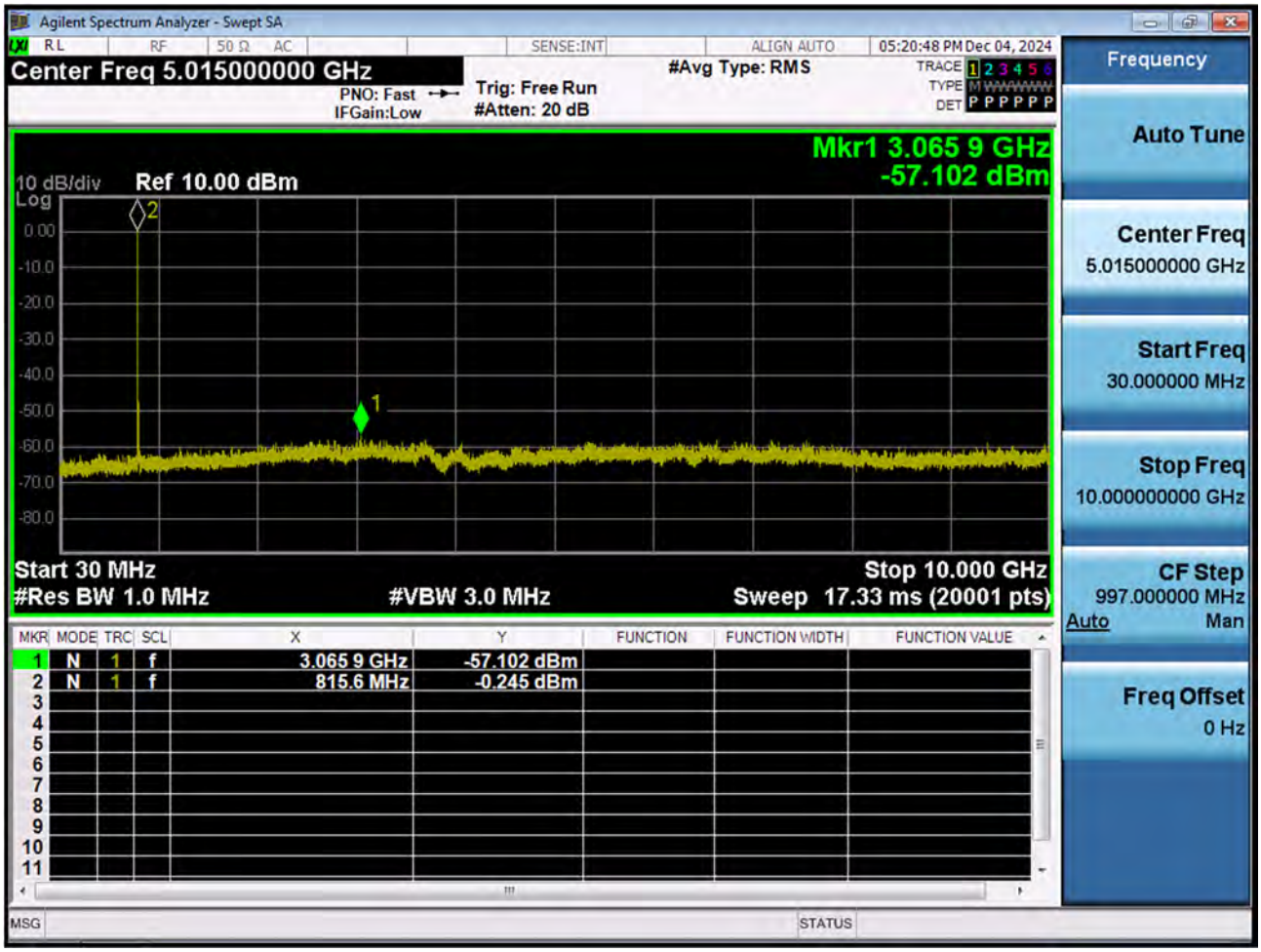
BAND 26. Conducted Spurious (26765 ch_5 MHz_QPSK_RB 1_0)



BAND 26. Conducted Spurious (26740 ch_10 MHz_QPSK_RB 1_0)

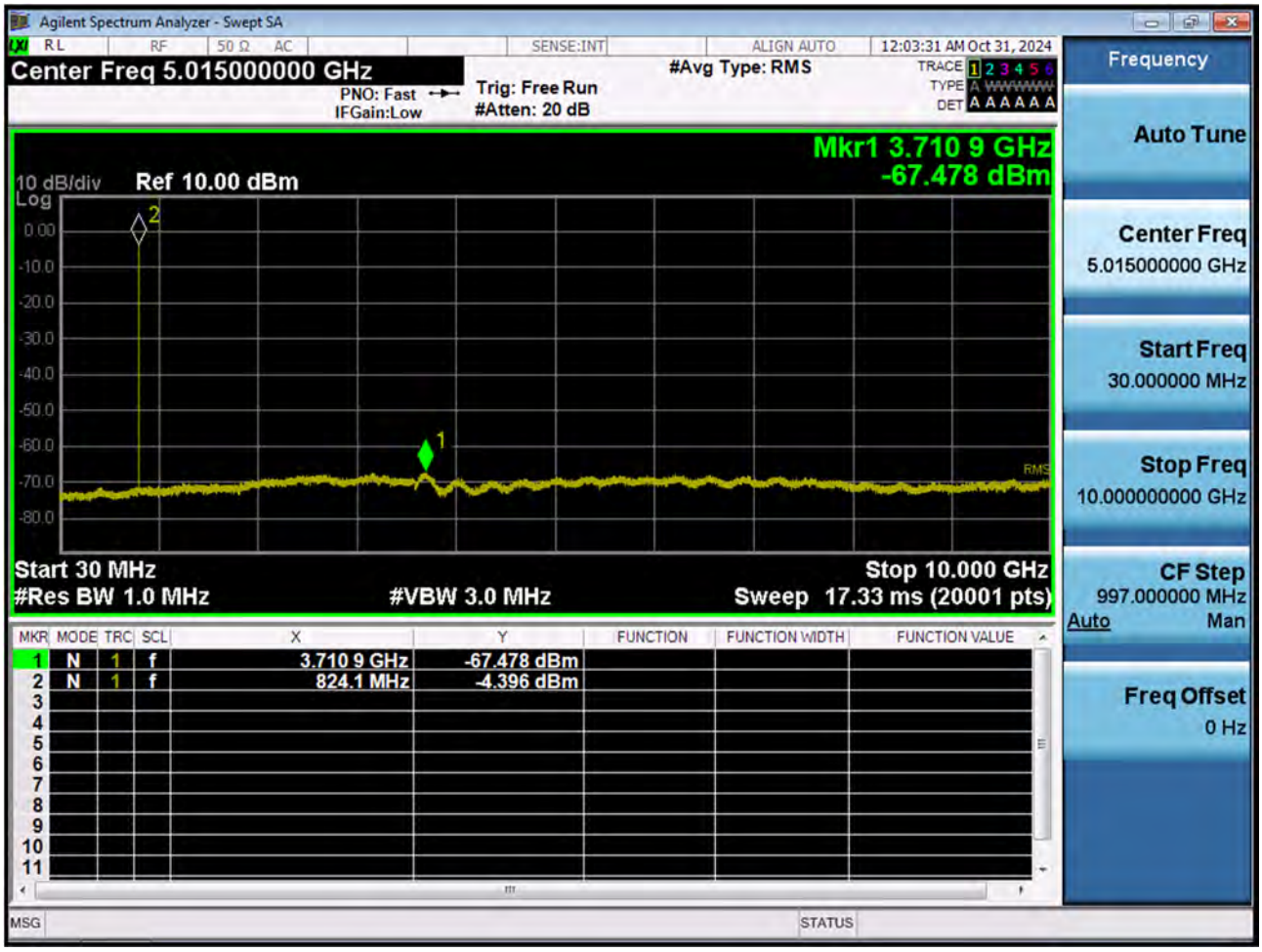


BAND 26. Conducted Spurious (26765 ch_15 MHz_QPSK_RB 1_0)

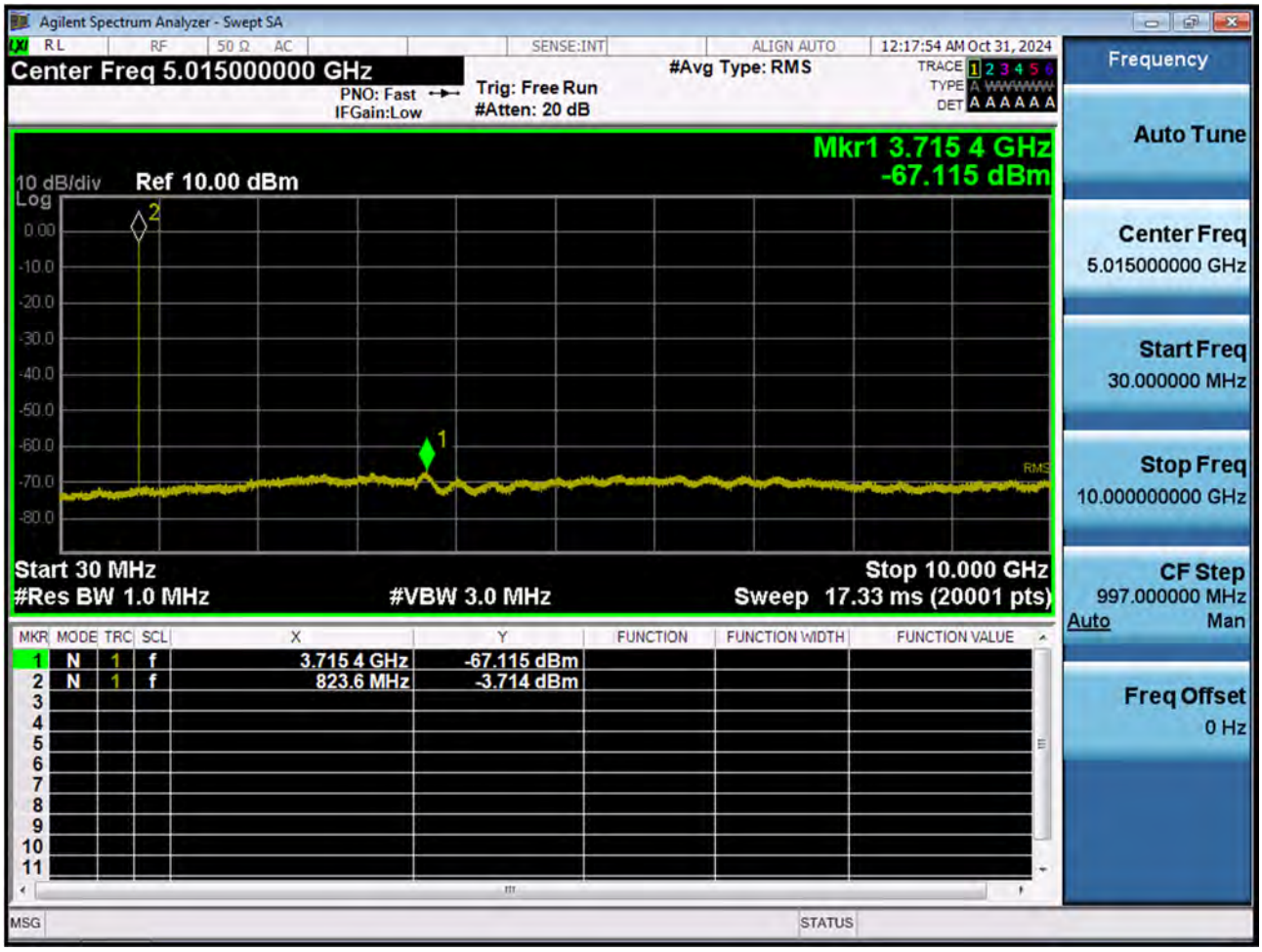


10. TEST PLOTS (STRADDLE CHANNEL)

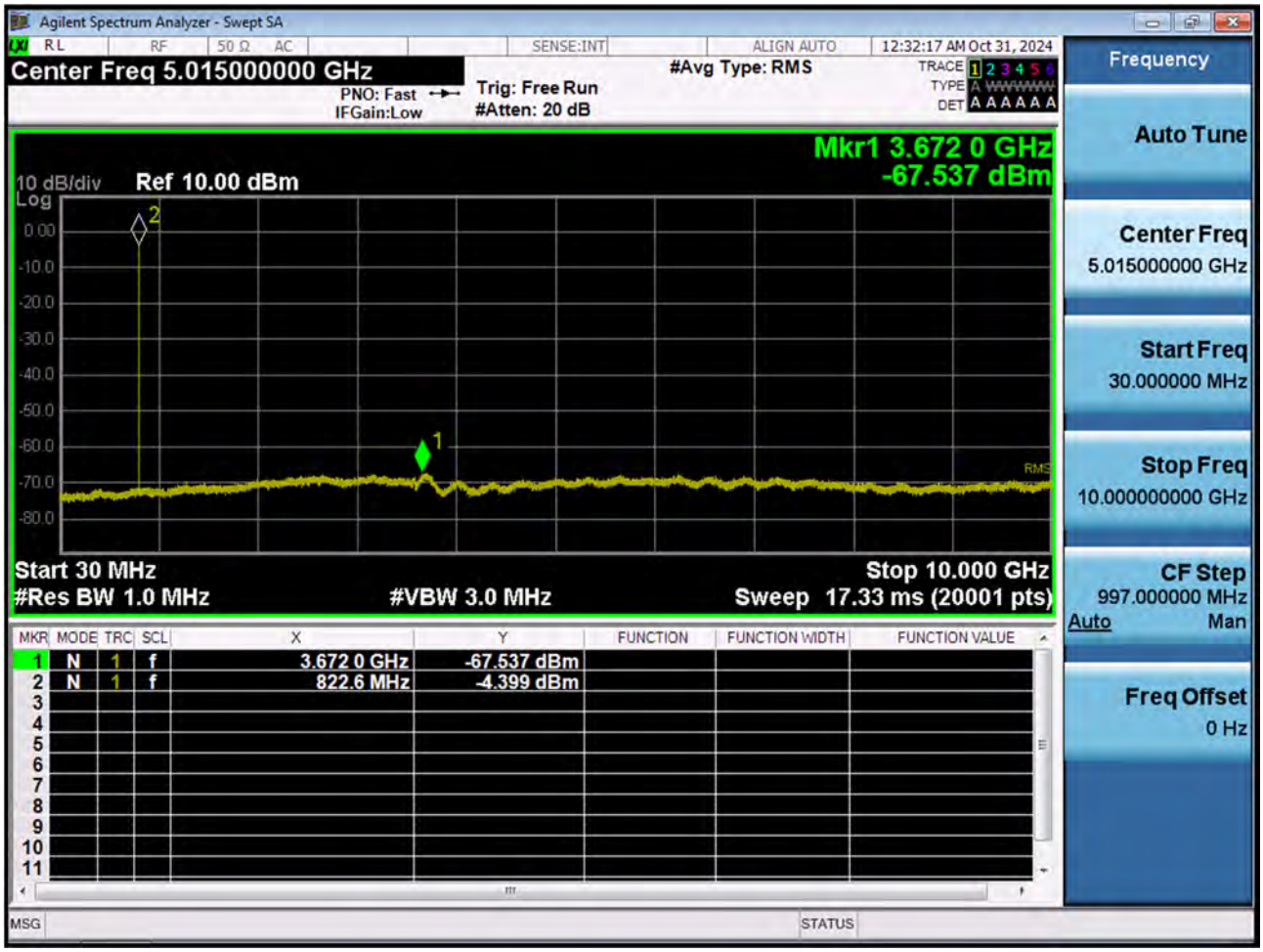
BAND 26. Conducted Spurious (1.4 MHz_QPSK_RB 1_0)



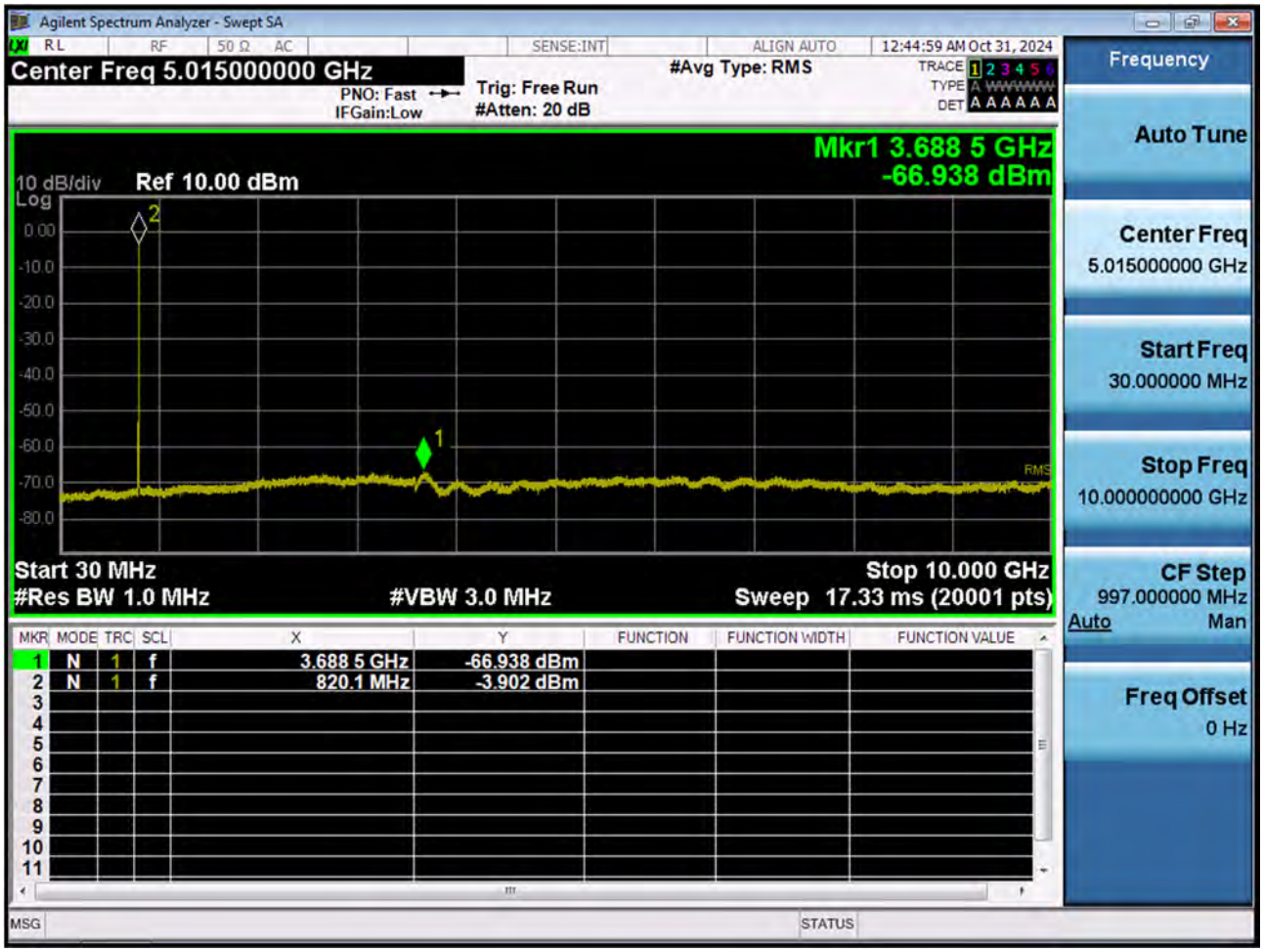
BAND 26. Conducted Spurious (3 MHz_QPSK_RB 1_0)



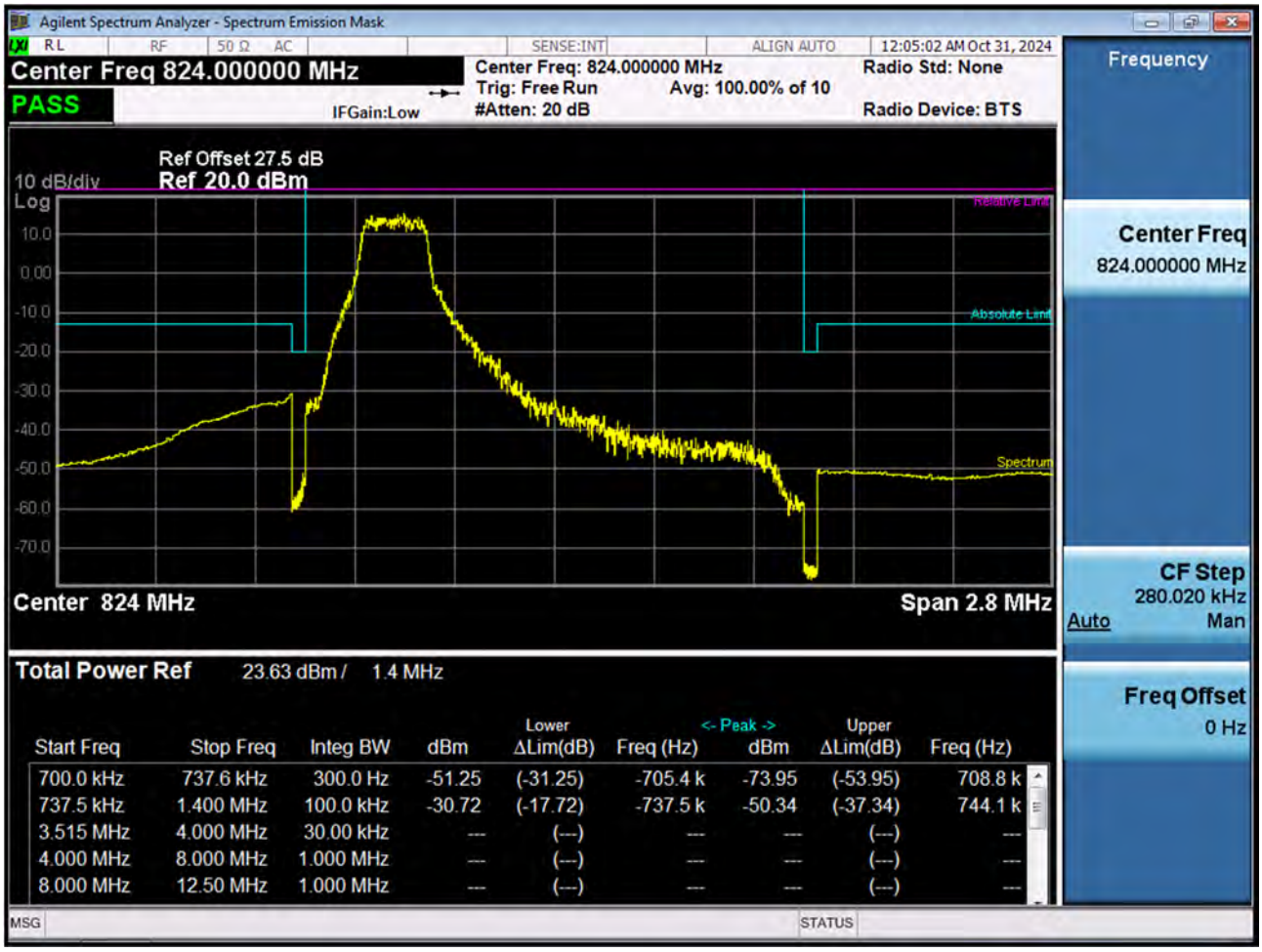
BAND 26. Conducted Spurious (5 MHz_QPSK_RB 1_0)



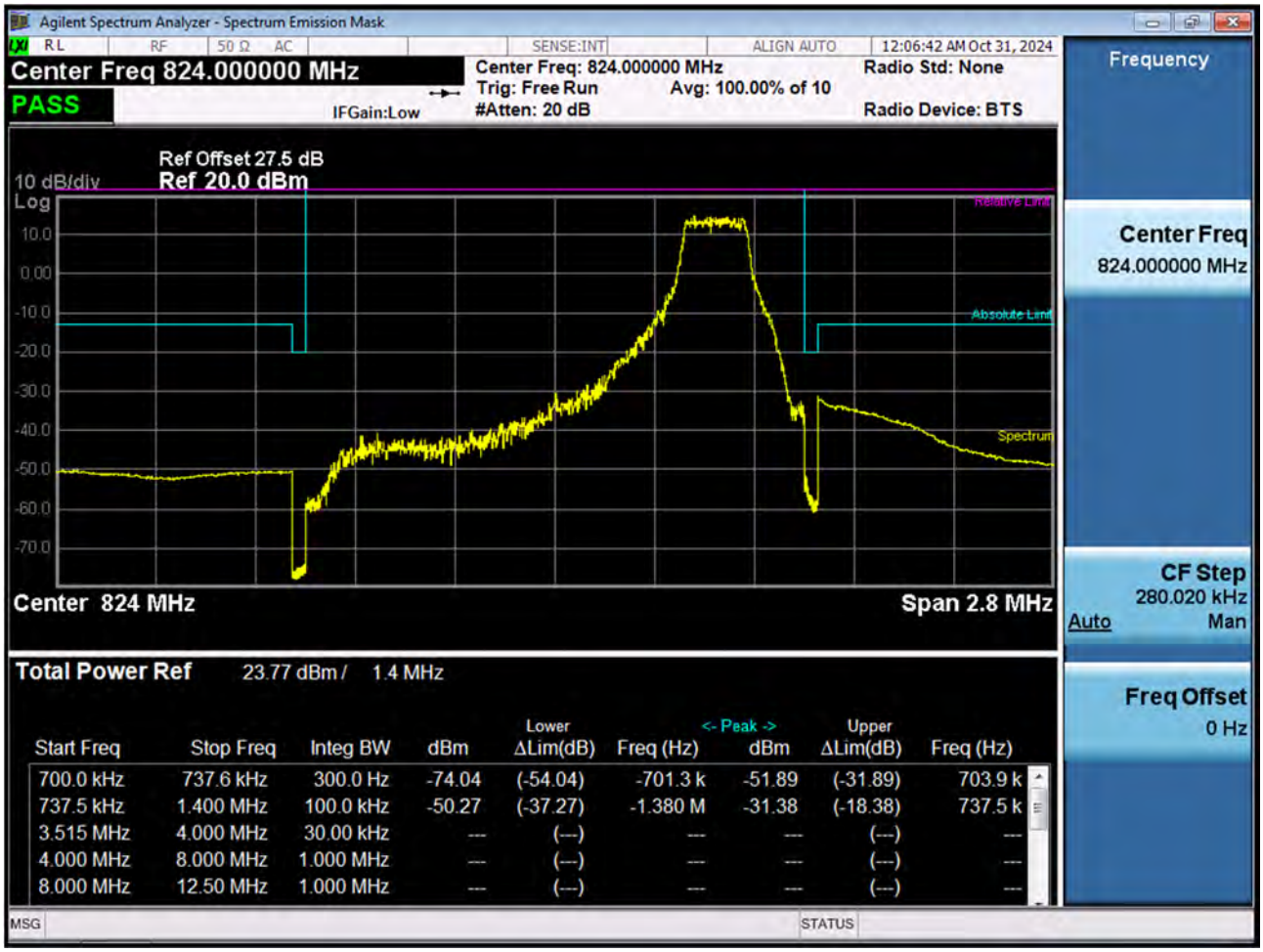
BAND 26. Conducted Spurious (10 MHz_QPSK_RB 1_0)



BAND 26. Channel Edge (1.4 MHz_QPSK_RB 1_0)

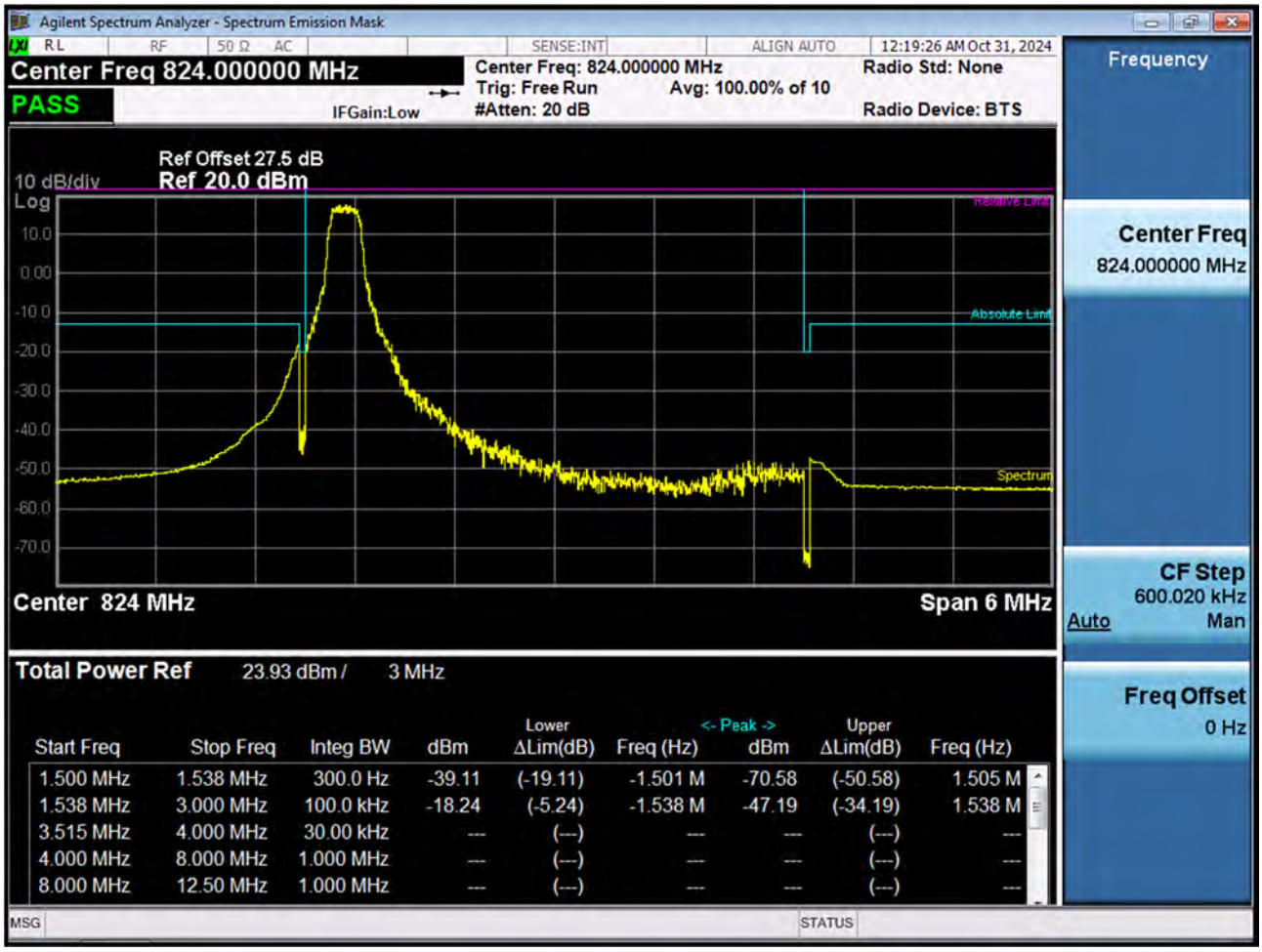


BAND 26. Channel Edge (1.4 MHz_QPSK_RB 1_5)

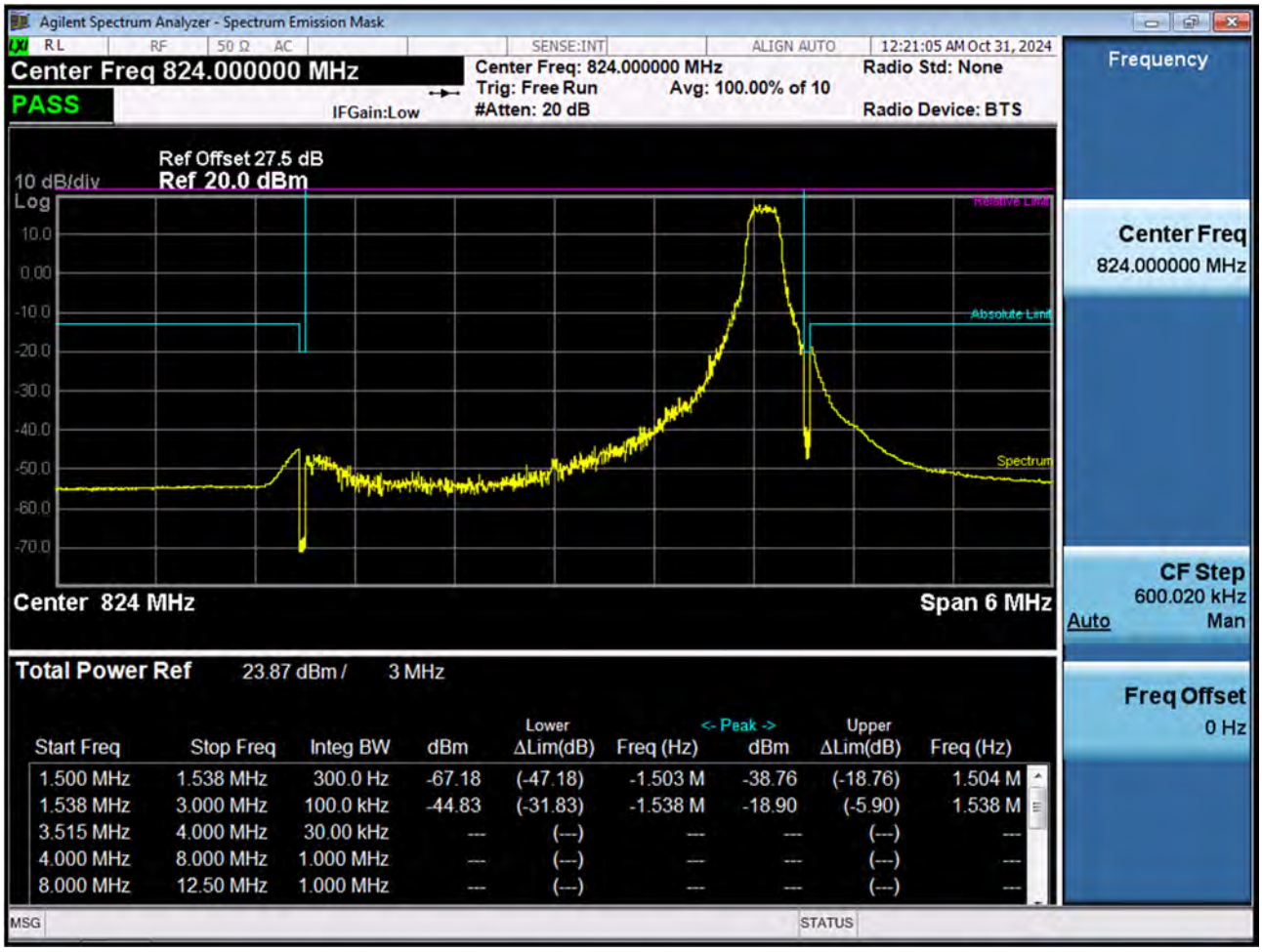


BAND 26. Channel Edge (1.4 MHz_QPSK_Full RB)

BAND 26. Channel Edge (3 MHz_QPSK_RB 1_0)

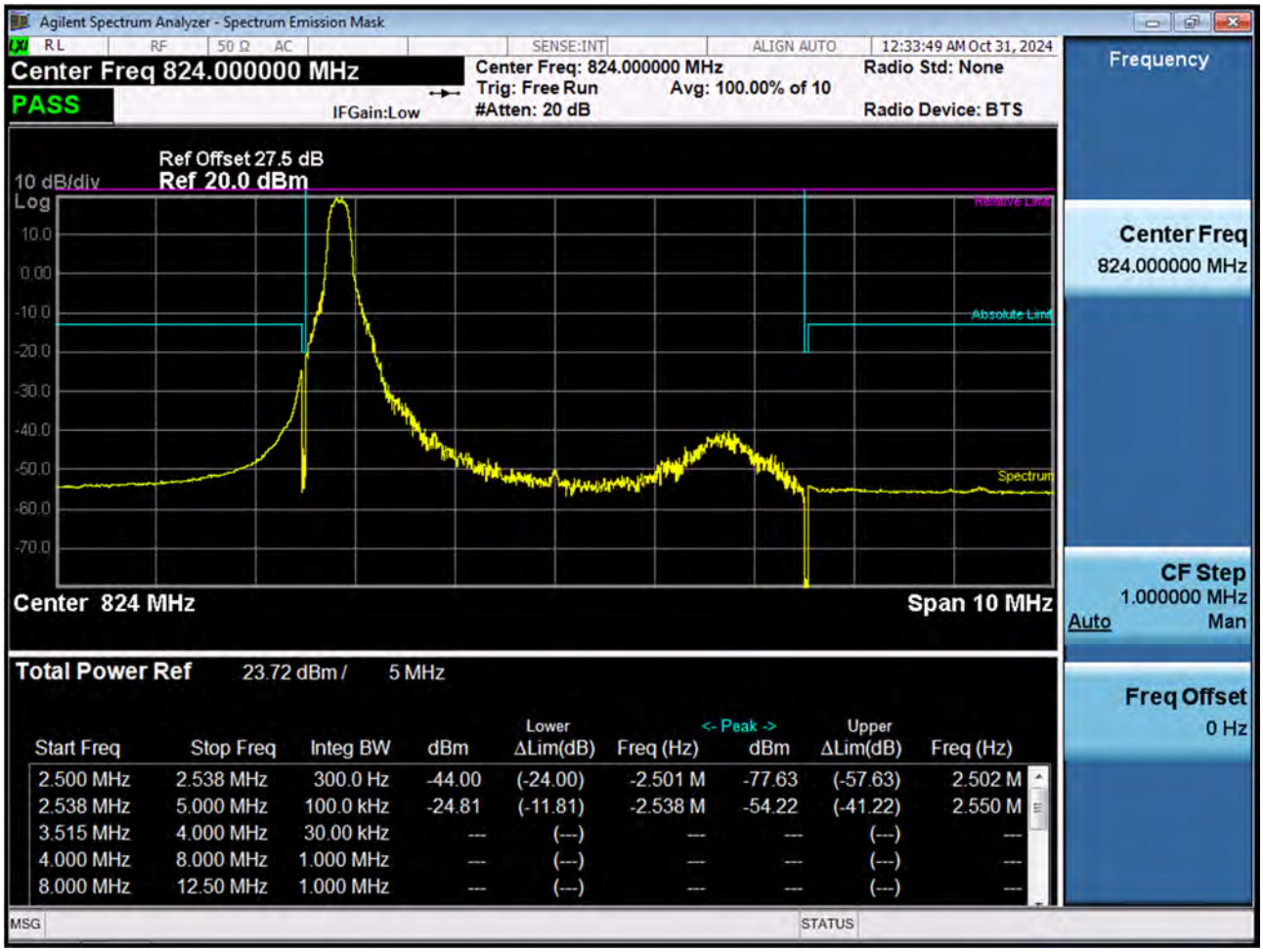


BAND 26. Channel Edge (3 MHz_QPSK_RB 1_14)

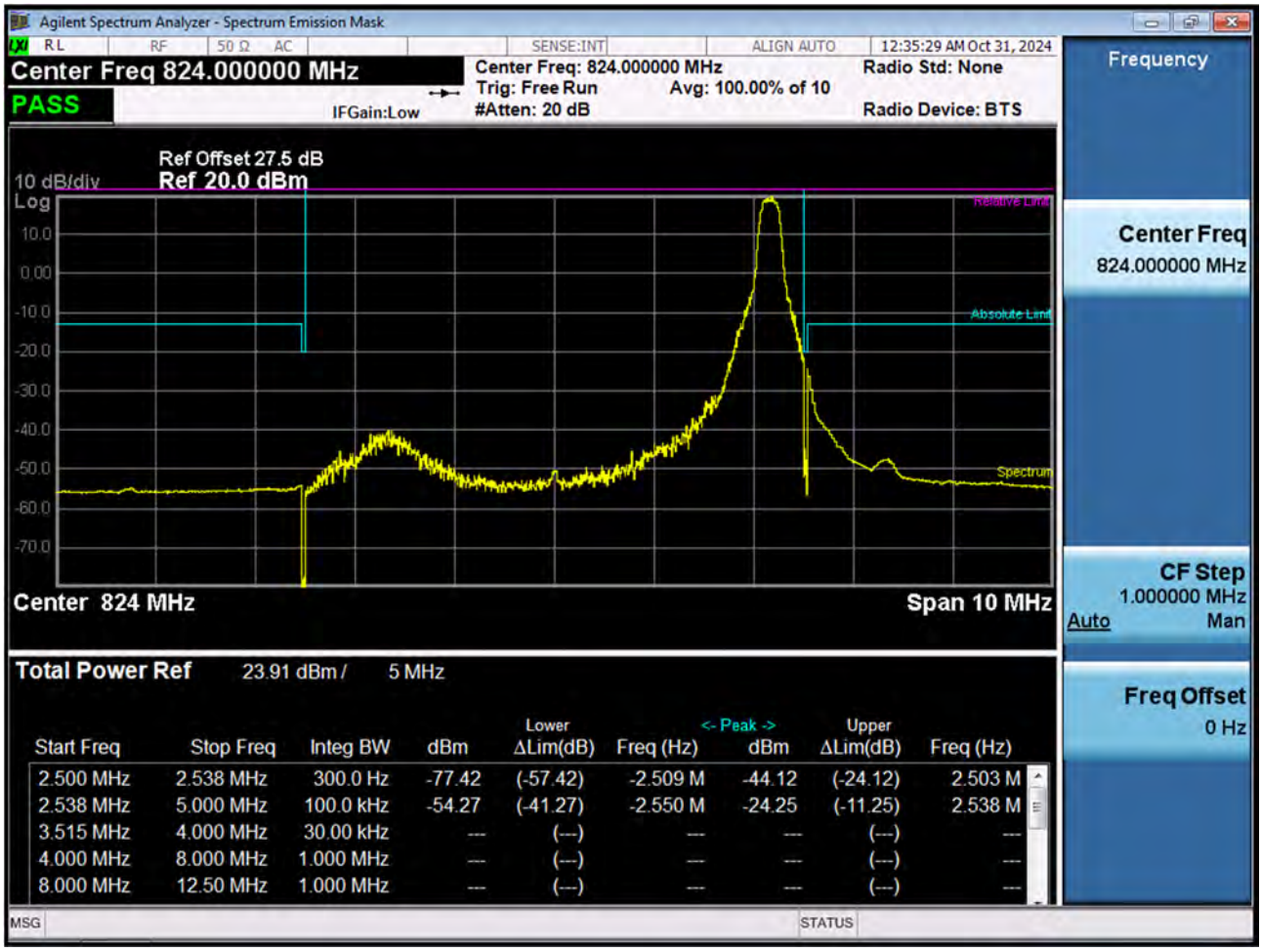


BAND 26. Channel Edge (3 MHz_QPSK_Full RB)

BAND 26. Channel Edge (5 MHz_QPSK_RB 1_0)

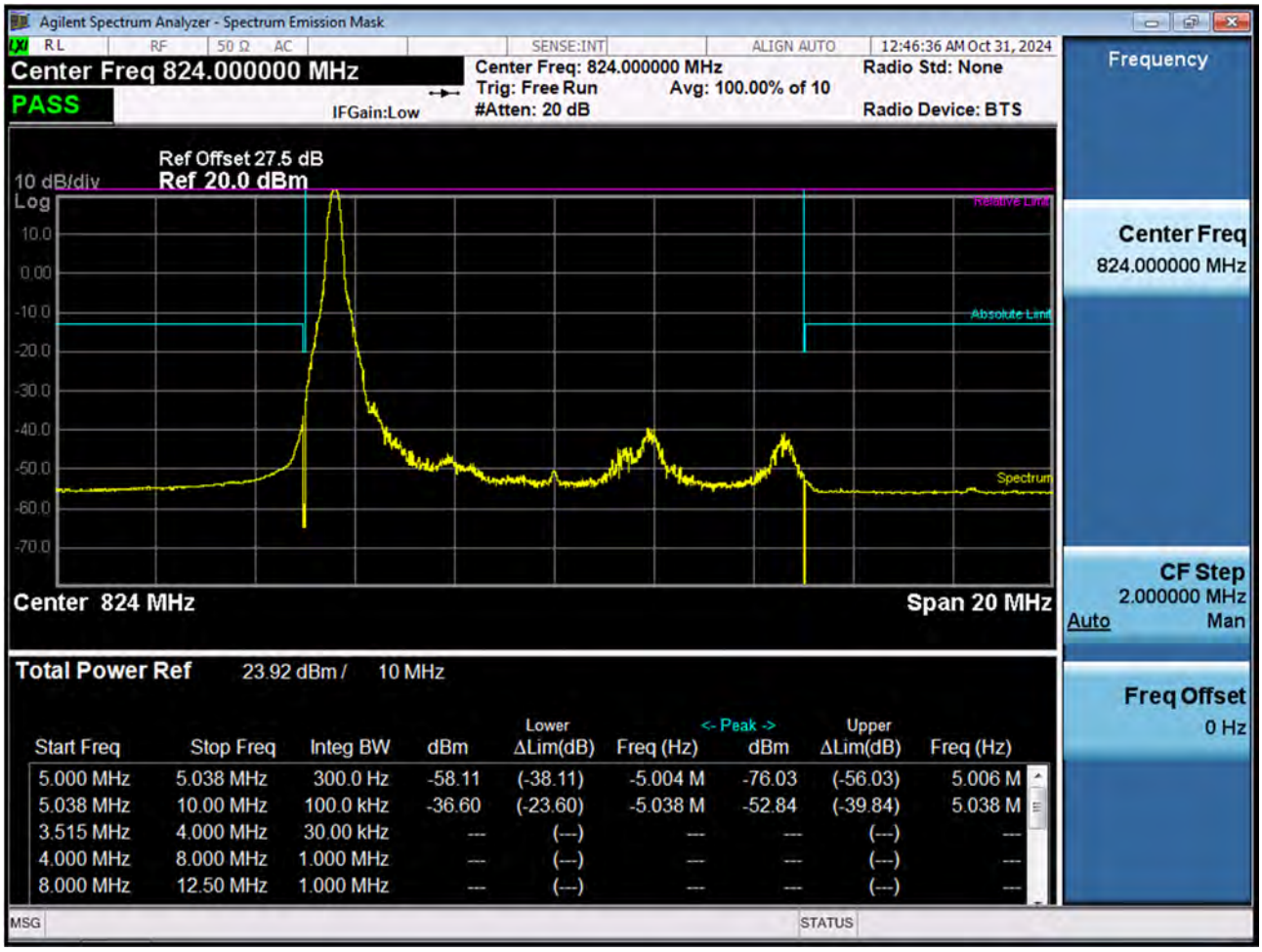


BAND 26. Channel Edge (5 MHz_QPSK_RB 1_24)

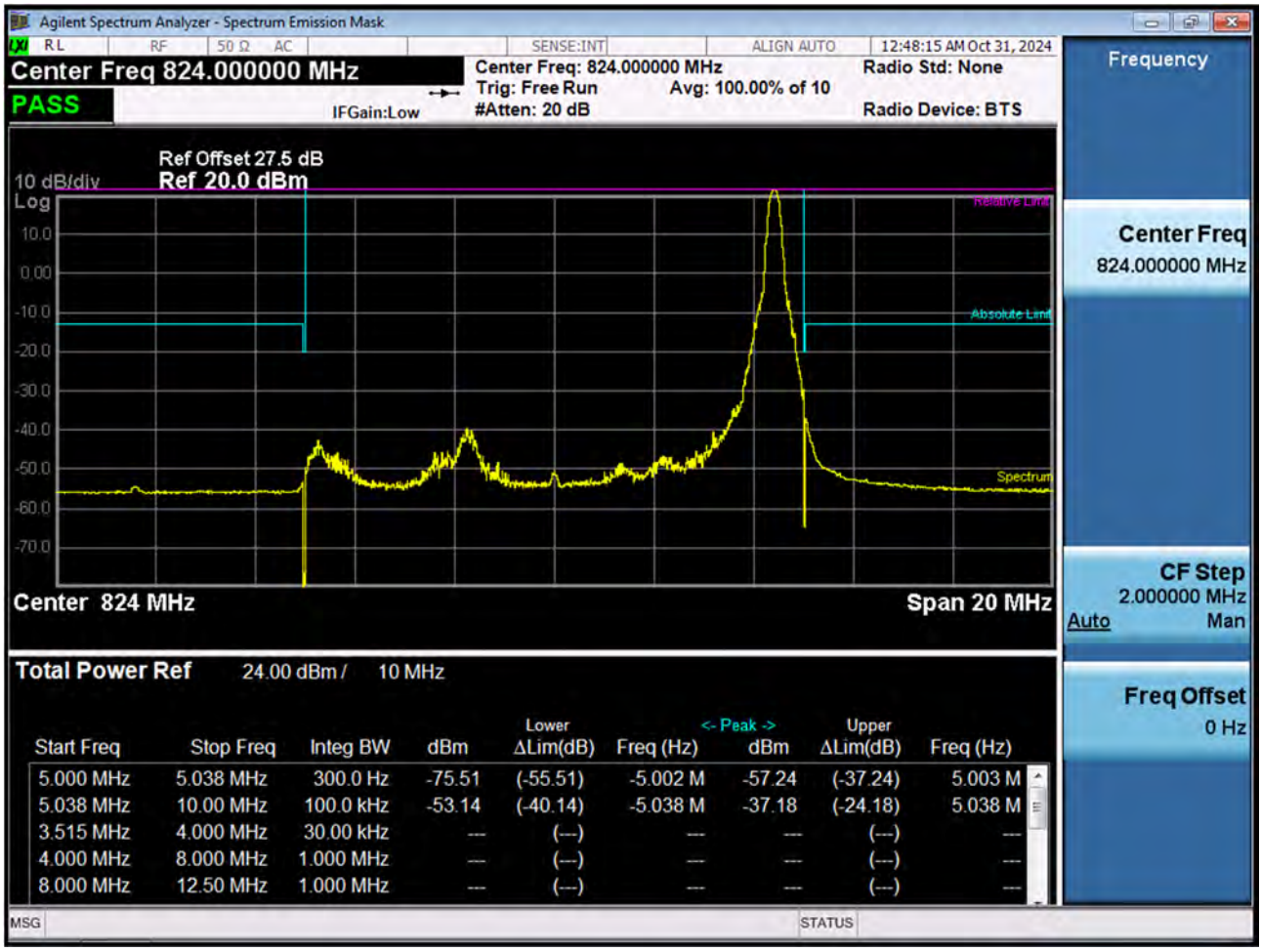


BAND 26. Channel Edge (5 MHz_QPSK_Full RB)

BAND 26. Channel Edge (10 MHz_QPSK_RB 1_0)

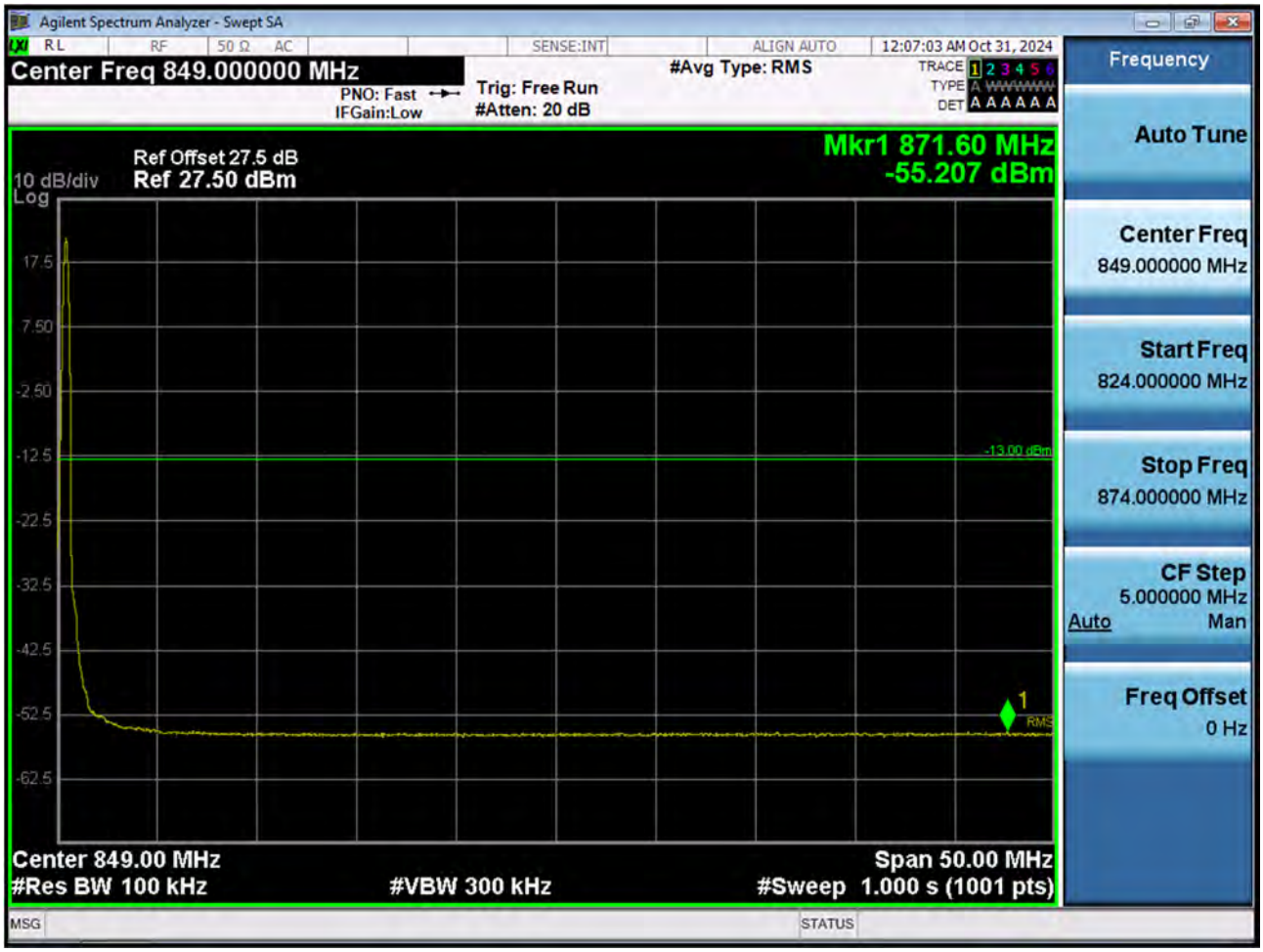


BAND 26. Channel Edge (10 MHz_QPSK_RB 1_49)

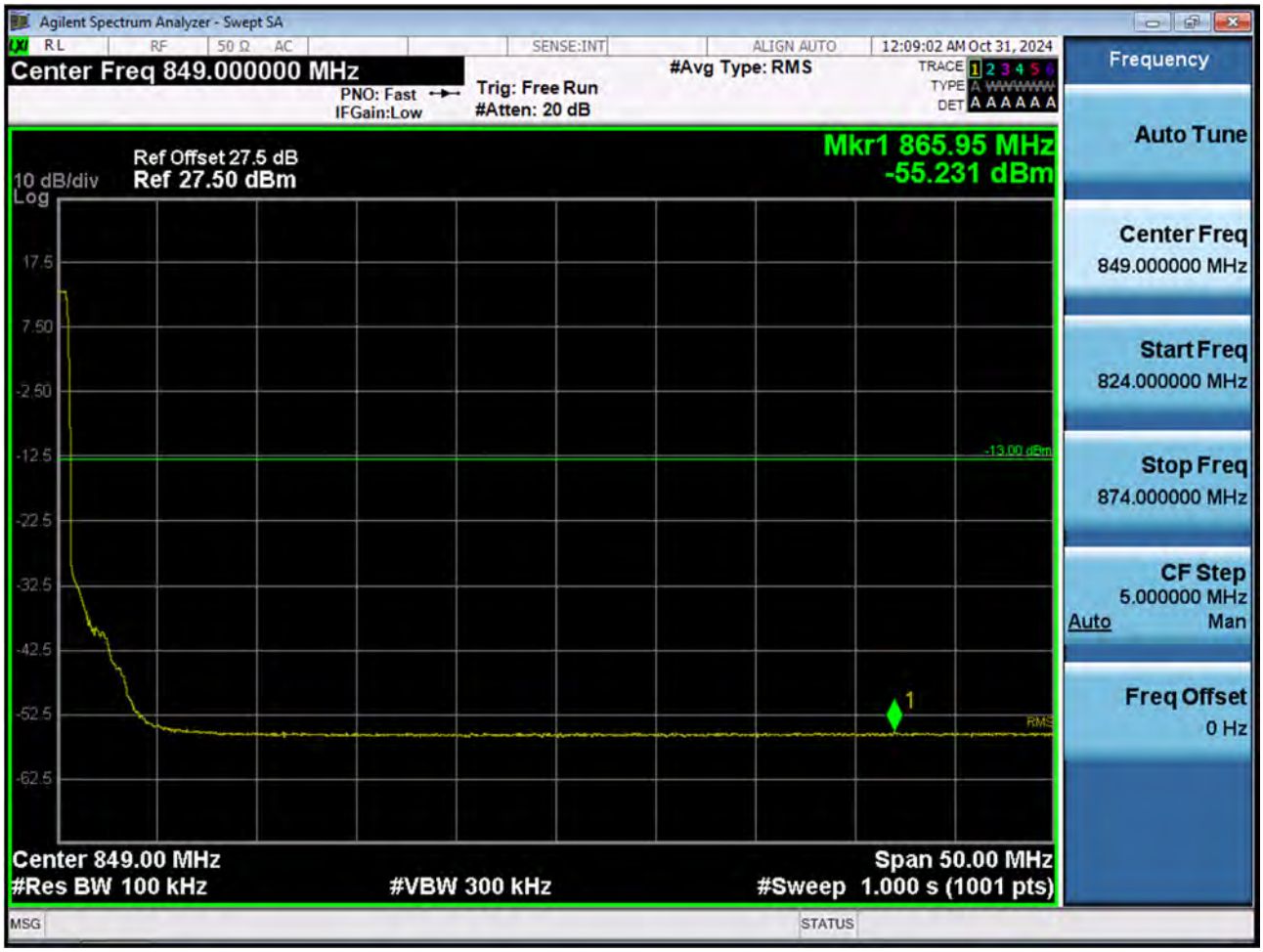


BAND 26. Channel Edge (10 MHz_QPSK_Full RB)

BAND 26. Band Edge (1.4 MHz_QPSK_RB 1_5)

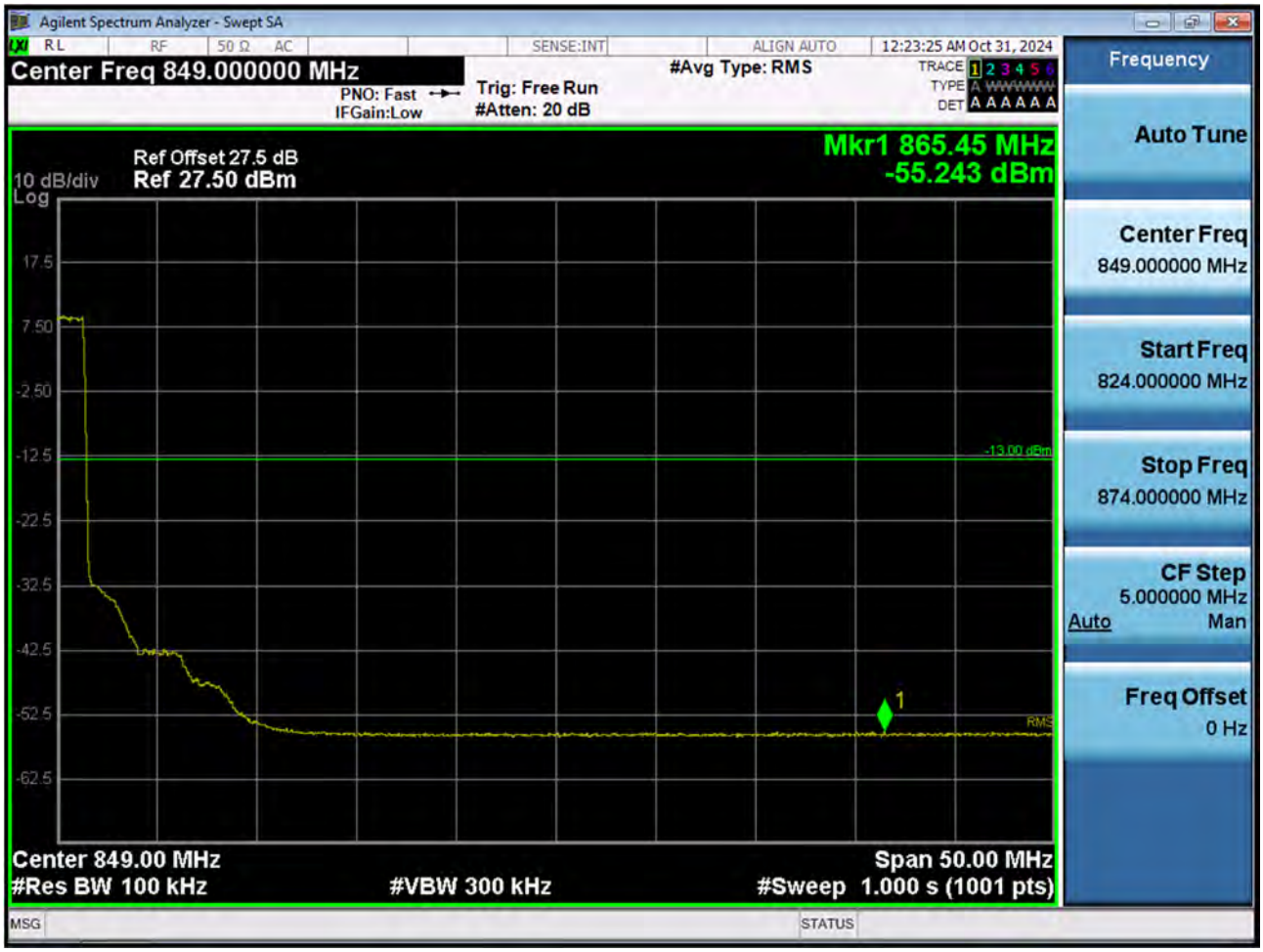


BAND 26. Band Edge (1.4 MHz_QPSK_FullRB)



BAND 26. Band Edge (3 MHz_QPSK_RB 1_14)

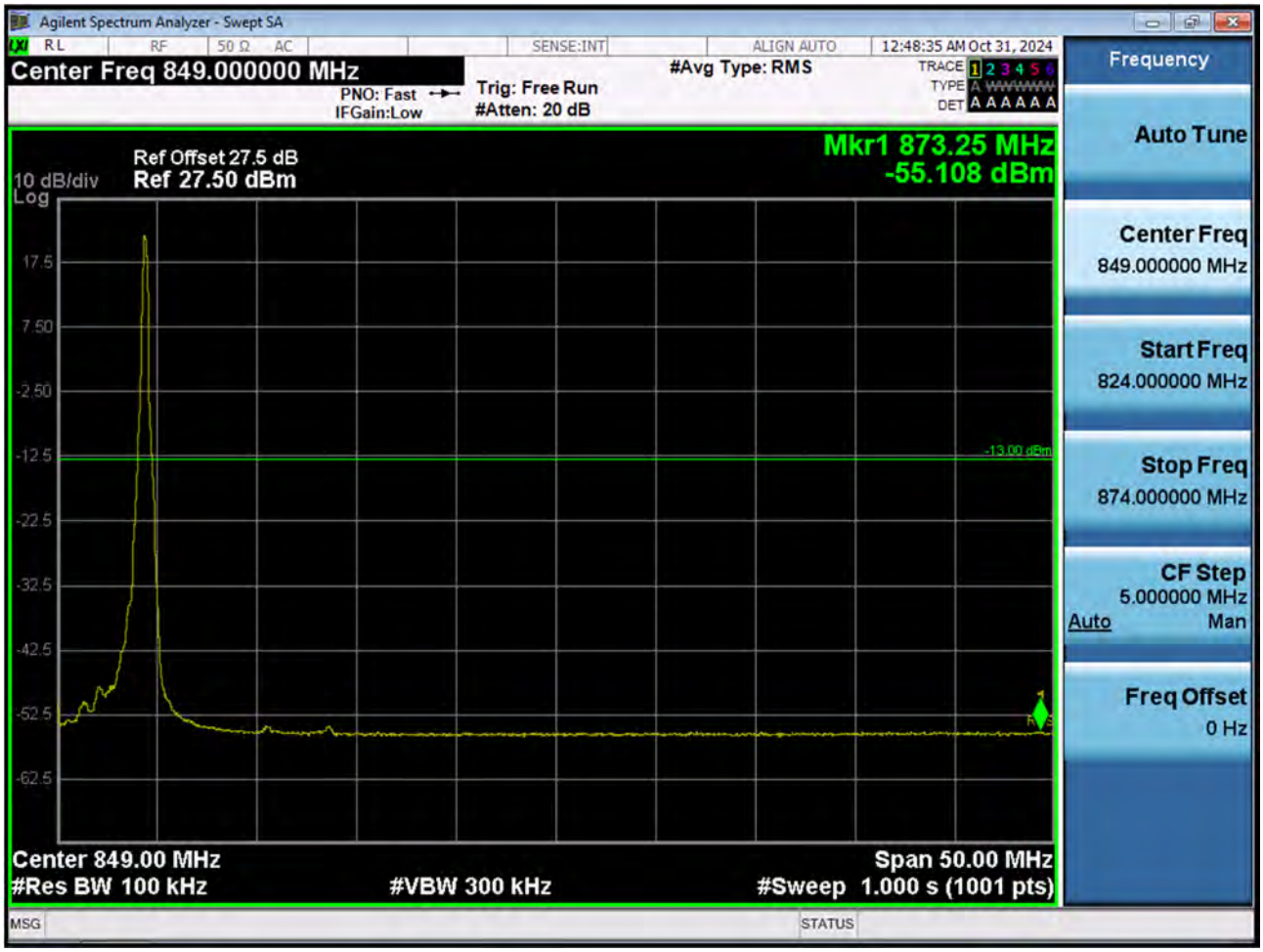
BAND 26. Band Edge (3 MHz_QPSK_ Full RB)



BAND 26. Band Edge (5 MHz_QPSK_RB 1_24)

BAND 26. Band Edge (5 MHz_QPSK_ Full RB)

BAND 26. Band Edge (10 MHz_QPSK_RB 1_49)



BAND 26. Band Edge (10 MHz_QPSK_ Full RB)

11. ANNEX A_ TEST SETUP PHOTO

Please refer to test setup photo file no. as follows;

No.	Description
1	HCT-RF-2412-FC036-P