

TEST REPORT

FCC LTE B26(Part90) Test for SM-A376B/DS
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2512-FC049

DATE OF ISSUE
December 17, 2025

Tested by
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TEST REPORT

REPORT NO.

HCT-RF-2512-FC049

DATE OF ISSUE

December 17, 2025

Additional Model

SM-A376B

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-A376B/DS

Date of Test

November 13, 2025 ~ December 15, 2025

FCC ID

A3LSMA376B

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: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 17, 2025	Initial Release

Notice

Content

The measurements shown in this report were made in accordance with the procedures specified in CFR47 section § 2.947. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)

The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated.

The test results have only been applied with the test methods required by the standard(s).

The laboratory is not accredited for the test results marked *.

Information provided by the applicant is marked **.

Test results provided by external providers are marked ***.

When confirmation of authenticity of this test report is required, please contact www.hct.co.kr

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-A376B/DS
Additional Model(s)	SM-A376B
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))
Serial number:	Radiated : R37YA004DDZ Conducted : R37YA004D2X
Antenna Information	Please refer to the Antenna Specification document.

1.1 MAXIMUM OUTPUT POWER

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	Conducted Output Power	
				Max. Power (W)	Max. Power (dBm)
LTE – Band26 (1.4)	814.7 – 824.0	1M10G7D	QPSK	0.148	21.69
		1M10W7D	16QAM	0.161	22.07
		1M10W7D	64QAM	0.157	21.95
		1M10W7D	256QAM	0.092	19.66
LTE – Band26 (3)	815.5 – 824.0	2M72G7D	QPSK	0.150	21.75
		2M71W7D	16QAM	0.161	22.08
		2M71W7D	64QAM	0.155	21.90
		2M72W7D	256QAM	0.093	19.69
LTE – Band26 (5)	816.5 – 824.0	4M53G7D	QPSK	0.148	21.71
		4M51W7D	16QAM	0.158	21.99
		4M52W7D	64QAM	0.155	21.90
		4M54W7D	256QAM	0.082	19.16
LTE – Band26 (10)	819.0 – 824.0	9M00G7D	QPSK	0.151	21.79
		9M02W7D	16QAM	0.155	21.90
		9M00W7D	64QAM	0.152	21.81
		9M00W7D	256QAM	0.092	19.65
LTE – Band26 (15)	821.5	13M5G7D	QPSK	0.151	21.78
		13M4W7D	16QAM	0.154	21.87
		13M5W7D	64QAM	0.152	21.83
		13M5W7D	256QAM	0.092	19.63

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
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

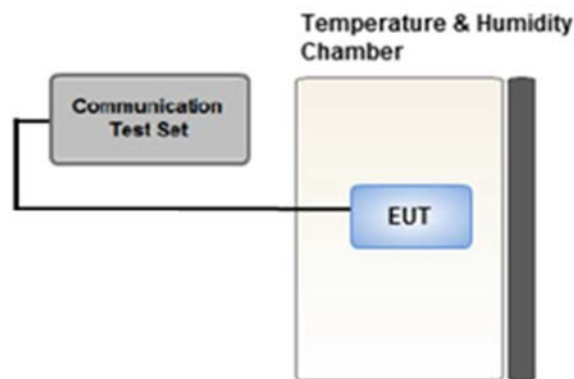
According to ANSI C63.26-2015 Section 5.2.1 when measuring the maximum RF output power from such devices, control over the EUT must be provided either through special test software (provided by manufacturer specifically for compliance testing, but not accessible by an end user) or through use of a base 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 $\geq$ 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.

3.4 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 $\geq 3 \times$ RBW
3. No. of sweep points $> 2 \times$ 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;

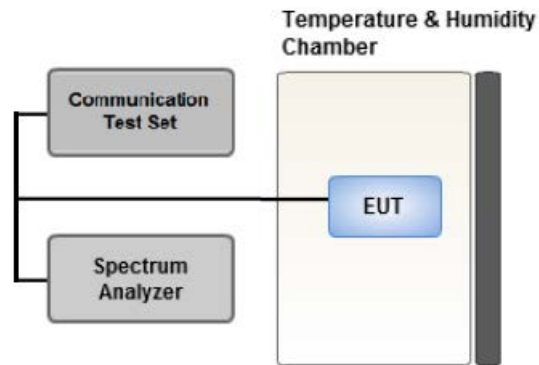
$$\text{Result}_{(\text{dBm})} = P_g_{(\text{dBm})} - \text{cable loss}_{(\text{dB})} + \text{antenna gain}_{(\text{dBi})}$$

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.

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

3.5 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.

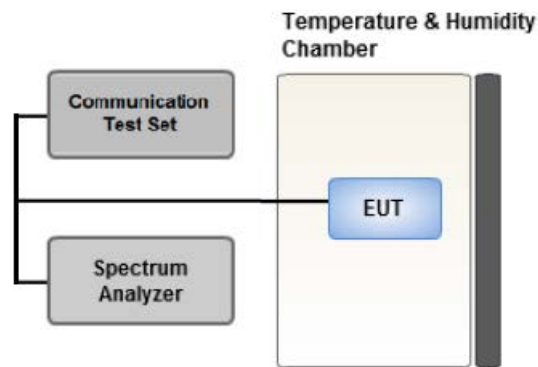
The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency.

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

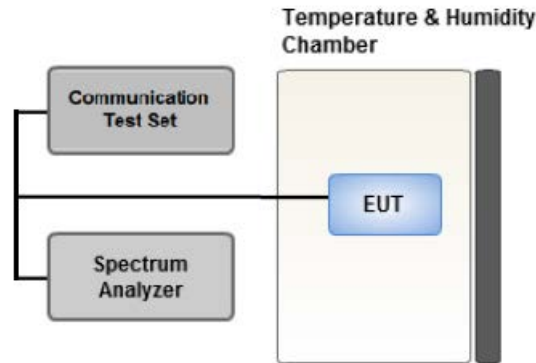
Test Overview

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

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

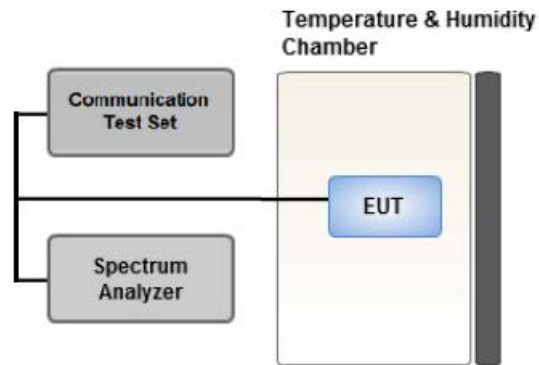
1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW :
 - . - EA licensee's frequency block by up to and including 37.5 kHz : 300 Hz
 - .- EA licensee's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

Test Notes

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 $10 \log(1 \text{ MHz} / \text{RB})$ 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)

- 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 : 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.
- In the case of radiated spurious emissions, all bandwidth of operation were investigated and the worst case bandwidth results are reported. (Worst case : 1.4 MHz)
- The worst case is reported with the EUT positioning, modulations, and paging service configurations shown in the test data.
- Please refer to the table below.
- SM-A376B/DS & additional models were tested and the worst case results are reported.
(Worst case : SM-A376B/DS)

[Worst case]

Test Description	Modulation	RB size	RB offset	Axis
Effective Radiated Power	QPSK, 16QAM, 64QAM, 256QAM	See Section 8.2		X
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.
- SM-A376B/DS & additional models were tested and the worst case results are reported.
(Worst case : SM-A376B/DS)

[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
Band Edge (Straddle Channel)	QPSK	1.4, 3, 5	Low, High	Full RB	0
		10, 15	Mid	Full RB	0
		1.4	Mid	1	5
		3	Mid	1	14
		5	Mid	1	24
		10	Mid	1	49
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 G HPF+LNA)	HCT CO., LTD.,	F2L2	12/01/2026	Annual
RF Switching System	Switch box(3 G HPF+LNA)	HCT CO., LTD.,	F2L3	12/01/2026	Annual
RF Switching System	Switch box(LNA)	HCT CO., LTD.,	F2L5	12/01/2026	Annual
RF Switching System	Switch box(6 G HPF+LNA)	HCT CO., LTD.,	F2L14	12/01/2026	Annual
Power Amplifier	CBL18265035	CERNEX	22966	10/21/2026	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/19/2026	Annual
Power Splitter(DC ~ 26.5 GHz)	11667B	Hewlett Packard	5001	04/10/2026	Annual
DC Power Supply	E3632A	Agilent	MY40010147	07/29/2026	Annual
Dipole Antenna	UHAP	Schwarzbeck	01274	03/10/2026	Biennial
Dipole Antenna	UHAP	Schwarzbeck	01288	08/07/2026	Biennial
Chamber	SU-642	ESPEC	93008124	02/11/2026	Annual
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	03197	11/28/2026	Biennial
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	03201	11/28/2026	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
Signal Analyzer(10 Hz ~ 26.5 GHz)	N9020A	Agilent	MY52090906	04/14/2026	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	04/10/2026	Annual
Spectrum Analyzer(10 Hz ~ 40 GHz)	FSV40	ROHDE & SCHWARZ	101733	09/17/2026	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	07/29/2026	Annual
Loop Antenna(9 kHz ~ 30 MHz)	FMZB1513	Schwarzbeck	1513-333	03/07/2026	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	895	08/28/2026	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	1135	08/19/2026	Biennial
Radio Communication Test Station	MT8000A	Anritsu Corp.	6272613402	08/18/2026	Annual
SIGNAL GENERATOR (100 kHz ~ 40 GHz)	SMB100A	REOHDE & SCHWARZ	177633	07/22/2026	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
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 whose calibration due date was updated during the test period was not used between the previous due date and the update.
All reported measurements were performed using equipment within valid calibration.
- Especially, all antenna for measurement is calibrated in accordance with the requirements of ANSI 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 %, $k=2$)
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
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

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

- 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

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	21.67	0.147	21.68	0.147	100
		1	3	21.61	0.145	21.63	0.146	100
		1	5	21.66	0.147	21.66	0.147	100
		3	0	21.69	0.148	21.69	0.148	100
		3	1	21.55	0.143	21.57	0.144	100
		3	3	21.48	0.141	21.51	0.142	100
		6	0	21.63	0.146	21.63	0.146	100
	16QAM	1	0	22.07	0.161	22.05	0.160	100
		1	3	21.79	0.151	21.76	0.150	100
		1	5	21.95	0.157	21.89	0.155	100
		3	0	21.76	0.150	21.73	0.149	100
		3	1	21.67	0.147	21.68	0.147	100
		3	3	21.72	0.149	21.74	0.149	100
		6	0	21.71	0.148	21.69	0.148	100
	64QAM	1	0	21.95	0.157	21.78	0.151	100
		1	3	21.69	0.148	21.86	0.153	100
		1	5	21.92	0.156	21.88	0.154	100
		3	0	21.75	0.150	21.69	0.148	100
		3	1	21.67	0.147	21.71	0.148	100
		3	3	21.67	0.147	21.68	0.147	100
		6	0	21.55	0.143	21.51	0.142	100
	256QAM	1	0	19.62	0.092	19.55	0.090	100
		1	3	19.58	0.091	19.59	0.091	100
		1	5	19.66	0.092	19.64	0.092	100
		3	0	19.58	0.091	19.58	0.091	100
		3	1	19.52	0.090	19.50	0.089	100
		3	3	19.51	0.089	19.52	0.090	100
		6	0	19.41	0.087	19.44	0.088	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	21.64	0.146	21.75	0.150	100
		1	7	21.46	0.140	21.64	0.146	100
		1	14	21.60	0.145	21.63	0.146	100
		8	0	21.65	0.146	21.67	0.147	100
		8	3	21.51	0.142	21.54	0.143	100
		8	7	21.59	0.144	21.63	0.146	100
		15	0	21.68	0.147	21.73	0.149	100
	16QAM	1	0	22.04	0.160	22.08	0.161	100
		1	7	22.06	0.161	22.06	0.161	100
		1	14	21.95	0.157	22.00	0.158	100
		8	0	21.65	0.146	21.68	0.147	100
		8	3	21.70	0.148	21.70	0.148	100
		8	7	21.61	0.145	21.64	0.146	100
		15	0	21.68	0.147	21.72	0.149	100
	64QAM	1	0	21.85	0.153	21.90	0.155	100
		1	7	21.71	0.148	21.73	0.149	100
		1	14	21.88	0.154	21.87	0.154	100
		8	0	21.49	0.141	21.48	0.141	100
		8	3	21.42	0.139	21.44	0.139	100
		8	7	21.41	0.138	21.44	0.139	100
		15	0	21.49	0.141	21.52	0.142	100
	256QAM	1	0	19.66	0.092	19.69	0.093	100
		1	7	19.54	0.090	19.60	0.091	100
		1	14	19.55	0.090	19.57	0.091	100
		8	0	19.48	0.089	19.51	0.089	100
		8	3	19.42	0.087	19.44	0.088	100
		8	7	19.41	0.087	19.45	0.088	100
		15	0	19.38	0.087	19.41	0.087	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	21.70	0.148	21.71	0.148	100
		1	12	21.47	0.140	21.52	0.142	100
		1	24	21.62	0.145	21.63	0.146	100
		12	0	21.60	0.145	21.65	0.146	100
		12	6	21.57	0.144	21.64	0.146	100
		12	11	21.56	0.143	21.60	0.145	100
		25	0	21.58	0.144	21.64	0.146	100
	16QAM	1	0	21.93	0.156	21.99	0.158	100
		1	12	21.92	0.156	21.94	0.156	100
		1	24	21.90	0.155	21.93	0.156	100
		12	0	21.63	0.146	21.68	0.147	100
		12	6	21.64	0.146	21.68	0.147	100
		12	11	21.65	0.146	21.66	0.147	100
		25	0	21.61	0.145	21.64	0.146	100
	64QAM	1	0	21.90	0.155	21.87	0.154	100
		1	12	21.58	0.144	21.64	0.146	100
		1	24	21.81	0.152	21.83	0.152	100
		12	0	20.96	0.125	21.02	0.126	100
		12	6	20.90	0.123	20.93	0.124	100
		12	11	20.93	0.124	20.94	0.124	100
		25	0	20.86	0.122	20.92	0.124	100
	256QAM	1	0	19.16	0.082	19.15	0.082	100
		1	12	19.09	0.081	19.10	0.081	100
		1	24	19.10	0.081	19.14	0.082	100
		12	0	18.96	0.079	18.99	0.079	100
		12	6	18.89	0.077	18.95	0.079	100
		12	11	18.84	0.077	18.89	0.077	100
		25	0	18.90	0.078	18.96	0.079	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)		Limit (W)
				819 MHz		
				dBm	W	
10	QPSK	1	0	21.70	0.148	100
		1	24	21.79	0.151	100
		1	49	21.63	0.146	100
		25	0	21.59	0.144	100
		25	12	21.60	0.145	100
		25	24	21.57	0.144	100
		50	0	21.64	0.146	100
	16QAM	1	0	21.89	0.155	100
		1	24	21.90	0.155	100
		1	49	21.86	0.153	100
		25	0	21.60	0.145	100
		25	12	21.59	0.144	100
		25	24	21.59	0.144	100
		50	0	21.60	0.145	100
	64QAM	1	0	21.78	0.151	100
		1	24	21.81	0.152	100
		1	49	21.72	0.149	100
		25	0	21.43	0.139	100
		25	12	21.41	0.138	100
		25	24	21.39	0.138	100
		50	0	21.41	0.138	100
	256QAM	1	0	19.65	0.092	100
		1	24	19.35	0.086	100
		1	49	19.56	0.090	100
		25	0	19.46	0.088	100
		25	12	19.43	0.088	100
		25	24	19.45	0.088	100
		50	0	19.46	0.088	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)		Limit (W)
				821.5 MHz		
				dBm	W	
15	QPSK	1	0	21.68	0.147	100
		1	36	21.78	0.151	100
		1	74	21.63	0.146	100
		36	0	21.57	0.144	100
		36	18	21.58	0.144	100
		36	39	21.56	0.143	100
		75	0	21.63	0.146	100
	16QAM	1	0	21.86	0.153	100
		1	36	21.87	0.154	100
		1	74	21.83	0.152	100
		36	0	21.58	0.144	100
		36	18	21.57	0.144	100
		36	39	21.57	0.144	100
		75	0	21.60	0.145	100
	64QAM	1	0	21.76	0.150	100
		1	36	21.83	0.152	100
		1	74	21.71	0.148	100
		36	0	21.41	0.138	100
		36	18	21.40	0.138	100
		36	39	21.38	0.137	100
		75	0	21.40	0.138	100
	256QAM	1	0	19.63	0.092	100
		1	36	19.34	0.086	100
		1	74	19.56	0.090	100
		36	0	19.44	0.088	100
		36	18	19.42	0.087	100
		36	39	19.42	0.087	100
		75	0	19.45	0.088	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	-33.40	29.81	-10.05	1.44	H	< 100	0.068	18.32	1	5
		16QAM	-34.15	29.06	-10.05	1.44	H		0.057	17.57		
		64QAM	-35.26	27.95	-10.05	1.44	H		0.044	16.46		
		256QAM	-38.25	24.96	-10.05	1.44	H		0.022	13.47		
823.3		QPSK	-32.90	30.13	-9.95	1.44	H		0.075	18.74	1	5
		16QAM	-33.60	29.43	-9.95	1.44	H		0.064	18.04		
		64QAM	-34.67	28.36	-9.95	1.44	H		0.050	16.97		
		256QAM	-37.69	25.34	-9.95	1.44	H		0.025	13.95		

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	-33.50	29.72	-10.05	1.44	H	< 100	0.067	18.23	1	14
		16QAM	-34.13	29.09	-10.05	1.44	H		0.058	17.60		
		64QAM	-35.27	27.95	-10.05	1.44	H		0.044	16.46		
		256QAM	-38.34	24.88	-10.05	1.44	H		0.022	13.39		
822.5		QPSK	-33.09	29.97	-9.95	1.44	H		0.072	18.58	1	14
		16QAM	-33.76	29.30	-9.95	1.44	H		0.062	17.91		
		64QAM	-34.84	28.22	-9.95	1.44	H		0.048	16.83		
		256QAM	-37.94	25.12	-9.95	1.44	H		0.024	13.73		

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	-33.80	29.40	-10.05	1.44	H	< 100	0.062	17.91	1	24
		16QAM	-34.52	28.68	-10.05	1.44	H		0.052	17.19		
		64QAM	-35.60	27.60	-10.05	1.44	H		0.041	16.11		
		256QAM	-38.63	24.57	-10.05	1.44	H		0.020	13.08		
821.5		QPSK	-33.52	29.58	-9.95	1.44	H		0.066	18.19	1	24
		16QAM	-34.32	28.78	-9.95	1.44	H		0.055	17.39		
		64QAM	-35.35	27.75	-9.95	1.44	H		0.043	16.36		
		256QAM	-38.39	24.71	-9.95	1.44	H		0.021	13.32		

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	-32.95	30.21	-10.05	1.44	H	< 100	0.074	18.72	1	49
		16QAM	-33.89	29.27	-10.05	1.44	H		0.060	17.78		
		64QAM	-34.85	28.31	-10.05	1.44	H		0.048	16.82		
		256QAM	-37.85	25.31	-10.05	1.44	H		0.024	13.82		

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	-32.99	30.11	-9.95	1.44	H	< 7.00	0.074	18.72	1	74
		16QAM	-33.71	29.39	-9.95	1.44	H		0.063	18.00		
		64QAM	-34.74	28.36	-9.95	1.44	H		0.050	16.97		
		256QAM	-37.72	25.38	-9.95	1.44	H		0.025	13.99		

Note

1. Limit: None (for reporting purposes only)

8.3 RADIATED SPURIOUS EMISSIONS

■ MODE: LTE B26
 ■ MODULATION SIGNAL: 1.4 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
26697 (814.7)	1 629.40	-43.66	9.23	-58.16	1.98	H	-50.91	-13.00	1	5
	2 444.10	-29.41	10.41	-40.54	2.50	V	-32.63	-13.00		
	3 258.80	-42.40	10.80	-50.60	2.96	H	-42.76	-13.00		
	4 073.50	-50.14	11.55	-56.40	3.27	V	-48.12	-13.00		
	4 888.20	-55.37	11.35	-56.95	3.67	V	-49.27	-13.00		
26783 (823.3)	1 646.60	-46.98	9.39	-61.82	2.00	V	-54.43	-13.00	1	5
	2 469.90	-29.28	10.35	-40.48	2.59	V	-32.72	-13.00		
	3 293.20	-42.96	11.06	-51.12	2.95	H	-43.01	-13.00		
	4 116.50	-48.38	11.64	-54.72	3.32	V	-46.40	-13.00		
	4 939.80	-54.64	11.29	-56.38	3.68	H	-48.77	-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	1.1000
			16QAM			1.0953
			64QAM			1.0968
			256QAM			1.0960
	3 MHz	822.5	QPSK	15		2.7204
			16QAM			2.7071
			64QAM			2.7057
			256QAM			2.7157
	5 MHz	821.5	QPSK	25		4.5300
			16QAM			4.5126
			64QAM			4.5167
			256QAM			4.5400
	10 MHz	819.0	QPSK	50		9.0002
			16QAM			9.0187
			64QAM			8.9987
			256QAM			8.9958
	15 MHz	821.5	QPSK	75		13.462
			16QAM			13.441
			64QAM			13.464
			256QAM			13.456

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 47 ~ 66.

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	2.8017	27.976	-57.647	-29.671	-13.00
		823.3	5.6331	28.591	-57.693	-29.102	
	3	815.5	3.6790	27.976	-57.184	-29.208	
		822.5	3.6391	27.976	-57.927	-29.951	
	5	816.5	7.2583	28.591	-57.786	-29.195	
		821.5	3.0709	27.976	-57.221	-29.245	
	10	819.0	3.6990	27.976	-57.646	-29.670	
	15	821.5	3.2603	27.976	-57.120	-29.144	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 67 ~ 74.
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	25.270
1 – 5	27.976
5 – 10	28.591
10 – 15	29.116
15 – 20	29.489
Above 20(26.5)	30.131

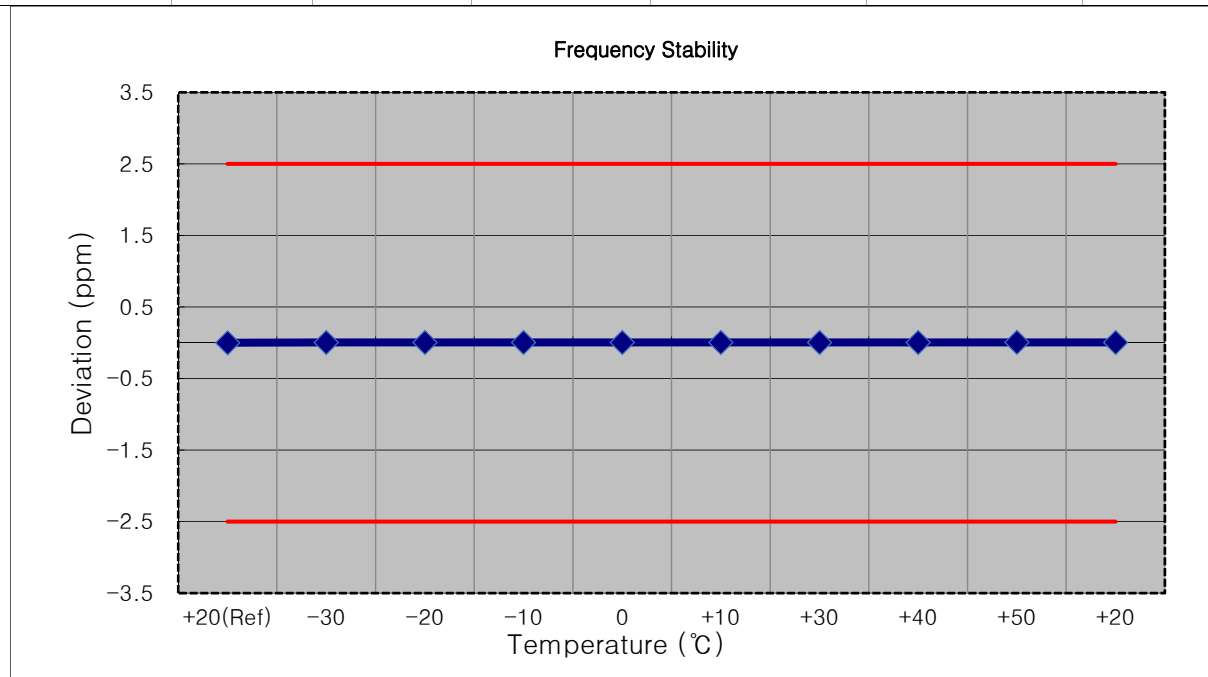
8.6 CHANNEL EDGE

- Plots of the EUT's Band Edge are shown Page 75 ~ 94.

8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

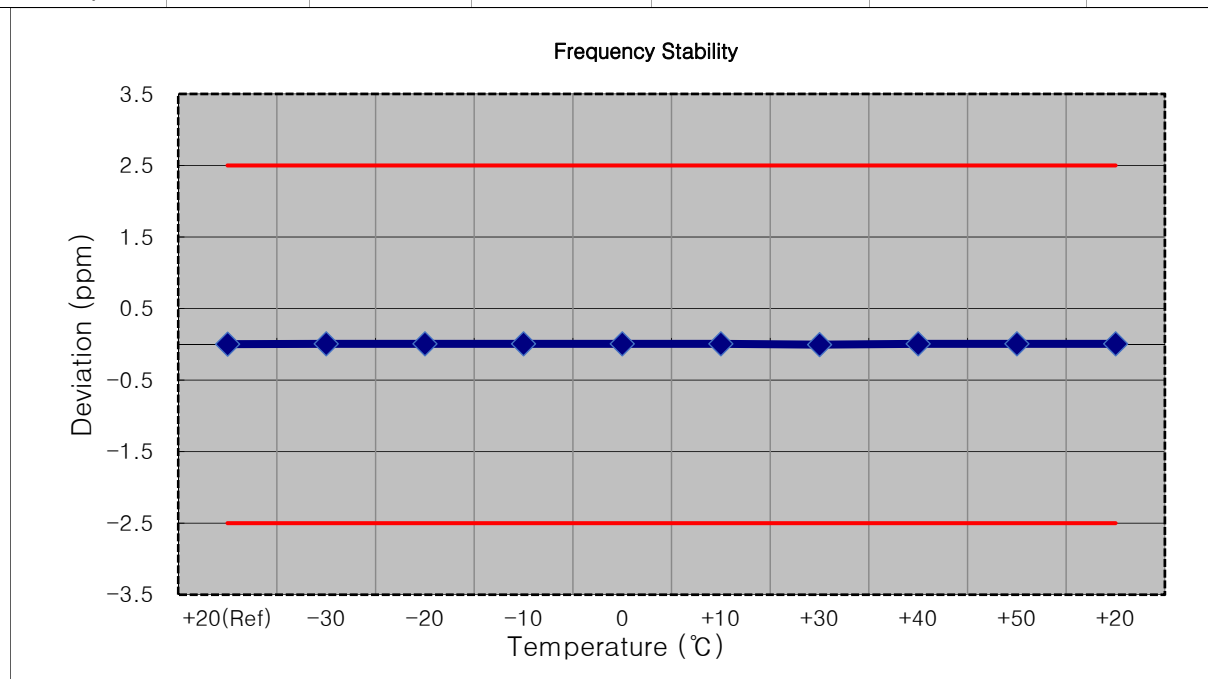
MODE:	LTE B26
OPERATING FREQUENCY:	814,700,000 Hz
CHANNEL:	26697(1.4 MHz)
REFERENCE VOLTAGE:	3.900 VDC
DEVIATION LIMIT:	$\pm 0.000\ 25\ \%$ or $2.5\ \text{ppm}$

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.900	+20(Ref)	814 700 002	0.0	0.000 000	0.000
100 %		-30	814 700 005	2.7	0.000 000	0.003
100 %		-20	814 700 005	3.1	0.000 000	0.004
100 %		-10	814 700 006	3.6	0.000 000	0.004
100 %		0	814 700 006	3.8	0.000 000	0.005
100 %		+10	814 700 005	2.3	0.000 000	0.003
100 %		+30	814 700 006	3.5	0.000 000	0.004
100 %		+40	814 700 005	2.3	0.000 000	0.003
100 %		+50	814 700 007	4.4	0.000 001	0.005
Batt. Endpoint	3.400	+20	814 700 006	3.3	0.000 000	0.004



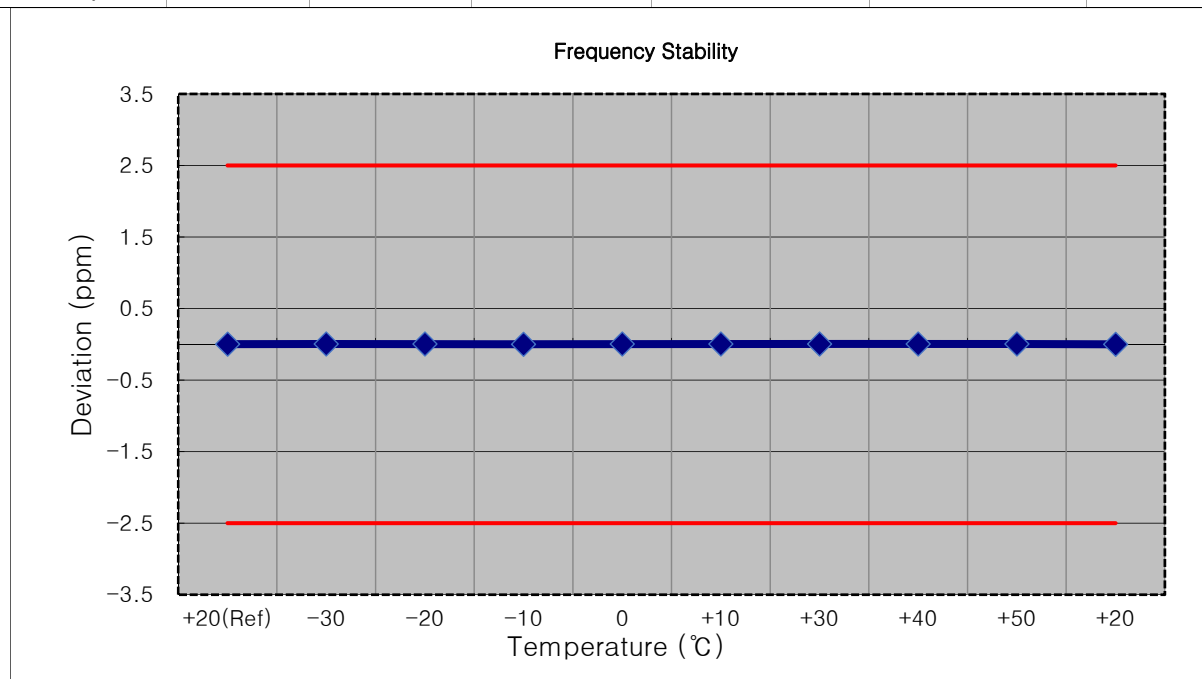
MODE:	<u>LTE B26</u>
OPERATING FREQUENCY:	<u>815,500,000 Hz</u>
CHANNEL:	<u>26705(3 MHz)</u>
REFERENCE VOLTAGE:	<u>3.900 VDC</u>
DEVIATION LIMIT:	<u>± 0.000 25 % or 2.5 ppm</u>

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	3.900	+20(Ref)	815 500 004	0.0	0.000 000	0.000
100 %		-30	815 500 008	4.0	0.000 000	0.005
100 %		-20	815 500 007	3.9	0.000 000	0.005
100 %		-10	815 500 008	4.8	0.000 001	0.006
100 %		0	815 500 008	4.7	0.000 001	0.006
100 %		+10	815 500 008	4.2	0.000 001	0.005
100 %		+30	815 499 999	-4.6	-0.000 001	-0.006
100 %		+40	815 500 008	4.8	0.000 001	0.006
100 %		+50	815 500 007	3.6	0.000 000	0.004
Batt. Endpoint	3.400	+20	815 500 008	4.9	0.000 001	0.006



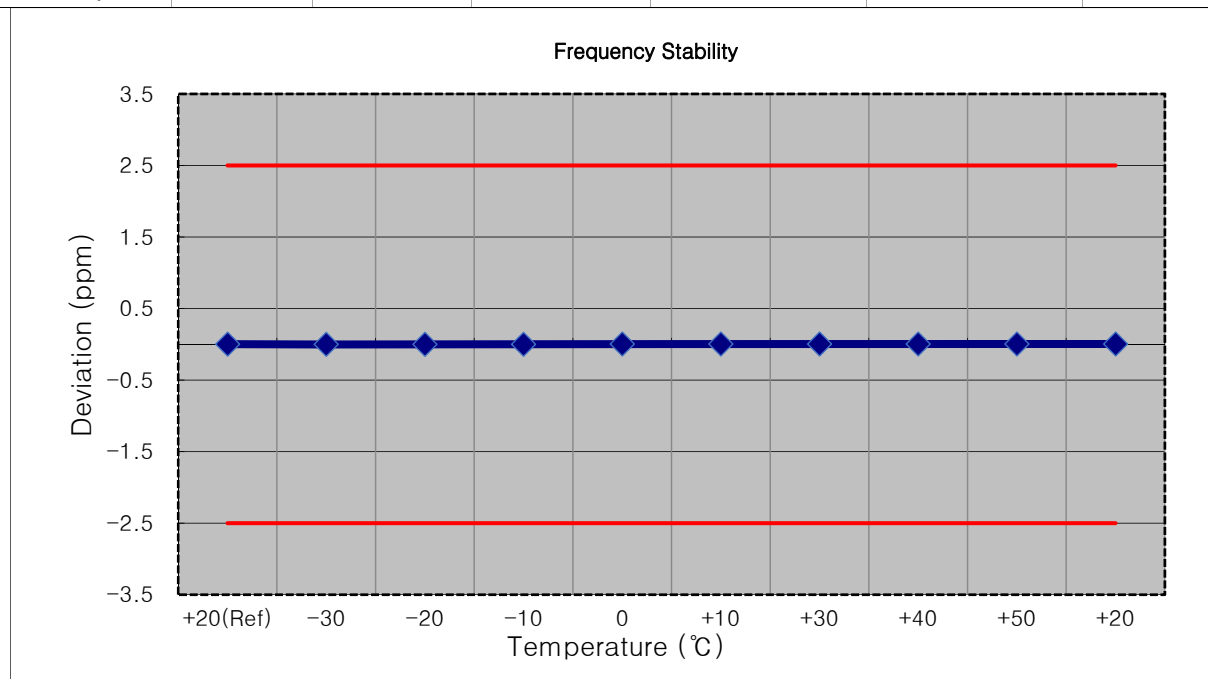
MODE:	LTE B26
OPERATING FREQUENCY:	816,500,000 Hz
CHANNEL:	26715(5 MHz)
REFERENCE VOLTAGE:	3.900 VDC
DEVIATION LIMIT:	$\pm 0.000\ 25\ \%$ or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.900	+20(Ref)	816 500 002	0.0	0.000 000	0.000
100 %		-30	816 500 003	1.7	0.000 000	0.002
100 %		-20	816 500 003	1.8	0.000 000	0.002
100 %		-10	816 500 000	-1.7	0.000 000	-0.002
100 %		0	816 500 004	2.5	0.000 000	0.003
100 %		+10	816 500 004	2.8	0.000 000	0.003
100 %		+30	816 500 004	2.2	0.000 000	0.003
100 %		+40	816 500 004	2.2	0.000 000	0.003
100 %		+50	816 500 005	3.2	0.000 000	0.004
Batt. Endpoint	3.400	+20	816 500 000	-1.4	0.000 000	-0.002



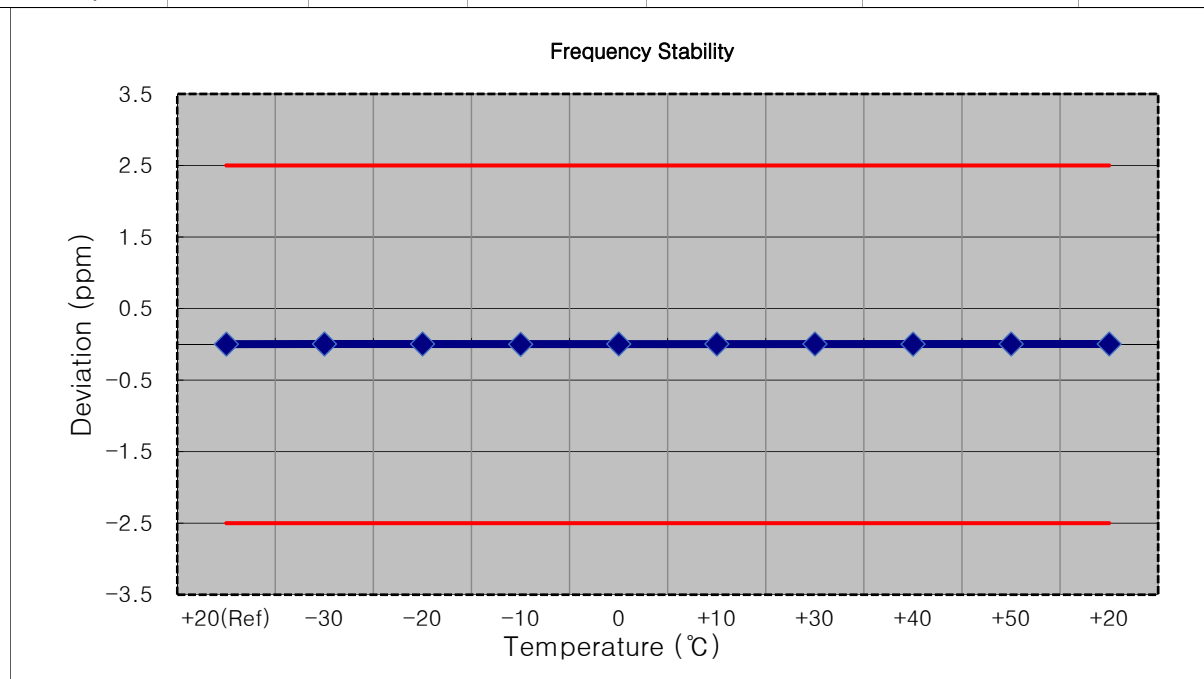
MODE:	LTE B26
OPERATING FREQUENCY:	819,000,000 Hz
CHANNEL:	26740(10 MHz)
REFERENCE VOLTAGE:	3.900 VDC
DEVIATION LIMIT:	$\pm 0.000\ 25\ \%$ or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.900	+20(Ref)	819 000 002	0.0	0.000 000	0.000
100 %		-30	819 000 001	-1.7	0.000 000	-0.002
100 %		-20	819 000 001	-1.7	0.000 000	-0.002
100 %		-10	819 000 001	-1.5	0.000 000	-0.002
100 %		0	819 000 004	1.6	0.000 000	0.002
100 %		+10	819 000 004	2.0	0.000 000	0.002
100 %		+30	819 000 005	2.1	0.000 000	0.003
100 %		+40	819 000 004	2.0	0.000 000	0.002
100 %		+50	819 000 004	1.7	0.000 000	0.002
Batt. Endpoint	3.400	+20	819 000 004	2.0	0.000 000	0.002



MODE:	<u>LTE B26</u>
OPERATING FREQUENCY:	<u>821,500,000 Hz</u>
CHANNEL:	<u>26765(15 MHz)</u>
REFERENCE VOLTAGE:	<u>3.900 VDC</u>
DEVIATION LIMIT:	$\pm 0.000\ 25\ \%$ or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency Error	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	(Hz)	(%)	
100 %	3.900	+20(Ref)	821 500 001	0.0	0.000 000	0.000
100 %		-30	821 500 004	2.4	0.000 000	0.003
100 %		-20	821 500 003	1.5	0.000 000	0.002
100 %		-10	821 500 001	-0.8	0.000 000	-0.001
100 %		0	821 500 003	1.6	0.000 000	0.002
100 %		+10	821 500 004	2.2	0.000 000	0.003
100 %		+30	821 500 003	1.6	0.000 000	0.002
100 %		+40	821 500 003	1.2	0.000 000	0.001
100 %		+50	821 500 003	2.1	0.000 000	0.003
Batt. Endpoint	3.400	+20	821 500 004	2.3	0.000 000	0.003



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	21.65	0.146	100
		1	3	21.51	0.142	100
		1	5	21.59	0.144	100
		3	0	21.65	0.146	100
		3	1	21.50	0.141	100
		3	3	21.38	0.137	100
		6	0	21.63	0.146	100
	16QAM	1	0	22.03	0.160	100
		1	3	21.77	0.150	100
		1	5	21.94	0.156	100
		3	0	21.66	0.147	100
		3	1	21.48	0.141	100
		3	3	21.74	0.149	100
		6	0	21.68	0.147	100
	64QAM	1	0	21.91	0.155	100
		1	3	21.64	0.146	100
		1	5	21.75	0.150	100
		3	0	21.44	0.139	100
		3	1	21.59	0.144	100
		3	3	21.60	0.145	100
		6	0	21.43	0.139	100
	256QAM	1	0	19.59	0.091	100
		1	3	19.48	0.089	100
		1	5	19.56	0.090	100
		3	0	19.54	0.090	100
		3	1	19.53	0.090	100
		3	3	19.52	0.090	100
		6	0	19.40	0.087	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)		Limit (W)
				824 MHz		
				dBm	W	
3	QPSK	1	0	21.60	0.145	100
		1	7	21.45	0.140	100
		1	14	21.62	0.145	100
		8	0	21.61	0.145	100
		8	3	21.50	0.141	100
		8	7	21.57	0.144	100
		15	0	21.64	0.146	100
	16QAM	1	0	21.95	0.157	100
		1	7	22.07	0.161	100
		1	14	21.87	0.154	100
		8	0	21.60	0.145	100
		8	3	21.66	0.147	100
		8	7	21.61	0.145	100
		15	0	21.65	0.146	100
	64QAM	1	0	21.83	0.152	100
		1	7	21.72	0.149	100
		1	14	21.85	0.153	100
		8	0	21.40	0.138	100
		8	3	21.39	0.138	100
		8	7	21.40	0.138	100
		15	0	21.44	0.139	100
	256QAM	1	0	19.65	0.092	100
		1	7	19.57	0.091	100
		1	14	19.52	0.090	100
		8	0	19.44	0.088	100
		8	3	19.38	0.087	100
		8	7	19.40	0.087	100
		15	0	19.43	0.088	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)		Limit (W)
				824 MHz		
				dBm	W	
5	QPSK	1	0	21.64	0.146	100
		1	12	21.46	0.140	100
		1	24	21.63	0.146	100
		12	0	21.57	0.144	100
		12	6	21.56	0.143	100
		12	11	21.55	0.143	100
		25	0	21.54	0.143	100
	16QAM	1	0	21.90	0.155	100
		1	12	21.95	0.157	100
		1	24	21.90	0.155	100
		12	0	21.61	0.145	100
		12	6	21.63	0.146	100
		12	11	21.62	0.145	100
		25	0	21.56	0.143	100
	64QAM	1	0	21.84	0.153	100
		1	12	21.59	0.144	100
		1	24	21.82	0.152	100
		12	0	20.92	0.124	100
		12	6	20.90	0.123	100
		12	11	20.89	0.123	100
		25	0	20.85	0.122	100
	256QAM	1	0	19.07	0.081	100
		1	12	19.06	0.081	100
		1	24	19.12	0.082	100
		12	0	18.92	0.078	100
		12	6	18.89	0.077	100
		12	11	18.83	0.076	100
		25	0	18.89	0.077	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)		Limit (W)
				824 MHz		
				dBm	W	
10	QPSK	1	0	21.66	0.147	100
		1	24	21.74	0.149	100
		1	49	21.61	0.145	100
		25	0	21.54	0.143	100
		25	12	21.54	0.143	100
		25	24	21.51	0.142	100
		50	0	21.59	0.144	100
	16QAM	1	0	21.85	0.153	100
		1	24	21.85	0.153	100
		1	49	21.80	0.151	100
		25	0	21.55	0.143	100
		25	12	21.55	0.143	100
		25	24	21.52	0.142	100
		50	0	21.57	0.144	100
	64QAM	1	0	21.74	0.149	100
		1	24	21.80	0.151	100
		1	49	21.70	0.148	100
		25	0	21.39	0.138	100
		25	12	21.38	0.137	100
		25	24	21.34	0.136	100
		50	0	21.37	0.137	100
	256QAM	1	0	19.62	0.092	100
		1	24	19.30	0.085	100
		1	49	19.53	0.090	100
		25	0	19.41	0.087	100
		25	12	19.39	0.087	100
		25	24	19.38	0.087	100
		50	0	19.42	0.087	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	-33.16	29.84	-9.95	1.44	H	< 7.00	0.070	18.45	1	3
		16QAM	-33.81	29.19	-9.95	1.44	H		0.060	17.80		
		64QAM	-34.85	28.15	-9.95	1.44	H		0.047	16.76		
		256QAM	-37.72	25.28	-9.95	1.44	H		0.024	13.89		

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	-33.01	29.99	-9.95	1.44	H	< 7.00	0.072	18.60	1	14
		16QAM	-33.67	29.33	-9.95	1.44	H		0.062	17.94		
		64QAM	-34.70	28.30	-9.95	1.44	H		0.049	16.91		
		256QAM	-37.77	25.23	-9.95	1.44	H		0.024	13.84		

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	-33.34	29.66	-9.95	1.44	H	< 7.00	0.067	18.27	1	24
		16QAM	-34.09	28.91	-9.95	1.44	H		0.056	17.52		
		64QAM	-35.05	27.95	-9.95	1.44	H		0.045	16.56		
		256QAM	-38.14	24.86	-9.95	1.44	H		0.022	13.47		

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 10 MHz	QPSK	-33.10	29.90	-9.95	1.44	H	< 7.00	0.071	18.51	1	49
		16QAM	-33.62	29.38	-9.95	1.44	H		0.063	17.99		
		64QAM	-34.75	28.25	-9.95	1.44	H		0.049	16.86		
		256QAM	-37.71	25.29	-9.95	1.44	H		0.025	13.90		

8.8.3 RADIATED SPURIOUS EMISSIONS

- ☐ MODE: LTE B26(Straddle)
☐ MODULATION SIGNAL: 3 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	-48.12	9.44	-63.06	2.02	V	-55.64	-13.00	1	14
	2 472.00	-28.17	10.35	-39.37	2.59	V	-31.61	-13.00		
	3 296.00	-41.67	11.06	-49.83	2.95	H	-41.72	-13.00		
	4 120.00	-46.46	11.65	-52.82	3.31	H	-44.48	-13.00		
	4 944.00	-54.00	11.28	-55.66	3.68	V	-48.06	-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	1.4	824.0	7.3081	28.591	-57.692	-29.101	-13.00
	3		3.6591	27.976	-58.005	-30.029	
	5		3.6691	27.976	-58.286	-30.310	
	10		3.1805	27.976	-58.447	-30.471	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 96 ~ 99.
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	25.270
1 – 5	27.976
5 – 10	28.591
10 – 15	29.116
15 – 20	29.489
Above 20(26.5)	30.131

8.8.5 CHANNEL EDGE(Part90)

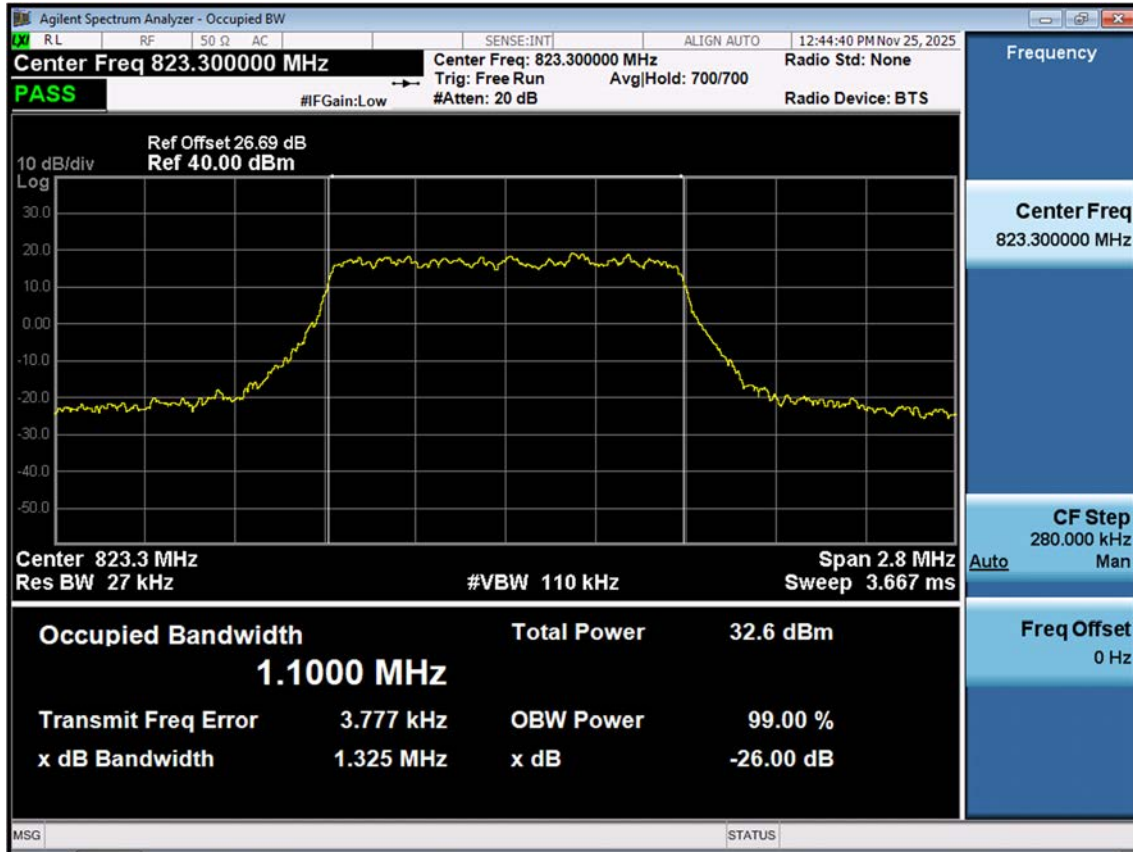
- Test Channel : 26790(824.0MHz)
- Plots of the EUT's Band Edge are shown Page 100 ~ 111.

8.8.6 BAND EDGE(Part22)

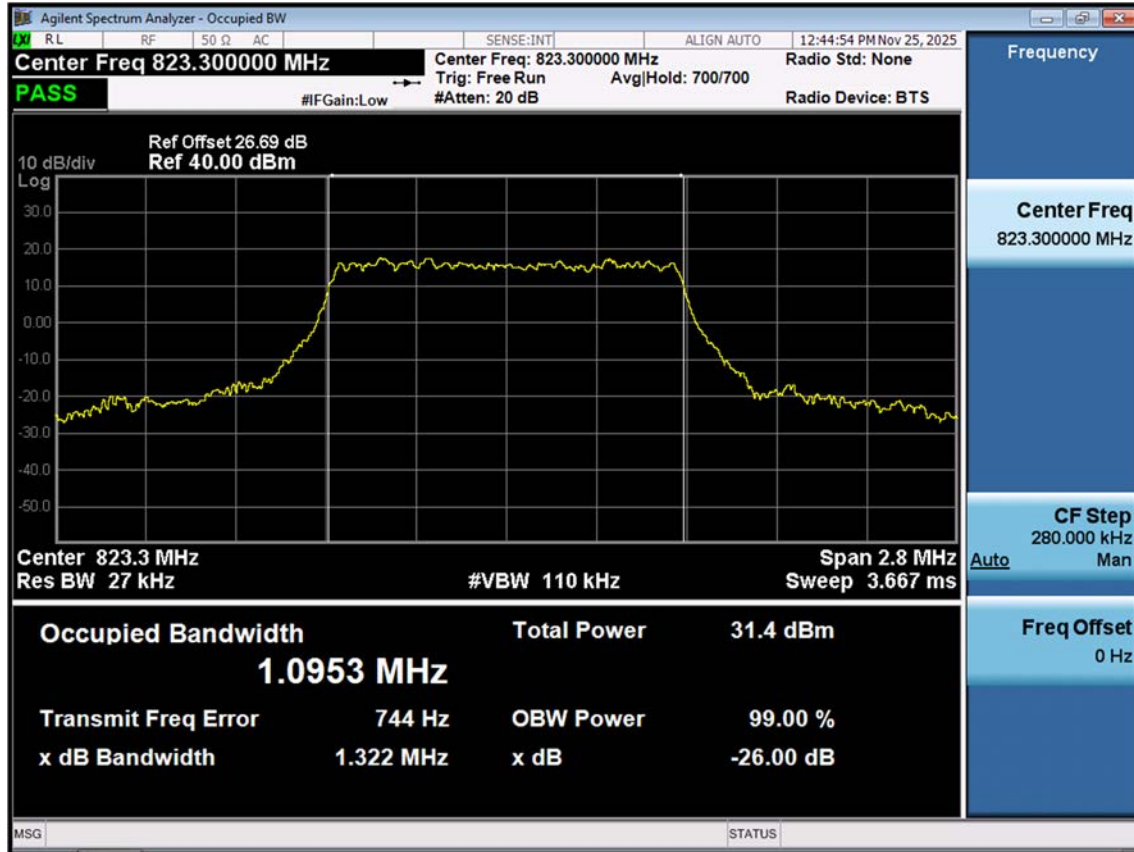
- Test Channel : 26790(824.0 MHz)
- Plots of the EUT's Band Edge are shown Page 112 ~ 119.

9. TEST PLOTS

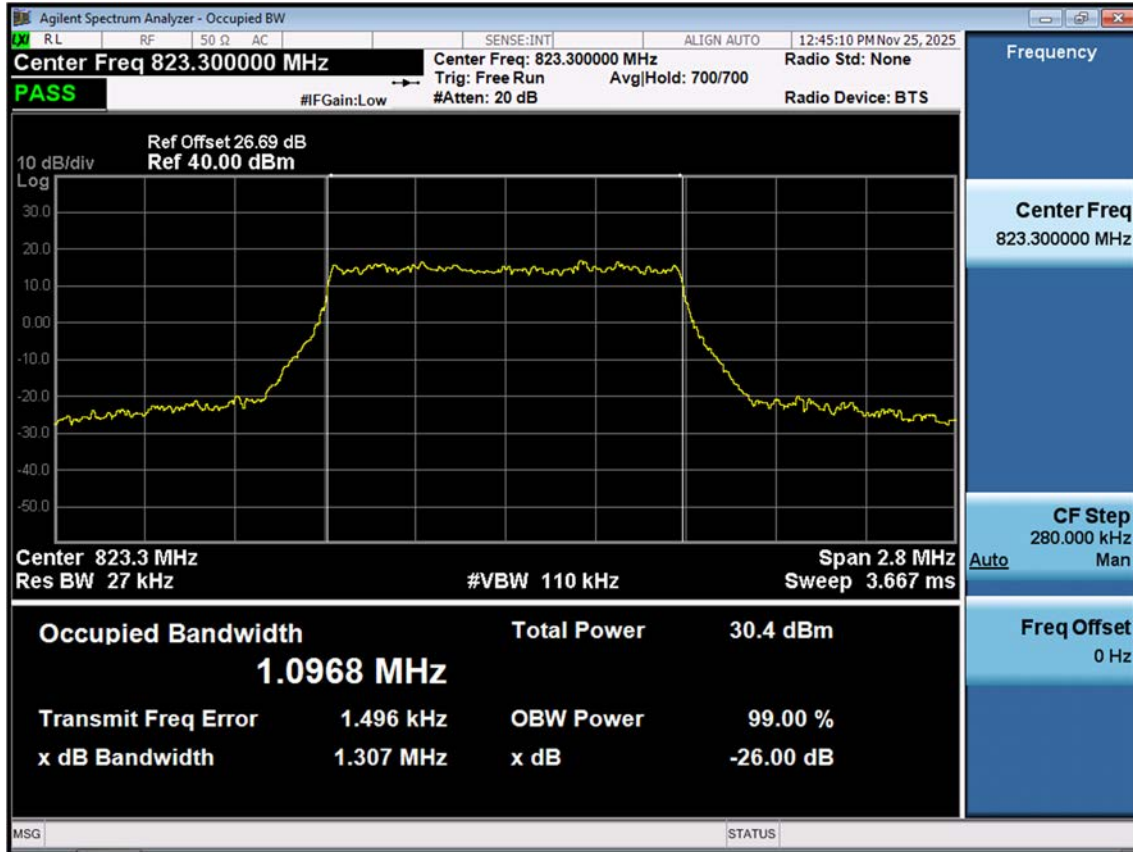
LTE B26_1.4 M_OBW_Mid_QPSK_FullRB



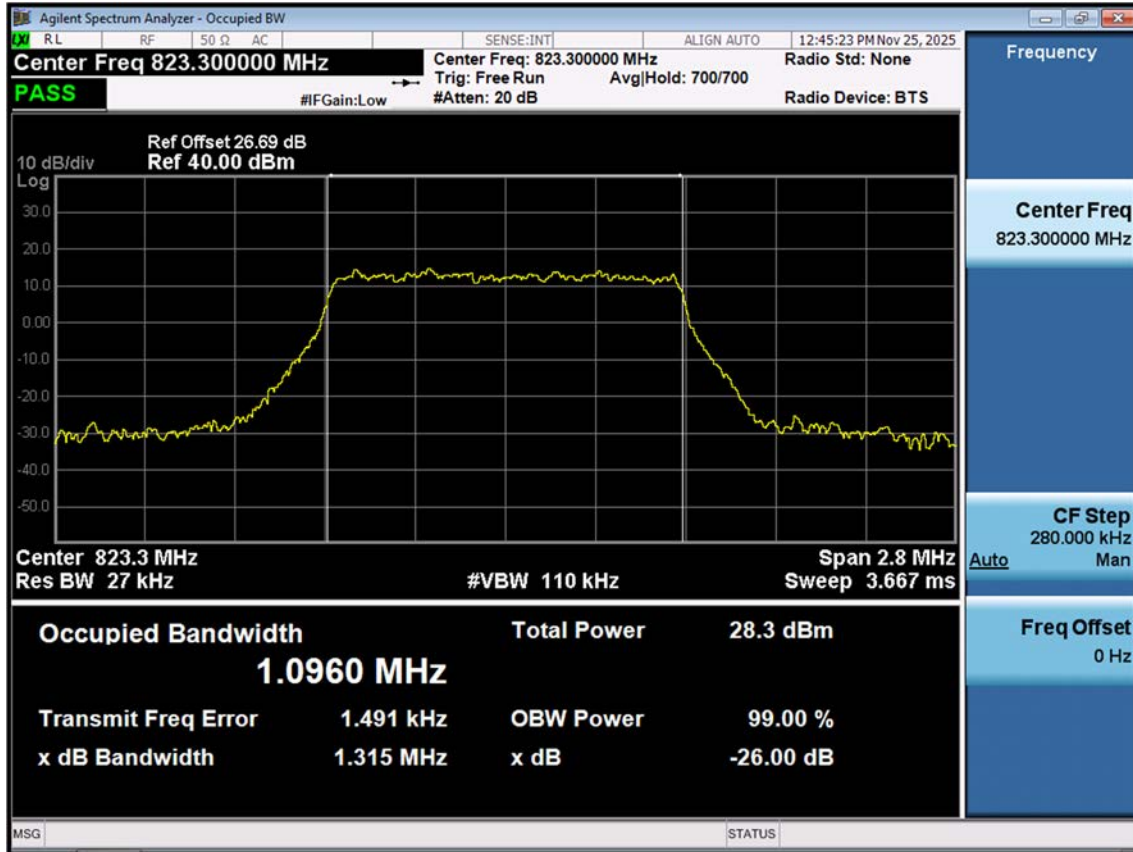
LTE B26_1.4 M_OBW_Mid_16QAM_FullRB



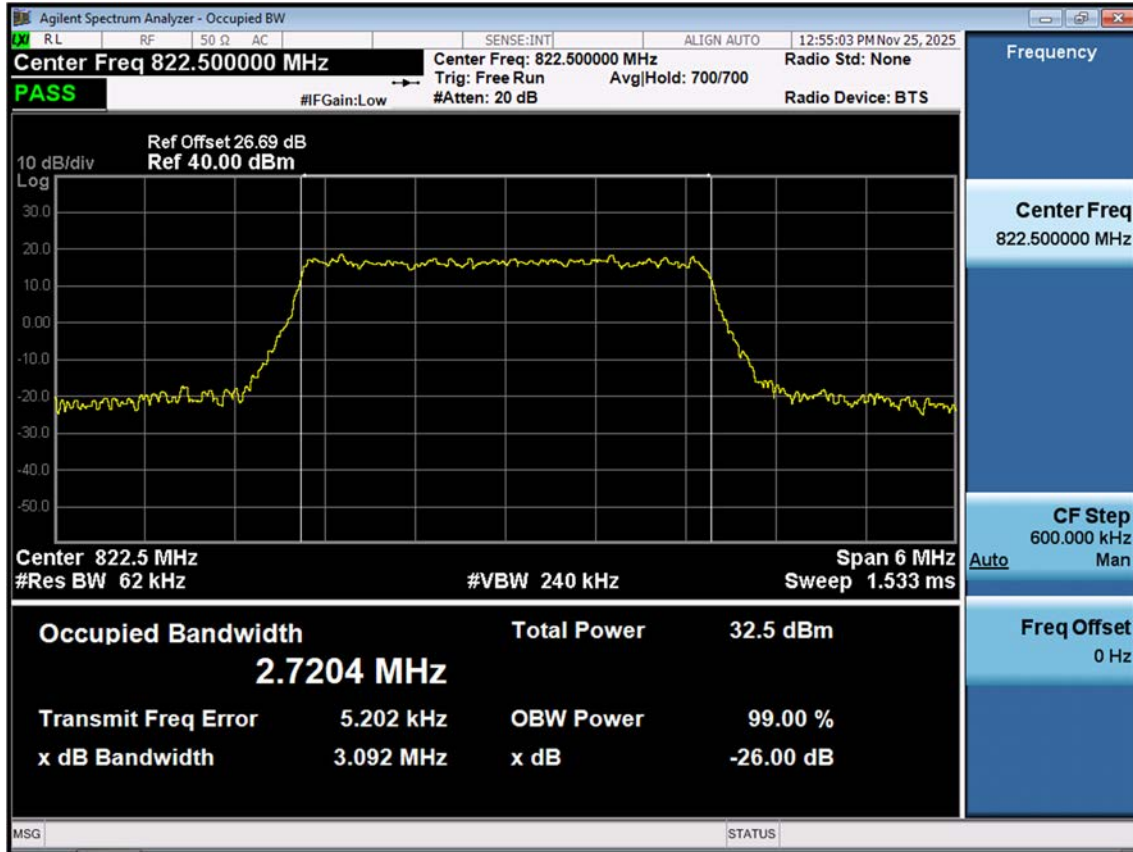
LTE B26_1.4 M_OBW_Mid_64QAM_FullRB



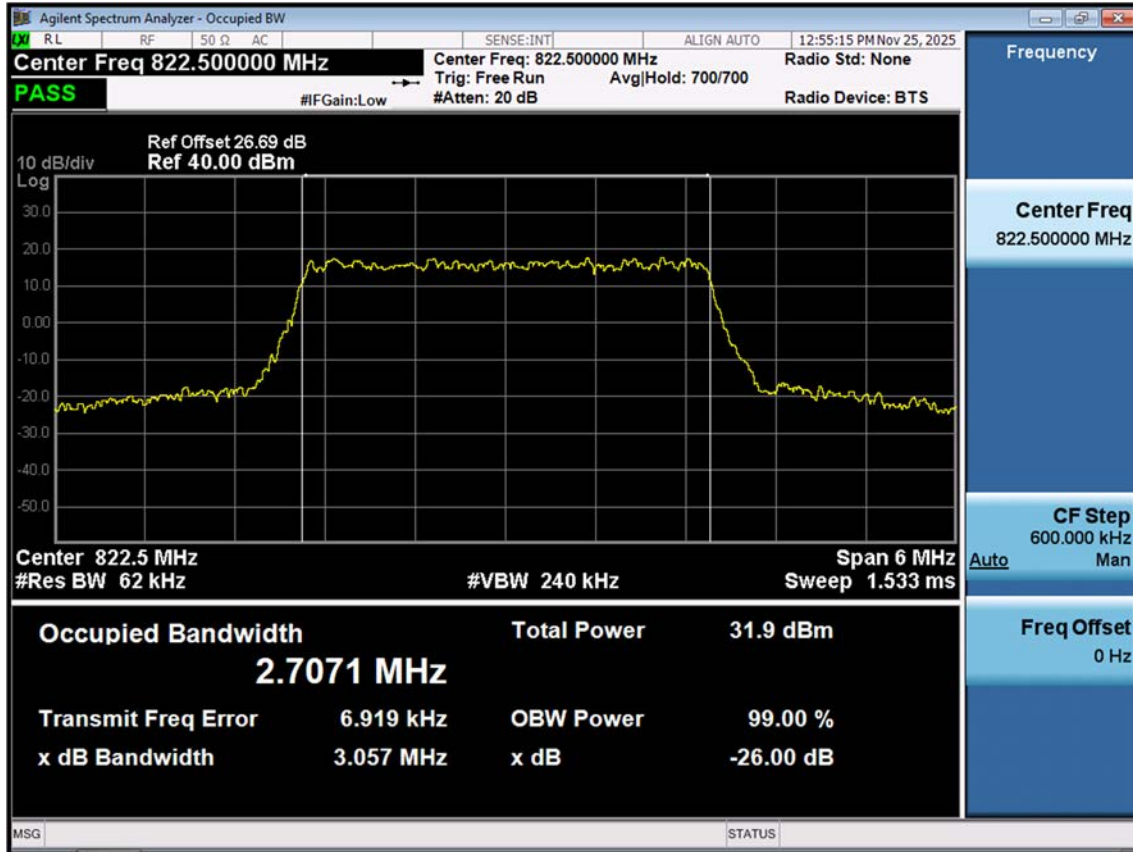
LTE B26_1.4 M_OBW_Mid_256QAM_FullRB



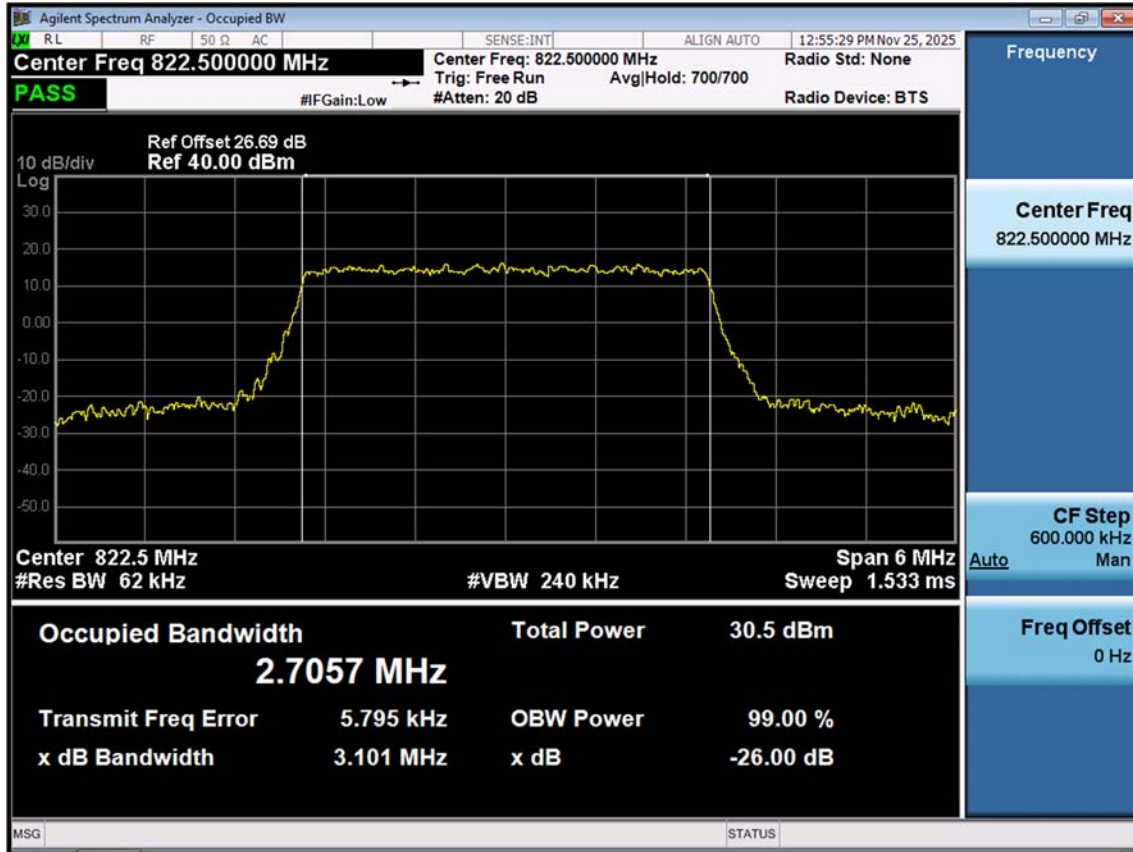
LTE B26_3 M_OBW_Mid_QPSK_FullRB



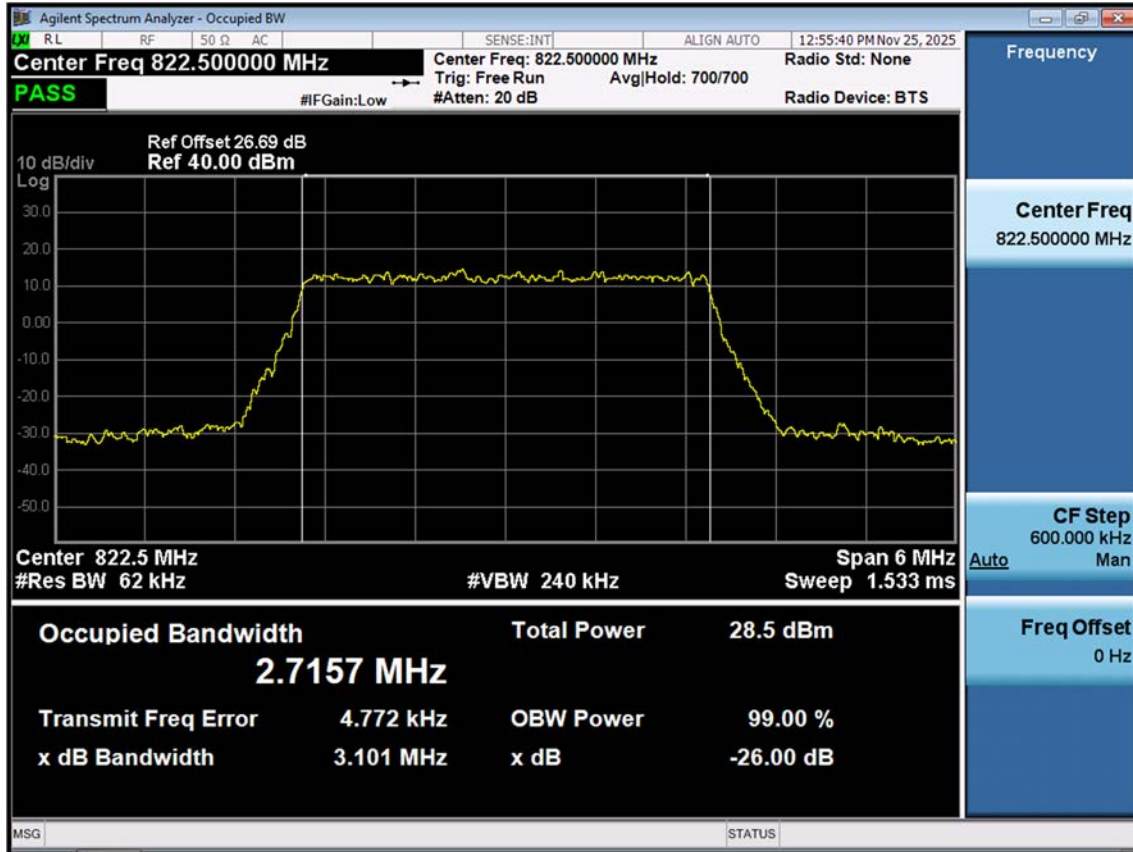
LTE B26_3 M_OBW_Mid_16QAM_FullRB



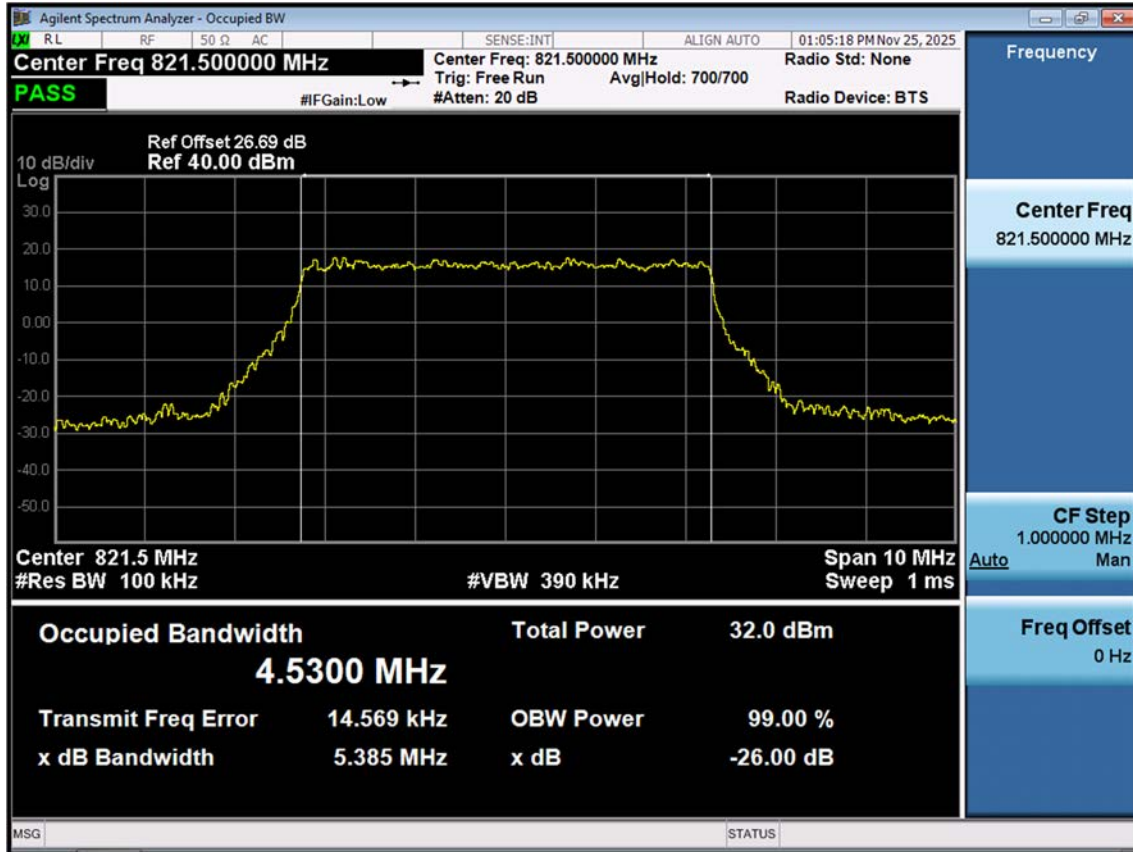
LTE B26_3 M_OBW_Mid_64QAM_FullRB



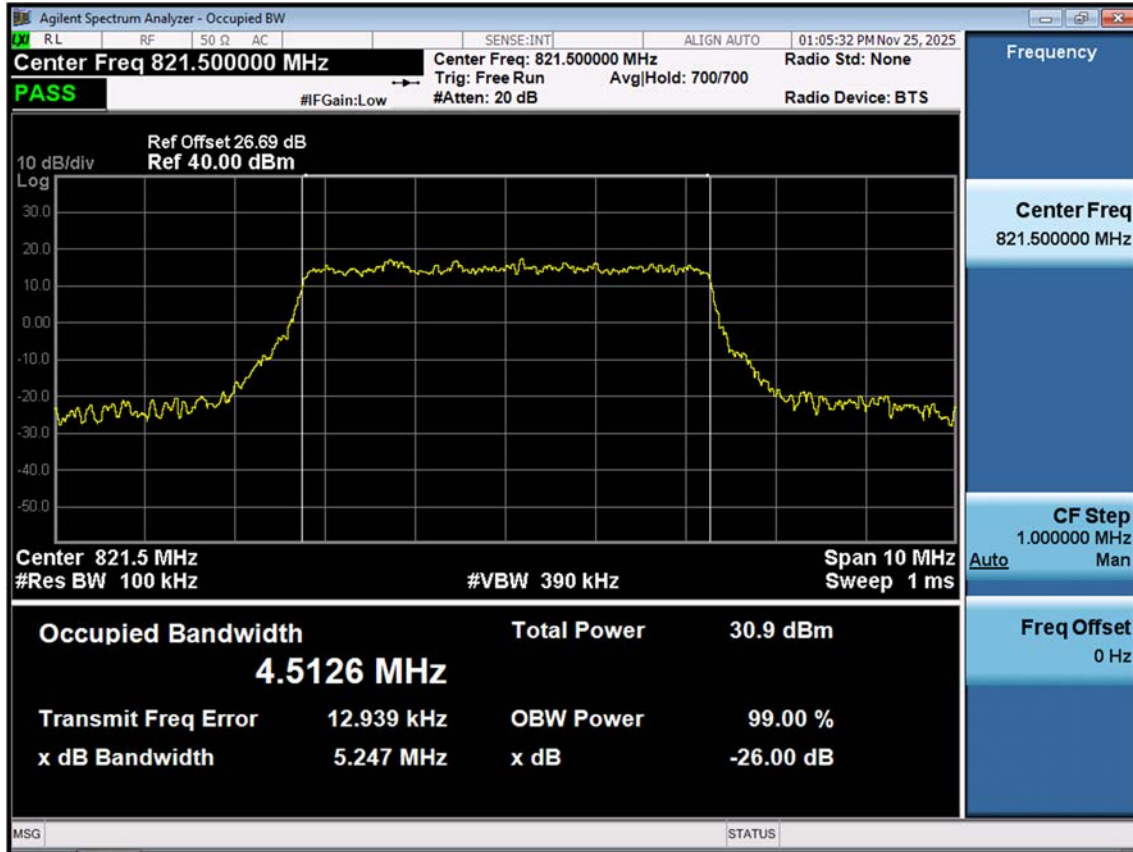
LTE B26_3 M_OBW_Mid_256QAM_FullRB



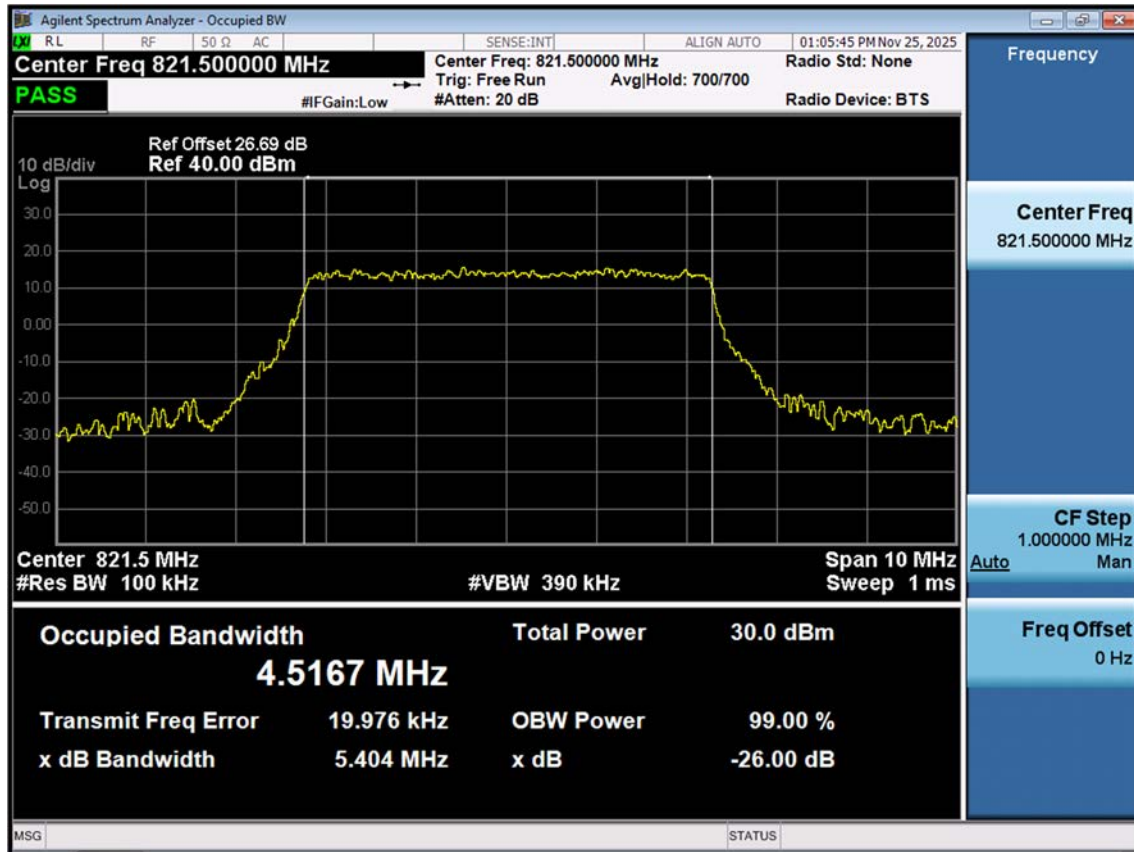
LTE B26_5 M_OBW_Mid_QPSK_FullRB



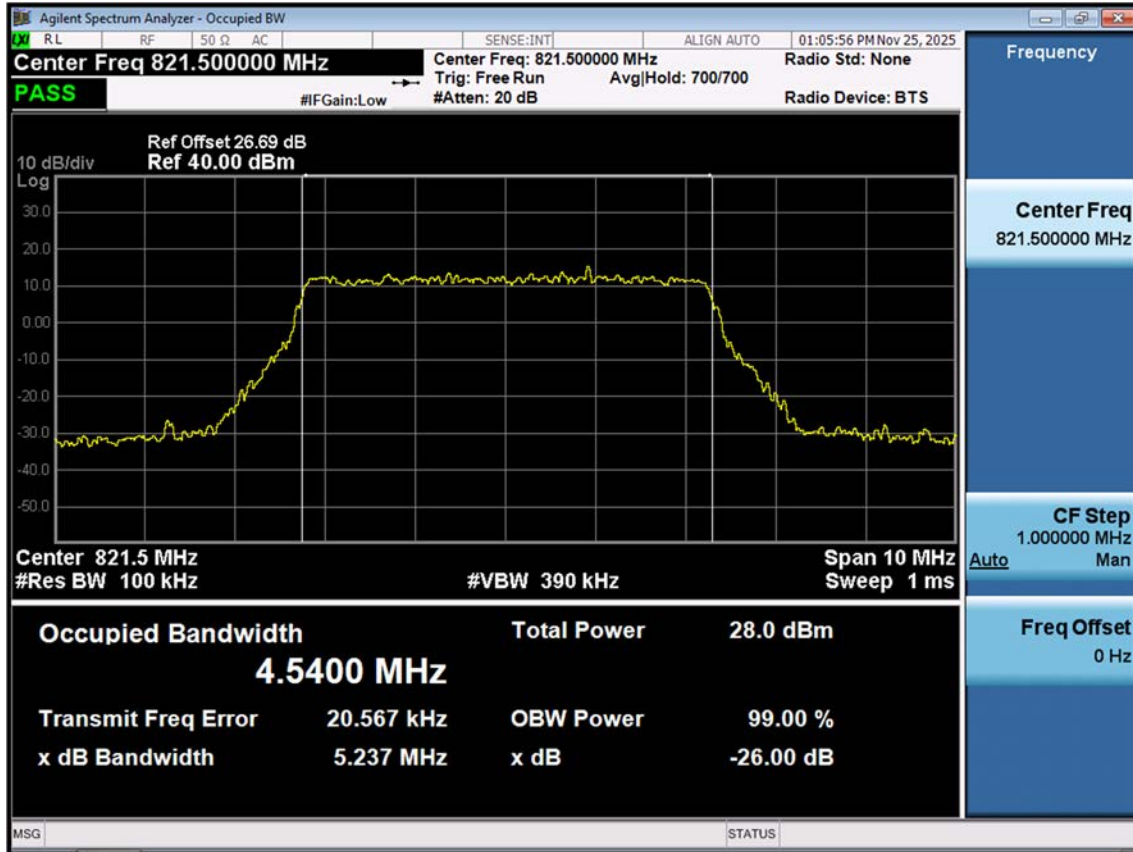
LTE B26_5 M_OBW_Mid_16QAM_FullRB



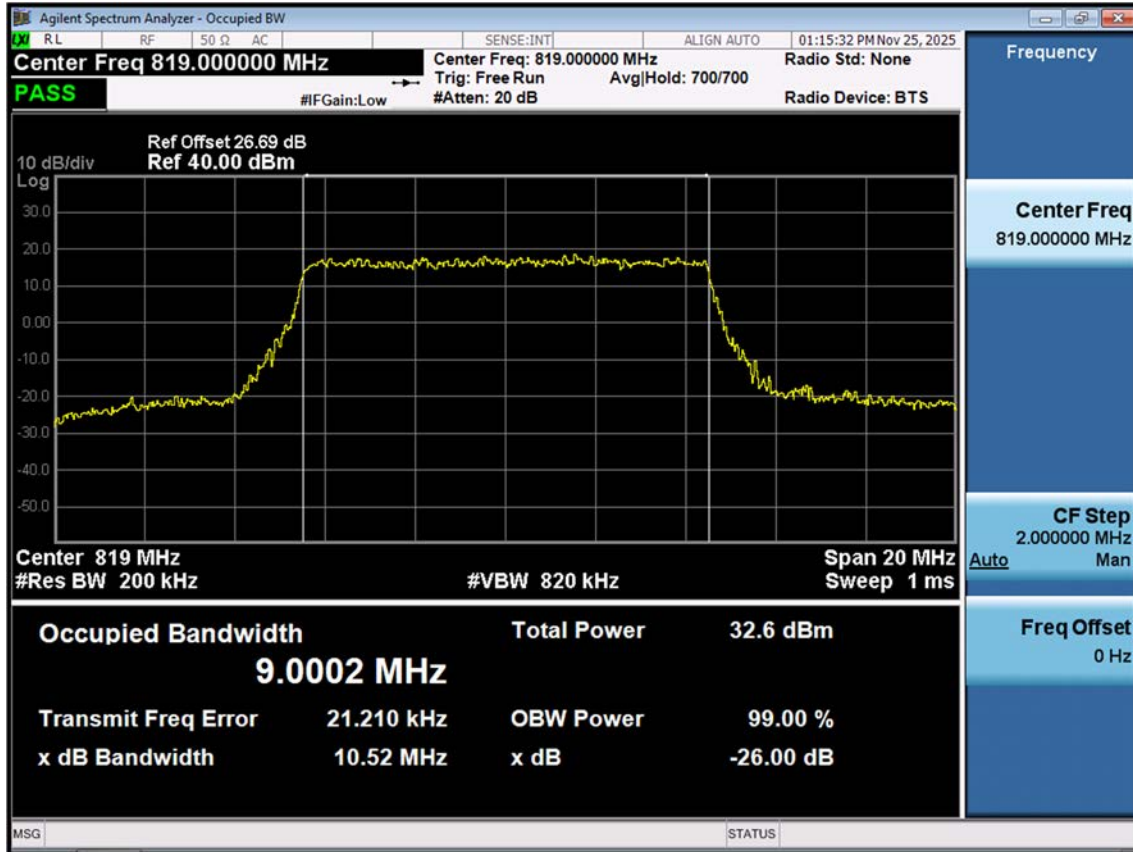
LTE B26_5 M_OBW_Mid_64QAM_FullRB



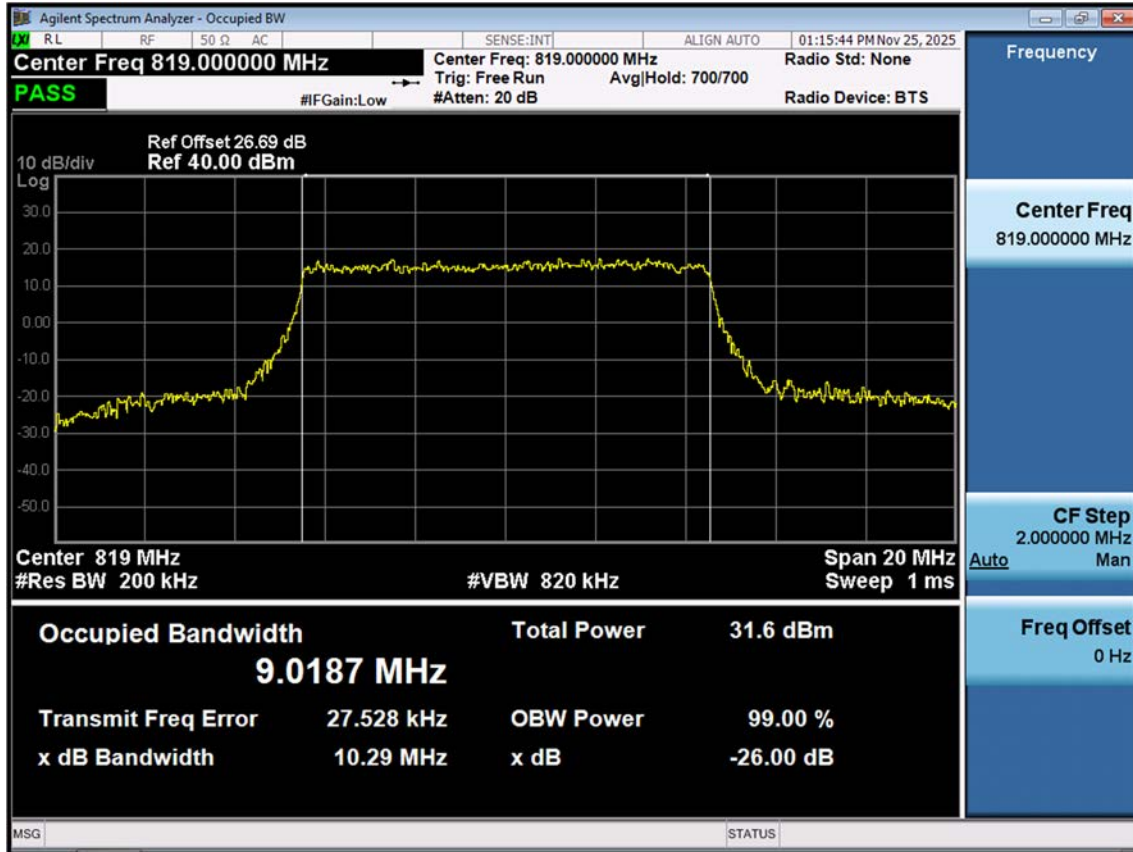
LTE B26_5 M_OBW_Mid_256QAM_FullRB



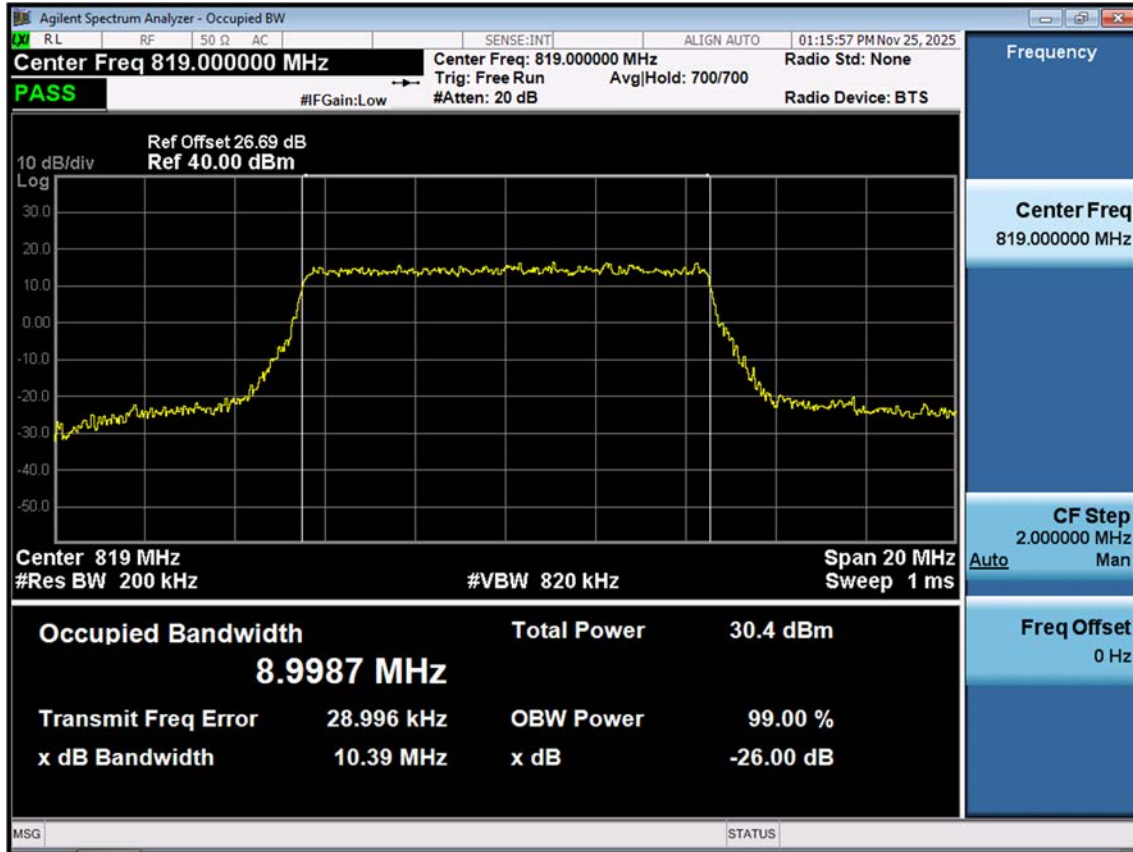
LTE B26_10 M_OBW_Mid_QPSK_FullRB



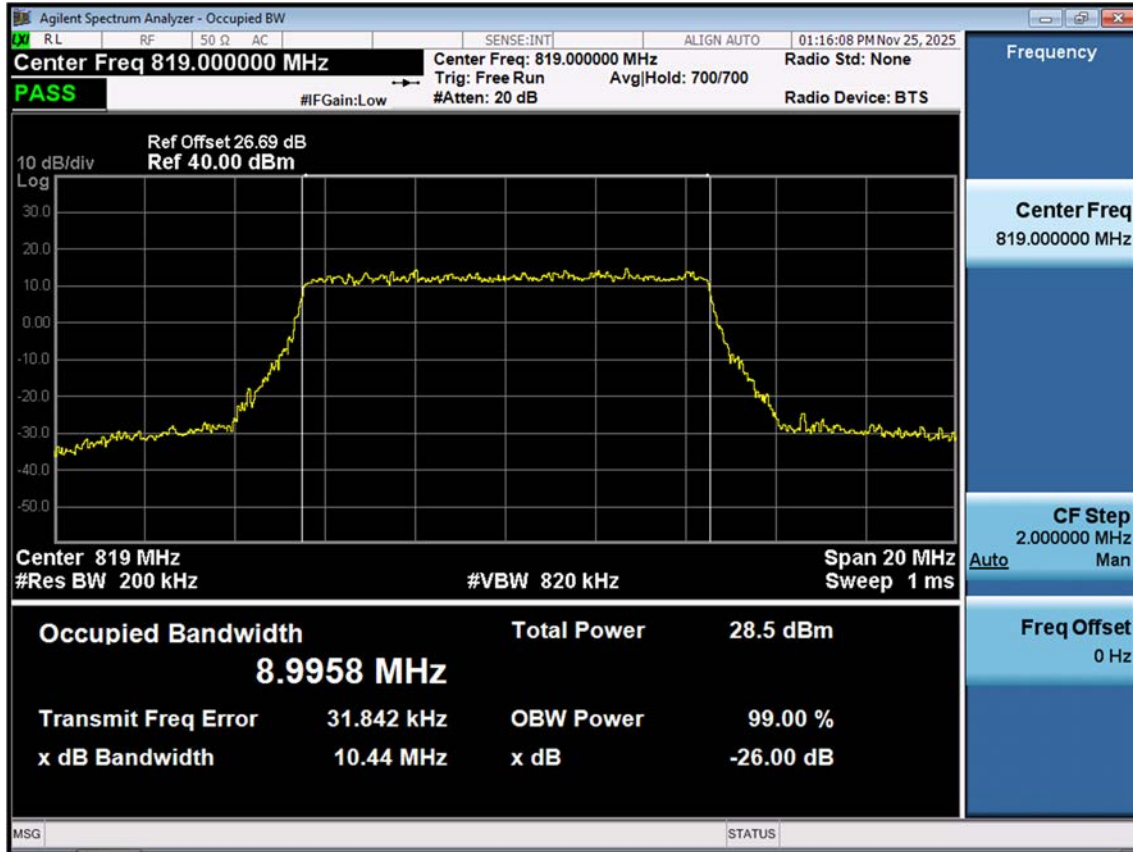
LTE B26_10 M_OBW_Mid_16QAM_FullRB



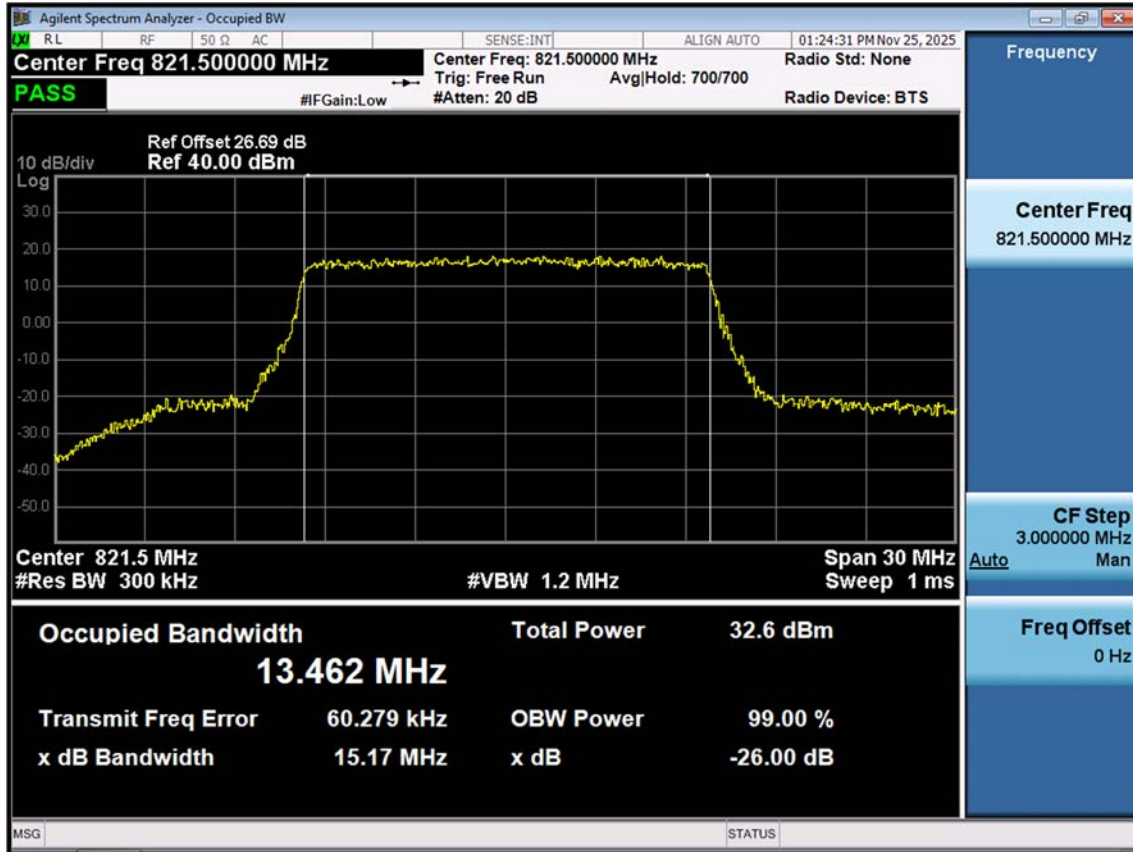
LTE B26_10 M_OBW_Mid_64QAM_FullRB



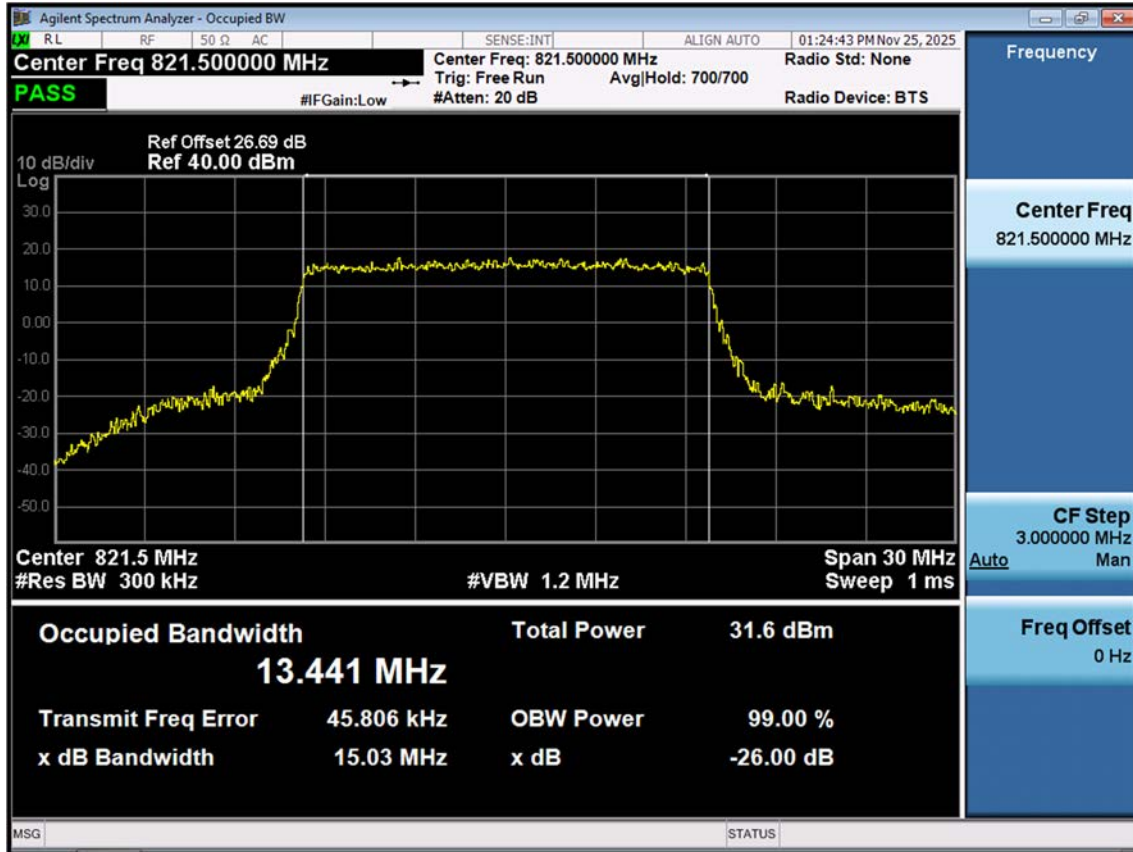
LTE B26_10 M_OBW_Mid_256QAM_FullRB



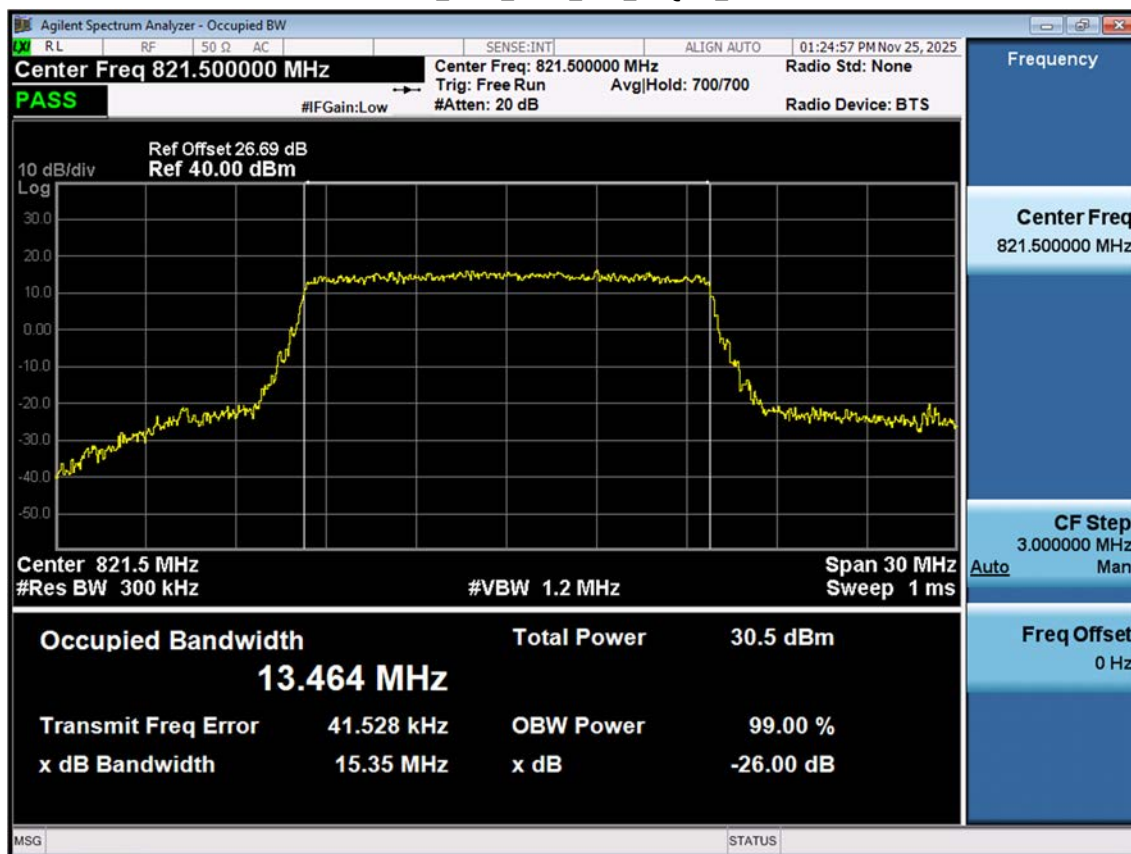
LTE B26_15 M_OBW_Mid_QPSK_FullRB



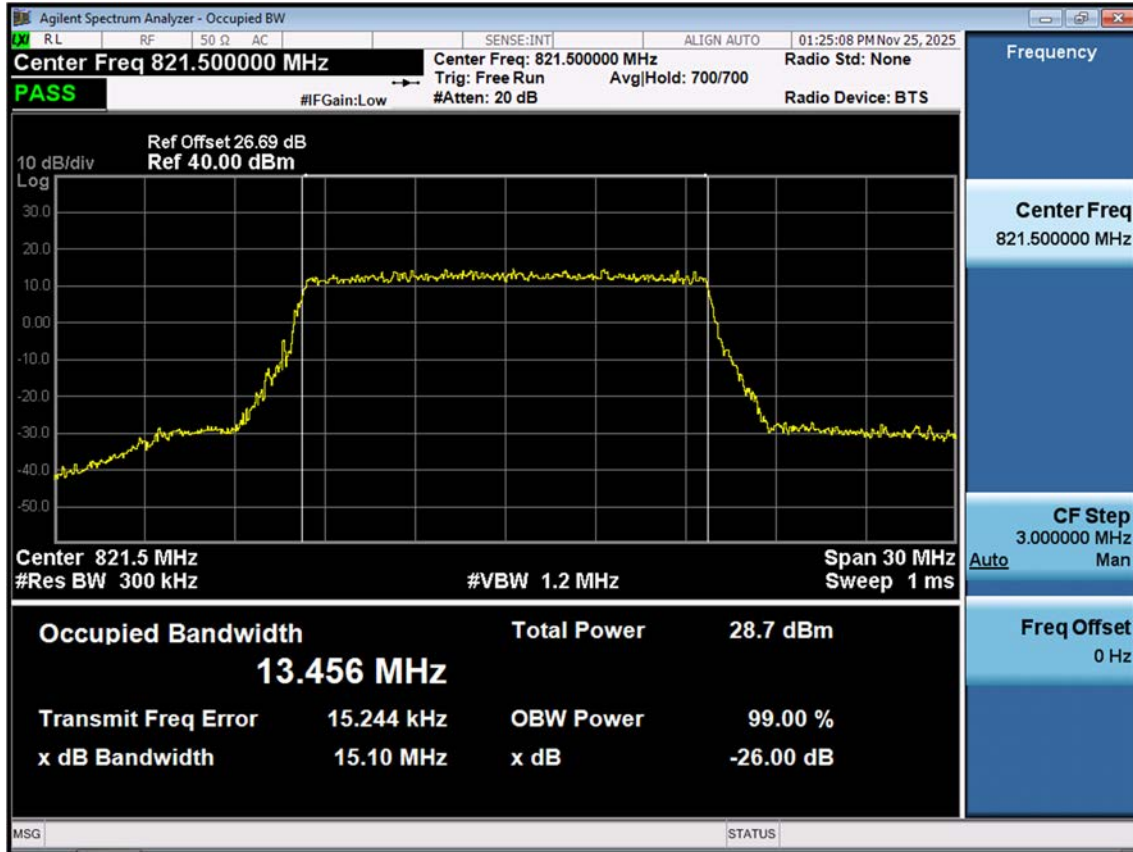
LTE B26_15 M_OBW_Mid_16QAM_FullRB



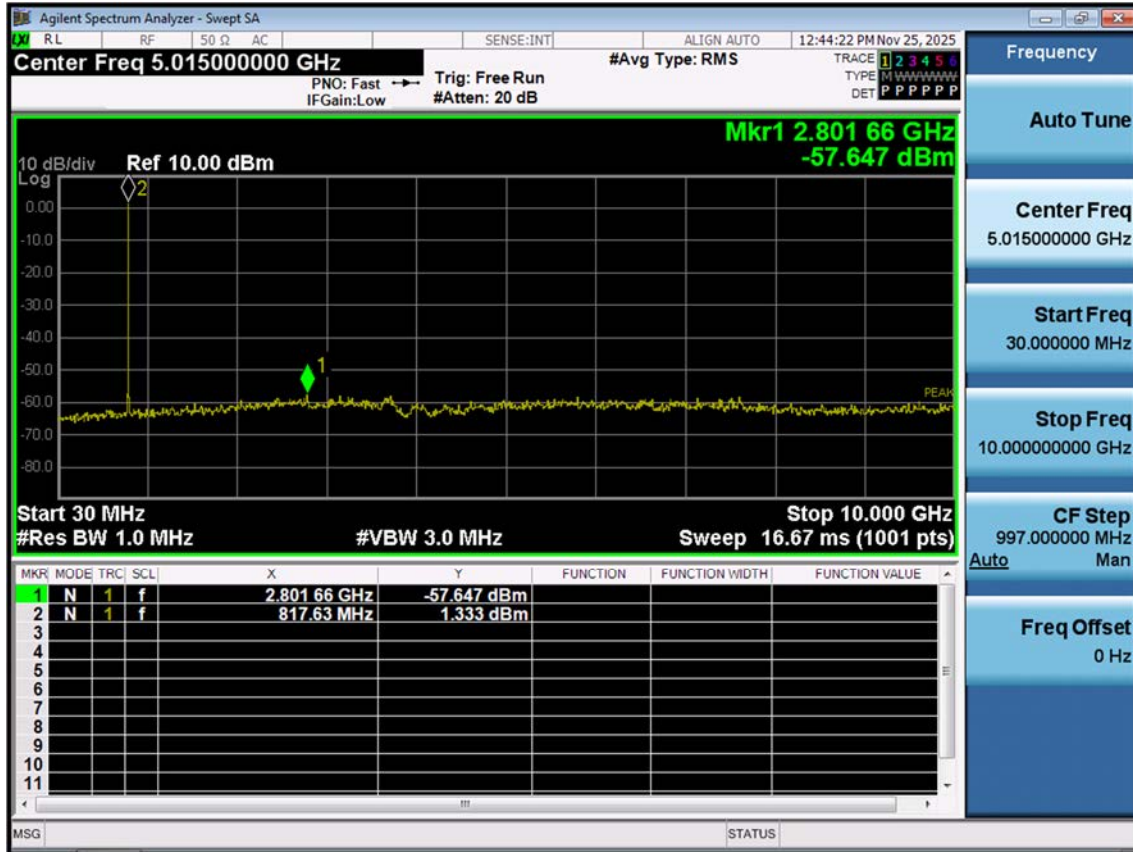
LTE B26_15 M_OBW_Mid_64QAM_FullRB



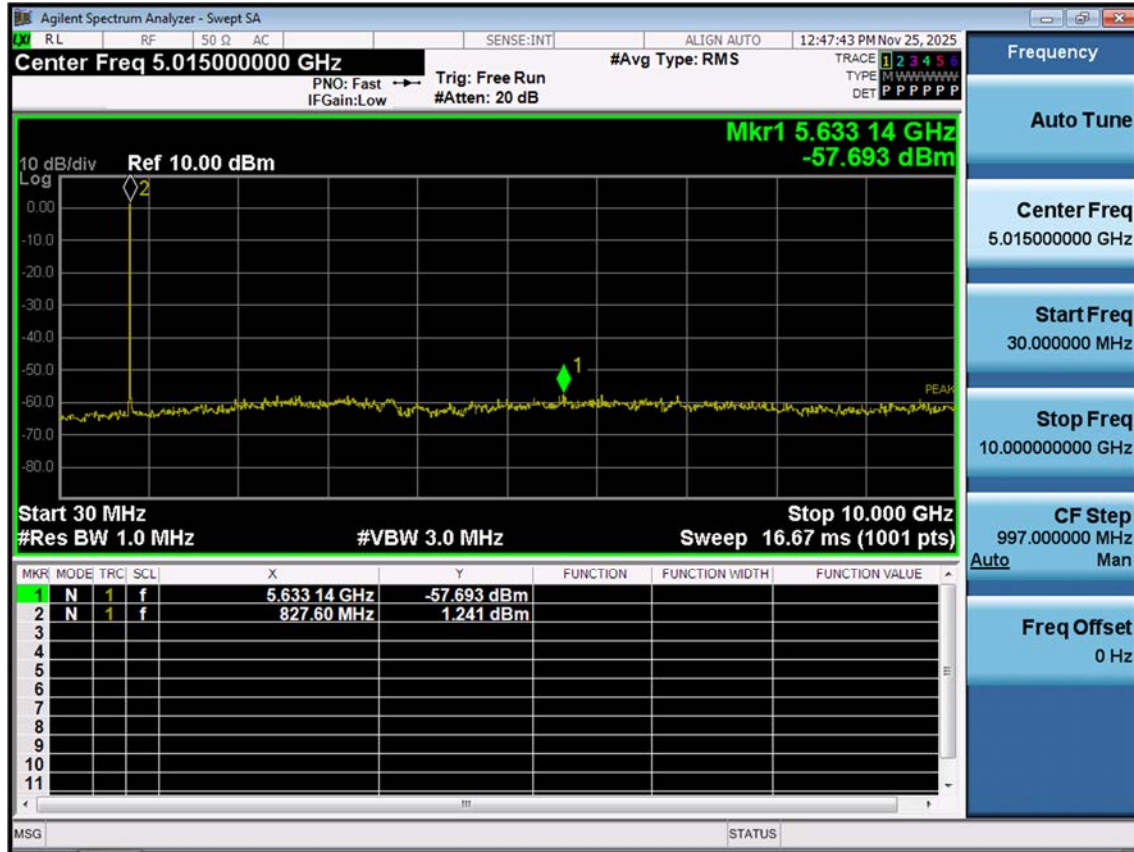
LTE B26_15 M_OBW_Mid_256QAM_FullRB



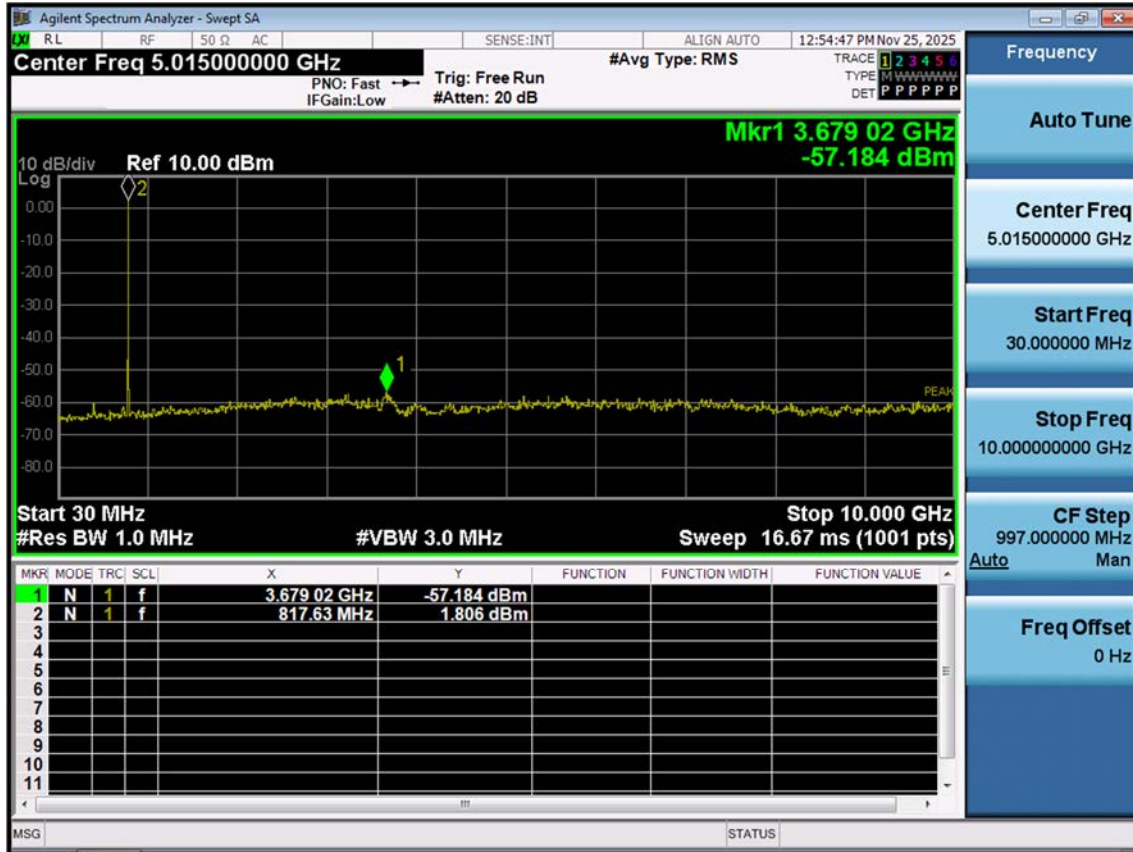
LTE B26_1.4 M_Conducted Spurious Emissions(30 M-10 G)_Low_QPSK_1RB



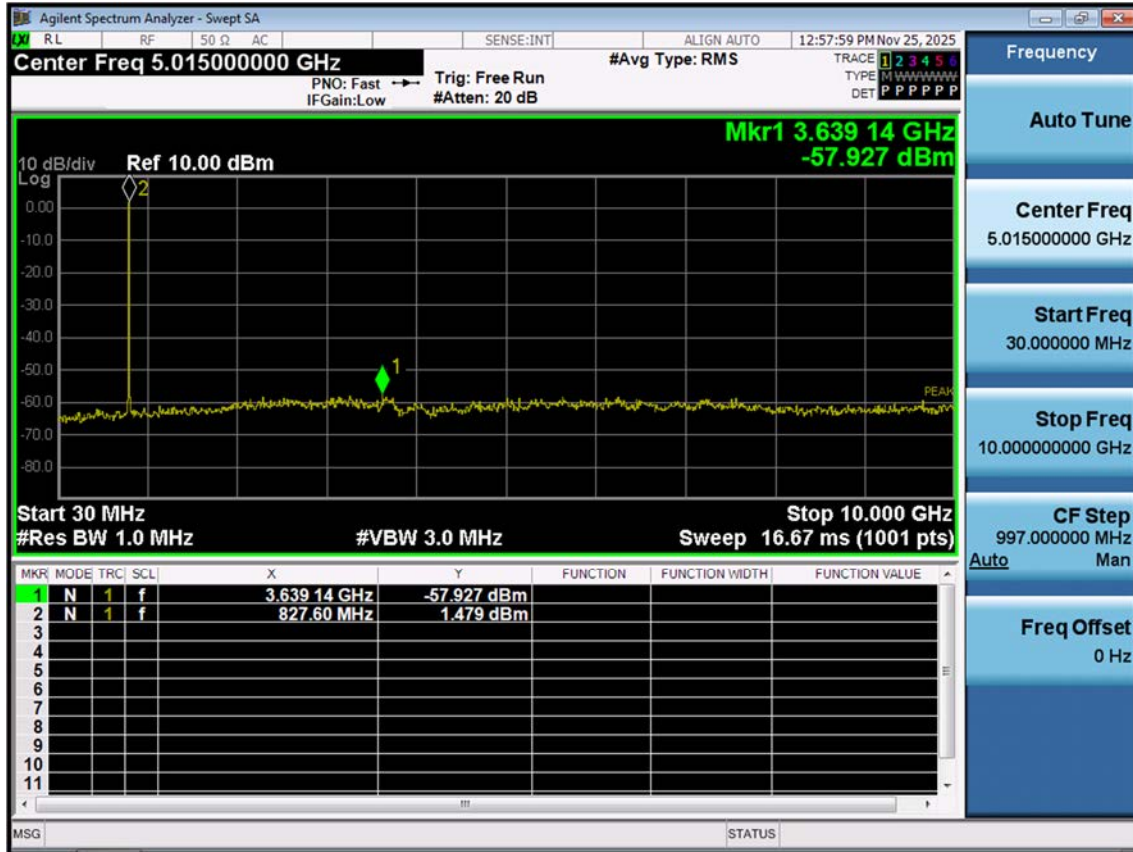
LTE B26_1.4 M_Conducted Spurious Emissions(30 M-10 G)_High_QPSK_1RB



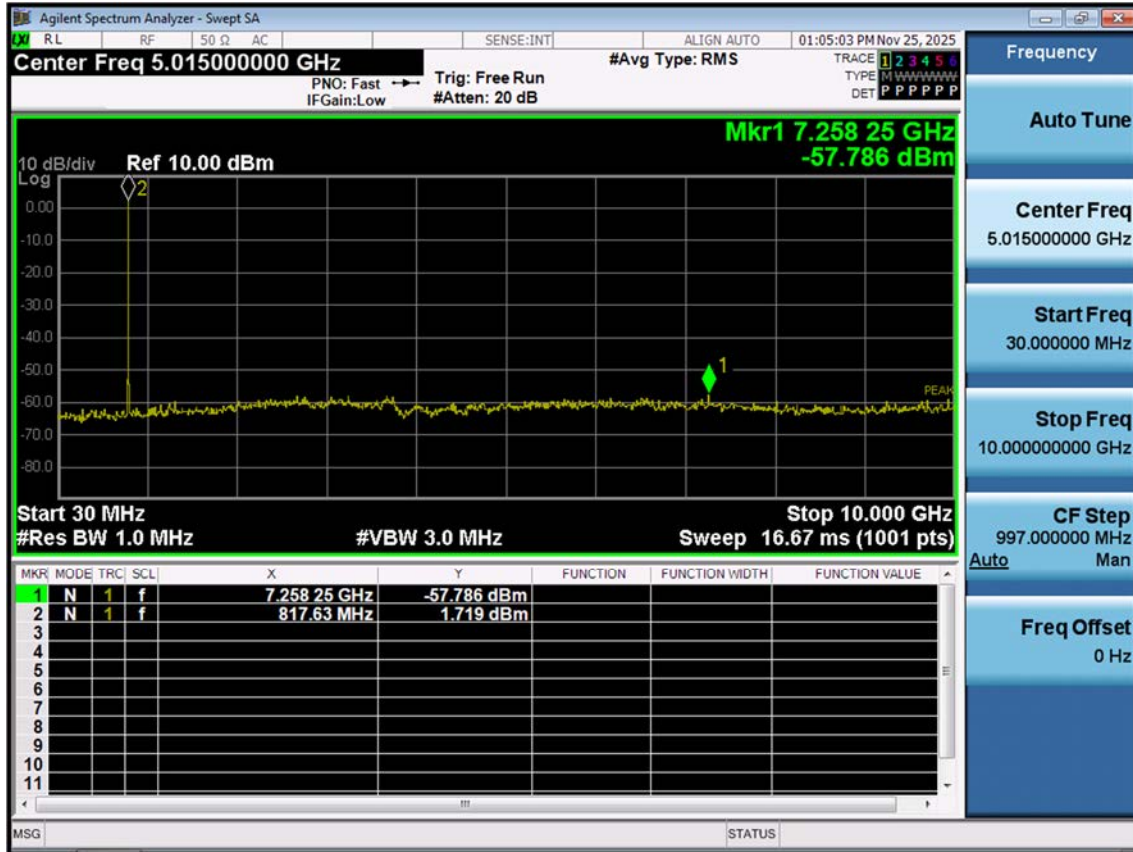
LTE B26_3 M_Conducted Spurious Emissions(30 M-10 G)_Low_QPSK_1RB



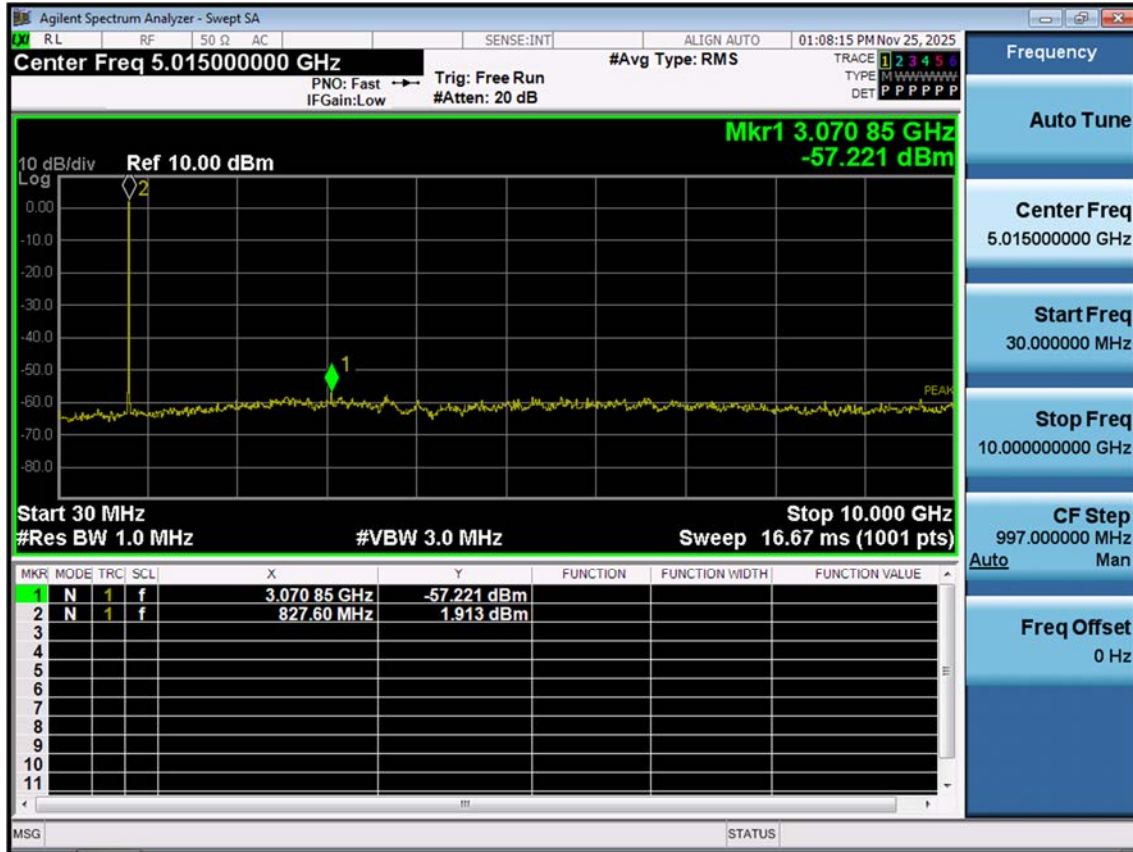
LTE B26_3 M_Conducted Spurious Emissions(30 M-10 G)_High_QPSK_1RB



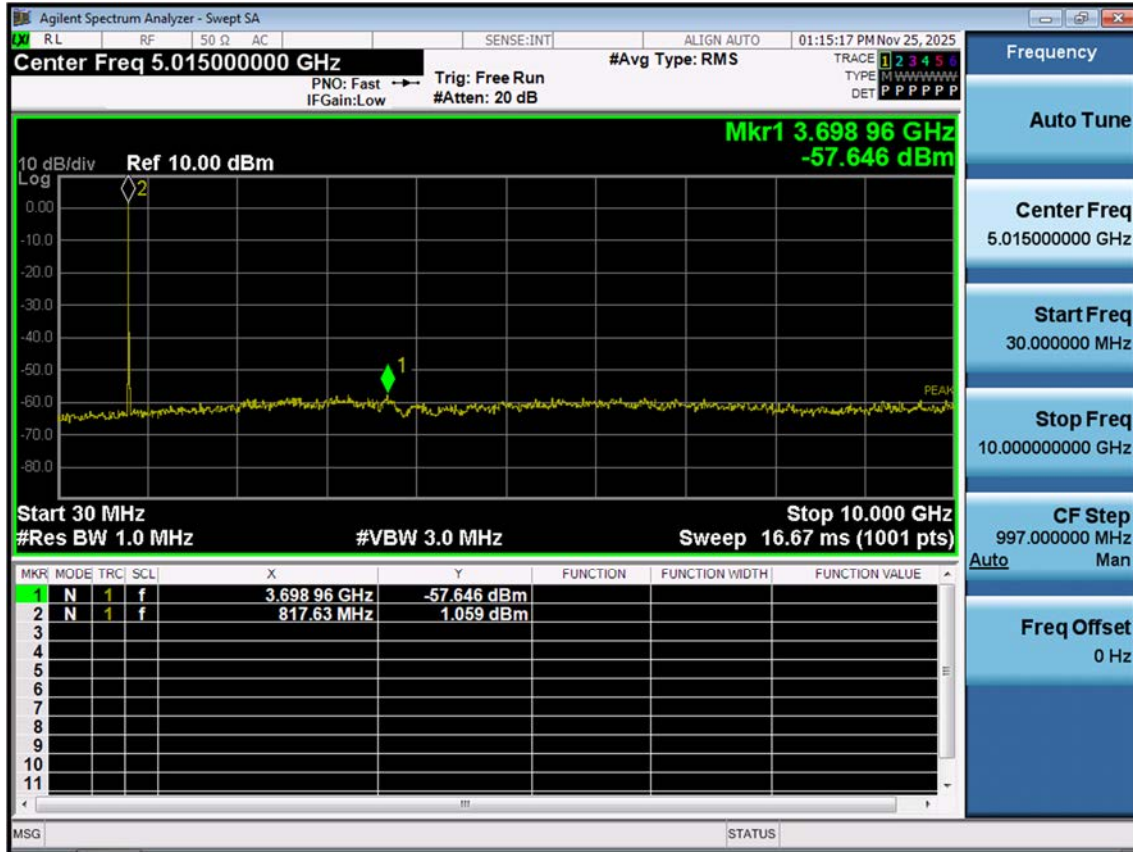
LTE B26_5 M_Conducted Spurious Emissions(30 M-10 G)_Low_QPSK_1RB



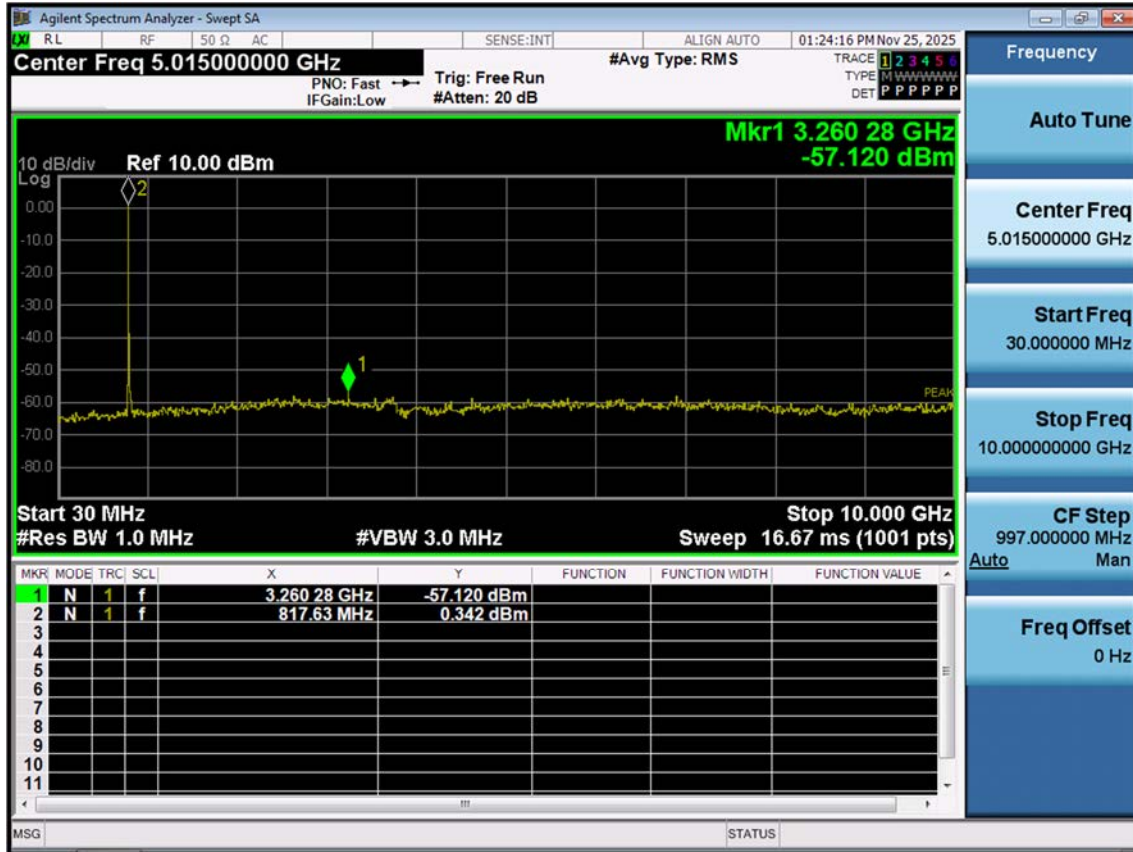
LTE B26_5 M_Conducted Spurious Emissions(30 M-10 G)_High_QPSK_1RB



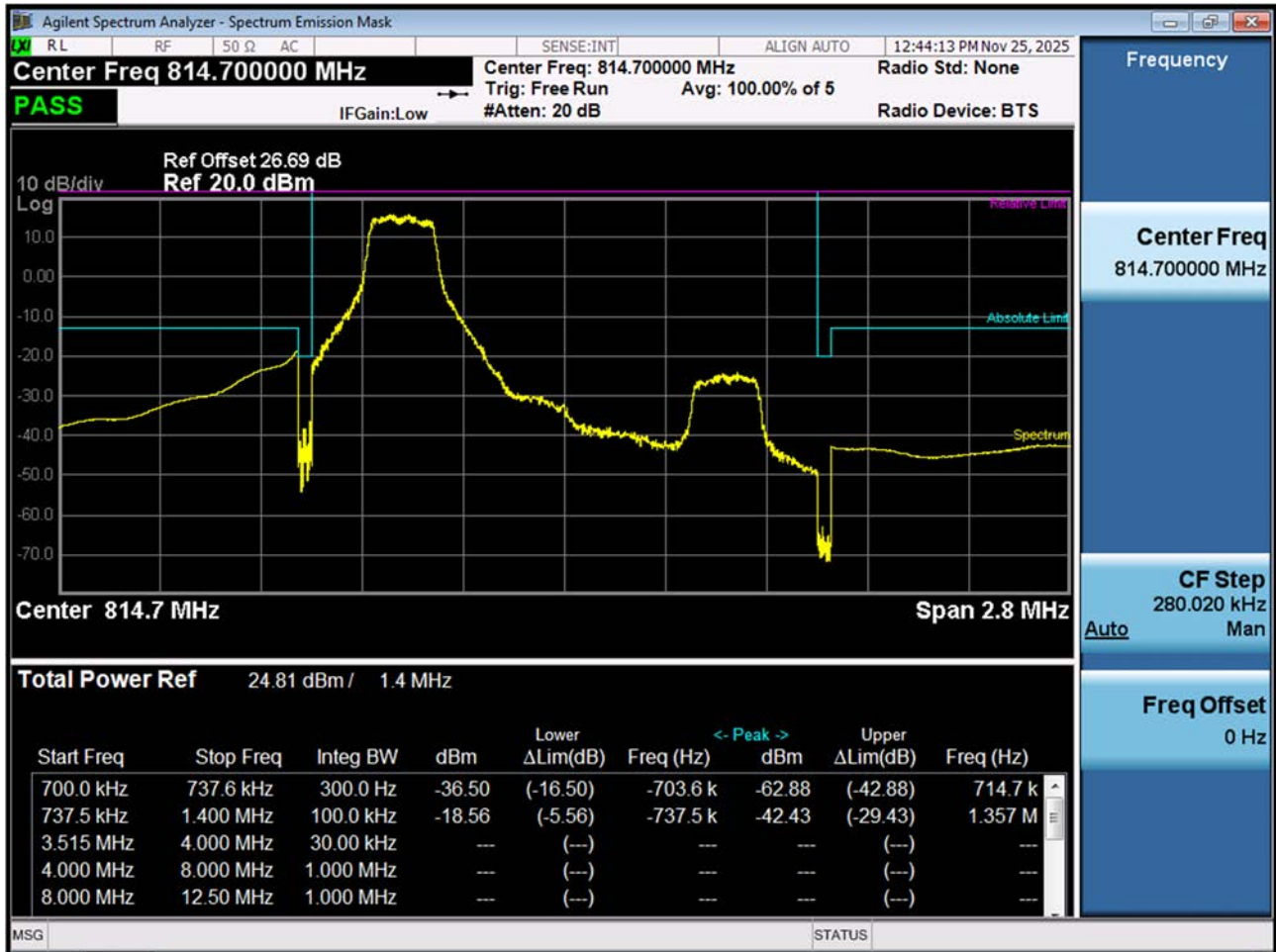
LTE B26_10 M_Conducted Spurious Emissions(30 M-10 G)_Low_QPSK_1RB



LTE B26_15 M_Conducted Spurious Emissions(30 M-10 G)_Low_QPSK_1RB



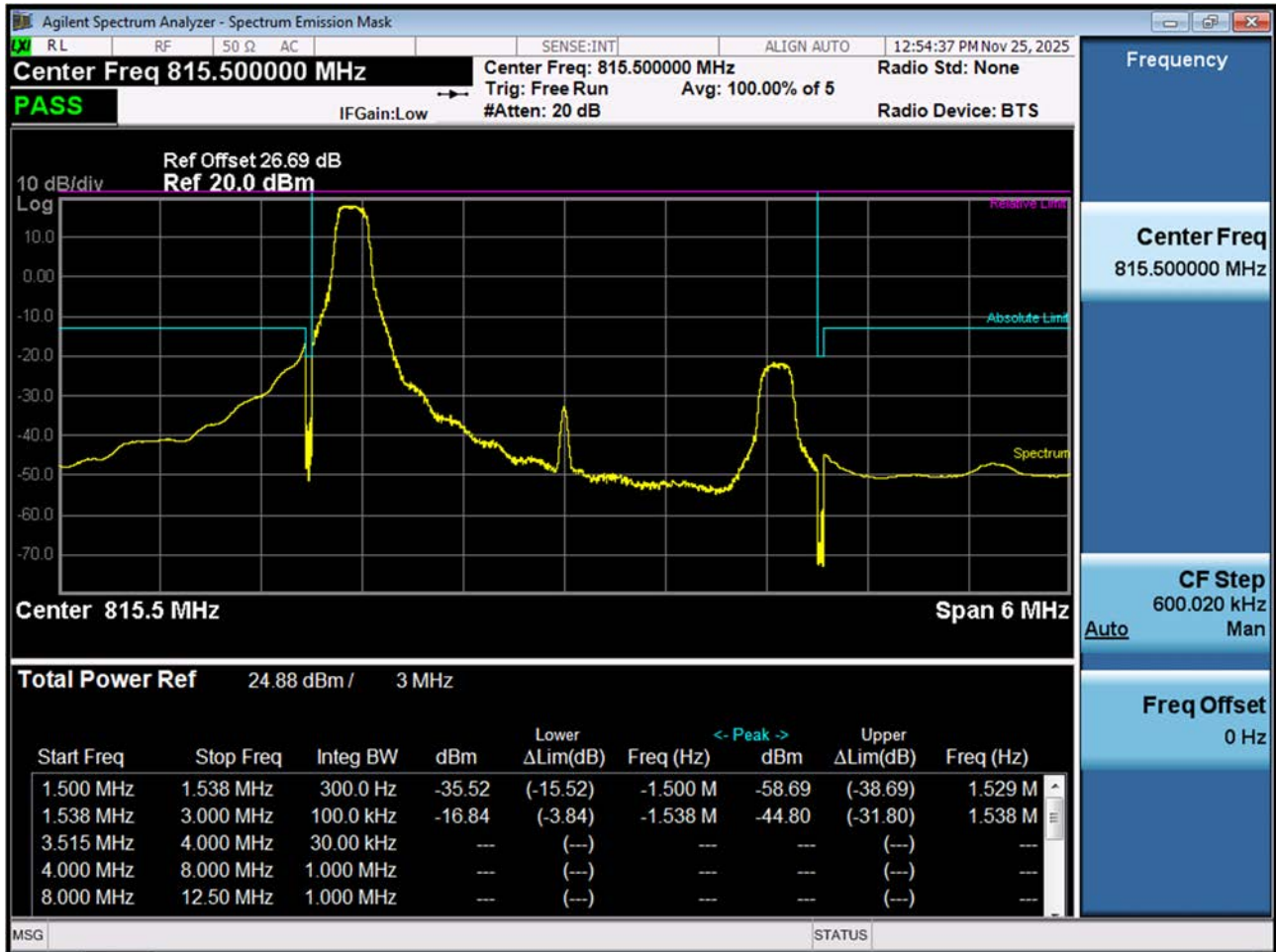
BAND 26. Lower Channel Edge Plot (1.4 M BW Ch.26697 QPSK RB 1, Offset 0)



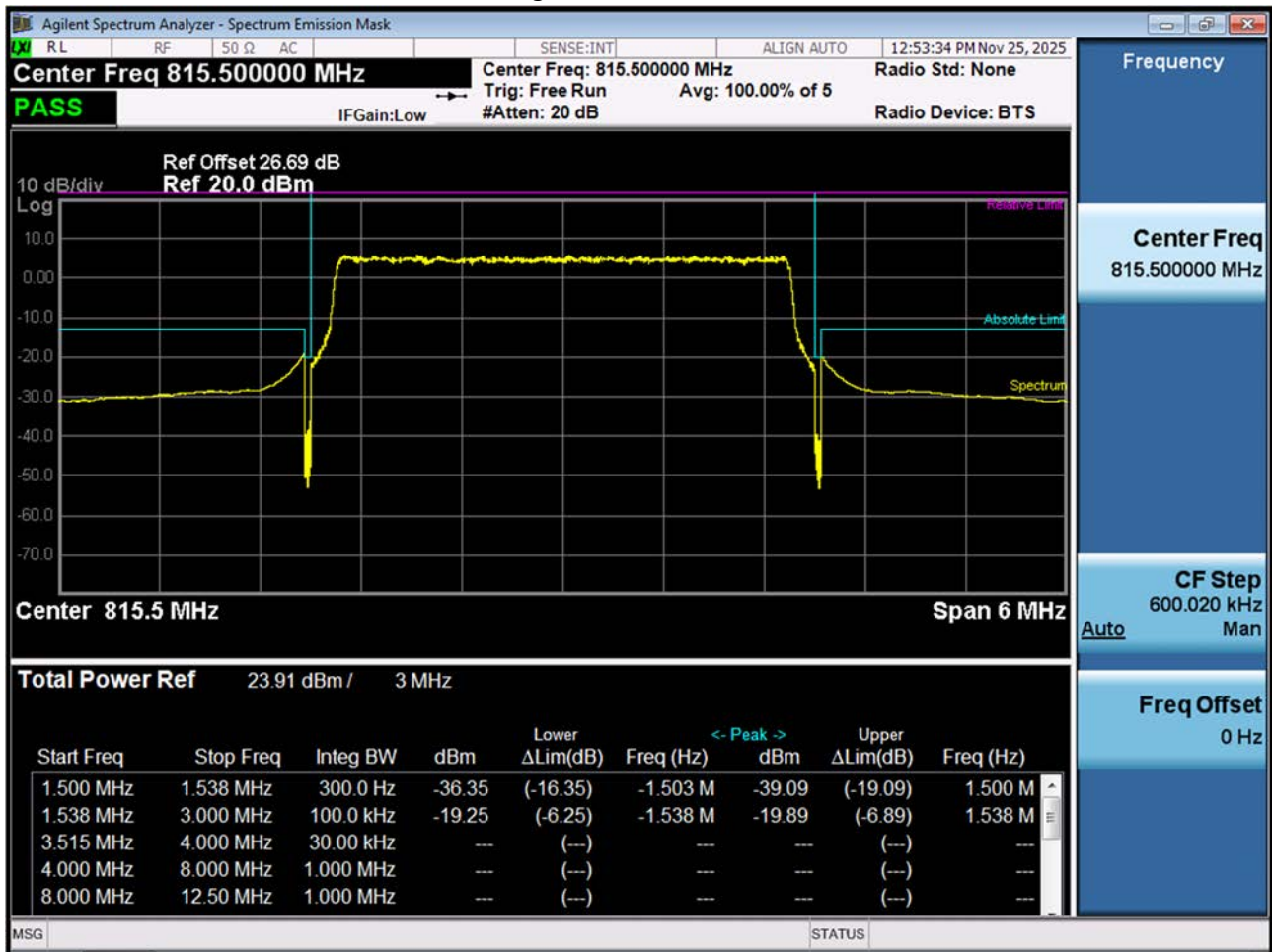
BAND 26. Lower Channel Edge Plot (1.4 M BW Ch.26697 QPSK_RB6_Offset 0)



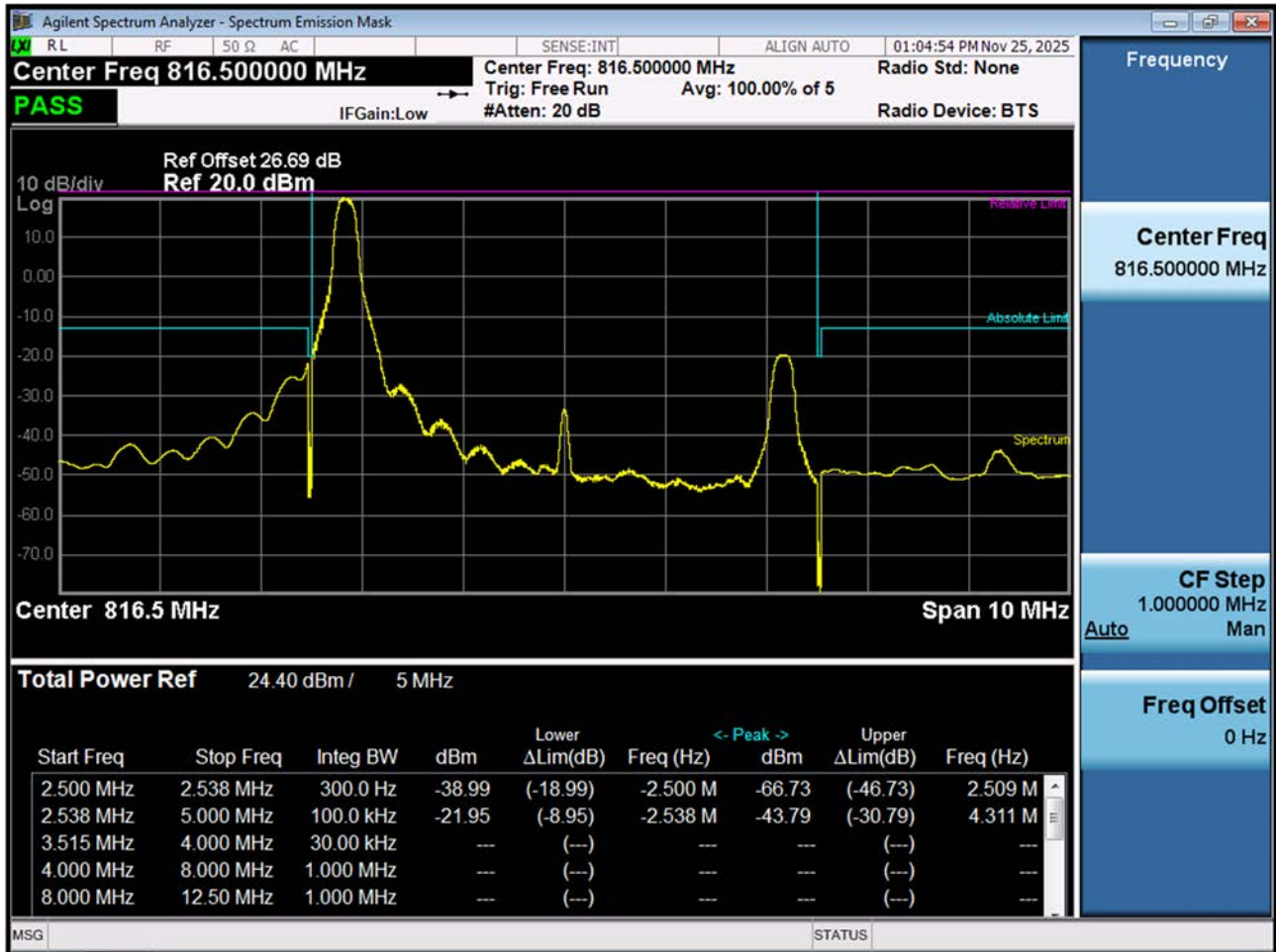
BAND 26. Lower Channel Edge Plot (3 M BW Ch.26705 QPSK RB 1, Offset 0)



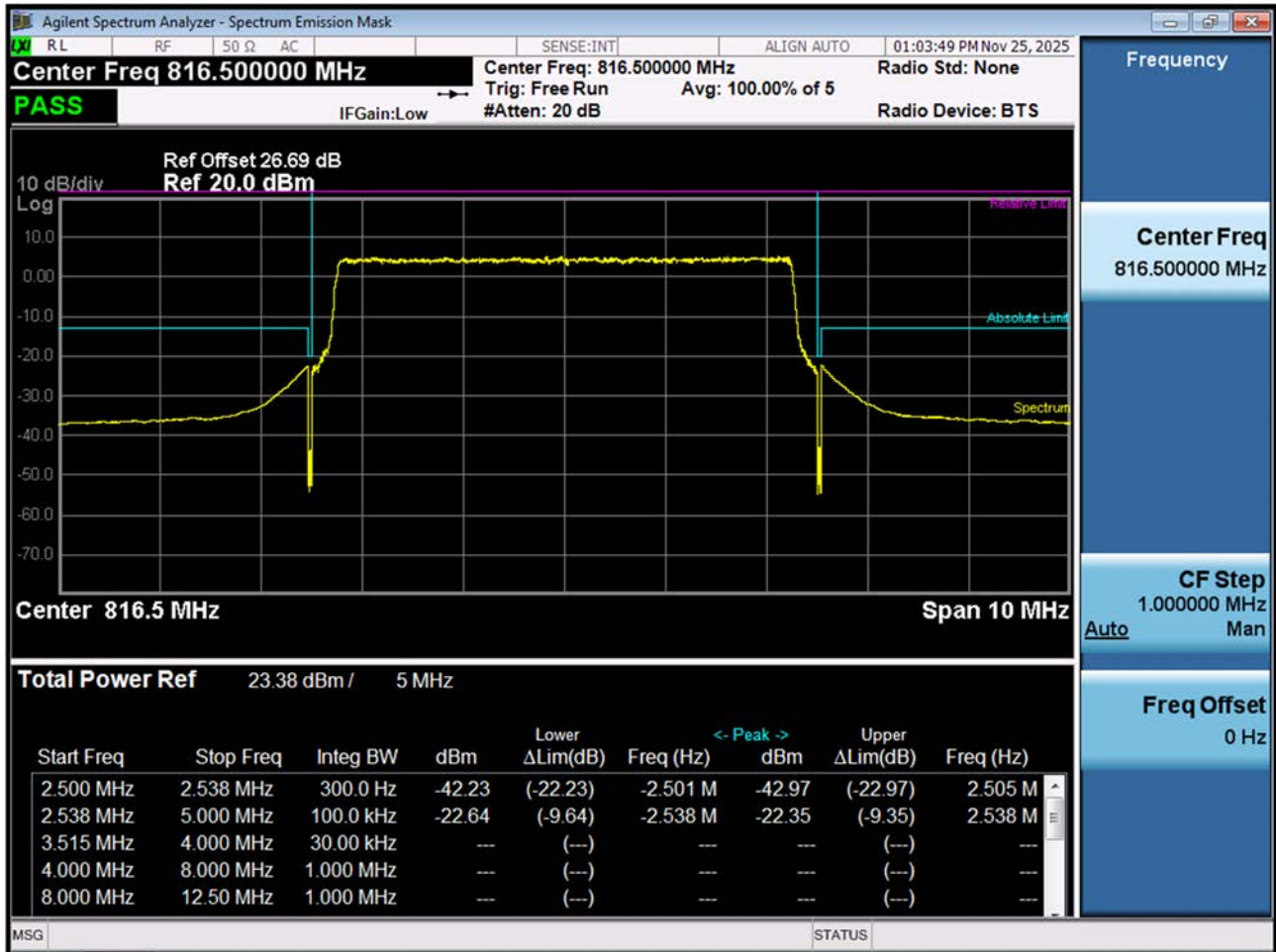
BAND 26. Lower Channel Edge Plot (3 M BW Ch.26705 QPSK_RB15_Offset 0)



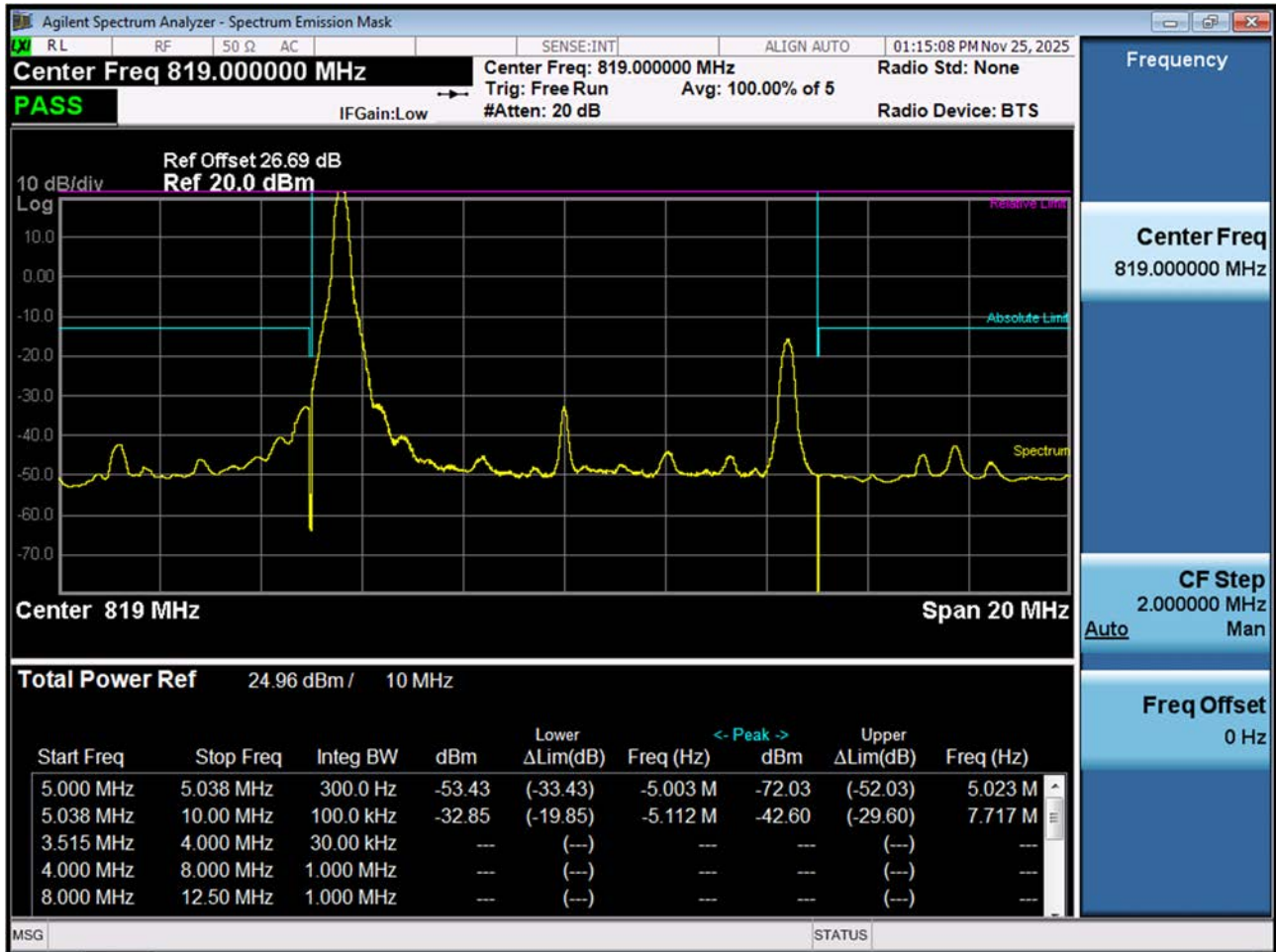
BAND 26. Lower Channel Edge Plot (5 M BW Ch.26715 QPSK RB 1, Offset 0)



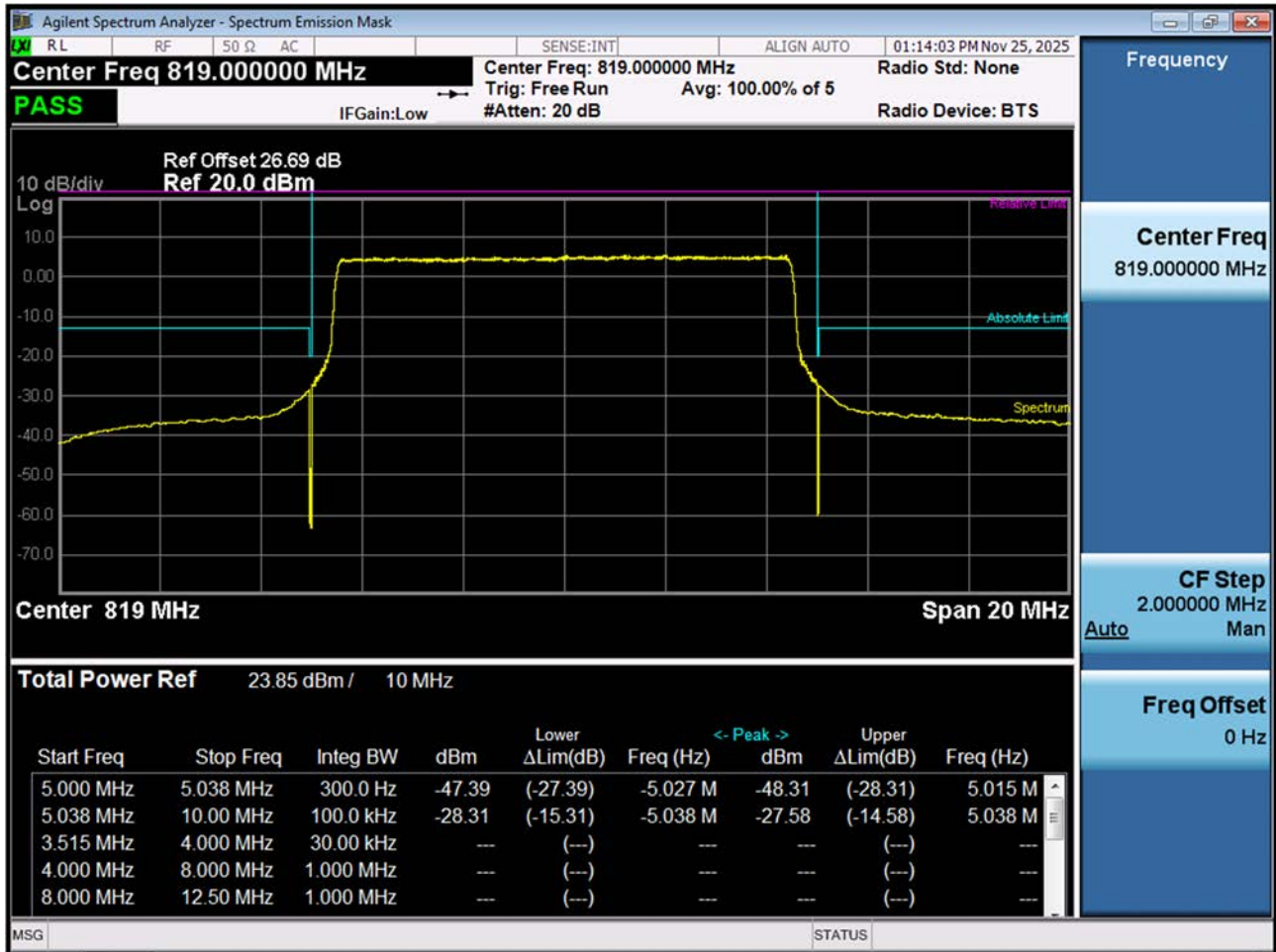
BAND 26. Lower Channel Edge Plot (5 M BW Ch.26715 QPSK_RB25_Offset 0)



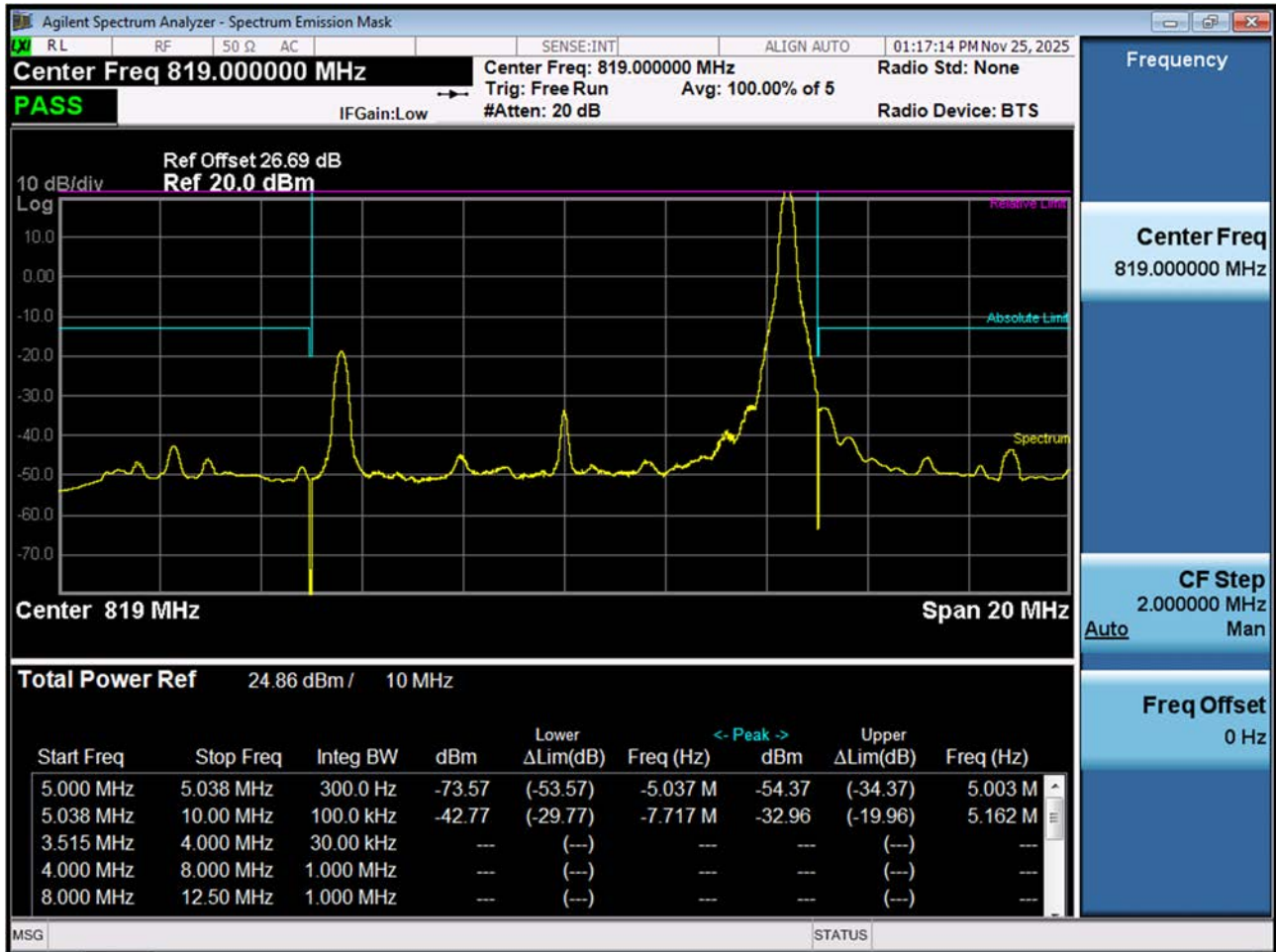
BAND 26. Low Channel Edge Plot (10 M BW Ch.26740 QPSK RB 1, Offset 0)



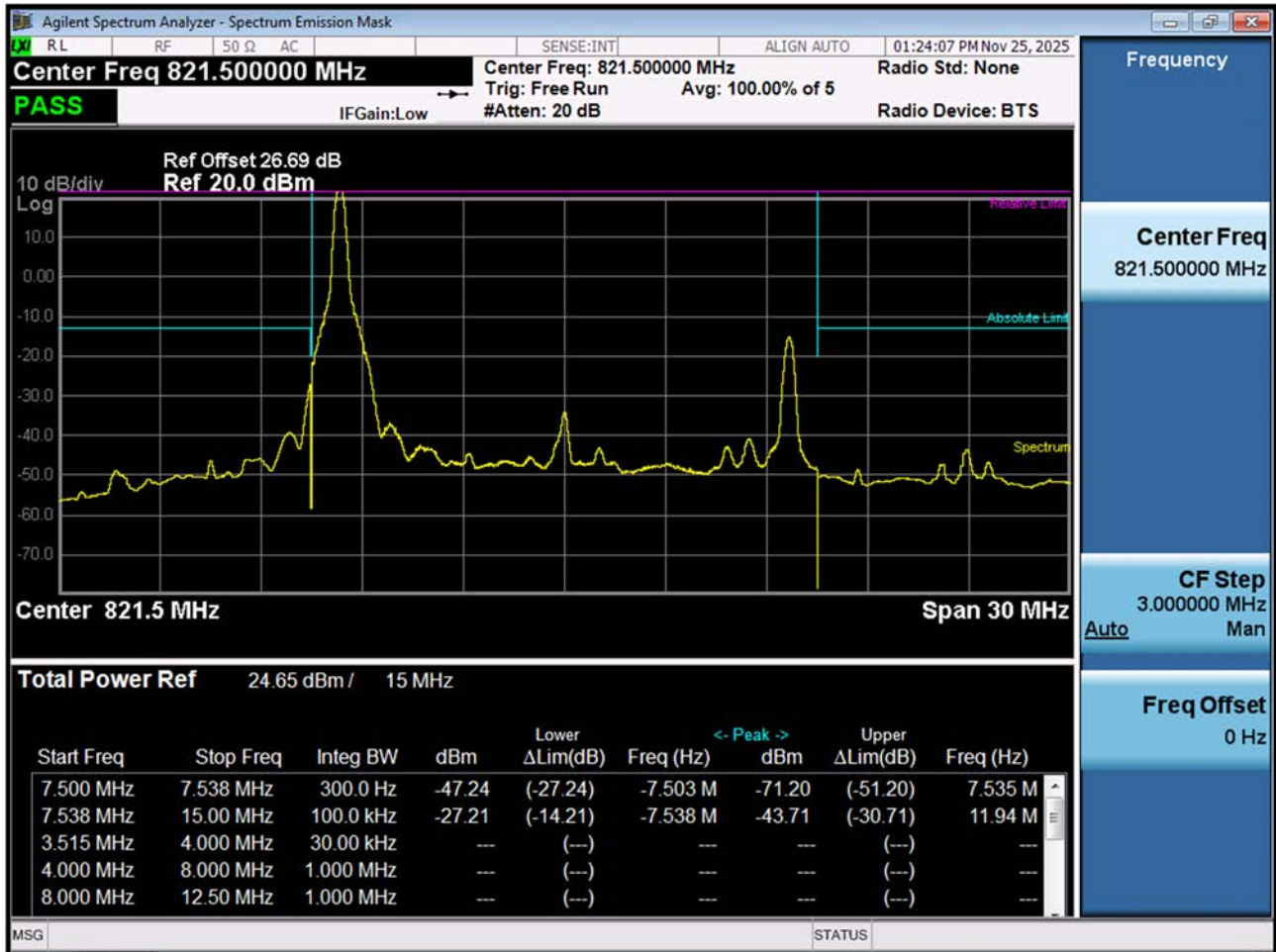
BAND 26. Low Channel Edge Plot (10 M BW Ch.26740 QPSK_RB50_Offset 0)



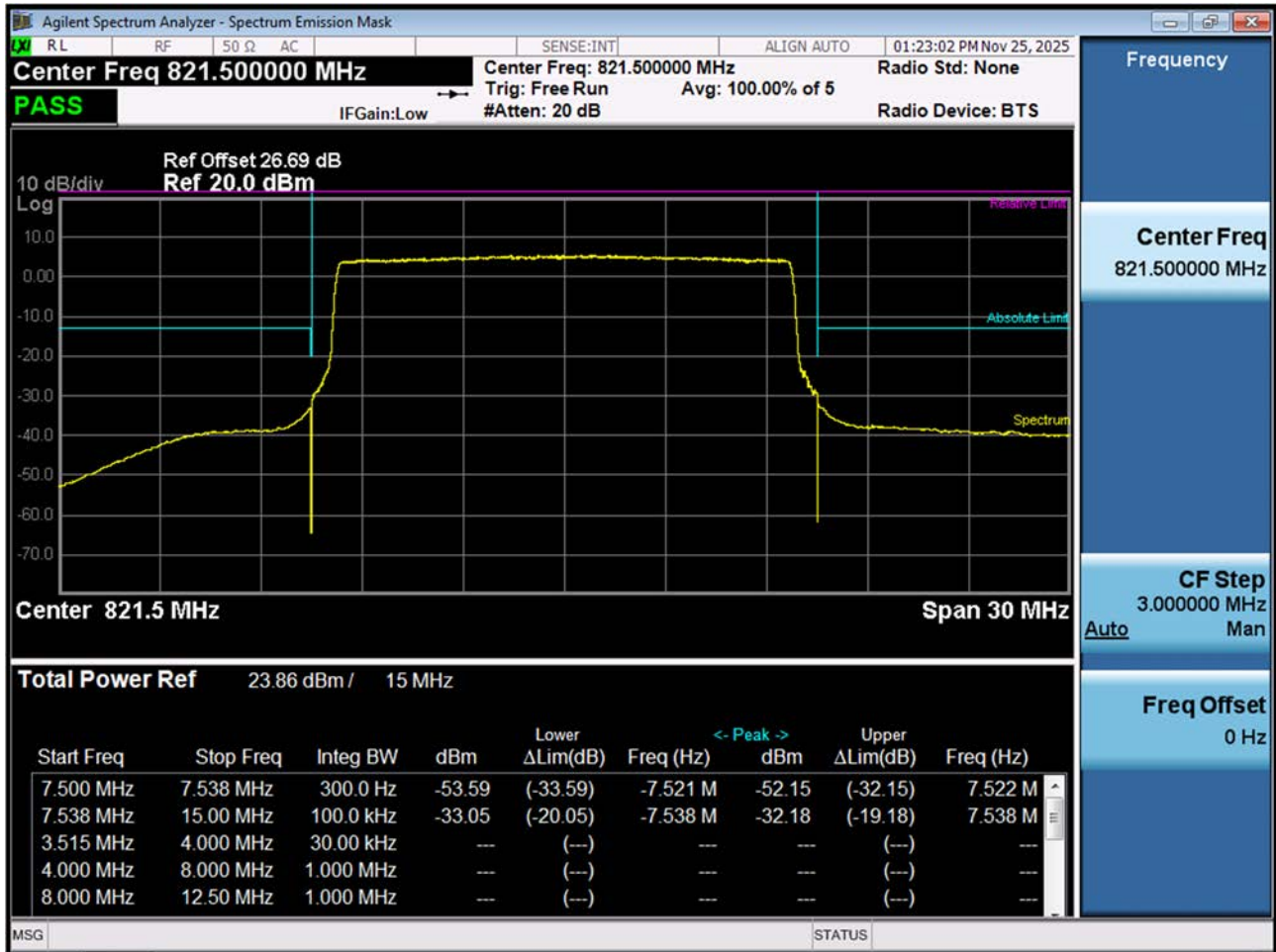
BAND 26. Mid Channel Edge Plot (10 M BW Ch. 26740 QPSK_RB1_Offset 49)



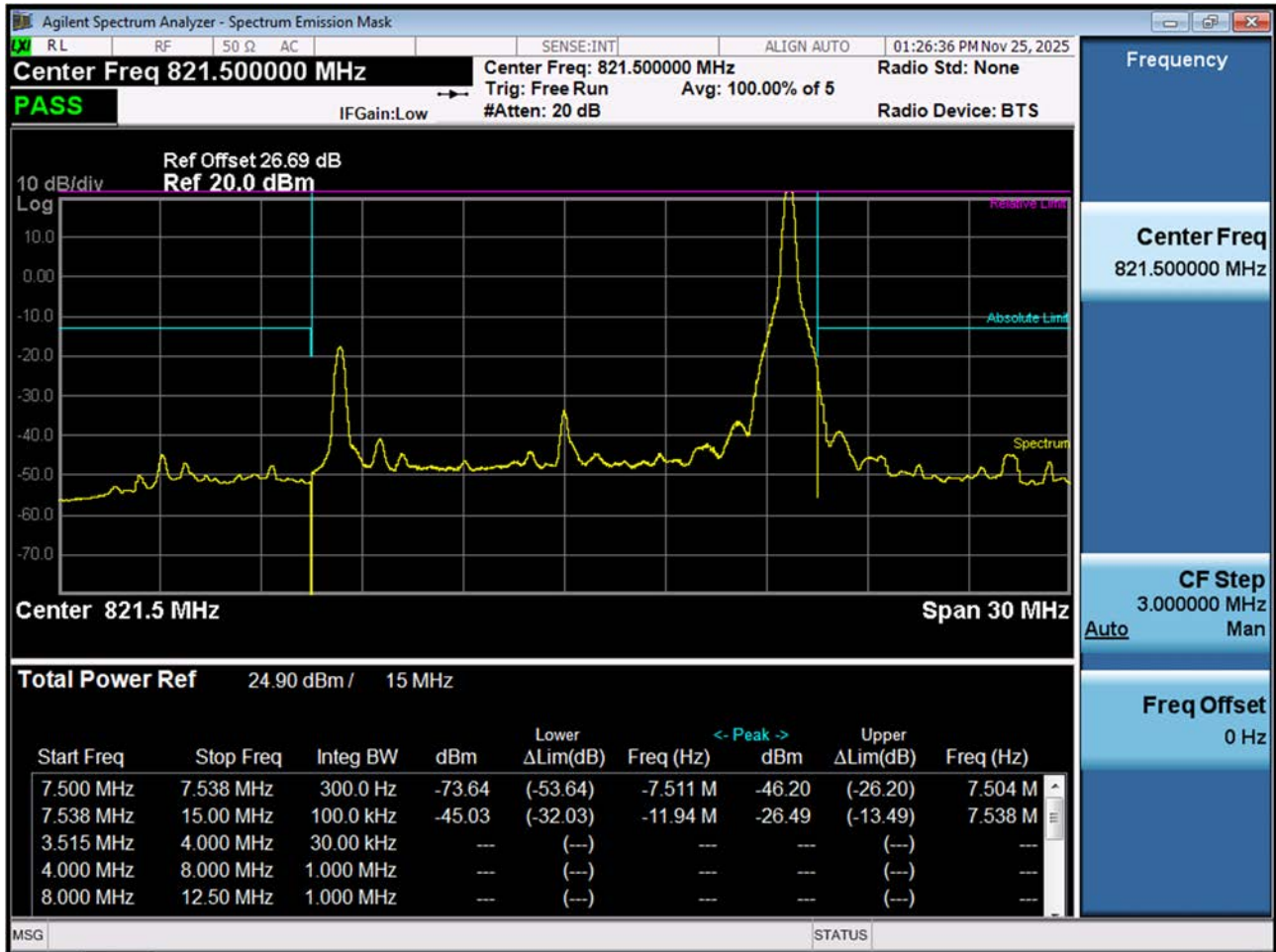
BAND 26. Low Channel Edge Plot (15 M BW Ch.26765 QPSK RB 1, Offset 0)



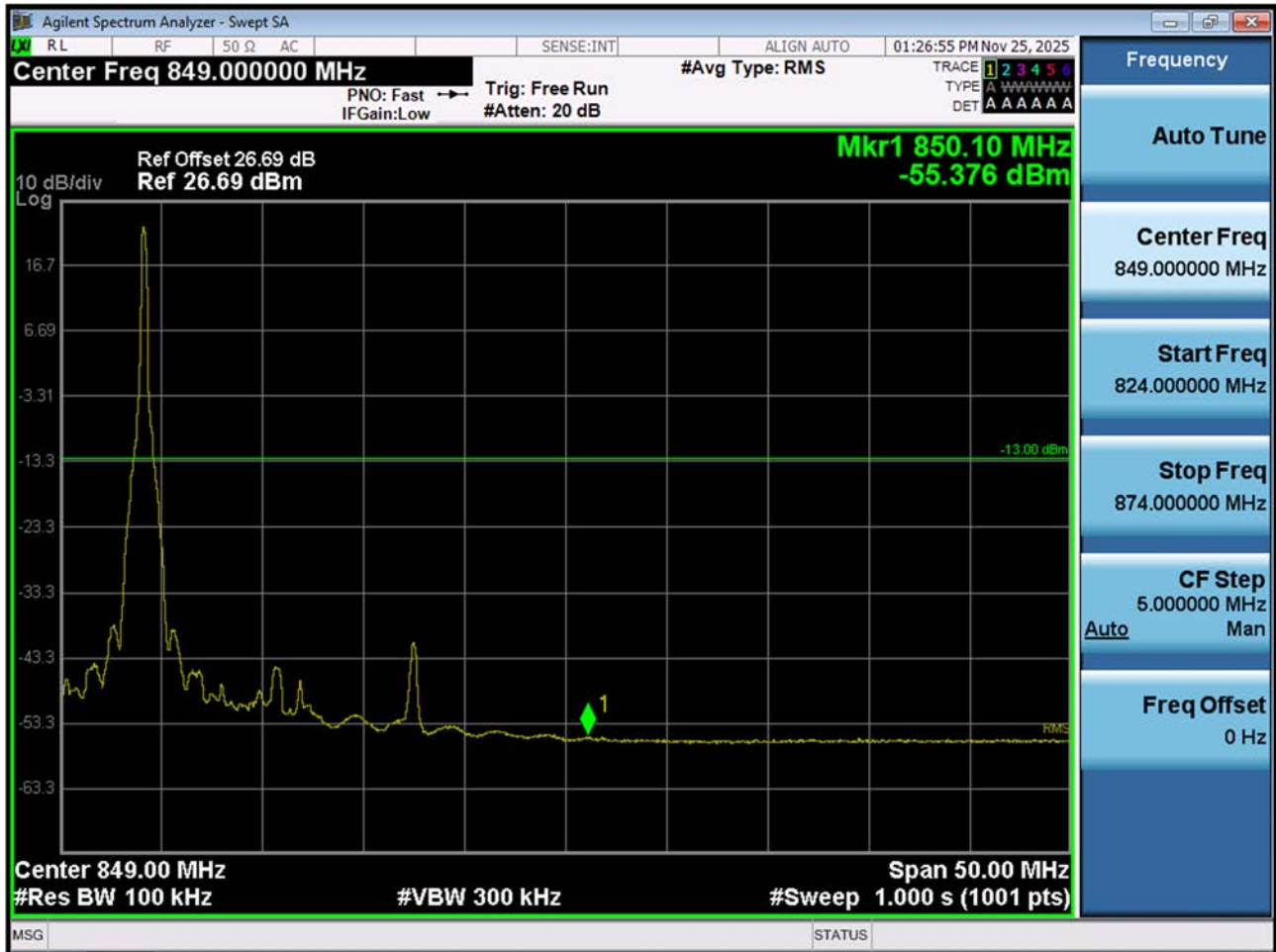
BAND 26. Low Channel Edge Plot (15 M BW Ch.26765 QPSK RB 75, Offset0)



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



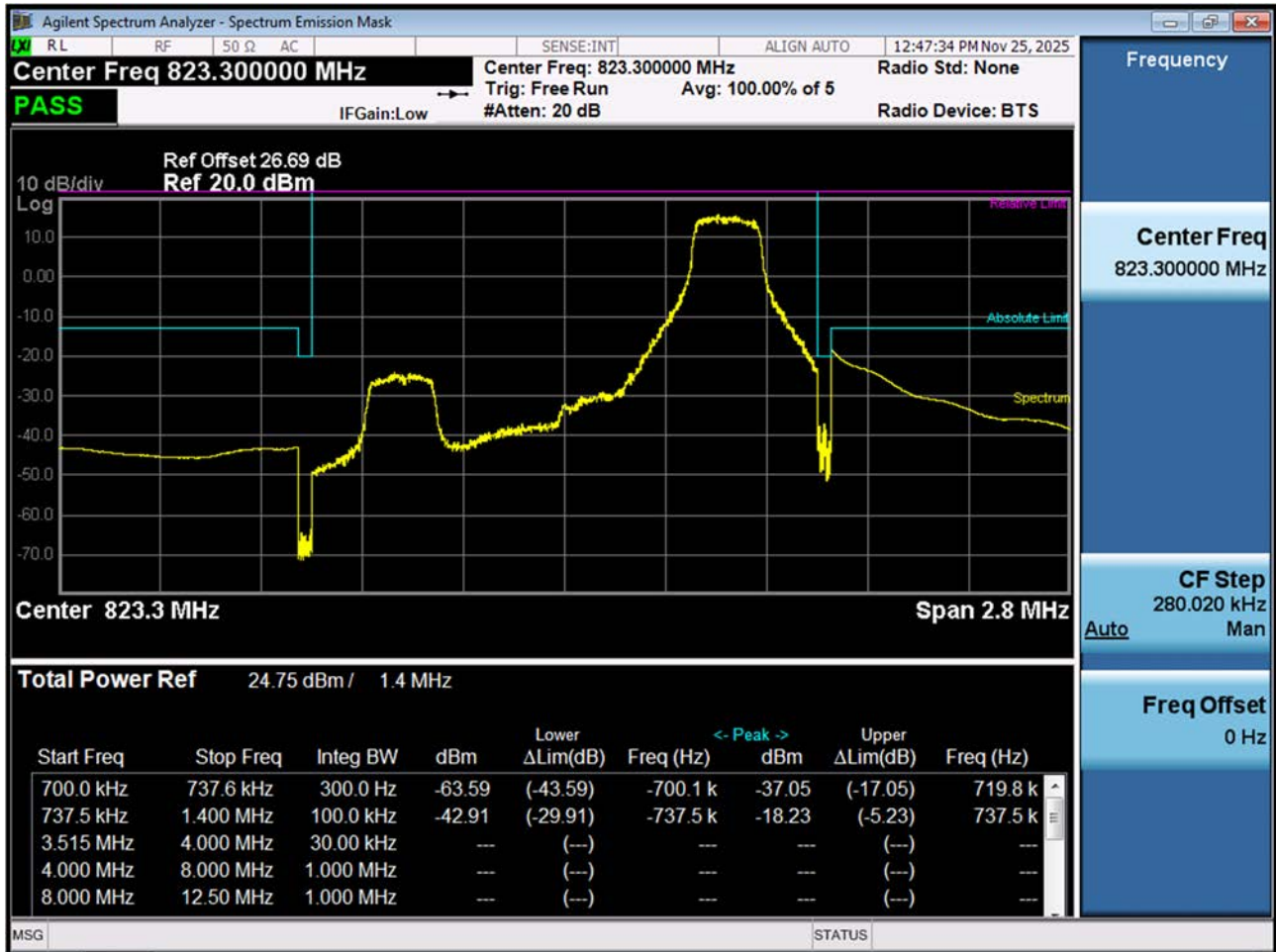
BAND 26. Mid Band Edge Plot (15 M BW Ch.26765 QPSK RB 1, Offset74)



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



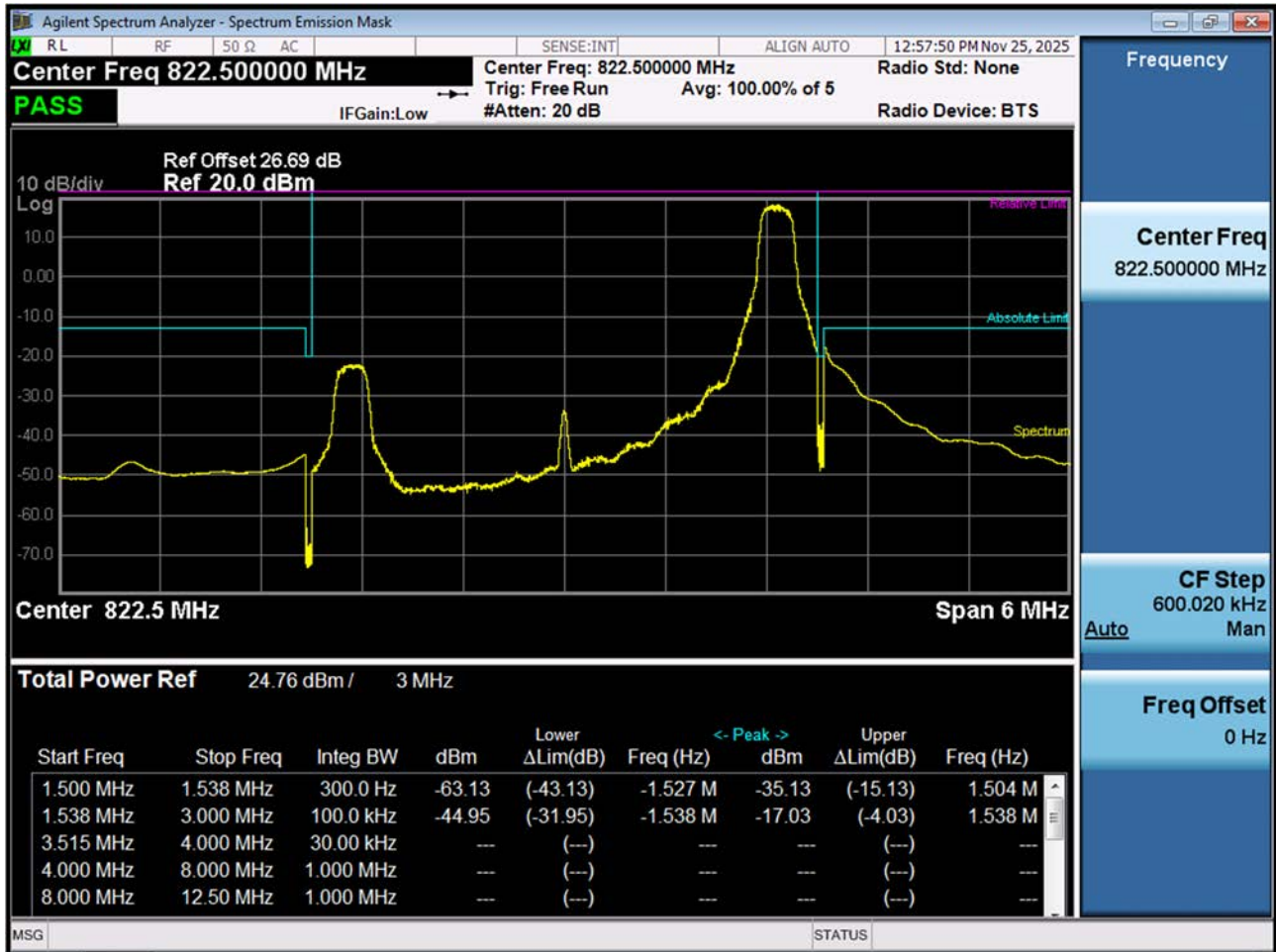
BAND 26. Upper Channel Edge Plot (1.4 M BW Ch.26783 QPSK_RB1_Offset 5)



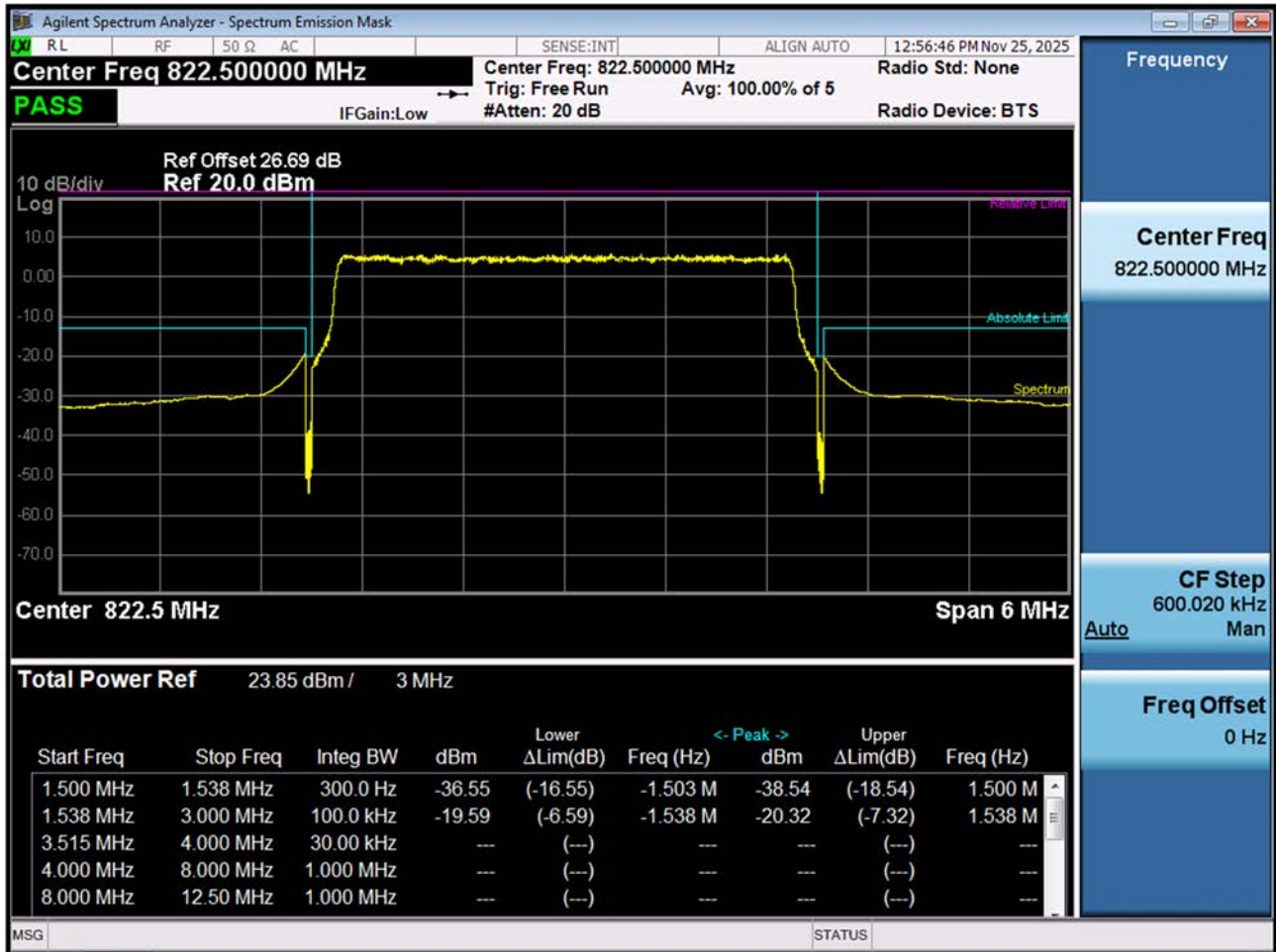
BAND 26. Upper Channel Edge Plot (1.4 M BW Ch.26783 QPSK_RB6_Offset 0)



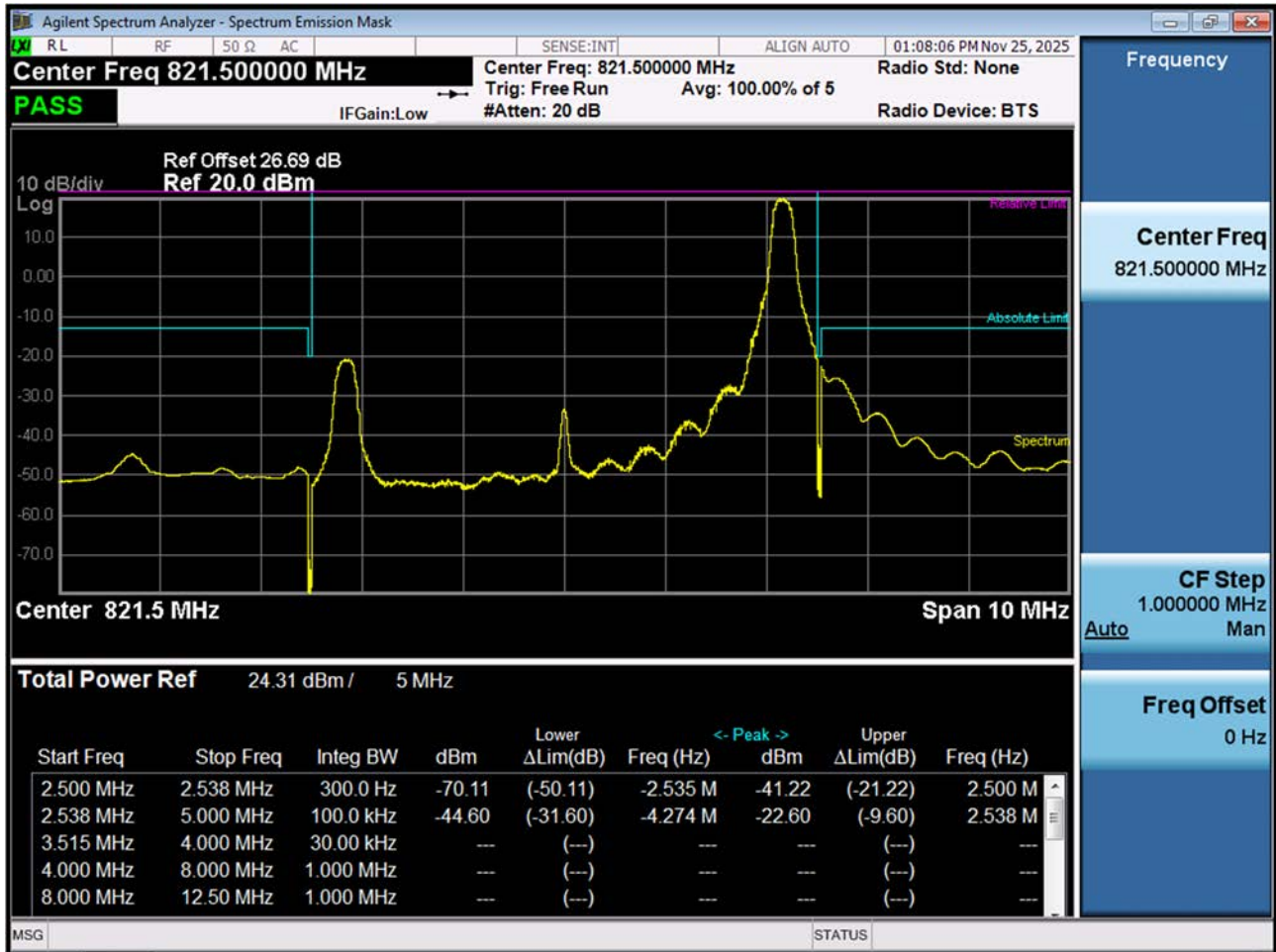
BAND 26. Upper Channel Edge Plot (3 M BW Ch.26775 QPSK_RB1_Offset 14)



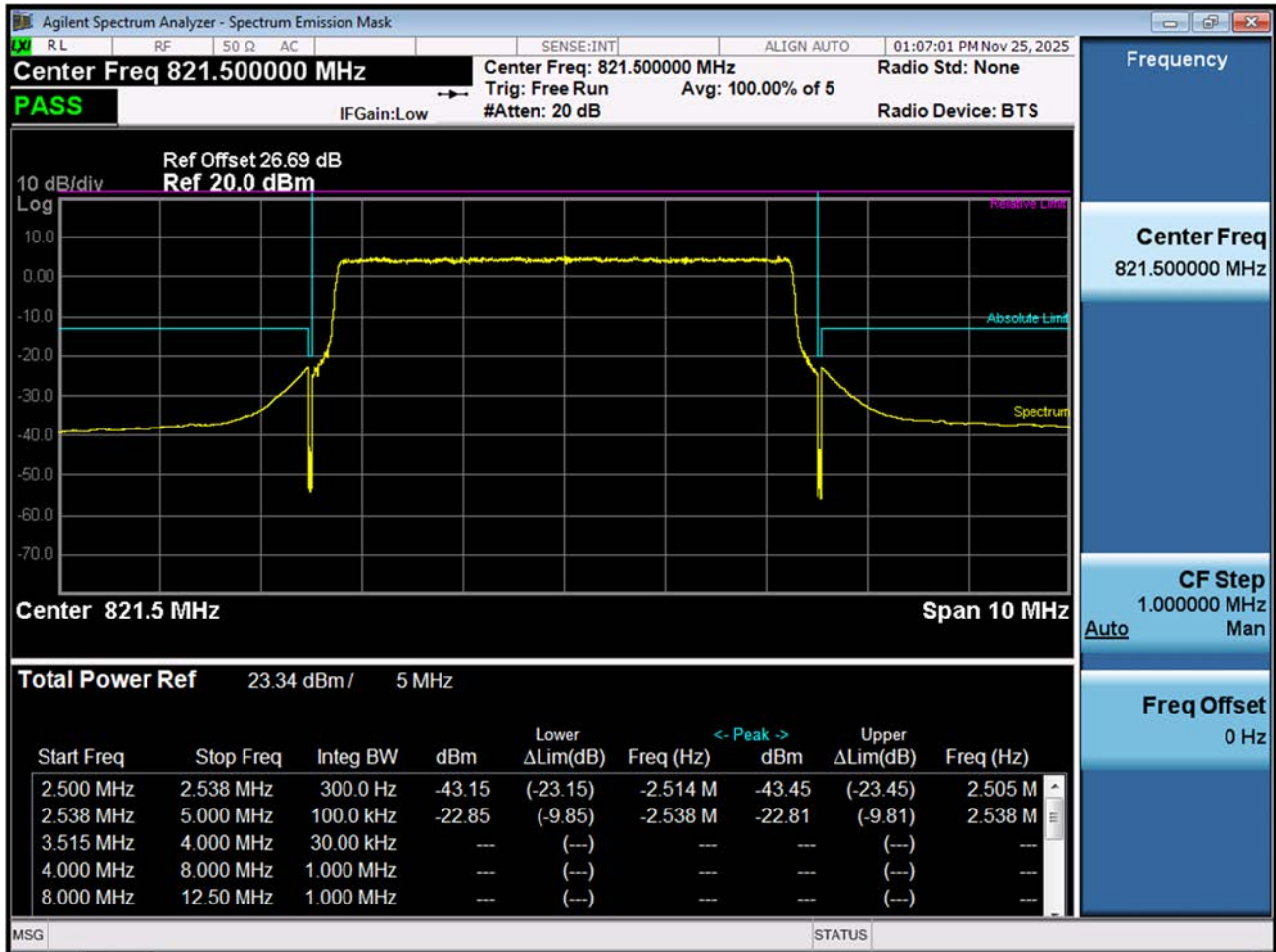
BAND 26. Upper Channel Edge Plot (3 M BW Ch.26775 QPSK_RB15_Offset 0)



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

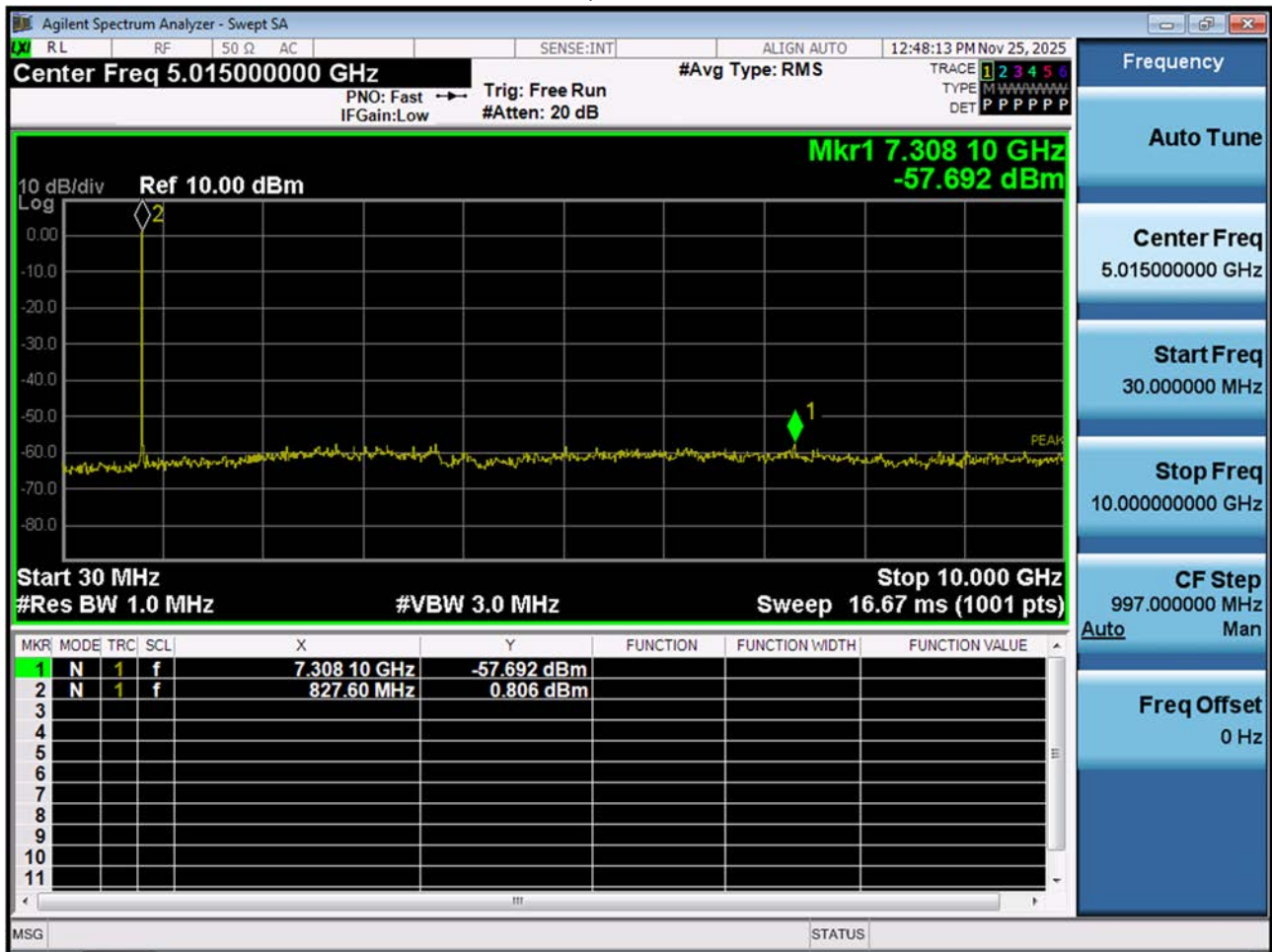


BAND 26. Upper Channel Edge Plot (5 M BW Ch.26765 QPSK_RB25_Offset 0)

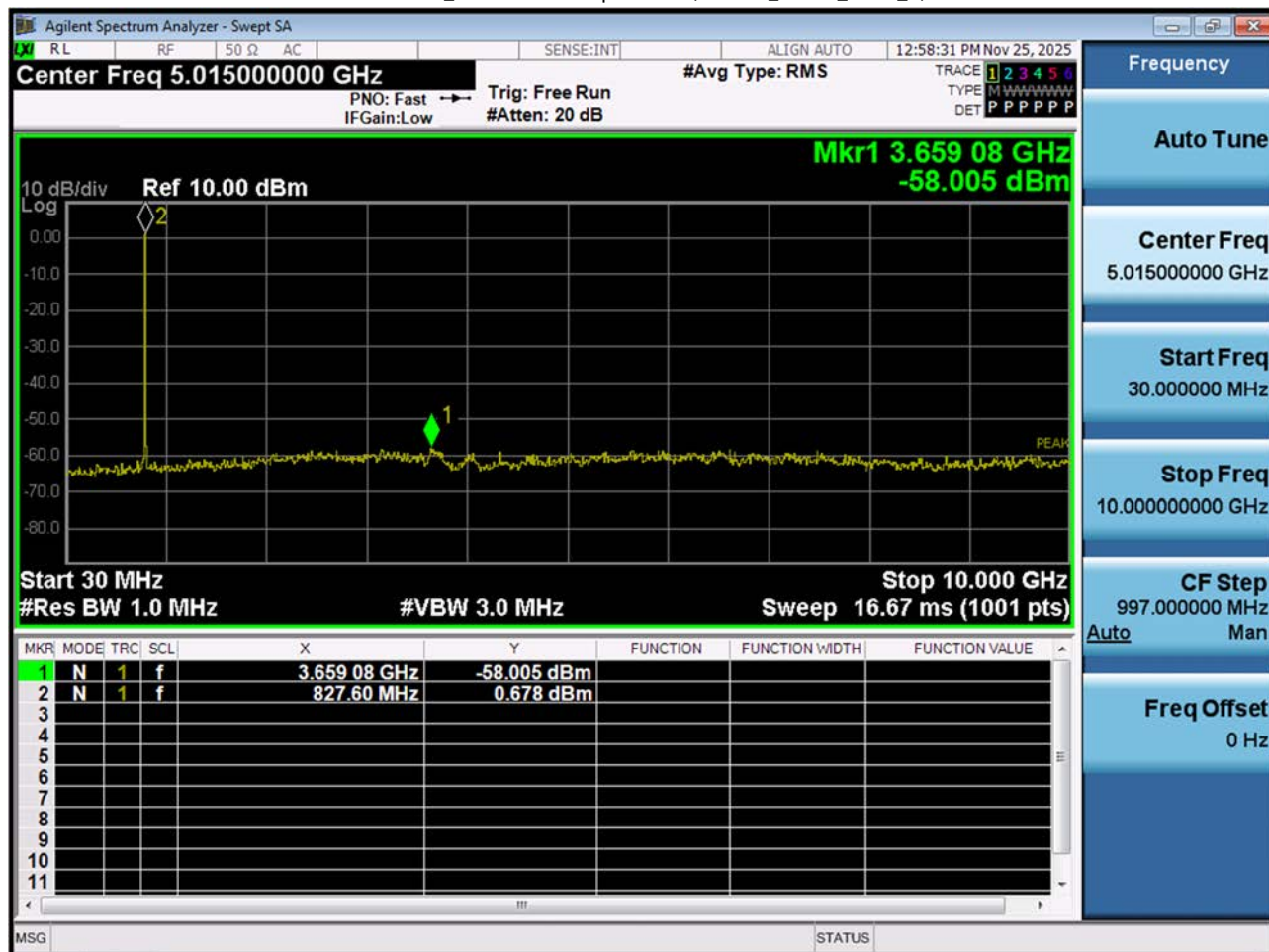


10. TEST PLOTS(STRADDLE CHANNEL)

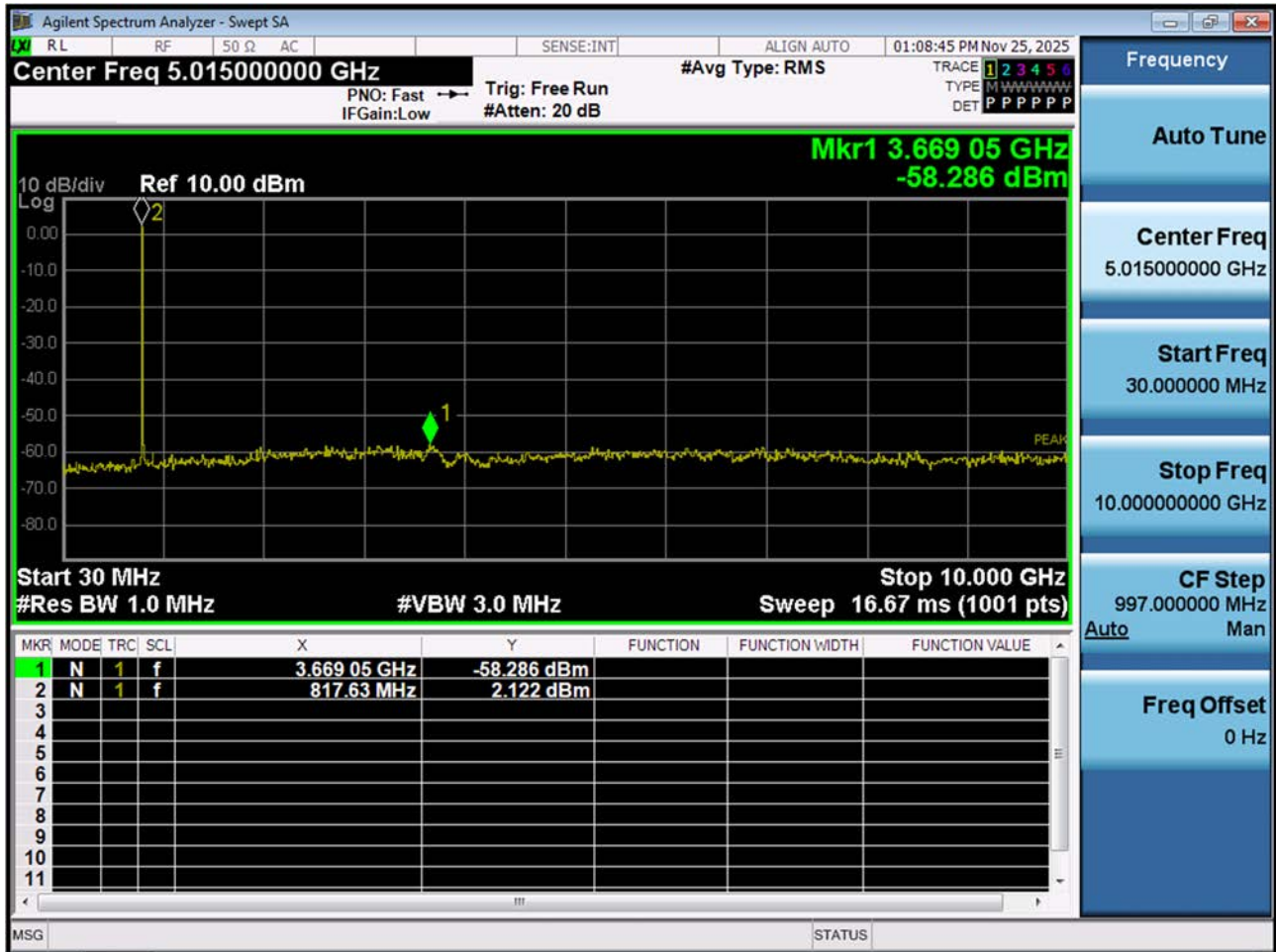
LTE B26_ Conducted Spurious (1.4 MHz_QPSK_RB 1_0)



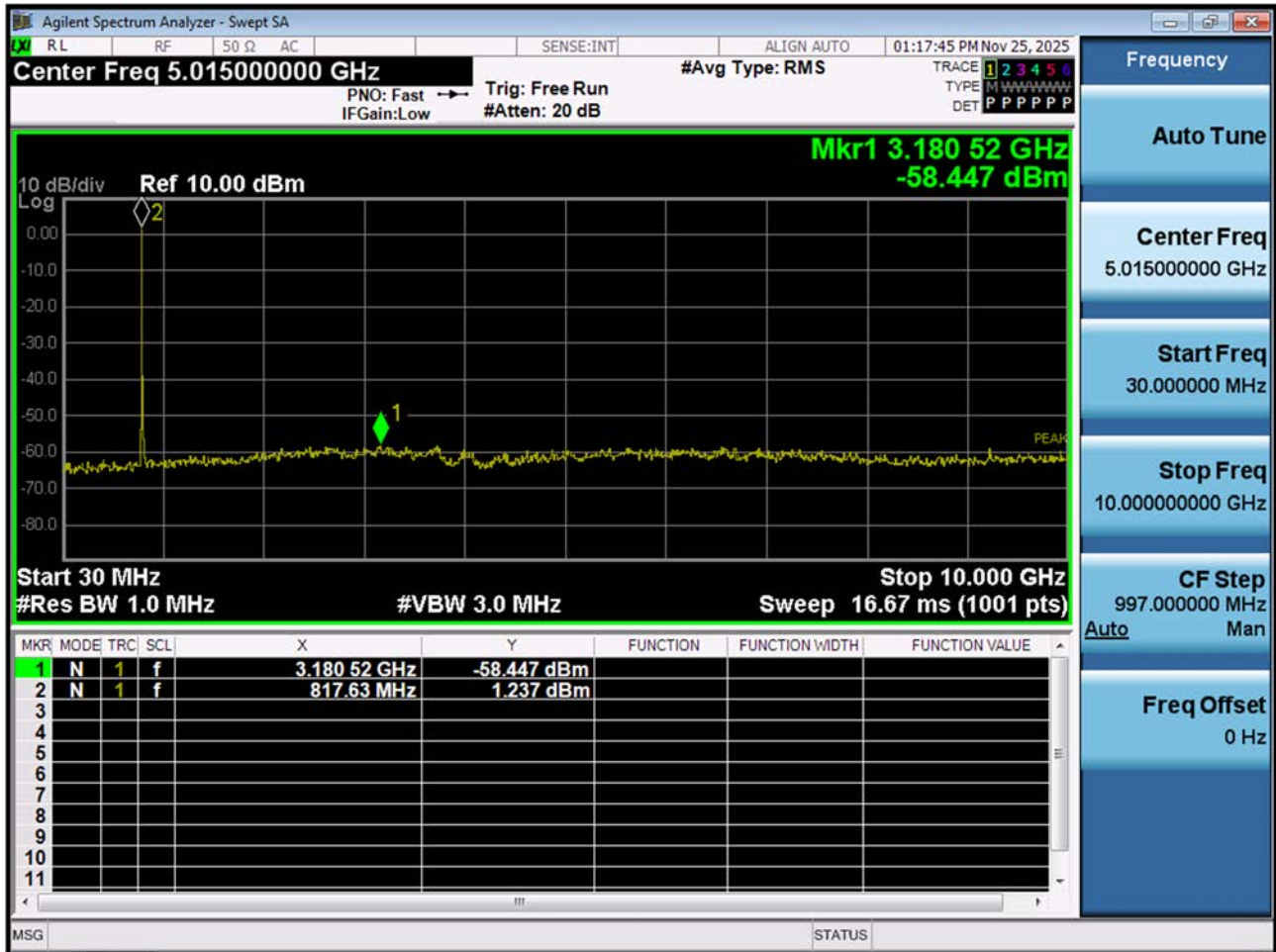
LTE B26_ Conducted Spurious (3 MHz_QPSK_RB 1_0)



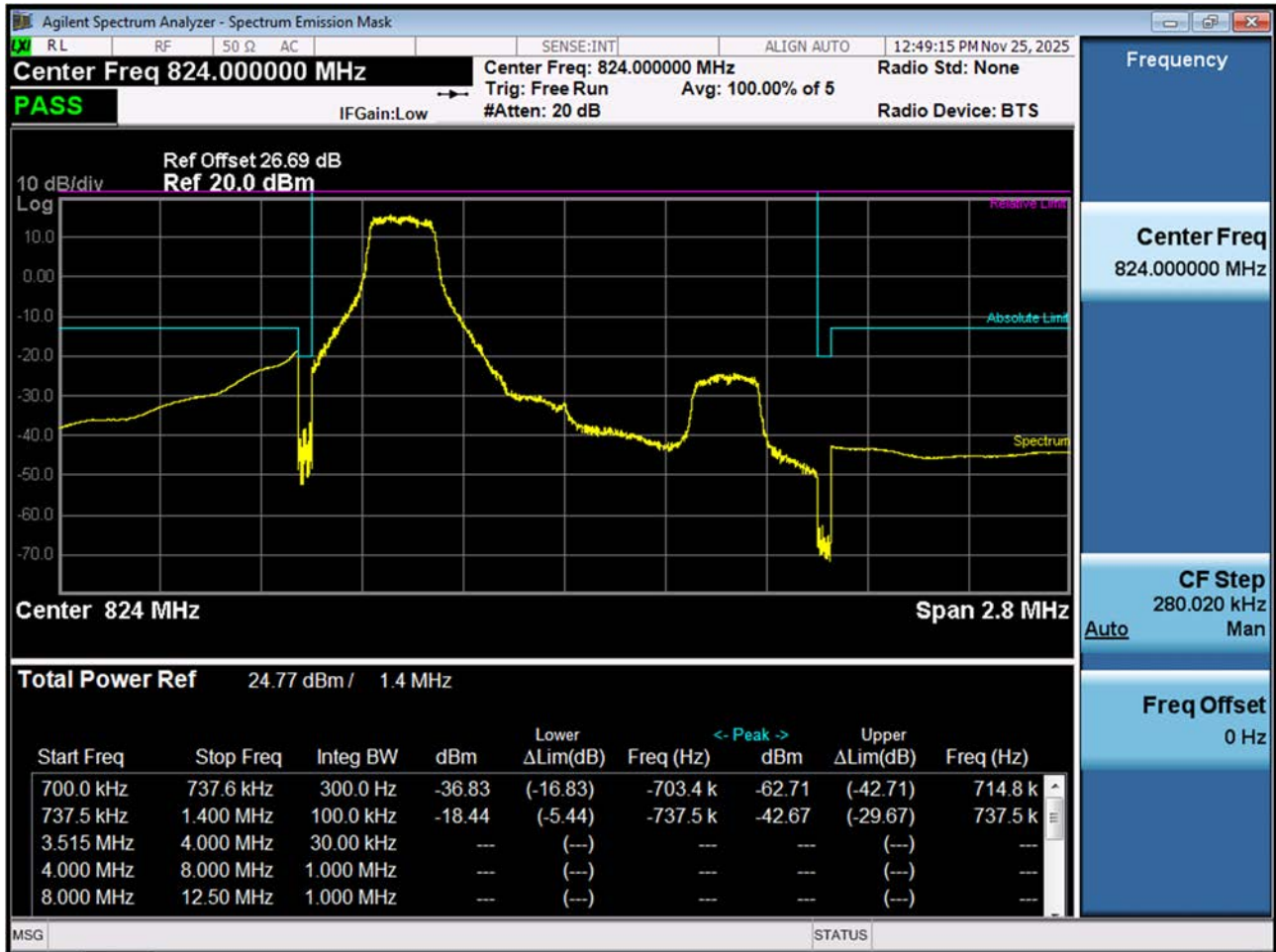
LTE B26_ Conducted Spurious (5 MHz_QPSK_RB 1_0)



LTE B26_ Conducted Spurious (10 MHz_QPSK_RB 1_0)



LTE B26_ Channel Edge (1.4 MHz_QPSK_RB 1_0)



LTE B26_ Channel Edge (1.4 MHz_QPSK_RB 1_5)

