TEST REPORT

FCC LTE B26(Part90) Test for SM-P625
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2402-FC008-R1

DATE OF ISSUE
February 20, 2024

Tested by
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Additional Model
-

Applicant	**SAMSUNG Electronics Co., Ltd.** 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Product Name Model Name	Tablet SM-P625
Date of Test	January 19, 2024 ~ February 07, 2024
FCC ID	A3LSMP625
Location of Test	■ Permanent Testing Lab □ On Site Testing (Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea)
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§ 90, § 22

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	February 16, 2024	Initial Release
0	February 20, 2024	Deleted the Additional Model

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).
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:	SAMSUNG Electronics Co., Ltd.
Address:	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
FCC ID:	A3LSMP625
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§ 90, § 22
EUT Type:	Tablet
Model(s):	SM-P625
Additional Model(s)	-
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:	January 19, 2024 ~ February 07, 2024
Serial number:	Radiated : R32WC0037CL Conducted : R32WC003BFW

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	0.275	24.39
		1M09W7D	16QAM	0.225	23.52
		1M10W7D	64QAM	0.182	22.59
		1M10W7D	256QAM	0.090	19.55
LTE – Band26 (3)	815.5 – 824.0	2M71G7D	QPSK	0.274	24.37
		2M71W7D	16QAM	0.225	23.53
		2M71W7D	64QAM	0.181	22.58
		2M72W7D	256QAM	0.089	19.51
LTE – Band26 (5)	816.5 – 824.0	4M52G7D	QPSK	0.276	24.41
		4M51W7D	16QAM	0.230	23.62
		4M53W7D	64QAM	0.183	22.62
		4M53W7D	256QAM	0.088	19.46
LTE – Band26 (10)	819.0 – 824.0	8M99G7D	QPSK	0.265	24.23
		9M02W7D	16QAM	0.220	23.43
		9M00W7D	64QAM	0.177	22.48
		9M00W7D	256QAM	0.086	19.34
LTE – Band26 (15)	821.5	13M5G7D	QPSK	0.260	24.15
		13M5W7D	16QAM	0.216	23.34
		13M5W7D	64QAM	0.173	22.37
		13M5W7D	256QAM	0.084	19.24

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

The EUT was a Mobile Phone with GSM/GPRS/EGPRS/UMTS and LTE.
It also supports IEEE 802.11 a/b/g/n/ac (20/40/80 MHz), Bluetooth, BT LE, iPA.

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, 17383, Rep. 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
Effective Radiated Power/ Effective Isotropic Radiated Power	- KDB 971168 D01 v03r01 – Section 5.2 & 5.8 - ANSI/TIA-603-E-2016 – Section 2.2.17
Radiated Spurious and Harmonic Emissions	- KDB 971168 D01 v03r01 – Section 6.2 - ANSI/TIA-603-E-2016 – Section 2.2.12

3.2 CONDUCTED OUTPUT POWER

Test Overview

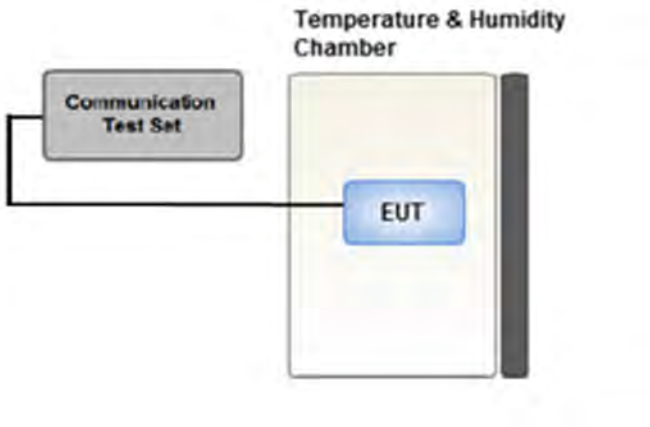
According to ANSI C63.26-2015 Section 5.2.1 when measuring the maximum RF output power from such devices, control over the EUT must be provided either through special test software (provided by manufacturer specifically for compliance testing, but not accessible by an end user) or through use of a base 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 in accordance with ANSI/TIA-603-E-2016 Clause 2.2.17.

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 according to ANSI/TIA-603-E-2016.

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;

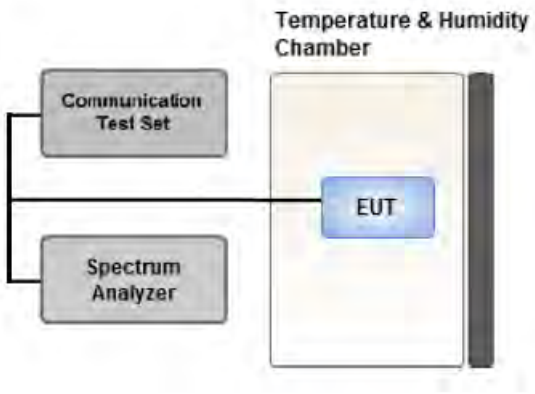
$$\text{Result}_{(dBm)} = Pg_{(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dBi)}$$

   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.

$$EIRP_{(dBm)} = ERP_{(dBm)} + 2.15$$

3.5 OCCUPIED BANDWIDTH.



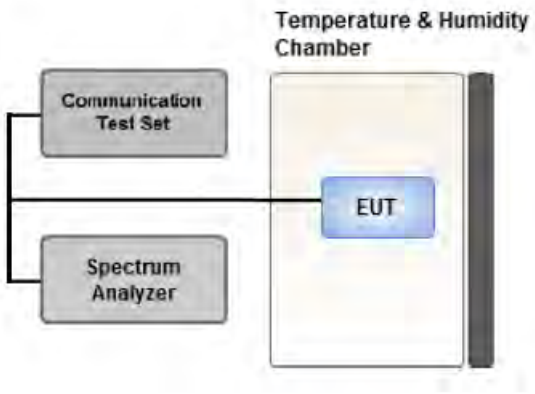
Test setup

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

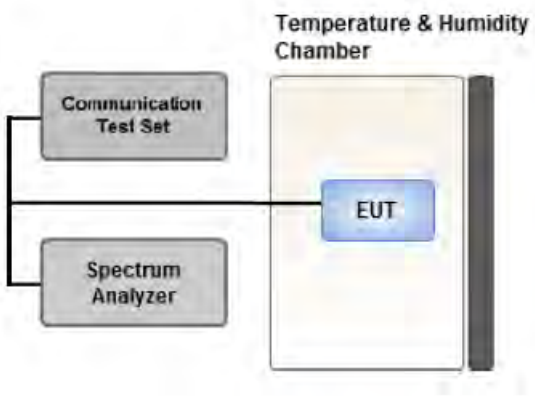
Test Overview

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 = RMS
4. Trace Mode = trace average
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

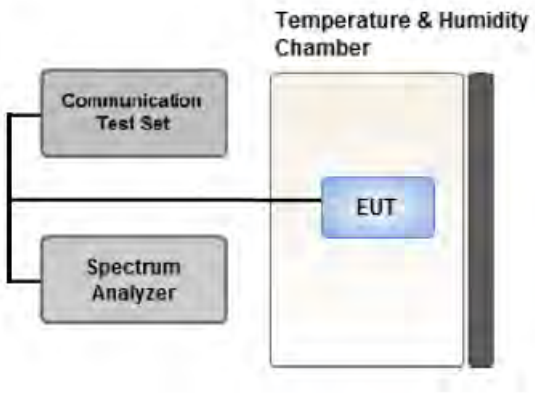
1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW :
   .- EA licensee's frequency block by up to and including 37.5 kHz : 300 Hz
   .- EA licensee's frequency 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.
  Mode : Stand alone, Stand alone + External accessories (Earphone, AC adapter, etc)
  Worst case : Stand alone
- We were performed the RSE test in condition of co-location.
  Mode : Stand alone, Simultaneous transmission scenarios
  Worst case : Stand alone
- 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.
- All modes of operation were tested and the worst case results are reported.
- Please refer to the table below.

[Worst case]

Test Description	Modulation	Bandwidth (MHz)	Frequency	RB size	RB offset	Axis
Effective Radiated Power	QPSK, 16QAM, 64QAM, 256QAM	1.4	Low	1	5	X
			High	1	0	
		3	Low	1	14	
			High	1	0	
		5	Low, High	1	24	
		10	Low	1	49	
		15	Low	1	74	
Radiated Spurious and Harmonic Emissions	QPSK	1.4	Low	1	5	X
			High	1	0	

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	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
RF Switching System	FBSR-02B(1.2G HPF+LNA)	T&M SYSTEM	F1L1	12/11/2024	Annual
RF Switching System	FBSR-02B(3.3G HPF+LNA)	T&M SYSTEM	F1L2	12/11/2024	Annual
Power Splitter(DC ~ 26.5 GHz)	11667B	Hewlett Packard	5001	04/19/2024	Annual
DC Power Supply	E3632A	Agilent	MY40010147	06/23/2024	Annual
Dipole Antenna	UHAP	Schwarzbeck	557	03/09/2025	Biennial
Dipole Antenna	UHAP	Schwarzbeck	558	03/09/2025	Biennial
Chamber	SU-642	ESPEC	93008124	02/22/2024	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	09/29/2024	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	03/28/2025	Biennial
Signal Analyzer(10 Hz ~ 26.5 GHz)	N9020A	Agilent	MY52090906	04/20/2024	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	04/19/2024	Annual
Spectrum Analyzer(10 Hz ~ 40 GHz)	FSV40	REOHDE & SCHWARZ	100931	08/17/2024	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/10/2024	Annual
Loop Antenna(9 kHz ~ 30 MHz)	FMZB1513	Schwarzbeck	1513-333	03/17/2024	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	895	08/16/2024	Biennial
Trilog Broadband Antenna	VULB9168	Schwarzbeck	1135	03/21/2024	Biennial
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262094331	11/17/2024	Annual
Wideband Radio Communication Tester	MT8820C	Anritsu Corp.	6201026545	12/11/2024	Annual
SIGNAL GENERATOR (100 kHz ~ 40 GHz)	SMB100A	REOHDE & SCHWARZ	177633	06/22/2024	Annual
Signal Analyzer(5 Hz ~ 40.0 GHz)	N9030B	KEYSIGHT	MY55480167	05/24/2024	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	24.33	0.271	24.15	0.260	100
		1	3	24.27	0.267	24.09	0.256	100
		1	5	24.32	0.270	24.18	0.262	100
		3	0	24.39	0.275	24.21	0.264	100
		3	1	24.33	0.271	24.18	0.262	100
		3	3	24.32	0.270	24.17	0.261	100
		6	0	23.46	0.222	23.27	0.212	100
	16QAM	1	0	23.52	0.225	23.36	0.217	100
		1	3	23.38	0.218	23.31	0.214	100
		1	5	23.45	0.221	23.37	0.217	100
		3	0	23.42	0.220	23.27	0.212	100
		3	1	23.52	0.225	23.34	0.216	100
		3	3	23.48	0.223	23.31	0.214	100
		6	0	22.47	0.177	22.28	0.169	100
	64QAM	1	0	22.59	0.182	22.43	0.175	100
		1	3	22.47	0.177	22.34	0.171	100
		1	5	22.54	0.179	22.41	0.174	100
		3	0	22.47	0.177	22.28	0.169	100
		3	1	22.49	0.177	22.31	0.170	100
		3	3	22.48	0.177	22.27	0.169	100
		6	0	21.51	0.142	21.33	0.136	100
	256QAM	1	0	19.49	0.089	19.32	0.086	100
		1	3	19.42	0.087	19.18	0.083	100
		1	5	19.47	0.089	19.28	0.085	100
		3	0	19.43	0.088	19.27	0.084	100
		3	1	19.52	0.090	19.32	0.086	100
		3	3	19.55	0.090	19.30	0.085	100
		6	0	19.42	0.087	19.24	0.084	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	24.36	0.273	24.20	0.263	100
		1	7	24.36	0.273	24.19	0.262	100
		1	14	24.37	0.274	24.19	0.262	100
		8	0	23.41	0.219	23.24	0.211	100
		8	3	23.45	0.221	23.26	0.212	100
		8	7	23.44	0.221	23.30	0.214	100
		15	0	23.47	0.222	23.30	0.214	100
	16QAM	1	0	23.53	0.225	23.38	0.218	100
		1	7	23.43	0.220	23.23	0.210	100
		1	14	23.51	0.224	23.40	0.219	100
		8	0	22.49	0.177	22.32	0.171	100
		8	3	22.48	0.177	22.31	0.170	100
		8	7	22.53	0.179	22.34	0.171	100
		15	0	22.46	0.176	22.29	0.169	100
	64QAM	1	0	22.58	0.181	22.44	0.175	100
		1	7	22.55	0.180	22.38	0.173	100
		1	14	22.53	0.179	22.40	0.174	100
		8	0	21.41	0.138	21.26	0.134	100
		8	3	21.47	0.140	21.31	0.135	100
		8	7	21.46	0.140	21.31	0.135	100
		15	0	21.46	0.140	21.29	0.135	100
	256QAM	1	0	19.51	0.089	19.33	0.086	100
		1	7	19.48	0.089	19.30	0.085	100
		1	14	19.45	0.088	19.31	0.085	100
		8	0	19.38	0.087	19.24	0.084	100
		8	3	19.46	0.088	19.27	0.085	100
		8	7	19.43	0.088	19.24	0.084	100
		15	0	19.38	0.087	19.22	0.084	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	24.34	0.272	24.20	0.263	100
		1	12	24.38	0.274	24.23	0.265	100
		1	24	24.41	0.276	24.25	0.266	100
		12	0	23.45	0.221	23.32	0.215	100
		12	6	23.46	0.222	23.29	0.213	100
		12	11	23.49	0.223	23.32	0.215	100
		25	0	23.56	0.227	23.39	0.218	100
	16QAM	1	0	23.62	0.230	23.50	0.224	100
		1	12	23.56	0.227	23.31	0.214	100
		1	24	23.49	0.223	23.40	0.219	100
		12	0	22.45	0.176	22.32	0.171	100
		12	6	22.43	0.175	22.28	0.169	100
		12	11	22.47	0.177	22.31	0.170	100
		25	0	22.50	0.178	22.35	0.172	100
	64QAM	1	0	22.58	0.181	22.47	0.177	100
		1	12	22.62	0.183	22.43	0.175	100
		1	24	22.54	0.179	22.42	0.175	100
		12	0	21.49	0.141	21.31	0.135	100
		12	6	21.48	0.141	21.32	0.136	100
		12	11	21.45	0.140	21.32	0.136	100
		25	0	21.52	0.142	21.32	0.136	100
	256QAM	1	0	19.41	0.087	19.30	0.085	100
		1	12	19.43	0.088	19.26	0.084	100
		1	24	19.46	0.088	19.32	0.086	100
		12	0	19.44	0.088	19.28	0.085	100
		12	6	19.41	0.087	19.27	0.085	100
		12	11	19.44	0.088	19.28	0.085	100
		25	0	19.46	0.088	19.29	0.085	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)		Limit (W)
				819 MHz		
				dBm	W	
10	QPSK	1	0	24.23	0.265	100
		1	24	24.18	0.262	100
		1	49	24.18	0.262	100
		25	0	23.38	0.218	100
		25	12	23.37	0.217	100
		25	24	23.38	0.218	100
		50	0	23.41	0.219	100
	16QAM	1	0	23.43	0.220	100
		1	24	23.34	0.216	100
		1	49	23.43	0.220	100
		25	0	22.36	0.172	100
		25	12	22.34	0.171	100
		25	24	22.36	0.172	100
		50	0	22.37	0.173	100
	64QAM	1	0	22.48	0.177	100
		1	24	22.38	0.173	100
		1	49	22.42	0.175	100
		25	0	21.32	0.136	100
		25	12	21.28	0.134	100
		25	24	21.31	0.135	100
		50	0	21.33	0.136	100
	256QAM	1	0	19.31	0.085	100
		1	24	19.34	0.086	100
		1	49	19.31	0.085	100
		25	0	19.33	0.086	100
		25	12	19.27	0.085	100
		25	24	19.27	0.085	100
		50	0	19.32	0.086	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)		Limit (W)
				821.5 MHz		
				dBm	W	
15	QPSK	1	0	24.15	0.260	100
		1	36	24.09	0.256	100
		1	74	24.10	0.257	100
		36	0	23.28	0.213	100
		36	18	23.27	0.212	100
		36	39	23.28	0.213	100
		75	0	23.31	0.214	100
	16QAM	1	0	23.33	0.215	100
		1	36	23.25	0.211	100
		1	74	23.34	0.216	100
		36	0	22.26	0.168	100
		36	18	22.24	0.167	100
		36	39	22.25	0.168	100
		75	0	22.26	0.168	100
	64QAM	1	0	22.37	0.173	100
		1	36	22.31	0.170	100
		1	74	22.32	0.171	100
		36	0	21.22	0.132	100
		36	18	21.20	0.132	100
		36	39	21.22	0.132	100
		75	0	21.24	0.133	100
	256QAM	1	0	19.22	0.084	100
		1	36	19.24	0.084	100
		1	74	19.24	0.084	100
		36	0	19.21	0.083	100
		36	18	19.17	0.083	100
		36	39	19.17	0.083	100
		75	0	19.22	0.084	100

8.2 EFFECTIVE RADIATED POWER

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
814.7	LTE B26/ 1.4 MHz	QPSK	-28.88	31.96	-10.05	1.38	H	< 100	0.113	20.53
		16QAM	-29.76	31.08	-10.05	1.38	H		0.092	19.65
		64QAM	-30.75	30.09	-10.05	1.38	H		0.074	18.66
		256QAM	-33.79	27.05	-10.05	1.38	H		0.037	15.62
823.3		QPSK	-28.57	32.33	-10.05	1.38	H		0.123	20.90
		16QAM	-29.39	31.51	-10.05	1.38	H		0.102	20.08
		64QAM	-30.40	30.50	-10.05	1.38	H		0.081	19.07
		256QAM	-33.47	27.43	-10.05	1.38	H		0.040	16.00

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
815.5	LTE B26/ 3 MHz	QPSK	-29.22	31.59	-10.05	1.38	H	< 100	0.104	20.16
		16QAM	-30.13	30.68	-10.05	1.38	H		0.084	19.25
		64QAM	-31.05	29.76	-10.05	1.38	H		0.068	18.33
		256QAM	-34.12	26.69	-10.05	1.38	H		0.034	15.26
822.5		QPSK	-28.90	32.00	-10.05	1.38	H		0.114	20.57
		16QAM	-29.77	31.13	-10.05	1.38	H		0.093	19.70
		64QAM	-30.68	30.22	-10.05	1.38	H		0.076	18.79
		256QAM	-33.84	27.06	-10.05	1.38	H		0.037	15.63

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
816.5	LTE B26/ 5 MHz	QPSK	-29.08	31.66	-10.05	1.38	H	< 100	0.105	20.23
		16QAM	-29.96	30.78	-10.05	1.38	H		0.086	19.35
		64QAM	-30.92	29.82	-10.05	1.38	H		0.069	18.39
		256QAM	-33.95	26.79	-10.05	1.38	H		0.034	15.36
821.5		QPSK	-28.85	32.07	-10.05	1.38	H		0.116	20.64
		16QAM	-29.67	31.25	-10.05	1.38	H		0.096	19.82
		64QAM	-30.69	30.23	-10.05	1.38	H		0.076	18.80
		256QAM	-33.71	27.21	-10.05	1.38	H		0.038	15.78

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
819.0	LTE B26/ 10 MHz	QPSK	-28.77	31.97	-10.05	1.38	H	< 100	0.113	20.54
		16QAM	-29.55	31.19	-10.05	1.38	H		0.095	19.76
		64QAM	-30.65	30.09	-10.05	1.38	H		0.074	18.66
		256QAM	-33.63	27.11	-10.05	1.38	H		0.037	15.68

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
821.5	LTE B26/ 15 MHz	QPSK	-28.73	32.19	-10.05	1.38	H	< 100	0.119	20.76
		16QAM	-29.59	31.33	-10.05	1.38	H		0.098	19.90
		64QAM	-30.57	30.35	-10.05	1.38	H		0.078	18.92
		256QAM	-33.62	27.30	-10.05	1.38	H		0.039	15.87

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
26697 (814.7)	1 629.40	-55.58	8.70	-63.50	1.93	V	-56.73	-13.00
	2 444.10	-59.94	10.20	-64.71	2.50	H	-57.01	-13.00
	3 258.80	-59.90	10.60	-61.33	2.85	H	-53.58	-13.00
	4 073.50	-63.65	11.20	-63.16	3.27	H	-55.23	-13.00
	4 888.20	-61.69	11.10	-57.35	3.57	H	-49.82	-13.00
26783 (823.3)	1 646.60	-55.97	9.20	-64.96	2.02	V	-57.78	-13.00
	2 469.90	-59.70	10.20	-63.84	2.49	V	-56.13	-13.00
	3 293.20	-61.20	10.60	-63.69	2.90	V	-55.99	-13.00
	4 116.50	-59.23	11.30	-58.16	3.21	H	-50.07	-13.00
	4 939.80	-61.54	11.10	-57.22	3.61	V	-49.73	-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	1.1019
			16QAM			1.0917
			64QAM			1.0989
			256QAM			1.1013
	3 MHz	822.5	QPSK	15		2.7091
			16QAM			2.7105
			64QAM			2.7144
			256QAM			2.7171
	5 MHz	821.5	QPSK	25		4.5213
			16QAM			4.5124
			64QAM			4.5245
			256QAM			4.5248
	10 MHz	819.0	QPSK	50		8.9917
			16QAM			9.0164
			64QAM			9.0008
			256QAM			9.0042
	15 MHz	821.5	QPSK	75		13.451
			16QAM			13.453
			64QAM			13.475
			256QAM			13.475

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	3.7174	27.976	-66.752	-38.776	-13.00
		823.3	3.7084	27.976	-66.751	-38.775	
	3	815.5	3.7104	27.976	-67.081	-39.105	
		822.5	3.6910	27.976	-67.077	-39.101	
	5	816.5	3.6840	27.976	-67.142	-39.166	
		821.5	3.7069	27.976	-67.216	-39.240	
	10	819.0	3.6810	27.976	-67.267	-39.291	
	15	821.5	3.7064	27.976	-67.313	-39.337	

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	25.270
1 – 5	27.976
5 – 10	28.591
10 – 15	29.116
15 – 20	29.489
Above 20(26.5)	30.131

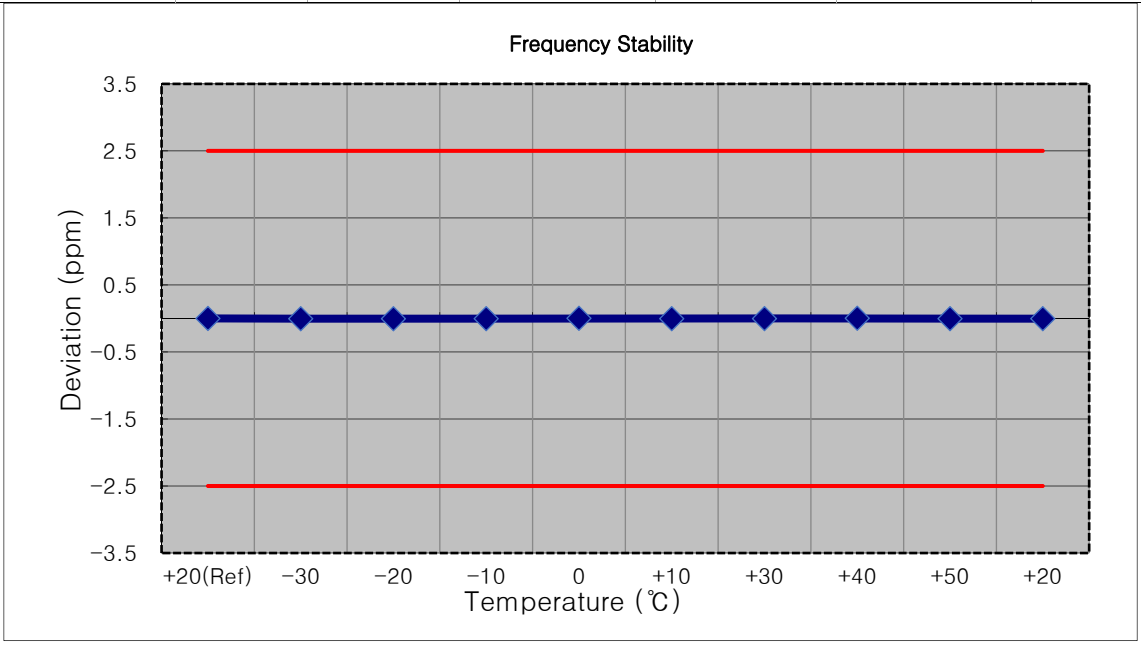
8.6 CHANNEL EDGE

- Plots of the EUT's Band Edge are shown Page 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: 3.850 VDC
- ▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(VDC)	(°C)	(Hz)	Error (Hz)	(%)	
100 %	3.850	+20(Ref)	814 699 998	0.0	0.000 000	0.000
100 %		-30	814 699 994	-3.2	0.000 000	-0.004
100 %		-20	814 699 994	-3.3	0.000 000	-0.004
100 %		-10	814 699 995	-3.0	0.000 000	-0.004
100 %		0	814 699 999	1.7	0.000 000	0.002
100 %		+10	814 699 995	-2.8	0.000 000	-0.003
100 %		+30	814 699 995	-2.5	0.000 000	-0.003
100 %		+40	814 700 000	2.2	0.000 000	0.003
100 %		+50	814 699 995	-2.7	0.000 000	-0.003
Batt. Endpoint	3.400	+20	814 699 995	-2.9	0.000 000	-0.004



▣ MODE: LTE 26

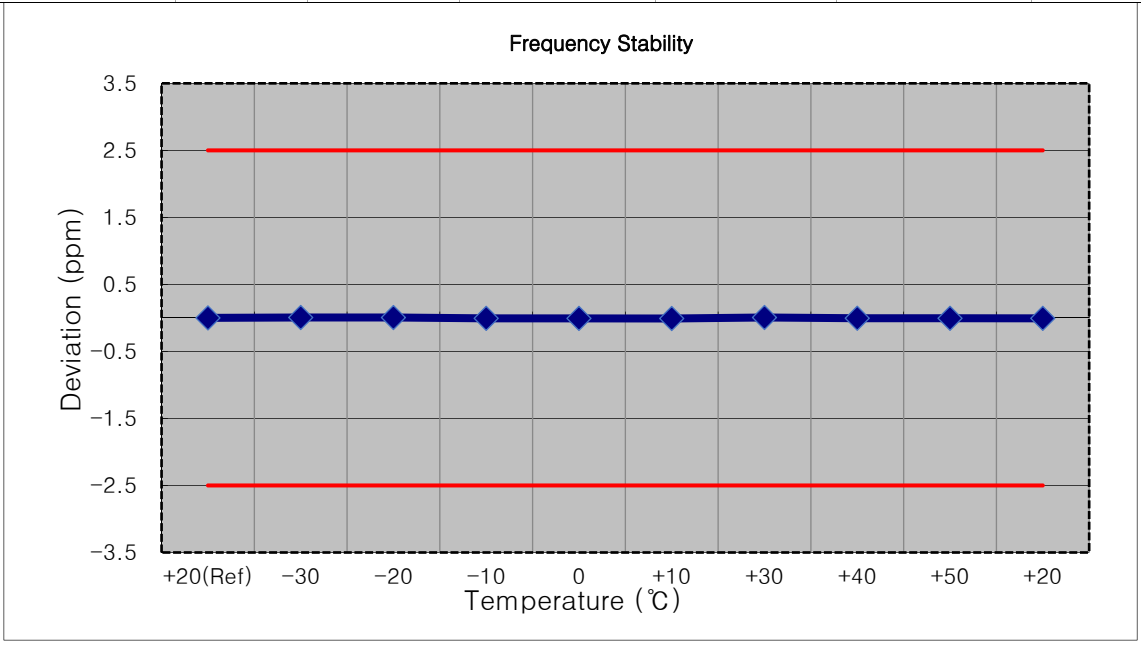
▣ OPERATING FREQUENCY: 815,500,000 Hz

▣ CHANNEL: 26705(3 MHz)

▣ REFERENCE VOLTAGE: 3.850 VDC

▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(VDC)	(℃)	(Hz)	Error (Hz)	(%)	
100 %	3.850	+20(Ref)	815 499 996	0.0	0.000 000	0.000
100 %		-30	815 500 001	5.4	0.000 001	0.007
100 %		-20	815 500 000	4.7	0.000 001	0.006
100 %		-10	815 499 990	-5.6	-0.000 001	-0.007
100 %		0	815 499 990	-6.1	-0.000 001	-0.007
100 %		+10	815 499 988	-7.2	-0.000 001	-0.009
100 %		+30	815 500 001	5.4	0.000 001	0.007
100 %		+40	815 499 991	-4.2	-0.000 001	-0.005
100 %		+50	815 499 991	-4.5	-0.000 001	-0.006
Batt. Endpoint	3.400	+20	815 499 990	-5.5	-0.000 001	-0.007



▣ MODE: LTE 26

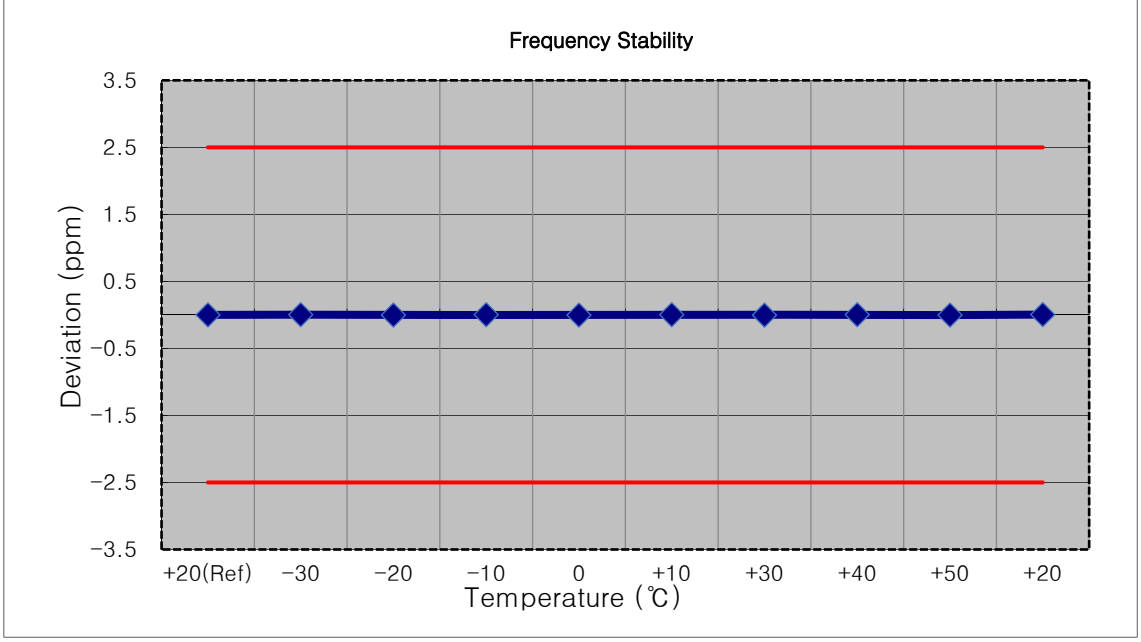
▣ OPERATING FREQUENCY: 816,500,000 Hz

▣ CHANNEL: 26715(5 MHz)

▣ REFERENCE VOLTAGE: 3.850 VDC

▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(VDC)	(℃)	(Hz)	Error (Hz)	(%)	
100 %	3.850	+20(Ref)	816 499 998	0.0	0.000 000	0.000
100 %		-30	816 500 000	2.4	0.000 000	0.003
100 %		-20	816 499 996	-2.1	0.000 000	-0.003
100 %		-10	816 500 000	2.6	0.000 000	0.003
100 %		0	816 499 995	-2.7	0.000 000	-0.003
100 %		+10	816 500 000	2.6	0.000 000	0.003
100 %		+30	816 499 995	-2.4	0.000 000	-0.003
100 %		+40	816 500 000	2.7	0.000 000	0.003
100 %		+50	816 499 996	-2.2	0.000 000	-0.003
Batt. Endpoint	3.400	+20	816 500 001	3.7	0.000 000	0.005



▣ MODE: LTE 26

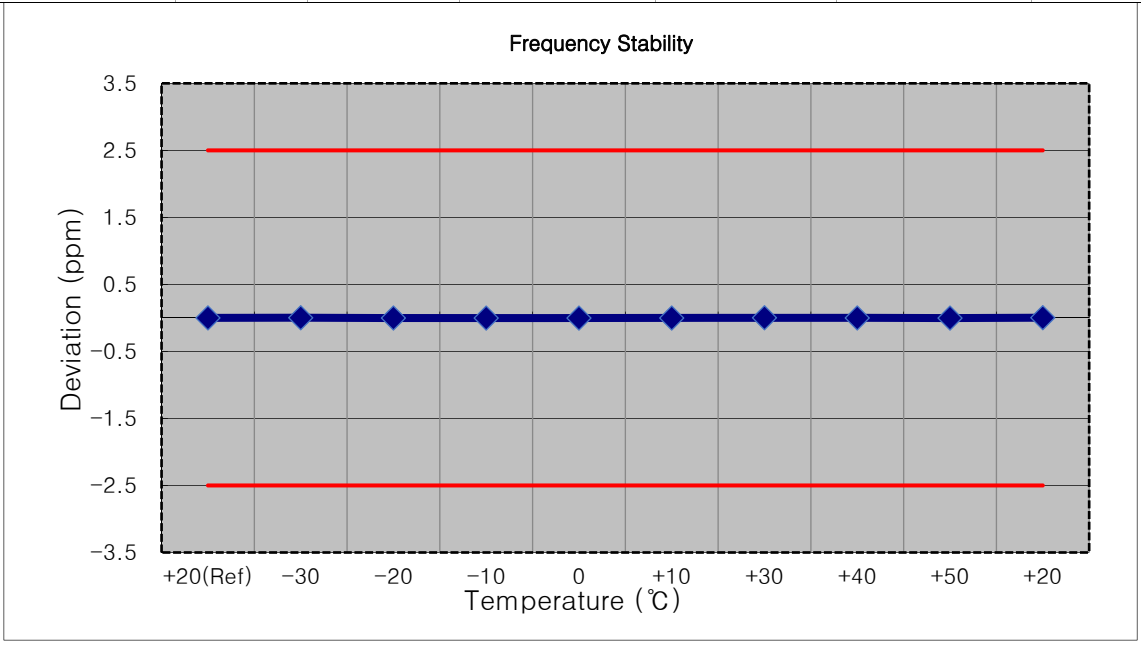
▣ OPERATING FREQUENCY: 819,000,000 Hz

▣ CHANNEL: 26740(10 MHz)

▣ REFERENCE VOLTAGE: 3.850 VDC

▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(VDC)	(℃)	(Hz)	Error (Hz)	(%)	
100 %	3.850	+20(Ref)	819 000 002	0.0	0.000 000	0.000
100 %		-30	819 000 004	1.9	0.000 000	0.002
100 %		-20	819 000 000	-1.5	0.000 000	-0.002
100 %		-10	819 000 000	-2.2	0.000 000	-0.003
100 %		0	819 000 000	-2.0	0.000 000	-0.002
100 %		+10	819 000 001	-1.2	0.000 000	-0.001
100 %		+30	819 000 004	1.9	0.000 000	0.002
100 %		+40	819 000 001	-0.6	0.000 000	-0.001
100 %		+50	819 000 000	-2.2	0.000 000	-0.003
Batt. Endpoint	3.400	+20	819 000 004	2.2	0.000 000	0.003



▣ MODE: LTE 26

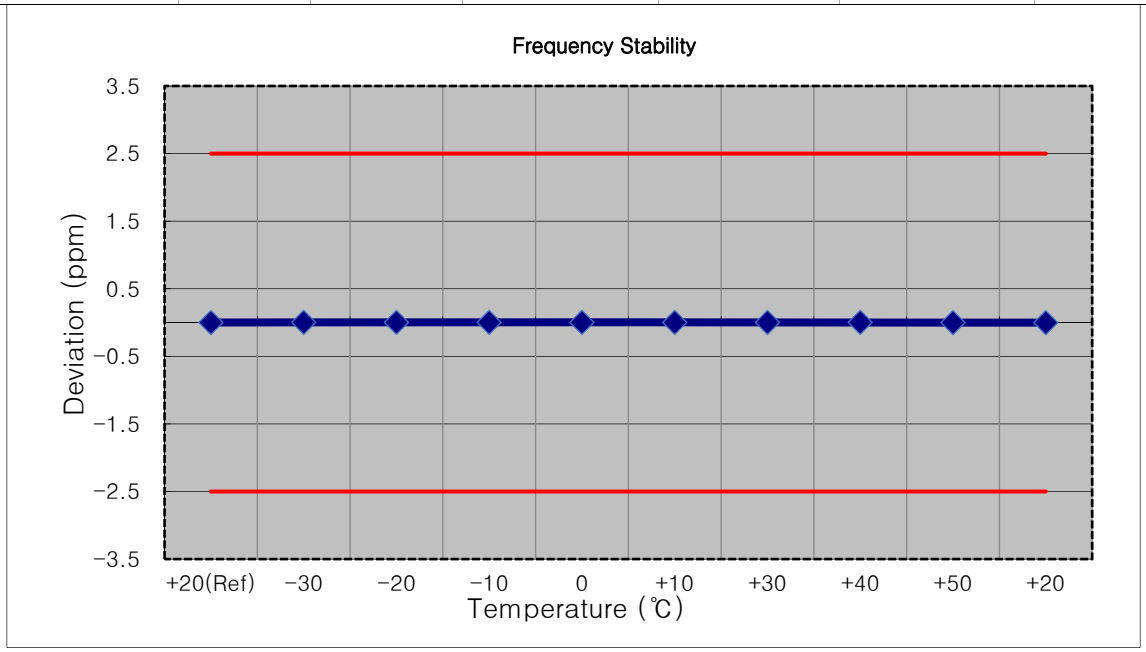
▣ OPERATING FREQUENCY: 821,500,000 Hz

▣ CHANNEL: 26765(15 MHz)

▣ REFERENCE VOLTAGE: 3.850 VDC

▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency	Deviation	ppm
(%)	(VDC)	(℃)	(Hz)	Error (Hz)	(%)	
100 %	3.850	+20(Ref)	821 499 999	0.0	0.000 000	0.000
100 %		-30	821 500 001	2.0	0.000 000	0.002
100 %		-20	821 500 002	2.2	0.000 000	0.003
100 %		-10	821 500 002	2.3	0.000 000	0.003
100 %		0	821 500 002	2.4	0.000 000	0.003
100 %		+10	821 500 001	1.2	0.000 000	0.001
100 %		+30	821 500 001	1.6	0.000 000	0.002
100 %		+40	821 500 002	2.4	0.000 000	0.003
100 %		+50	821 499 998	-1.3	0.000 000	-0.002
Batt. Endpoint	3.400	+20	821 499 998	-1.4	0.000 000	-0.002



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	24.04	0.254	100
		1	3	23.98	0.250	100
		1	5	24.06	0.254	100
		3	0	24.09	0.256	100
		3	1	24.07	0.255	100
		3	3	24.07	0.255	100
		6	0	23.15	0.207	100
	16QAM	1	0	23.23	0.211	100
		1	3	23.20	0.209	100
		1	5	23.24	0.211	100
		3	0	23.14	0.206	100
		3	1	23.20	0.209	100
		3	3	23.18	0.208	100
		6	0	22.17	0.165	100
	64QAM	1	0	22.27	0.169	100
		1	3	22.23	0.167	100
		1	5	22.29	0.170	100
		3	0	22.16	0.165	100
		3	1	22.17	0.165	100
		3	3	22.15	0.164	100
		6	0	21.20	0.132	100
	256QAM	1	0	19.20	0.083	100
		1	3	19.06	0.081	100
		1	5	19.14	0.082	100
		3	0	19.11	0.082	100
		3	1	19.17	0.083	100
		3	3	19.15	0.082	100
		6	0	19.09	0.081	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)		Limit (W)
				824 MHz		
				dBm	W	
3	QPSK	1	0	24.07	0.255	100
		1	7	24.08	0.256	100
		1	14	24.07	0.255	100
		8	0	23.12	0.205	100
		8	3	23.14	0.206	100
		8	7	23.18	0.208	100
		15	0	23.17	0.207	100
	16QAM	1	0	23.23	0.210	100
		1	7	23.12	0.205	100
		1	14	23.30	0.214	100
		8	0	22.21	0.166	100
		8	3	22.20	0.166	100
		8	7	22.21	0.166	100
		15	0	22.17	0.165	100
	64QAM	1	0	22.28	0.169	100
		1	7	22.23	0.167	100
		1	14	22.29	0.169	100
		8	0	21.14	0.130	100
		8	3	21.18	0.131	100
		8	7	21.17	0.131	100
		15	0	21.17	0.131	100
	256QAM	1	0	19.22	0.083	100
		1	7	19.17	0.083	100
		1	14	19.19	0.083	100
		8	0	19.12	0.082	100
		8	3	19.14	0.082	100
		8	7	19.13	0.082	100
		15	0	19.10	0.081	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)		Limit (W)
				824 MHz		
				dBm	W	
5	QPSK	1	0	24.07	0.255	100
		1	12	24.12	0.258	100
		1	24	24.14	0.259	100
		12	0	23.18	0.208	100
		12	6	23.17	0.207	100
		12	11	23.20	0.209	100
		25	0	23.28	0.213	100
	16QAM	1	0	23.37	0.217	100
		1	12	23.17	0.208	100
		1	24	23.32	0.215	100
		12	0	22.19	0.166	100
		12	6	22.19	0.166	100
		12	11	22.22	0.167	100
		25	0	22.22	0.167	100
	64QAM	1	0	22.33	0.171	100
		1	12	22.32	0.171	100
		1	24	22.30	0.170	100
		12	0	21.20	0.132	100
		12	6	21.20	0.132	100
		12	11	21.21	0.132	100
		25	0	21.20	0.132	100
	256QAM	1	0	19.21	0.083	100
		1	12	19.18	0.083	100
		1	24	19.21	0.083	100
		12	0	19.14	0.082	100
		12	6	19.14	0.082	100
		12	11	19.16	0.082	100
		25	0	19.17	0.083	100

Band Width	Modulation	RB Size	RB Offset	Max. output power(dBm)		Limit (W)
				824 MHz		
				dBm	W	
10	QPSK	1	0	24.06	0.255	100
		1	24	24.04	0.253	100
		1	49	24.05	0.254	100
		25	0	23.19	0.208	100
		25	12	23.18	0.208	100
		25	24	23.20	0.209	100
		50	0	23.24	0.211	100
	16QAM	1	0	23.27	0.212	100
		1	24	23.16	0.207	100
		1	49	23.29	0.213	100
		25	0	22.18	0.165	100
		25	12	22.18	0.165	100
		25	24	22.19	0.166	100
		50	0	22.18	0.165	100
	64QAM	1	0	22.29	0.170	100
		1	24	22.26	0.168	100
		1	49	22.26	0.168	100
		25	0	21.15	0.130	100
		25	12	21.14	0.130	100
		25	24	21.16	0.131	100
		50	0	21.16	0.131	100
	256QAM	1	0	19.18	0.083	100
		1	24	19.18	0.083	100
		1	49	19.18	0.083	100
		25	0	19.13	0.082	100
		25	12	19.10	0.081	100
		25	24	19.11	0.081	100
		50	0	19.14	0.082	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	
								W	W	dBm
824.0	LTE B26/ 1.4 MHz	QPSK	-28.54	32.36	-10.05	1.38	H	< 7.00	0.124	20.93
		16QAM	-29.35	31.55	-10.05	1.38	H		0.103	20.12
		64QAM	-30.42	30.48	-10.05	1.38	H		0.080	19.05
		256QAM	-33.43	27.47	-10.05	1.38	H		0.040	16.04

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
824.0	LTE B26/ 3 MHz	QPSK	-28.87	32.03	-10.05	1.38	H	< 7.00	0.115	20.60
		16QAM	-29.71	31.19	-10.05	1.38	H		0.095	19.76
		64QAM	-30.67	30.23	-10.05	1.38	H		0.076	18.80
		256QAM	-33.79	27.11	-10.05	1.38	H		0.037	15.68

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
824.0	LTE B26/ 5 MHz	QPSK	-28.74	32.16	-10.05	1.38	H	< 7.00	0.118	20.73
		16QAM	-29.51	31.39	-10.05	1.38	H		0.099	19.96
		64QAM	-30.56	30.34	-10.05	1.38	H		0.078	18.91
		256QAM	-33.59	27.31	-10.05	1.38	H		0.039	15.88

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain (dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
824.0	LTE B26/ 10 MHz	QPSK	-28.59	32.31	-10.05	1.38	H	< 7.00	0.123	20.88
		16QAM	-29.45	31.45	-10.05	1.38	H		0.101	20.02
		64QAM	-30.44	30.46	-10.05	1.38	H		0.080	19.03
		256QAM	-33.47	27.43	-10.05	1.38	H		0.040	16.00

8.8.3 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
26790 (824.0)	1 648.00	-56.07	9.20	-65.06	2.02	V	-57.88	-13.00
	2 472.00	-57.50	10.20	-61.64	2.49	H	-53.93	-13.00
	3 296.00	-60.86	10.75	-63.21	2.91	H	-55.37	-13.00
	4 120.00	-59.37	11.30	-58.66	3.22	H	-50.58	-13.00
	4 944.00	-61.92	11.00	-57.44	3.60	H	-50.04	-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	3.7029	27.976	-67.167	-39.191	-13.00
	3		3.6666	27.976	-67.101	-39.125	
	5		3.6950	27.976	-66.679	-38.703	
	10		3.7109	27.976	-66.926	-38.950	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 95 ~ 98.
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)

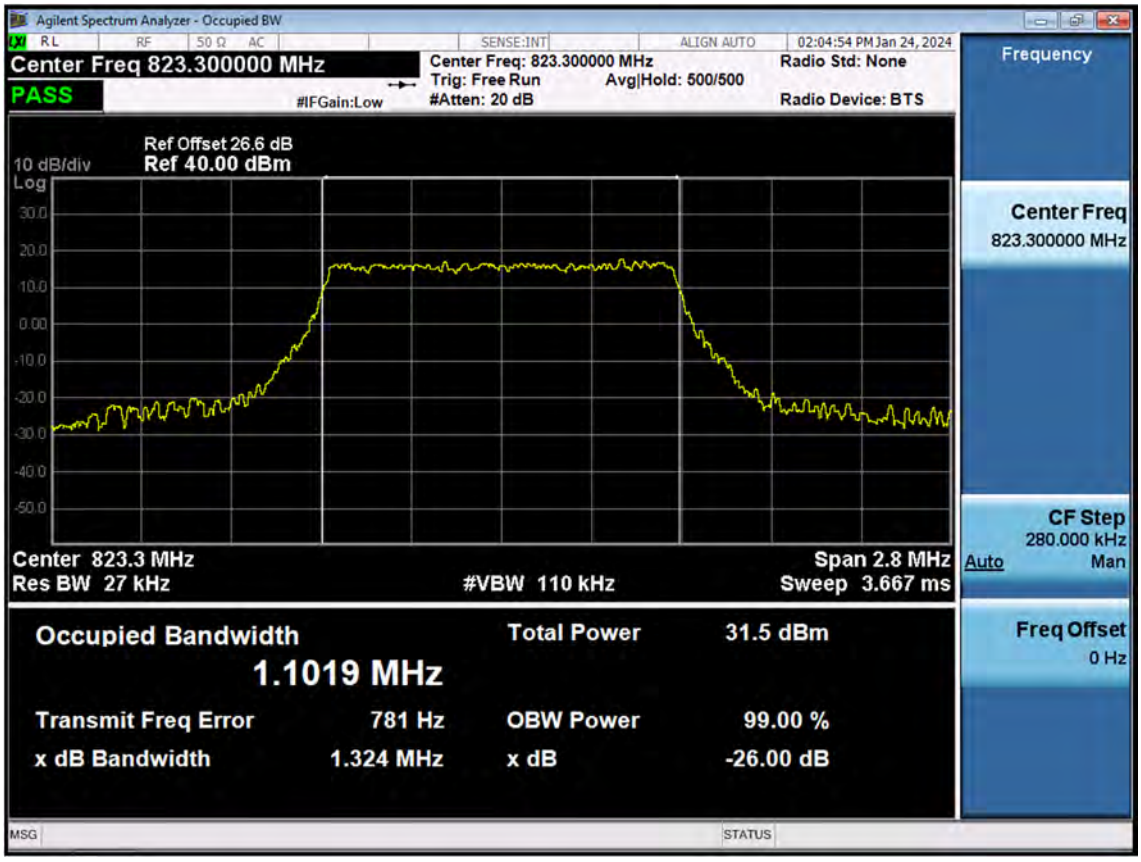
- Test Channel : 26790(824.0MHz)
- Plots of the EUT's Band Edge are shown Page 99 ~ 110.

8.8.6 BAND EDGE(Part22)

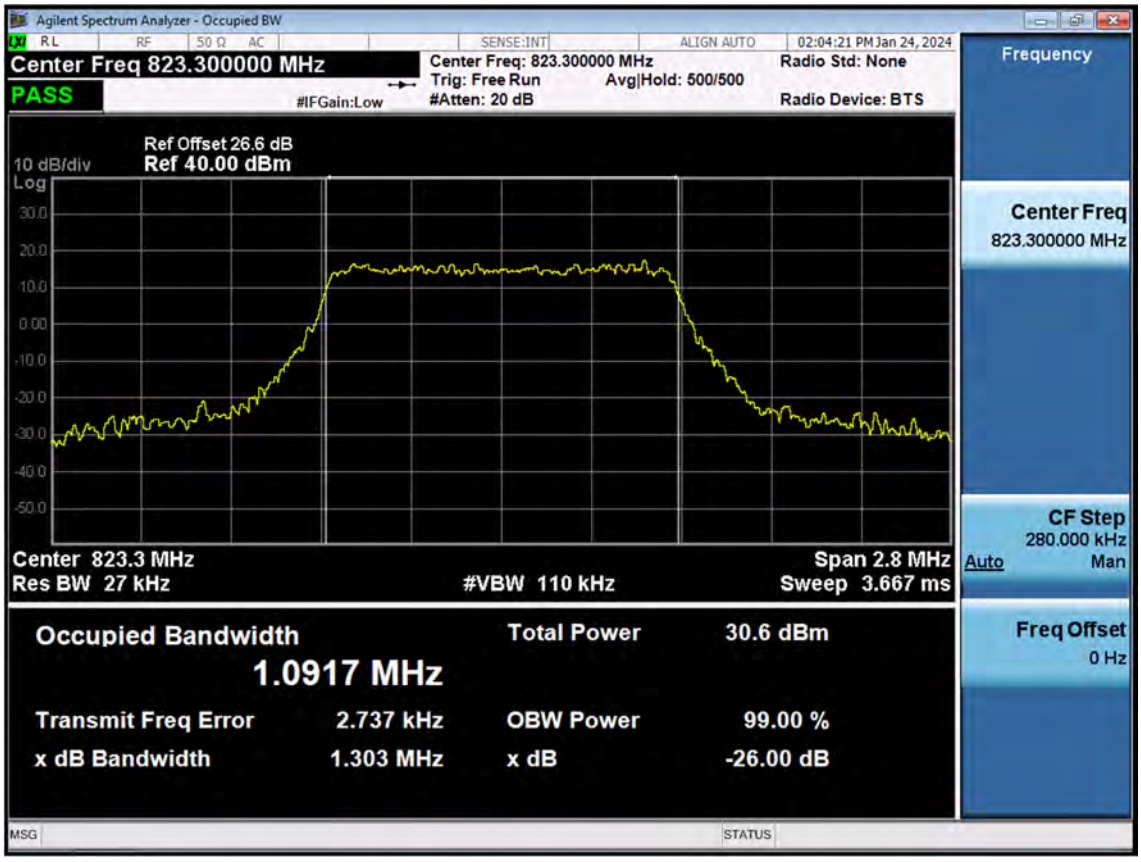
- Test Channel : 26790(824.0 MHz)
- Plots of the EUT's Band Edge are shown Page 111 ~ 118.

9. TEST PLOTS

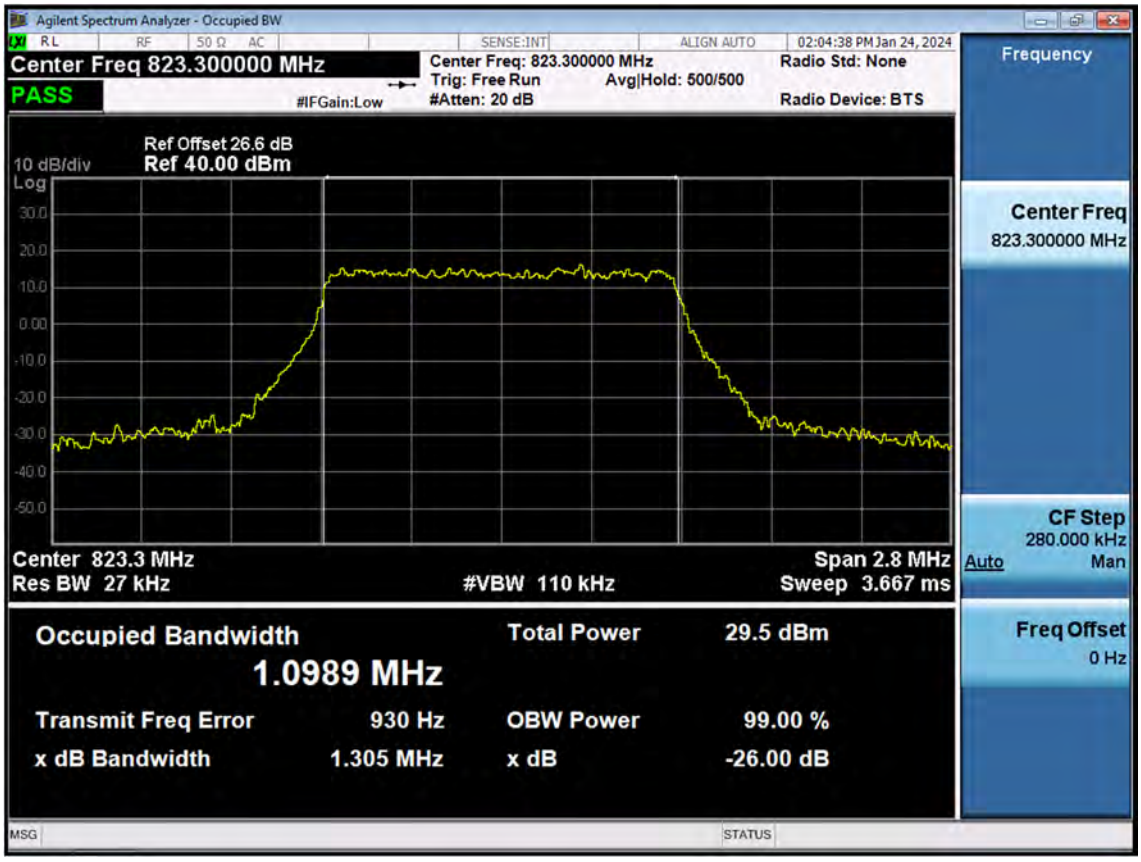
BAND 26. Occupied Bandwidth Plot (1.4 M BW Ch.26783 QPSK RB 6_0)



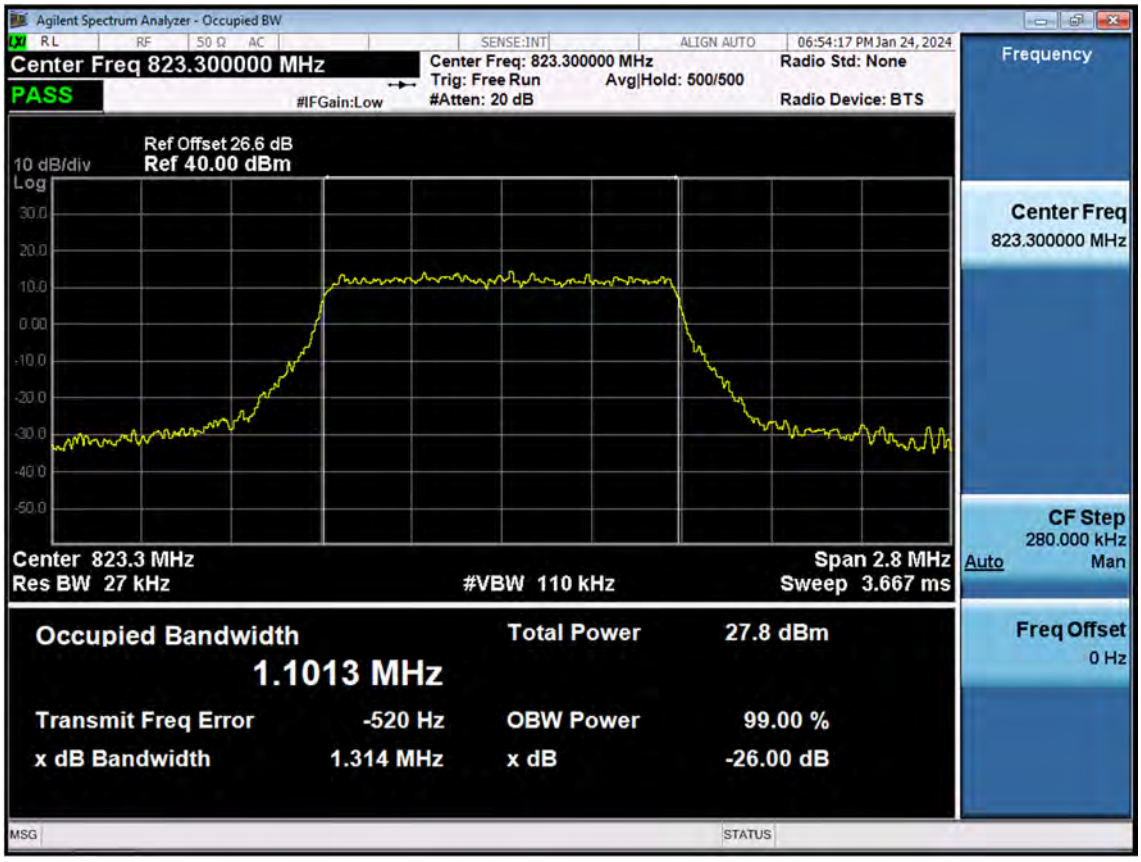
BAND 26. Occupied Bandwidth Plot (1.4 M BW Ch.26783 16QAM RB 6_0)



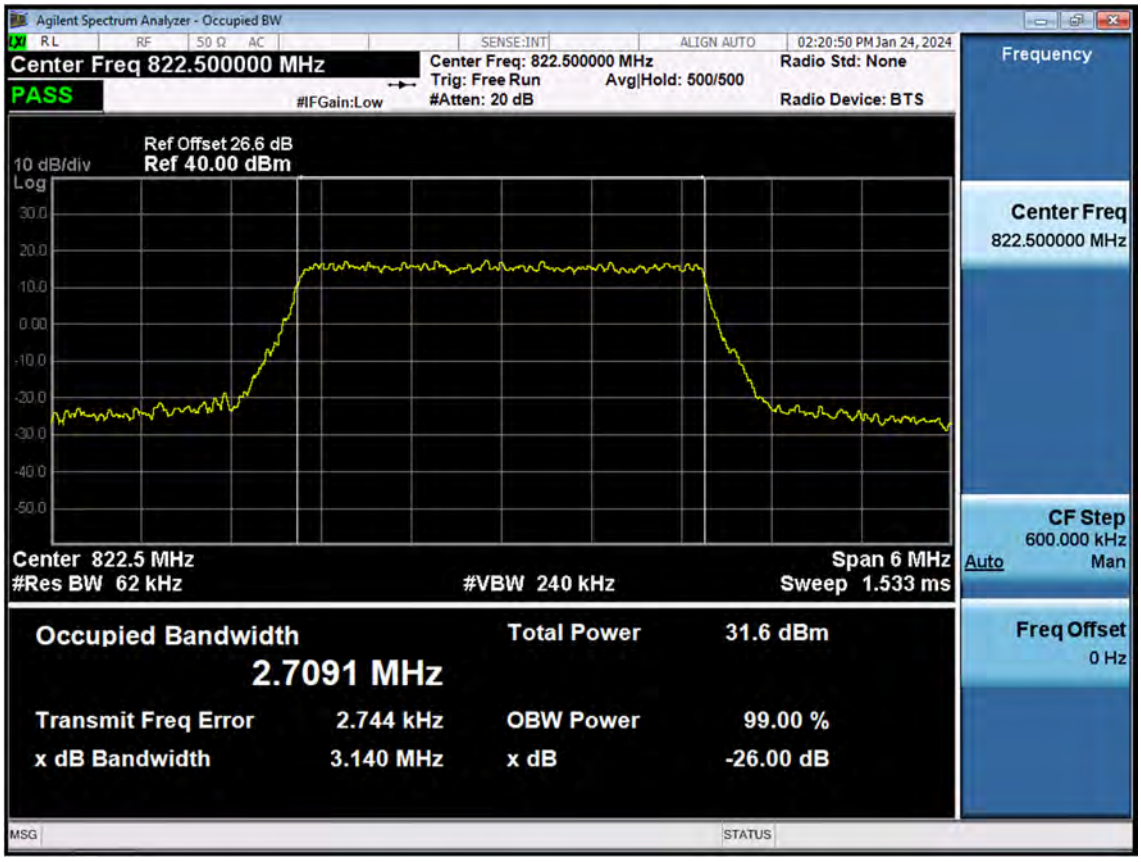
BAND 26. Occupied Bandwidth Plot (1.4 M BW Ch.26783 64QAM RB 6_0)



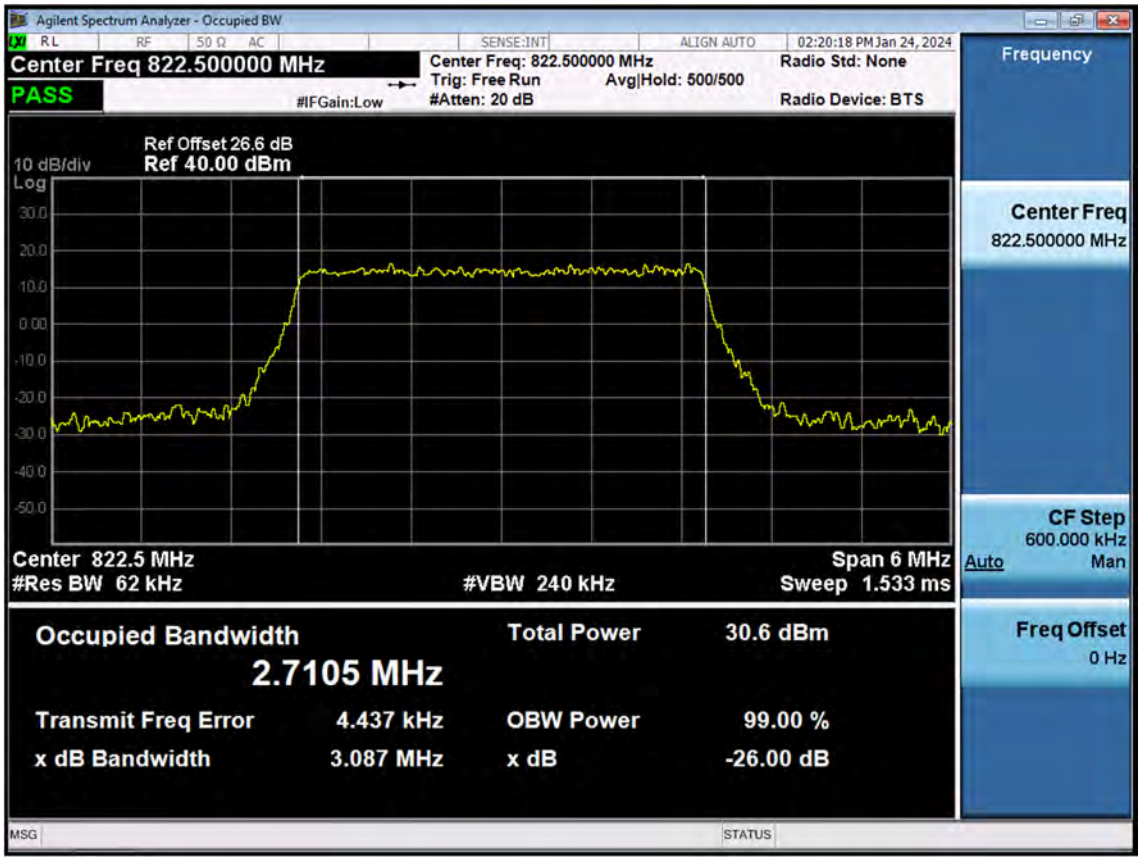
BAND 26. Occupied Bandwidth Plot (1.4 M BW Ch.26783 256QAM RB 6_0)



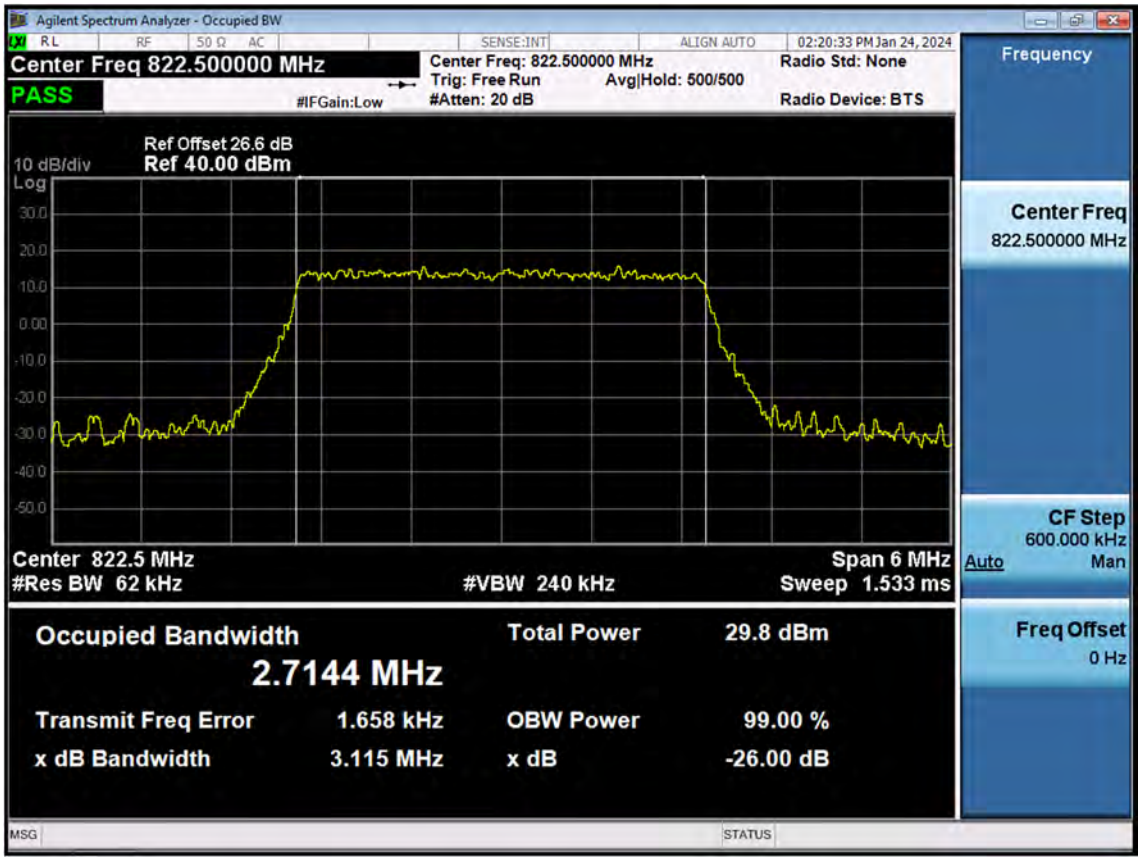
BAND 26. Occupied Bandwidth Plot (3 M BW Ch.26775 QPSK RB 15_0)



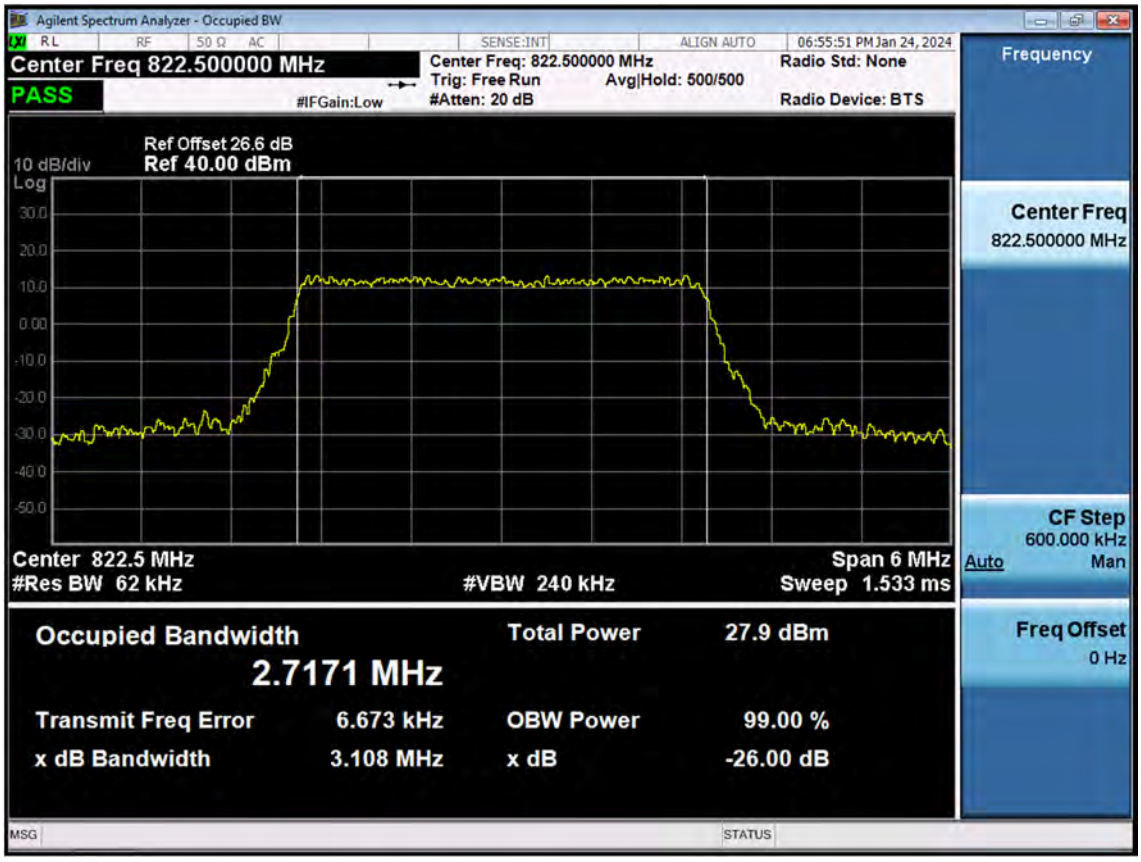
BAND 26. Occupied Bandwidth Plot (3 M BW Ch.26775 16QAM RB 15_0)



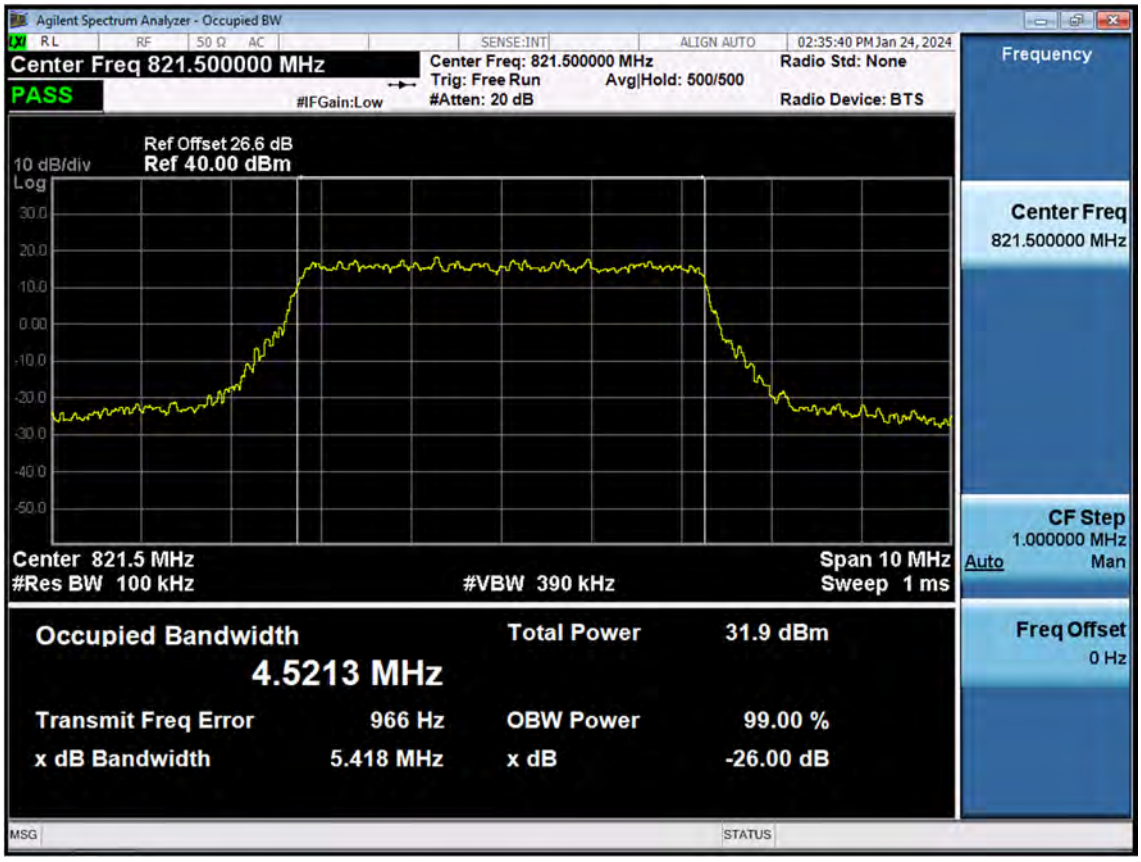
BAND 26. Occupied Bandwidth Plot (3 M BW Ch.26775 64QAM RB 15_0)



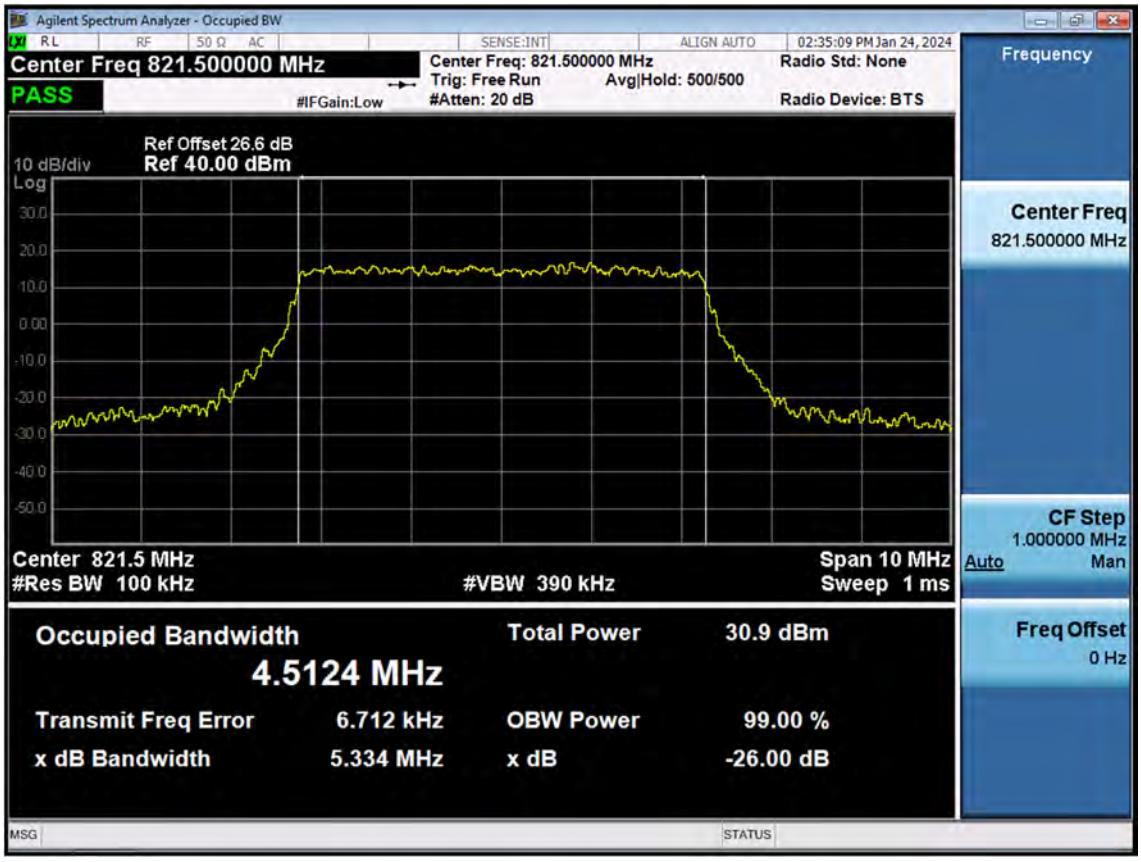
BAND 26. Occupied Bandwidth Plot (3 M BW Ch.26775 256QAM RB 15_0)



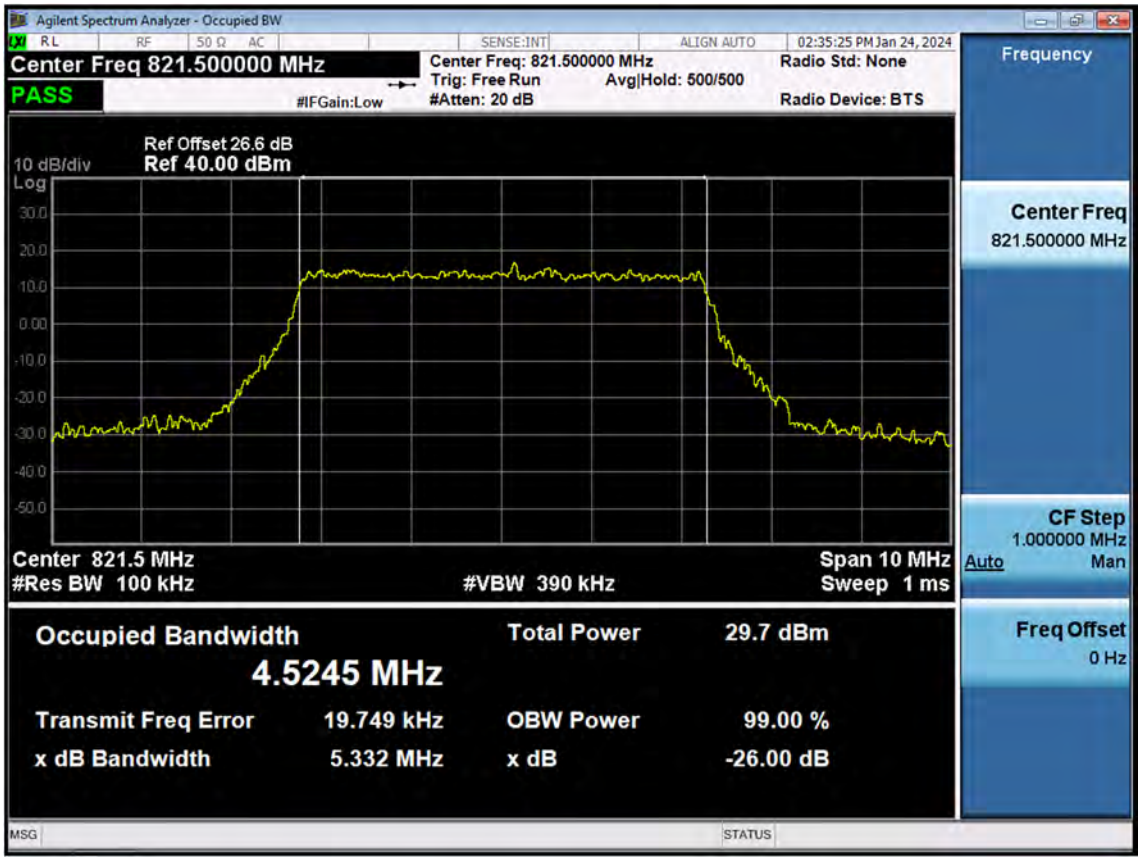
BAND 26. Occupied Bandwidth Plot (5 M BW Ch.26765 QPSK RB 25_0)



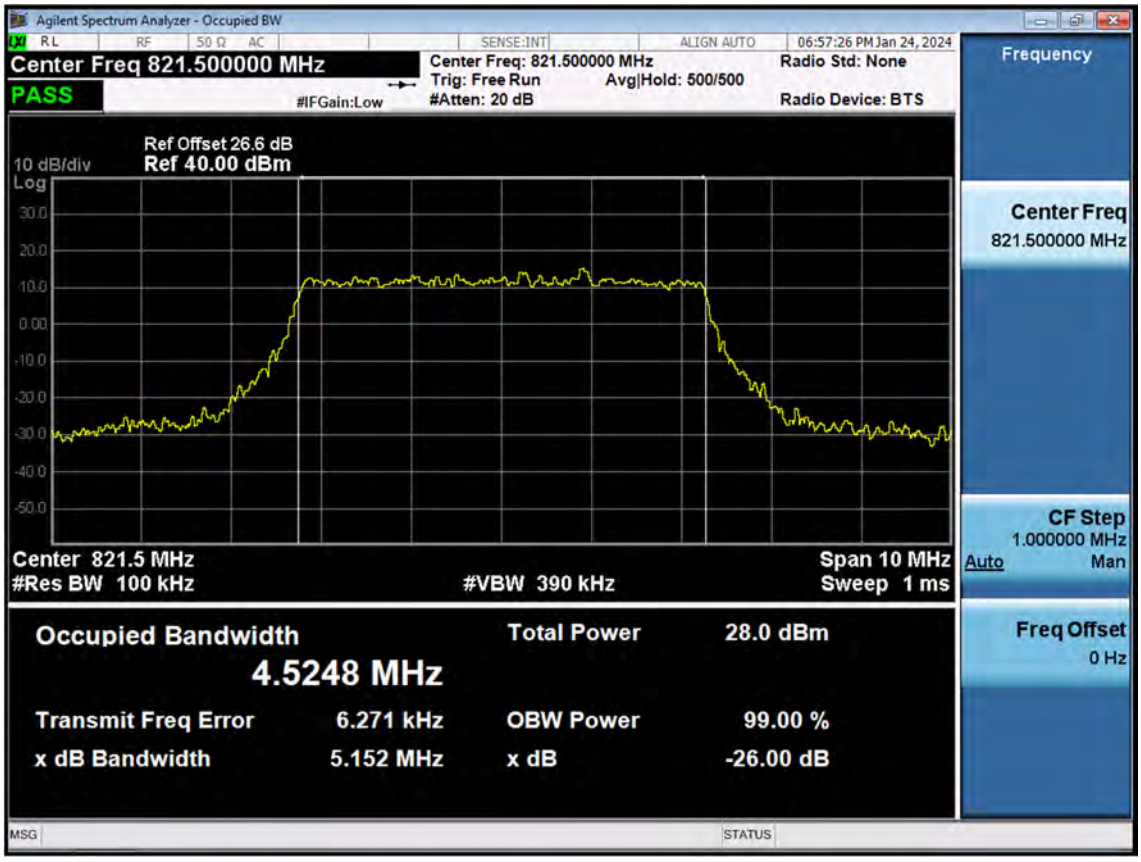
BAND 26. Occupied Bandwidth Plot (5 M BW Ch.26765 16QAM RB 25_0)



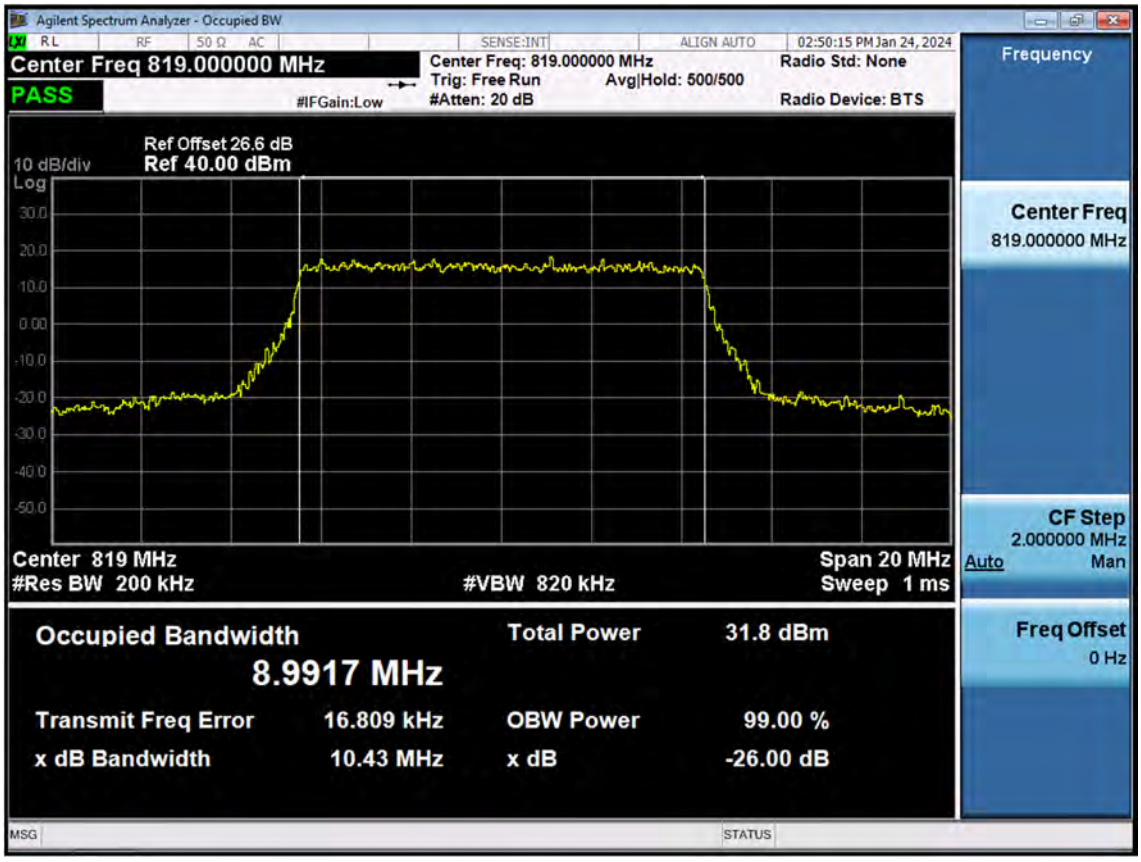
BAND 26. Occupied Bandwidth Plot (5 M BW Ch.26765 64QAM RB 25_0)



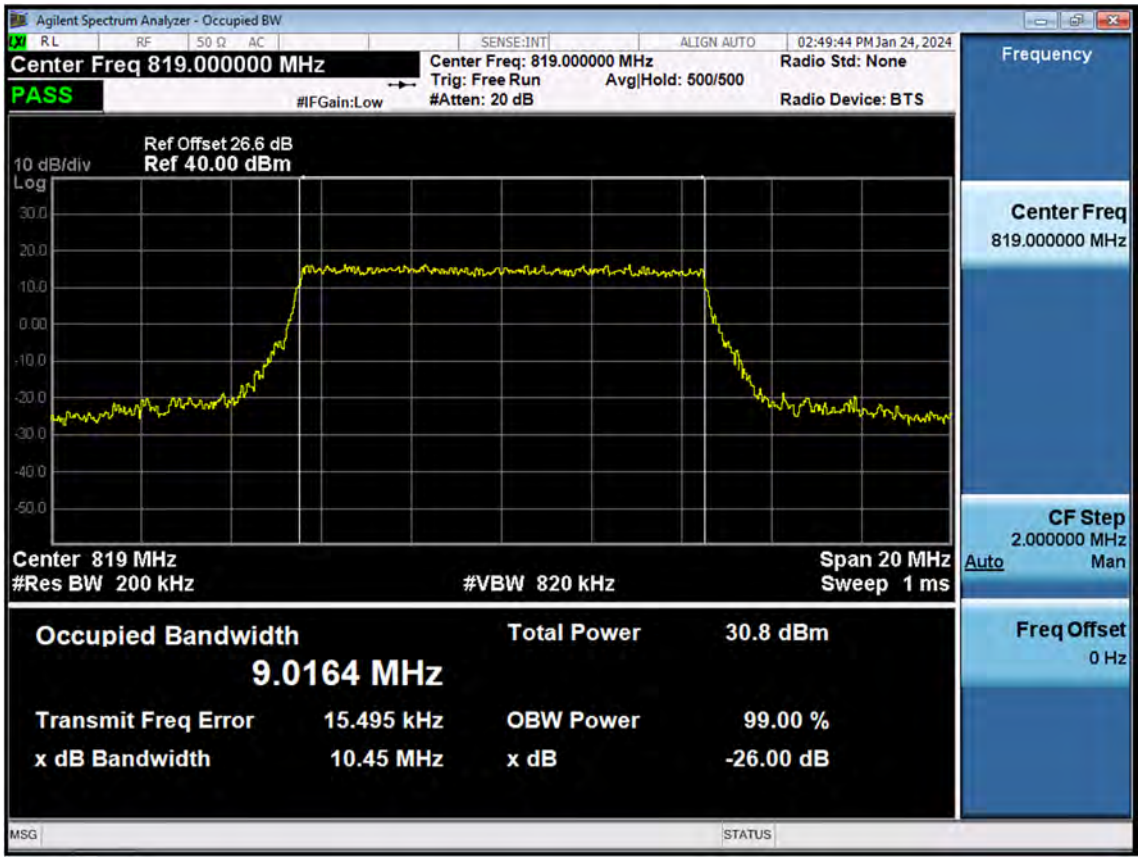
BAND 26. Occupied Bandwidth Plot (5 M BW Ch.26765 256QAM RB 25_0)



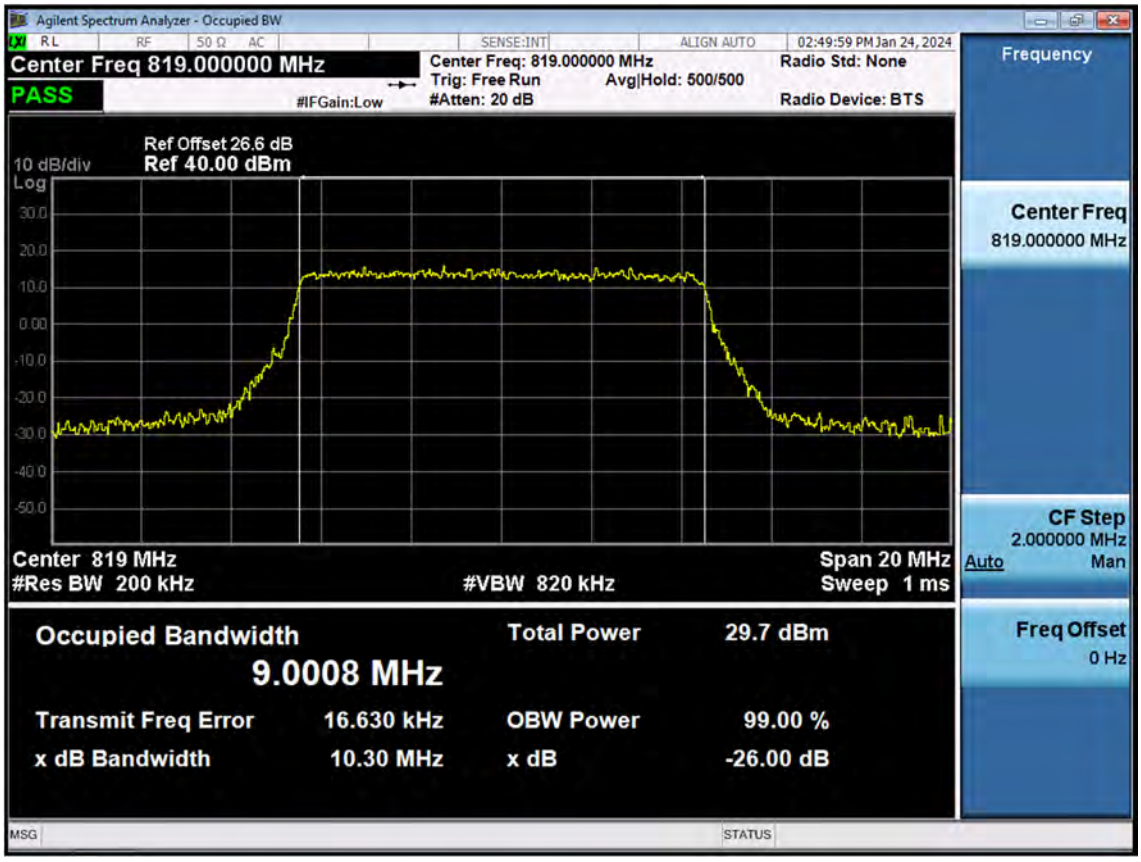
BAND 26. Occupied Bandwidth Plot (10 M BW Ch.26740 QPSK RB 50_0)



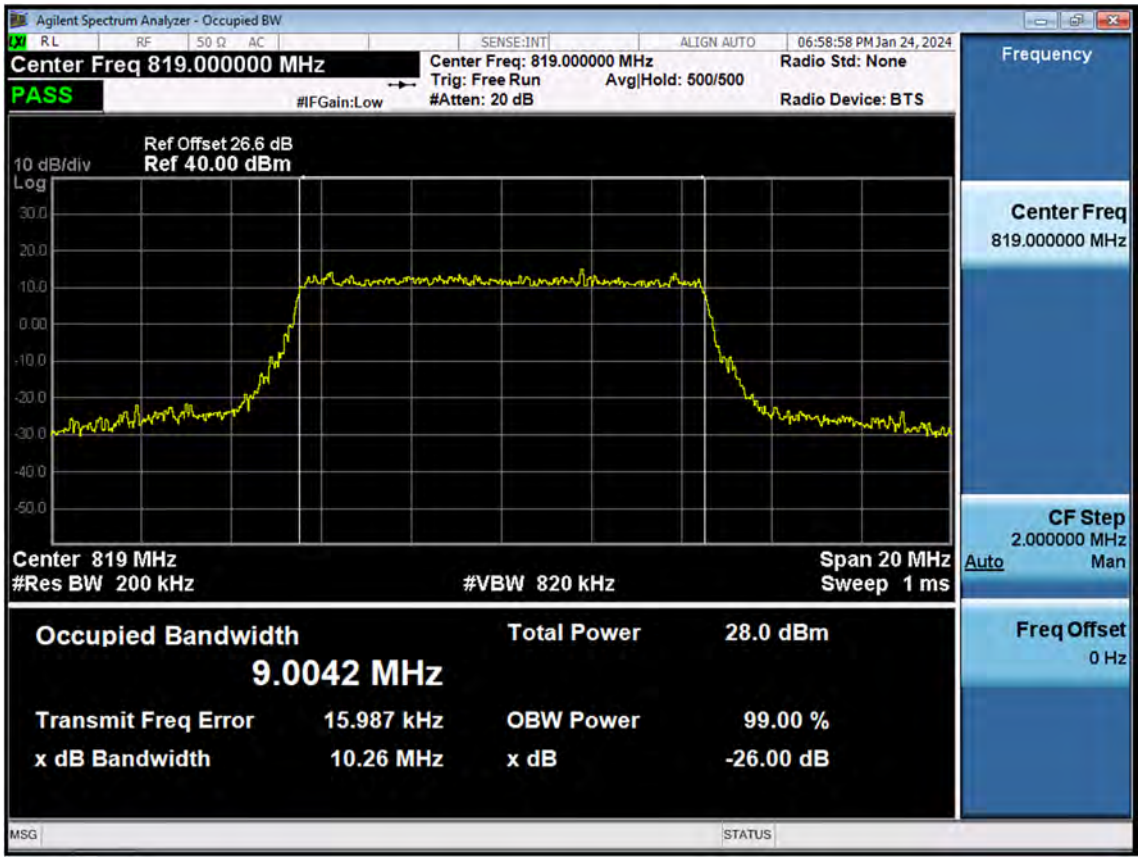
BAND 26. Occupied Bandwidth Plot (10 M BW Ch.26740 16QAM RB 50_0)



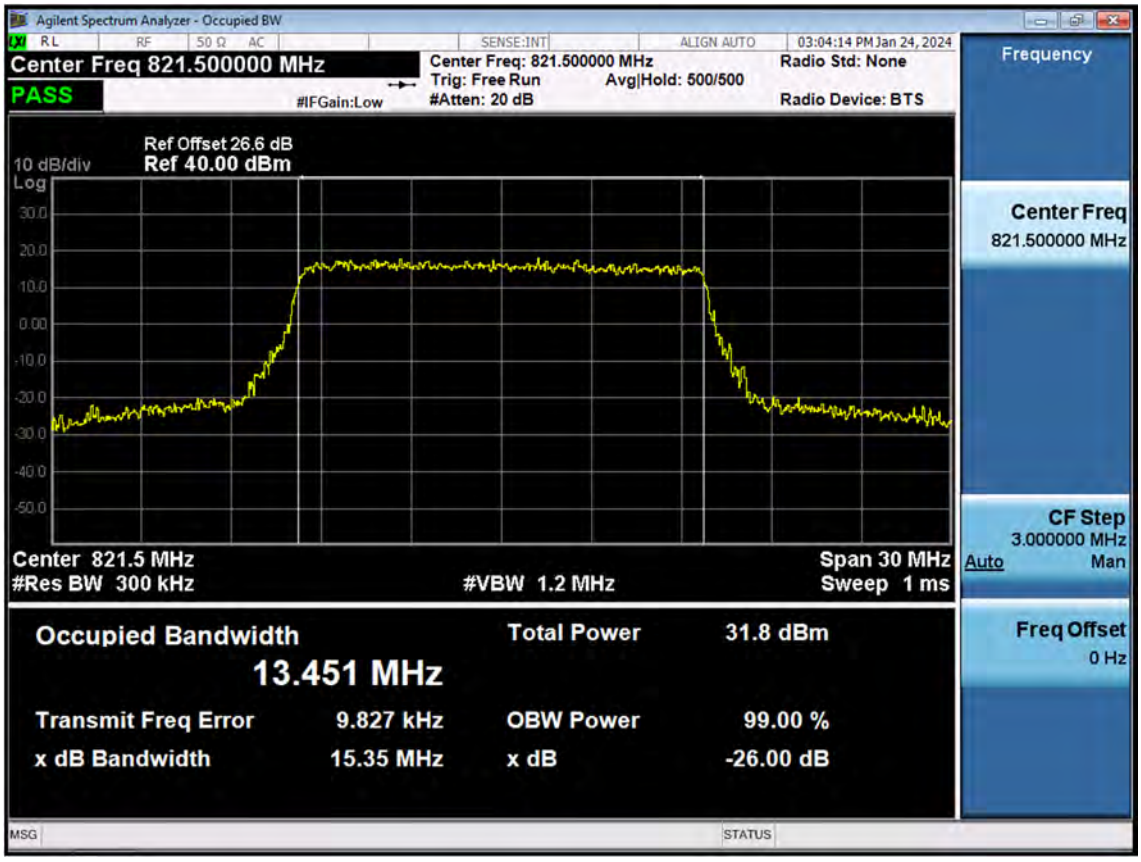
BAND 26. Occupied Bandwidth Plot (10 M BW Ch.26740 64QAM RB 50_0)



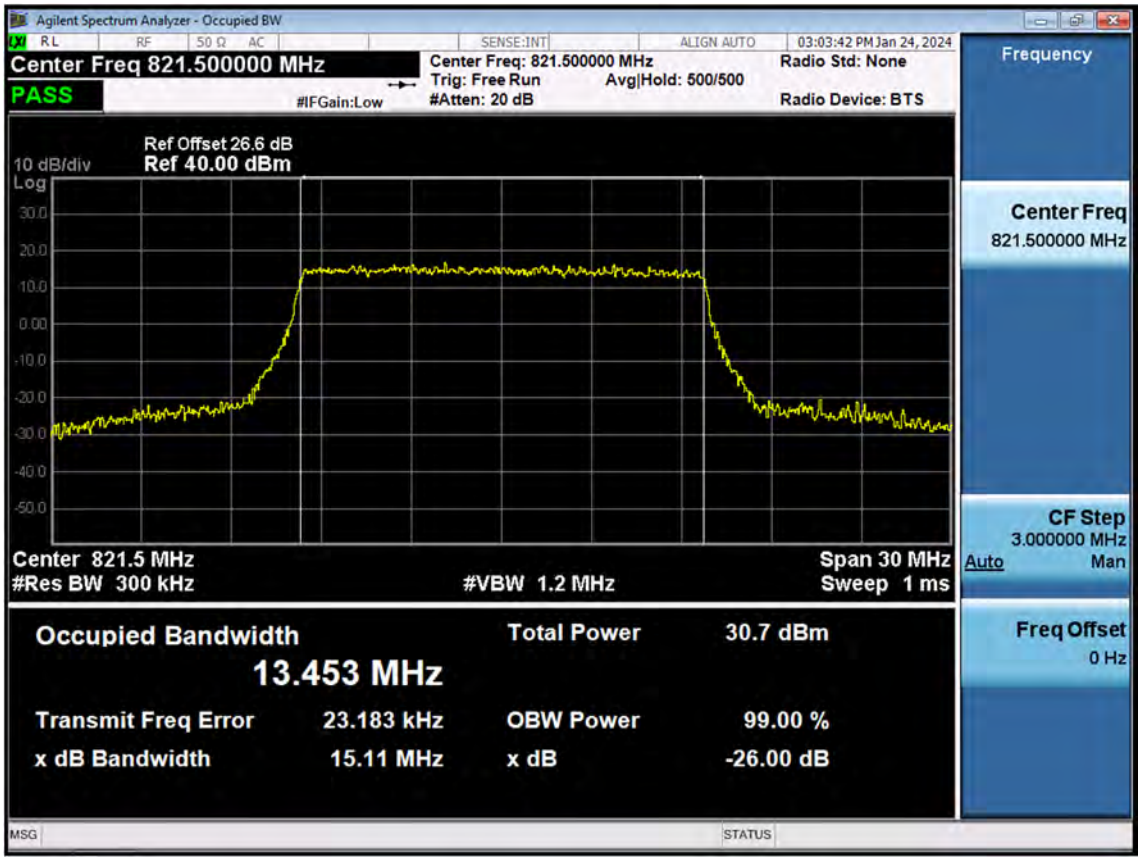
BAND 26. Occupied Bandwidth Plot (10 M BW Ch.26740 256QAM RB 50_0)



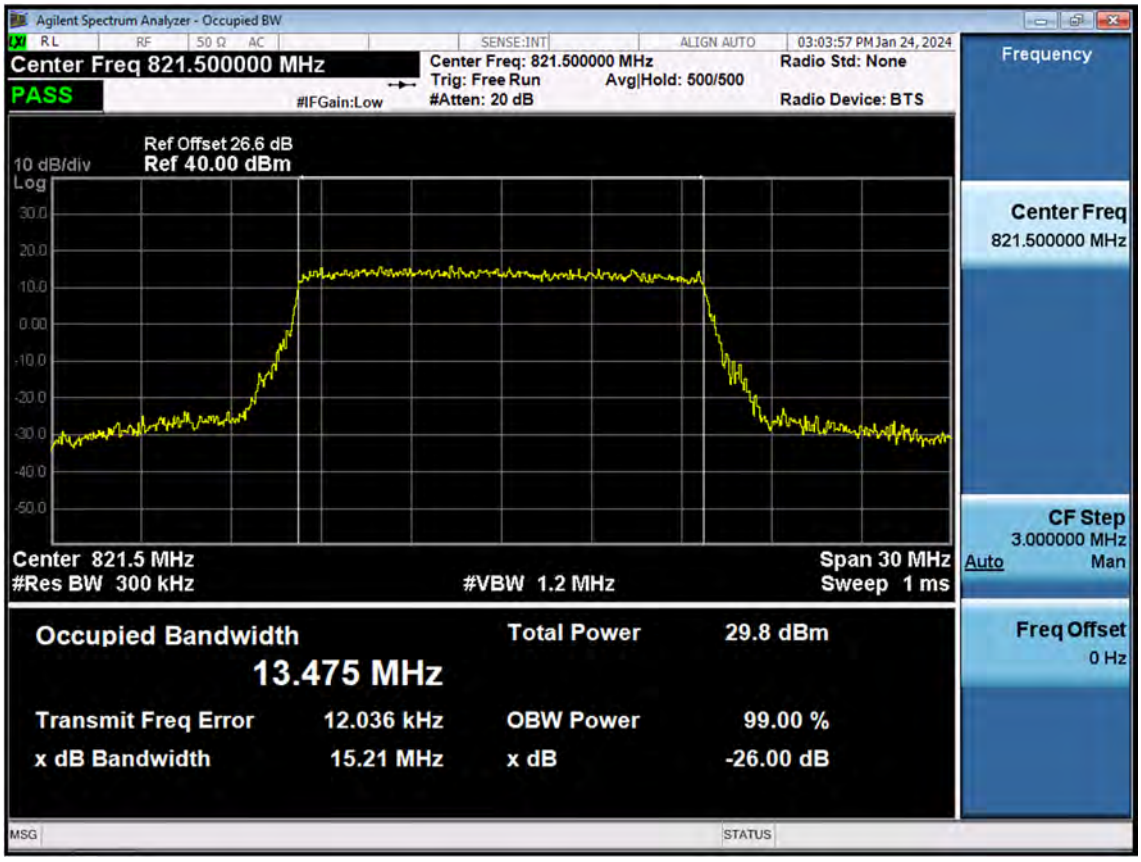
BAND 26. Occupied Bandwidth Plot (15 M BW Ch.26765 QPSK RB 75_0)



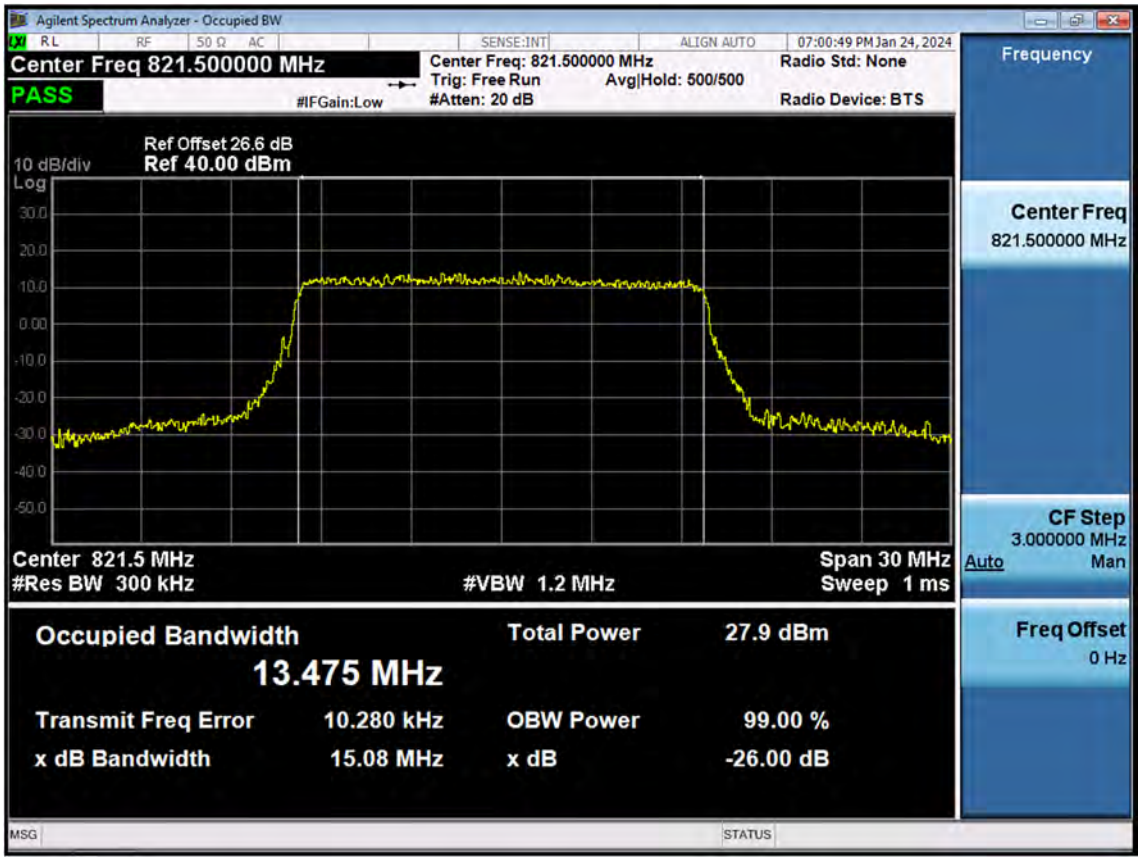
BAND 26. Occupied Bandwidth Plot (15 M BW Ch.26765 16QAM RB 75_0)



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

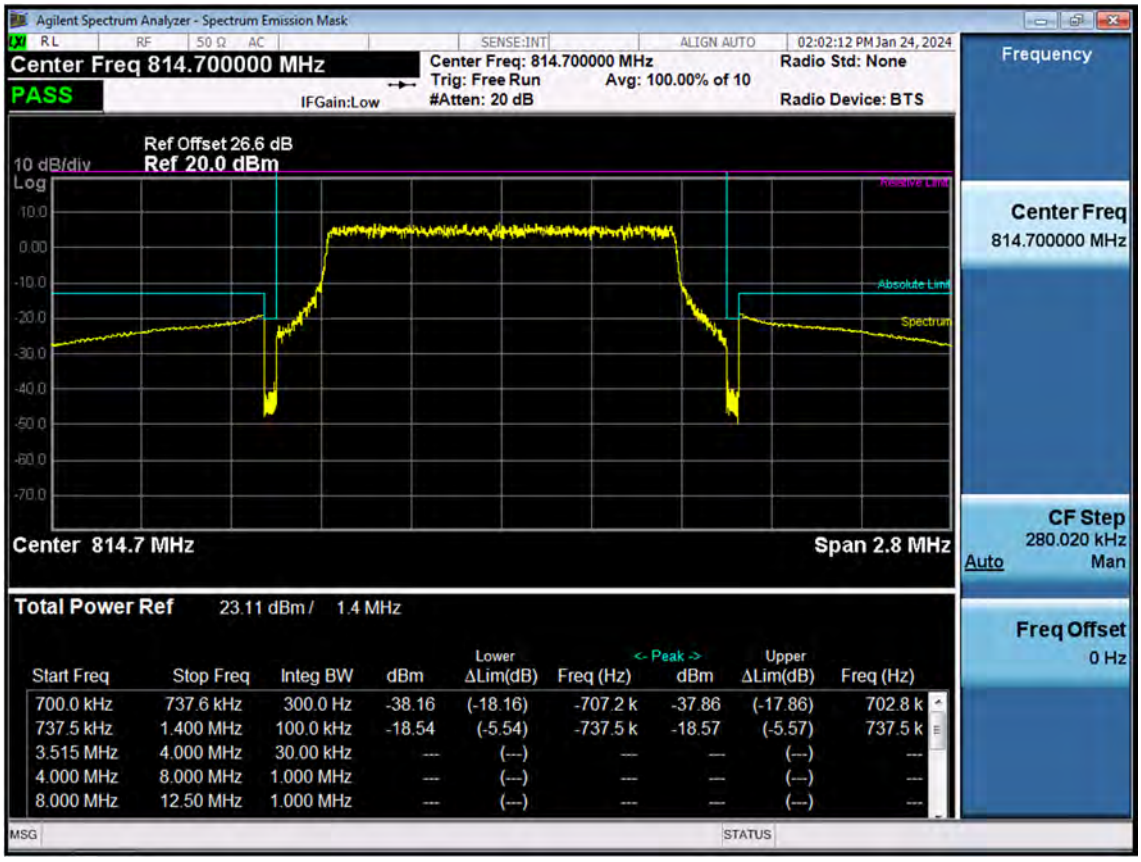


BAND 26. Occupied Bandwidth Plot (15 M BW Ch.26765 256QAM RB 75_0)

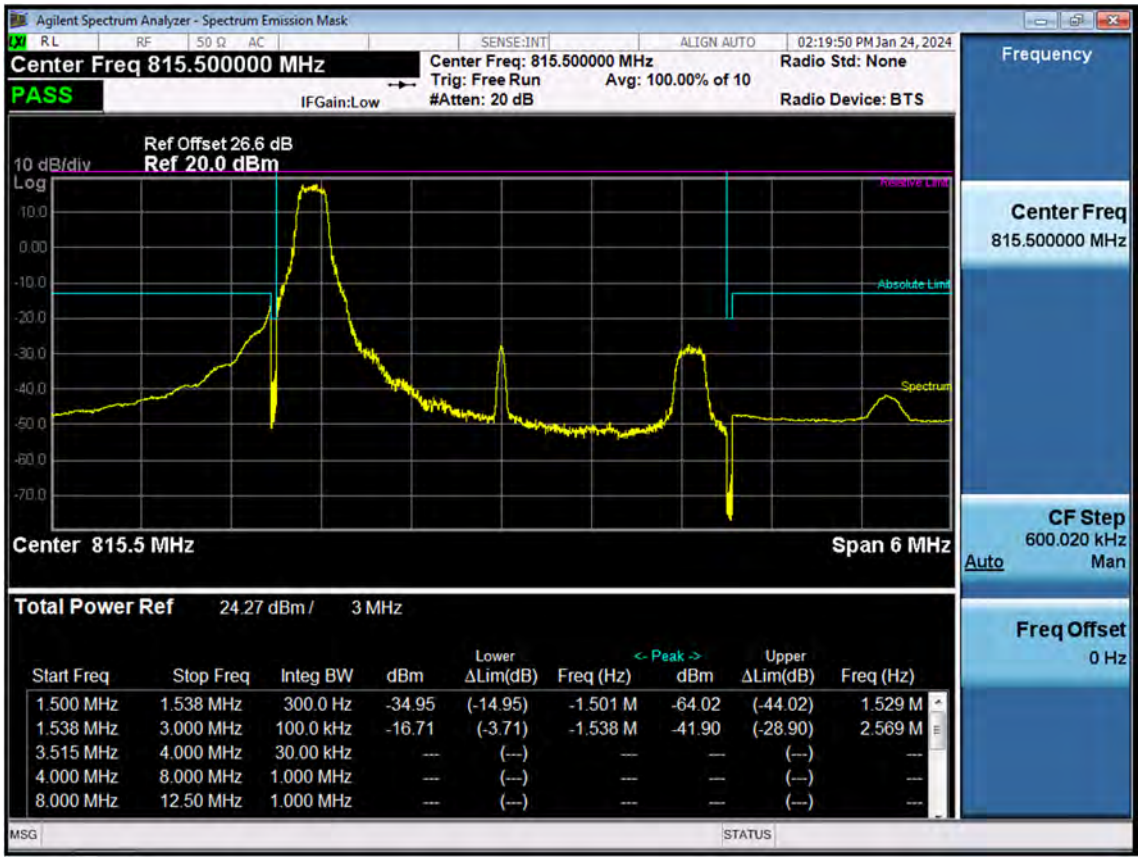


BAND 26. Lower Channel Edge Plot (1.4 M BW Ch.26697 QPSK RB 1, Offset 0)

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



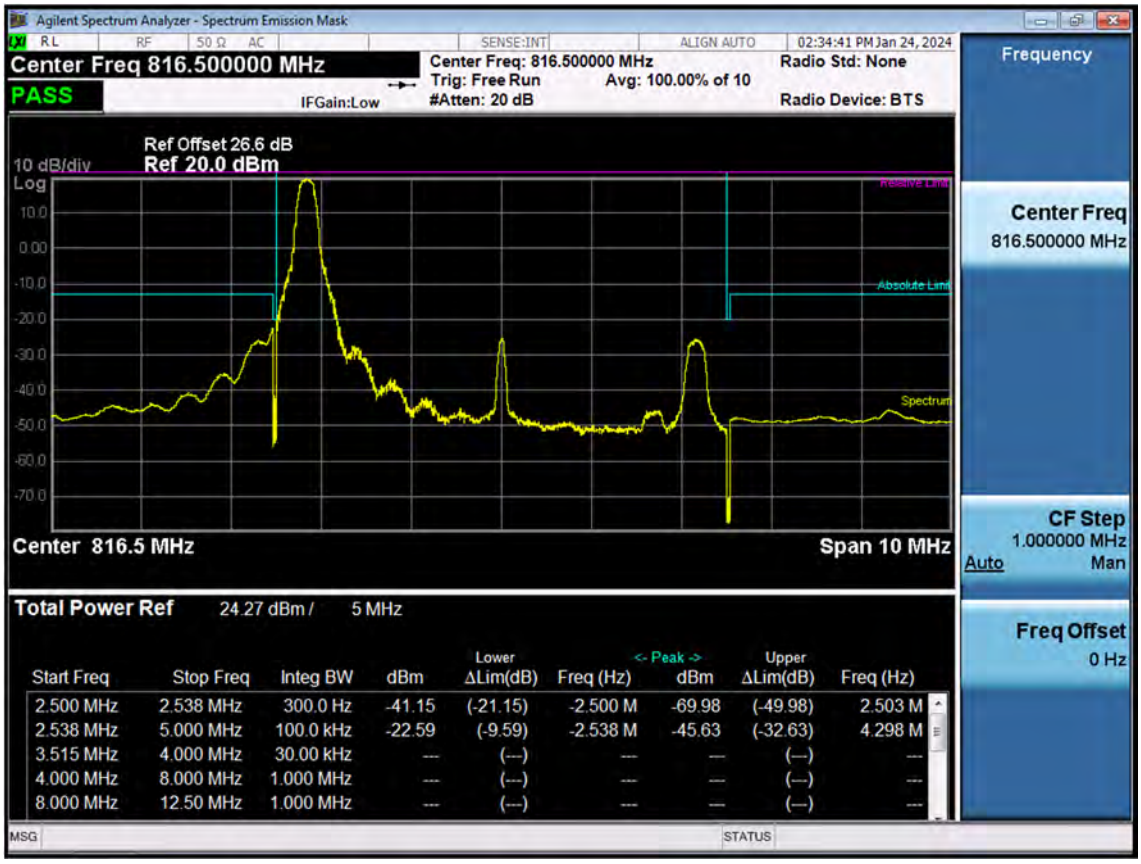
BAND 26. Lower Channel Edge Plot (3 M BW Ch.26705 QPSK RB 1, Offset 0)



Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	<- Peak -> Freq (Hz)	dBm	Upper ΔLim(dB)	Freq (Hz)
1.500 MHz	1.538 MHz	300.0 Hz	-34.95	(-14.95)	-1.501 M	-64.02	(-44.02)	1.529 M
1.538 MHz	3.000 MHz	100.0 kHz	-16.71	(-3.71)	-1.538 M	-41.90	(-28.90)	2.569 M
3.515 MHz	4.000 MHz	30.00 kHz	---	(---)	---	---	(---)	---
4.000 MHz	8.000 MHz	1.000 MHz	---	(---)	---	---	(---)	---
8.000 MHz	12.50 MHz	1.000 MHz	---	(---)	---	---	(---)	---

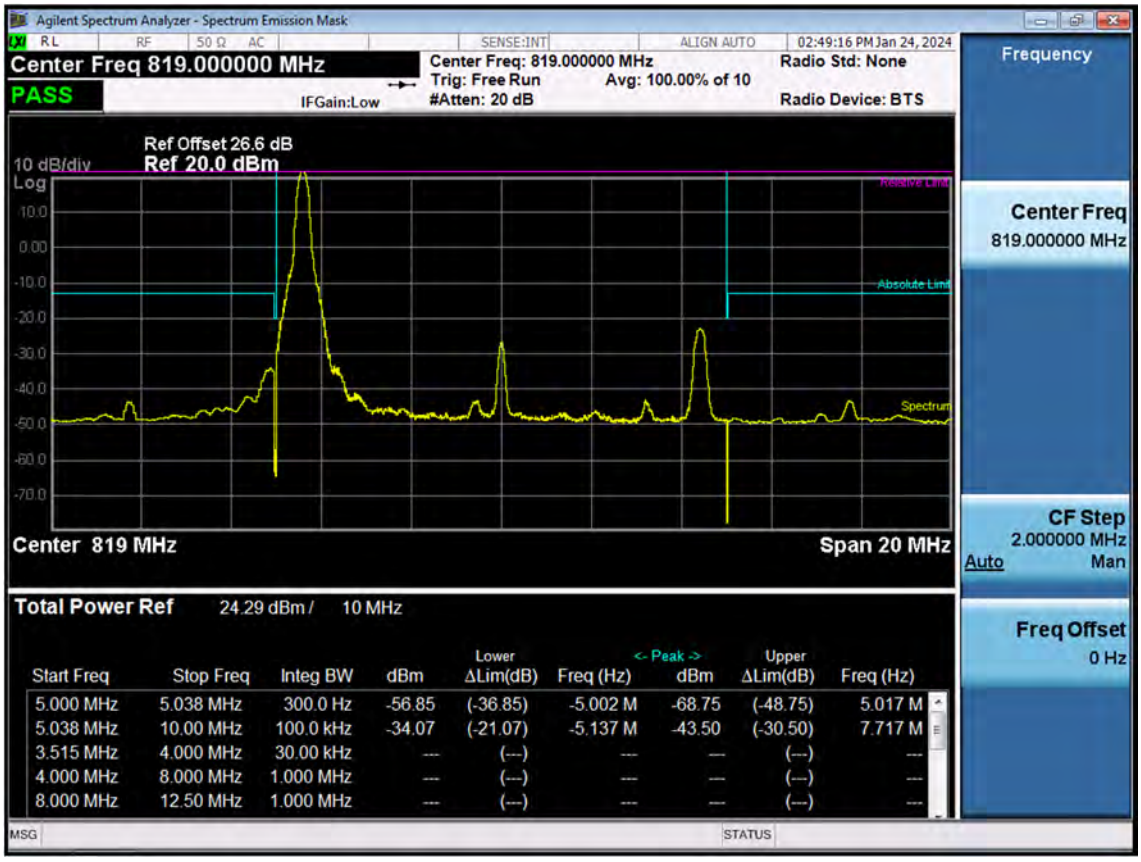
BAND 26. Lower Channel Edge Plot (3 M BW Ch.26705 QPSK_RB15_Offset 0)

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



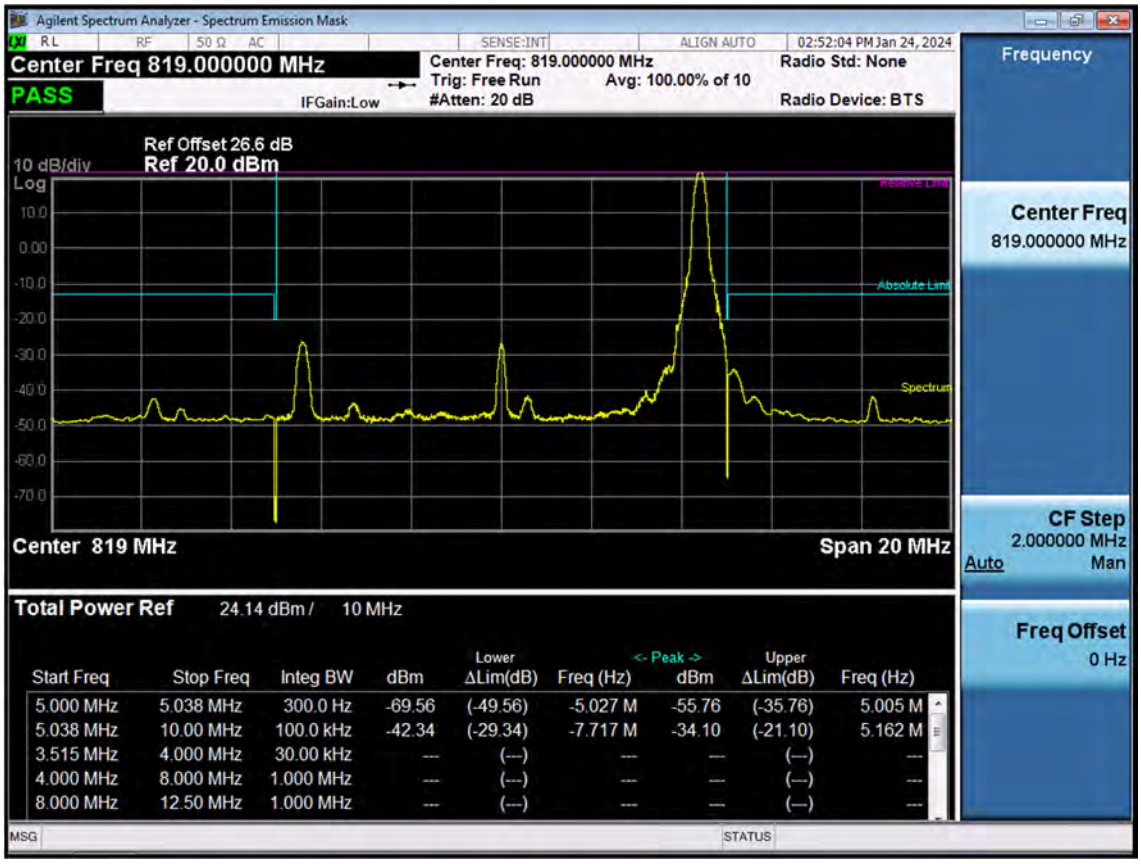
BAND 26. Lower Channel Edge Plot (5 M BW Ch.26715 QPSK_RB25_Offset 0)

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

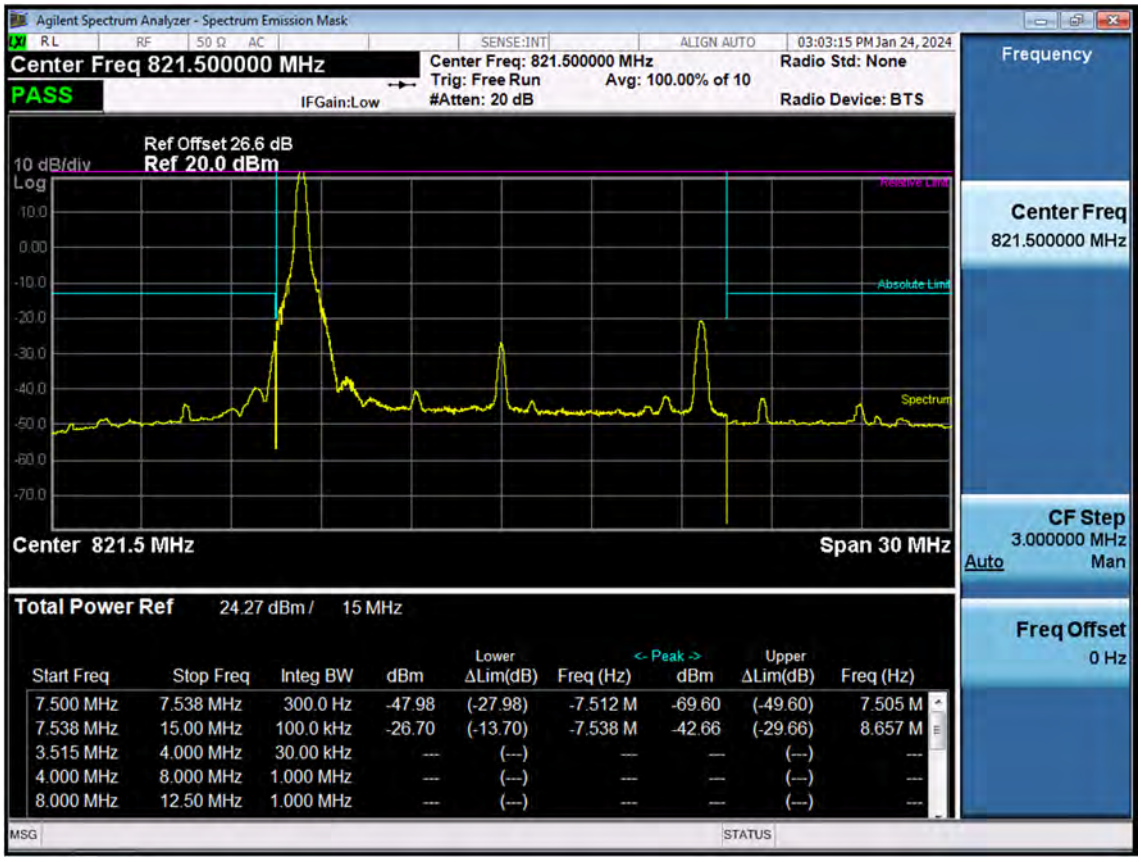


BAND 26. Low Channel Edge Plot (10 M BW Ch.26740 QPSK_RB50_Offset 0)

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



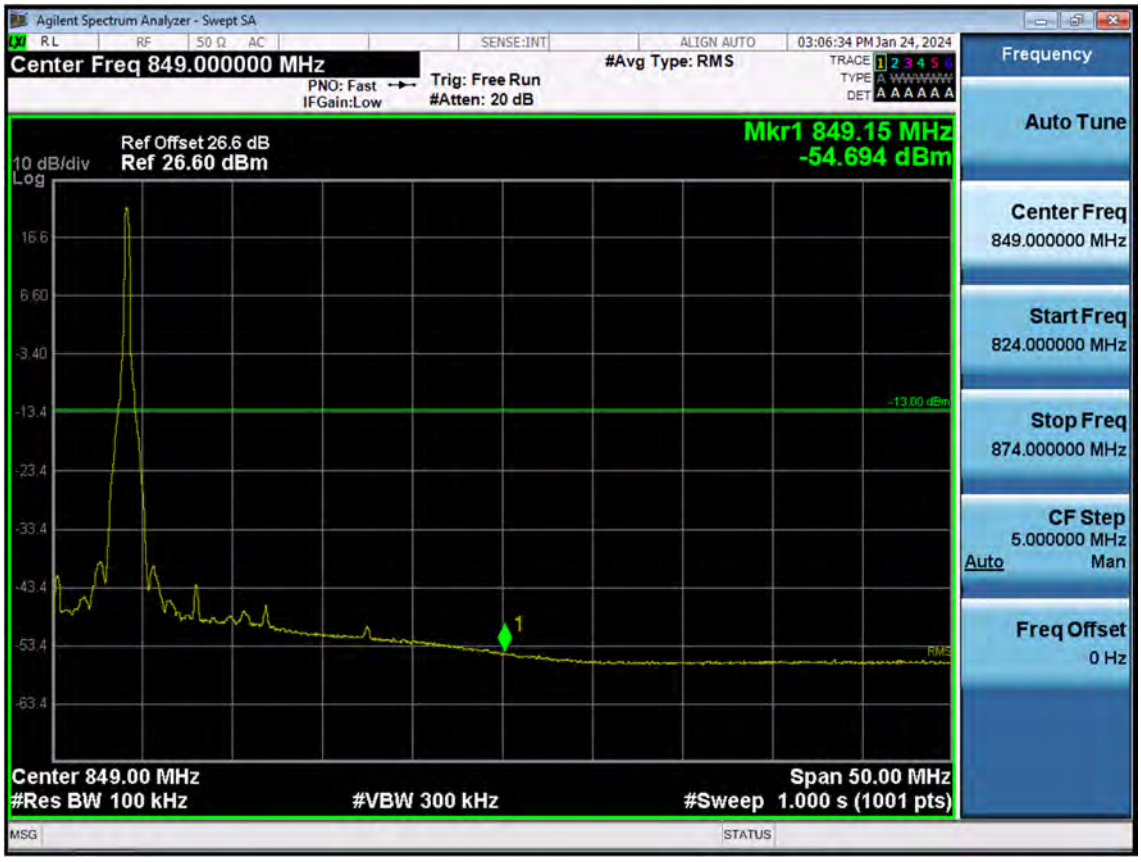
BAND 26. Low Channel Edge Plot (15 M BW Ch.26765 QPSK RB 1, Offset 0)



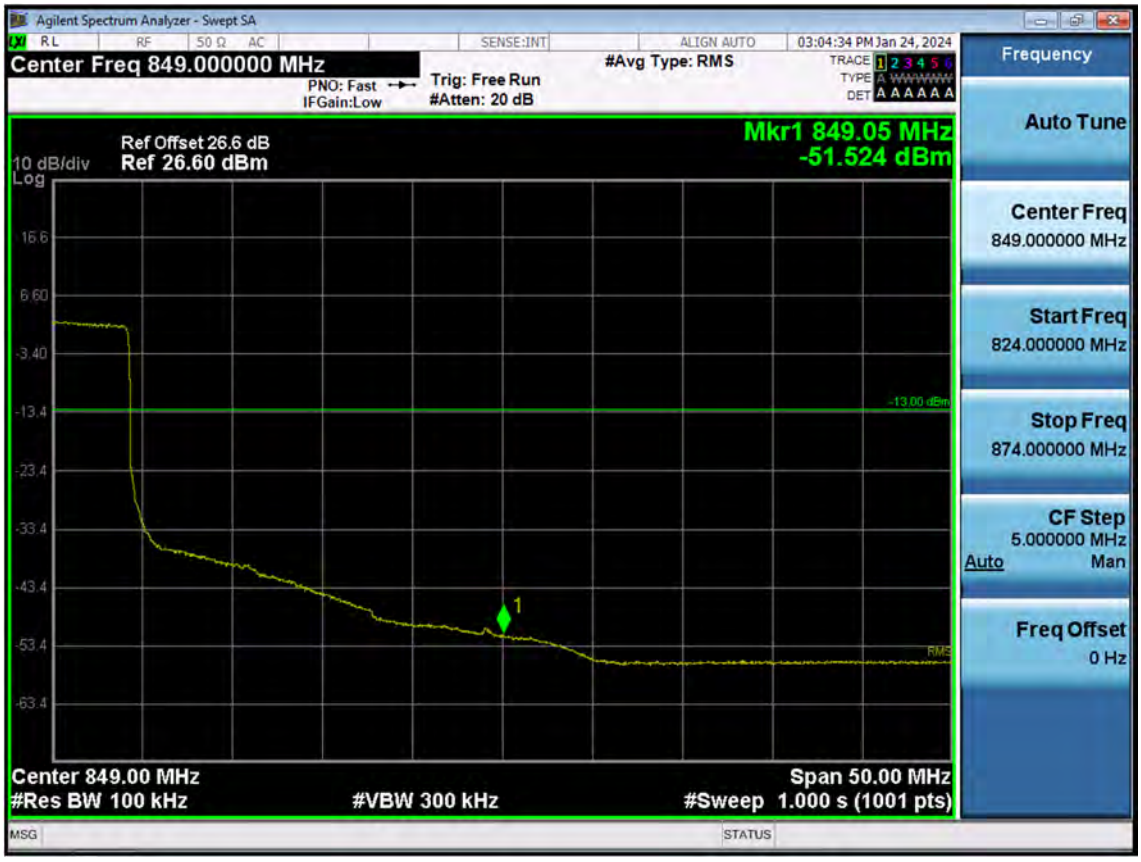
BAND 26. Low Channel Edge Plot (15 M BW Ch.26765 QPSK RB 75, Offset0)

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

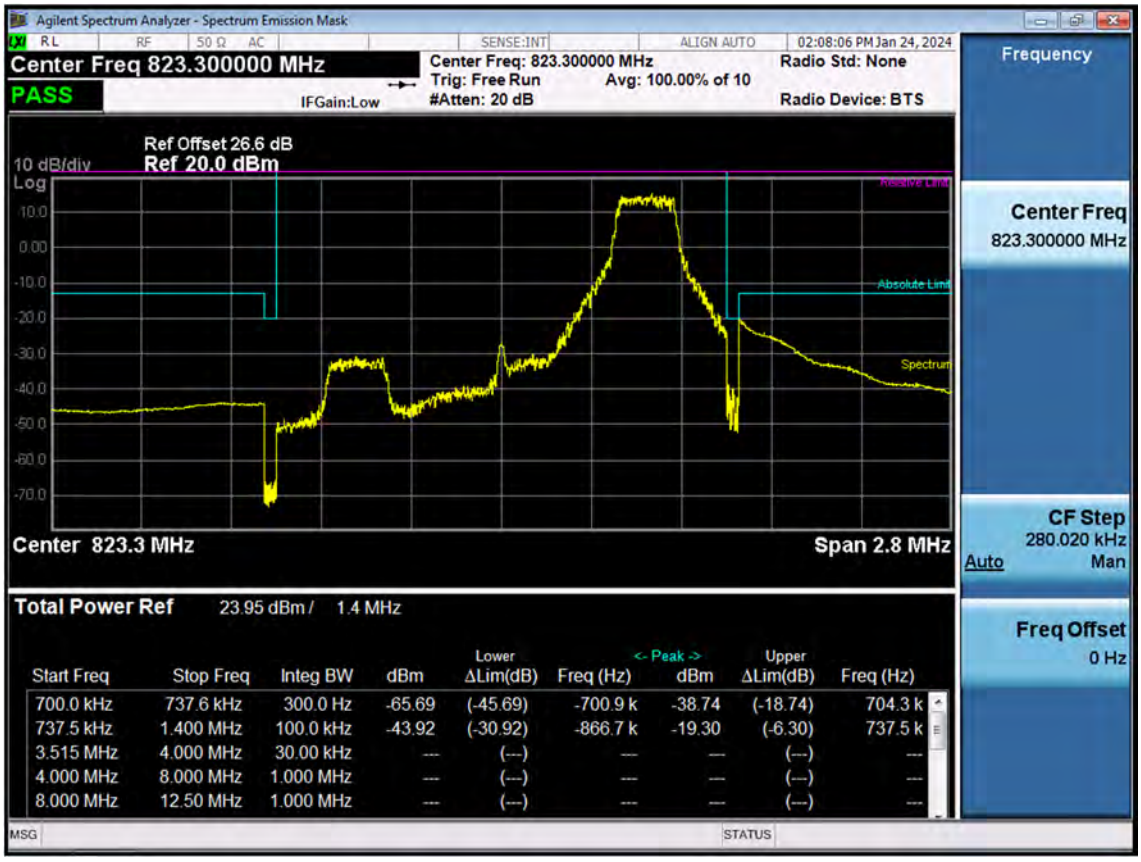
BAND 26. Mid Band Edge Plot (15 M BW Ch.26765 QPSK RB 1, Offset74)



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



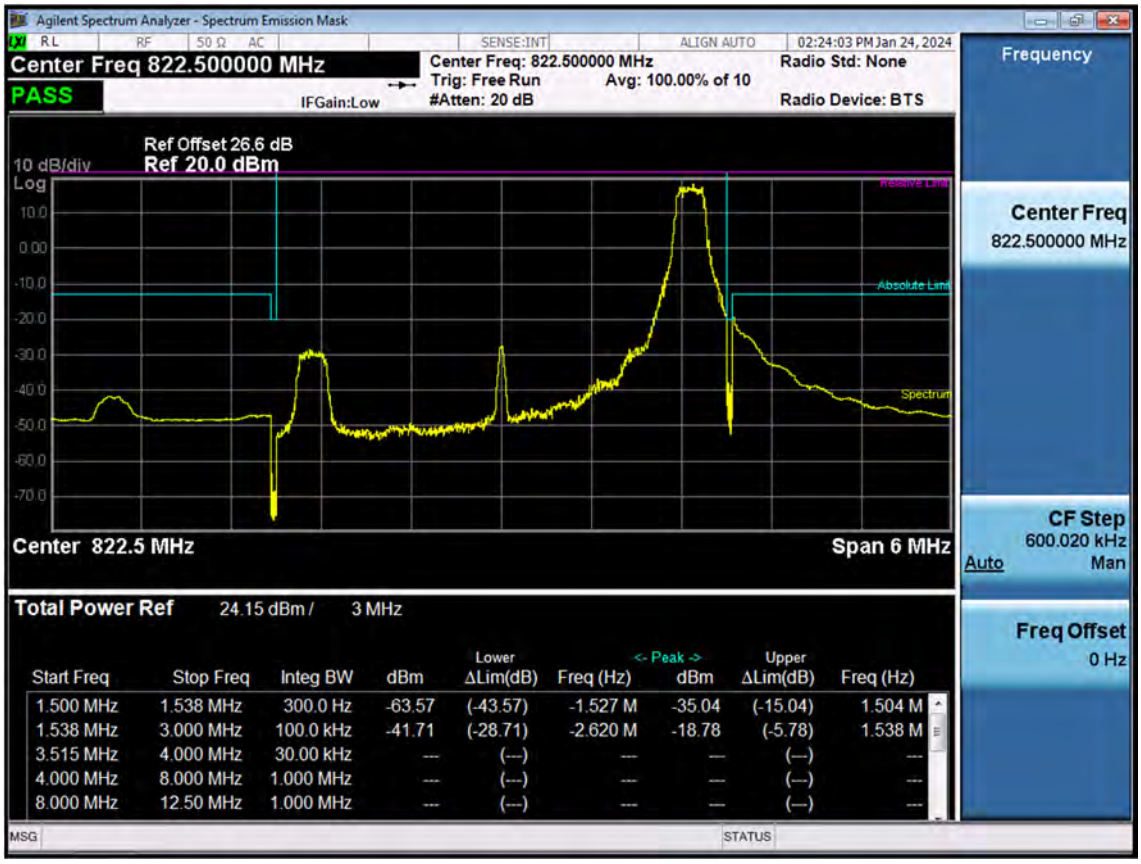
BAND 26. Upper Channel Edge Plot (1.4 M BW Ch.26783 QPSK_RB1_Offset 5)



Start Freq	Stop Freq	Integ BW	dBm	Lower ΔLim(dB)	<- Peak -> Freq (Hz)	dBm	Upper ΔLim(dB)	Freq (Hz)
700.0 kHz	737.6 kHz	300.0 Hz	-65.69	(-45.69)	-700.9 k	-38.74	(-18.74)	704.3 k
737.5 kHz	1.400 MHz	100.0 kHz	-43.92	(-30.92)	-866.7 k	-19.30	(-6.30)	737.5 k
3.515 MHz	4.000 MHz	30.00 kHz	---	(---)	---	---	(---)	---
4.000 MHz	8.000 MHz	1.000 MHz	---	(---)	---	---	(---)	---
8.000 MHz	12.50 MHz	1.000 MHz	---	(---)	---	---	(---)	---

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)

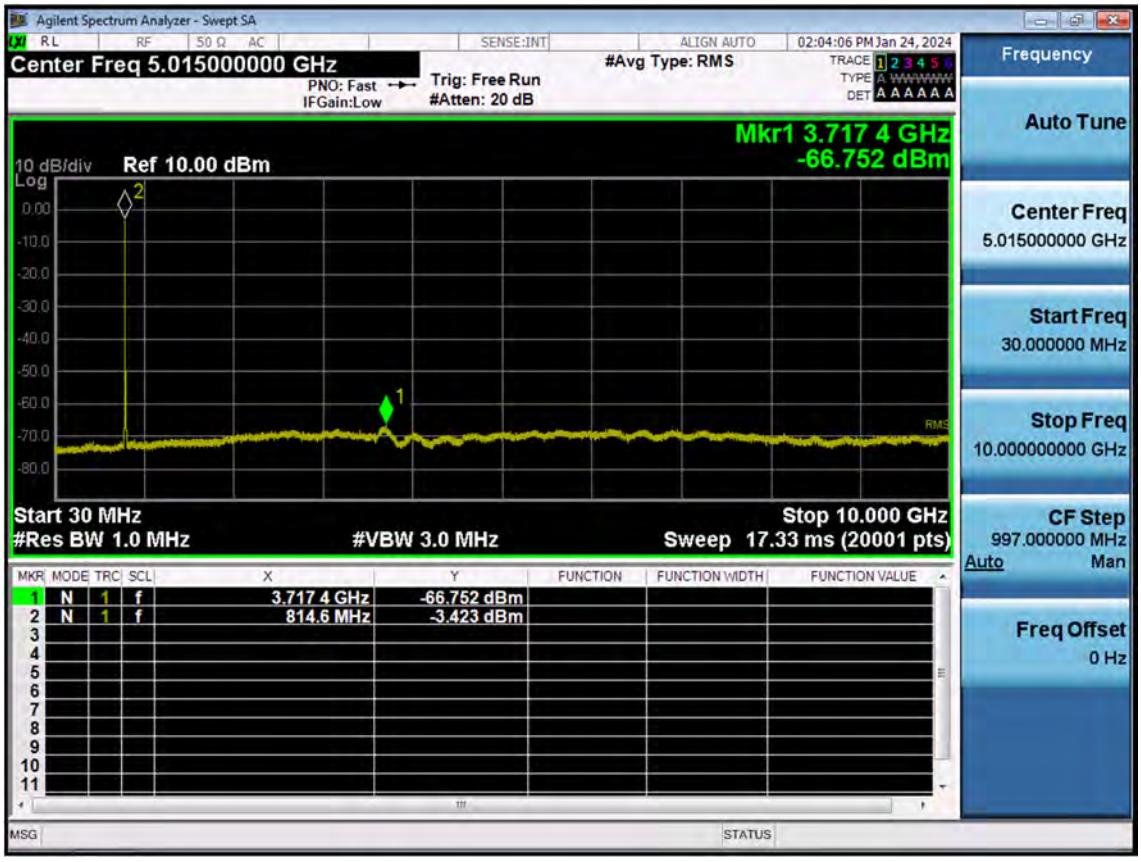


BAND 26. Upper Channel Edge Plot (3 M BW Ch.26775 QPSK_RB15_Offset 0)

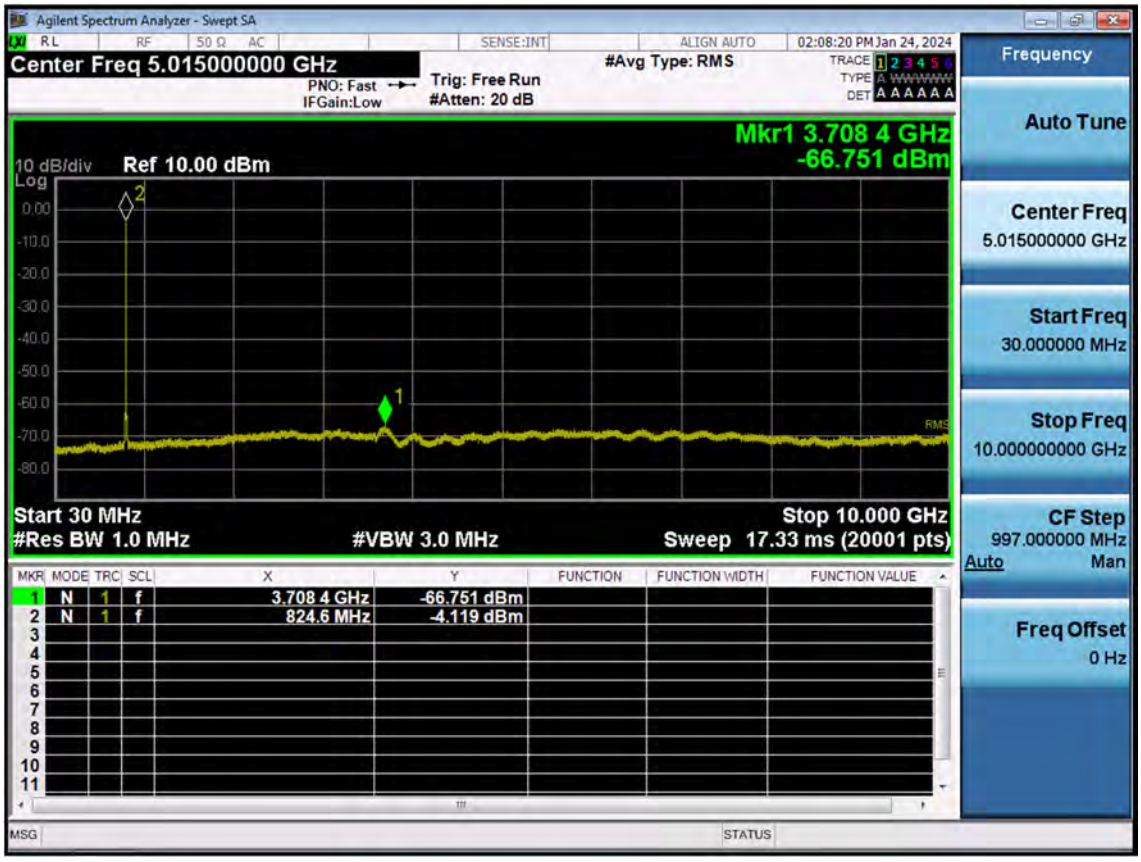
BAND 26. Upper Channel Edge Plot (5 M BW Ch.26765 QPSK_RB1_Offset 24)

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

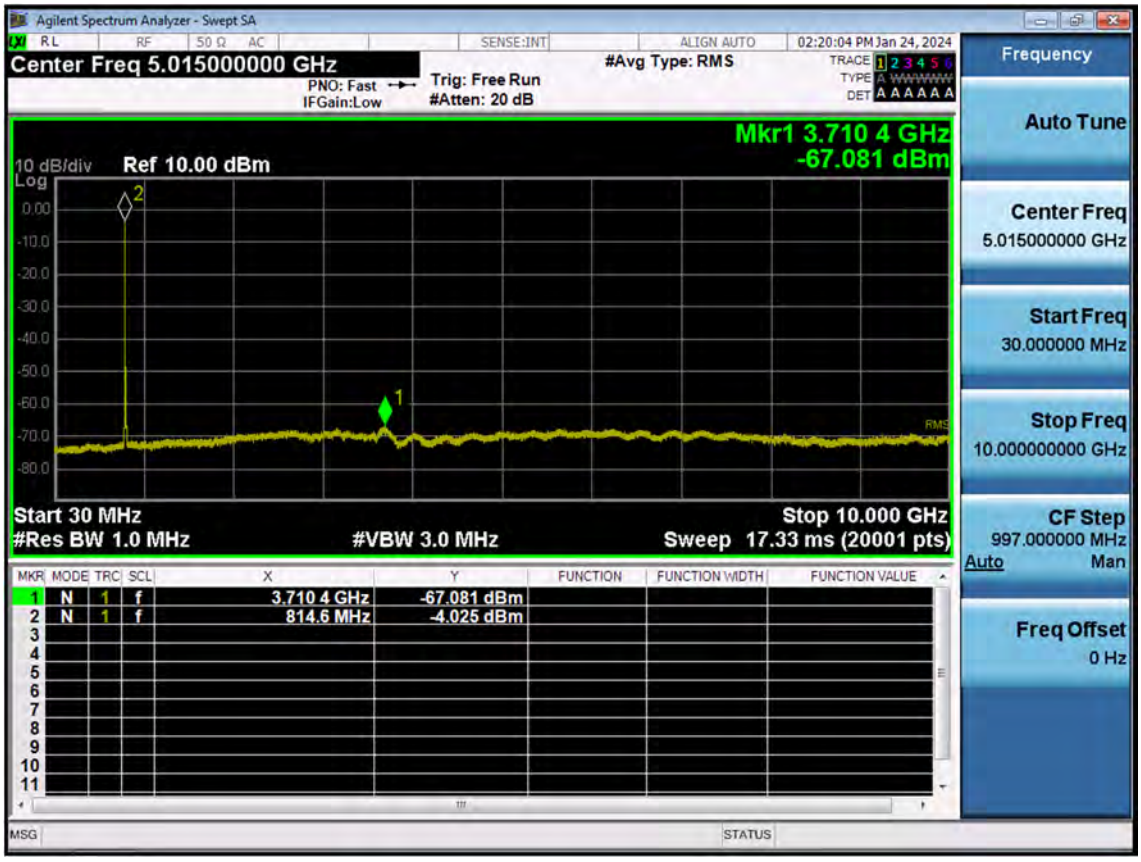
BAND 26. Conducted Spurious (26697 ch_1.4 MHz_QPSK_RB 1_0)



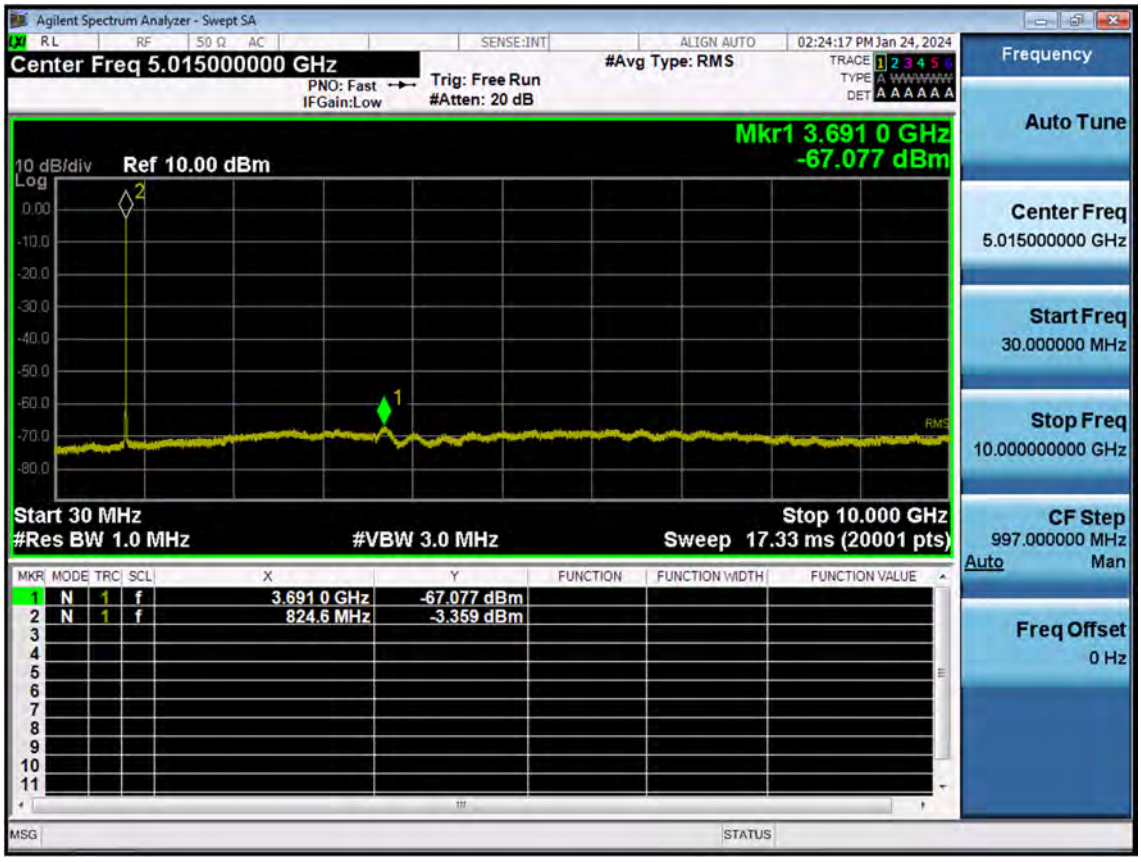
BAND 26. Conducted Spurious (26783 ch_1.4 MHz_QPSK_RB 1_0)



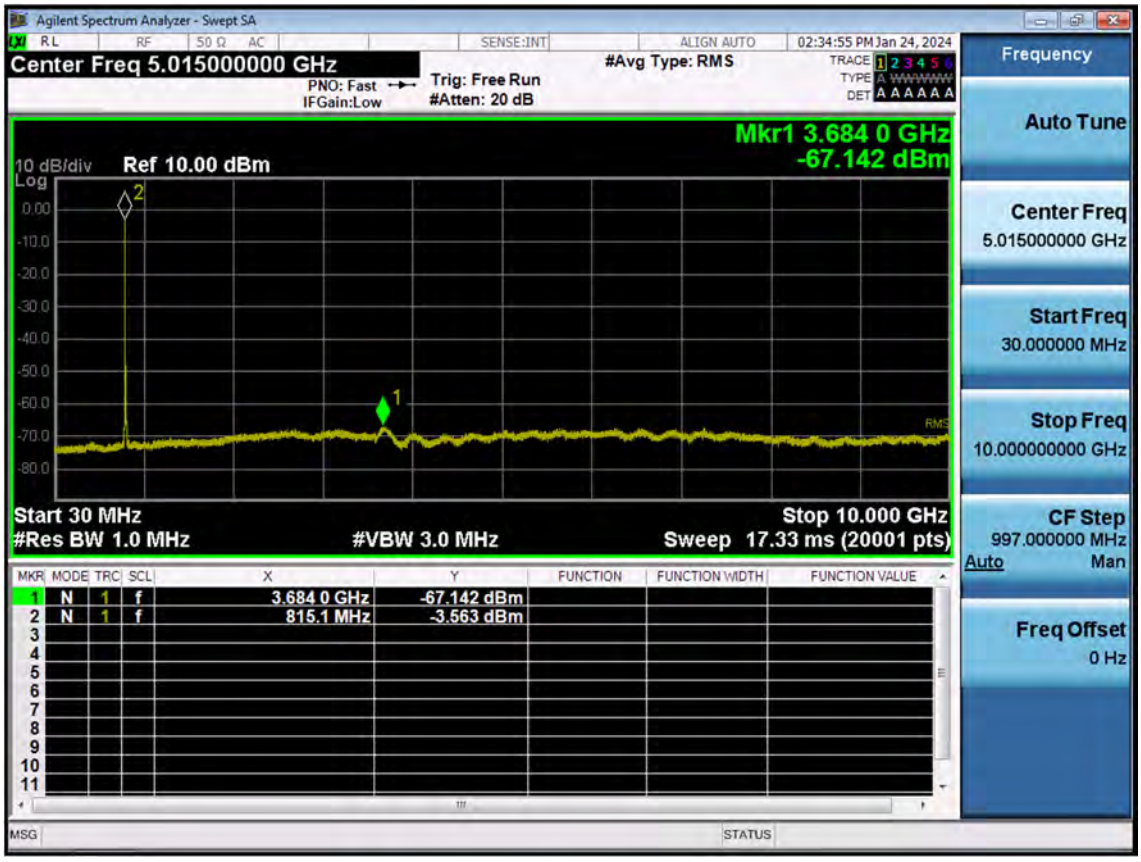
BAND 26. Conducted Spurious (26705 ch_3 MHz_QPSK_RB 1_0)



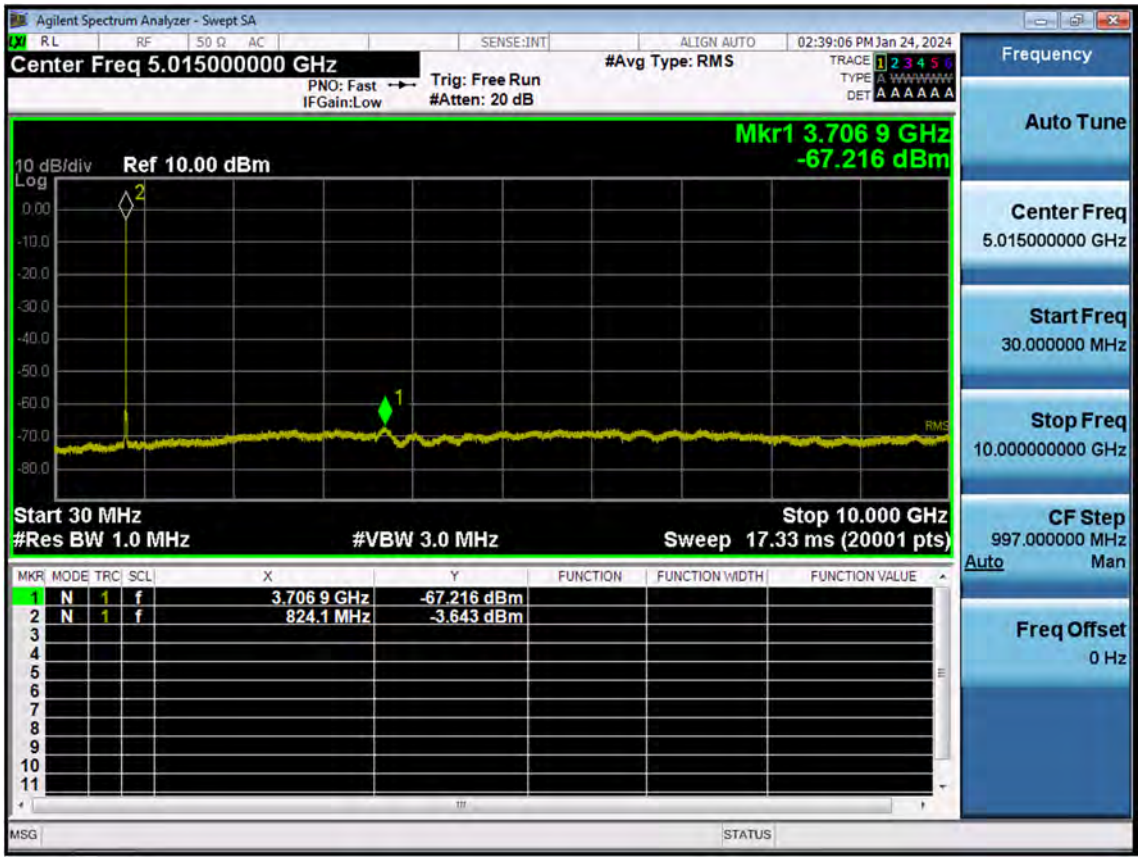
BAND 26. Conducted Spurious (26775 ch_3 MHz_QPSK_RB 1_0)



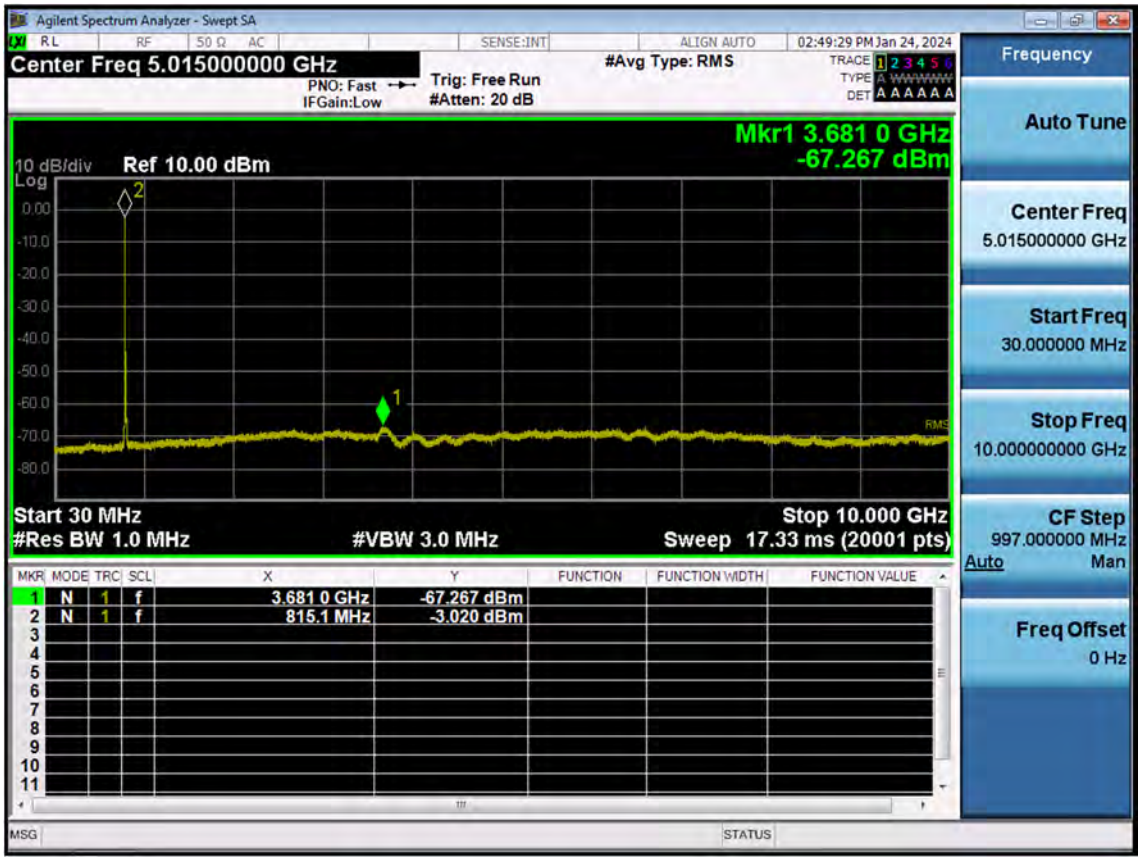
BAND 26. Conducted Spurious (26715 ch_5 MHz_QPSK_RB 1_0)



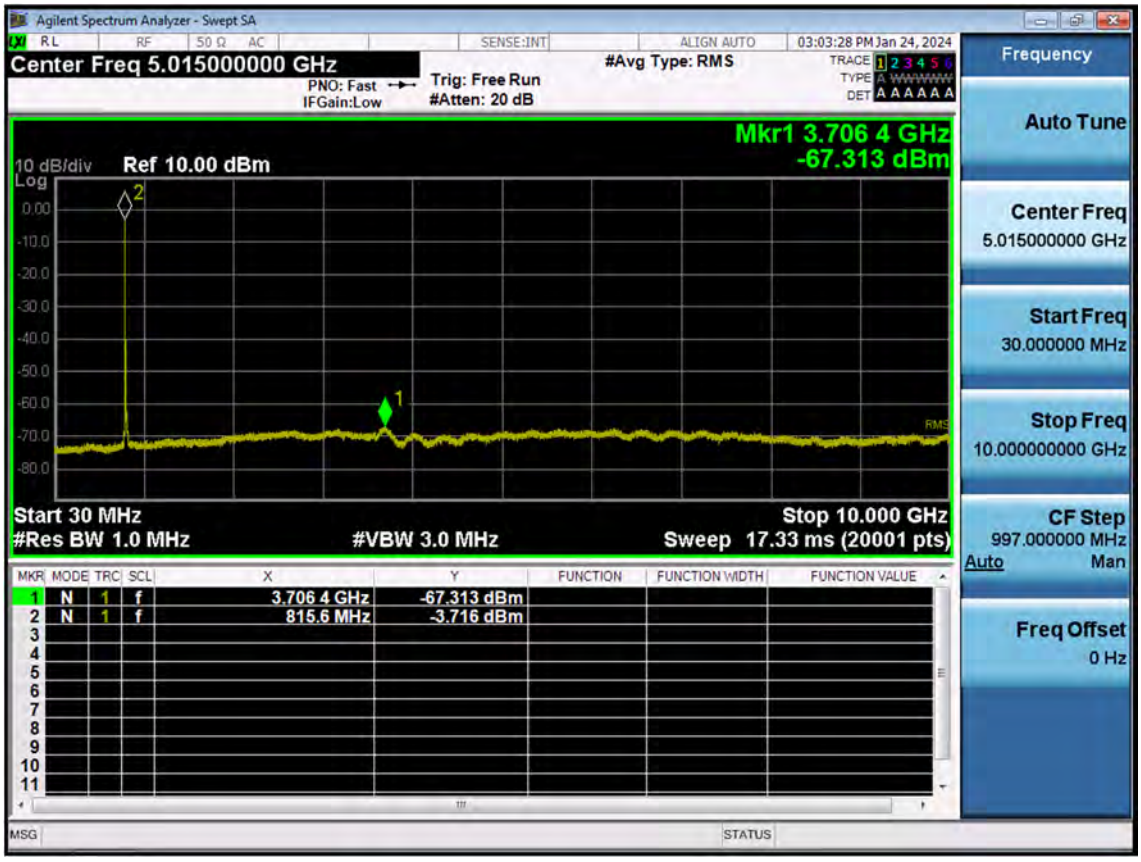
BAND 26. Conducted Spurious (26765 ch_5 MHz_QPSK_RB 1_0)



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

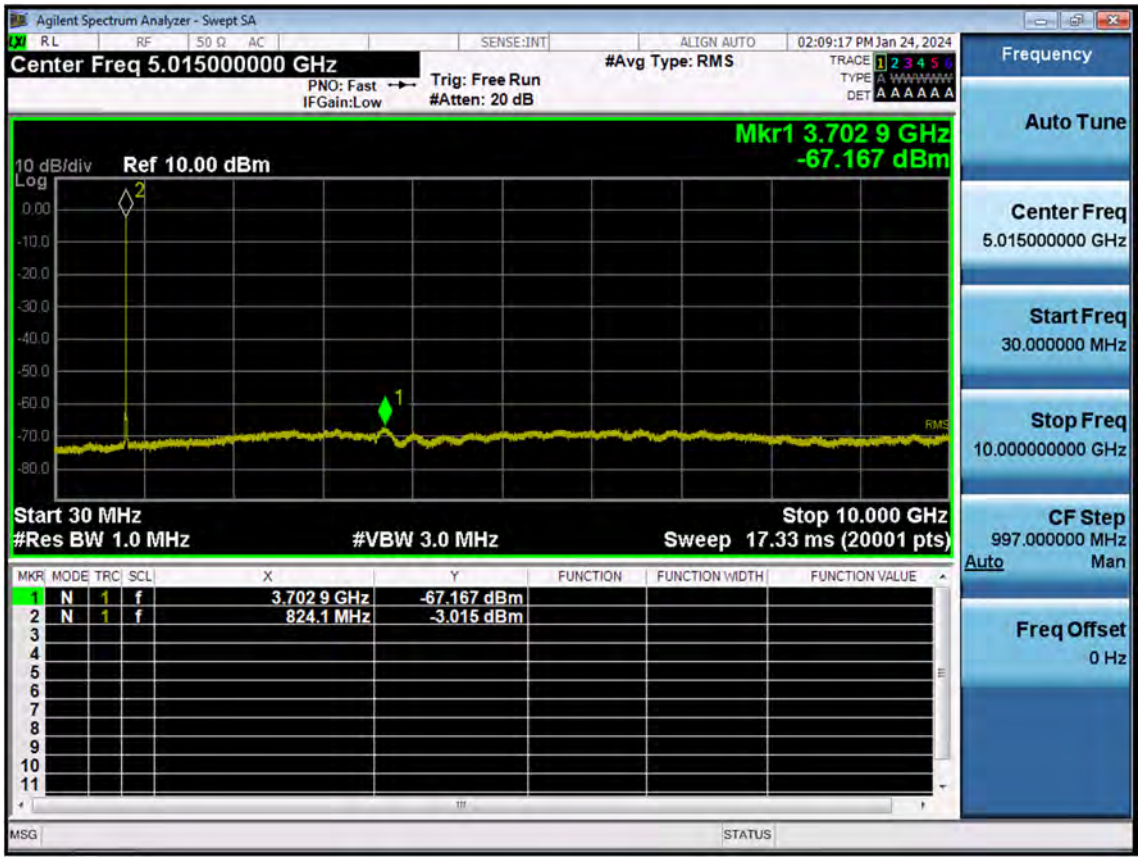


BAND 26. Conducted Spurious (26765 ch_15 MHz_QPSK_RB 1_0)

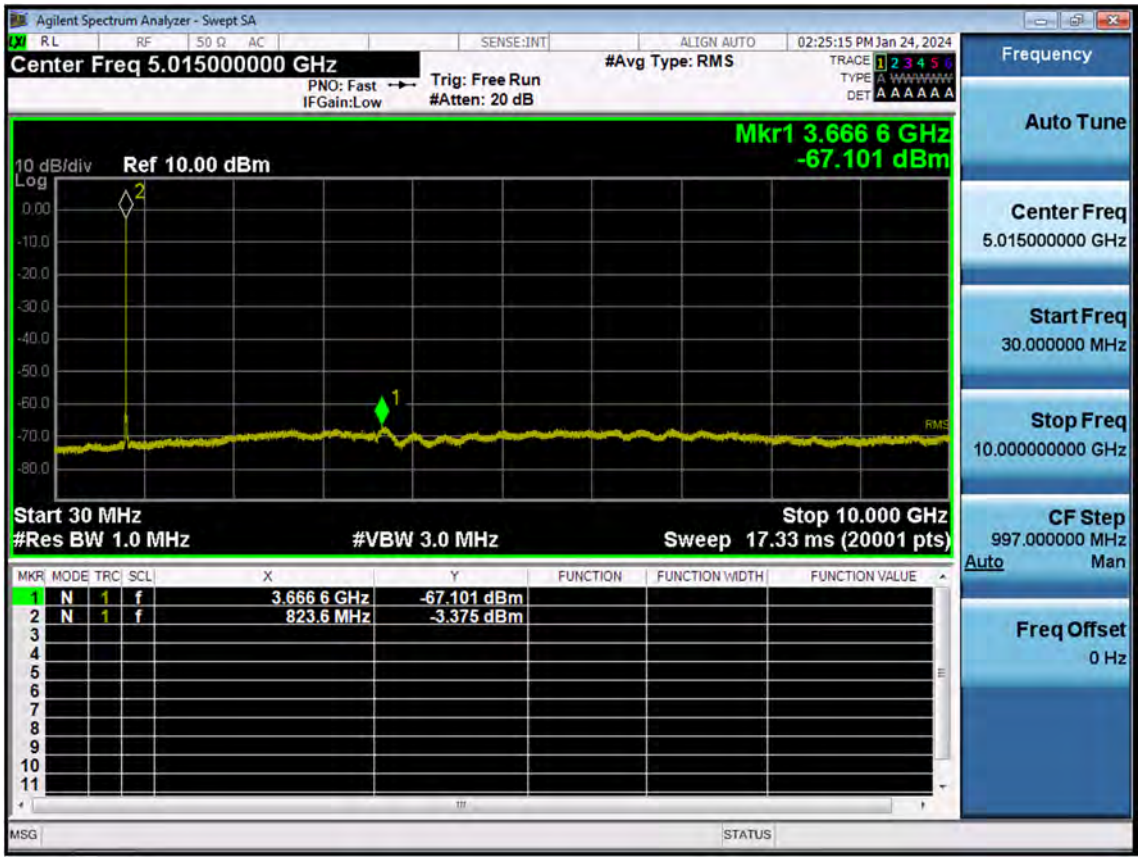


10. TEST PLOTS (STRADDLE CHANNEL)

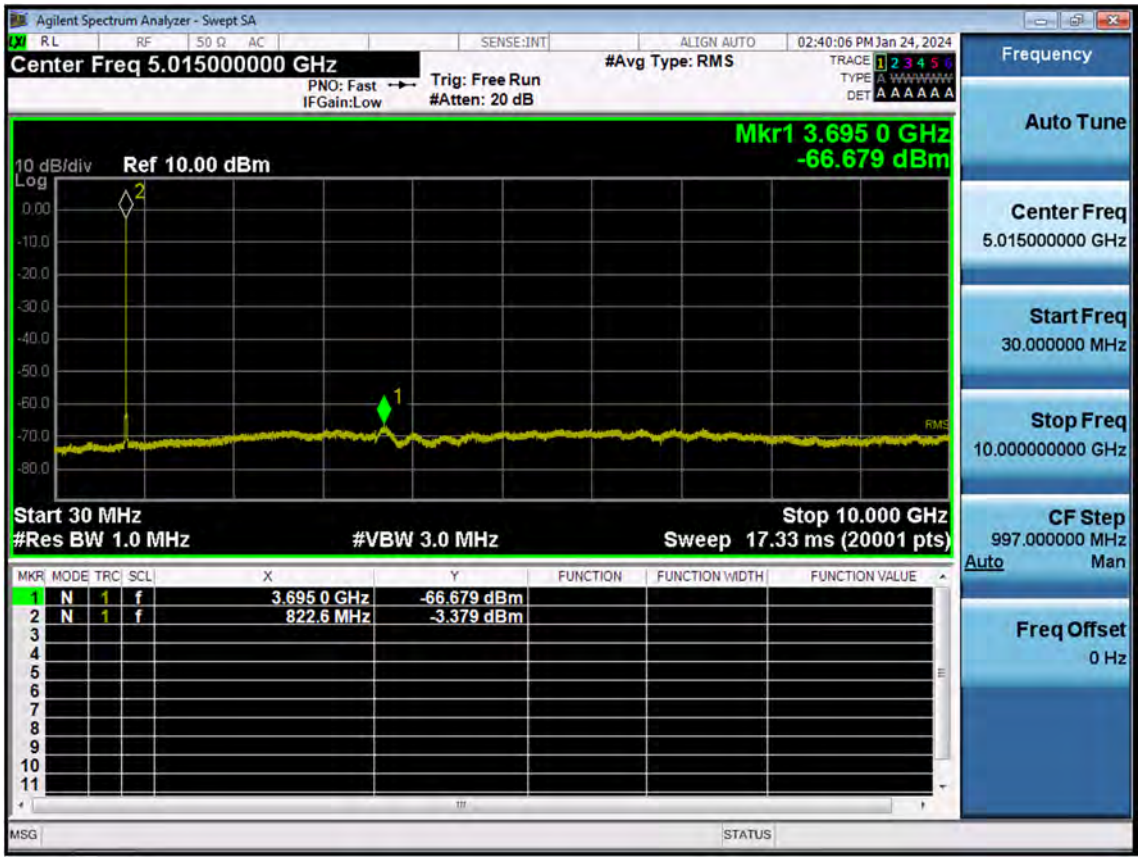
BAND 26. Conducted Spurious (1.4 MHz_QPSK_RB 1_0)



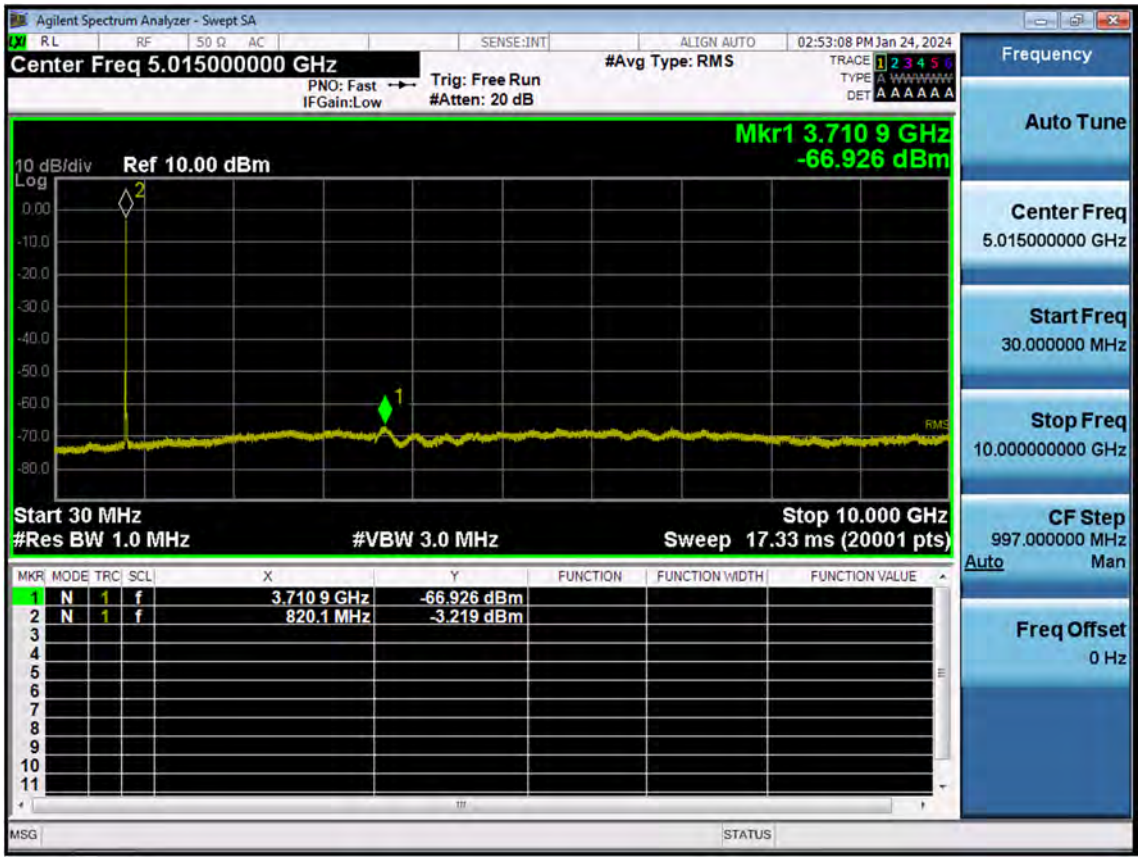
BAND 26. Conducted Spurious (3 MHz_QPSK_RB 1_0)



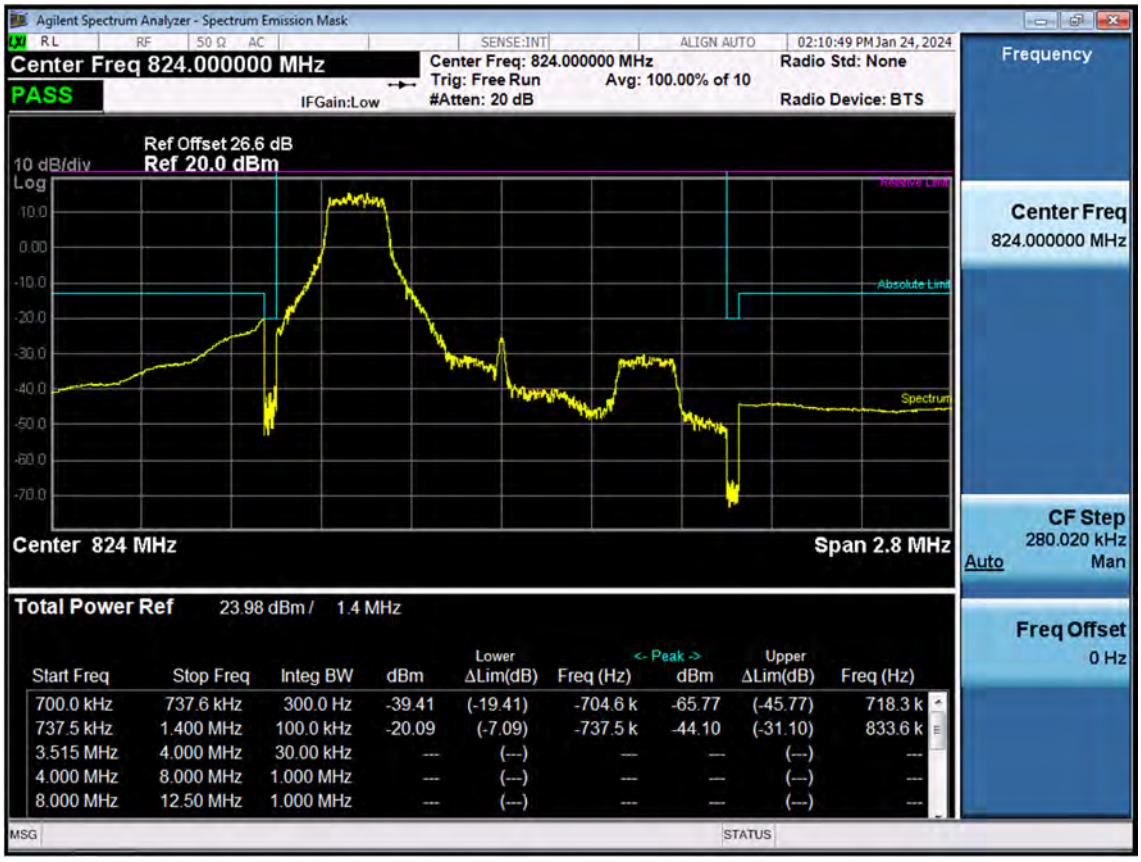
BAND 26. Conducted Spurious (5 MHz_QPSK_RB 1_0)



BAND 26. Conducted Spurious (10 MHz_QPSK_RB 1_0)

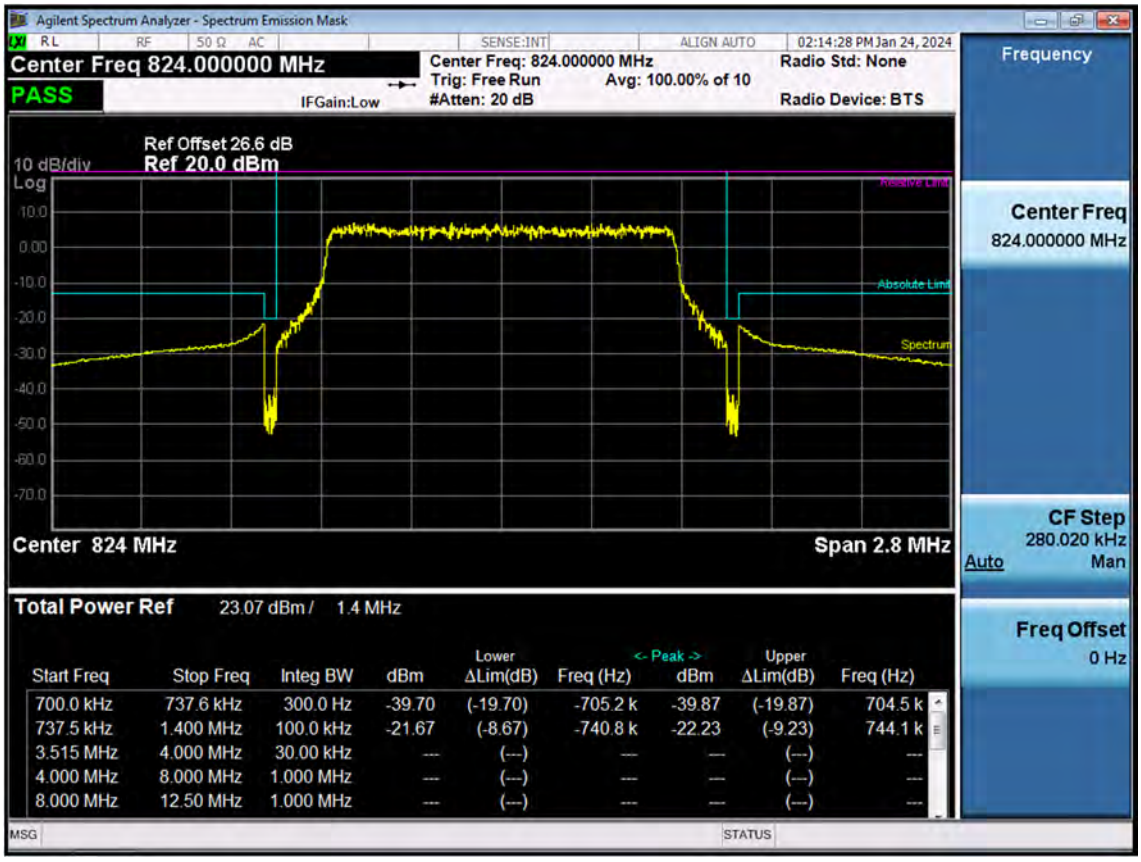


BAND 26. Channel Edge (1.4 MHz_QPSK_RB 1_0)



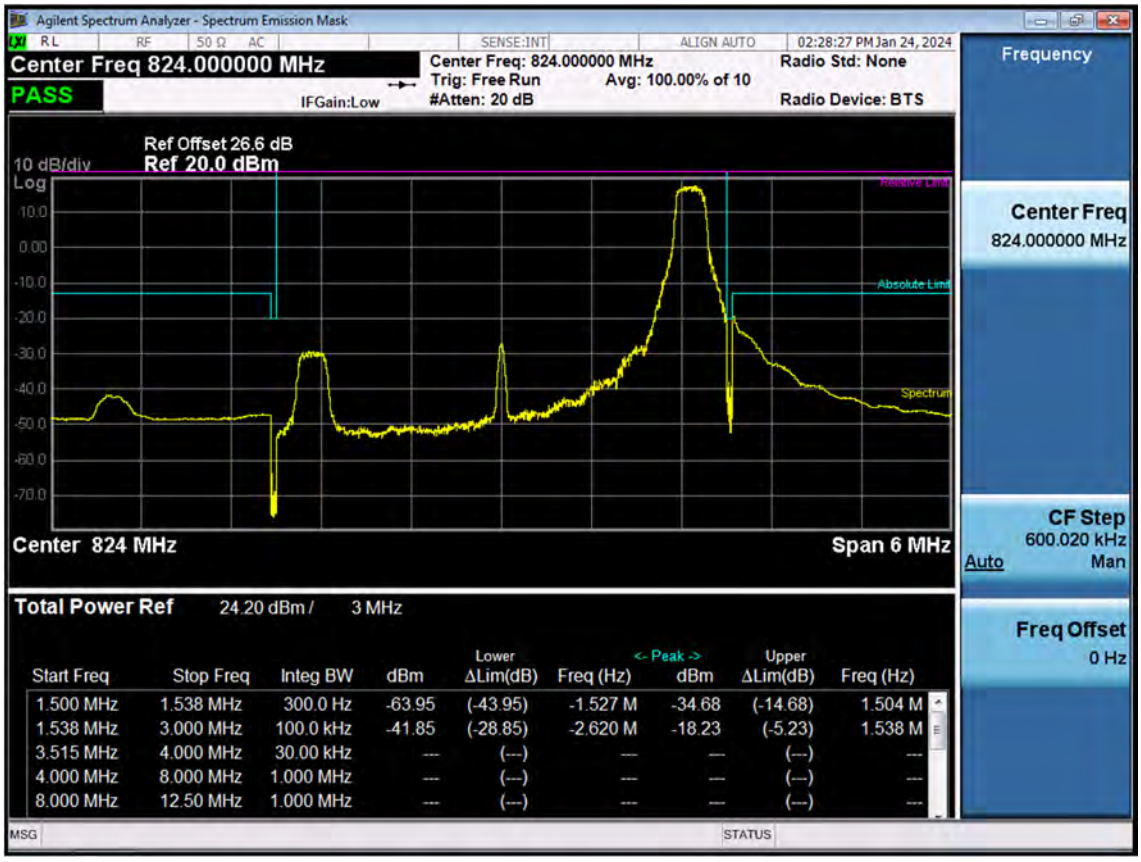
BAND 26. Channel Edge (1.4 MHz_QPSK_RB 1_5)

BAND 26. Channel Edge (1.4 MHz_QPSK_Full RB)



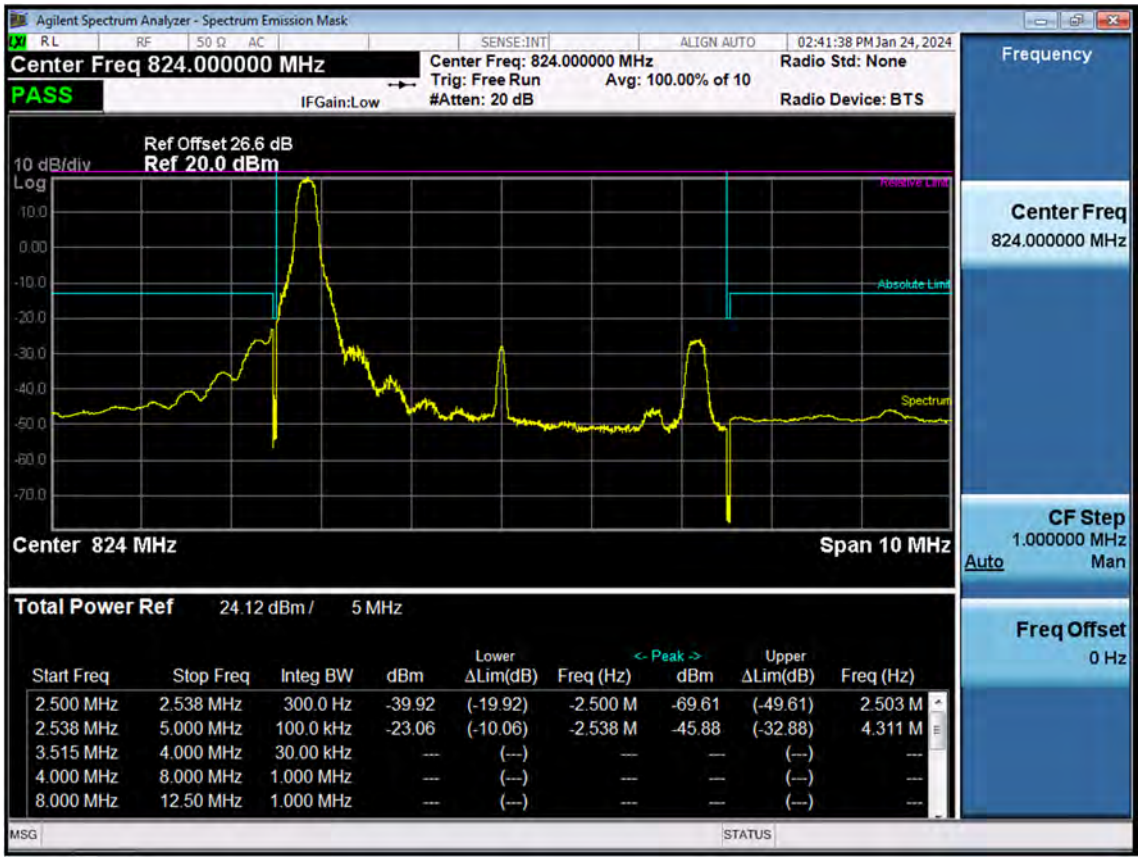
BAND 26. Channel Edge (3 MHz_QPSK_RB 1_0)

BAND 26. Channel Edge (3 MHz_QPSK_RB 1_14)



BAND 26. Channel Edge (3 MHz_QPSK_Full RB)

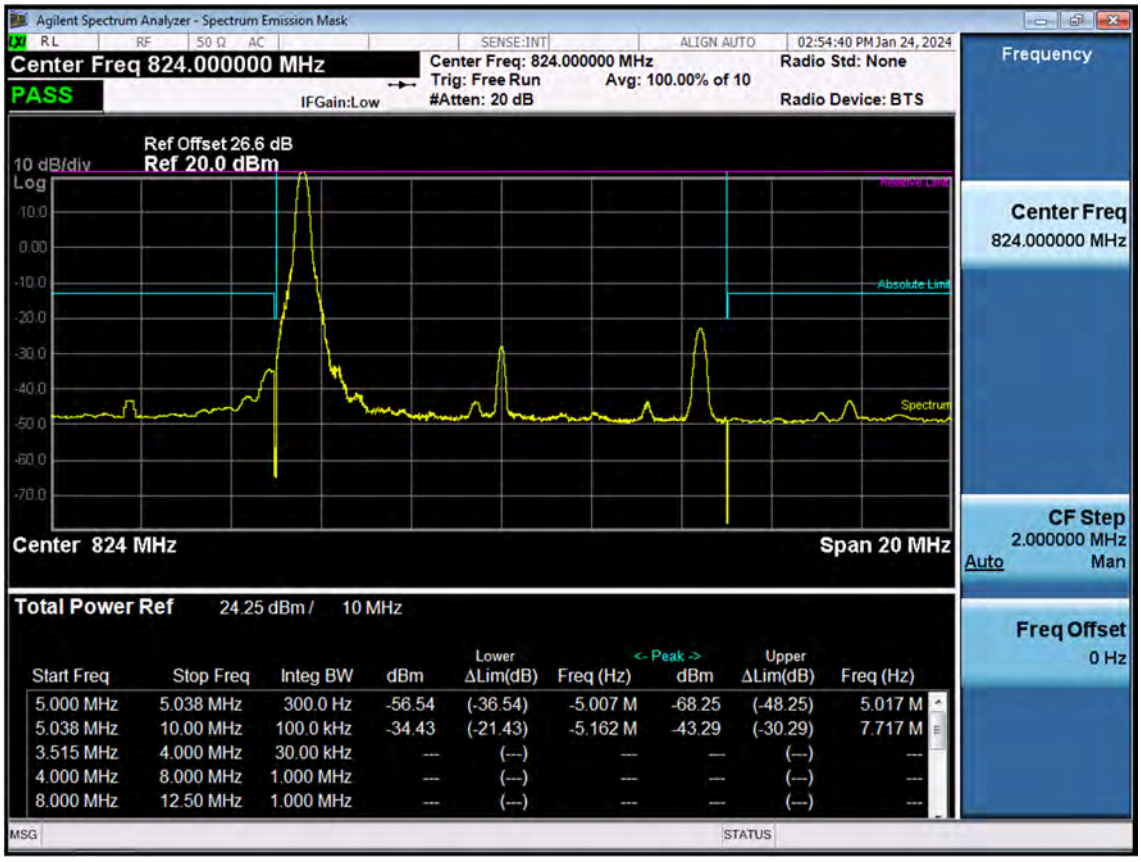
BAND 26. Channel Edge (5 MHz_QPSK_RB 1_0)



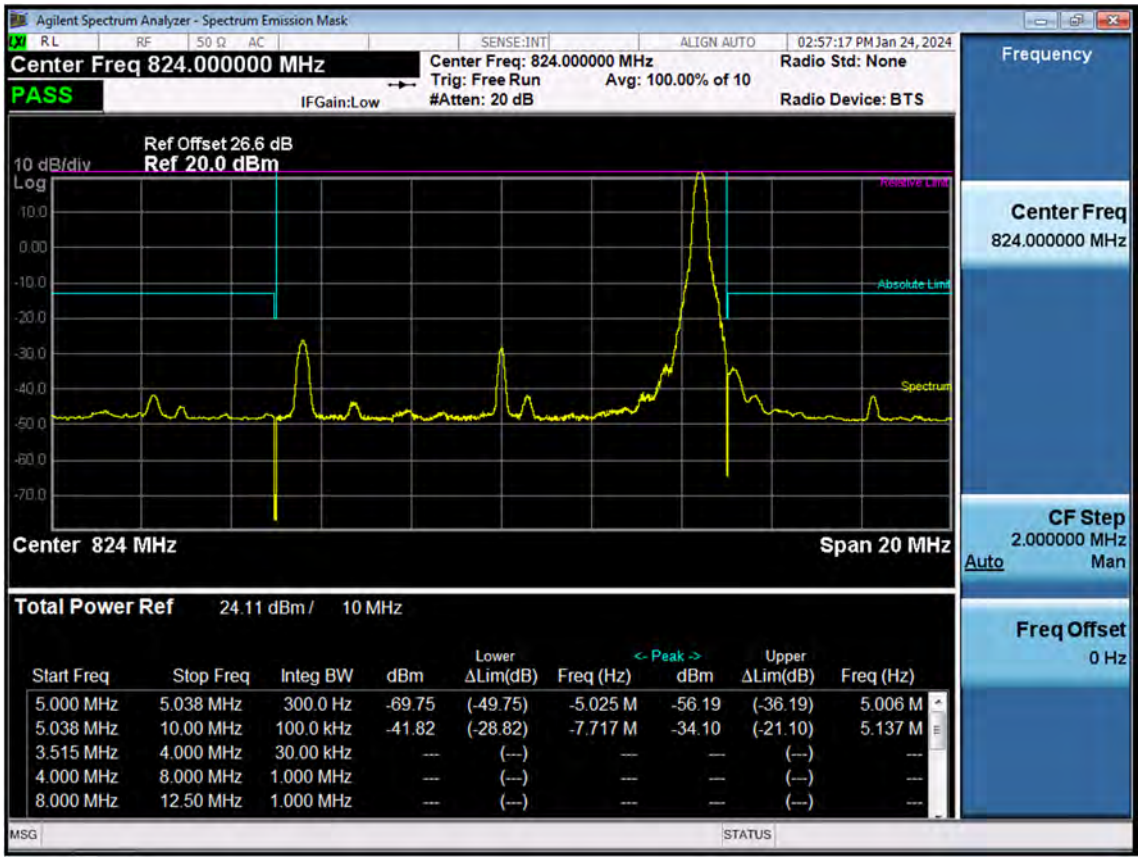
BAND 26. Channel Edge (5 MHz_QPSK_RB 1_24)

BAND 26. Channel Edge (5 MHz_QPSK_Full RB)

BAND 26. Channel Edge (10 MHz_QPSK_RB 1_0)

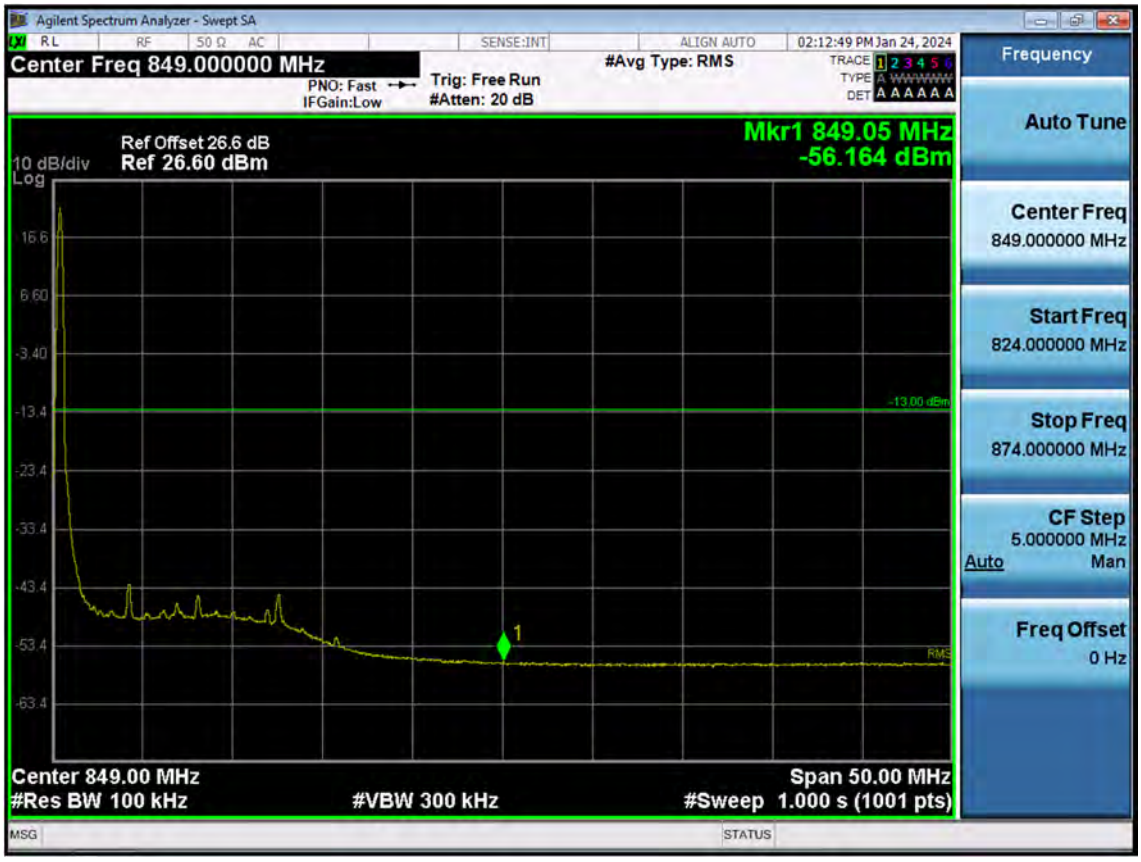


BAND 26. Channel Edge (10 MHz_QPSK_RB 1_49)

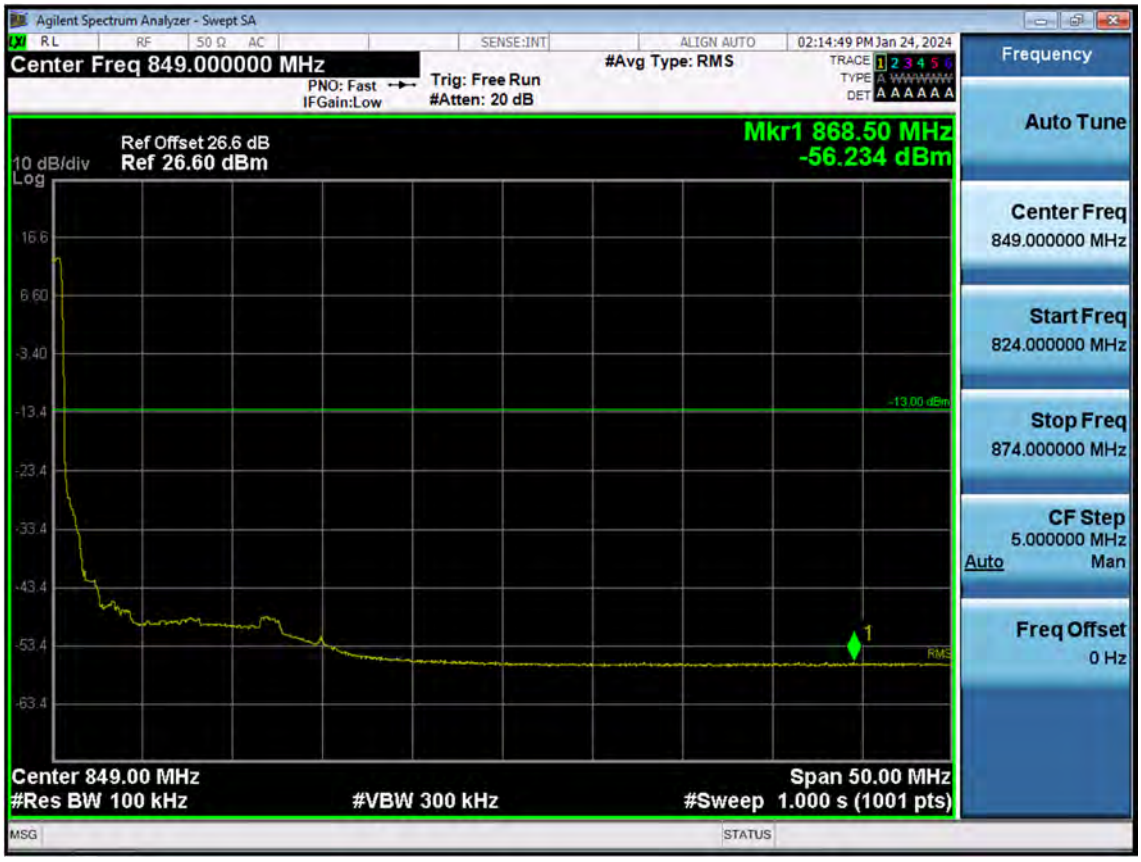


BAND 26. Channel Edge (10 MHz_QPSK_Full RB)

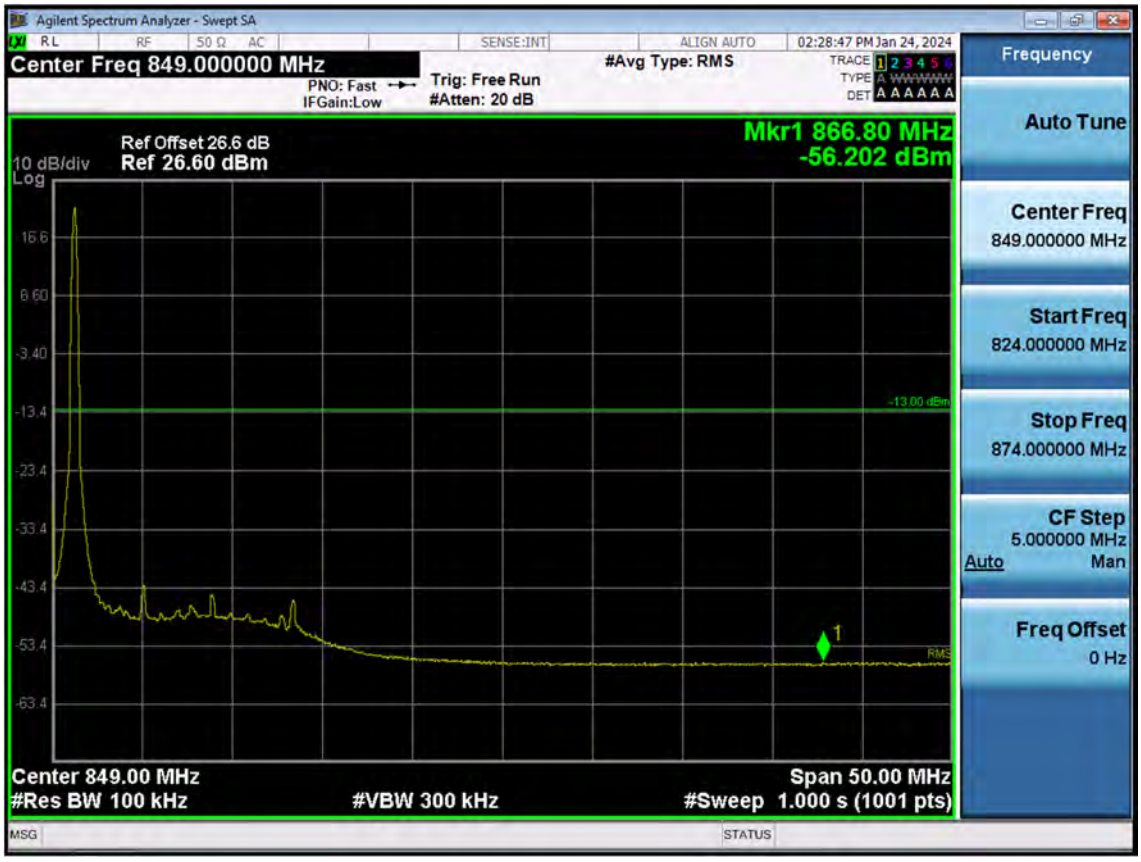
BAND 26. Band Edge (1.4 MHz_QPSK_RB 1_5)



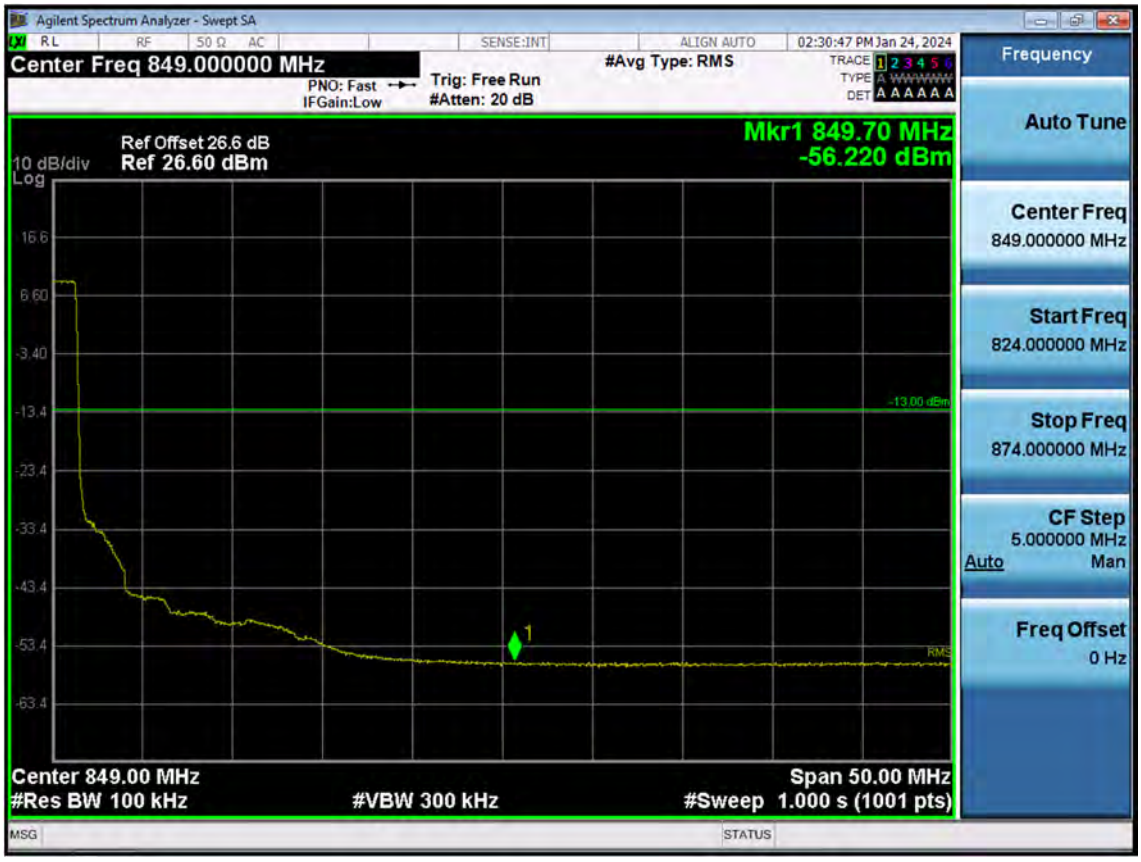
BAND 26. Band Edge (1.4 MHz_QPSK_FullRB)



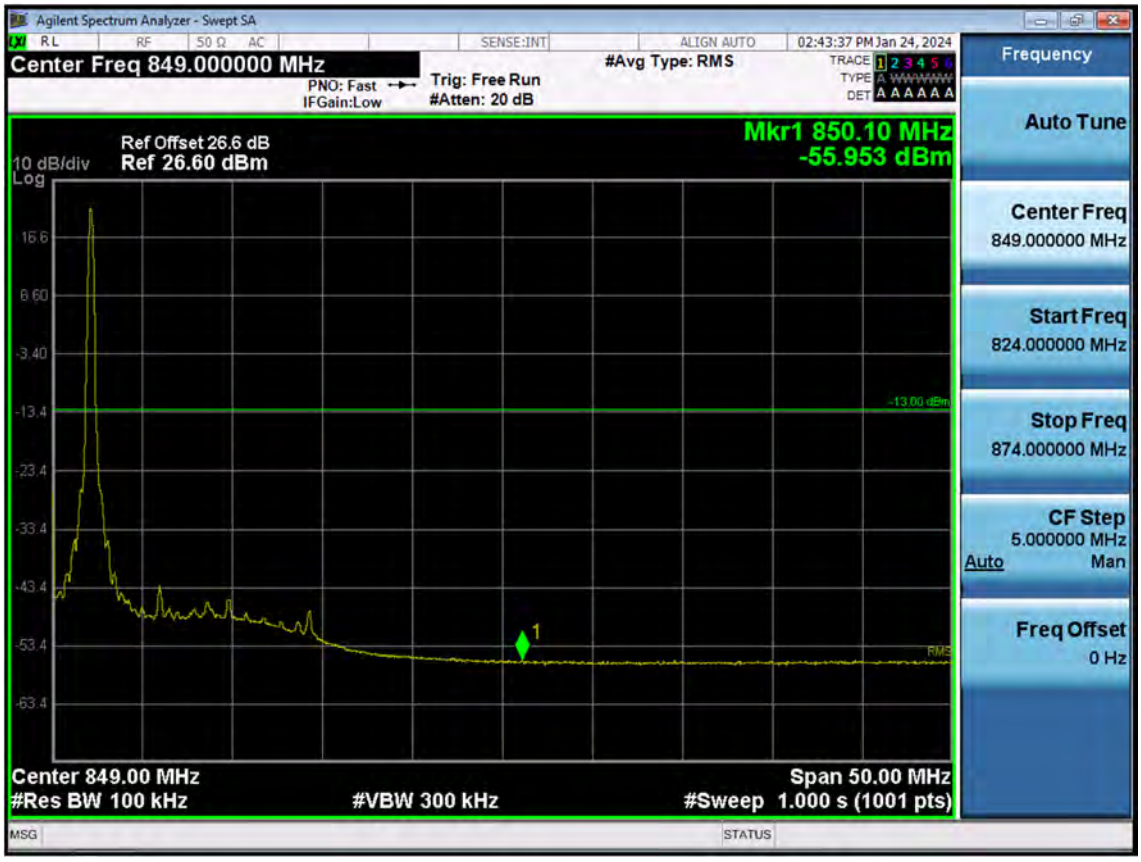
BAND 26. Band Edge (3 MHz_QPSK_RB 1_14)



BAND 26. Band Edge (3 MHz_QPSK_ Full RB)

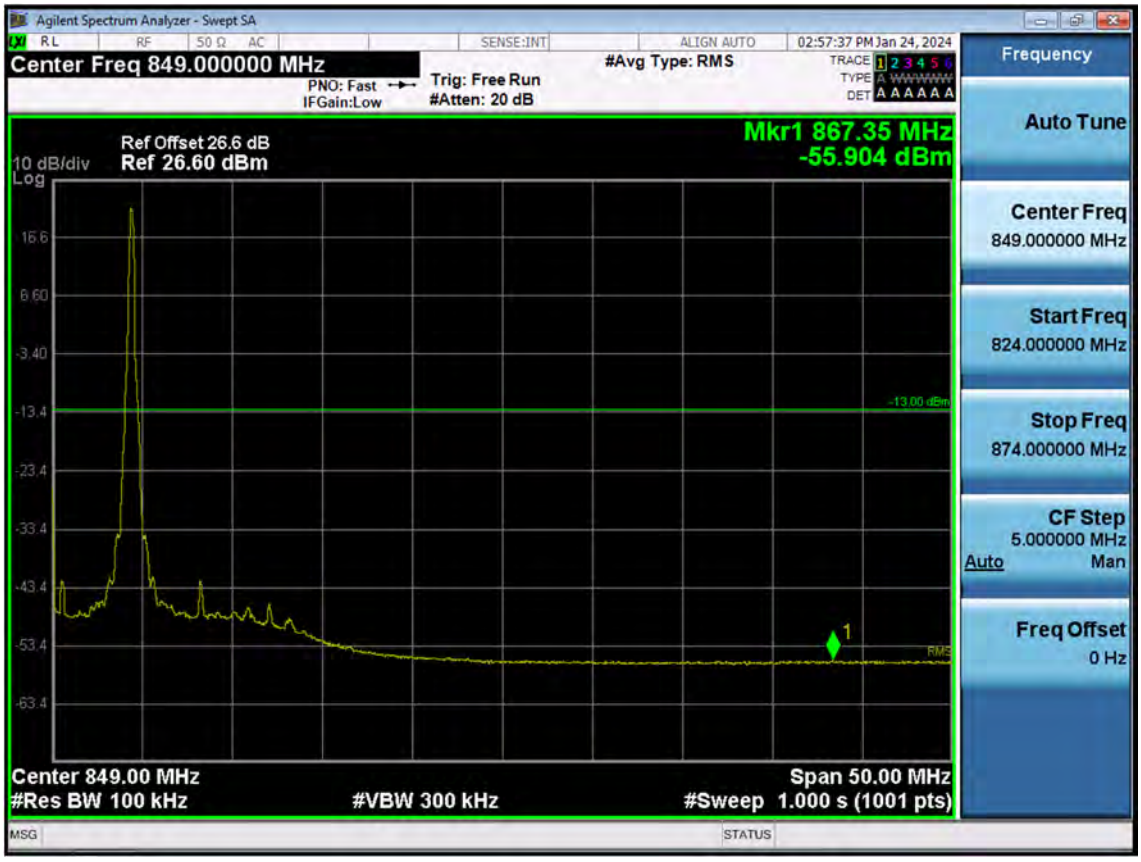


BAND 26. Band Edge (5 MHz_QPSK_RB 1_24)



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)

10. ANNEX A_ TEST SETUP PHOTO

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

No.	Description
1	HCT-RF-2402-FC008-P