

# FCC LTE REPORT

## Certification

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

**Date of Issue:**  
June 15, 2021

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

**Location:**  
HCT CO., LTD.,  
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Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA

**Report No.:** HCT-RF-2105-FC018-R1

**FCC ID:** A3LSMG990U

**APPLICANT:** SAMSUNG Electronics Co., Ltd.

Model(s): SM-G990U  
 Additional Model(s): SM-G990U1/DS, SM-G990U1  
 EUT Type: Mobile Phone  
 FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)  
 FCC Rule Part(s): §22, §2

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	ERP	
				Max. Power (W)	Max. Power (dBm)
LTE – Band26 (1.4)	824.7 – 848.3	1M10G7D	QPSK	0.102	20.10
		1M09W7D	16QAM	0.088	19.47
		1M09W7D	64QAM	0.069	18.38
		1M09W7D	256QAM	0.034	15.34
LTE – Band26 (3)	825.5 – 847.5	2M71G7D	QPSK	0.105	20.21
		2M71W7D	16QAM	0.091	19.57
		2M70W7D	64QAM	0.071	18.48
		2M70W7D	256QAM	0.035	15.42
LTE – Band26 (5)	826.5 – 846.5	4M49G7D	QPSK	0.106	20.24
		4M50W7D	16QAM	0.092	19.63
		4M50W7D	64QAM	0.072	18.56
		4M50W7D	256QAM	0.035	15.42
LTE – Band26 (10)	829.0 – 844.0	8M94G7D	QPSK	0.111	20.45
		8M97W7D	16QAM	0.098	19.92
		8M97W7D	64QAM	0.073	18.64
		8M96W7D	256QAM	0.034	15.32
LTE – Band26 (15)	831.5 – 841.5	13M5G7D	QPSK	0.112	20.50
		13M5W7D	16QAM	0.099	19.97
		13M5W7D	64QAM	0.075	18.77
		13M5W7D	256QAM	0.035	15.50

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)

Report No.: HCT-RF-2105-FC018-R1

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REVIEWED BY



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Report prepared by : Jae Mun Do  
Engineer of Telecommunication Testing Center

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Report approved by : Jong Seok Lee  
Manager of Telecommunication Testing Center

This test results were applied only to the test methods required by the standard.

This laboratory is not accredited for the test results marked \*.

The above Test Report is the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS(Korea Laboratory Accreditation Scheme), which signed the ILAC-MRA. (HCT Accreditation No.: KT197)

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## Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-2105-FC018	May 26, 2021	- First Approval Report
HCT-RF-2105-FC018-R1	June 15, 2021	- Revised the Additional model(s). (SM-G990U1 added)

The result shown in this test report refer only to the sample(s) tested unless otherwise stated.

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# MEASUREMENT REPORT

## 1. GENERAL INFORMATION

<b>Applicant Name:</b>	SAMSUNG Electronics Co., Ltd.
<b>Address:</b>	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
<b>FCC ID:</b>	A3LSMG990U
<b>Application Type:</b>	Certification
<b>FCC Classification:</b>	PCS Licensed Transmitter Held to Ear (PCE)
<b>FCC Rule Part(s):</b>	§22, §2
<b>EUT Type:</b>	Mobile Phone
<b>Model(s):</b>	SM-G990U
<b>Additional Model(s):</b>	SM-G990U1/DS, SM-G990U1
<b>Tx Frequency:</b>	824.7 MHz – 848.3 MHz (LTE – Band 26 (1.4 MHz)) 825.5 MHz – 847.5 MHz (LTE – Band 26 (3 MHz)) 826.5 MHz – 846.5 MHz (LTE – Band 26 (5 MHz)) 829.0 MHz – 844.0 MHz (LTE – Band 26 (10 MHz)) 831.5 MHz – 841.5 MHz (LTE – Band 26 (15 MHz))
<b>Date(s) of Tests:</b>	April 19, 2021 ~ May 18, 2021
<b>Serial number:</b>	Radiated: R3CR315S6MD Conducted: R3CR3117FBH

## **2. INTRODUCTION**

### **2.1. DESCRIPTION OF EUT**

The EUT was a Mobile Phone with GSM/GPRS/EGPRS/UMTS, CDMA(BC0, 1, 10) and LTE, Sub6.

It also supports IEEE 802.11 a/b/g/n/ac/ax (HT20/40/80), Bluetooth, BT LE, NFC, WPT, mmWave(n260/261).

### **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
Band Edge	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Spurious and Harmonic Emissions at Antenna Terminal	- KDB 971168 D01 v03r01 – Section 6.0 - ANSI C63.26-2015 – Section 5.7
Conducted Output Power	- N/A (See SAR Report)
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 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 1MHz
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 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator and the previously recorded signal was duplicated.

The power is calculated by the following formula;

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

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

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

These steps are repeated with the receiving antenna in both vertical and horizontal polarization. the difference

between the gain of the horn and an isotropic antenna are taken into consideration

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



### 3.3 RADIATED SPURIOUS EMISSIONS

#### Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

Radiated Spurious Emission Measurements at 3 meters by Substitution Method according to ANSI/TIA-603-E-2016.

#### Test Settings

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

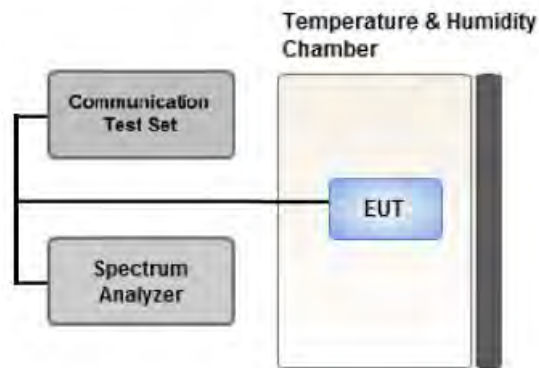
$$\text{Result}_{(\text{dBm})} = P_{g(\text{dBm})} - \text{cable loss}_{(\text{dB})} + \text{antenna gain}_{(\text{dBi})}$$

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

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

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

### 3.4 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.

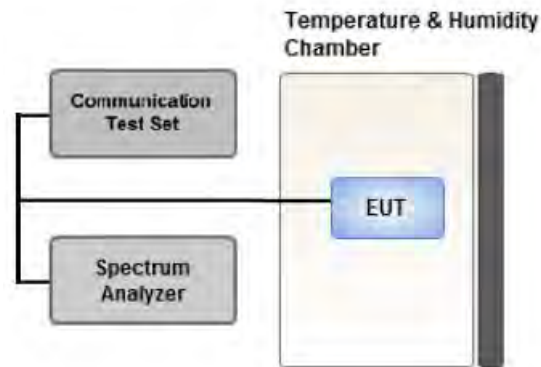
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

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 26dB 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  $\geq 3 \times$  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

### 3.5 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.

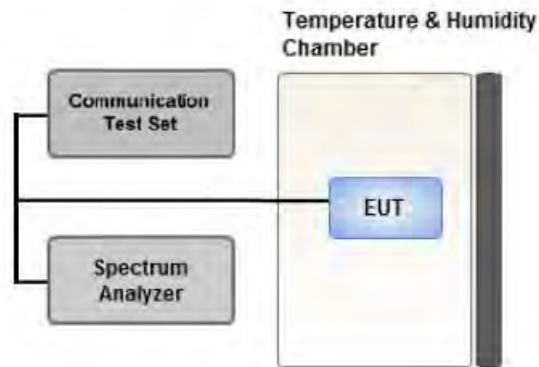
All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

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 = RMS
4. Trace Mode = trace average
5. Sweep time = auto
6. Number of points in sweep  $\geq$  2 x Span / RBW

### 3.6 BAND EDGE



**Test setup**

#### **Test Overview**

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

#### **Test Settings**

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

#### **Test Notes**

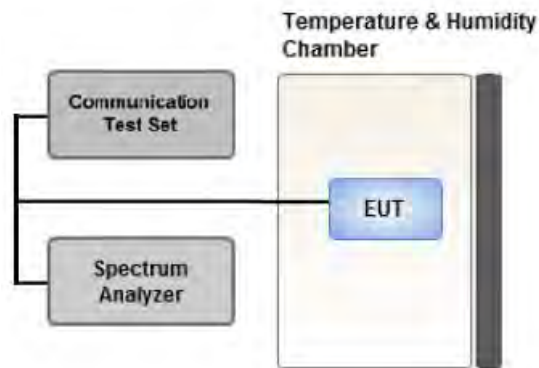
According to FCC 22.917, 24.238, 27.53 specified that power of any emission outside of The authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB.

In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

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

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

### 3.7 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.

**3.8 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.  
(In the case of radiated spurious emissions, only the B.W result that confirmed the maximum radiated power was reported.)
- The worst case is reported with the EUT positioning, modulations, and paging service configurations shown in the test data.
- SM-G990U & additional models were tested and the worst case results are reported.  
(Worst case : SM-G990U)

[ Worst case ]

Test Description	Modulation	RB size	RB offset	Axis
Effective Radiated Power	QPSK, 16QAM, 64QAM, 256QAM	1	0	Y
Radiated Spurious and Harmonic Emissions	QPSK	1	0	Y

**3.9 WORST CASE(CONDUCTED TEST)**

- All modes of operation were investigated and the worst case configuration results are reported.
- SM-G990U & additional models were tested and the worst case results are reported.

(Worst case : SM-G990U)

[ Worst case ]

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

#### 4. LIST OF TEST EQUIPMENT

Manufacture	Model/ Equipment	Serial Number	Calibration Date	Calibrati on Interval	Calibration Due
T&M SYSTEM	FBSR-02B(WHK1.2/15G-10EF)/H.P.F	-	03/02/2021	Annual	03/02/2022
T&M SYSTEM	FBSR-02B(WHK3.3/18G-10EF)/H.P.F	-	03/02/2021	Annual	03/02/2022
Hewlett Packard	11667B / Power Splitter(DC~26.5 GHz)	11275	04/07/2021	Annual	04/07/2022
Hewlett Packard	E3632A/DC Power Supply	MY40004427	09/16/2020	Annual	09/16/2021
Schwarzbeck	UHAP/ Dipole Antenna	557	04/05/2021	Biennial	04/05/2023
Schwarzbeck	UHAP/ Dipole Antenna	558	04/05/2021	Biennial	04/05/2023
ESPEC	SU-642 / Chamber	93008124	03/15/2021	Annual	03/15/2022
Schwarzbeck	BBHA 9120D/ Horn Antenna(1~18GHz)	147	08/29/2019	Biennial	08/29/2021
Schwarzbeck	BBHA 9120D/ Horn Antenna(1~18GHz)	9120D-1298	09/25/2019	Biennial	09/25/2021
Schwarzbeck	BBHA 9170/ Horn Antenna(15~40GHz)	BBHA9170342	10/13/2020	Biennial	10/13/2022
Schwarzbeck	BBHA 9170/ Horn Antenna(15~40GHz)	BBHA9170124	02/11/2020	Biennial	02/11/2022
Agilent	N9020A/Signal Analyzer(10Hz~26.5GHz)	MY50200093	11/17/2020	Annual	11/17/2021
Hewlett Packard	8493C/ATTENUATOR(20dB)	17280	06/04/2020	Annual	06/04/2021
REOHDE & SCHWARZ	FSV40/Spectrum Analyzer(10Hz~40GHz)	100931	10/14/2020	Annual	10/14/2021
Agilent	8960 (E5515C)/ Base Station	MY48360800	08/26/2020	Annual	08/26/2021
Schwarzbeck	FMZB1513/ Loop Antenna(9kHz~30MHz)	1513-333	03/19/2020	Biennial	03/19/2022
Schwarzbeck	VULB9160/ Bilog Antenna	3150	03/03/2021	Biennial	03/03/2023
Schwarzbeck	VULB9168/ Hybrid Antenna	760	02/22/2021	Biennial	02/22/2023
Anritsu Corp.	MT8821C/Wideband Radio Communication Tester	6262116770	07/22/2020	Annual	07/22/2021
Anritsu Corp.	MT8820C/Wideband Radio Communication Tester	6201026545	01/07/2021	Annual	01/07/2022
REOHDE & SCHWARZ	SMB100A/ SIGNAL GENERATOR (100kHz~40GHz)	177633	07/13/2020	Annual	07/13/2021
KEYSIGHT	N9030B / Signal Analyzer(5Hz~40.0GHz)	MY55480167	06/04/2020	Annual	06/04/2021
HCT CO., LTD.,	FCC LTE Mobile Conducted RF Automation Test Software	-	-	-	-

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  $U_{\text{CISPR}}$  measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty ( $\pm$ dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.82
Radiated Disturbance (9 kHz ~ 30 MHz)	3.40
Radiated Disturbance (30 MHz ~ 1 GHz)	4.80
Radiated Disturbance (1 GHz ~ 18 GHz)	5.70
Radiated Disturbance (18 GHz ~ 40 GHz)	5.05

## 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
Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§2.1051, §22.917(a)	< 43 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions	PASS
Conducted Output Power	§2.1046	N/A	<u>See Note1</u>
Frequency stability / variation of ambient temperature	§2.1055, §22.355	< 2.5 ppm	PASS

Note:

1. See SAR Report

### 6.2 Test Condition : Radiated Test

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

## 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 EFFECTIVE RADIATED POWER

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit W	ERP	
									W	dBm
824.7	LTE 26 (1.4 MHz)	QPSK	-31.76	31.92	-10.42	1.40	V	< 7.00	0.102	20.10
		16-QAM	-32.39	31.29	-10.42	1.40	V		0.088	19.47
		64-QAM	-33.48	30.20	-10.42	1.40	V		0.069	18.38
		256-QAM	-36.52	27.16	-10.42	1.40	V		0.034	15.34
836.5		QPSK	-32.39	31.75	-10.40	1.41	V		0.099	19.94
		16-QAM	-33.05	31.09	-10.40	1.41	V		0.085	19.28
		64-QAM	-34.03	30.11	-10.40	1.41	V		0.068	18.30
		256-QAM	-37.11	27.03	-10.40	1.41	V		0.033	15.22
848.3		QPSK	-33.75	30.63	-10.38	1.42	V		0.076	18.83
		16-QAM	-34.45	29.93	-10.38	1.42	V		0.065	18.13
		64-QAM	-35.41	28.97	-10.38	1.42	V		0.052	17.17
		256-QAM	-38.53	25.85	-10.38	1.42	V		0.025	14.05

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit W	ERP	
									W	dBm
825.5	LTE 26 (3 MHz)	QPSK	-31.66	32.03	-10.42	1.40	V	< 7.00	0.105	20.21
		16-QAM	-32.30	31.39	-10.42	1.40	V		0.091	19.57
		64-QAM	-33.39	30.30	-10.42	1.40	V		0.071	18.48
		256-QAM	-36.45	27.24	-10.42	1.40	V		0.035	15.42
836.5		QPSK	-32.35	31.79	-10.40	1.41	V		0.100	19.98
		16-QAM	-32.92	31.22	-10.40	1.41	V		0.087	19.41
		64-QAM	-33.98	30.16	-10.40	1.41	V		0.068	18.35
		256-QAM	-37.13	27.01	-10.40	1.41	V		0.033	15.20
847.5		QPSK	-33.61	30.72	-10.39	1.42	V		0.078	18.92
		16-QAM	-34.15	30.18	-10.39	1.42	V		0.069	18.38
		64-QAM	-35.24	29.09	-10.39	1.42	V		0.054	17.29
		256-QAM	-38.41	25.92	-10.39	1.42	V		0.026	14.12

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
826.5	LTE 26 (5 MHz)	QPSK	-31.70	32.05	-10.42	1.40	V	< 7.00	0.106	20.24
		16-QAM	-32.31	31.44	-10.42	1.40	V		0.092	19.63
		64-QAM	-33.38	30.37	-10.42	1.40	V		0.072	18.56
		256-QAM	-36.52	27.23	-10.42	1.40	V		0.035	15.42
836.5		QPSK	-32.38	31.76	-10.40	1.41	V		0.099	19.95
		16-QAM	-33.01	31.13	-10.40	1.41	V		0.086	19.32
		64-QAM	-33.96	30.18	-10.40	1.41	V		0.069	18.37
		256-QAM	-37.22	26.92	-10.40	1.41	V		0.032	15.11
846.5		QPSK	-33.36	30.88	-10.39	1.42	V		0.081	19.07
		16-QAM	-33.92	30.32	-10.39	1.42	V		0.071	18.51
		64-QAM	-35.02	29.22	-10.39	1.42	V		0.055	17.41
		256-QAM	-38.17	26.07	-10.39	1.42	V		0.027	14.26

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
829.0	LTE 26 (10 MHz)	QPSK	-31.64	32.26	-10.41	1.40	V	< 7.00	0.111	20.45
		16-QAM	-32.17	31.73	-10.41	1.40	V		0.098	19.92
		64-QAM	-33.45	30.45	-10.41	1.40	V		0.073	18.64
		256-QAM	-36.77	27.13	-10.41	1.40	V		0.034	15.32
836.5		QPSK	-32.27	31.87	-10.40	1.41	V		0.101	20.06
		16-QAM	-32.55	31.59	-10.40	1.41	V		0.095	19.78
		64-QAM	-33.93	30.21	-10.40	1.41	V		0.069	18.40
		256-QAM	-37.39	26.75	-10.40	1.41	V		0.031	14.94
844.0		QPSK	-32.85	31.24	-10.39	1.41	V		0.088	19.44
		16-QAM	-33.36	30.73	-10.39	1.41	V		0.078	18.93
		64-QAM	-34.63	29.46	-10.39	1.41	V		0.058	17.66
		256-QAM	-37.98	26.11	-10.39	1.41	V		0.027	14.31

Freq (MHz)	Mod/ Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit		ERP	
								W	W	dBm	dBm
831.5	LTE B26 (15 MHz)	QPSK	-31.72	32.31	-10.41	1.40	V	< 7.00	0.112	20.50	
		16-QAM	-32.25	31.78	-10.41	1.40	V		0.099	19.97	
		64-QAM	-33.45	30.58	-10.41	1.40	V		0.075	18.77	
		256-QAM	-36.72	27.31	-10.41	1.40	V		0.035	15.50	
836.5		QPSK	-32.30	31.84	-10.40	1.41	V		0.101	20.03	
		16-QAM	-32.61	31.53	-10.40	1.41	V		0.094	19.72	
		64-QAM	-34.03	30.11	-10.40	1.41	V		0.068	18.30	
		256-QAM	-37.35	26.79	-10.40	1.41	V		0.031	14.98	
841.5		QPSK	-32.42	31.70	-10.39	1.41	V		0.098	19.90	
		16-QAM	-32.92	31.20	-10.39	1.41	V		0.087	19.40	
		64-QAM	-34.20	29.92	-10.39	1.41	V		0.065	18.12	
		256-QAM	-37.49	26.63	-10.39	1.41	V		0.030	14.83	

### 8.2 RADIATED SPURIOUS EMISSIONS

- ▣ MODE: LTE B26
- ▣ MODULATION SIGNAL: 15 MHz QPSK
- ▣ DISTANCE: 3 meters

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm)	C.L	Pol	Result (dBm)	Limit
26865 (831.5)	1663.00	-51.09	9.58	-61.09	2.01	V	-53.52	-13.00
	2494.50	-49.09	10.67	-53.25	2.49	H	-45.07	-13.00
	3326.00	-57.80	12.40	-58.84	2.91	V	-49.35	-13.00
26915 (836.5)	1673.00	-53.44	9.65	-63.21	2.01	H	-55.57	-13.00
	2509.50	-50.26	10.75	-53.98	2.50	V	-45.73	-13.00
	3346.00	-58.74	12.48	-59.73	2.92	V	-50.17	-13.00
26965 (841.5)	1683.00	-53.33	9.65	-63.11	2.02	H	-55.48	-13.00
	2524.50	-47.73	10.80	-51.32	2.50	H	-43.02	-13.00
	3366.00	-58.73	12.58	-59.76	2.92	V	-50.10	-13.00



**8.3 OCCUPIED BANDWIDTH**

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data ( MHz )
26	1.4 MHz	836.5	QPSK	6	0	1.0966
			16-QAM			1.0893
			64-QAM			1.0933
			256-QAM			1.0862
	3 MHz		QPSK	15		2.7091
			16-QAM			2.7048
			64-QAM			2.7026
			256-QAM			2.7029
	5 MHz		QPSK	25		4.4937
			16-QAM			4.4981
			64-QAM			4.5022
			256-QAM			4.5009
	10 MHz		QPSK	50		8.9389
			16-QAM			8.9664
			64-QAM			8.9667
			256-QAM			8.9554
	15 MHz		QPSK	75		13.485
			16-QAM			13.457
			64-QAM			13.454
			256-QAM			13.456

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 33 ~ 52.

**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	824.7	3.7094	27.976	-67.139	-39.163	-13.00
		836.5	3.6840	27.976	-67.197	-39.221	
		848.3	3.6860	27.976	-67.014	-39.038	
	3	825.5	3.6915	27.976	-67.396	-39.420	
		836.5	3.7254	27.976	-67.421	-39.445	
		847.5	3.6626	27.976	-67.120	-39.144	
	5	826.5	3.6960	27.976	-67.015	-39.039	
		836.5	3.6800	27.976	-67.223	-39.247	
		846.5	3.1651	27.976	-67.454	-39.478	
	10	829.0	3.6905	27.976	-66.938	-38.962	
		836.5	3.7010	27.976	-67.071	-39.095	
		844.0	3.7000	27.976	-67.088	-39.112	
	15	831.5	3.7024	27.976	-67.191	-39.215	
		836.5	3.6855	27.976	-66.807	-38.831	
		841.5	3.7199	27.976	-67.234	-39.258	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 83 ~ 97.
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	30.131

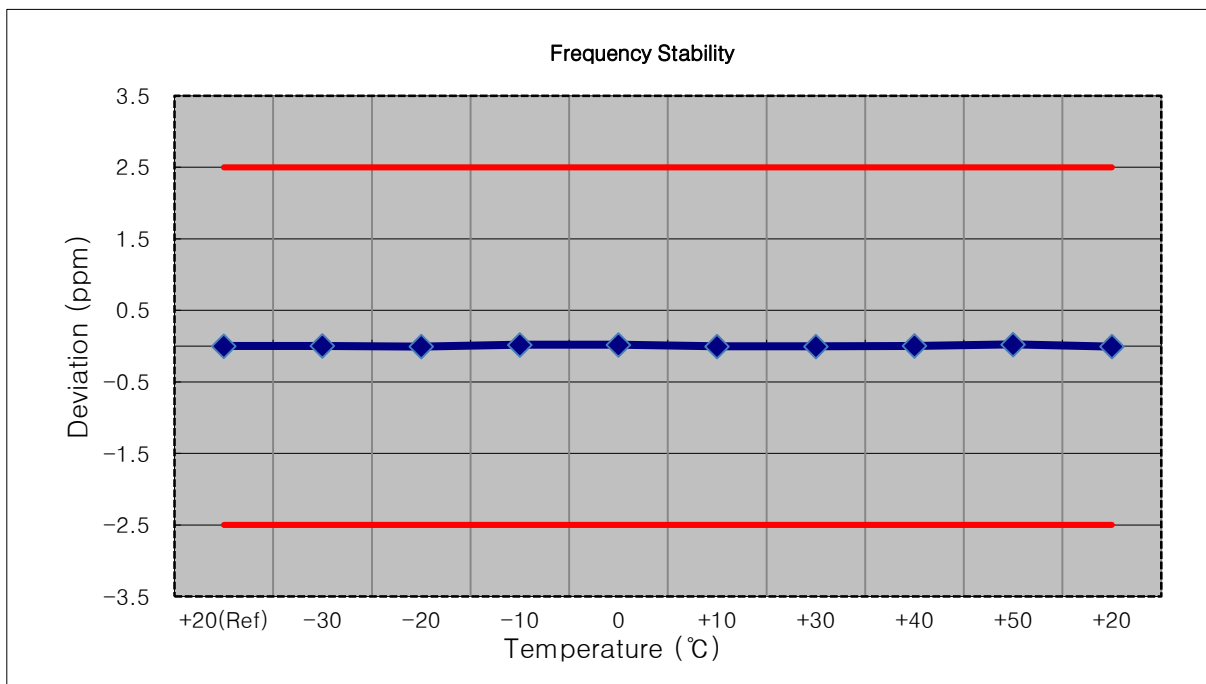
**8.5 BAND EDGE**

- Plots of the EUT's Band Edge are shown Page 53 ~ 82.

**8.6 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE**

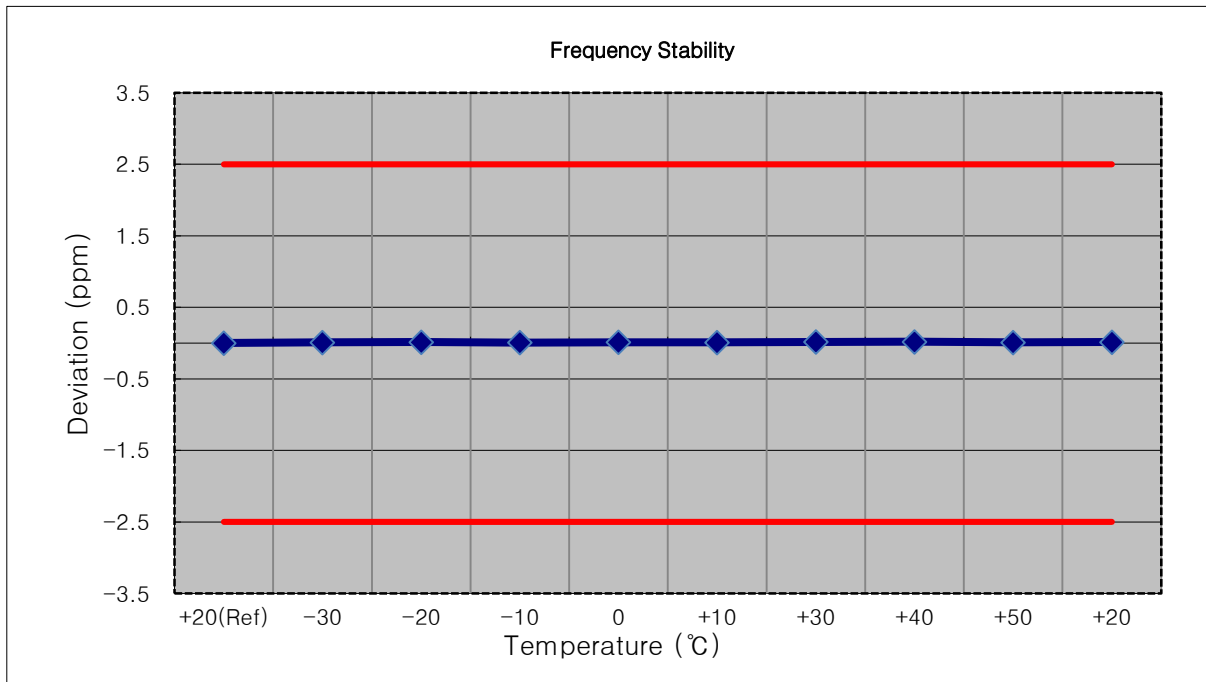
- ▣ MODE: LTE 26
- ▣ OPERATING FREQUENCY: 836,500,000 Hz
- ▣ CHANNEL: 26915 (1.4 MHz)
- ▣ REFERENCE VOLTAGE: 3.880 VDC
- ▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.880	+20(Ref)	836 499 983	0.0	0.000 000	0.000
100%		-30	836 499 985	2.4	0.000 000	0.003
100%		-20	836 499 977	-6.2	-0.000 001	-0.007
100%		-10	836 499 999	15.5	0.000 002	0.019
100%		0	836 499 998	15.3	0.000 002	0.018
100%		+10	836 499 979	-3.7	0.000 000	-0.004
100%		+30	836 499 980	-2.7	0.000 000	-0.003
100%		+40	836 499 985	2.0	0.000 000	0.002
100%		+50	836 500 001	18.2	0.000 002	0.022
Batt. Endpoint		3.650	+20	836 499 979	-4.5	-0.000 001



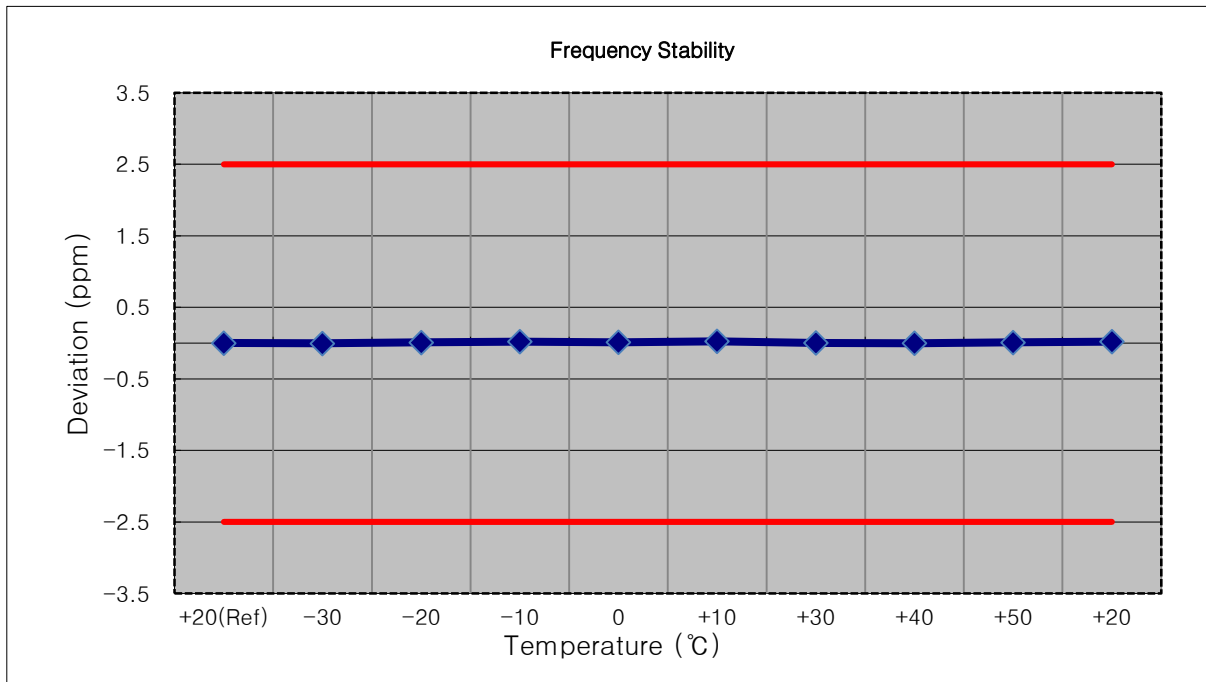
- ▣ MODE: LTE 26
- ▣ OPERATING FREQUENCY: 836,500,000 Hz
- ▣ CHANNEL: 26915 (3 MHz)
- ▣ REFERENCE VOLTAGE: 3.880 VDC
- ▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.880	+20(Ref)	836 500 018	0.0	0.000 000	0.000
100%		-30	836 500 025	7.2	0.000 001	0.009
100%		-20	836 500 029	11.3	0.000 001	0.014
100%		-10	836 500 024	6.0	0.000 001	0.007
100%		0	836 500 027	9.4	0.000 001	0.011
100%		+10	836 500 026	8.5	0.000 001	0.010
100%		+30	836 500 030	12.6	0.000 002	0.015
100%		+40	836 500 032	14.6	0.000 002	0.017
100%		+50	836 500 026	8.5	0.000 001	0.010
Batt. Endpoint		3.650	+20	836 500 030	12.1	0.000 001



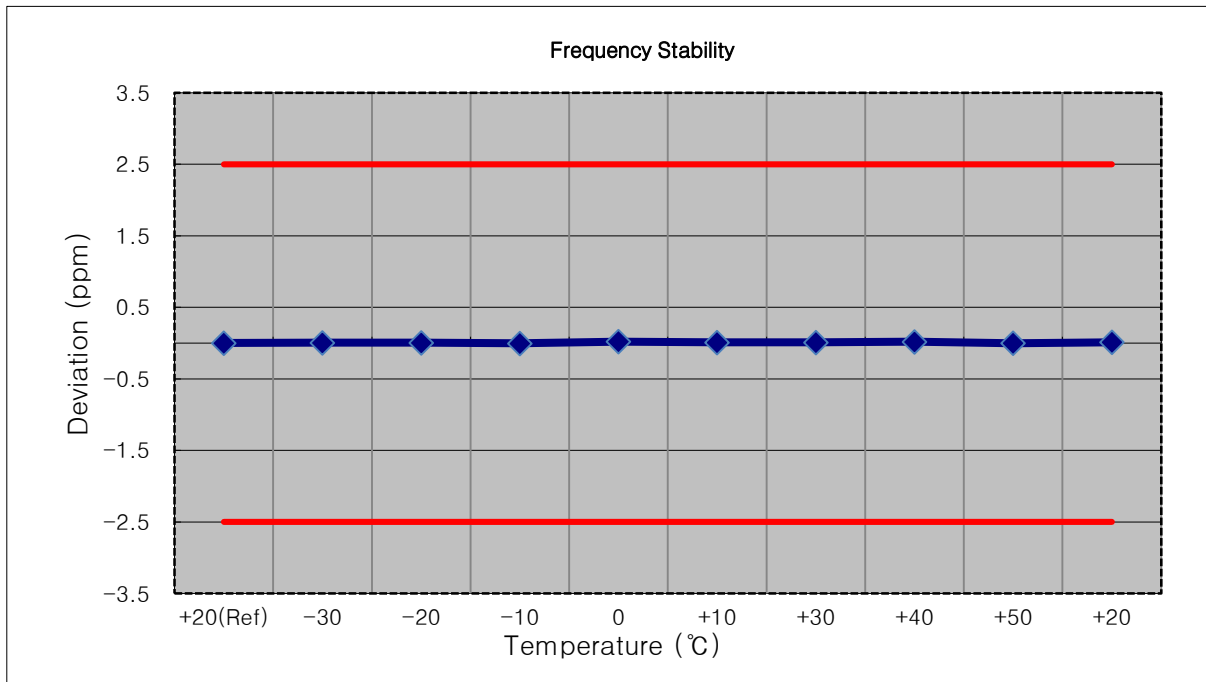
- ▣ MODE: LTE 26
- ▣ OPERATING FREQUENCY: 836,500,000 Hz
- ▣ CHANNEL: 26915 (5 MHz)
- ▣ REFERENCE VOLTAGE: 3.880 VDC
- ▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.880	+20(Ref)	836 500 020	0.0	0.000 000	0.000
100%		-30	836 500 017	-2.7	0.000 000	-0.003
100%		-20	836 500 028	8.0	0.000 001	0.010
100%		-10	836 500 038	18.0	0.000 002	0.022
100%		0	836 500 029	9.0	0.000 001	0.011
100%		+10	836 500 040	20.1	0.000 002	0.024
100%		+30	836 500 022	2.3	0.000 000	0.003
100%		+40	836 500 017	-2.3	0.000 000	-0.003
100%		+50	836 500 028	8.7	0.000 001	0.010
Batt. Endpoint		3.650	+20	836 500 036	16.3	0.000 002



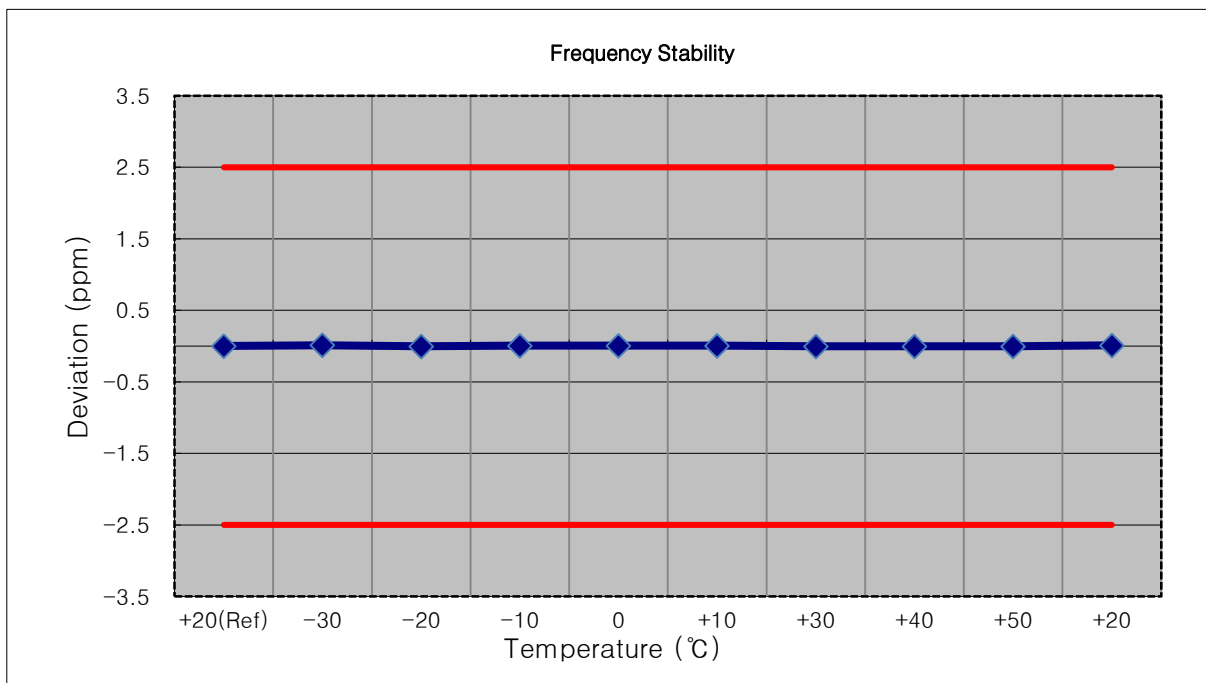
- ▣ MODE: LTE 26
- ▣ OPERATING FREQUENCY: 836,500,000 Hz
- ▣ CHANNEL: 26915 (10 MHz)
- ▣ REFERENCE VOLTAGE: 3.880 VDC
- ▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.880	+20(Ref)	836 500 023	0.0	0.000 000	0.000
100%		-30	836 500 027	3.9	0.000 000	0.005
100%		-20	836 500 027	3.4	0.000 000	0.004
100%		-10	836 500 020	-3.2	0.000 000	-0.004
100%		0	836 500 040	16.6	0.000 002	0.020
100%		+10	836 500 031	8.0	0.000 001	0.010
100%		+30	836 500 031	7.6	0.000 001	0.009
100%		+40	836 500 039	16.1	0.000 002	0.019
100%		+50	836 500 021	-2.5	0.000 000	-0.003
Batt. Endpoint		3.650	+20	836 500 034	10.5	0.000 001



- ▣ MODE: LTE B26
- ▣ OPERATING FREQUENCY: 836,500,000 Hz
- ▣ CHANNEL: 26915 (15 MHz)
- ▣ REFERENCE VOLTAGE: 3.880 VDC
- ▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

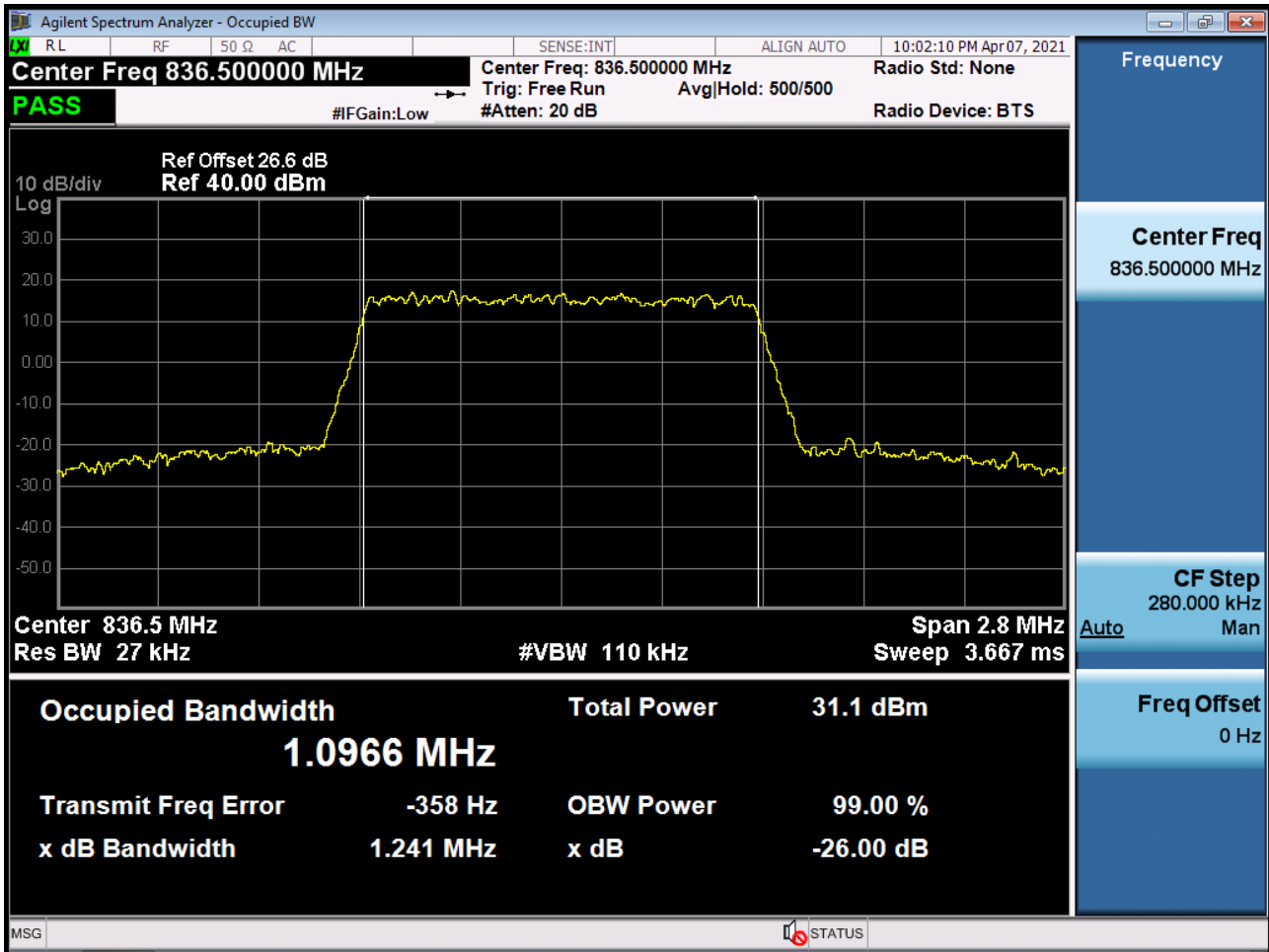
Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.880	+20(Ref)	836 500 010	0.0	0.000 000	0.000
100%		-30	836 500 033	10.0	0.000 001	0.012
100%		-20	836 500 020	-3.6	0.000 000	-0.004
100%		-10	836 500 027	3.7	0.000 000	0.004
100%		0	836 500 028	4.5	0.000 001	0.005
100%		+10	836 500 027	3.8	0.000 000	0.005
100%		+30	836 500 020	-3.2	0.000 000	-0.004
100%		+40	836 500 019	-4.0	0.000 000	-0.005
100%		+50	836 500 020	-3.2	0.000 000	-0.004
Batt. Endpoint		3.650	+20	836 500 031	8.1	0.000 001



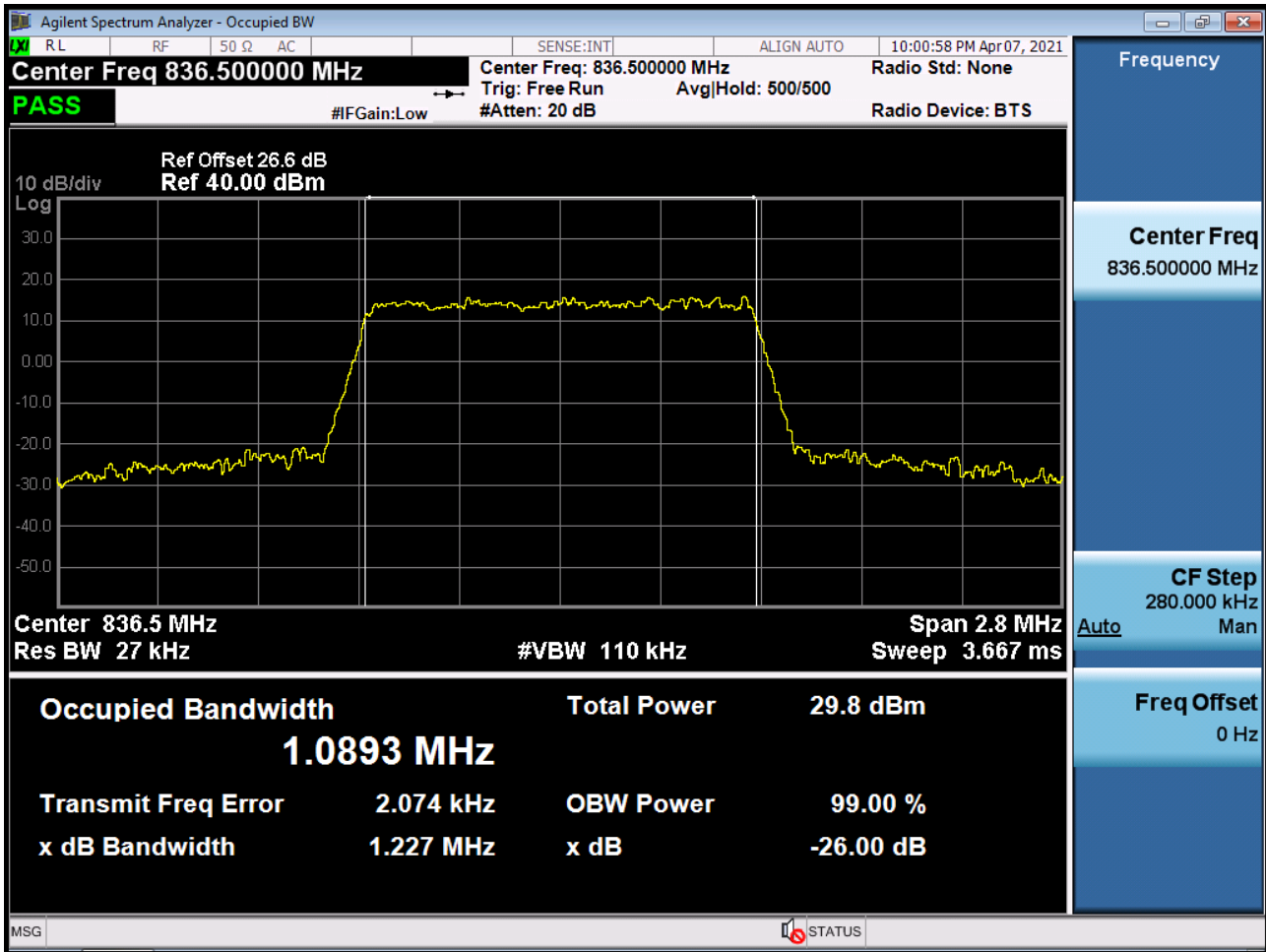
## 9. TEST PLOTS



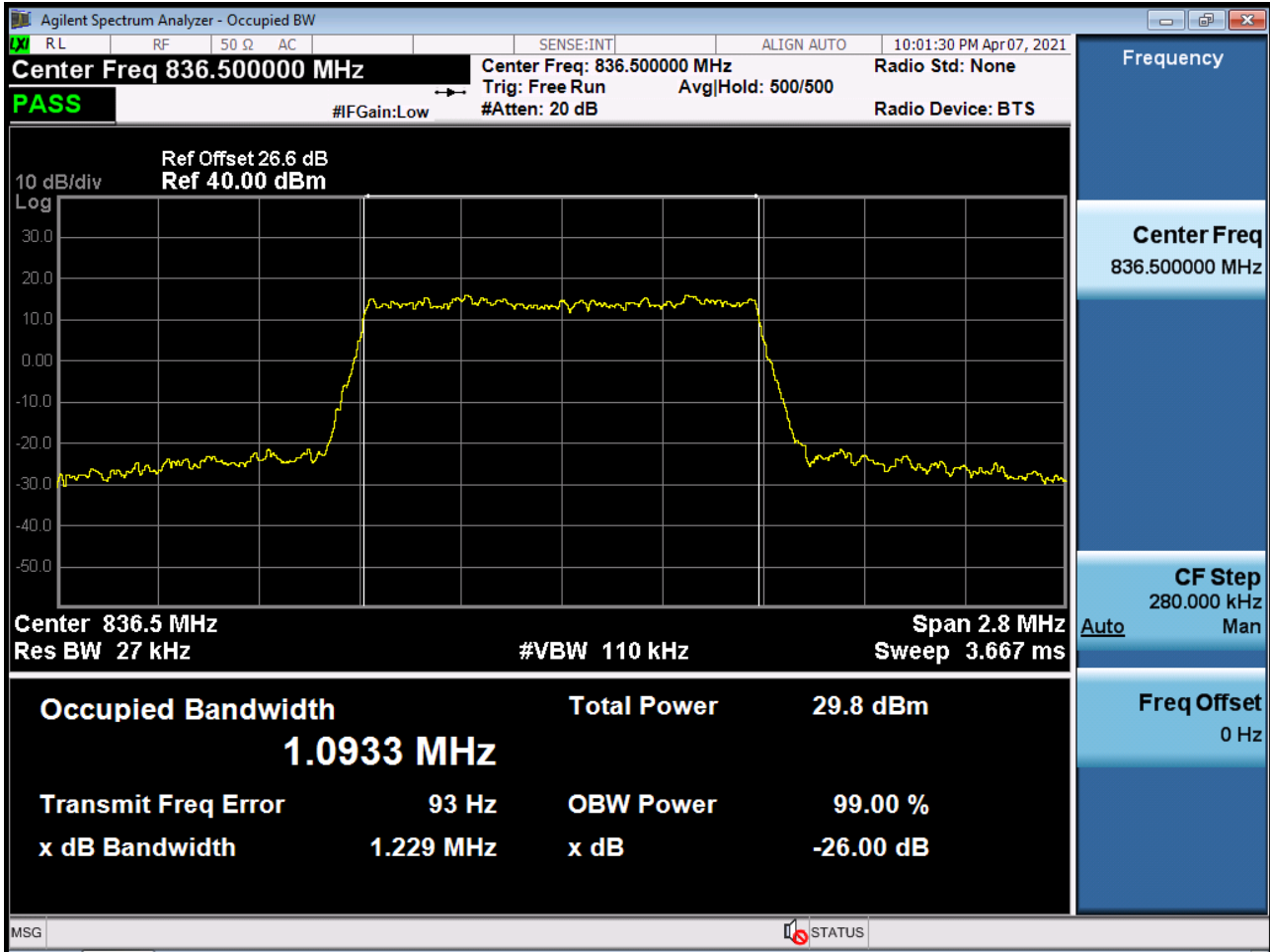
BAND26. Occupied Bandwidth Plot (1.4M BW Ch.26915 QPSK\_RB6\_0)



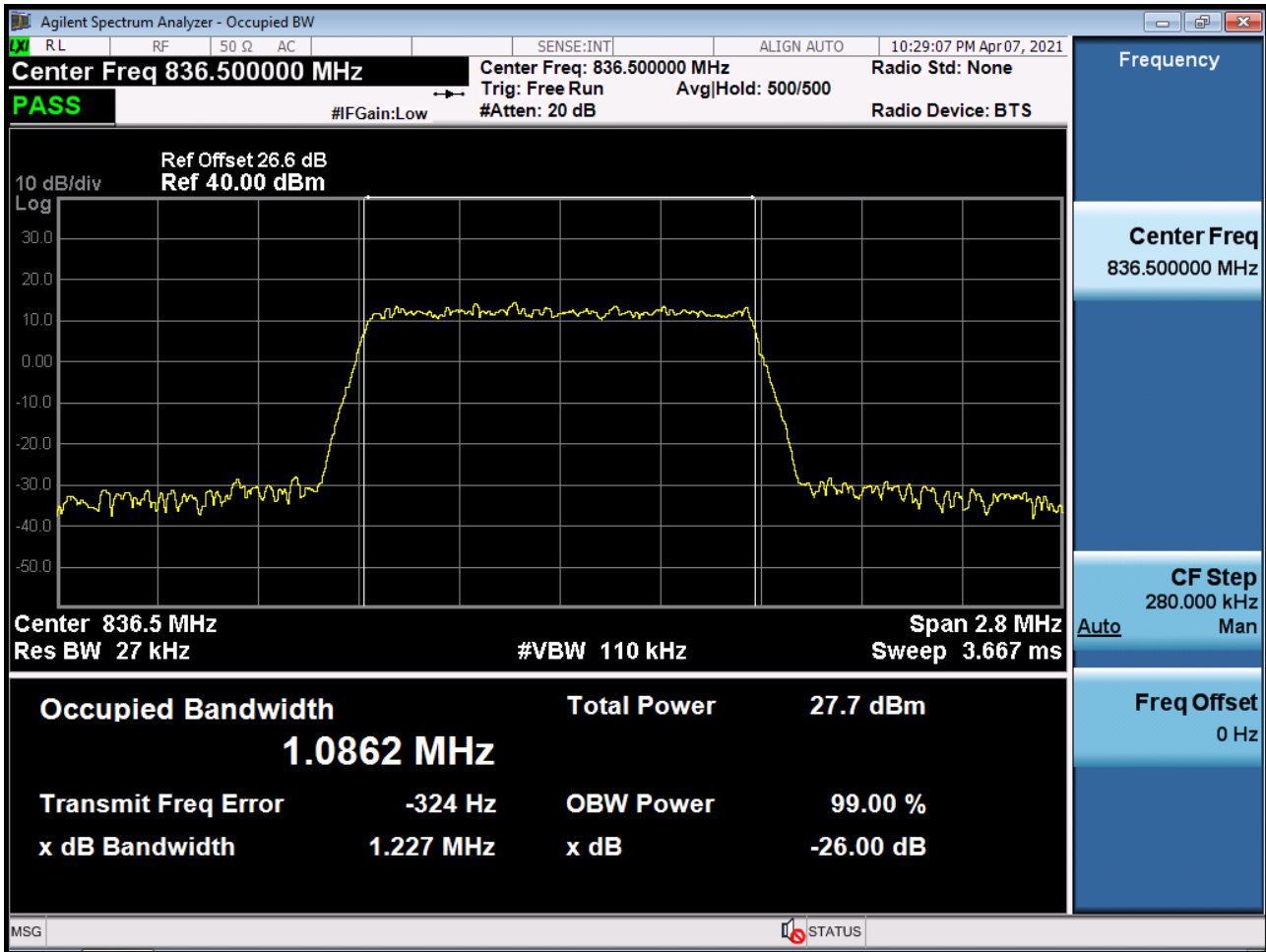
BAND26. Occupied Bandwidth Plot (1.4M BW Ch.26915 16QAM\_RB6\_0)



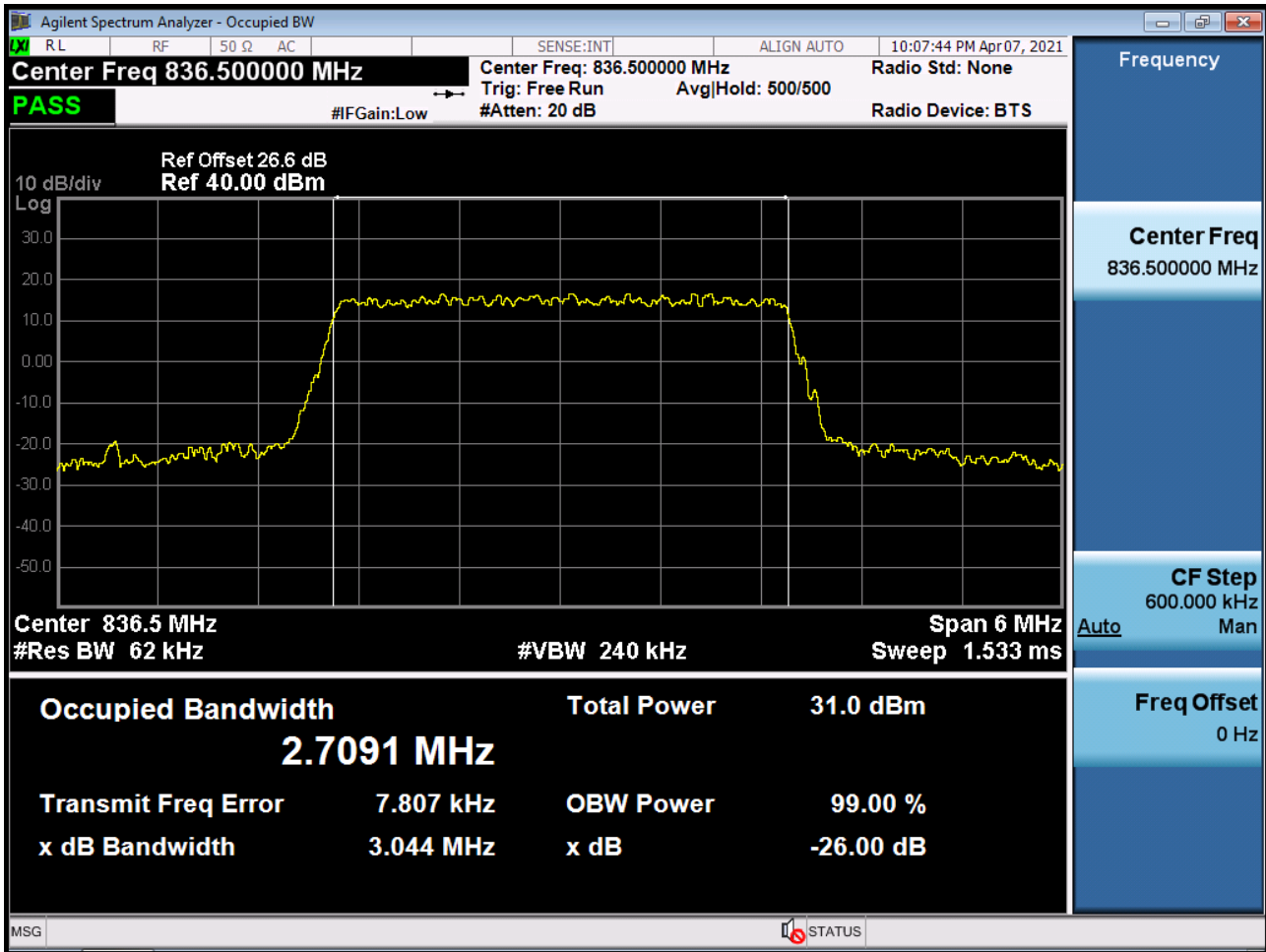
BAND26. Occupied Bandwidth Plot (1.4M BW Ch.26915 64QAM\_RB6\_0)



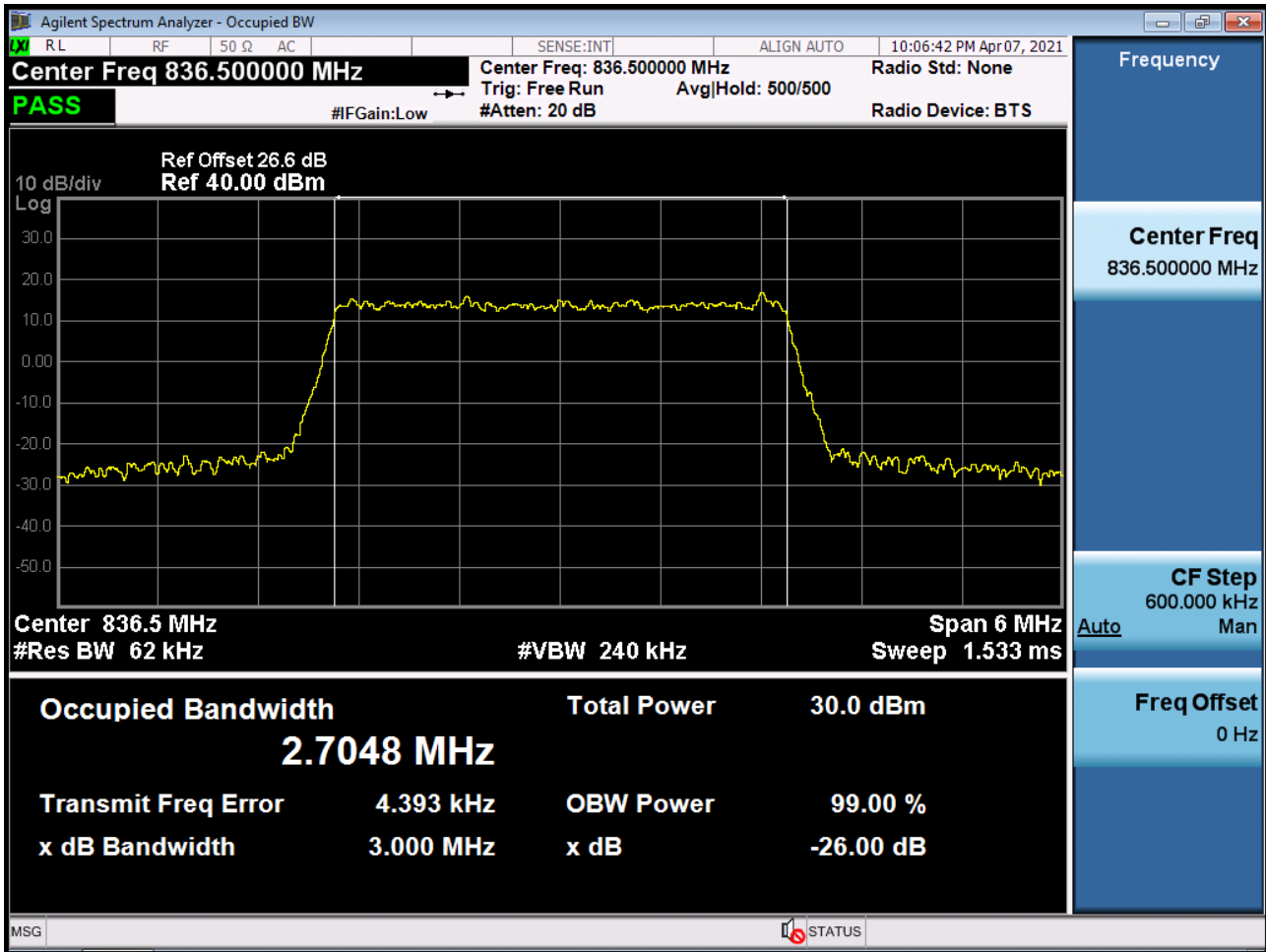
BAND26. Occupied Bandwidth Plot (1.4M BW Ch.26915 256QAM\_RB6\_0)



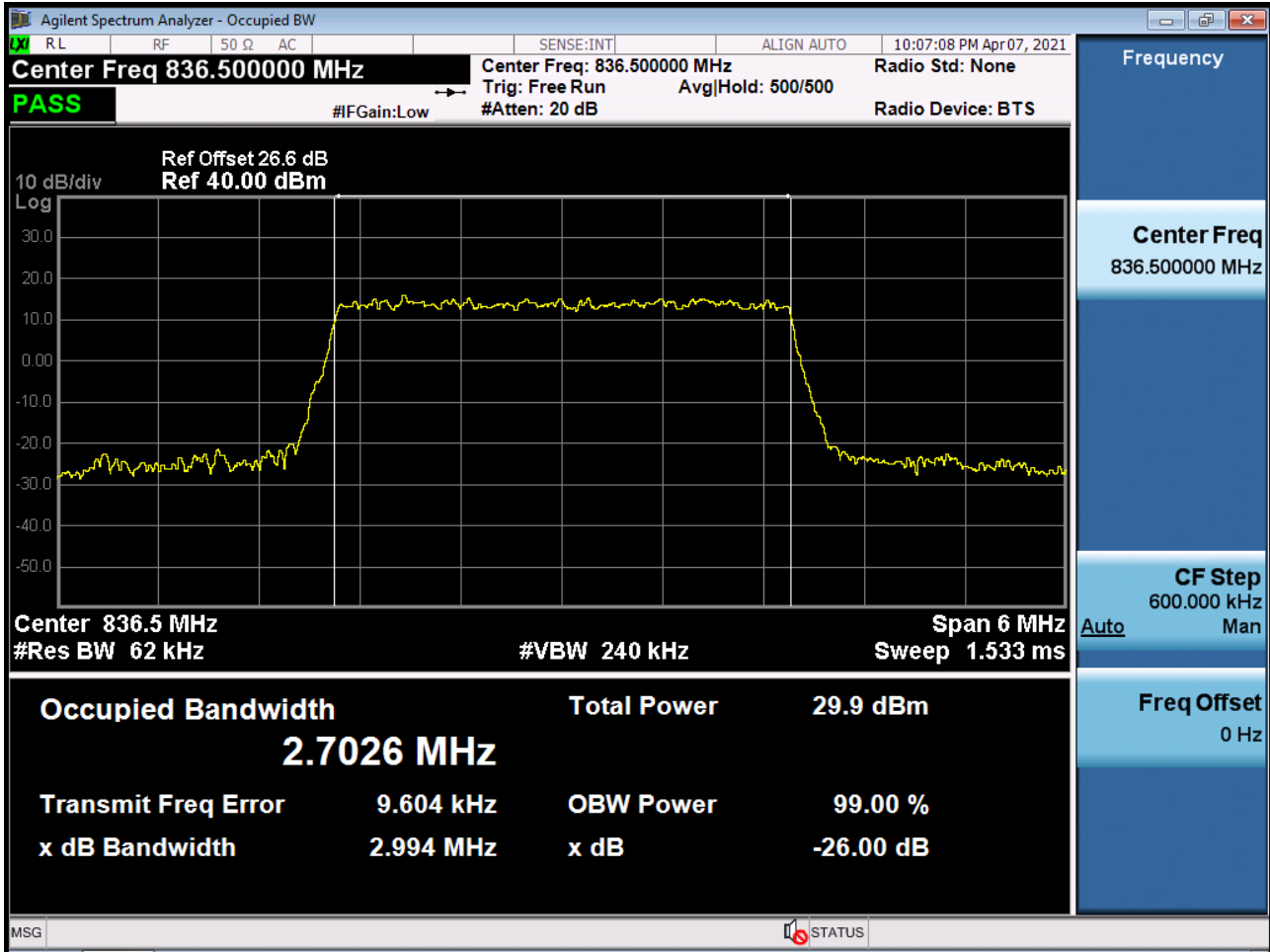
BAND26. Occupied Bandwidth Plot (3M BW Ch.26915 QPSK\_RB15\_0)



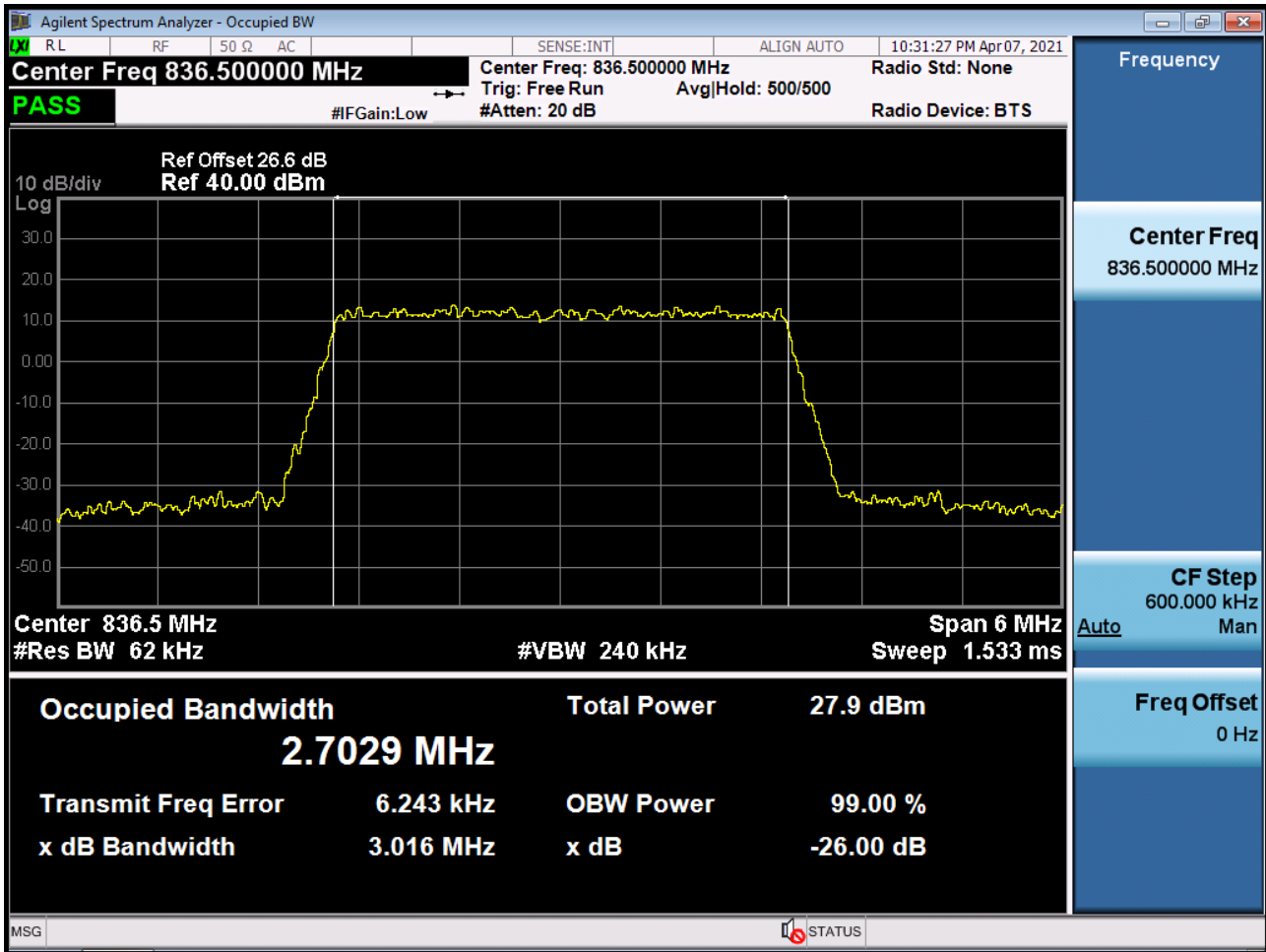
BAND26. Occupied Bandwidth Plot (3M BW Ch.26915 16QAM\_RB15\_0)



BAND26. Occupied Bandwidth Plot (3M BW Ch.26915 64QAM\_RB15\_0)

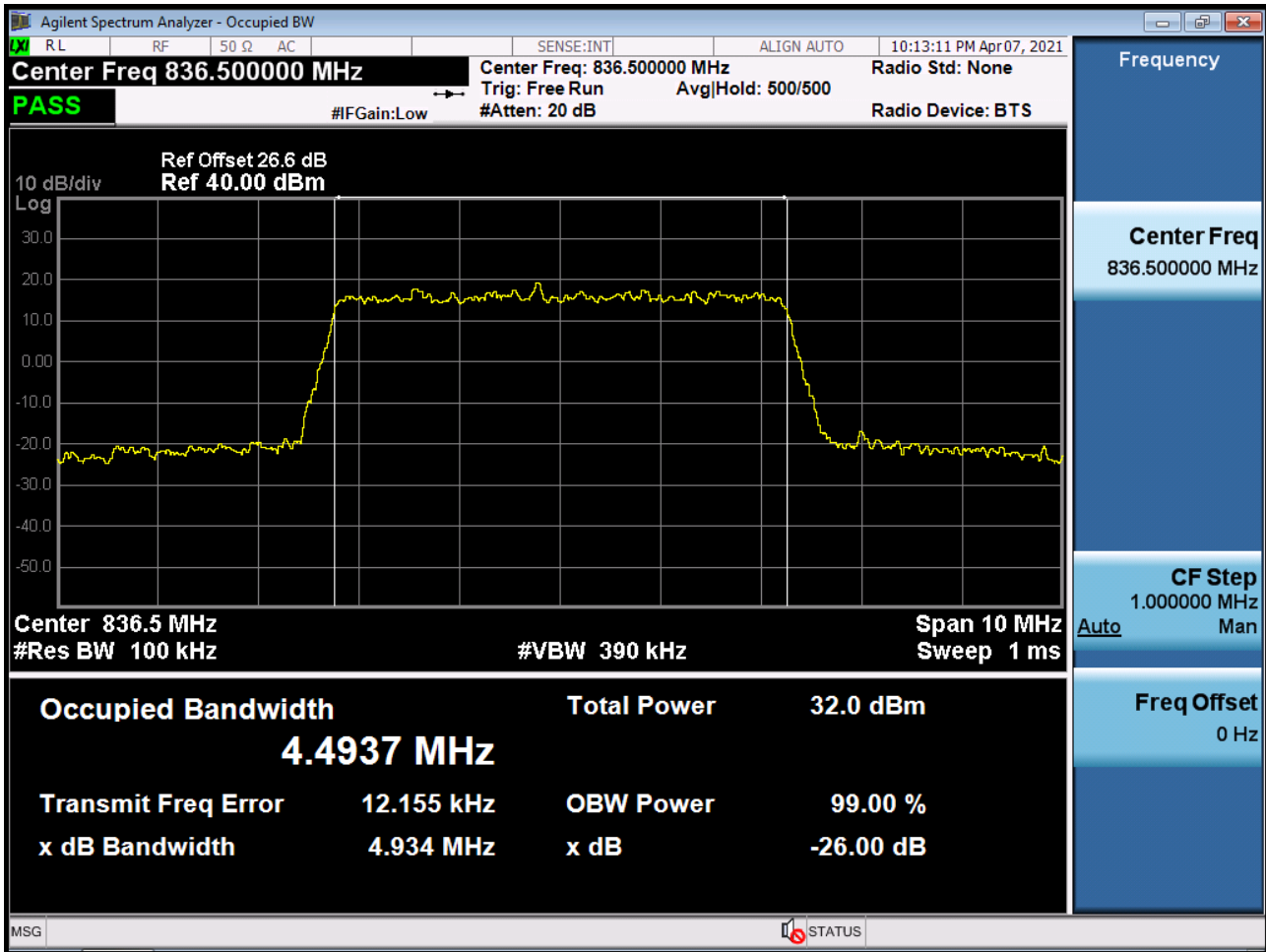


BAND26. Occupied Bandwidth Plot (3M BW Ch.26915 256QAM\_RB15\_0)

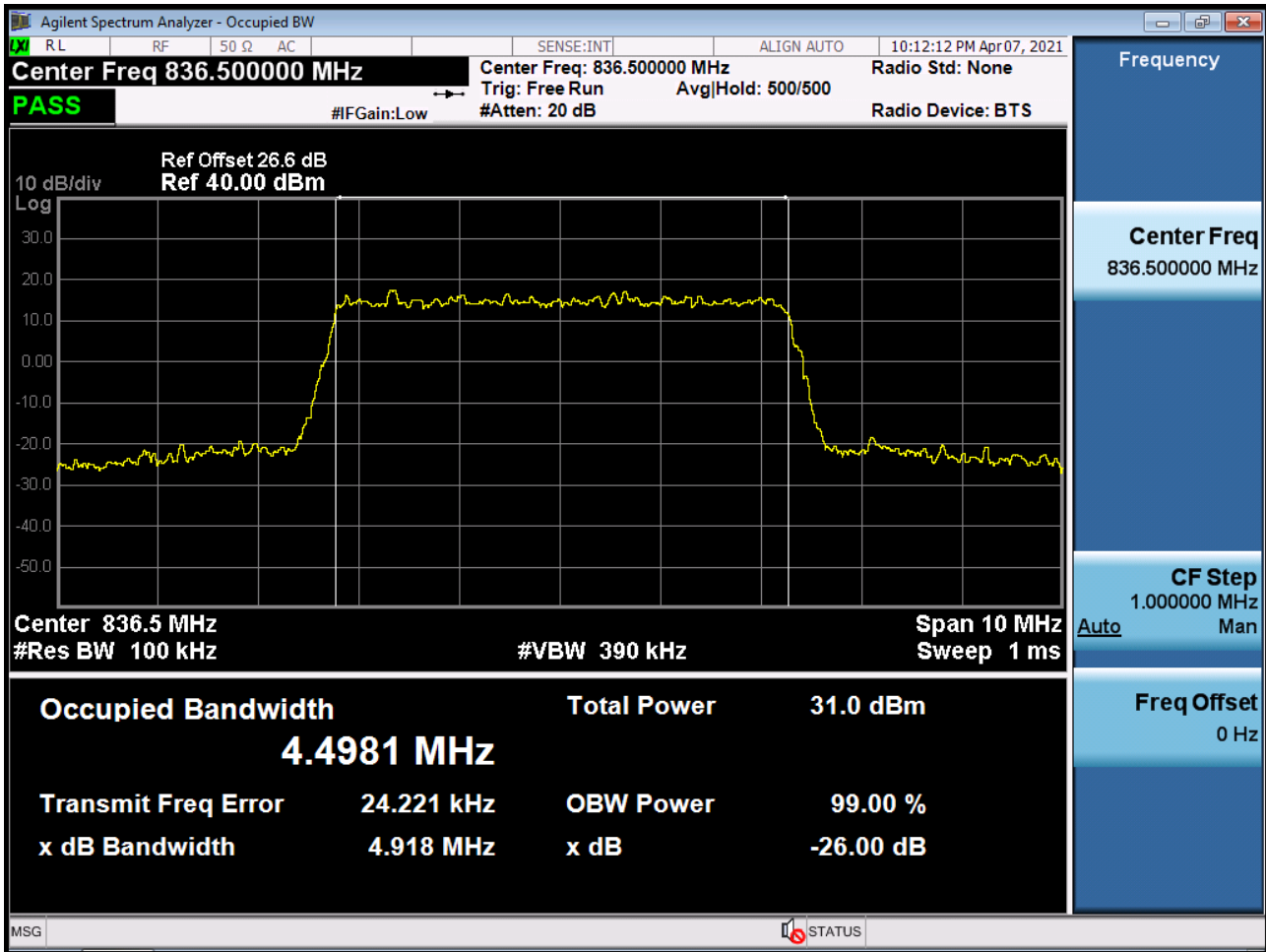




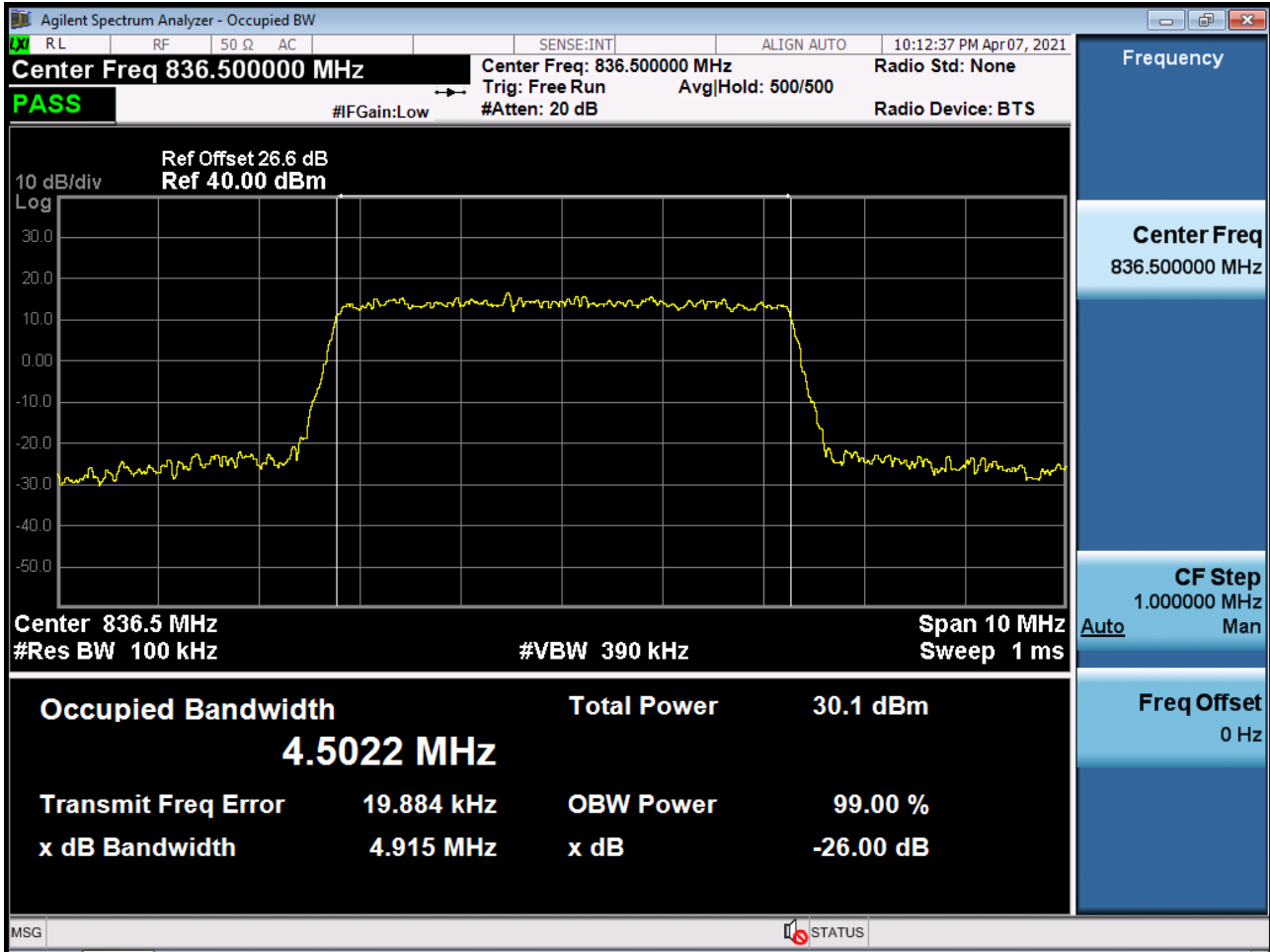
BAND26. Occupied Bandwidth Plot (5M BW Ch.26915 QPSK\_RB25\_0)



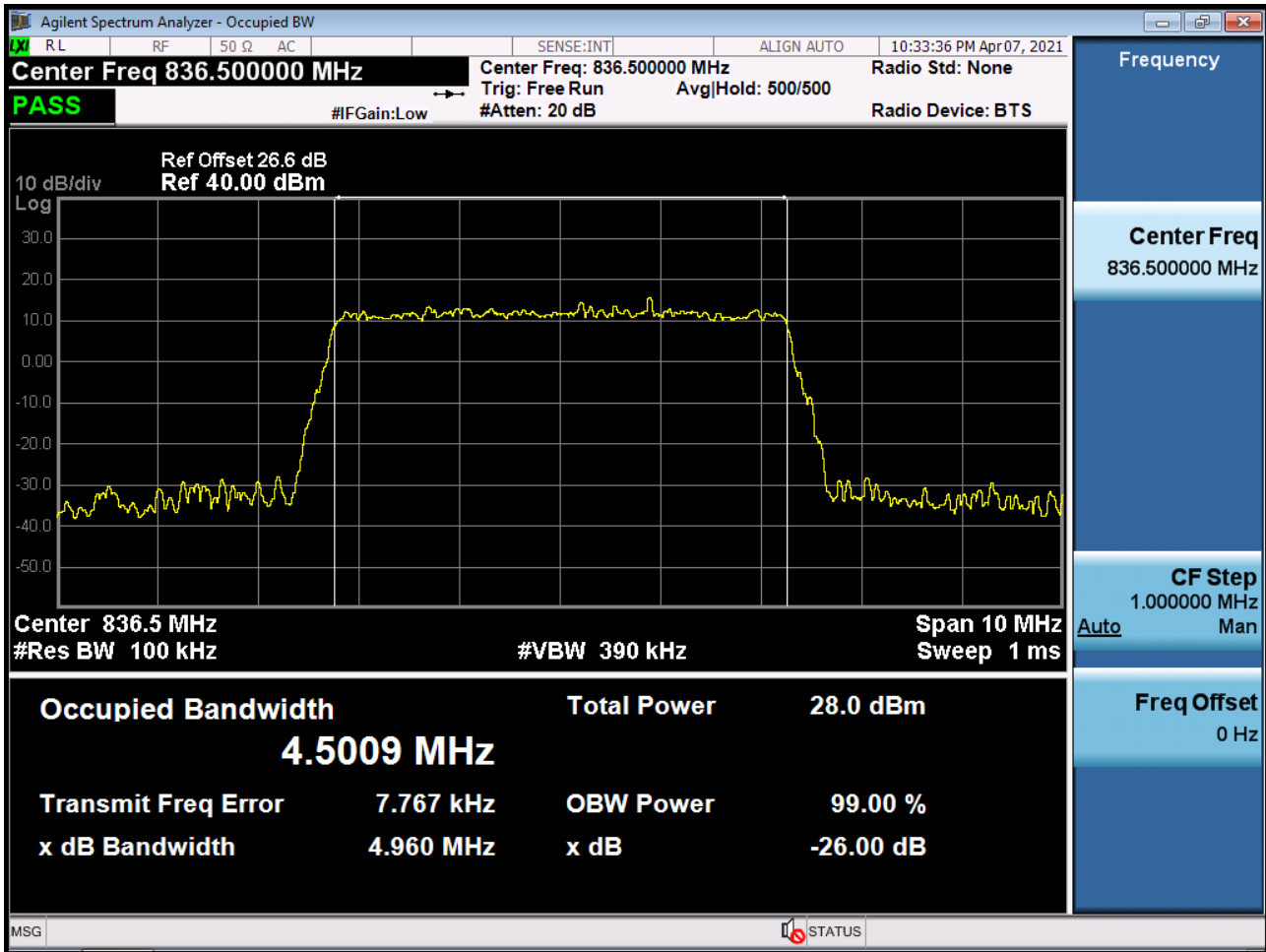
BAND26. Occupied Bandwidth Plot (5M BW Ch.26915 16QAM\_RB25\_0)



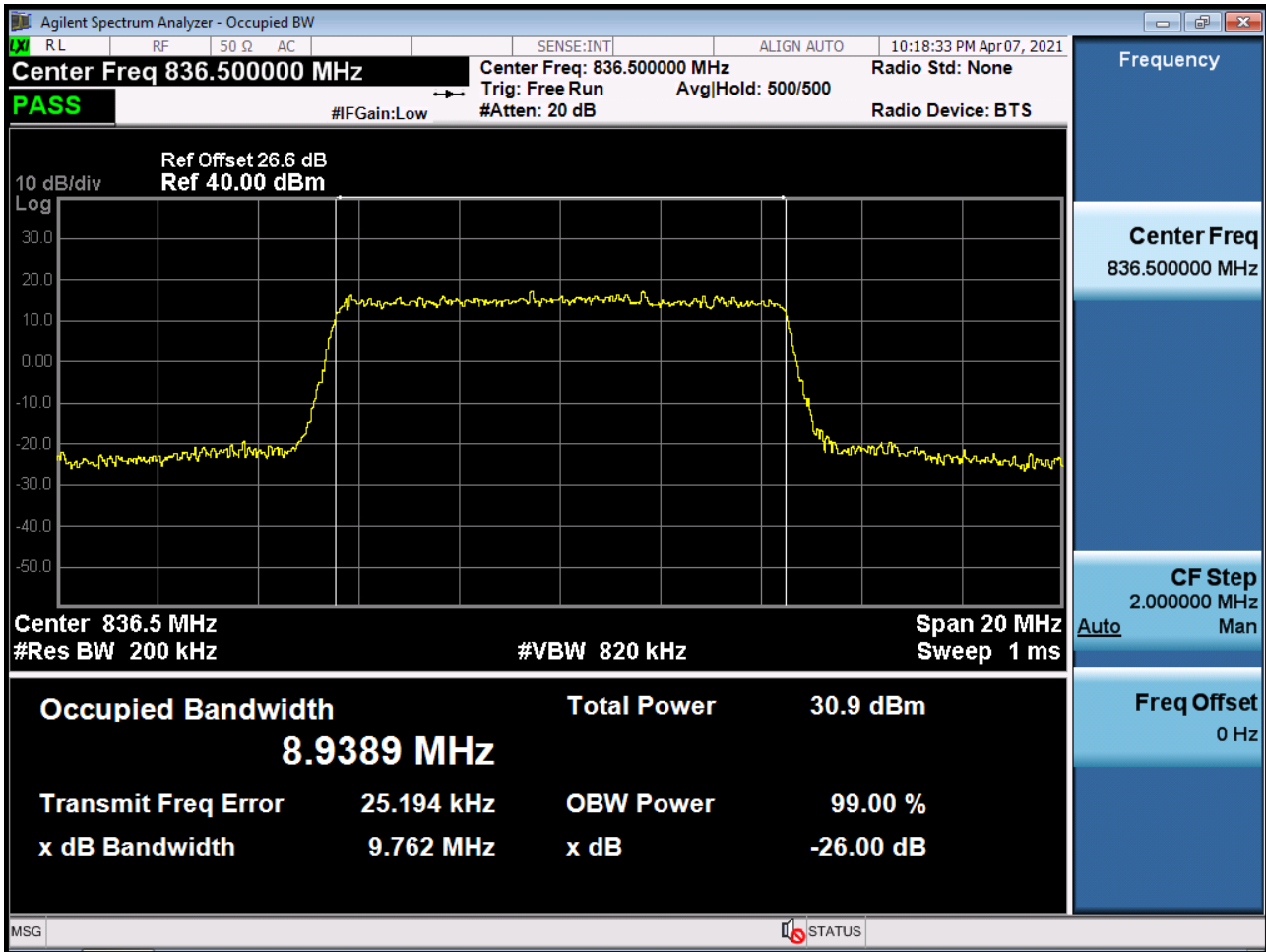
BAND26. Occupied Bandwidth Plot (5M BW Ch.26915 64QAM\_RB25\_0)



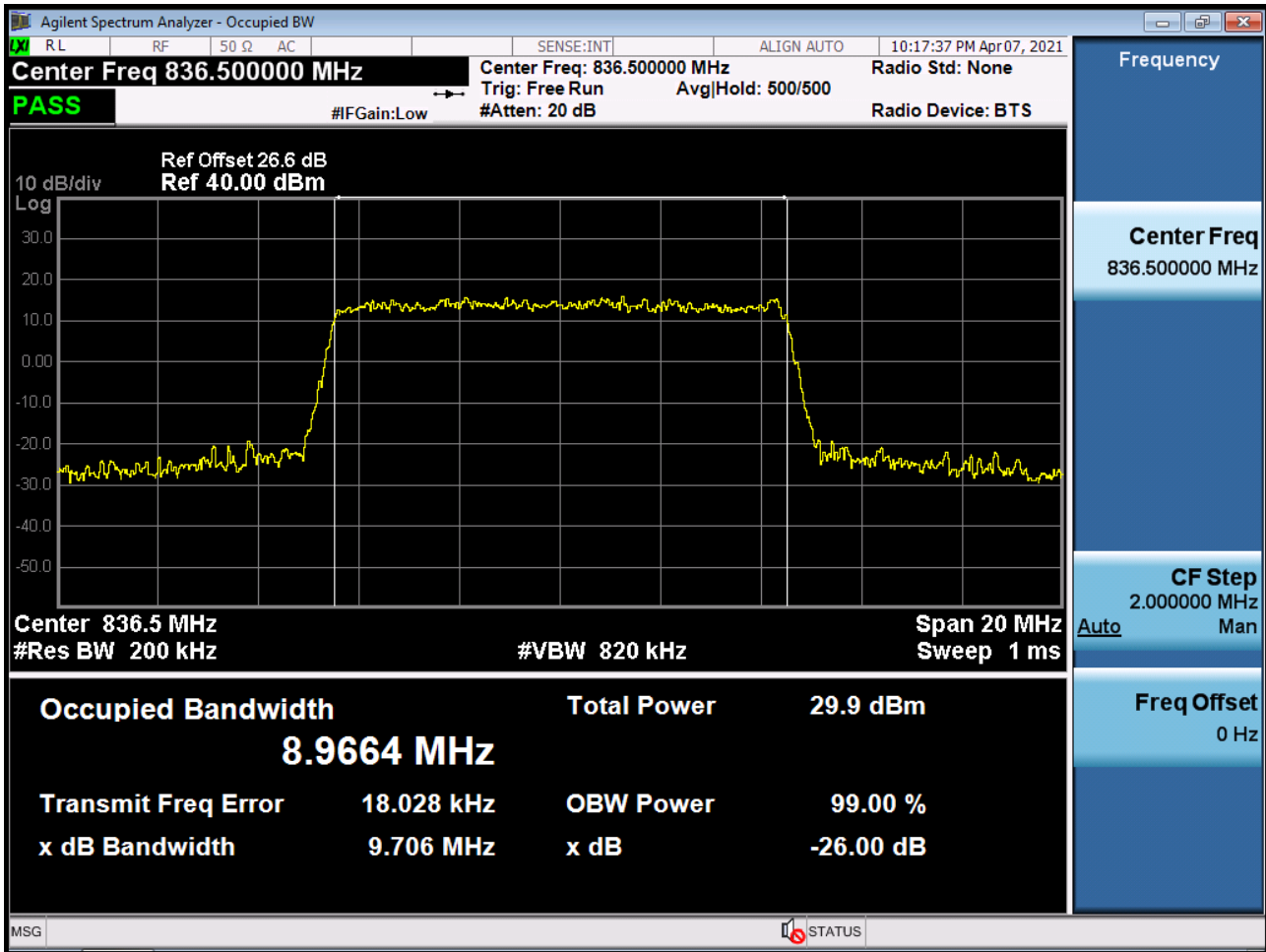
BAND26. Occupied Bandwidth Plot (5M BW Ch.26915 256QAM\_RB25\_0)



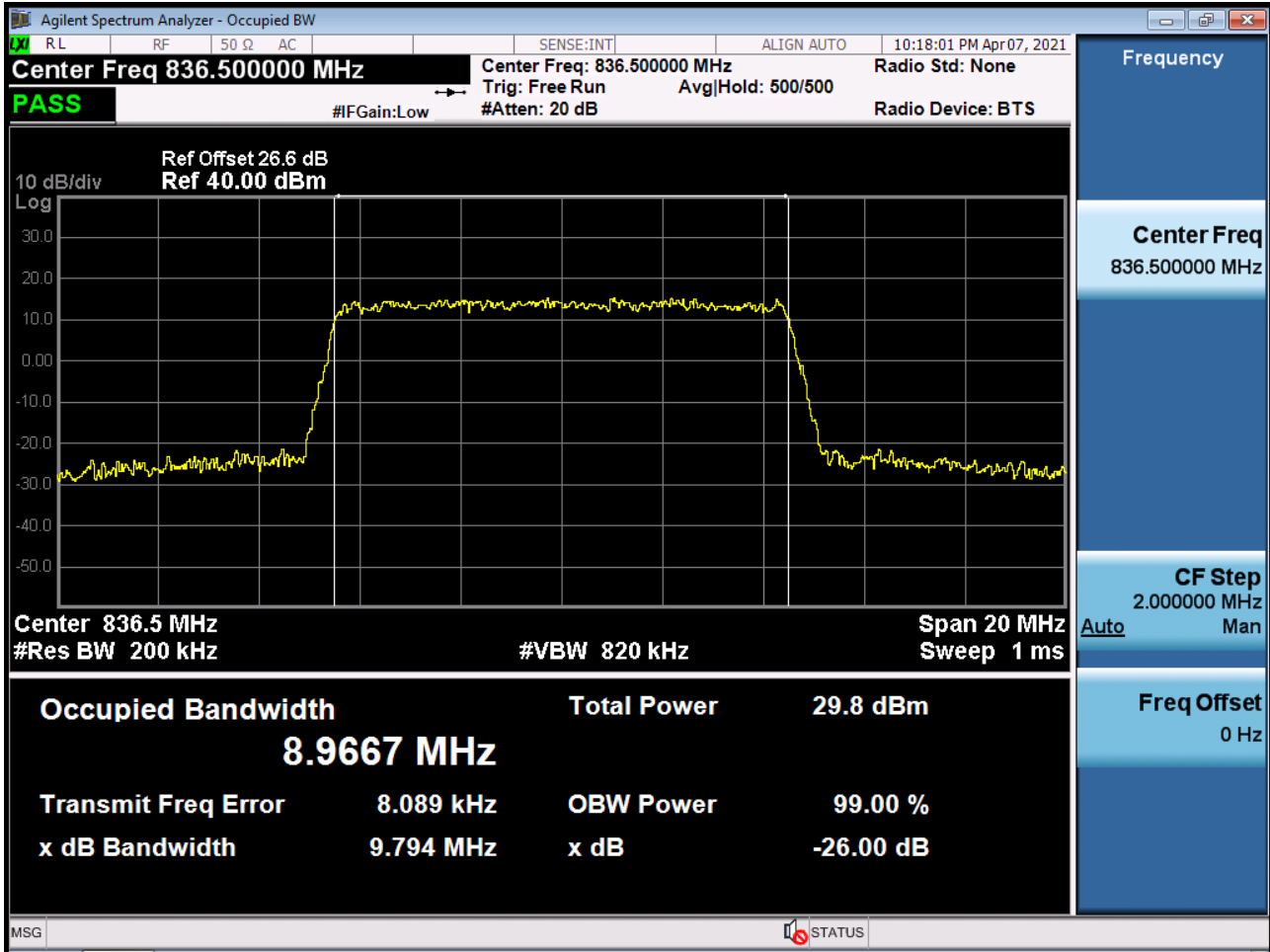
BAND26. Occupied Bandwidth Plot (10M BW Ch.26915 QPSK\_RB50\_0)



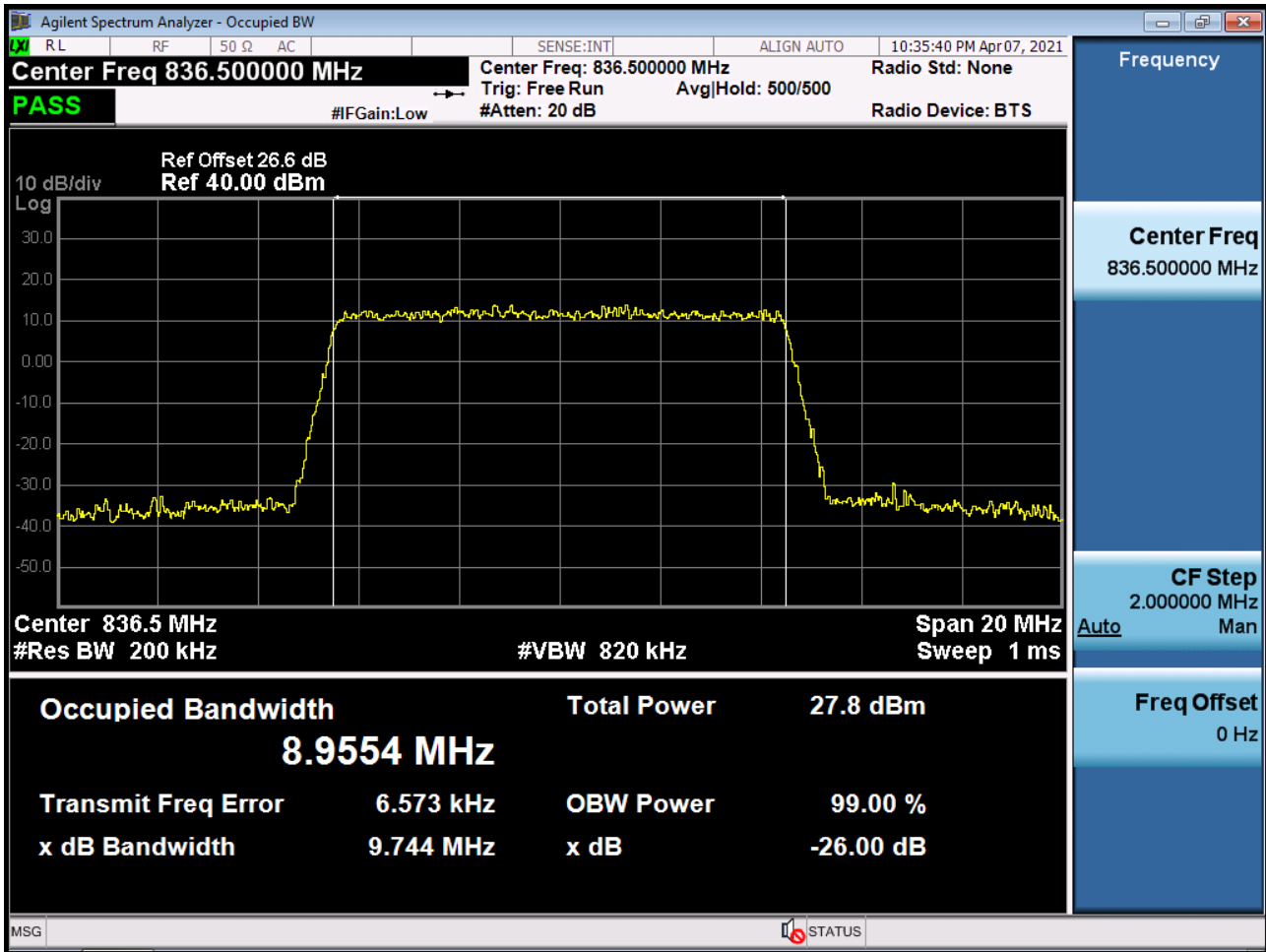
BAND26. Occupied Bandwidth Plot (10M BW Ch.26915 16QAM\_RB50\_0)



BAND26. Occupied Bandwidth Plot (10M BW Ch.26915 64QAM\_RB50\_0)

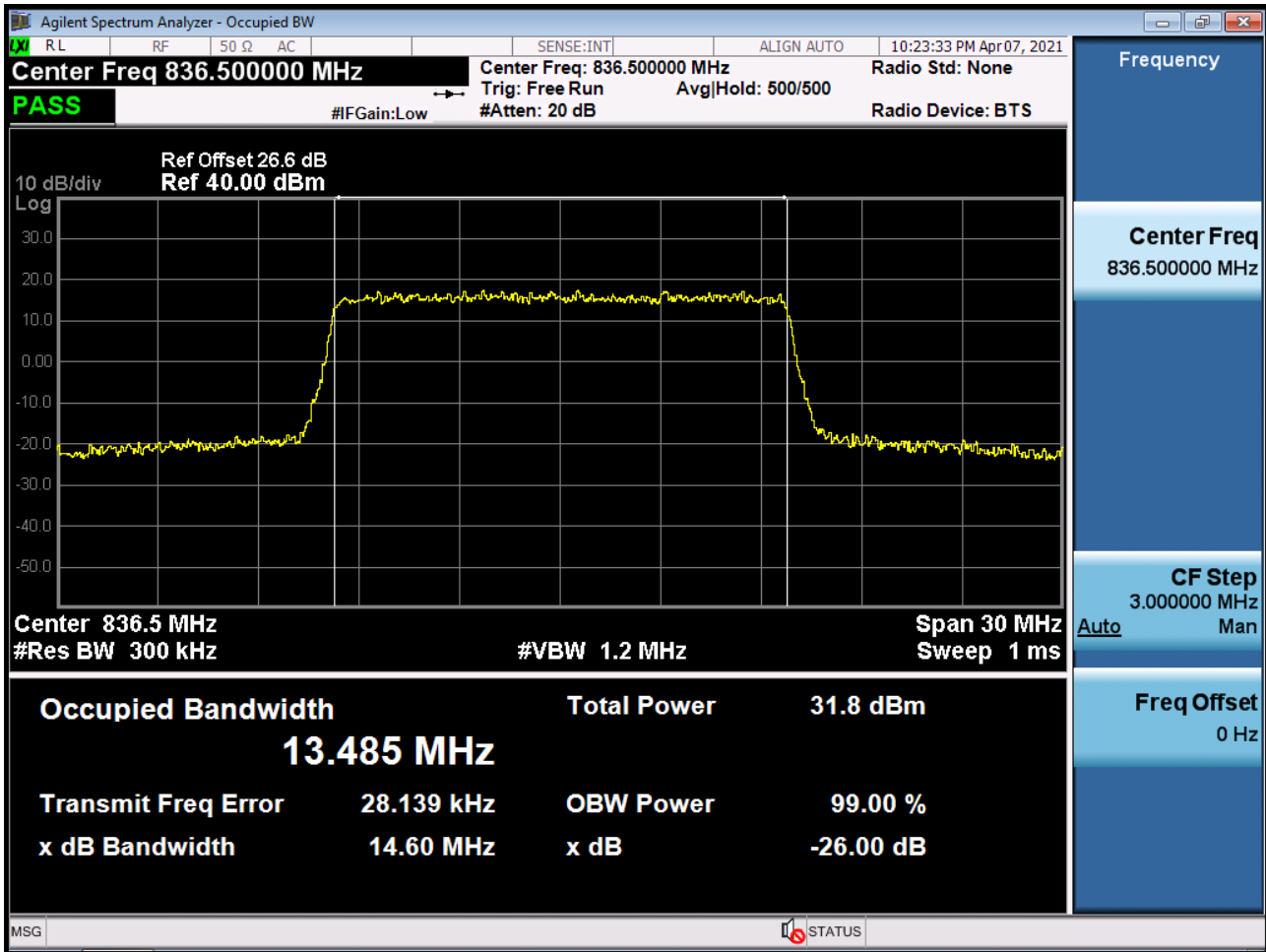


BAND26. Occupied Bandwidth Plot (10M BW Ch.26915 256QAM\_RB50\_0)

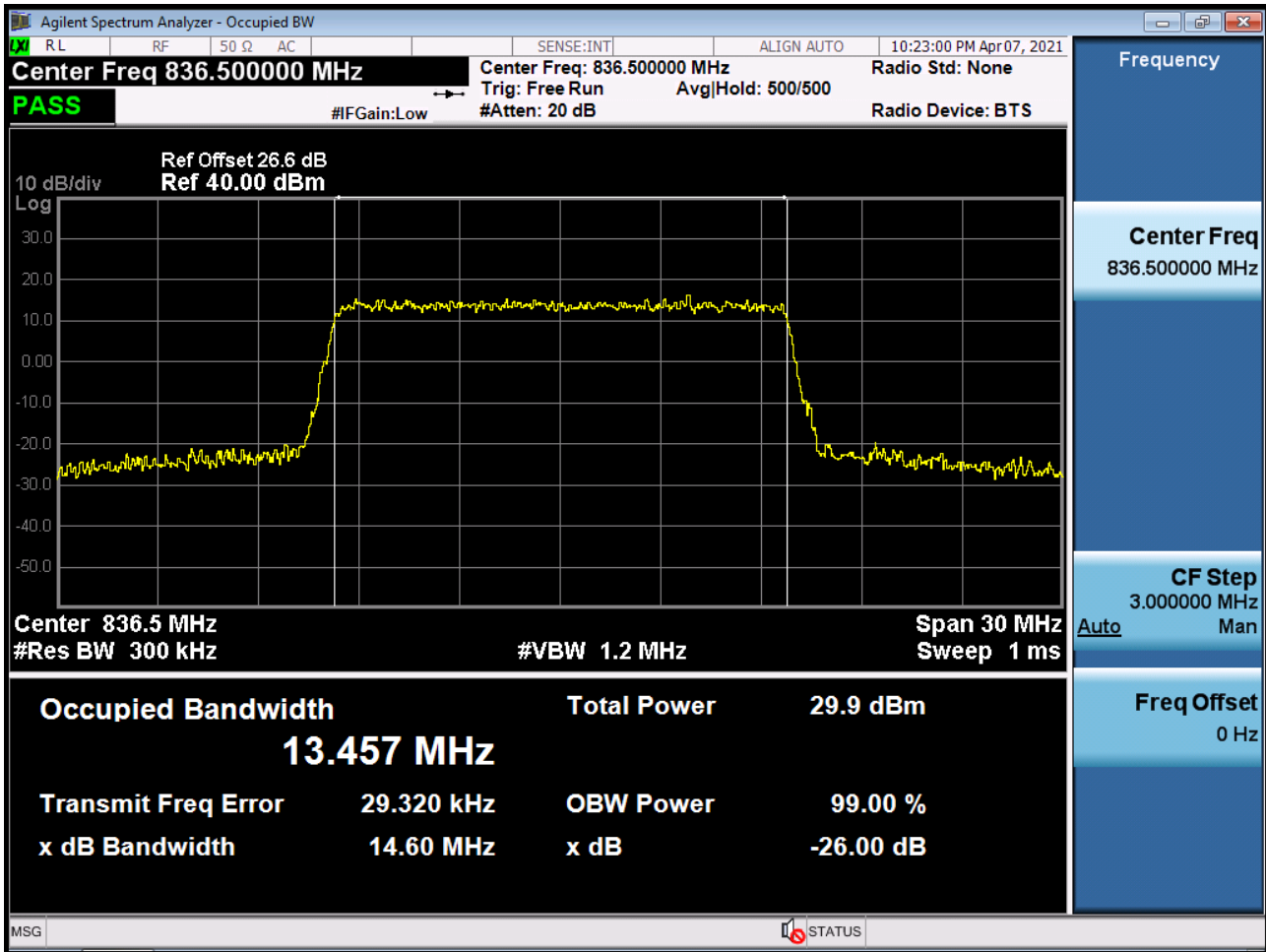




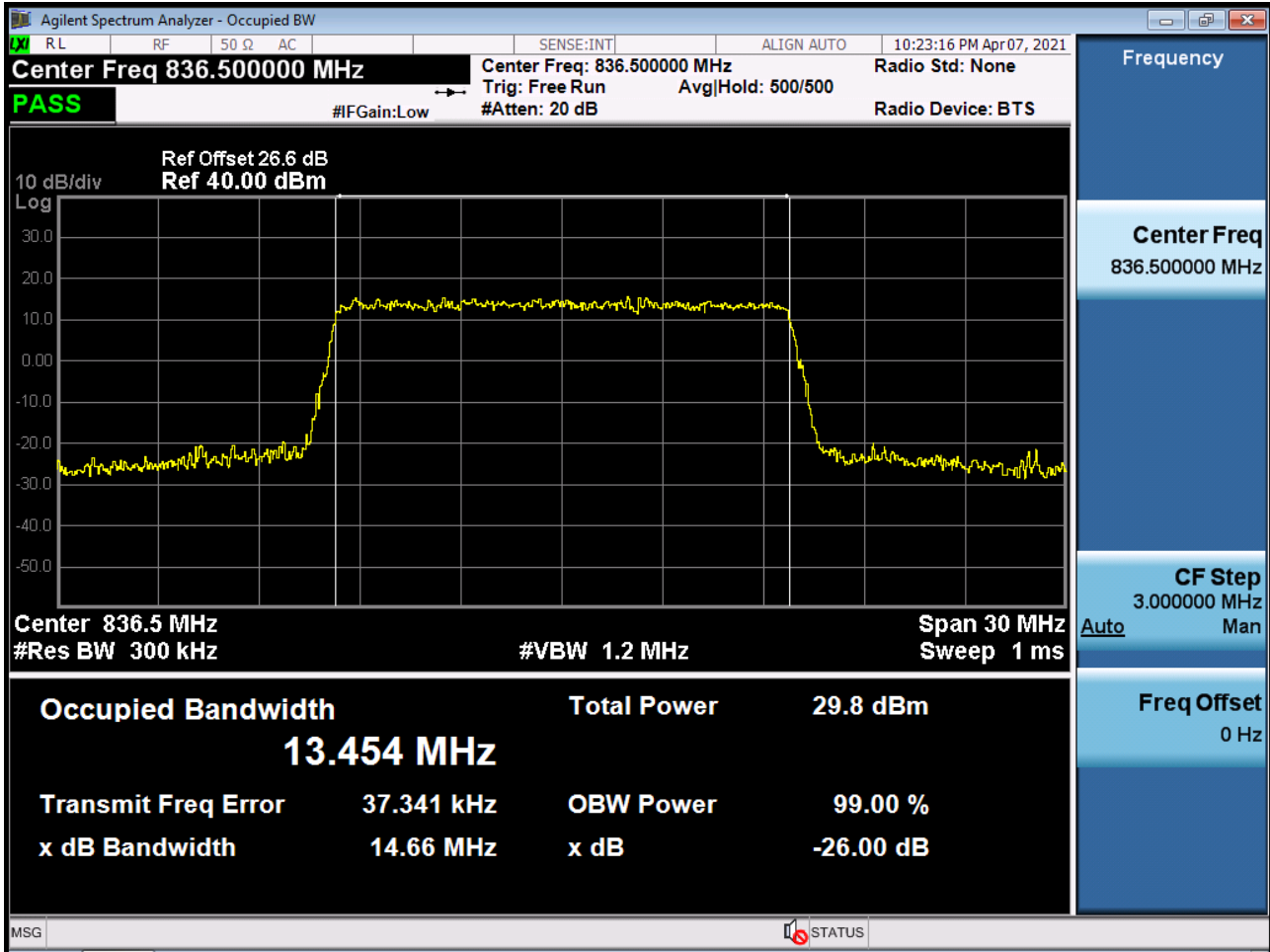
BAND 26. Occupied Bandwidth Plot (15M BW Ch.26915 QPSK RB 75\_0)



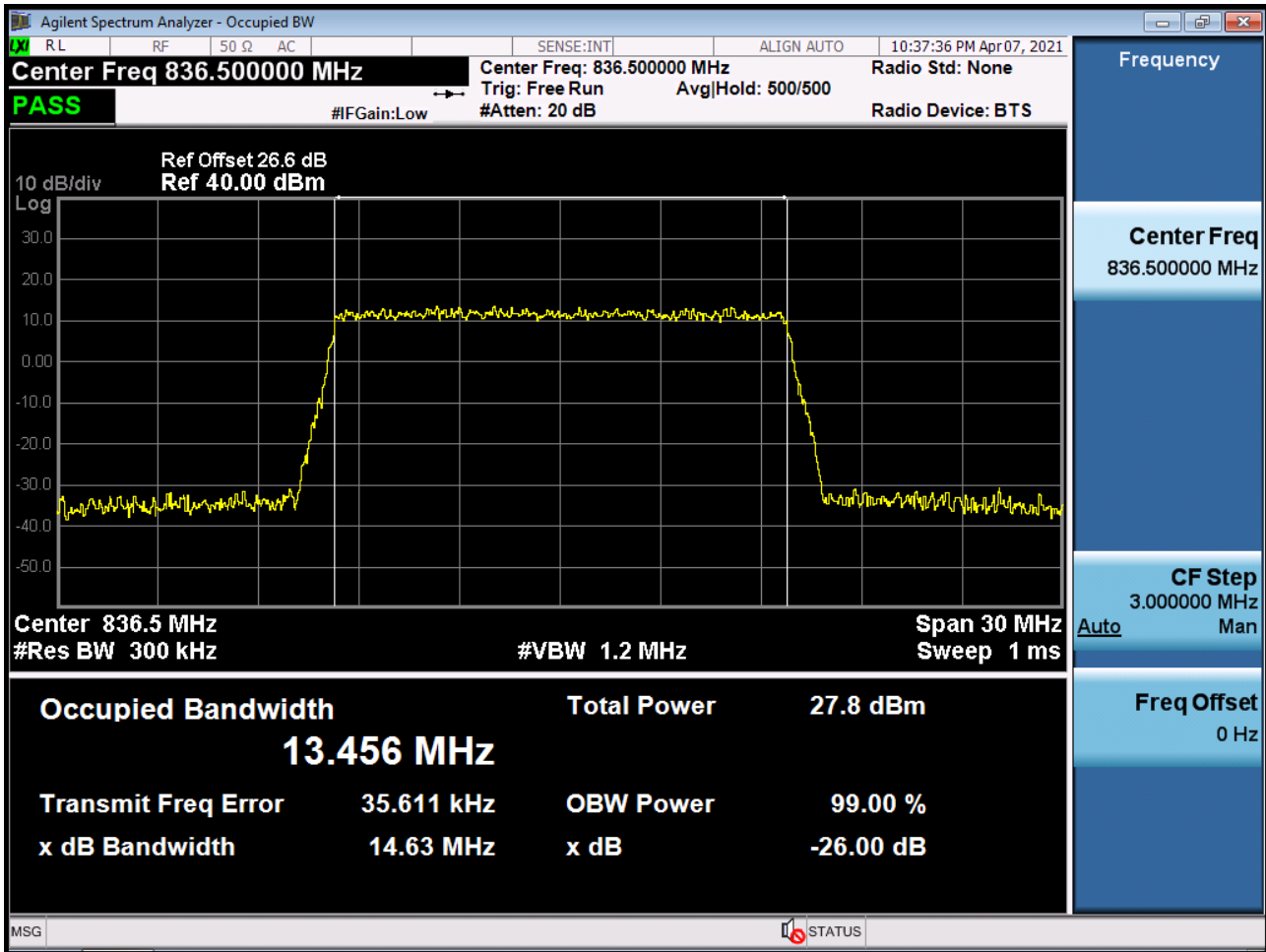
BAND 26. Occupied Bandwidth Plot (15M BW Ch.26915 16QAM RB 75\_0)



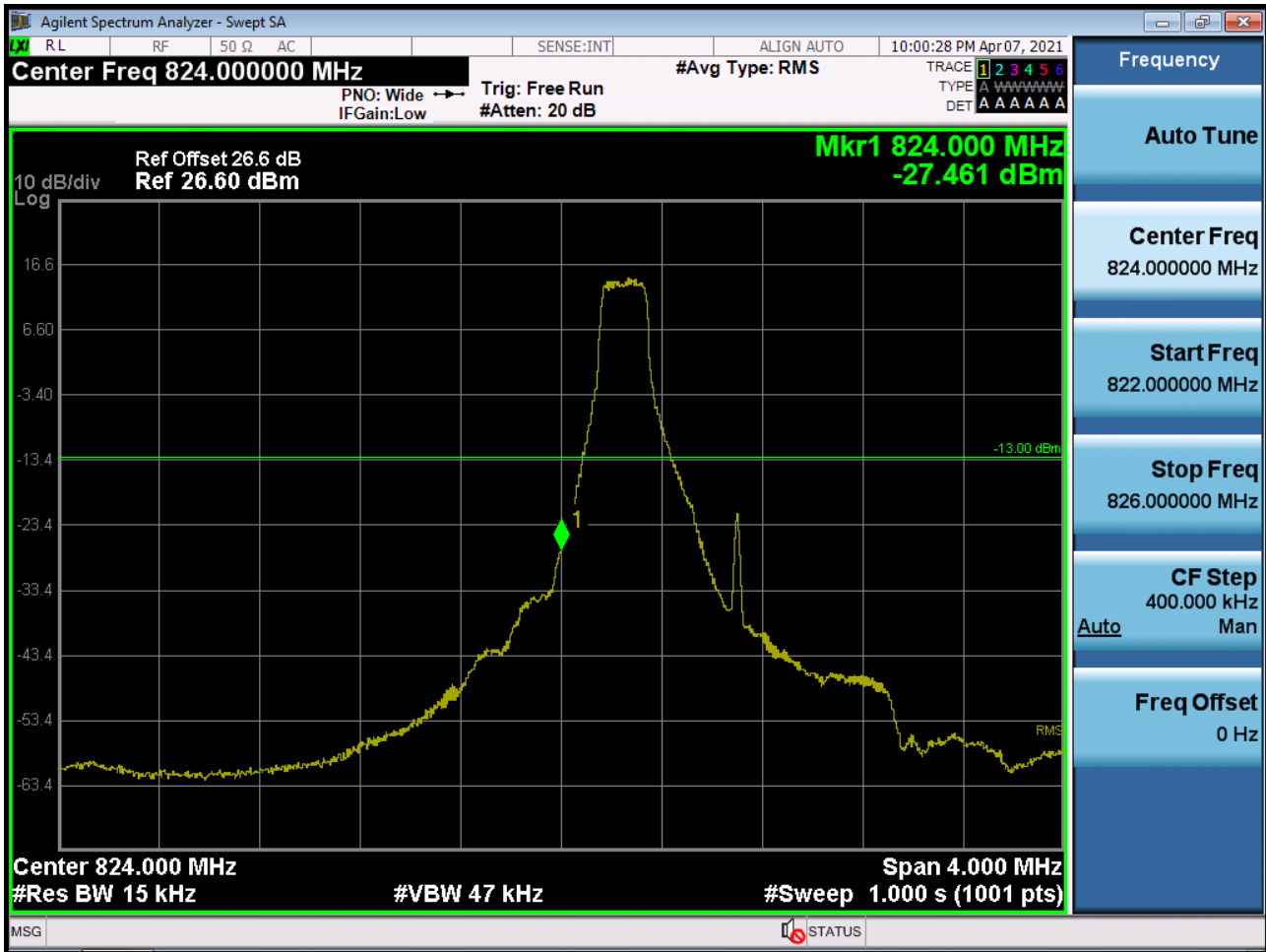
BAND 26. Occupied Bandwidth Plot (15M BW Ch.26915 64QAM RB 75\_0)



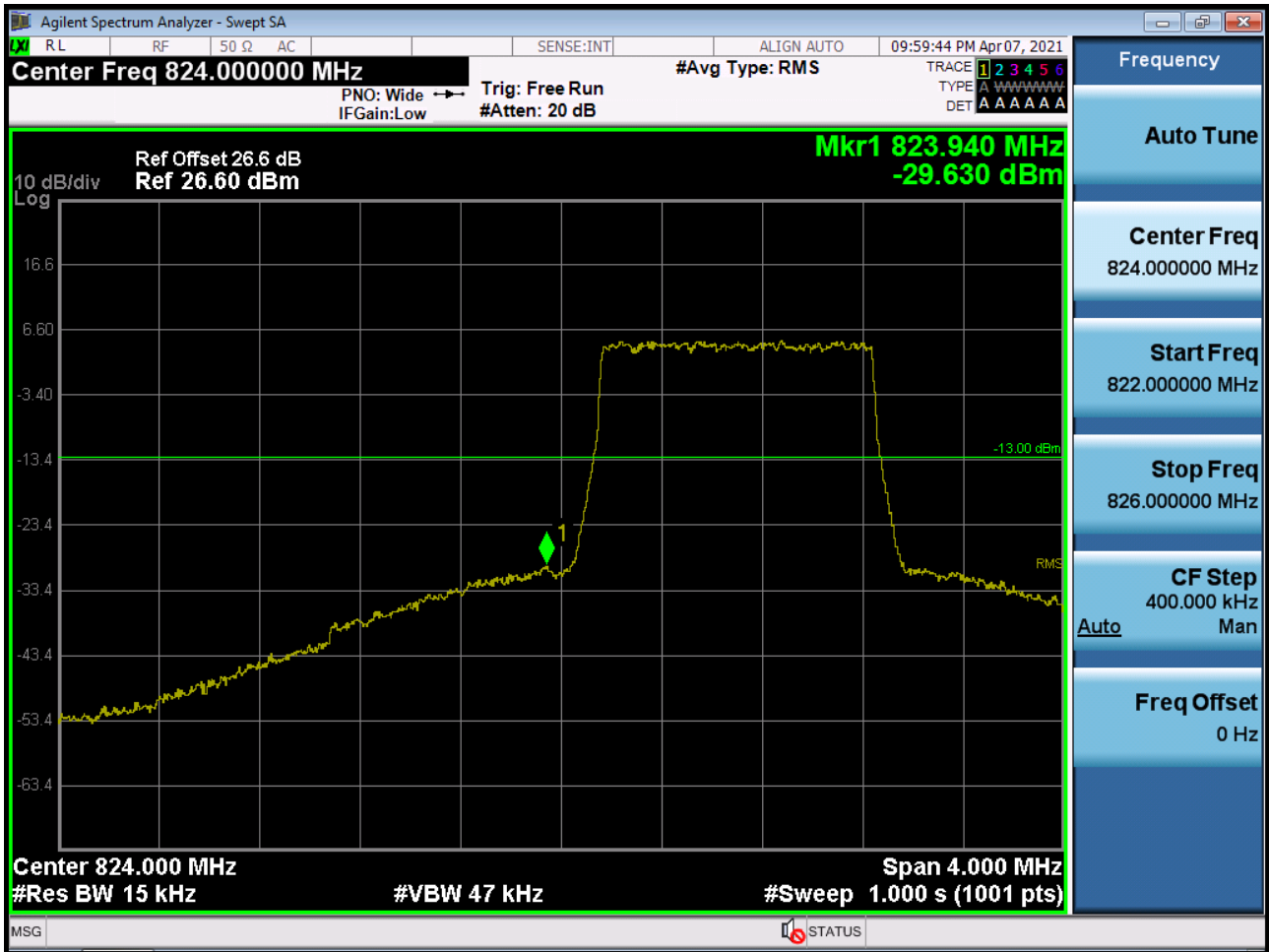
BAND 26. Occupied Bandwidth Plot (15M BW Ch.26915 256QAM RB 75\_0)



BAND26. Lower Band Edge Plot (1.4M BW Ch.26797 QPSK\_RB1\_Offset 0)



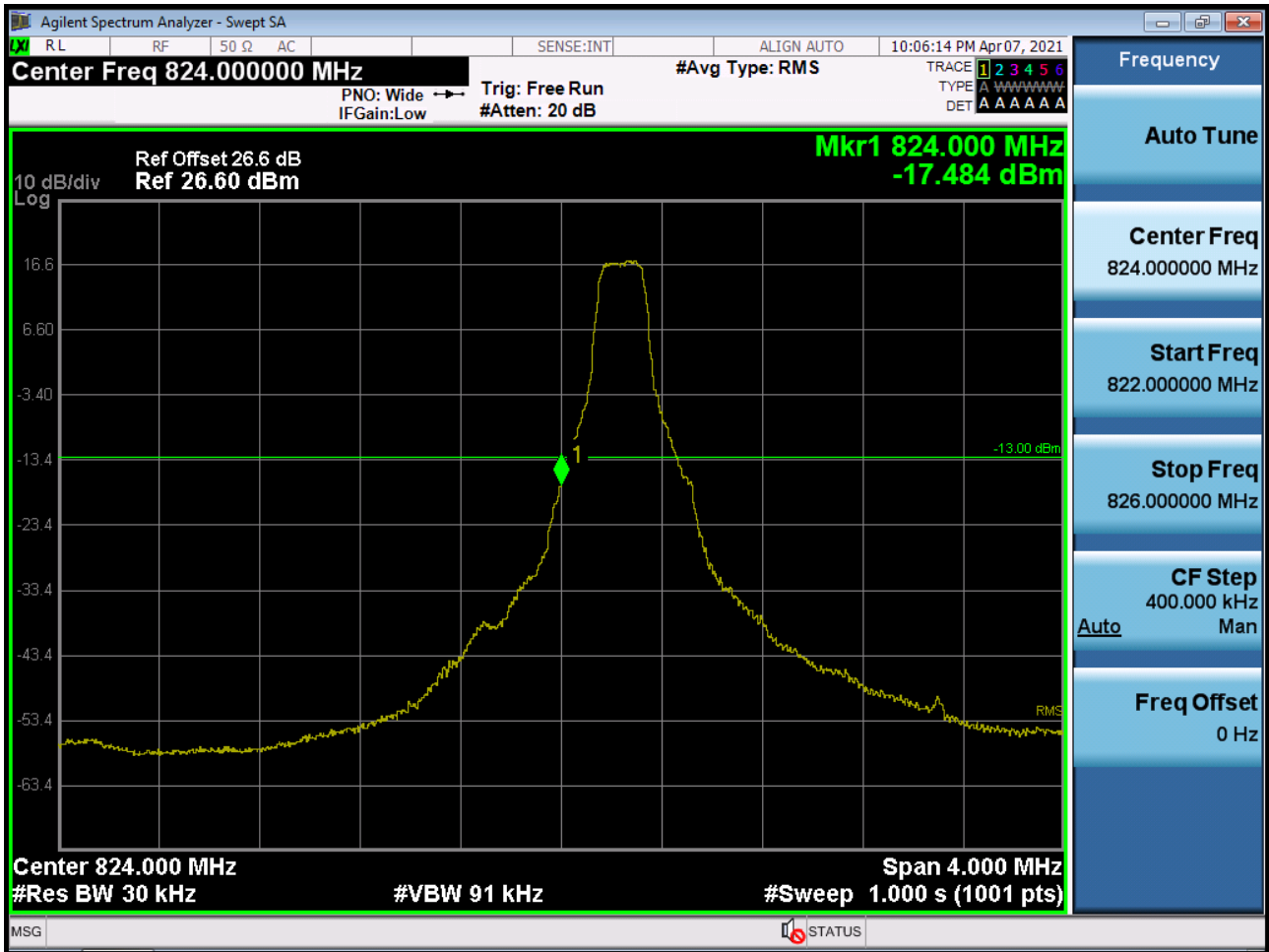
BAND26. Lower Band Edge Plot (1.4M BW Ch.26797 QPSK\_RB6\_Offset 0)



BAND26. Lower Extended Band Edge Plot (1.4M BW Ch.26797 QPSK\_RB6\_0)



BAND26. Lower Band Edge Plot (3M BW Ch.26805 QPSK\_RB1\_Offset 0)

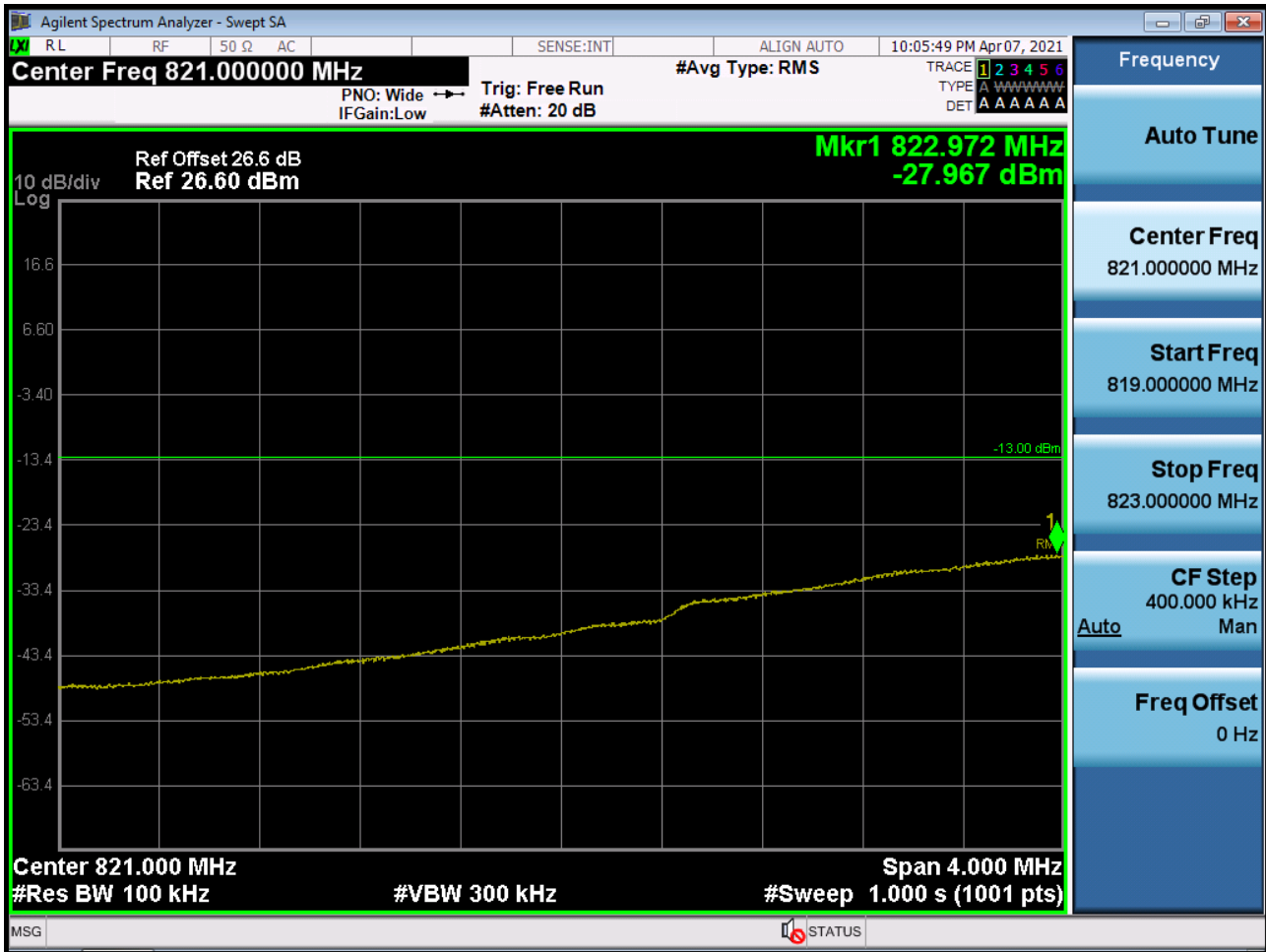




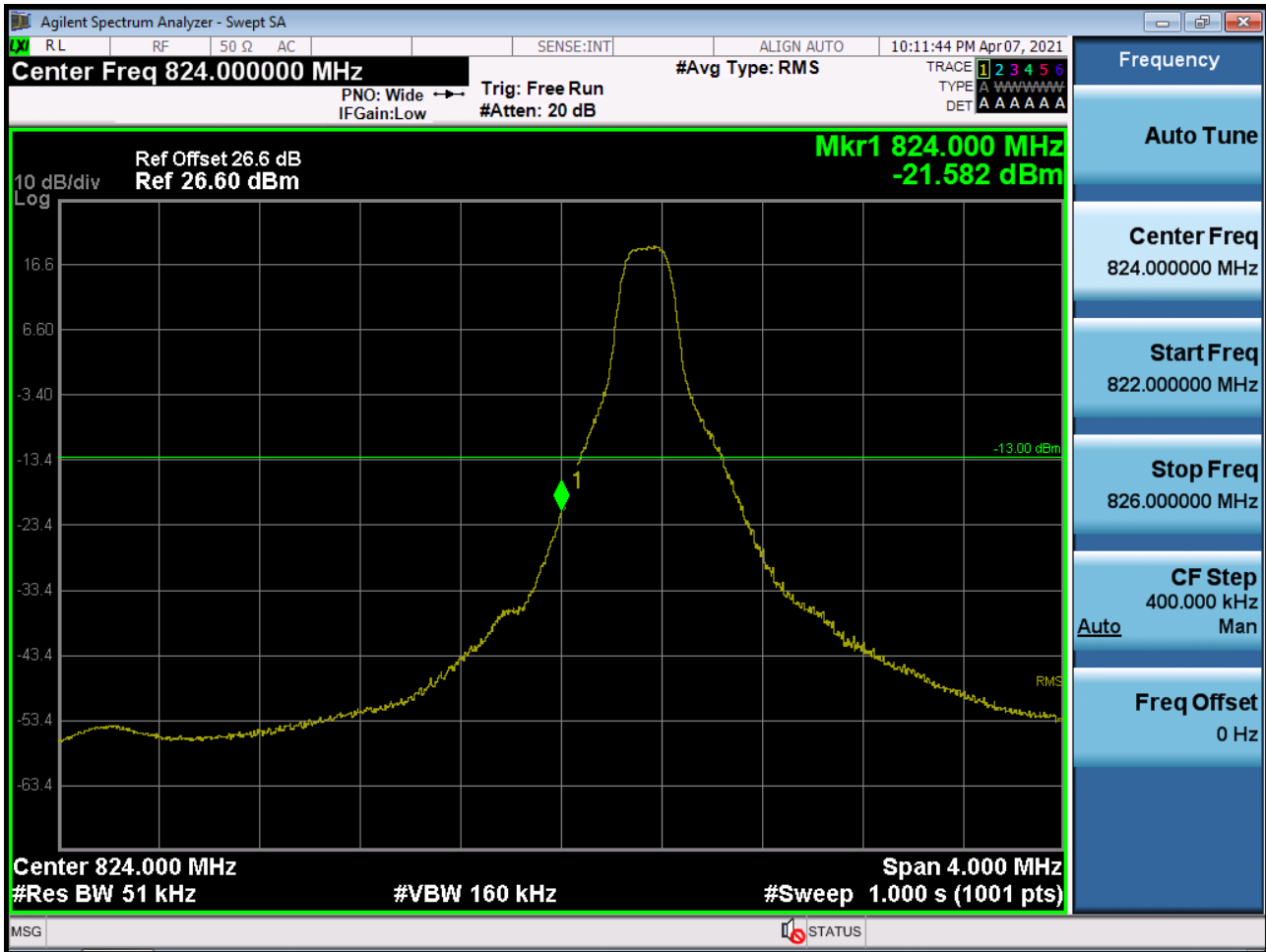
BAND26. Lower Band Edge Plot (3M BW Ch.26805 QPSK\_RB15\_Offset 0)



BAND26. Lower Extended Band Edge Plot (3M BW Ch.26805 QPSK\_RB15\_0)



BAND26. Lower Band Edge Plot (5M BW Ch.26815 QPSK\_RB1\_Offset 0)



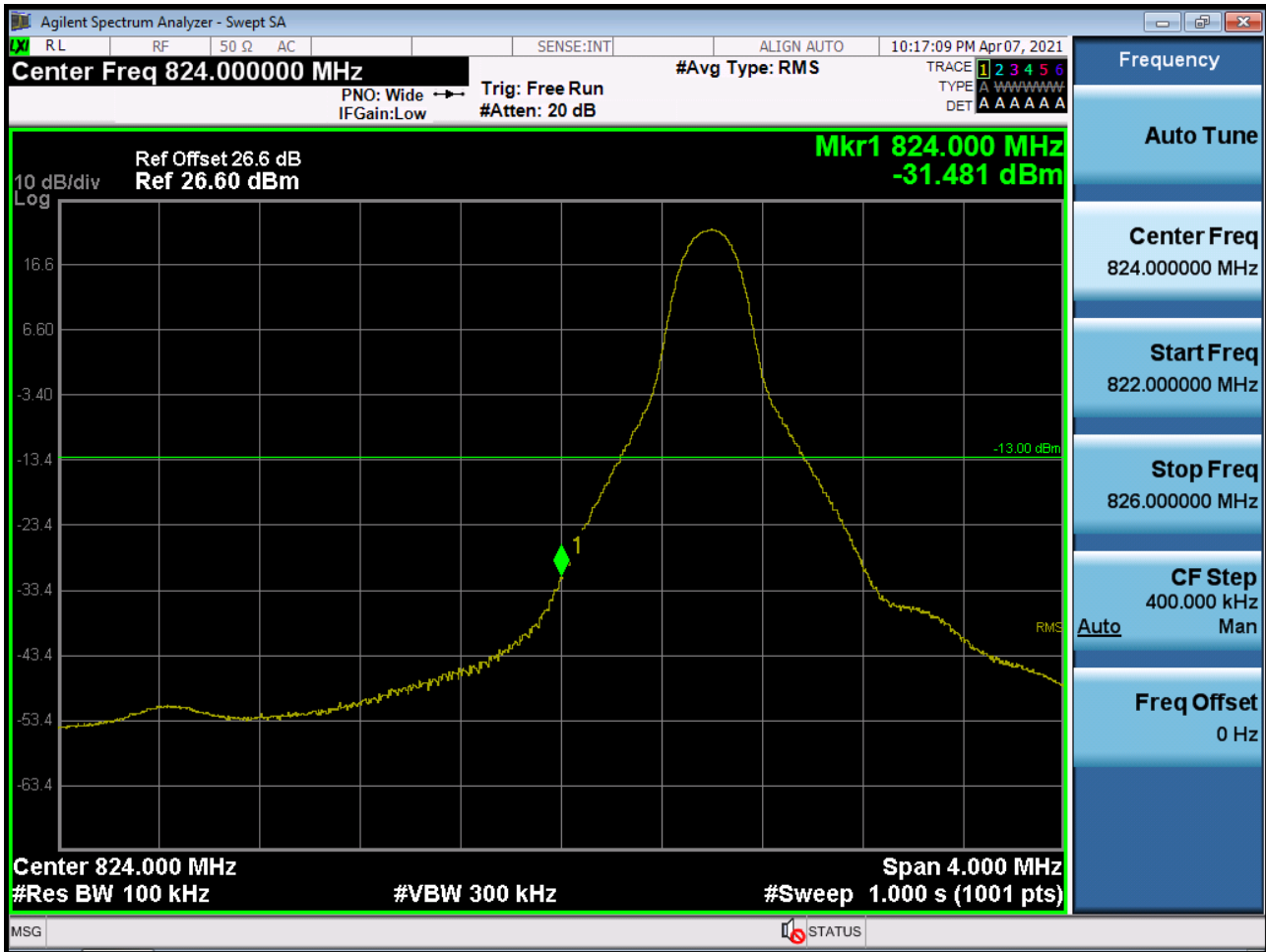
BAND26. Lower Band Edge Plot (5M BW Ch.26815 QPSK\_RB25\_Offset 0)



BAND26. Lower Extended Band Edge Plot (5M BW Ch.26815 QPSK\_RB25\_0)



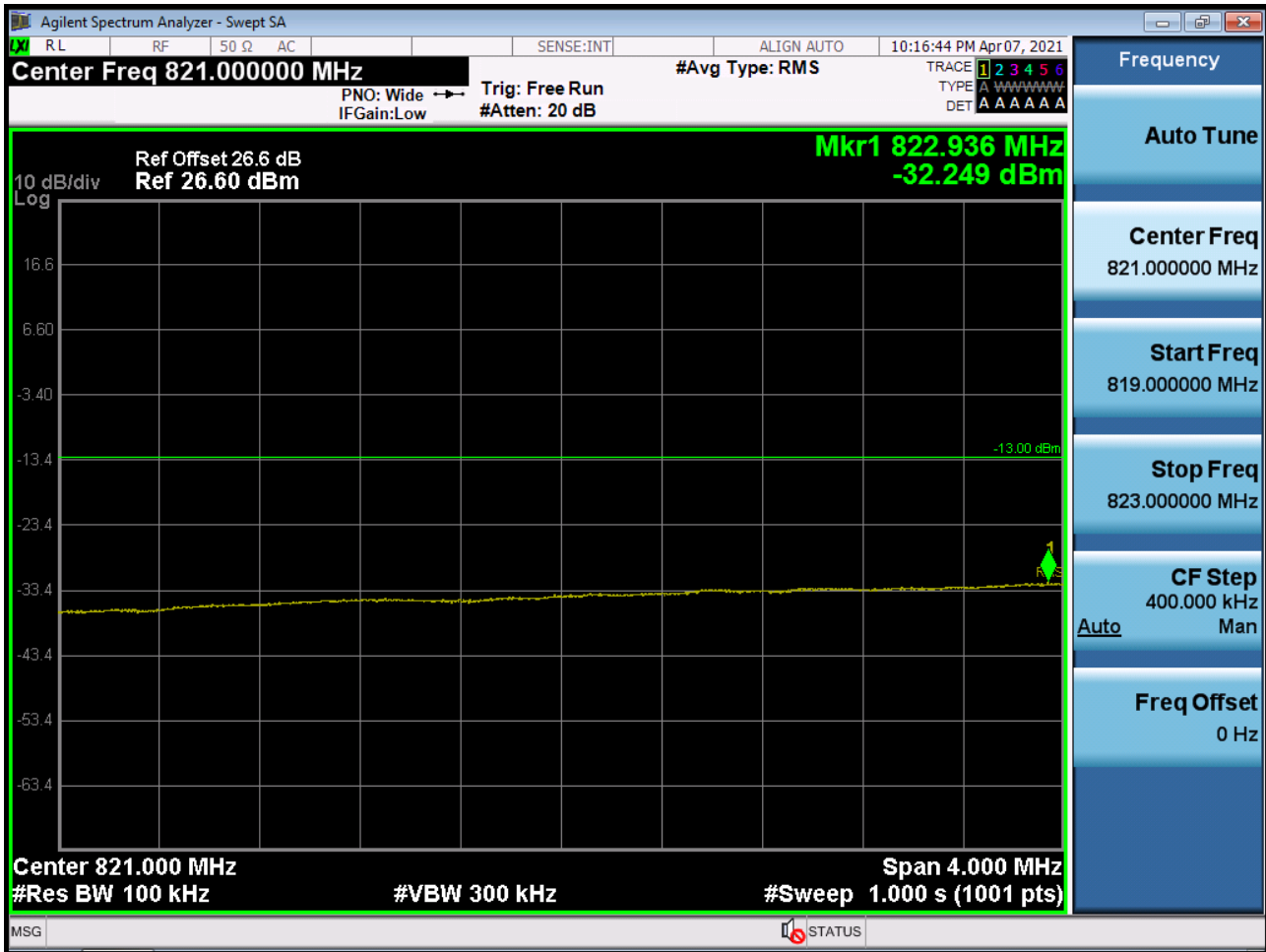
BAND26. Lower Band Edge Plot (10M BW Ch.26840 QPSK\_RB1\_Offset 0)



BAND26. Lower Band Edge Plot (10M BW Ch.26840 QPSK\_RB50\_Offset 0)

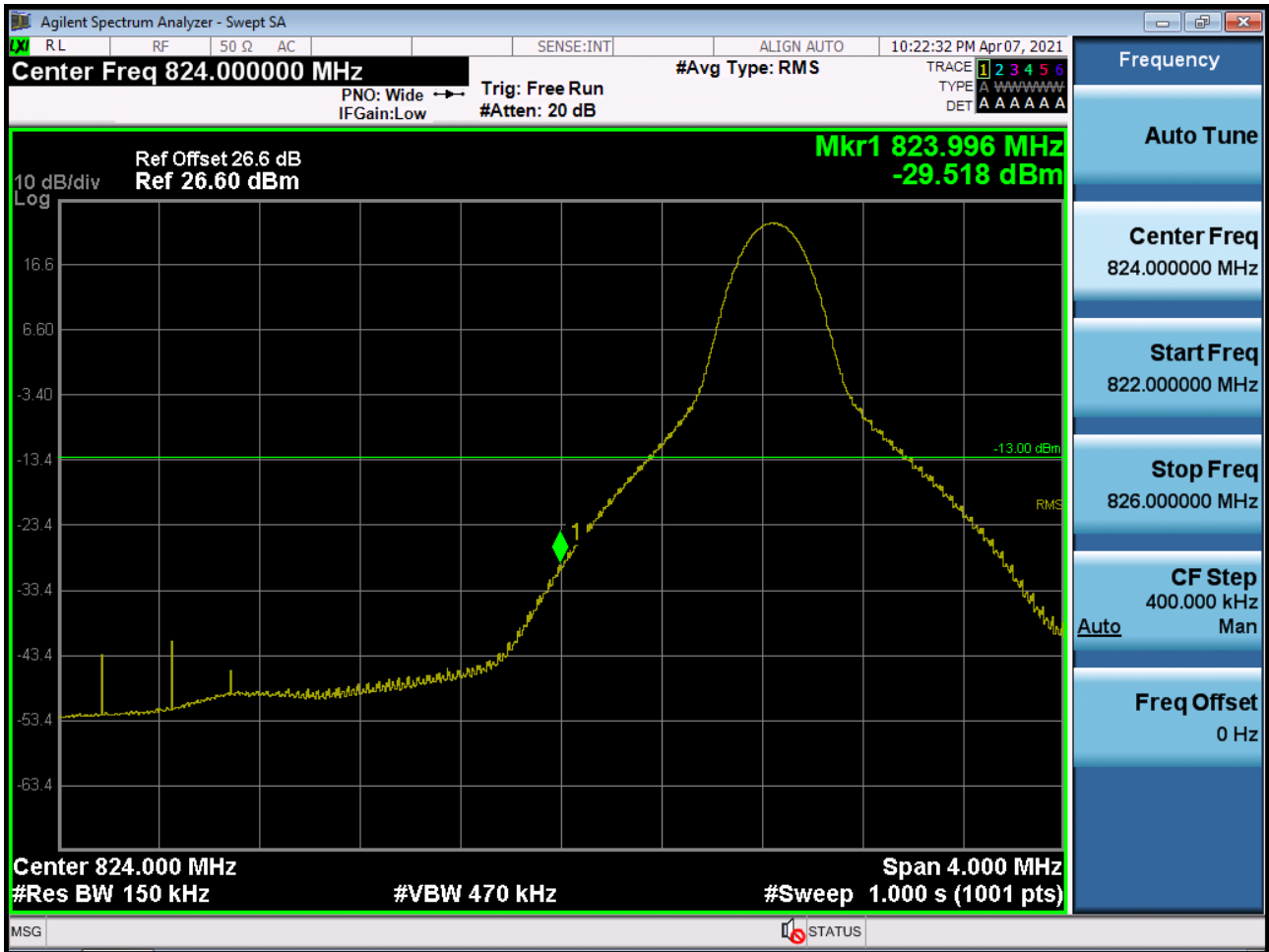


BAND26. Lower Extended Band Edge Plot (10M BW Ch.26840 QPSK\_RB50\_0)





BAND 26. Lower Band Edge Plot (15M BW Ch.26865 QPSK\_RB1\_Offset 0)



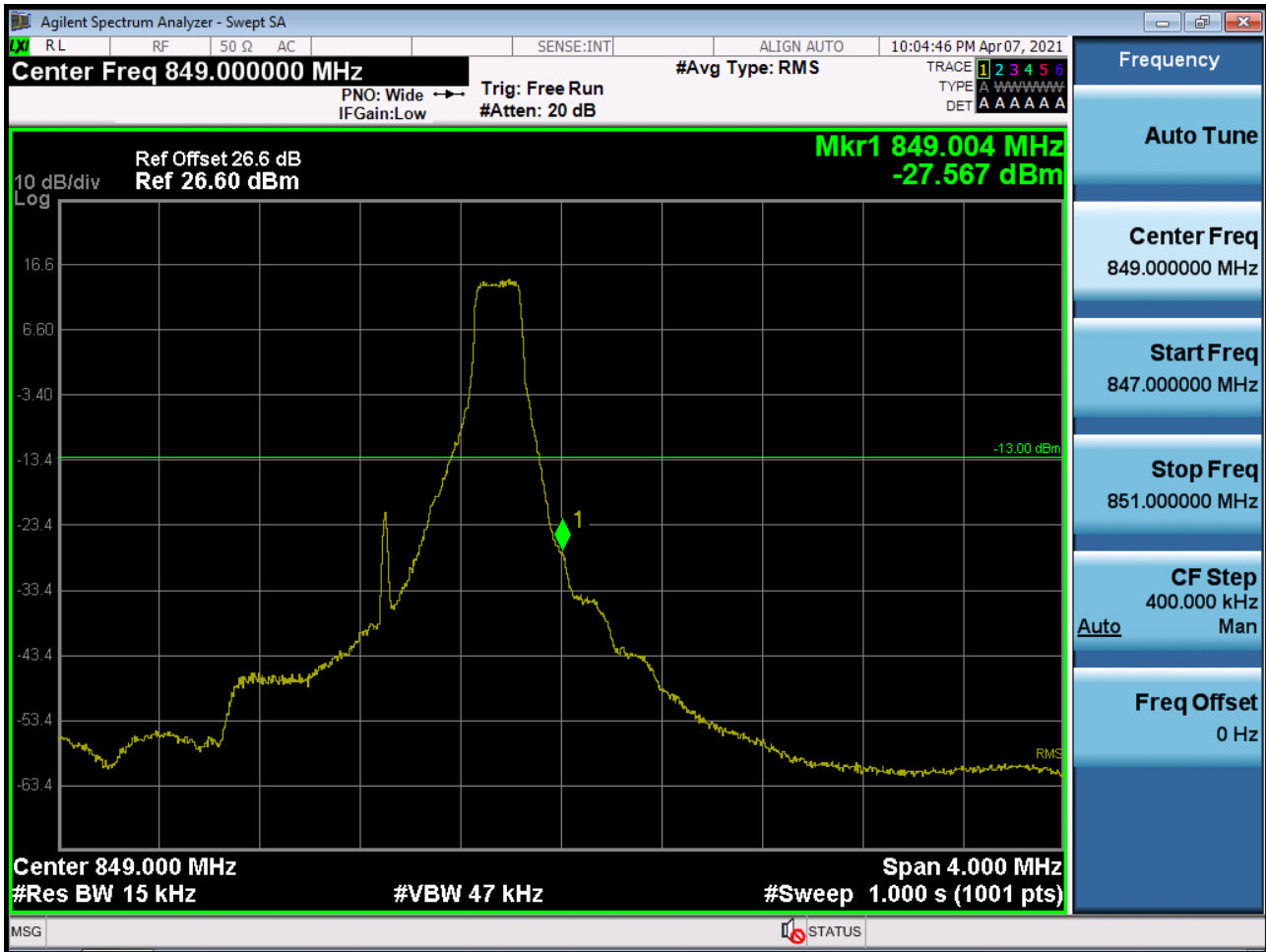
BAND 26. Lower Band Edge Plot (15M BW Ch.26865 QPSK\_RB75\_Offset 0)



BAND 26. Lower Extended Band Edge Plot (15M BW Ch.26865 QPSK\_RB75\_0)



BAND26. Upper Band Edge Plot (1.4M BW Ch.27033 QPSK\_RB1\_Offset 5)



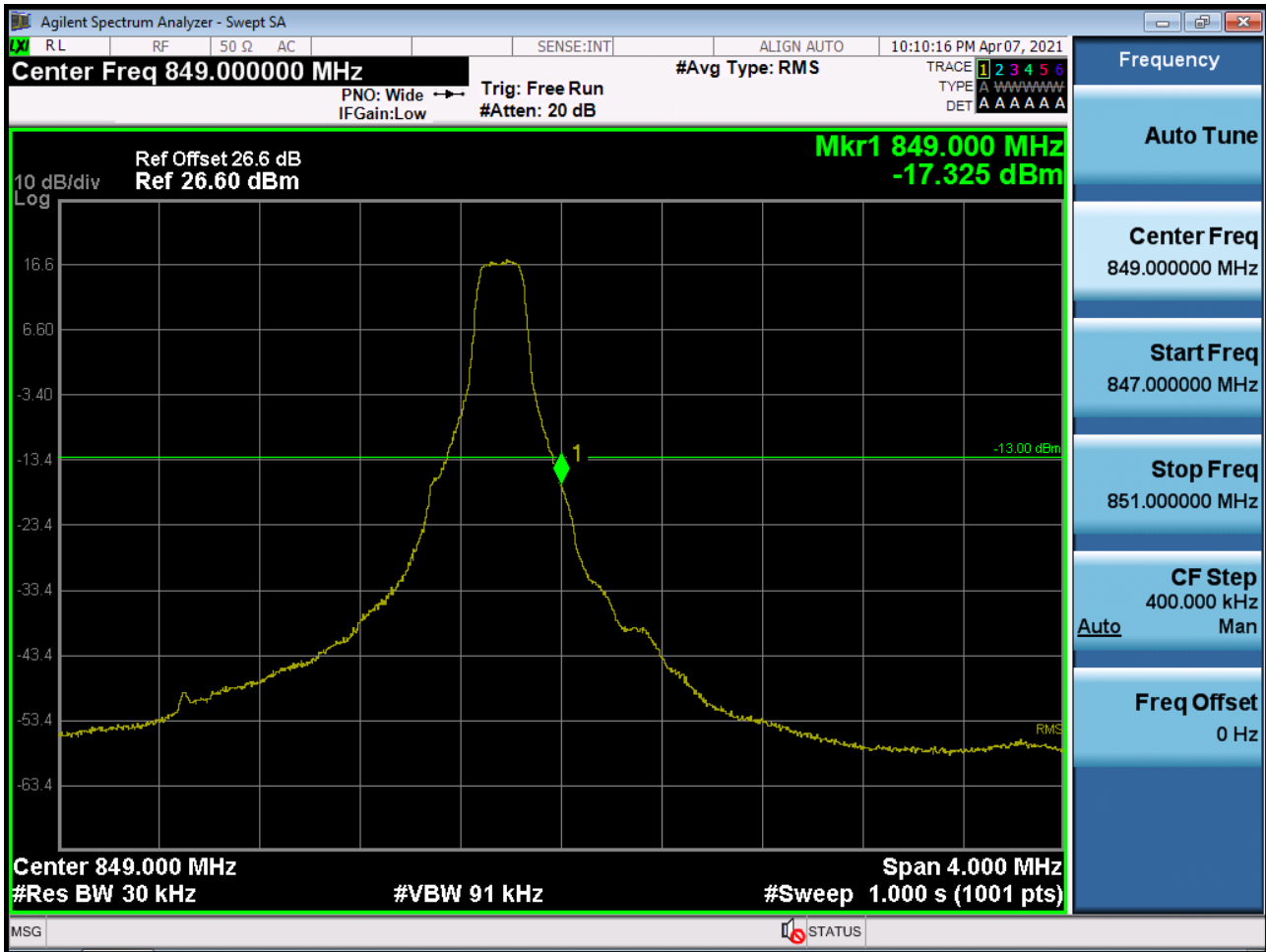
BAND26. Upper Band Edge Plot (1.4M BW Ch.27033 QPSK\_RB6\_Offset 0)



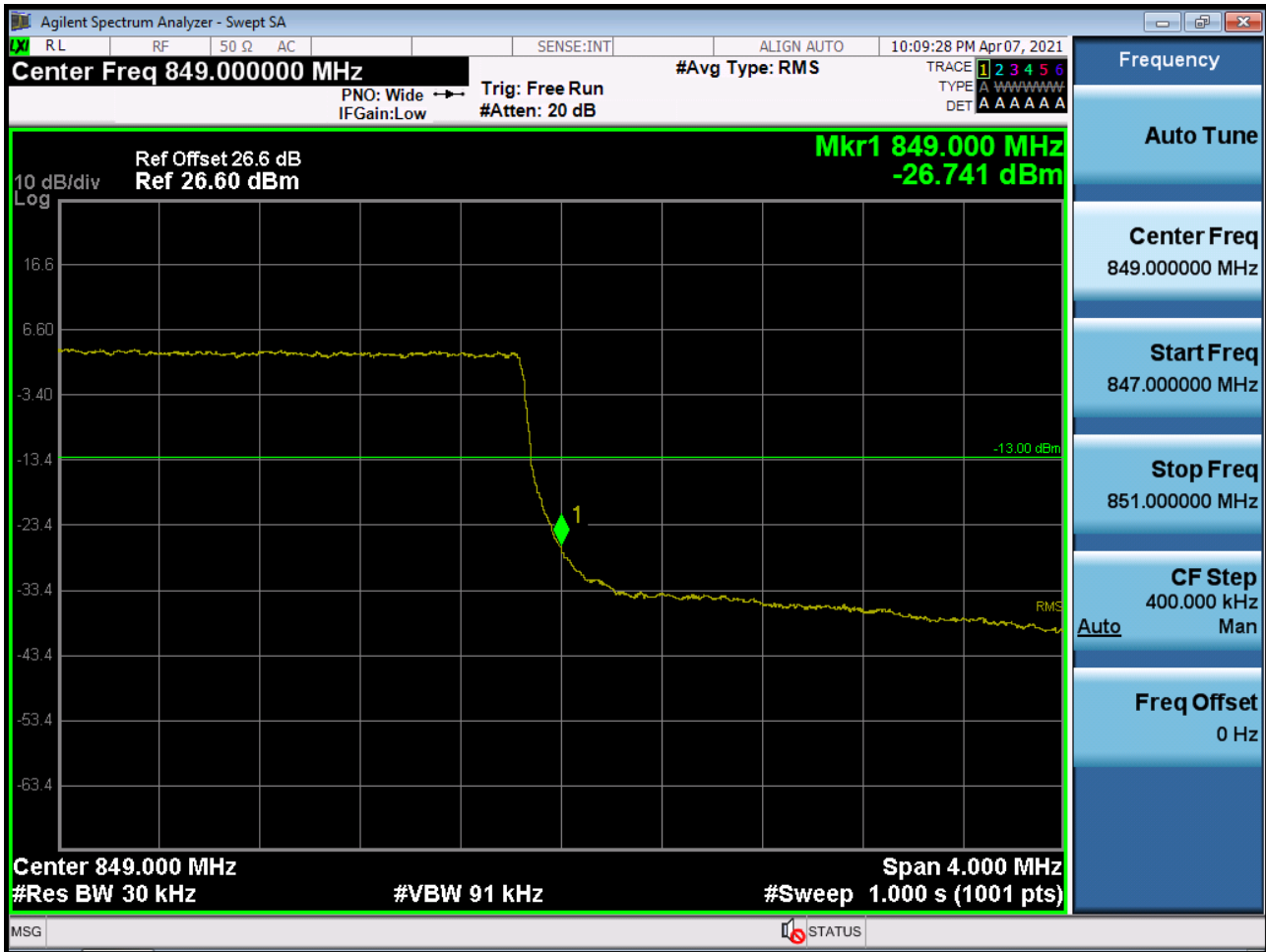
BAND26. Upper Extended Band Edge Plot (1.4M BW Ch.27033 QPSK\_RB6\_0)



BAND26. Upper Band Edge Plot (3M BW Ch.27025 QPSK\_RB1\_Offset 14)



BAND26. Upper Band Edge Plot (3M BW Ch.27025 QPSK\_RB15\_Offset 0)

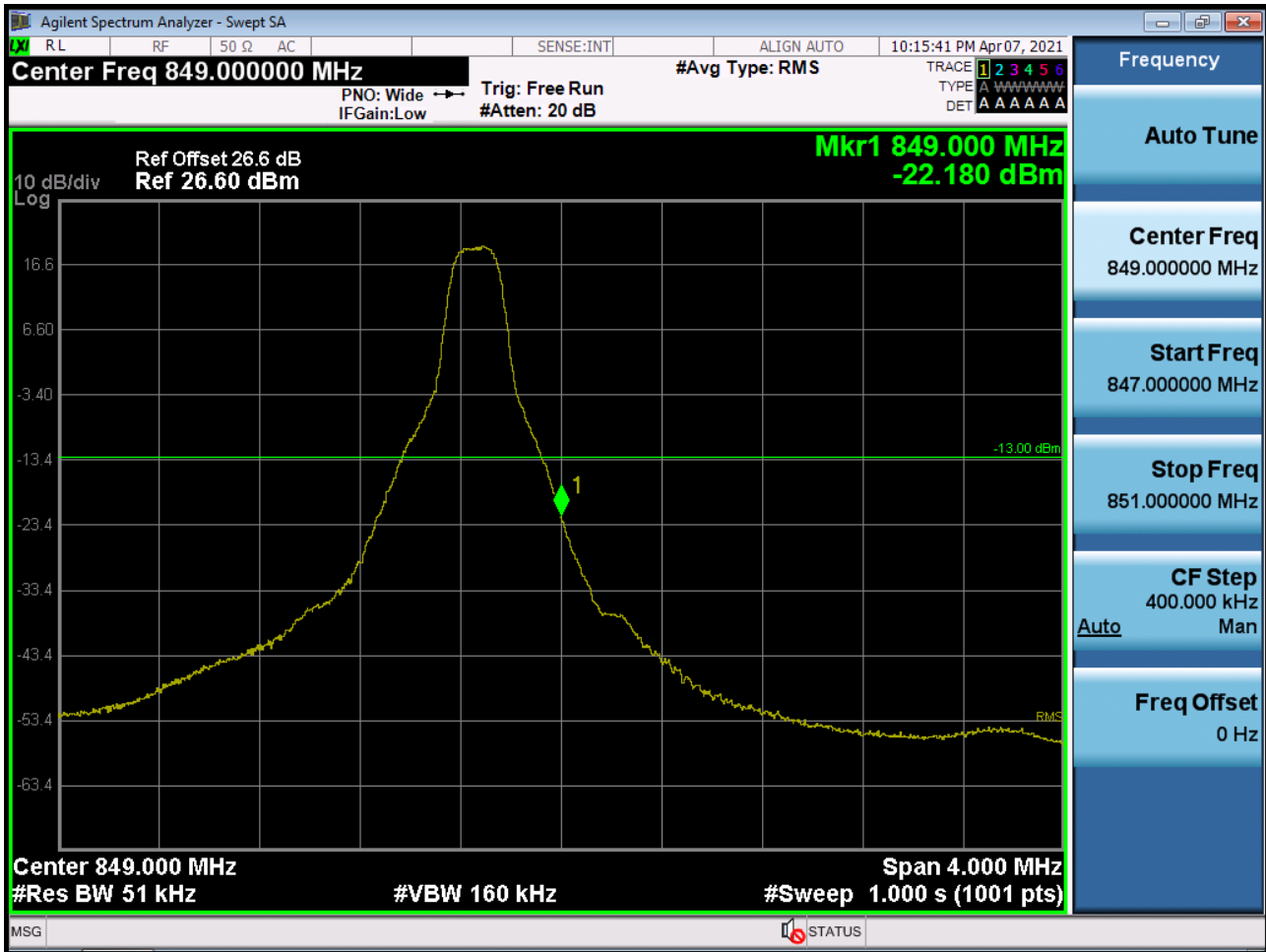




BAND26. Upper Extended Band Edge Plot (3M BW Ch.27025 QPSK\_RB15\_0)



BAND26. Upper Band Edge Plot (5M BW Ch.27015 QPSK\_RB1\_Offset 24)



BAND26. Upper Band Edge Plot (5M BW Ch.27015 QPSK\_RB25\_Offset 0)



BAND26. Upper Extended Band Edge Plot (5M BW Ch.27015 QPSK\_RB25\_0)



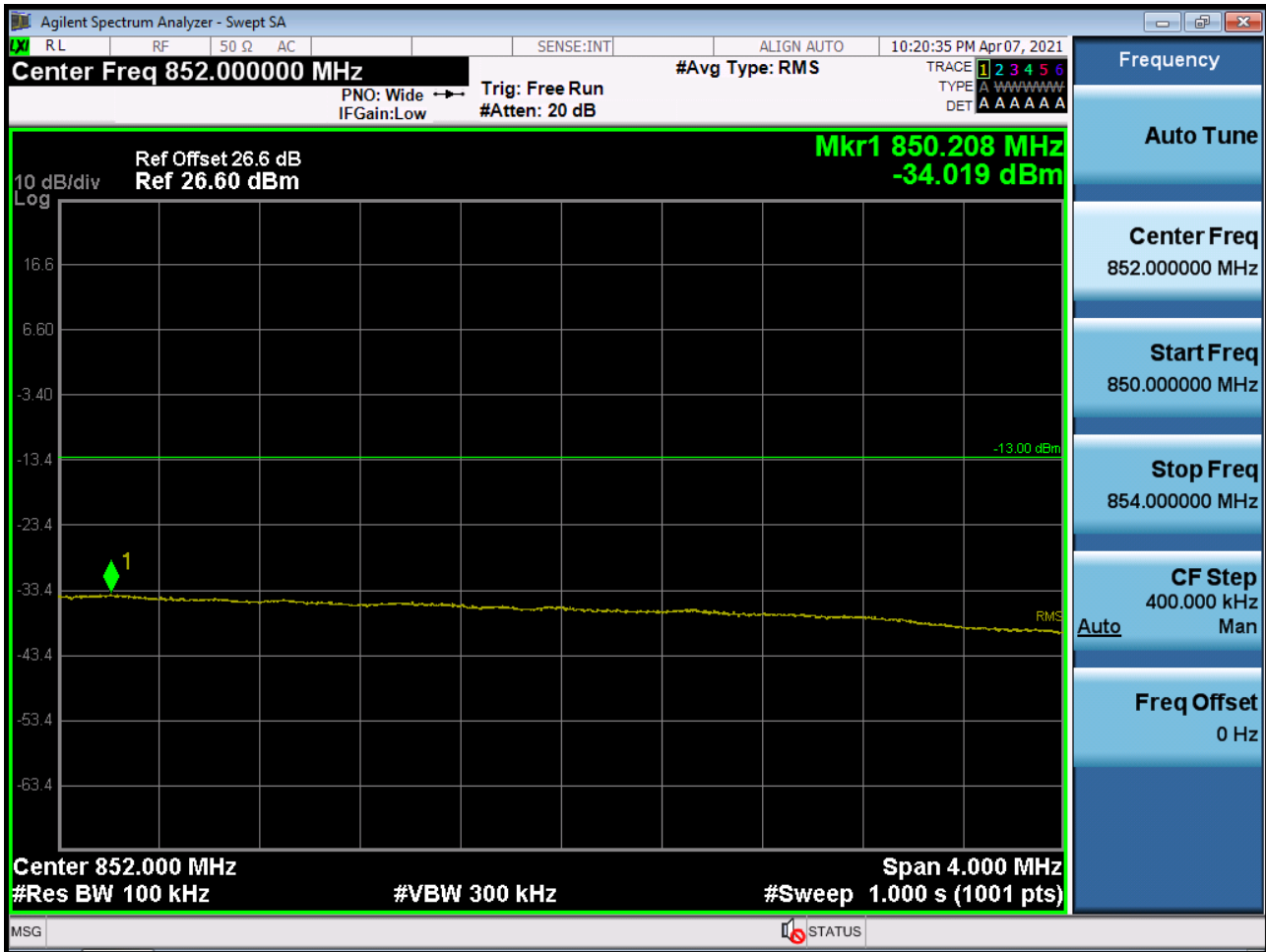
BAND26. Upper Band Edge Plot (10M BW Ch.26990 QPSK\_RB1\_Offset 49)



BAND26. Upper Band Edge Plot (10M BW Ch.26990 QPSK\_RB50\_Offset 0)



BAND26. Upper Extended Band Edge Plot (10M BW Ch.26990 QPSK\_RB50\_0)



BAND 26. Upper Band Edge Plot (15M BW Ch.26965 QPSK\_RB1\_Offset 74)

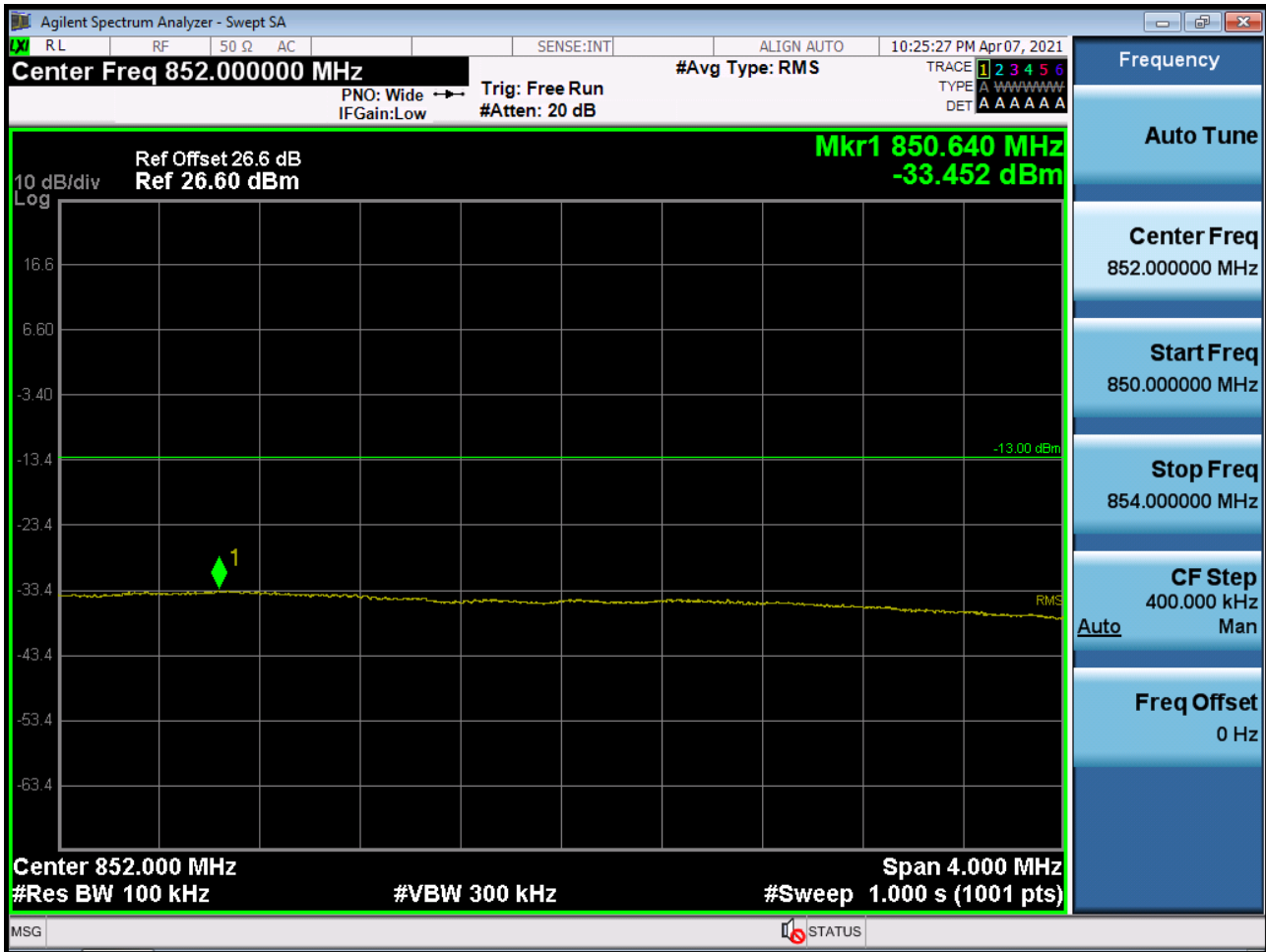




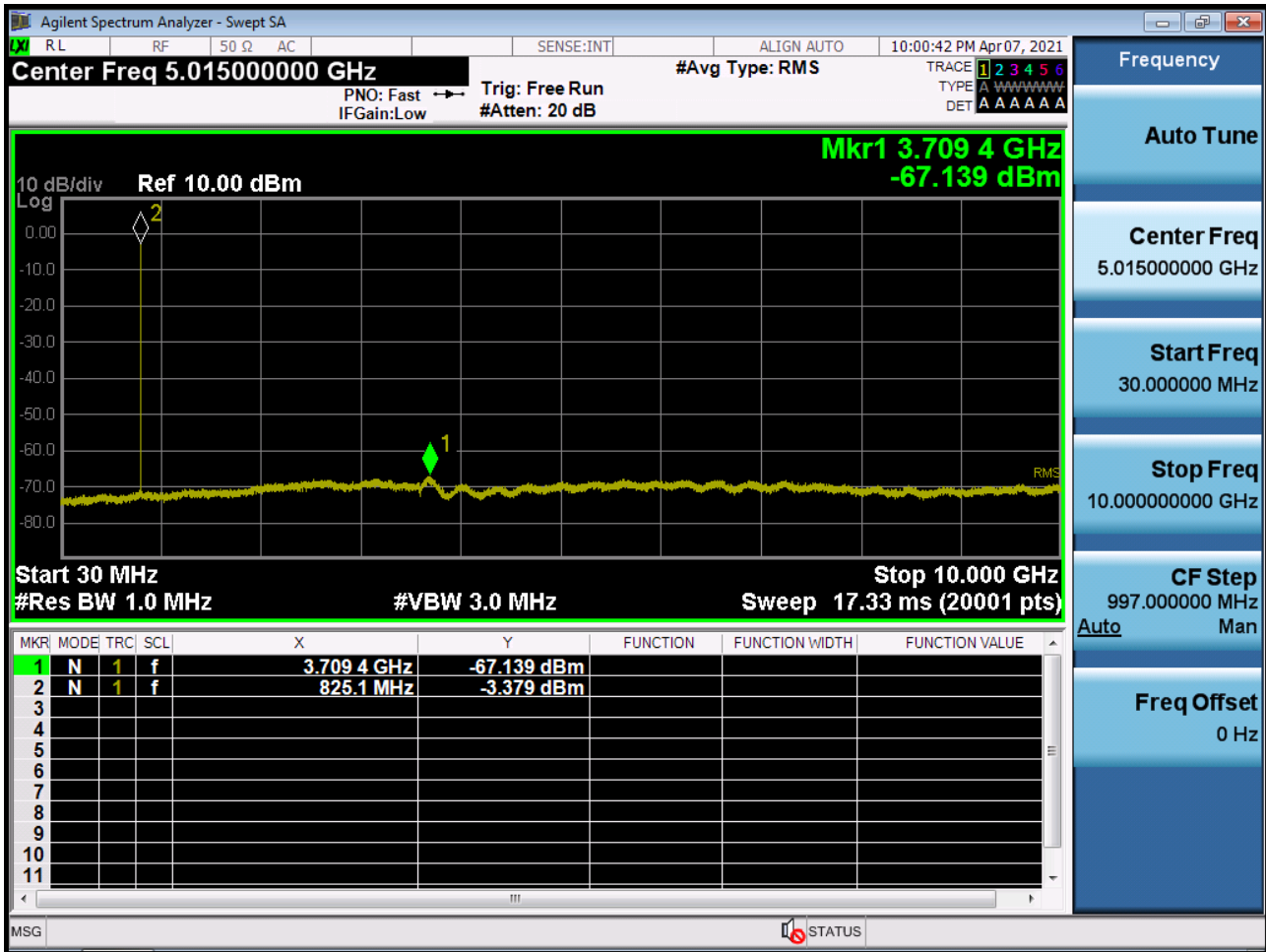
BAND 26. Upper Band Edge Plot (15M BW Ch.26965 QPSK\_RB75\_Offset 0)



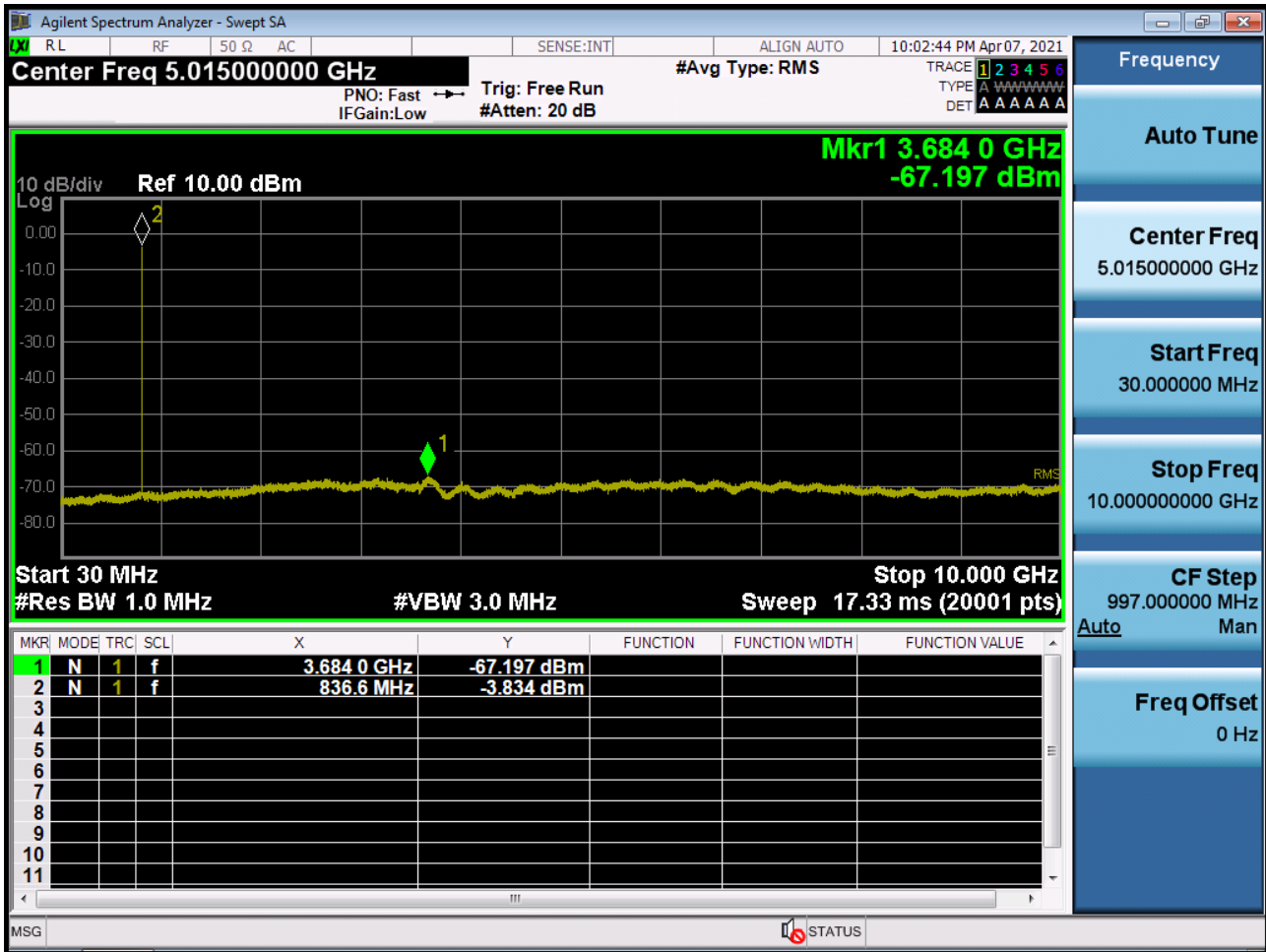
BAND 26. Upper Extended Band Edge Plot (15M BW Ch.26965 QPSK\_RB75\_0)



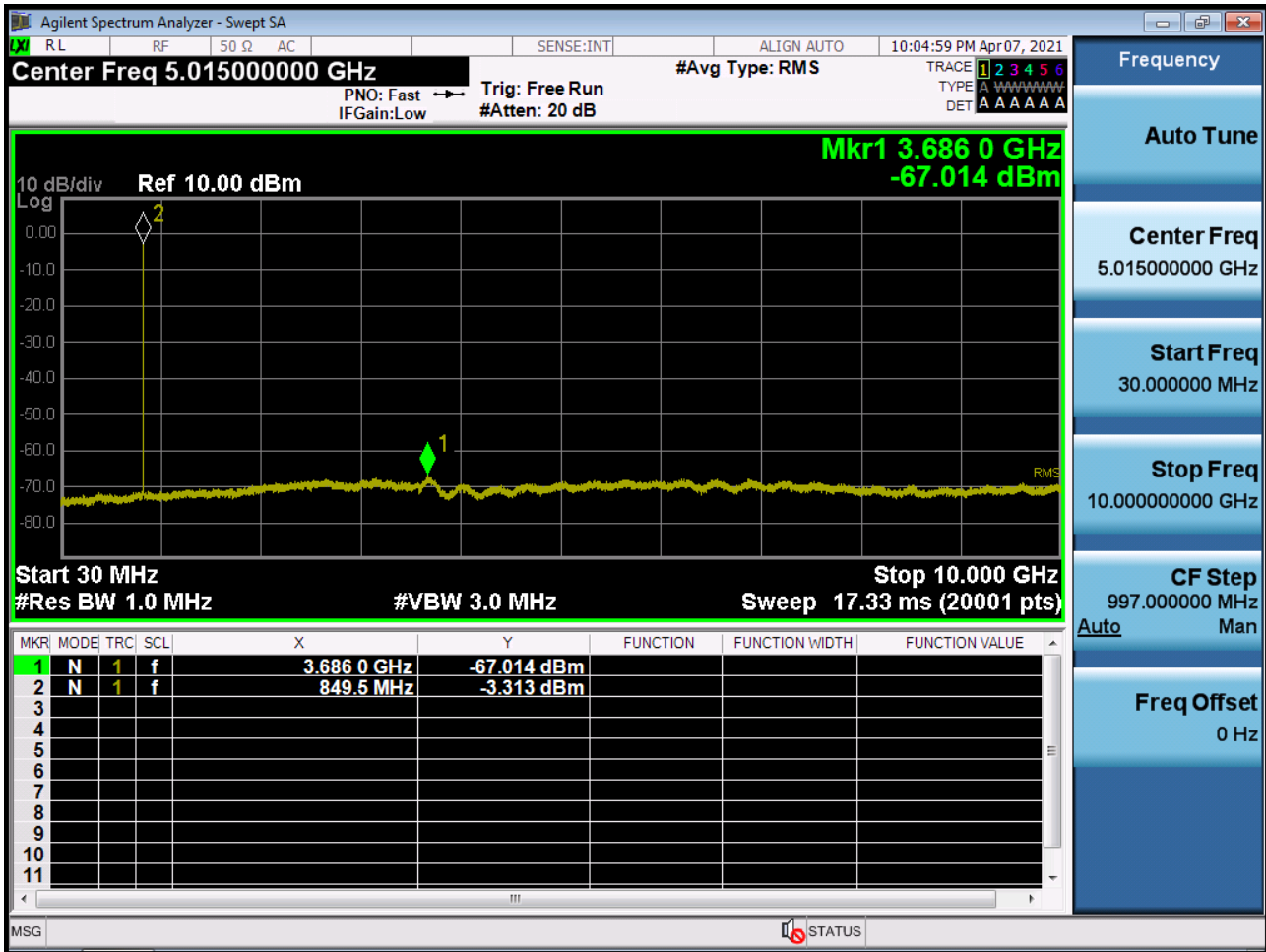
BAND26. Conducted Spurious Plot (26797ch\_1.4MHz\_QPSK\_RB 1\_0)



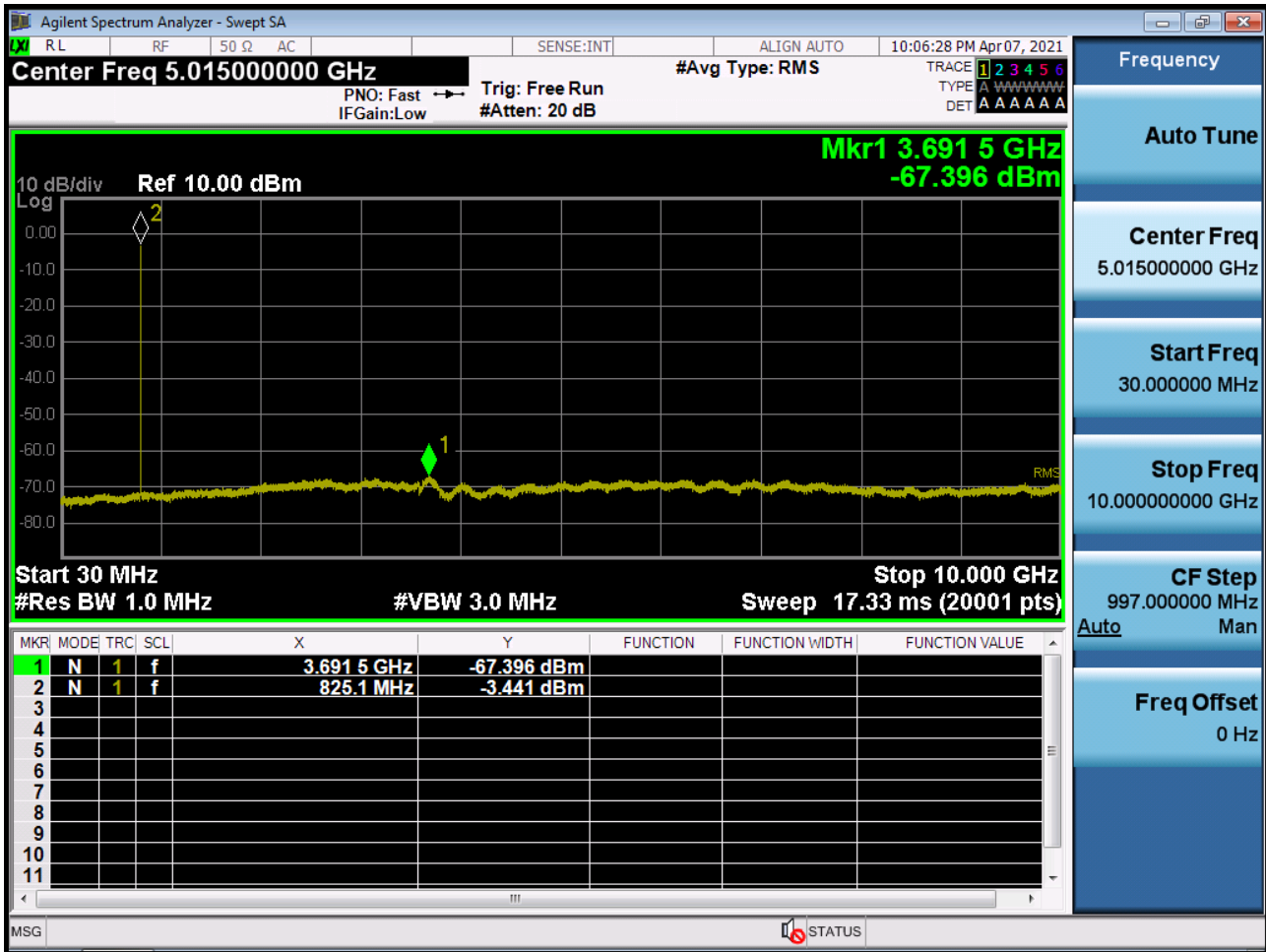
BAND26. Conducted Spurious Plot (26915ch\_1.4MHz\_QPSK\_RB 1\_0)



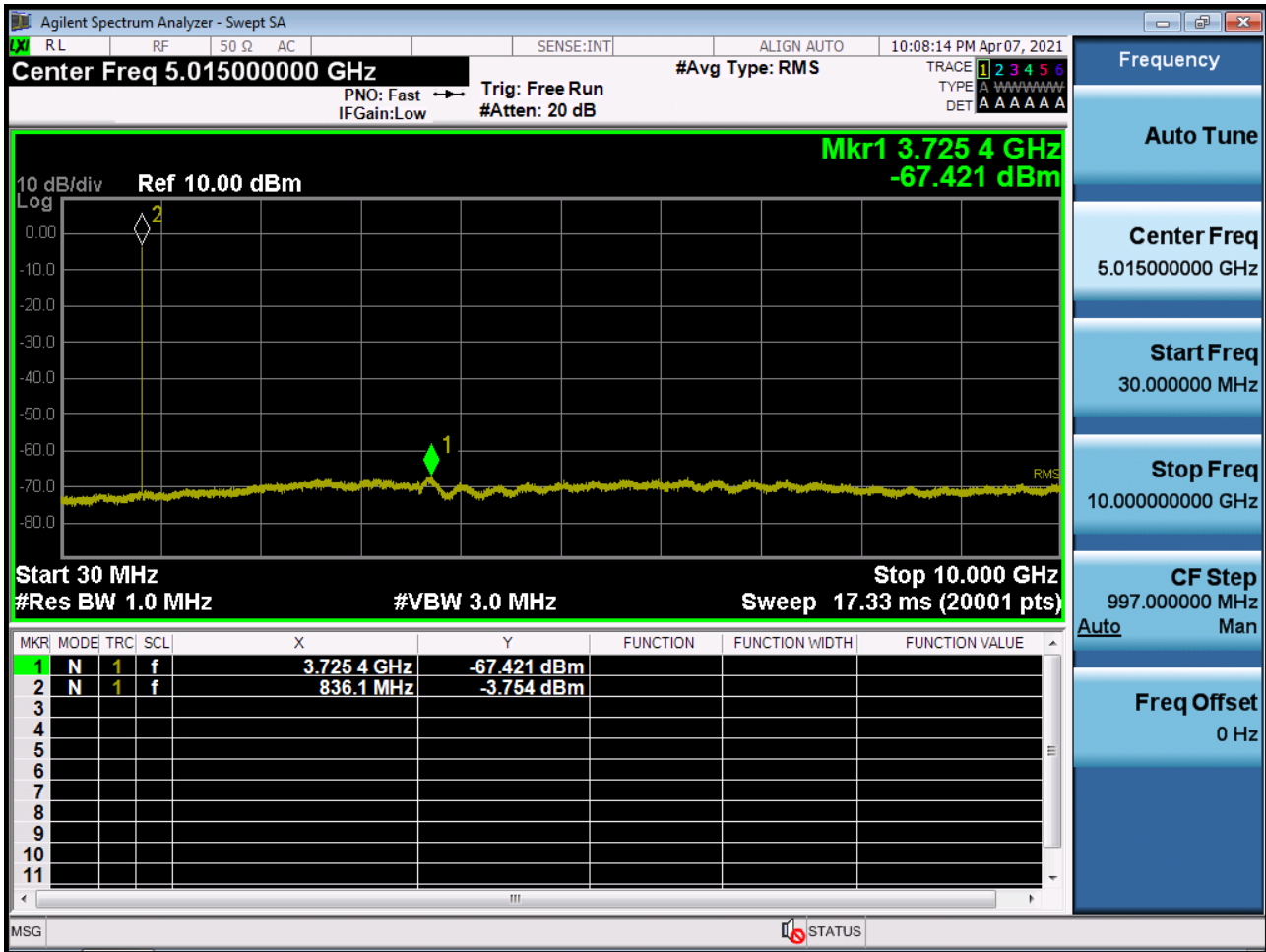
BAND26. Conducted Spurious Plot (27033ch\_1.4MHz\_QPSK\_RB 1\_0)



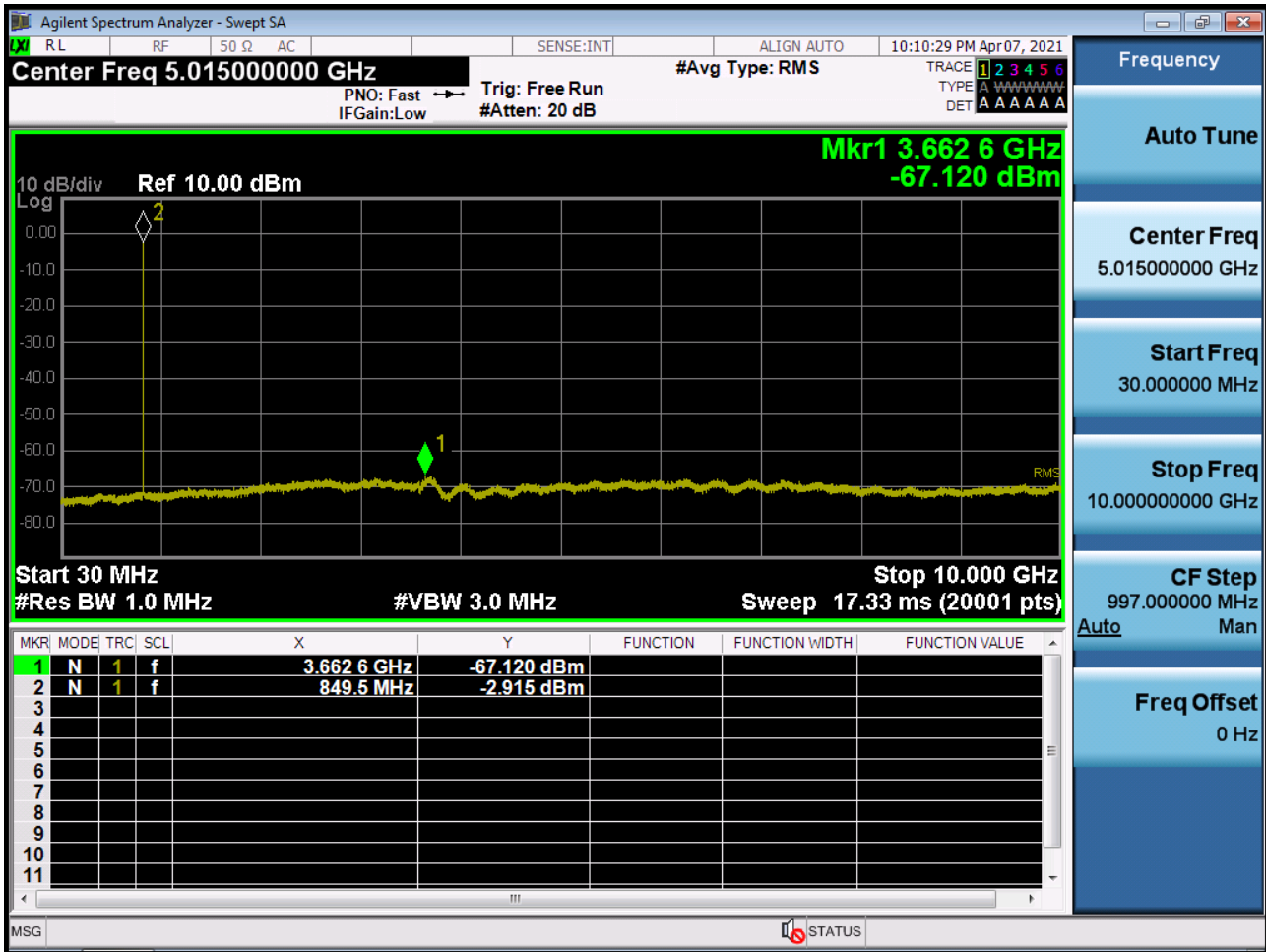
BAND26. Conducted Spurious Plot (26805ch\_3MHz\_QPSK\_RB 1\_0)



BAND26. Conducted Spurious Plot (26915ch\_3MHz\_QPSK\_RB 1\_0)

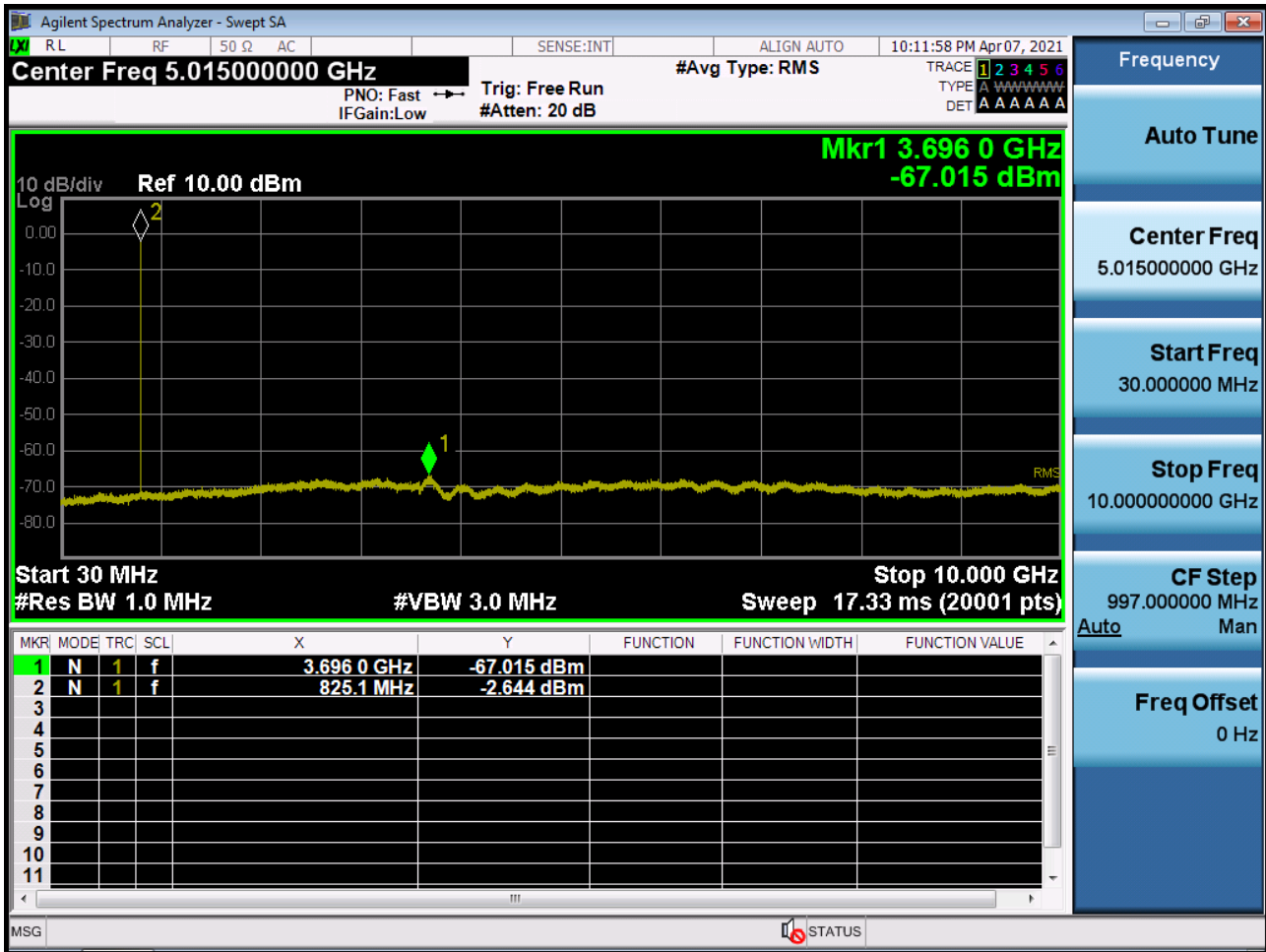


BAND26. Conducted Spurious Plot (27025ch\_3MHz\_QPSK\_RB 1\_0)

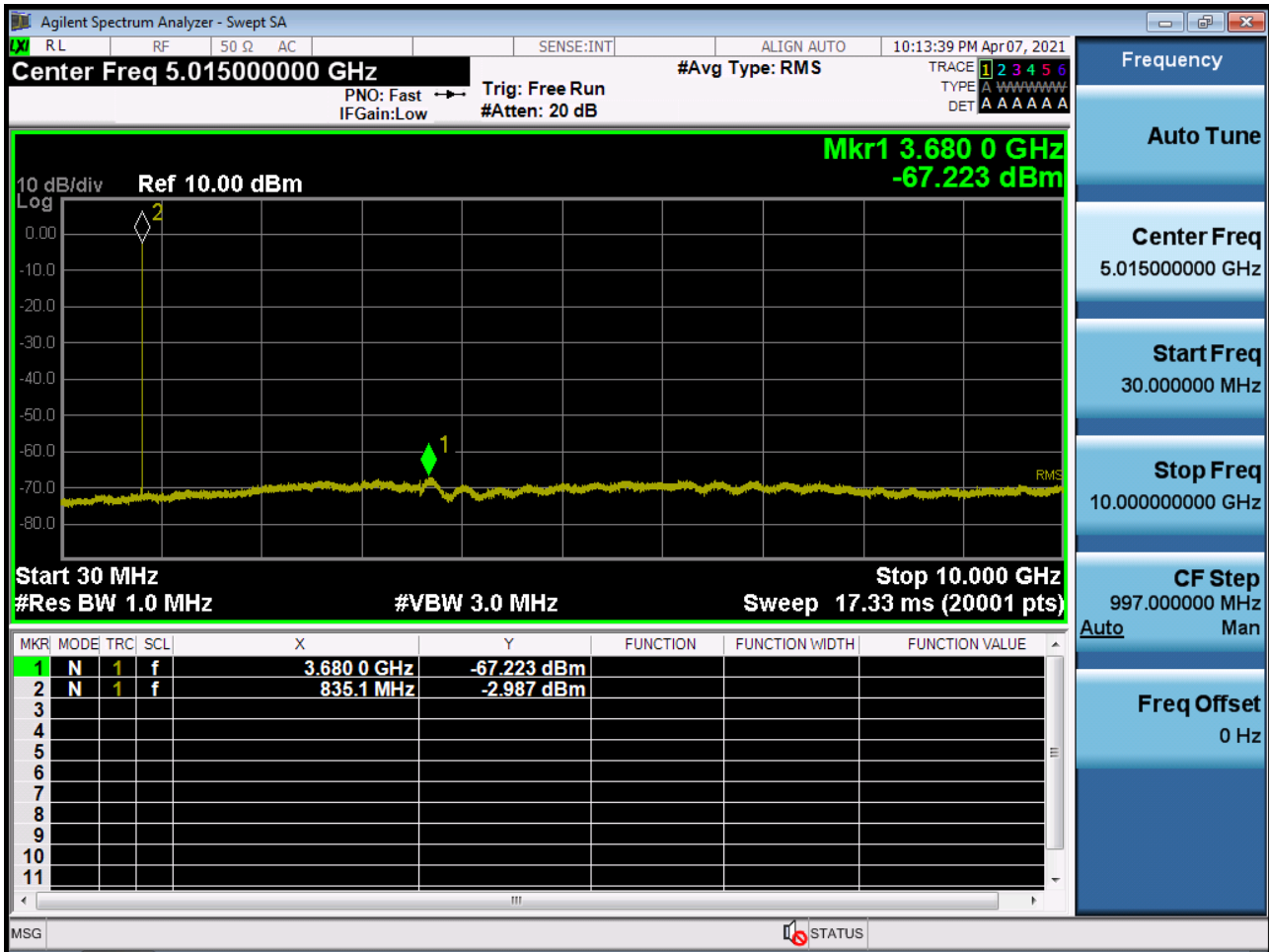




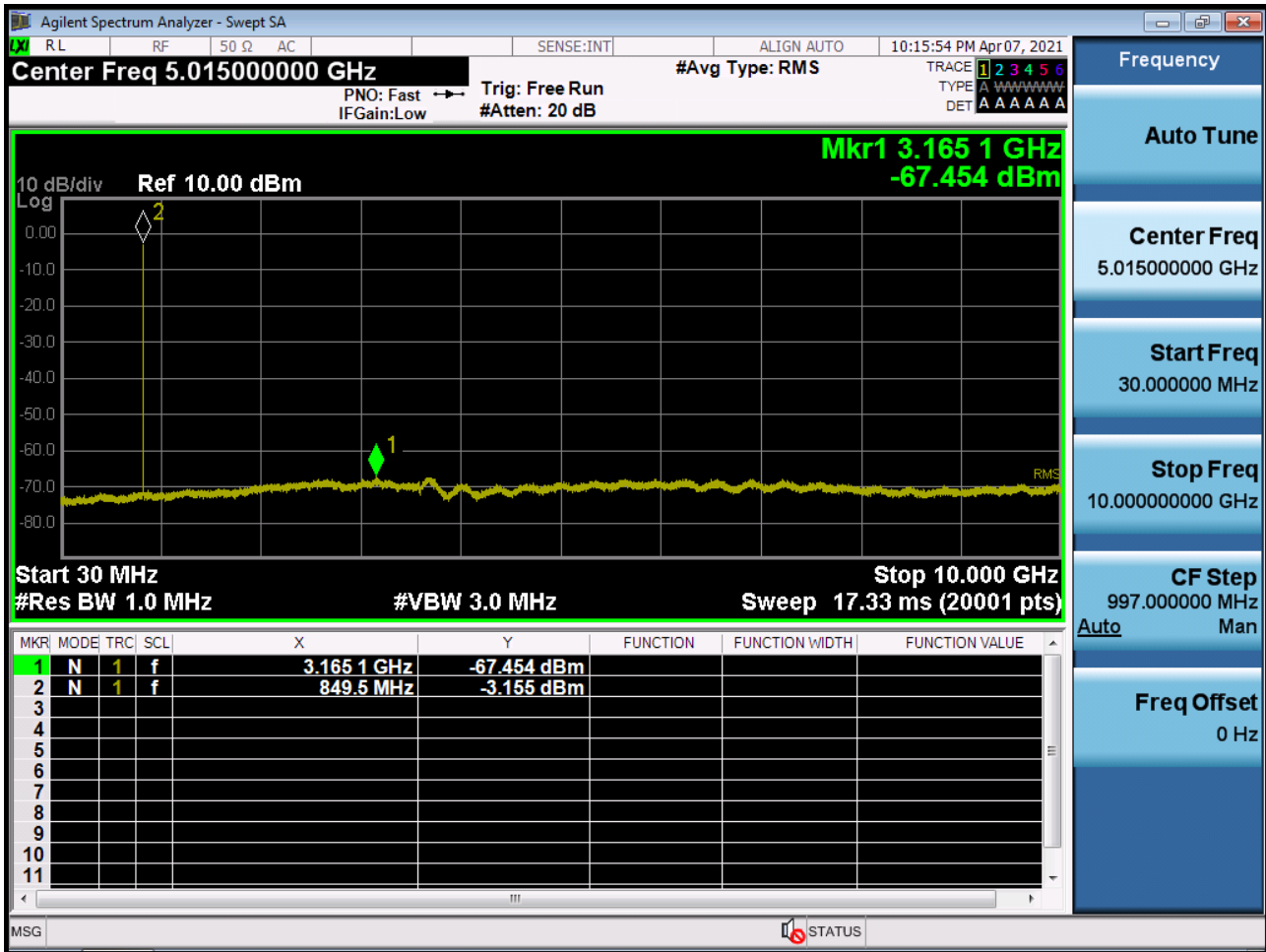
BAND26. Conducted Spurious Plot (26815ch\_5MHz\_QPSK\_RB 1\_0)



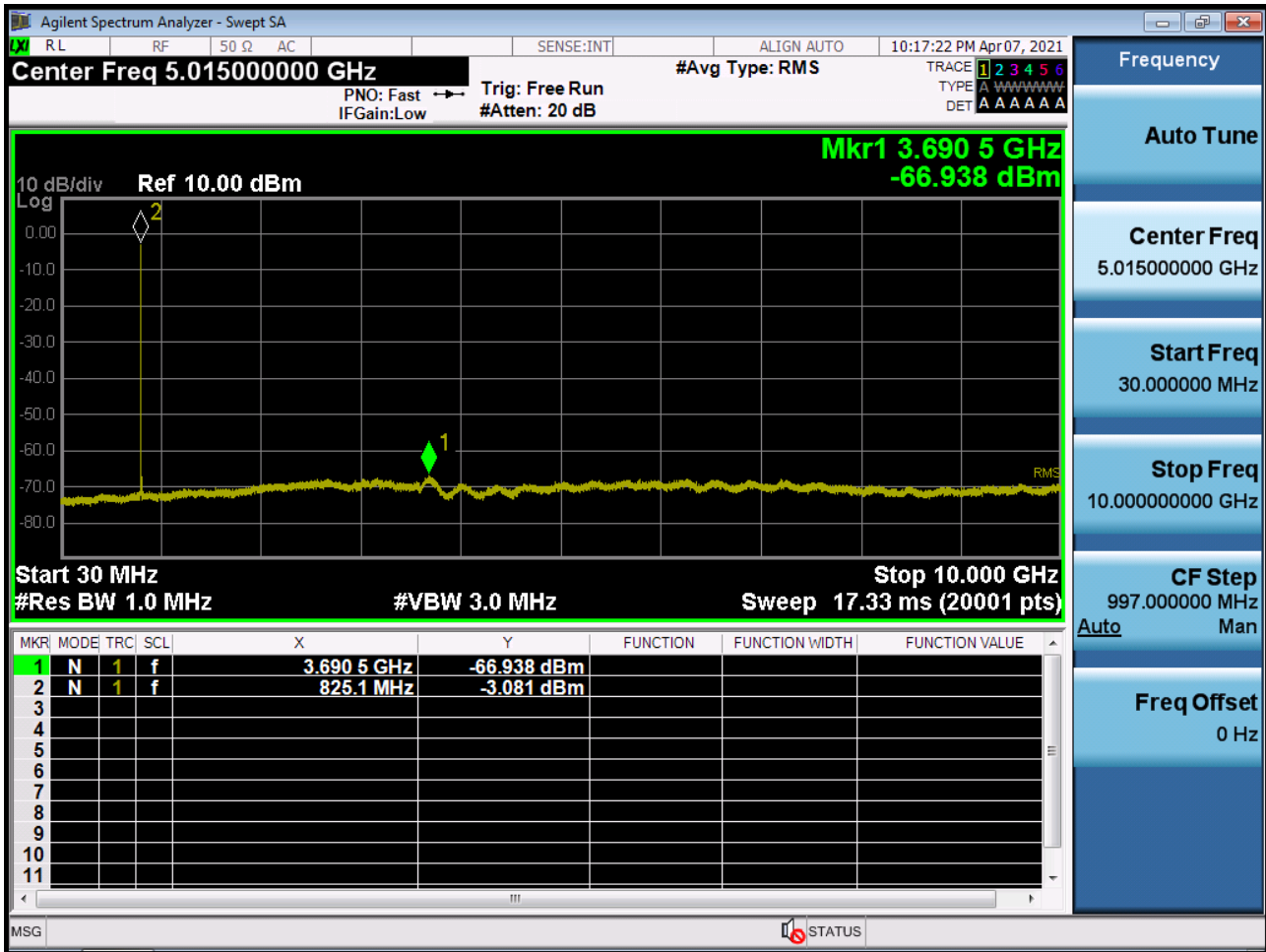
BAND26. Conducted Spurious Plot (26915ch\_5MHz\_QPSK\_RB 1\_0)



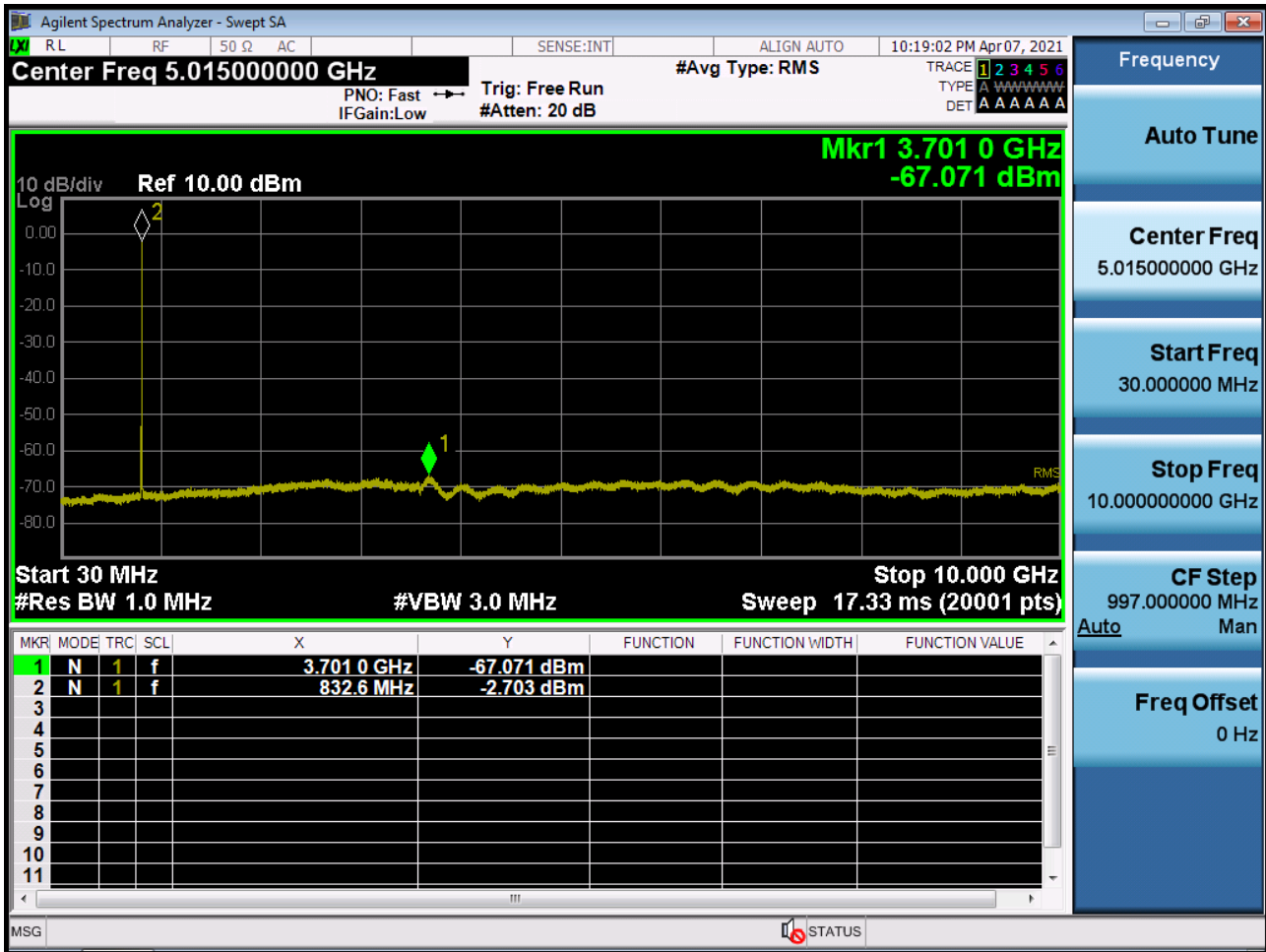
BAND26. Conducted Spurious Plot (27015ch\_5MHz\_QPSK\_RB 1\_0)



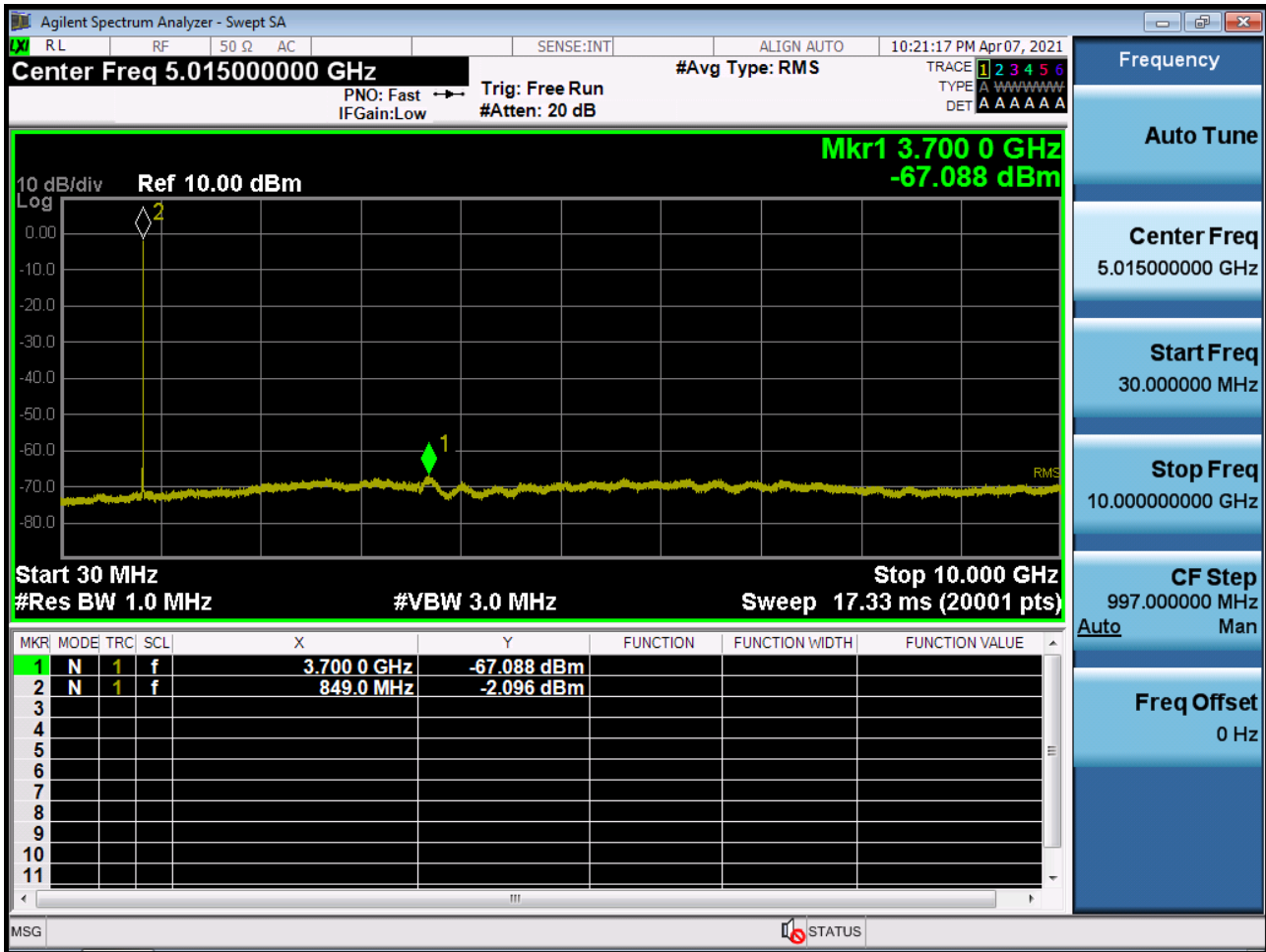
BAND26. Conducted Spurious Plot (26840ch\_10MHz\_QPSK\_RB 1\_0)



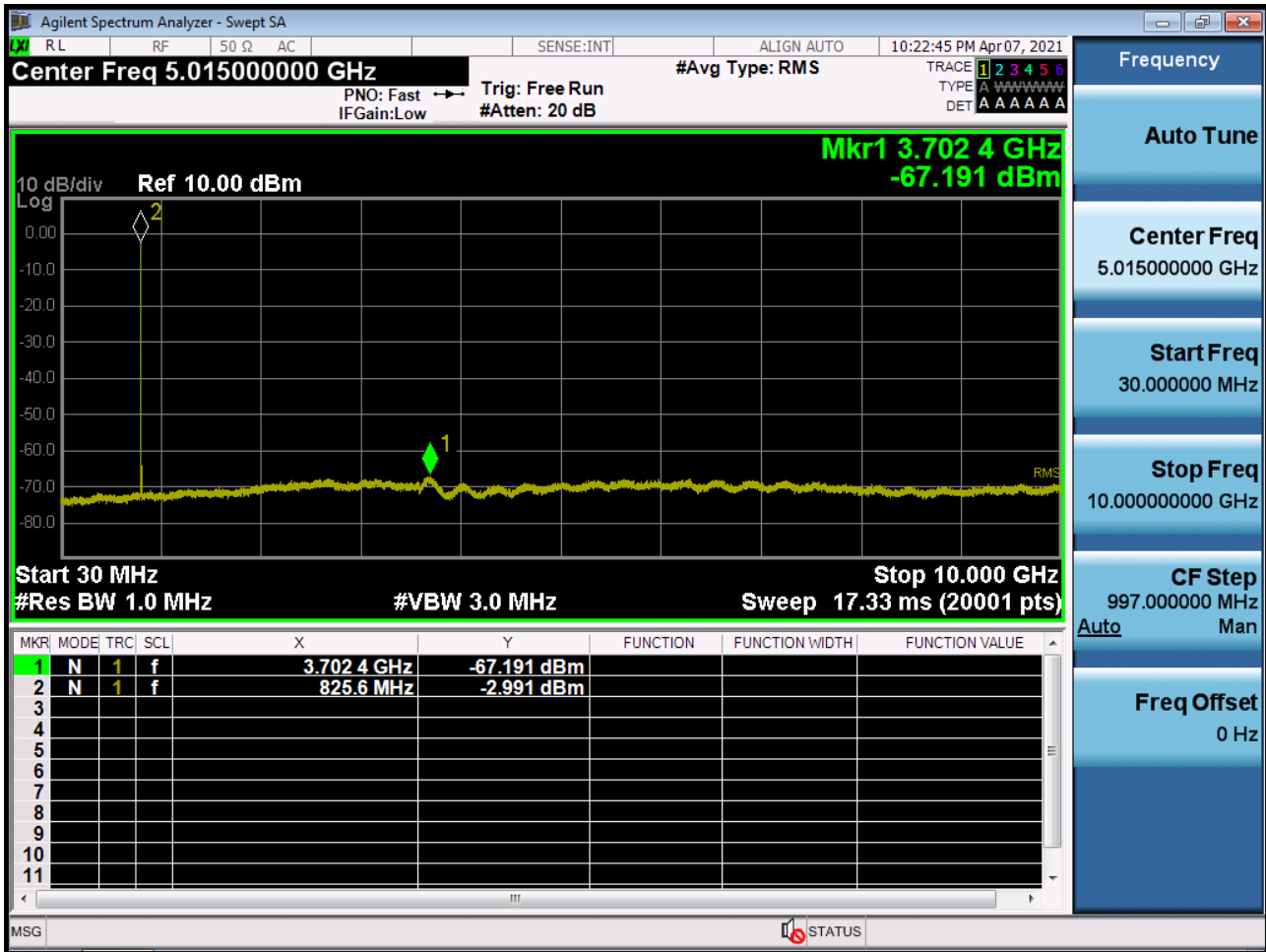
BAND26. Conducted Spurious Plot (26915ch\_10MHz\_QPSK\_RB 1\_0)



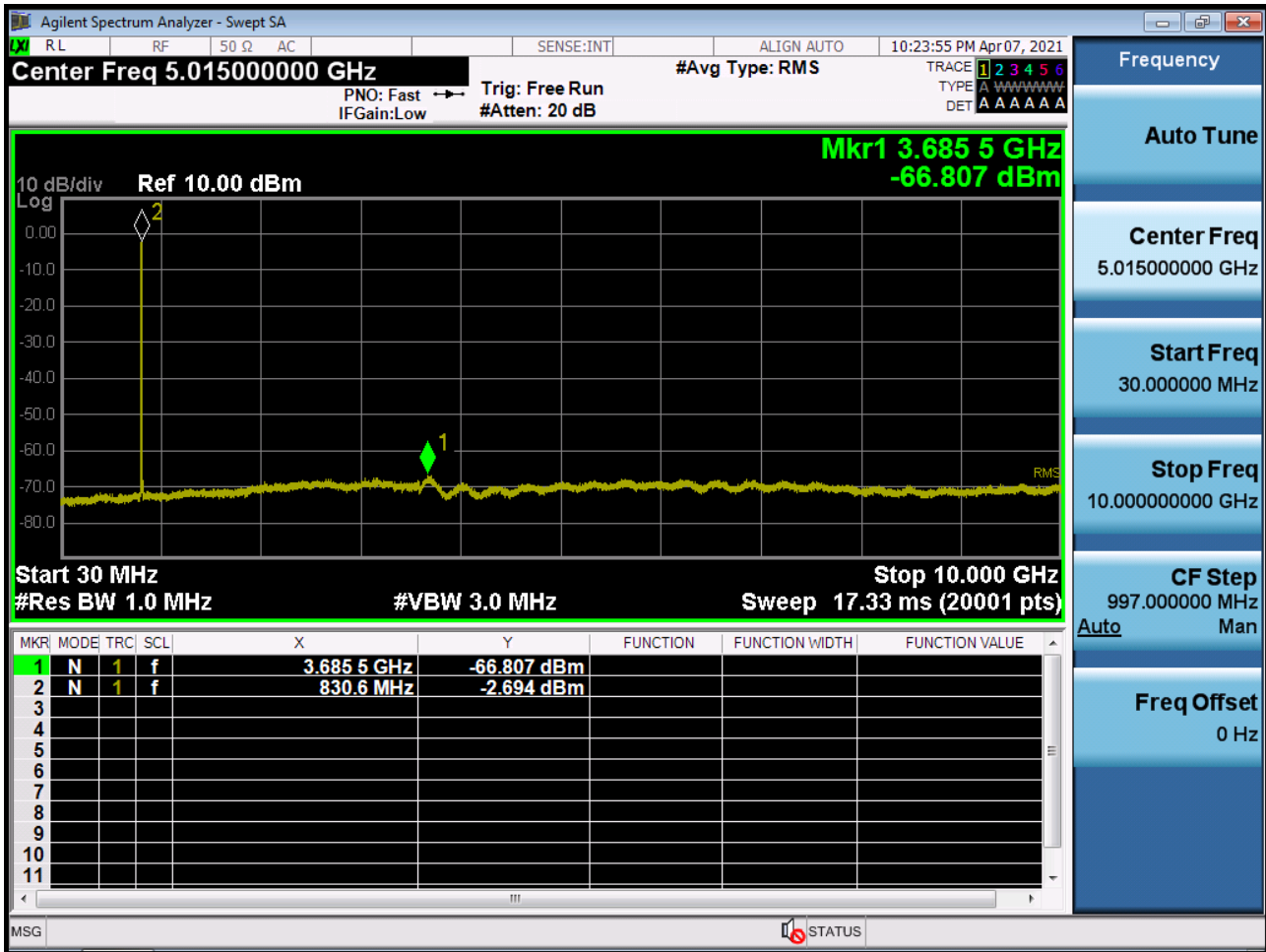
BAND26. Conducted Spurious Plot (26990ch\_10MHz\_QPSK\_RB 1\_0)



BAND 26. Conducted Spurious (26865ch\_15MHz\_QPSK\_RB 1\_0)

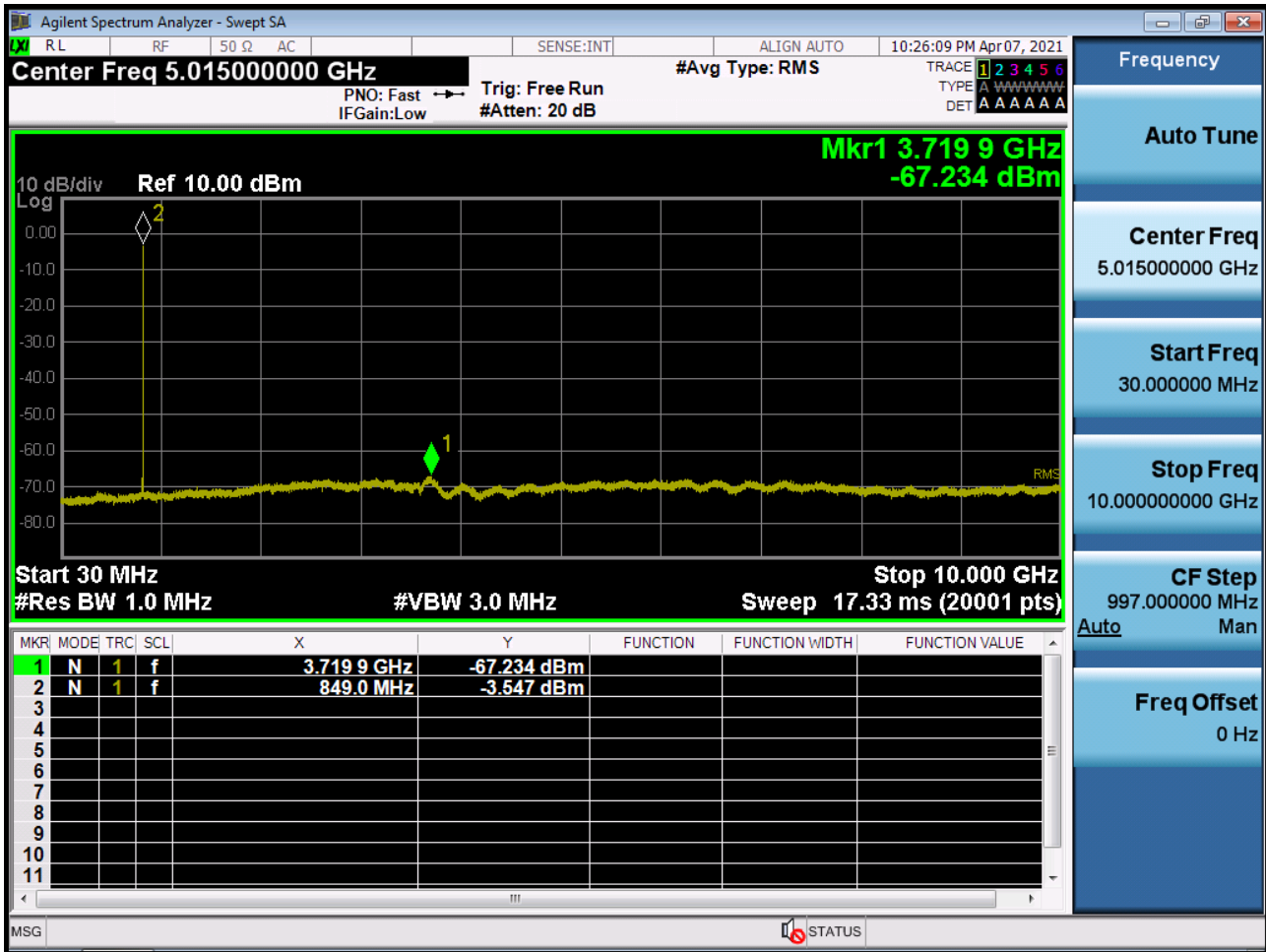


BAND 26. Conducted Spurious (26915ch\_15MHz\_QPSK\_RB 1\_0)





BAND 26. Conducted Spurious (26965ch\_15MHz\_QPSK\_RB 1\_0)



## 10. ANNEX A\_ TEST SETUP PHOTO

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

No.	Description
1	HCT-RF-2105-FC018-P