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FCC LTE REPORT

Certification

Applicant Name:
SAMSUNG Electronics Co., Ltd.

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

Date of Issue:
January 26, 2022

Location:
HCT CO., LTD.,
74, Seoicheon-ro 578beon-gil, Majang-myeon,
Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA

Report No.: HCT-RF-2201-FC103

FCC ID:	**A3LSMA536U**
APPLICANT:	**SAMSUNG Electronics Co., Ltd.**

Model(s): SM-A536U
Additional Model(s): SM-A536U1/DS, SM-S536DL, SM-A536W
EUT Type: Mobile phone
FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s): §27, §2

	Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	EIRP	
					Max. Power (W)	Max. Power (dBm)
Power Class 3	LTE – Band 41/38 (5)	2498.5 – 2687.5	4M51G7D	QPSK	0.124	20.94
			4M52W7D	16QAM	0.103	20.14
			4M53W7D	64QAM	0.079	18.96
			4M59W7D	256QAM	0.047	16.69
	LTE – Band 41/38 (10)	2501.0 – 2685.0	9M00G7D	QPSK	0.126	20.99
			8M97W7D	16QAM	0.104	20.18
			9M00W7D	64QAM	0.081	19.09
			9M12W7D	256QAM	0.047	16.74
	LTE – Band 41/38 (15)	2503.5 – 2682.5	13M4G7D	QPSK	0.119	20.75
			13M5W7D	16QAM	0.099	19.94
			13M5W7D	64QAM	0.074	18.67
			13M6W7D	256QAM	0.045	16.54
	LTE – Band 41/38 (20)	2506.0 – 2680.0	17M9G7D	QPSK	0.129	21.11
			17M9W7D	16QAM	0.105	20.21
			17M9W7D	64QAM	0.082	19.13
			18M2W7D	256QAM	0.048	16.84
Power Class 2	LTE – Band 41 (5)	2498.5 – 2687.5	4M51G7D	QPSK	0.228	23.58
			4M51W7D	16QAM	0.191	22.82
			4M51W7D	64QAM	0.145	21.60
			4M63W7D	256QAM	0.081	19.10
	LTE – Band 41 (10)	2501.0 – 2685.0	9M02G7D	QPSK	0.236	23.72
			9M01W7D	16QAM	0.198	22.97
			9M00W7D	64QAM	0.152	21.83
			9M81W7D	256QAM	0.085	19.28
	LTE – Band 41 (15)	2503.5 – 2682.5	13M5G7D	QPSK	0.234	23.70
			13M5W7D	16QAM	0.193	22.85
			13M5W7D	64QAM	0.149	21.73
			13M8W7D	256QAM	0.085	19.29
	LTE – Band 41 (20)	2506.0 – 2680.0	17M9G7D	QPSK	0.242	23.84
			17M9W7D	16QAM	0.196	22.93
			17M9W7D	64QAM	0.158	21.99
			18M8W7D	256QAM	0.084	19.26

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)

REVIEWED BY

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

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)

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-2201-FC103	January 26, 2022	- First Approval Report

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

Table of 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:	A3LSMA536U
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§27, §2
EUT Type:	Mobile phone
Model(s):	SM-A536U
Additional Model(s):	SM-A536U1/DS, SM-S536DL, SM-A536W
Tx Frequency:	2498.5 – 2687.5 : 5 MHz 2501.0 – 2685.0 : 10 MHz 2503.5 – 2682.5 : 15 MHz 2506.0 – 2680.0 : 20 MHz
Date(s) of Tests:	November 29, 2021 ~ January 21, 2022
Serial number:	Radiated: R3CRA0XAS5M Conducted: R3CRA0Y79BJ

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

The EUT was a Mobile Phone with GSM/GPRS/EGPRS/UMTS and LTE, Sub6.

It also supports IEEE 802.11 a/b/g/n/ac (20/40/80), Bluetooth, BT LE, NFC.

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	- N/A (See SAR Report)
Peak- to- Average Ratio	- KDB 971168 D01 v03r01 – Section 5.7 - ANSI C63.26-2015 – Section 5.2.3.4 - ANSI C63.26-2015 – Section 5.2.6(only GSM)
Frequency stability	- ANSI C63.26-2015 – Section 5.6
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 Normal Hz
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.

3.3 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 = 100 kHz for emissions below 1 GHz and Normal Hz for emissions above 1 GHz
2. VBW ≥ 3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points > 2 x span / RBW
5. Detector = Peak
6. Trace mode = Max Hold
7. The trace was allowed to stabilize
8. Test channel : Low/ Middle/ High
9. Frequency range : We are performed all frequency to 10^{th} harmonics from 9 kHz.

Test Note

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

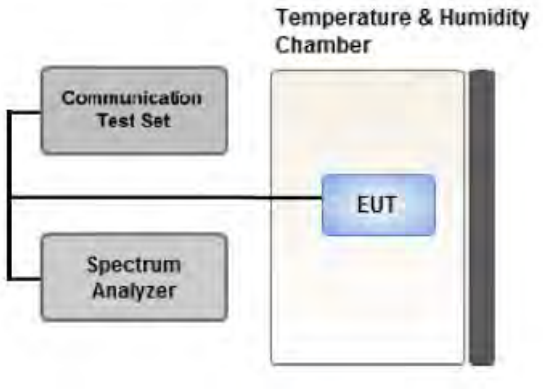
$$\text{Result}_{(dBm)} = \text{Pg}_{(dBm)} - \text{cable loss}_{(dB)} + \text{antenna gain}_{(dBi)}$$

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

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

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

3.4 PEAK- TO- AVERAGE RATIO



Test setup

① CCDF Procedure for PAPR

Test Settings

1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
2. Set the number of counts to a value that stabilizes the measured CCDF curve;
3. Set the measurement interval as follows:
   .- for continuous transmissions, set to 1 ms,
   .- or burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.
4. Record the maximum PAPR level associated with a probability of 0.1 %.

② Alternate Procedure for PAPR

Use one of the procedures presented in 5.2(ANSI C63.26-2015) to measure the total peak power and record as P_{Pk}.

Use one of the applicable procedures presented 5.2(ANSI C63.26-2015) to measure the total average power and record as P_{Avg}. Determine the P.A.R. from:

$$P.A.R_{(dB)} = P_{Pk\,(dBm)} - P_{Avg\,(dBm)}\ (P_{Avg} = \text{Average Power} + \text{Duty cycle Factor})$$

Test Settings(Peak Power)

The measurement instrument must have a RBW that is greater than or equal to the OBW of the signal to be measured and a VBW ≥ 3 × RBW.

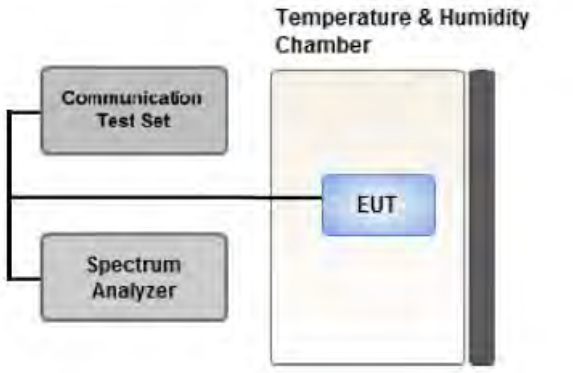
1. Set the RBW ≥ OBW.
2. Set VBW ≥ 3 × RBW.
3. Set span ≥ 2 × OBW.
4. Sweep time ≥ 10 × (number of points in sweep) × (transmission symbol period).
5. Detector = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the peak amplitude level.

Test Settings(Average Power)

1. Set span to 2 × to 3 × the OBW.
2. Set RBW ≥ OBW.
3. Set VBW ≥ 3 × RBW.
4. Set number of measurement points in sweep ≥ 2 × span / RBW.
5. Sweep time:

   Set ≥ [10 × (number of points in sweep) × (transmission period)] for single sweep (automation-compatible) measurement. The transmission period is the (on + off) time.
6. Detector = power averaging (rms).
7. Set sweep trigger to “free run.”
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. (To accurately determine the average power over the on and off period of the transmitter, it can be necessary to increase the number of traces to be averaged above 100 or, if using a manually configured sweep time, increase the sweep time.)
9. Use the peak marker function to determine the maximum amplitude level.
10. Add [10 log (1/duty cycle)] to the measured maximum power level to compute the average power during continuous transmission. For example, add [10 log (1/0.25)] = 6 dB if the duty cycle is a constant 25 %.

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.

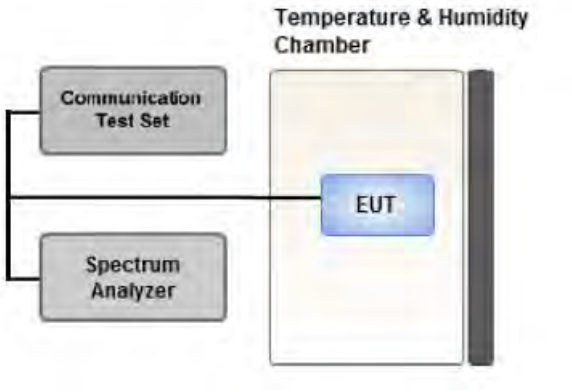
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

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

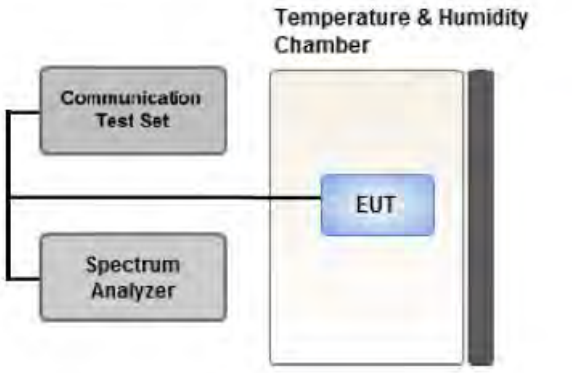
Test Overview

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 = 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.

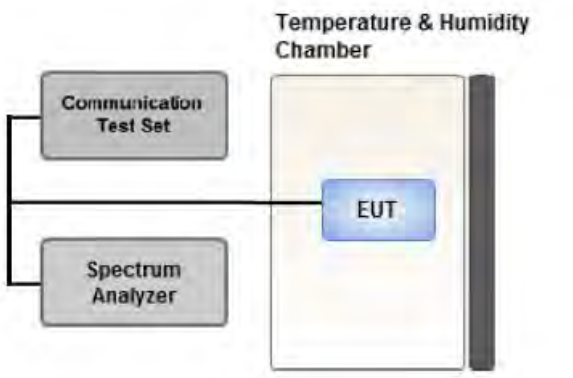
Test Settings

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. Within 1 MHz of the channel edge the RBW should be 2 % of EBW, then 1 MHz after that.
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

1. The attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge,
2. 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge.
3. 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge.
4. The attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz.
5. 55 + 10 log (P) dB at or below 2490.5 MHz.
6. X is the greater of 6 MHz or the actual emission bandwidth
7. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer

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. There has no significant emission raised.
- WWAN + WLAN 5 GHz + BT (Worst case : Stand alone)
- The worst case is reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the test data.
- LTE Band 41 power class 3(5 M/10 M/15 M/20 M) overlaps the entire frequency range of LTE Band 38(5 M/10 M/15 M/20 M) and they have the same Tune-up power.
  Therefore, test data provided in this report covers Band38 as well as Band 41 power class 3.
- All modes of operation were investigated and the worst case configuration results are reported.
- Please refer to the table below.
- SM-A536U & additional models were tested and the worst case results are reported.

(Worst case : SM-A536U)

[Power Class 2 Worst case]

Test Description	Modulation	Bandwidth (MHz)	Frequency	RB size	RB offset	Axis
Effective Isotropic Radiated Power	QPSK, 16QAM, 64QAM, 256QAM	5	Low	1	24	Z
			Mid, High	1	0	
		10	Low	1	49	
			Mid, High	1	0	
		15	Low	1	74	
			Mid, High	1	0	
		20	Low	1	99	
			Mid, High	1	0	
Radiated Spurious and Harmonic Emissions	QPSK	5	Low	1	24	Y
			Mid, High	1	0	
		10	Low	1	49	
			Mid, High	1	0	
		15	Low	1	74	
			Mid, High	1	0	
		20	Low	1	99	
			Mid, High	1	0	

[Power Class 3 Worst case]

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

3.10 WORST CASE(CONDUCTED TEST)

- LTE Band 41 power class 3(5 M/10 M/15 M/20 M) overlaps the entire frequency range of LTE Band 38(5 M/10 M/15 M/20 M) and they have the same Tune-up power.
  Therefore, test data provided in this report covers Band38 as well as Band 41 power class 3.
- All modes of operation were investigated and the worst case configuration results are reported.
- SM-A536U & additional models were tested and the worst case results are reported.

(Worst case : SM-A536U)

[Worst case]

Test Description	Modulation	Bandwidth (MHz)	Frequency	RB size	RB offset
Occupied Bandwidth	QPSK, 16QAM, 64QAM, 256QAM	5, 10, 15, 20	Mid	Full RB	0
Peak-To-Average Radio	QPSK, 16QAM, 64QAM, 256QAM	5, 10, 15, 20	Mid	Full RB	0
Channel Edge	QPSK	5	Low	1	0
			High	1	24
		10	Low	1	0
			High	1	49
		15	Low	1	0
			High	1	74
		20	Low	1	0
			High	1	99
		5, 10, 15, 20	Low, Mid, High	Full RB	0
Spurious and Harmonic Emissions at Antenna Terminal	QPSK	5, 10, 15, 20	Low, Mid, High	1	0

4. LIST OF TEST EQUIPMENT

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
H.P.F	FBSR-02B(WHK1.2/15 G-10EF)	T&M SYSTEM	-	03/02/2022	Annual
H.P.F	FBSR-02B(WHK3.3/18 G-10EF)	T&M SYSTEM	-	03/02/2022	Annual
Power Splitter(DC ~ 26.5 GHz)	11667B	Hewlett Packard	11275	04/07/2022	Annual
DC Power Supply	E3632A	Agilent	MY40010147	06/28/2022	Annual
Dipole Antenna	UHAP	Schwarzbeck	557	04/05/2023	Biennial
Dipole Antenna	UHAP	Schwarzbeck	558	04/05/2023	Biennial
Chamber	SU-642	ESPEC	93008124	03/15/2022	Annual
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	147	08/30/2022	Biennial
Horn Antenna(1 ~ 18 GHz)	BBHA 9120D	Schwarzbeck	9120D-1298	09/15/2023	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170342	10/13/2022	Biennial
Horn Antenna(15 ~ 40 GHz)	BBHA 9170	Schwarzbeck	BBHA9170124	04/12/2023	Biennial
Signal Analyzer(10 Hz ~ 26.5 GHz)	N9020A	Agilent	MY52090906	05/18/2022	Annual
ATTENUATOR(20 dB)	8493C	Hewlett Packard	17280	06/01/2022	Annual
Spectrum Analyzer(10 Hz ~ 40 GHz)	FSV40	REOHDE & SCHWARZ	100931	09/29/2022	Annual
Base Station	8960 (E5515C)	Agilent	MY48360800	08/18/2022	Annual
Loop Antenna(9 kHz ~ 30 MHz)	FMZB1513	Schwarzbeck	1513-333	03/19/2022	Biennial
Bilog Antenna	VULB9160	Schwarzbeck	3150	03/03/2023	Biennial
Hybrid Antenna	VULB9168	Schwarzbeck	760	02/22/2023	Biennial
Wideband Radio Communication Tester	MT8821C	Anritsu Corp.	6262116770	07/12/2022	Annual
Wideband Radio Communication Tester	MT8820C	Anritsu Corp.	6200863156	12/29/2022	Annual
SIGNAL GENERATOR (100 kHz ~ 40 GHz)	SMB100A	REOHDE & SCHWARZ	177633	07/05/2022	Annual
Signal Analyzer(5 Hz ~ 40.0 GHz)	N9030B	KEYSIGHT	MY55480167	06/02/2022	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)	1.82 (Confidence level about 95 %, k=2)
Radiated Disturbance (9 kHz ~ 30 MHz)	3.40 (Confidence level about 95 %, k=2)
Radiated Disturbance (30 MHz ~ 1 GHz)	4.80 (Confidence level about 95 %, k=2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.70 (Confidence level about 95 %, k=2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.05 (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
Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§2.1051, §27.53(m)(4)	■ < 40 + 10log10 (P[Watts]) at Channel edges ■ < 43 + 10log10 (P[Watts]) between 5 and X MHz from Channel edges ■ < 55 + 10log10 (P[Watts]) beyond X MHz beyond from Channel edges ■ < 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz	PASS
Conducted Output Power	§2.1046	N/A	See Note1
Frequency stability / variation of ambient temperature	§2.1055, §27.54	Emission must remain in band	PASS

Note:

1. See SAR Report

6.2 Test Condition : Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Equivalent Isotropic Radiated Power	§27.50(h)(2)	< 2 Watts max. EIRP	PASS
Radiated Spurious and Harmonic Emissions	§2.1053, §27.53(m)(4)	< 55 + 10log10 (P[Watts])	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
40620	2593.0	-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 EQUIVALENT ISOTROPIC RADIATED POWER

8.1.1 Power Class 3

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
2498.5	LTE B41/38 5 MHz	QPSK	-24.67	12.23	10.70	2.49	V	< 2.00	0.111	20.44
		16-QAM	-25.61	11.29	10.70	2.49	V		0.089	19.50
		64-QAM	-26.50	10.40	10.70	2.49	V		0.073	18.61
		256-QAM	-28.94	7.96	10.70	2.49	V		0.041	16.17
2593.0		QPSK	-24.47	12.85	10.62	2.53	V		0.124	20.94
		16-QAM	-25.27	12.05	10.62	2.53	V		0.103	20.14
		64-QAM	-26.45	10.87	10.62	2.53	V		0.079	18.96
		256-QAM	-28.72	8.60	10.62	2.53	V		0.047	16.69
2687.5		QPSK	-25.58	11.72	10.78	2.59	V		0.098	19.91
		16-QAM	-26.49	10.81	10.78	2.59	V		0.080	19.00
		64-QAM	-27.52	9.78	10.78	2.59	V		0.063	17.97
		256-QAM	-29.91	7.39	10.78	2.59	V		0.036	15.58

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
2501.0	LTE B41/38 10 MHz	QPSK	-24.70	12.20	10.70	2.49	V	< 2.00	0.110	20.41
		16-QAM	-25.51	11.39	10.70	2.49	V		0.091	19.60
		64-QAM	-26.77	10.13	10.70	2.49	V		0.068	18.34
		256-QAM	-29.15	7.75	10.70	2.49	V		0.039	15.96
2593.0		QPSK	-24.42	12.90	10.62	2.53	V		0.126	20.99
		16-QAM	-25.23	12.09	10.62	2.53	V		0.104	20.18
		64-QAM	-26.32	11.00	10.62	2.53	V		0.081	19.09
		256-QAM	-28.67	8.65	10.62	2.53	V		0.047	16.74
2685.0		QPSK	-25.81	11.69	10.77	2.58	V		0.097	19.88
		16-QAM	-26.65	10.85	10.77	2.58	V		0.080	19.04
		64-QAM	-27.71	9.79	10.77	2.58	V		0.063	17.98
		256-QAM	-30.08	7.42	10.77	2.58	V		0.036	15.61

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
2503.5	LTE B41/38 15 MHz	QPSK	-24.73	12.17	10.70	2.49	V	< 2.00	0.109	20.38
		16-QAM	-25.56	11.34	10.70	2.49	V		0.090	19.55
		64-QAM	-26.67	10.23	10.70	2.49	V		0.070	18.44
		256-QAM	-29.20	7.70	10.70	2.49	V		0.039	15.91
2593.0		QPSK	-24.66	12.66	10.62	2.53	V		0.119	20.75
		16-QAM	-25.47	11.85	10.62	2.53	V		0.099	19.94
		64-QAM	-26.74	10.58	10.62	2.53	V		0.074	18.67
		256-QAM	-28.87	8.45	10.62	2.53	V		0.045	16.54
2682.5		QPSK	-25.48	12.21	10.76	2.57	V		0.110	20.40
		16-QAM	-26.33	11.36	10.76	2.57	V		0.090	19.55
		64-QAM	-27.32	10.37	10.76	2.57	V		0.072	18.56
		256-QAM	-29.79	7.90	10.76	2.57	V		0.041	16.09

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
2506.0	LTE B41/38 20 MHz	QPSK	-24.61	12.35	10.70	2.50	V	< 2.00	0.114	20.55
		16-QAM	-25.37	11.59	10.70	2.50	V		0.095	19.79
		64-QAM	-26.59	10.37	10.70	2.50	V		0.072	18.57
		256-QAM	-29.03	7.93	10.70	2.50	V		0.041	16.13
2593.0		QPSK	-24.30	13.02	10.62	2.53	V		0.129	21.11
		16-QAM	-25.20	12.12	10.62	2.53	V		0.105	20.21
		64-QAM	-26.28	11.04	10.62	2.53	V		0.082	19.13
		256-QAM	-28.57	8.75	10.62	2.53	V		0.048	16.84
2680.0		QPSK	-25.42	12.27	10.76	2.57	V		0.111	20.46
		16-QAM	-26.13	11.56	10.76	2.57	V		0.094	19.75
		64-QAM	-27.45	10.24	10.76	2.57	V		0.070	18.43
		256-QAM	-29.80	7.89	10.76	2.57	V		0.041	16.08

8.1.2 Power Class 2

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
2498.5	LTE B41/ 5 MHz	QPSK	-21.99	14.91	10.70	2.49	V	< 2.00	0.205	23.12
		16-QAM	-22.81	14.09	10.70	2.49	V		0.170	22.30
		64-QAM	-24.00	12.90	10.70	2.49	V		0.129	21.11
		256-QAM	-26.54	10.36	10.70	2.49	V		0.072	18.57
2593.0		QPSK	-21.83	15.49	10.62	2.53	V		0.228	23.58
		16-QAM	-22.59	14.73	10.62	2.53	V		0.191	22.82
		64-QAM	-23.81	13.51	10.62	2.53	V		0.145	21.60
		256-QAM	-26.31	11.01	10.62	2.53	V		0.081	19.10
2687.5		QPSK	-23.08	14.22	10.78	2.59	V		0.174	22.41
		16-QAM	-23.90	13.40	10.78	2.59	V		0.144	21.59
		64-QAM	-24.80	12.50	10.78	2.59	V		0.117	20.69
		256-QAM	-27.49	9.81	10.78	2.59	V		0.063	18.00

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
2501.0	LTE B41/ 10 MHz	QPSK	-22.01	14.89	10.70	2.49	V	< 2.00	0.204	23.10
		16-QAM	-22.77	14.13	10.70	2.49	V		0.171	22.34
		64-QAM	-24.04	12.86	10.70	2.49	V		0.128	21.07
		256-QAM	-26.46	10.44	10.70	2.49	V		0.073	18.65
2593.0		QPSK	-21.69	15.63	10.62	2.53	V		0.236	23.72
		16-QAM	-22.44	14.88	10.62	2.53	V		0.198	22.97
		64-QAM	-23.58	13.74	10.62	2.53	V		0.152	21.83
		256-QAM	-26.13	11.19	10.62	2.53	V		0.085	19.28
2685.0		QPSK	-23.10	14.40	10.77	2.58	V		0.181	22.59
		16-QAM	-23.77	13.73	10.77	2.58	V		0.156	21.92
		64-QAM	-24.99	12.51	10.77	2.58	V		0.117	20.70
		256-QAM	-27.56	9.94	10.77	2.58	V		0.065	18.13

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
2503.5	LTE B41/ 15 MHz	QPSK	-22.07	14.83	10.70	2.49	V	< 2.00	0.201	23.04
		16-QAM	-22.92	13.98	10.70	2.49	V		0.165	22.19
		64-QAM	-24.04	12.86	10.70	2.49	V		0.128	21.07
		256-QAM	-26.53	10.37	10.70	2.49	V		0.072	18.58
2593.0		QPSK	-21.71	15.61	10.62	2.53	V		0.234	23.70
		16-QAM	-22.56	14.76	10.62	2.53	V		0.193	22.85
		64-QAM	-23.68	13.64	10.62	2.53	V		0.149	21.73
		256-QAM	-26.12	11.20	10.62	2.53	V		0.085	19.29
2682.5		QPSK	-22.64	15.05	10.76	2.57	V		0.211	23.24
		16-QAM	-23.44	14.25	10.76	2.57	V		0.175	22.44
		64-QAM	-24.59	13.10	10.76	2.57	V		0.135	21.29
		256-QAM	-27.13	10.56	10.76	2.57	V		0.075	18.75

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBi)	C.L	Pol	Limit	EIRP	
								W	W	dBm
2506.0	LTE B41/ 20 MHz	QPSK	-22.16	14.80	10.70	2.50	V	< 2.00	0.200	23.00
		16-QAM	-22.93	14.03	10.70	2.50	V		0.167	22.23
		64-QAM	-24.07	12.89	10.70	2.50	V		0.129	21.09
		256-QAM	-26.65	10.31	10.70	2.50	V		0.071	18.51
2593.0		QPSK	-21.57	15.75	10.62	2.53	V		0.242	23.84
		16-QAM	-22.48	14.84	10.62	2.53	V		0.196	22.93
		64-QAM	-23.42	13.90	10.62	2.53	V		0.158	21.99
		256-QAM	-26.15	11.17	10.62	2.53	V		0.084	19.26
2680.0		QPSK	-22.90	14.79	10.76	2.57	V		0.199	22.98
		16-QAM	-23.78	13.91	10.76	2.57	V		0.162	22.10
		64-QAM	-24.73	12.96	10.76	2.57	V		0.130	21.15
		256-QAM	-27.41	10.28	10.76	2.57	V		0.070	18.47

8.2 RADIATED SPURIOUS EMISSIONS

8.2.1 Power Class 3

▣ OPERATING FREQUENCY : 2593.0 MHz

▣ MEASURED OUTPUT POWER: 20.94 dBm = 0.124 W

▣ MODE: LTE B41/38

▣ MODULATION SIGNAL: 5 MHz QPSK

▣ DISTANCE: 1 meters

▣ LIMIT: 55 + 10 log10 (W) = 45.94 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	EIRP (dBm)	dBc
39675 (2498.5)	4 997.00	-39.93	12.60	-49.37	3.61	H	-40.38	61.32
	7 495.50	-38.90	10.80	-39.73	4.47	H	-33.40	54.34
	9 994.00	-56.34	11.19	-51.99	5.27	H	-46.07	67.00
	12 492.50	-52.86	13.16	-48.54	6.03	H	-41.41	62.35
40620 (2593.0)	5 186.00	-33.02	12.44	-41.54	3.70	V	-32.79	53.73
	7 779.00	-37.11	11.40	-37.94	4.54	V	-31.08	52.02
	10 372.00	-55.45	11.40	-50.40	5.45	H	-44.45	65.39
41565 (2687.5)	5 375.00	-33.40	13.00	-42.54	3.78	H	-33.32	54.26
	8 062.50	-41.34	10.80	-39.79	4.61	H	-33.60	54.54
	10 750.00	-49.74	11.20	-44.59	5.54	H	-38.93	59.87

▣ OPERATING FREQUENCY : 2593.0 MHz

▣ MEASURED OUTPUT POWER: 20.99 dBm = 0.126 W

▣ MODE: LTE B41/38

▣ MODULATION SIGNAL: 10 MHz QPSK

▣ DISTANCE: 1 meters

▣ LIMIT: 55 + 10 log10 (W) = 45.99 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	EIRP (dBm)	dBc
39700 (2501.0)	5 002.00	-39.99	12.60	-49.43	3.61	V	-40.44	61.43
	7 503.00	-41.37	10.80	-42.31	4.47	H	-35.98	56.97
	10 004.00	-59.73	11.21	-55.27	5.27	V	-49.32	70.31
	12 505.00	-53.23	13.20	-48.75	6.04	H	-41.59	62.58
40620 (2593.0)	5 186.00	-34.98	12.44	-43.50	3.70	V	-34.75	55.69
	7 779.00	-34.77	11.40	-35.60	4.54	H	-28.74	49.68
	10 372.00	-54.59	11.40	-49.54	5.45	H	-43.59	64.53
41540 (2685.0)	5 370.00	-35.42	13.00	-44.54	3.77	H	-35.31	56.30
	8 055.00	-39.20	10.80	-37.68	4.61	H	-31.48	52.47
	10 740.00	-53.34	11.22	-48.63	5.52	V	-42.93	63.92

▣ OPERATING FREQUENCY : 2593.0 MHz

▣ MEASURED OUTPUT POWER: 20.75 dBm = 0.119 W

▣ MODE: LTE B41/38

▣ MODULATION SIGNAL: 15 MHz QPSK

▣ DISTANCE: 1 meters

▣ LIMIT: 55 + 10 log10 (W) = 45.75 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	EIRP (dBm)	dBc
39725 (2503.5)	5 007.00	-38.49	12.58	-48.24	3.59	V	-39.25	60.00
	7 510.50	-39.10	10.82	-39.97	4.48	V	-33.63	54.37
	10 014.00	-55.14	11.23	-50.66	5.27	V	-44.70	65.45
	12 517.50	-54.61	13.20	-50.24	5.96	H	-43.00	63.75
40620 (2593.0)	5 186.00	-30.60	12.44	-39.12	3.70	H	-30.37	51.31
	7 779.00	-34.68	11.40	-35.51	4.54	H	-28.65	49.59
	10 372.00	-52.50	11.40	-47.45	5.45	H	-41.50	62.44
41515 (2682.5)	5 365.00	-32.86	13.00	-42.04	3.77	H	-32.81	53.56
	8 047.50	-43.32	10.80	-41.83	4.60	H	-35.63	56.38
	10 730.00	-51.64	11.24	-47.40	5.50	H	-41.66	62.41

▣ OPERATING FREQUENCY : 2593.0 MHz

▣ MEASURED OUTPUT POWER: 21.11 dBm = 0.129 W

▣ MODE: LTE B41/38

▣ MODULATION SIGNAL: 20 MHz QPSK

▣ DISTANCE: 1 meters

▣ LIMIT: 55 + 10 log10 (W) = 46.11 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	EIRP (dBm)	dBc
39750 (2506.0)	5 012.00	-37.52	12.58	-47.27	3.59	V	-38.28	59.39
	7 518.00	-41.65	10.84	-42.21	4.46	H	-35.83	56.94
	10 024.00	-55.54	11.25	-51.15	5.28	V	-45.18	66.29
	12 530.00	-51.25	13.20	-47.01	5.91	H	-39.72	60.83
40620 (2593.0)	5 186.00	-33.33	12.44	-41.85	3.70	V	-33.10	54.04
	7 779.00	-35.35	11.40	-36.18	4.54	H	-29.32	50.26
	10 372.00	-53.04	11.40	-47.99	5.45	V	-42.04	62.98
41490 (2680.0)	5 360.00	-35.60	13.00	-44.84	3.76	H	-35.60	56.71
	8 040.00	-39.52	10.80	-38.04	4.59	H	-31.83	52.94
	10 720.00	-53.94	11.26	-49.96	5.50	V	-44.20	65.31

8.2.2 Power Class 2

▣ OPERATING FREQUENCY : 2593.0 MHz

▣ MEASURED OUTPUT POWER: 23.58 dBm = 0.228 W

▣ MODE: LTE B41

▣ MODULATION SIGNAL: 5 MHz QPSK

▣ DISTANCE: 1 meters

▣ LIMIT: 55 + 10 log10 (W) = 48.58 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	EIRP (dBm)	dBc	Detector
39675 (2498.5)	4 997.00	-35.11	12.60	-44.55	3.61	H	-35.56	59.14	Peak
	7 495.50	-37.19	10.80	-38.02	4.47	V	-31.69	55.27	Average
	9 994.00	-51.66	11.19	-47.31	5.27	H	-41.39	64.96	Peak
	12 492.50	-49.01	13.16	-44.69	6.03	H	-37.56	61.14	Peak
40620 (2593.0)	5 186.00	-34.02	12.44	-42.54	3.70	H	-33.79	57.37	Average
	7 779.00	-37.22	11.40	-38.05	4.54	V	-31.19	54.77	Average
	10 372.00	-49.35	11.40	-44.30	5.45	V	-38.35	61.93	Peak
	12 965.00	-53.50	12.83	-46.94	6.13	V	-40.24	63.82	Peak
41565 (2687.5)	5 375.00	-35.45	13.00	-44.60	3.78	V	-35.37	58.95	Average
	8 062.50	-39.70	10.80	-38.15	4.61	H	-31.96	55.54	Average
	10 750.00	-50.51	11.20	-45.36	5.54	V	-39.70	63.28	Peak
	13 437.50	-57.13	12.62	-47.51	6.26	H	-41.15	64.73	Peak

▣ OPERATING FREQUENCY : 2593.0 MHz

▣ MEASURED OUTPUT POWER: 23.72 dBm = 0.235 W

▣ MODE: LTE B41

▣ MODULATION SIGNAL: 10 MHz QPSK

▣ DISTANCE: 1 meters

▣ LIMIT: 55 + 10 log10 (W) = 48.72 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	EIRP (dBm)	dBc	Detector
39700 (2501.0)	5 002.00	-32.91	12.60	-42.35	3.61	H	-33.36	57.08	Peak
	7 503.00	-35.04	10.80	-35.98	4.47	H	-29.65	53.37	Peak
	10 004.00	-51.75	11.21	-47.29	5.27	H	-41.34	65.06	Peak
	12 505.00	-50.89	13.20	-46.41	6.04	H	-39.25	62.97	Peak
40620 (2593.0)	5 186.00	-29.73	12.44	-38.25	3.70	H	-29.50	53.08	Peak
	7 779.00	-36.29	11.40	-37.12	4.54	H	-30.26	53.84	Average
	10 372.00	-49.88	11.40	-44.83	5.45	H	-38.88	62.46	Peak
	12 965.00	-54.71	12.83	-48.15	6.13	H	-41.45	65.03	Peak
41540 (2685.0)	5 370.00	-31.03	13.00	-40.15	3.77	V	-30.92	54.64	Peak
	8 055.00	-40.28	10.80	-38.76	4.61	H	-32.57	56.28	Average
	10 740.00	-48.96	11.22	-44.25	5.52	H	-38.55	62.27	Peak
	13 425.00	-56.53	12.65	-47.01	6.22	V	-40.58	64.30	Peak

▣ OPERATING FREQUENCY : 2593.0 MHz

▣ MEASURED OUTPUT POWER: 23.70 dBm = 0.234 W

▣ MODE: LTE B41

▣ MODULATION SIGNAL: 15 MHz QPSK

▣ DISTANCE: 1 meters

▣ LIMIT: 55 + 10 log10 (W) = 48.70 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	EIRP (dBm)	dBc	Detector
39725 (2503.5)	5 007.00	-36.33	12.58	-46.08	3.59	H	-37.09	60.79	Peak
	7 510.50	-36.93	10.82	-37.80	4.48	H	-31.46	55.15	Peak
	10 014.00	-53.84	11.23	-49.36	5.27	H	-43.40	67.10	Peak
	12 517.50	-51.69	13.20	-47.32	5.96	H	-40.08	63.78	Peak
40620 (2593.0)	5 186.00	-28.46	12.44	-36.98	3.70	H	-28.23	51.81	Peak
	7 779.00	-36.89	11.40	-37.72	4.54	H	-30.86	54.44	Average
	10 372.00	-48.70	11.40	-43.65	5.45	H	-37.70	61.28	Peak
	12 965.00	-54.45	12.83	-47.89	6.13	H	-41.19	64.77	Peak
41515 (2682.5)	5 365.00	-29.58	13.00	-38.76	3.77	H	-29.53	53.23	Average
	8 047.50	-39.00	10.80	-37.51	4.60	H	-31.31	55.01	Peak
	10 730.00	-49.86	11.24	-45.62	5.50	V	-39.88	63.58	Peak

▣ OPERATING FREQUENCY : 2593.0 MHz

▣ MEASURED OUTPUT POWER: 23.84 dBm = 0.242 W

▣ MODE: LTE B41

▣ MODULATION SIGNAL: 20 MHz QPSK

▣ DISTANCE: 1 meters

▣ LIMIT: 55 + 10 log10 (W) = 47.84 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBi)	Substitute Level (dBm)	C.L	Pol	EIRP (dBm)	dBc	Detector
39750 (2506.0)	5 012.00	-34.42	12.58	-44.17	3.59	V	-35.18	59.02	Peak
	7 518.00	-34.98	10.84	-35.54	4.46	H	-29.16	53.00	Peak
	10 024.00	-53.54	11.25	-49.15	5.28	H	-43.18	67.02	Peak
	12 530.00	-52.10	13.20	-47.86	5.91	H	-40.57	64.41	Peak
40620 (2593.0)	5 186.00	-34.17	12.44	-42.69	3.70	H	-33.94	57.52	Peak
	7 779.00	-37.03	11.40	-37.86	4.54	H	-31.00	54.58	Peak
	10 372.00	-46.21	11.40	-41.16	5.45	H	-35.21	58.79	Peak
	12 965.00	-55.57	12.83	-49.01	6.13	H	-42.31	65.89	Peak
41490 (2680.0)	5 360.00	-31.75	13.00	-40.99	3.76	V	-31.75	55.59	Peak
	8 040.00	-39.29	10.80	-37.81	4.59	H	-31.60	55.44	Peak
	10 720.00	-47.68	11.26	-43.70	5.50	H	-37.94	61.78	Peak

8.3 PEAK-TO-AVERAGE RATIO

8.3.1 Power Class 3

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
41/38	5 MHz	2593.0	QPSK	25	0	5.55
			16-QAM			6.72
			64-QAM			6.48
			256-QAM			4.93
	10 MHz		QPSK	50		5.72
			16-QAM			6.22
			64-QAM			6.39
			256-QAM			4.95
	15 MHz		QPSK	75		5.50
			16-QAM			5.95
			64-QAM			6.17
			256-QAM			4.65
	20 MHz		QPSK	100		5.55
			16-QAM			5.90
			64-QAM			6.09
			256-QAM			4.40

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 103 ~ 118.

8.3.2 Power Class 2

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (dB)
41	5 MHz	2593.0	QPSK	25	0	5.29
			16-QAM			5.67
			64-QAM			6.08
			256-QAM			3.98
	10 MHz		QPSK	50		5.35
			16-QAM			5.84
			64-QAM			5.85
			256-QAM			3.83
	15 MHz		QPSK	75		5.21
			16-QAM			5.80
			64-QAM			5.78
			256-QAM			3.94
	20 MHz		QPSK	100		5.14
			16-QAM			5.73
			64-QAM			5.82
			256-QAM			3.82

Note:

1. Plots of the EUT's Peak- to- Average Ratio are shown Page 119 ~ 134.

8.4 OCCUPIED BANDWIDTH

8.4.1 Power Class 3

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
41/38	5 MHz	2593.0	QPSK	25	0	4.5115
			16-QAM			4.5165
			64-QAM			4.5246
			256-QAM			4.5919
	10 MHz		QPSK	50		9.0036
			16-QAM			8.9651
			64-QAM			8.9963
			256-QAM			9.1219
	15 MHz		QPSK	75		13.444
			16-QAM			13.453
			64-QAM			13.456
			256-QAM			13.644
	20 MHz		QPSK	100		17.868
			16-QAM			17.887
			64-QAM			17.874
			256-QAM			18.185

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 71 ~ 86.

8.4.2 Power Class 2

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
41	5 MHz	2593.0	QPSK	25	0	4.5073
			16-QAM			4.5102
			64-QAM			4.5097
			256-QAM			4.6337
	10 MHz		QPSK	50		9.0175
			16-QAM			9.0089
			64-QAM			8.9961
			256-QAM			9.8096
	15 MHz		QPSK	75		13.457
			16-QAM			13.449
			64-QAM			13.459
			256-QAM			13.772
	20 MHz		QPSK	100		17.912
			16-QAM			17.895
			64-QAM			17.901
			256-QAM			18.795

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 87 ~ 102.

8.5 CONDUCTED SPURIOUS EMISSIONS

8.5.1 Power Class 3

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
41/38	5	2498.5	26.1661	34.110	-75.964	-41.854	-25.00
		2593.0	26.2375	34.110	-76.809	-42.699	
		2687.5	26.1164	34.110	-76.693	-42.583	
	10	2501.0	26.1470	34.110	-76.578	-42.468	
		2593.0	26.1143	34.110	-76.727	-42.617	
		2685.0	26.1245	34.110	-76.353	-42.243	
	15	2503.5	25.8325	34.110	-76.572	-42.462	
		2593.0	26.1343	34.110	-76.877	-42.767	
		2682.5	25.7747	34.110	-76.794	-42.684	
	20	2506.0	26.1615	34.110	-76.840	-42.730	
		2593.0	26.1283	34.110	-76.940	-42.830	
		2680.0	26.1398	34.110	-76.785	-42.675	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 191 ~ 214.
2. Conducted Spurious Emissions was Tested QPSK Modulation, Resource Block Size 1 and Resource Block Offset 0
3. Duty Cycle factor already applied on the factor.
   - Duty Cycle factor(dB) = 3.979
   - Factor(dB) = Duty Cycle factor + Cable Loss + Ext. Attenuator + Power Splitter
   - Result(dBm) = Measurement Maximum Data (dBm) + Factor

Frequency Range (GHz)	Factor [dB]
0.03 – 1	29.249
1 – 5	31.955
5 – 10	32.570
10 – 15	33.095
15 – 20	33.468
Above 20	34.110

8.5.2 Power Class 2

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
41	5	2498.5	26.1895	34.110	-76.522	-42.412	-25.00
		2593.0	26.1785	34.110	-76.416	-42.306	
		2687.5	26.1470	34.110	-76.811	-42.701	
	10	2501.0	26.1466	34.110	-76.706	-42.596	
		2593.0	25.8367	34.110	-76.500	-42.390	
		2685.0	26.1241	34.110	-76.728	-42.618	
	15	2503.5	26.1372	34.110	-76.643	-42.533	
		2593.0	26.1581	34.110	-76.606	-42.496	
		2682.5	26.1840	34.110	-76.690	-42.580	
	20	2506.0	26.1249	34.110	-76.248	-42.138	
		2593.0	26.1704	34.110	-76.900	-42.790	
		2680.0	26.1776	34.110	-76.654	-42.544	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 215 ~ 238.
2. Conducted Spurious Emissions was Tested QPSK Modulation, Resource Block Size 1 and Resource Block Offset 0
3. Duty Cycle factor already applied on the factor.
   - Duty Cycle factor(dB) = 3.979
   - Factor(dB) = Duty Cycle factor + Cable Loss + Ext. Attenuator + Power Splitter
   - Result(dBm) = Measurement Maximum Data (dBm) + Factor

Frequency Range (GHz)	Factor [dB]
0.03 – 1	29.249
1 – 5	31.955
5 – 10	32.570
10 – 15	33.095
15 – 20	33.468
Above 20	34.110

8.6 CHANNEL EDGE

8.6.1 Power Class 3

Band Width	Frequency (MHz)	Modulation	RB (Size/ Offset)	2 495 MHz ~ 2 496 MHz	C.E ~ (C.E +1 MHz)	2 490.5 MHz ~ 2 495 MHz	(C.E + 1 MHz) ~ (C.E + 5 MHz)	Below 2 490.5 MHz	(C.E + 5 MHz) ~ (C.E + X MHz)	Above (C.E + X MHz)
				Lower	Upper	Lower	Upper	Lower	Upper	Upper
5 MHz	2498.5	QPSK	25/0	-22.03	-22.21	-24.82	-24.64	-34.70	-31.84	-33.28
10 MHz	2501.0	QPSK	50/0	-26.72	-25.41	-27.05	-25.99	-32.85	-30.21	-34.40
15 MHz	2503.5	QPSK	75/0	-28.51	-27.72	-29.20	-27.02	-32.71	-30.87	-36.58
20 MHz	2506.0	QPSK	100/0	-31.03	-28.80	-30.43	-28.55	-34.40	-31.68	-38.33
Limit				-13.0	-10.0	-13.0	-10.0	-25.0	-13.0	-25.0

Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resoure Block Offset	C.E ~ (C.E ± 1 MHz)		(C.E ± 1 MHz) ~ (C.E ± 5 MHz)	
					Lower	Upper	Lower	Upper
5 MHz	2593.0	QPSK	25	0	-22.14	-22.23	-25.19	-24.75
	2687.5	QPSK	25	0	-22.69	-23.57	-25.35	-25.28
10 MHz	2593.0	QPSK	50	0	-26.42	-24.77	-26.83	-26.77
	2685.0	QPSK	50	0	-26.07	-25.56	-25.75	-26.41
15 MHz	2593.0	QPSK	75	0	-27.98	-28.05	-28.13	-28.59
	2682.5	QPSK	75	0	-27.40	-28.96	-27.88	-29.23
20 MHz	2593.0	QPSK	100	0	-29.82	-29.80	-29.74	-29.66
	2680.0	QPSK	100	0	-30.09	-31.69	-29.64	-30.89
Limit					-10.0		-10.0	

Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resoure Block Offset	(C.E ± 5 MHz) ~ (C.E ± X MHz)		Above (C.E ± X MHz)	
					Lower	Upper	Lower	Upper
5 MHz	2593.0	QPSK	25	0	-31.92	-32.94	-33.28	-34.34
	2687.5	QPSK	25	0	-33.04	-35.57	-34.14	-36.15
10 MHz	2593.0	QPSK	50	0	-31.08	-31.13	-34.69	-36.29
	2685.0	QPSK	50	0	-29.19	-31.32	-33.80	-37.13
15 MHz	2593.0	QPSK	75	0	-31.78	-31.50	-36.55	-38.01
	2682.5	QPSK	75	0	-30.70	-32.56	-36.35	-39.06
20 MHz	2593.0	QPSK	100	0	-32.32	-32.76	-37.89	-39.84
	2680.0	QPSK	100	0	-31.94	-33.32	-37.47	-39.81
Limit					-13.0		-25.0	

Note:

1. C.E = Channel Edge
2. X = X is the greater of 6 MHz or the actual emission bandwidth.
3. X = 6 MHz(5 MHz Bandwidth), 10 MHz(10 MHz Bandwidth), 15 MHz(15 MHz Bandwidth), 20 MHz(20 MHz Bandwidth)
4. Plots of the EUT's Channel Edge are shown Page 135 ~ 162. (1RB & Full RB)

8.6.2 Power Class 2

Band Width	Frequency (MHz)	Modulation	RB (Size/ Offset)	2 495 MHz ~ 2 496 MHz	C.E ~ (C.E +1 MHz)	2 490.5 MHz ~ 2 495 MHz	(C.E + 1 MHz) ~ (C.E + 5 MHz)	Below 2 490.5 MHz	(C.E + 5 MHz) ~ (C.E + X MHz)	Above (C.E + X MHz)
				Lower	Upper	Lower	Upper	Lower	Upper	Upper
5 MHz	2498.5	QPSK	25/0	-22.39	-22.88	-23.89	-22.37	-33.25	-30.13	-32.28
10 MHz	2501.0	QPSK	50/0	-27.32	-24.99	-26.20	-24.63	-30.16	-27.76	-32.37
15 MHz	2503.5	QPSK	75/0	-30.19	-28.26	-31.35	-29.43	-34.36	-32.11	-37.14
20 MHz	2506.0	QPSK	100/0	-33.53	-30.29	-33.23	-31.11	-35.33	-33.92	-38.66
Limit				-13.0	-10.0	-13.0	-10.0	-25.0	-13.0	-25.0

Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resoure Block Offset	C.E ~ (C.E ± 1 MHz)		(C.E ± 1 MHz) ~ (C.E ± 5 MHz)	
					Lower	Upper	Lower	Upper
5 MHz	2593.0	QPSK	25	0	-17.83	-19.33	-16.20	-17.48
	2687.5	QPSK	25	0	-17.43	-18.45	-12.54	-13.10
10 MHz	2593.0	QPSK	50	0	-21.22	-21.43	-17.96	-18.86
	2685.0	QPSK	50	0	-18.68	-19.88	-13.90	-15.39
15 MHz	2593.0	QPSK	75	0	-22.14	-22.88	-19.85	-20.55
	2682.5	QPSK	75	0	-20.09	-22.65	-16.93	-19.29
20 MHz	2593.0	QPSK	100	0	-23.17	-23.95	-21.24	-22.11
	2680.0	QPSK	100	0	-21.60	-23.57	-18.48	-21.29
Limit					-10.0		-10.0	

Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resoure Block Offset	(C.E ± 5 MHz) ~ (C.E ± X MHz)		Above (C.E ± X MHz)	
					Lower	Upper	Lower	Upper
5 MHz	2593.0	QPSK	25	0	-28.43	-29.69	-29.36	-30.92
	2687.5	QPSK	25	0	-29.86	-31.96	-31.28	-33.38
10 MHz	2593.0	QPSK	50	0	-21.48	-22.24	-31.36	-33.54
	2685.0	QPSK	50	0	-17.62	-19.86	-32.74	-36.57
15 MHz	2593.0	QPSK	75	0	-22.31	-23.28	-33.53	-35.93
	2682.5	QPSK	75	0	-19.24	-22.29	-34.25	-38.57
20 MHz	2593.0	QPSK	100	0	-22.90	-24.23	-34.92	-37.53
	2680.0	QPSK	100	0	-21.04	-23.76	-36.17	-39.34
Limit					-13.0		-25.0	

Note:

1. C.E = Channel Edge
2. X = X is the greater of 6 MHz or the actual emission bandwidth.
3. X = 6 MHz(5 MHz Bandwidth), 10 MHz(10 MHz Bandwidth), 15 MHz(15 MHz Bandwidth), 20 MHz(20 MHz Bandwidth)
4. Plots of the EUT's Channel Edge are shown Page 163 ~ 190. (1RB & Full RB)

8.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

8.7.1 Power Class 3

▣ MODE: LTE 41/38

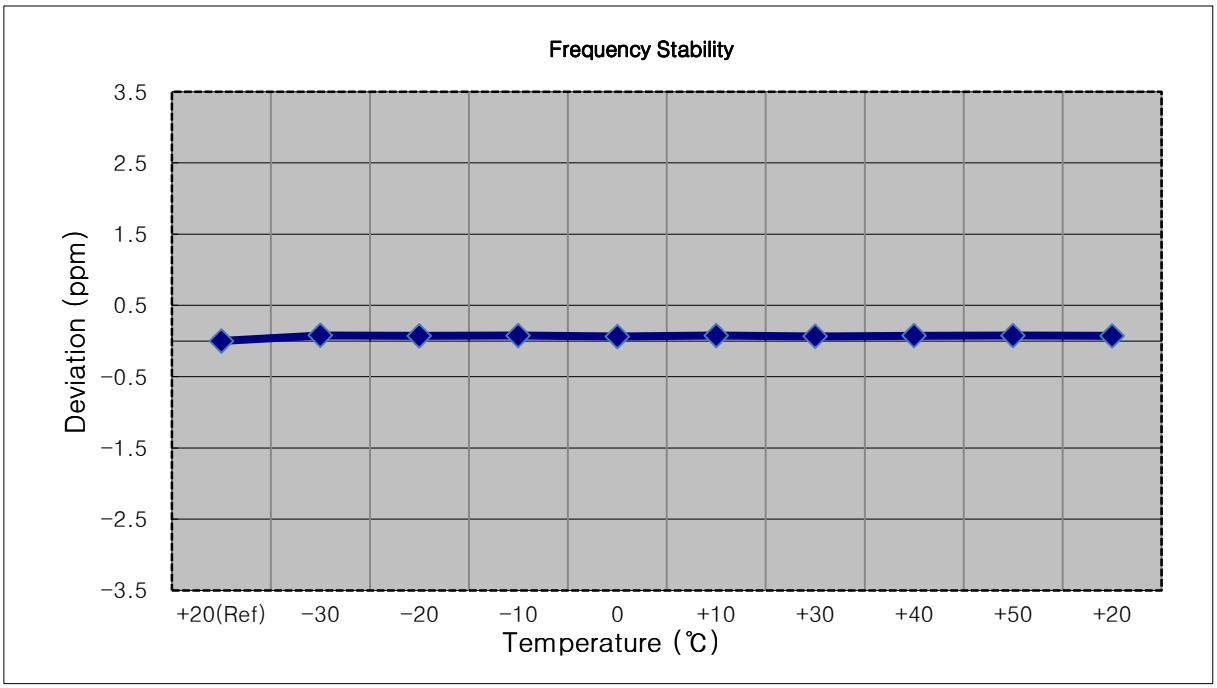
▣ OPERATING FREQUENCY: 2498,500,000 Hz

▣ BANDWIDTH: 39675 (5 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2498 500 195	0.0	0.000 000	0.000
100 %		-30	2498 500 392	197.3	0.000 008	0.079
100 %		-20	2498 500 374	179.1	0.000 007	0.072
100 %		-10	2498 500 384	189.8	0.000 008	0.076
100 %		0	2498 500 353	158.1	0.000 006	0.063
100 %		+10	2498 500 384	189.1	0.000 008	0.076
100 %		+30	2498 500 359	164.1	0.000 007	0.066
100 %		+40	2498 500 377	182.5	0.000 007	0.073
100 %		+50	2498 500 385	190.7	0.000 008	0.076
Batt. Endpoint	3.400	+20	2498 500 371	176.6	0.000 007	0.071



▣ MODE: LTE 41/38

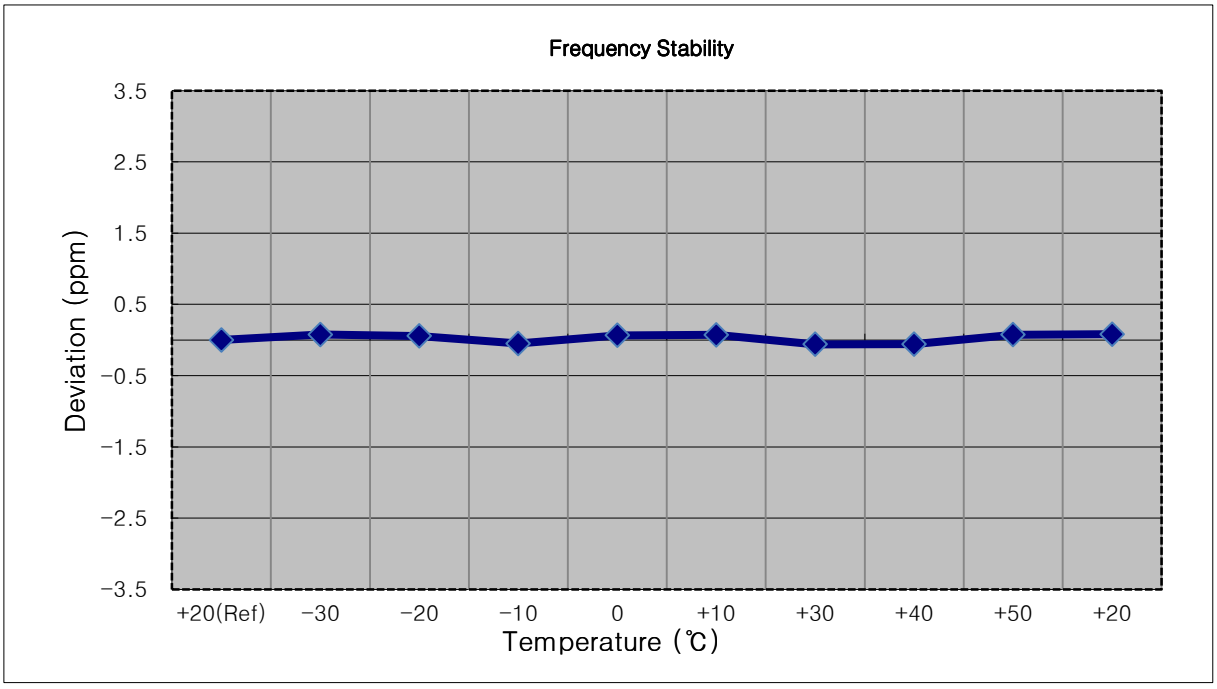
▣ OPERATING FREQUENCY: 2501,000,000 Hz

▣ BANDWIDTH: 39700 (10 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2501 000 184	0.0	0.000 000	0.000
100 %		-30	2501 000 373	188.7	0.000 008	0.075
100 %		-20	2501 000 325	141.1	0.000 006	0.056
100 %		-10	2501 000 058	-126.4	-0.000 005	-0.051
100 %		0	2501 000 345	161.0	0.000 006	0.064
100 %		+10	2501 000 363	178.8	0.000 007	0.071
100 %		+30	2501 000 033	-151.3	-0.000 006	-0.060
100 %		+40	2501 000 040	-144.5	-0.000 006	-0.058
100 %		+50	2501 000 367	183.1	0.000 007	0.073
Batt. Endpoint	3.400	+20	2501 000 387	202.6	0.000 008	0.081



▣ MODE: LTE 41/38

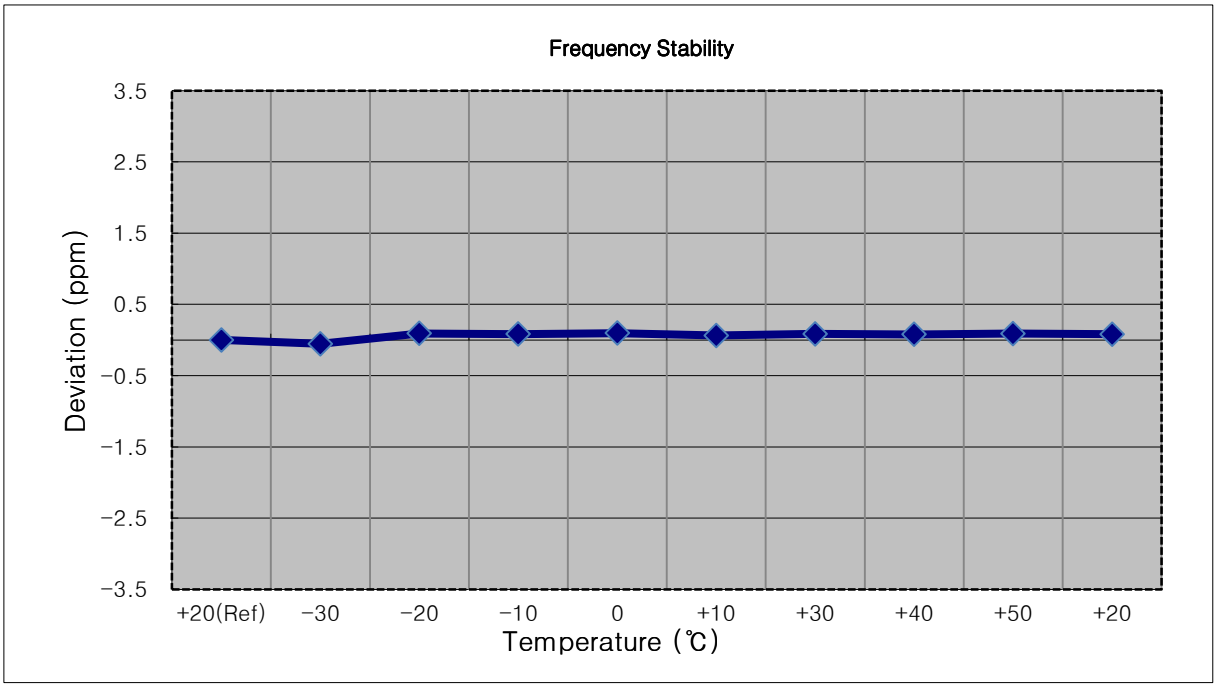
▣ OPERATING FREQUENCY: 2503,500,000 Hz

▣ BANDWIDTH: 39725 (15 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2503 500 214	0.0	0.000 000	0.000
100 %		-30	2503 500 076	-138.2	-0.000 006	-0.055
100 %		-20	2503 500 442	228.3	0.000 009	0.091
100 %		-10	2503 500 422	208.4	0.000 008	0.083
100 %		0	2503 500 453	238.8	0.000 010	0.095
100 %		+10	2503 500 372	158.4	0.000 006	0.063
100 %		+30	2503 500 427	213.4	0.000 009	0.085
100 %		+40	2503 500 412	197.6	0.000 008	0.079
100 %		+50	2503 500 437	223.5	0.000 009	0.089
Batt. Endpoint	3.400	+20	2503 500 415	201.1	0.000 008	0.080



▣ MODE: LTE 41/38

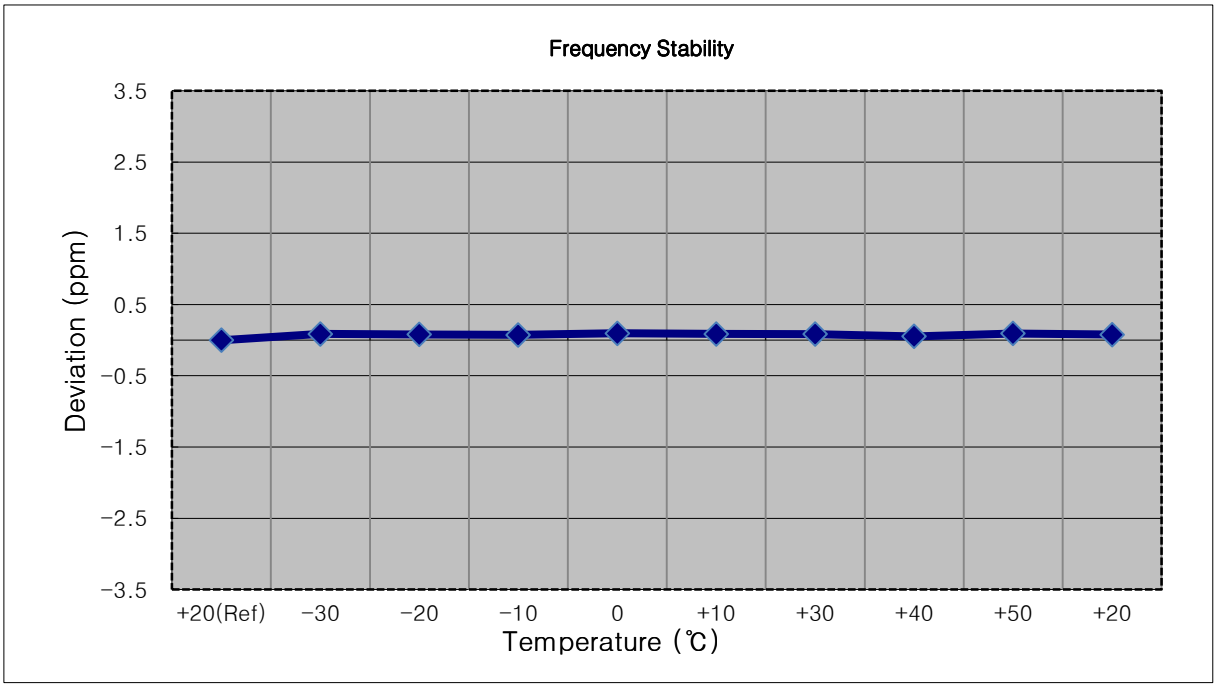
▣ OPERATING FREQUENCY: 2506,000,000 Hz

▣ BANDWIDTH: 39750 (20 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2506 000 221	0.0	0.000 000	0.000
100 %		-30	2506 000 441	219.9	0.000 009	0.088
100 %		-20	2506 000 422	201.6	0.000 008	0.080
100 %		-10	2506 000 402	181.4	0.000 007	0.072
100 %		0	2506 000 460	239.8	0.000 010	0.096
100 %		+10	2506 000 438	217.2	0.000 009	0.087
100 %		+30	2506 000 434	213.4	0.000 009	0.085
100 %		+40	2506 000 353	132.2	0.000 005	0.053
100 %		+50	2506 000 455	234.4	0.000 009	0.094
Batt. Endpoint	3.400	+20	2506 000 418	197.0	0.000 008	0.079



▣ MODE: LTE 41/38

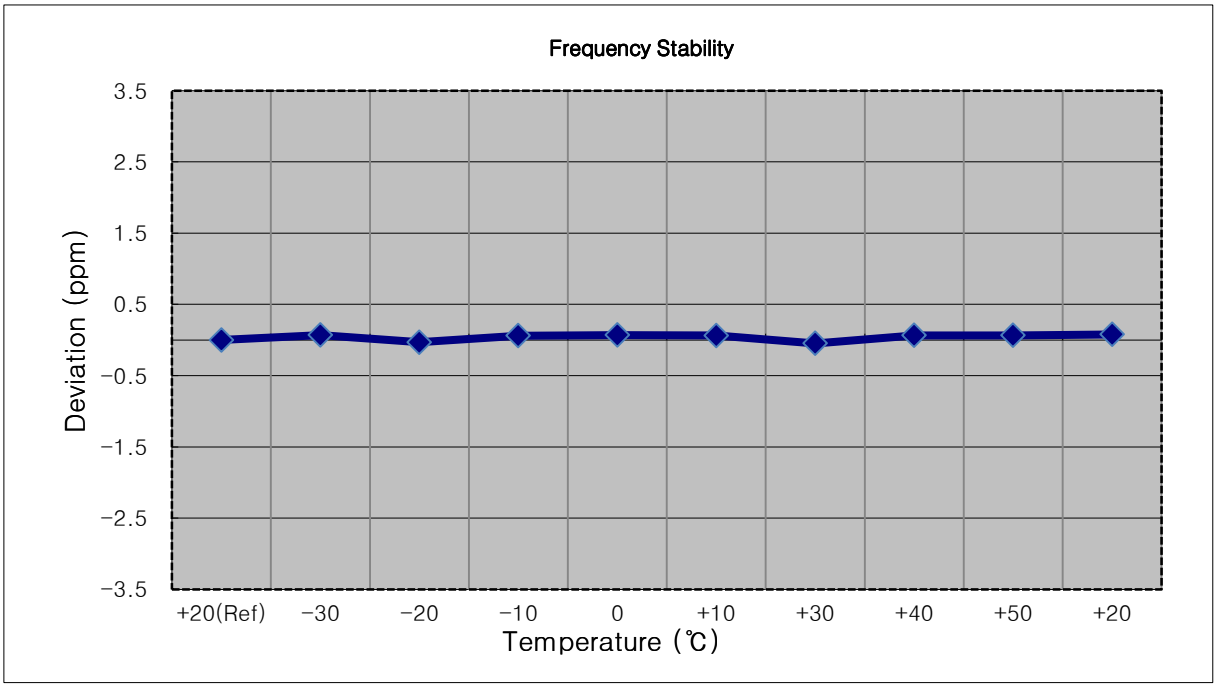
▣ OPERATING FREQUENCY: 2593,000,000 Hz

▣ BANDWIDTH: 40620 (5 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2593 000 167	0.0	0.000 000	0.000
100 %		-30	2593 000 347	180.6	0.000 007	0.070
100 %		-20	2593 000 082	-84.2	-0.000 003	-0.032
100 %		-10	2593 000 325	158.7	0.000 006	0.061
100 %		0	2593 000 348	181.0	0.000 007	0.070
100 %		+10	2593 000 331	164.4	0.000 006	0.063
100 %		+30	2593 000 044	-122.9	-0.000 005	-0.047
100 %		+40	2593 000 336	169.6	0.000 007	0.065
100 %		+50	2593 000 335	168.7	0.000 007	0.065
Batt. Endpoint	3.400	+20	2593 000 369	202.0	0.000 008	0.078



▣ MODE: LTE 41/38

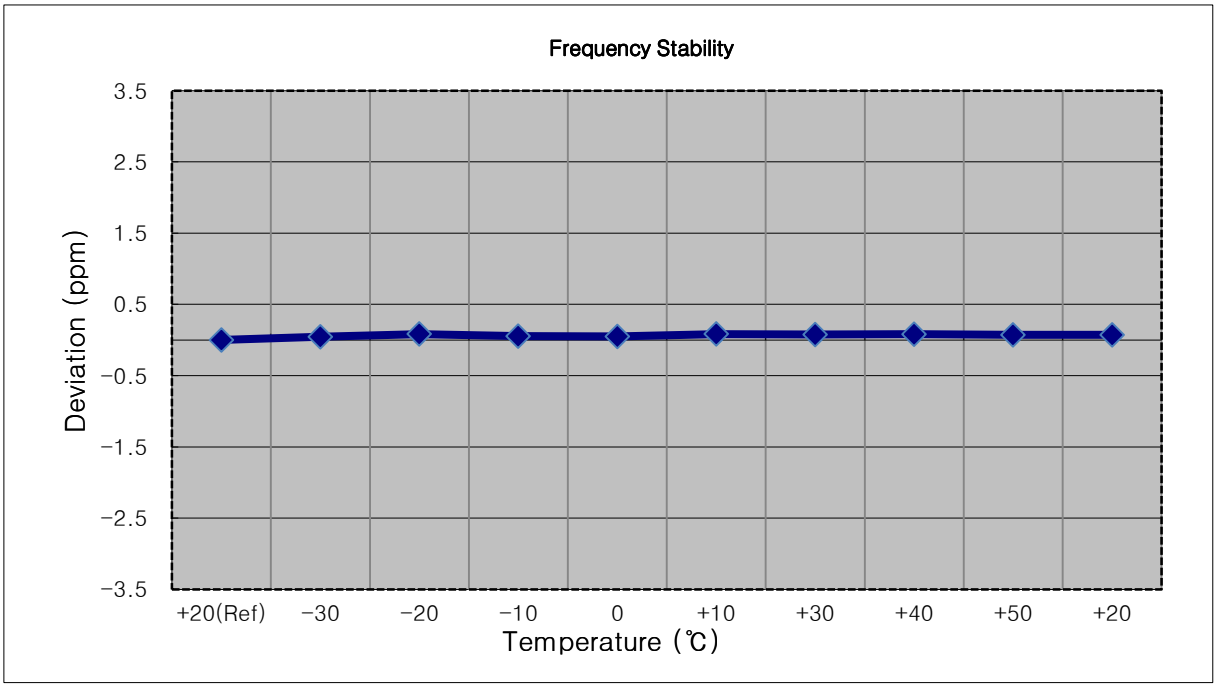
▣ OPERATING FREQUENCY: 2593,000,000 Hz

▣ BANDWIDTH: 40620 (10 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2593 000 156	0.0	0.000 000	0.000
100 %		-30	2593 000 270	113.8	0.000 004	0.044
100 %		-20	2593 000 368	211.7	0.000 008	0.082
100 %		-10	2593 000 296	139.8	0.000 005	0.054
100 %		0	2593 000 281	125.1	0.000 005	0.048
100 %		+10	2593 000 368	211.8	0.000 008	0.082
100 %		+30	2593 000 352	195.9	0.000 008	0.076
100 %		+40	2593 000 367	211.2	0.000 008	0.081
100 %		+50	2593 000 343	187.2	0.000 007	0.072
Batt. Endpoint	3.400	+20	2593 000 341	185.0	0.000 007	0.071



▣ MODE: LTE 41/38

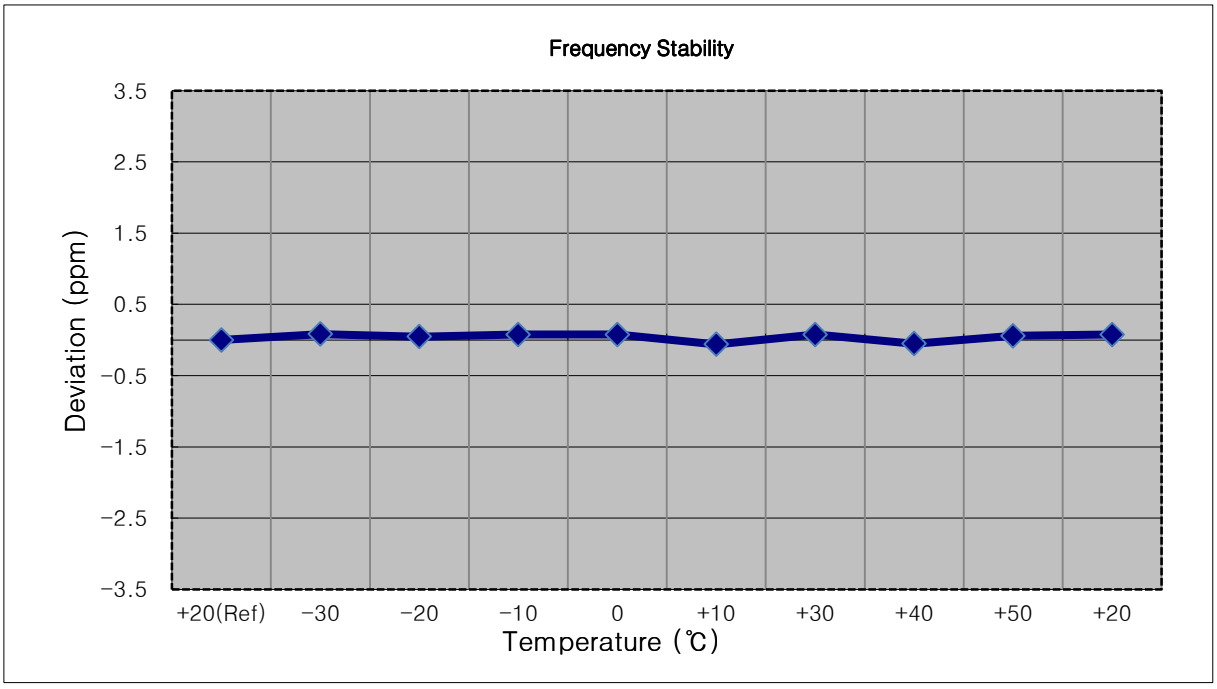
▣ OPERATING FREQUENCY: 2593,000,000 Hz

▣ BANDWIDTH: 40620 (15 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2593 000 214	0.0	0.000 000	0.000
100 %		-30	2593 000 426	211.9	0.000 008	0.082
100 %		-20	2593 000 336	121.8	0.000 005	0.047
100 %		-10	2593 000 409	194.7	0.000 008	0.075
100 %		0	2593 000 411	197.3	0.000 008	0.076
100 %		+10	2593 000 055	-159.2	-0.000 006	-0.061
100 %		+30	2593 000 413	199.4	0.000 008	0.077
100 %		+40	2593 000 079	-134.7	-0.000 005	-0.052
100 %		+50	2593 000 366	152.0	0.000 006	0.059
Batt. Endpoint	3.400	+20	2593 000 408	194.3	0.000 007	0.075



▣ MODE: LTE 41/38

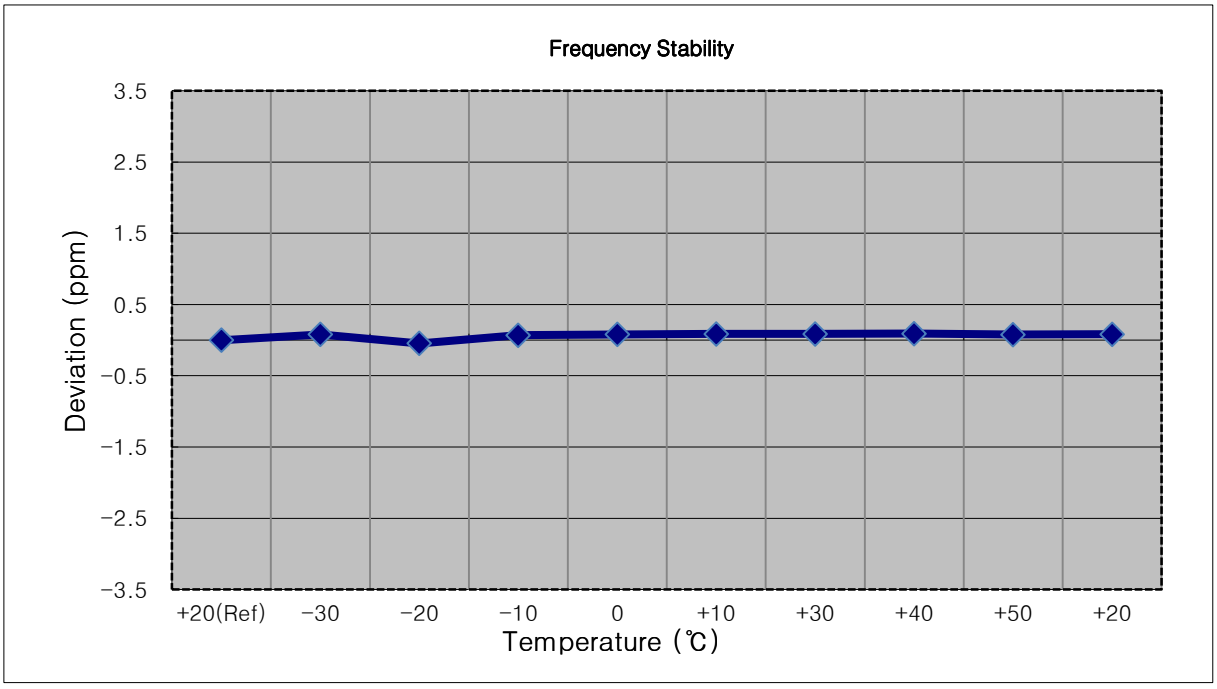
▣ OPERATING FREQUENCY: 2593,000,000 Hz

▣ BANDWIDTH: 40620 (20 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2593 000 115	0.0	0.000 000	0.000
100 %		-30	2593 000 320	205.2	0.000 008	0.079
100 %		-20	2592 999 997	-117.3	-0.000 005	-0.045
100 %		-10	2593 000 293	178.7	0.000 007	0.069
100 %		0	2593 000 321	205.9	0.000 008	0.079
100 %		+10	2593 000 343	227.9	0.000 009	0.088
100 %		+30	2593 000 338	223.5	0.000 009	0.086
100 %		+40	2593 000 353	238.6	0.000 009	0.092
100 %		+50	2593 000 317	202.8	0.000 008	0.078
Batt. Endpoint	3.400	+20	2593 000 330	215.1	0.000 008	0.083



▣ MODE: LTE 41/38

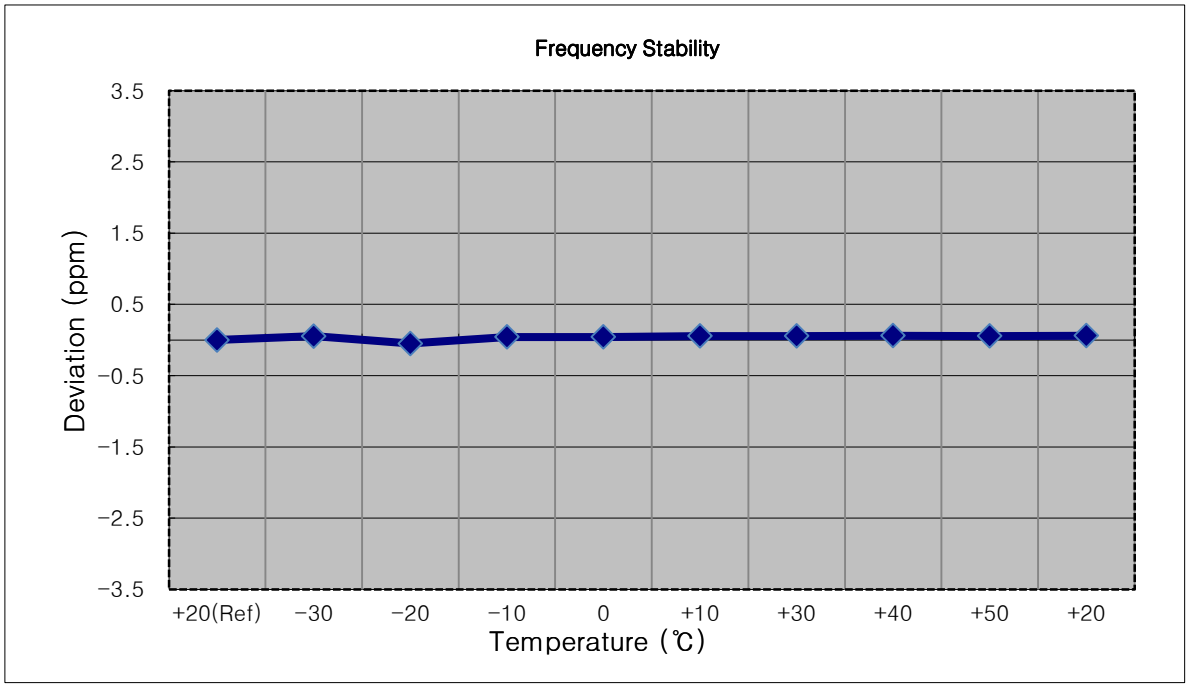
▣ OPERATING FREQUENCY: 2687,500,000 Hz

▣ BANDWIDTH: 41565 (5 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2687 499 879	0.0	0.000 000	0.000
100 %		-30	2687 500 024	144.8	0.000 005	0.054
100 %		-20	2687 499 745	-134.7	-0.000 005	-0.050
100 %		-10	2687 499 992	112.8	0.000 004	0.042
100 %		0	2687 499 991	111.3	0.000 004	0.041
100 %		+10	2687 500 032	152.3	0.000 006	0.057
100 %		+30	2687 500 030	150.4	0.000 006	0.056
100 %		+40	2687 500 039	160.2	0.000 006	0.060
100 %		+50	2687 500 028	148.8	0.000 006	0.055
Batt. Endpoint	3.400	+20	2687 500 038	159.0	0.000 006	0.059



▣ MODE: LTE 41/38

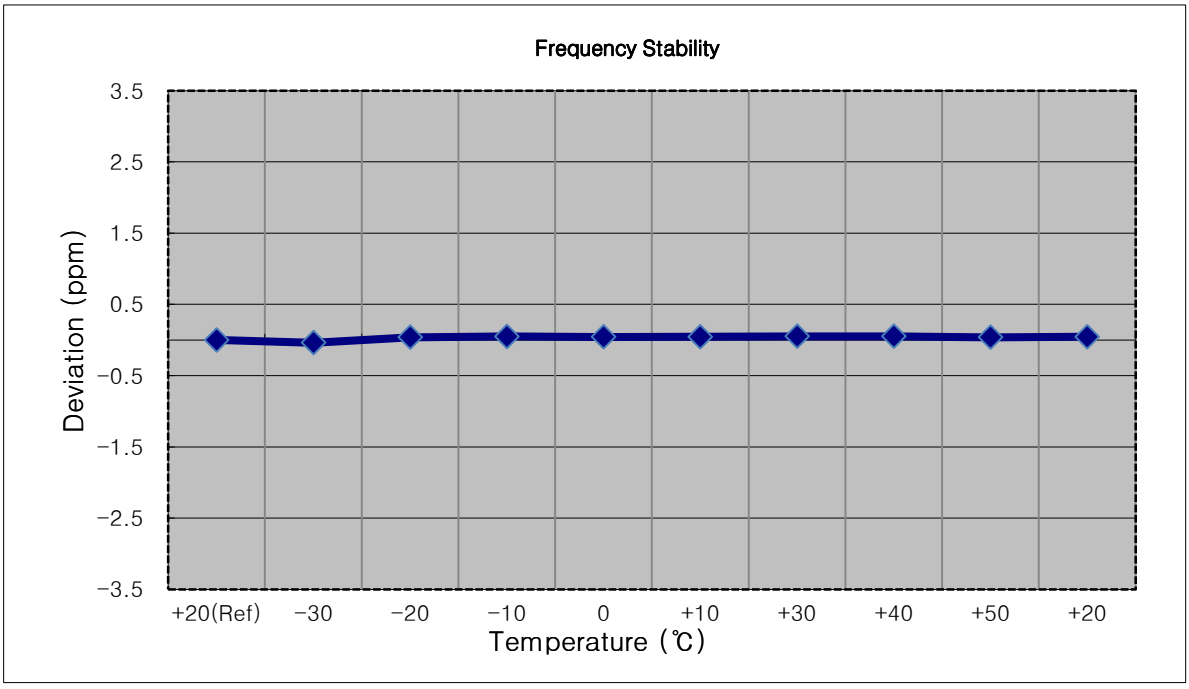
▣ OPERATING FREQUENCY: 2685,000,000 Hz

▣ BANDWIDTH: 41540 (10 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2684 999 893	0.0	0.000 000	0.000
100 %		-30	2684 999 787	-106.3	-0.000 004	-0.040
100 %		-20	2684 999 992	99.3	0.000 004	0.037
100 %		-10	2685 000 023	130.3	0.000 005	0.049
100 %		0	2685 000 006	112.8	0.000 004	0.042
100 %		+10	2685 000 013	120.2	0.000 004	0.045
100 %		+30	2685 000 033	140.0	0.000 005	0.052
100 %		+40	2685 000 033	139.7	0.000 005	0.052
100 %		+50	2684 999 997	104.0	0.000 004	0.039
Batt. Endpoint	3.400	+20	2685 000 014	120.8	0.000 004	0.045



▣ MODE: LTE 41/38

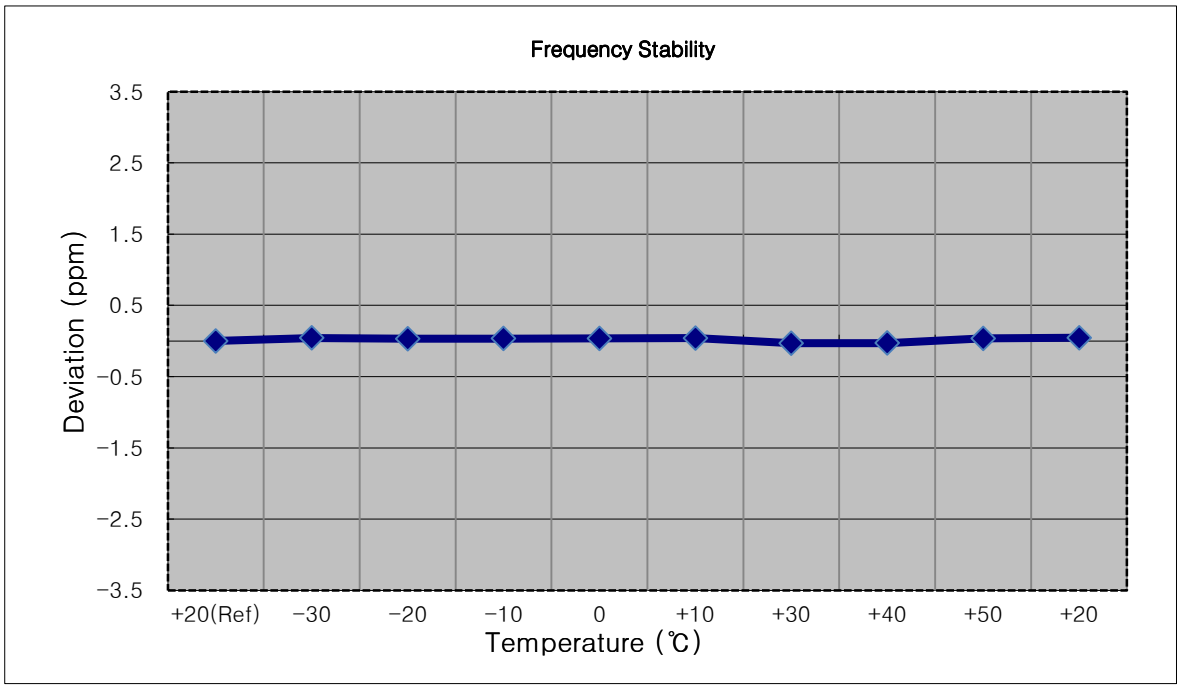
▣ OPERATING FREQUENCY: 2682,500,000 Hz

▣ BANDWIDTH: 41515 (15 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2682 500 112	0.0	0.000 000	0.000
100 %		-30	2682 500 226	113.3	0.000 004	0.042
100 %		-20	2682 500 197	84.6	0.000 003	0.032
100 %		-10	2682 500 203	90.6	0.000 003	0.034
100 %		0	2682 500 207	94.3	0.000 004	0.035
100 %		+10	2682 500 221	109.0	0.000 004	0.041
100 %		+30	2682 500 029	-83.2	-0.000 003	-0.031
100 %		+40	2682 500 035	-77.3	-0.000 003	-0.029
100 %		+50	2682 500 209	96.7	0.000 004	0.036
Batt. Endpoint	3.400	+20	2682 500 232	119.8	0.000 004	0.045



▣ MODE: LTE 41/38

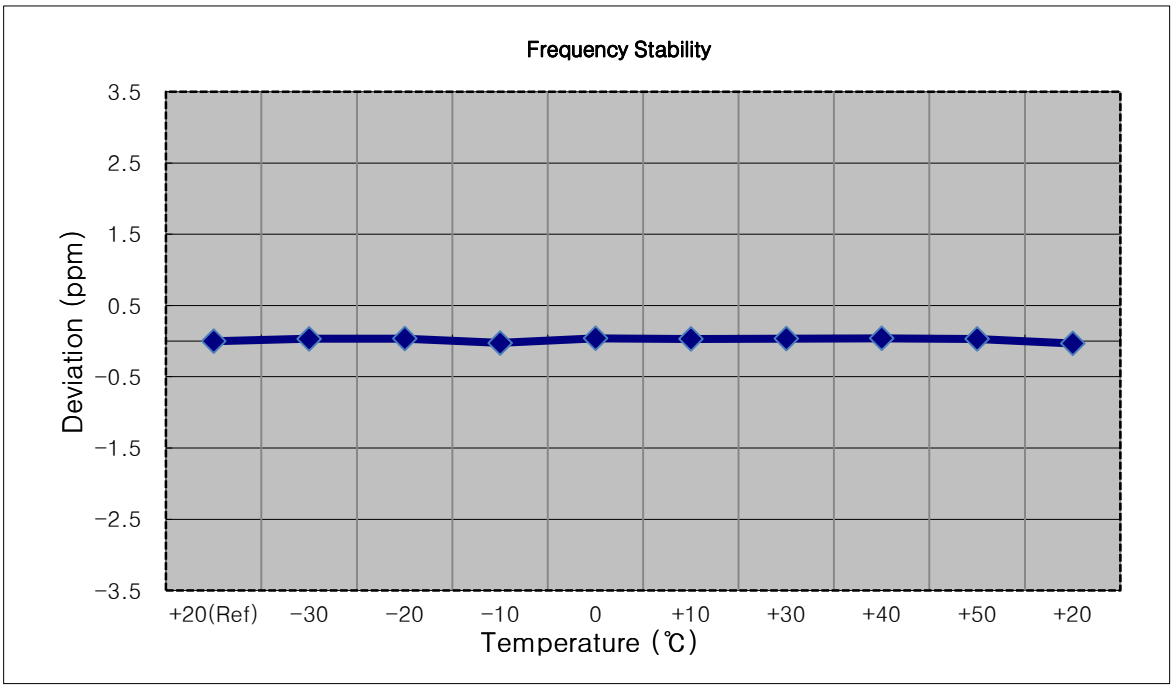
▣ OPERATING FREQUENCY: 2680,000,000 Hz

▣ BANDWIDTH: 41490 (20 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2680 000 090	0.0	0.000 000	0.000
100 %		-30	2680 000 176	85.9	0.000 003	0.032
100 %		-20	2680 000 183	93.1	0.000 003	0.035
100 %		-10	2680 000 021	-69.2	-0.000 003	-0.026
100 %		0	2680 000 197	107.0	0.000 004	0.040
100 %		+10	2680 000 171	81.3	0.000 003	0.030
100 %		+30	2680 000 182	91.7	0.000 003	0.034
100 %		+40	2680 000 198	107.7	0.000 004	0.040
100 %		+50	2680 000 174	84.0	0.000 003	0.031
Batt. Endpoint	3.400	+20	2680 000 006	-84.3	-0.000 003	-0.031



8.7.2 Power Class 2

▣ MODE: LTE 41

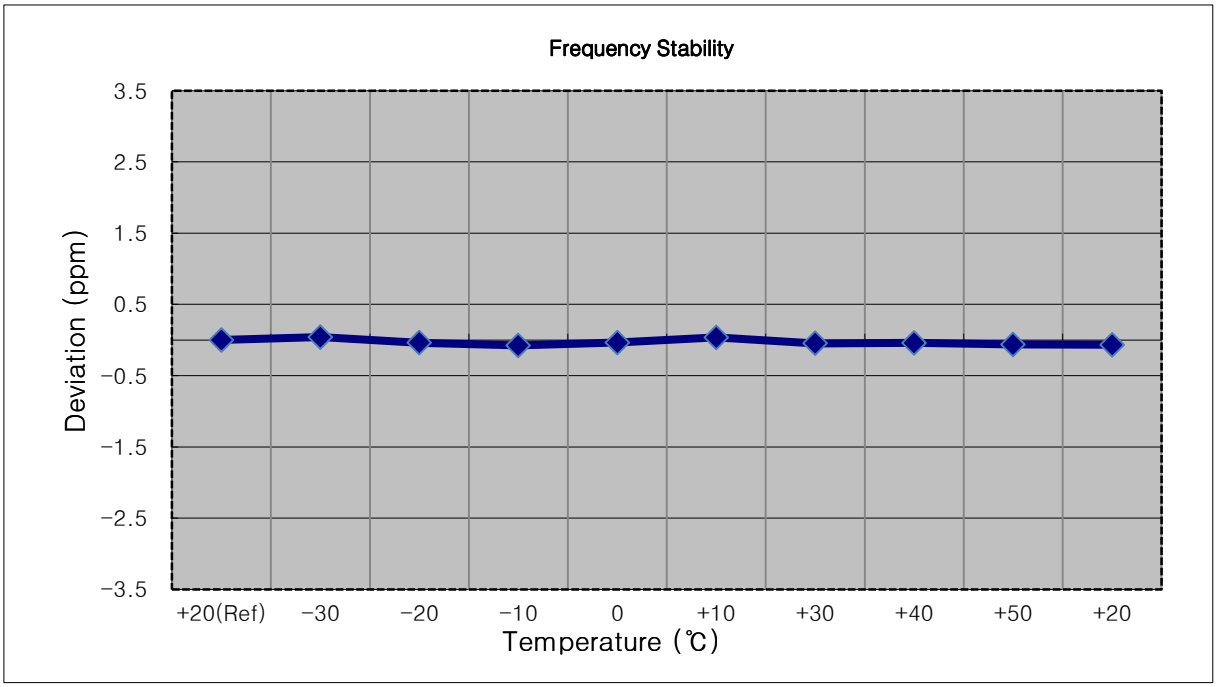
▣ OPERATING FREQUENCY: 2498,500,000 Hz

▣ BANDWIDTH: 39675 (5 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2498 499 891	0.0	0.000 000	0.000
100 %		-30	2498 499 993	102.7	0.000 004	0.041
100 %		-20	2498 499 792	-98.6	-0.000 004	-0.039
100 %		-10	2498 499 699	-191.7	-0.000 008	-0.077
100 %		0	2498 499 801	-89.3	-0.000 004	-0.036
100 %		+10	2498 499 981	90.4	0.000 004	0.036
100 %		+30	2498 499 769	-121.5	-0.000 005	-0.049
100 %		+40	2498 499 788	-103.0	-0.000 004	-0.041
100 %		+50	2498 499 735	-155.5	-0.000 006	-0.062
Batt. Endpoint	3.400	+20	2498 499 720	-170.5	-0.000 007	-0.068



▣ MODE: LTE 41

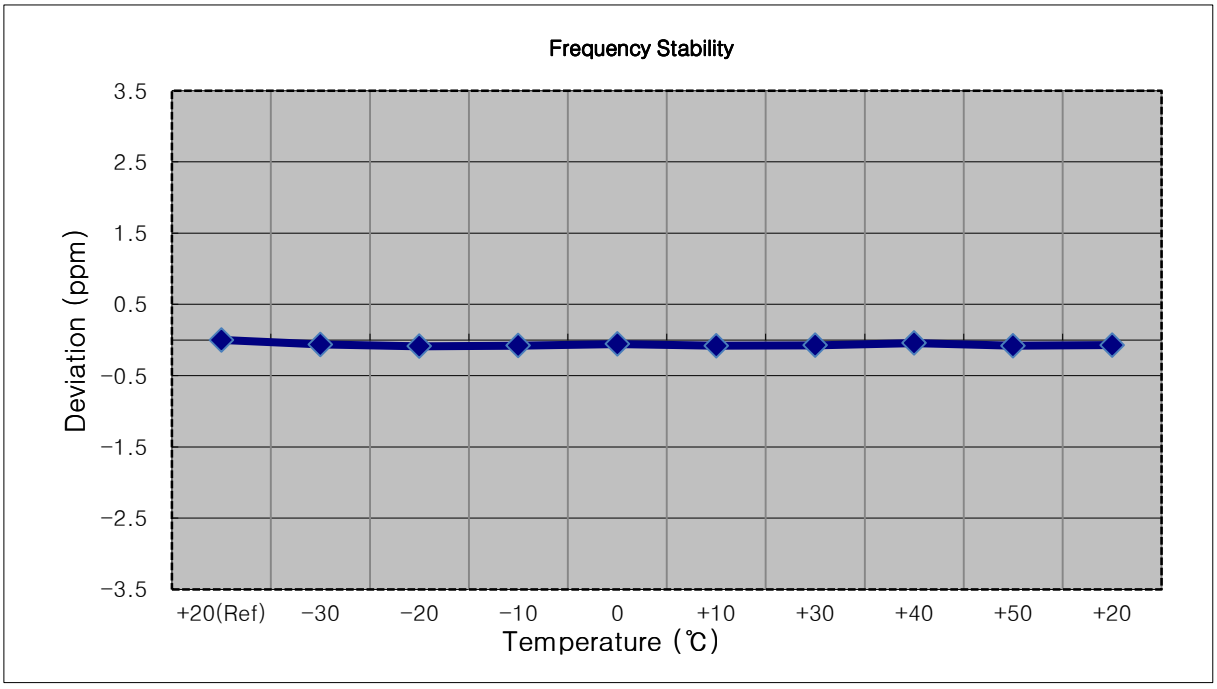
▣ OPERATING FREQUENCY: 2501,000,000 Hz

▣ BANDWIDTH: 39700 (10 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2500 999 807	0.0	0.000 000	0.000
100 %		-30	2500 999 649	-157.3	-0.000 006	-0.063
100 %		-20	2500 999 589	-217.8	-0.000 009	-0.087
100 %		-10	2500 999 608	-198.5	-0.000 008	-0.079
100 %		0	2500 999 663	-143.6	-0.000 006	-0.057
100 %		+10	2500 999 601	-205.6	-0.000 008	-0.082
100 %		+30	2500 999 622	-184.5	-0.000 007	-0.074
100 %		+40	2500 999 701	-105.9	-0.000 004	-0.042
100 %		+50	2500 999 603	-204.0	-0.000 008	-0.082
Batt. Endpoint	3.400	+20	2500 999 625	-181.1	-0.000 007	-0.072



▣ MODE: LTE 41

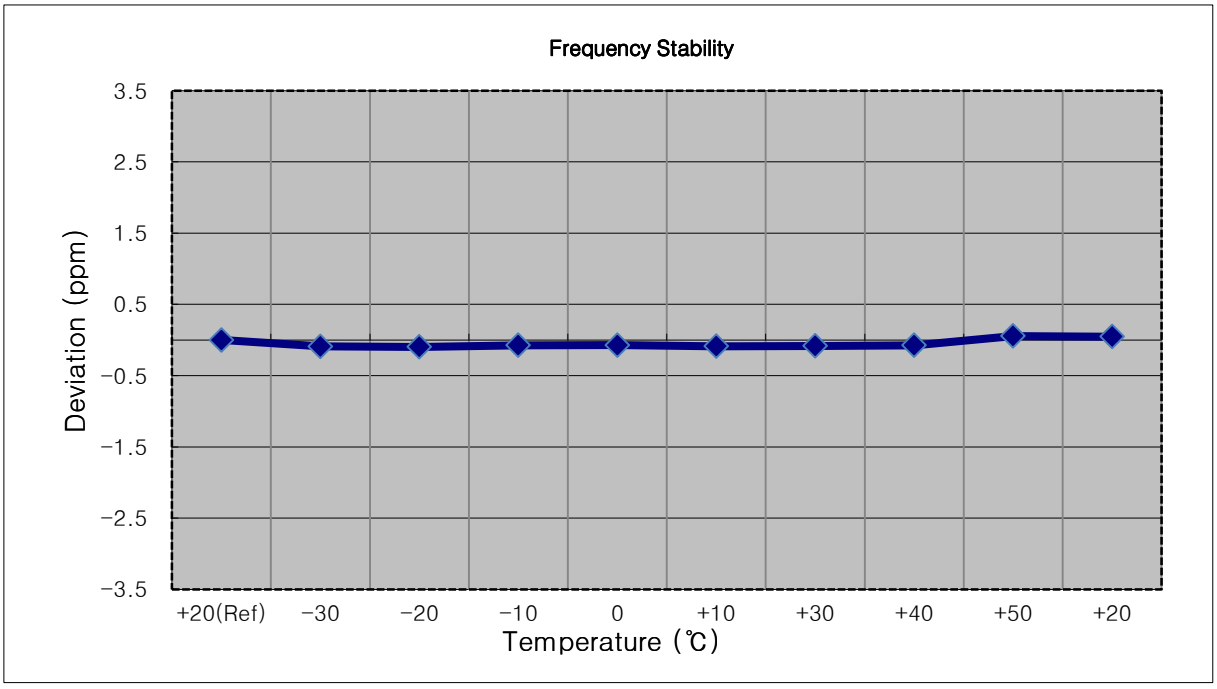
▣ OPERATING FREQUENCY: 2503,500,000 Hz

▣ BANDWIDTH: 39725 (15 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2503 499 771	0.0	0.000 000	0.000
100 %		-30	2503 499 545	-226.3	-0.000 009	-0.090
100 %		-20	2503 499 530	-241.6	-0.000 010	-0.097
100 %		-10	2503 499 585	-186.4	-0.000 007	-0.074
100 %		0	2503 499 588	-183.2	-0.000 007	-0.073
100 %		+10	2503 499 548	-223.0	-0.000 009	-0.089
100 %		+30	2503 499 561	-210.0	-0.000 008	-0.084
100 %		+40	2503 499 583	-188.8	-0.000 008	-0.075
100 %		+50	2503 499 910	138.9	0.000 006	0.055
Batt. Endpoint	3.400	+20	2503 499 888	116.5	0.000 005	0.047



▣ MODE: LTE 41

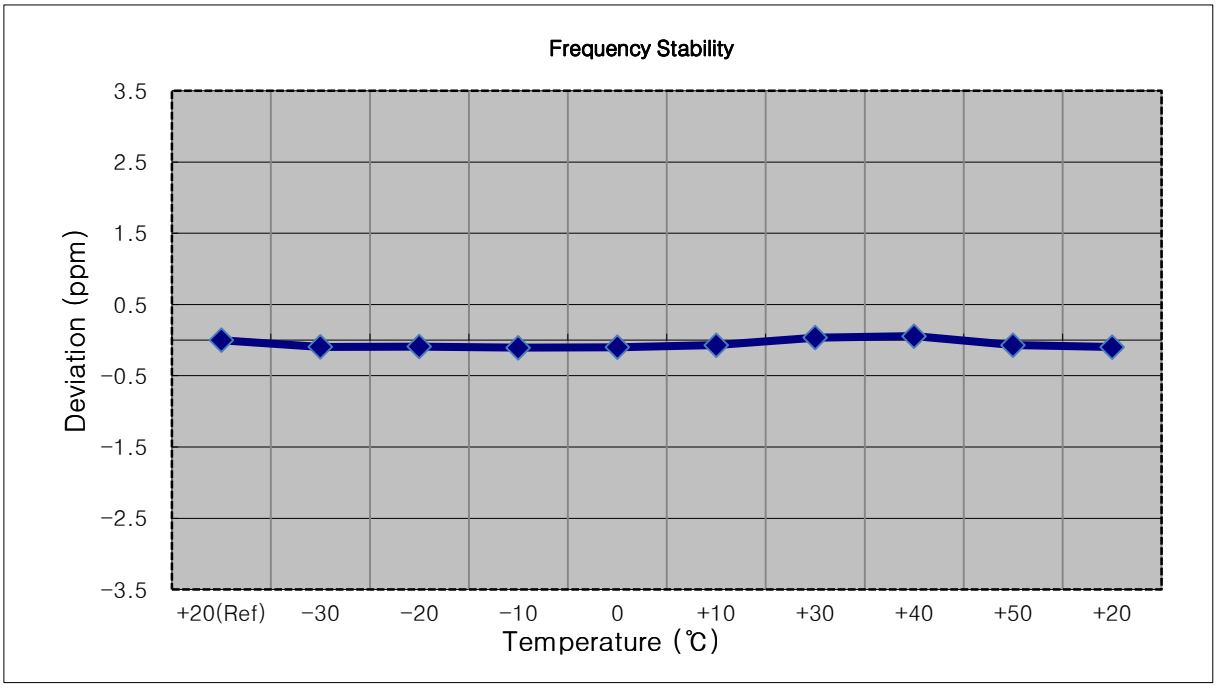
▣ OPERATING FREQUENCY: 2506,000,000 Hz

▣ BANDWIDTH: 39750 (20 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2505 999 822	0.0	0.000 000	0.000
100 %		-30	2505 999 585	-236.4	-0.000 009	-0.094
100 %		-20	2505 999 595	-226.8	-0.000 009	-0.091
100 %		-10	2505 999 555	-266.8	-0.000 011	-0.106
100 %		0	2505 999 574	-247.6	-0.000 010	-0.099
100 %		+10	2505 999 647	-174.8	-0.000 007	-0.070
100 %		+30	2505 999 907	85.5	0.000 003	0.034
100 %		+40	2505 999 960	138.0	0.000 006	0.055
100 %		+50	2505 999 644	-177.5	-0.000 007	-0.071
Batt. Endpoint	3.400	+20	2505 999 578	-243.5	-0.000 010	-0.097



▣ MODE: LTE 41

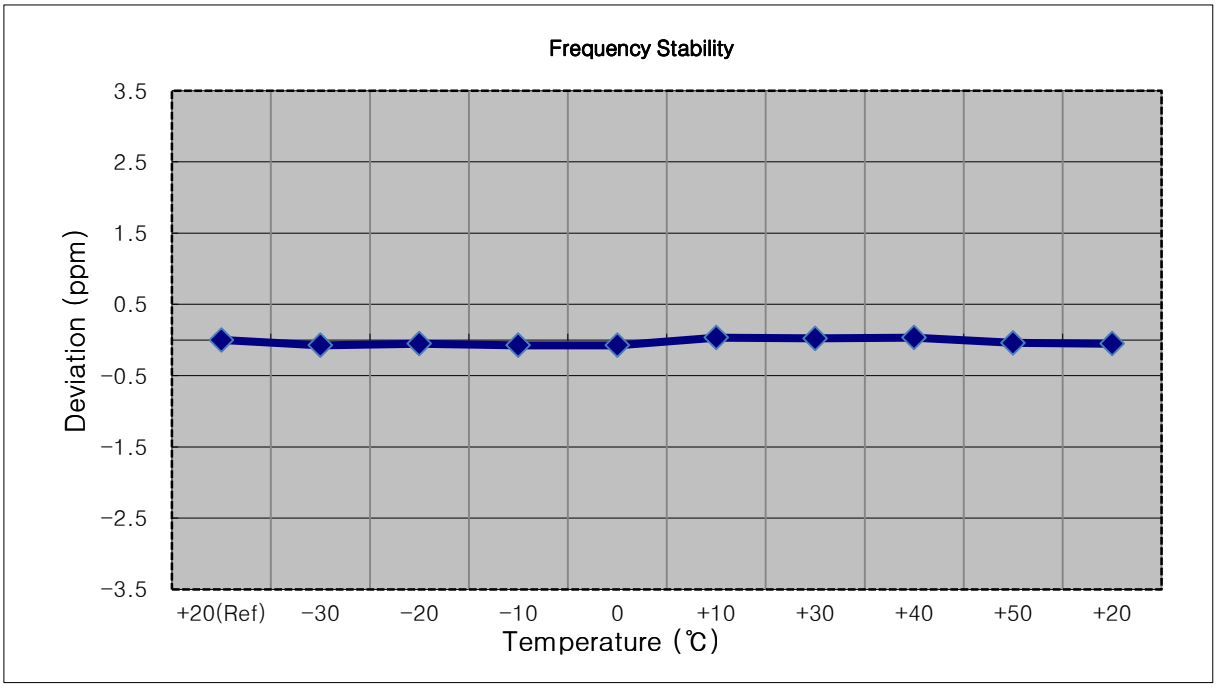
▣ OPERATING FREQUENCY: 2593,000,000 Hz

▣ BANDWIDTH: 40620 (5 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2592 999 792	0.0	0.000 000	0.000
100 %		-30	2592 999 598	-193.5	-0.000 007	-0.075
100 %		-20	2592 999 654	-137.8	-0.000 005	-0.053
100 %		-10	2592 999 599	-192.9	-0.000 007	-0.074
100 %		0	2592 999 596	-196.1	-0.000 008	-0.076
100 %		+10	2592 999 879	87.3	0.000 003	0.034
100 %		+30	2592 999 847	54.9	0.000 002	0.021
100 %		+40	2592 999 876	84.3	0.000 003	0.033
100 %		+50	2592 999 684	-107.4	-0.000 004	-0.041
Batt. Endpoint	3.400	+20	2592 999 658	-134.0	-0.000 005	-0.052



▣ MODE: LTE 41

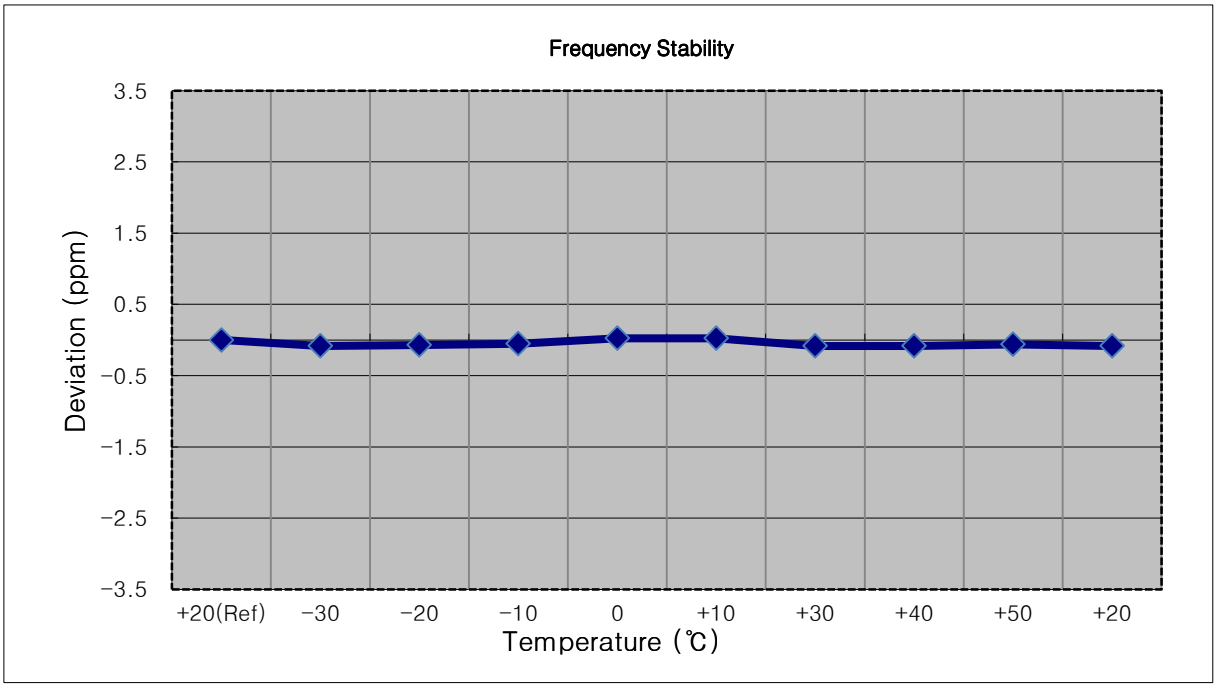
▣ OPERATING FREQUENCY: 2593,000,000 Hz

▣ BANDWIDTH: 40620 (10 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2592 999 789	0.0	0.000 000	0.000
100 %		-30	2592 999 575	-214.9	-0.000 008	-0.083
100 %		-20	2592 999 605	-184.1	-0.000 007	-0.071
100 %		-10	2592 999 657	-132.6	-0.000 005	-0.051
100 %		0	2592 999 852	62.3	0.000 002	0.024
100 %		+10	2592 999 853	63.8	0.000 002	0.025
100 %		+30	2592 999 574	-215.0	-0.000 008	-0.083
100 %		+40	2592 999 574	-215.0	-0.000 008	-0.083
100 %		+50	2592 999 630	-159.3	-0.000 006	-0.061
Batt. Endpoint	3.400	+20	2592 999 573	-216.1	-0.000 008	-0.083



▣ MODE: LTE 41

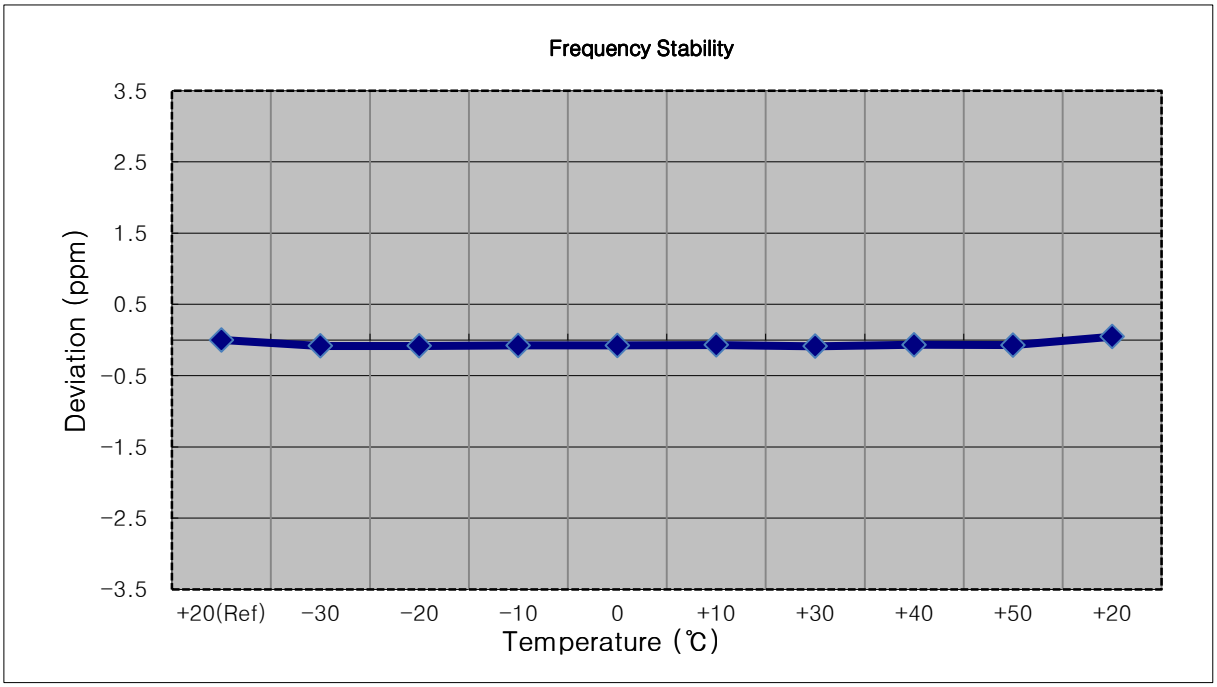
▣ OPERATING FREQUENCY: 2593,000,000 Hz

▣ BANDWIDTH: 40620 (15 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2592 999 783	0.0	0.000 000	0.000
100 %		-30	2592 999 566	-216.1	-0.000 008	-0.083
100 %		-20	2592 999 568	-214.5	-0.000 008	-0.083
100 %		-10	2592 999 583	-199.8	-0.000 008	-0.077
100 %		0	2592 999 583	-199.5	-0.000 008	-0.077
100 %		+10	2592 999 598	-184.1	-0.000 007	-0.071
100 %		+30	2592 999 556	-226.4	-0.000 009	-0.087
100 %		+40	2592 999 608	-174.8	-0.000 007	-0.067
100 %		+50	2592 999 597	-185.4	-0.000 007	-0.072
Batt. Endpoint	3.400	+20	2592 999 905	122.6	0.000 005	0.047



▣ MODE: LTE 41

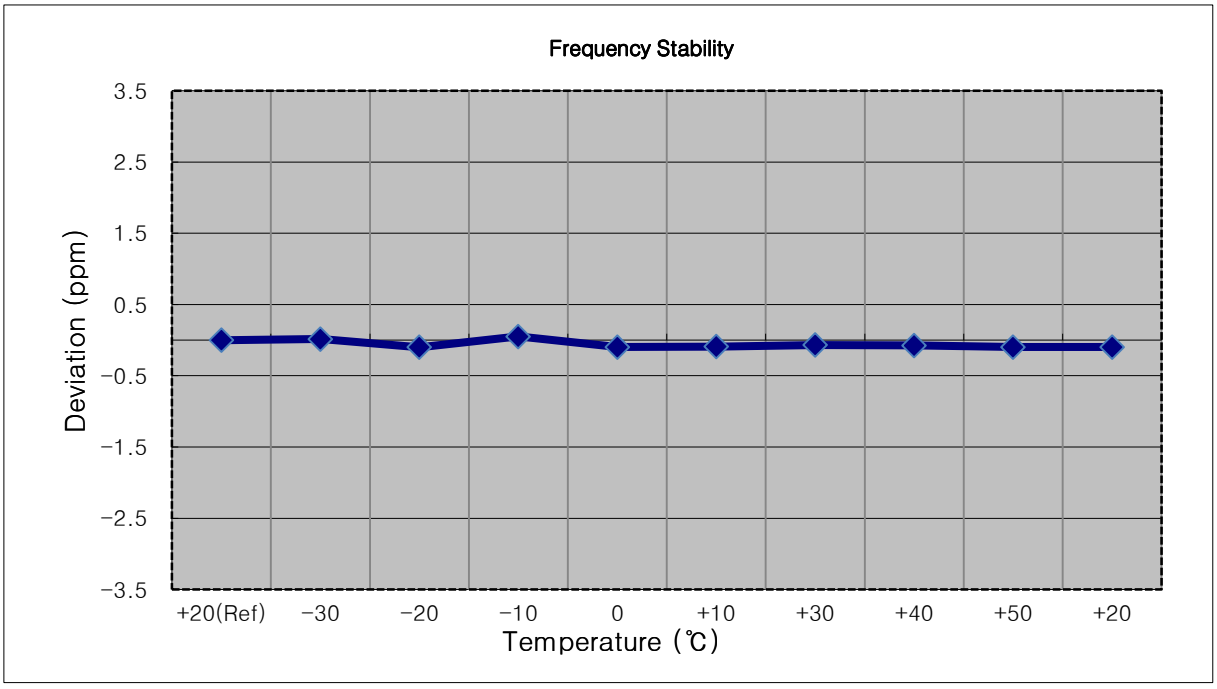
▣ OPERATING FREQUENCY: 2593,000,000 Hz

▣ BANDWIDTH: 40620 (20 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2592 999 751	0.0	0.000 000	0.000
100 %		-30	2592 999 789	38.3	0.000 001	0.015
100 %		-20	2592 999 491	-259.6	-0.000 010	-0.100
100 %		-10	2592 999 884	132.9	0.000 005	0.051
100 %		0	2592 999 497	-253.5	-0.000 010	-0.098
100 %		+10	2592 999 516	-234.9	-0.000 009	-0.091
100 %		+30	2592 999 572	-179.1	-0.000 007	-0.069
100 %		+40	2592 999 556	-195.4	-0.000 008	-0.075
100 %		+50	2592 999 498	-252.7	-0.000 010	-0.097
Batt. Endpoint	3.400	+20	2592 999 498	-253.2	-0.000 010	-0.098



▣ MODE: LTE 41

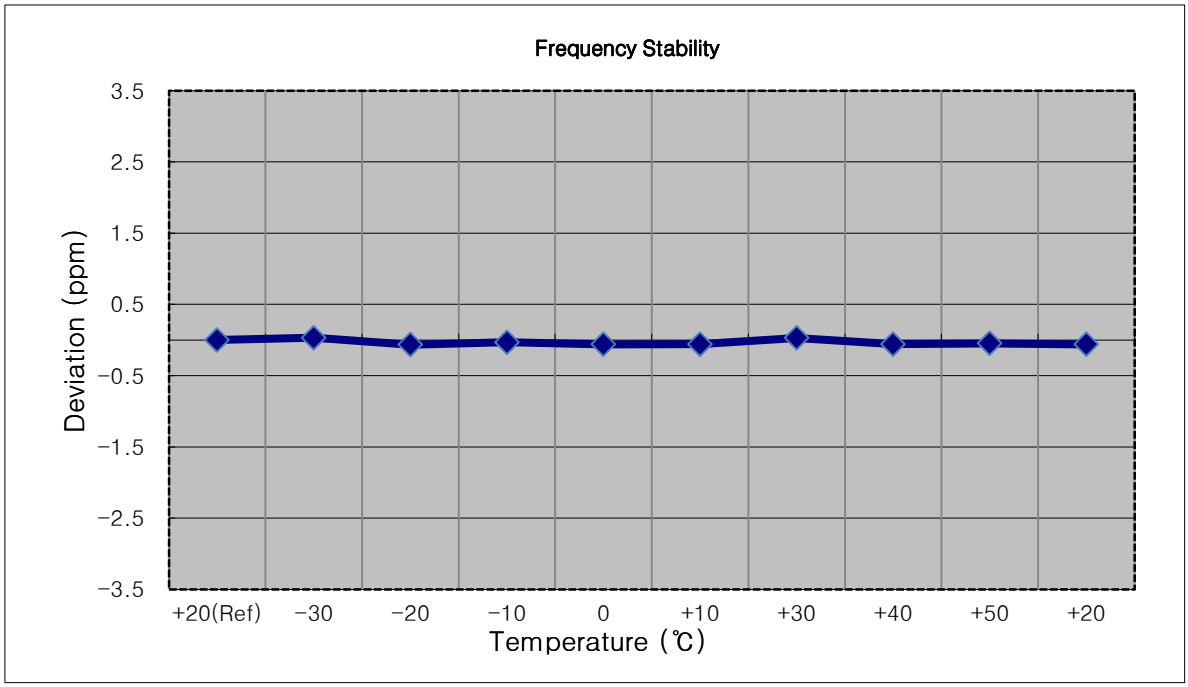
▣ OPERATING FREQUENCY: 2687,500,000 Hz

▣ BANDWIDTH: 41565 (5 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2687 499 825	0.0	0.000 000	0.000
100 %		-30	2687 499 911	85.7	0.000 003	0.032
100 %		-20	2687 499 649	-176.6	-0.000 007	-0.066
100 %		-10	2687 499 742	-83.5	-0.000 003	-0.031
100 %		0	2687 499 660	-165.7	-0.000 006	-0.062
100 %		+10	2687 499 670	-155.7	-0.000 006	-0.058
100 %		+30	2687 499 901	75.5	0.000 003	0.028
100 %		+40	2687 499 667	-158.1	-0.000 006	-0.059
100 %		+50	2687 499 699	-126.1	-0.000 005	-0.047
Batt. Endpoint	3.400	+20	2687 499 663	-162.7	-0.000 006	-0.061



▣ MODE: LTE 41

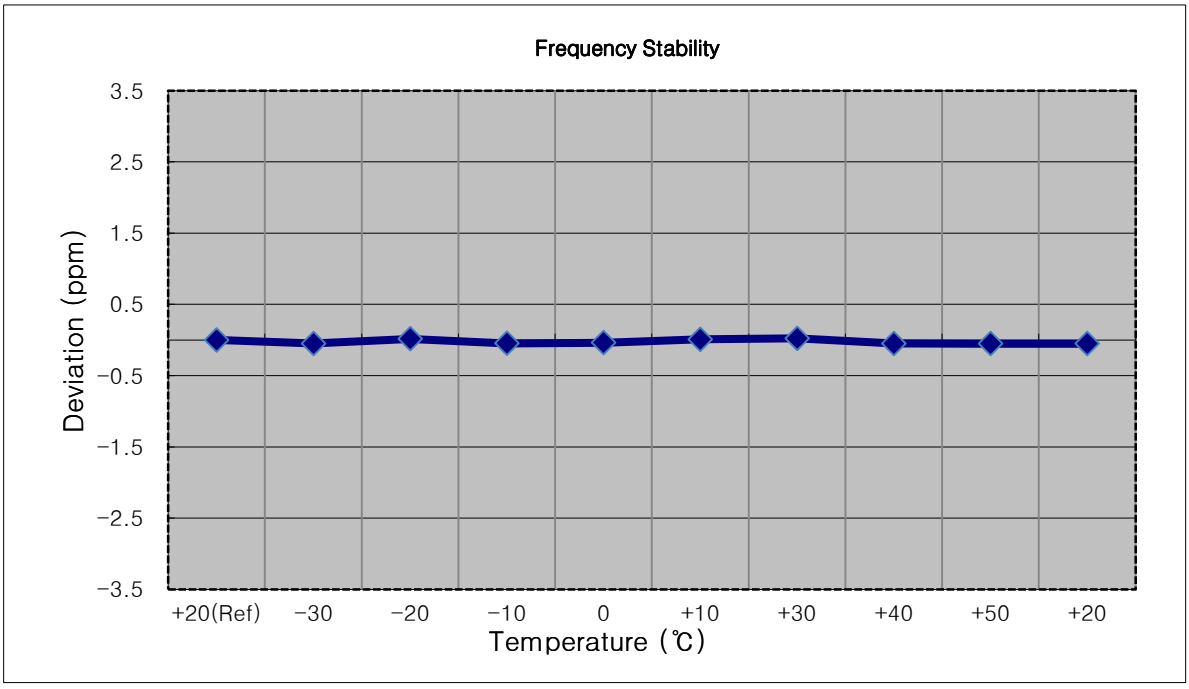
▣ OPERATING FREQUENCY: 2685,000,000 Hz

▣ BANDWIDTH: 41540 (10 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2684 999 894	0.0	0.000 000	0.000
100 %		-30	2684 999 760	-133.9	-0.000 005	-0.050
100 %		-20	2684 999 938	43.5	0.000 002	0.016
100 %		-10	2684 999 766	-128.1	-0.000 005	-0.048
100 %		0	2684 999 788	-105.8	-0.000 004	-0.039
100 %		+10	2684 999 916	21.4	0.000 001	0.008
100 %		+30	2684 999 956	62.3	0.000 002	0.023
100 %		+40	2684 999 760	-133.7	-0.000 005	-0.050
100 %		+50	2684 999 755	-138.8	-0.000 005	-0.052
Batt. Endpoint	3.400	+20	2684 999 754	-140.0	-0.000 005	-0.052



▣ MODE: LTE 41

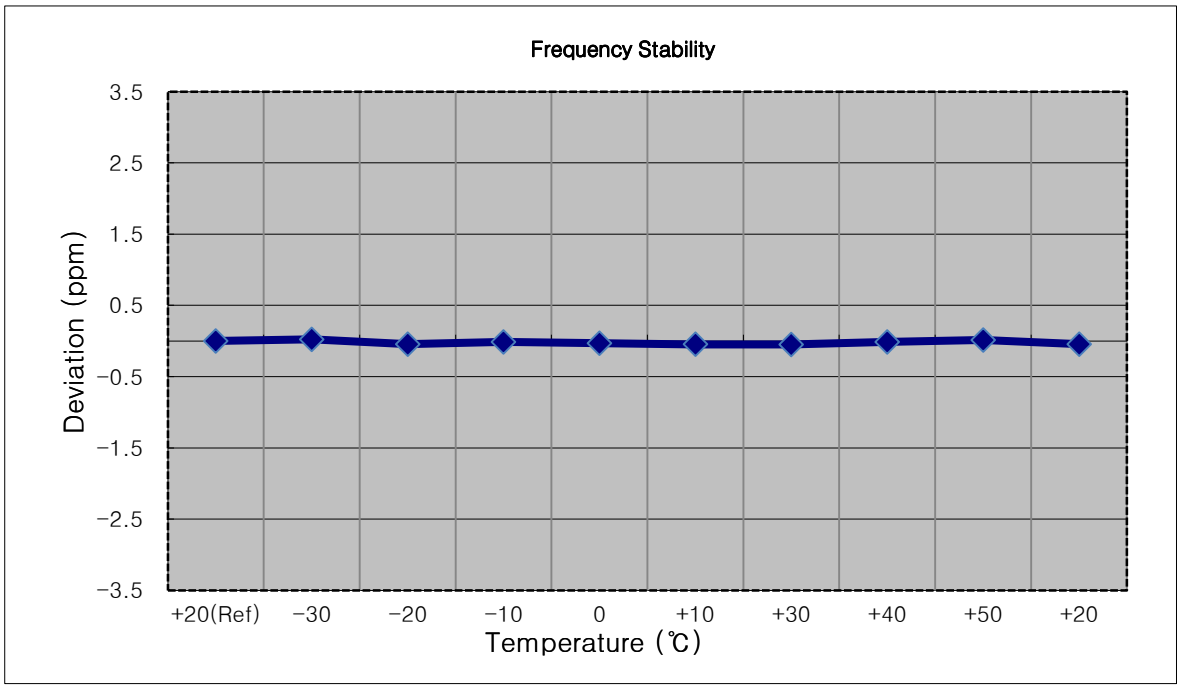
▣ OPERATING FREQUENCY: 2682,500,000 Hz

▣ BANDWIDTH: 41515 (15 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2682 500 035	0.0	0.000 000	0.000
100 %		-30	2682 500 097	61.6	0.000 002	0.023
100 %		-20	2682 499 913	-122.2	-0.000 005	-0.046
100 %		-10	2682 499 997	-37.9	-0.000 001	-0.014
100 %		0	2682 499 952	-83.7	-0.000 003	-0.031
100 %		+10	2682 499 907	-127.8	-0.000 005	-0.048
100 %		+30	2682 499 904	-131.1	-0.000 005	-0.049
100 %		+40	2682 499 999	-36.6	-0.000 001	-0.014
100 %		+50	2682 500 072	37.1	0.000 001	0.014
Batt. Endpoint	3.400	+20	2682 499 912	-123.4	-0.000 005	-0.046



▣ MODE: LTE 41

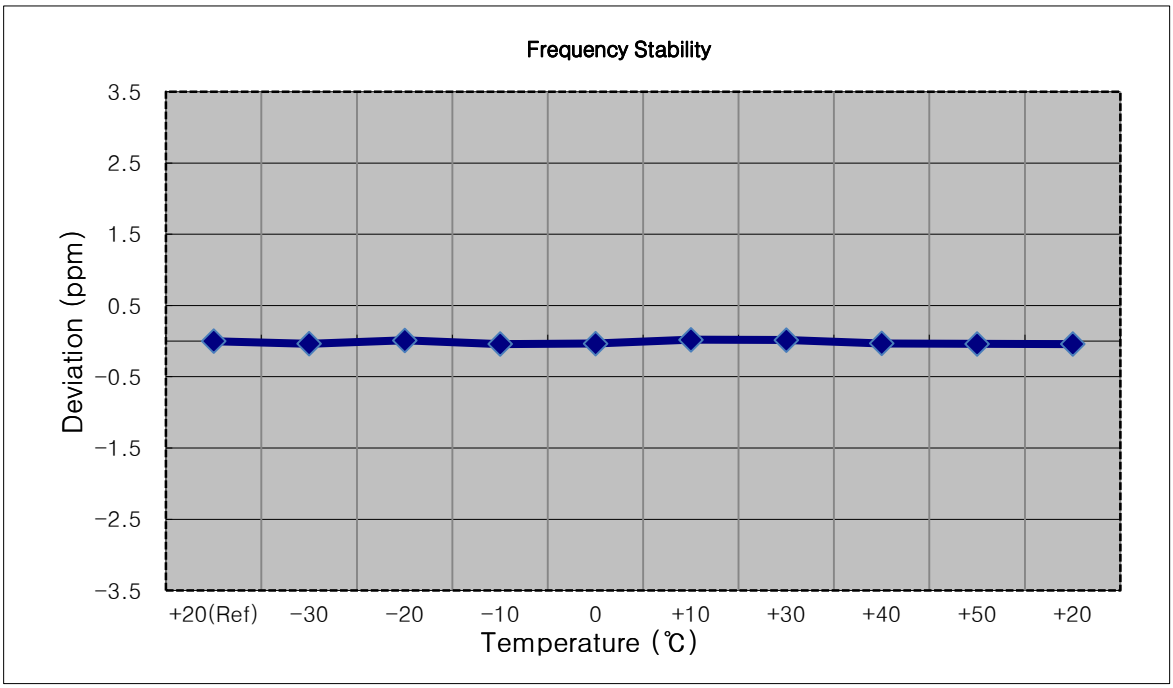
▣ OPERATING FREQUENCY: 2680,000,000 Hz

▣ BANDWIDTH: 41490 (20 MHz)

▣ REFERENCE VOLTAGE: 4.200 VDC

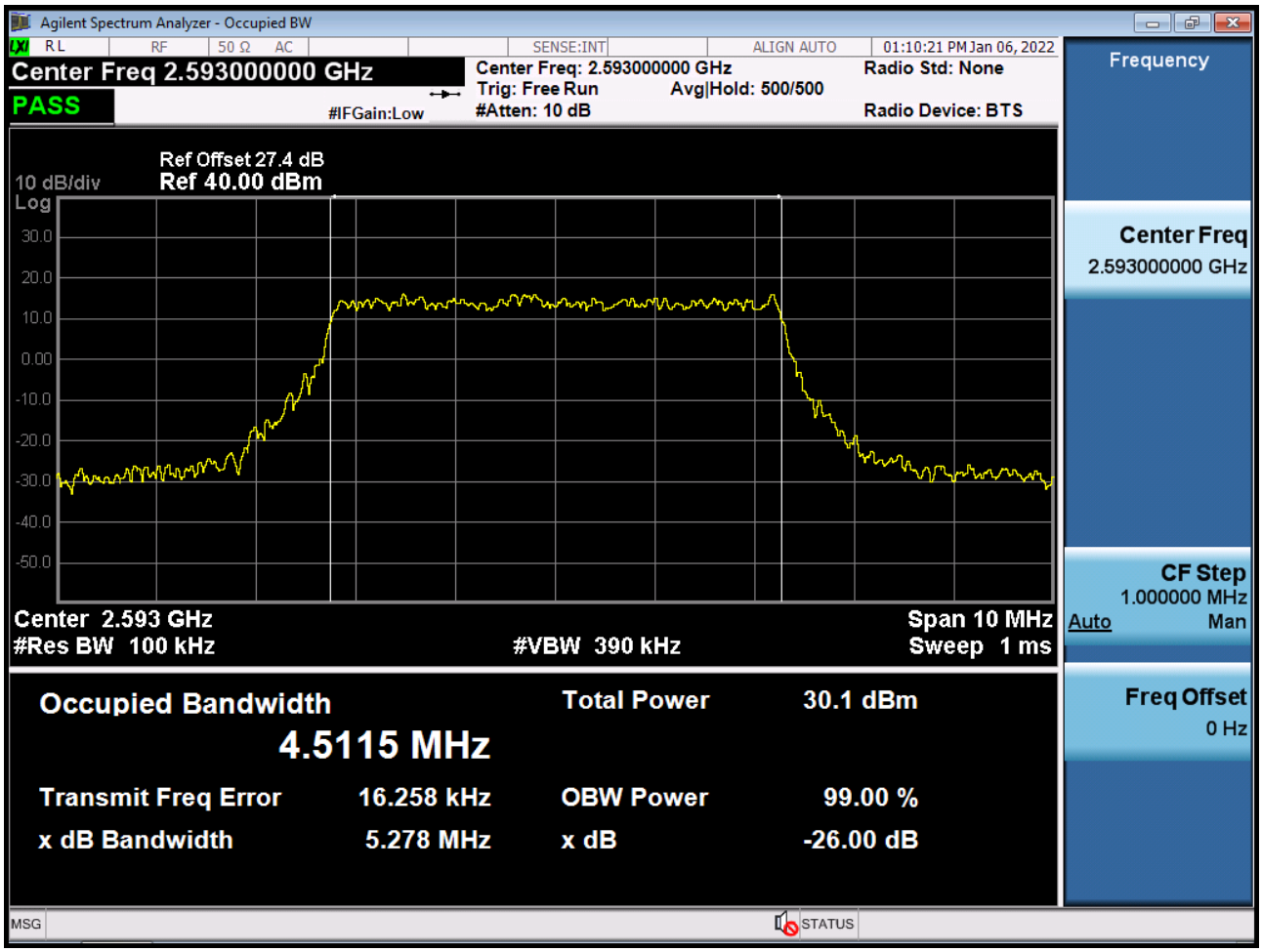
▣ DEVIATION LIMIT: Emission must remain in band

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100 %	4.200	+20(Ref)	2679 999 899	0.0	0.000 000	0.000
100 %		-30	2679 999 798	-101.3	-0.000 004	-0.038
100 %		-20	2679 999 928	28.9	0.000 001	0.011
100 %		-10	2679 999 790	-108.7	-0.000 004	-0.041
100 %		0	2679 999 808	-91.0	-0.000 003	-0.034
100 %		+10	2679 999 950	51.1	0.000 002	0.019
100 %		+30	2679 999 939	40.1	0.000 001	0.015
100 %		+40	2679 999 811	-87.4	-0.000 003	-0.033
100 %		+50	2679 999 795	-104.0	-0.000 004	-0.039
Batt. Endpoint	3.400	+20	2679 999 789	-109.5	-0.000 004	-0.041

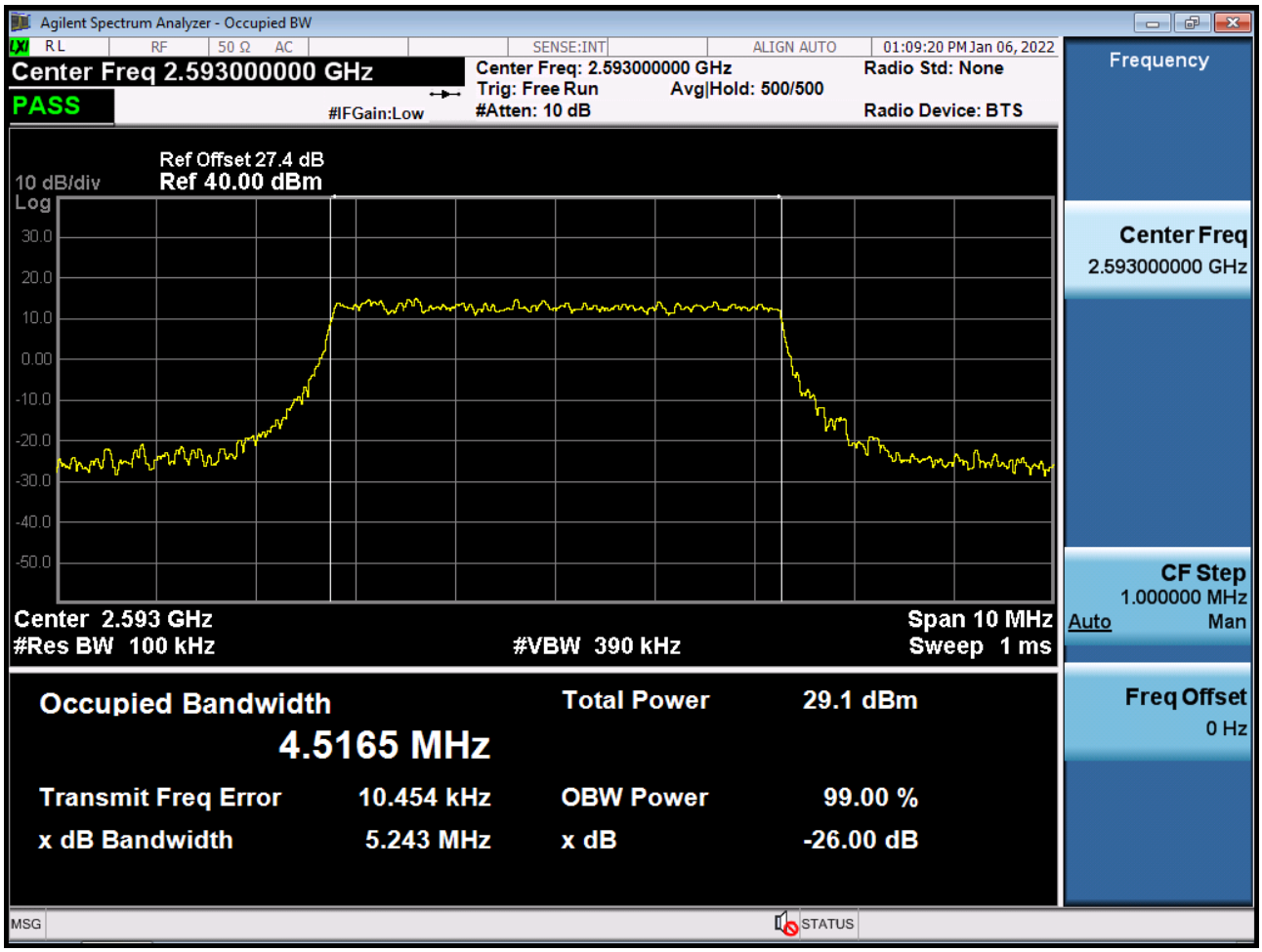


9. TEST PLOTS

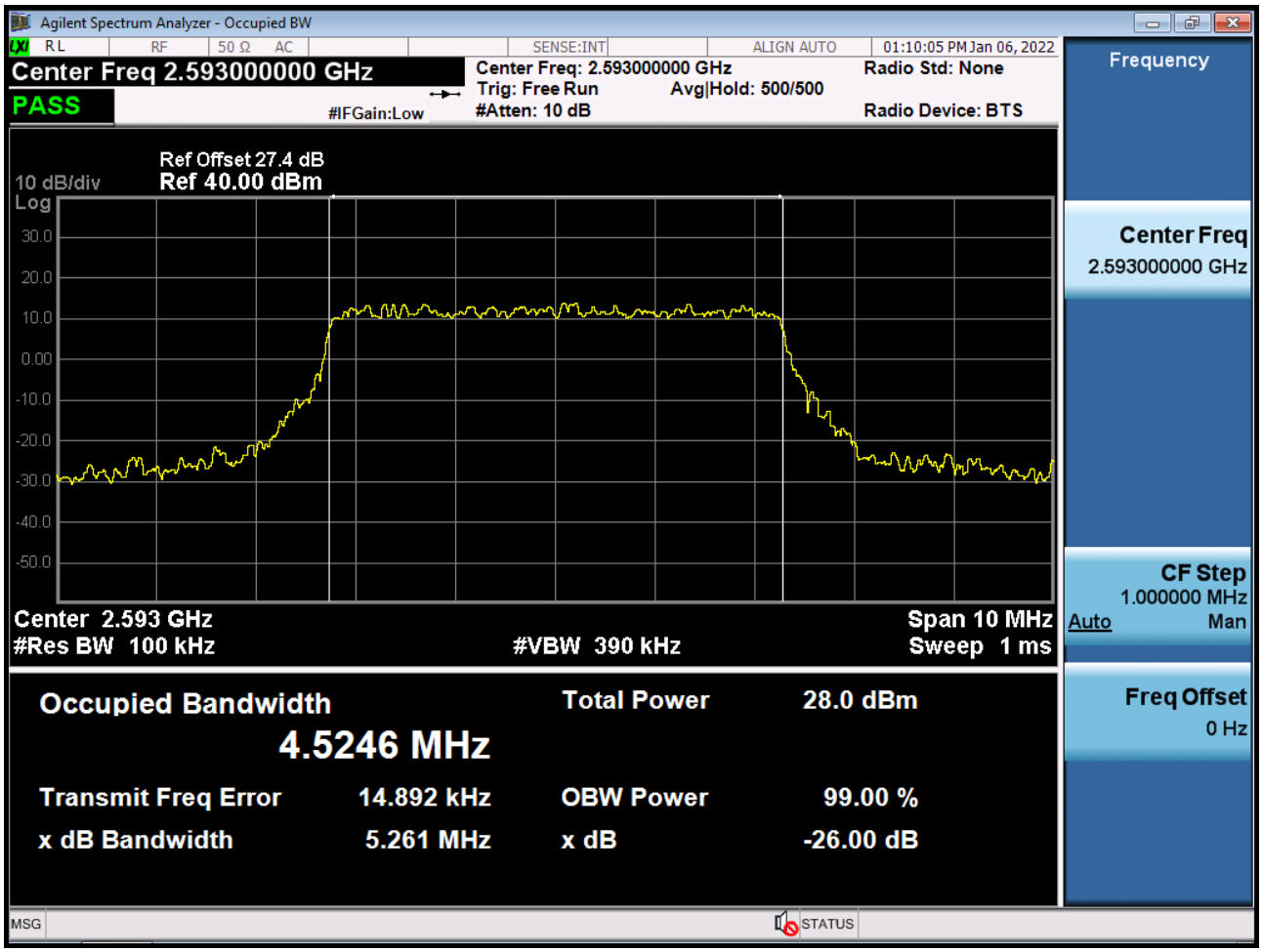
Occupied Bandwidth Plot (5 MHz Ch.40620 QPSK RB 25) (POWER CLASS 3)



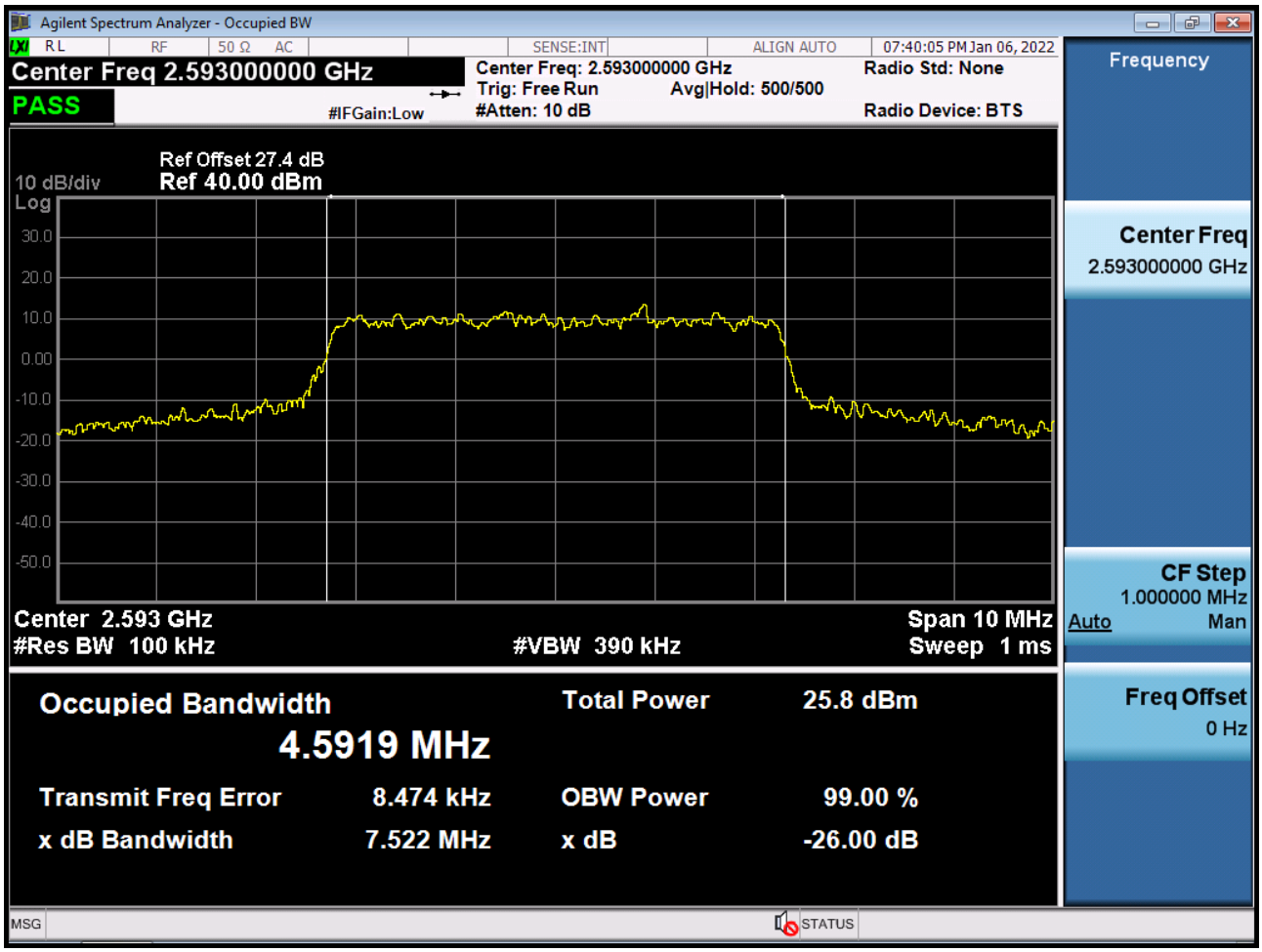
Occupied Bandwidth Plot (5 MHz Ch.40620 16-QAM RB 25) (POWER CLASS 3)



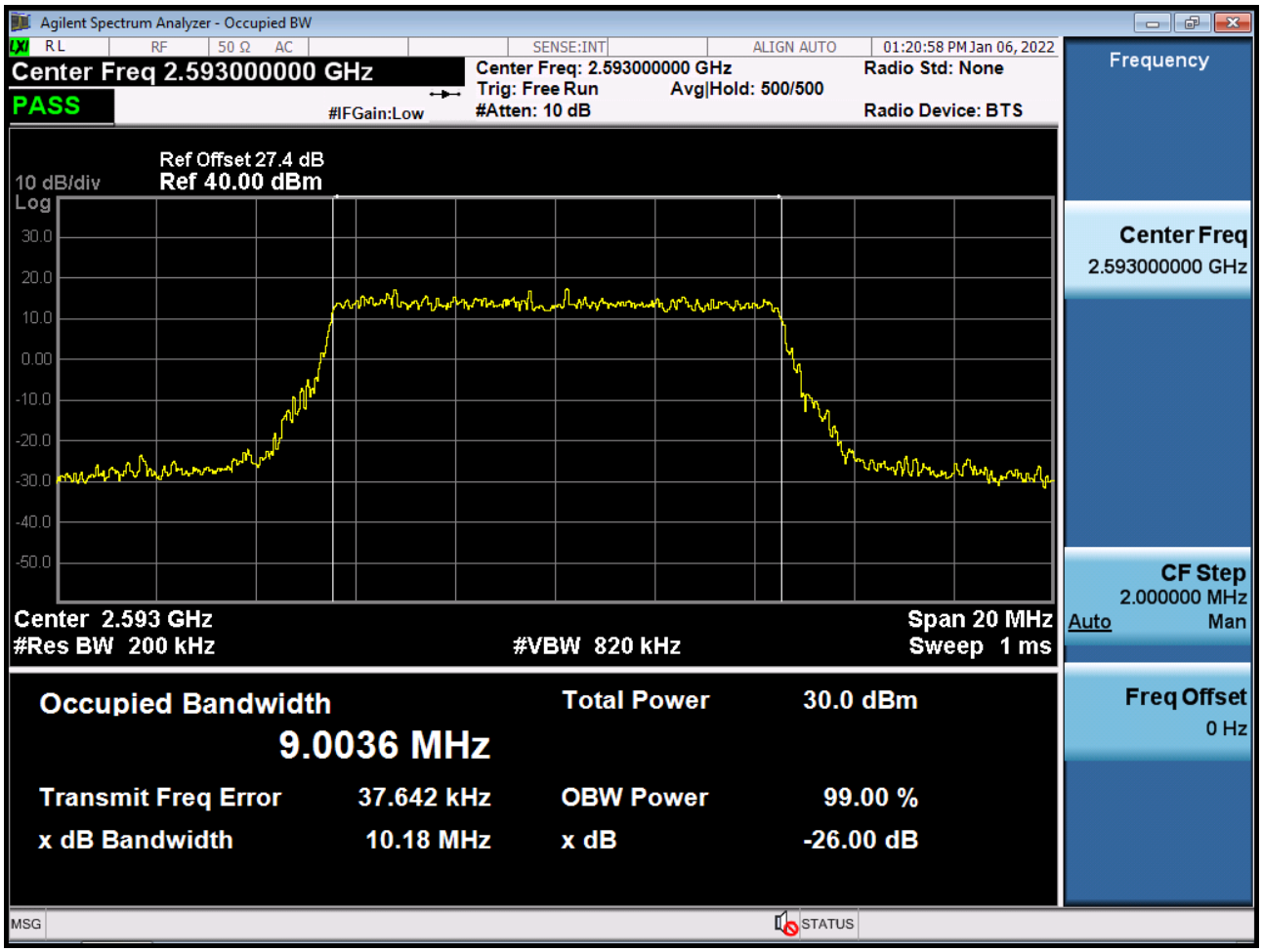
Occupied Bandwidth Plot (5 MHz Ch.40620 64-QAM RB 25) (POWER CLASS 3)



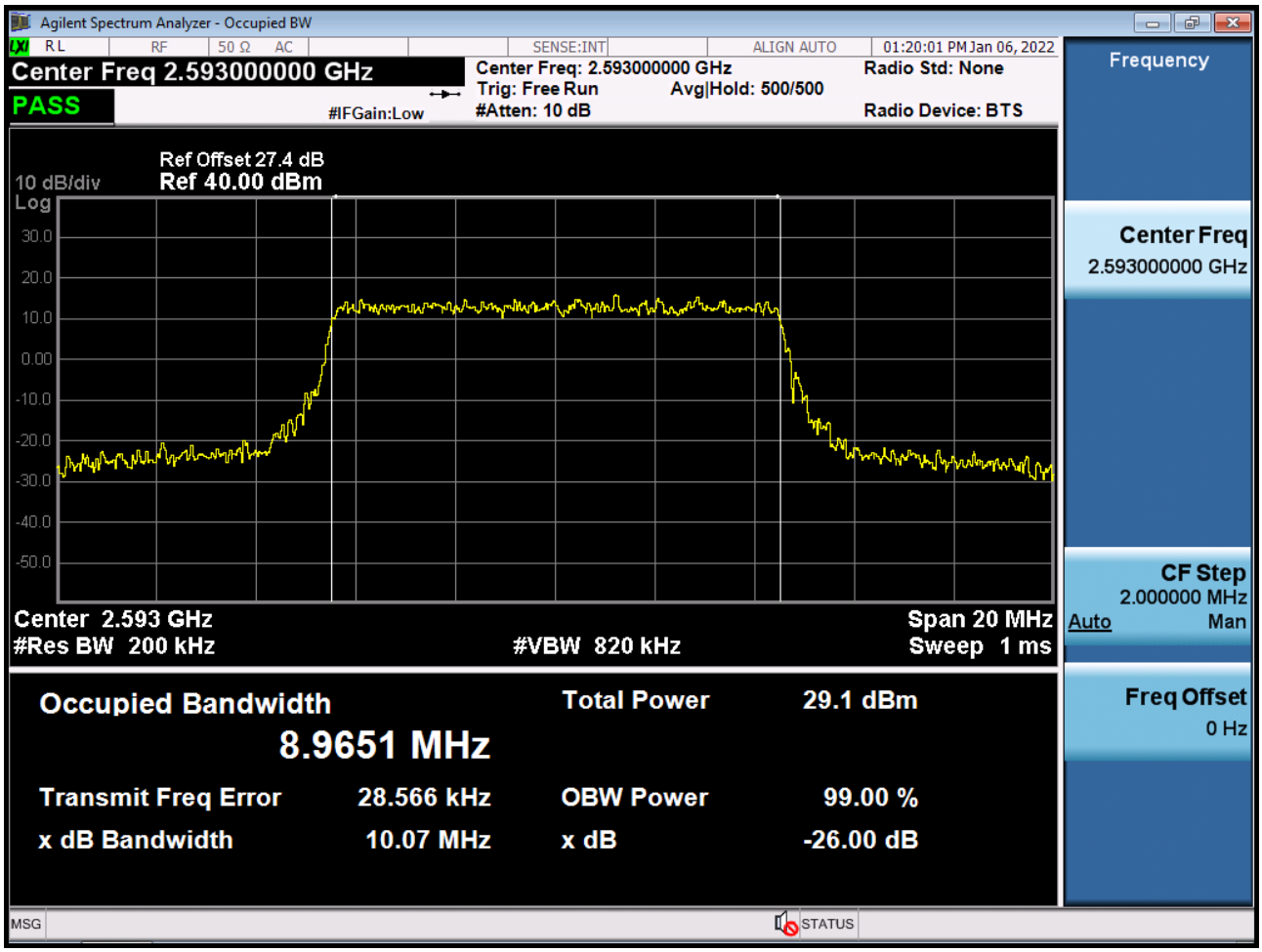
Occupied Bandwidth Plot (5 MHz Ch.40620 256-QAM RB 25) (POWER CLASS 3)



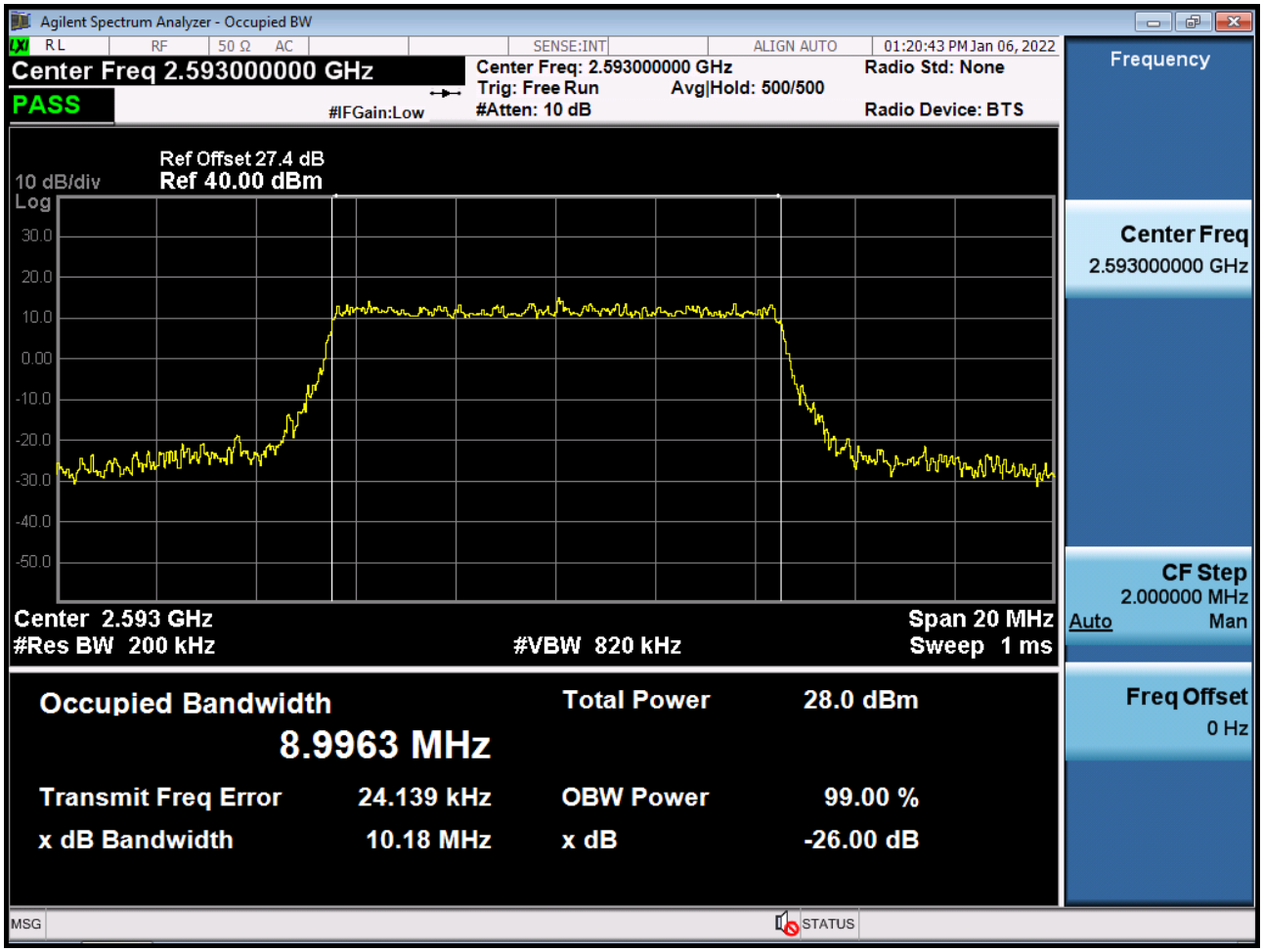
Occupied Bandwidth Plot (10 MHz Ch.40620 QPSK RB 50) (POWER CLASS 3)



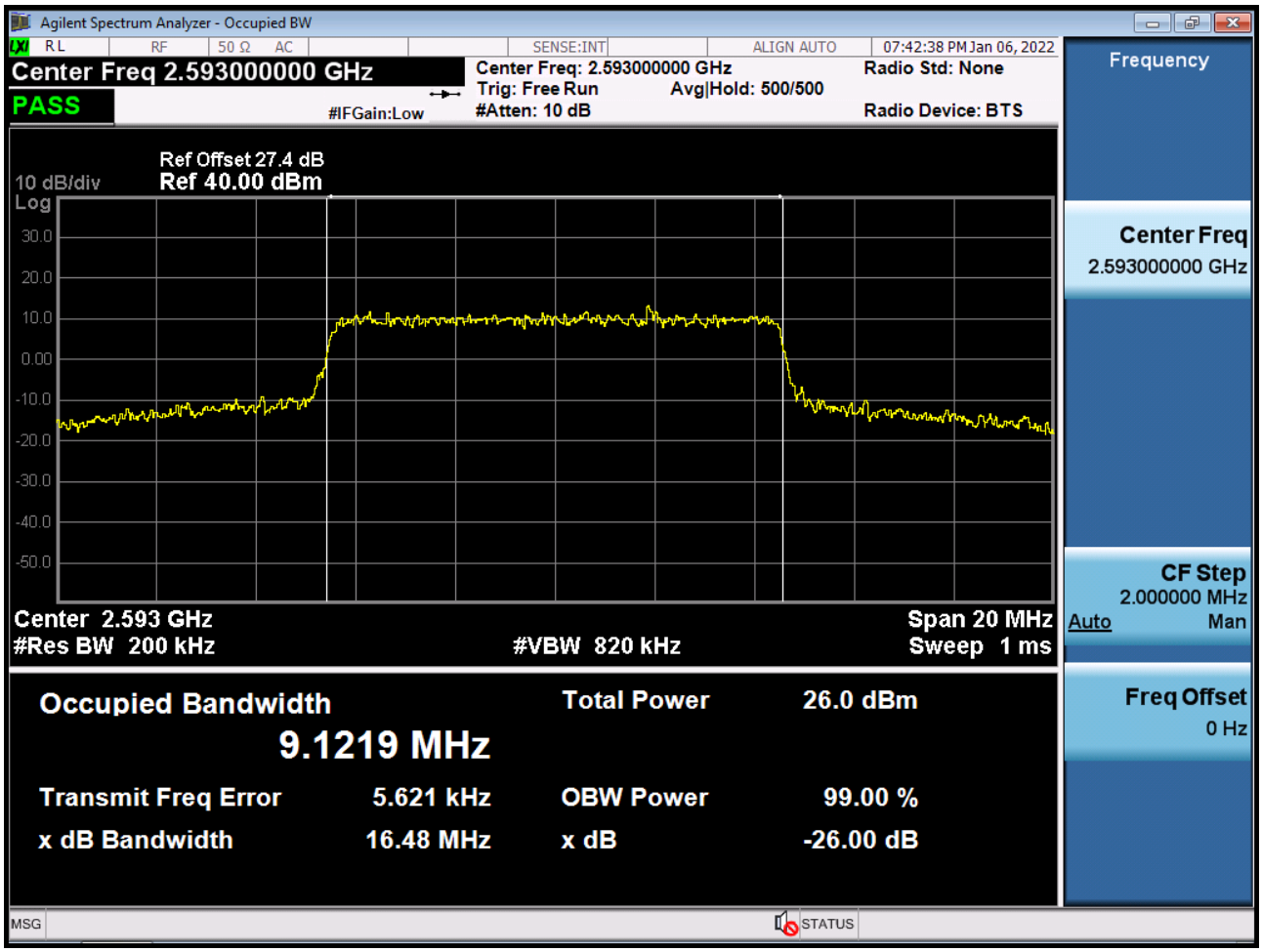
Occupied Bandwidth Plot (10 MHz Ch.40620 16-QAM RB 50) (POWER CLASS 3)



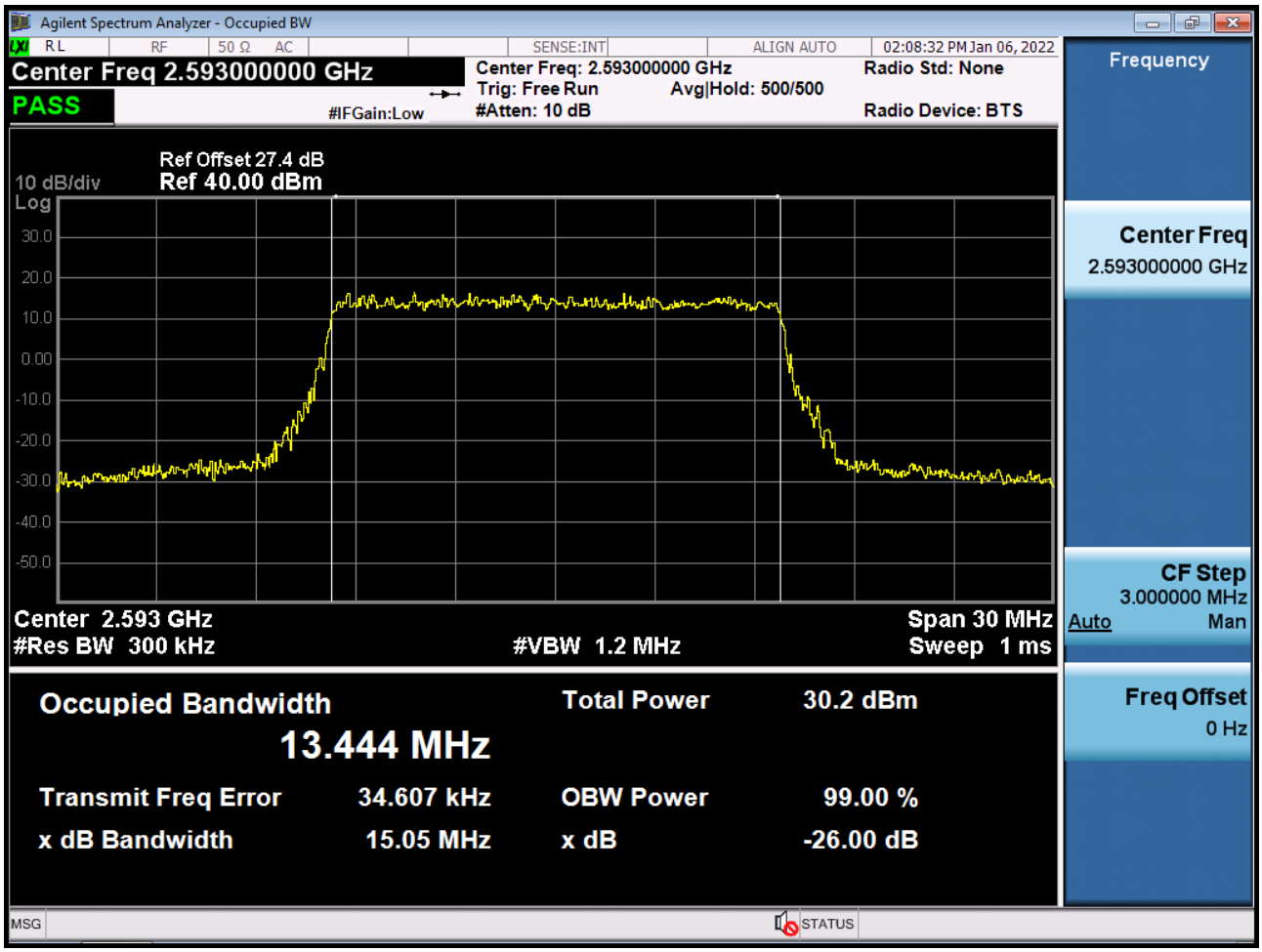
Occupied Bandwidth Plot (10 MHz Ch.40620 64-QAM RB 50) (POWER CLASS 3)



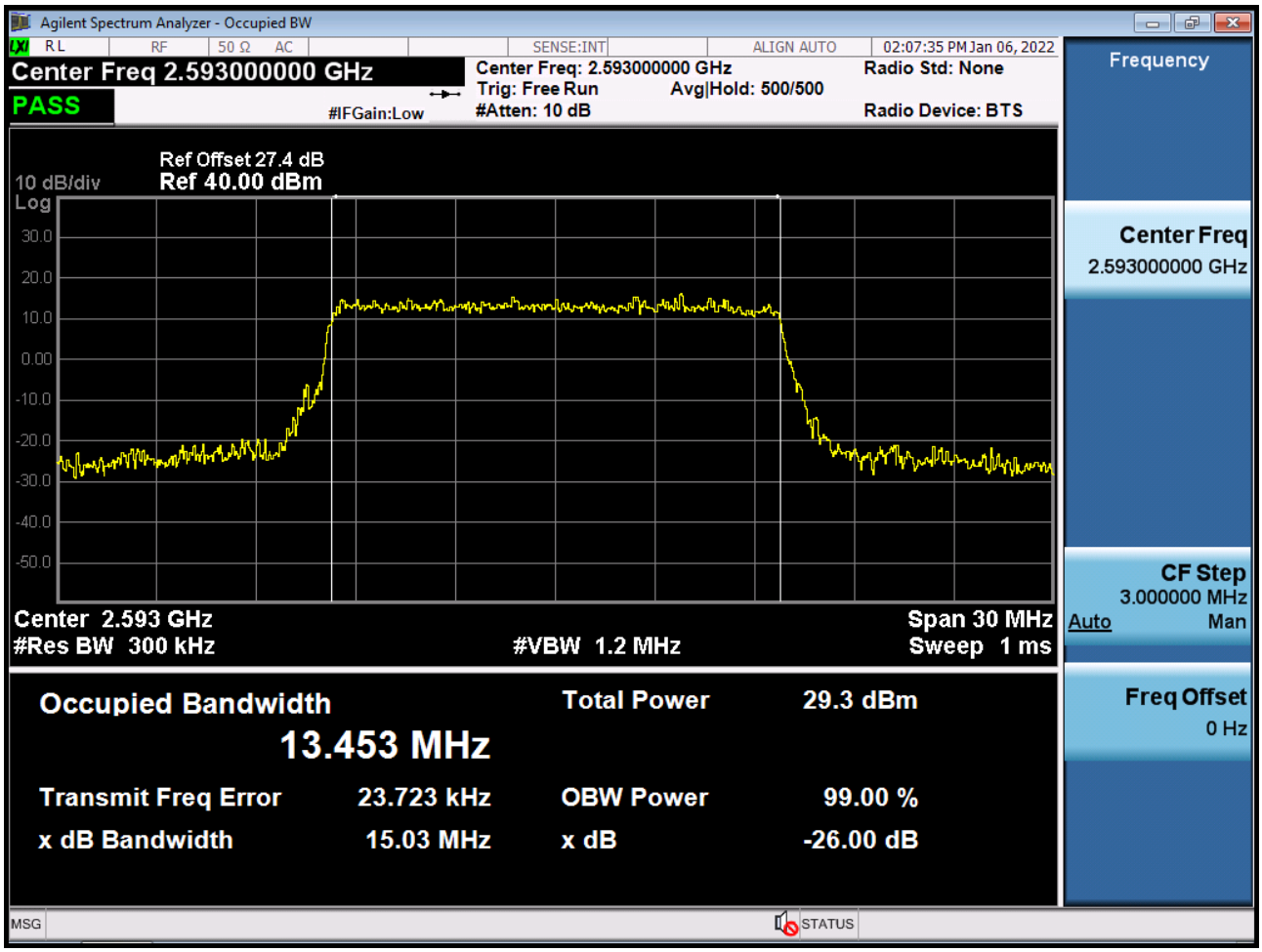
Occupied Bandwidth Plot (10 MHz Ch.40620 256-QAM RB 50) (POWER CLASS 3)



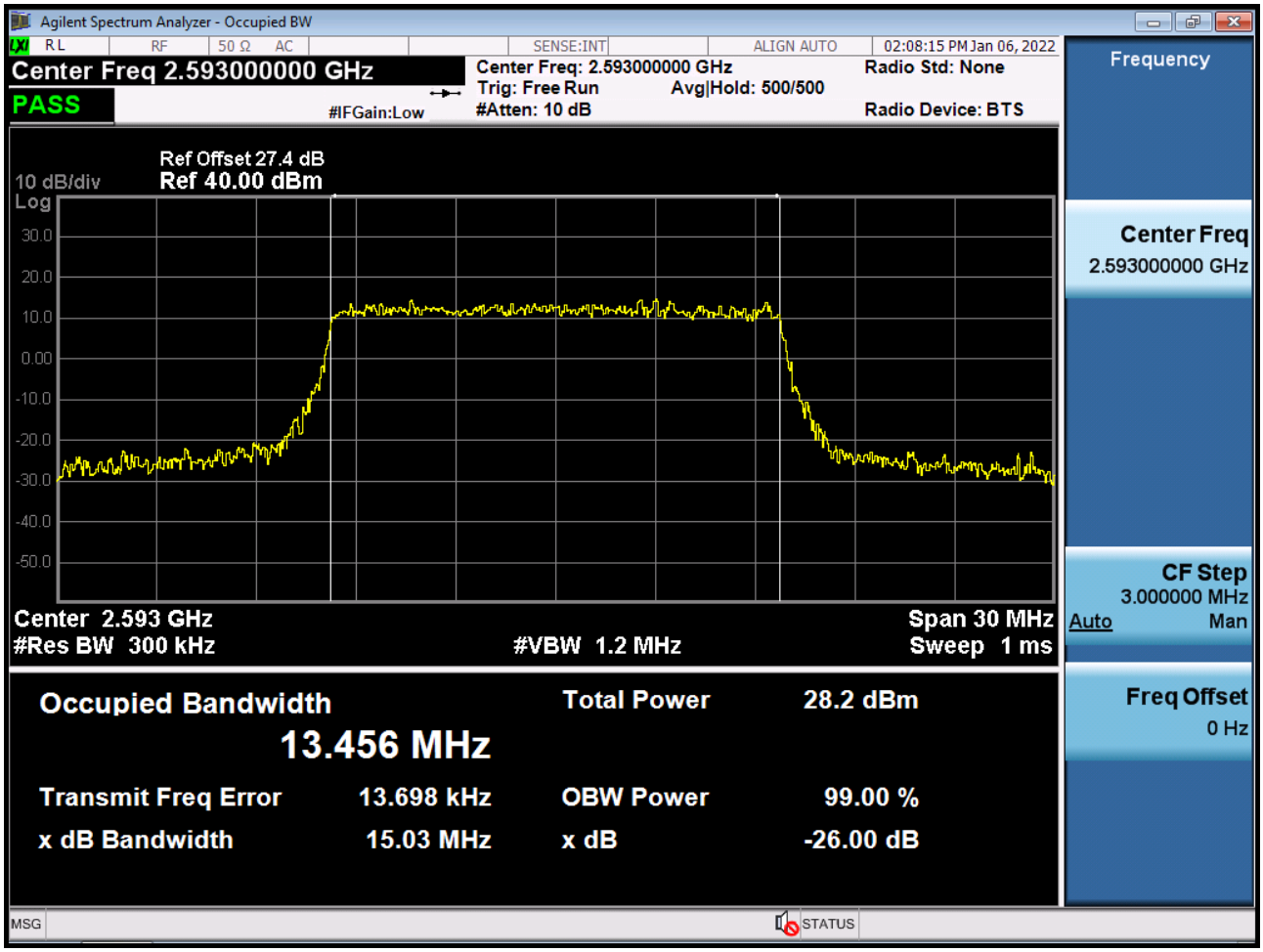
Occupied Bandwidth Plot (15 MHz Ch.40620 QPSK RB 75) (POWER CLASS 3)



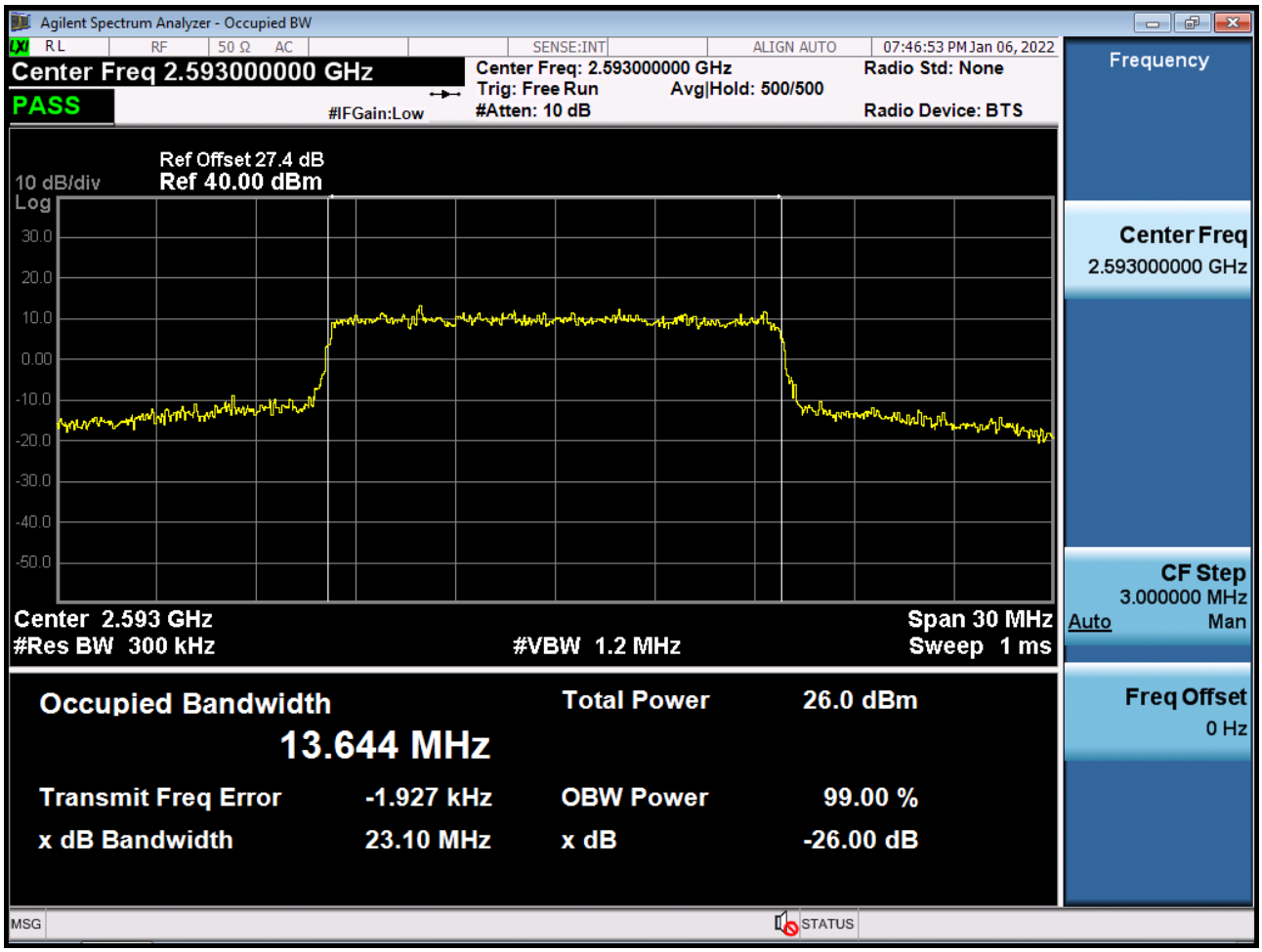
Occupied Bandwidth Plot (15 MHz Ch.40620 16-QAM RB 75) (POWER CLASS 3)



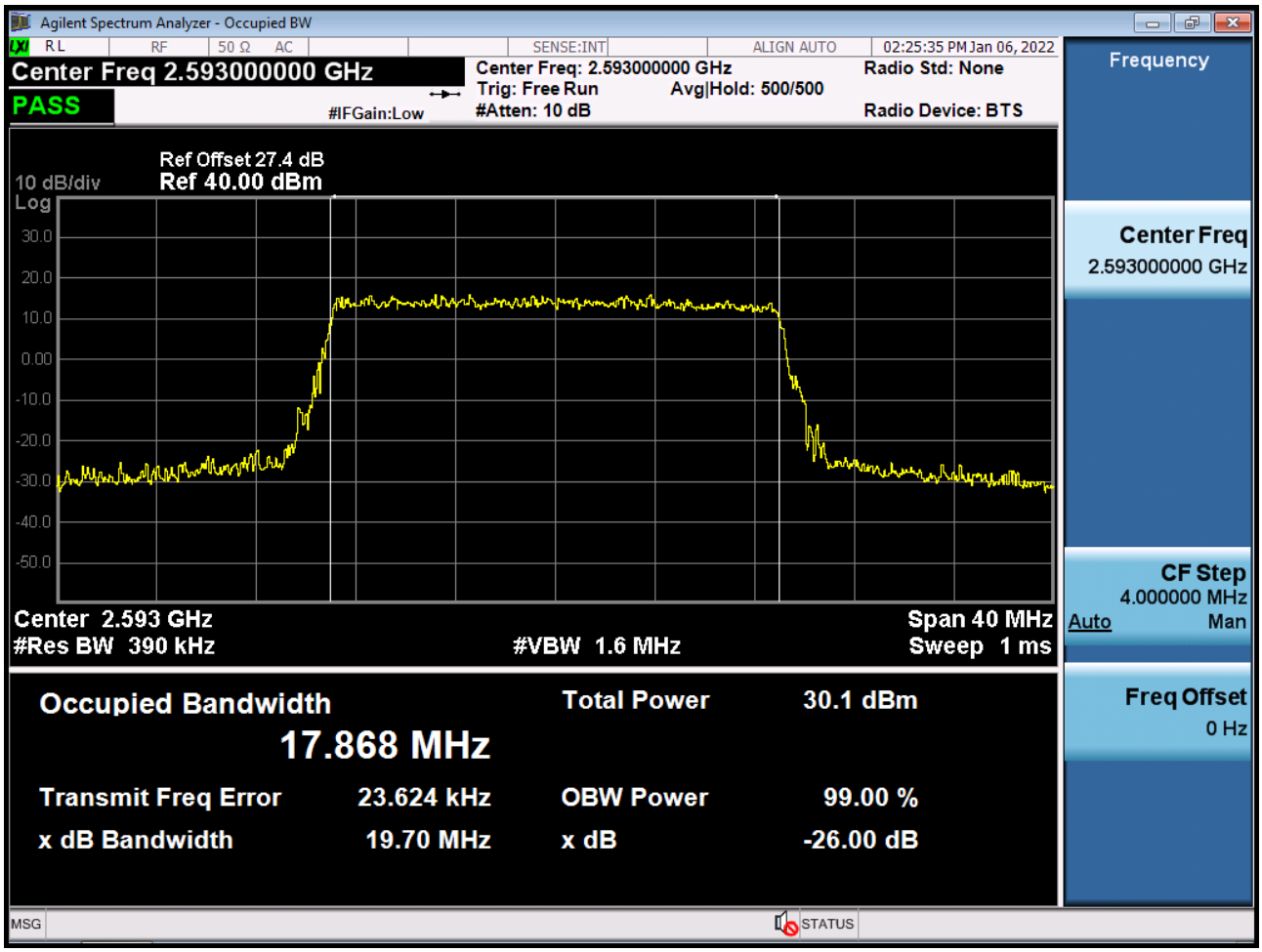
Occupied Bandwidth Plot (15 MHz Ch.40620 64-QAM RB 75) (POWER CLASS 3)



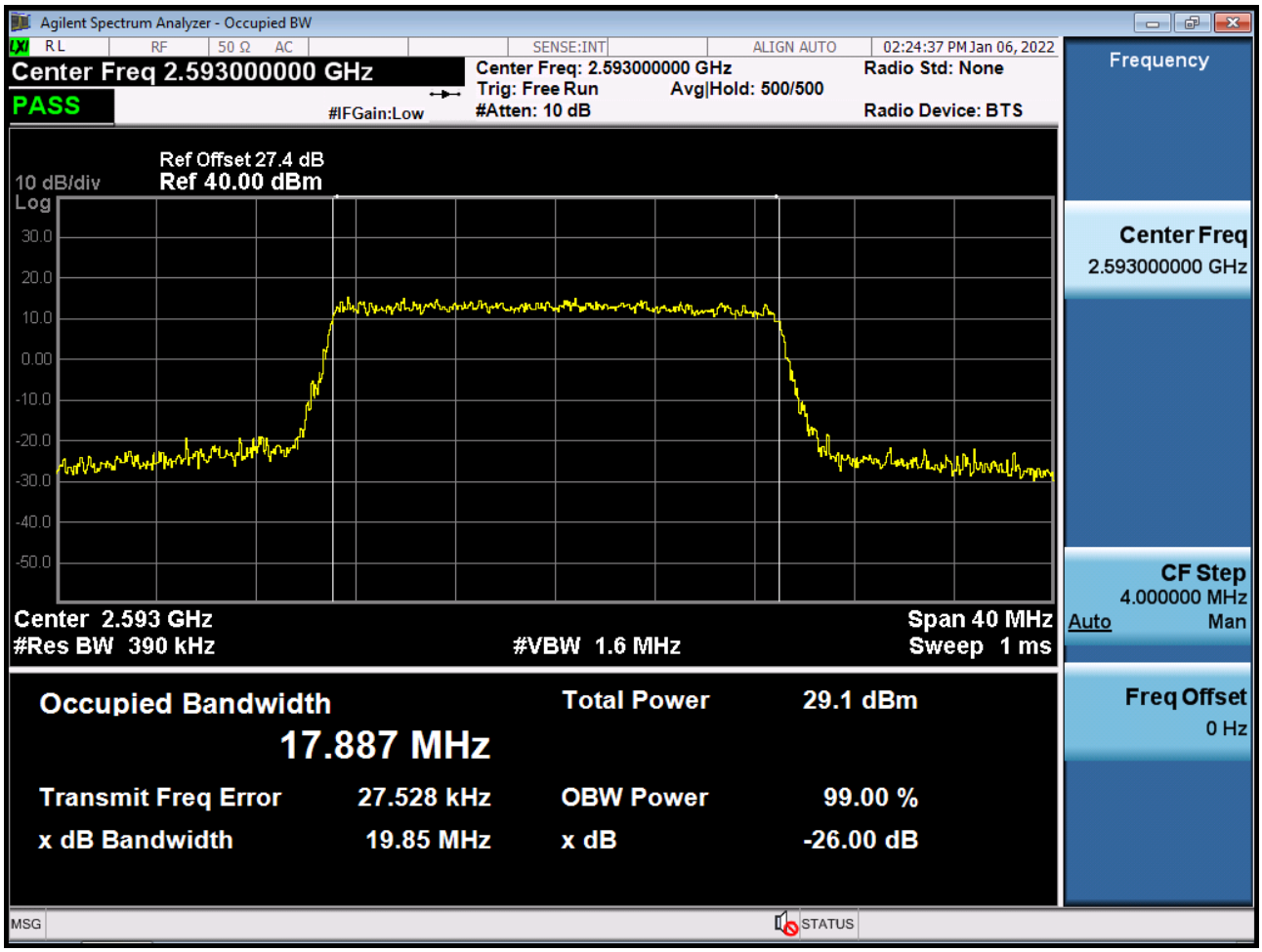
Occupied Bandwidth Plot (15 MHz Ch.40620 256-QAM RB 75) (POWER CLASS 3)



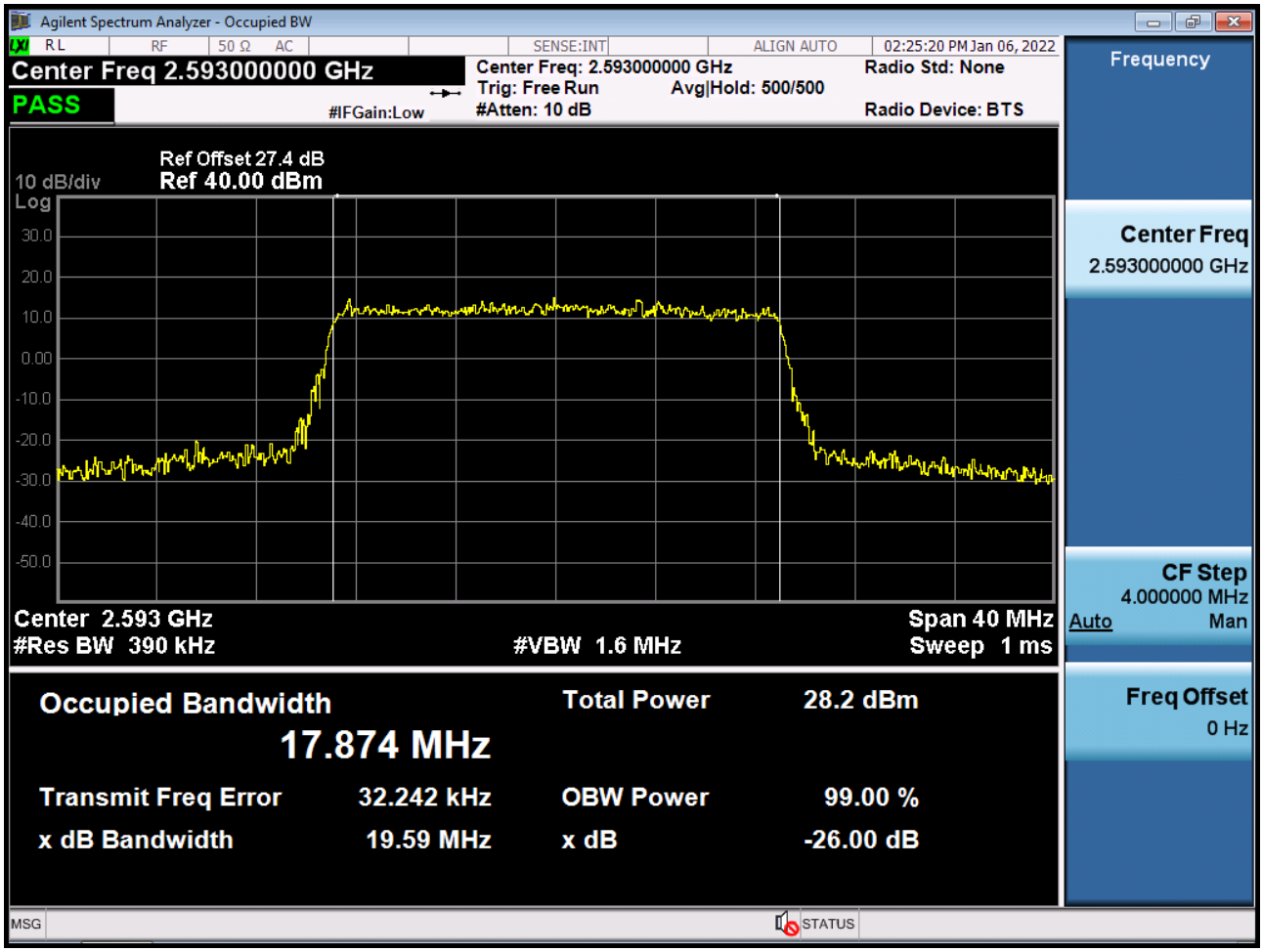
Occupied Bandwidth Plot (20 MHz Ch.40620 QPSK RB 100) (POWER CLASS 3)



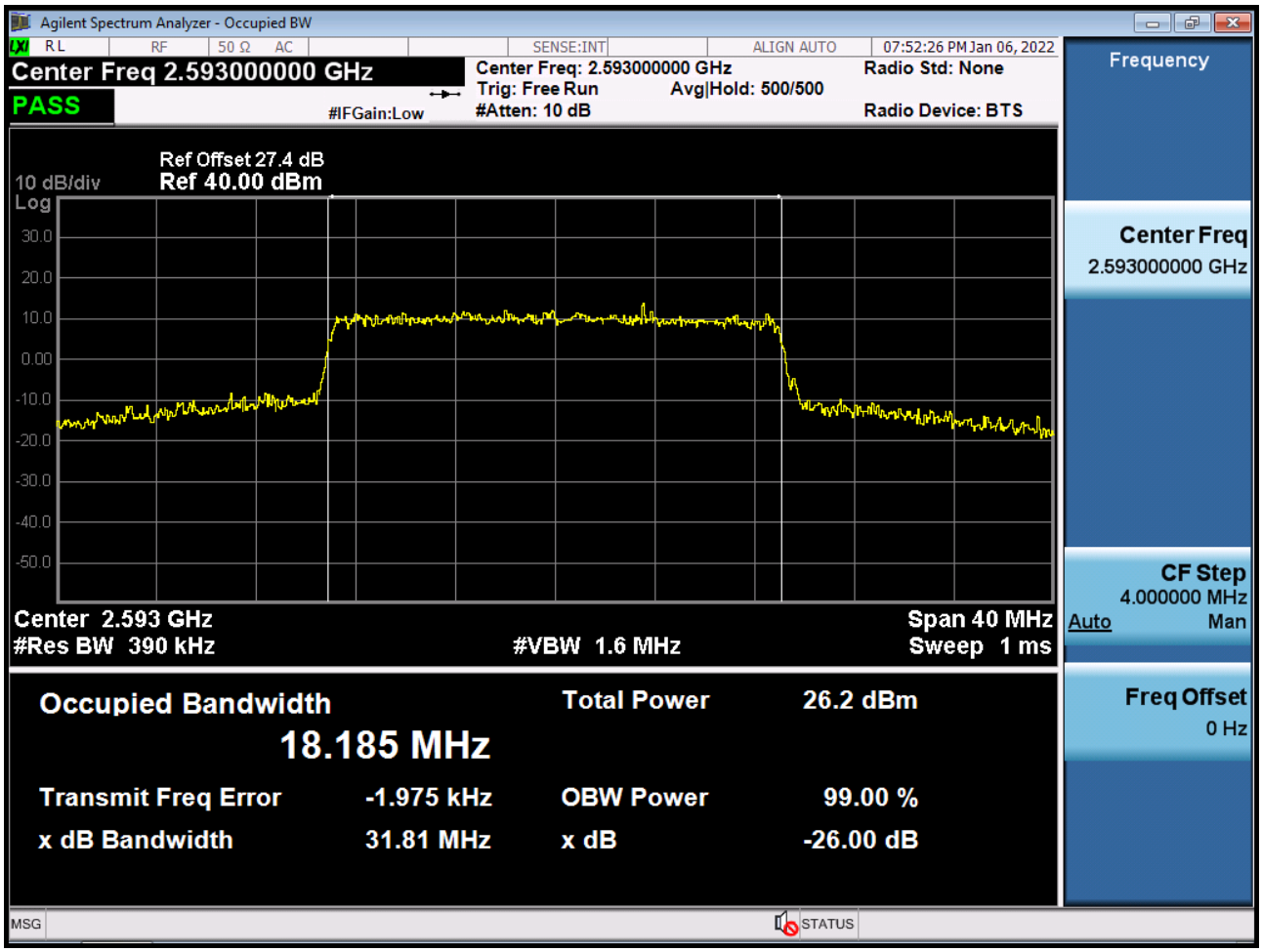
Occupied Bandwidth Plot (20 MHz Ch.40620 16-QAM RB 100) (POWER CLASS 3)



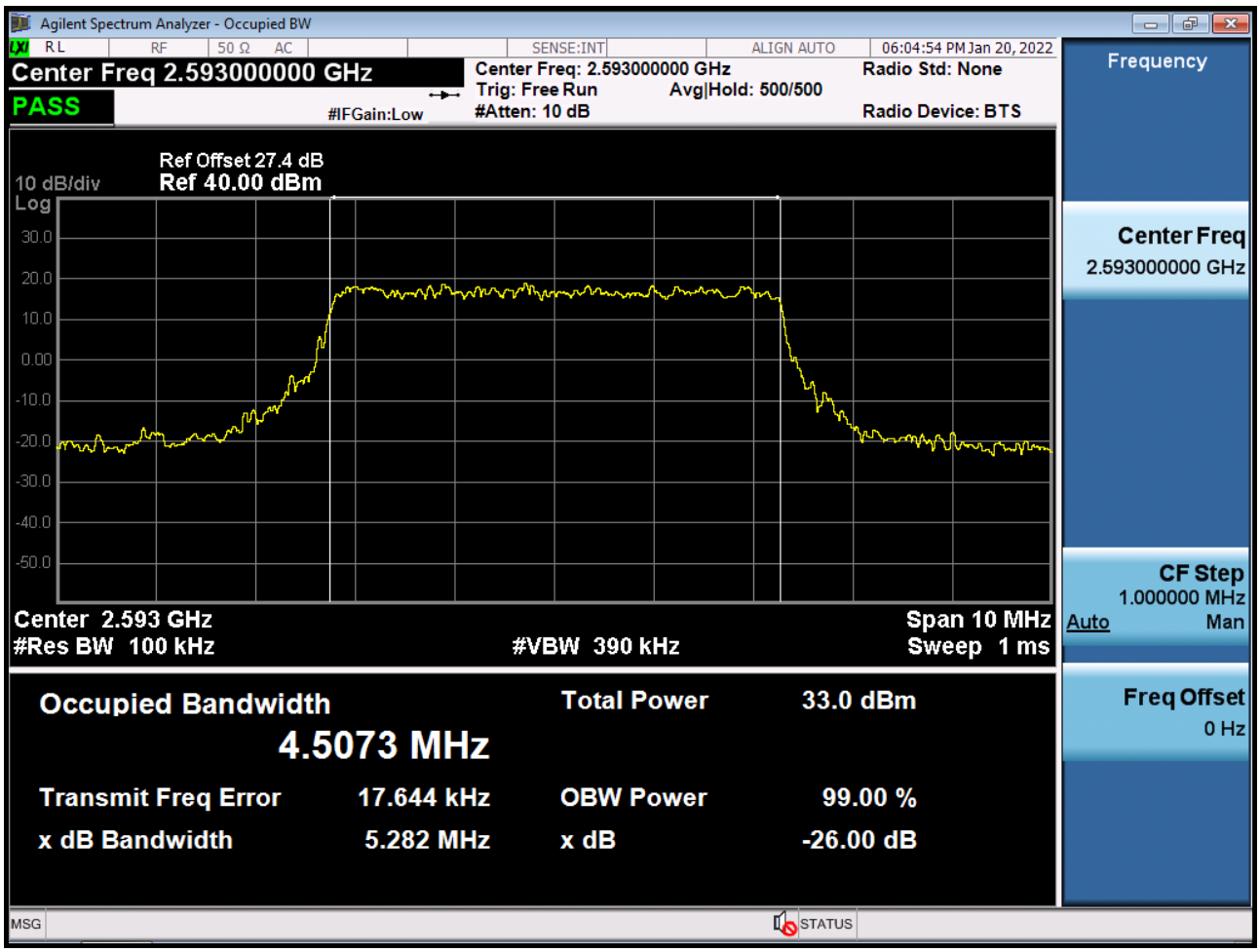
Occupied Bandwidth Plot (20 MHz Ch.40620 64-QAM RB 100) (POWER CLASS 3)



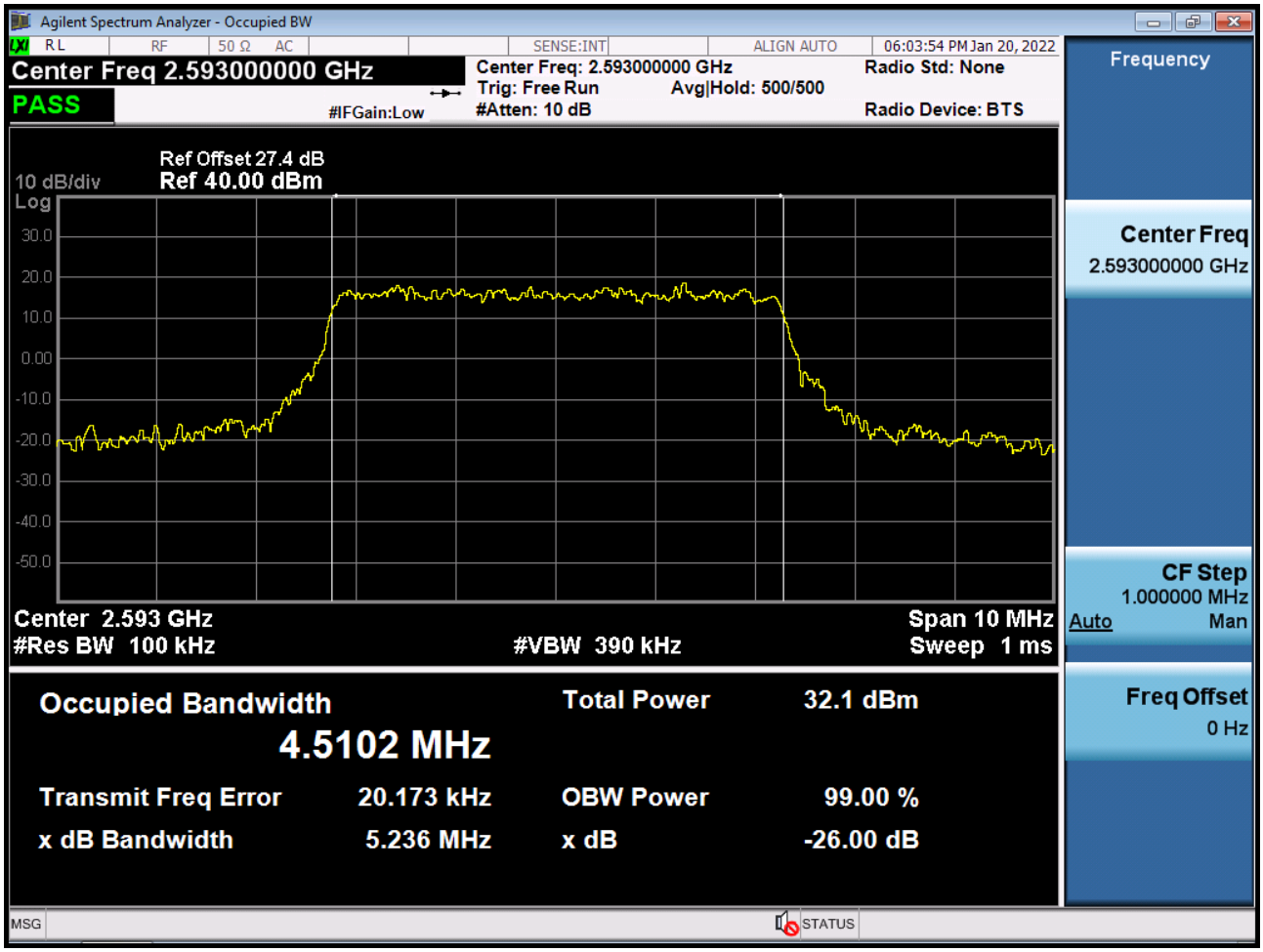
Occupied Bandwidth Plot (20 MHz Ch.40620 256-QAM RB 100) (POWER CLASS 3)



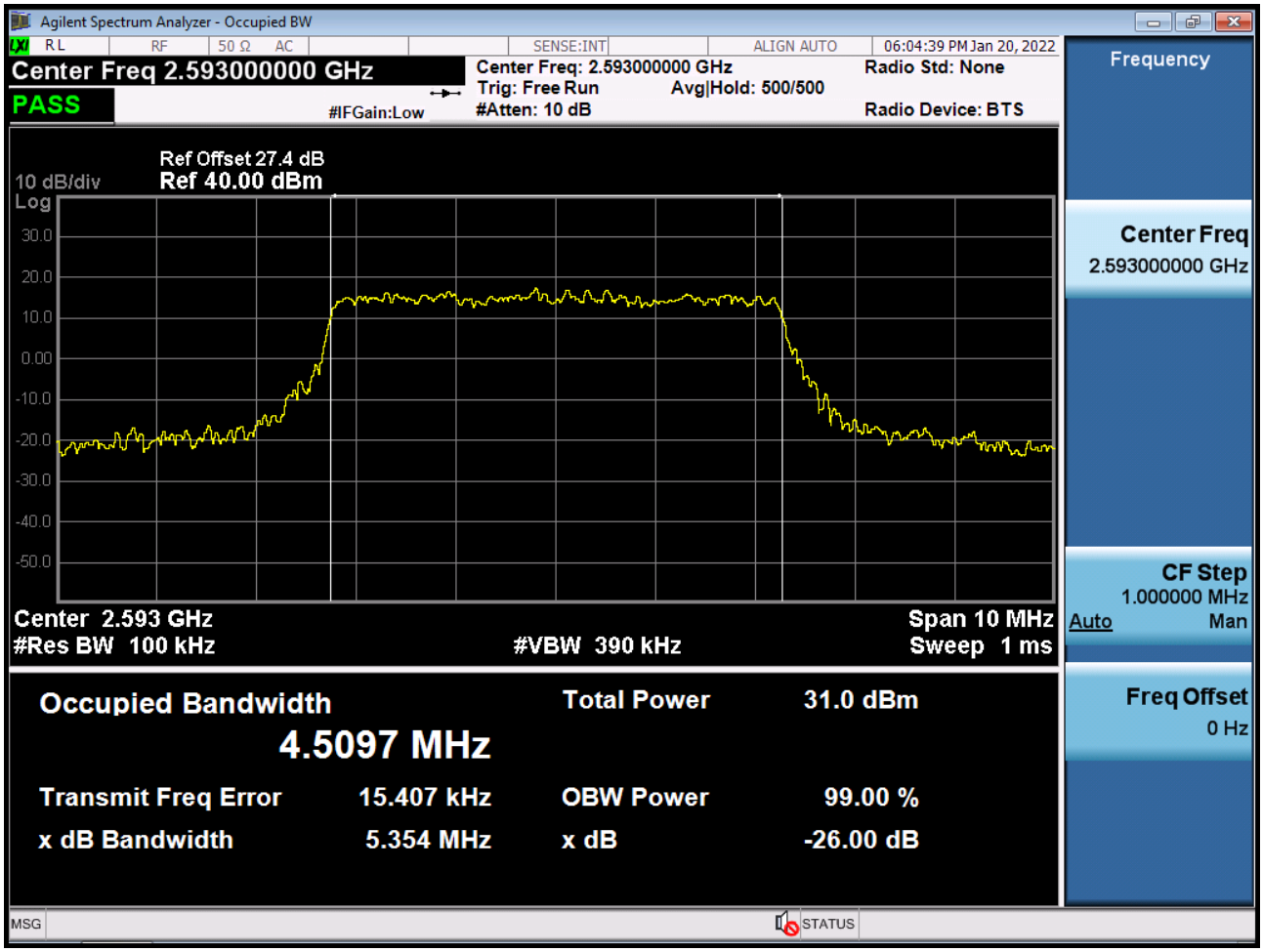
Occupied Bandwidth Plot (5 MHz Ch.40620 QPSK RB 25) (POWER CLASS 2)



Occupied Bandwidth Plot (5 MHz Ch.40620 16-QAM RB 25) (POWER CLASS 2)

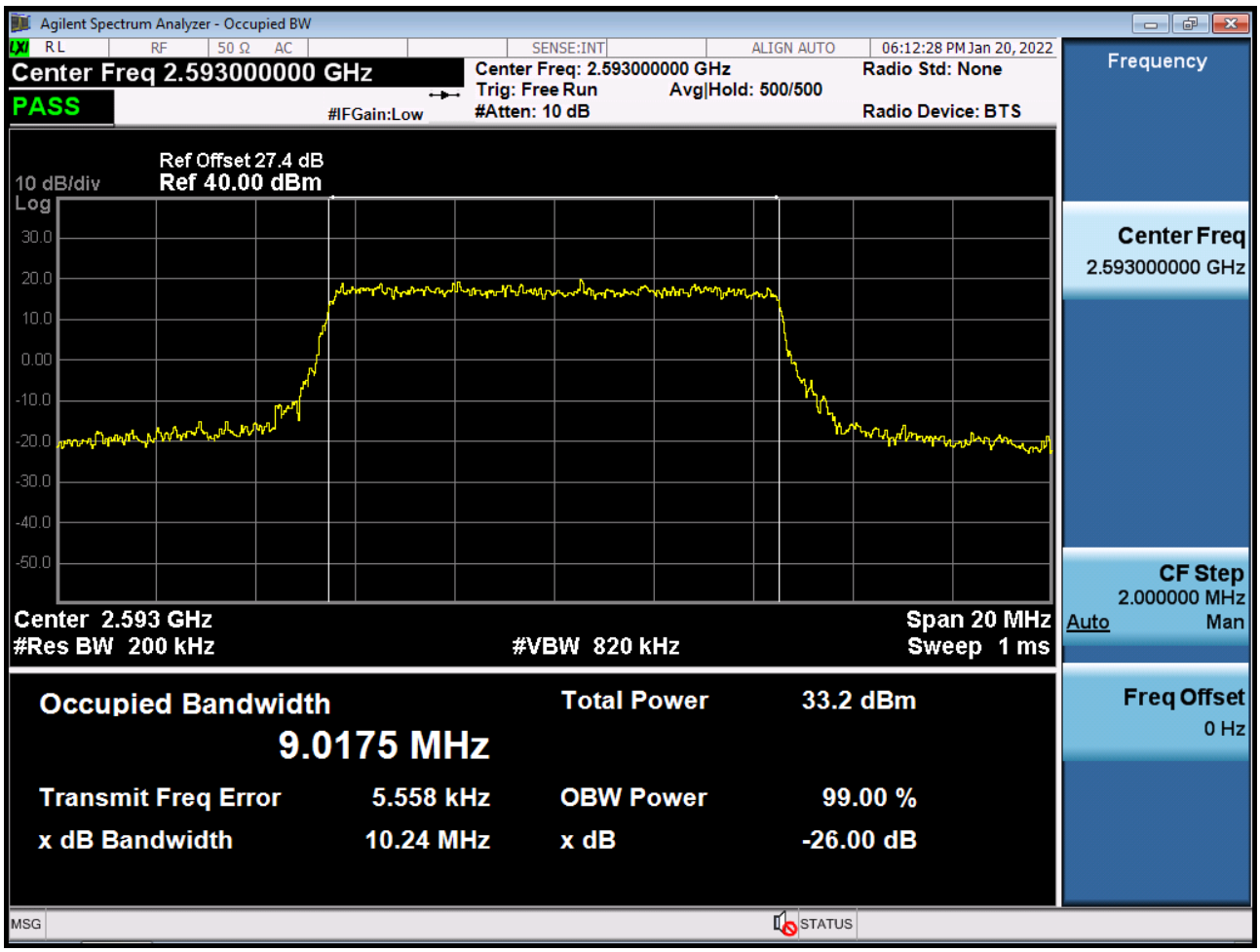


Occupied Bandwidth Plot (5 MHz Ch.40620 64-QAM RB 25) (POWER CLASS 2)

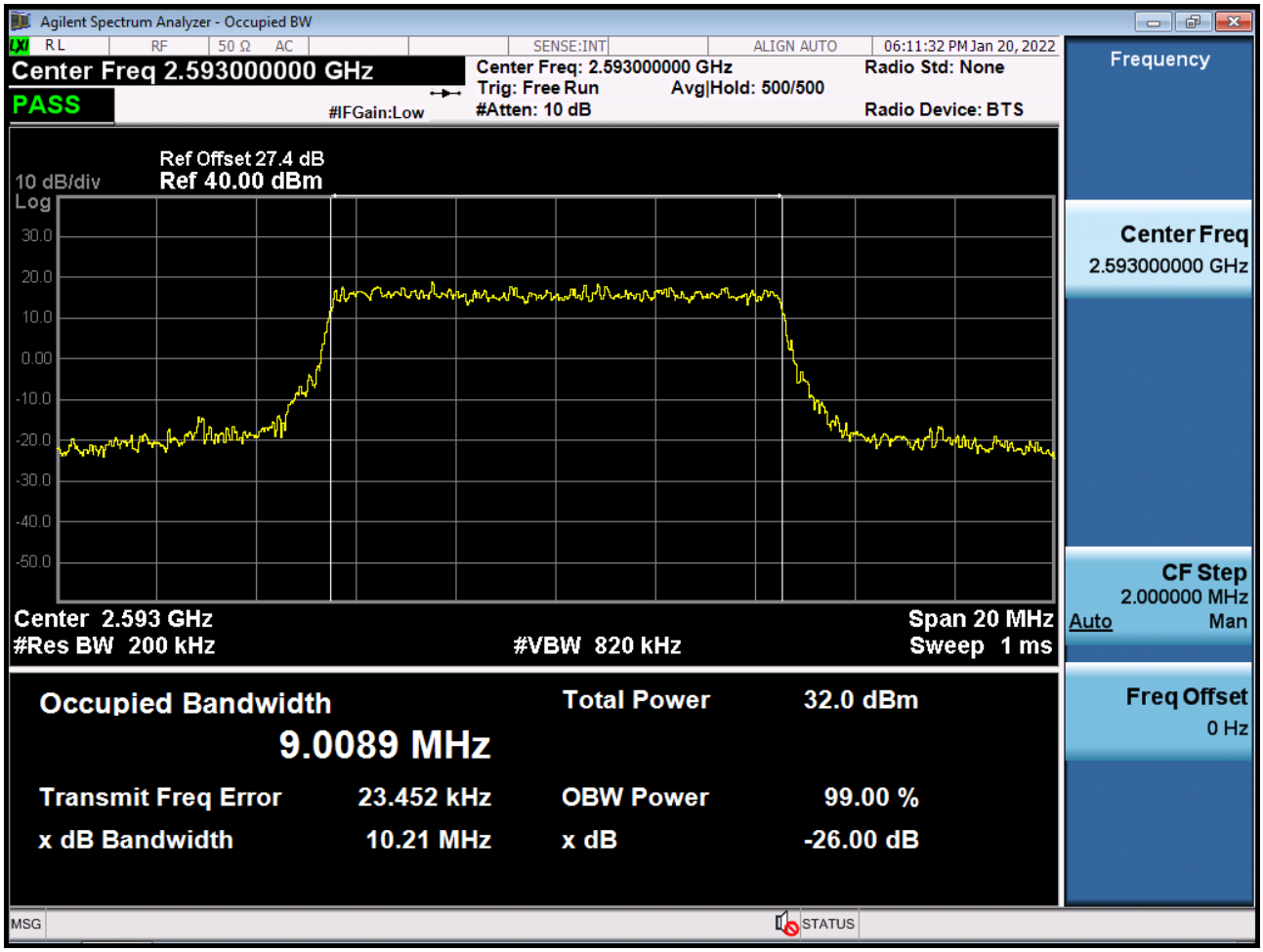


Occupied Bandwidth Plot (5 MHz Ch.40620 256-QAM RB 25) (POWER CLASS 2)

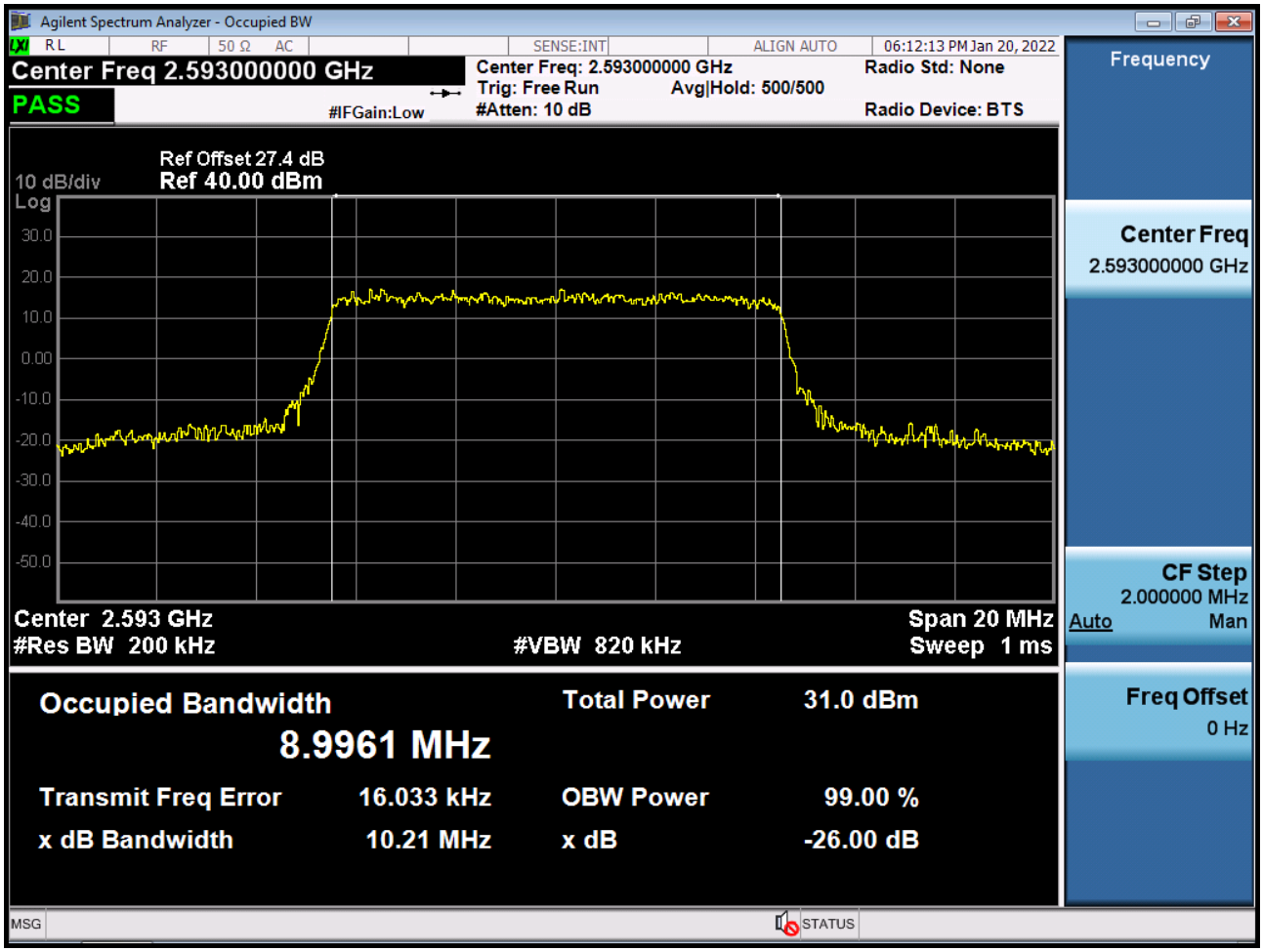
Occupied Bandwidth Plot (10 MHz Ch.40620 QPSK RB 50) (POWER CLASS 2)



Occupied Bandwidth Plot (10 MHz Ch.40620 16-QAM RB 50) (POWER CLASS 2)

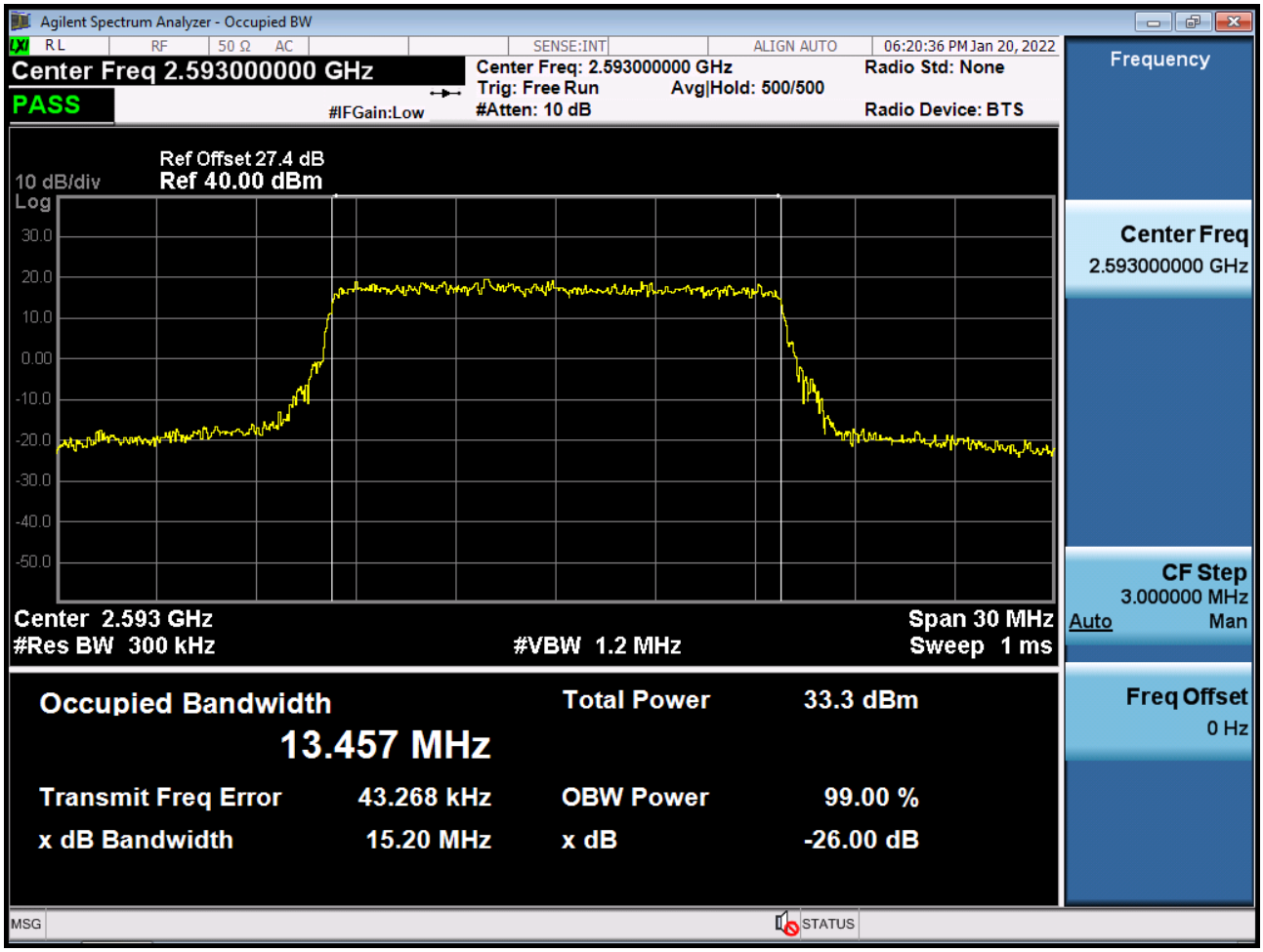


Occupied Bandwidth Plot (10 MHz Ch.40620 64-QAM RB 50) (POWER CLASS 2)

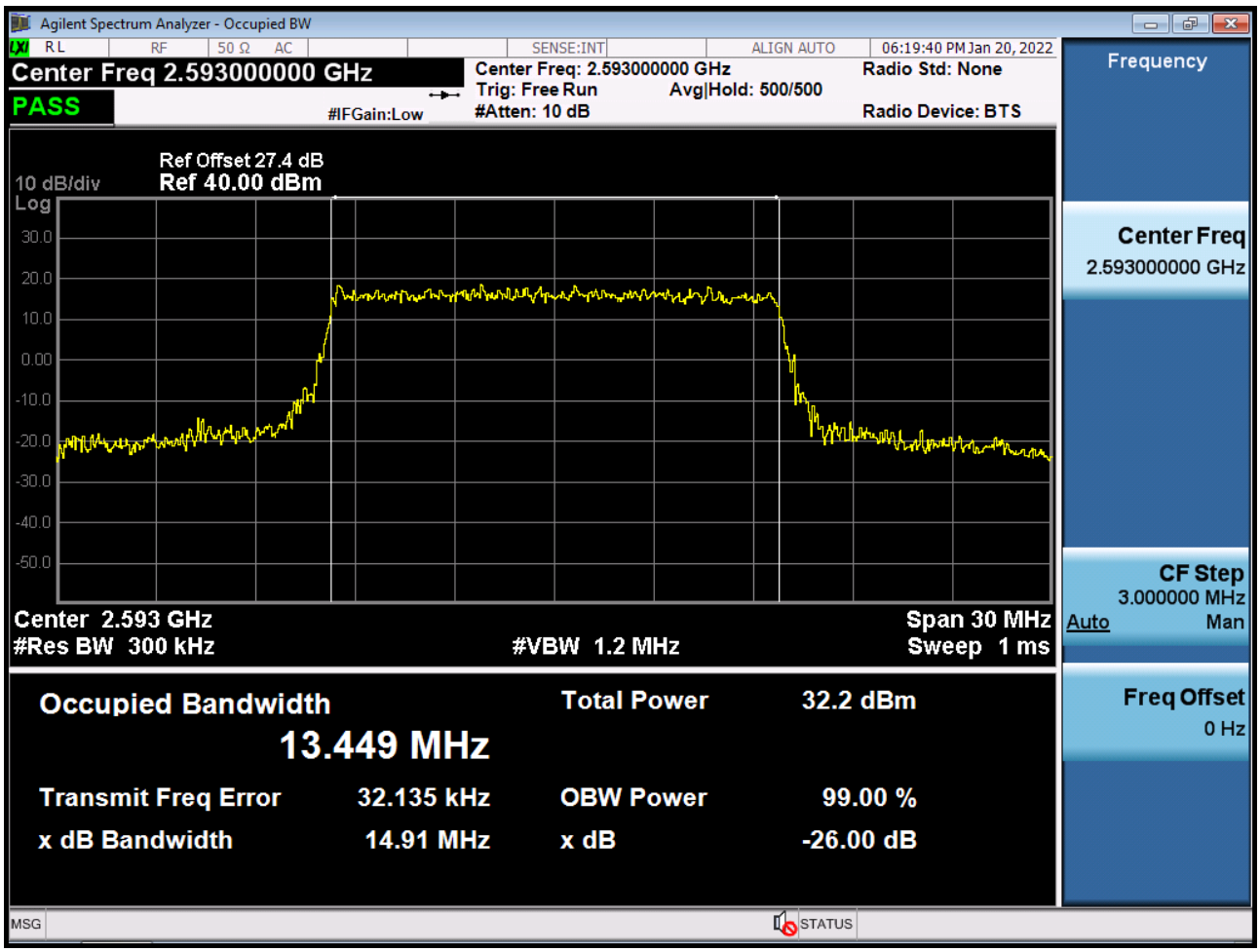


Occupied Bandwidth Plot (10 MHz Ch.40620 256-QAM RB 50) (POWER CLASS 2)

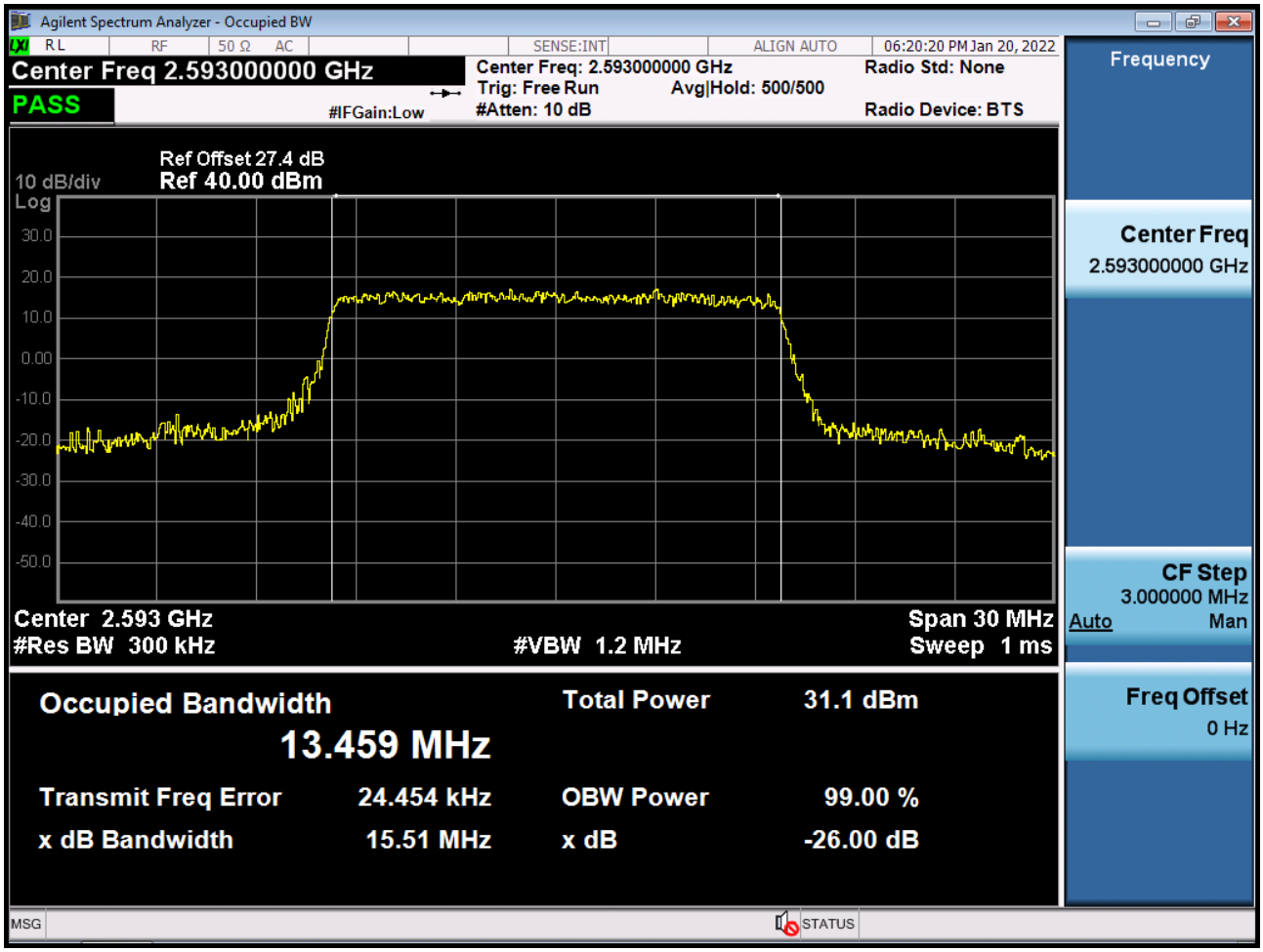
Occupied Bandwidth Plot (15 MHz Ch.40620 QPSK RB 75) (POWER CLASS 2)



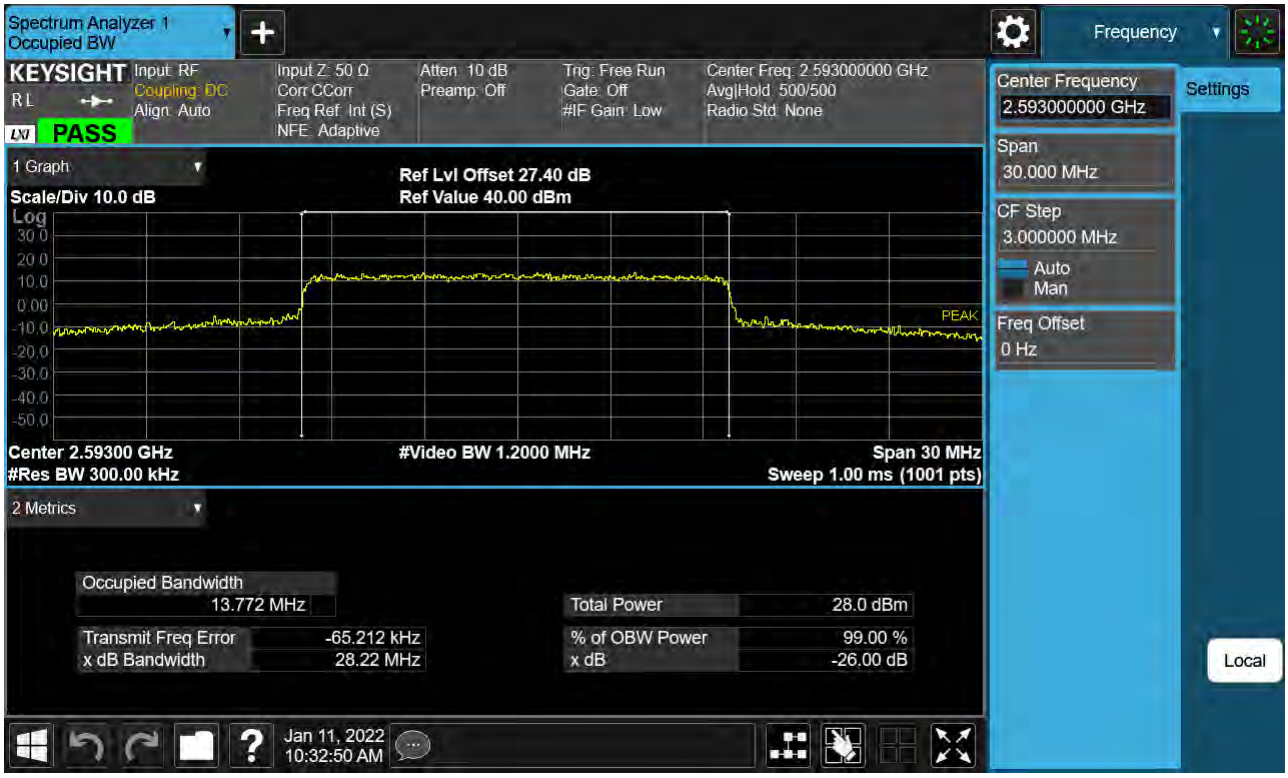
Occupied Bandwidth Plot (15 MHz Ch.40620 16-QAM RB 75) (POWER CLASS 2)



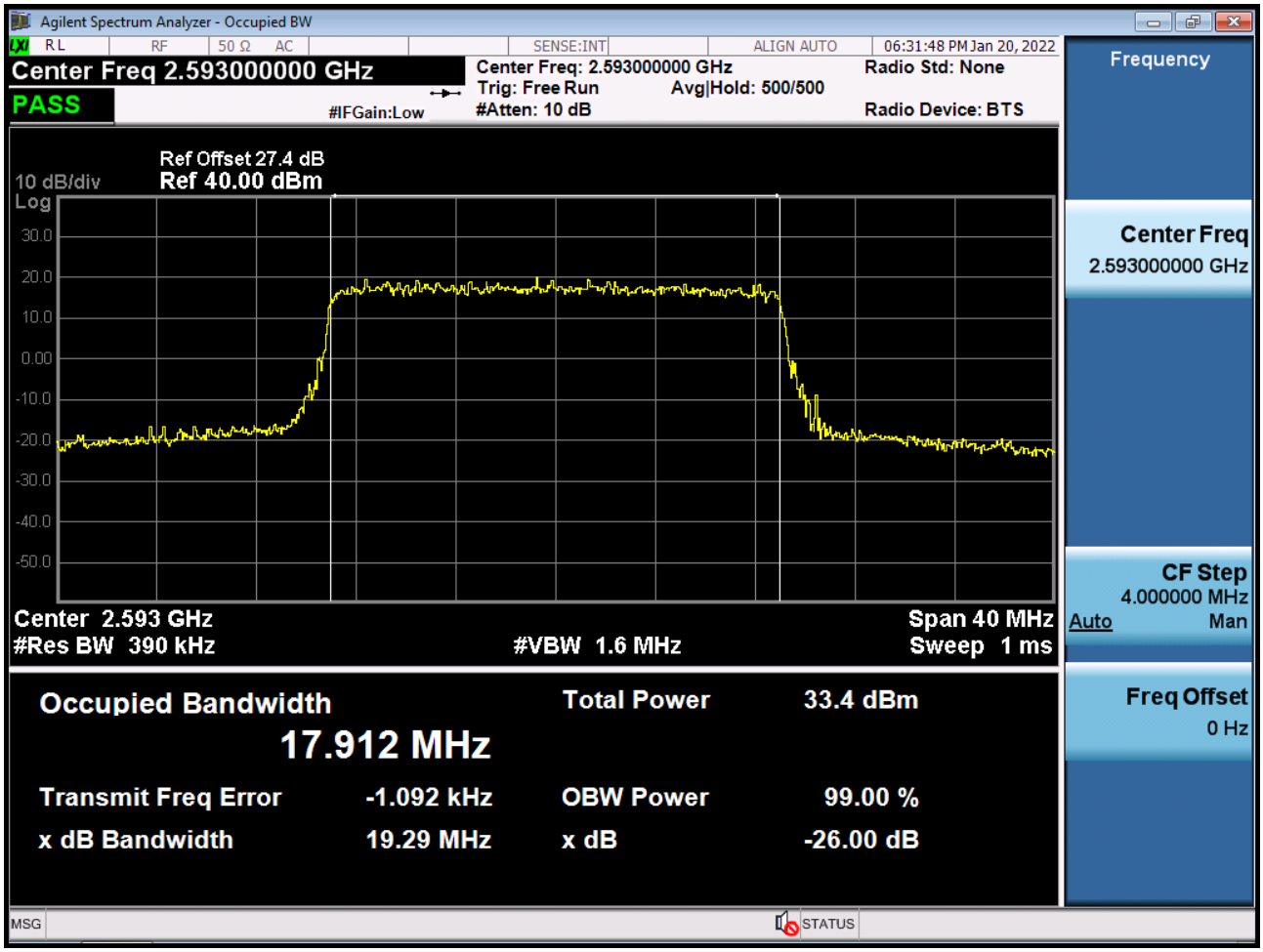
Occupied Bandwidth Plot (15 MHz Ch.40620 64-QAM RB 75) (POWER CLASS 2)



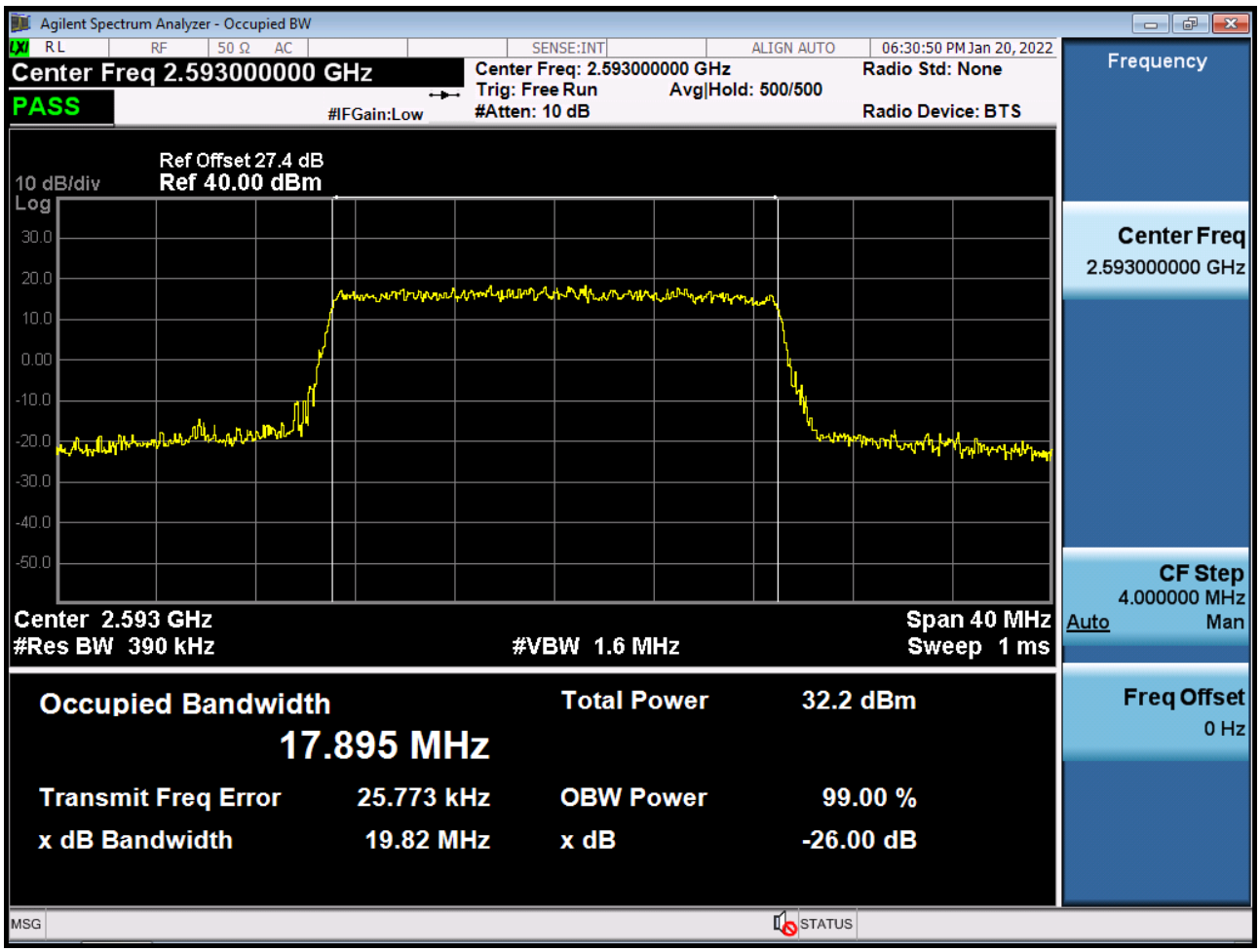
Occupied Bandwidth Plot (15 MHz Ch.40620 256-QAM RB 75) (POWER CLASS 2)



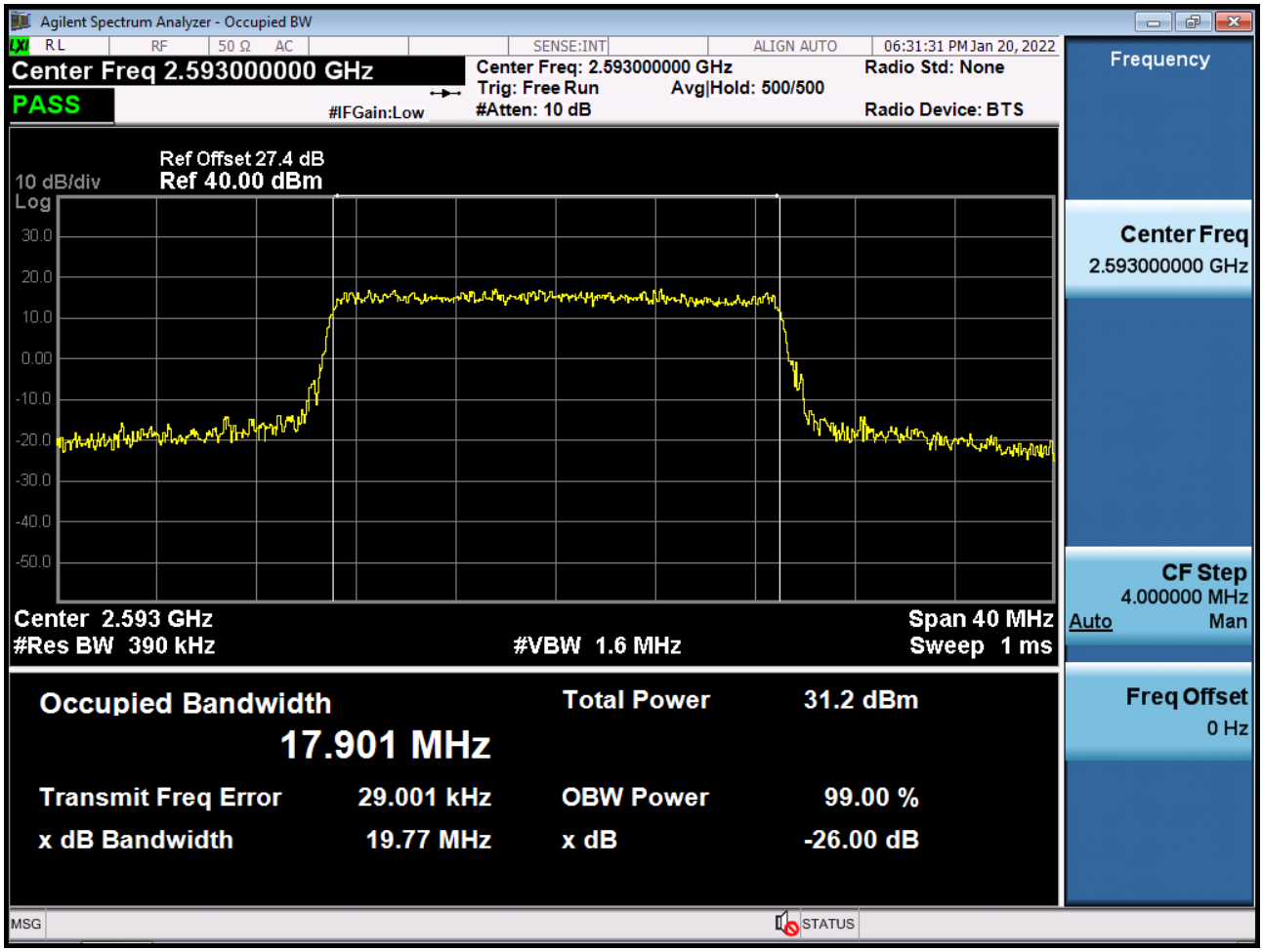
Occupied Bandwidth Plot (20 MHz Ch.40620 QPSK RB 100) (POWER CLASS 2)



Occupied Bandwidth Plot (20 MHz Ch.40620 16-QAM RB 100) (POWER CLASS 2)

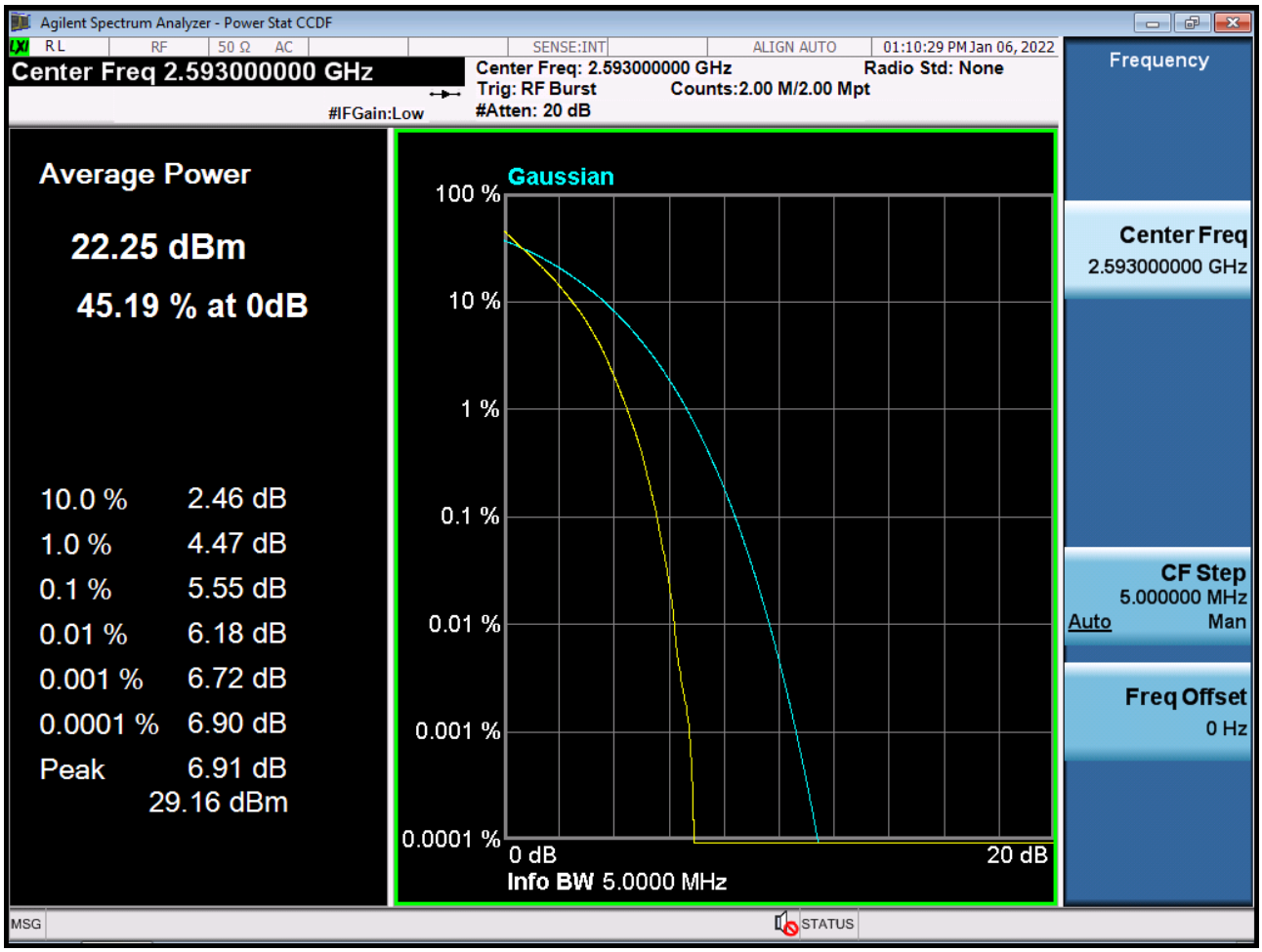


Occupied Bandwidth Plot (20 MHz Ch.40620 64-QAM RB 100) (POWER CLASS 2)



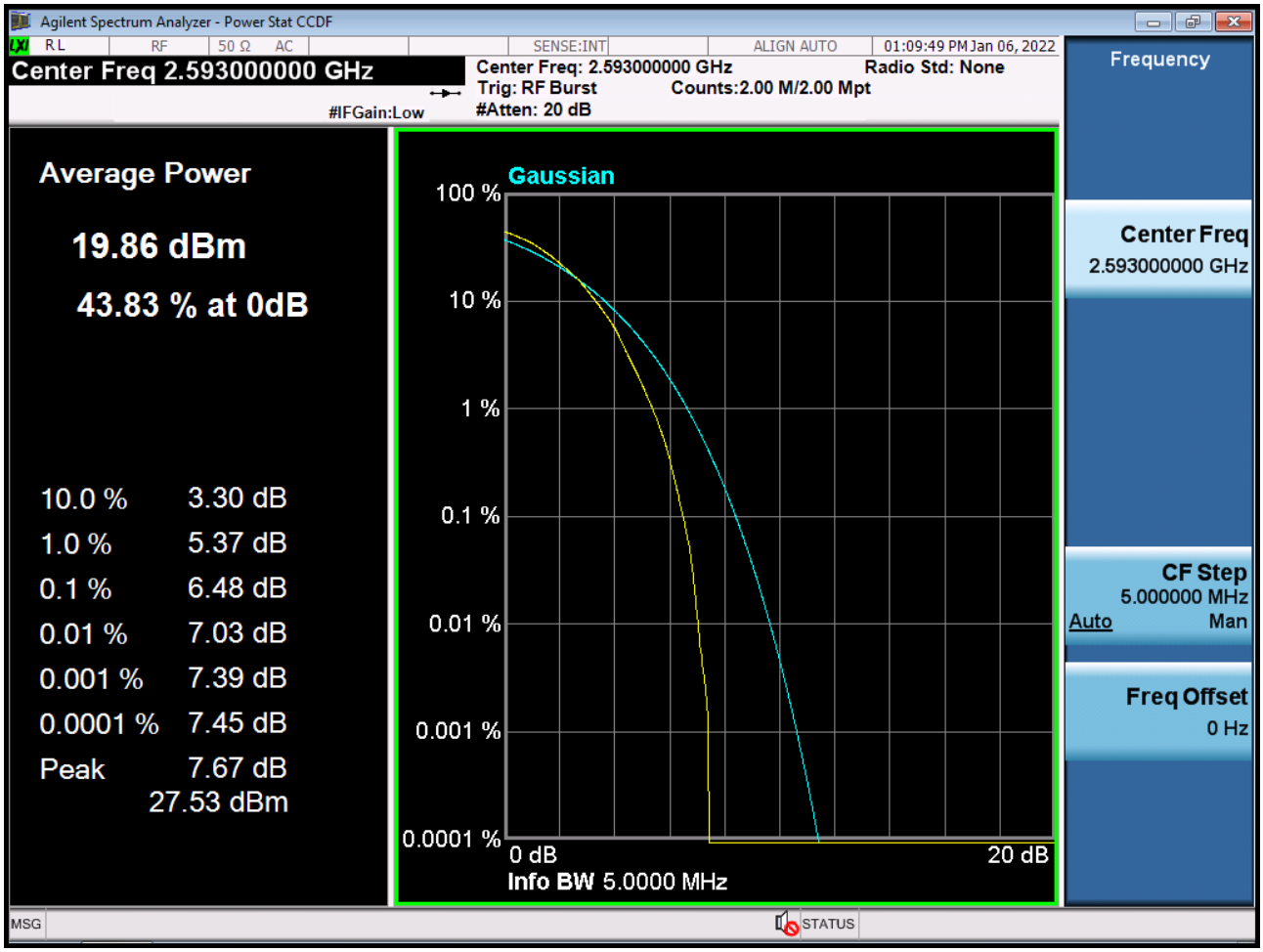
Occupied Bandwidth Plot (20 MHz Ch.40620 256-QAM RB 100) (POWER CLASS 2)

PAR Plot (5 M BW_Ch.40620_QPSK_RB25_0) (POWER CLASS 3)

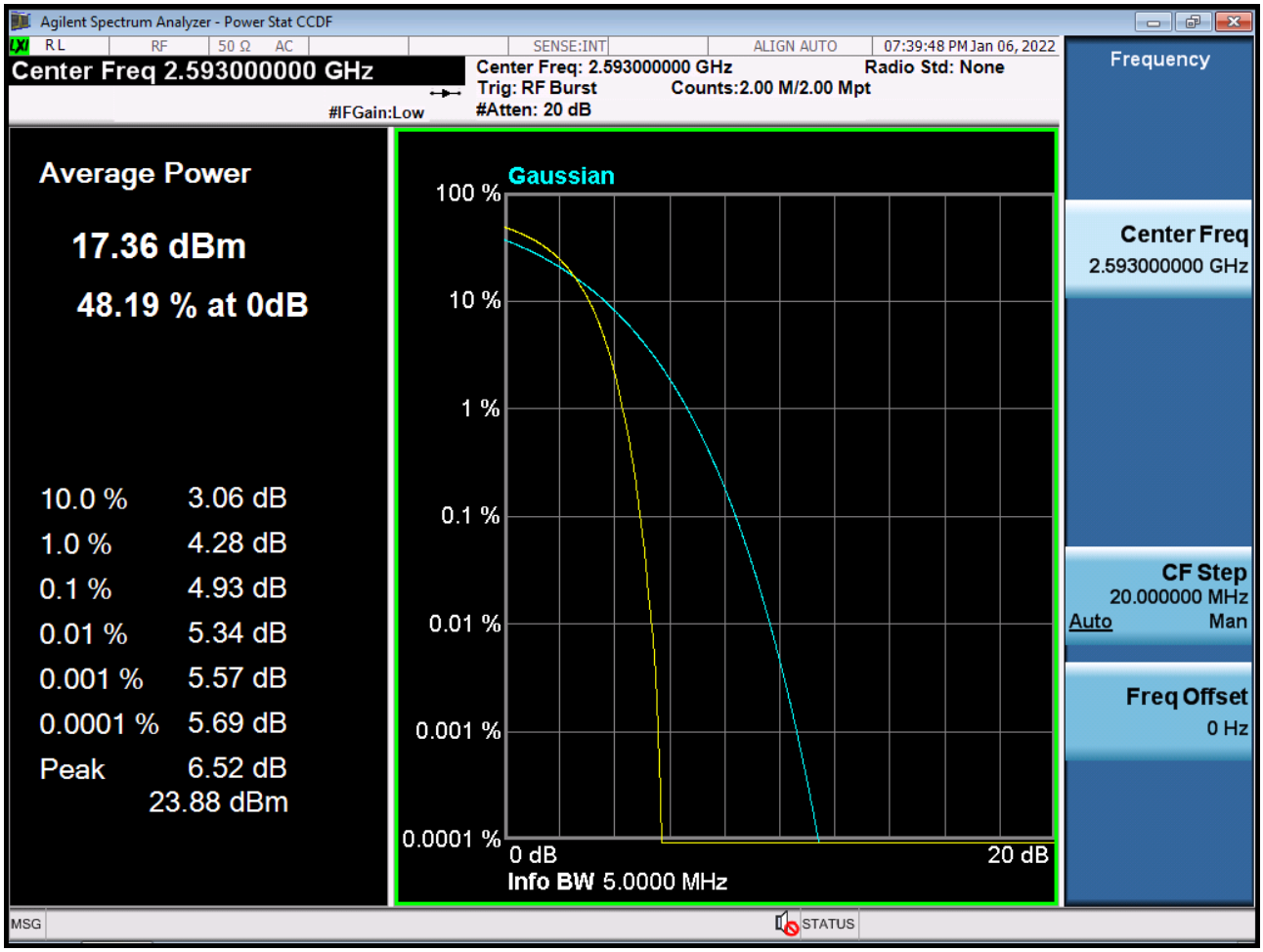


PAR Plot (5 M BW_Ch.40620_16QAM_RB25_0) (POWER CLASS 3)

PAR Plot (5 M BW_Ch.40620_64QAM_RB25_0) (POWER CLASS 3)

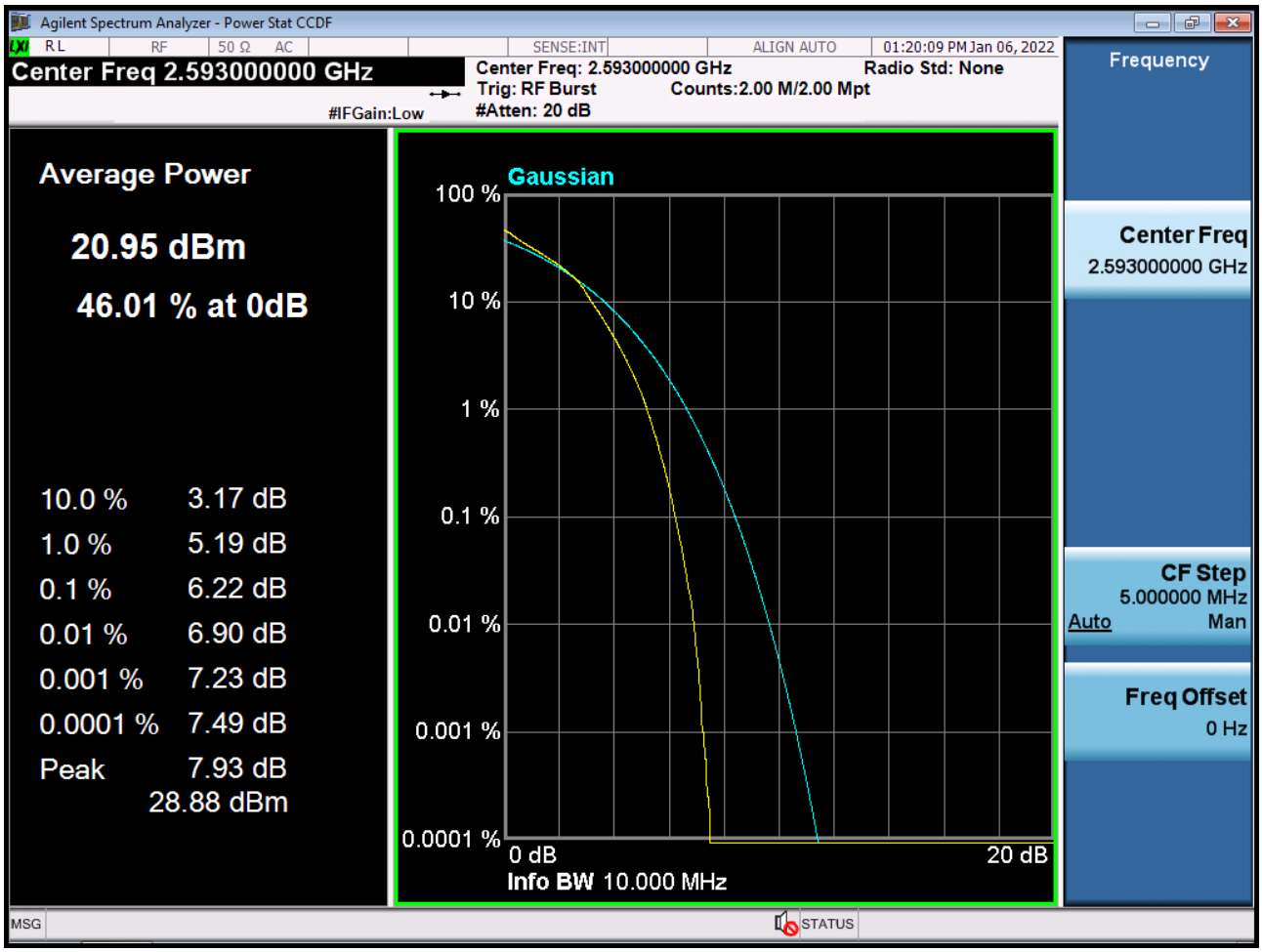


PAR Plot (5 M BW_Ch.40620_256QAM_RB25_0) (POWER CLASS 3)



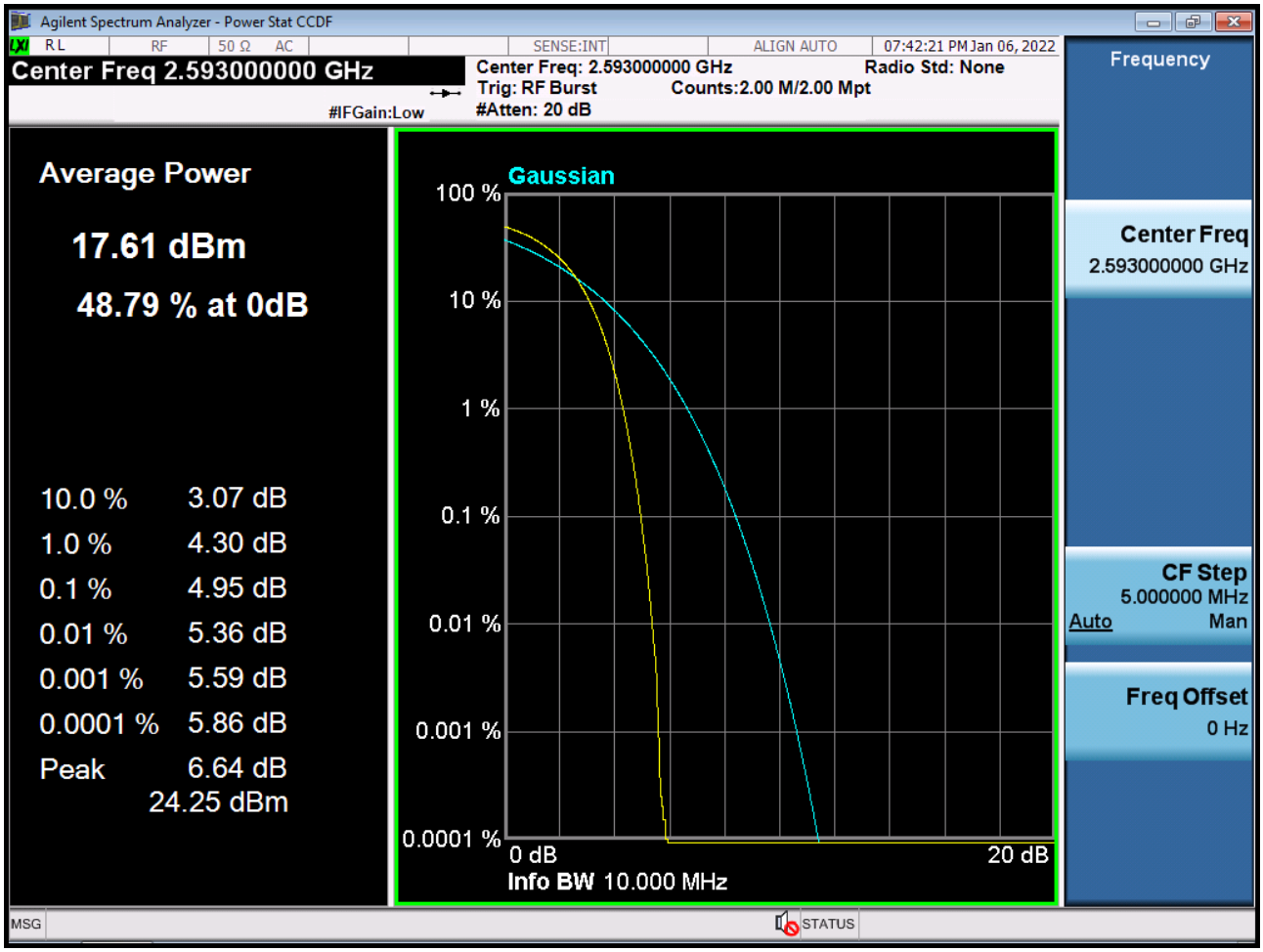
PAR Plot (10 M BW_Ch.40620_QPSK_RB50_0) (POWER CLASS 3)

PAR Plot (10 M BW_Ch.40620_16QAM_RB50_0) (POWER CLASS 3)

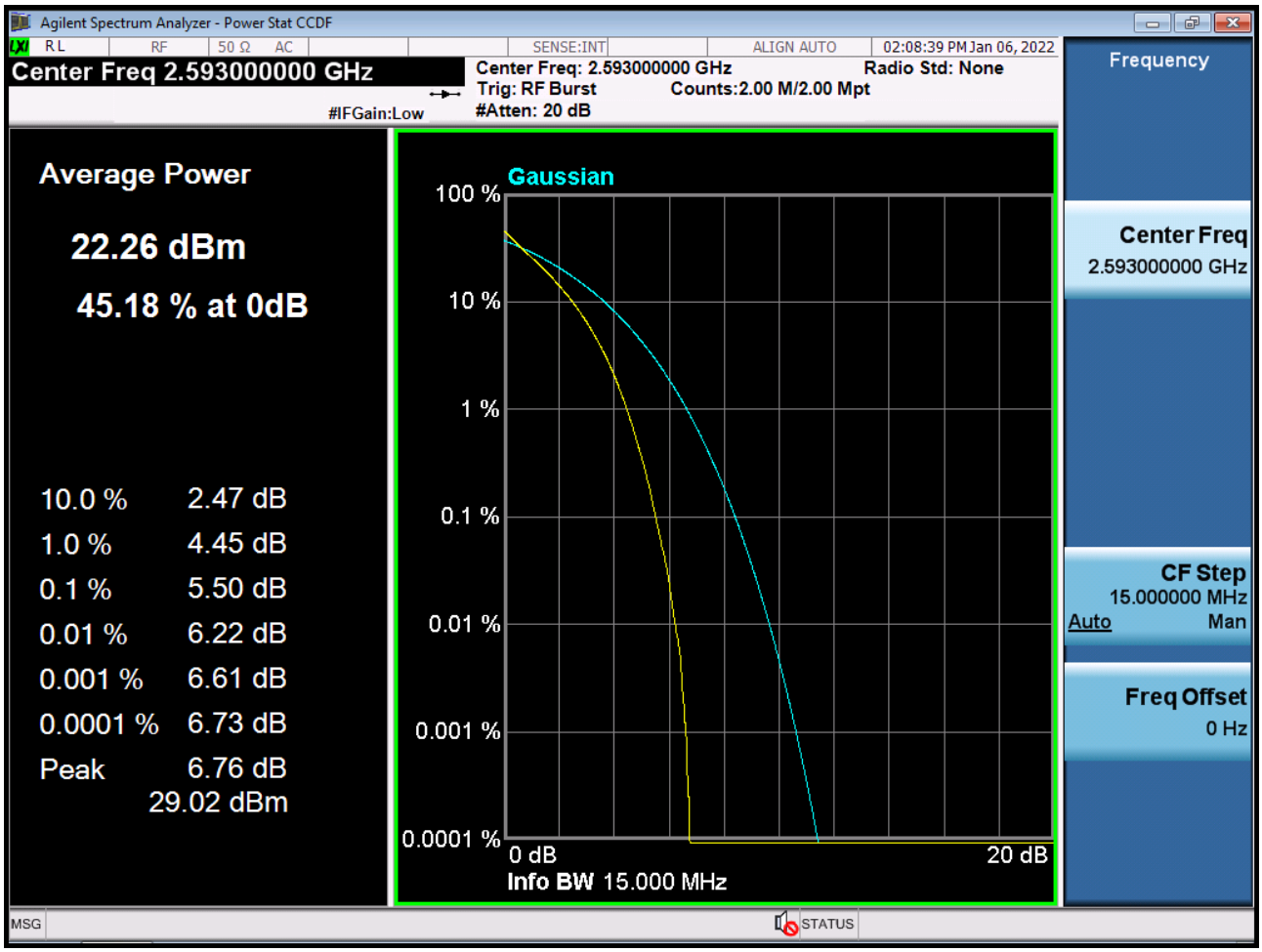


PAR Plot (10 M BW_Ch.40620_64QAM_RB50_0) (POWER CLASS 3)

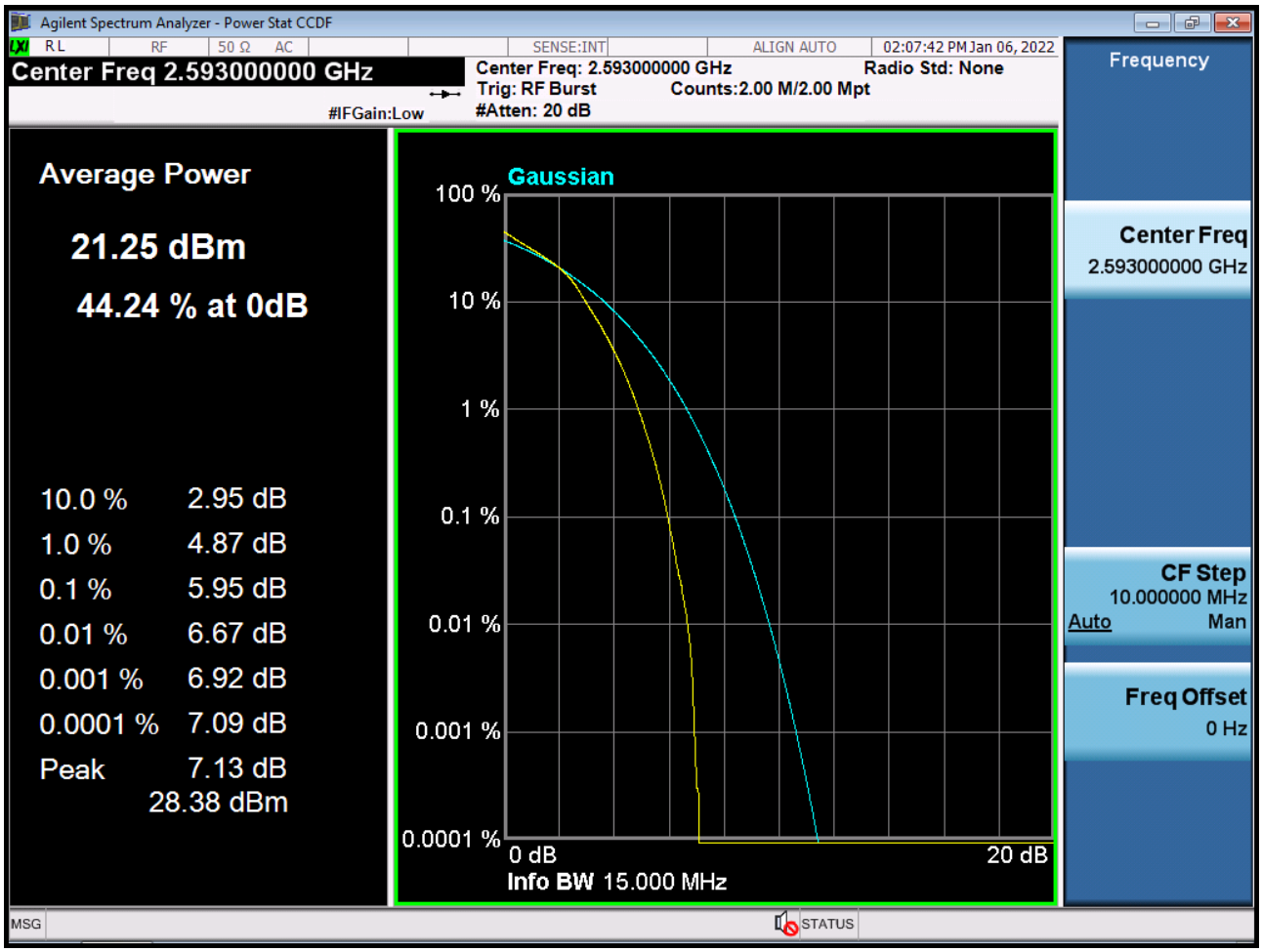
PAR Plot (10 M BW_Ch.40620_256QAM_RB50_0) (POWER CLASS 3)



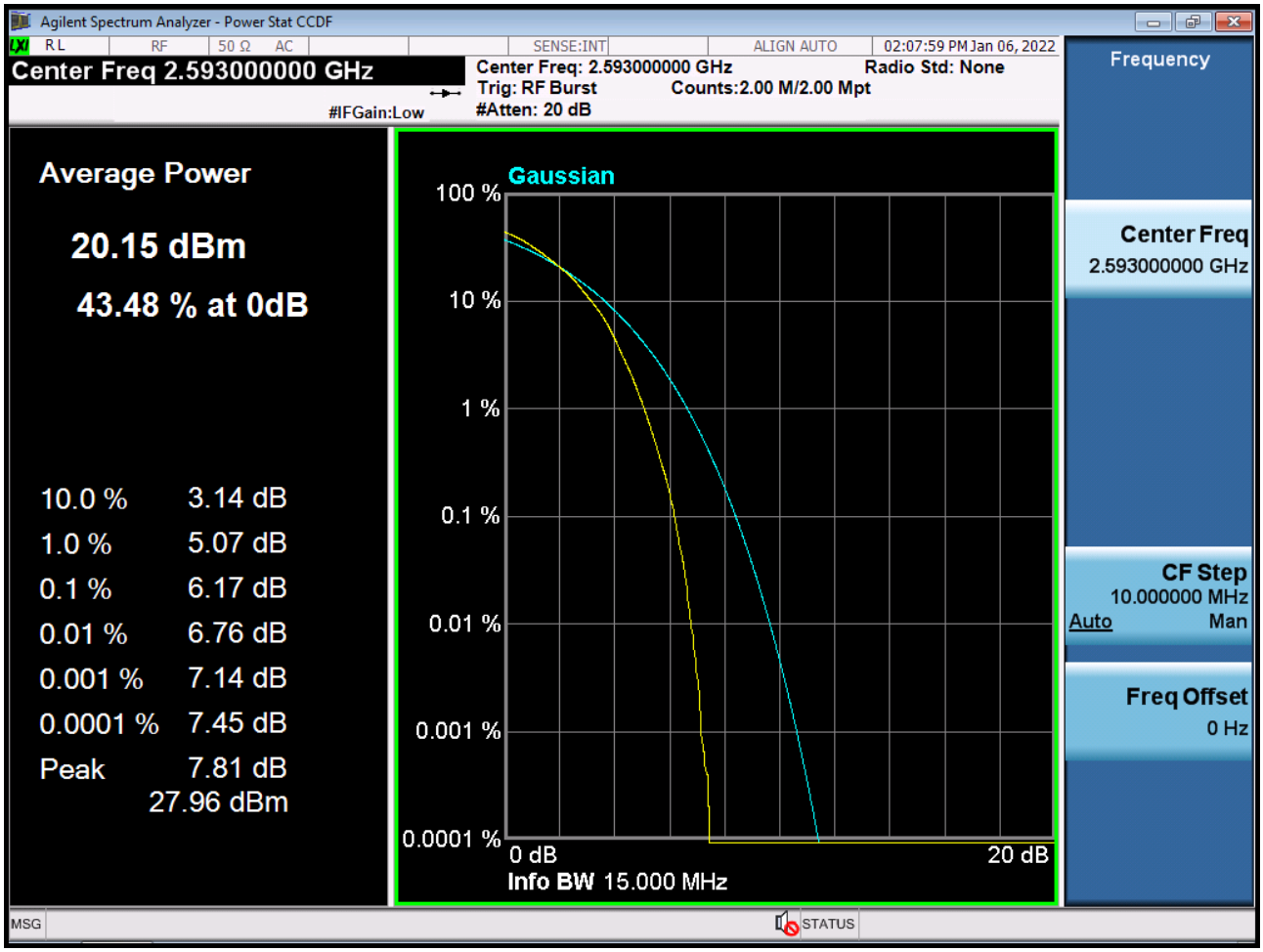
PAR Plot (15 M BW_Ch.40620_QPSK_RB75_0) (POWER CLASS 3)



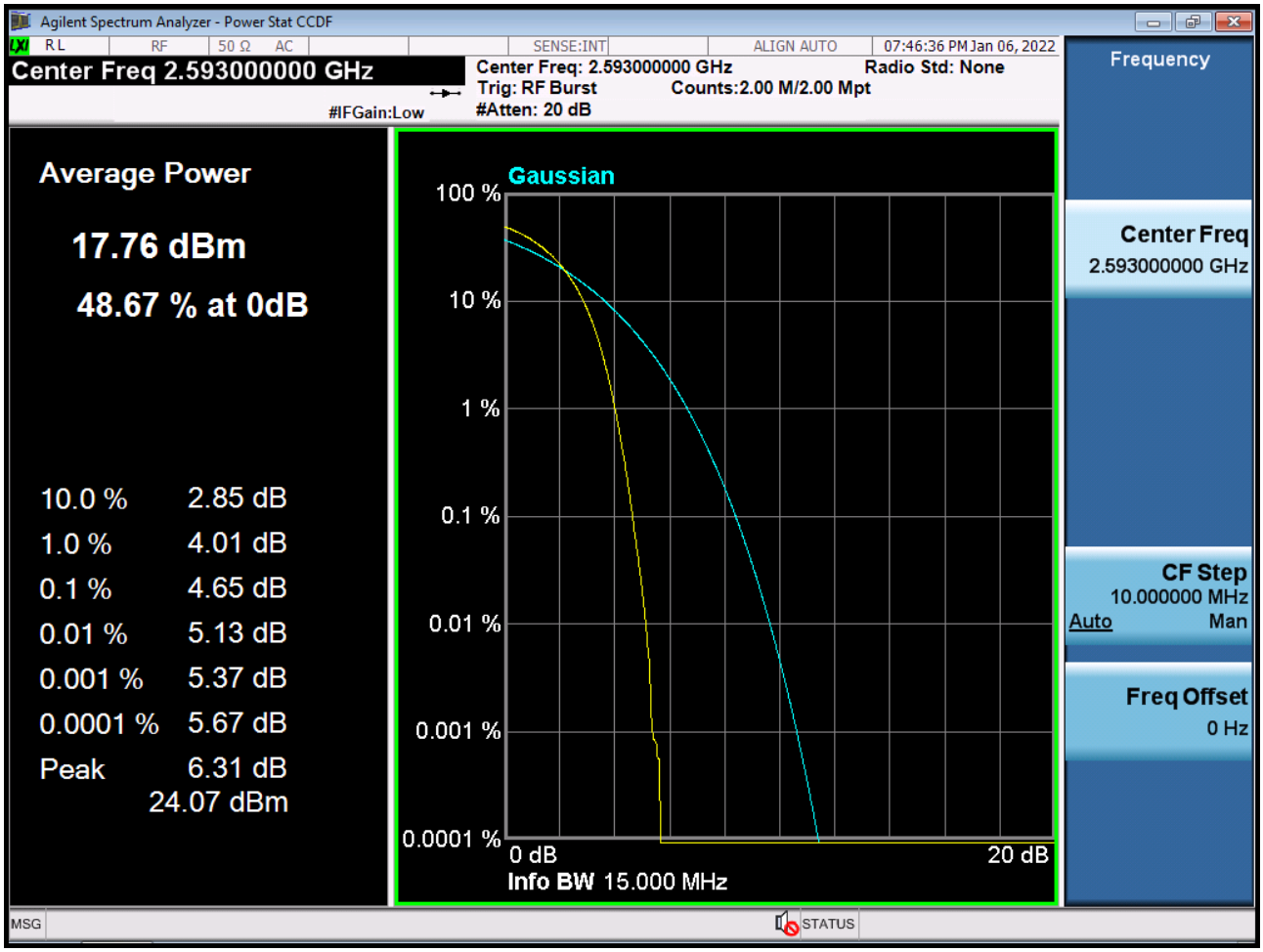
PAR Plot (15 M BW_Ch.40620_16QAM_RB75_0) (POWER CLASS 3)



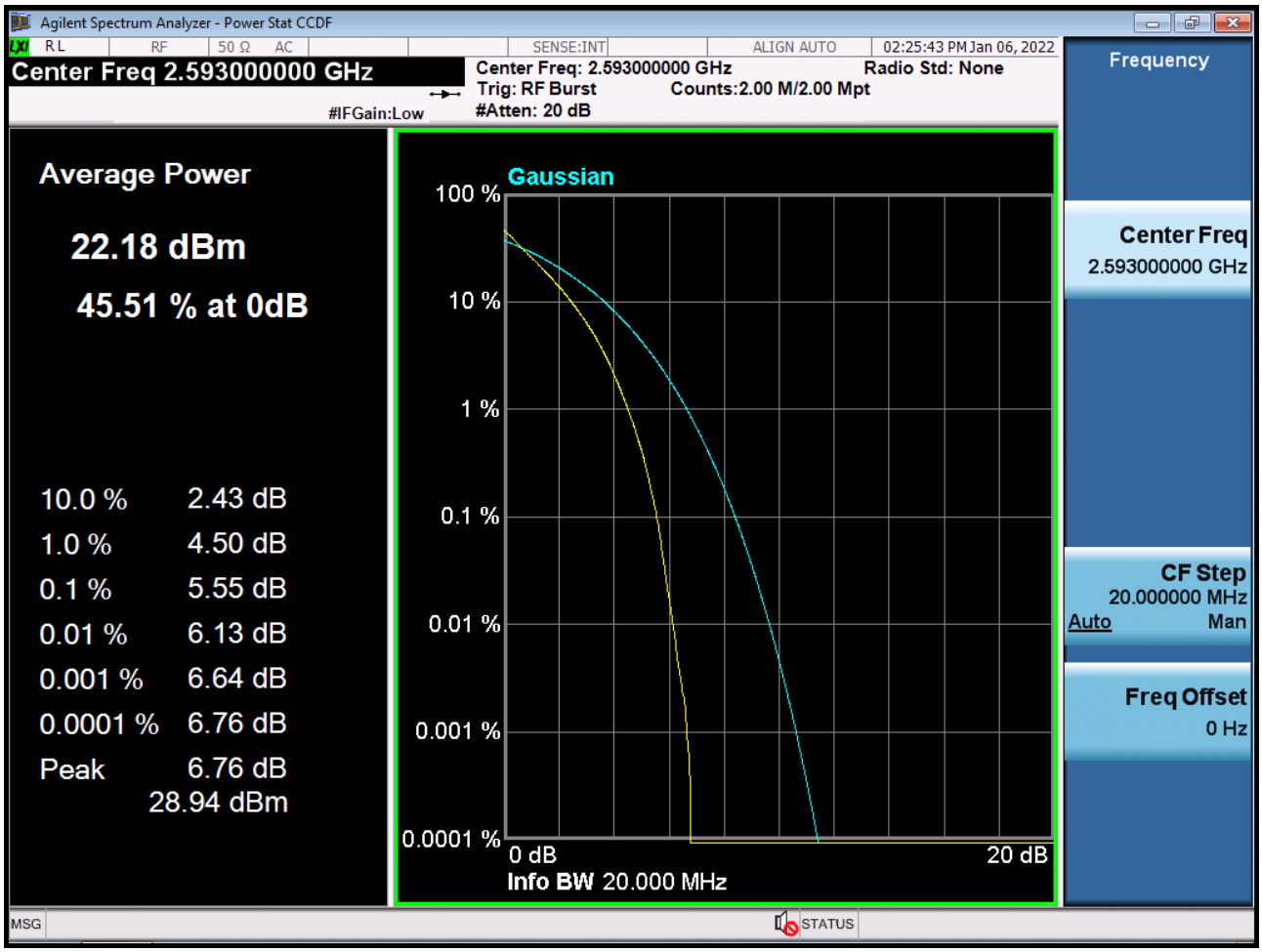
PAR Plot (15 M BW_Ch.40620_64QAM_RB75_0) (POWER CLASS 3)



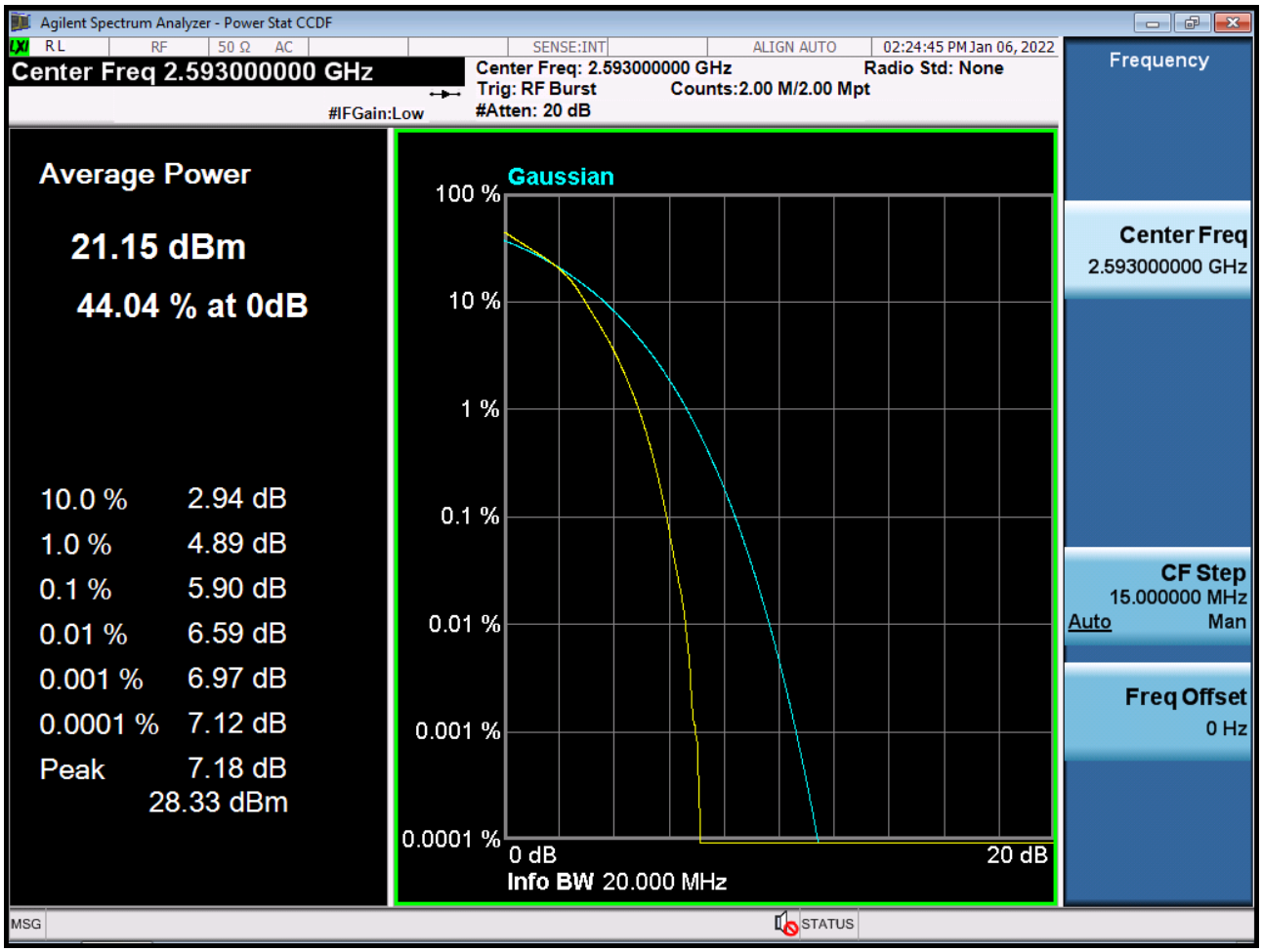
PAR Plot (15 M BW_Ch.40620_256QAM_RB75_0) (POWER CLASS 3)



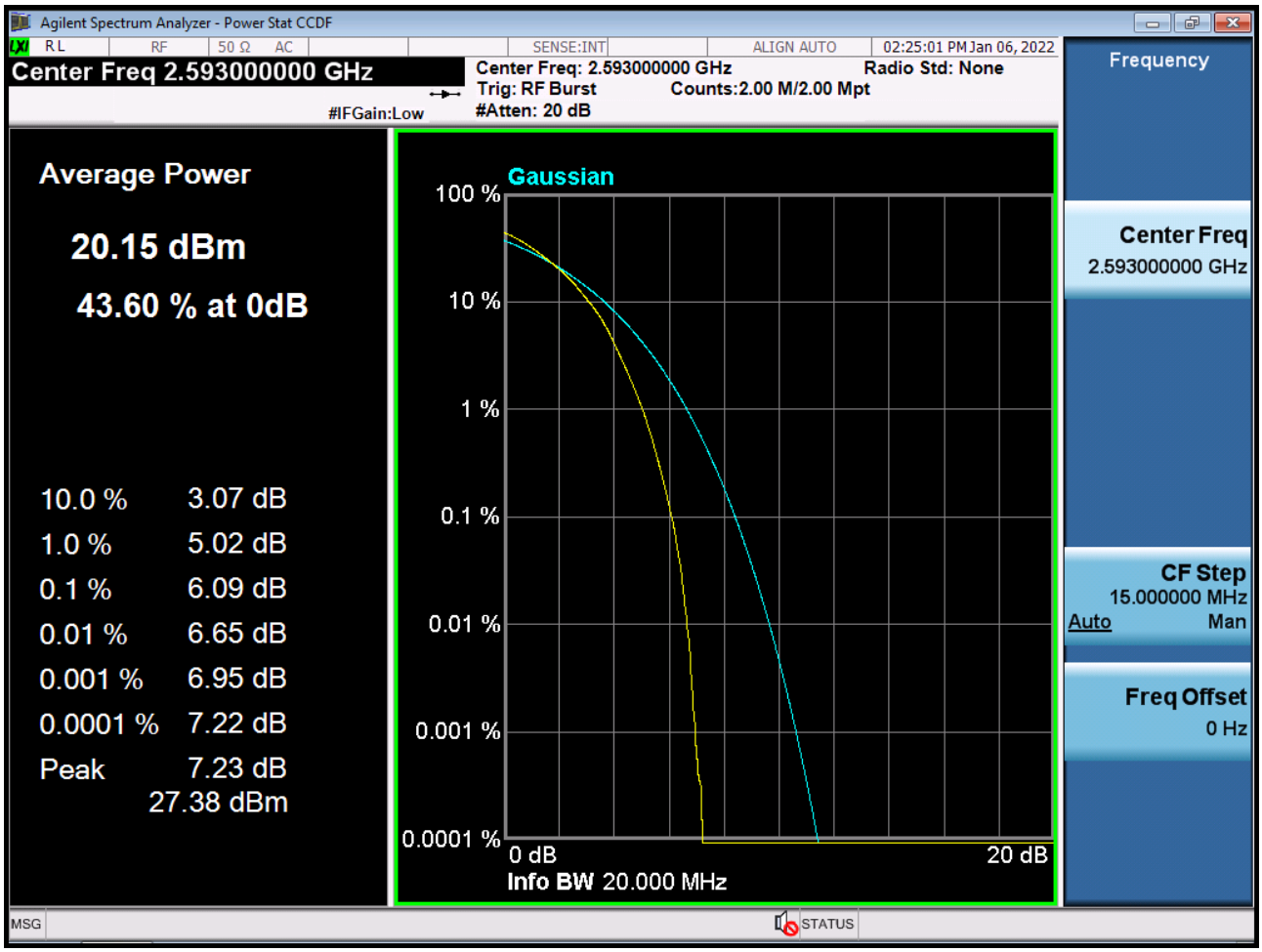
PAR Plot (20 M BW_Ch.40620_QPSK_RB100_0) (POWER CLASS 3)



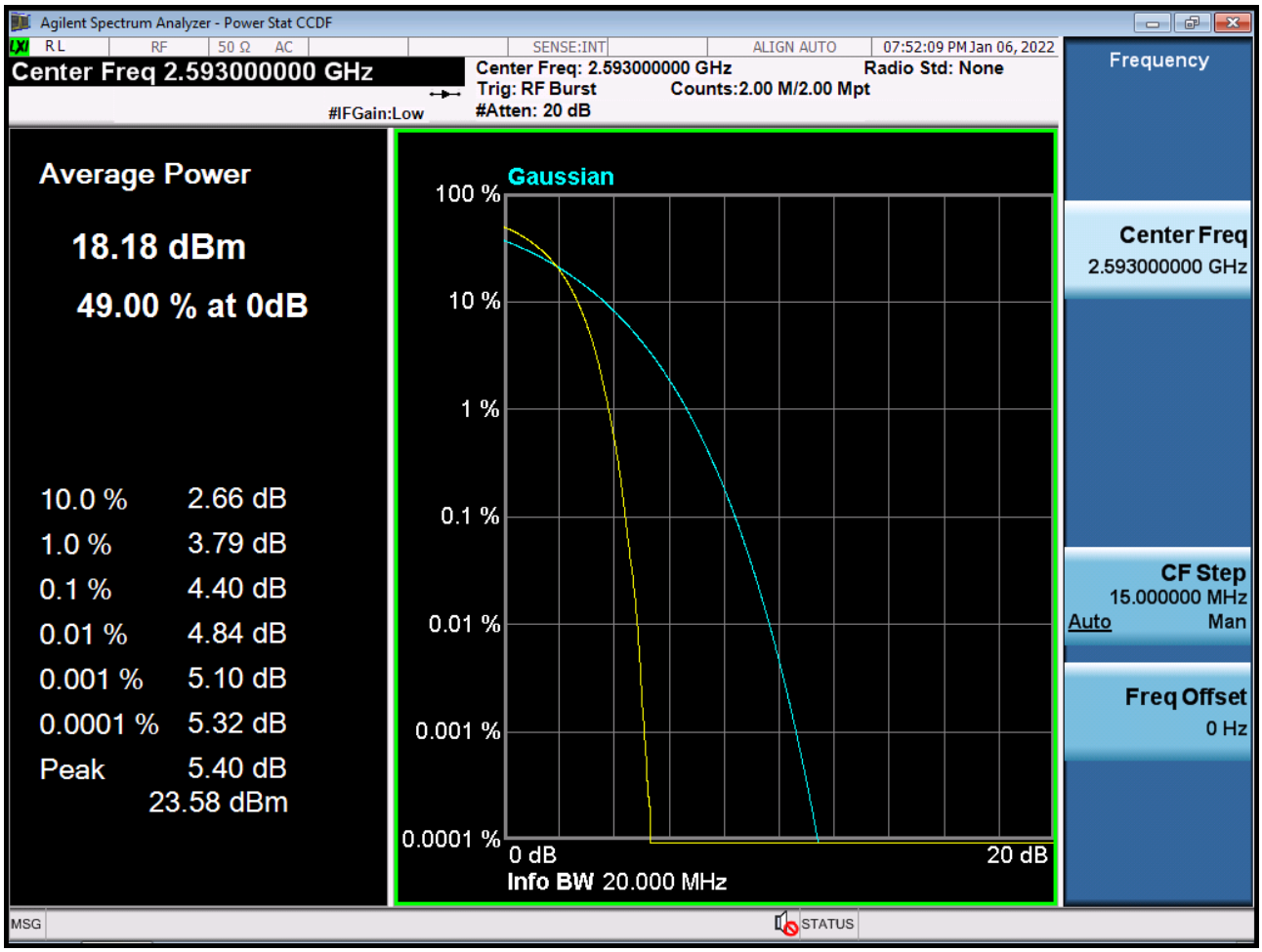
PAR Plot (20 M BW_Ch.40620_16QAM_RB100_0) (POWER CLASS 3)



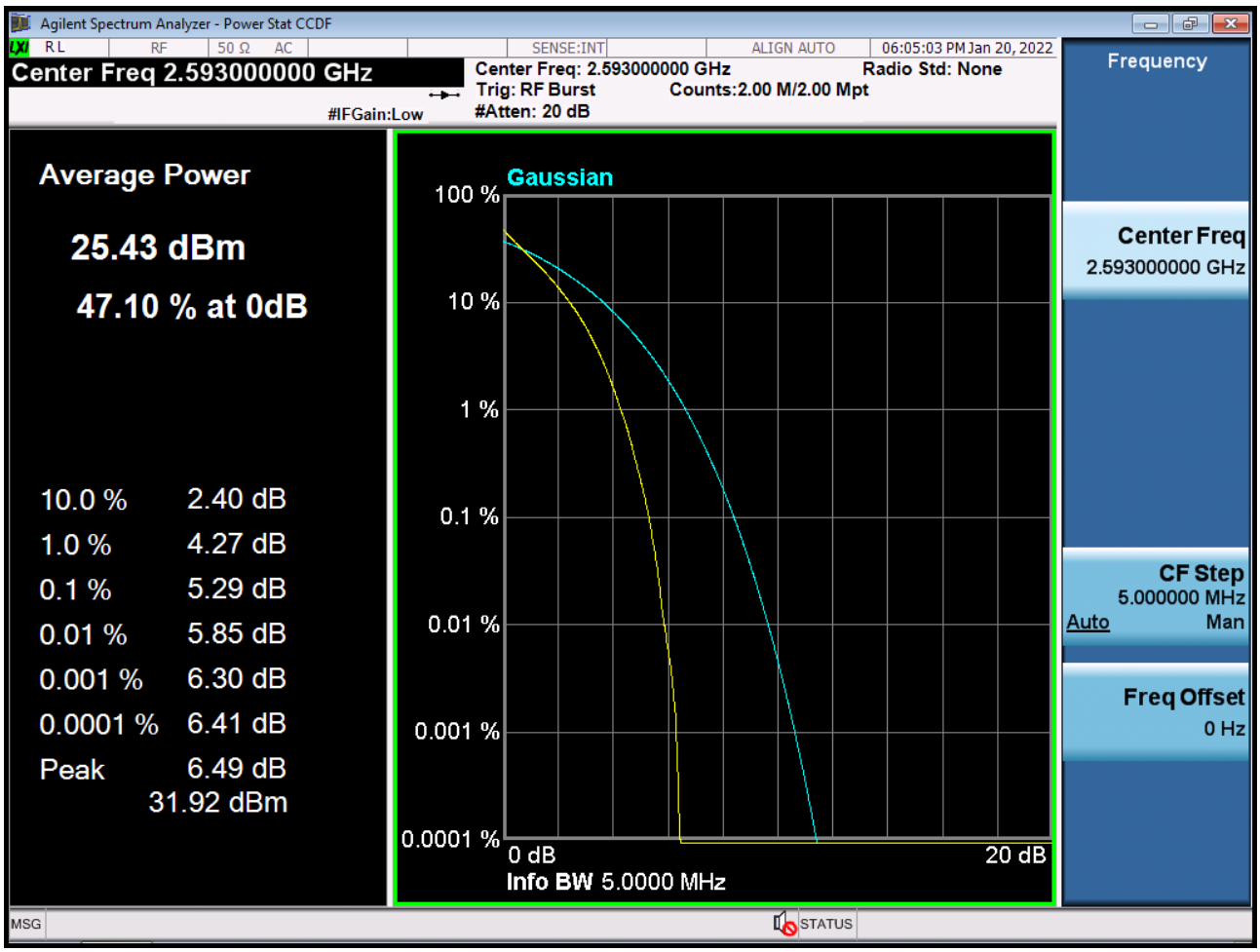
PAR Plot (20 M BW_Ch.40620_64QAM_RB100_0) (POWER CLASS 3)



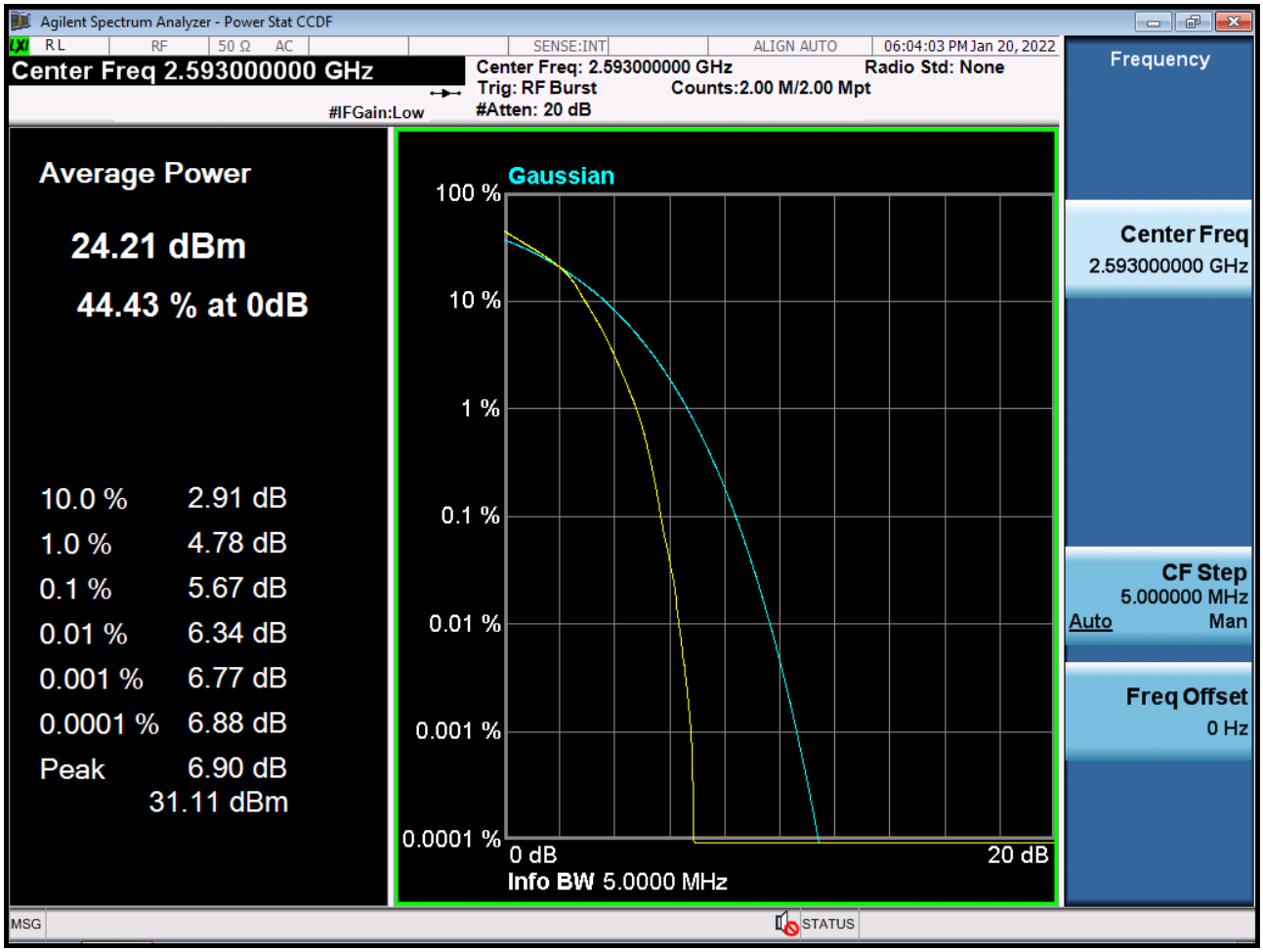
PAR Plot (20 M BW_Ch.40620_256QAM_RB100_0) (POWER CLASS 3)



PAR Plot (5 M BW_Ch.40620_QPSK_RB25_0) (POWER CLASS 2)

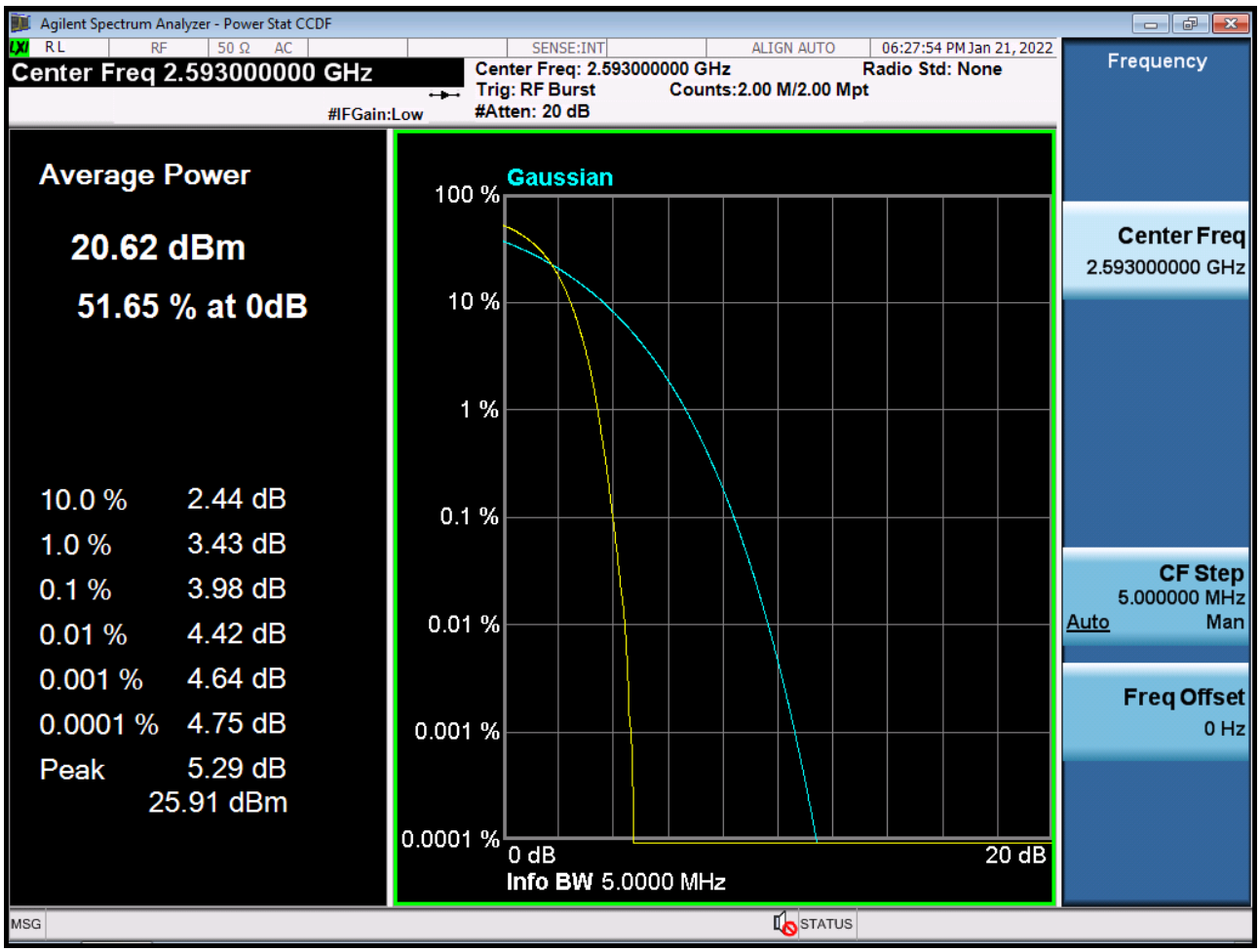


PAR Plot (5 M BW_Ch.40620_16QAM_RB25_0) (POWER CLASS 2)

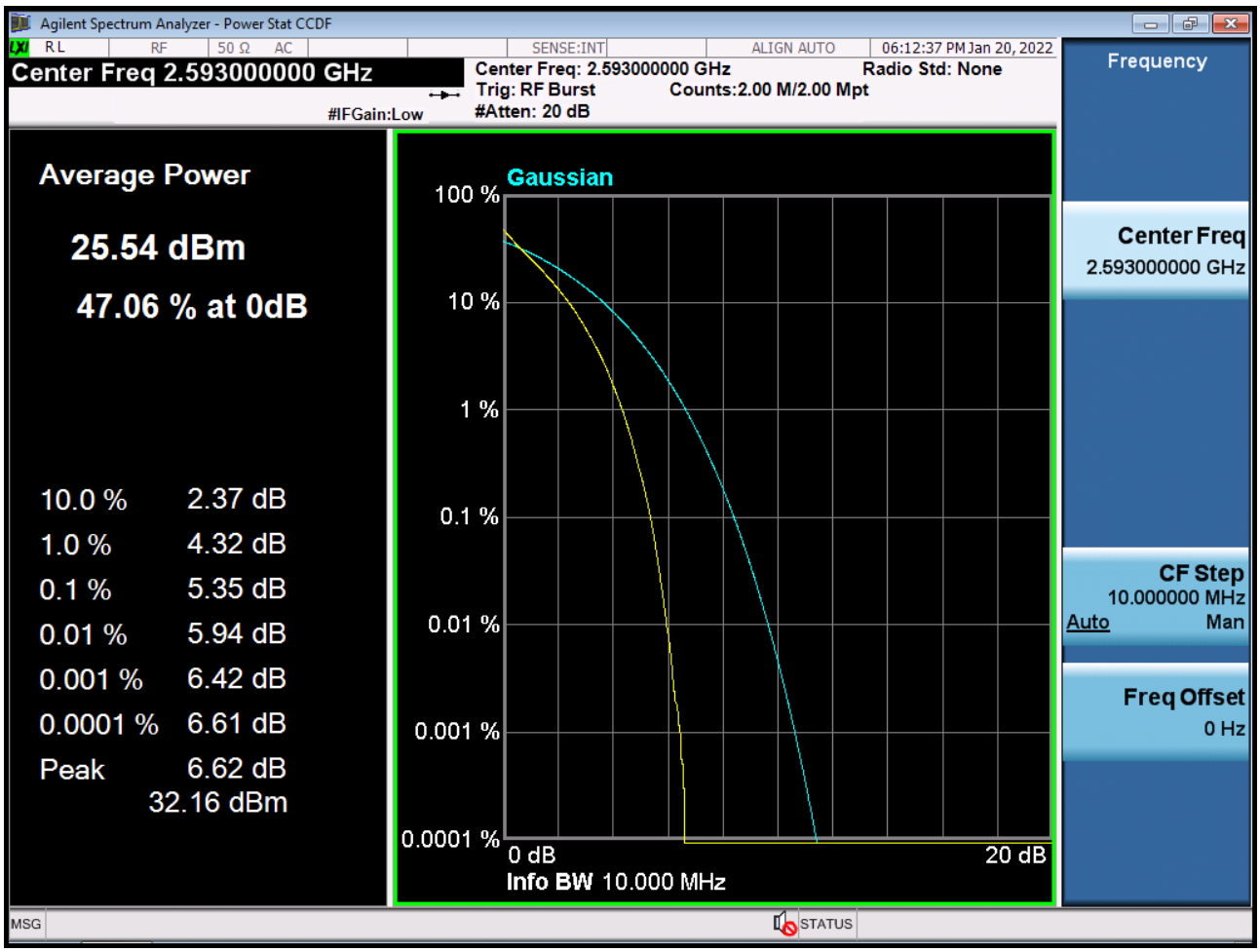


PAR Plot (5 M BW_Ch.40620_64QAM_RB25_0) (POWER CLASS 2)

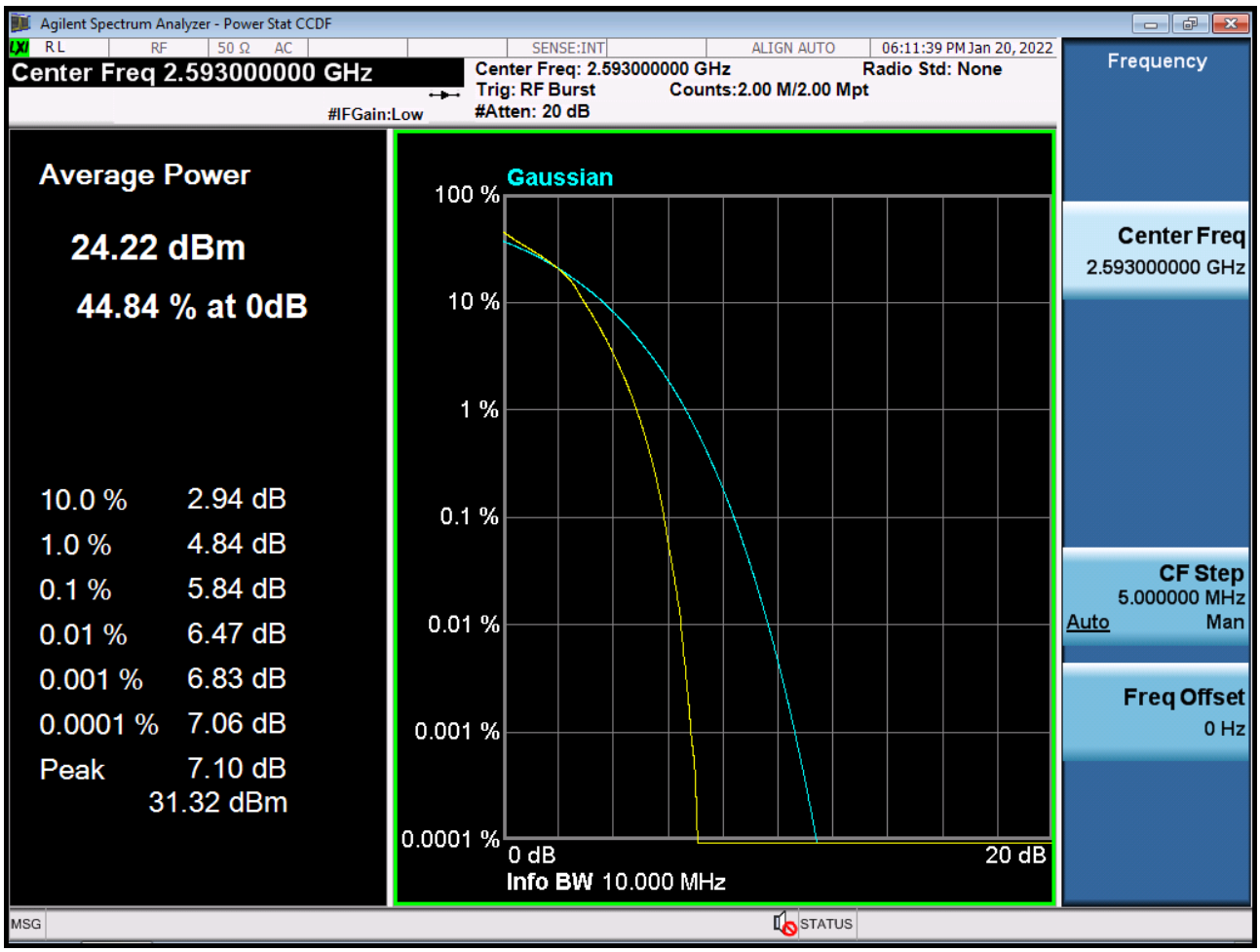
PAR Plot (5 M BW_Ch.40620_256QAM_RB25_0) (POWER CLASS 2)



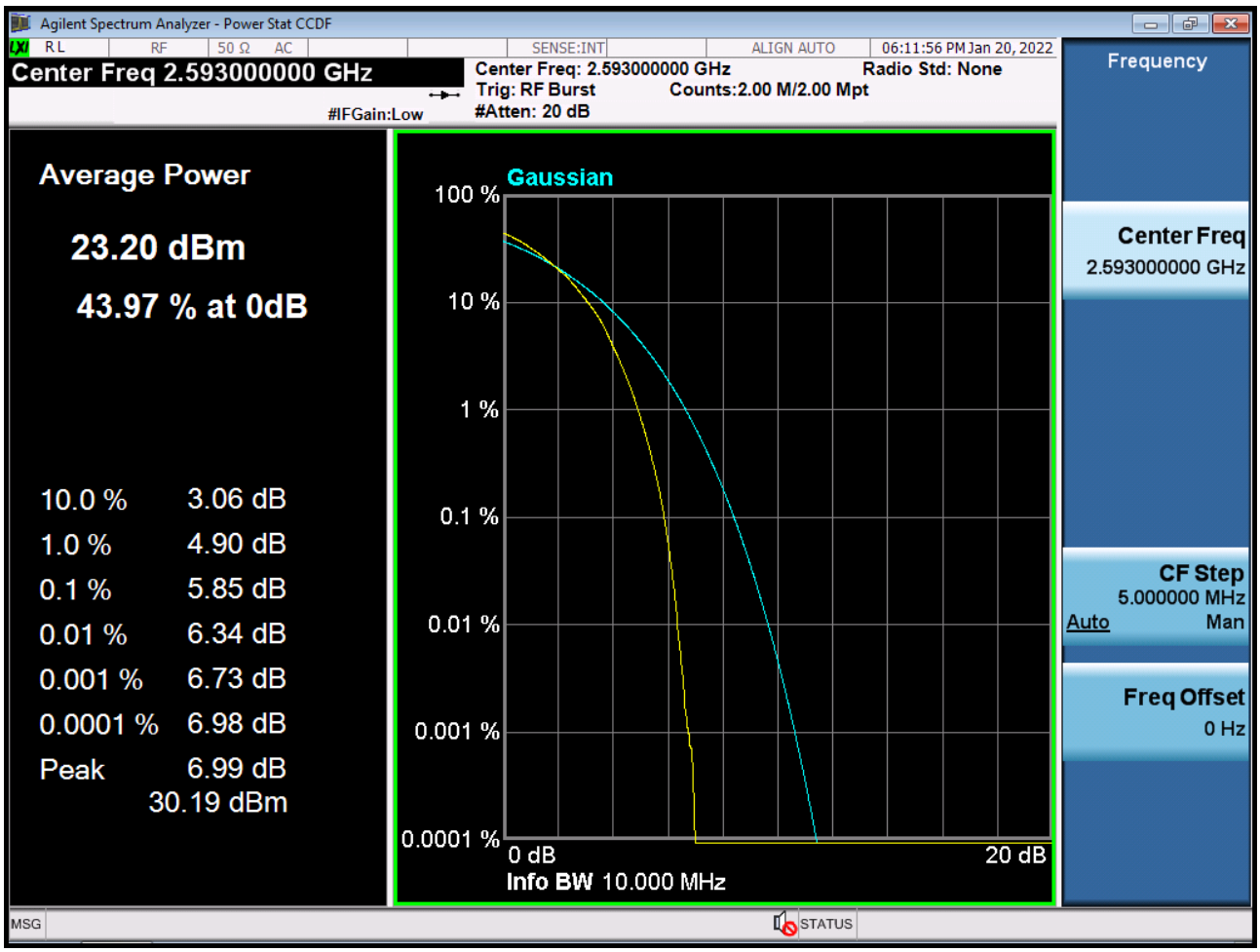
PAR Plot (10 M BW_Ch.40620_QPSK_RB50_0) (POWER CLASS 2)



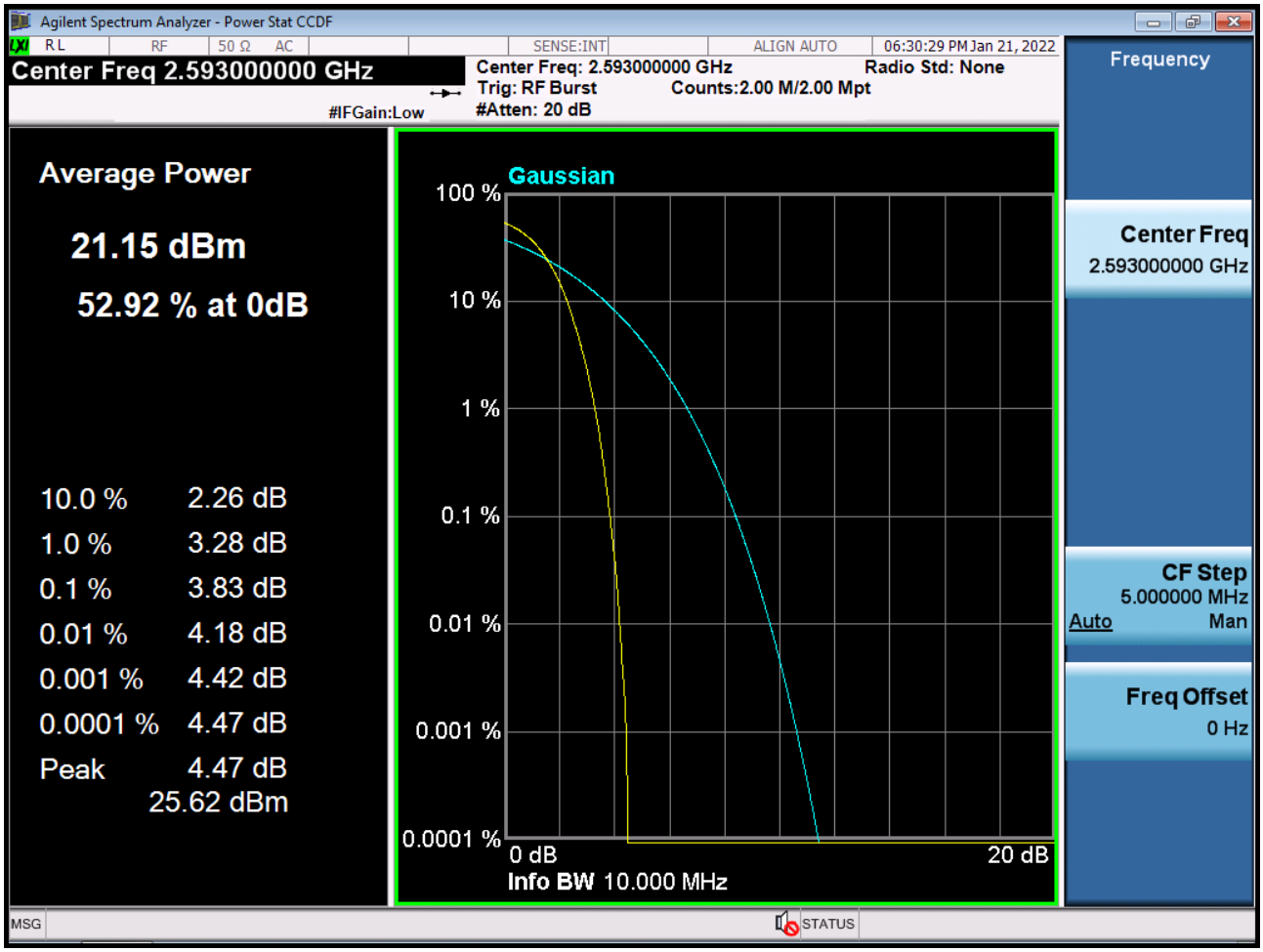
PAR Plot (10 M BW_Ch.40620_16QAM_RB50_0) (POWER CLASS 2)



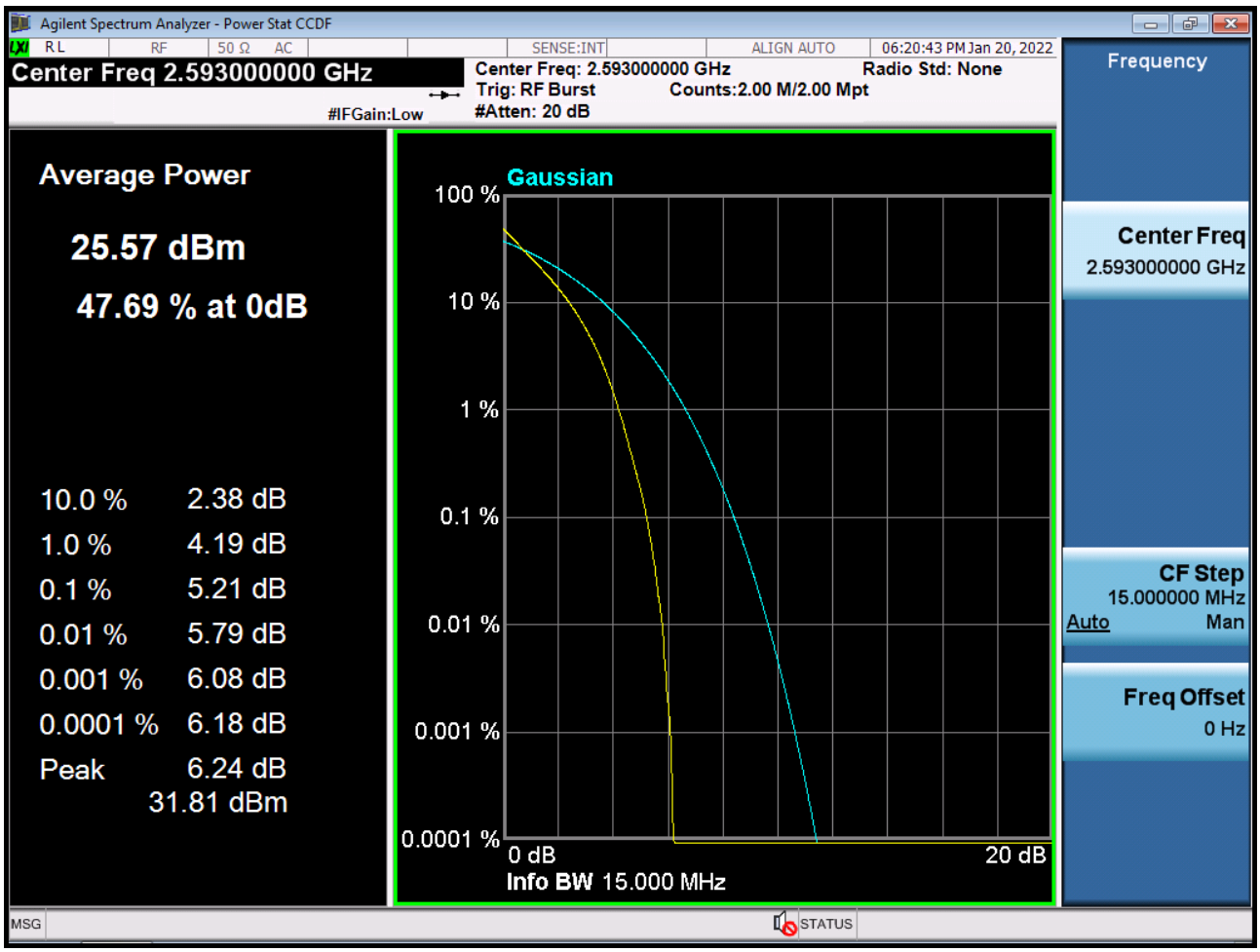
PAR Plot (10 M BW_Ch.40620_64QAM_RB50_0) (POWER CLASS 2)



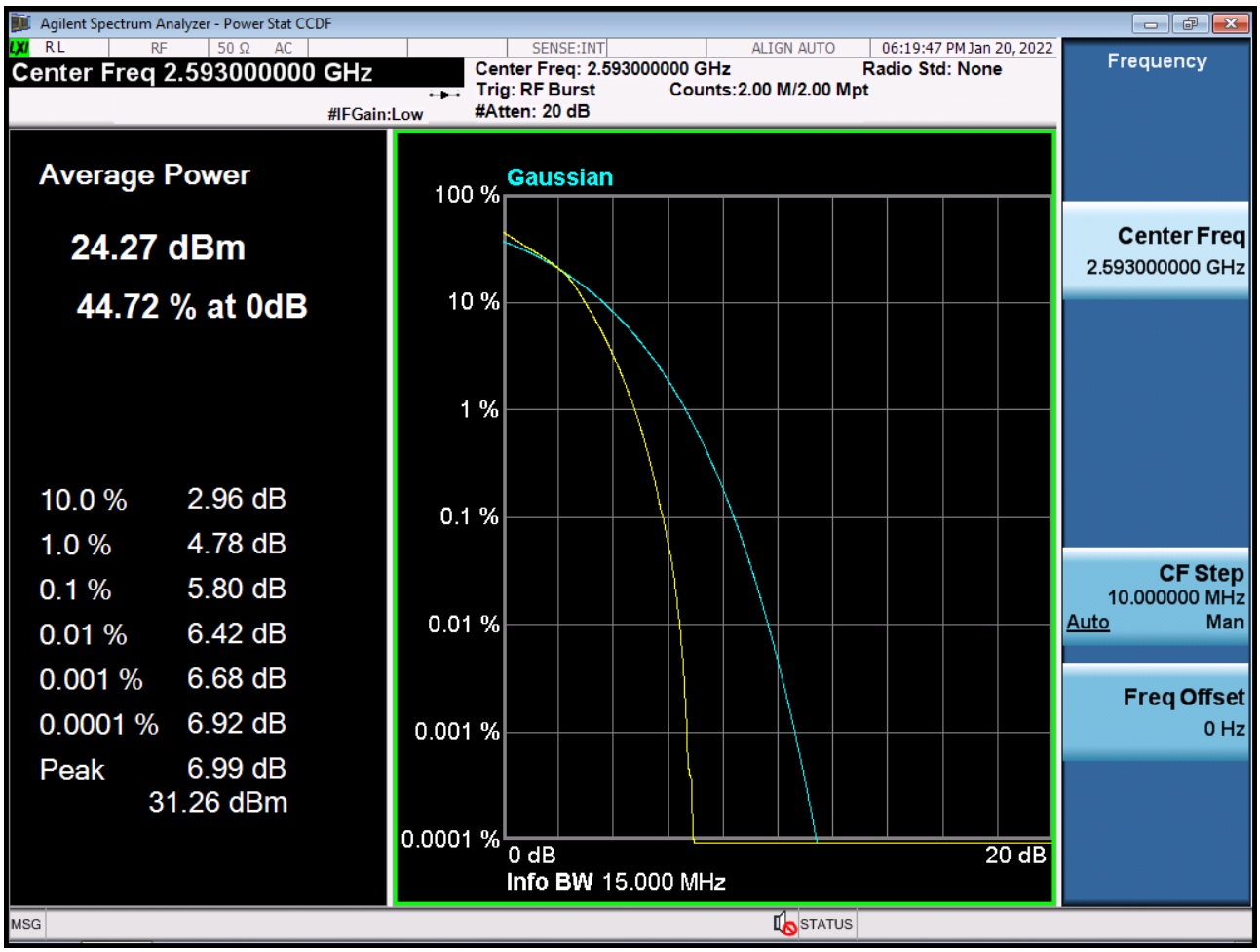
PAR Plot (10 M BW_Ch.40620_256QAM_RB50_0) (POWER CLASS 2)



PAR Plot (15 M BW_Ch.40620_QPSK_RB75_0) (POWER CLASS 2)

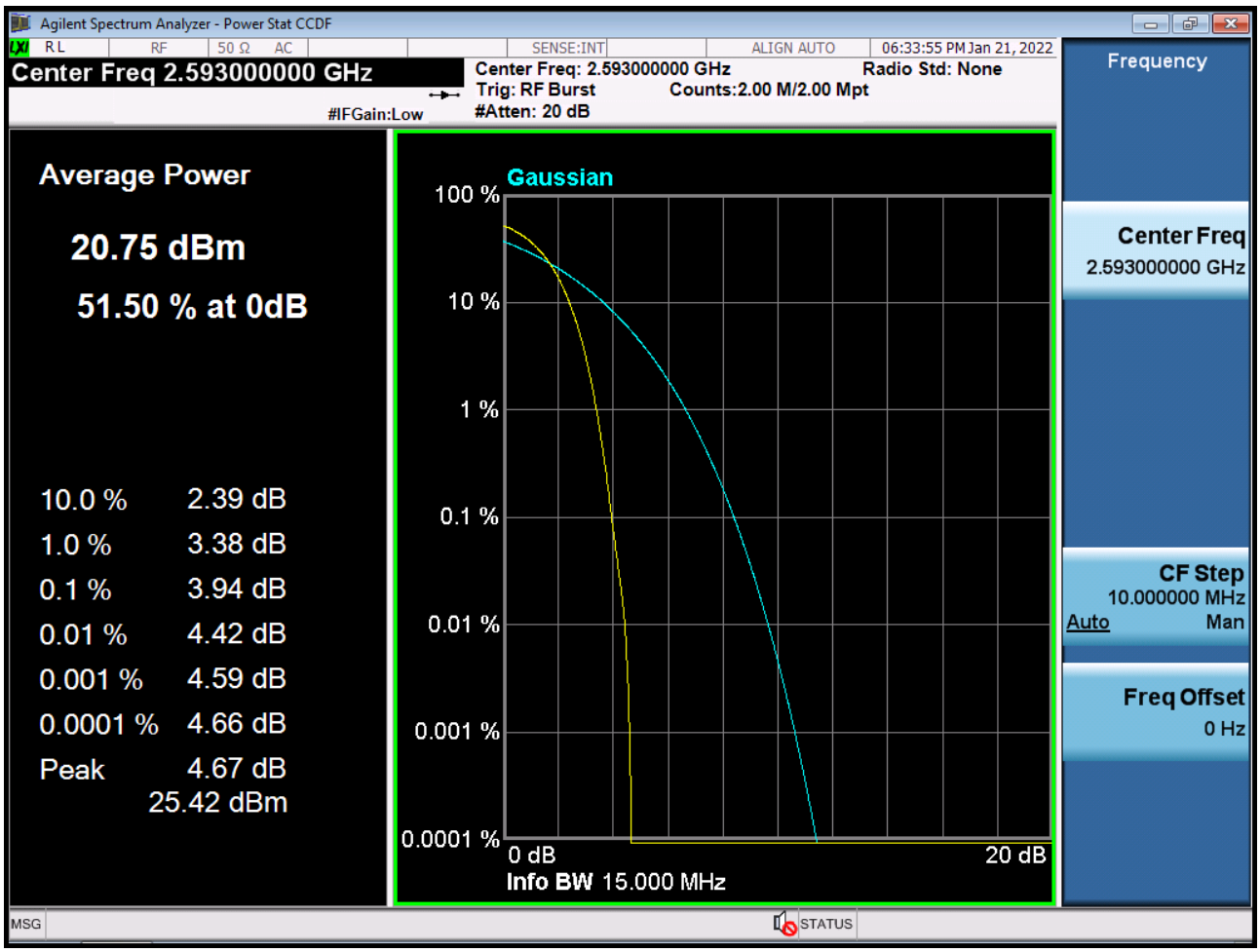


PAR Plot (15 M BW_Ch.40620_16QAM_RB75_0) (POWER CLASS 2)

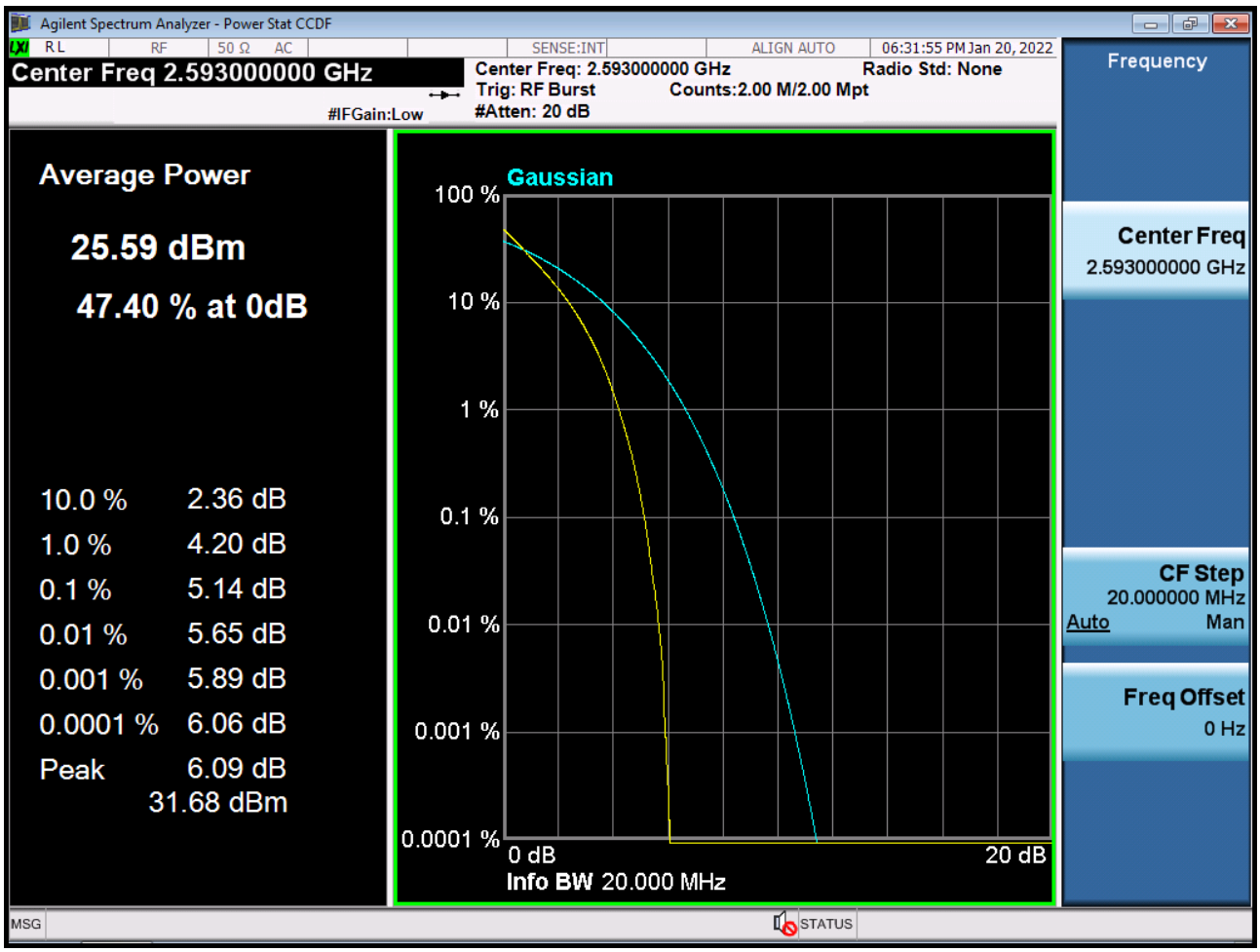


PAR Plot (15 M BW_Ch.40620_64QAM_RB75_0) (POWER CLASS 2)

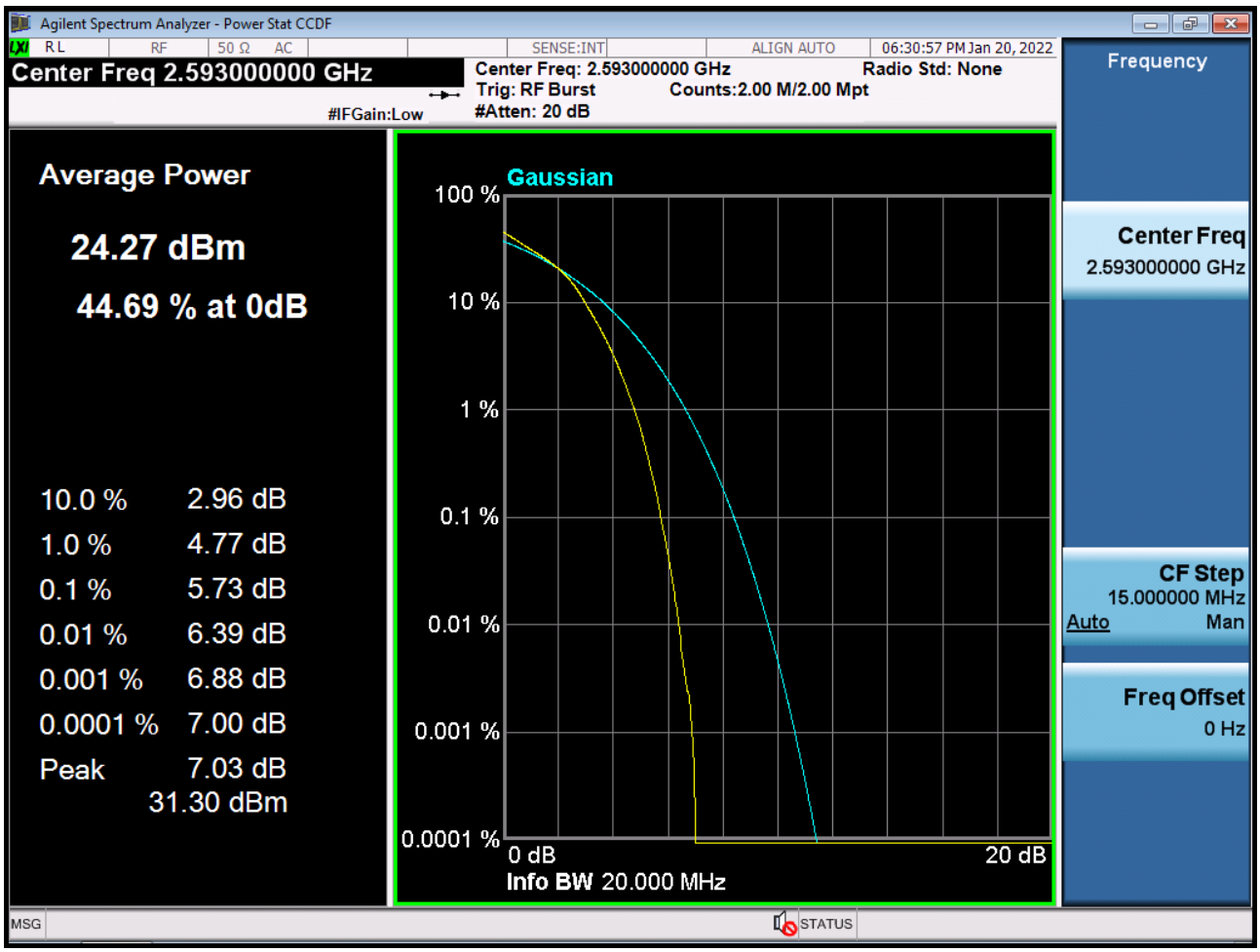
PAR Plot (15 M BW_Ch.40620_256QAM_RB75_0) (POWER CLASS 2)



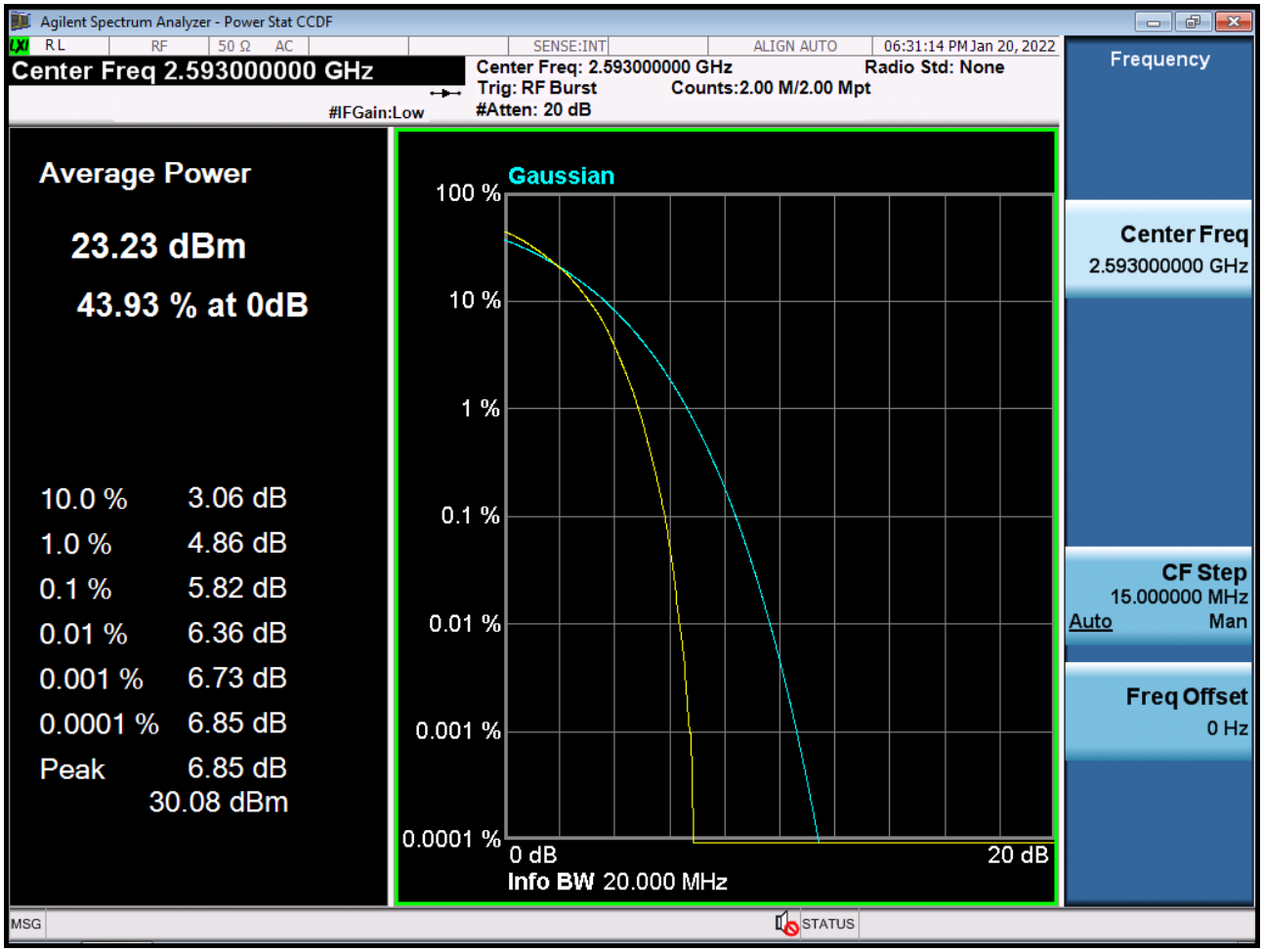
PAR Plot (20 M BW_Ch.40620_QPSK_RB100_0) (POWER CLASS 2)



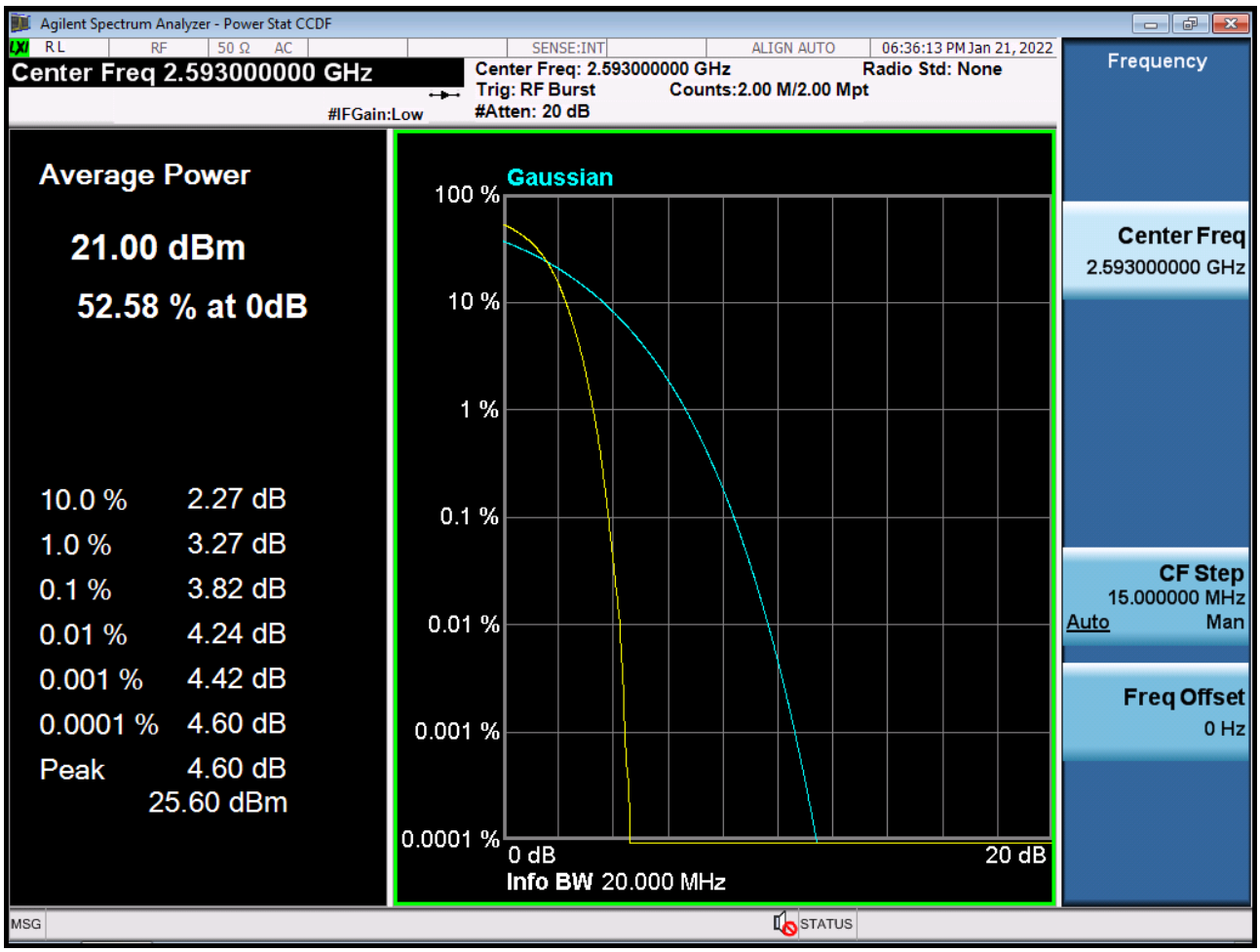
PAR Plot (20 M BW_Ch.40620_16QAM_RB100_0) (POWER CLASS 2)



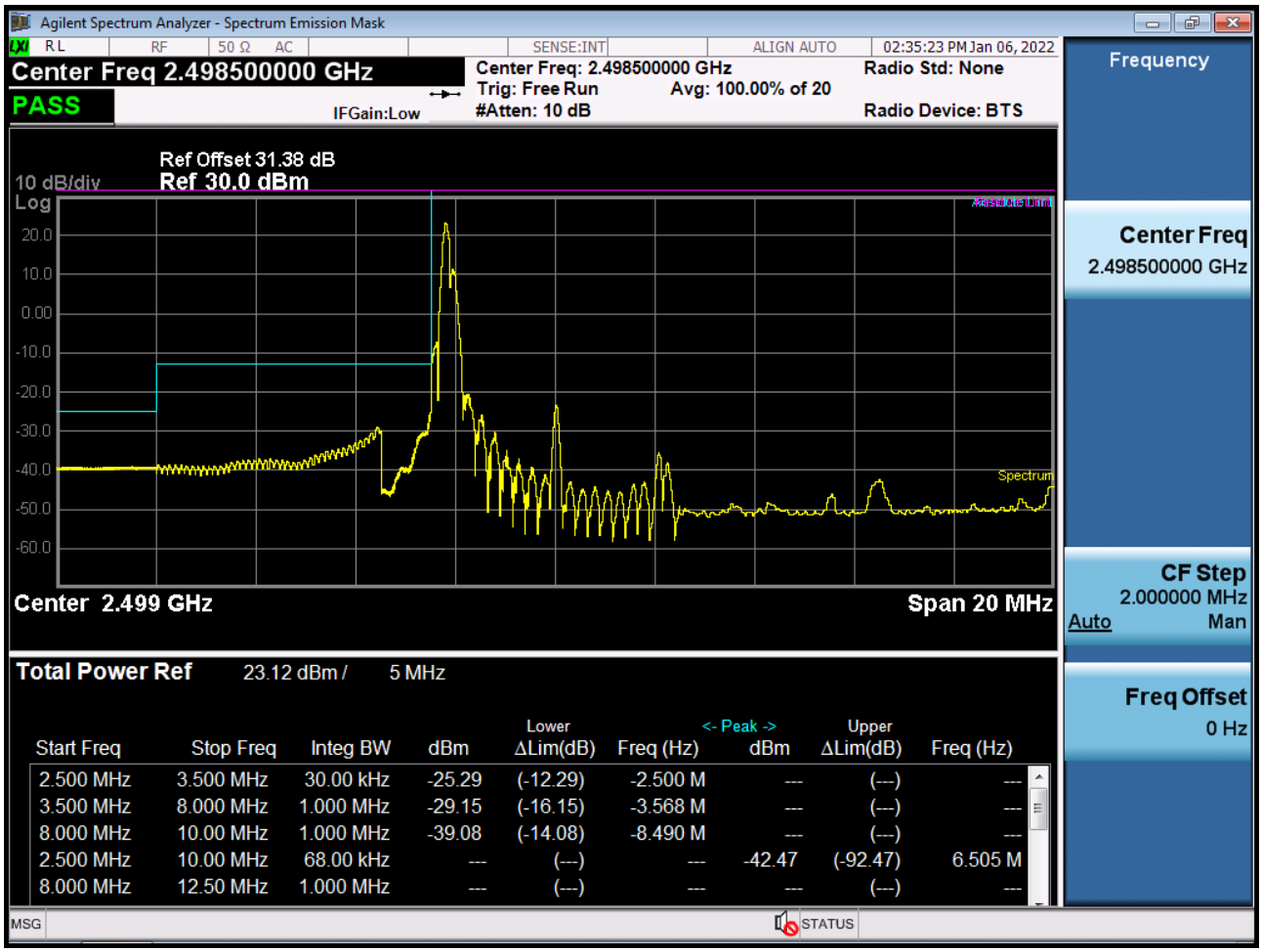
PAR Plot (20 M BW_Ch.40620_64QAM_RB100_0) (POWER CLASS 2)



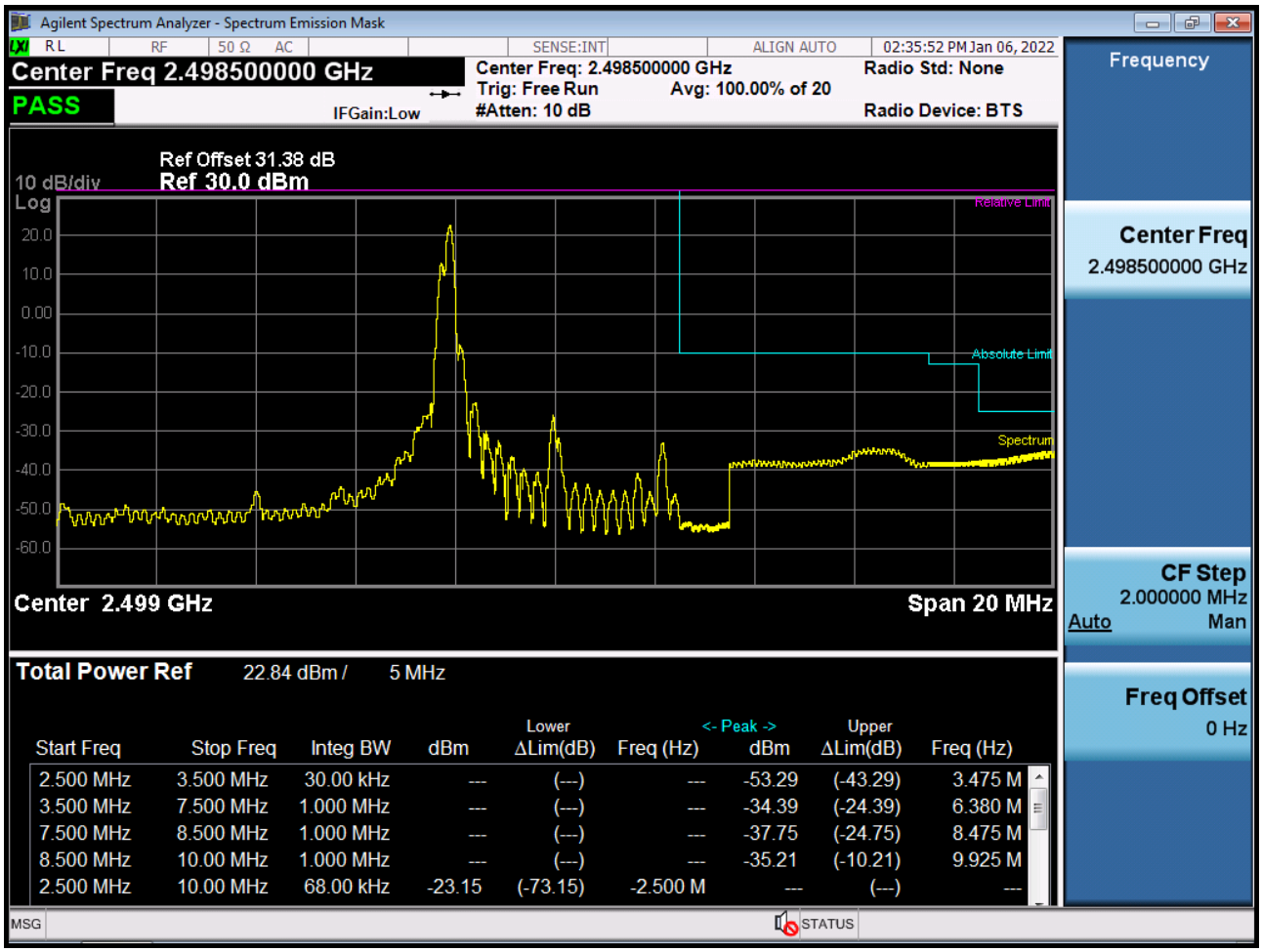
PAR Plot (20 M BW_Ch.40620_256QAM_RB100_0) (POWER CLASS 2)



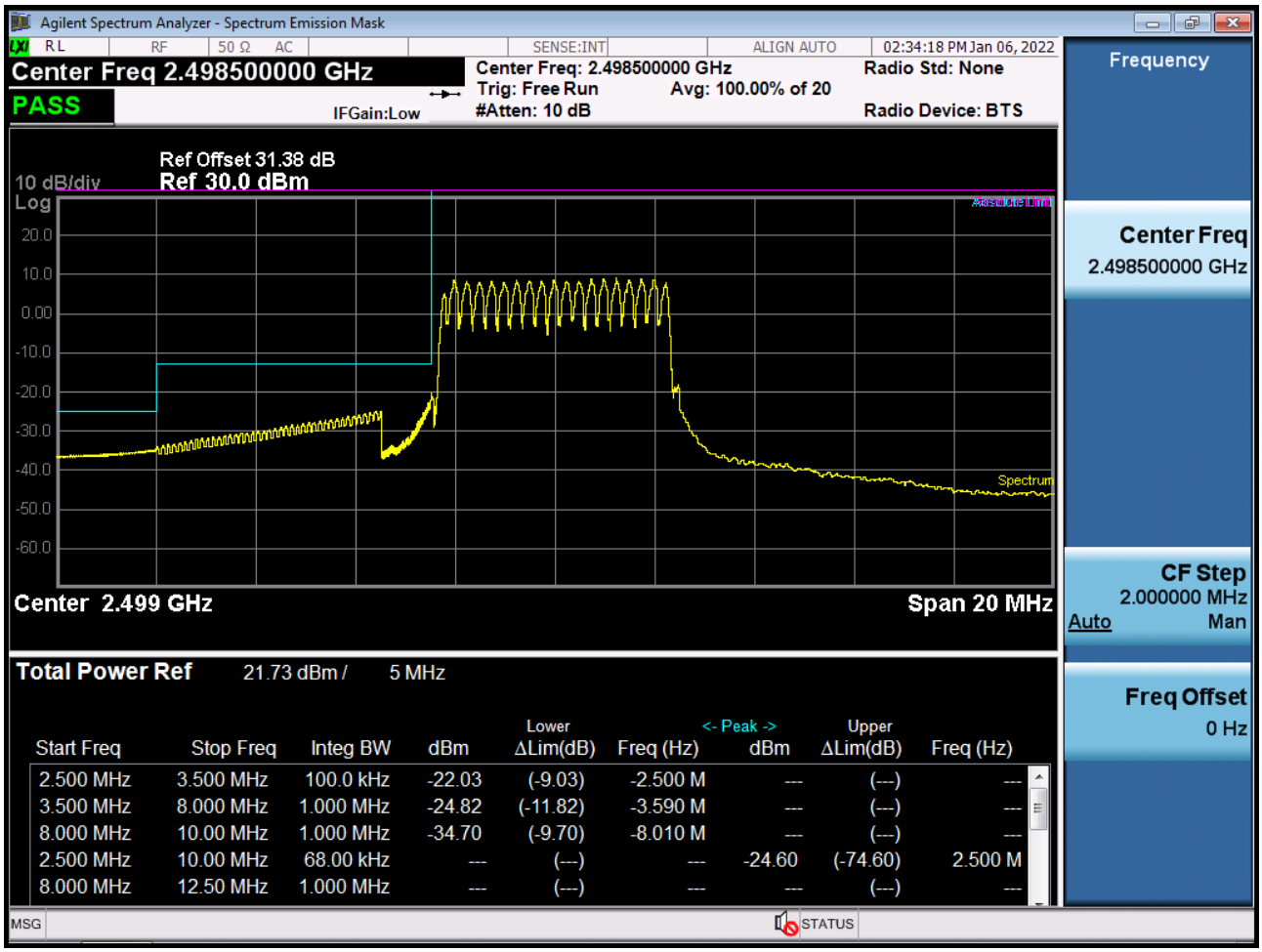
Low Channel Edge Plot (5 MHz Ch.39675 QPSK RB 1, Offset 0)-1 (POWER CLASS 3)



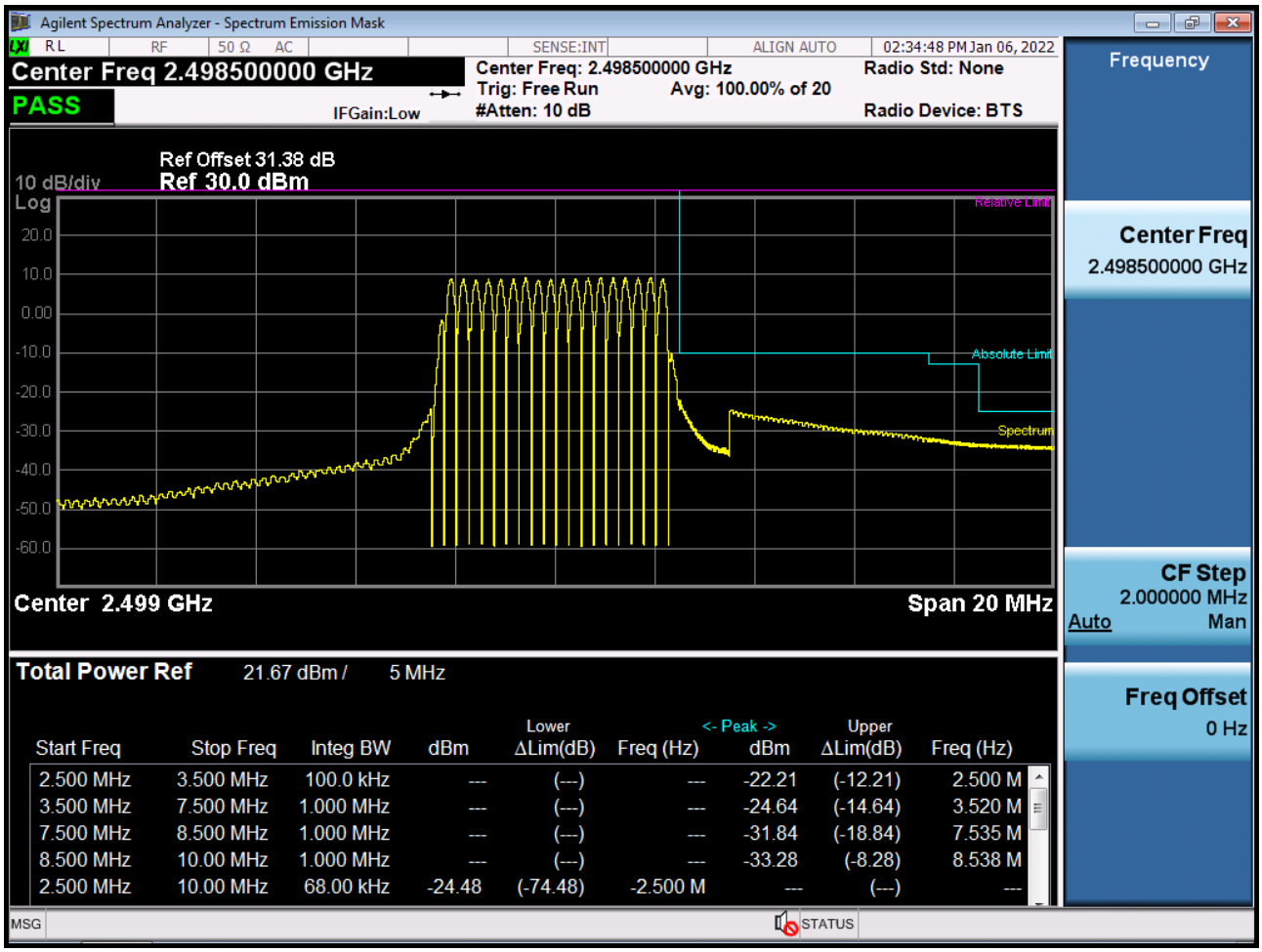
Low Channel Edge Plot (5 MHz Ch.39675 QPSK RB 1, Offset 0)-2 (POWER CLASS 3)



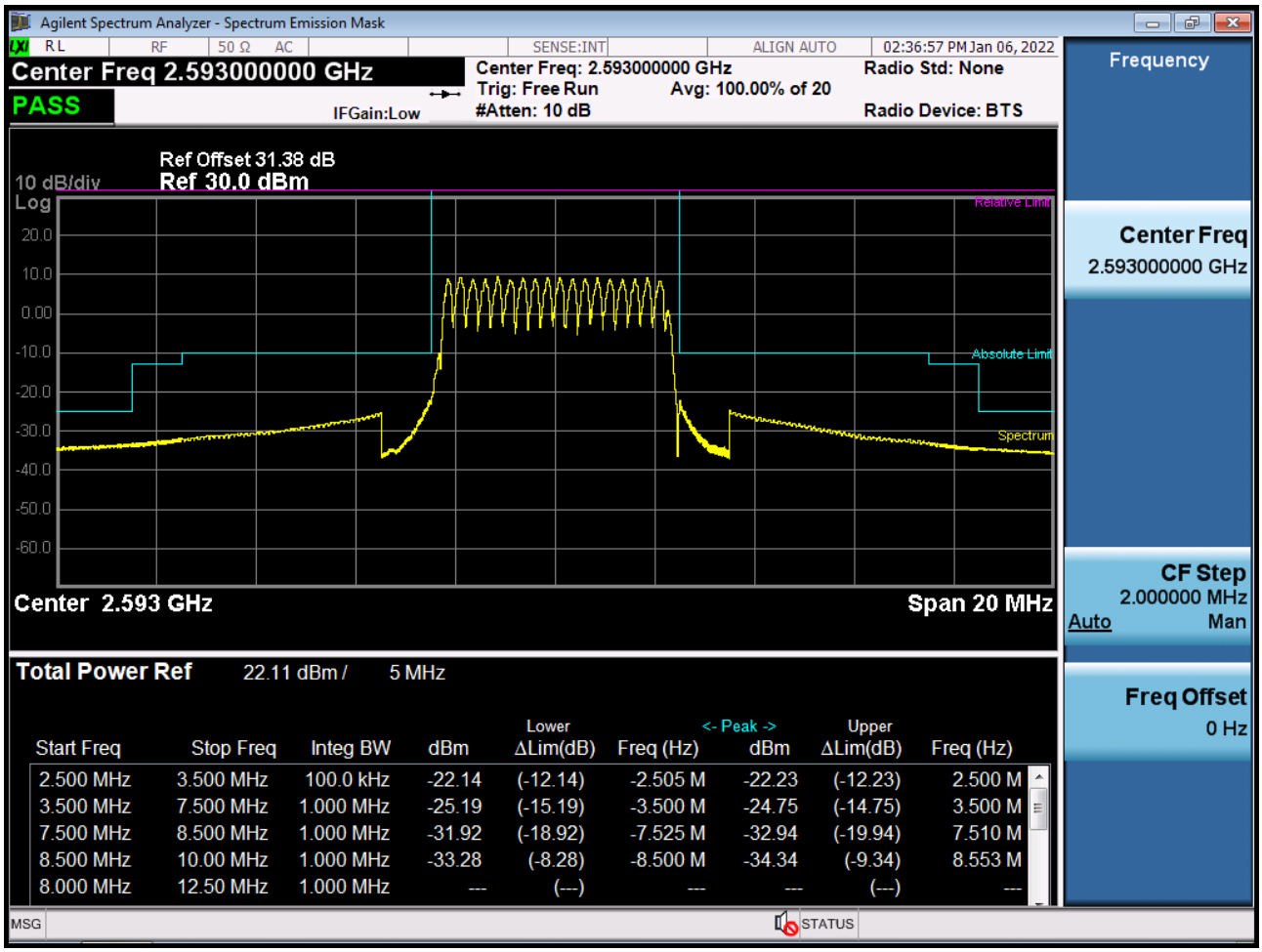
Low Channel Edge Plot (5 MHz Ch.39675 QPSK_RB25_Offset 0)-1 (POWER CLASS 3)



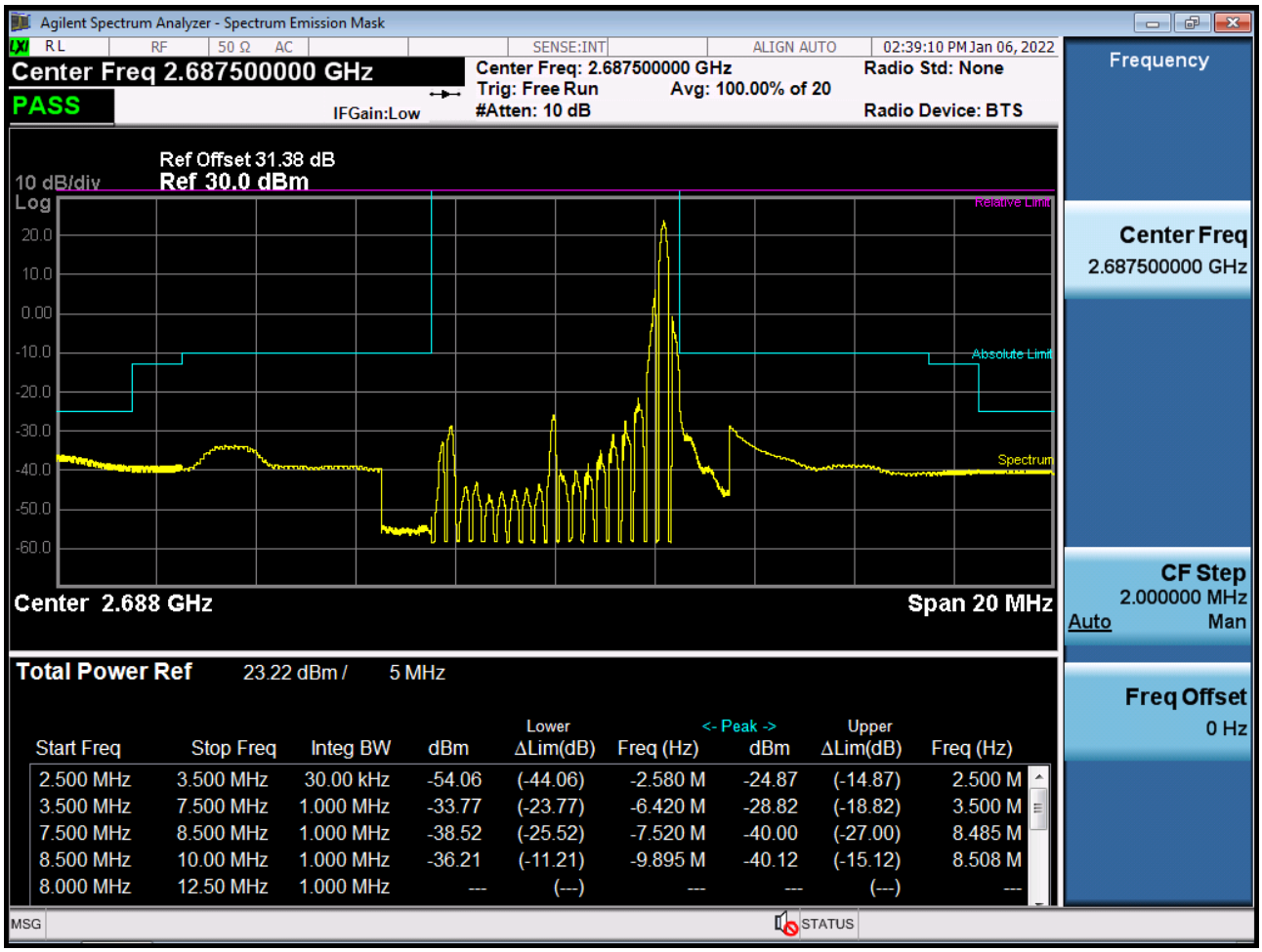
Low Channel Edge Plot (5 MHz Ch.39675 QPSK_RB25_Offset 0)-2 (POWER CLASS 3)



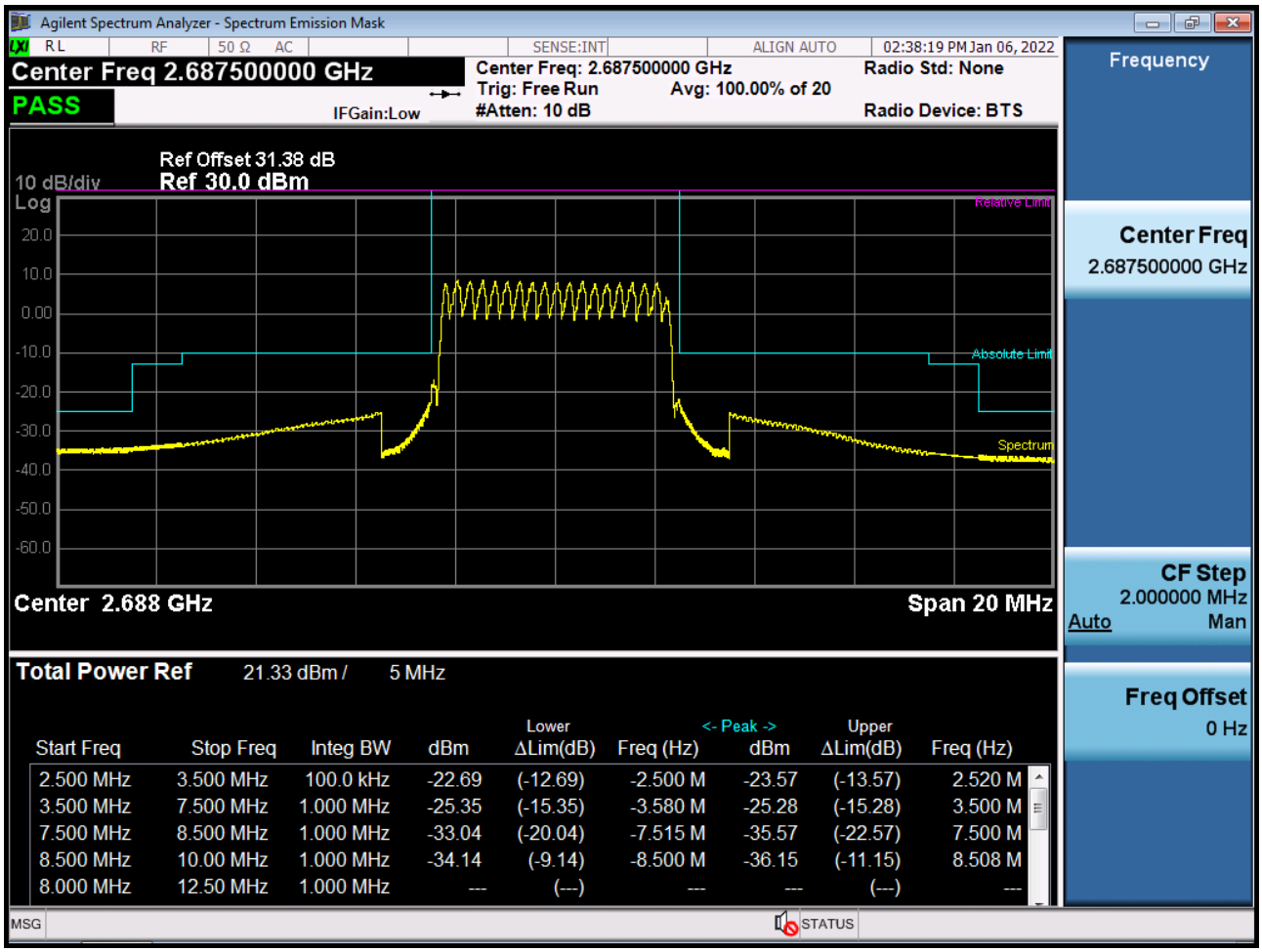
Mid Channel Edge Plot (5 MHz Ch.40620 QPSK RB 25) (POWER CLASS 3)



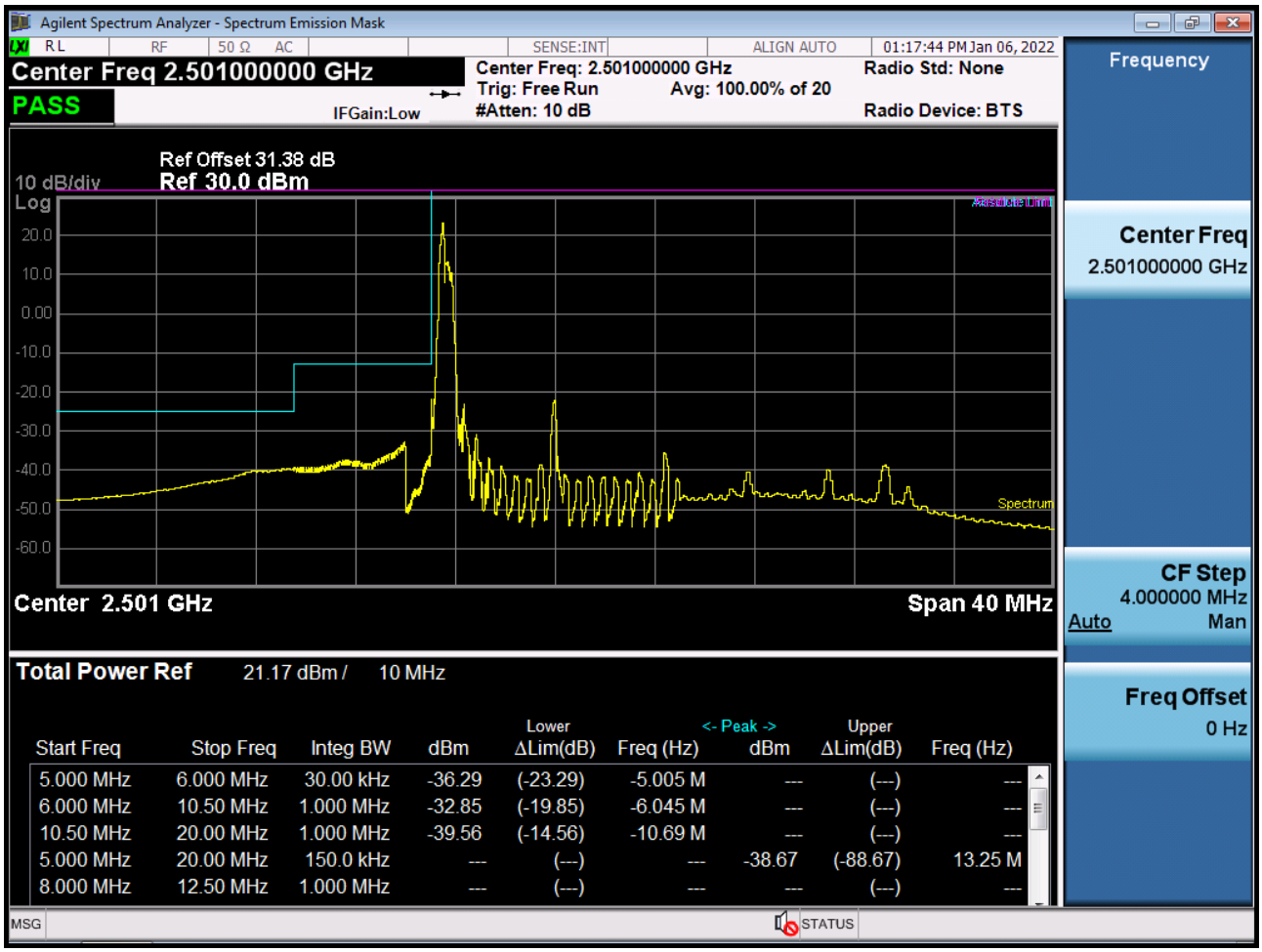
High Channel Edge Plot (5 MHz Ch.41565 QPSK RB 1, Offset 24) (POWER CLASS 3)



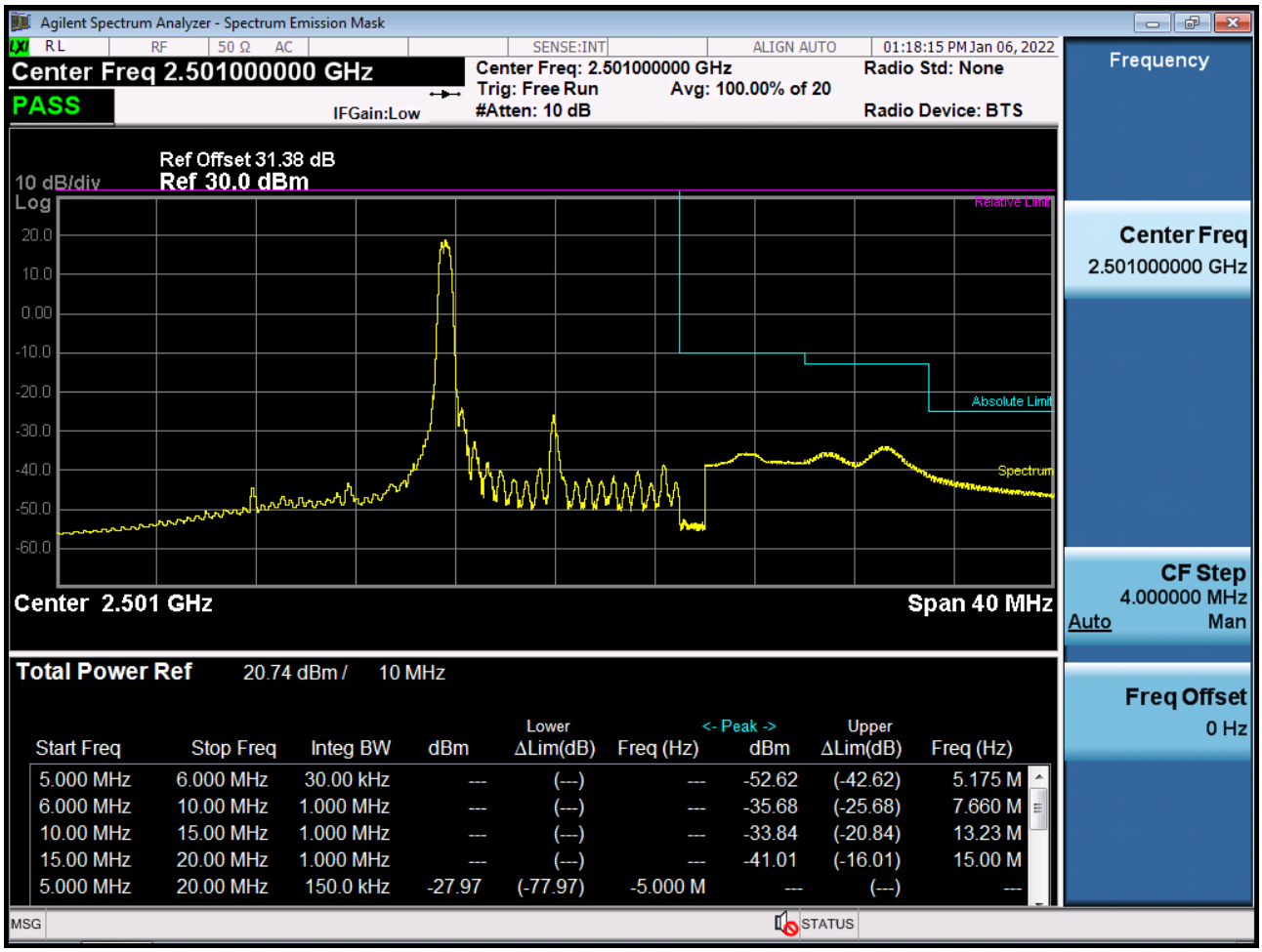
High Channel Edge Plot (5 MHz Ch.41565 QPSK_RB25_Offset 0) (POWER CLASS 3)



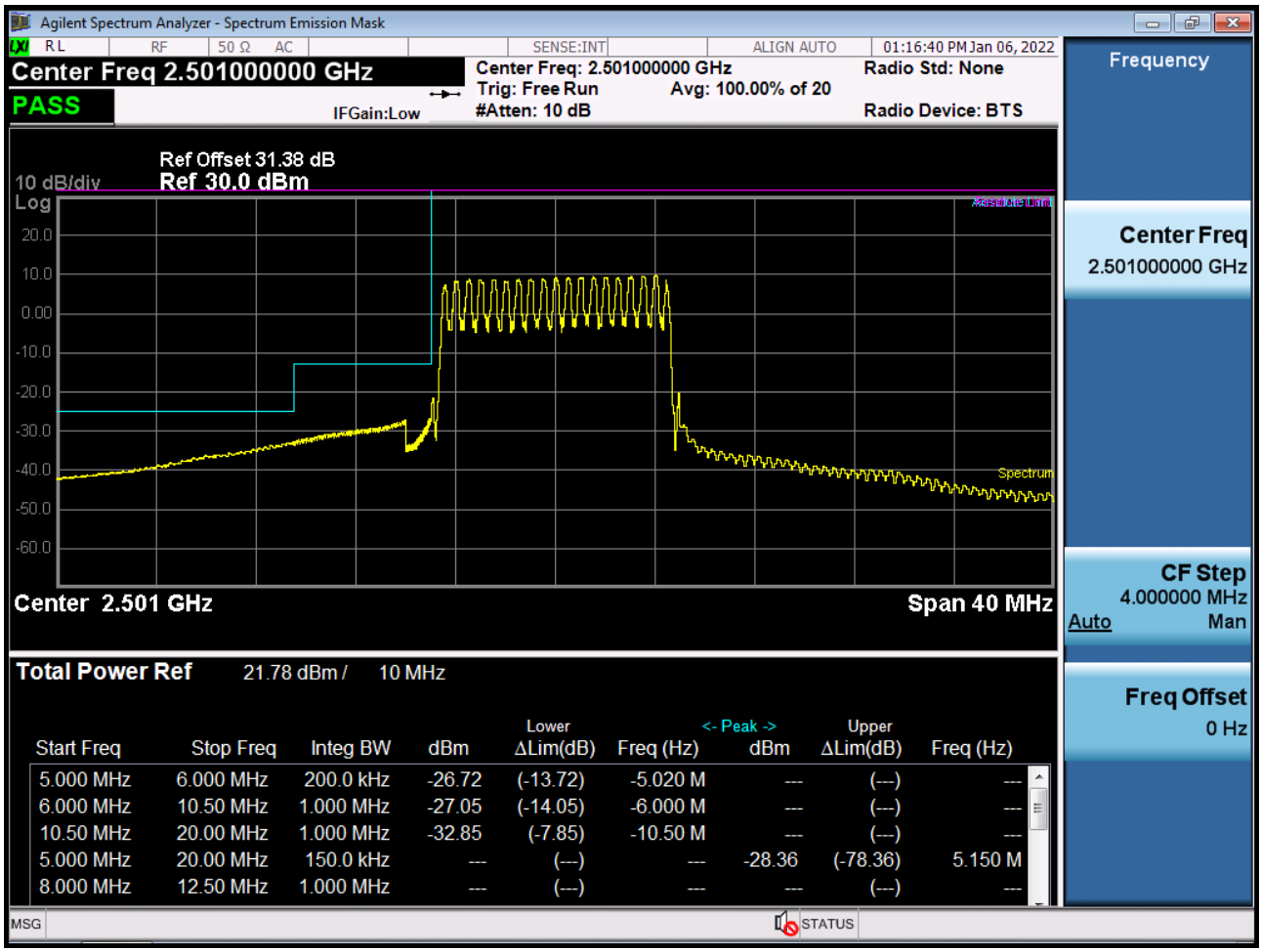
Low Channel Edge Plot (10 MHz Ch.39700 QPSK RB 1, Offset 0)-1 (POWER CLASS 3)



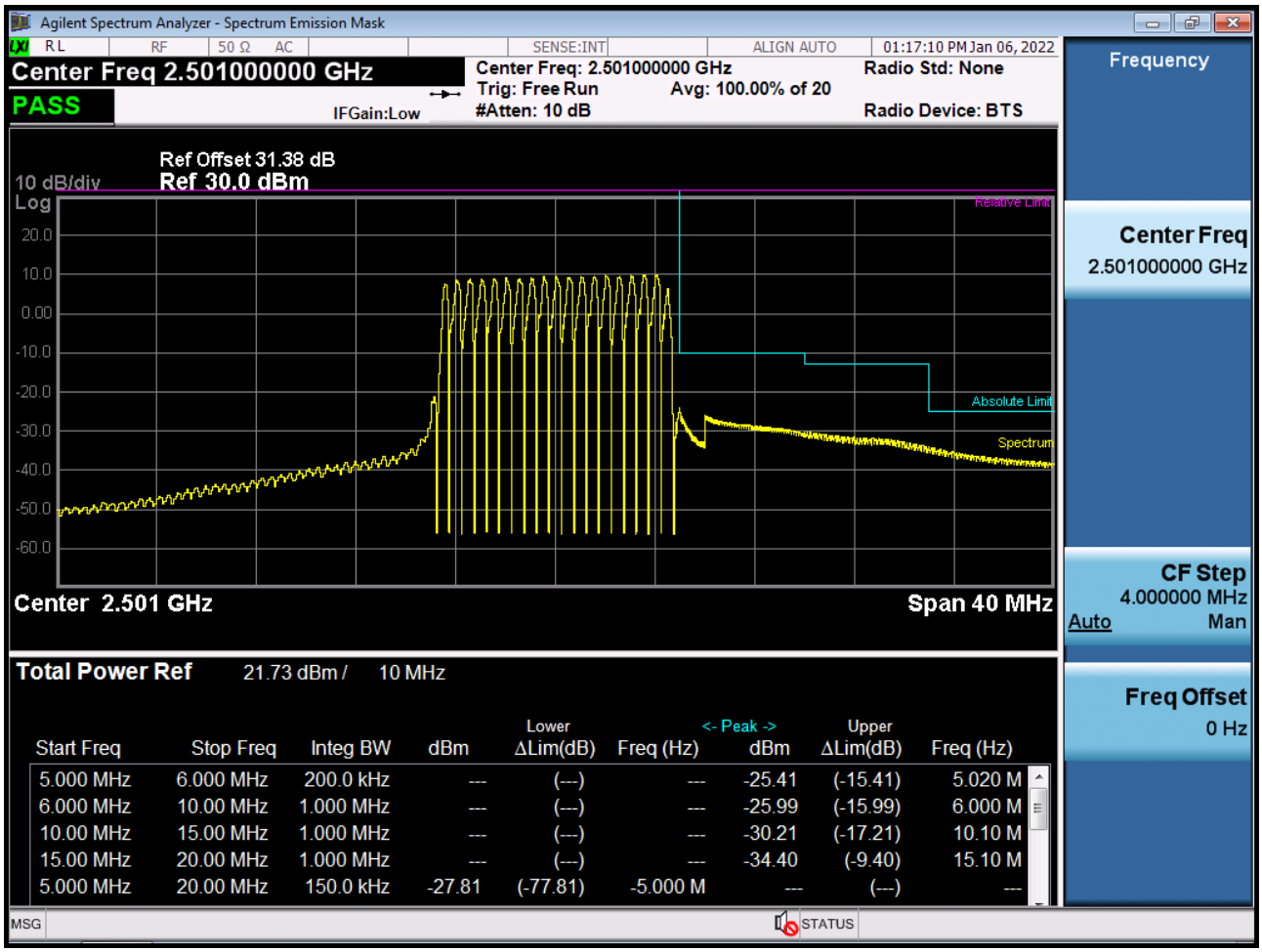
Low Channel Edge Plot (10 MHz Ch.39700 QPSK RB 1, Offset 0)-2 (POWER CLASS 3)



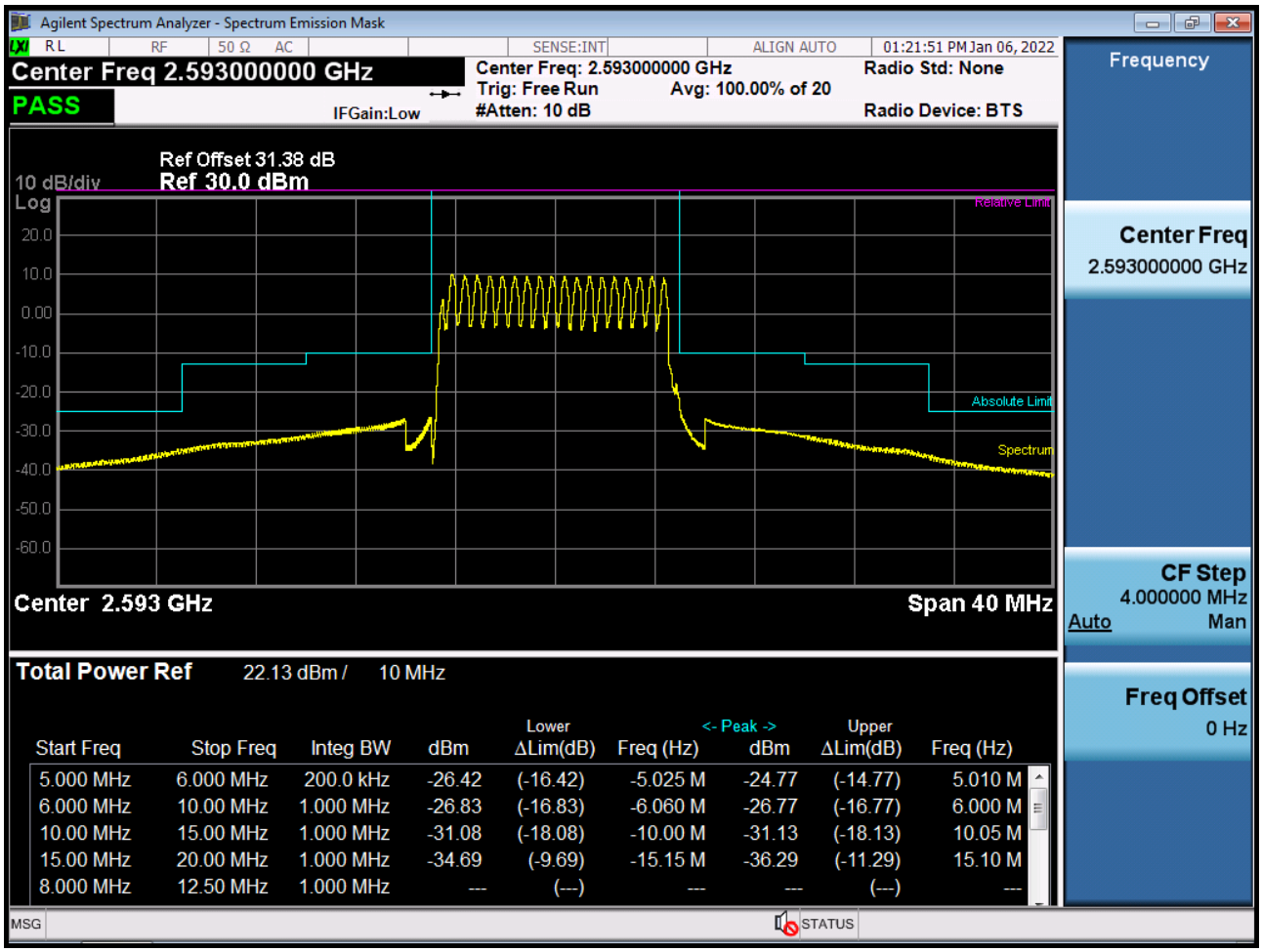
Low Channel Edge Plot (10 MHz Ch.39700 QPSK_RB50_Offset 0)-1 (POWER CLASS 3)



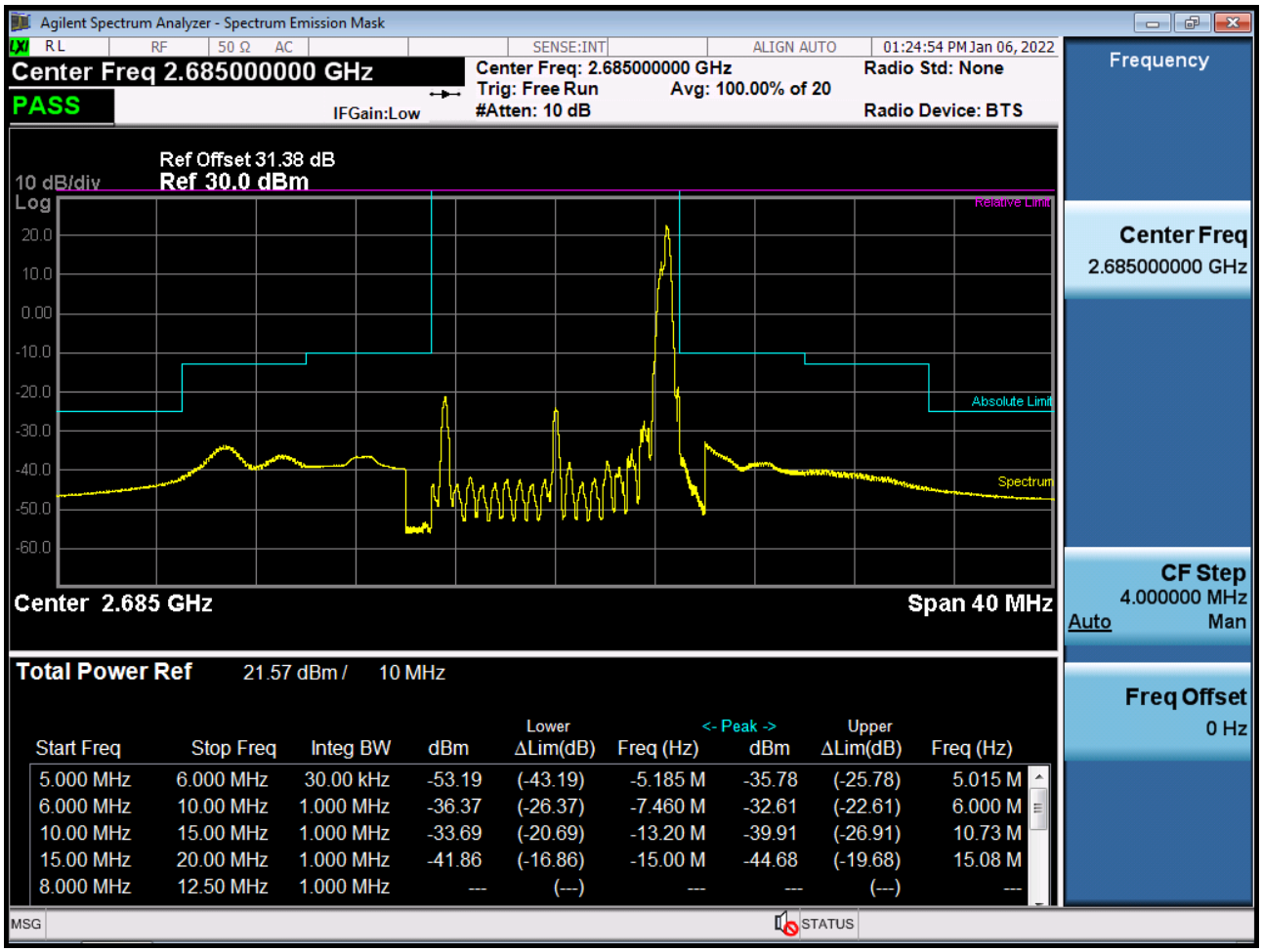
Low Channel Edge Plot (10 MHz Ch.39700 QPSK_RB50_Offset 0)-2 (POWER CLASS 3)



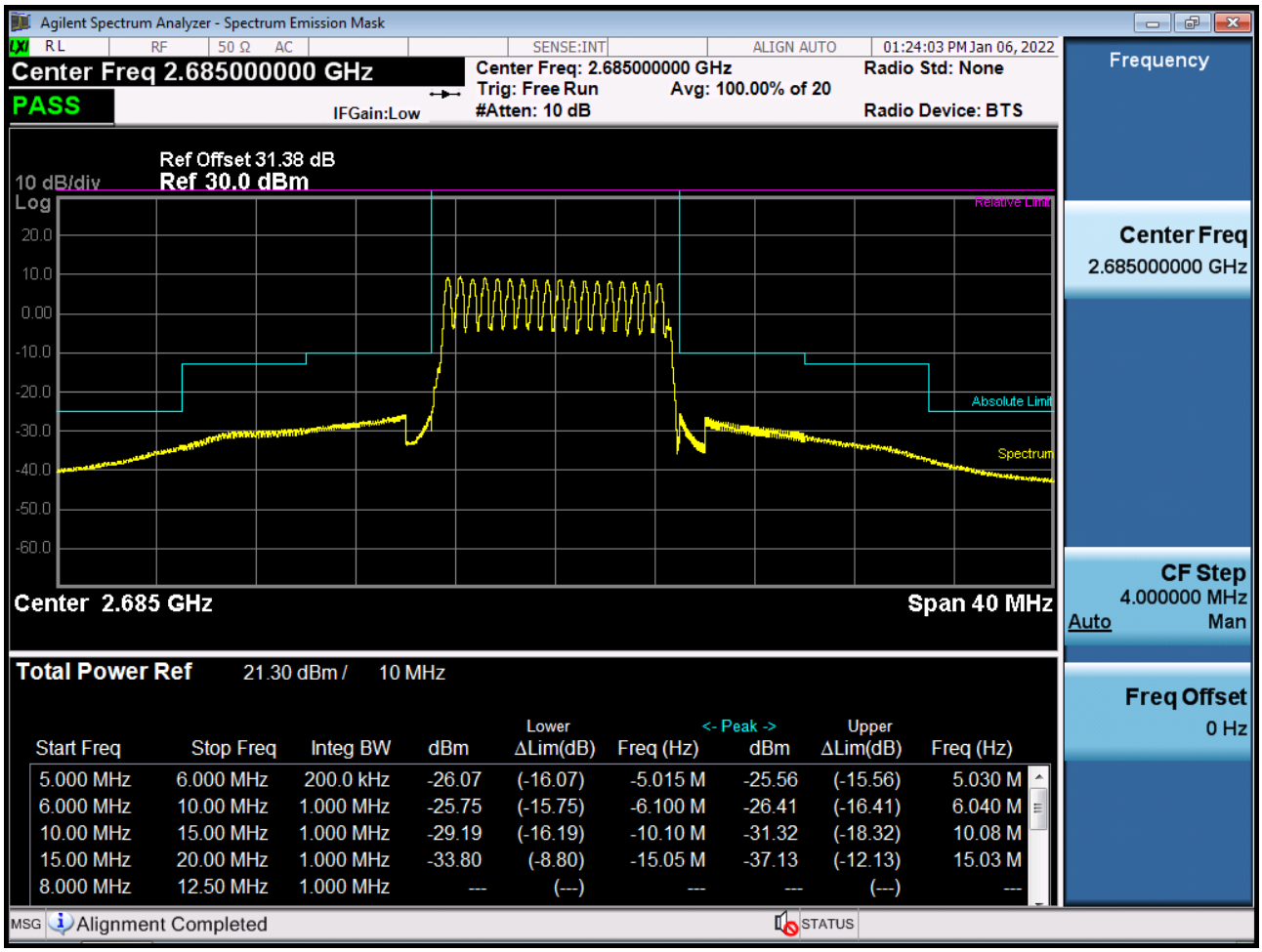
Mid Channel Edge Plot (10 MHz Ch.40620 QPSK RB 50) (POWER CLASS 3)



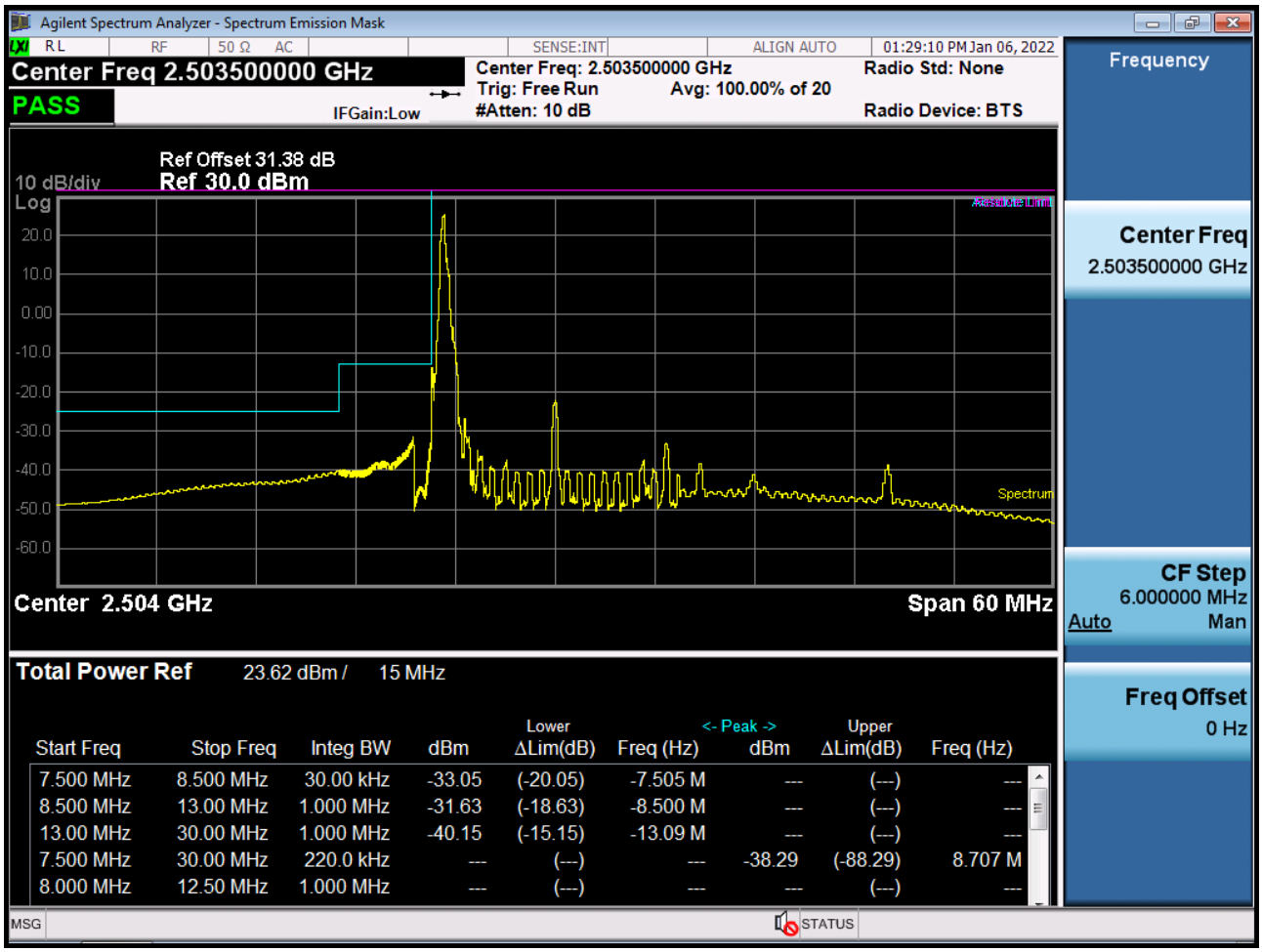
High Channel Edge Plot (10 MHz Ch.41540 QPSK RB 1, Offset 49) (POWER CLASS 3)



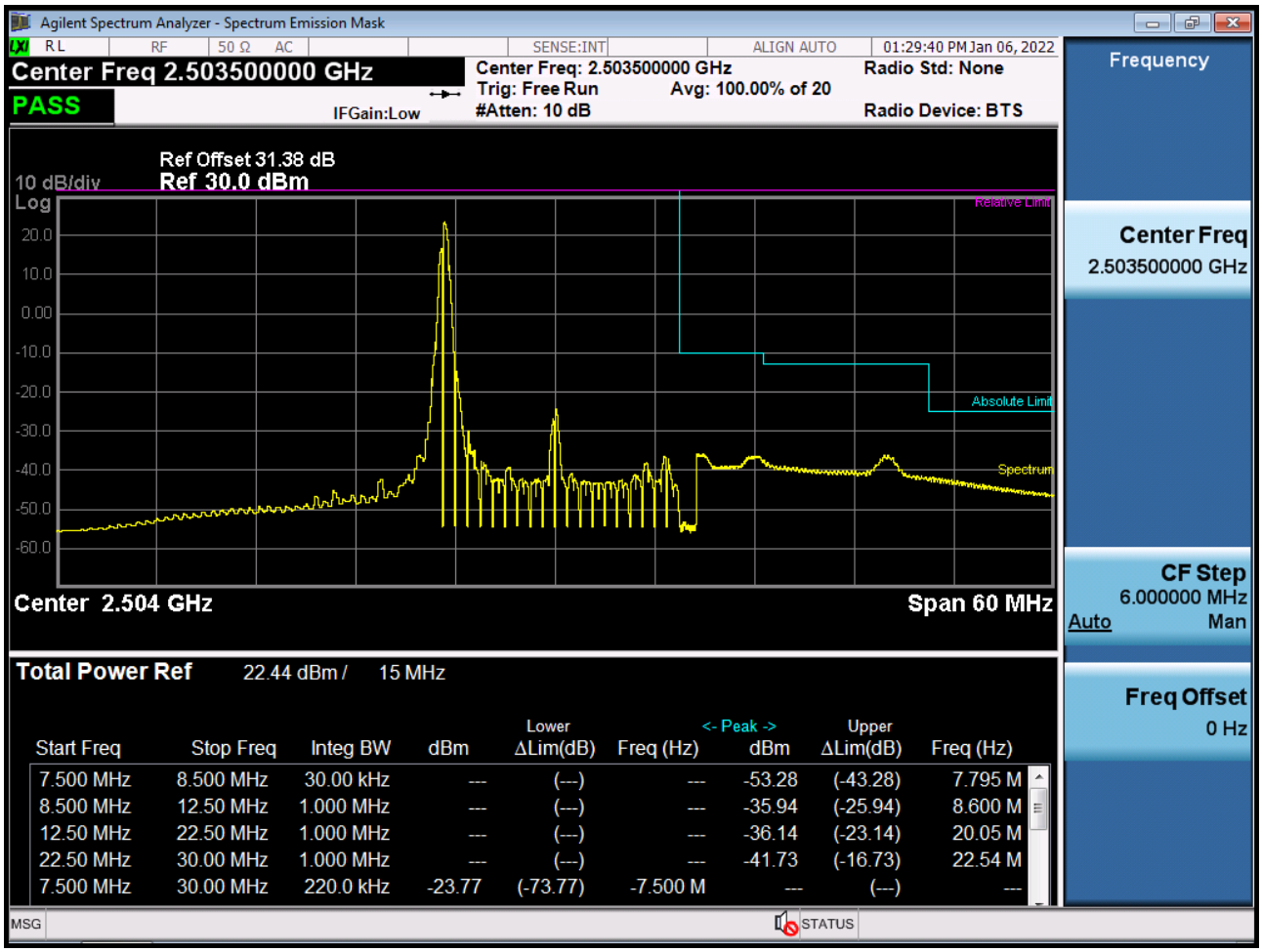
High Channel Edge Plot (10 MHz Ch.41540 QPSK_RB50_Offset 0) (POWER CLASS 3)



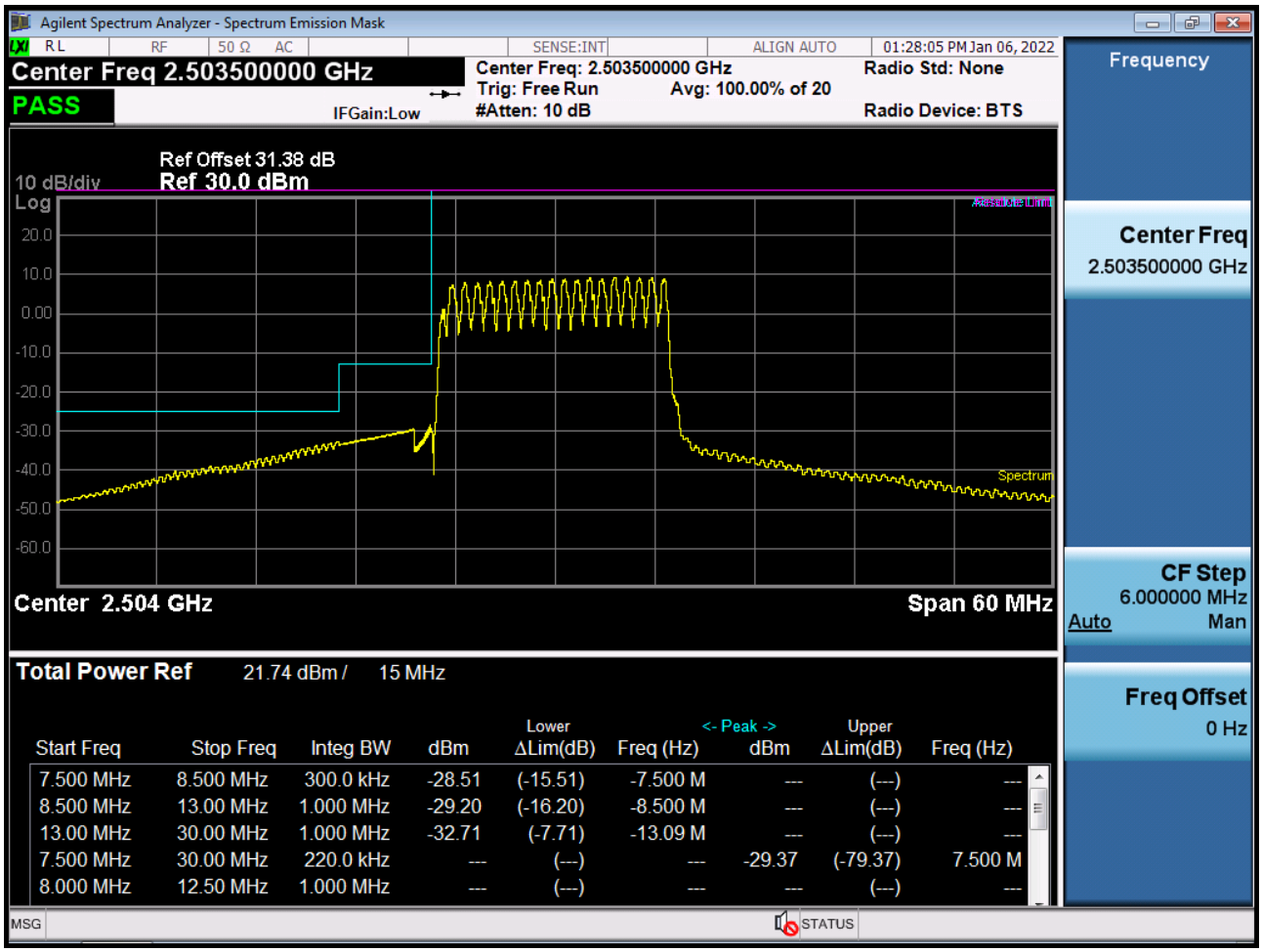
Low Channel Edge Plot (15 MHz Ch.39725 QPSK RB 1, Offset 0)-1 (POWER CLASS 3)



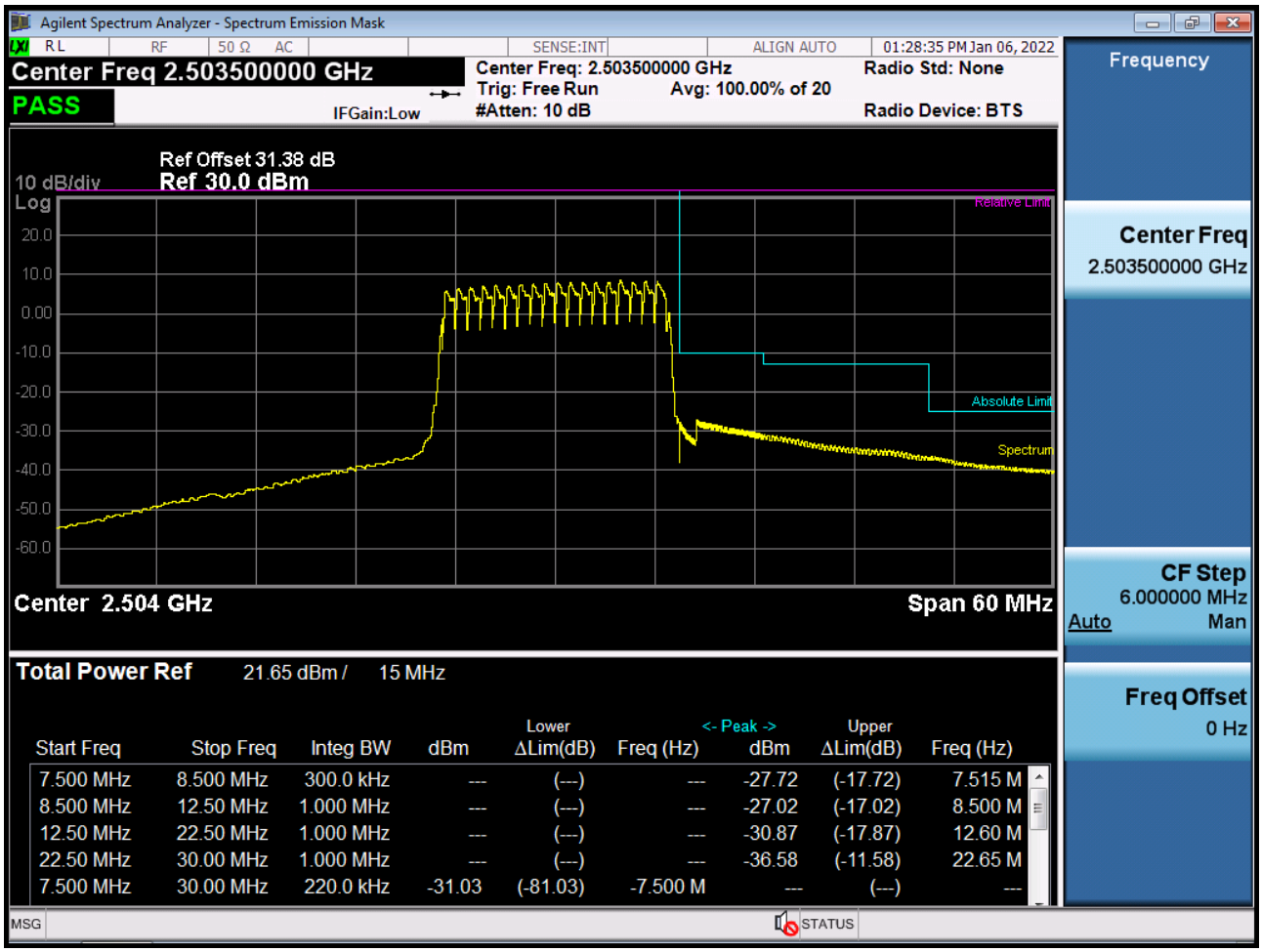
Low Channel Edge Plot (15 MHz Ch.39725 QPSK RB 1, Offset 0)-2 (POWER CLASS 3)



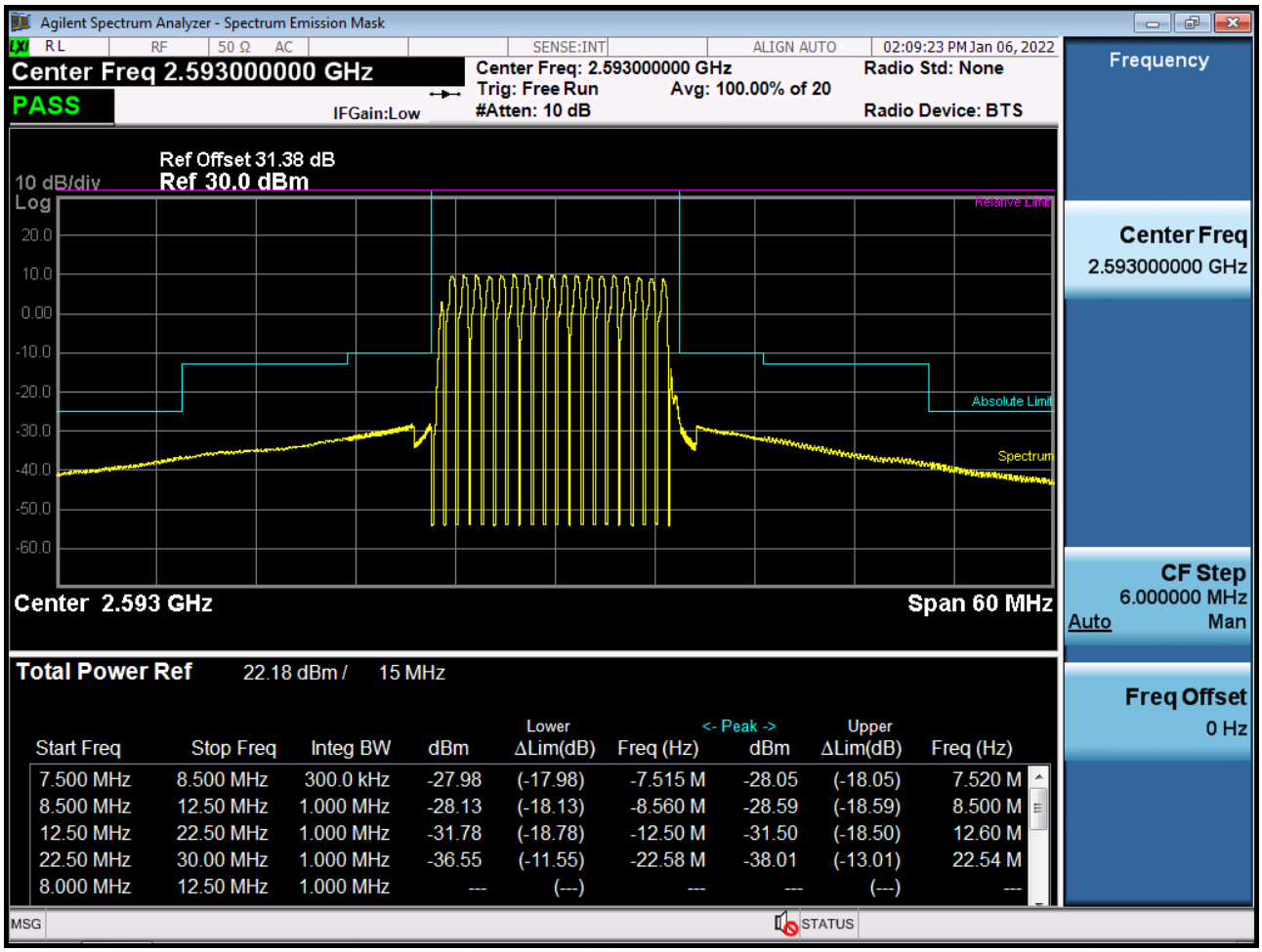
Low Channel Edge Plot (15 MHz Ch.39725 QPSK_RB75_Offset 0)-1 (POWER CLASS 3)



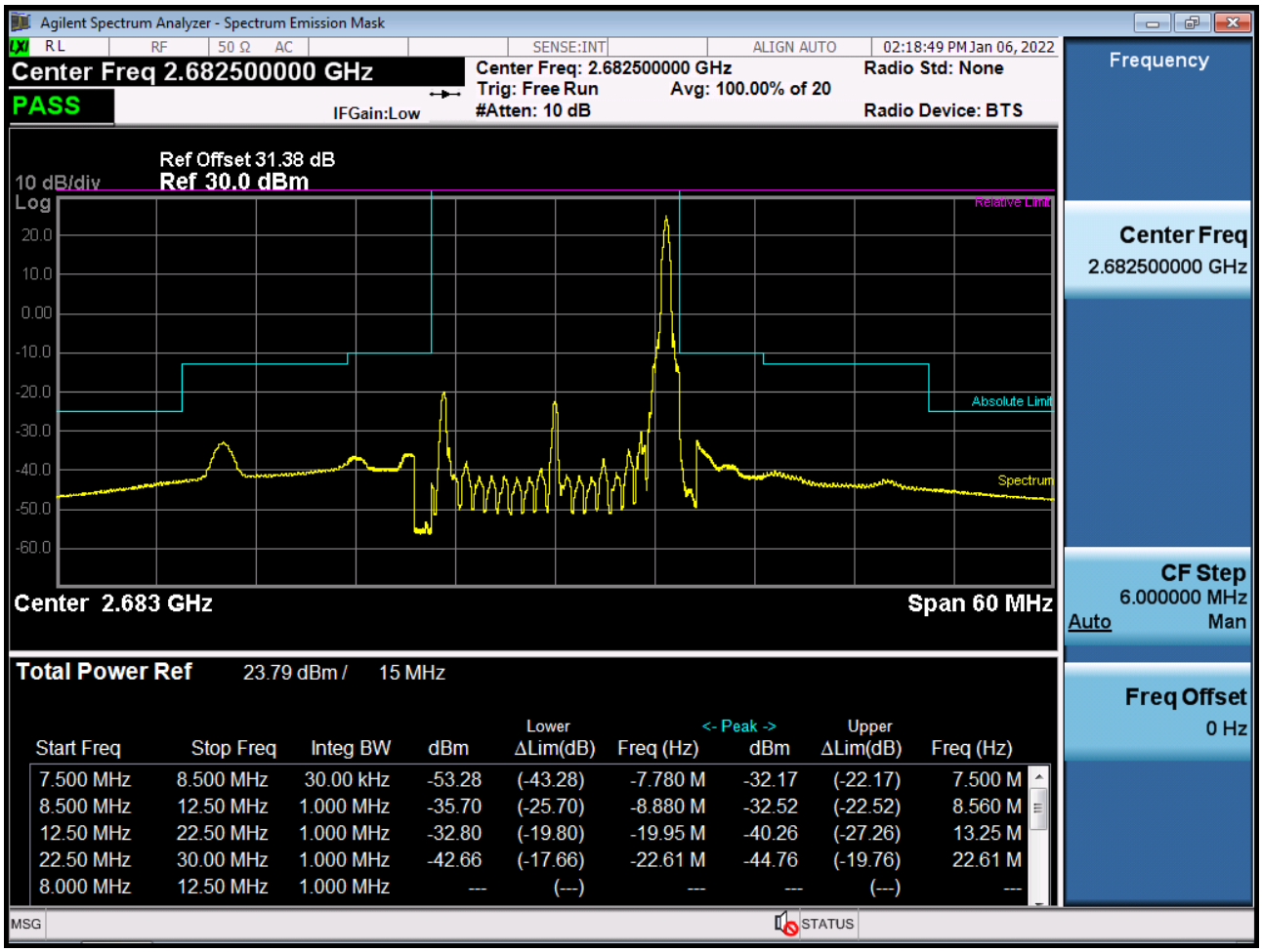
Low Channel Edge Plot (15 MHz Ch.39725 QPSK_RB75_Offset 0)-2 (POWER CLASS 3)



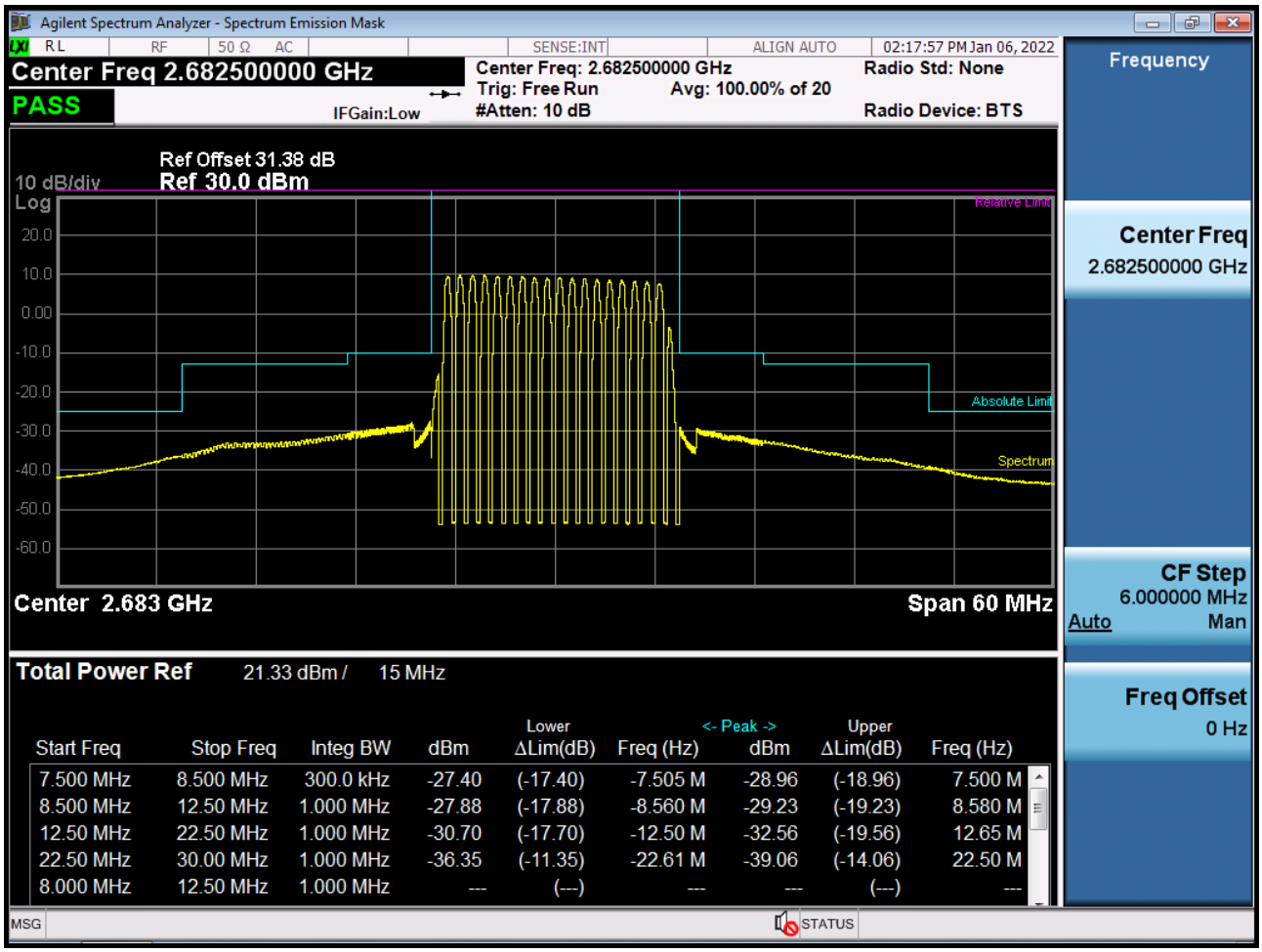
Mid Channel Edge Plot (15 MHz Ch.40620 QPSK RB 75) (POWER CLASS 3)



High Channel Edge Plot (15 MHz Ch.41515 QPSK RB 1, Offset 74) (POWER CLASS 3)



High Channel Edge Plot (15 MHz Ch.41515 QPSK_RB75_Offset 0) (POWER CLASS 3)



Low Channel Edge Plot (20 MHz Ch.39750 QPSK RB 1, Offset 0)-1 (POWER CLASS 3)