

TEST REPORT

FCC LTE Test for SM-T727U
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-1906-FC056-R2

DATE OF ISSUE
July 12, 2019

HCT Co., Ltd.

74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA
Tel. +82 31 634 6300 F ax. +82 31 645 6401



HCT Co., Ltd.

74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383 KOREA
Tel. +82 31 634 6300 Fax. +82 31 645 6401

TEST REPORT

FCC LTE Test for
SM-T727U

REPORT NO.

HCT-RF-1906-FC056-R2

DATE OF ISSUE

July 12, 2019

ID

FCC: A3LSMT727U

Applicant

SAMSUNG Electronics Co., Ltd.

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

Eut Type

Tablet

Model Name

SM-T727U

Additional Model(s)

SM-T727P

Date of Receipt

May 22, 2019

FCC Rule Part(s)

§ 90, § 22, § 2

FCC Classification

PCS Licensed Transmitter (PCB)

Manufacturer

SAMSUNG Electronics Co., Ltd.

Tested by

Kwon Jeong

(signature)

Technical Manager

Jong Seok Lee

(signature)

HCT CO., LTD.

Soo Chon Lee
SooChon Lee / CEO

REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	June 24, 2019	Initial Release
1	June 27, 2019	Revised the output power on page 24
2	July 12, 2019	Retested the LTE B26

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)

CONTENTS

1. GENERAL INFORMATION	5
1.1. MAXIMUM OUTPUT POWER	6
2. INTRODUCTION	7
2.1. DESCRIPTION OF EUT	7
2.2. MEASURING INSTRUMENT CALIBRATION	7
2.3. TEST FACILITY	7
3. DESCRIPTION OF TESTS	8
3.1 TEST PROCEDURE	8
3.2 RADIATED POWER	9
3.3 RADIATED SPURIOUS EMISSIONS	10
3.4 OCCUPIED BANDWIDTH.	11
3.5 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL	12
3.6 CHANNEL EDGE	13
3.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE	14
3.8 WORST CASE(RADIATED TEST)	15
3.9 WORST CASE(CONDUCTED TEST)	16
4. LIST OF TEST EQUIPMENT	17
5. MEASUREMENT UNCERTAINTY	18
6. SUMMARY OF TEST RESULTS	19
7. SAMPLE CALCULATION	20
8. TEST DATA	22
8.1 EFFECTIVE RADIATED POWER	22
8.3 RADIATED SPURIOUS EMISSIONS	24
8.3 OCCUPIED BANDWIDTH	29
8.4 CONDUCTED SPURIOUS EMISSIONS	30
8.5 CHANNEL EDGE	30
8.6 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE	31
8.7 STADDLE CHANNEL	36
8.7.1 EFFECTIVE RADIATED POWER	36
8.7.2 RADIATED SPURIOUS EMISSIONS	38
8.7.3 CONDUCTED SPURIOUS EMISSIONS	41
8.7.4 CHANNEL EDGE(Part90)	42
8.7.5 BAND EDGE(Part22)	42
9. TEST PLOTS	43
10. TEST PLOTS (STADDLE CHANNEL)	87
11 ANNEX A_ TEST SETUP PHOTO	112

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:	A3LSMT727U
Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§ 90, § 22, § 2
EUT Type:	Tablet
Model(s):	SM-T727U
Additional Model(s)	SM-T727P
Tx Frequency:	814.7 MHz – 823.3 MHz (LTE – Band 26 (1.4 MHz)) 815.5 MHz – 822.5 MHz (LTE – Band 26 (3 MHz)) 816.5 MHz – 821.5 MHz (LTE – Band 26 (5 MHz)) 819.0 MHz (LTE – Band 26 (10 MHz)) 821.5 MHz (LTE – Band 26 (15 MHz))
Date(s) of Tests:	June 04, 2019~ July 12, 2019

1.1. MAXIMUM OUTPUT POWER

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	Modulation	ERP	
				Max. Power (W)	Max. Power (dBm)
LTE – Band26 (1.4)	814.7 – 823.3	1M09G7D	QPSK	0.077	18.86
		1M09W7D	16QAM	0.066	18.20
		1M09W7D	64QAM	0.051	17.11
LTE – Band26 (3)	815.5 – 822.5	2M71G7D	QPSK	0.075	18.76
		2M70W7D	16QAM	0.063	17.97
		2M71W7D	64QAM	0.050	16.97
LTE – Band26 (5)	816.5 – 821.5	4M50G7D	QPSK	0.075	18.77
		4M49W7D	16QAM	0.063	17.98
		4M50W7D	64QAM	0.050	16.98
LTE – Band26 (10)	819.0	8M97G7D	QPSK	0.067	18.28
		8M99W7D	16QAM	0.058	17.60
		8M98W7D	64QAM	0.044	16.46
LTE – Band26 (15)	821.5	13M5G7D	QPSK	0.068	18.35
		13M5W7D	16QAM	0.058	17.66
		13M5W7D	64QAM	0.046	16.63

2. INTRODUCTION

2.1. DESCRIPTION OF EUT

The EUT was a Tablet with UMTS and LTE.

It also supports IEEE 802.11 a/b/g/n/ac (HT20/40/80), ANT+, Bluetooth, BT LE.

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)
Frequency stability	- ANSI C63.26-2015 – Section 5.6
Effective Radiated Power/ Effective Isotropic Radiated Power	- KDB 971168 D01 v03r01 – Section 5.2 & 5.8 - ANSI/TIA-603-E-2016 – Section 2.2.17
Radiated Spurious and Harmonic Emissions	- KDB 971168 D01 v03r01 – Section 6.2 - ANSI/TIA-603-E-2016 – Section 2.2.12

3.2 RADIATED POWER

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

The equipment under test is placed on a non-conductive table 3-meters away from the receive antenna in accordance with ANSI/TIA-603-E-2016 Clause 2.2.17.

Test Settings

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

Test Note

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

The power is calculated by the following formula;

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

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

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

These steps are repeated with the receiving antenna in both vertical and horizontal polarization. the difference between the gain of the horn and an isotropic antenna are taken into consideration

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

3.3 RADIATED SPURIOUS EMISSIONS

Test Overview

Radiated tests are performed in the Fully-anechoic chamber.

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

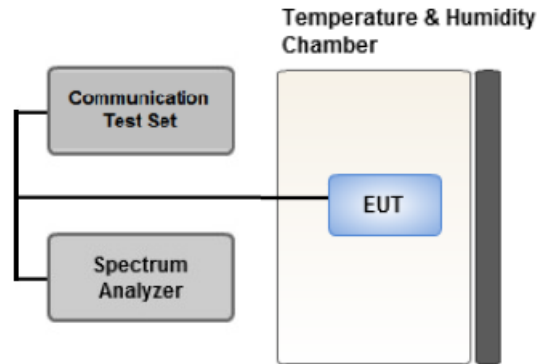
Test Settings

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

Test Note

1. Measurements value show only up to 3 maximum emissions noted, or would be lesser
if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit)
and considered that's already beyond the background noise floor.
2. The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.
The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets,
and channel bandwidth configurations shown in the test data

3.4 OCCUPIED BANDWIDTH.



Test setup

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

The EUT makes a call to the communication simulator.

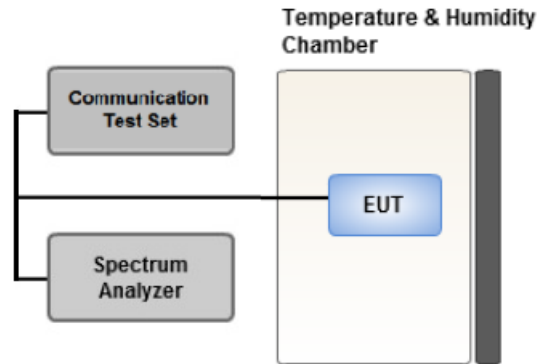
The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth

Test Settings

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

3.5 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL



Test setup

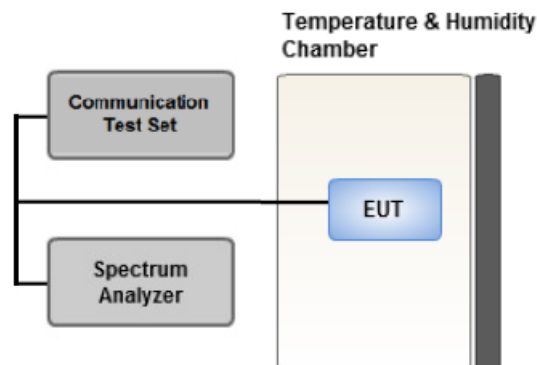
Test Overview

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

Test Settings

1. RBW = 1 MHz
2. VBW $\geq$ 3 MHz
3. Detector = RMS
4. Trace Mode = trace average
5. Sweep time = auto
6. Number of points in sweep $\geq 2 * \text{Span} / \text{RBW}$

3.6 CHANNEL EDGE



Test setup

Test Overview

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

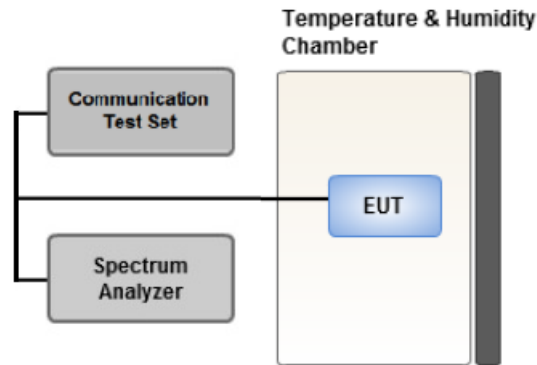
Test Settings

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

Test Notes

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

3.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE



Test setup

Test Overview

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26-2015.

The frequency stability of the transmitter is measured by:

1. Temperature:

The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

2. Primary Supply Voltage:

.- Unless otherwise specified, vary primary supply voltage from 85% to 115% of the nominal value for other than hand carried battery equipment.

.- For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.

Test Settings

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

3.8 WORST CASE(RADIATED TEST)

- The EUT was tested in three orthogonal planes(X, Y, Z) and in all possible test configurations and positioning.
- All modes of operation were investigated and the worst case configuration results are reported.
- The worst case is reported with the EUT positioning, modulations, and paging service configurations shown in the test data.
- Please refer to the table below.
- Of models SM-T727U and SM-T727P, we tested on SM-T727U model. And SM-T727U result is reported.
- This report covers the models SM-T727U and SM-T727P.

These models are identical in hardware and the only difference is that the model SM-T727P does not support operations in all frequency bands and the some bands are disabled by software.

- SM-T727U with Stand alone, Keyboard, Ear-jack and Charging pad were tested and the worst case results are reported.

(Worst case : Stand alone)

[Worst case]

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

3.9 WORST CASE(CONDUCTED TEST)

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

Conducted Output Power value can be confirmed on the SAR report.

- Of models SM-T727U and SM-T727P, we tested on SM-T727U model. And SM-T727U result is reported.

- This report covers the models SM-T727U and SM-T727P.

These models are identical in hardware and the only difference is that the model SM-T727P does not support operations in all frequency bands and the some bands are disabled by software.

[Worst case]

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

4. LIST OF TEST EQUIPMENT

Manufacture	Model/ Equipment	Serial Number	Calibration Date	Calibration Interval	Calibration Due
REOHDE & SCHWARZ	SCU 18 / AMPLIFIER	10094	04/16/2019	Annual	04/16/2020
Wainwright	WHK1.2/15G-10EF/H.P.F	4	04/02/2019	Annual	04/02/2020
Wainwright	WHK3.3/18G-10EF/H.P.F	2	04/02/2019	Annual	04/02/2020
Hewlett Packard	11667B / Power Splitter(DC~26.5 GHz)	11275	05/03/2019	Annual	05/03/2020
Agilent	E3632A/DC Power Supply	KR94907824	02/21/2019	Annual	02/21/2020
Schwarzbeck	UHAP/ Dipole Antenna	557	03/29/2019	Biennial	03/29/2021
Schwarzbeck	UHAP/ Dipole Antenna	558	03/29/2019	Biennial	03/29/2021
ESPEC	SU-642 / Chamber	93000718	08/07/2018	Annual	08/07/2019
Schwarzbeck	BBHA 9120D/ Horn Antenna(1~18GHz)	147	09/14/2018	Annual	09/14/2019
Schwarzbeck	BBHA 9120D/ Horn Antenna(1~18GHz)	9120D-1298	10/04/2018	Annual	10/04/2019
Schwarzbeck	BBHA 9170/ Horn Antenna(15~40GHz)	BBHA9170342	04/29/2019	Biennial	04/29/2021
Schwarzbeck	BBHA 9170/ Horn Antenna(15~40GHz)	BBHA9170124	01/28/2019	Biennial	01/28/2021
Agilent	N9020A/Signal Analyzer(10Hz~26.5GHz)	MY51110063	05/08/2019	Annual	05/08/2020
Hewlett Packard	8493C/ATTENUATOR(20dB)	17280	06/04/2019	Annual	06/04/2020
REOHDE & SCHWARZ	FSV40/Spectrum Analyzer(10Hz~40GHz)	100931	10/22/2018	Annual	10/22/2019
Agilent	8960 (E5515C)/ Base Station	MY48360800	09/27/2018	Annual	09/27/2019
Schwarzbeck	FMZB1513/ Loop Antenna(9kHz~30MHz)	1513-175	08/23/2018	Biennial	08/23/2020
Schwarzbeck	VULB9160/ Bilog Antenna	9160-3368	08/09/2018	Biennial	08/09/2020
Schwarzbeck	VULB9160/ Hybrid Antenna	760	03/22/2019	Biennial	03/22/2021
Anritsu Corp.	MT8821C/Wideband Radio Communication Tester	6201502997	08/13/2018	Annual	08/13/2019
Anritsu Corp.	MT8820C/Wideband Radio Communication Tester	6201026545	01/30/2019	Annual	01/30/2020
REOHDE & SCHWARZ	SMB100A/ SIGNAL GENERATOR (100kHz~40GHz)	177633	07/19/2018	Annual	07/19/2019
REOHDE & SCHWARZ	ESU40 / EMI TEST RECEIVER	100524	07/27/2018	Annual	07/27/2019
HCT CO., LTD.,	FCC LTE Mobile Conducted RF Automation Test Software	-	-	-	-

Note:

- Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

5. MEASUREMENT UNCERTAINTY

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

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

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

6. SUMMARY OF TEST RESULTS

6.1 Test Condition : Conducted Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Occupied Bandwidth	§ 2.1049	N/A	PASS
Channel Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§ 2.1051, § 90.691	< 50 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions within 37.5 kHz of Block Edge	PASS
Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	§ 2.1051, § 22.917(a)	< 43 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions	PASS
Conducted Output Power	§ 2.1046	N/A	<u>See Note1</u>
Frequency stability / variation of ambient temperature	§ 2.1055, § 90.213 § 22.355	< 2.5 ppm	PASS

Note:

1. See SAR Report
2. The same samples were used for SAR and EMC

6.2 Test Condition : Radiated Test

Test Description	FCC Part Section(s)	Test Limit	Test Result
Effective Radiated Power	§ 90.635	< 100 Watts	PASS
Effective Radiated Power	§ 22.913(a)(5)	< 7 Watts max. ERP	PASS
Radiated Spurious and Harmonic Emissions	§ 2.1053, § 90.691 § 22.917(a)	< 43 + 10log10 (P[Watts]) for all out-of band emissions	PASS

7. SAMPLE CALCULATION

7.1 ERP Sample Calculation

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

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

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

7.2 EIRP Sample Calculation

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

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

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

7.3. Emission Designator

GSM Emission Designator

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

EDGE Emission Designator

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

WCDMA Emission Designator

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

QPSK Modulation

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

16QAM Modulation

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

64QAM Modulation

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

8. TEST DATA

8.1 EFFECTIVE RADIATED POWER

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
814.7	LTE B26/ 1.4 MHz	QPSK	-31.58	29.01	-10.31	0.85	H	< 100	0.061	17.85
		16-QAM	-32.25	28.34	-10.31	0.85	H		0.052	17.18
		64-QAM	-33.30	27.29	-10.31	0.85	H		0.041	16.13
823.3		QPSK	-31.31	29.99	-10.27	0.86	H		0.077	18.86
		16-QAM	-31.97	29.33	-10.27	0.86	H		0.066	18.20
		64-QAM	-33.06	28.24	-10.27	0.86	H		0.051	17.11

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
815.5	LTE B26/ 3 MHz	QPSK	-31.54	29.08	-10.31	0.85	H	< 100	0.062	17.92
		16-QAM	-32.24	28.38	-10.31	0.85	H		0.053	17.22
		64-QAM	-33.28	27.34	-10.31	0.85	H		0.042	16.18
822.5		QPSK	-31.33	29.90	-10.28	0.86	H		0.075	18.76
		16-QAM	-32.12	29.11	-10.28	0.86	H		0.063	17.97
		64-QAM	-33.12	28.11	-10.28	0.86	H		0.050	16.97

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
816.5	LTE B26/ 5 MHz	QPSK	-31.52	29.19	-10.30	0.86	H	< 100	0.064	18.04
		16-QAM	-32.20	28.51	-10.30	0.86	H		0.054	17.36
		64-QAM	-33.25	27.46	-10.30	0.86	H		0.043	16.31
821.5		QPSK	-31.23	29.91	-10.28	0.86	H		0.075	18.77
		16-QAM	-32.02	29.12	-10.28	0.86	H		0.063	17.98
		64-QAM	-33.02	28.12	-10.28	0.86	H		0.050	16.98

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
819.0	LTE B26/ 10 MHz	QPSK	-31.54	29.43	-10.29	0.86	H	< 100	0.067	18.28
		16-QAM	-32.22	28.75	-10.29	0.86	H		0.058	17.60
		64-QAM	-33.36	27.61	-10.29	0.86	H		0.044	16.46

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
821.5	LTE B26/ 15 MHz	QPSK	-31.65	29.49	-10.28	0.86	H	< 7.00	0.068	18.35
		16-QAM	-32.34	28.80	-10.28	0.86	H		0.058	17.66
		64-QAM	-33.37	27.77	-10.28	0.86	H		0.046	16.63

Note:

1. 15MHz Bandwidth :

Part 90 Subpart S and Part 22 Subpart H individually differ mainly by the output power limit.

Therefore, this report applied worst-case limit.

(Worst-case limit : 7W)

8.3 RADIATED SPURIOUS EMISSIONS

▣ OPERATING FREQUENCY:	<u>823.3 MHz</u>
▣ MEASURED OUTPUT POWER:	<u>18.86 dBm = 0.077 W</u>
▣ MODE:	<u>LTE B26</u>
▣ MODULATION SIGNAL:	<u>1.4 MHz QPSK</u>
▣ DISTANCE:	<u>3 meters</u>
▣ LIMIT: $43 + 10 \log_{10} (W) =$	<u>31.86 dBc</u>

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm)	C.L	Pol	ERP (dBm)	dBc
26697 (814.7)	1,629.40	-58.37	7.29	-67.22	1.26	H	-63.34	82.21
	2,444.10	-54.48	8.55	-60.56	1.59	H	-55.75	74.61
	3,258.80	-57.80	9.96	-63.01	1.88	V	-57.08	75.94
	4,073.50	-52.04	10.63	-56.07	2.18	H	-49.76	68.63
26783 (823.3)	1,646.60	-58.87	7.42	-67.74	1.26	H	-63.73	82.60
	2,469.90	-52.87	8.64	-58.81	1.58	V	-53.90	72.77
	3,293.20	-54.88	10.24	-60.87	1.86	H	-54.64	73.50
	4,116.50	-47.50	10.77	-51.32	2.20	H	-44.90	63.77

■ OPERATING FREQUENCY: 822.5 MHz
 ■ MEASURED OUTPUT POWER: 18.76 dBm = 0.075 W
 ■ MODE: LTE B26
 ■ MODULATION SIGNAL: 3 MHz QPSK
 ■ DISTANCE: 3 meters
 ■ LIMIT: $43 + 10 \log_{10}(W) =$ 31.76 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm)	C.L	Pol	ERP (dBm)	dBc
26705 (815.5)	1,631.00	-57.33	7.29	-66.18	1.26	V	-62.30	81.06
	2,446.50	-43.72	8.55	-49.80	1.59	V	-44.99	63.75
	3,262.00	-57.46	9.96	-62.67	1.88	V	-56.74	75.50
	4,077.50	-53.21	10.64	-57.32	2.18	H	-51.01	69.77
26775 (822.5)	1,645.00	-57.90	7.06	-66.41	1.27	H	-62.76	81.52
	2,467.50	-44.20	8.64	-50.14	1.58	V	-45.23	63.99
	3,290.00	-57.83	10.20	-63.77	1.86	H	-57.58	76.34
	4,112.50	-48.51	10.68	-52.39	2.13	H	-45.99	64.75

■ OPERATING FREQUENCY: 821.50 MHz
 ■ MEASURED OUTPUT POWER: 18.77 dBm = 0.075 W
 ■ MODE: LTE B26
 ■ MODULATION SIGNAL: 5 MHz QPSK
 ■ DISTANCE: 3 meters
 ■ LIMIT: $43 + 10 \log_{10}(W) =$ 31.77 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm)	C.L	Pol	ERP (dBm)	dBc
26715 (816.5)	1,633.00	-58.09	7.29	-66.94	1.26	V	-63.06	81.84
	2,449.50	-54.28	8.58	-60.29	1.59	V	-55.45	74.22
	3,266.00	-56.57	9.99	-61.99	1.90	V	-56.05	74.82
	4,082.50	-53.02	10.64	-57.13	2.18	H	-50.82	69.59
26765 (821.5)	1,643.00	-58.38	7.38	-67.23	1.26	H	-63.26	82.03
	2,464.50	-53.85	8.63	-59.97	1.60	V	-55.09	73.86
	3,286.00	-55.75	10.16	-61.51	1.87	V	-55.37	74.15
	4,107.50	-49.95	10.68	-53.83	2.13	H	-47.43	66.21

- ▣ OPERATING FREQUENCY: 819.00 MHz
- ▣ MEASURED OUTPUT POWER: 18.28 dBm = 0.067 W
- ▣ MODE: LTE B26
- ▣ MODULATION SIGNAL: 10 MHz QPSK
- ▣ DISTANCE: 3 meters
- ▣ LIMIT: $43 + 10 \log_{10}(W) =$ 31.28 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm)	C.L	Pol	ERP (dBm)	dBc
26740 (819.0)	1638.00	-58.13	7.38	-66.98	1.26	V	-63.01	81.36
	2457.00	-44.26	8.61	-50.55	1.61	V	-45.70	64.05
	3276.00	-58.01	10.06	-63.64	1.89	H	-57.62	75.97
	4095.00	-53.08	10.66	-56.95	2.19	H	-50.62	68.98

- ▣ OPERATING FREQUENCY: 821.50 MHz
- ▣ MEASURED OUTPUT POWER: 18.35 dBm = 0.068 W
- ▣ MODE: LTE B26
- ▣ MODULATION SIGNAL: 15 MHz QPSK
- ▣ DISTANCE: 3 meters
- ▣ LIMIT: $43 + 10 \log_{10}(W) =$ 31.35 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm)	C.L	Pol	ERP (dBm)	dBc
26765 (821.5)	1643.00	-57.17	7.38	-66.02	1.26	V	-62.05	80.40
	2464.50	-42.50	8.63	-48.62	1.60	V	-43.74	62.09
	3286.00	-58.31	10.16	-64.07	1.87	V	-57.93	76.29
	4107.50	-53.76	10.68	-57.64	2.13	H	-51.24	69.60

8.3 OCCUPIED BANDWIDTH

Band	Band Width	Frequency (MHz)	Modulation	Resource Block Size	Resource Block Offset	Data (MHz)
Band 26	1.4 MHz	823.3	QPSK	6	0	1.0894
			16-QAM			1.0906
			64-QAM			1.0933
	3 MHz	822.5	QPSK	15		2.7123
			16-QAM			2.6965
			64-QAM			2.7076
	5 MHz	821.5	QPSK	25		4.5004
			16-QAM			4.4918
			64-QAM			4.5028
	10 MHz	819.0	QPSK	50		8.9689
			16-QAM			8.9887
			64-QAM			8.9756
	15 MHz	821.5	QPSK	75		13.446
			16-QAM			13.446
			64-QAM			13.450

Note:

1. Plots of the EUT's Occupied Bandwidth are shown Page 44 ~ 58.

8.4 CONDUCTED SPURIOUS EMISSIONS

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
26	1.4	814.7	3.6970	27.976	-67.392	-39.416	-13.00
		823.3	3.7124	27.976	-67.022	-39.046	
	3	815.5	3.6671	27.976	-67.296	-39.320	
		822.5	3.7144	27.976	-67.266	-39.290	
	5	816.5	3.6750	27.976	-67.318	-39.342	
		821.5	3.7020	27.976	-66.804	-38.828	
	10	819.0	3.7169	27.976	-67.294	-39.318	
	15	821.5	3.7039	27.976	-67.226	-39.250	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 79 ~ 86.
2. Conducted Spurious Emissions was Tested QPSK Modulation, Resource Block Size 1 and Resource Block Offset 0
3. Result (dBm) = Measurement Maximum Data (dBm) + Factor (dB)
4. Factor(dB) = Cable Loss + Attenuator + Power Splitter

Frequency Range (GHz)	Factor [dB]
0.03 – 1	25.270
1 – 5	27.976
5 – 10	28.591
10 – 15	29.116
15 – 20	29.489
Above 20	30.131

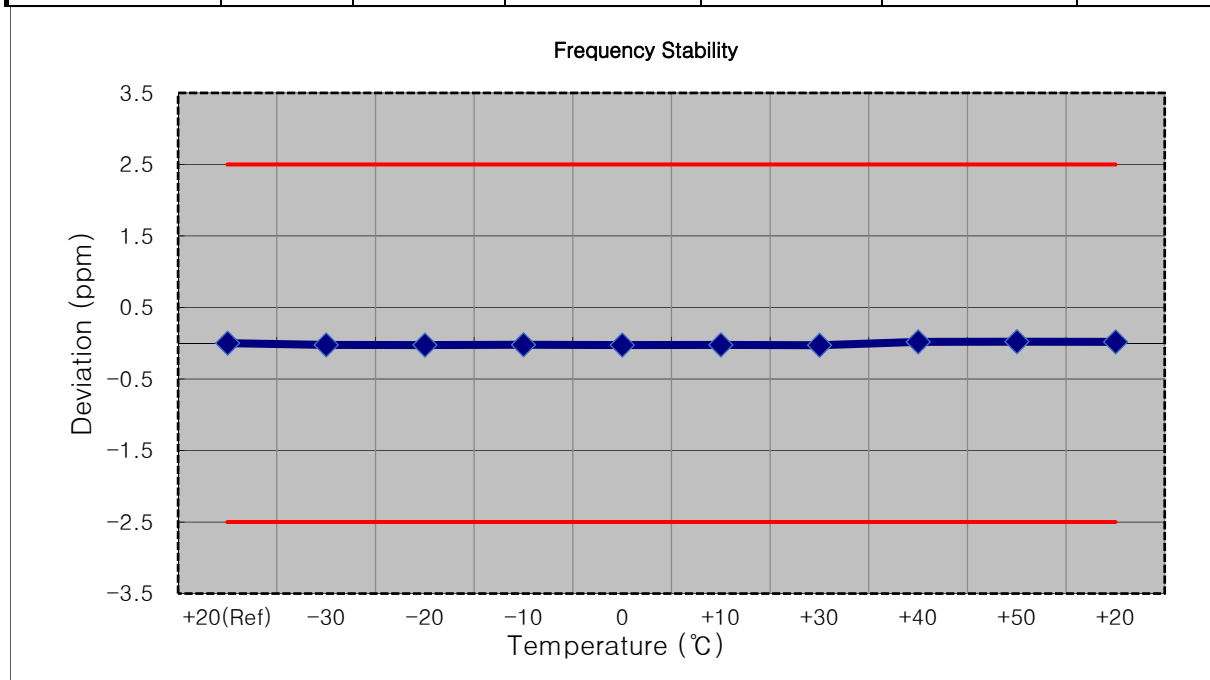
8.5 CHANNEL EDGE

- Plots of the EUT's Band Edge are shown Page 59 ~ 78.

8.6 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

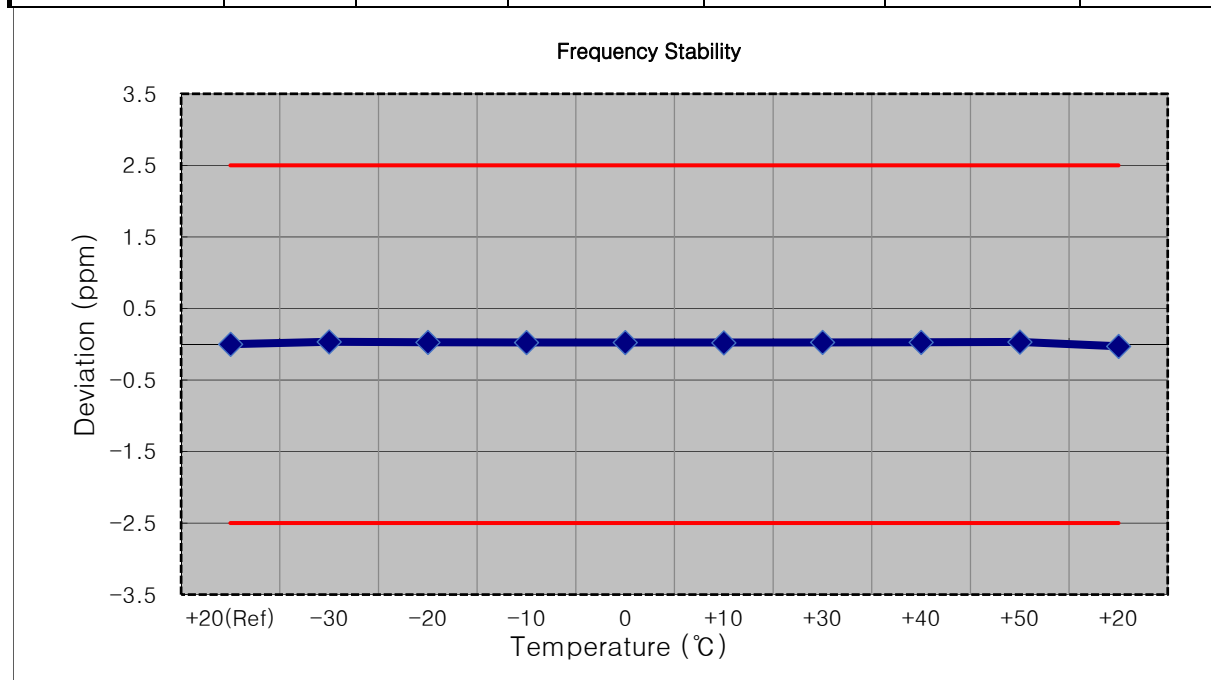
MODE:	LTE 26
OPERATING FREQUENCY:	814,700,000 Hz
CHANNEL:	26697(1.4 MHz)
REFERENCE VOLTAGE:	3.85 VDC
DEVIATION LIMIT:	$\pm 0.000\ 25\ \%$ or $2.5\ \text{ppm}$

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.850	+20(Ref)	823 299 983	0.0	0.000 000	0.000
100%		-30	823 299 964	-18.7	-0.000 002	-0.023
100%		-20	823 299 962	-21.0	-0.000 003	-0.026
100%		-10	823 299 965	-17.6	-0.000 002	-0.021
100%		0	823 299 961	-21.7	-0.000 003	-0.026
100%		+10	823 299 963	-19.9	-0.000 002	-0.024
100%		+30	823 299 959	-23.9	-0.000 003	-0.029
100%		+40	823 299 998	14.8	0.000 002	0.018
100%		+50	823 299 999	16.5	0.000 002	0.020
100%		+20	823 299 999	16.1	0.000 002	0.020
Batt. Endpoint	3.400	+20	823 299 999	16.1	0.000 002	0.020



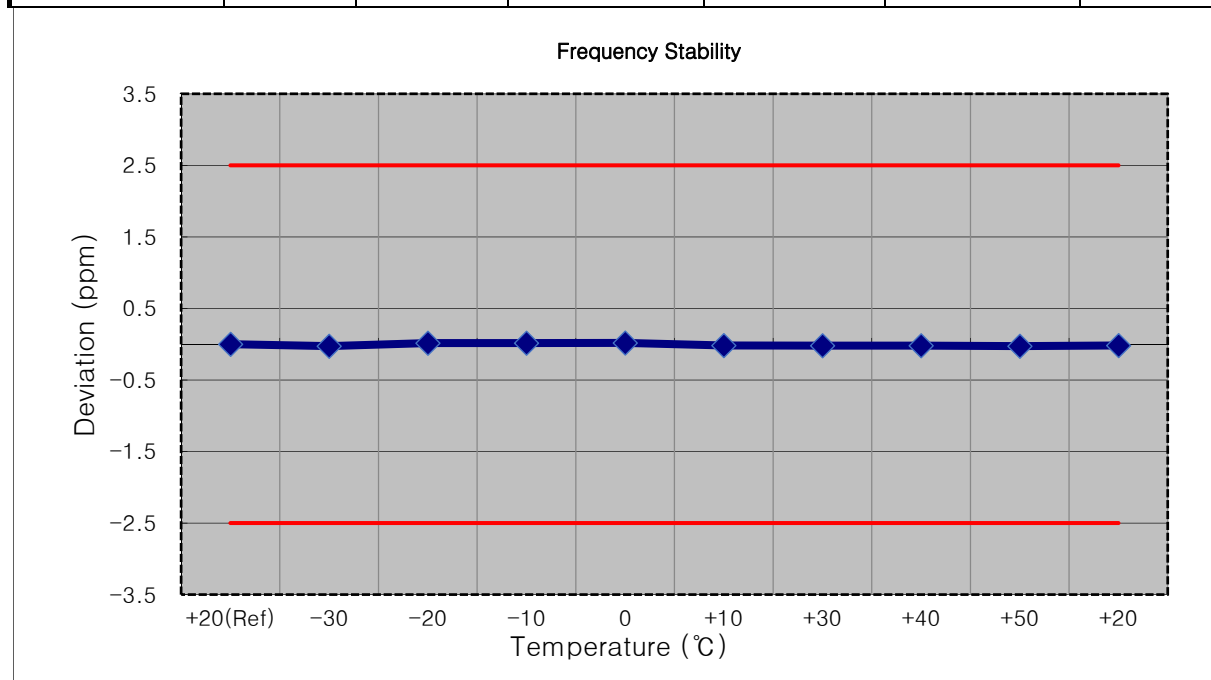
☐ MODE: LTE 26
☐ OPERATING FREQUENCY: 815,500,000 Hz
☐ CHANNEL: 26705(3 MHz)
☐ REFERENCE VOLTAGE: 3.85 VDC
☐ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.850	+20(Ref)	822 500 025	0.0	0.000 000	0.000
100%		-30	822 500 053	28.7	0.000 003	0.035
100%		-20	822 500 047	22.6	0.000 003	0.027
100%		-10	822 500 044	19.8	0.000 002	0.024
100%		0	822 500 046	21.3	0.000 003	0.026
100%		+10	822 500 041	16.0	0.000 002	0.019
100%		+30	822 500 047	22.9	0.000 003	0.028
100%		+40	822 500 047	22.6	0.000 003	0.027
100%		+50	822 500 050	25.7	0.000 003	0.031
Batt. Endpoint	3.400	+20	822 500 002	-23.0	-0.000 003	-0.028



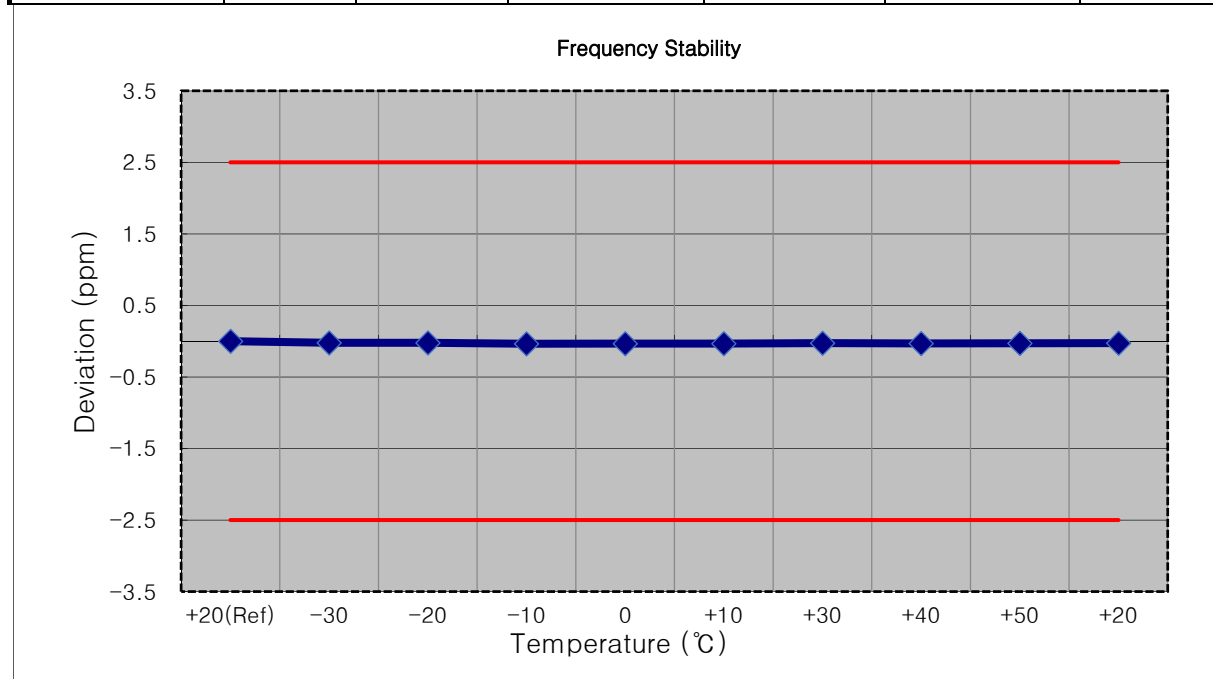
☐ MODE: LTE 26
☐ OPERATING FREQUENCY: 816.500,000 Hz
☐ CHANNEL: 26715(5MHz)
☐ REFERENCE VOLTAGE: 3.85 VDC
☐ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.850	+20(Ref)	821 500 016	0.0	0.000 000	0.000
100%		-30	821 499 994	-22.3	-0.000 003	-0.027
100%		-20	821 500 028	12.3	0.000 001	0.015
100%		-10	821 500 029	13.5	0.000 002	0.016
100%		0	821 500 031	14.8	0.000 002	0.018
100%		+10	821 500 002	-14.3	-0.000 002	-0.017
100%		+30	821 500 000	-15.9	-0.000 002	-0.019
100%		+40	821 500 000	-15.5	-0.000 002	-0.019
100%		+50	821 499 995	-21.0	-0.000 003	-0.026
Batt. Endpoint	3.400	+20	821 500 002	-13.6	-0.000 002	-0.017



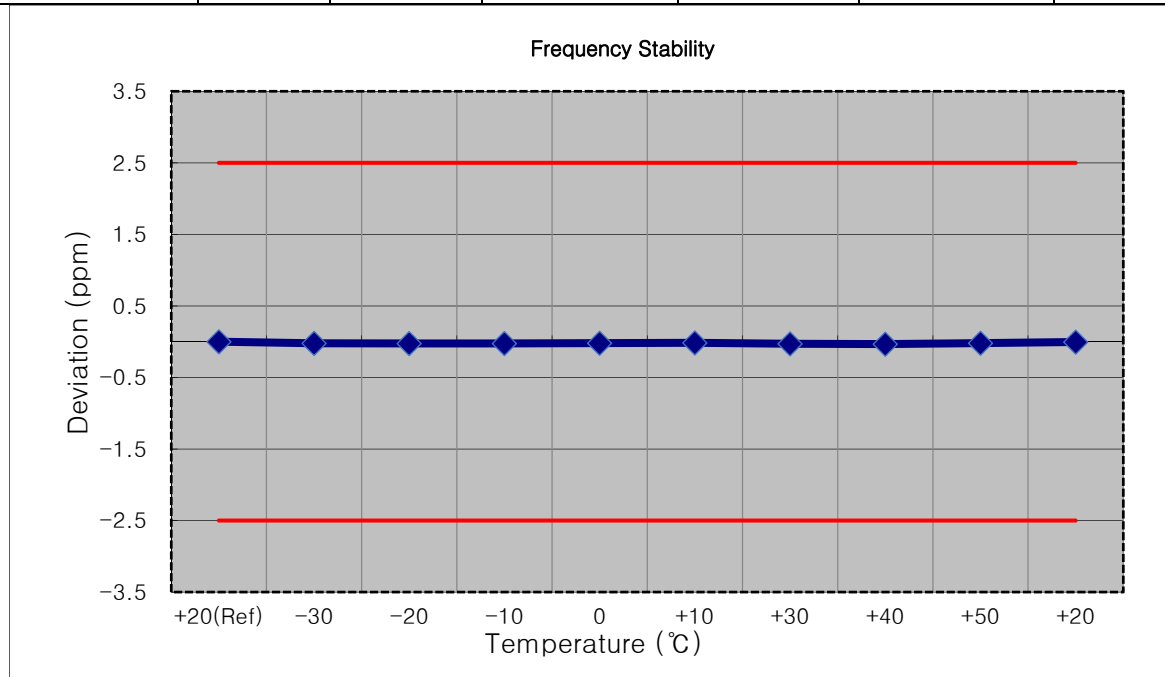
☐ MODE: LTE 26
☐ OPERATING FREQUENCY: 819,000,000 Hz
☐ CHANNEL: 26740(10 MHz)
☐ REFERENCE VOLTAGE: 3.85 VDC
☐ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.850	+20(Ref)	818 999 978	0.0	0.000 000	0.000
100%		-30	818 999 959	-18.7	-0.000 002	-0.023
100%		-20	818 999 960	-18.5	-0.000 002	-0.023
100%		-10	818 999 949	-29.0	-0.000 004	-0.035
100%		0	818 999 952	-26.3	-0.000 003	-0.032
100%		+10	818 999 951	-26.7	-0.000 003	-0.033
100%		+30	818 999 956	-22.3	-0.000 003	-0.027
100%		+40	818 999 953	-24.8	-0.000 003	-0.030
100%		+50	818 999 955	-23.5	-0.000 003	-0.029
Batt. Endpoint	3.400	+20	818 999 957	-21.6	-0.000 003	-0.026



■ MODE: LTE 26
 ■ OPERATING FREQUENCY: 821,500,000 Hz
 ■ CHANNEL: 26765(15 MHz)
 ■ REFERENCE VOLTAGE: 3.85 VDC
 ■ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.850	+20(Ref)	821 499 979	0.0	0.000 000	0.000
100%		-30	821 499 962	-17.2	-0.000 002	-0.021
100%		-20	821 499 960	-19.5	-0.000 002	-0.024
100%		-10	821 499 960	-19.5	-0.000 002	-0.024
100%		0	821 499 963	-16.5	-0.000 002	-0.020
100%		+10	821 499 966	-13.2	-0.000 002	-0.016
100%		+30	821 499 956	-23.2	-0.000 003	-0.028
100%		+40	821 499 951	-27.8	-0.000 003	-0.034
100%		+50	821 499 962	-16.6	-0.000 002	-0.020
Batt. Endpoint	3.400	+20	821 499 976	-3.3	0.000 000	-0.004



8.7 STADDLE CHANNEL

8.7.1 EFFECTIVE RADIATED POWER

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
824.0	LTE B26/ 1.4 MHz	QPSK	-31.27	30.01	-10.27	0.86	H	< 7.00	0.077	18.88
		16-QAM	-31.93	29.35	-10.27	0.86	H		0.066	18.22
		64-QAM	-32.99	28.29	-10.27	0.86	H		0.052	17.16

Note:

1. Part 90 Subpart S and Part 22 Subpart H individually differ mainly by the output power limit.

Therefore, this report applied worst-case limit.

(Worst-case limit : 7W)

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
824.0	LTE B26/ 3 MHz	-31.27	30.01	-10.27	0.86	H	-31.27	< 7.00	0.077	18.88
		-31.97	29.31	-10.27	0.86	H	-31.97		0.066	18.18
		64-QAM	-33.01	28.27	-10.27	0.86	H		0.052	17.14

Note:

1. Part 90 Subpart S and Part 22 Subpart H individually differ mainly by the output power limit.

Therefore, this report applied worst-case limit.

(Worst-case limit : 7W)

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
824.0	LTE B26/ 5 MHz	QPSK	-31.34	29.94	-10.27	0.86	H	< 7.00	0.076	18.81
		16-QAM	-32.09	29.19	-10.27	0.86	H		0.064	18.06
		64-QAM	-33.09	28.19	-10.27	0.86	H		0.051	17.06

Note:

- Part 90 Subpart S and Part 22 Subpart H individually differ mainly by the output power limit.
Therefore, this report applied worst-case limit.
(Worst-case limit : 7W)

Freq (MHz)	Bandwidth	Modulation	Measured Level (dBm)	Substitute Level (dBm)	Ant. Gain(dBd)	C.L	Pol	Limit	ERP	
								W	W	dBm
824.0	LTE B26/ 10 MHz	QPSK	-31.27	30.01	-10.27	0.86	H	< 7.00	0.077	18.88
		16-QAM	-32.05	29.23	-10.27	0.86	H		0.065	18.10
		64-QAM	-33.07	28.21	-10.27	0.86	H		0.051	17.08

Note:

- Part 90 Subpart S and Part 22 Subpart H individually differ mainly by the output power limit.
Therefore, this report applied worst-case limit.
(Worst-case limit : 7W)

8.7.2 RADIATED SPURIOUS EMISSIONS

- ▣ OPERATING FREQUENCY: 824.00 MHz
- ▣ MEASURED OUTPUT POWER: 18.88 dBm = 0.077 W
- ▣ MODE: LTE B26
- ▣ MODULATION SIGNAL: 1.4 MHz QPSK
- ▣ DISTANCE: 3 meters
- ▣ LIMIT: $43 + 10 \log_{10}(W) =$ 31.88 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm)	C.L	Pol	ERP (dBm)	dBc
26790 (824.0)	1,648.00	-58.30	7.50	-67.23	1.27	H	-63.15	82.03
	2,472.00	-52.22	8.64	-57.94	1.58	V	-53.03	71.91
	3,296.00	-57.03	10.57	-63.25	1.95	V	-56.78	75.66
	4,120.00	-48.13	10.69	-51.92	2.13	H	-45.51	64.39

- ▣ OPERATING FREQUENCY: 824.00 MHz
- ▣ MEASURED OUTPUT POWER: 18.88 dBm = 0.077 W
- ▣ MODE: LTE B26
- ▣ MODULATION SIGNAL: 3 MHz QPSK
- ▣ DISTANCE: 3 meters
- ▣ LIMIT: $43 + 10 \log_{10}(W) =$ 31.88 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm)	C.L	Pol	ERP (dBm)	dBc
26790 (824.0)	1,648.00	-58.40	7.50	-67.34	1.26	H	-63.25	82.13
	2,472.00	-45.87	8.64	-51.59	1.59	V	-46.68	65.56
	3,296.00	-57.85	10.57	-64.14	1.88	V	-57.60	76.48
	4,120.00	-47.20	10.69	-50.94	2.18	H	-44.58	63.46

- ▣ OPERATING FREQUENCY: 824.00 MHz
- ▣ MEASURED OUTPUT POWER: 18.81 dBm = 0.076 W
- ▣ MODE: LTE B26
- ▣ MODULATION SIGNAL: 5 MHz QPSK
- ▣ DISTANCE: 3 meters
- ▣ LIMIT: $43 + 10 \log_{10} (W) =$ 31.81 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm)	C.L	Pol	ERP (dBm)	dBc
26790 (824.0)	1,648.00	-58.38	7.50	-67.32	1.26	V	-63.23	82.04
	2,472.00	-53.05	8.64	-58.76	1.59	H	-53.86	72.67
	3,296.00	-58.66	10.57	-64.93	1.90	V	-58.41	77.22
	4,120.00	-47.06	10.69	-50.80	2.18	H	-44.44	63.25

- ▣ OPERATING FREQUENCY: 824.00 MHz
- ▣ MEASURED OUTPUT POWER: 18.88 dBm = 0.077 W
- ▣ MODE: LTE B26
- ▣ MODULATION SIGNAL: 10 MHz QPSK
- ▣ DISTANCE: 3 meters
- ▣ LIMIT: $43 + 10 \log_{10} (W) =$ 31.88 dBc

Ch	Freq (MHz)	Measured Level (dBm)	Ant. Gain (dBd)	Substitute Level (dBm)	C.L	Pol	ERP (dBm)	dBc
26790 (824.0)	1,648.00	-57.63	7.50	-66.57	1.26	H	-62.48	81.36
	2,472.00	-45.95	8.64	-51.66	1.59	V	-46.76	65.64
	3,296.00	-58.20	10.57	-64.47	1.90	H	-57.95	76.83
	4,120.00	-49.50	10.69	-53.24	2.18	H	-46.88	65.76

8.7.3 CONDUCTED SPURIOUS EMISSIONS

Band	Band Width (MHz)	Frequency (MHz)	Frequency of Maximum Harmonic (GHz)	Factor (dB)	Measurement Maximum Data (dBm)	Result (dBm)	Limit (dBm)
26	1.4	824.0	3.6950	27.976	-67.325	-39.349	-13.00
	3		3.6855	27.976	-66.999	-39.023	
	5		3.7015	27.976	-67.027	-39.051	
	10		3.6845	27.976	-67.360	-39.384	

Note:

1. Plots of the EUT's Conducted Spurious Emissions are shown Page 88 ~ 91.
2. Conducted Spurious Emissions was Tested QPSK Modulation, Resource Block Size 1 and Resource Block Offset 0
3. Result (dBm) = Measurement Maximum Data (dBm) + Factor (dB)
4. Factor(dB) = Cable Loss + Attenuator + Power Splitter

Frequency Range (GHz)	Factor [dB]
0.03 – 1	25.270
1 – 5	27.976
5 – 10	28.591
10 – 15	29.116
15 – 20	29.489
Above 20	30.131

8.7.4 CHANNEL EDGE(Part90)

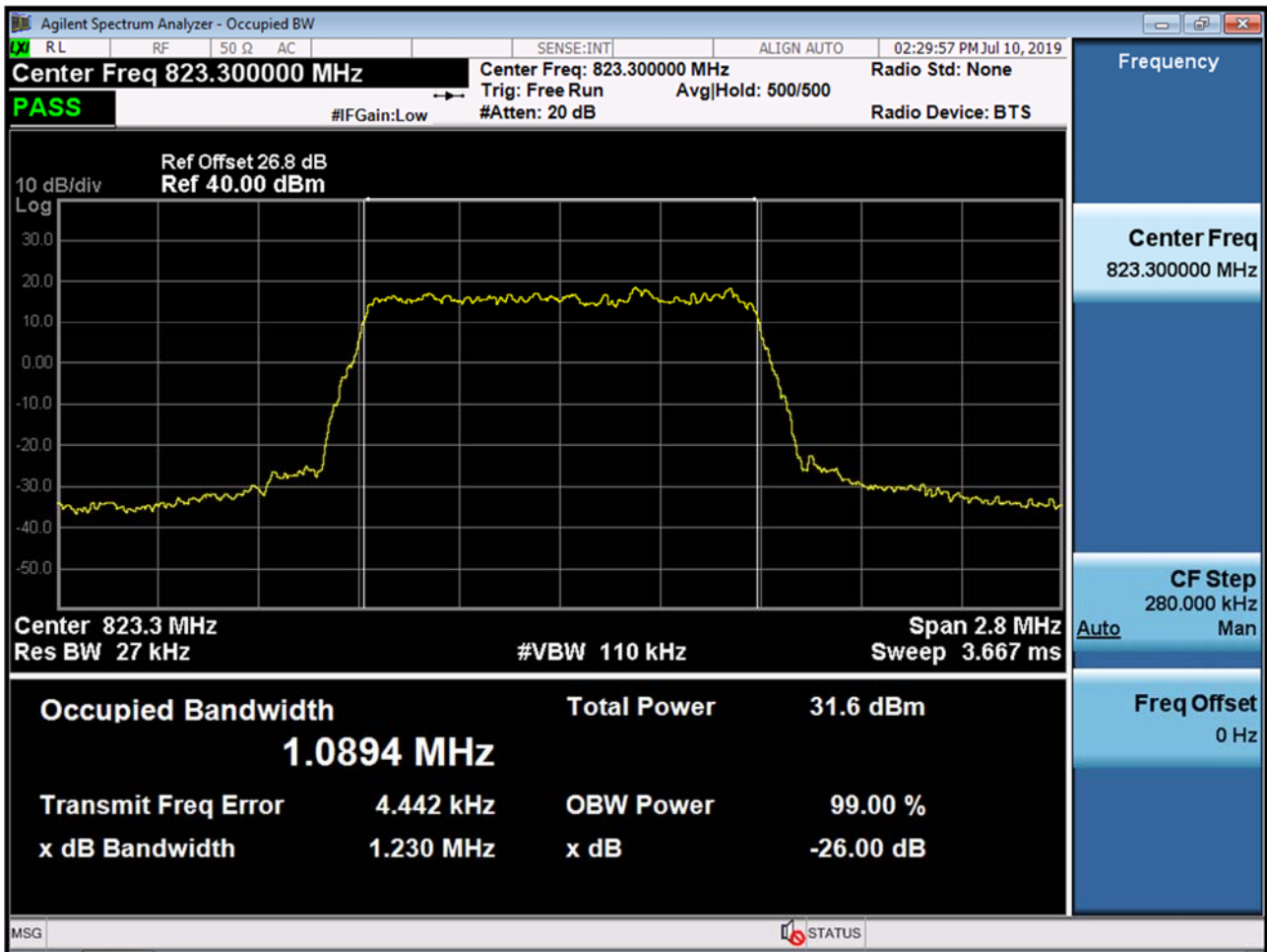
- Test Channel : 26790(824.0MHz)
- Plots of the EUT's Band Edge are shown Page 92 ~ 103.

8.7.5 BAND EDGE(Part22)

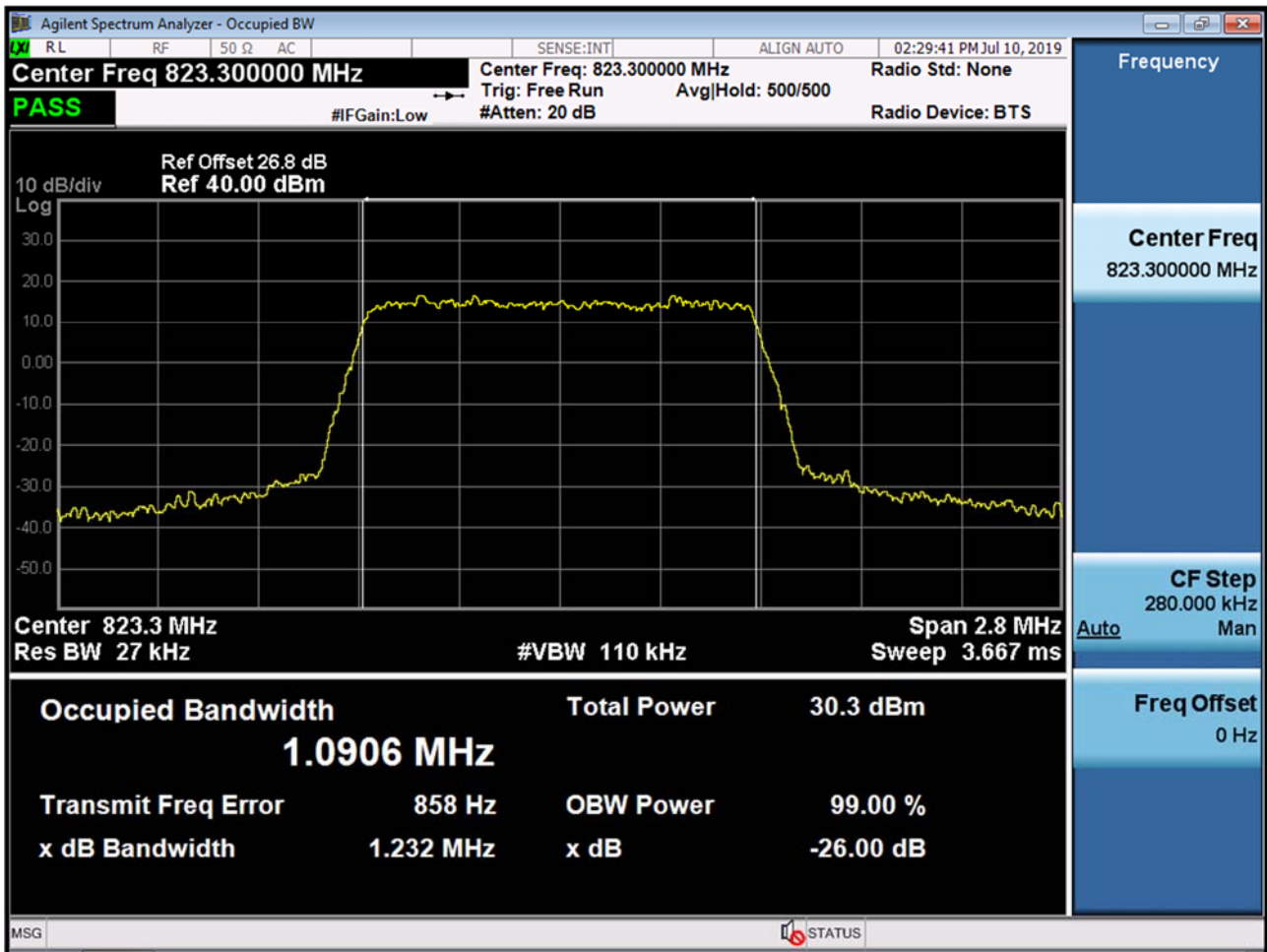
- Test Channel : 26790(824.0MHz)
- Plots of the EUT's Band Edge are shown Page 104 ~ 111.

9. TEST PLOTS

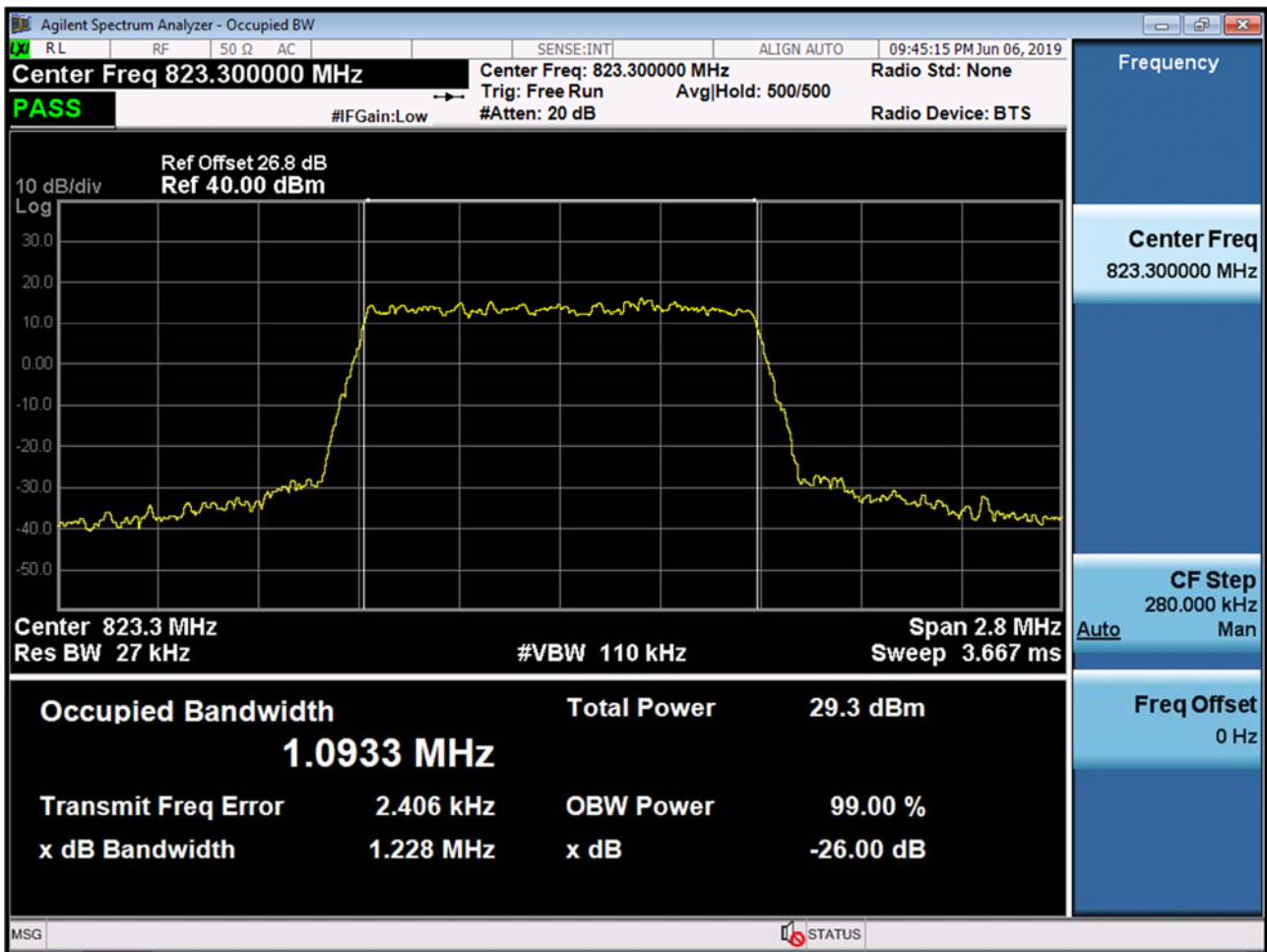
BAND 26. Occupied Bandwidth Plot (1.4M BW Ch.26783 QPSK RB 6_0)



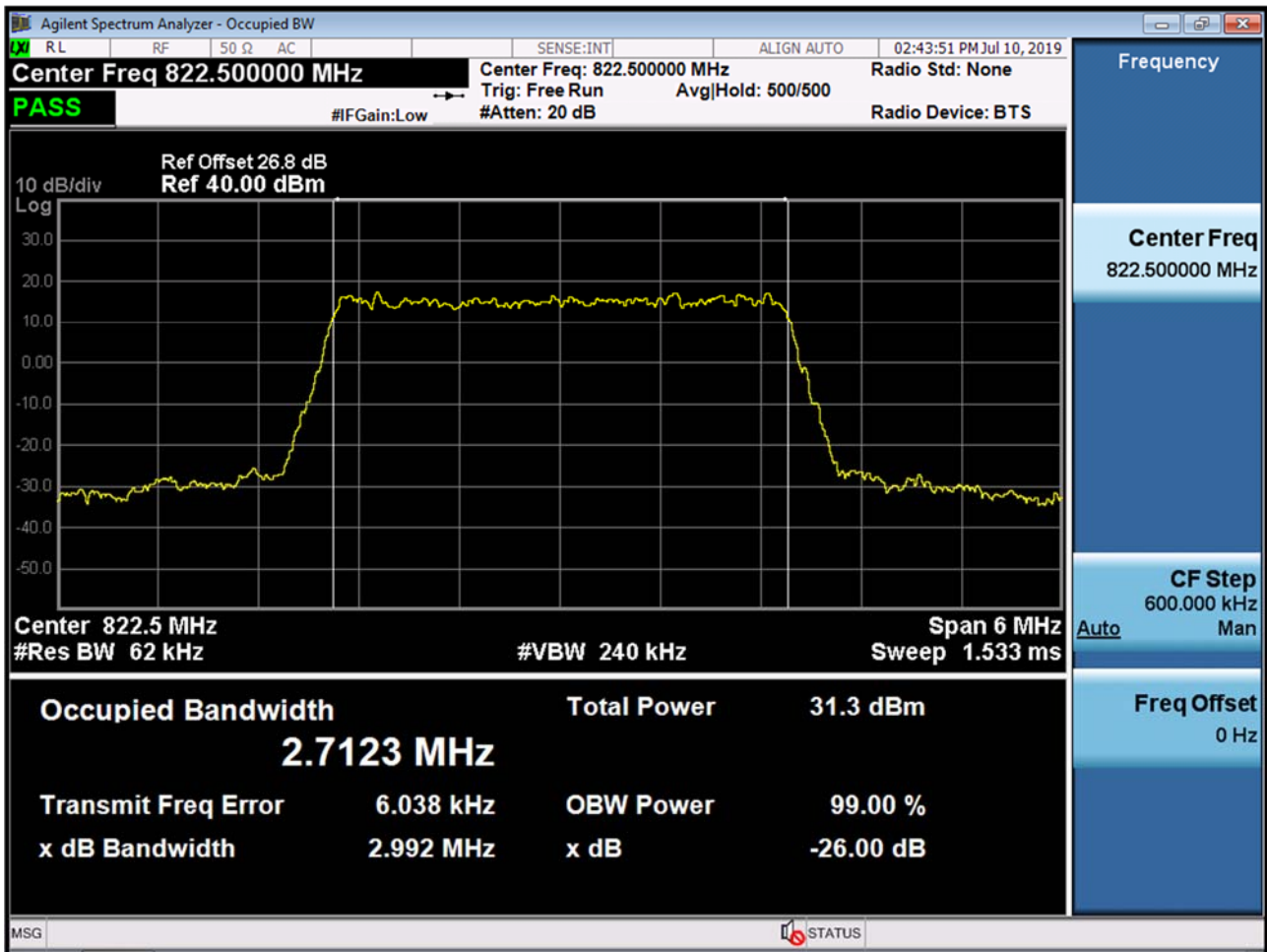
BAND 26. Occupied Bandwidth Plot (1.4M BW Ch.26783 16QAM RB 6_0)



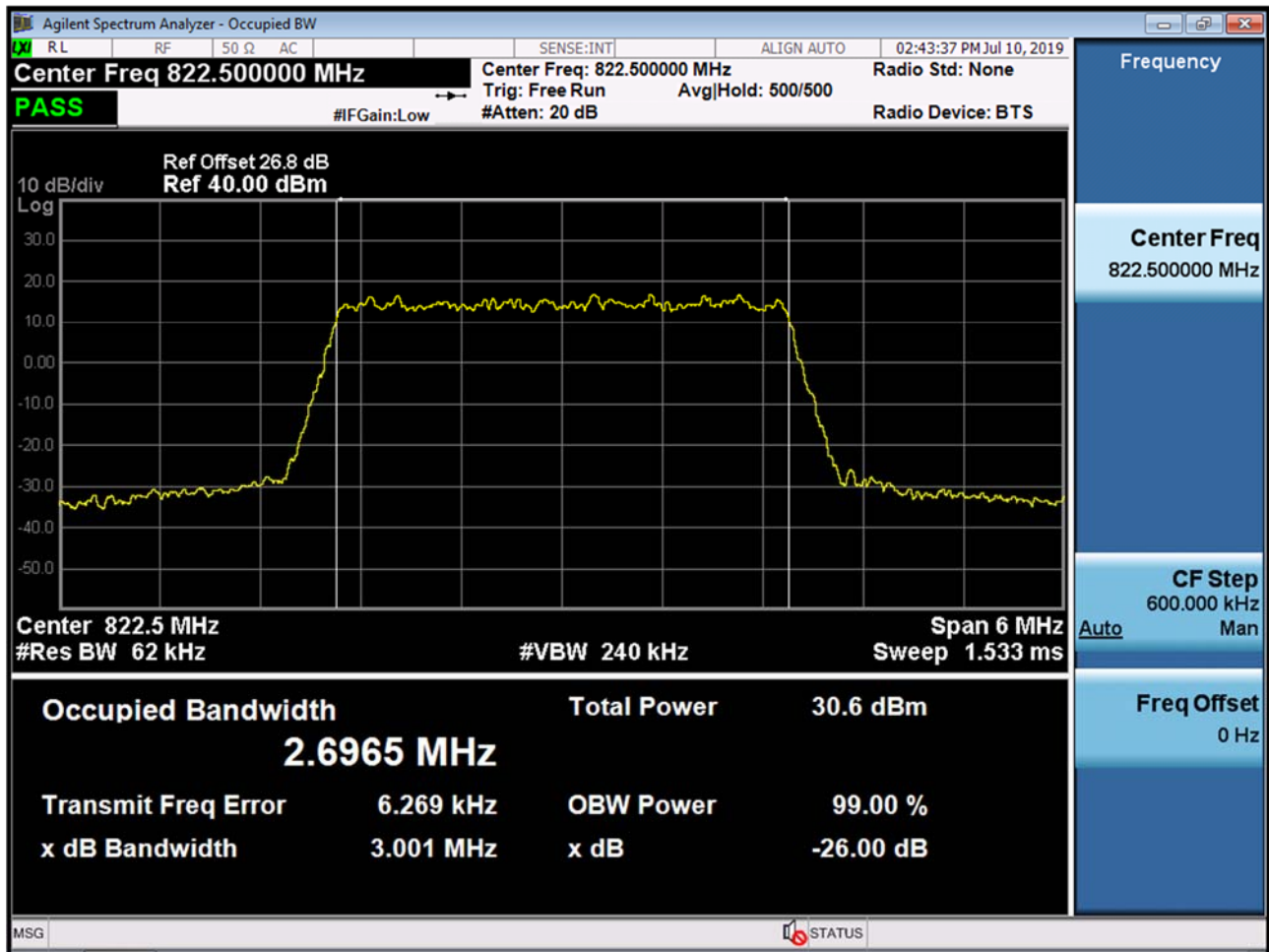
BAND 26. Occupied Bandwidth Plot (1.4M BW Ch.26783 64QAM RB 6_0)



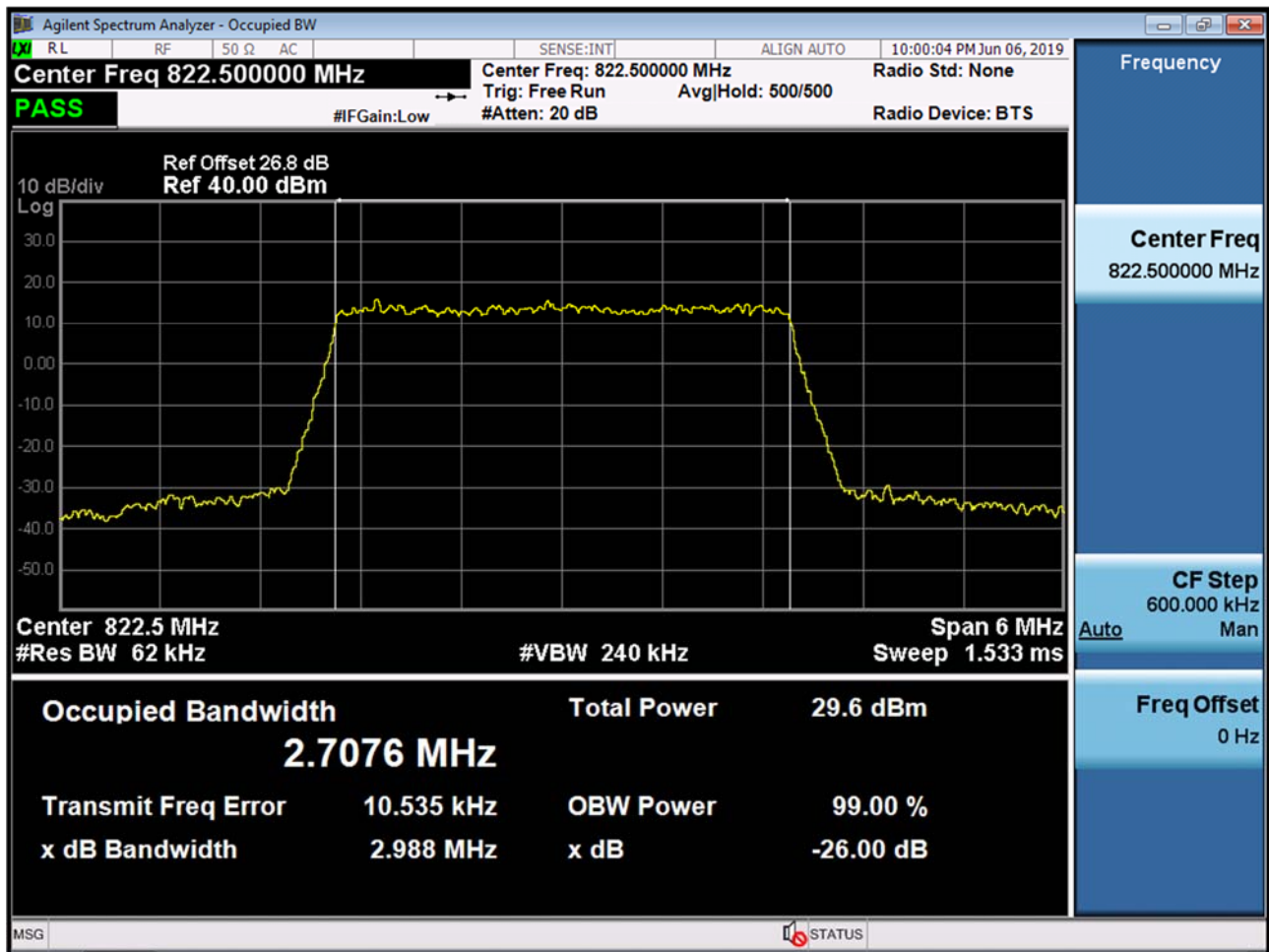
BAND 26. Occupied Bandwidth Plot (3M BW Ch.26775 QPSK RB 15_0)



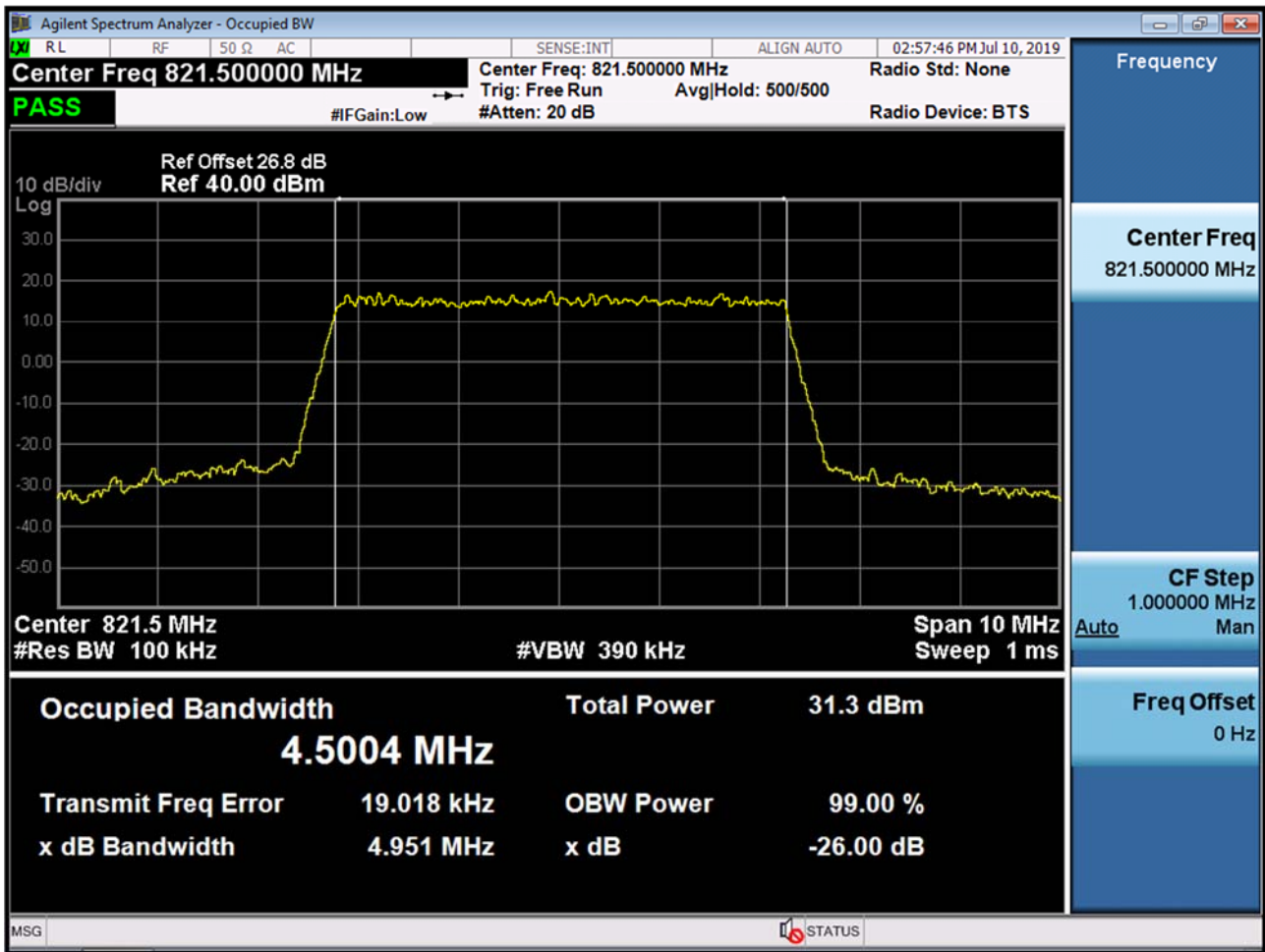
BAND 26. Occupied Bandwidth Plot (3M BW Ch.26775 16QAM RB 15_0)



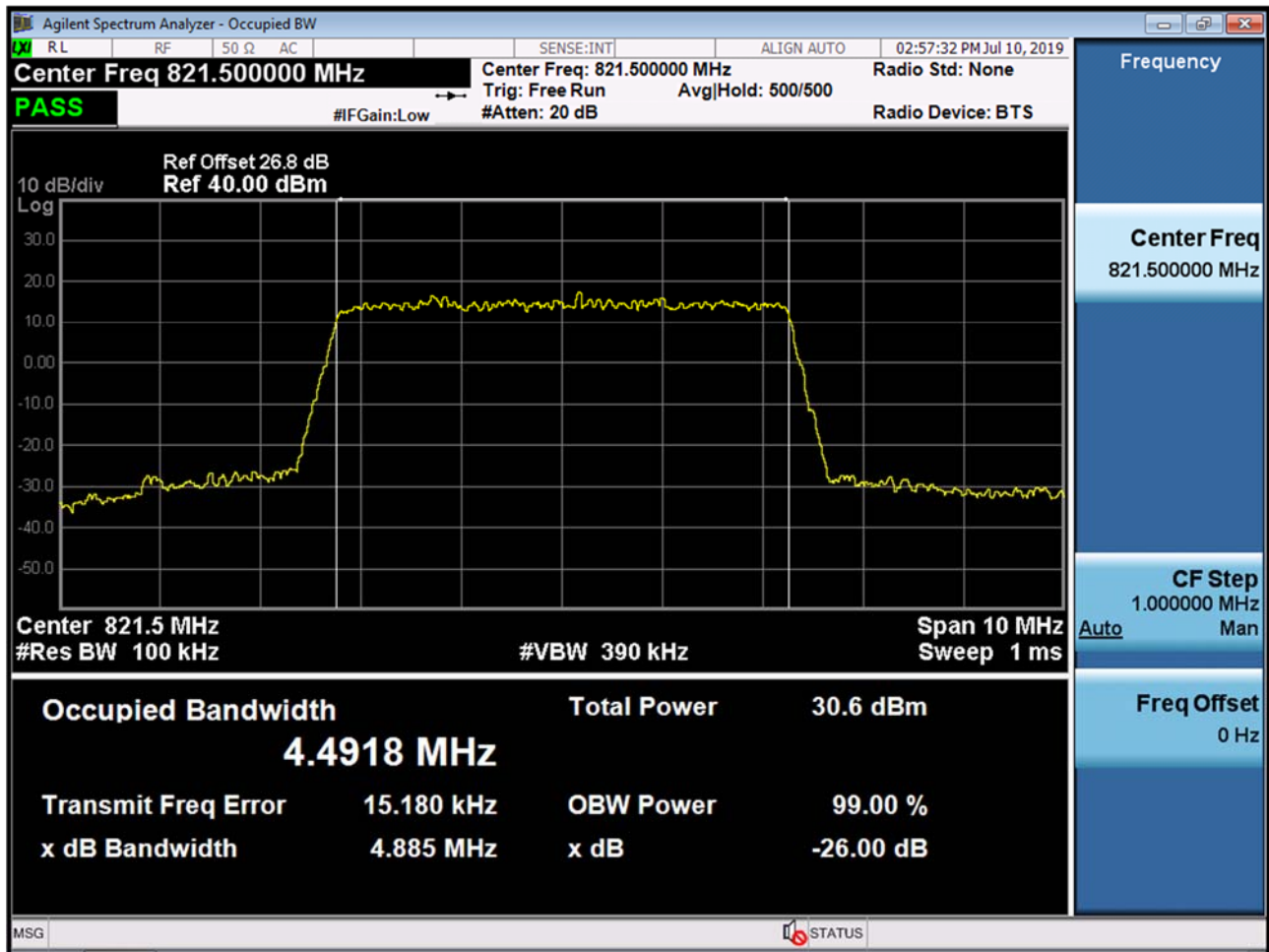
BAND 26. Occupied Bandwidth Plot (3M BW Ch.26775 64QAM RB 15_0)



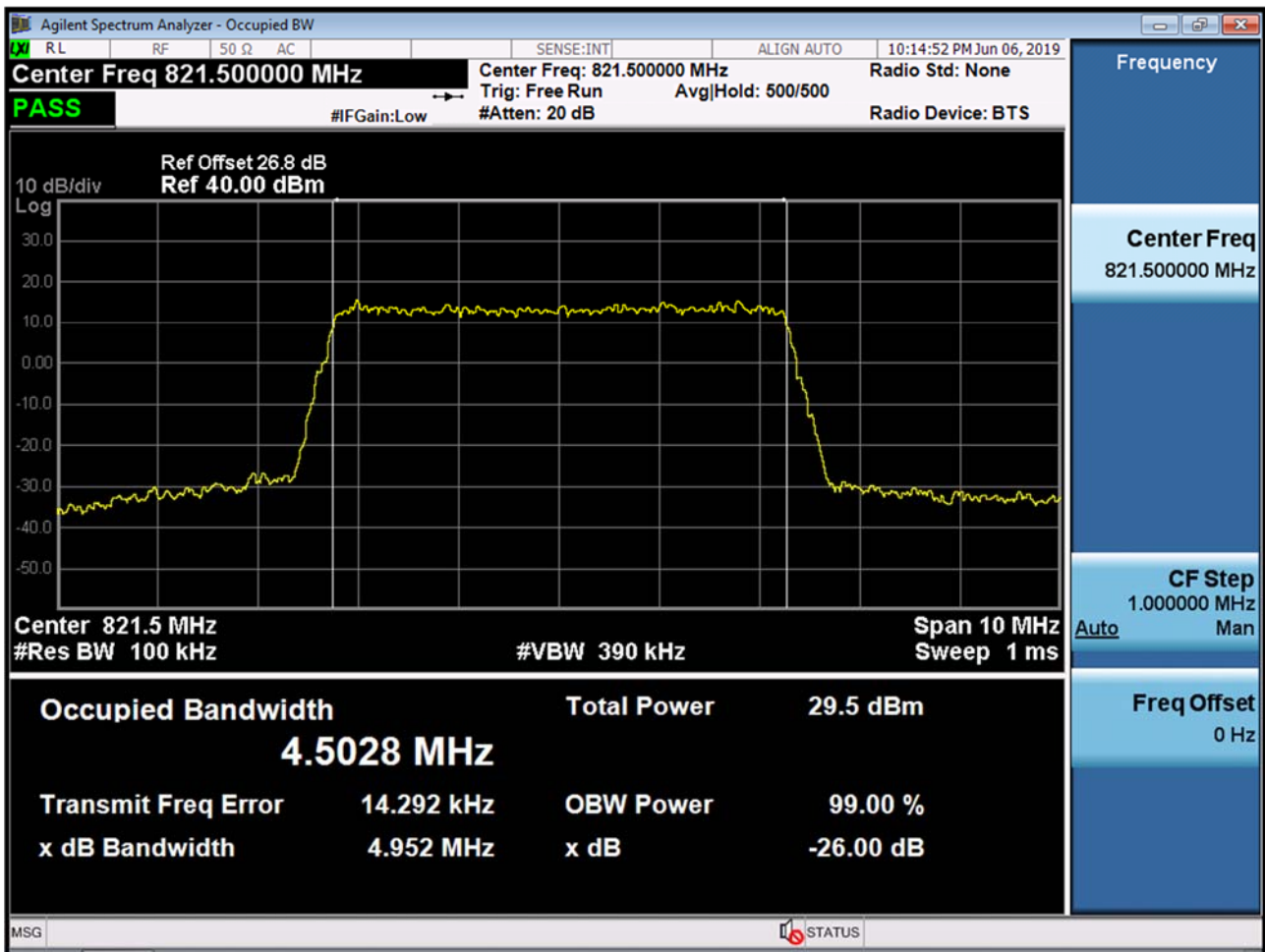
BAND 26. Occupied Bandwidth Plot (5M BW Ch.26765 QPSK RB 25_0)



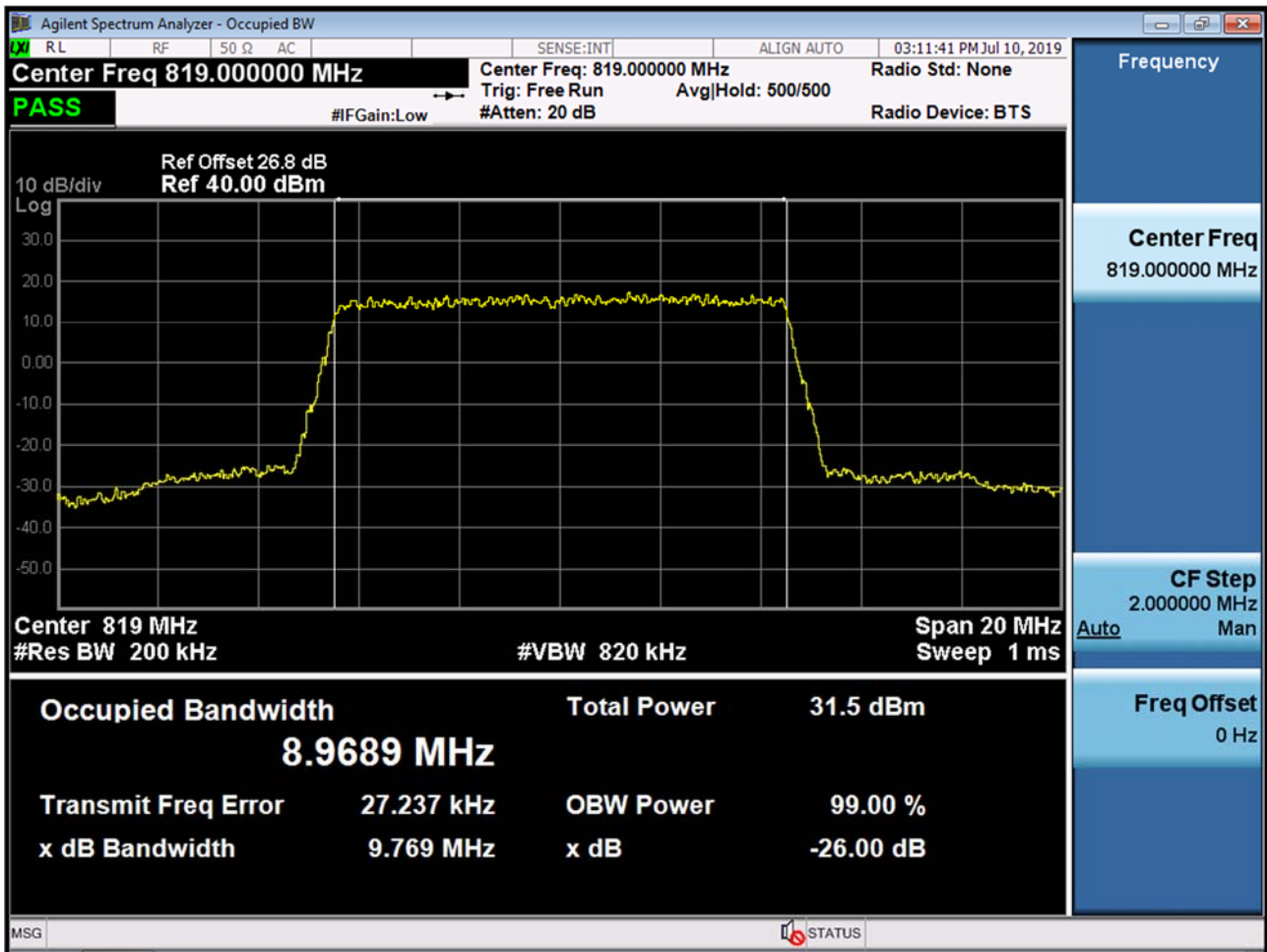
BAND 26. Occupied Bandwidth Plot (5M BW Ch.26765 16QAM RB 25_0)



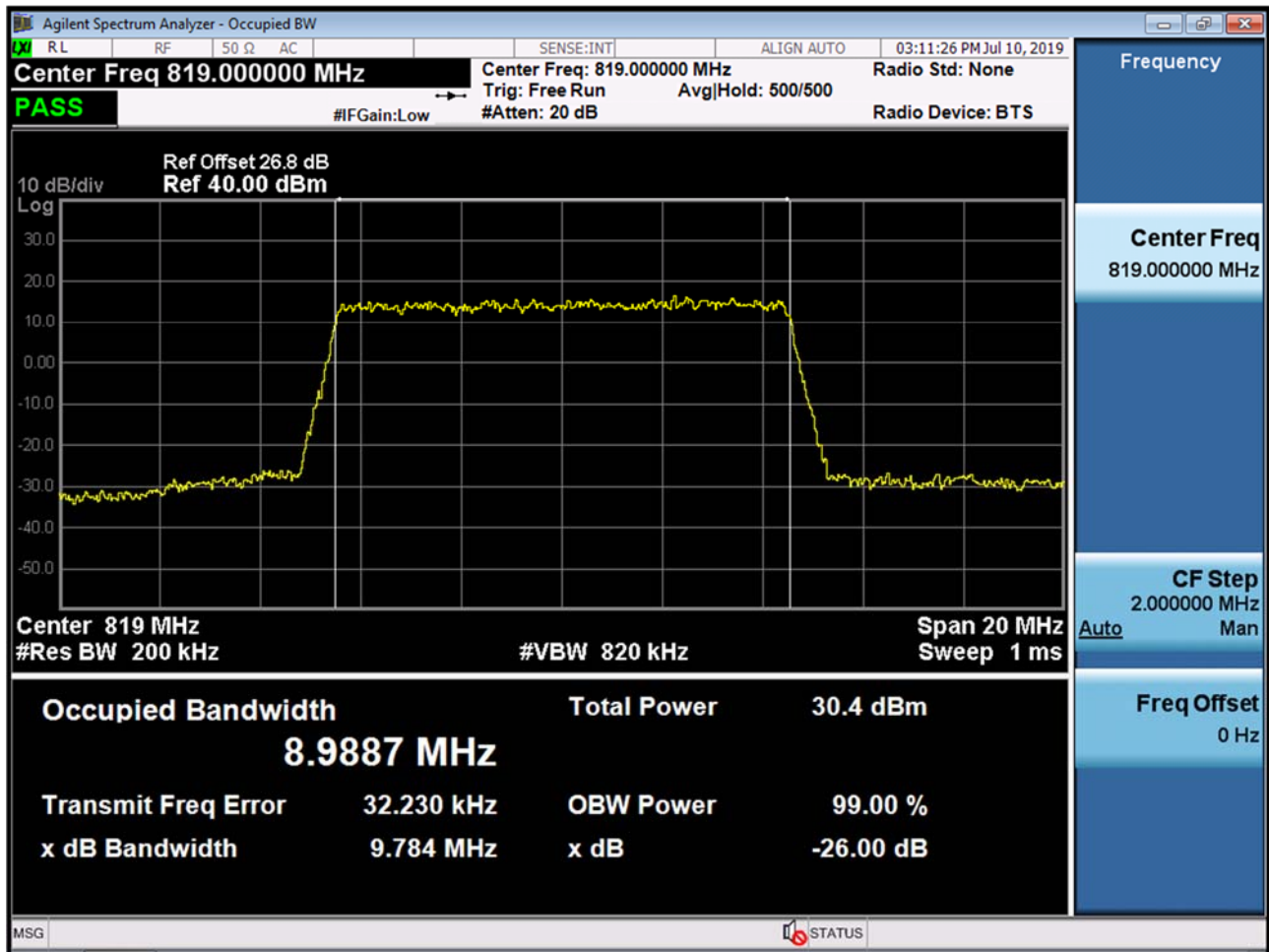
BAND 26. Occupied Bandwidth Plot (5M BW Ch.26765 64QAM RB 25_0)



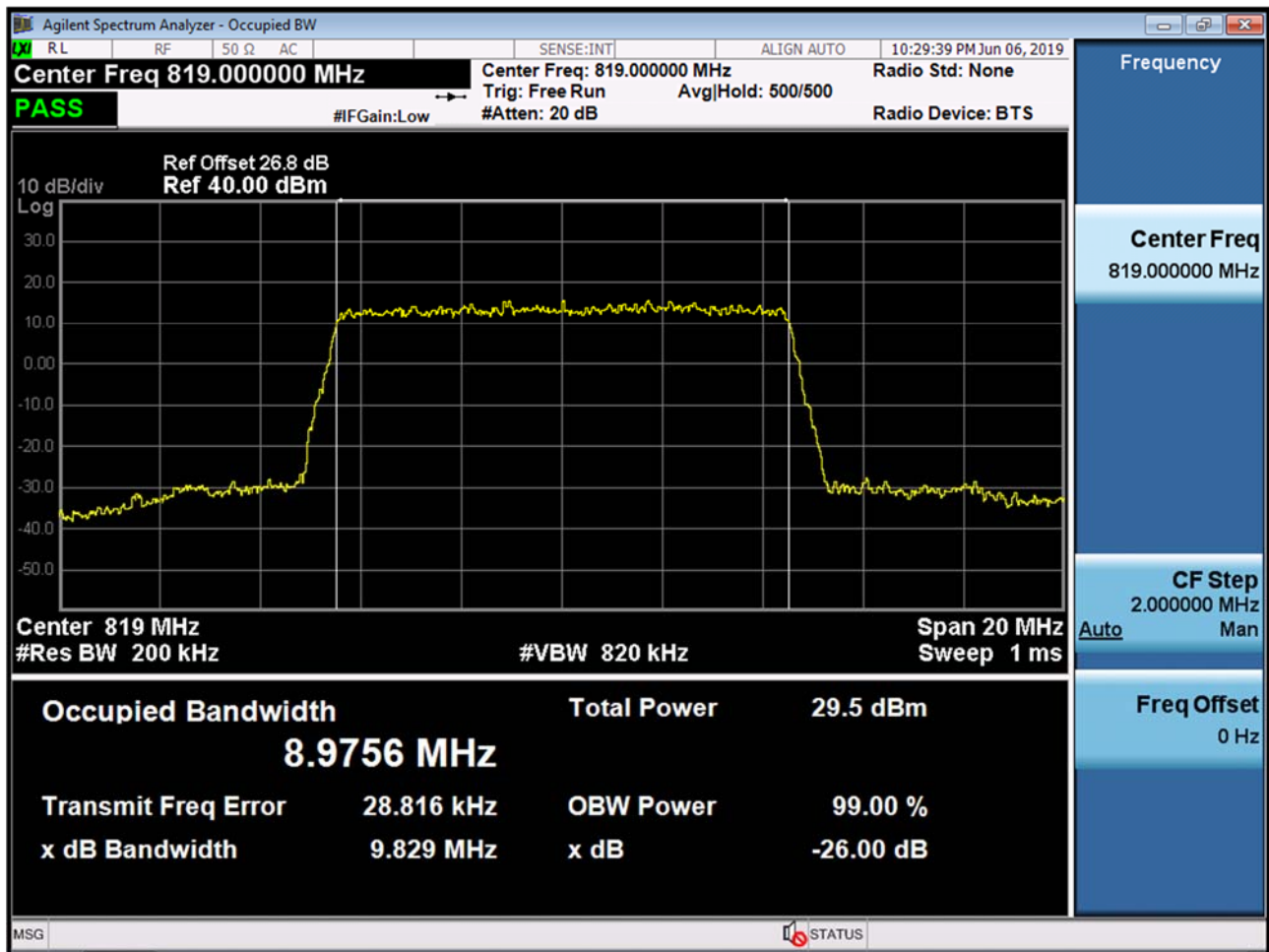
BAND 26. Occupied Bandwidth Plot (10M BW Ch.26740 QPSK RB 50_0)



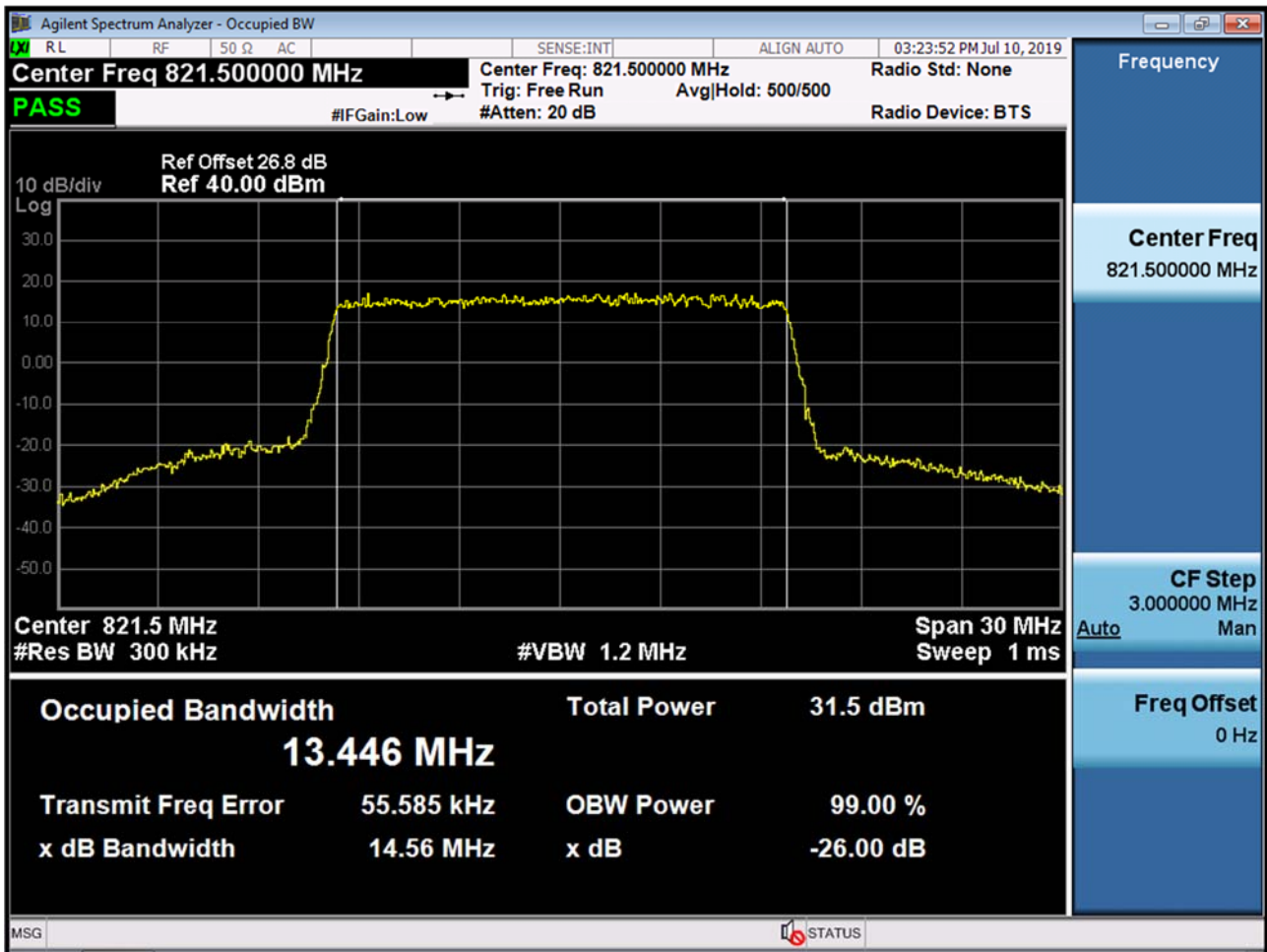
BAND 26. Occupied Bandwidth Plot (10M BW Ch.26740 16QAM RB 50_0)



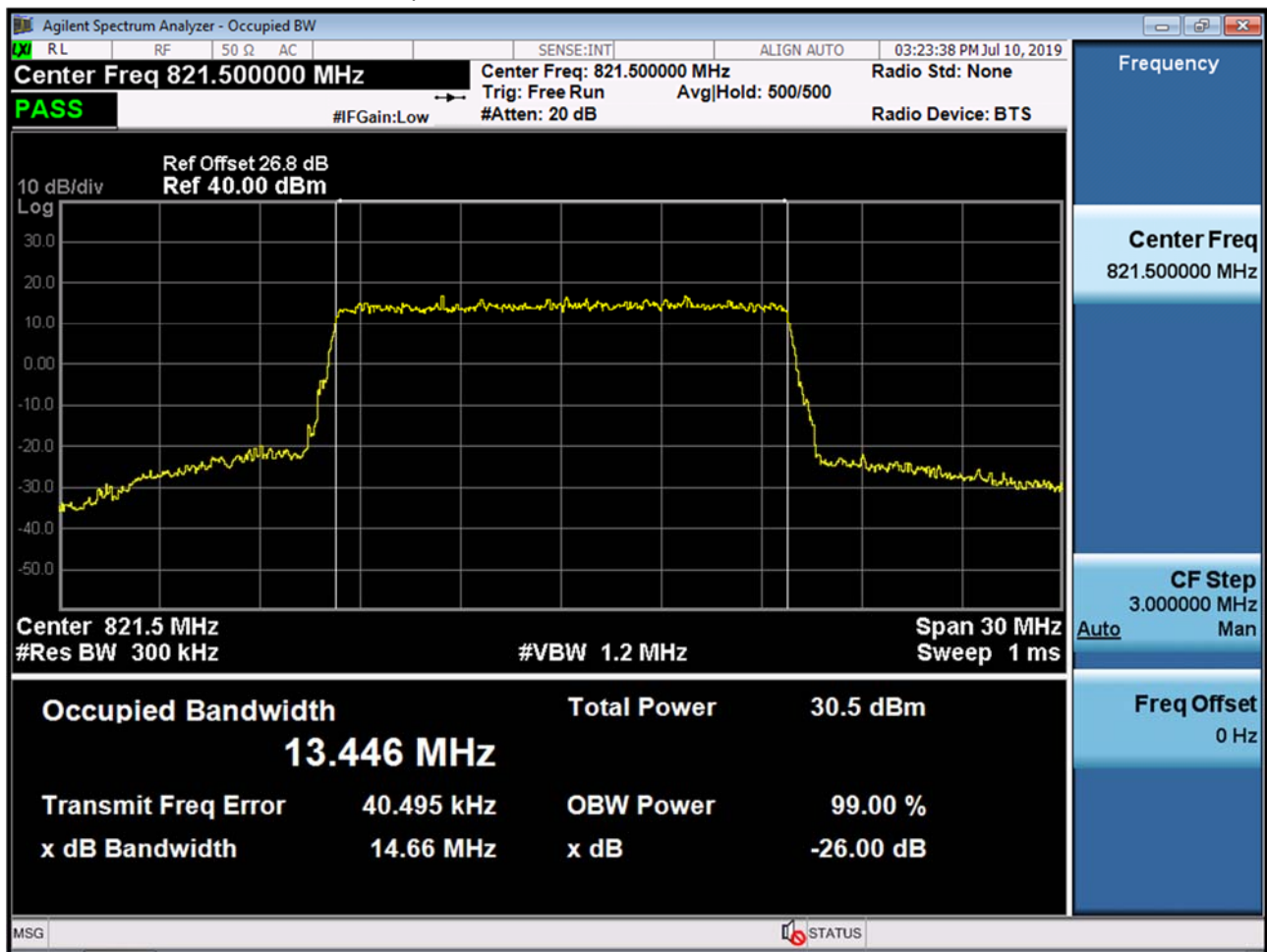
BAND 26. Occupied Bandwidth Plot (10M BW Ch.26740 64QAM RB 50_0)



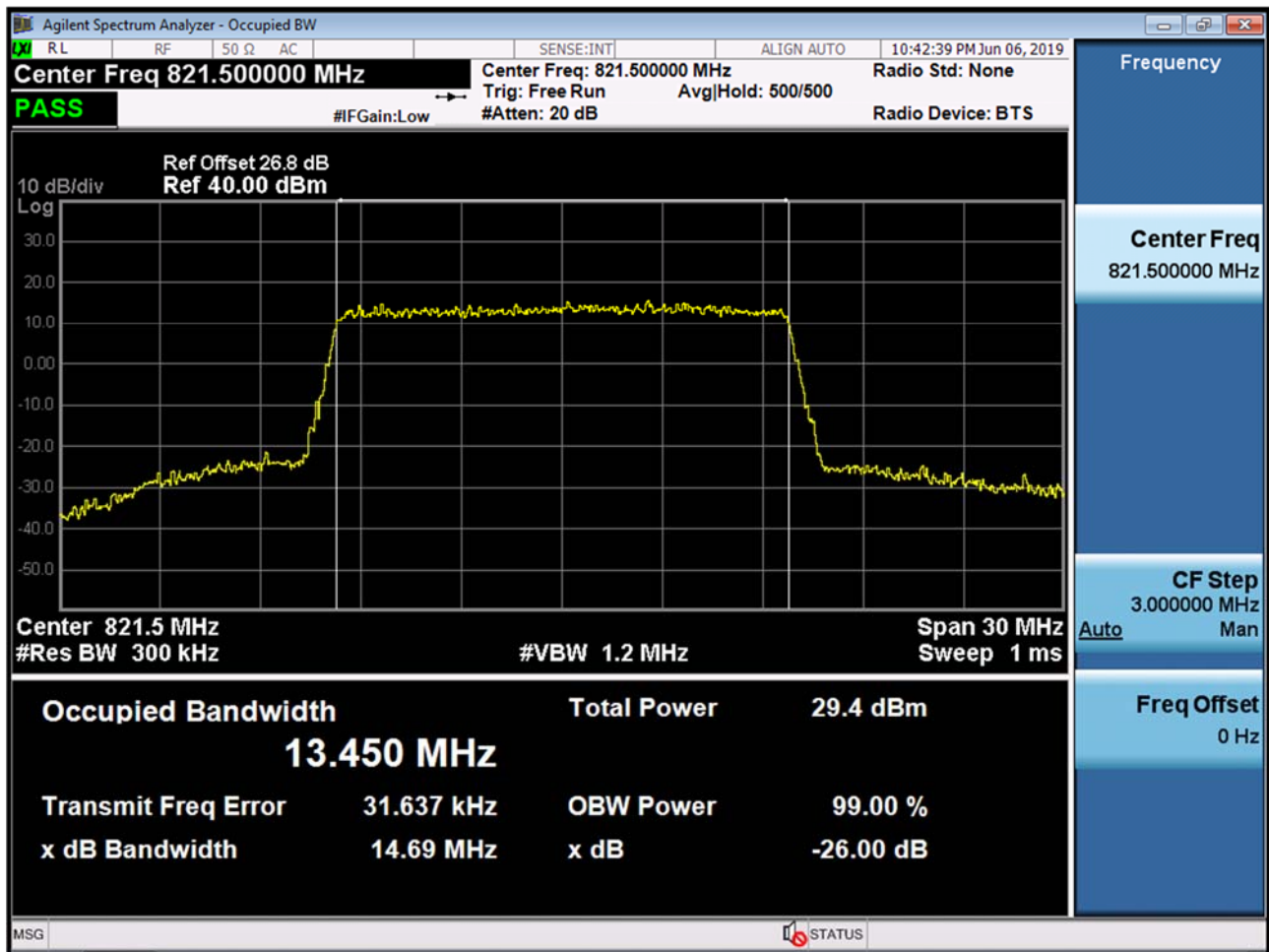
BAND 26. Occupied Bandwidth Plot (15M BW Ch.26765 QPSK RB 75_0)



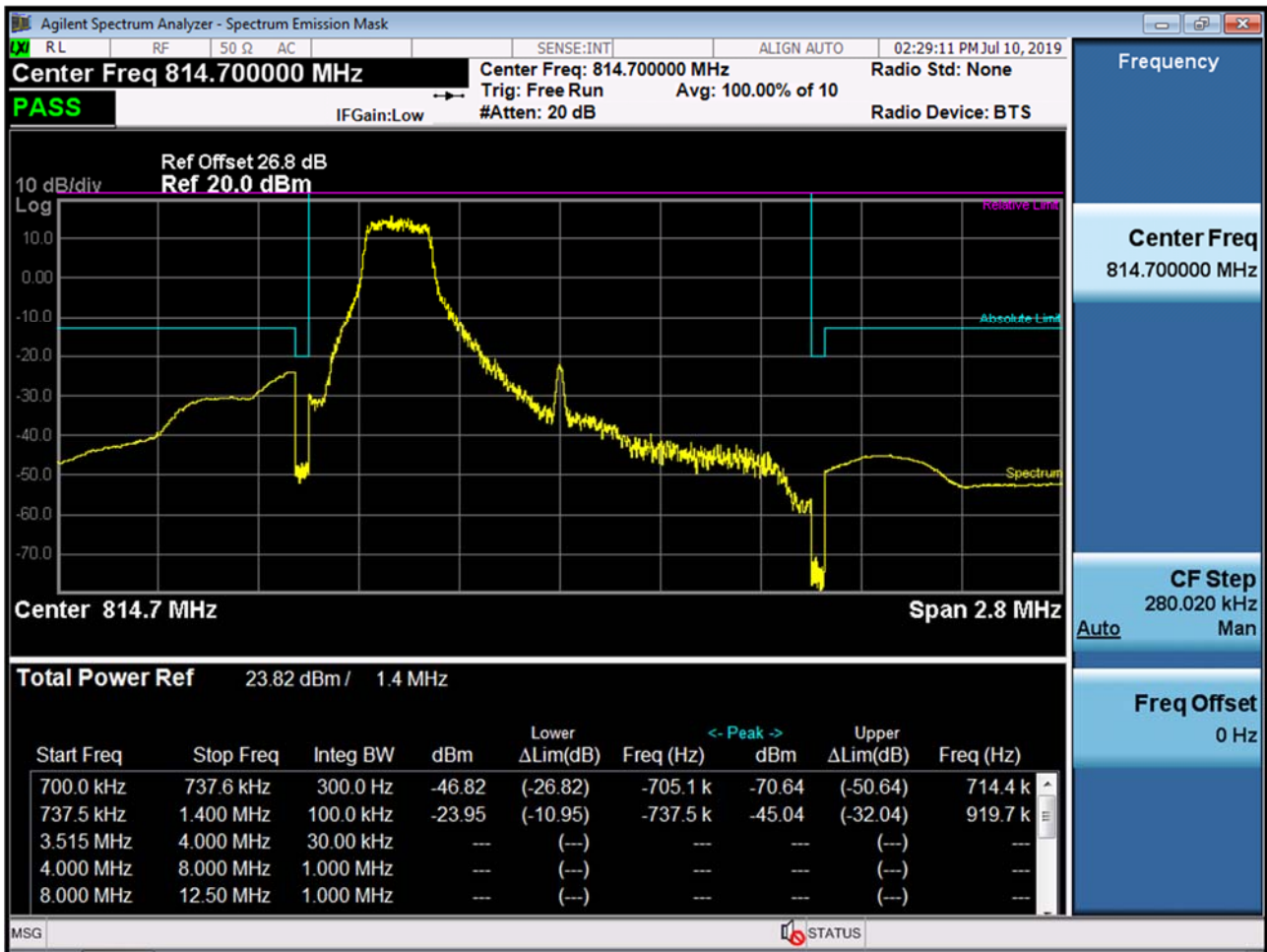
BAND 26. Occupied Bandwidth Plot (15M BW Ch.26765 16QAM RB 75_0)



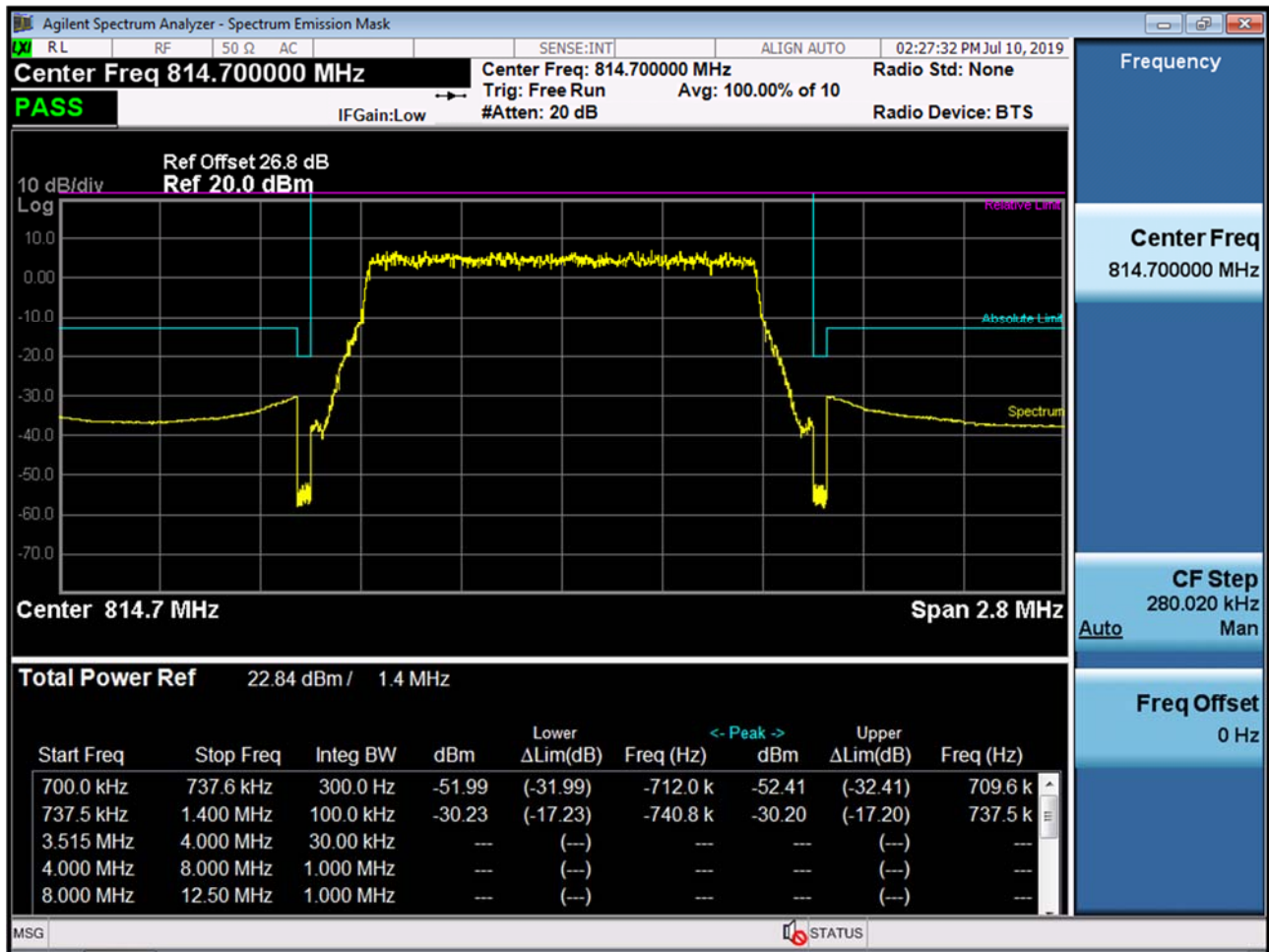
BAND 26. Occupied Bandwidth Plot (15M BW Ch.26765 64QAM RB 75_0)



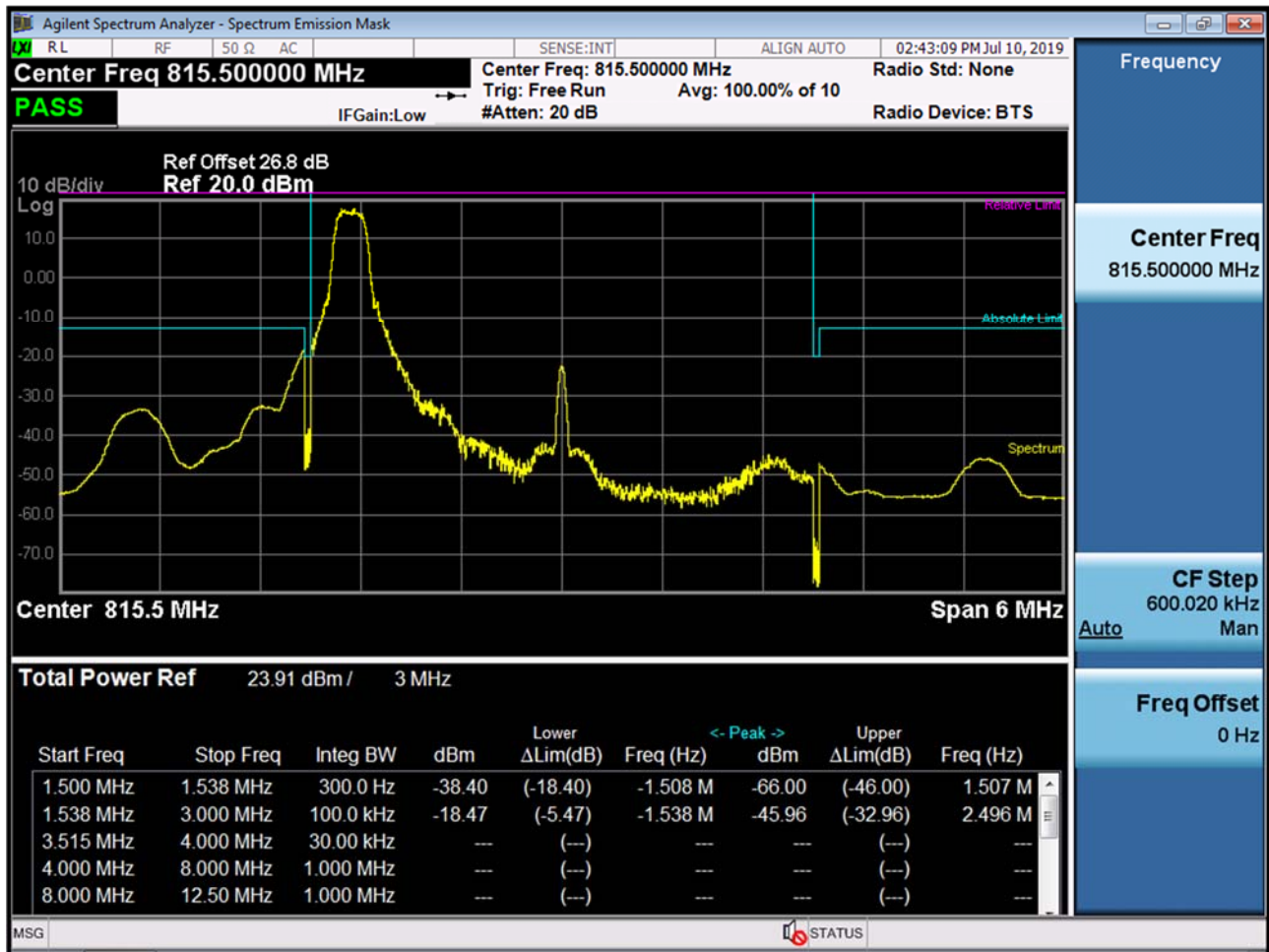
BAND 26. Lower Channel Edge Plot (1.4M BW Ch.26697 QPSK RB 1, Offset 0)



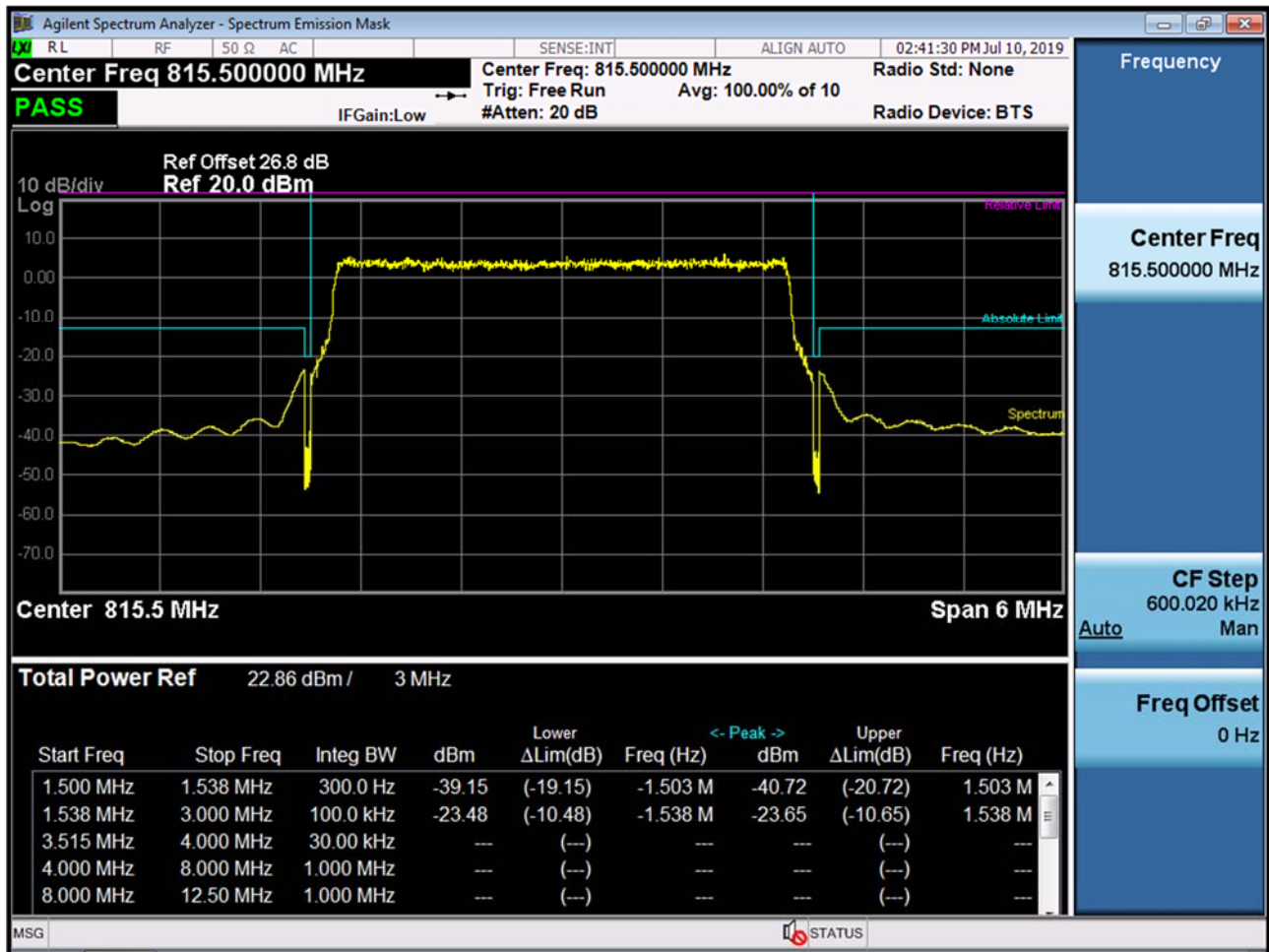
BAND 26. Lower Channel Edge Plot (1.4M BW Ch.26697 QPSK_RB6_Offset 0)



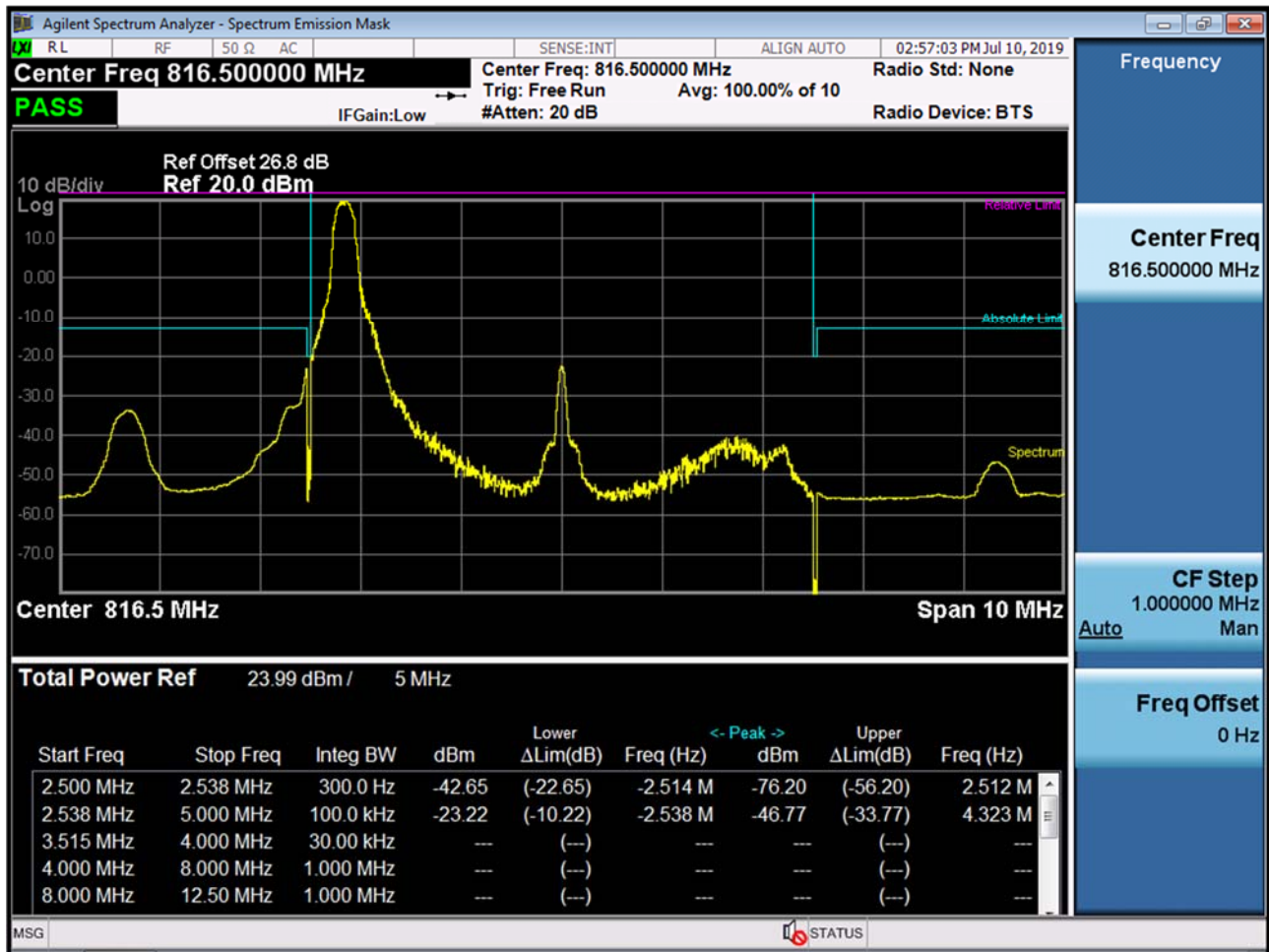
BAND 26. Lower Channel Edge Plot (3M BW Ch.26705 QPSK RB 1, Offset 0)



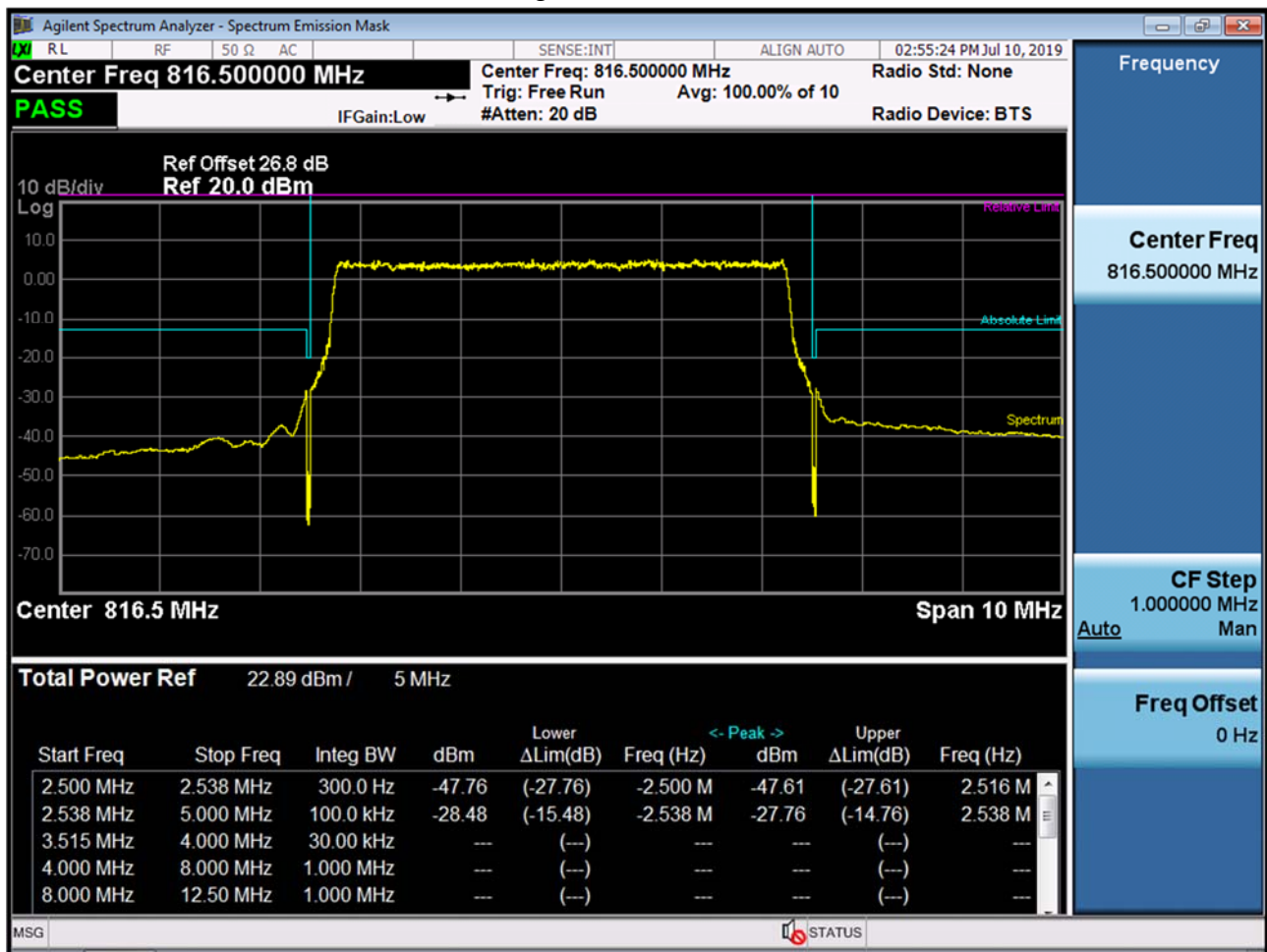
BAND 26. Lower Channel Edge Plot (3M BW Ch.26705 QPSK_RB15_Offset 0)



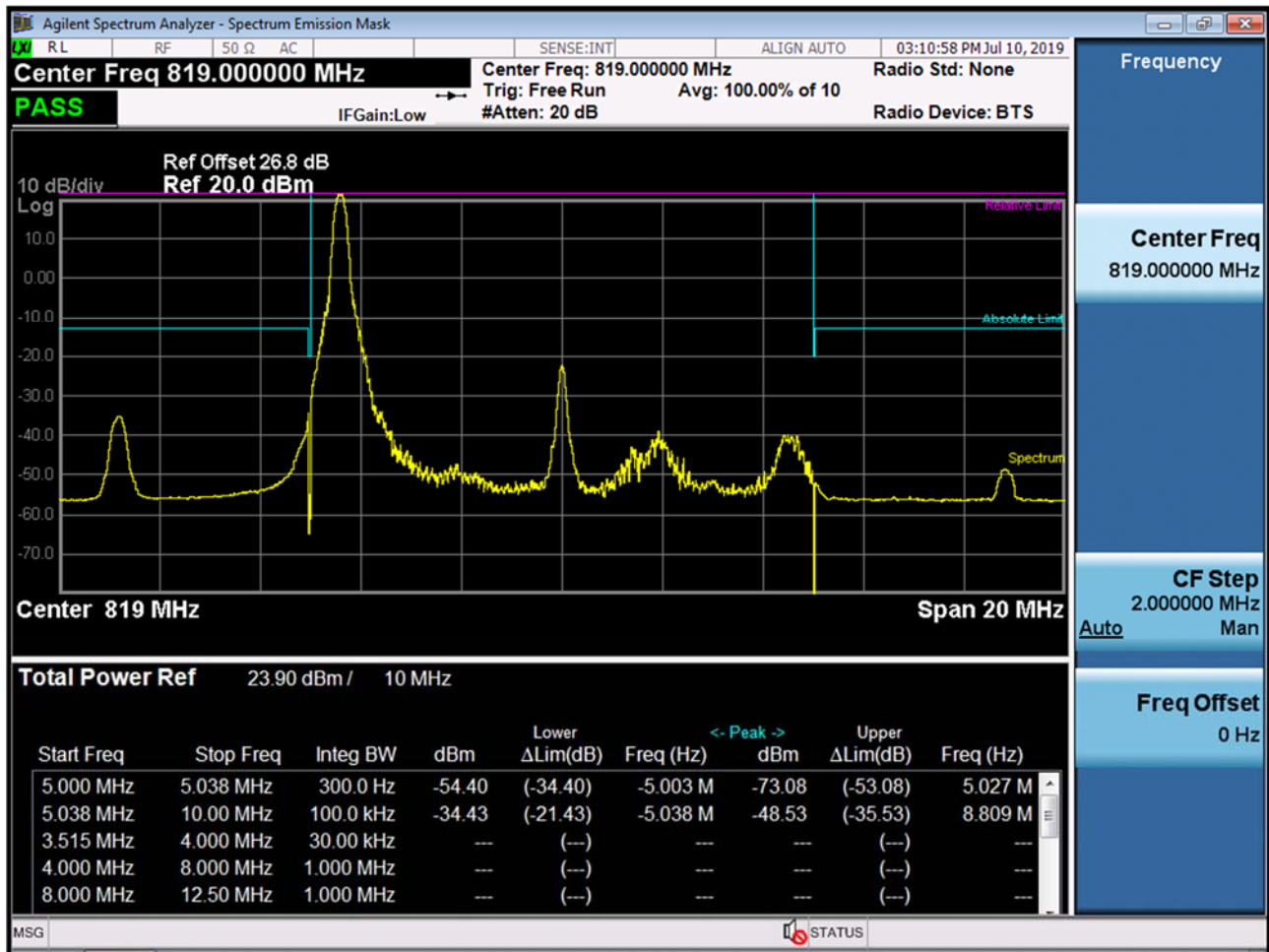
BAND 26. Lower Channel Edge Plot (5M BW Ch.26715 QPSK RB 1, Offset 0)



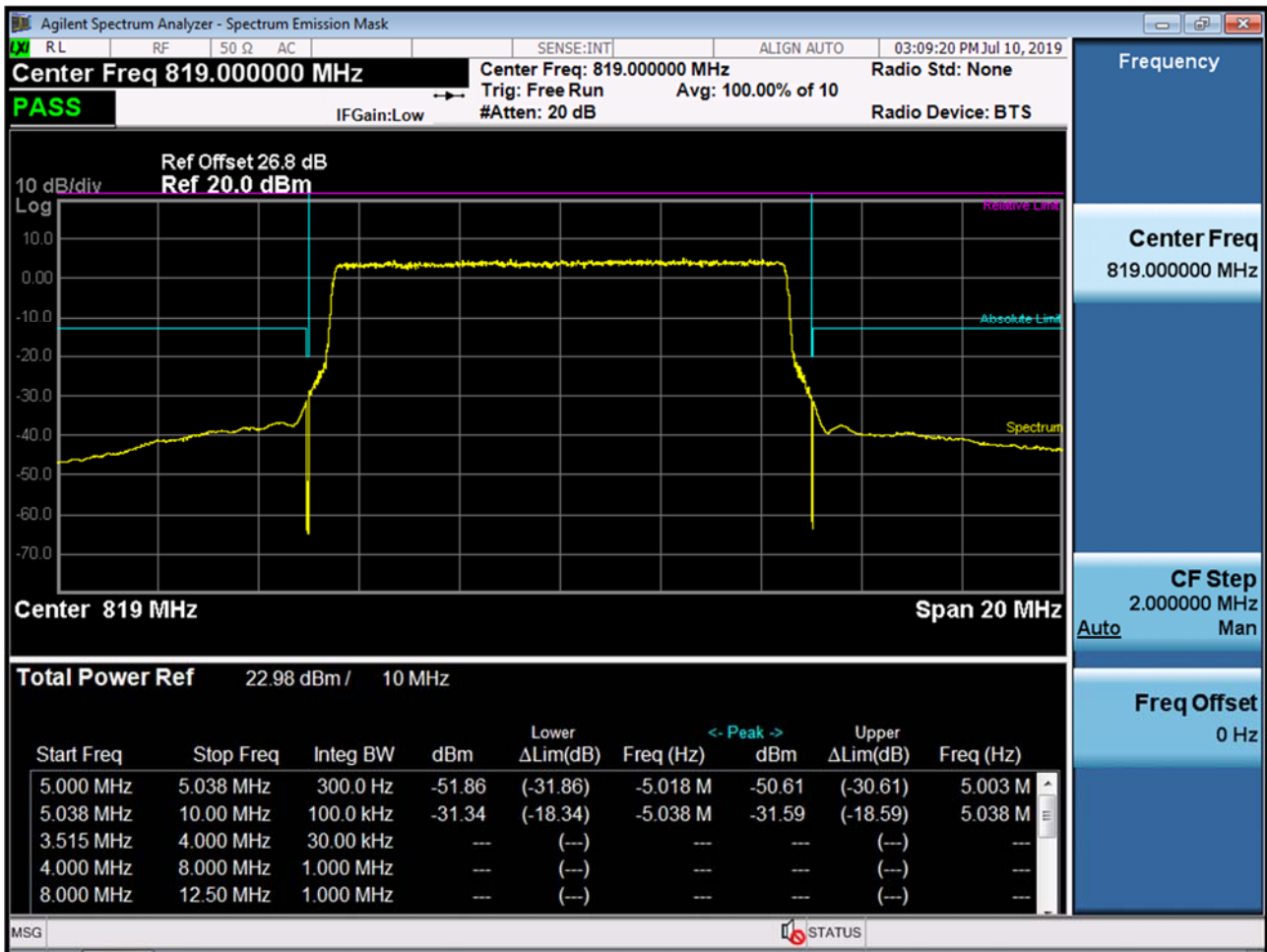
BAND 26. Lower Channel Edge Plot (5M BW Ch.26715 QPSK_RB25_Offset 0)



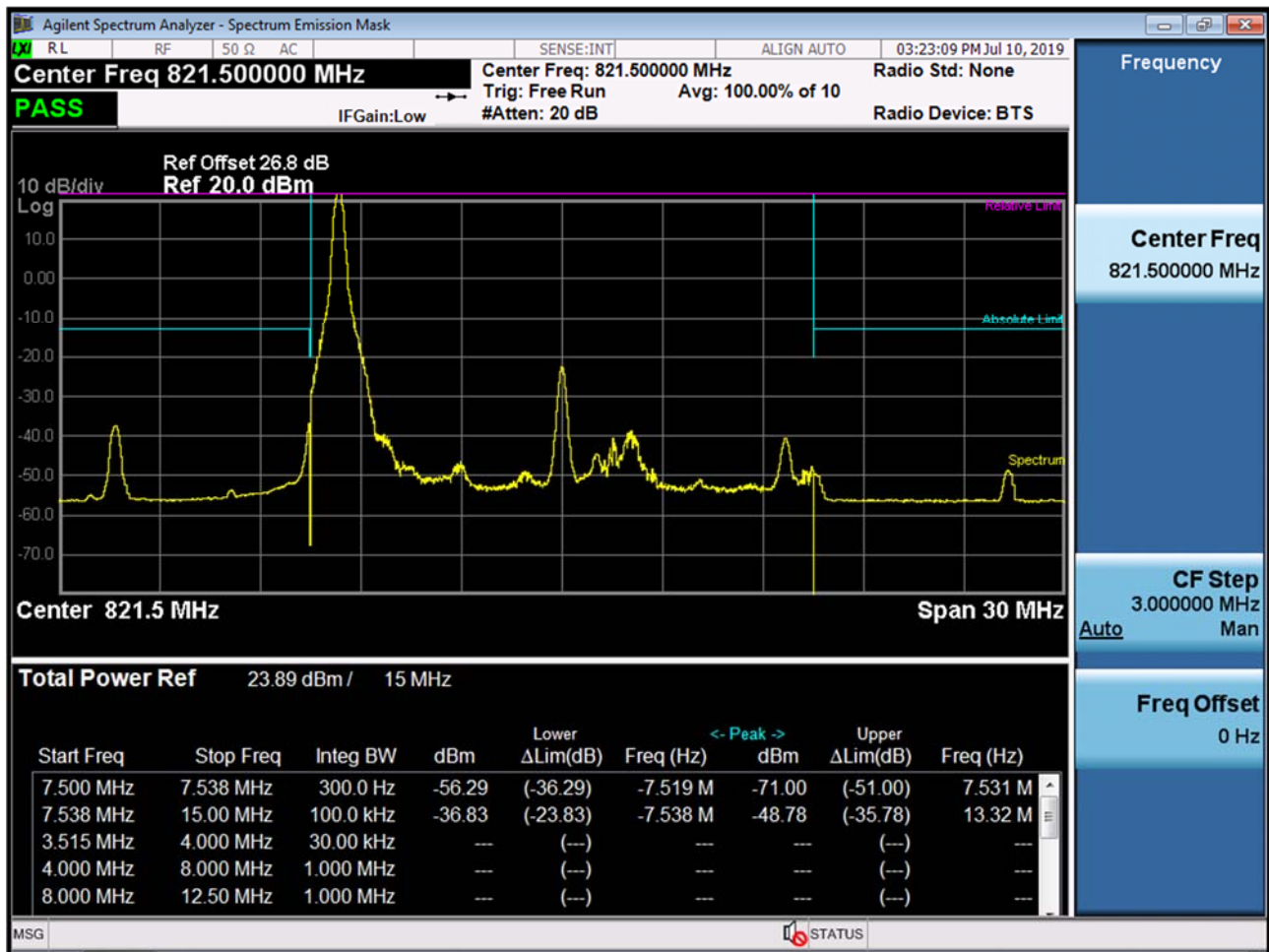
BAND 26. Low Channel Edge Plot (10M BW Ch.26740 QPSK RB 1, Offset 0)



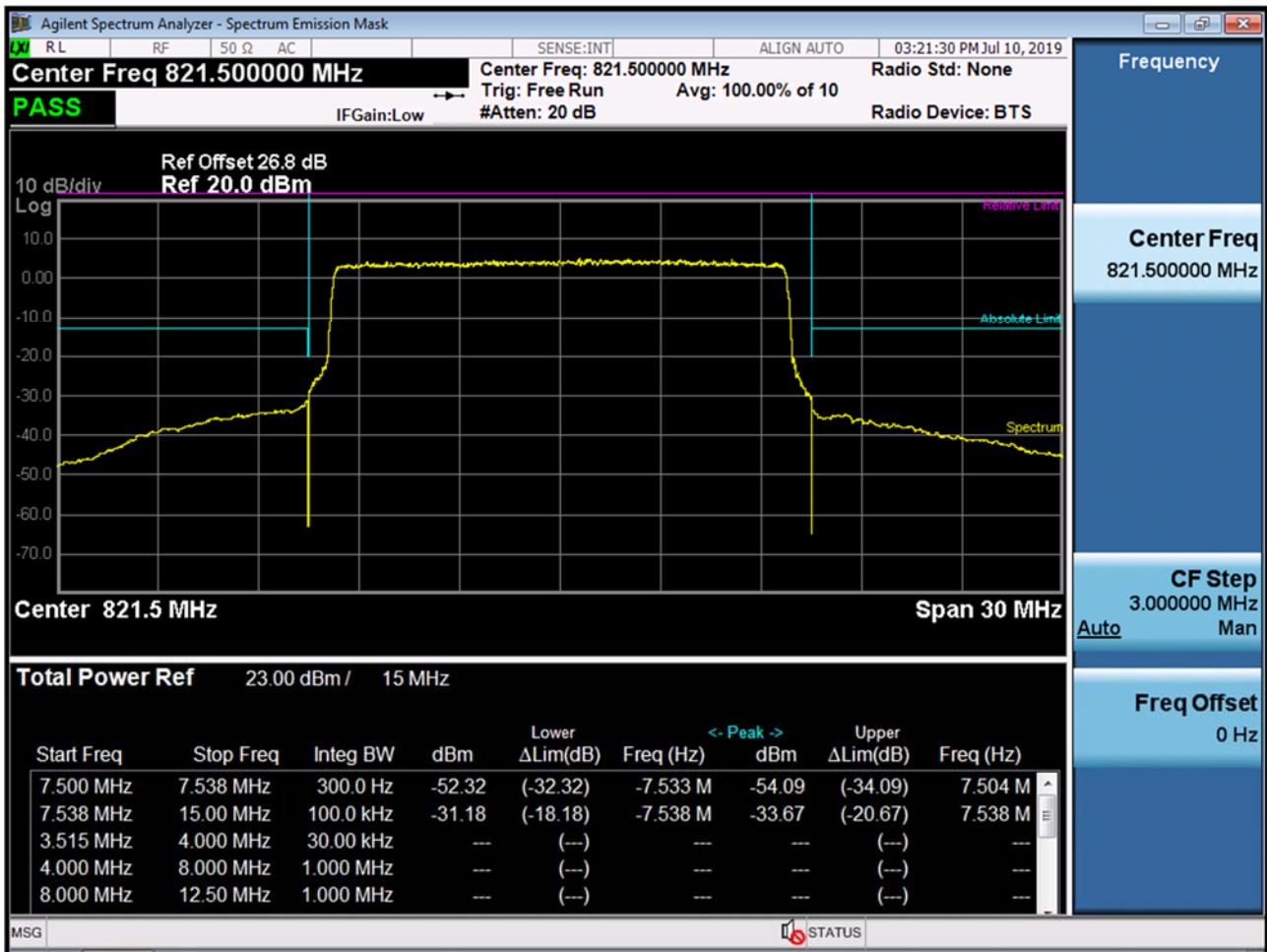
BAND 26. Low Channel Edge Plot (10M BW Ch.26740 QPSK_RB50_Offset 0)



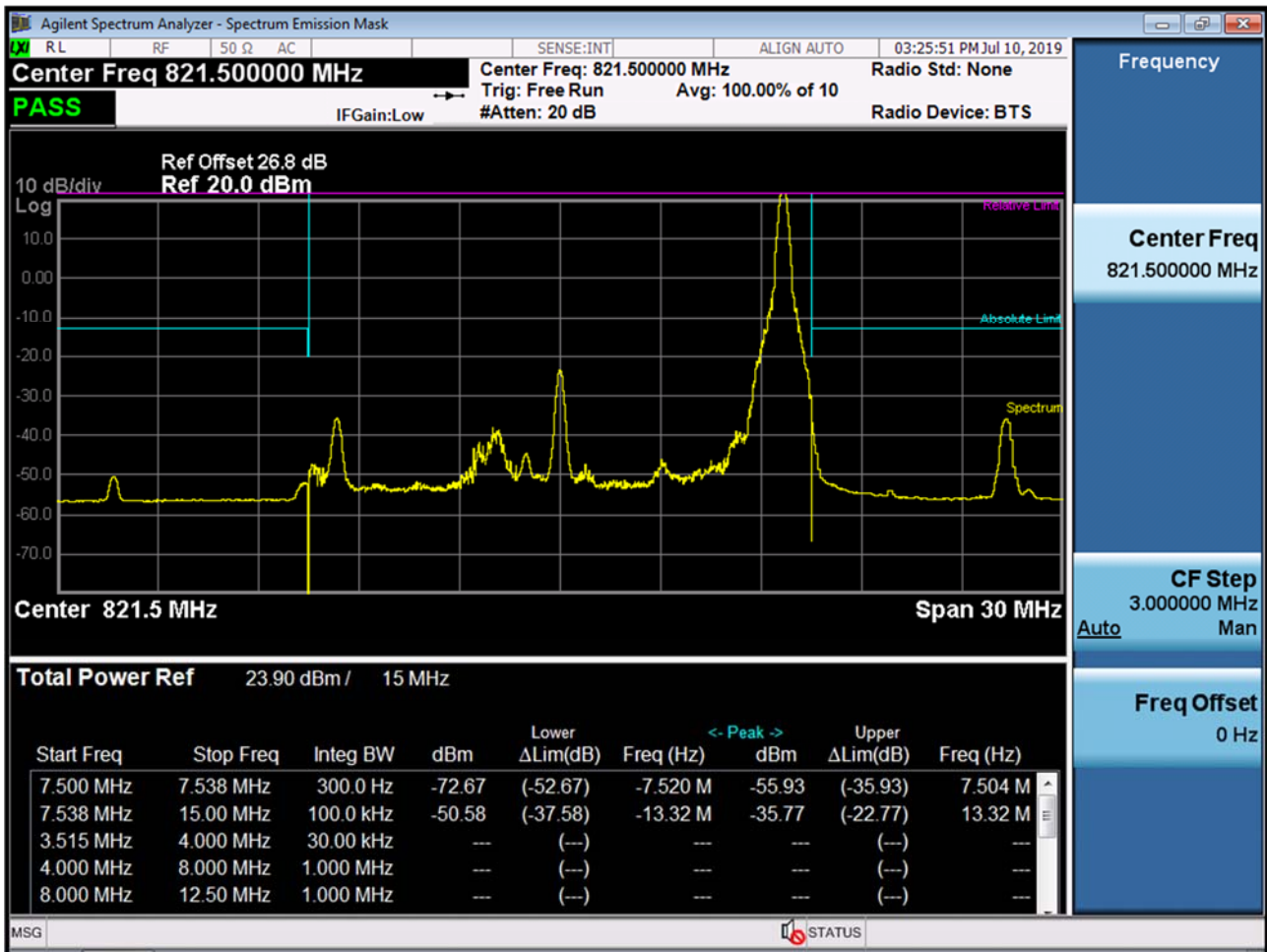
BAND 26. Low Channel Edge Plot (15M BW Ch.26765 QPSK RB 1, Offset 0)



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



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



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

