FCC CFR47 PART 27
CERTIFICATION TEST REPORT
FCC ID: 2ARTX-LE9830

Product： Mobile Phone

Trade Mark： LAVA

Model Number： LAVA LE9830

Family Model： N/A

Report No.： STR190523002004E

Prepared for

LAVA International Limited

A-56, Sector-64, Noida-201301 U.P., India

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name ..... :	LAVA International Limited
Address..... :	A-56, Sector-64, Noida-201301 U.P., India
Manufacturer's Name..... :	LAVA International Limited
Address..... :	A-56, Sector-64, Noida-201301 U.P., India
Product name..... :	Mobile Phone
Model and/or type reference .. :	LAVA LE9830
Family Model:	N/A
Standards..... :	FCC CFR 47 Part 27
Test procedure ..... :	ANSI C63.26:2015
	ANSI/TIA-603-E-2016

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test .....

Date (s) of performance of tests..... May. 22, 2019 ~ Jun. 22, 2019

Date of Issue..... Jun. 22, 2019

Test Result..... **Pass**

Testing Engineer : Allen Liu

(Allen Liu)

Technical Manager : Jason chen

(Jason Chen)

Authorized Signatory : Sam . Chen

(Sam Chen)

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Mobile Phone
Trade Mark	LAVA
Model Name	LAVA LE9830
Family Model	N/A
Model Difference	N/A
FCC ID:	2ARTX-LE9830
Frequency Bands:	U.S. Bands: ☒ LTE FDD Band 5; LTE TDD Band 41
Frequency Range:	LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE TDD Band 41 Note2
Type of Modulation:	QPSK/16QAM
Antenna:	PIFA Antenna
Antenna gain:	1.2dBi
Power Supply:	DC 3.85V/3400mAh from Battery or DC 5V from USB Port.
Adapter:	Model:CLV-21 Input: 100-240V~50/60Hz 0.3A Output: 5.0V⎓2.0A
Extreme Vol. Limits:	DC 3.2V to 4.4V (Nominal DC 3.85V) Note1
Extreme Temp.	-30℃ to +50℃
HW Version	OP66_MB_V1.1
SW Version	TEST_LAVA_LE9830_2_16_V1.0_S113_20181219_ENG_IN_userdebug

** Note: 1. The High Voltage 4.4V and Low Voltage 3.2V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.

2. Frequency Range:

Test Frequency ID	Bandwidth(MHz)	EARFCN	Frequency (UL and DL) (MHz)
Low Range	5	40265	2557.5
	10	40290	2560
	15	40315	2562.5
	20	40340	2565
Mid Range	5/10/15/20	40740	2605
High Range	5	41215	2652.5
	10	41190	2650
	15	41165	2648.5
	20	41140	2645

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2ARTX-LE9830** filing to comply with the FCC Part 27.

1.3 TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI/TIA-603-E-2016, FCC CFR 47 Part 2, Part 27, ANSI C63.26:2015.

1.4 TEST FACILITY

The test site used to collect the radiated data is located at:

ShenZhen NTEK Testing Technology Co., Ltd.

1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R.China.

The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.26:2015& ANSI C63.4: 2014.

FCC Registration No.:463705

IC Registration No.:9270A-1,

CNAS Registration No.:L5516

1.5 SPECIAL ACCESSORIES

The battery and the charger, earphone supplied by the applicant were used as accessories and being tested with EUT intended for FCC grant together.

1.6 WORST-CASE CONFIGURATION AND MODE

The worst-case scenario for all measurements is based on the investigation results.

The device has LTE Bands of: LTE FDD Band 5, LTE TDD Band 41

The RB Size was selected to measure for peak or average ERP and EIRP, which was based on the conducted power verification baseline data.

For the fundamental investigation of radiated emissions, the EUT is investigated for vertical and horizontal antenna orientations and X Y and Z orientations of the EUT alone. After the investigations the worst case was determined to be at X orientation for all LTE bands.

2. SYSTEM TEST CONFIGURATION

2.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

2.2 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

2.3 CONFIGURATION OF EUT SYSTEM

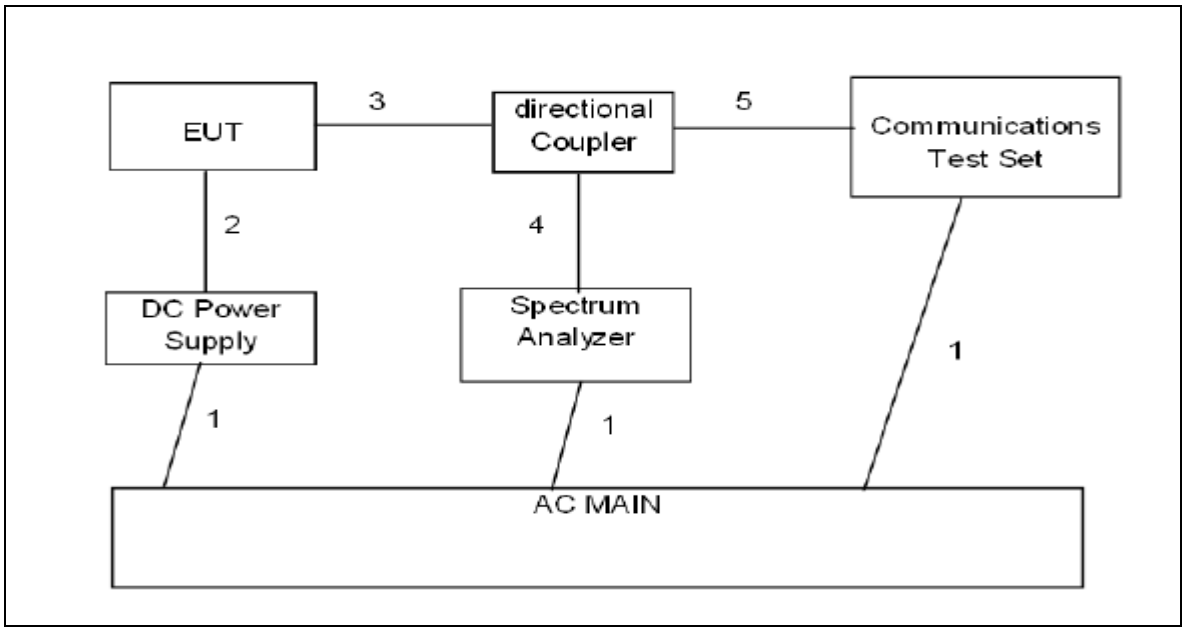
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	Series No.	Note
1	Mobile Phone	LAVA LE9830	N/A	EUT

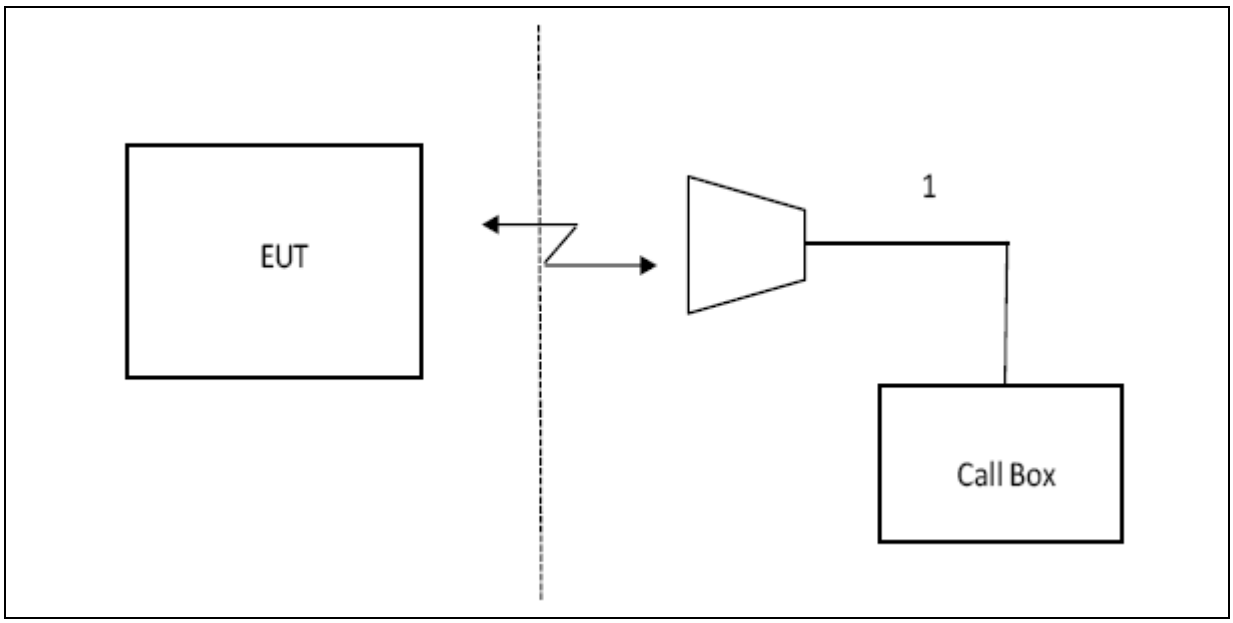
Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.

2.4 TEST SETUP

CONDUCTED SETUP DIAGRAM FOR TESTS



RADIATED SETUP DIAGRAM FOR TESTS



3.TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

NAME OF EQUIPMENT	MANUFACTURER	MODEL	SERIAL NUMBER	NEXT CAL. DATE
SPECTRUM ANALYZER	AGILENT	N9020A	MY49100060	2019.10.07
TEST RECEIVER	R&S	ESCI	101318	2020.05.12
COMMUNICATION TESTER	R&S	CMU200	117858	2020.05.12
COMMUNICATION TESTER	R&S	CMW500	148500	2020.05.12
TEST RECEIVER	R&S	FCKL1528	A0304230	2020.05.12
LISN	SCHWARZBECK	NSLK8127	A0304233	2020.05.12
CLIMATE CHAMBER	ALBATROSS	--	--	2020.05.12
Bilogical Antenna	A.H. Systems Inc.	SAS-521-4	N/A	2020.05.12
Horn Antenna	EM	EM-AH-10180	2011071402	2020.05.12
DC Power Source	N/A	PS-6005D	20170402923	2020.05.12

4. OUTPUT POWER

4.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

All LTE bands conducted power peak and average are obtained from the CMW500 telecommunication test set. The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of “NS_01”.3

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23[1]	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
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NS_32	-	-	-	-	-

Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

4.2 LTE BAND 5

OUTPUT POWER FOR LTE BAND 5 (1.4MHZ)

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power(dBm)	Peak Power(dBm)
					RB Size	RB Offset		
Band 5	1.4MHz	20407	824.7	QPSK	1	Low	24.73	28.01
					1	Mid	24.95	28.04
					1	High	24.76	27.99
					3	Low	24.69	28.38
					3	High	24.70	28.33
					6	Low	23.76	28.64
				16QAM	1	Low	23.60	27.70
					1	Mid	23.79	27.77
					1	High	23.64	27.69
					3	Low	23.68	28.35
					3	High	23.64	28.21
					6	Low	22.67	28.62
	1.4MHz	20525	836.5	QPSK	1	Low	24.64	29.05
					1	Mid	24.81	29.12
					1	High	24.63	29.04
					3	Low	24.70	29.24
					3	High	24.69	29.28
					6	Low	23.71	29.19
				16QAM	1	Low	23.81	28.37
					1	Mid	23.93	28.53
					1	High	23.73	28.33
					3	Low	23.65	29.27
					3	High	23.71	29.38
					6	Low	22.76	29.23
	1.4MHz	20643	848.3	QPSK	1	Low	24.65	27.90
					1	Mid	24.82	27.89
					1	High	24.63	27.81
					3	Low	24.65	28.10
					3	High	24.61	28.10
					6	Low	23.68	28.71
				16QAM	1	Low	23.53	27.75
					1	Mid	23.65	27.76
					1	High	23.49	27.64
					3	Low	23.72	28.07
					3	High	23.71	28.08
					6	Low	22.65	28.64

OUTPUT POWER FOR LTE BAND 5 (3.0MHZ)

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power(dBm)	Peak Power(dBm)
					RB Size	RB Offset		
Band 5	3.0 MHz	20415	825.5	QPSK	1	Low	24.78	27.91
					1	Mid	24.71	27.92
					1	High	24.72	27.97
					8	Low	23.74	28.33
					8	High	23.71	28.43
					15	Low	23.68	28.83
				16QAM	1	Low	23.98	28.10
					1	Mid	23.96	28.09
					1	High	23.93	28.21
					8	Low	22.85	28.19
					8	High	22.84	28.28
					15	Low	22.73	28.64
	3.0 MHz	20525	836.5	QPSK	1	Low	24.70	28.93
					1	Mid	24.63	28.96
					1	High	24.67	28.88
					8	Low	23.71	29.40
					8	High	23.69	29.42
					15	Low	23.68	30.25
				16QAM	1	Low	23.69	28.51
					1	Mid	23.63	28.51
					1	High	23.60	28.47
					8	Low	22.77	28.96
					8	High	22.72	28.88
					15	Low	22.75	29.37
	3.0 MHz	20635	847.5	QPSK	1	Low	24.67	27.95
					1	Mid	24.74	27.86
					1	High	24.65	27.72
					8	Low	23.70	28.40
					8	High	23.64	28.26
					15	Low	23.64	28.92
				16QAM	1	Low	23.71	27.63
					1	Mid	23.71	27.52
					1	High	23.70	27.43
					8	Low	22.62	28.08
					8	High	22.61	27.95
					15	Low	22.57	28.54

OUTPUT POWER FOR LTE BAND 5 (5.0MHZ)

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power(dBm)	Peak Power(dBm)
					RB Size	RB Offset		
Band 5	5.0 MHz	20425	826.5	QPSK	1	Low	24.57	28.17
					1	Mid	24.74	28.28
					1	High	24.53	28.51
					12	Low	23.59	28.20
					12	High	23.63	28.38
					25	Low	23.61	29.06
				16QAM	1	Low	23.41	27.74
					1	Mid	23.55	27.84
					1	High	23.40	28.03
					12	Low	22.58	28.25
					12	High	22.64	28.48
					25	Low	22.68	28.83
	5.0 MHz	20525	836.5	QPSK	1	Low	24.55	29.05
					1	Mid	24.69	29.10
					1	High	24.52	28.86
					12	Low	23.64	29.11
					12	High	23.64	29.05
					25	Low	23.66	29.60
				16QAM	1	Low	23.61	28.99
					1	Mid	23.73	29.06
					1	High	23.58	28.85
					12	Low	22.67	28.92
					12	High	22.64	28.96
					25	Low	22.69	29.82
	5.0 MHz	20625	846.5	QPSK	1	Low	24.63	28.11
					1	Mid	24.70	27.87
					1	High	24.58	27.69
					12	Low	23.65	28.48
					12	High	23.56	28.25
					25	Low	23.59	29.19
				16QAM	1	Low	23.79	28.04
					1	Mid	23.89	27.83
					1	High	23.71	27.64
					12	Low	22.61	28.21
					12	High	22.56	28.08
					25	Low	22.53	29.32

OUTPUT POWER FOR LTE BAND 5 (10.0MHZ)

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power(dBm)	Peak Power(dBm)
					RB Size	RB Offset		
Band 5	10.0 MHz	20450	829.0	QPSK	1	Low	24.72	27.90
					1	Mid	24.84	28.33
					1	High	24.62	28.79
					25	Low	23.64	28.44
					25	High	23.66	29.05
					50	Low	23.64	29.12
				16QAM	1	Low	23.98	28.10
					1	Mid	23.99	28.55
					1	High	23.96	29.16
					25	Low	22.70	28.28
					25	High	22.73	28.98
					50	Low	22.65	29.32
	10.0 MHz	20525	836.5	QPSK	1	Low	24.69	28.76
					1	Mid	24.82	29.03
					1	High	24.70	28.52
					25	Low	23.72	29.49
					25	High	23.73	29.33
					50	Low	23.75	29.57
				16QAM	1	Low	23.62	28.38
					1	Mid	23.82	28.63
					1	High	23.63	28.15
					25	Low	22.84	29.29
					25	High	22.75	29.19
					50	Low	22.72	29.79
	10.0 MHz	20600	844.0	QPSK	1	Low	24.64	28.73
					1	Mid	24.77	28.19
					1	High	24.66	27.78
					25	Low	23.67	28.75
					25	High	23.62	28.26
					50	Low	23.65	29.15
				16QAM	1	Low	23.79	28.15
					1	Mid	23.87	27.79
					1	High	23.69	27.46
					25	Low	22.70	28.82
					25	High	22.64	28.28
					50	Low	22.63	28.83

4.3 LTE BAND 41

OUTPUT POWER FOR LTE BAND 41 (5MHZ)

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power(dBm)	Peak Power(dBm)
					RB Size	RB Offset		
Band 41	5.0 MHz	40265	2557.5	QPSK	1	Low	24.34	27.55
					1	Mid	24.43	27.44
					1	High	24.31	27.34
					12	Low	23.33	28.11
					12	High	23.28	27.99
					25	Low	23.32	28.76
				16QAM	1	Low	23.30	27.44
					1	Mid	23.43	27.34
					1	High	23.29	27.24
					12	Low	22.34	27.81
					12	High	22.32	27.62
					25	Low	22.38	28.64
	5.0 MHz	40740	2605.0	QPSK	1	Low	24.48	28.05
					1	Mid	24.60	28.22
					1	High	24.48	28.31
					12	Low	23.47	28.64
					12	High	23.44	28.77
					25	Low	23.47	29.50
				16QAM	1	Low	23.49	27.93
					1	Mid	23.70	28.10
					1	High	23.54	28.17
					12	Low	22.51	28.58
					12	High	22.49	28.79
					25	Low	22.50	29.01
	5.0 MHz	41215	2652.5	QPSK	1	Low	24.54	28.02
					1	Mid	24.63	27.91
					1	High	24.57	27.82
					12	Low	23.63	28.46
					12	High	23.54	28.36
					25	Low	23.58	29.09
				16QAM	1	Low	23.55	27.97
					1	Mid	23.66	27.92
					1	High	23.51	27.80
					12	Low	22.64	28.50
					12	High	22.57	28.44
					25	Low	22.61	29.34

OUTPUT POWER FOR LTE BAND 41 (10.0MHZ)

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power(dBm)	Peak Power(dBm)
					RB Size	RB Offset		
Band 41	10.0 MHz	40290	2560.0	QPSK	1	Low	24.44	27.55
					1	Mid	24.74	27.35
					1	High	24.50	27.20
					25	Low	23.38	27.86
					25	High	23.38	27.71
					50	Low	23.35	28.89
				16QAM	1	Low	23.29	27.54
					1	Mid	23.52	27.32
					1	High	23.28	27.15
					25	Low	22.40	28.17
					25	High	22.41	27.79
					50	Low	22.35	28.67
	10.0 MHz	40740	2605.0	QPSK	1	Low	24.60	27.99
					1	Mid	24.89	28.28
					1	High	24.62	28.54
					25	Low	23.56	28.81
					25	High	23.54	29.13
					50	Low	23.52	29.41
				16QAM	1	Low	23.65	27.96
					1	Mid	23.91	28.31
					1	High	23.75	28.53
					25	Low	22.58	28.44
					25	High	22.60	28.76
					50	Low	22.58	29.48
	10.0 MHz	41190	2650.0	QPSK	1	Low	24.67	28.23
					1	Mid	24.99	28.01
					1	High	24.76	27.84
					25	Low	23.71	28.76
					25	High	23.61	28.55
					50	Low	23.66	29.31
				16QAM	1	Low	23.53	28.26
					1	Mid	23.78	28.08
					1	High	23.53	27.90
					25	Low	22.79	28.66
					25	High	22.69	28.44
					50	Low	22.73	29.39

OUTPUT POWER FOR LTE BAND 41 (15.0MHZ)

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power(dBm)	Peak Power(dBm)
					RB Size	RB Offset		
Band 41	15.0 MHz	40315	2562.5	QPSK	1	Low	24.34	27.55
					1	Mid	24.47	27.23
					1	High	24.34	27.07
					36	Low	23.52	28.03
					36	High	23.61	27.83
					75	Low	23.57	28.77
				16QAM	1	Low	23.44	27.39
					1	Mid	23.48	27.12
					1	High	23.36	26.97
					36	Low	22.44	27.98
					36	High	22.44	27.65
					75	Low	22.47	28.83
	15.0 MHz	40740	2605.0	QPSK	1	Low	24.55	27.96
					1	Mid	24.63	28.29
					1	High	24.55	28.53
					36	Low	23.70	28.69
					36	High	23.66	29.06
					75	Low	23.67	29.66
				16QAM	1	Low	23.51	27.89
					1	Mid	23.58	28.20
					1	High	23.42	28.52
					36	Low	22.68	28.60
					36	High	22.68	28.90
					75	Low	22.62	29.48
	15.0 MHz	41165	2648.5	QPSK	1	Low	24.42	28.44
					1	Mid	24.47	28.10
					1	High	24.43	27.83
					36	Low	23.66	29.04
					36	High	23.67	28.67
					75	Low	23.73	29.79
				16QAM	1	Low	23.27	28.53
					1	Mid	23.33	28.16
					1	High	23.25	27.87
					36	Low	22.68	28.95
					36	High	22.59	28.58
					75	Low	22.71	29.46

OUTPUT POWER FOR LTE BAND 41 (20.0MHZ)

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power(dBm)	Peak Power(dBm)
					RB Size	RB Offset		
Band 41	20.0 MHz	40340	2565.0	QPSK	1	Low	24.29	27.38
					1	Mid	24.74	27.11
					1	High	24.30	26.95
					50	Low	23.37	27.91
					50	High	23.35	27.61
					100	Low	23.31	28.38
				16QAM	1	Low	23.28	27.30
					1	Mid	23.67	26.97
					1	High	23.33	26.86
					50	Low	22.35	27.81
					50	High	22.35	27.64
					100	Low	22.35	27.64
	20.0 MHz	40740	2605.0	QPSK	1	Low	24.40	27.79
					1	Mid	24.84	28.33
					1	High	24.43	28.76
					50	Low	23.53	28.62
					50	High	23.52	29.11
					100	Low	23.53	29.61
				16QAM	1	Low	23.42	27.68
					1	Mid	23.87	28.23
					1	High	23.50	28.60
					50	Low	22.60	28.53
					50	High	22.54	29.01
					100	Low	22.58	29.44
	20.0 MHz	41140	2645.0	QPSK	1	Low	24.14	28.57
					1	Mid	24.62	28.21
					1	High	24.46	27.83
					50	Low	23.58	29.08
					50	High	23.50	28.55
					100	Low	23.59	29.45
				16QAM	1	Low	23.18	28.61
					1	Mid	23.77	28.14
					1	High	23.34	27.73
					50	Low	22.73	29.25
					50	High	22.64	28.65
					100	Low	22.42	27.66

5. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

MODES TESTED

LTE Band 5

LTE Band 41

RESULTS

PASS

Test results:

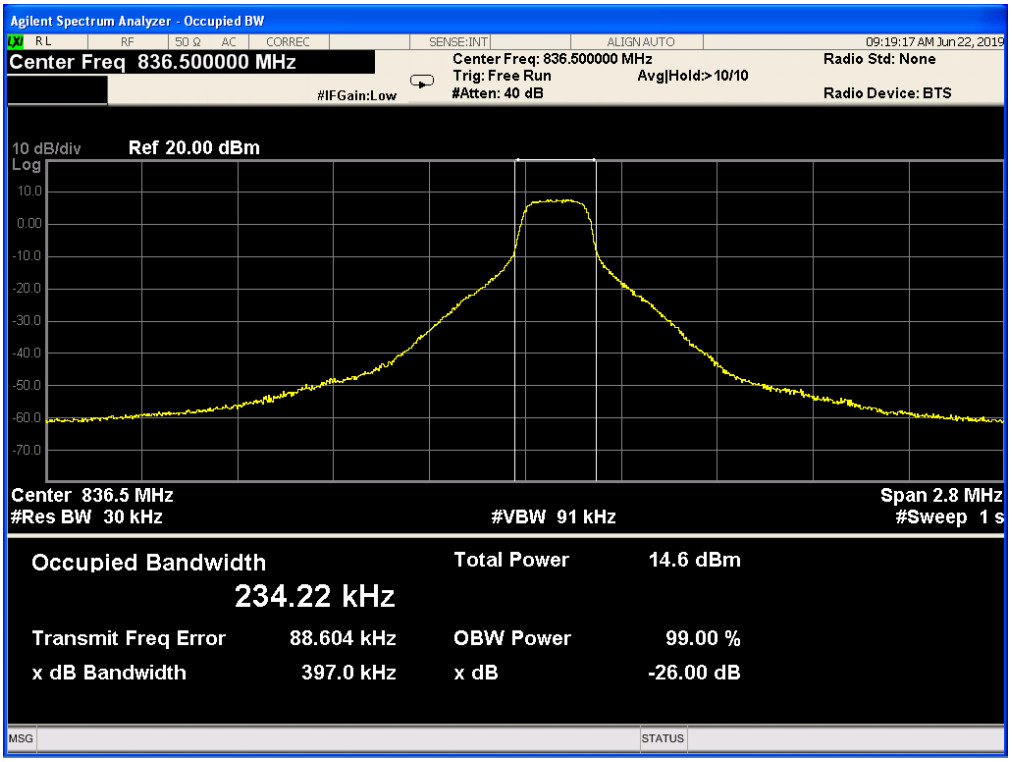
Band	Mode	RB Size/RB Offset	Frequency (MHz)	99% Occupied Bandwidth (MHz)	-26dBc Occupied Bandwidth (MHz)
LTE Band 5	1.4MHz BAND QPSK	1/0	836.5	0.23	0.40
	1.4MHz BAND 16QAM	1/0	836.5	0.24	0.40
	1.4MHz BAND QPSK	3/0	836.5	0.57	0.77
	1.4MHz BAND 16QAM	3/0	836.5	0.57	0.76
	1.4MHz BAND QPSK	6/0	836.5	1.08	1.24
	1.4MHz BAND 16QAM	6/0	836.5	1.08	1.26
	3.0MHz BAND QPSK	1/0	836.5	0.28	0.44
	3.0MHz BAND 16QAM	1/0	836.5	0.28	0.44
	3.0MHz BAND QPSK	8/0	836.5	1.46	1.66
	3.0MHz BAND 16QAM	8/0	836.5	1.47	1.67
	3.0MHz BAND QPSK	15/0	836.5	2.69	2.87
	3.0MHz BAND 16QAM	15/0	836.5	2.69	2.87
	5.0MHz BAND QPSK	1/0	836.5	0.37	0.57
	5.0MHz BAND 16QAM	1/0	836.5	0.38	0.60
	5.0MHz BAND QPSK	12/0	836.5	2.20	2.51
	5.0MHz BAND 16QAM	12/0	836.5	2.20	2.52
	5.0MHz BAND QPSK	25/0	836.5	4.49	4.78
	5.0MHz BAND 16QAM	25/0	836.5	4.49	4.77
	10.0MHz BAND QPSK	1/0	836.5	0.54	0.73
	10.0MHz BAND 16QAM	1/0	836.5	0.54	0.74
	10.0MHz BAND QPSK	25/0	836.5	4.57	5.02
	10.0MHz BAND 16QAM	25/0	836.5	0.54	0.74
	10.0MHz BAND QPSK	50/0	836.5	8.98	9.51
	10.0MHz BAND 16QAM	50/0	836.5	8.97	9.49

Band	Mode	RB Size/RB Offset	Frequency (MHz)	99% Occupied Bandwidth (MHz)	-26dBc Occupied Bandwidth (MHz)
LTE Band 41	5.0MHz BAND QPSK	1/0	2605.0	0.36	0.55
	5.0MHz BAND 16QAM	1/0	2605.0	0.36	0.52
	5.0MHz BAND QPSK	12/0	2605.0	2.20	2.56
	5.0MHz BAND 16QAM	12/0	2605.0	2.20	2.50
	5.0MHz BAND QPSK	25/0	2605.0	4.49	4.78
	5.0MHz BAND 16QAM	25/0	2605.0	4.49	4.76
	10.0MHz BAND QPSK	1/0	2605.0	0.53	0.72
	10.0MHz BAND 16QAM	1/0	2605.0	0.54	0.73
	10.0MHz BAND QPSK	25/0	2605.0	4.56	5.01
	10.0MHz BAND 16QAM	25/0	2605.0	4.56	5.01
	10.0MHz BAND QPSK	50/0	2605.0	8.96	9.49
	10.0MHz BAND 16QAM	50/0	2605.0	8.97	9.49
	15.0MHz BAND QPSK	1/0	2605.0	0.73	0.99
	15.0MHz BAND 16QAM	1/0	2605.0	0.73	0.98
	15.0MHz BAND QPSK	36/0	2605.0	6.58	7.23
	15.0MHz BAND 16QAM	36/0	2605.0	6.58	7.24
	15.0MHz BAND QPSK	75/0	2605.0	13.45	14.22
	15.0MHz BAND 16QAM	75/0	2605.0	13.45	14.23
	20.0MHz BAND QPSK	1/0	2605.0	0.98	1.31
	20.0MHz BAND 16QAM	1/0	2605.0	0.98	1.31
	20.0MHz BAND QPSK	50/0	2605.0	9.13	10.02
	20.0MHz BAND 16QAM	50/0	2605.0	9.14	10.02
	20.0MHz BAND QPSK	100/0	2605.0	17.95	19.01
	20.0MHz BAND 16QAM	100/0	2605.0	17.94	19.01

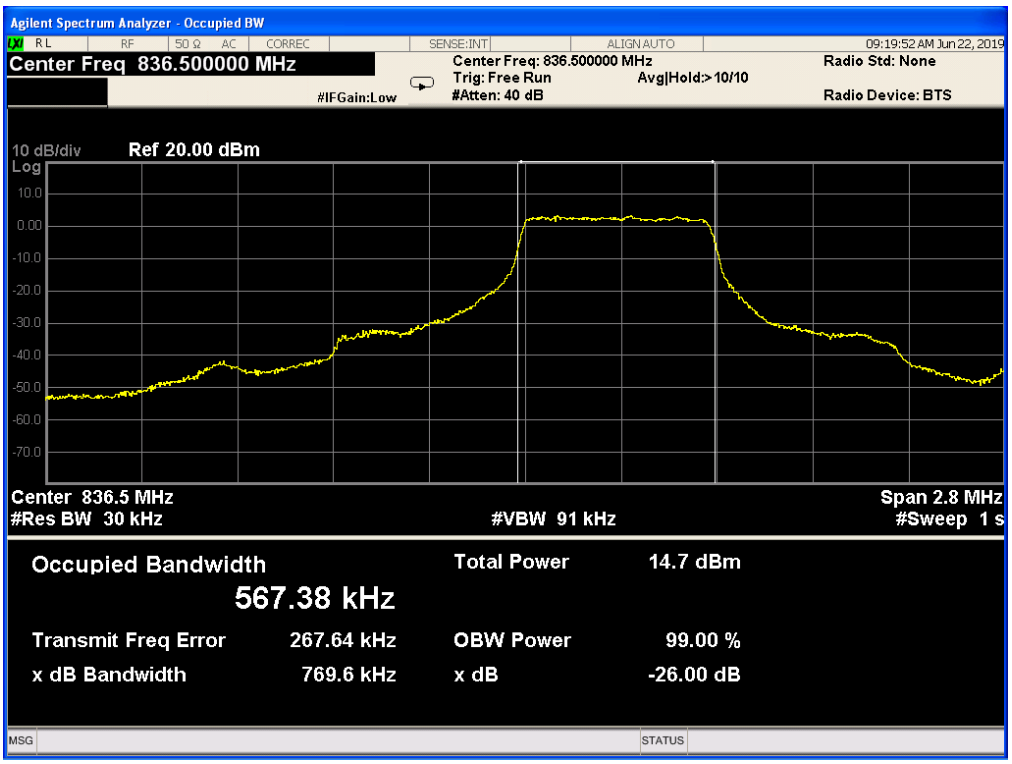
Note: This test was only measured at maximum RB allocation and at CENTER of band for each LTE BW

5.1 LTE BAND 5

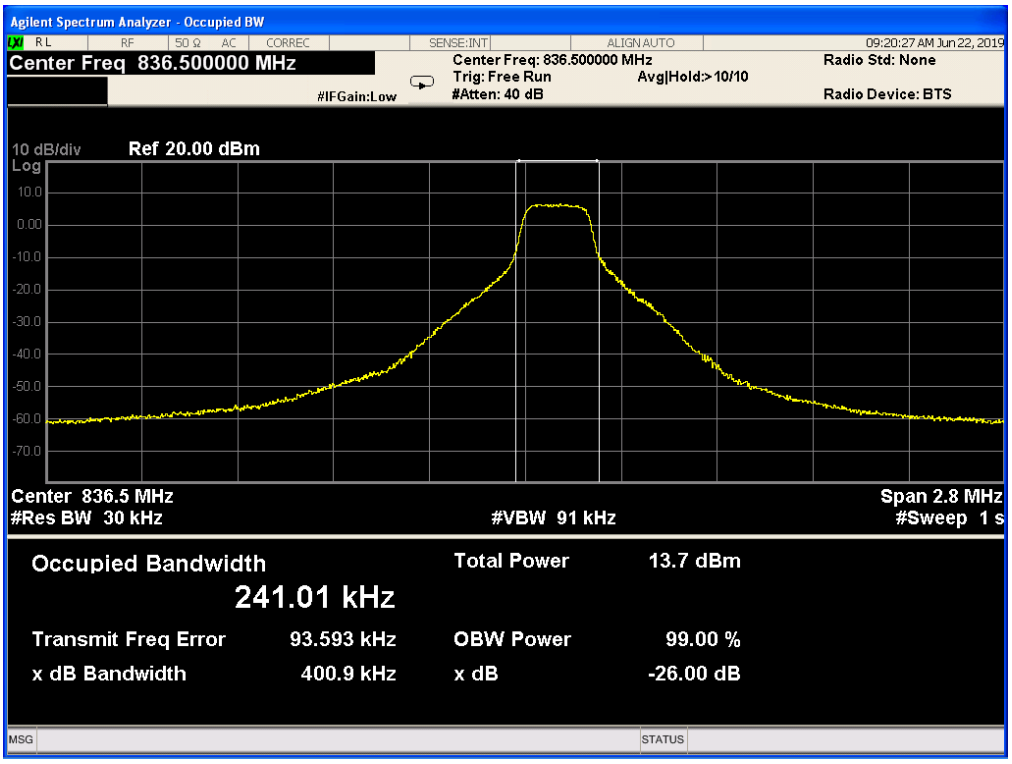
Band 5,UL Channel 20525,UL Frequency 836.5,BW 1.4,NO. RB 1,RB POS. Mid,QPSK



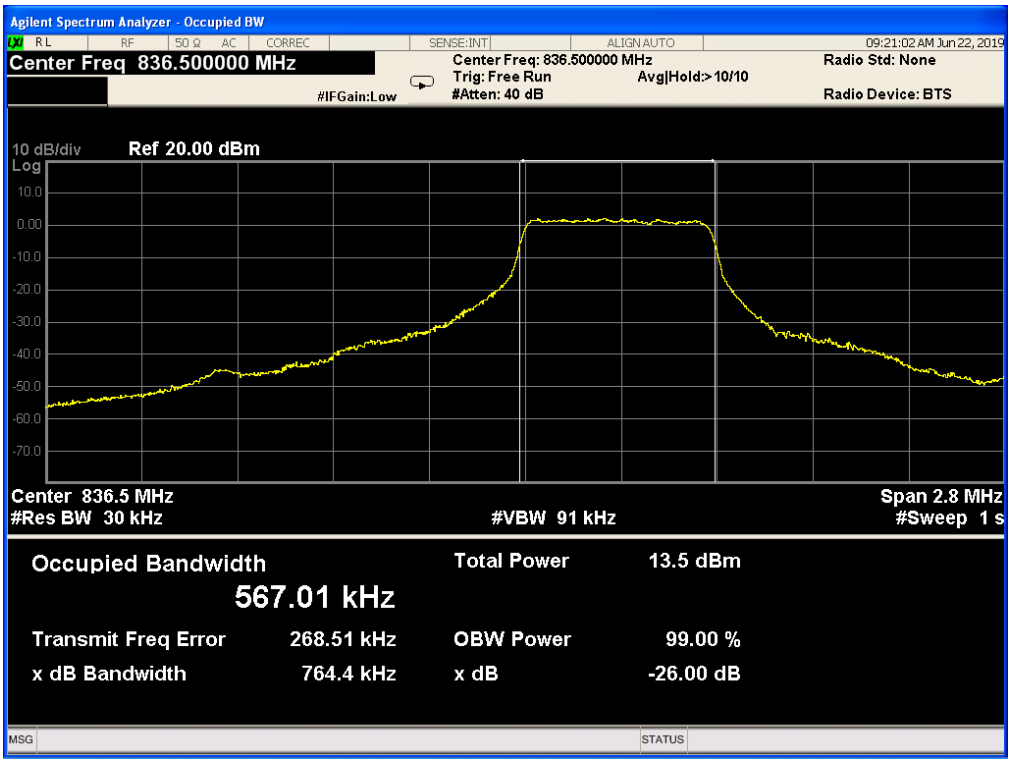
Band 5,UL Channel 20525,UL Frequency 836.5,BW 1.4,NO. RB 3,RB POS. High,QPSK



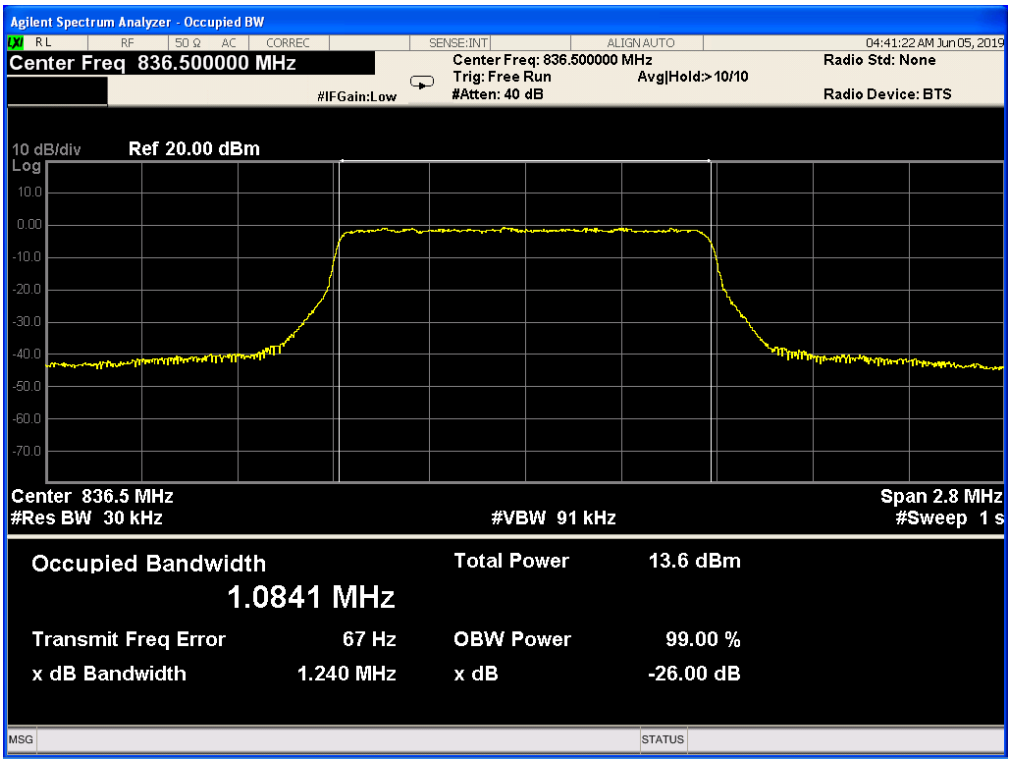
Band 5,UL Channel 20525,UL Frequency 836.5,BW 1.4,NO. RB 1,RB POS. Mid,16-QAM



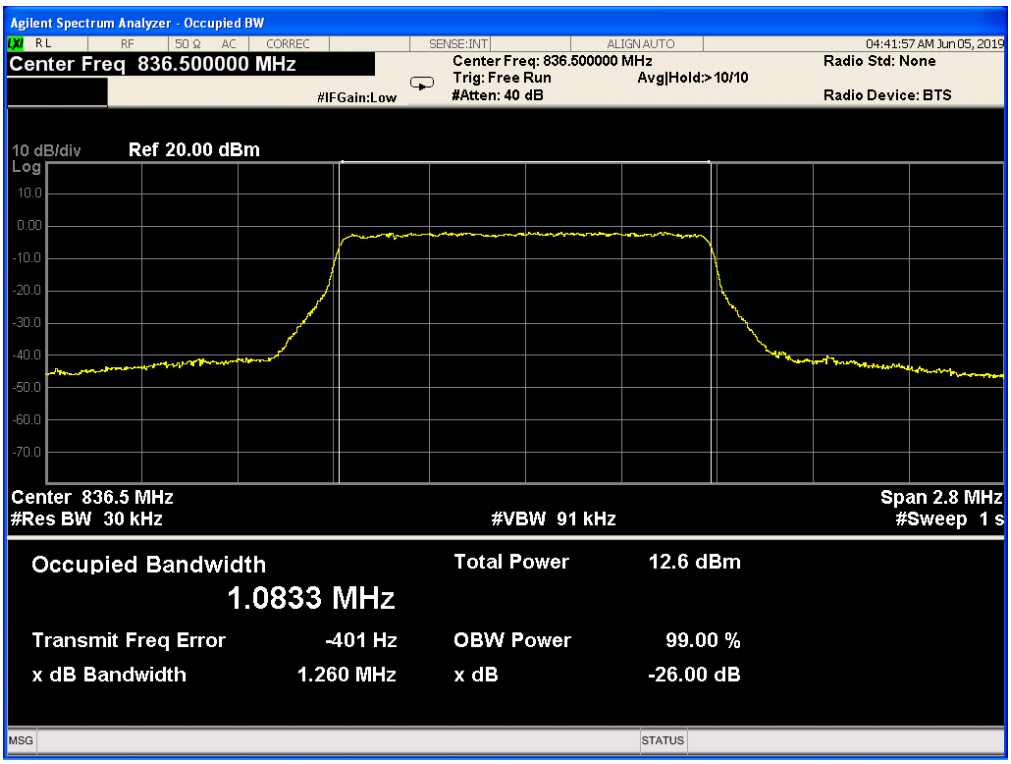
Band 5,UL Channel 20525,UL Frequency 836.5,BW 1.4,NO. RB 3,RB POS. High,16-QAM



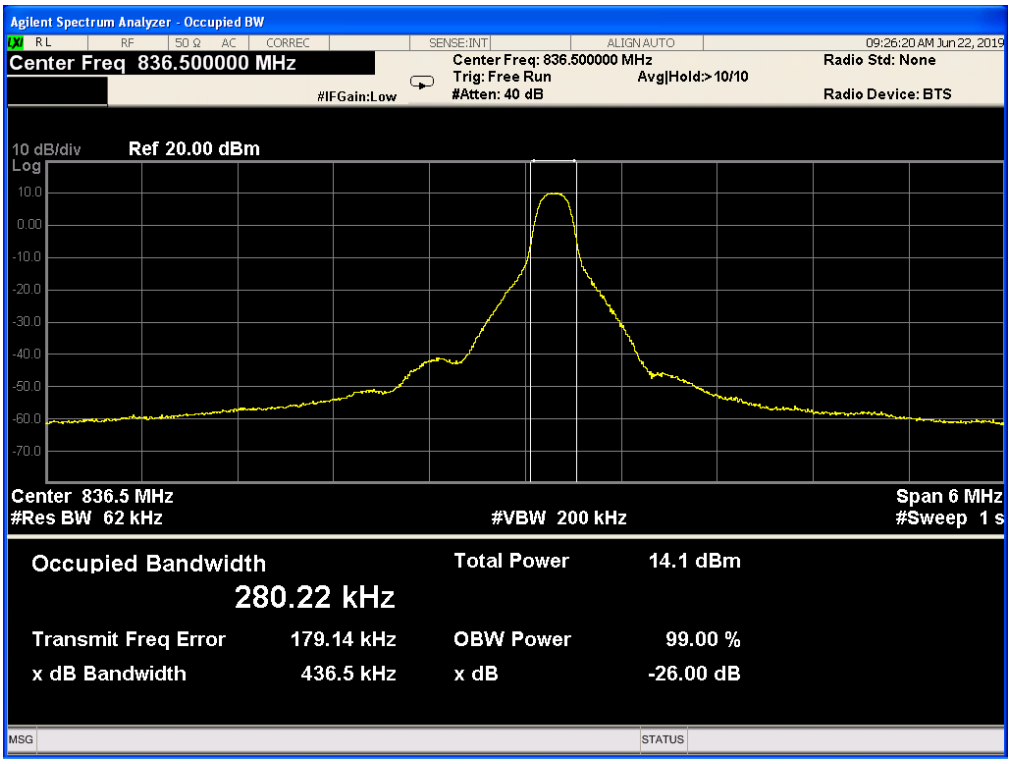
Band 5,UL Channel 20525,UL Frequency 836.5,BW 1.4,NO. RB 6,RB POS. Low,QPSK



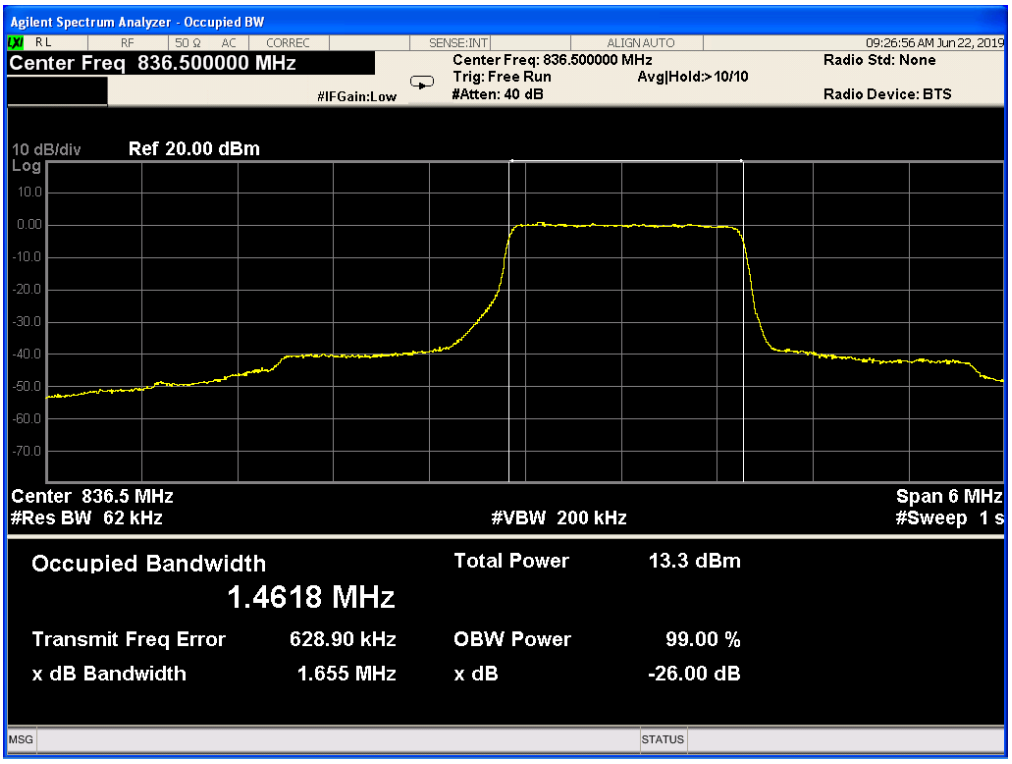
Band 5,UL Channel 20525,UL Frequency 836.5,BW 1.4,NO. RB 6,RB POS. Low,16-QAM



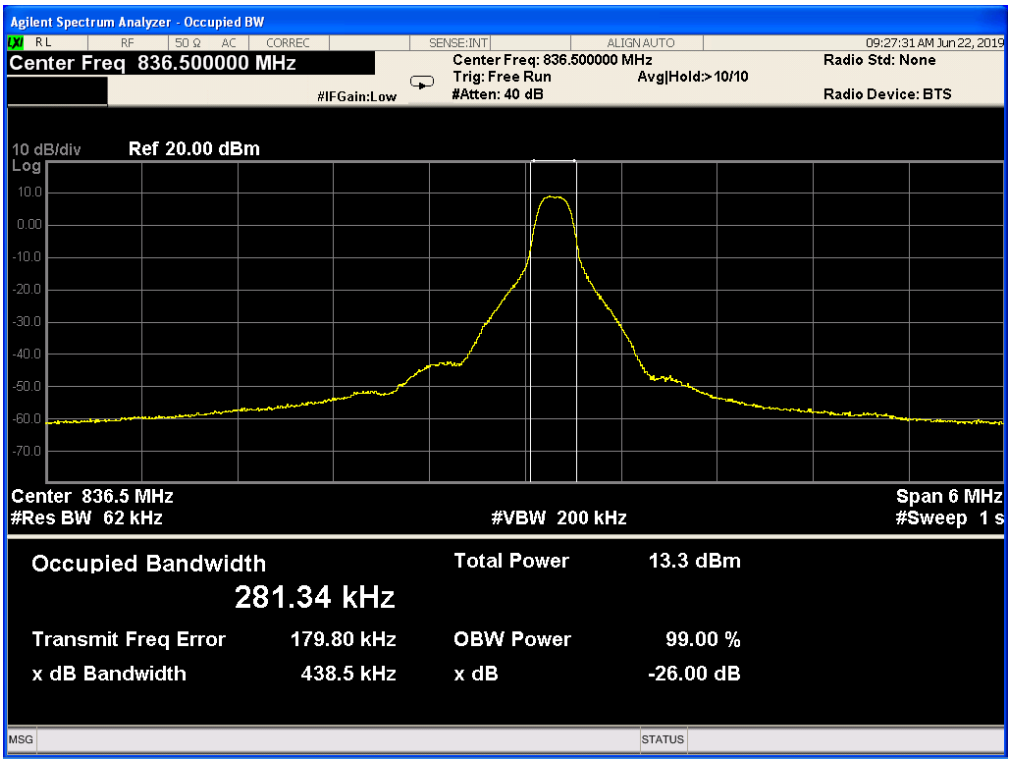
Band 5,UL Channel 20525,UL Frequency 836.5,BW 3.0,NO. RB 1,RB POS. Mid,QPSK



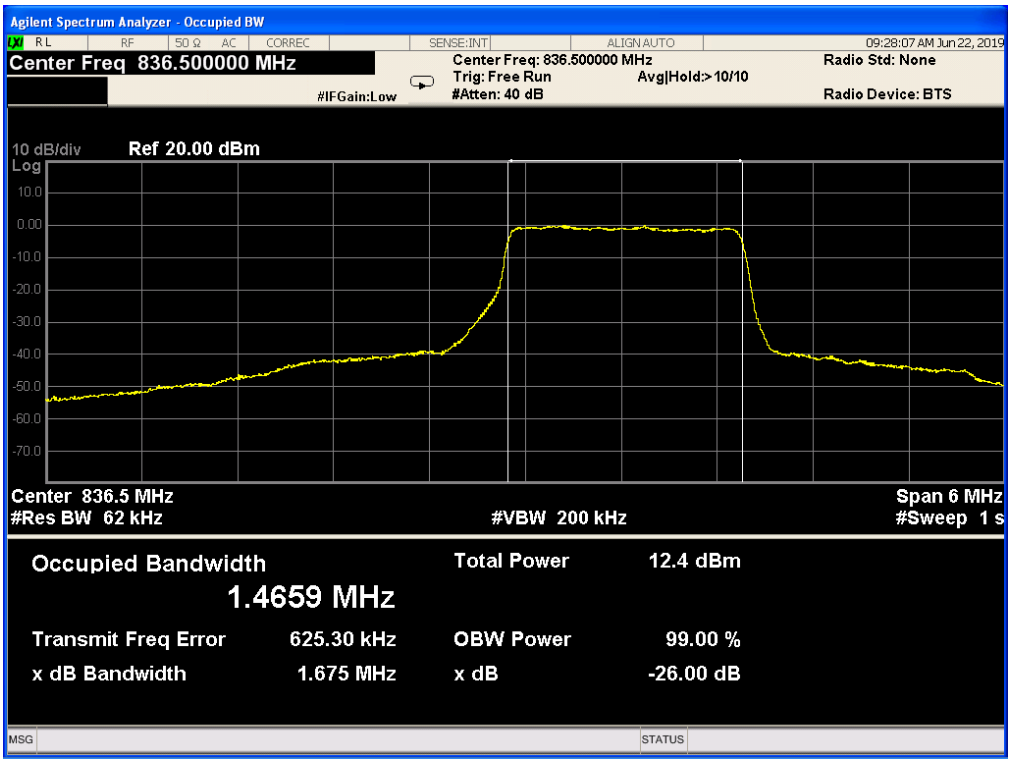
Band 5,UL Channel 20525,UL Frequency 836.5,BW 3.0,NO. RB 8,RB POS. High,QPSK



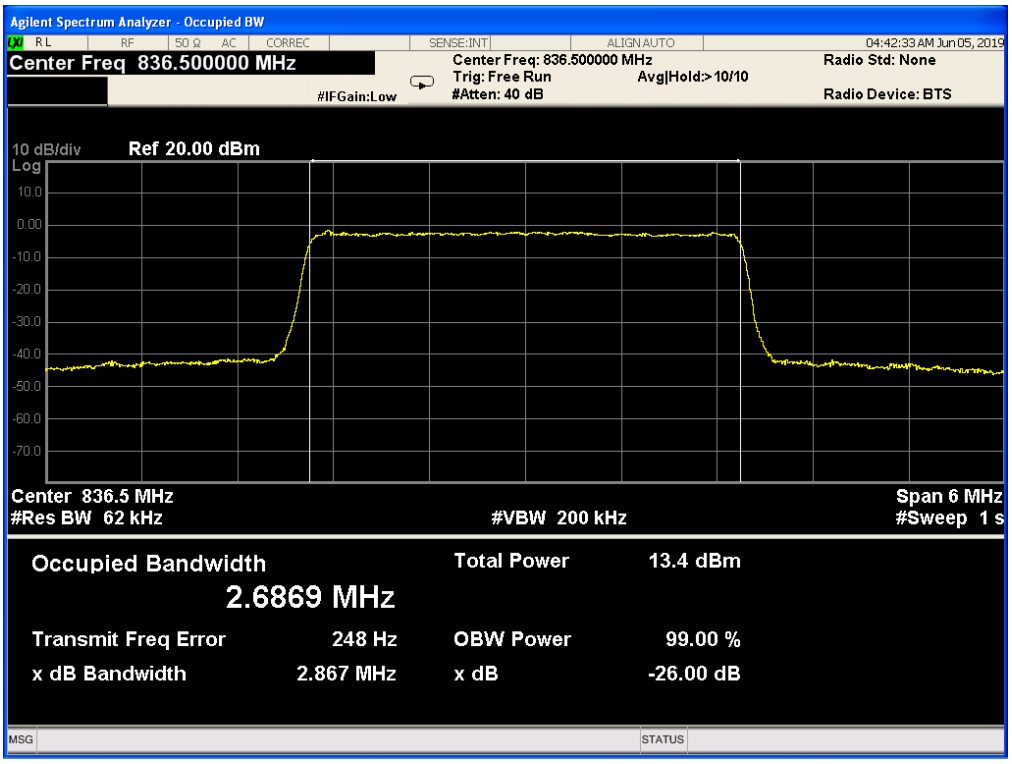
Band 5,UL Channel 20525,UL Frequency 836.5,BW 3.0,NO. RB 1,RB POS. Mid,16-QAM



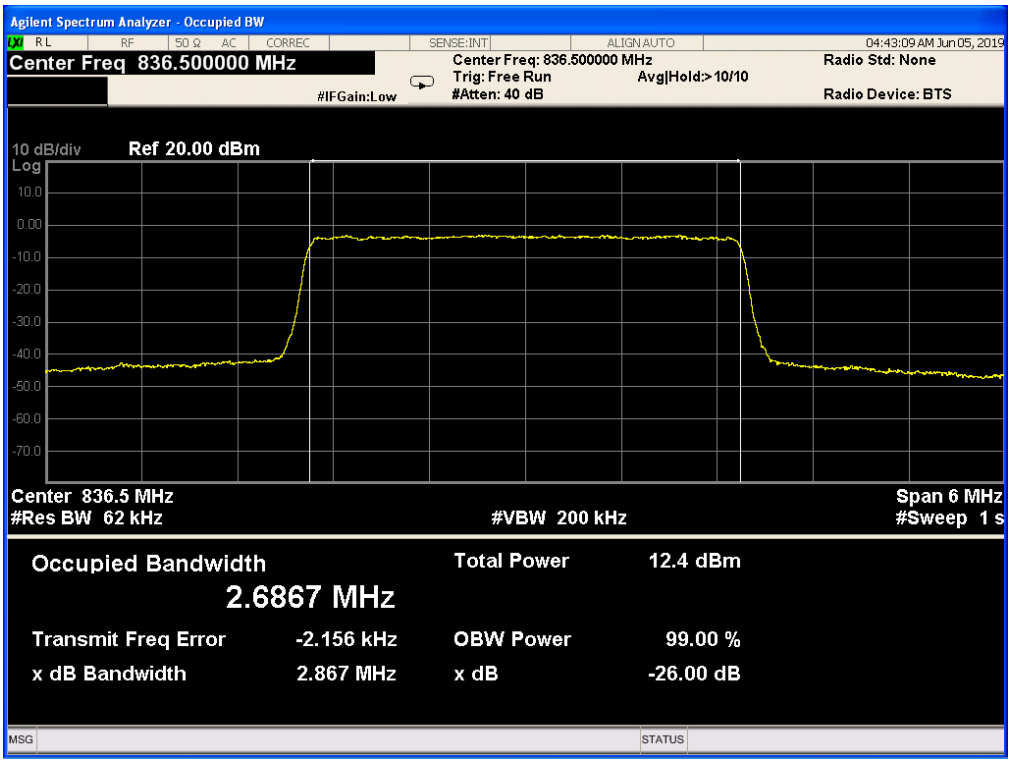
Band 5,UL Channel 20525,UL Frequency 836.5,BW 3.0,NO. RB 8,RB POS. High,16-QAM



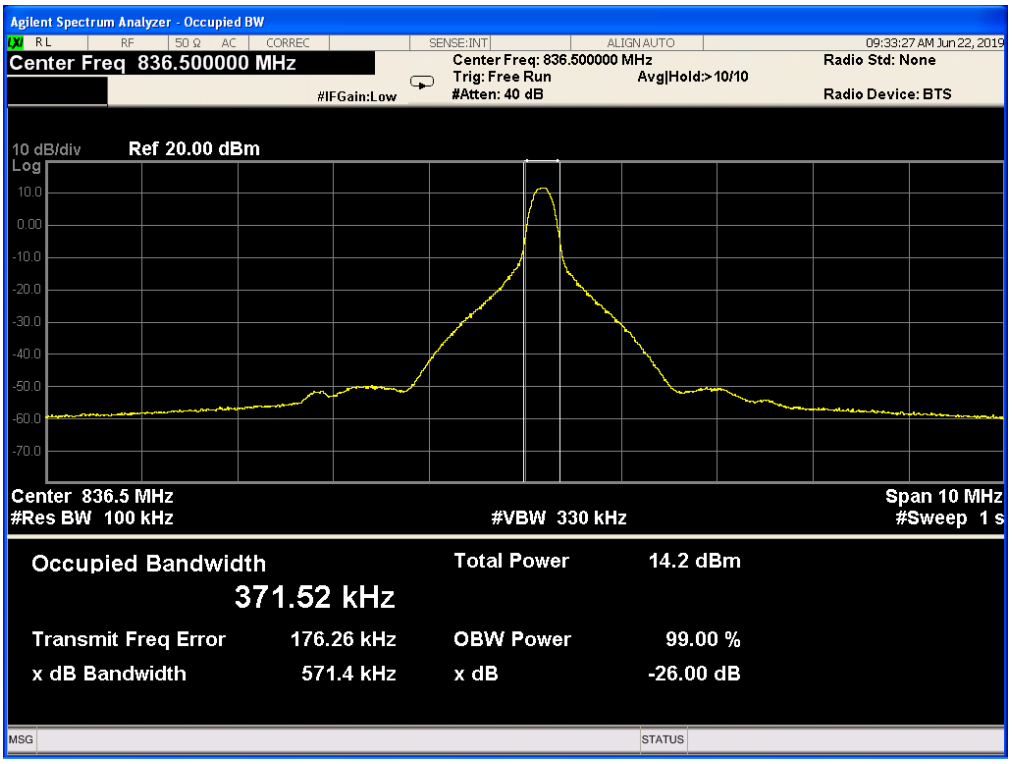
Band 5,UL Channel 20525,UL Frequency 836.5,BW 3.0,NO. RB 15,RB POS. Low,QPSK



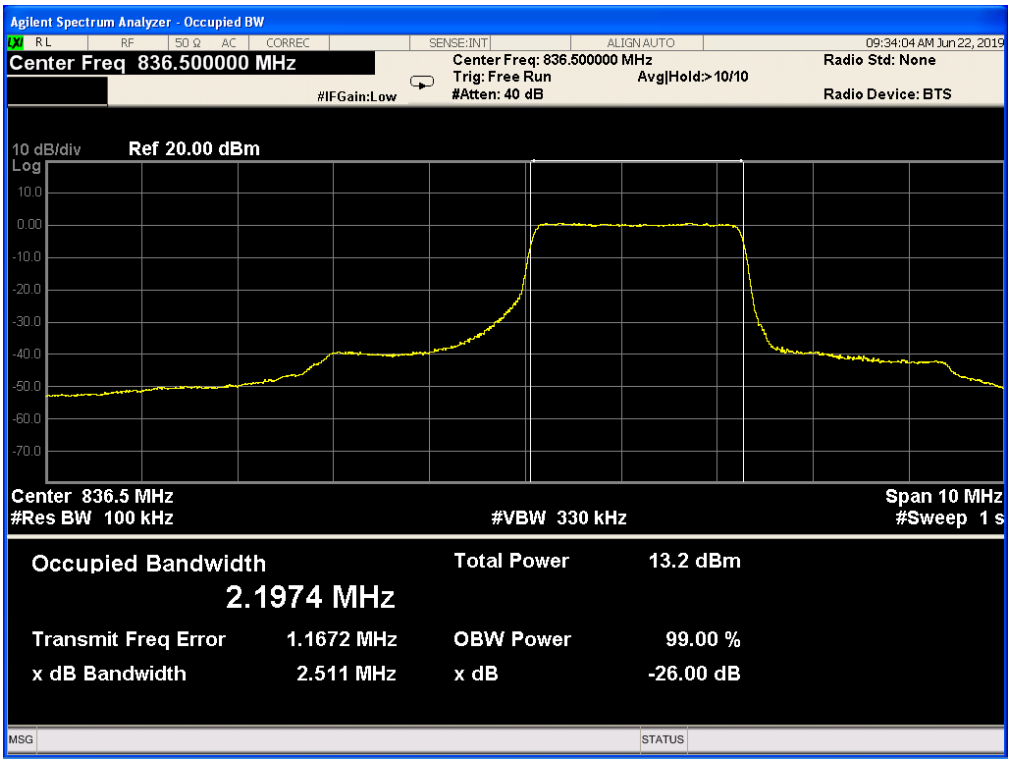
Band 5,UL Channel 20525,UL Frequency 836.5,BW 3.0,NO. RB 15,RB POS. Low,16-QAM



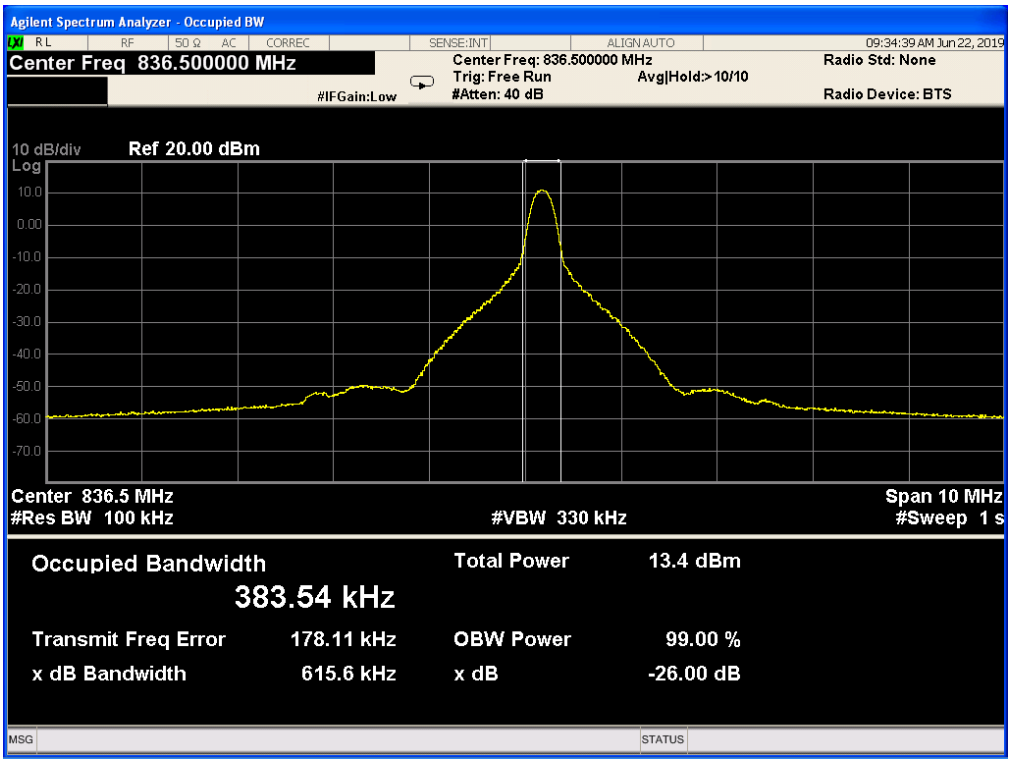
Band 5,UL Channel 20525,UL Frequency 836.5,BW 5.0,NO. RB 1,RB POS. Mid,QPSK



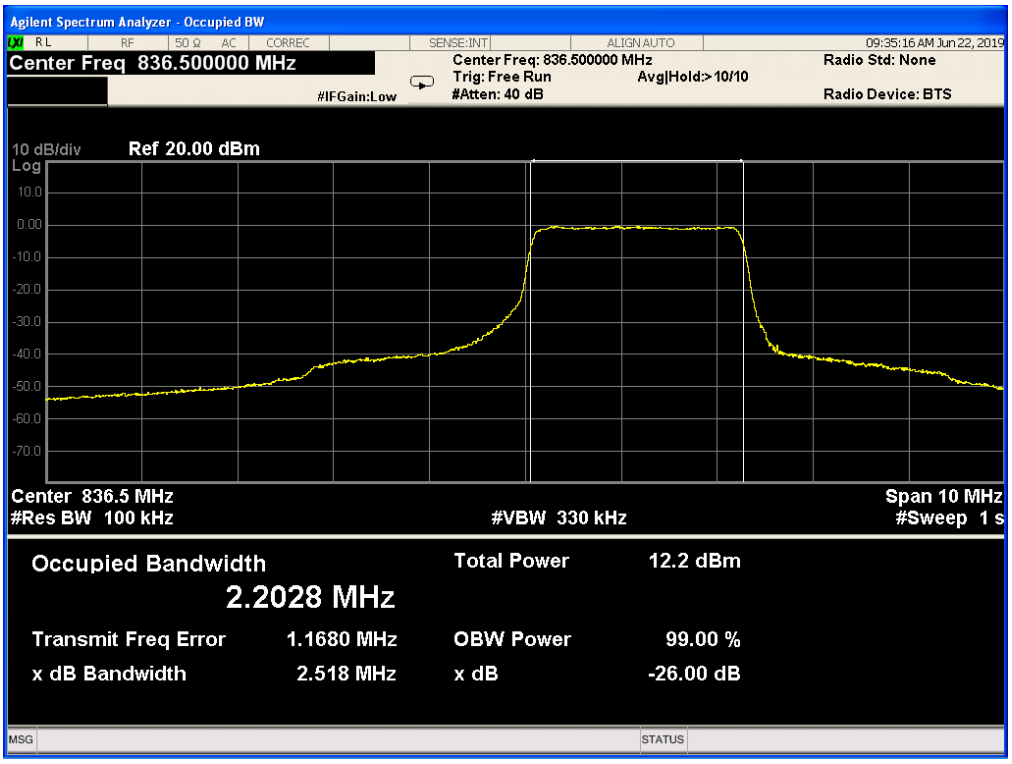
Band 5,UL Channel 20525,UL Frequency 836.5,BW 5.0,NO. RB 12,RB POS. High,QPSK



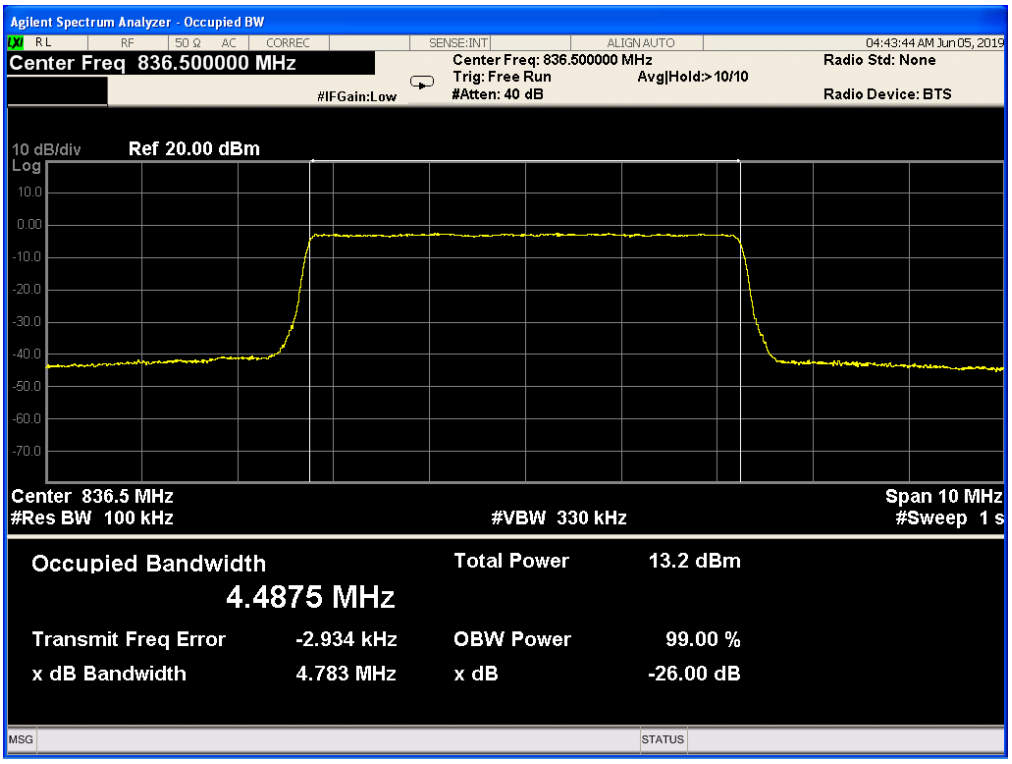
Band 5,UL Channel 20525,UL Frequency 836.5,BW 5.0,NO. RB 1,RB POS. Mid,16-QAM



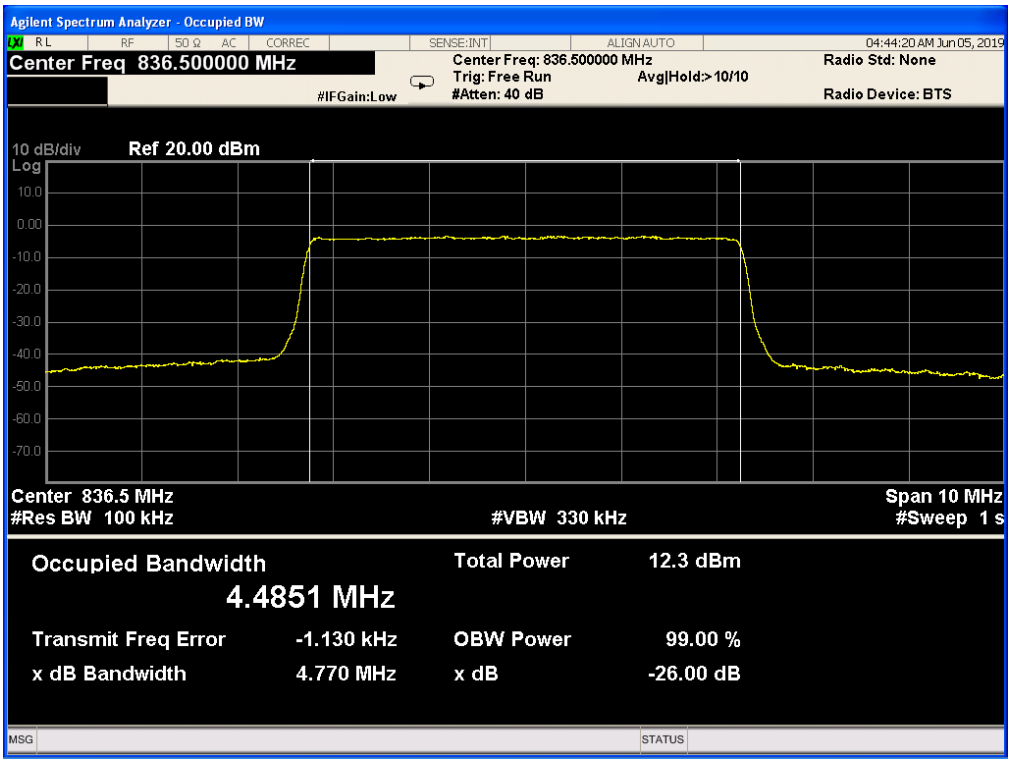
Band 5,UL Channel 20525,UL Frequency 836.5,BW 5.0,NO. RB 12,RB POS. High,16-QAM



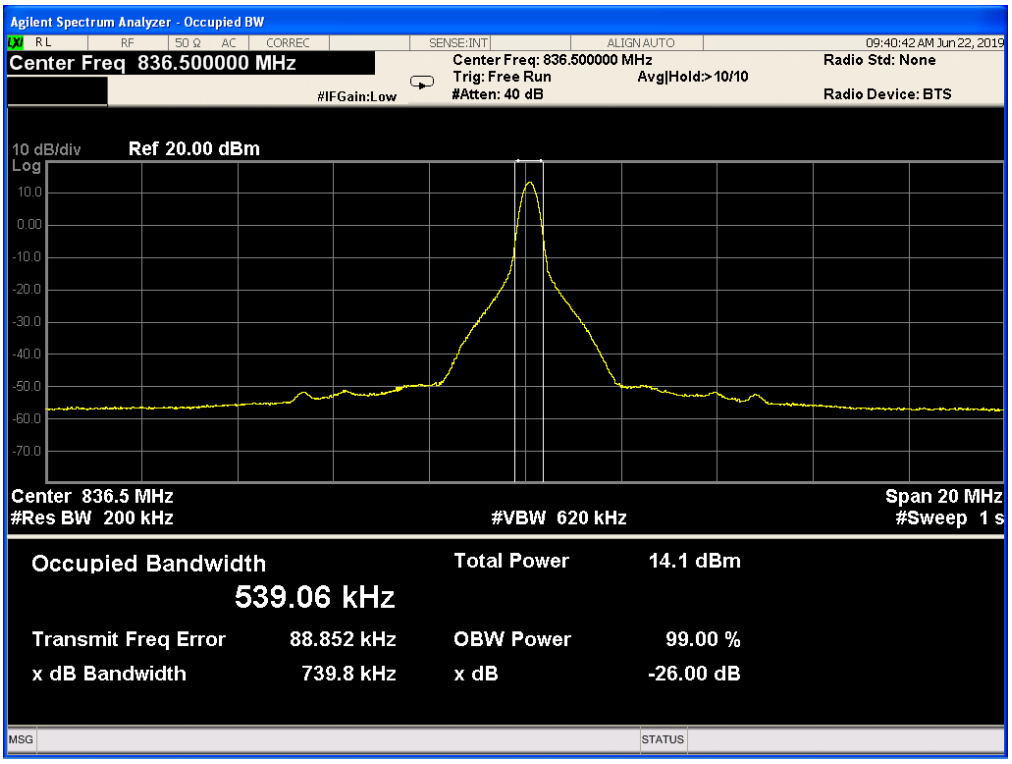
Band 5,UL Channel 20525,UL Frequency 836.5,BW 5.0,NO. RB 25,RB POS. Low,QPSK



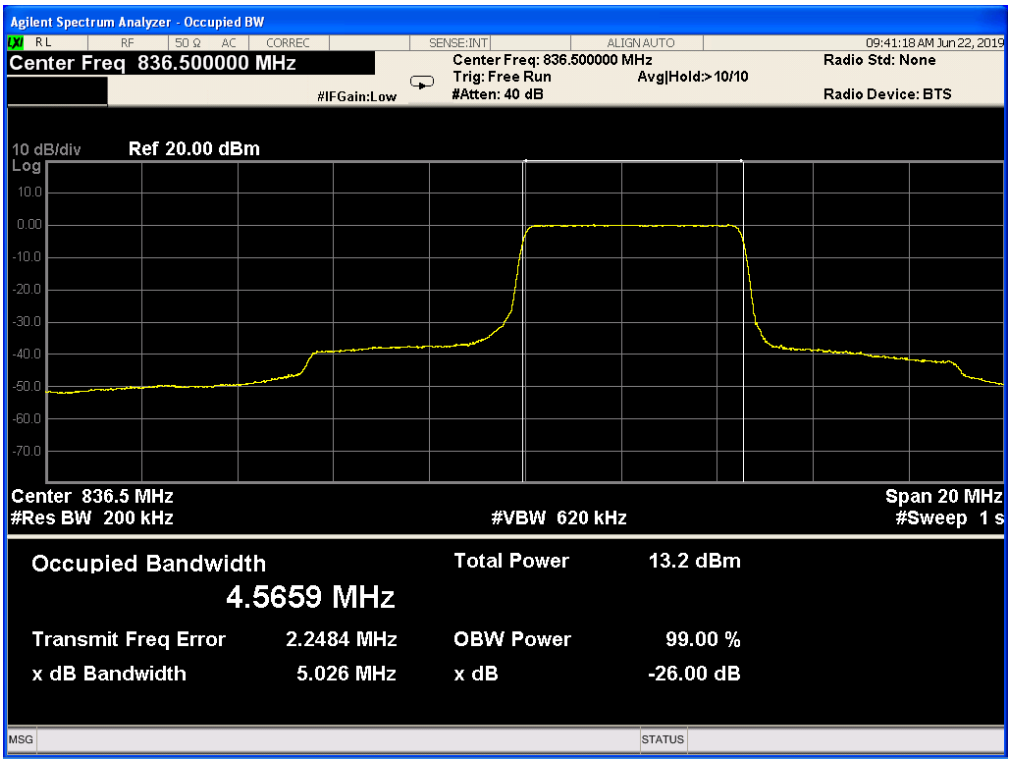
Band 5,UL Channel 20525,UL Frequency 836.5,BW 5.0,NO. RB 25,RB POS. Low,16-QAM



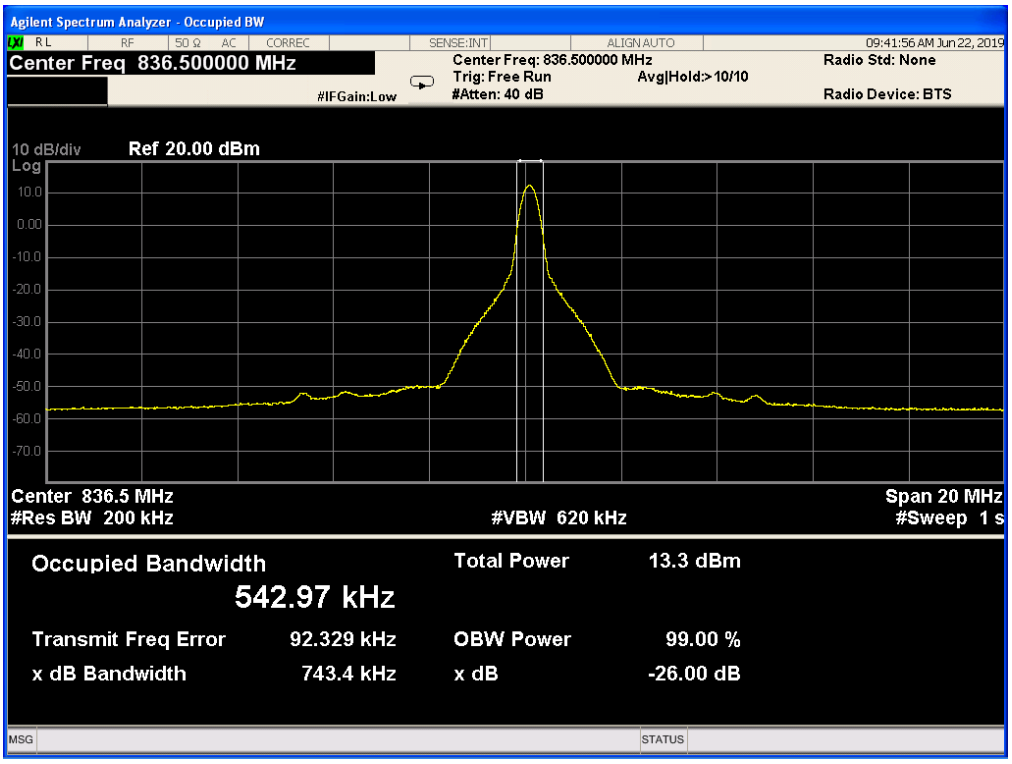
Band 5,UL Channel 20525,UL Frequency 836.5,BW 10.0,NO. RB 1,RB POS. Mid,QPSK



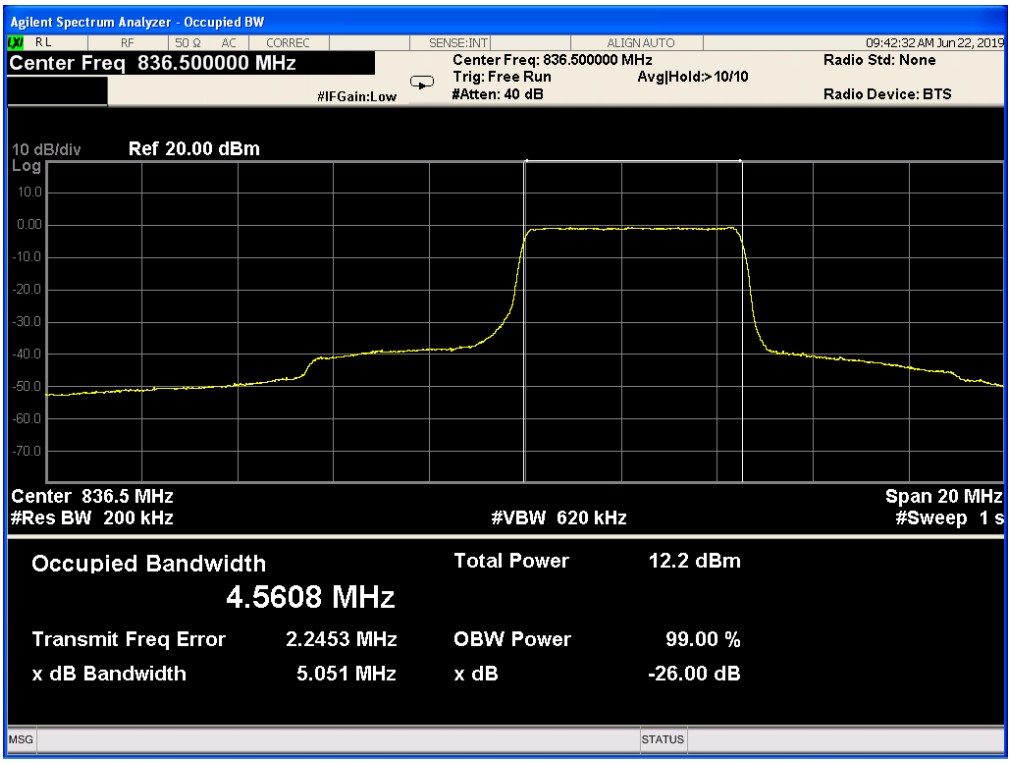
Band 5,UL Channel 20525,UL Frequency 836.5,BW 10.0,NO. RB 25,RB POS. High,QPSK



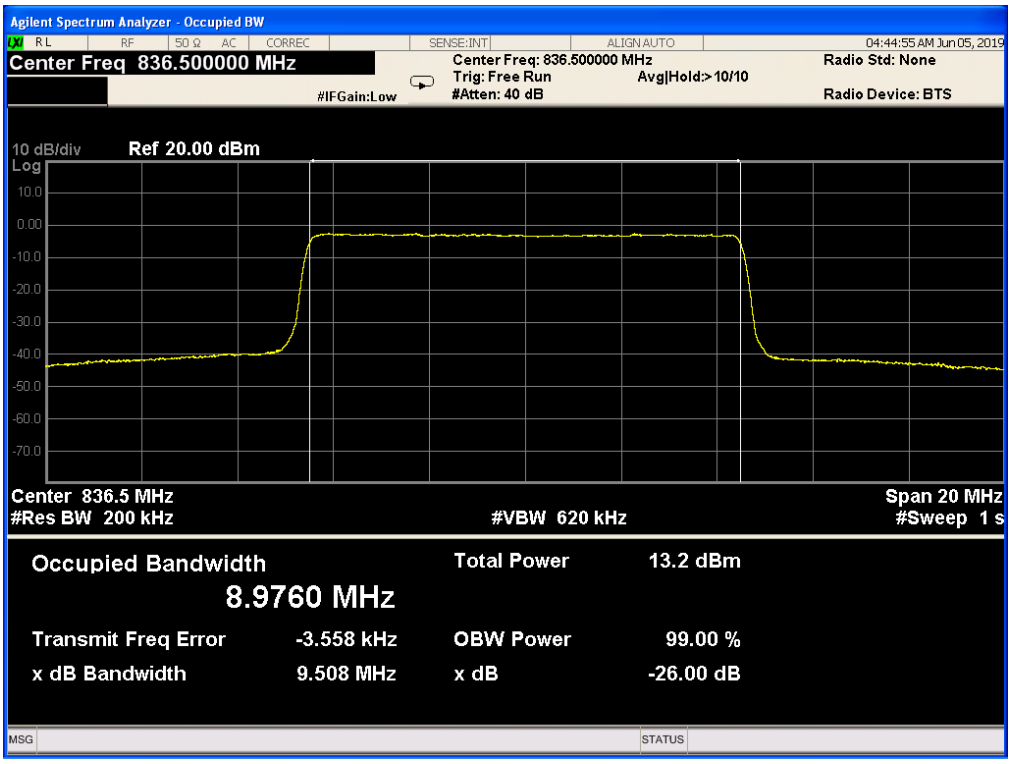
Band 5,UL Channel 20525,UL Frequency 836.5,BW 10.0,NO. RB 1,RB POS. Mid,16-QAM



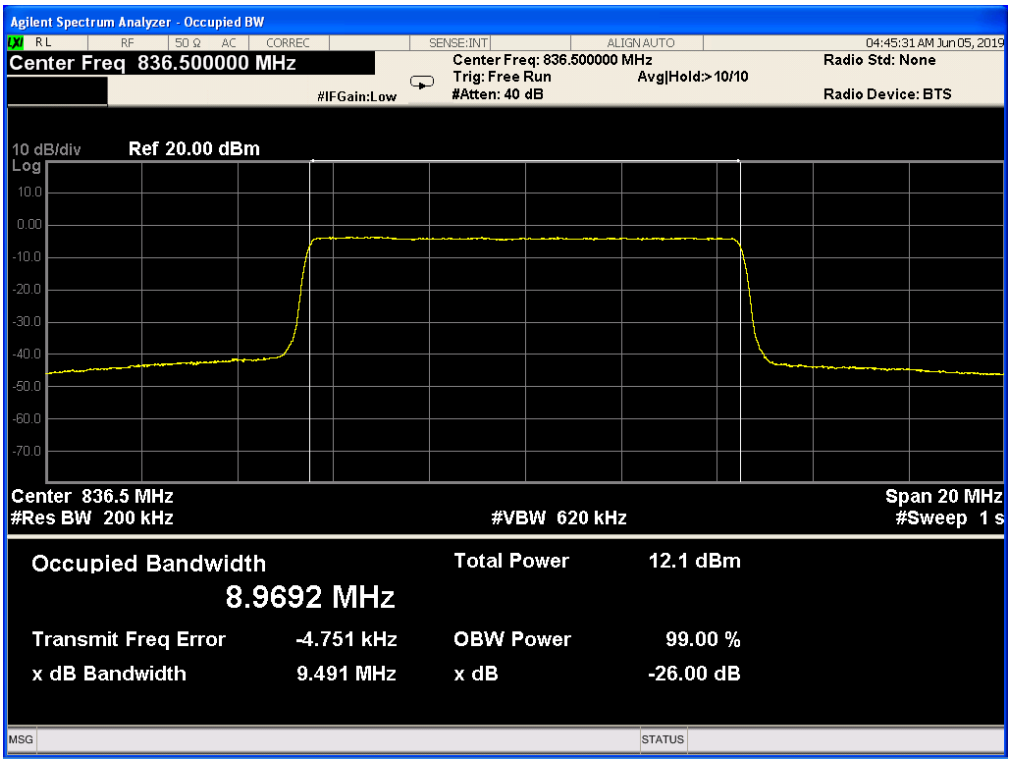
Band 5,UL Channel 20525,UL Frequency 836.5,BW 10.0,NO. RB 25,RB POS. High,16-QAM



Band 5,UL Channel 20525,UL Frequency 836.5,BW 10.0,NO. RB 50,RB POS. Low,QPSK

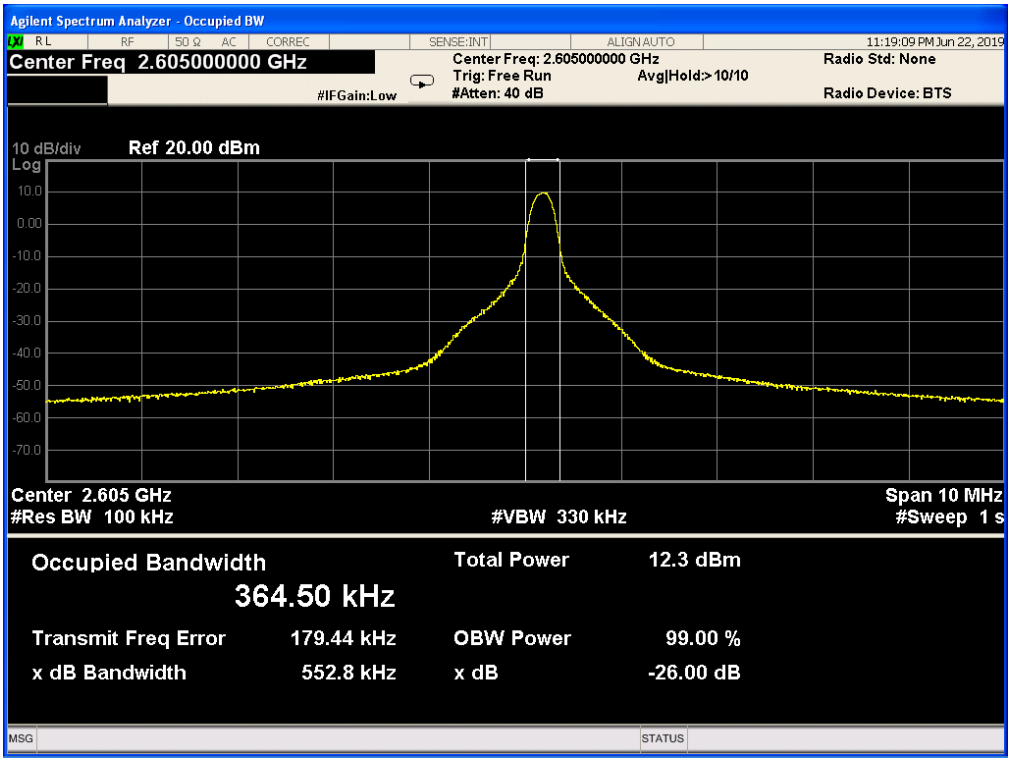


Band 5,UL Channel 20525,UL Frequency 836.5,BW 10.0,NO. RB 50,RB POS. Low,16-QAM

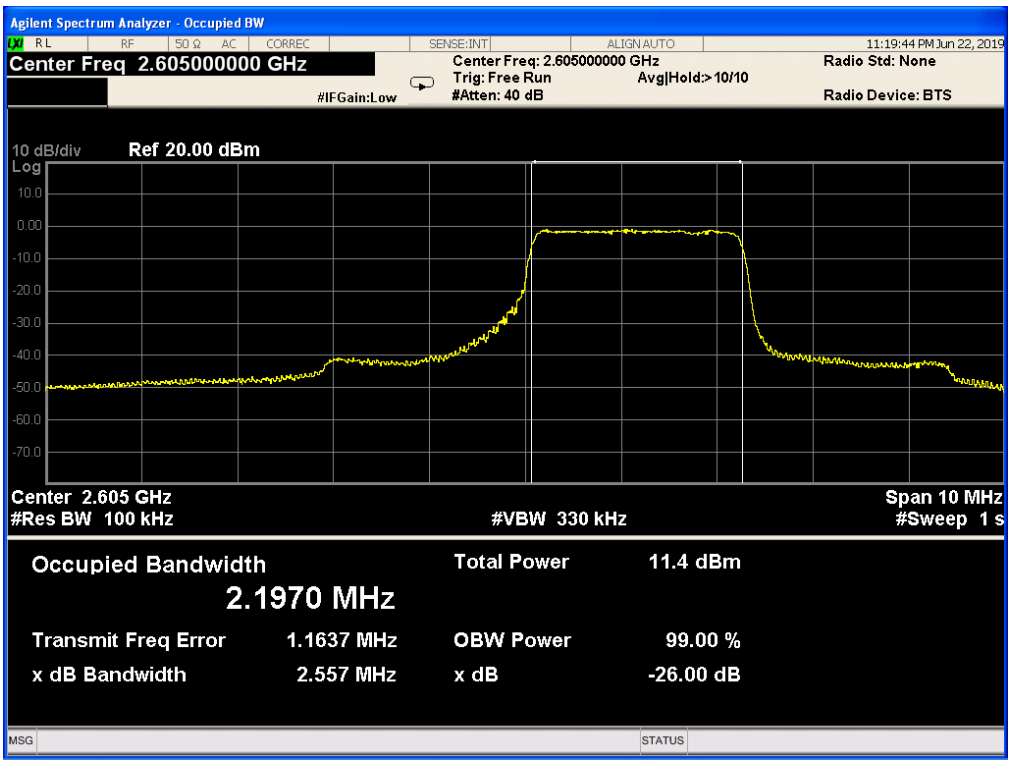


5.2 LTE BAND 41

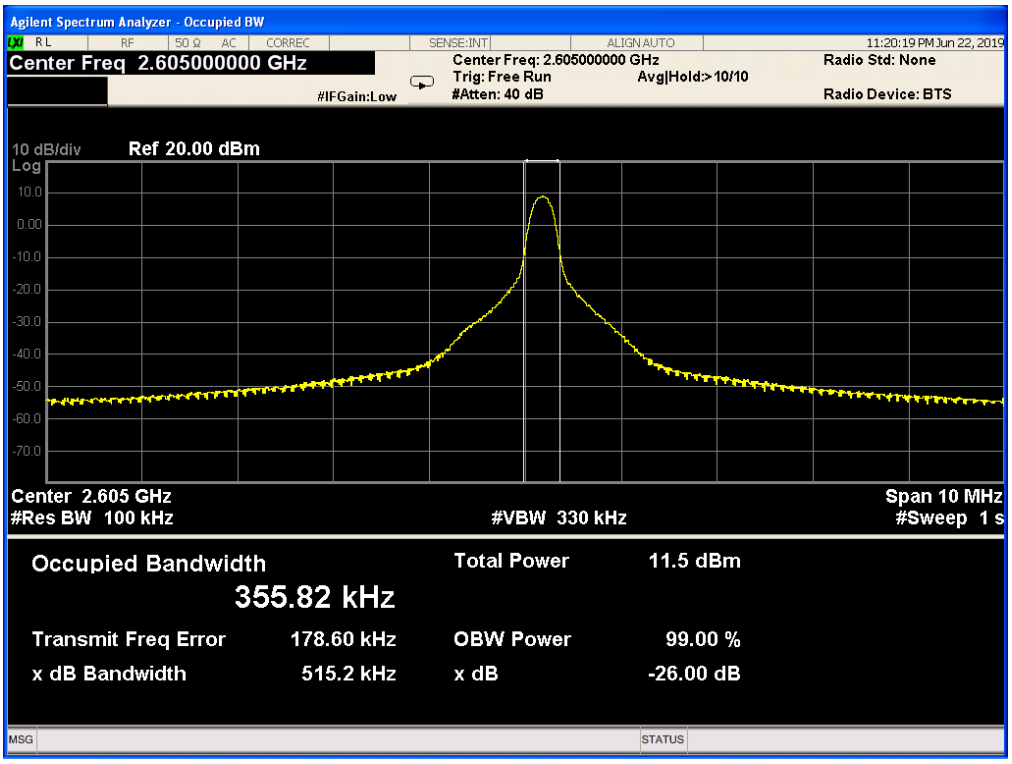
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 5.0,NO. RB 1,RB POS. Mid,QPSK



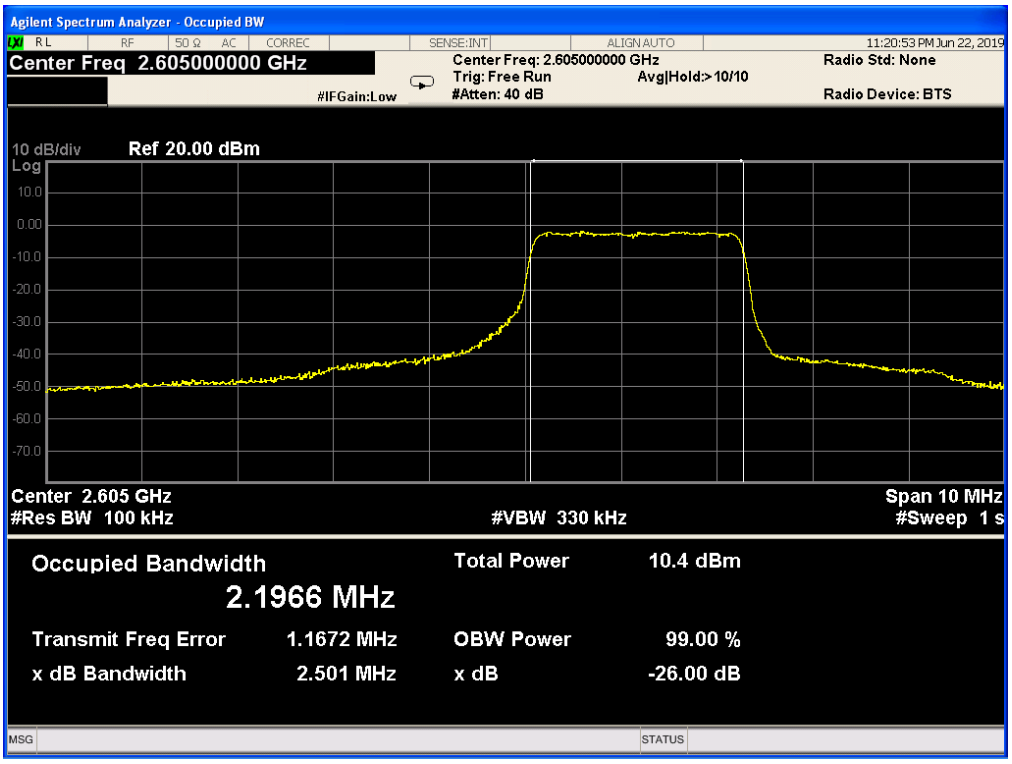
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 5.0,NO. RB 12,RB POS. High,QPSK



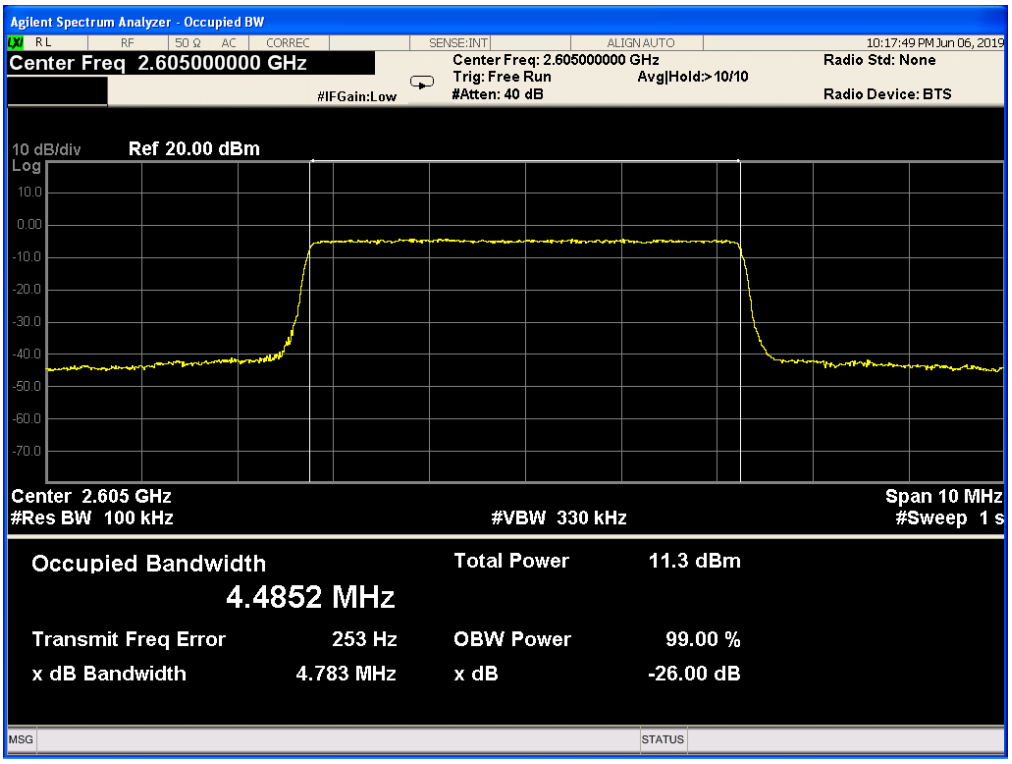
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 5.0,NO. RB 1,RB POS. Mid,16-QAM



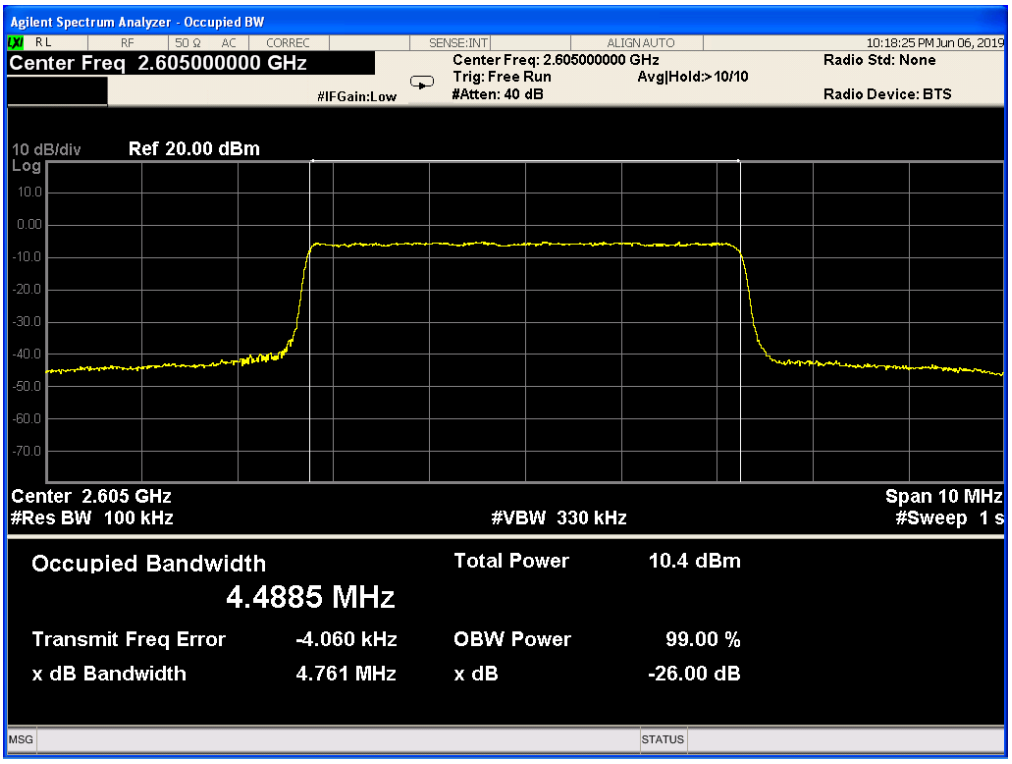
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 5.0,NO. RB 12,RB POS. High,16-QAM



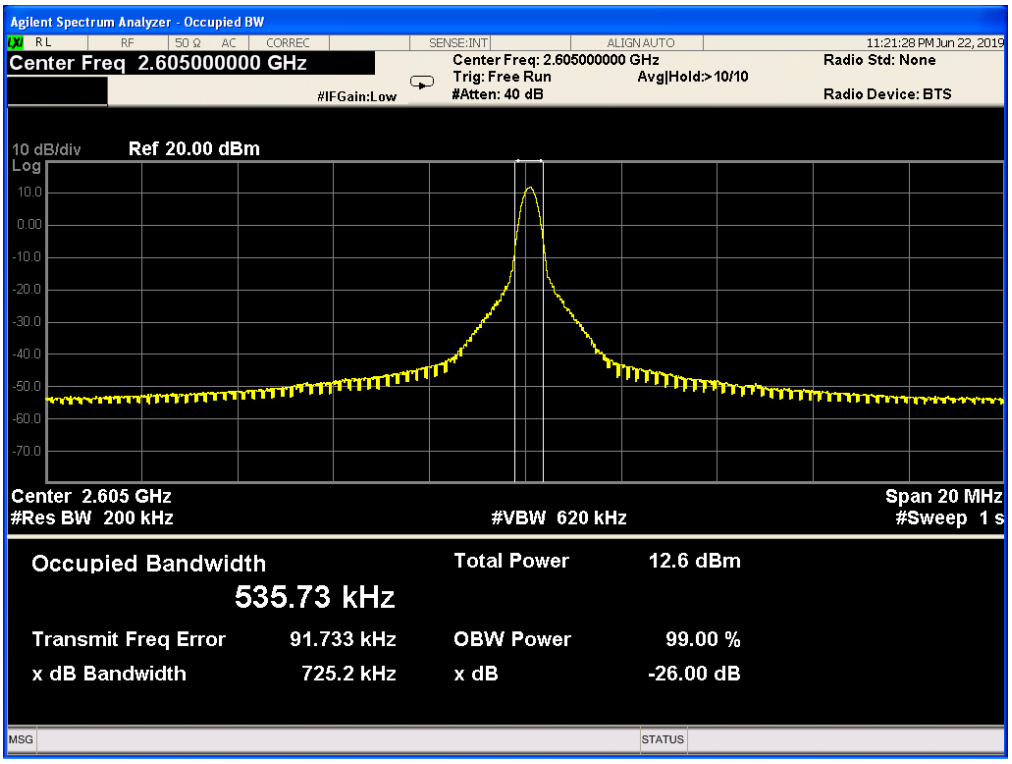
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 5.0,NO. RB 25,RB POS. Low,QPSK



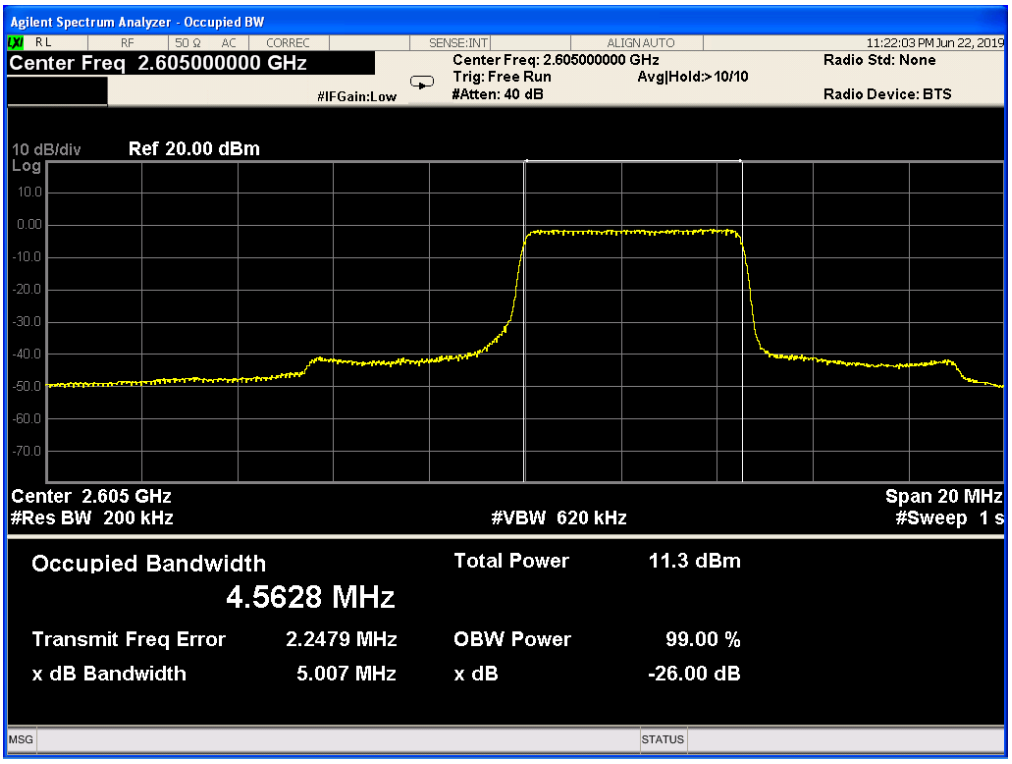
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 5.0,NO. RB 25,RB POS. Low,16-QAM



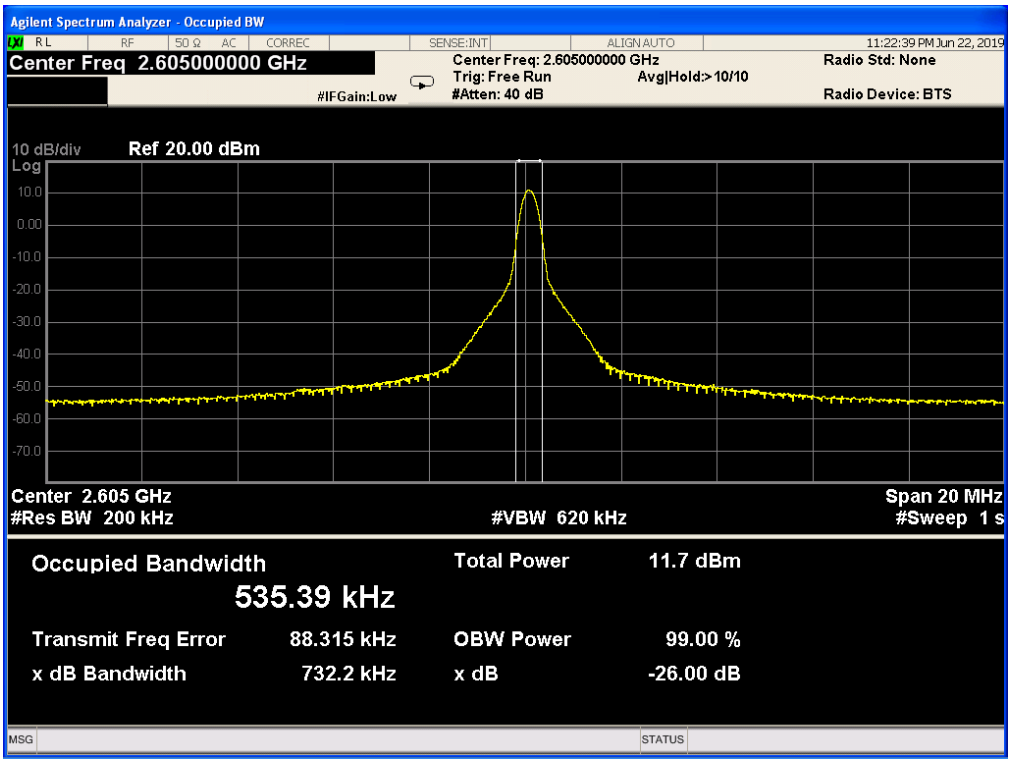
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 10.0,NO. RB 1,RB POS. Mid,QPSK



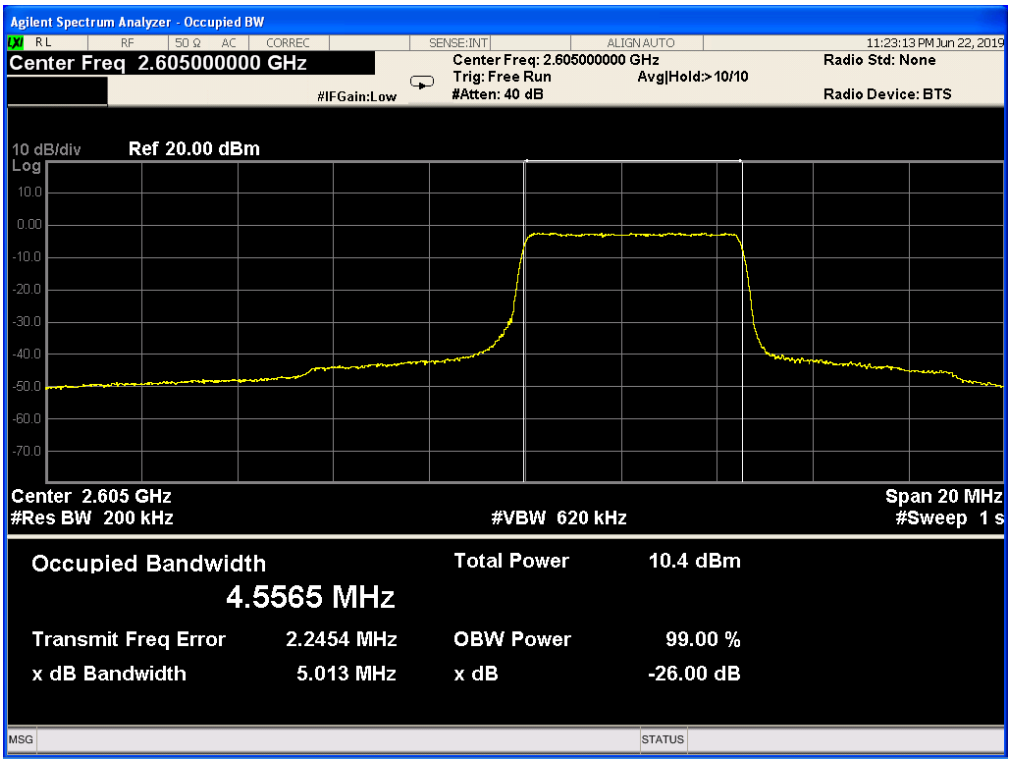
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 10.0,NO. RB 25,RB POS. High,QPSK



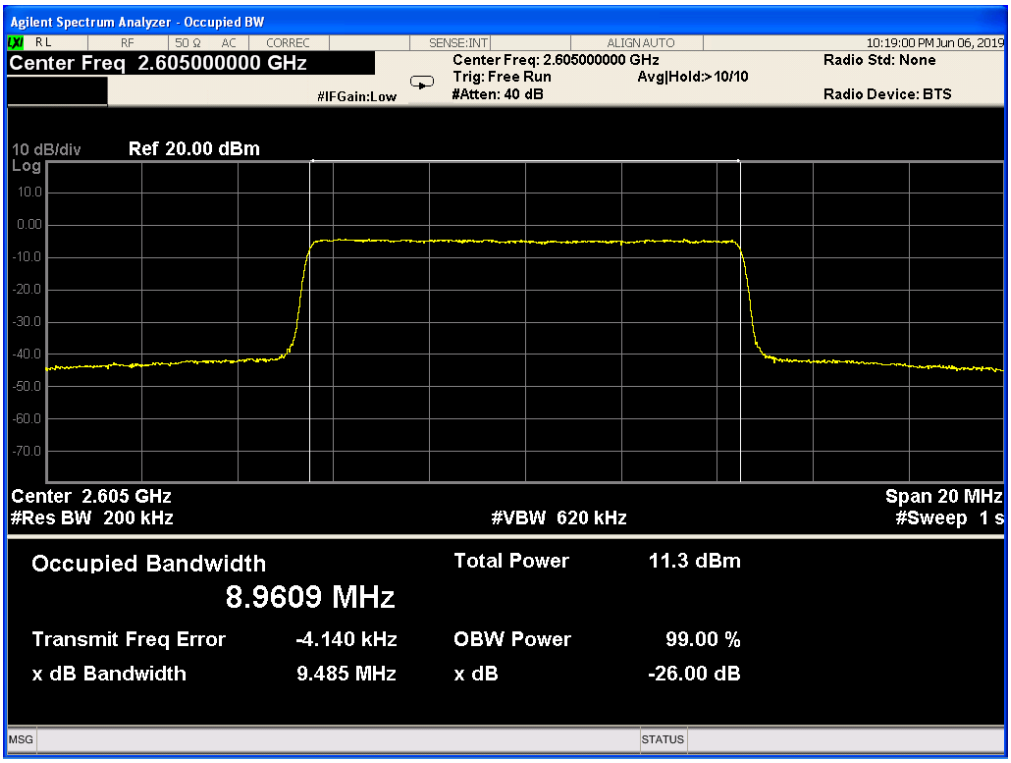
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 10.0,NO. RB 1,RB POS. Mid,16-QAM



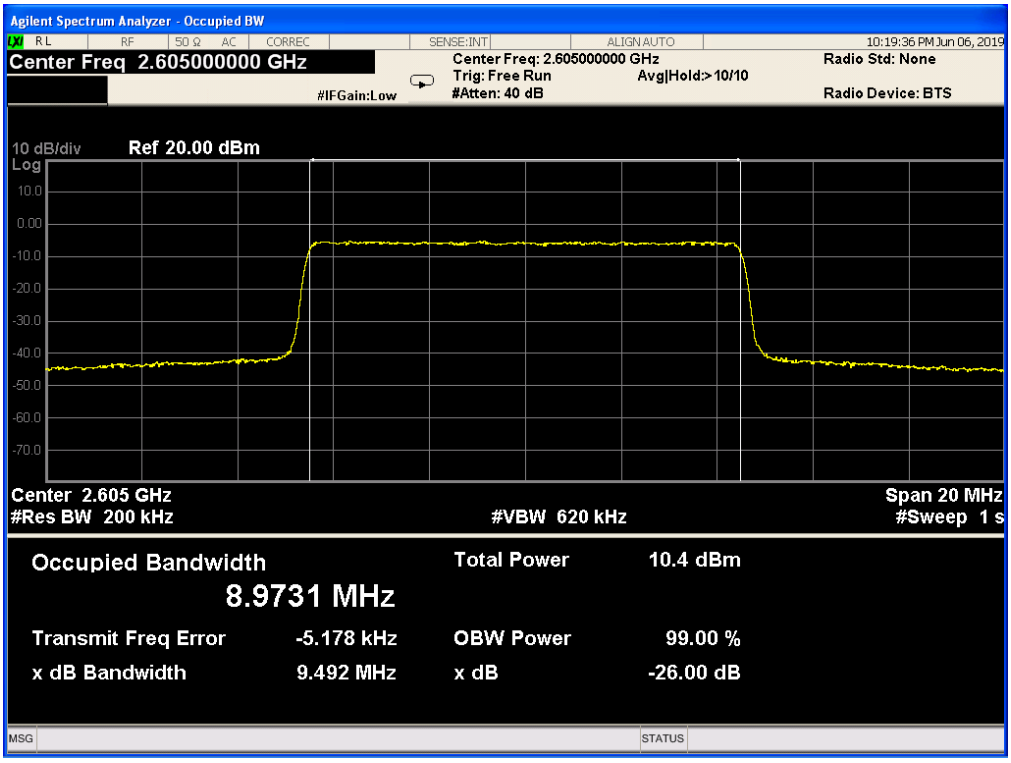
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 10.0,NO. RB 25,RB POS. High,16-QAM



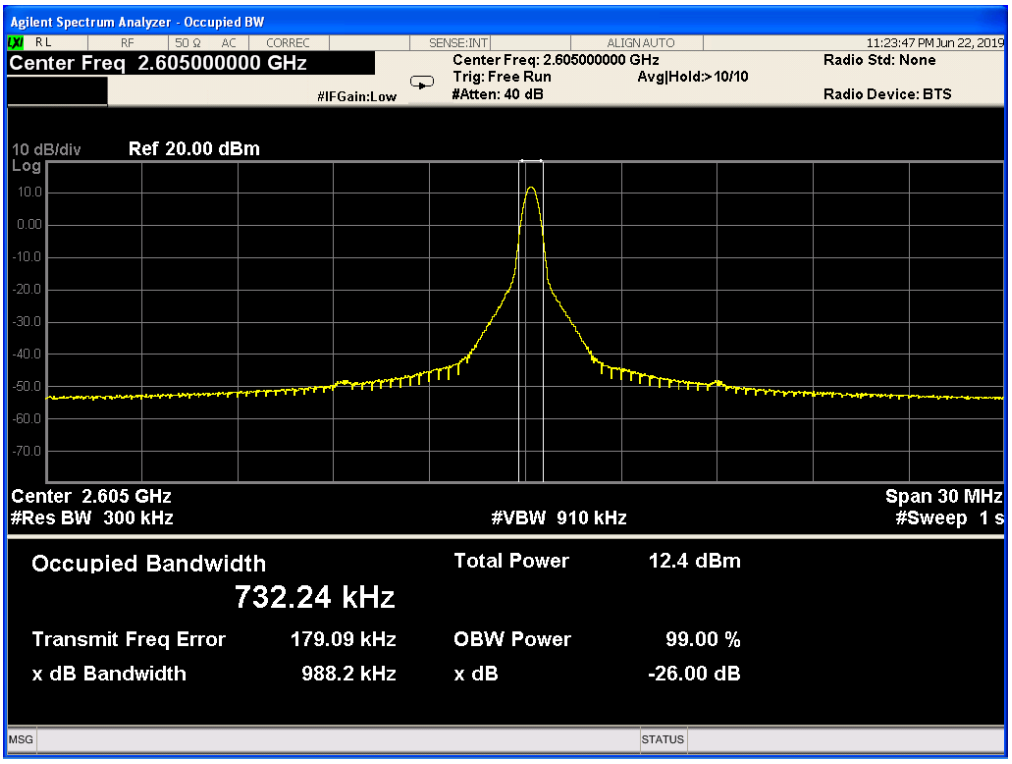
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



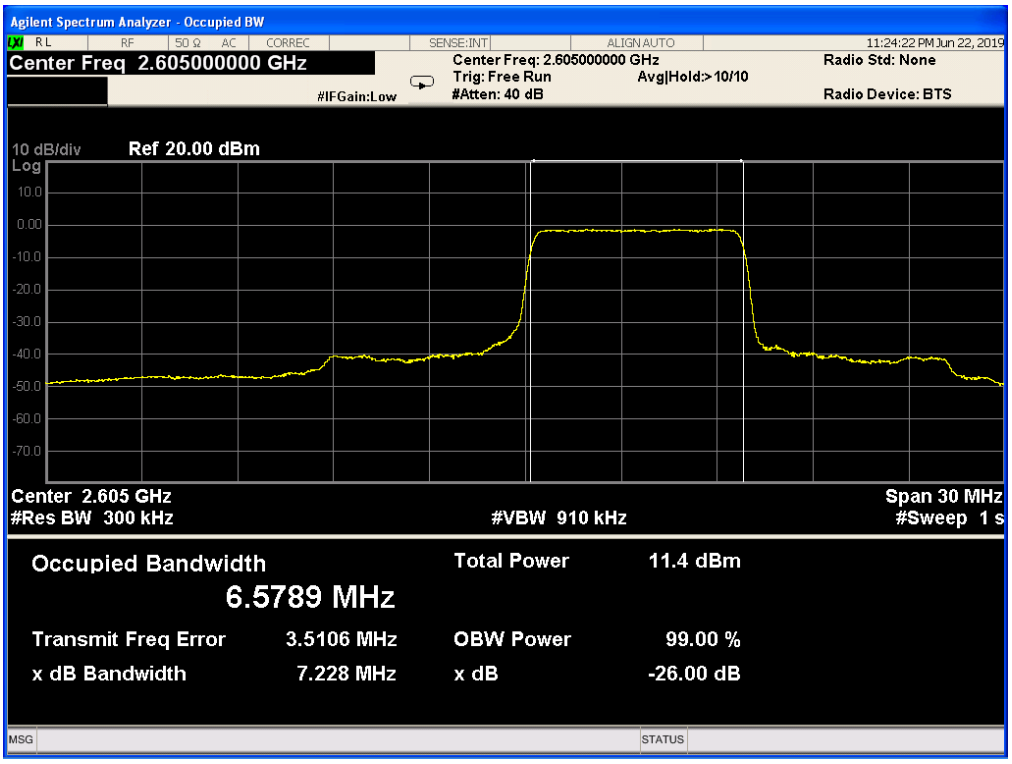
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 10.0,NO. RB 50,RB POS. Low,16-QAM



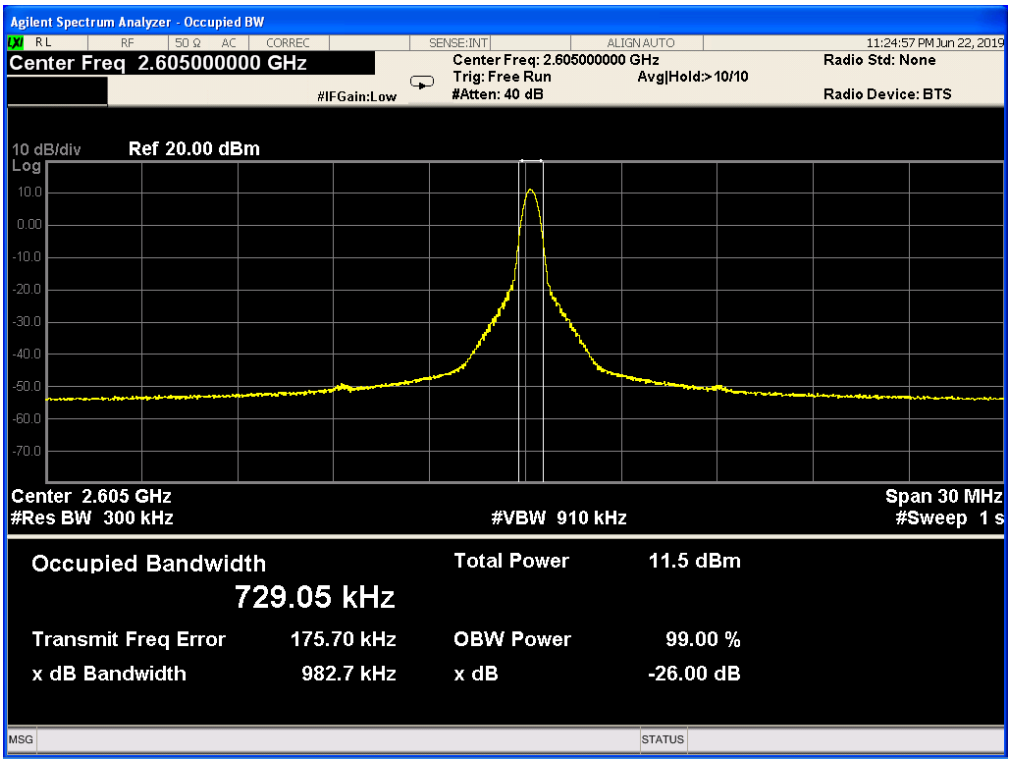
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 15.0,NO. RB 1,RB POS. Mid,QPSK



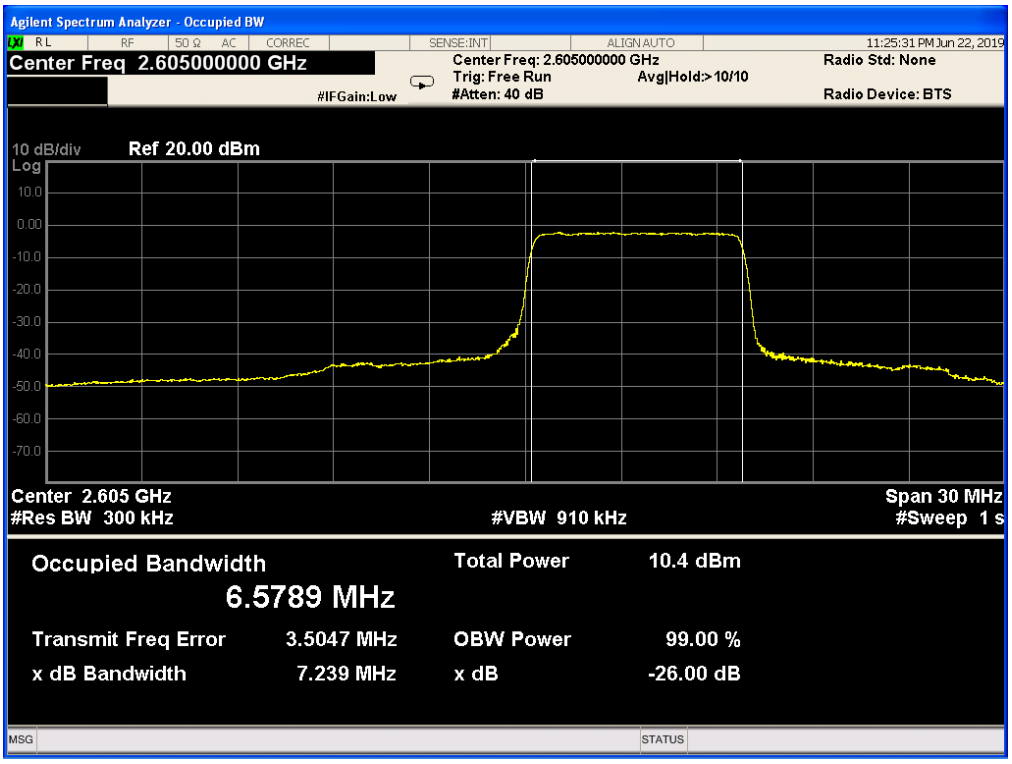
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 15.0,NO. RB 36,RB POS. High,QPSK



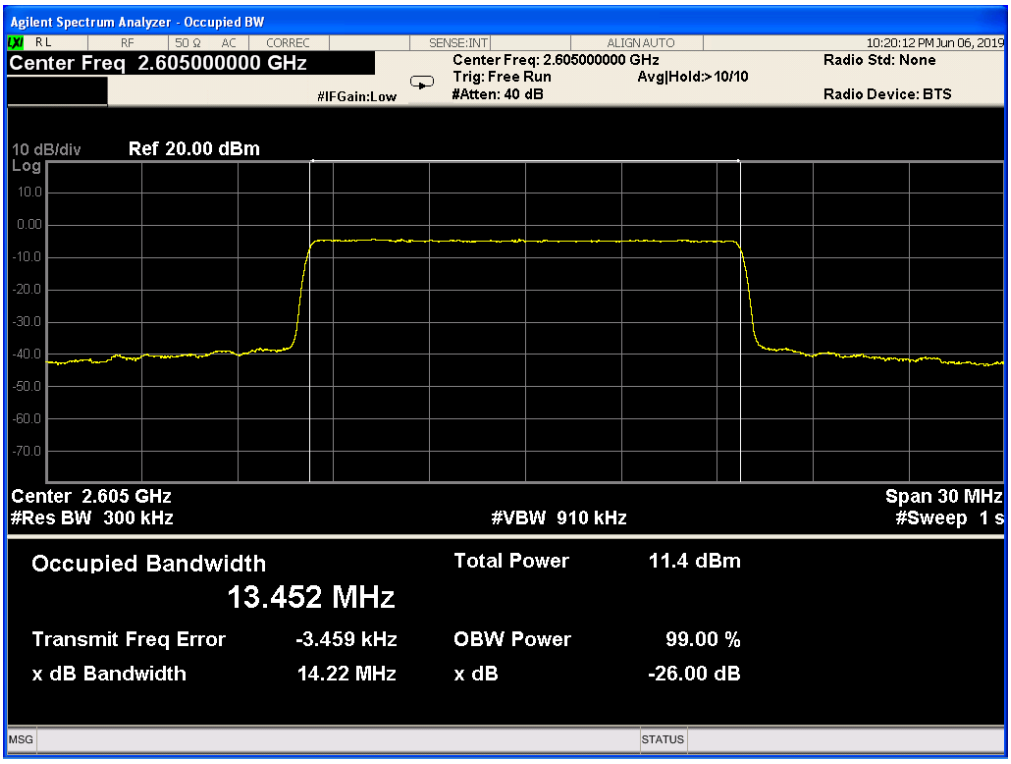
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 15.0,NO. RB 1,RB POS. Mid,16-QAM



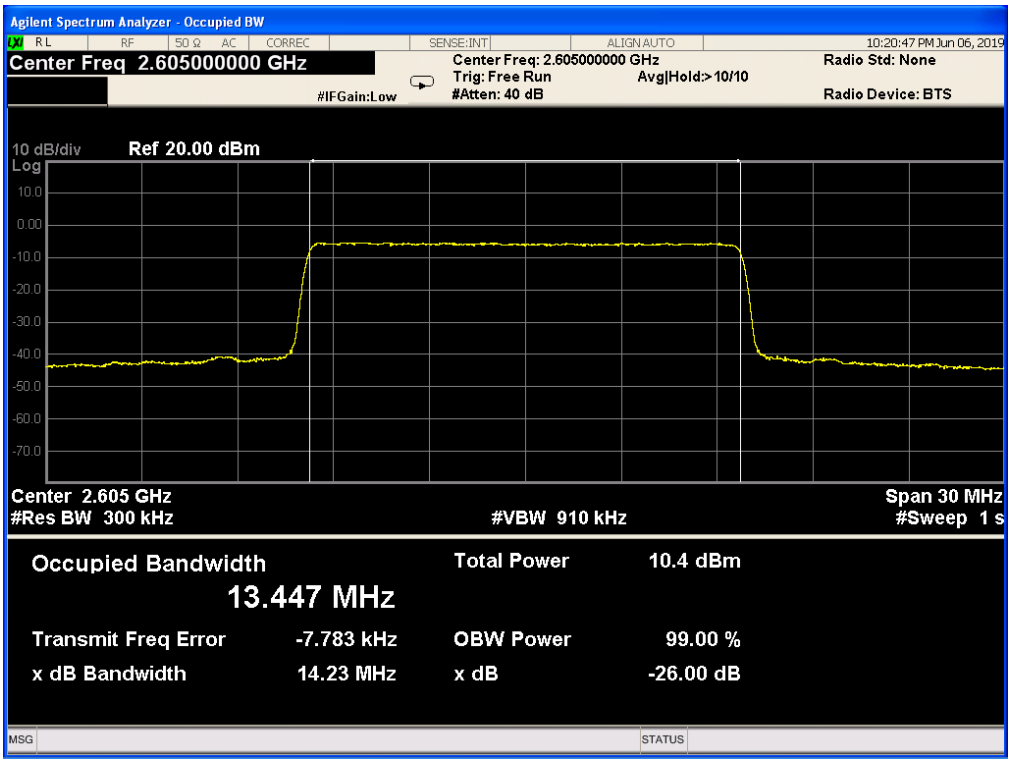
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 15.0,NO. RB 36,RB POS. High,16-QAM



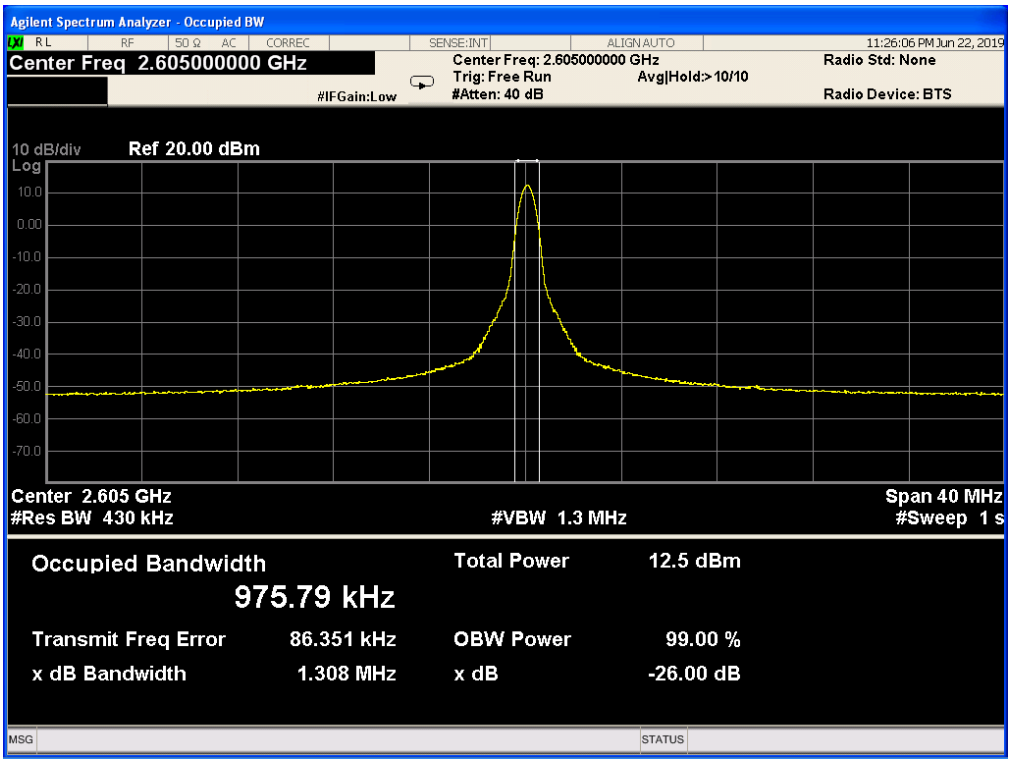
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 15.0,NO. RB 75,RB POS. Low,QPSK



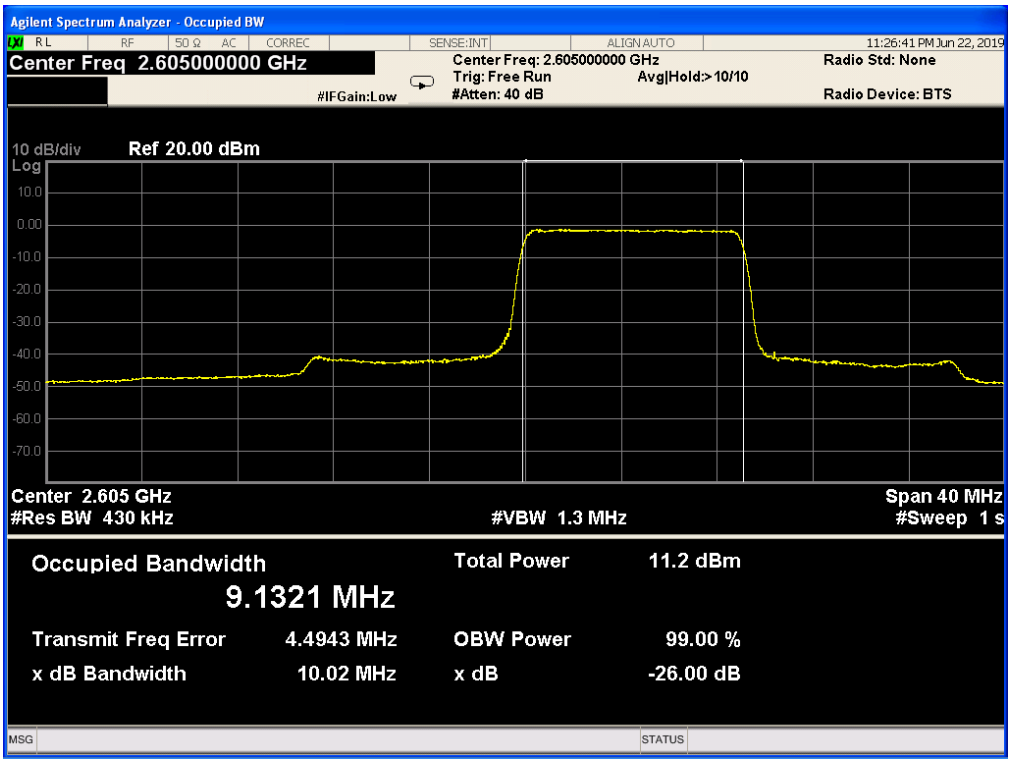
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 15.0,NO. RB 75,RB POS. Low,16-QAM



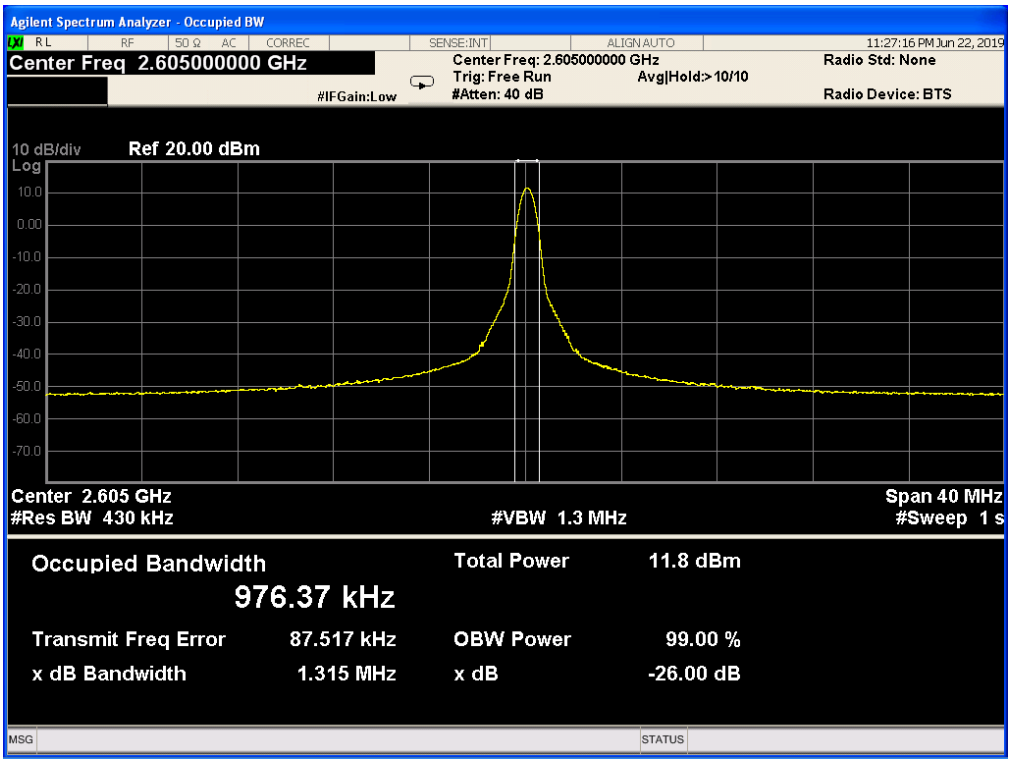
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 20.0,NO. RB 1,RB POS. Mid,QPSK



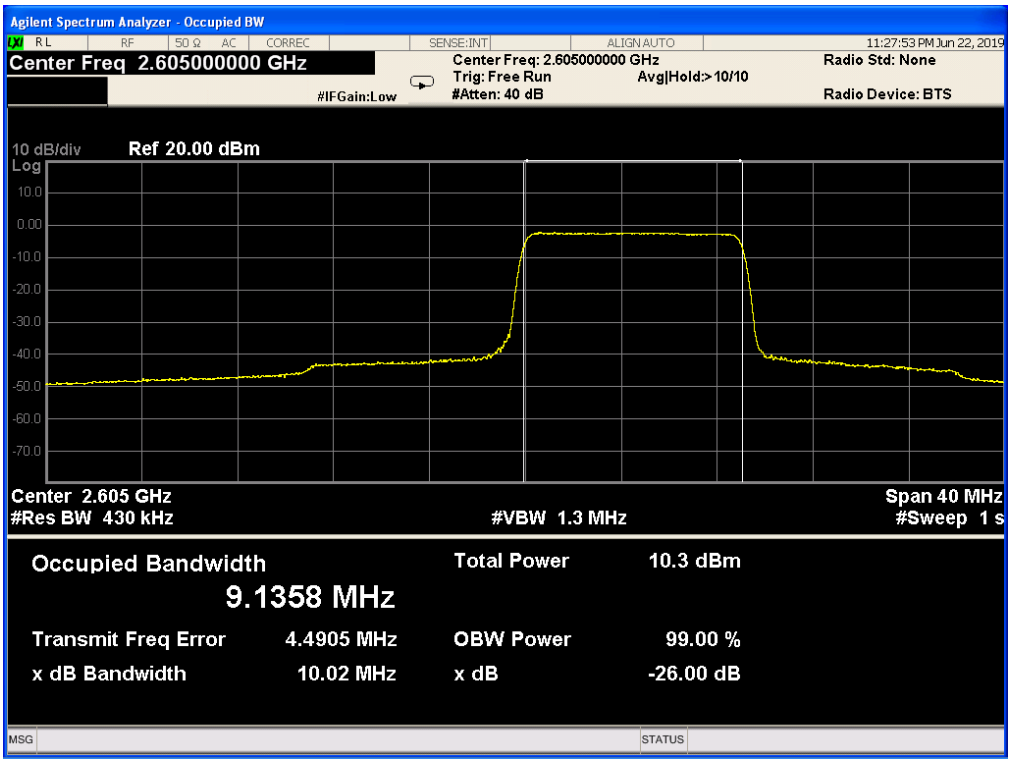
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 20.0,NO. RB 50,RB POS. High,QPSK



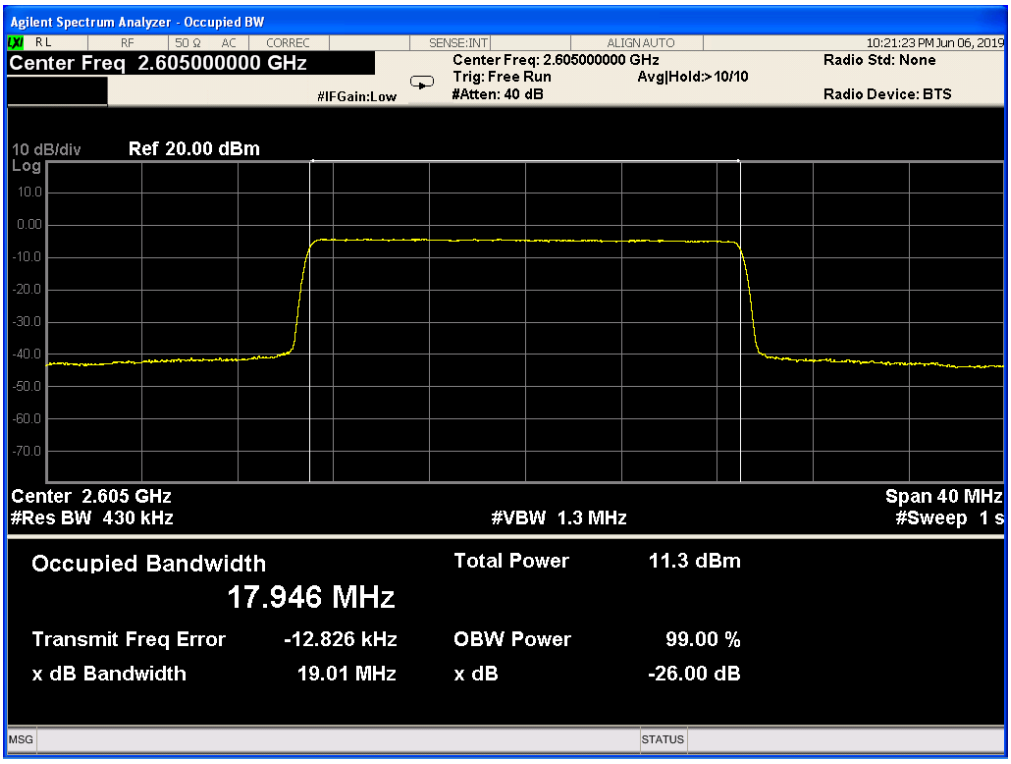
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 20.0,NO. RB 1,RB POS. Mid,16-QAM



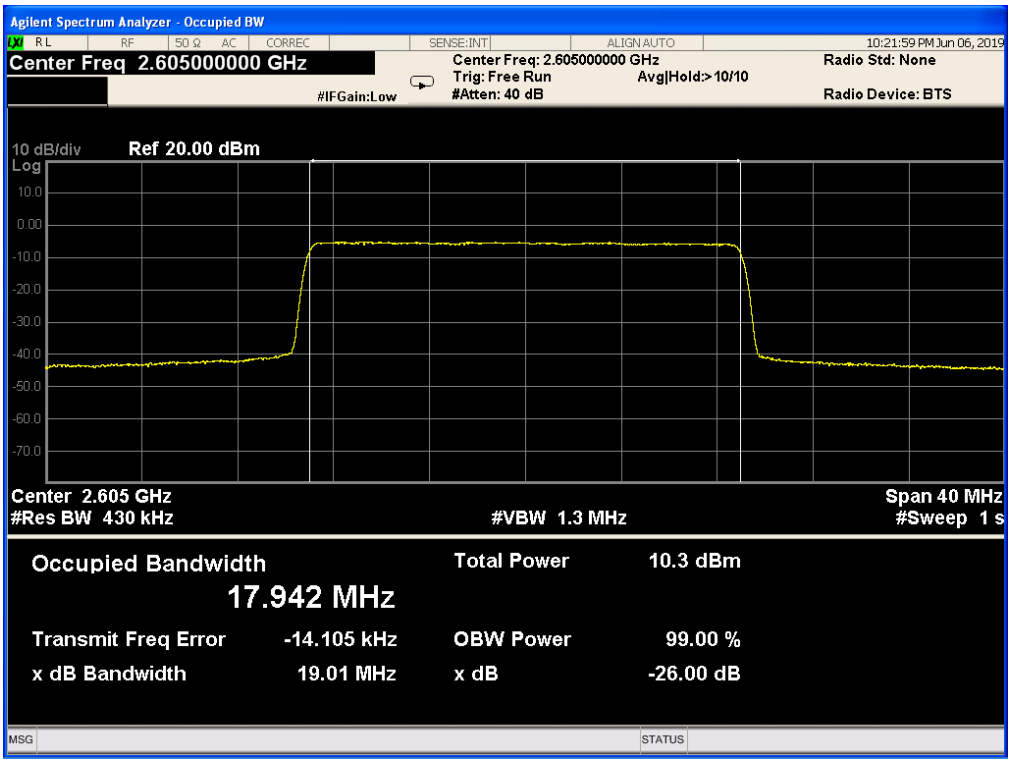
Band 41,UL Channel 40740,UL Frequency 2605.0,BW 20.0,NO. RB 50,RB POS. High,16-QAM



Band 41,UL Channel 40740,UL Frequency 2605.0,BW 20.0,NO. RB 100,RB POS. Low,QPSK



Band 41,UL Channel 40740,UL Frequency 2605.0,BW 20.0,NO. RB 100,RB POS. Low,16-QAM



6. BANDEDGE AND EMISSION MASK

RULE PART(S)

FCC: §2.1051,§27.53
FCC: §27.53

LIMITS

FCC: §27.53
(m)(6) *Measurement procedure.* Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.

(m)(4) For mobile digital stations, 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, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.Show citation box.

TEST PROCEDURE

The transmitter output was connected to a CMW500Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.
For each band edge measurement:

Set the spectrum analyzer span to include the block edge frequency.
Set a marker to point the corresponding band edge frequency in each test case.
Set display line at -13 dBm
Set resolution bandwidth to at least 1% of emission bandwidth.

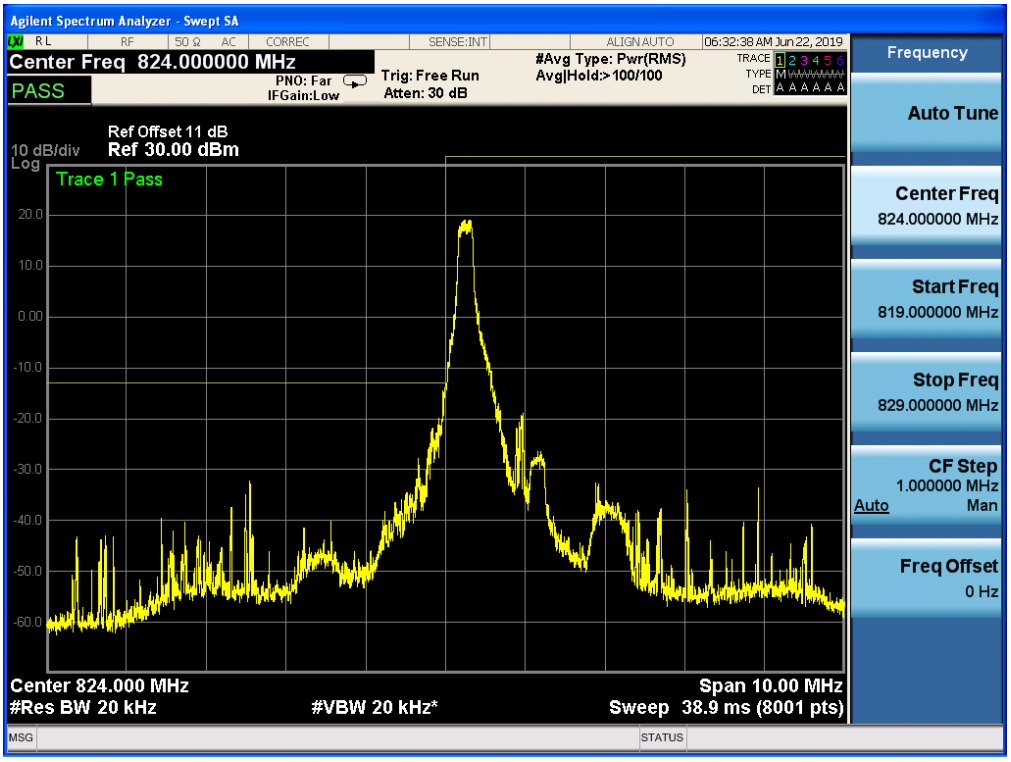
MODES TESTED

LTE Band 5
LTE Band 41

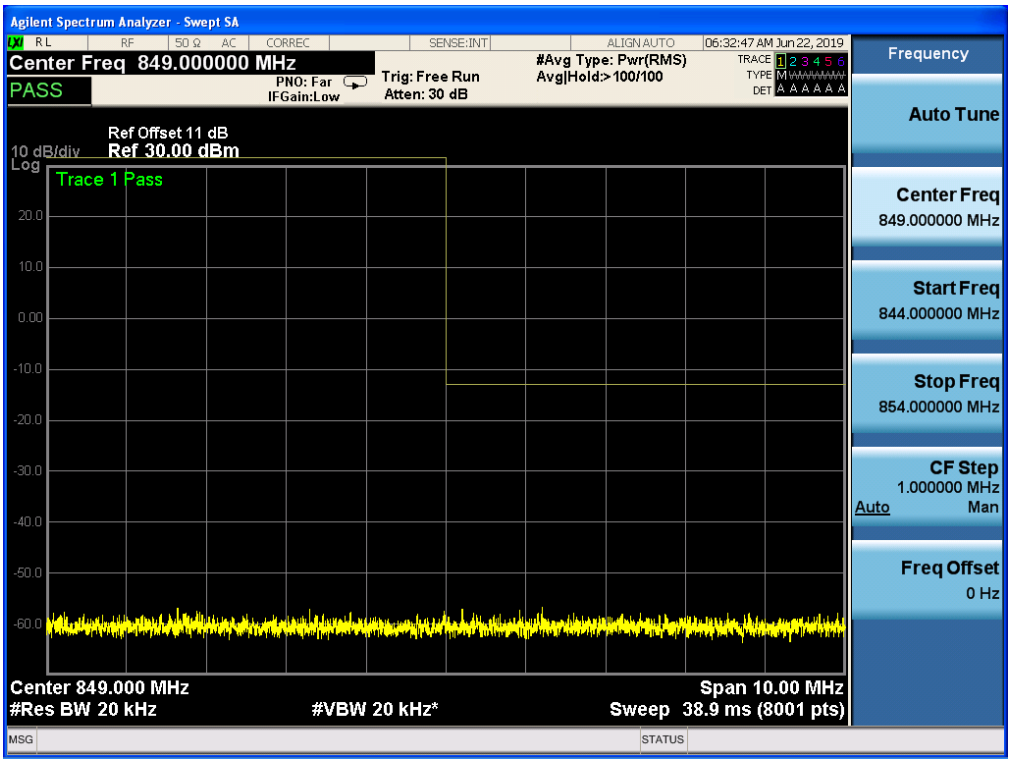
RESULTS

6.1 LTE BAND 5

Band 5,UL Channel 20407,UL Frequency 824.7,BW 1.4,NO. RB 1,RB POS. Low,QPSK

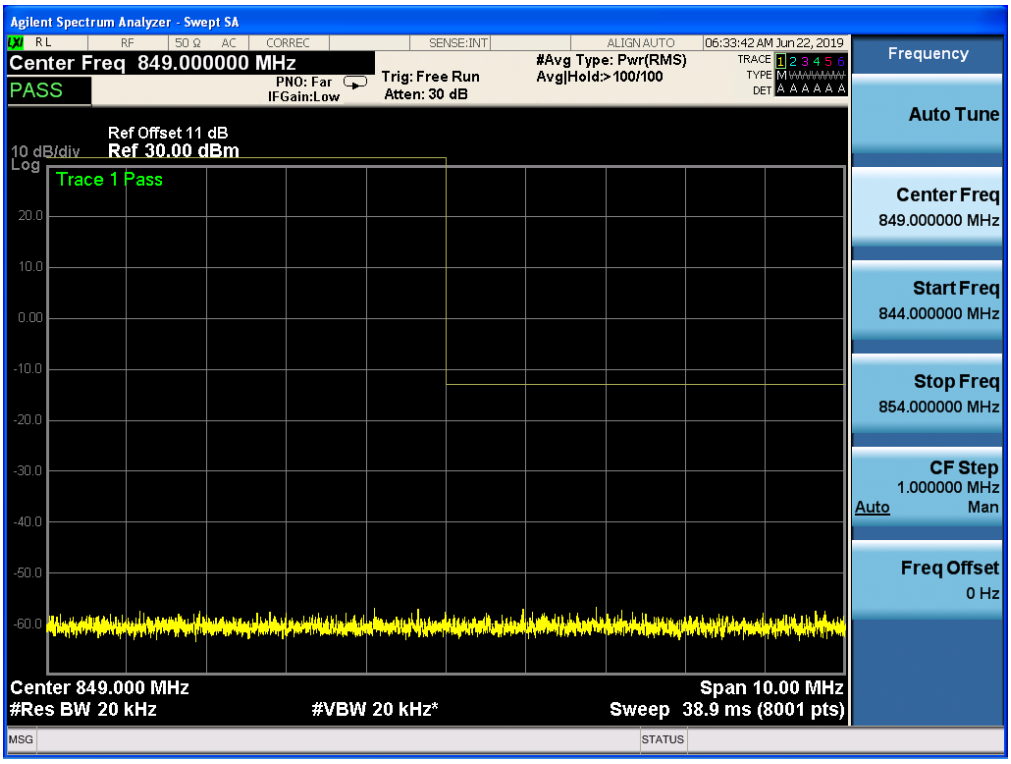


Band 5,UL Channel 20407,UL Frequency 824.7,BW 1.4,NO. RB 1,RB POS. Low,QPSK

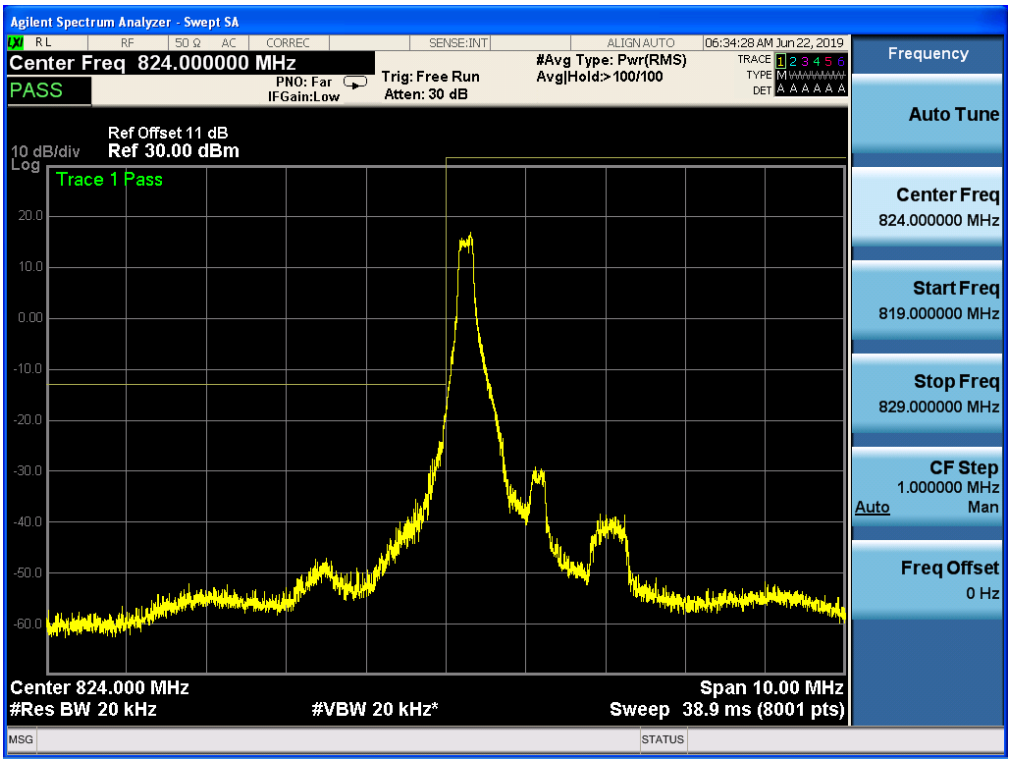


Band 5,UL Channel 20407,UL Frequency 824.7,BW 1.4,NO. RB 3,RB POS. Low,QPSK

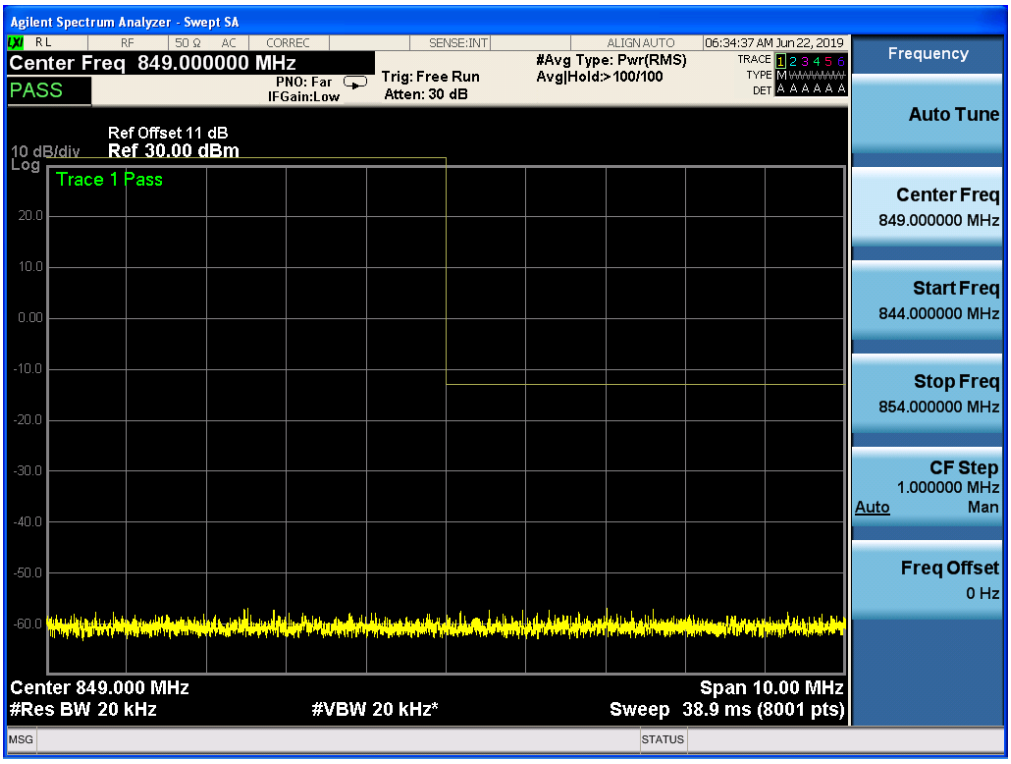
Band 5,UL Channel 20407,UL Frequency 824.7,BW 1.4,NO. RB 3,RB POS. Low,QPSK



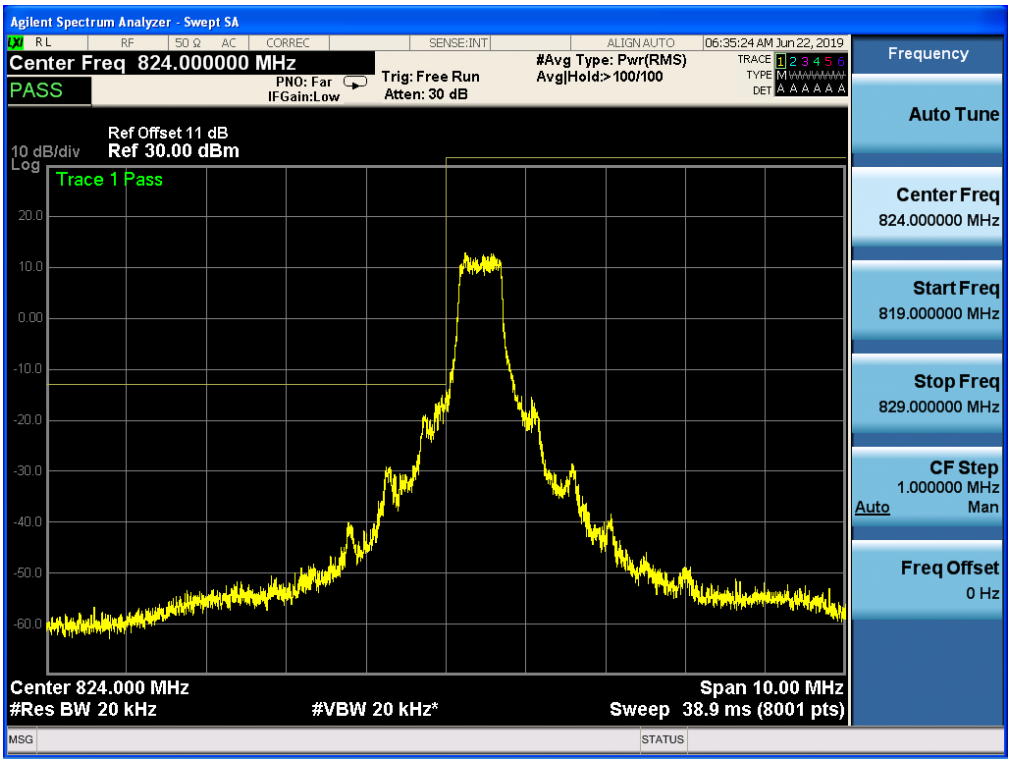
Band 5,UL Channel 20407,UL Frequency 824.7,BW 1.4,NO. RB 1,RB POS. Low,16-QAM



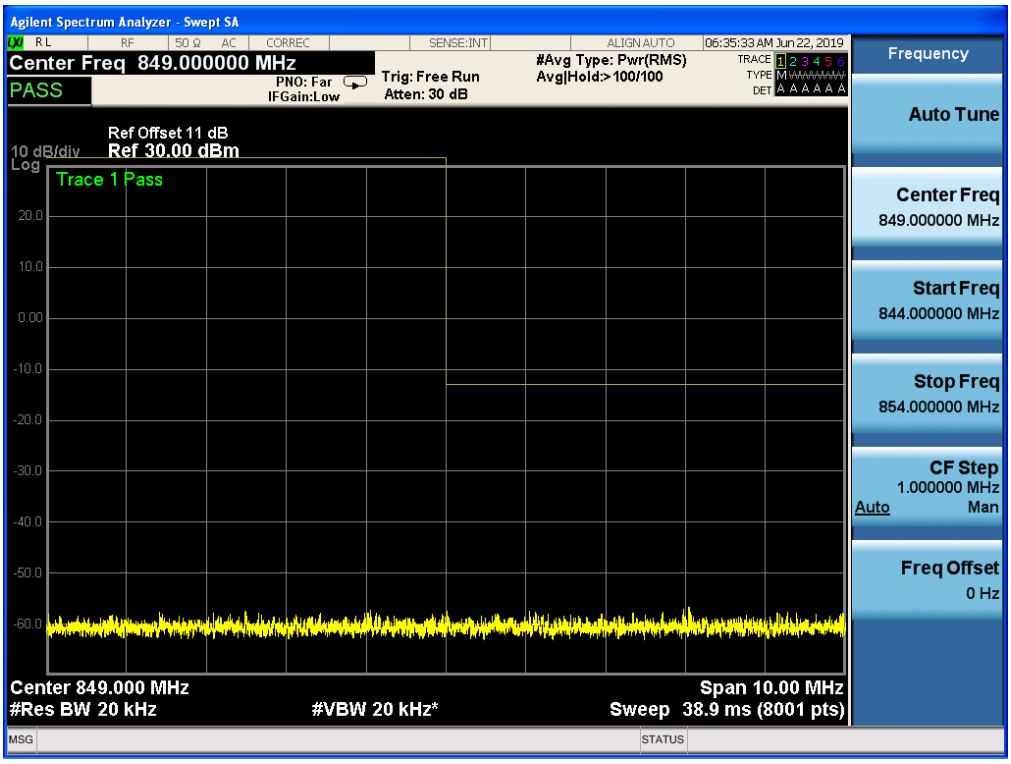
Band 5,UL Channel 20407,UL Frequency 824.7,BW 1.4,NO. RB 1,RB POS. Low,16-QAM



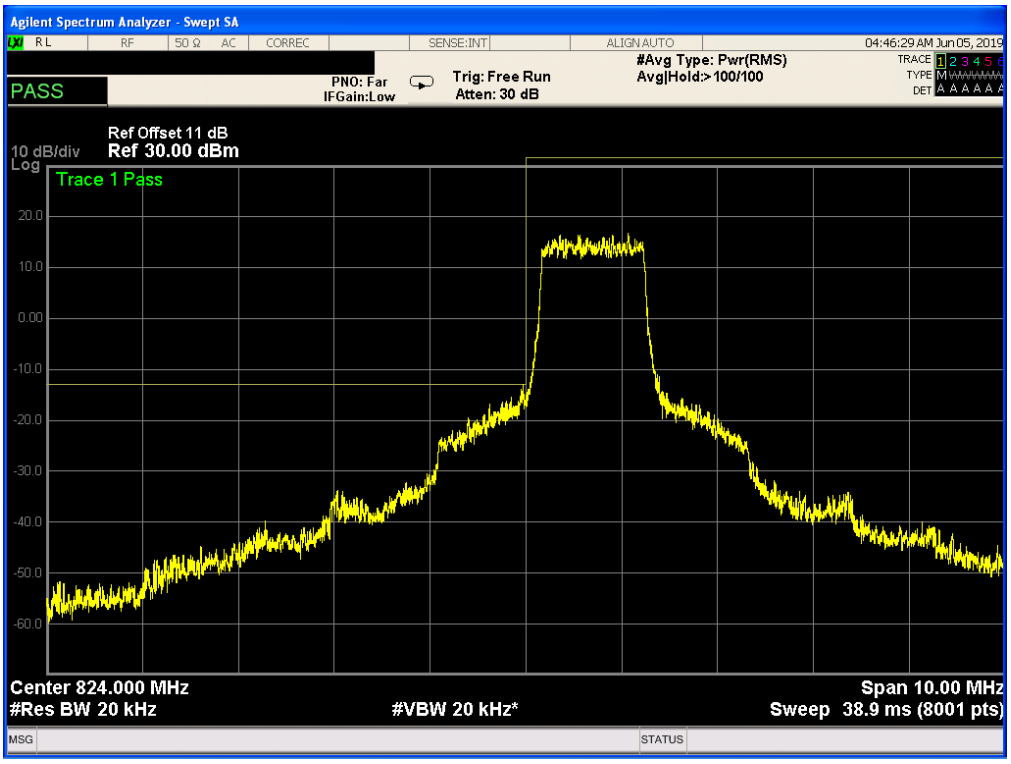
Band 5,UL Channel 20407,UL Frequency 824.7,BW 1.4,NO. RB 3,RB POS. Low,16-QAM



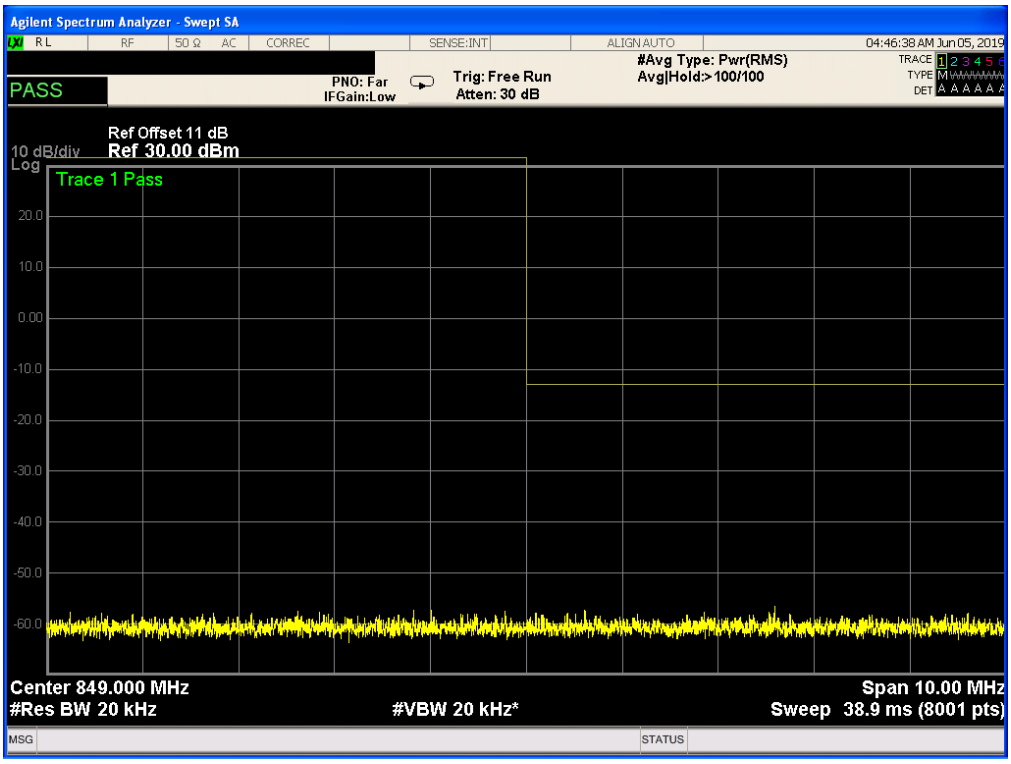
Band 5,UL Channel 20407,UL Frequency 824.7,BW 1.4,NO. RB 3,RB POS. Low,16-QAM



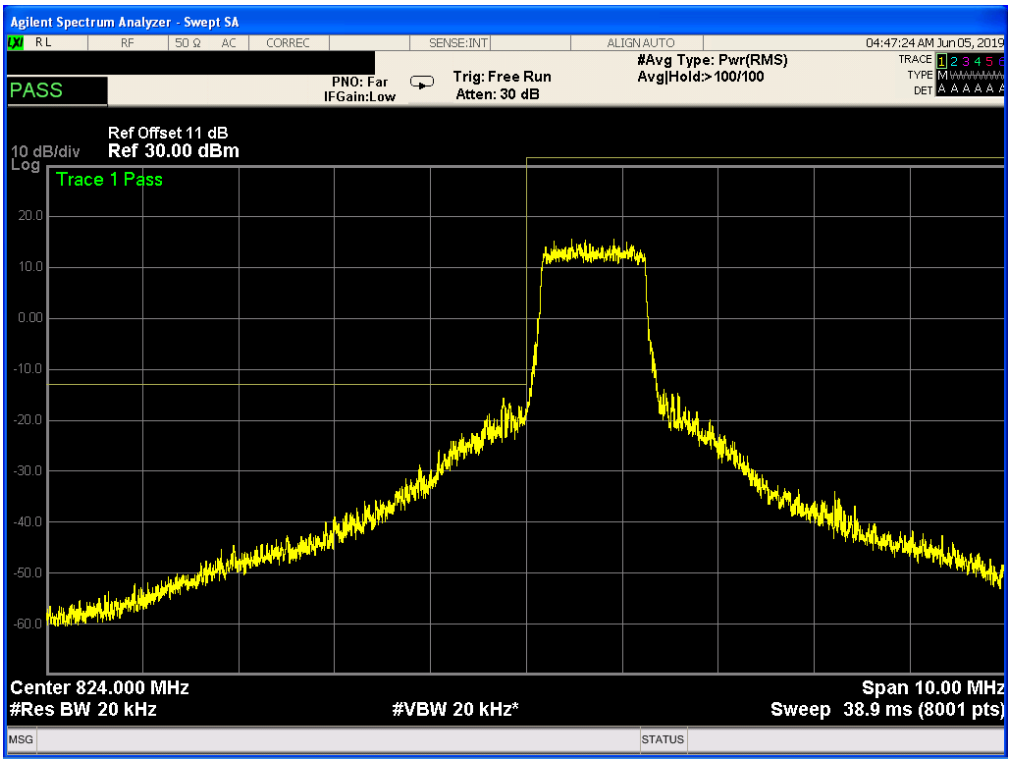
Band 5,UL Channel 20407,UL Frequency 824.7,BW 1.4,NO. RB 6,RB POS. Low,QPSK



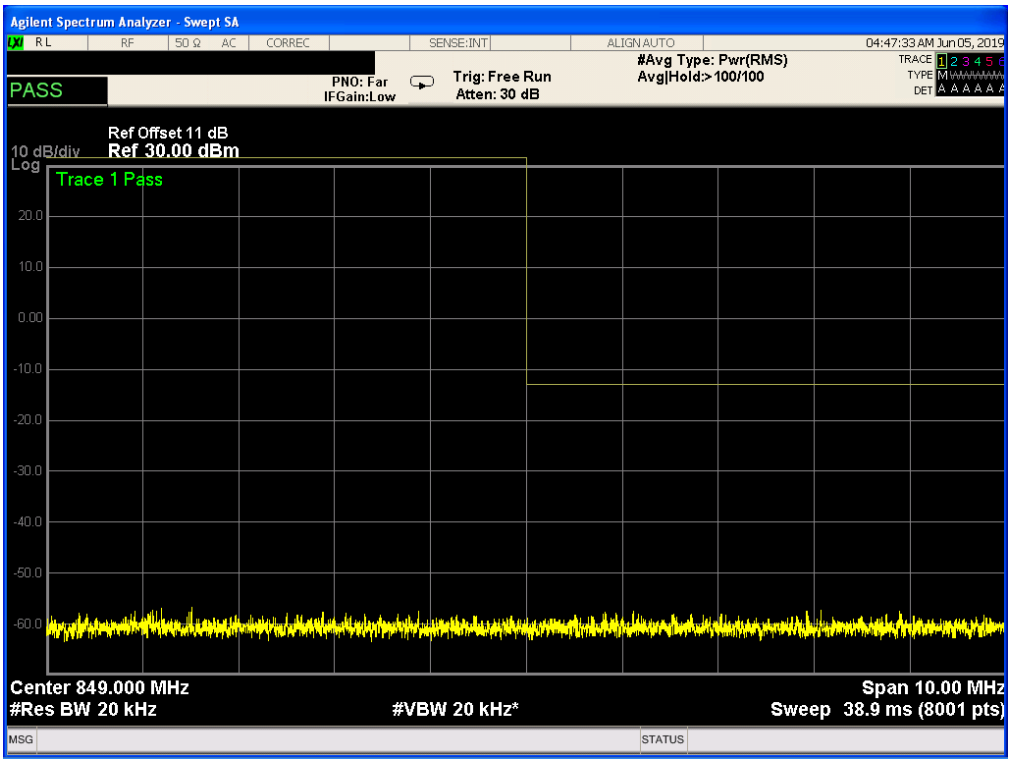
Band 5,UL Channel 20407,UL Frequency 824.7,BW 1.4,NO. RB 6,RB POS. Low,QPSK



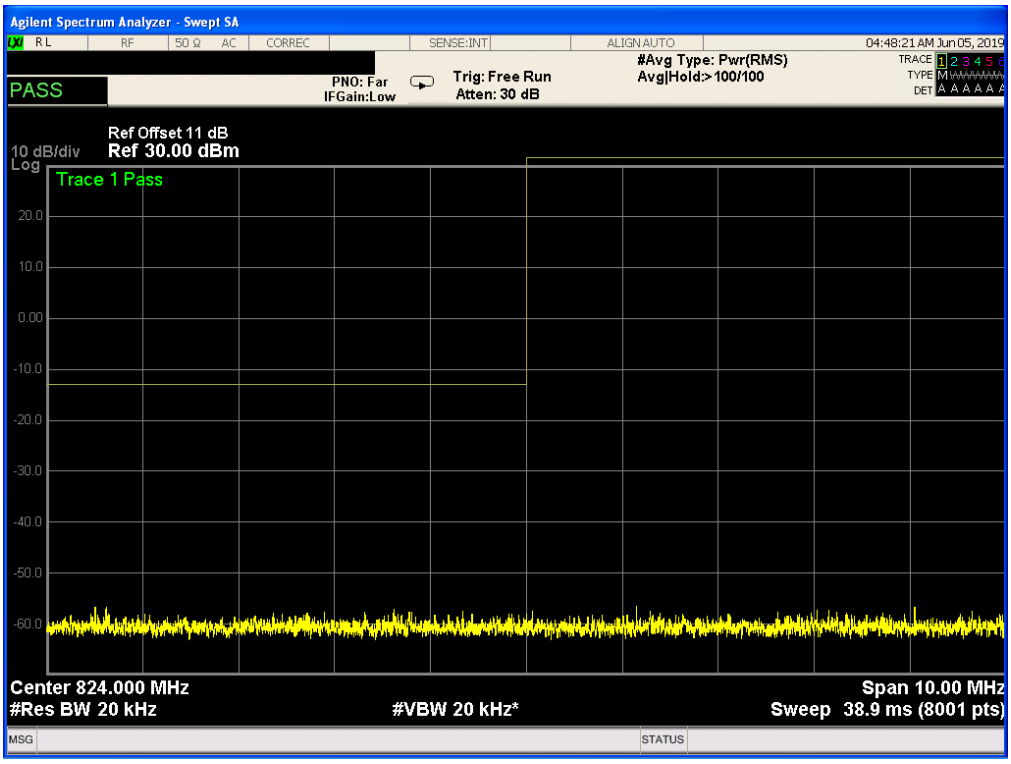
Band 5,UL Channel 20407,UL Frequency 824.7,BW 1.4,NO. RB 6,RB POS. Low,16-QAM



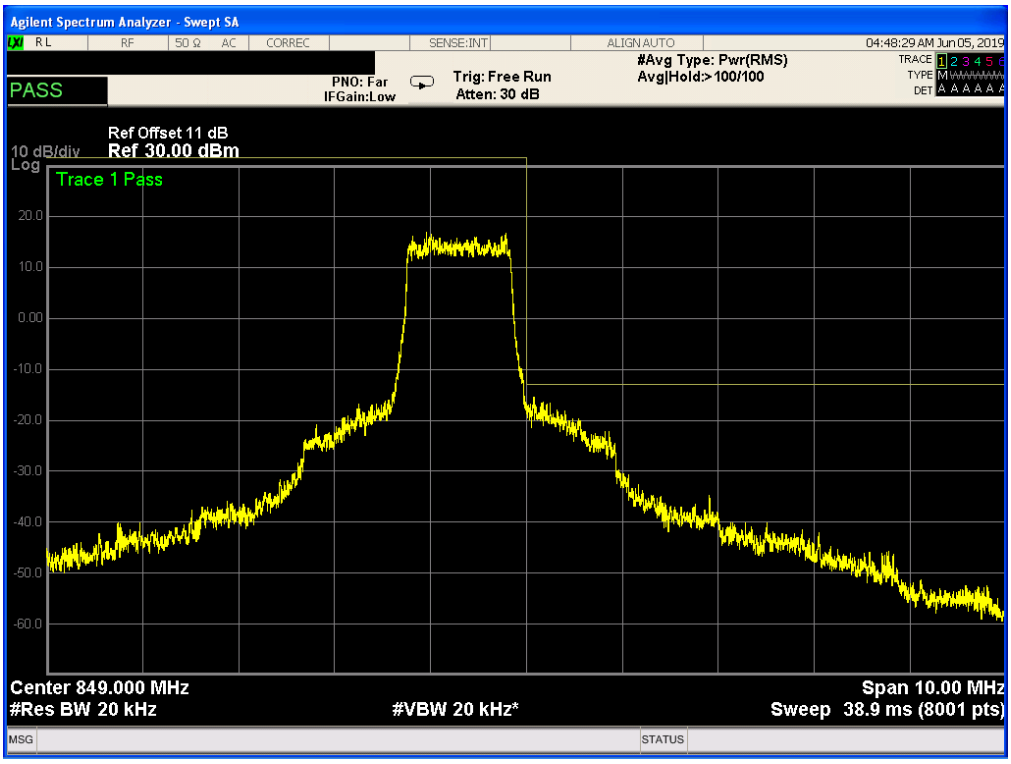
Band 5,UL Channel 20407,UL Frequency 824.7,BW 1.4,NO. RB 6,RB POS. Low,16-QAM



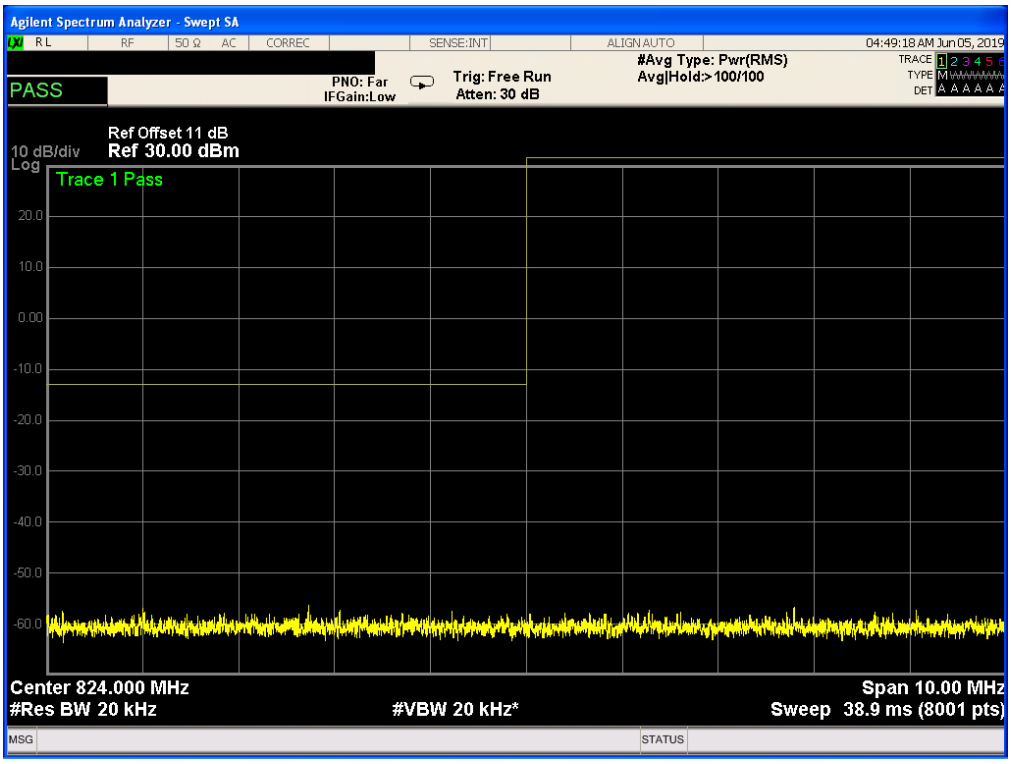
Band 5,UL Channel 20643,UL Frequency 848.3,BW 1.4,NO. RB 6,RB POS. Low,QPSK



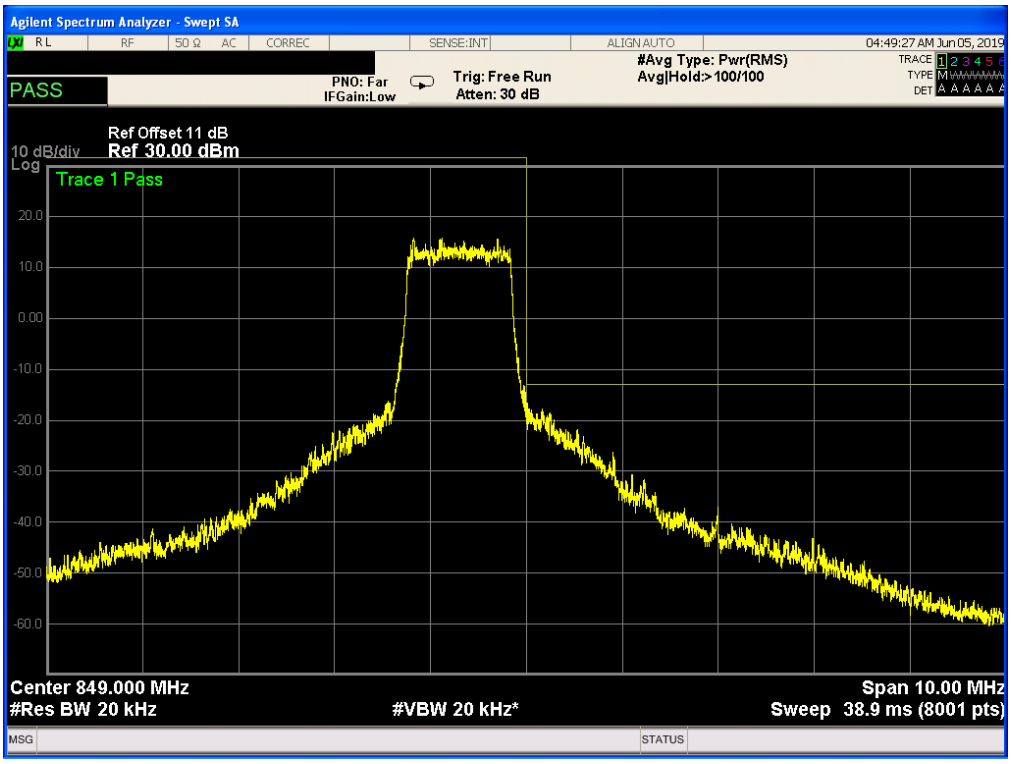
Band 5,UL Channel 20643,UL Frequency 848.3,BW 1.4,NO. RB 6,RB POS. Low,QPSK



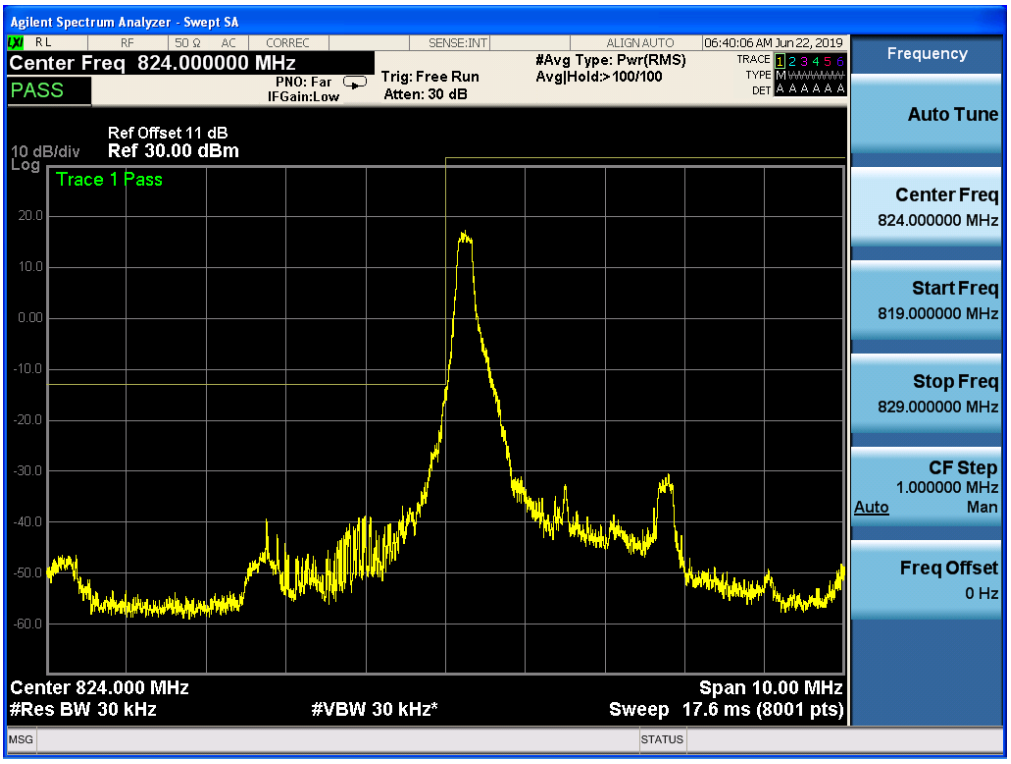
Band 5,UL Channel 20643,UL Frequency 848.3,BW 1.4,NO. RB 6,RB POS. Low,16-QAM



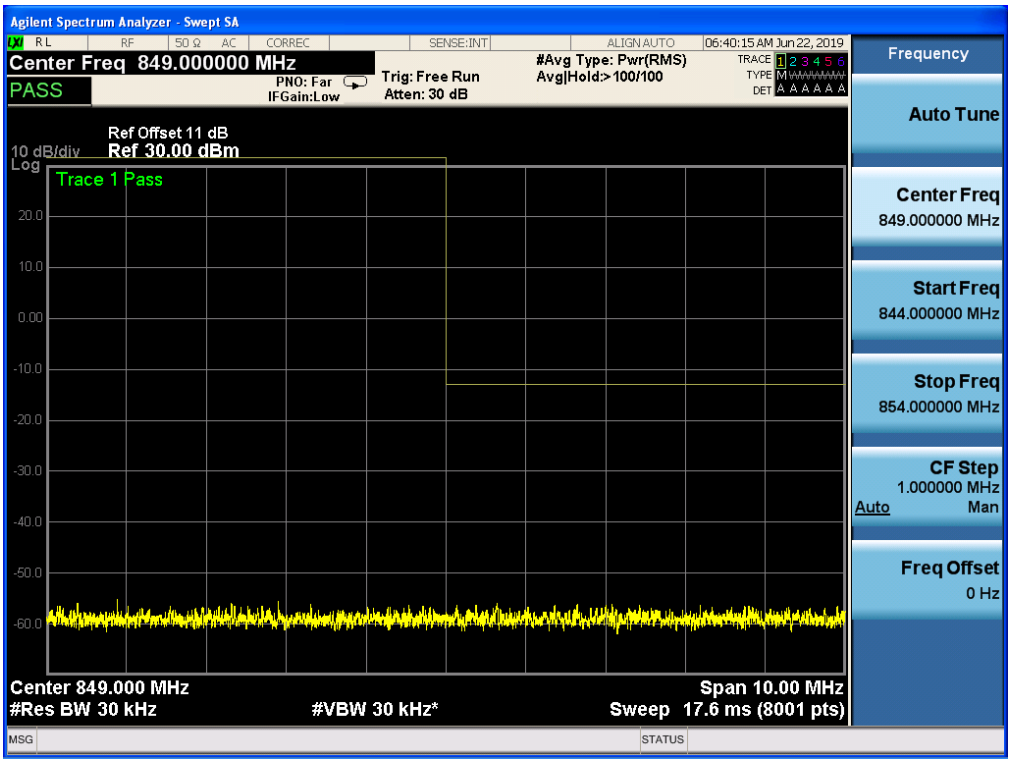
Band 5,UL Channel 20643,UL Frequency 848.3,BW 1.4,NO. RB 6,RB POS. Low,16-QAM



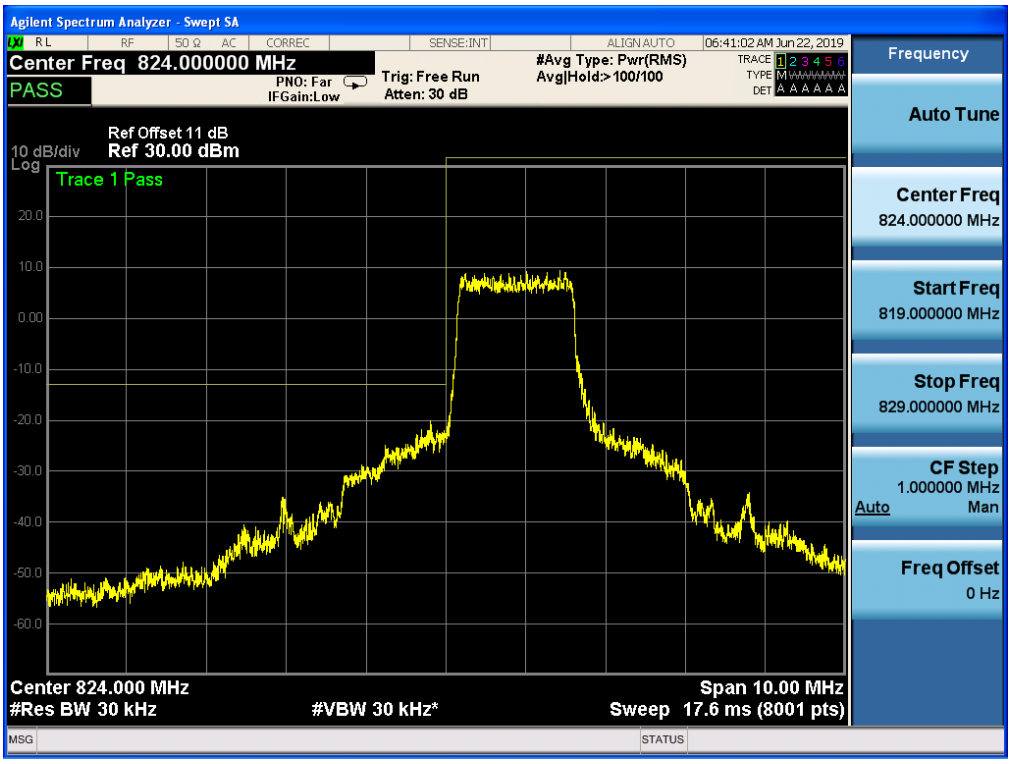
Band 5,UL Channel 20415,UL Frequency 825.5,BW 3.0,NO. RB 1,RB POS. Low,QPSK



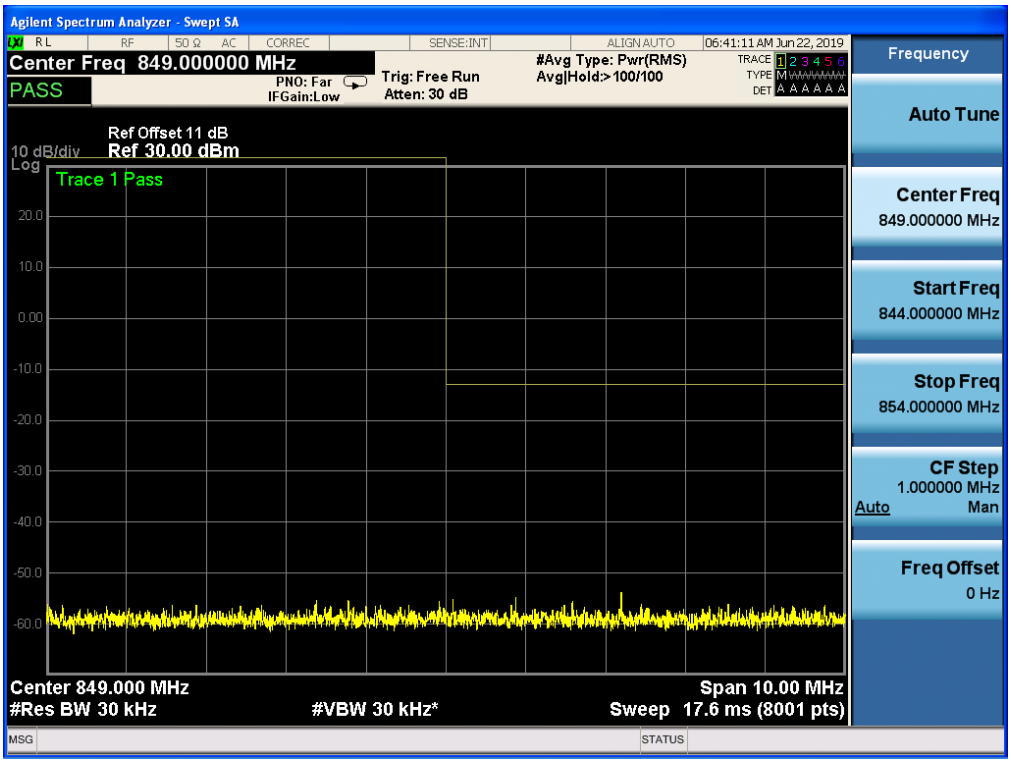
Band 5,UL Channel 20415,UL Frequency 825.5,BW 3.0,NO. RB 1,RB POS. Low,QPSK



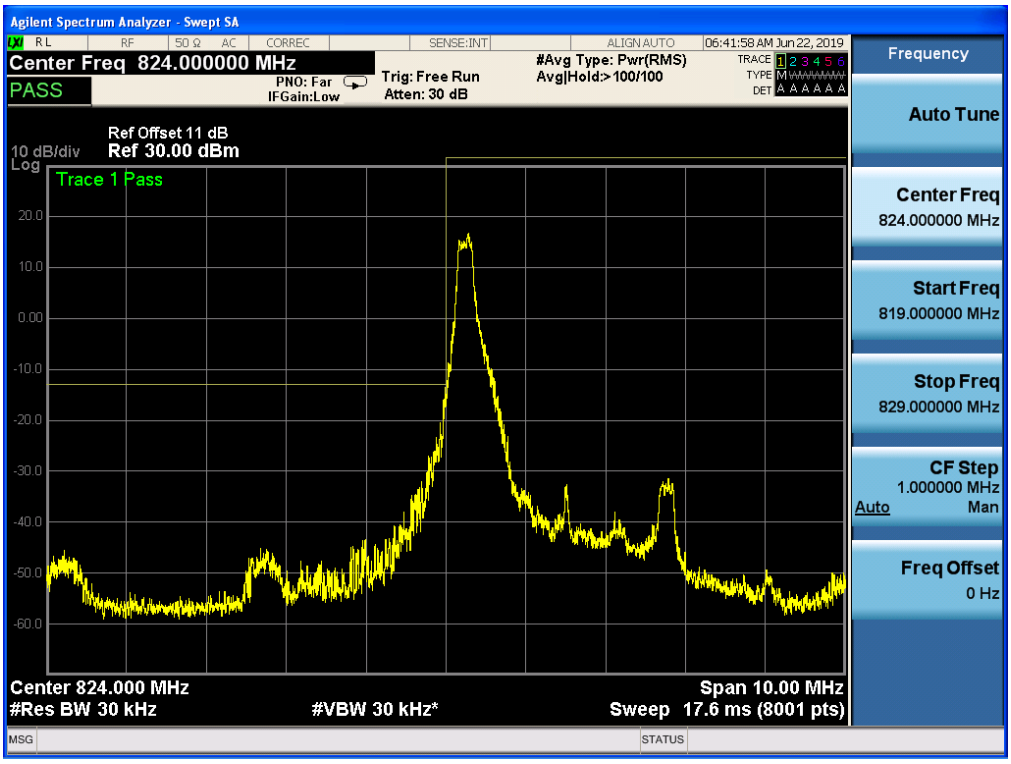
Band 5,UL Channel 20415,UL Frequency 825.5,BW 3.0,NO. RB 8,RB POS. Low,QPSK



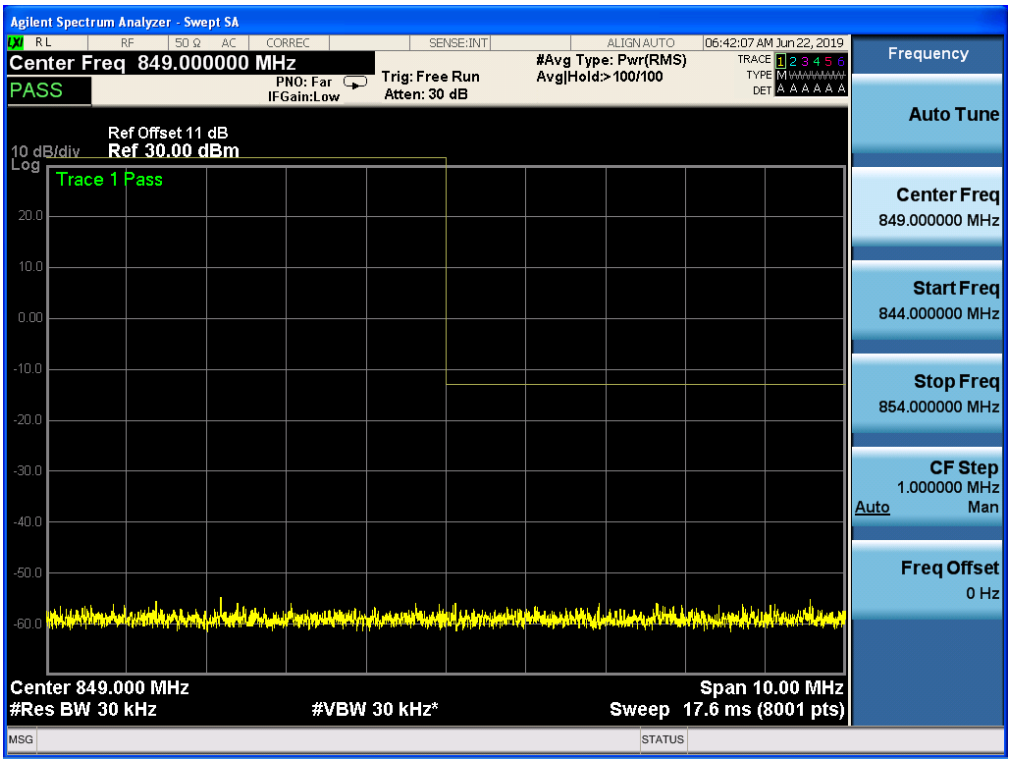
Band 5,UL Channel 20415,UL Frequency 825.5,BW 3.0,NO. RB 8,RB POS. Low,QPSK



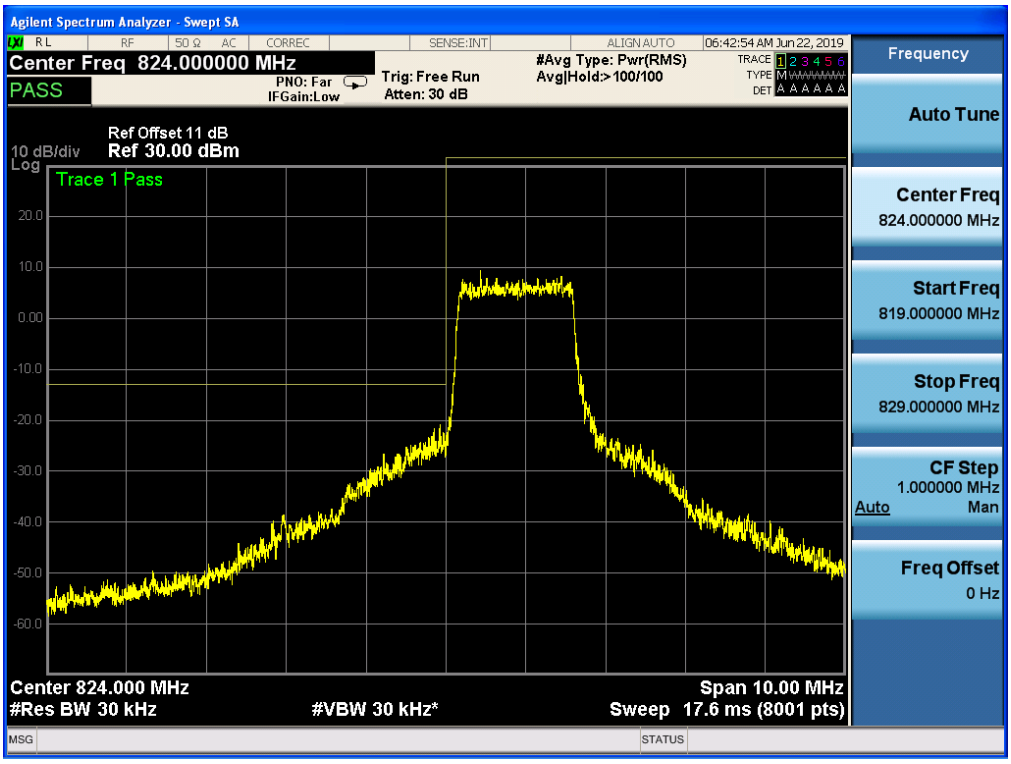
Band 5,UL Channel 20415,UL Frequency 825.5,BW 3.0,NO. RB 1,RB POS. Low,16-QAM



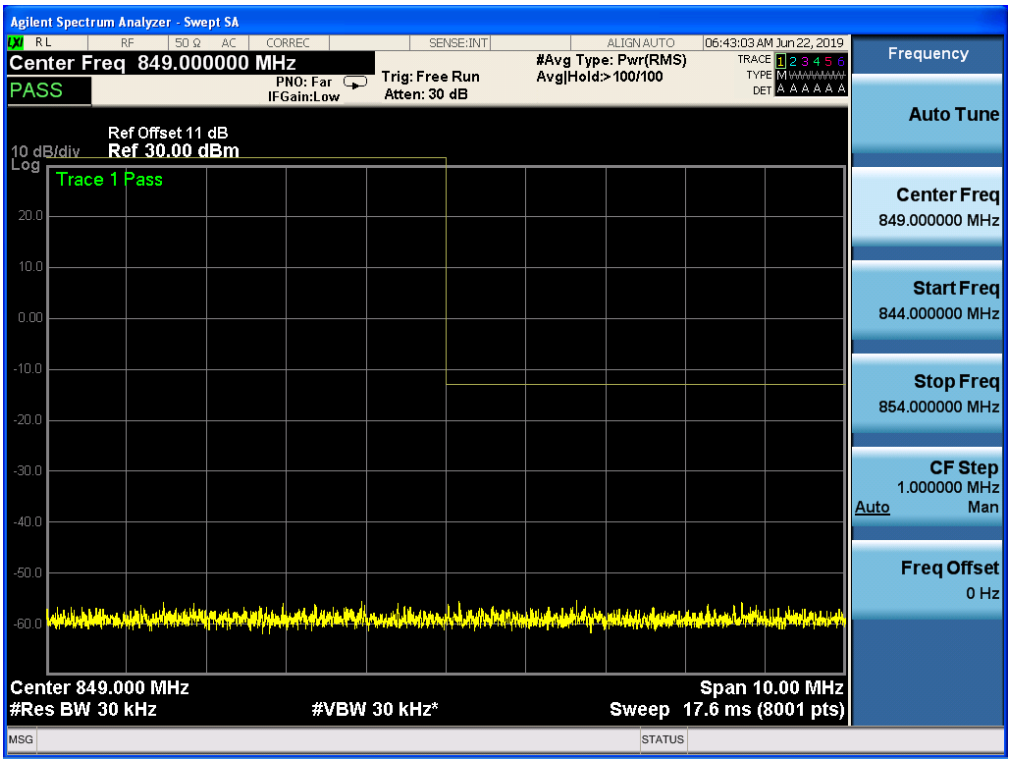
Band 5,UL Channel 20415,UL Frequency 825.5,BW 3.0,NO. RB 1,RB POS. Low,16-QAM



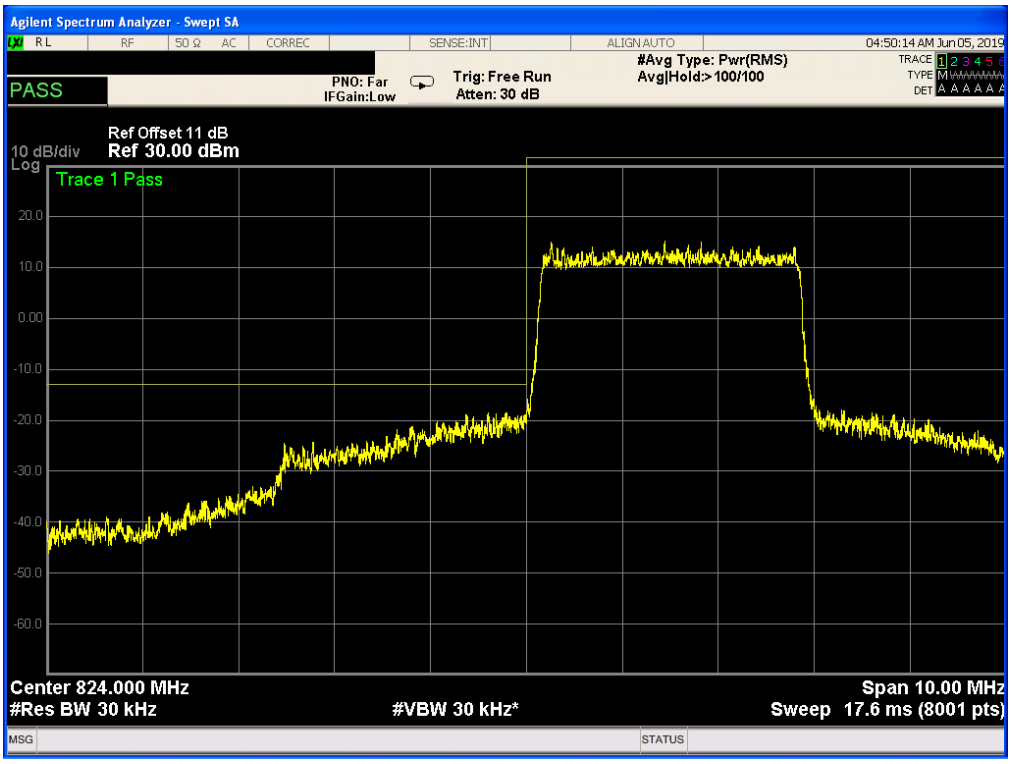
Band 5,UL Channel 20415,UL Frequency 825.5,BW 3.0,NO. RB 8,RB POS. Low,16-QAM



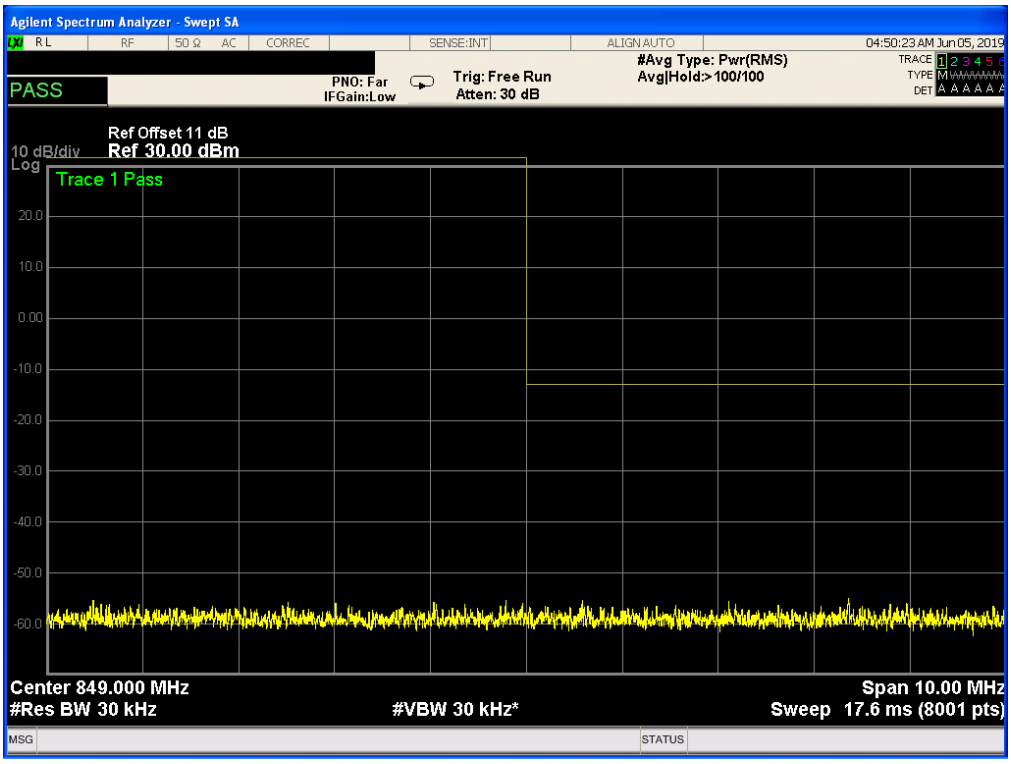
Band 5,UL Channel 20415,UL Frequency 825.5,BW 3.0,NO. RB 8,RB POS. Low,16-QAM



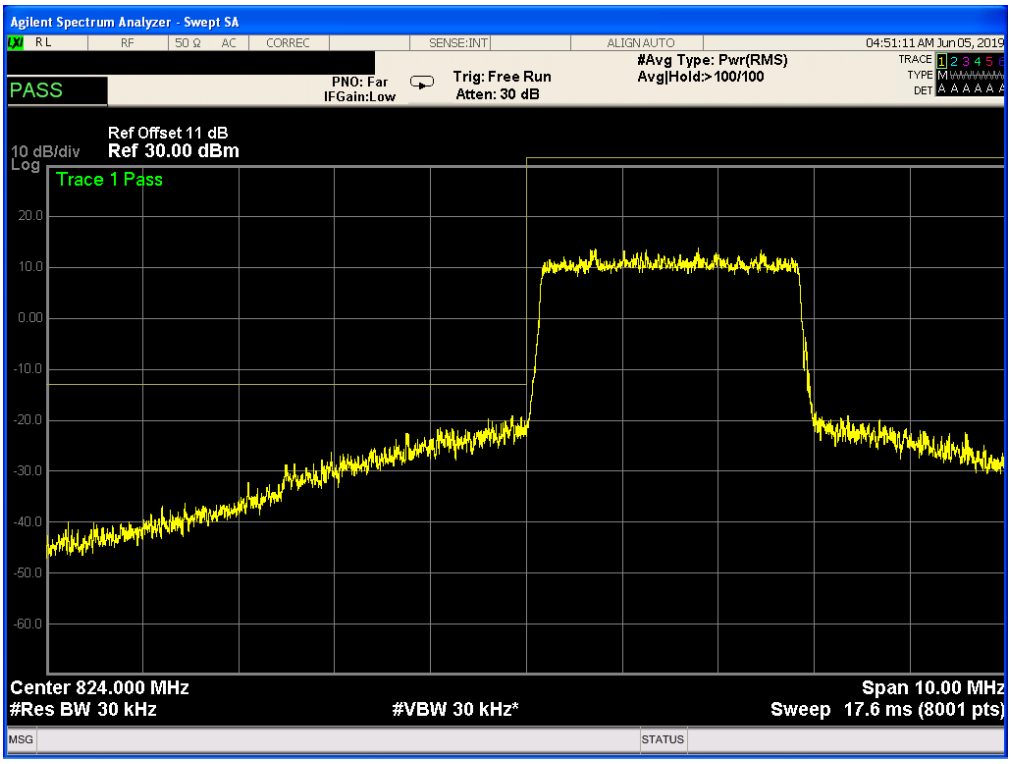
Band 5,UL Channel 20415,UL Frequency 825.5,BW 3.0,NO. RB 15,RB POS. Low,QPSK



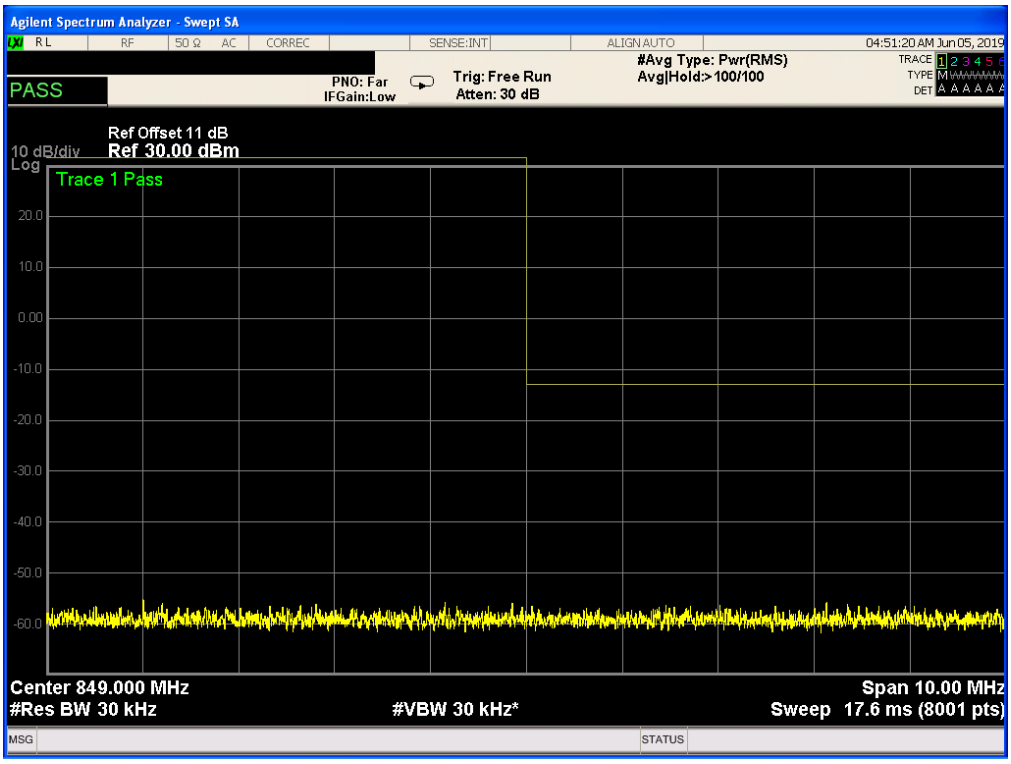
Band 5,UL Channel 20415,UL Frequency 825.5,BW 3.0,NO. RB 15,RB POS. Low,QPSK



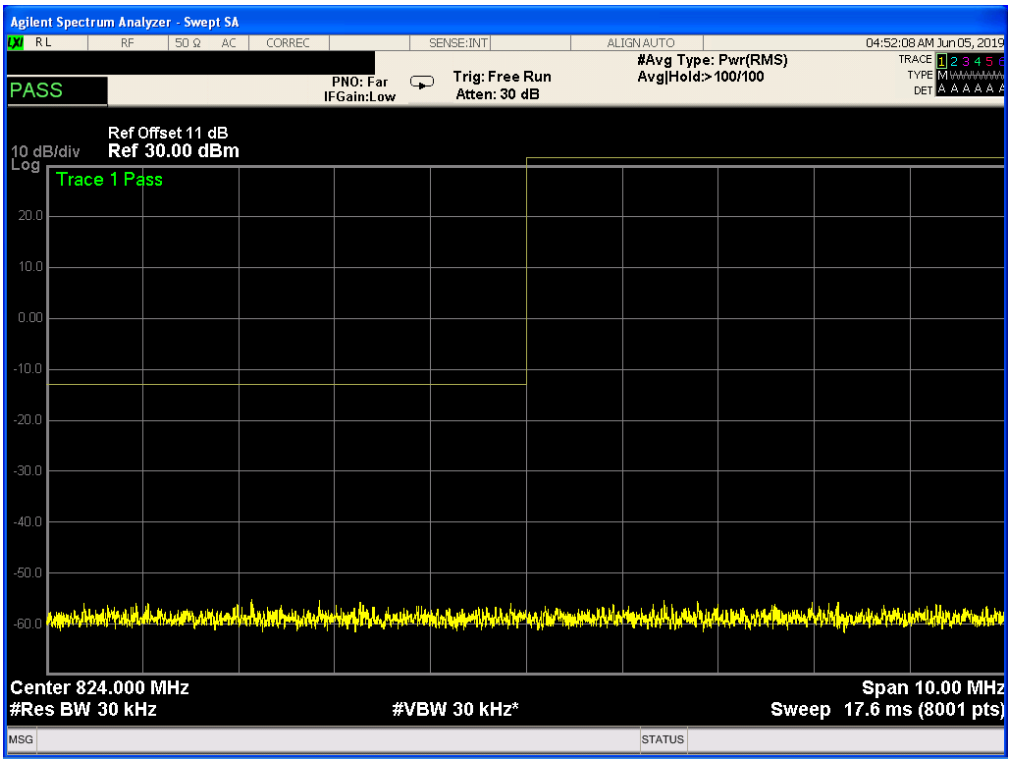
Band 5,UL Channel 20415,UL Frequency 825.5,BW 3.0,NO. RB 15,RB POS. Low,16-QAM



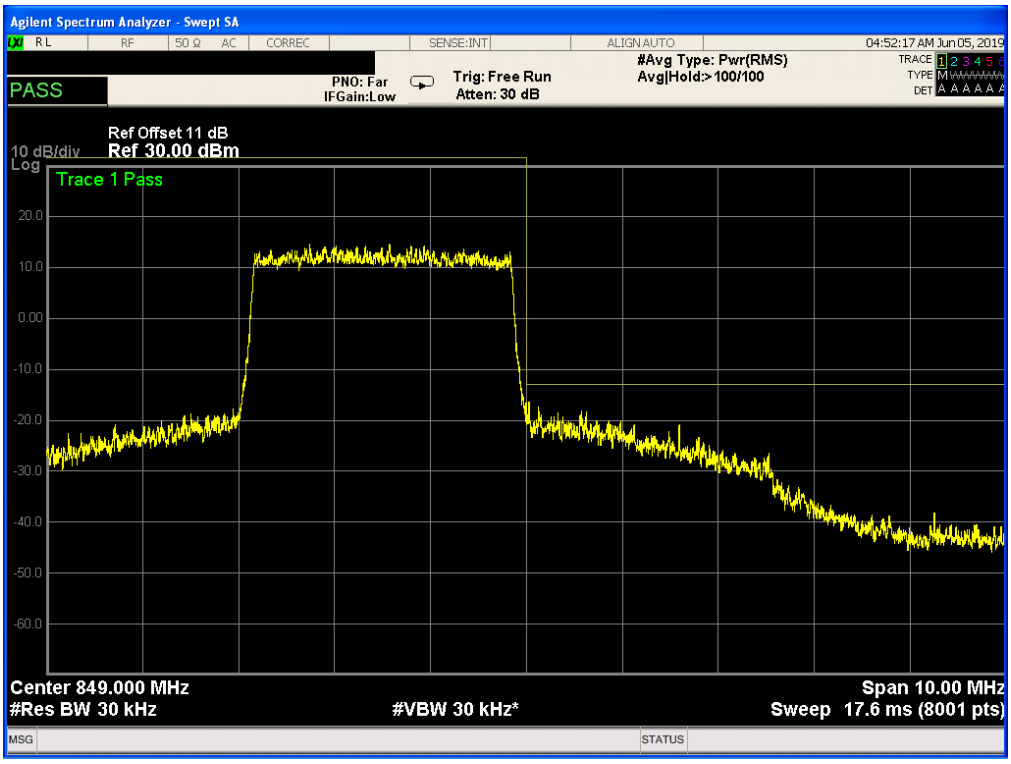
Band 5,UL Channel 20415,UL Frequency 825.5,BW 3.0,NO. RB 15,RB POS. Low,16-QAM



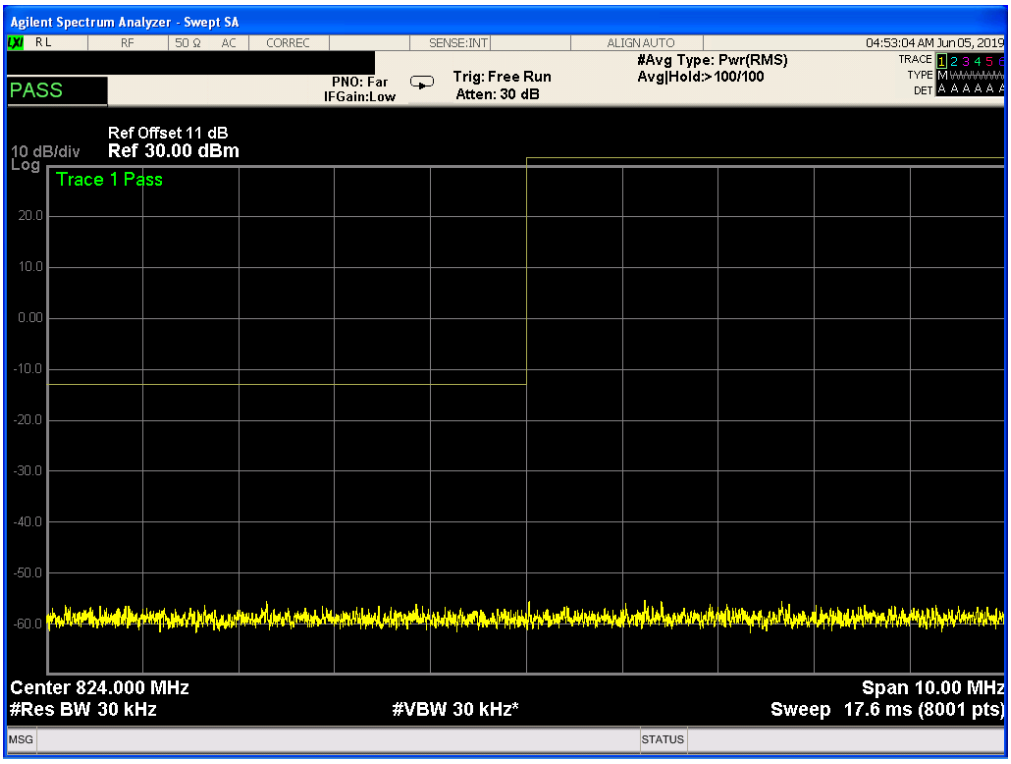
Band 5,UL Channel 20635,UL Frequency 847.5,BW 3.0,NO. RB 15,RB POS. Low,QPSK



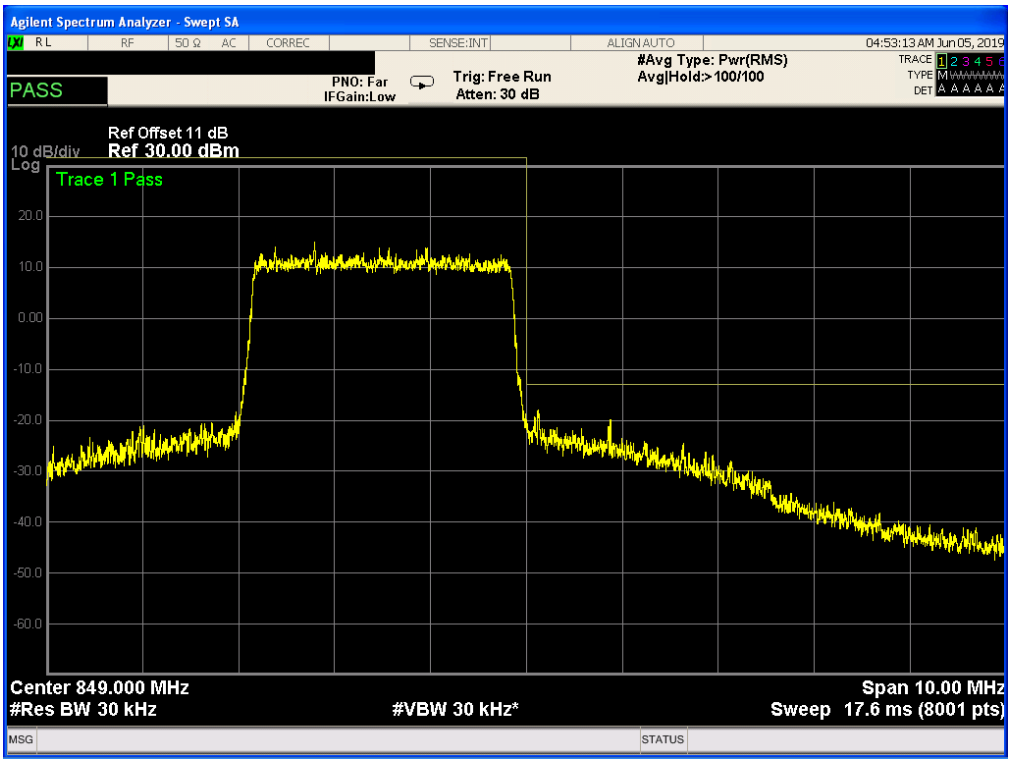
Band 5,UL Channel 20635,UL Frequency 847.5,BW 3.0,NO. RB 15,RB POS. Low,QPSK



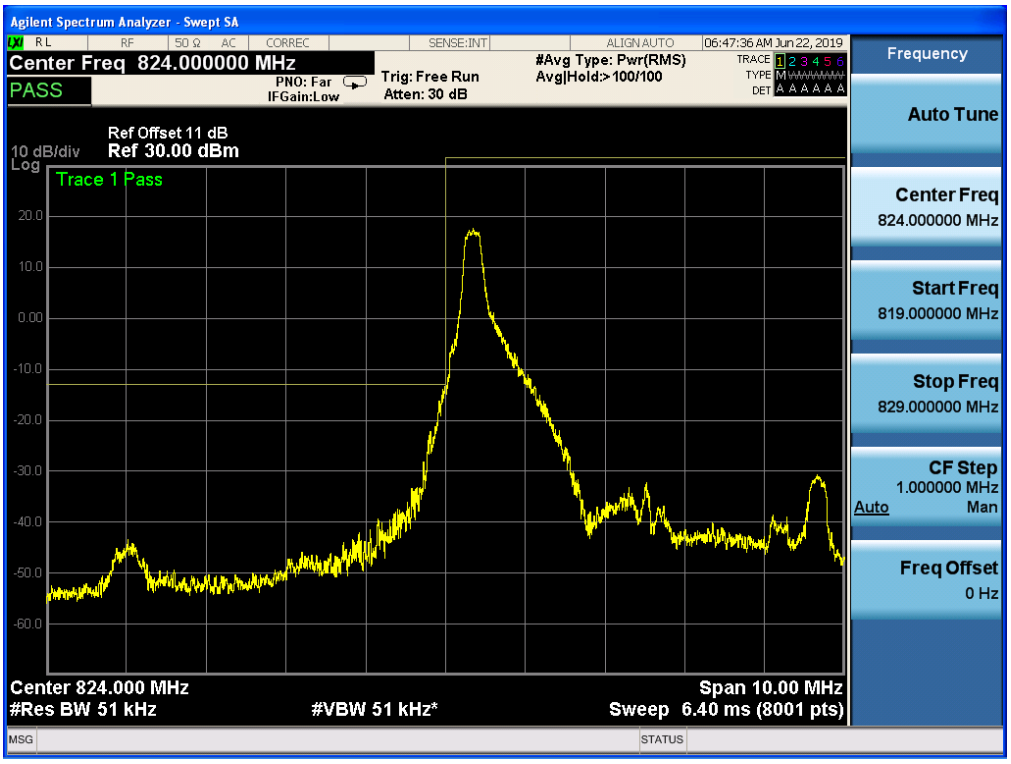
Band 5,UL Channel 20635,UL Frequency 847.5,BW 3.0,NO. RB 15,RB POS. Low,16-QAM



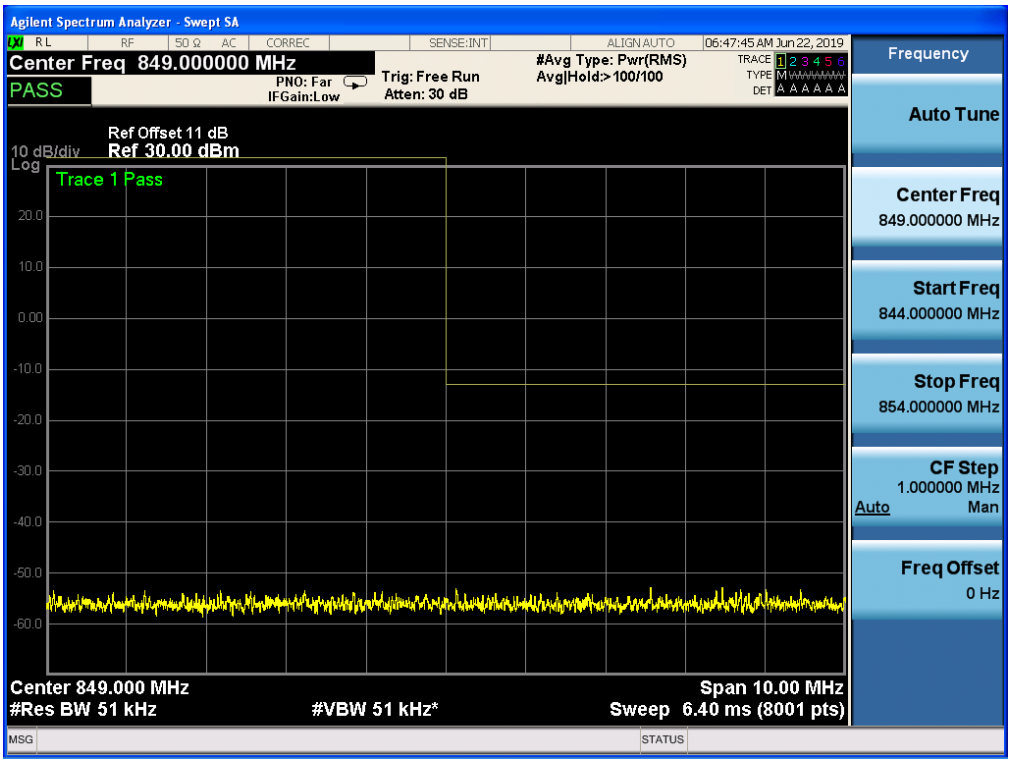
Band 5,UL Channel 20635,UL Frequency 847.5,BW 3.0,NO. RB 15,RB POS. Low,16-QAM



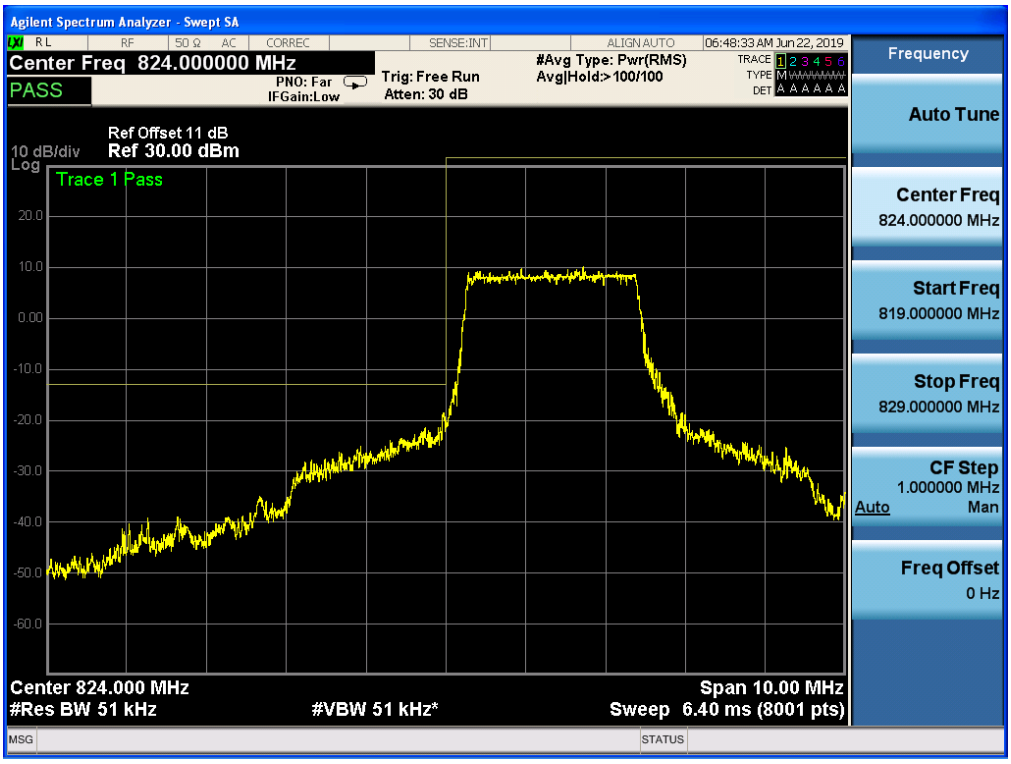
Band 5,UL Channel 20425,UL Frequency 826.5,BW 5.0,NO. RB 1,RB POS. Low,QPSK



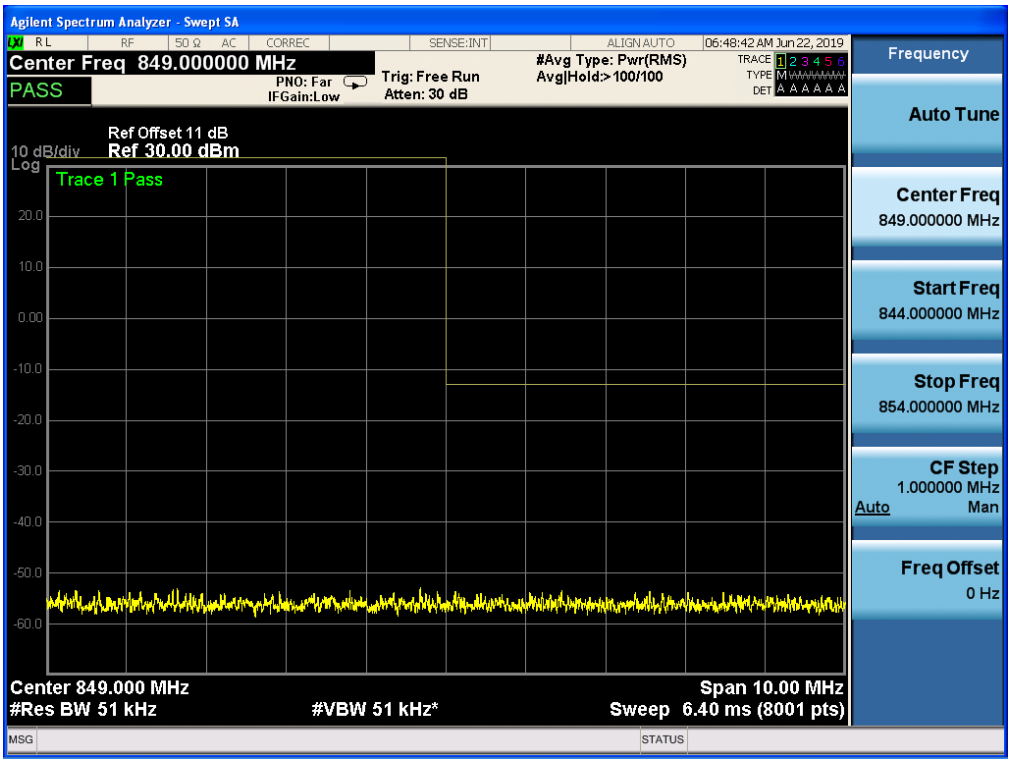
Band 5,UL Channel 20425,UL Frequency 826.5,BW 5.0,NO. RB 1,RB POS. Low,QPSK



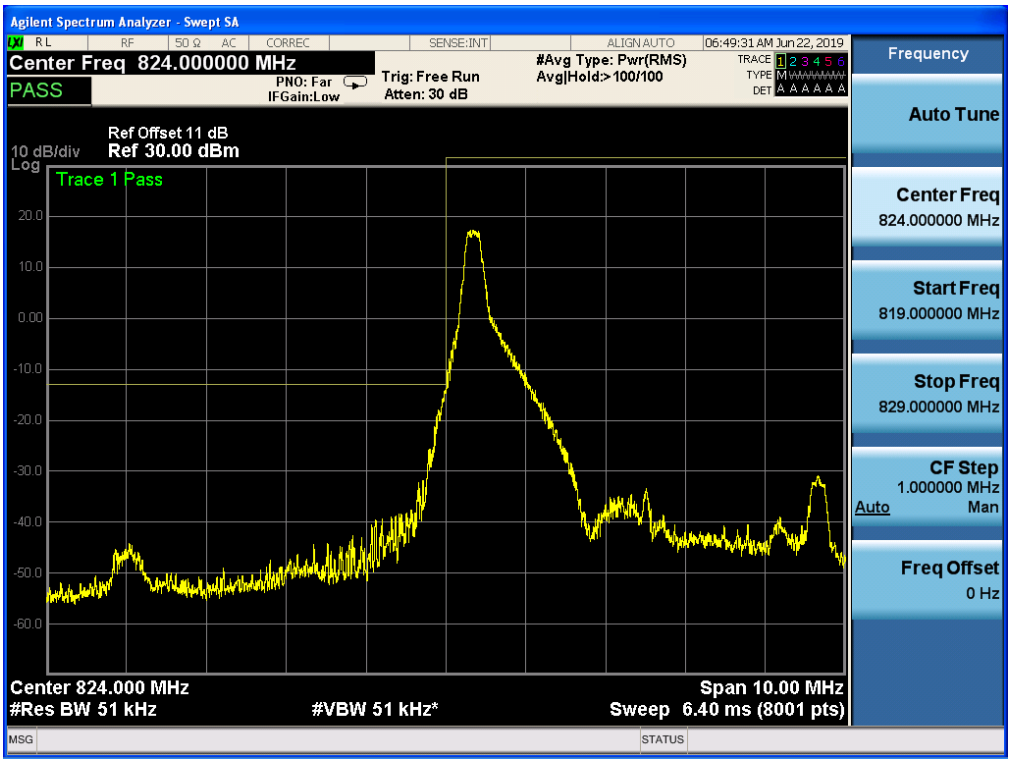
Band 5,UL Channel 20425,UL Frequency 826.5,BW 5.0,NO. RB 12,RB POS. Low,QPSK



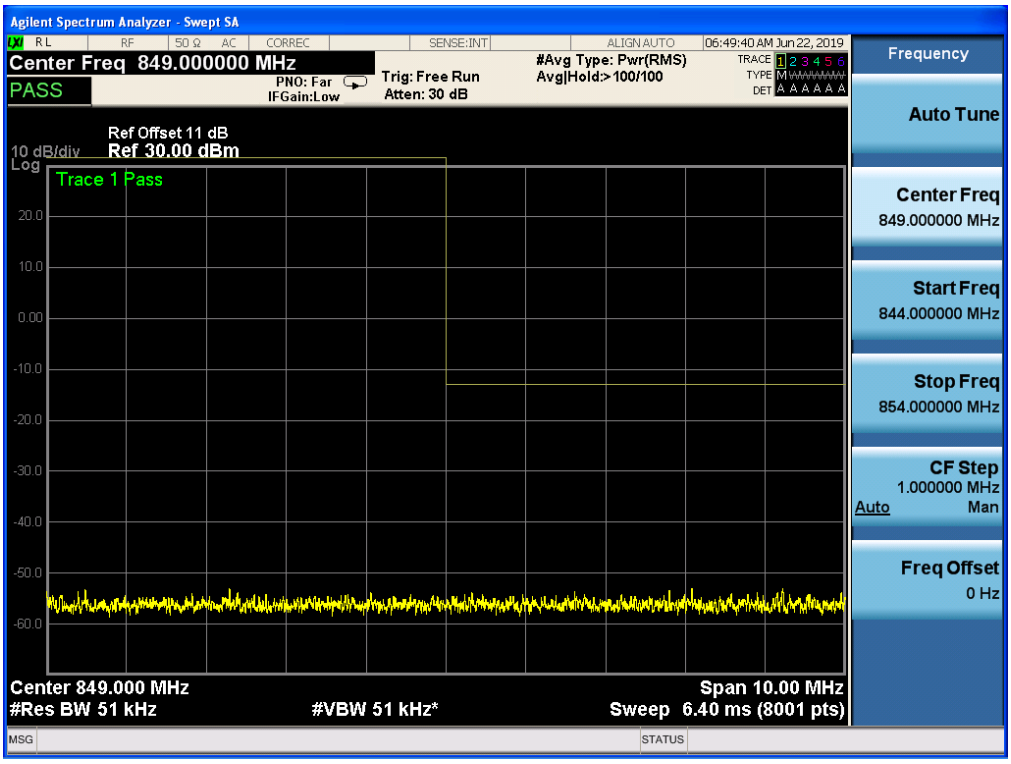
Band 5,UL Channel 20425,UL Frequency 826.5,BW 5.0,NO. RB 12,RB POS. Low,QPSK



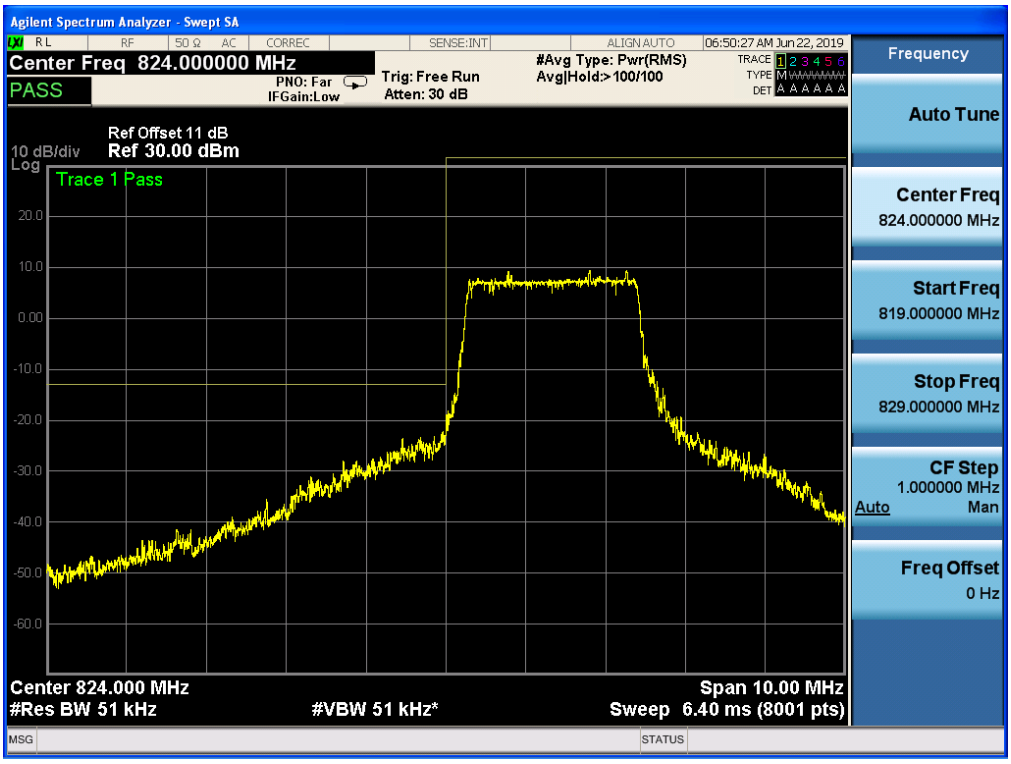
Band 5,UL Channel 20425,UL Frequency 826.5,BW 5.0,NO. RB 1,RB POS. Low,16-QAM



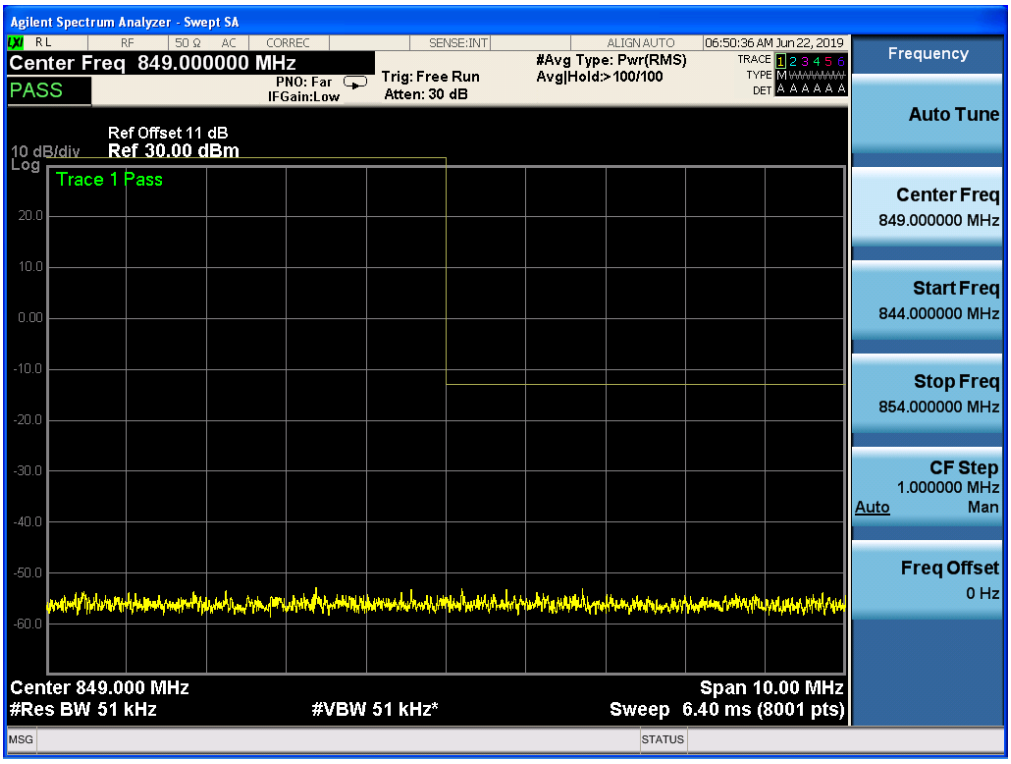
Band 5,UL Channel 20425,UL Frequency 826.5,BW 5.0,NO. RB 1,RB POS. Low,16-QAM



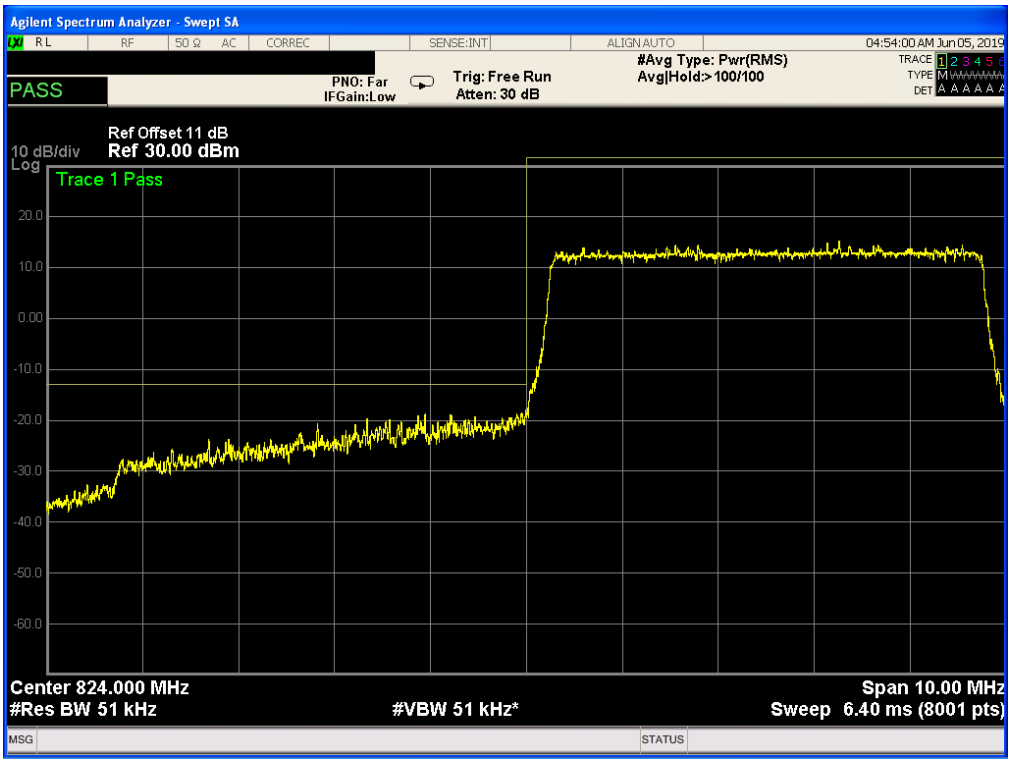
Band 5,UL Channel 20425,UL Frequency 826.5,BW 5.0,NO. RB 12,RB POS. Low,16-QAM



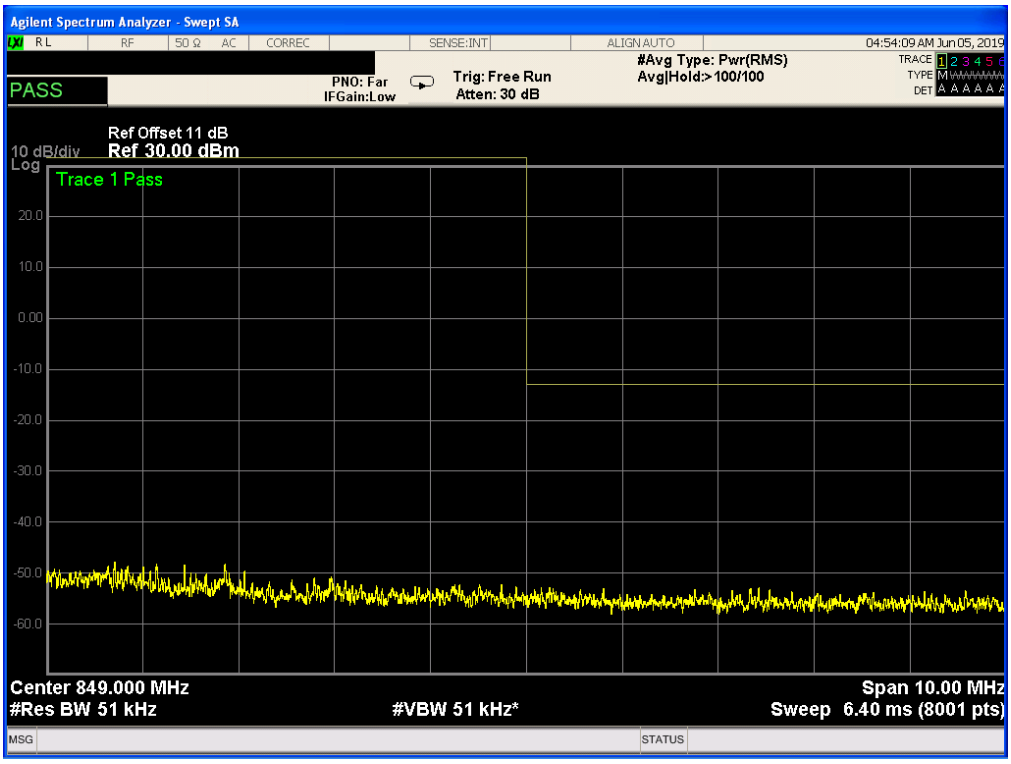
Band 5,UL Channel 20425,UL Frequency 826.5,BW 5.0,NO. RB 12,RB POS. Low,16-QAM



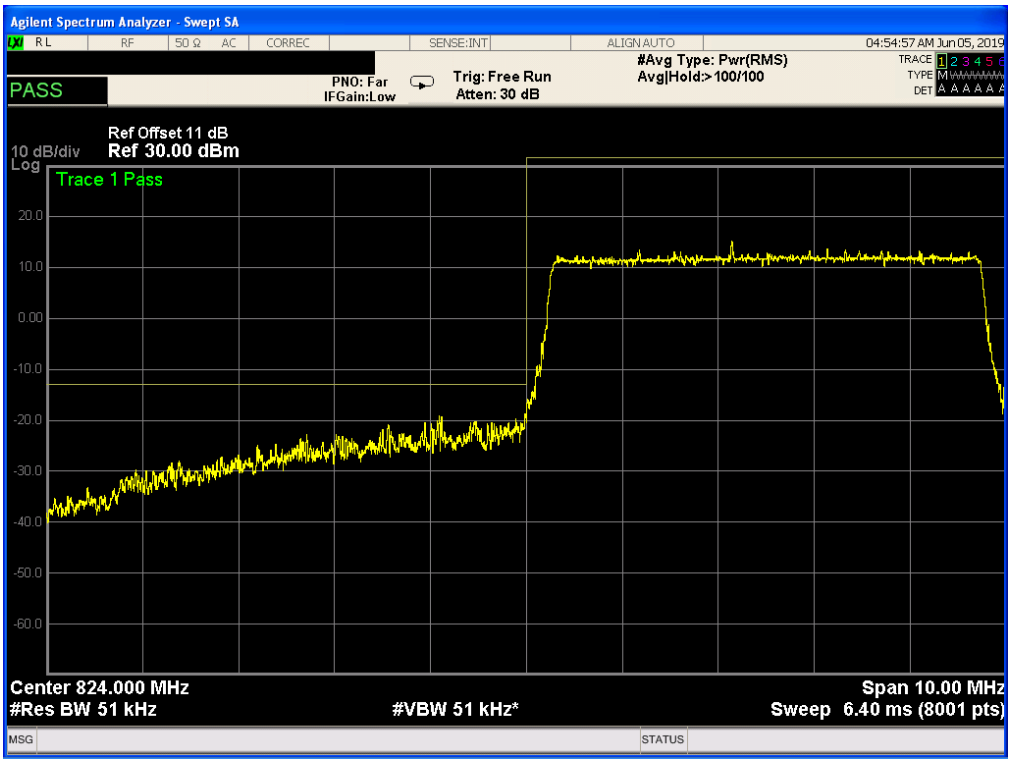
Band 5,UL Channel 20425,UL Frequency 826.5,BW 5.0,NO. RB 25,RB POS. Low,QPSK



Band 5,UL Channel 20425,UL Frequency 826.5,BW 5.0,NO. RB 25,RB POS. Low,QPSK



Band 5,UL Channel 20425,UL Frequency 826.5,BW 5.0,NO. RB 25,RB POS. Low,16-QAM



Band 5,UL Channel 20425,UL Frequency 826.5,BW 5.0,NO. RB 25,RB POS. Low,16-QAM