

FCC CFR47 PART 22H, 24E, 27 CERTIFICATION TEST REPORT

**FCC ID:
2AQ9Z-K9VIRAATPLUS**

Product: mobile phone
Trade Mark: Karbonn
Model Number: K9 Viraat Plus
Serial Model: N/A
Report No.: SER180825304004E

Prepared for

JAINA MARKETING AND ASSOCIATES
D-170, OKHLA INDUSTRIAL AREA PHASE-1,
NEW DELHI 110020 INDIA

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name : JAINA MARKETING AND ASSOCIATES
Address: D-170, OKHLA INDUSTRIAL AREA PHASE-1, NEW DELHI 110020 INDIA
Manufacturer's Name: Vsun Mobile Pvt. Ltd.
Address: PLOT NO. 2, N. H. NO. 8, ICD BAWAL, SECTOR - 8, BAWAL, DISTRICT - Rewari, Haryana, India
Product name: mobile phone
Model and/or type reference : K9 Viraat Plus
Serial Model: N/A
Standards: FCC CFR 47 Part 22H, Part 24E, 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: 25 Aug. 2018 ~ 23 Nov. 2018
Date of Issue : 24 Nov. 2018
Test Result: Pass

Testing Engineer : [Signature] (Allen Liu)
Technical Manager : [Signature] (Jason Chen)
Authorized Signatory : [Signature] (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 | Karbons |
| Model Name | K9 Viraat Plus |
| FCC ID: | 2AQ9Z-K9VIRAATPLUS |
| Frequency Bands: | U.S. Bands: <input checked="" type="checkbox"/> LTE FDD Band 5 LTE TDD Band 40 |
| Frequency Range: | LTE FDD Band 5 Uplink: 824MHz-849MHz, Downlink: 869MHz-894MHz; LTE TDD Band 40 Uplink: 2305MHz-2320MHz&2345-2360MHz Downlink: 2305MHz-2320MHz&2345-2360MHz (Number Of Channel see note 2) |
| Type of Modulation: | QPSK/16QAM |
| Antenna: | FPCB Antenna |
| Antenna gain: | 2.5 dBi |
| Power Supply: | DC 3.8V from Battery or DC 5V from USB Port. |
| Battery parameter: | DC 3.8V/2800mAh |
| Adapter: | Model: UT-0961I-UB80-Y Input: 100-240V~50/60Hz 0.2A Output: 5V---1000mA |
| Extreme Vol. Limits: | DC 3.6V to 4.4V (Nominal DC 3.8V) |
| Extreme Temp. Tolerance | -30°C to +50°C |
| HW Version | V5321_1_20 |
| SW Version | TBD |
| <p>** Note1: The High Voltage 4.4V and Low Voltage 3.6V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.</p> | |

Note2:

| Frequency Bands | Modes | Bandwidth (MHz) | Test Frequency(MHz) | | |
|---------------------------------|-------------------|-----------------|---------------------|--------|--------|
| | | | Low | Middle | High |
| LTE Band 40 2305- 2320MHz | Single Carrier | 5 | 2307.5 | 2312.5 | 2317.5 |
| | | 10 | 2310 | 2312.5 | 2315 |
| | | 15 | / | 2312.5 | / |
| LTE Band 40 2345- 2360MHz | Single Carrier | 5 | 2347.5 | 2352.5 | 2357.5 |
| | | 10 | 2350 | 2352.5 | 2355 |
| | | 15 | / | 2352.5 | / |

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AQ9Z-K9VIRAATPLUS** filing to comply with the FCC Part 22H&24E &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 22, Part 24, 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: Band 5, Band 40

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

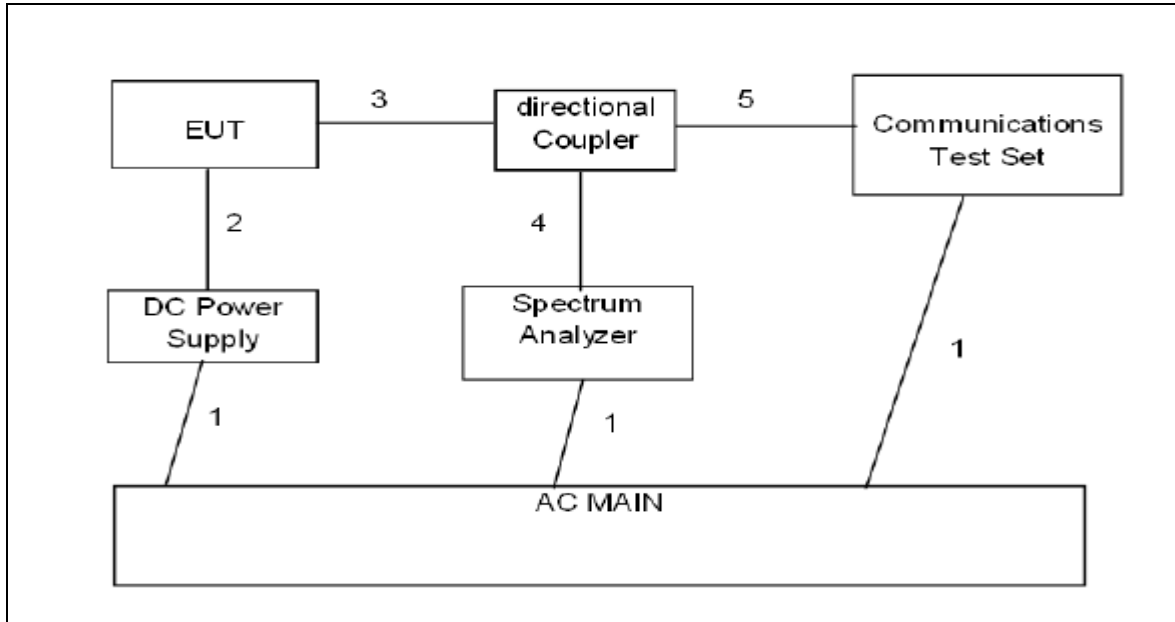
Table 2-1 Equipment Used in EUT System

| Item | Equipment | Model No. | Series No. | Note |
|------|--------------|----------------|------------|------|
| 1 | mobile phone | K9 Viraat Plus | N/A | EUT |
| | | | | |
| | | | | |

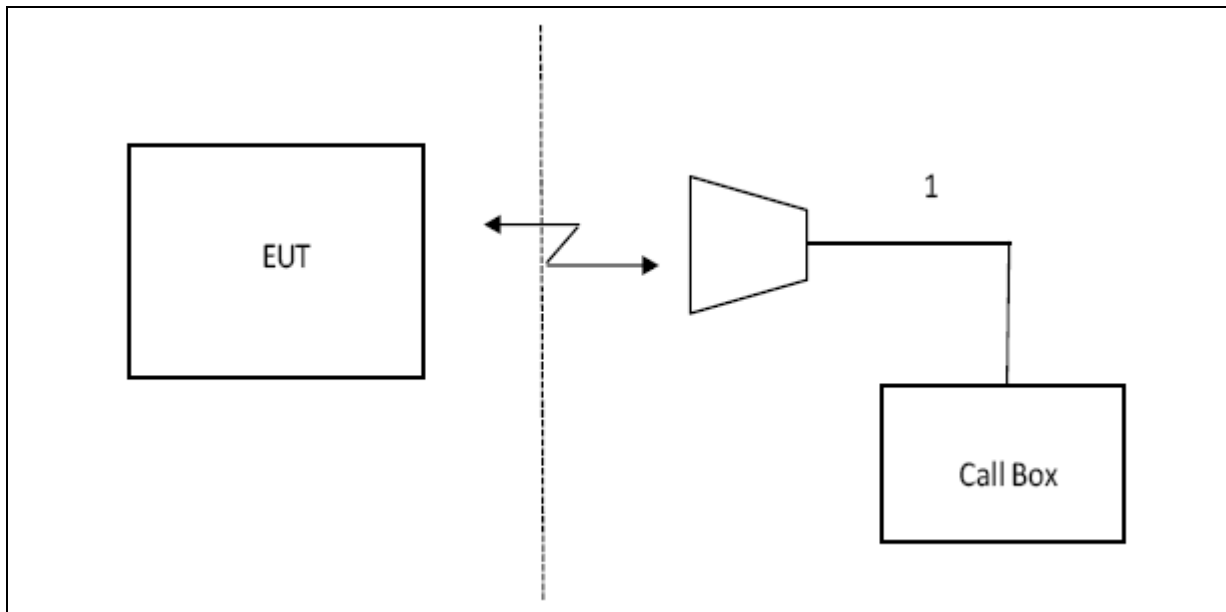
*Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.*

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 | 2018.10.25 |
| TEST RECEIVER | R&S | ESCI | A0304218 | 2019.05.18 |
| COMMUNICATION TESTER | R&S | CMU200 | A0304247 | 2019.05.18 |
| COMMUNICATION TESTER | R&S | CMW500 | X | 2019.05.18 |
| TEST RECEIVER | R&S | FCKL1528 | A0304230 | 2019.05.18 |
| LISN | SCHWARZBECK | NSLK8127 | A0304233 | 2019.05.18 |
| CLIMATE CHAMBER | ALBATROSS | -- | -- | 2019.05.18 |
| Biological Antenna | A.H. Systems Inc. | SAS-521-4 | N/A | 2019.05.18 |
| Horn Antenna | EM | EM-AH-10180 | N/A | 2019.05.18 |
| DC Power Source | N/A | PS-6005D | 20170402923 | 2020.06.05 |

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 | 13 | 10 | Table 6.2.4-2 | Table 6.2.4-2 |
| | 6.6.3.3.2 | | | | |
| 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 |
| .. | | | | | |
| 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 | 22.91 | 24.59 |
| | | | | | 1 | Mid | 22.97 | 24.55 |
| | | | | | 1 | High | 22.88 | 24.49 |
| | | | | | 3 | Low | 22.51 | 25.15 |
| | | | | | 3 | High | 22.40 | 25.20 |
| | | | | | 6 | Low | 21.95 | 25.88 |
| | | | | 16QAM | 1 | Low | 21.38 | 24.42 |
| | | | | | 1 | Mid | 21.56 | 24.39 |
| | | | | | 1 | High | 21.39 | 24.32 |
| | | | | | 3 | Low | 21.50 | 24.78 |
| | | | | | 3 | High | 21.42 | 24.88 |
| | | | | | 6 | Low | 20.78 | 25.54 |
| | 1.4MHz | 20525 | 836.5 | QPSK | 1 | Low | 22.77 | 25.65 |
| | | | | | 1 | Mid | 22.84 | 25.83 |
| | | | | | 1 | High | 22.74 | 25.87 |
| | | | | | 3 | Low | 22.64 | 26.03 |
| | | | | | 3 | High | 22.66 | 26.23 |
| | | | | | 6 | Low | 21.85 | 26.46 |
| | | | | 16QAM | 1 | Low | 21.63 | 25.33 |
| | | | | | 1 | Mid | 21.79 | 25.49 |
| | | | | | 1 | High | 21.70 | 25.54 |
| | | | | | 3 | Low | 21.70 | 26.04 |
| | | | | | 3 | High | 21.75 | 26.06 |
| | | | | | 6 | Low | 20.65 | 26.27 |
| | 1.4MHz | 20643 | 848.3 | QPSK | 1 | Low | 22.39 | 23.91 |
| | | | | | 1 | Mid | 22.54 | 23.99 |
| | | | | | 1 | High | 22.36 | 23.97 |
| 3 | | | | | Low | 22.09 | 24.43 | |
| 3 | | | | | High | 22.03 | 24.41 | |
| 6 | | | | | Low | 21.67 | 25.02 | |
| 16QAM | | | | 1 | Low | 21.25 | 23.51 | |
| | | | | 1 | Mid | 21.41 | 23.69 | |
| | | | | 1 | High | 21.26 | 23.69 | |
| | | | | 3 | Low | 20.89 | 23.97 | |
| | | | | 3 | High | 21.05 | 24.26 | |
| | | | | 6 | Low | 20.56 | 24.91 | |

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 | 22.45 | 24.42 |
| | | | | | 1 | Mid | 22.56 | 24.27 |
| | | | | | 1 | High | 22.50 | 24.09 |
| | | | | | 8 | Low | 21.46 | 25.02 |
| | | | | | 8 | High | 21.47 | 24.93 |
| | | | | | 15 | Low | 21.33 | 25.86 |
| | | | | 16QAM | 1 | Low | 21.58 | 24.64 |
| | | | | | 1 | Mid | 21.58 | 24.30 |
| | | | | | 1 | High | 21.53 | 24.29 |
| | | | | | 8 | Low | 20.38 | 24.88 |
| | | | | | 8 | High | 20.37 | 24.80 |
| | | | | | 15 | Low | 20.19 | 25.68 |
| | 3.0 MHz | 20525 | 836.5 | QPSK | 1 | Low | 22.38 | 25.37 |
| | | | | | 1 | Mid | 22.31 | 25.66 |
| | | | | | 1 | High | 22.22 | 25.82 |
| | | | | | 8 | Low | 21.33 | 25.94 |
| | | | | | 8 | High | 21.27 | 26.08 |
| | | | | | 15 | Low | 21.22 | 27.27 |
| | | | | 16QAM | 1 | Low | 21.19 | 24.98 |
| | | | | | 1 | Mid | 21.27 | 25.42 |
| | | | | | 1 | High | 21.15 | 25.45 |
| | | | | | 8 | Low | 20.38 | 25.75 |
| | | | | | 8 | High | 20.48 | 26.01 |
| | | | | | 15 | Low | 20.48 | 26.52 |
| | 3.0 MHz | 20635 | 847.5 | QPSK | 1 | Low | 22.40 | 23.77 |
| | | | | | 1 | Mid | 22.43 | 23.81 |
| | | | | | 1 | High | 22.40 | 24.09 |
| 8 | | | | | Low | 21.46 | 24.22 | |
| 8 | | | | | High | 21.47 | 24.44 | |
| 15 | | | | | Low | 21.26 | 24.92 | |
| 16QAM | | | | 1 | Low | 21.30 | 23.46 | |
| | | | | 1 | Mid | 21.31 | 23.53 | |
| | | | | 1 | High | 21.33 | 23.75 | |
| | | | | 8 | Low | 20.15 | 23.81 | |
| | | | | 8 | High | 20.19 | 24.19 | |
| | | | | 15 | Low | 20.03 | 25.04 | |

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 | 22.25 | 24.53 |
| | | | | | 1 | Mid | 22.54 | 24.21 |
| | | | | | 1 | High | 22.38 | 23.96 |
| | | | | | 12 | Low | 21.27 | 24.71 |
| | | | | | 12 | High | 21.31 | 24.28 |
| | | | | | 25 | Low | 21.23 | 25.61 |
| | | | | 16QAM | 1 | Low | 21.01 | 24.23 |
| | | | | | 1 | Mid | 21.16 | 23.94 |
| | | | | | 1 | High | 21.06 | 23.68 |
| | | | | | 12 | Low | 20.10 | 24.64 |
| | | | | | 12 | High | 20.09 | 24.23 |
| | | | | | 25 | Low | 20.12 | 25.12 |
| | 5.0 MHz | 20525 | 836.5 | QPSK | 1 | Low | 22.29 | 25.13 |
| | | | | | 1 | Mid | 22.27 | 25.78 |
| | | | | | 1 | High | 22.08 | 25.87 |
| | | | | | 12 | Low | 21.19 | 25.46 |
| | | | | | 12 | High | 21.17 | 25.83 |
| | | | | | 25 | Low | 21.17 | 26.38 |
| | | | | 16QAM | 1 | Low | 21.13 | 25.00 |
| | | | | | 1 | Mid | 21.26 | 25.71 |
| | | | | | 1 | High | 21.07 | 25.83 |
| | | | | | 12 | Low | 20.10 | 25.38 |
| | | | | | 12 | High | 20.13 | 25.71 |
| | | | | | 25 | Low | 20.15 | 26.23 |
| | 5.0 MHz | 20625 | 846.5 | QPSK | 1 | Low | 22.31 | 23.98 |
| | | | | | 1 | Mid | 22.46 | 23.66 |
| | | | | | 1 | High | 22.32 | 23.98 |
| 12 | | | | | Low | 21.21 | 24.17 | |
| 12 | | | | | High | 21.29 | 24.28 | |
| 25 | | | | | Low | 21.22 | 25.46 | |
| 16QAM | | | | 1 | Low | 21.28 | 23.86 | |
| | | | | 1 | Mid | 21.44 | 23.52 | |
| | | | | 1 | High | 21.32 | 23.82 | |
| | | | | 12 | Low | 20.04 | 23.94 | |
| | | | | 12 | High | 20.09 | 23.96 | |
| | | | | 25 | Low | 19.95 | 25.19 | |

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 | 22.44 | 24.40 |
| | | | | | 1 | Mid | 22.71 | 23.92 |
| | | | | | 1 | High | 22.45 | 24.86 |
| | | | | | 25 | Low | 21.34 | 24.57 |
| | | | | | 25 | High | 21.48 | 25.14 |
| | | | | | 50 | Low | 21.35 | 25.68 |
| | | | | 16QAM | 1 | Low | 21.58 | 24.46 |
| | | | | | 1 | Mid | 21.72 | 23.90 |
| | | | | | 1 | High | 21.59 | 24.94 |
| | | | | | 25 | Low | 20.17 | 24.49 |
| | | | | | 25 | High | 20.34 | 24.63 |
| | | | | | 50 | Low | 20.18 | 25.71 |
| | 10.0 MHz | 20525 | 836.5 | QPSK | 1 | Low | 22.53 | 24.50 |
| | | | | | 1 | Mid | 22.50 | 25.74 |
| | | | | | 1 | High | 22.28 | 25.38 |
| | | | | | 25 | Low | 21.24 | 25.47 |
| | | | | | 25 | High | 21.13 | 26.03 |
| | | | | | 50 | Low | 21.19 | 26.20 |
| | | | | 16QAM | 1 | Low | 21.18 | 24.20 |
| | | | | | 1 | Mid | 21.26 | 25.40 |
| | | | | | 1 | High | 21.14 | 25.11 |
| | | | | | 25 | Low | 20.58 | 25.39 |
| | | | | | 25 | High | 20.66 | 26.11 |
| | | | | | 50 | Low | 20.61 | 26.63 |
| | 10.0 MHz | 20600 | 844.0 | QPSK | 1 | Low | 22.24 | 25.63 |
| | | | | | 1 | Mid | 22.56 | 24.16 |
| | | | | | 1 | High | 22.42 | 24.06 |
| 25 | | | | | Low | 21.32 | 25.27 | |
| 25 | | | | | High | 21.37 | 24.32 | |
| 50 | | | | | Low | 21.27 | 25.79 | |
| 16QAM | | | | 1 | Low | 21.29 | 25.19 | |
| | | | | 1 | Mid | 21.42 | 23.89 | |
| | | | | 1 | High | 21.30 | 23.67 | |
| | | | | 25 | Low | 20.60 | 25.51 | |
| | | | | 25 | High | 20.60 | 24.04 | |
| | | | | 50 | Low | 20.59 | 25.74 | |

4.3 LTE BAND 40

OUTPUT POWER FOR LTE BAND 40 (2305-2320MHz) (5.0MHZ)

| Band | Band Width | Channel | Frequency (MHz) | Modulation | RB Configuration | | Average Power(dBm) | Peak Power(dBm) |
|---------|------------|---------|-----------------|------------|------------------|-----------|--------------------|-----------------|
| | | | | | RB Size | RB Offset | | |
| Band 40 | 5.0MHz | 38725 | 2307.5 | QPSK | 1 | Low | 21.84 | 26.45 |
| | | | | | 1 | Mid | 21.95 | 26.53 |
| | | | | | 1 | High | 21.83 | 26.46 |
| | | | | | 12 | Low | 20.82 | 26.62 |
| | | | | | 12 | High | 20.80 | 26.54 |
| | | | | | 25 | Low | 20.86 | 27.06 |
| | | | | 16QAM | 1 | Low | 20.94 | 26.26 |
| | | | | | 1 | Mid | 21.07 | 26.32 |
| | | | | | 1 | High | 20.95 | 26.23 |
| | | | | | 12 | Low | 19.83 | 26.63 |
| | | | | | 12 | High | 19.80 | 26.59 |
| | | | | | 25 | Low | 19.78 | 26.51 |
| | 5.0MHz | 38775 | 2312.5 | QPSK | 1 | Low | 21.78 | 26.88 |
| | | | | | 1 | Mid | 21.87 | 26.87 |
| | | | | | 1 | High | 21.73 | 26.81 |
| | | | | | 12 | Low | 20.78 | 26.81 |
| | | | | | 12 | High | 20.75 | 26.70 |
| | | | | | 25 | Low | 20.82 | 26.93 |
| | | | | 16QAM | 1 | Low | 20.82 | 26.48 |
| | | | | | 1 | Mid | 20.95 | 26.59 |
| | | | | | 1 | High | 20.80 | 26.52 |
| | | | | | 12 | Low | 19.88 | 26.76 |
| | | | | | 12 | High | 19.77 | 26.65 |
| | | | | | 25 | Low | 19.77 | 27.33 |
| | 5.0MHz | 38825 | 2317.5 | QPSK | 1 | Low | 21.76 | 26.80 |
| | | | | | 1 | Mid | 21.85 | 26.84 |
| | | | | | 1 | High | 21.77 | 26.75 |
| | | | | | 12 | Low | 20.82 | 27.12 |
| | | | | | 12 | High | 20.73 | 27.11 |
| | | | | | 25 | Low | 20.82 | 27.40 |
| 16QAM | | | | 1 | Low | 20.87 | 26.34 | |
| | | | | 1 | Mid | 20.96 | 26.39 | |
| | | | | 1 | High | 20.88 | 26.34 | |
| | | | | 12 | Low | 19.87 | 26.58 | |
| | | | | 12 | High | 19.76 | 26.41 | |
| | | | | 25 | Low | 19.84 | 27.07 | |

OUTPUT POWER FOR LTE BAND 40 (2305-2320MHz) (10.0MHZ)

| Band | Band Width | Channel | Frequency (MHz) | Modulation | RB Configuration | | Average Power(dBm) | Peak Power(dBm) |
|---------|------------|---------|-----------------|------------|------------------|-----------|--------------------|-----------------|
| | | | | | RB Size | RB Offset | | |
| Band 40 | 10.0 MHz | 38750 | 2310.0 | QPSK | 1 | Low | 21.47 | 26.66 |
| | | | | | 1 | Mid | 21.72 | 26.74 |
| | | | | | 1 | High | 21.44 | 26.60 |
| | | | | | 25 | Low | 20.47 | 26.35 |
| | | | | | 25 | High | 20.29 | 26.59 |
| | | | | | 50 | Low | 20.38 | 26.63 |
| | | | | 16QAM | 1 | Low | 20.34 | 26.76 |
| | | | | | 1 | Mid | 20.58 | 26.83 |
| | | | | | 1 | High | 20.30 | 26.69 |
| | | | | | 25 | Low | 19.89 | 26.75 |
| | | | | | 25 | High | 19.43 | 26.62 |
| | | | | | 50 | Low | 19.34 | 26.82 |
| | 10.0 MHz | 38775 | 2312.5 | QPSK | 1 | Low | 21.49 | 26.64 |
| | | | | | 1 | Mid | 21.73 | 26.78 |
| | | | | | 1 | High | 21.42 | 26.58 |
| | | | | | 25 | Low | 20.47 | 27.20 |
| | | | | | 25 | High | 20.32 | 27.07 |
| | | | | | 50 | Low | 20.37 | 26.82 |
| | | | | 16QAM | 1 | Low | 20.60 | 26.51 |
| | | | | | 1 | Mid | 20.88 | 26.67 |
| | | | | | 1 | High | 20.56 | 26.44 |
| | | | | | 25 | Low | 19.45 | 25.97 |
| | | | | | 25 | High | 19.30 | 26.20 |
| | | | | | 50 | Low | 19.33 | 26.92 |
| | 10.0 MHz | 38800 | 2315.0 | QPSK | 1 | Low | 21.41 | 26.89 |
| | | | | | 1 | Mid | 21.69 | 26.97 |
| | | | | | 1 | High | 21.50 | 27.11 |
| 25 | | | | | Low | 20.54 | 26.59 | |
| 25 | | | | | High | 20.28 | 26.29 | |
| 50 | | | | | Low | 20.38 | 27.25 | |
| 16QAM | | | | 1 | Low | 20.37 | 26.61 | |
| | | | | 1 | Mid | 20.64 | 26.66 | |
| | | | | 1 | High | 20.45 | 26.53 | |
| | | | | 25 | Low | 19.44 | 27.04 | |
| | | | | 25 | High | 19.25 | 26.91 | |
| | | | | 50 | Low | 19.33 | 27.03 | |

OUTPUT POWER FOR LTE BAND 40 (2305-2320MHz) (15.0MHZ)

| Band | Band Width | Channel | Frequency (MHz) | Modulation | RB Configuration | | Average Power(dBm) | Peak Power(dBm) |
|---------|------------|---------|-----------------|------------|------------------|-----------|--------------------|-----------------|
| | | | | | RB Size | RB Offset | | |
| Band 40 | 15.0 MHz | 38775 | 2312.5 | QPSK | 1 | Low | 21.38 | 26.93 |
| | | | | | 1 | Mid | 21.41 | 26.95 |
| | | | | | 1 | High | 21.33 | 26.76 |
| | | | | | 36 | Low | 20.47 | 26.54 |
| | | | | | 36 | High | 20.31 | 26.82 |
| | | | | | 75 | Low | 20.31 | 26.82 |
| | | | | 16QAM | 1 | Low | 20.43 | 26.63 |
| | | | | | 1 | Mid | 20.58 | 26.21 |
| | | | | | 1 | High | 20.33 | 26.49 |
| | | | | | 36 | Low | 19.41 | 26.59 |
| | | | | | 36 | High | 19.28 | 26.83 |
| | | | | | 75 | Low | 19.28 | 26.83 |

OUTPUT POWER FOR LTE BAND 40 (2345-2360MHz) (15.0MHZ)

| Band | Band Width | Channel | Frequency (MHz) | Modulation | RB Configuration | | Average Power(dBm) | Peak Power(dBm) |
|---------|------------|---------|-----------------|------------|------------------|-----------|--------------------|-----------------|
| | | | | | RB Size | RB Offset | | |
| Band 40 | 15.0 MHz | 39175 | 2352.5 | QPSK | 1 | Low | 22.02 | 27.45 |
| | | | | | 1 | Mid | 22.04 | 27.50 |
| | | | | | 1 | High | 21.92 | 27.47 |
| | | | | | 36 | Low | 21.06 | 27.28 |
| | | | | | 36 | High | 21.06 | 27.44 |
| | | | | | 75 | Low | 21.08 | 27.50 |
| | | | | 16QAM | 1 | Low | 21.08 | 27.01 |
| | | | | | 1 | Mid | 21.12 | 27.08 |
| | | | | | 1 | High | 21.04 | 26.81 |
| | | | | | 36 | Low | 19.99 | 27.12 |
| | | | | | 36 | High | 20.01 | 27.38 |
| | | | | | 75 | Low | 19.96 | 27.87 |

OUTPUT POWER FOR LTE BAND 40 (2345-2360MHz) (5.0MHZ)

| Band | Band Width | Channel | Frequency (MHz) | Modulation | RB Configuration | | Average Power(dBm) | Peak Power(dBm) |
|---------|------------|---------|-----------------|------------|------------------|-----------|--------------------|-----------------|
| | | | | | RB Size | RB Offset | | |
| Band 40 | 5.0MHz | 39125 | 2347.5 | QPSK | 1 | Low | 21.99 | 26.66 |
| | | | | | 1 | Mid | 22.10 | 26.74 |
| | | | | | 1 | High | 21.96 | 26.68 |
| | | | | | 12 | Low | 20.92 | 26.86 |
| | | | | | 12 | High | 20.94 | 26.96 |
| | | | | | 25 | Low | 20.98 | 27.54 |
| | | | | 16QAM | 1 | Low | 21.12 | 26.41 |
| | | | | | 1 | Mid | 21.18 | 26.44 |
| | | | | | 1 | High | 21.10 | 26.54 |
| | | | | | 12 | Low | 19.94 | 26.77 |
| | | | | | 12 | High | 19.93 | 26.75 |
| | | | | | 25 | Low | 19.93 | 26.79 |
| | 5.0MHz | 39175 | 2352.5 | QPSK | 1 | Low | 21.95 | 27.11 |
| | | | | | 1 | Mid | 22.05 | 27.10 |
| | | | | | 1 | High | 21.97 | 27.23 |
| | | | | | 12 | Low | 20.93 | 26.85 |
| | | | | | 12 | High | 20.96 | 26.97 |
| | | | | | 25 | Low | 20.98 | 27.04 |
| | | | | 16QAM | 1 | Low | 21.04 | 26.72 |
| | | | | | 1 | Mid | 21.12 | 26.79 |
| | | | | | 1 | High | 20.97 | 26.67 |
| | | | | | 12 | Low | 19.89 | 26.82 |
| | | | | | 12 | High | 19.93 | 26.89 |
| | | | | | 25 | Low | 19.94 | 27.44 |
| | 5.0MHz | 39225 | 2357.5 | QPSK | 1 | Low | 21.95 | 27.10 |
| | | | | | 1 | Mid | 22.06 | 27.25 |
| | | | | | 1 | High | 21.93 | 27.19 |
| 12 | | | | | Low | 20.93 | 27.36 | |
| 12 | | | | | High | 20.96 | 27.54 | |
| 25 | | | | | Low | 20.98 | 27.31 | |
| 16QAM | | | | 1 | Low | 20.98 | 26.60 | |
| | | | | 1 | Mid | 21.10 | 26.70 | |
| | | | | 1 | High | 20.94 | 26.69 | |
| | | | | 12 | Low | 19.96 | 26.69 | |
| | | | | 12 | High | 19.97 | 26.74 | |
| | | | | 25 | Low | 20.00 | 27.22 | |

OUTPUT POWER FOR LTE BAND 40 (2345-2360MHz) (10.0MHZ)

| Band | Band Width | Channel | Frequency (MHz) | Modulation | RB Configuration | | Average Power(dBm) | Peak Power(dBm) |
|---------|------------|---------|-----------------|------------|------------------|-----------|--------------------|-----------------|
| | | | | | RB Size | RB Offset | | |
| Band 40 | 10.0 MHz | 39150 | 2350.0 | QPSK | 1 | Low | 22.07 | 27.30 |
| | | | | | 1 | Mid | 22.28 | 27.64 |
| | | | | | 1 | High | 22.06 | 27.56 |
| | | | | | 25 | Low | 21.00 | 26.93 |
| | | | | | 25 | High | 21.00 | 27.03 |
| | | | | | 50 | Low | 20.99 | 27.68 |
| | | 16QAM | 1 | Low | 20.99 | 27.06 | | |
| | | | 1 | Mid | 21.27 | 27.26 | | |
| | | | 1 | High | 21.06 | 27.20 | | |
| | | | 25 | Low | 19.96 | 27.35 | | |
| | | | 25 | High | 19.98 | 27.50 | | |
| | | | 50 | Low | 19.95 | 27.52 | | |
| | 10.0 MHz | 39175 | 2352.5 | QPSK | 1 | Low | 22.12 | 27.10 |
| | | | | | 1 | Mid | 22.37 | 27.44 |
| | | | | | 1 | High | 22.20 | 27.34 |
| | | | | | 25 | Low | 21.02 | 27.59 |
| | | | | | 25 | High | 21.02 | 27.74 |
| | | | | | 50 | Low | 21.01 | 27.54 |
| | | 16QAM | 1 | Low | 21.25 | 27.08 | | |
| | | | 1 | Mid | 21.46 | 27.27 | | |
| | | | 1 | High | 21.17 | 27.13 | | |
| | | | 25 | Low | 19.98 | 26.69 | | |
| | | | 25 | High | 19.99 | 26.77 | | |
| | | | 50 | Low | 19.98 | 27.53 | | |
| | 10.0 MHz | 39200 | 2355.0 | QPSK | 1 | Low | 22.08 | 27.15 |
| | | | | | 1 | Mid | 22.34 | 27.18 |
| | | | | | 1 | High | 22.04 | 27.22 |
| 25 | | | | | Low | 20.98 | 27.11 | |
| 25 | | | | | High | 21.02 | 27.25 | |
| 50 | | | | | Low | 21.00 | 27.35 | |
| 16QAM | | 1 | Low | 20.93 | 27.25 | | | |
| | | 1 | Mid | 21.20 | 27.41 | | | |
| | | 1 | High | 20.90 | 27.35 | | | |
| | | 25 | Low | 19.99 | 26.94 | | | |
| | | 25 | High | 20.05 | 27.07 | | | |
| | | 50 | Low | 19.96 | 27.72 | | | |

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 40

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 | 6/0 | 836.5 | 1.09 | 1.30 |
| | 1.4MHz BAND 16QAM | 6/0 | 836.5 | 1.08 | 1.28 |
| | 3.0MHz BAND QPSK | 15/0 | 836.5 | 2.69 | 2.89 |
| | 3.0MHz BAND 16QAM | 15/0 | 836.5 | 2.69 | 2.88 |
| | 5.0MHz BAND QPSK | 25/0 | 836.5 | 4.50 | 4.98 |
| | 5.0MHz BAND 16QAM | 25/0 | 836.5 | 4.49 | 4.91 |
| | 10.0MHz BAND QPSK | 50/0 | 836.5 | 8.98 | 9.83 |
| | 10.0MHz BAND 16QAM | 50/0 | 836.5 | 8.97 | 9.61 |

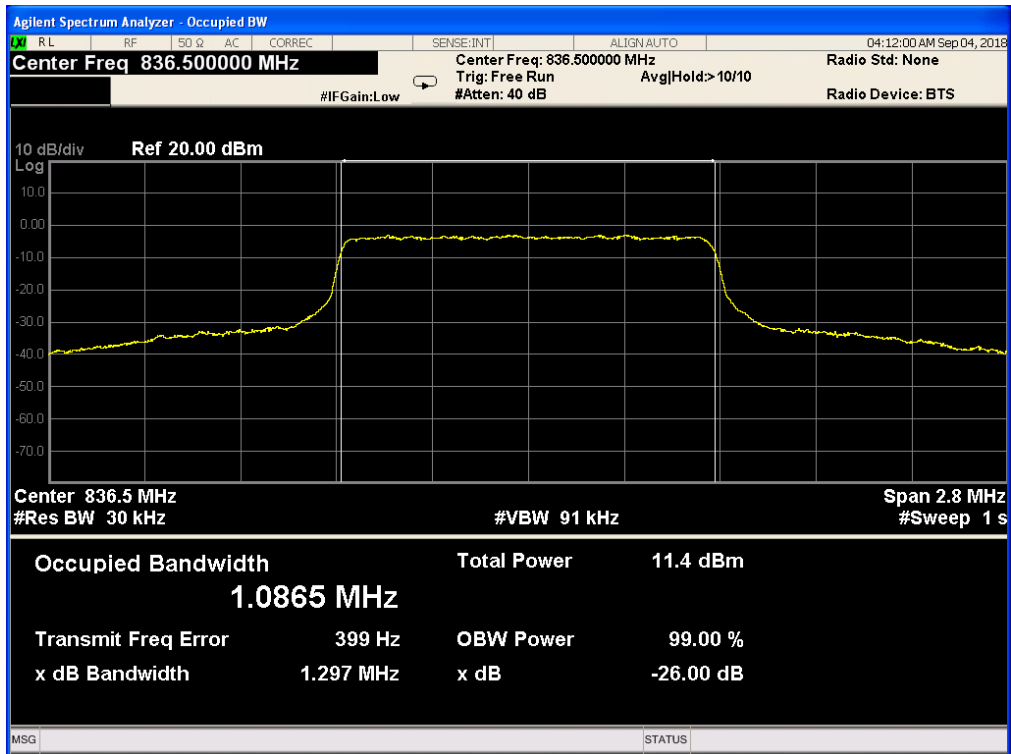
| Band | Mode | RB Size/RB Offset | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | -26dBc Occupied Bandwidth (MHz) |
|---------------------------|--------------------|-------------------|-----------------|------------------------------|---------------------------------|
| LTE Band 40(2305-2320MHz) | 5.0MHz BAND QPSK | 25/0 | 2312.5 | 4.49 | 4.86 |
| | 5.0MHz BAND 16QAM | 25/0 | 2312.5 | 4.49 | 4.84 |
| | 10.0MHz BAND QPSK | 50/0 | 2312.5 | 8.95 | 9.51 |
| | 10.0MHz BAND 16QAM | 50/0 | 2312.5 | 8.97 | 9.52 |
| | 15.0MHz BAND QPSK | 75/0 | 2312.5 | 13.44 | 14.23 |
| | 15.0MHz BAND 16QAM | 75/0 | 2312.5 | 13.43 | 14.23 |

| Band | Mode | RB Size/RB Offset | Frequency (MHz) | 99% Occupied Bandwidth (MHz) | -26dBc Occupied Bandwidth (MHz) |
|---------------------------|--------------------|-------------------|-----------------|------------------------------|---------------------------------|
| LTE Band 40(2345-2350MHz) | 5.0MHz BAND QPSK | 25/0 | 2352.5 | 4.49 | 4.87 |
| | 5.0MHz BAND 16QAM | 25/0 | 2352.5 | 4.49 | 4.86 |
| | 10.0MHz BAND QPSK | 50/0 | 2352.5 | 8.96 | 9.52 |
| | 10.0MHz BAND 16QAM | 50/0 | 2352.5 | 8.97 | 9.53 |
| | 15.0MHz BAND QPSK | 75/0 | 2352.5 | 13.45 | 14.25 |
| | 15.0MHz BAND 16QAM | 75/0 | 2352.5 | 13.45 | 14.25 |

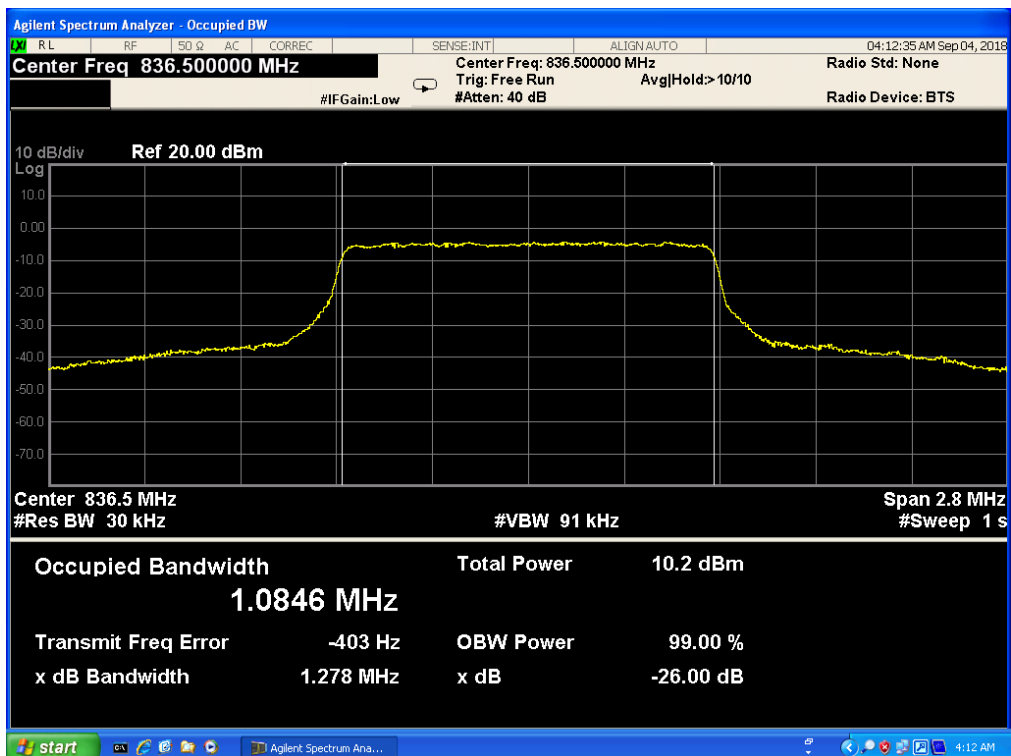
Note: This test was only measured at maximum RB allocation and at CENTER of band for each LTE BW

5.1 LTE BAND 5

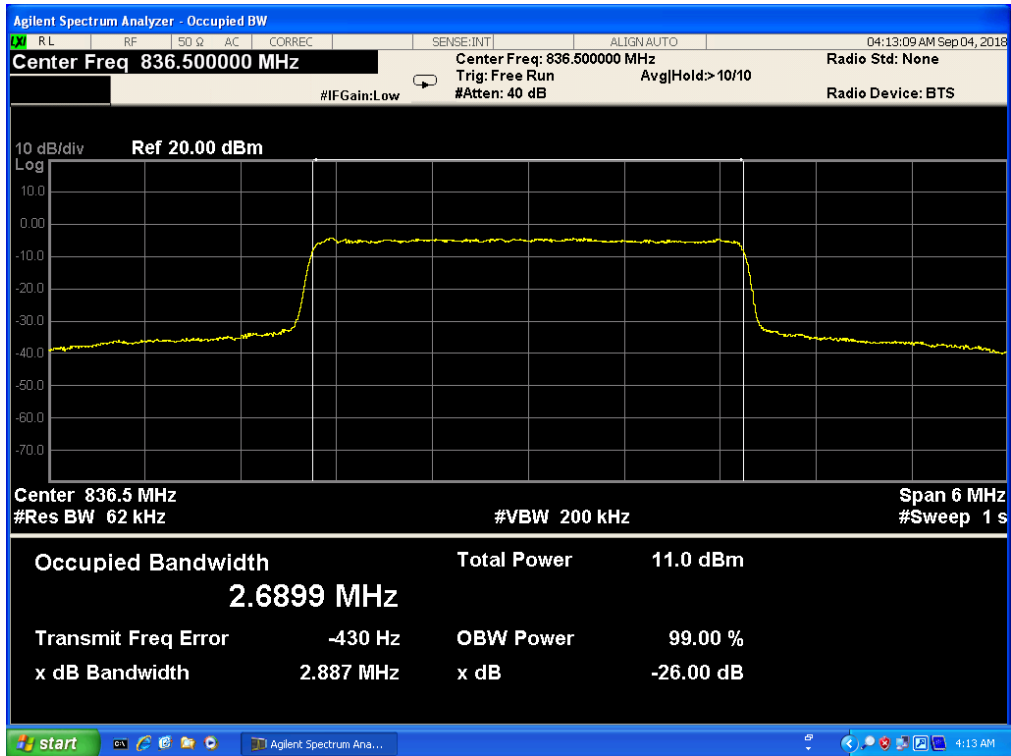
Band 5, UL Channel 20525, UL Frequency 836.5, BW 1.4, NO. RB 6, RB POS. Low, QPSK



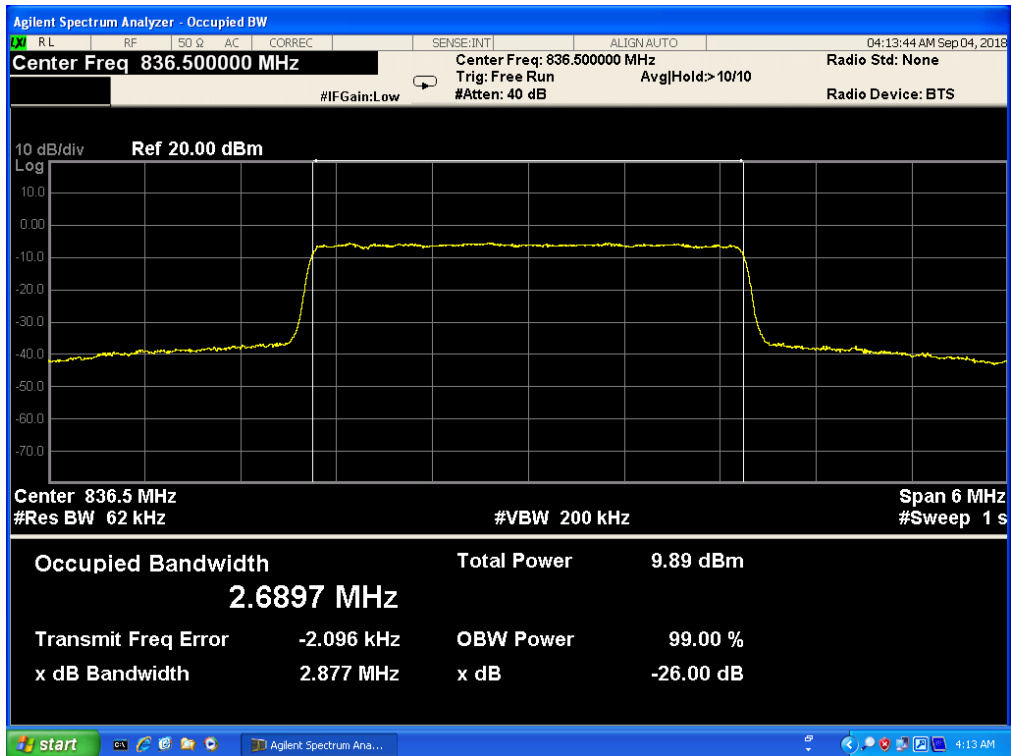
Band 5, UL Channel 20525, UL Frequency 836.5, BW 1.4, NO. RB 6, RB POS. Low, 16-QAM



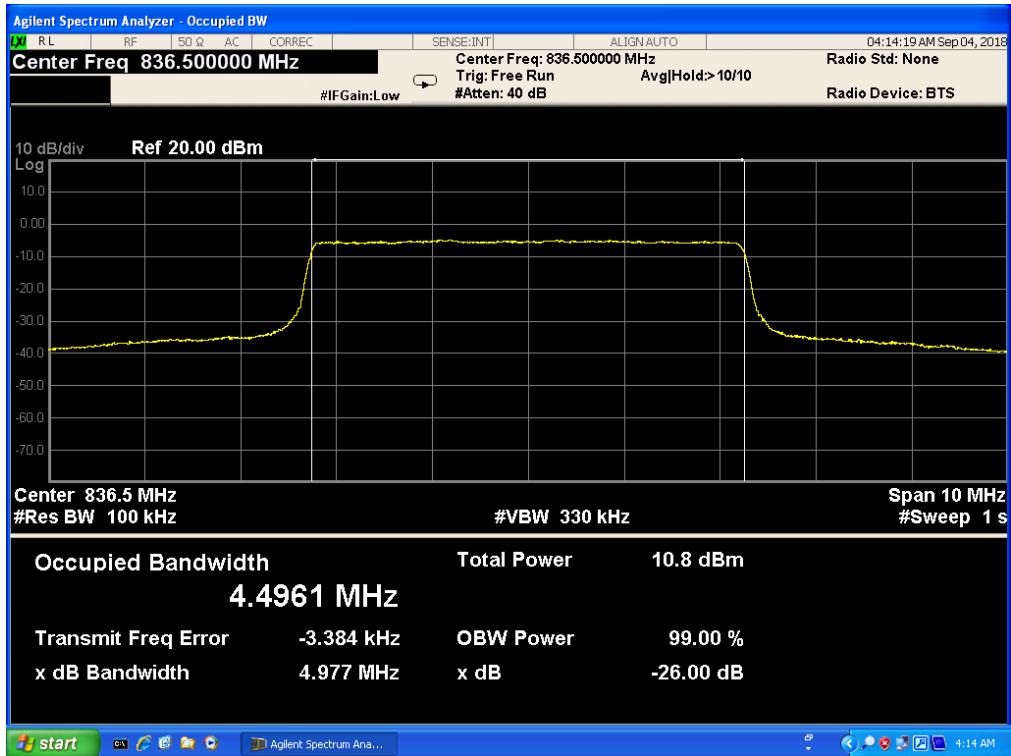
Band 5, UL Channel 20525, UL Frequency 836.5, BW 3.0, NO. RB 15, RB POS. Low, QPSK



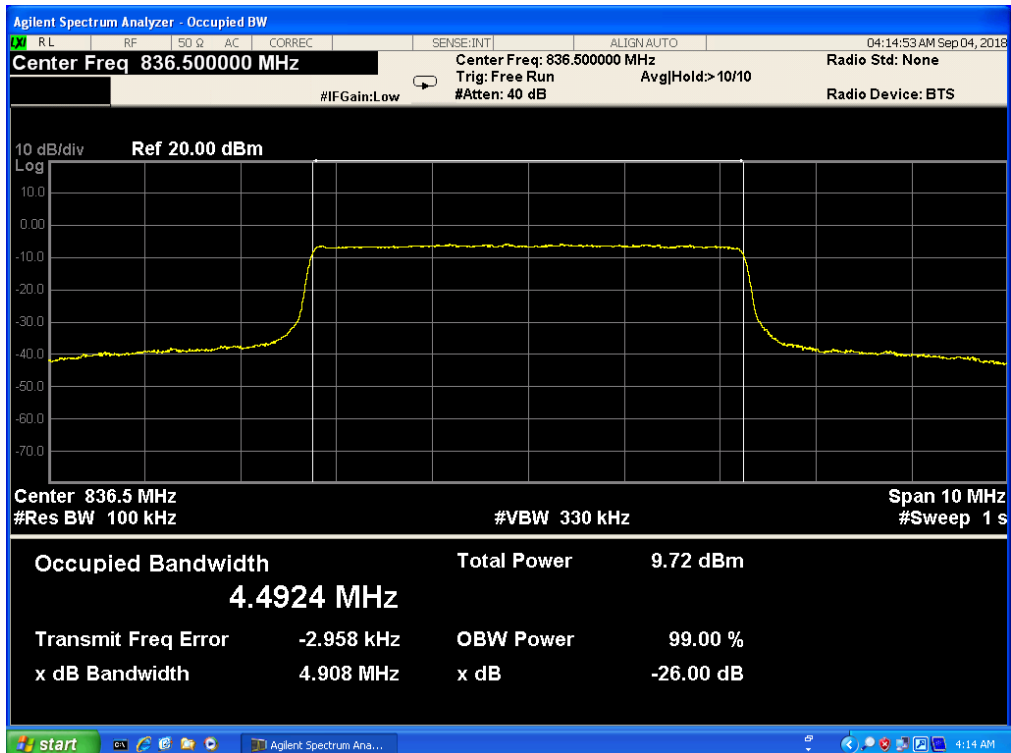
Band 5, UL Channel 20525, UL Frequency 836.5, BW 3.0, NO. RB 15, RB POS. Low, 16-QAM



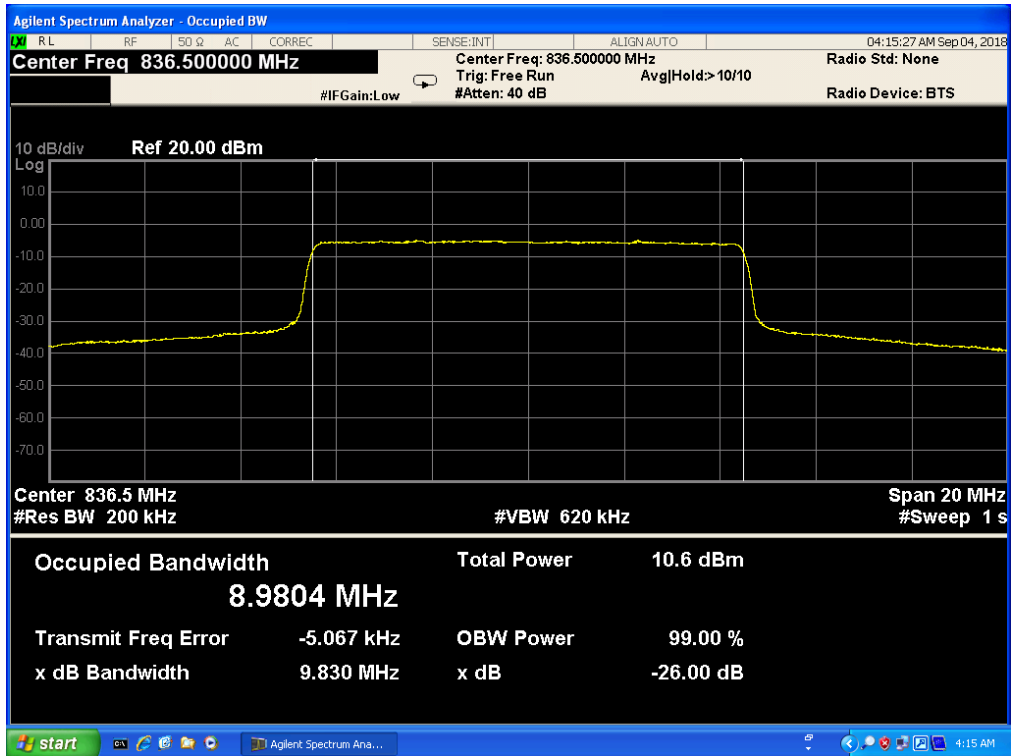
Band 5, UL Channel 20525, UL Frequency 836.5, BW 5.0, NO. RB 25, RB POS. Low, QPSK



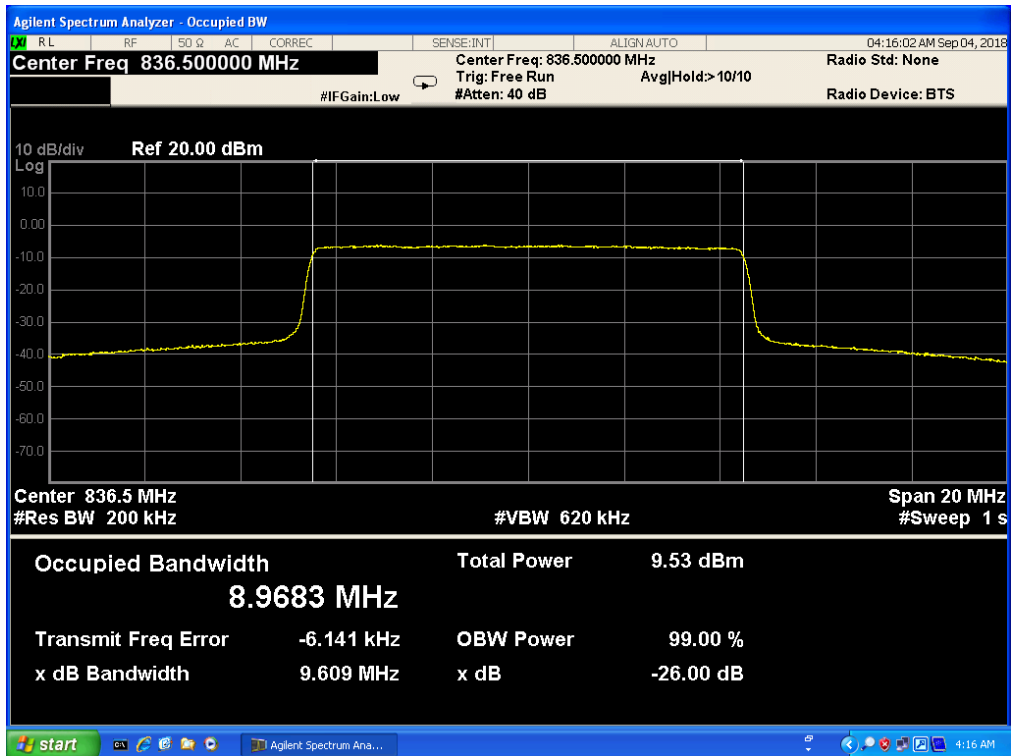
Band 5, UL Channel 20525, UL Frequency 836.5, BW 5.0, NO. RB 25, RB POS. Low, 16-QAM



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

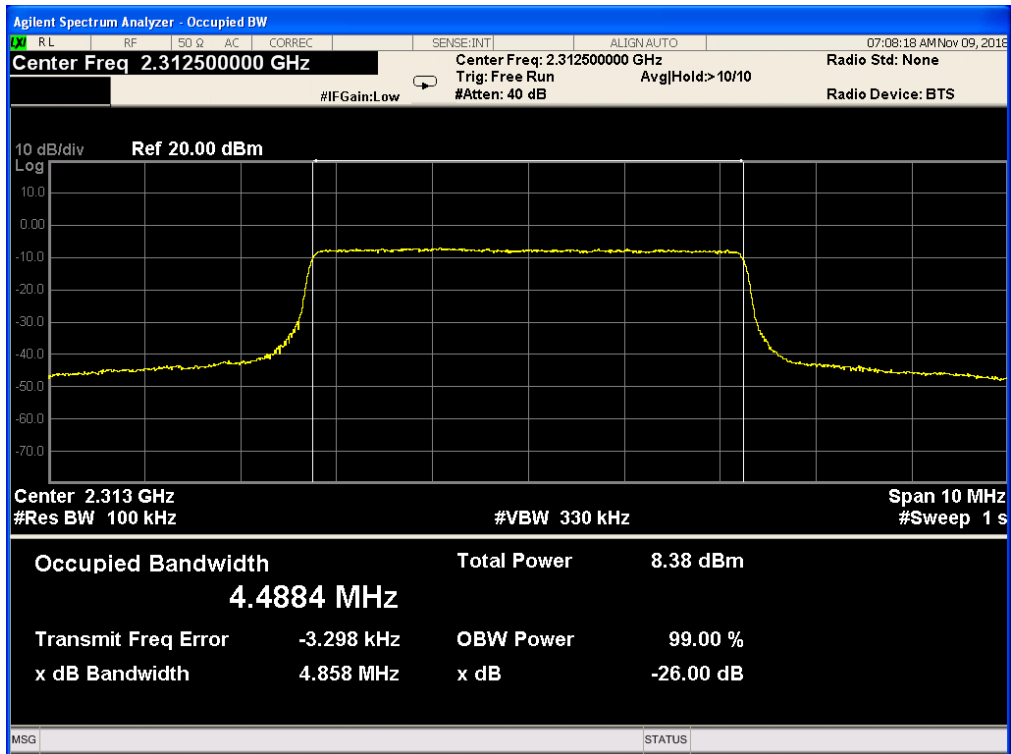


Band 5, UL Channel 20525, UL Frequency 836.5, BW 10.0, NO. RB 50, RB POS. Low, 16-QAM

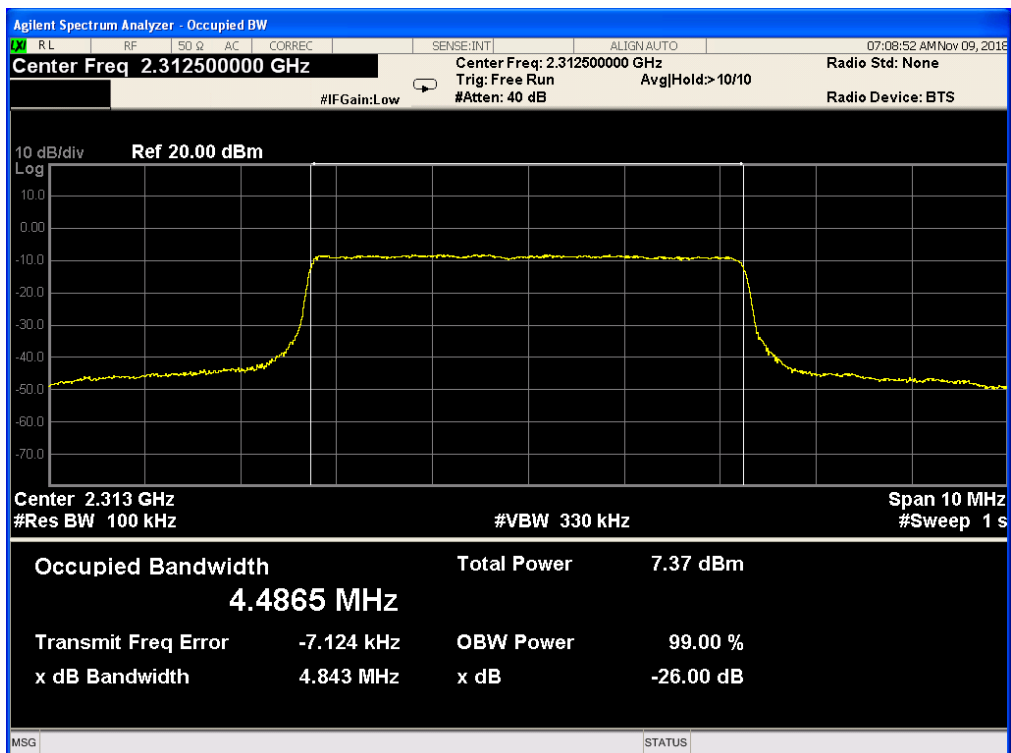


5.2 LTE BAND 40 (2305-2320MHz)

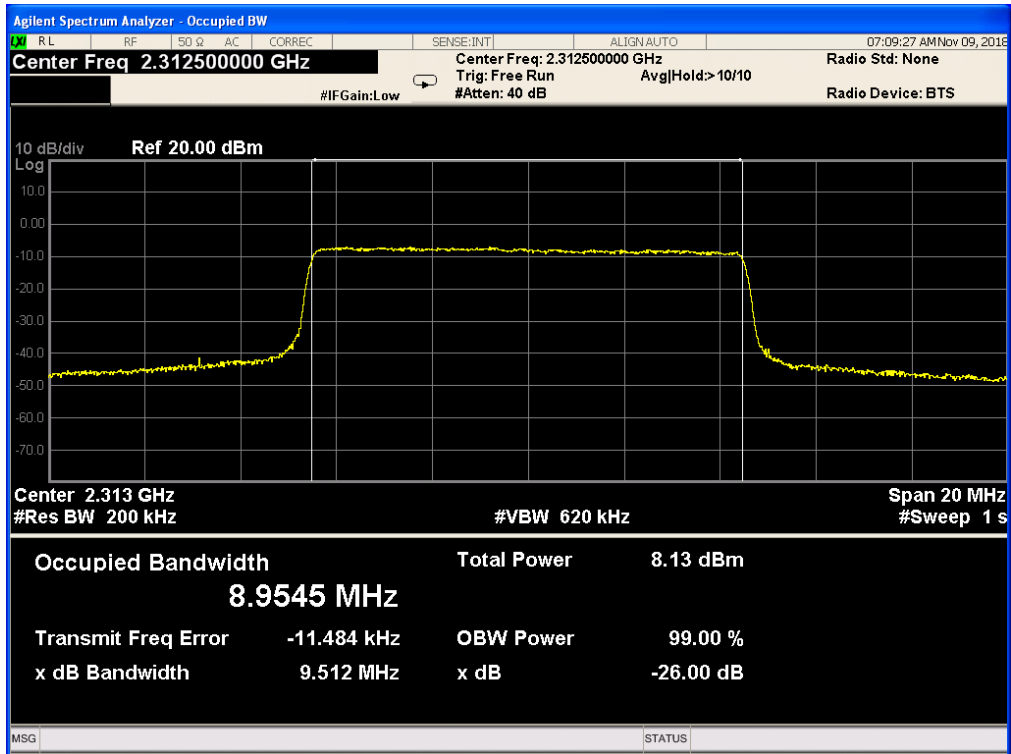
Band 40, UL Channel 38775, UL Frequency 2312.5, BW 5.0, NO. RB 25, RB POS. Low, QPSK



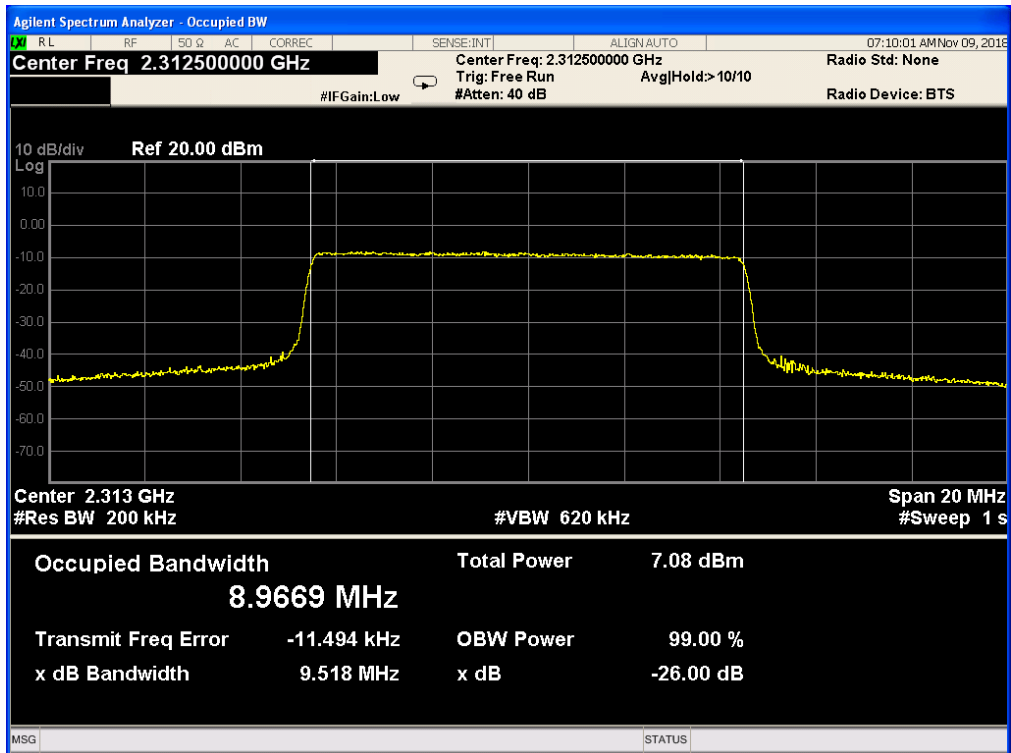
Band 40, UL Channel 38775, UL Frequency 2312.5, BW 5.0, NO. RB 25, RB POS. Low, 16-QAM



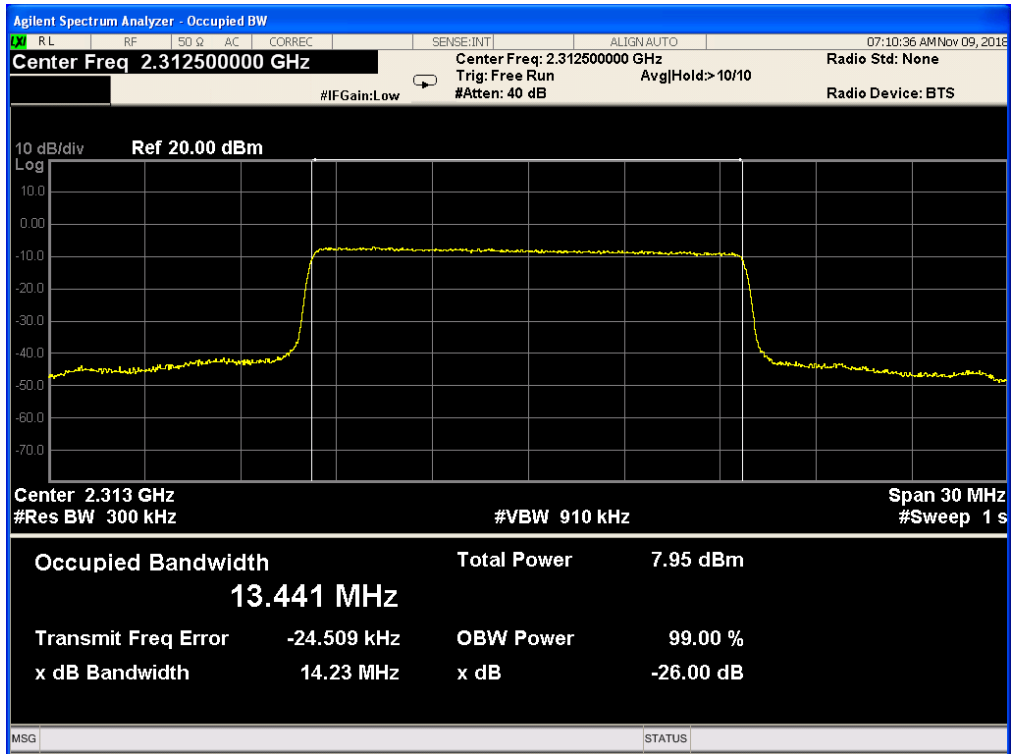
Band 40, UL Channel 38775, UL Frequency 2312.5, BW 10.0, NO. RB 50, RB POS. Low, QPSK



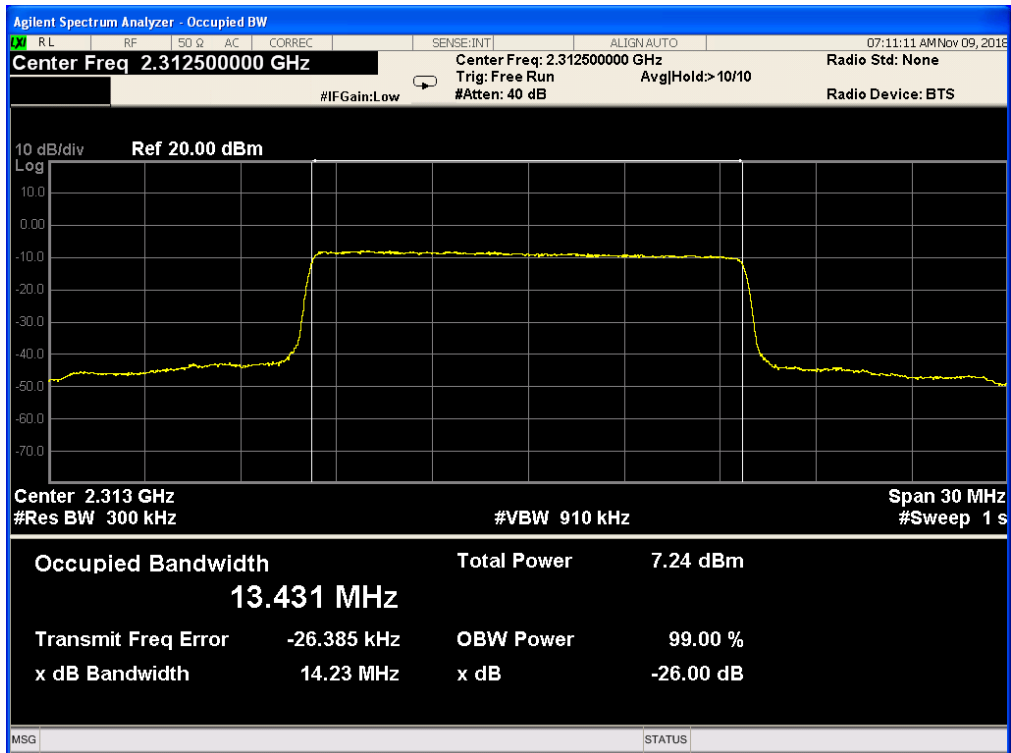
Band 40, UL Channel 38775, UL Frequency 2312.5, BW 10.0, NO. RB 50, RB POS. Low, 16-QAM



Band 40, UL Channel 38775, UL Frequency 2312.5, BW 15.0, NO. RB 75, RB POS. Low, QPSK

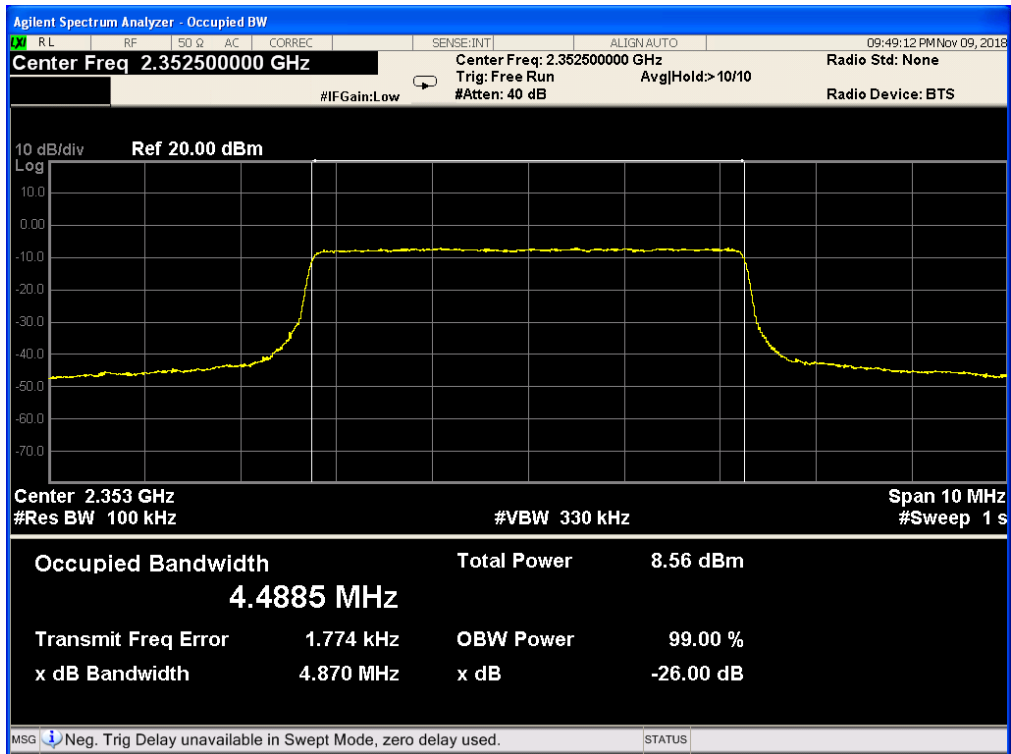


Band 40, UL Channel 38775, UL Frequency 2312.5, BW 15.0, NO. RB 75, RB POS. Low, 16-QAM

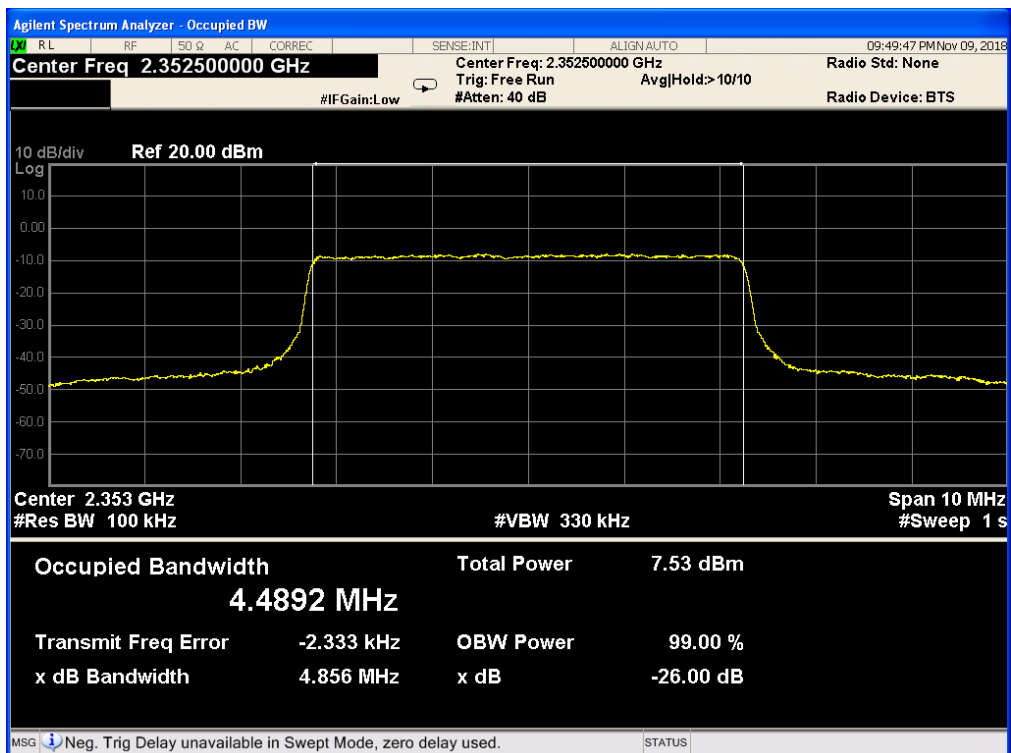


5.3 LTE BAND 40 (2345-2360MHz)

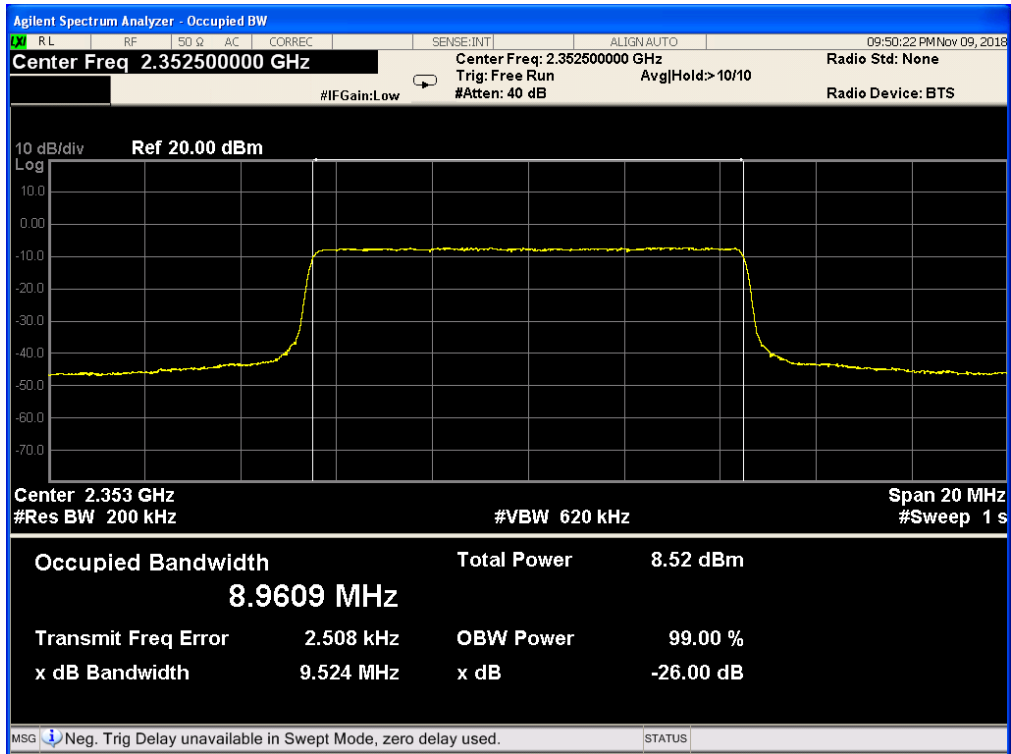
Band 40, UL Channel 39175, UL Frequency 2352.5, BW 5.0, NO. RB 25, RB POS. Low, QPSK



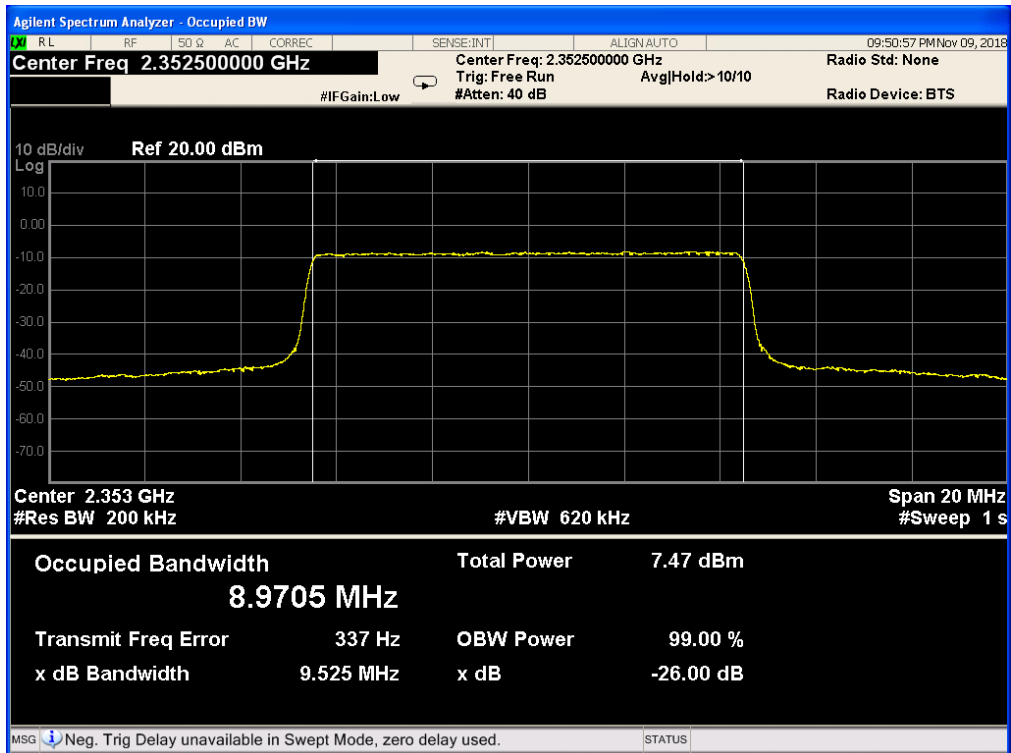
Band 40, UL Channel 39175, UL Frequency 2352.5, BW 5.0, NO. RB 25, RB POS. Low, 16-QAM



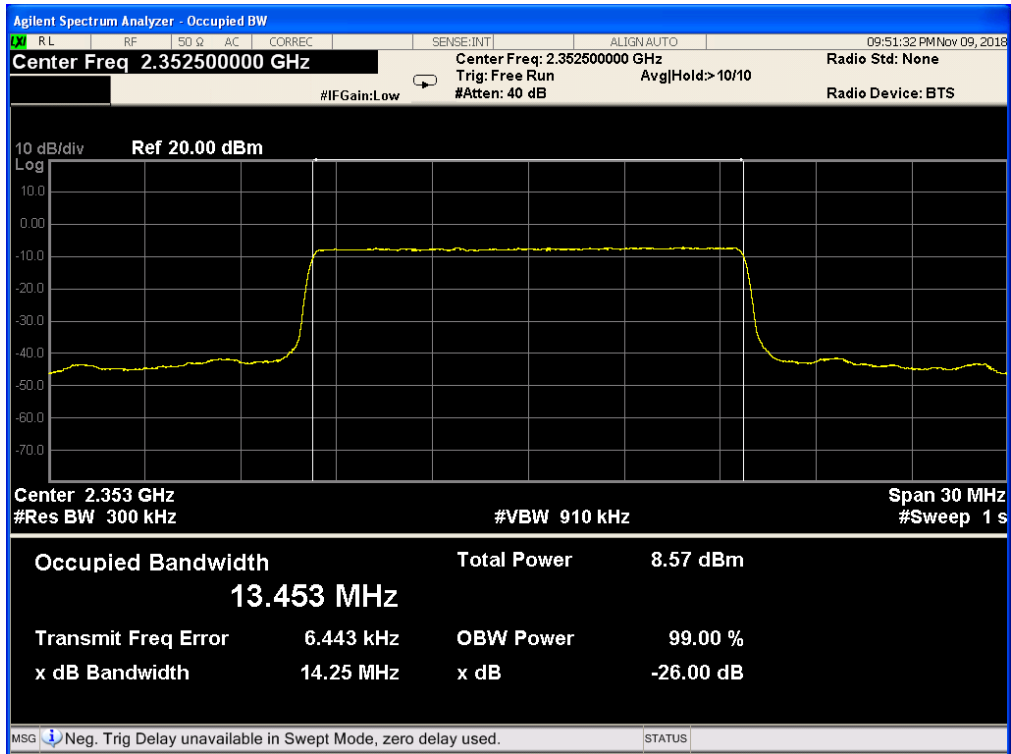
Band 40, UL Channel 39175, UL Frequency 2352.5, BW 10.0, NO. RB 50, RB POS. Low, QPSK



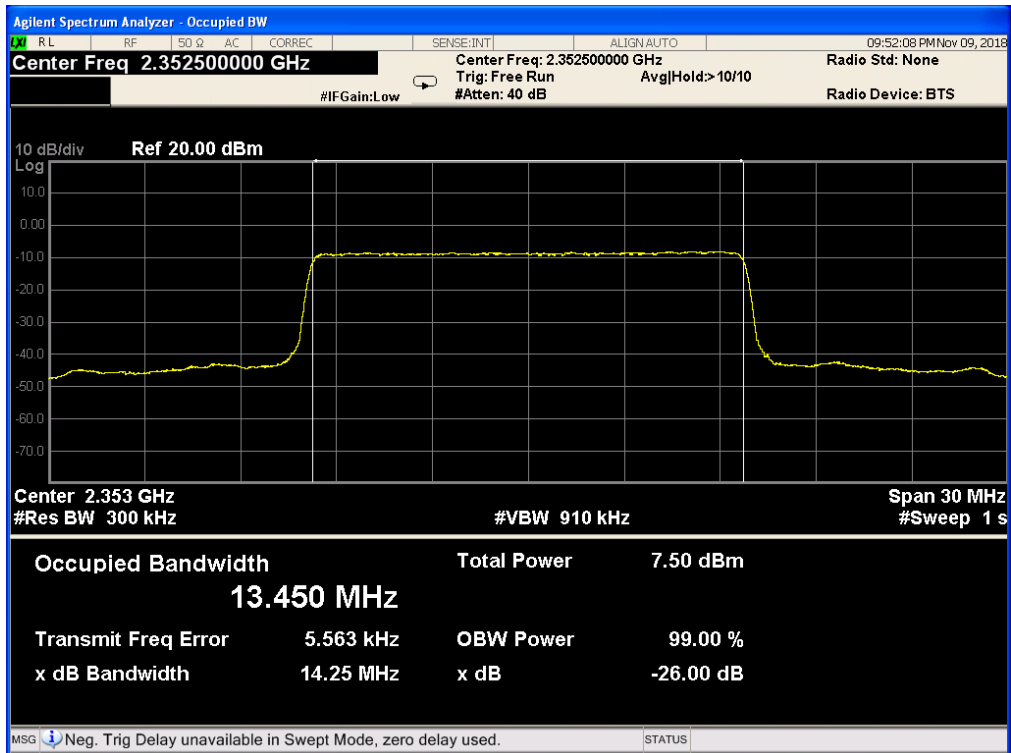
Band 40, UL Channel 39175, UL Frequency 2352.5, BW 10.0, NO. RB 50, RB POS. Low, 16-QAM



Band 40, UL Channel 39175, UL Frequency 2352.5, BW 15.0, NO. RB 75, RB POS. Low, QPSK



Band 40, UL Channel 39175, UL Frequency 2352.5, BW 15.0, NO. RB 75, RB POS. Low, 16-QAM



6. BANDEDGE AND EMISSION MASK

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53, and §90.691

FCC: §22.359

LIMITS

FCC: §22.359, §24.238,

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

(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 than $43 + 10 \log (P)$ 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 CMW500 Test 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 (704, 716, 824, 849, 1710 and 1755, 1850 and 1910MHz)

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

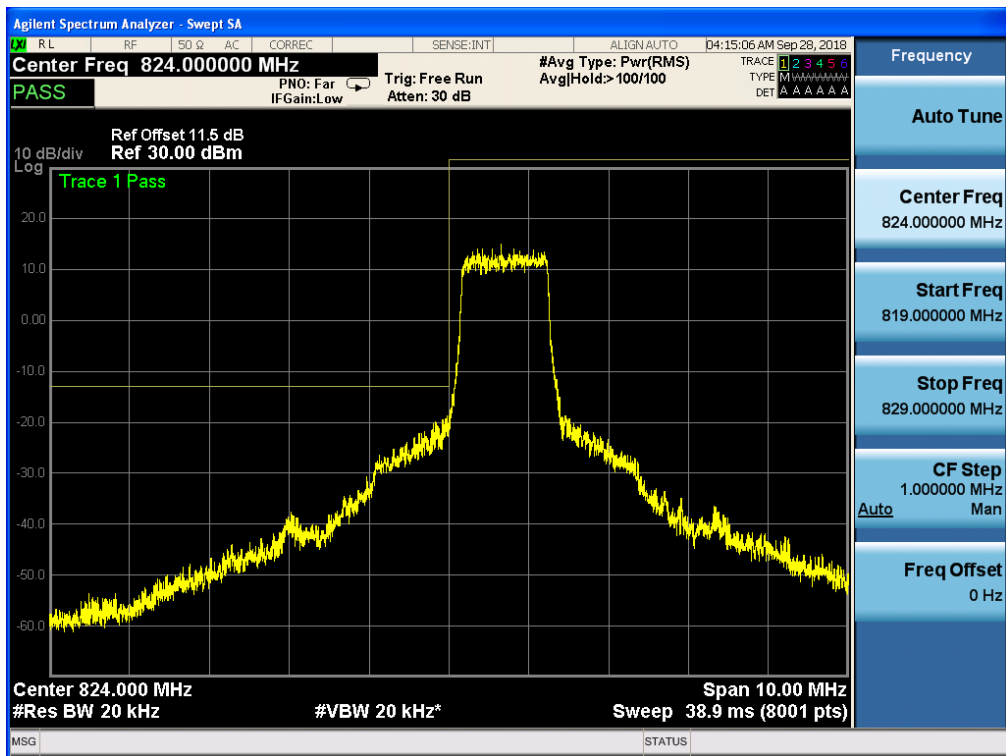
LTE Band 5

LTE Band 40

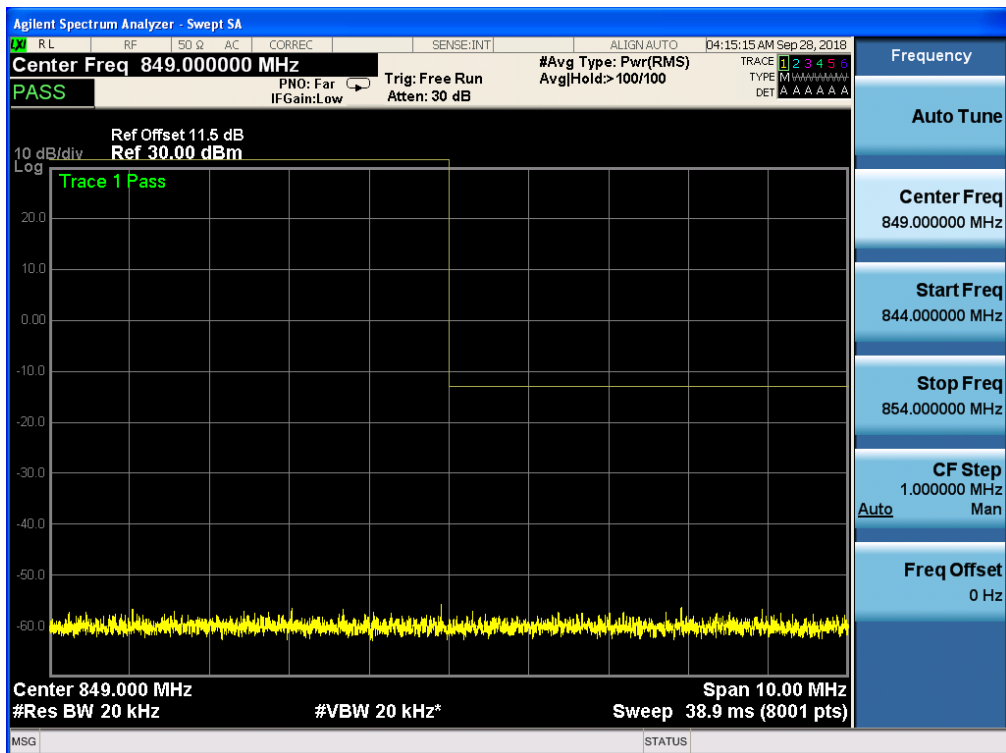
RESULTS

6.1 LTE BAND 5

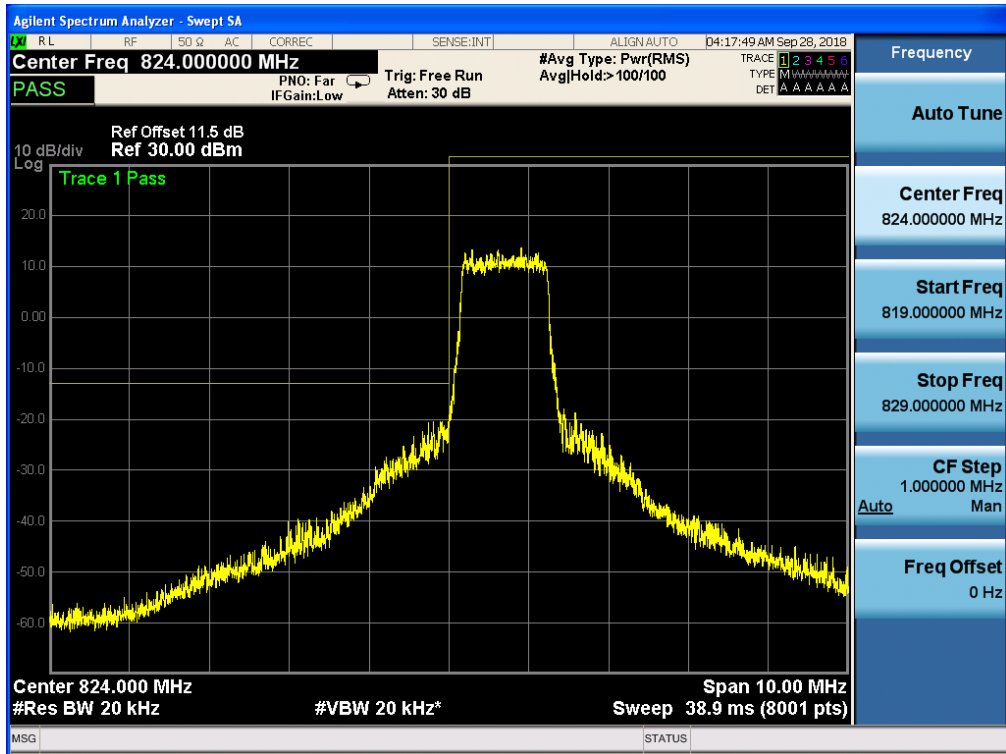
Band 5, UL Channel 20407, UL Frequency 824.7, BW 1.4, NO. RB 6, RB POS. Low, QPSK



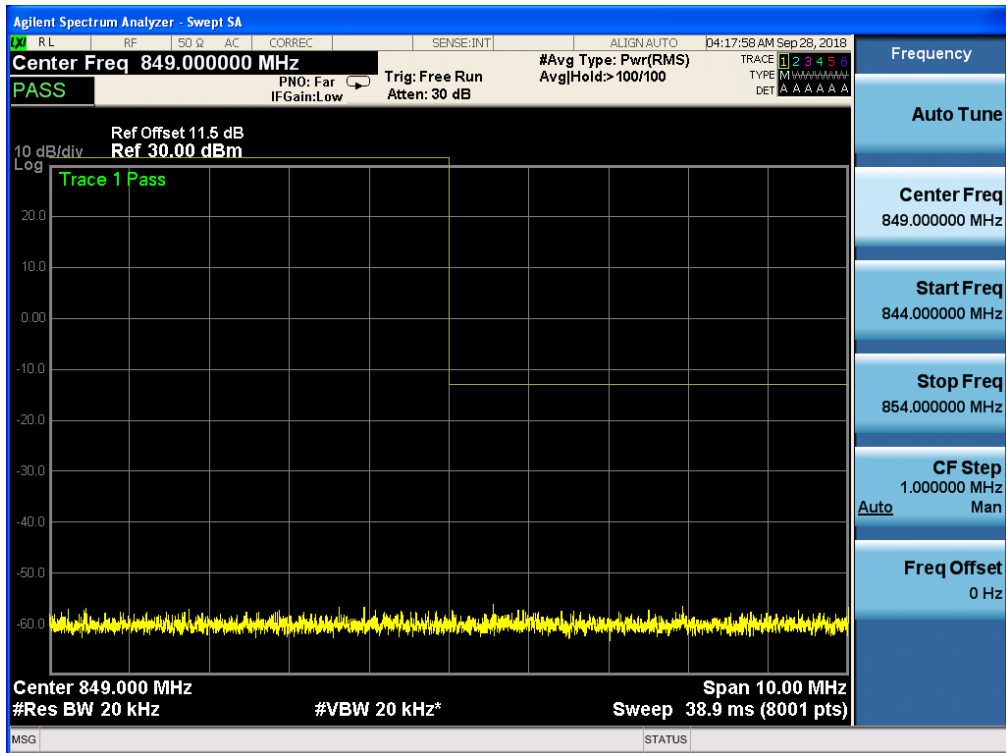
Band 5, UL Channel 20407, UL Frequency 824.7, BW 1.4, NO. RB 6, RB POS. Low, QPSK



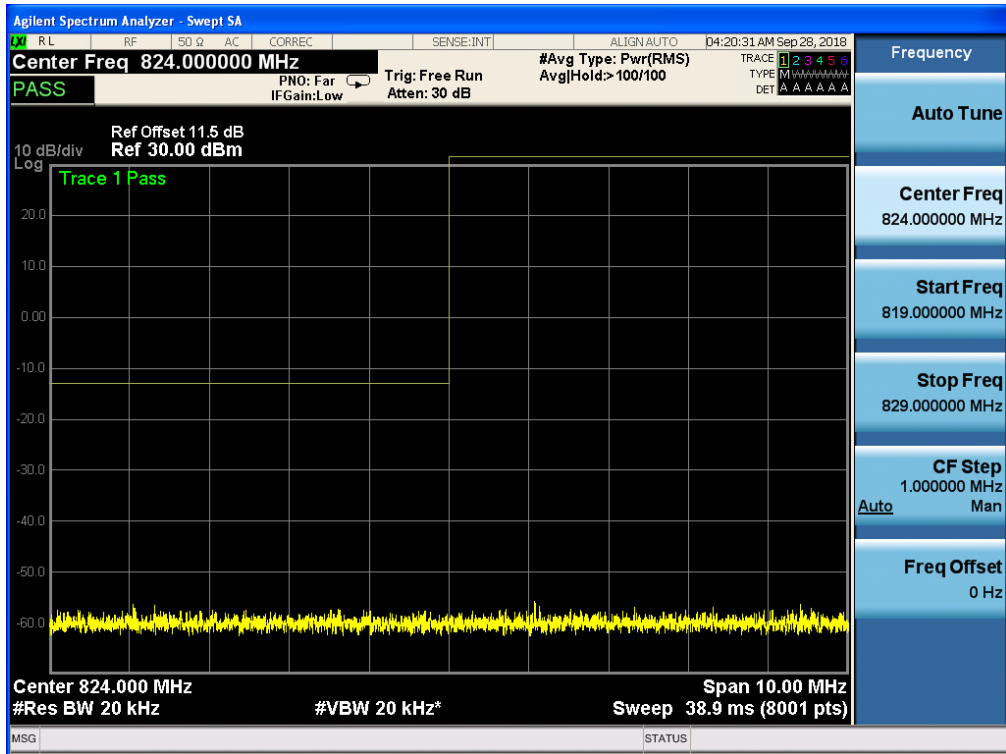
Band 5, UL Channel 20407, UL Frequency 824.7, BW 1.4, NO. RB 6, RB POS. Low, 16-QAM



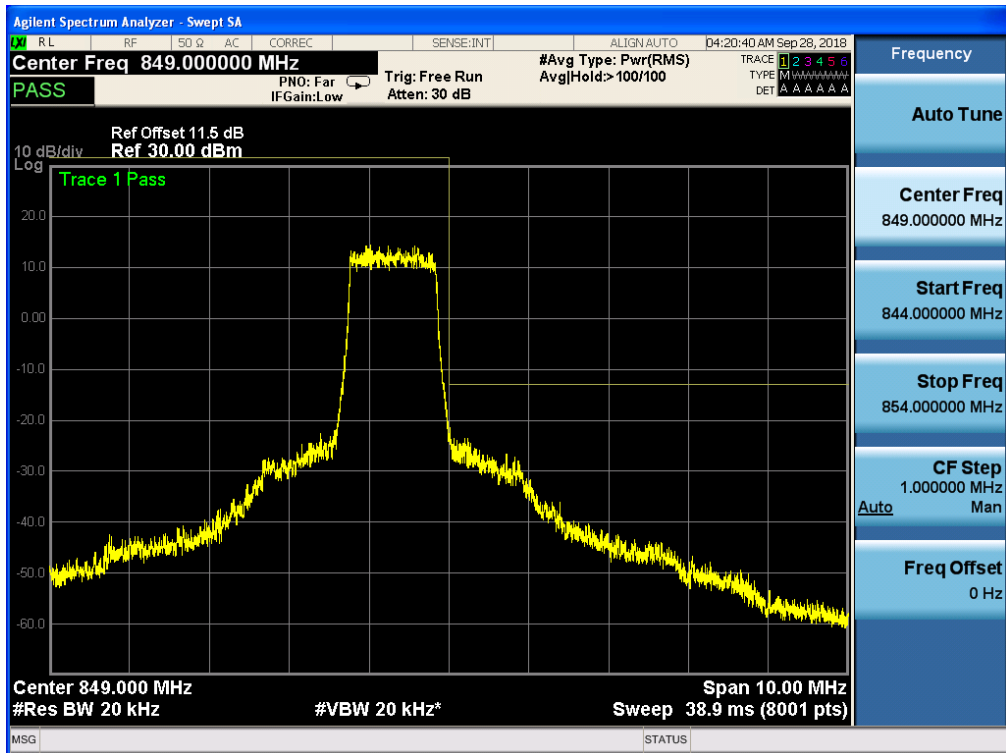
Band 5, UL Channel 20407, UL Frequency 824.7, BW 1.4, NO. RB 6, RB POS. Low, 16-QAM



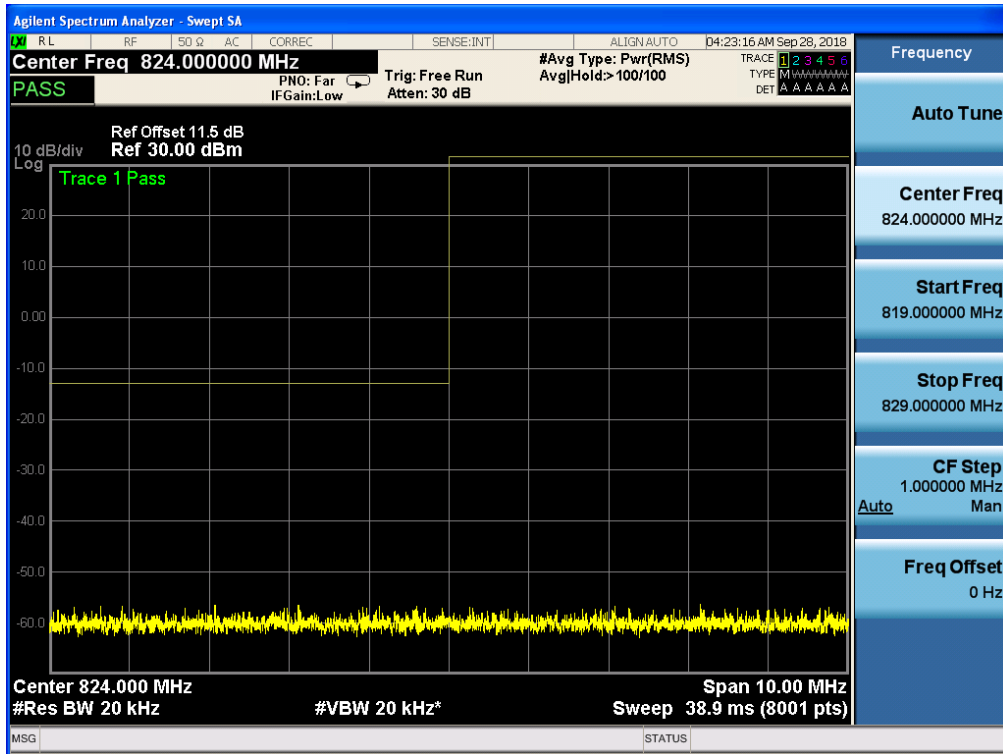
Band 5, UL Channel 20643, UL Frequency 848.3, BW 1.4, NO. RB 6, RB POS. Low, QPSK



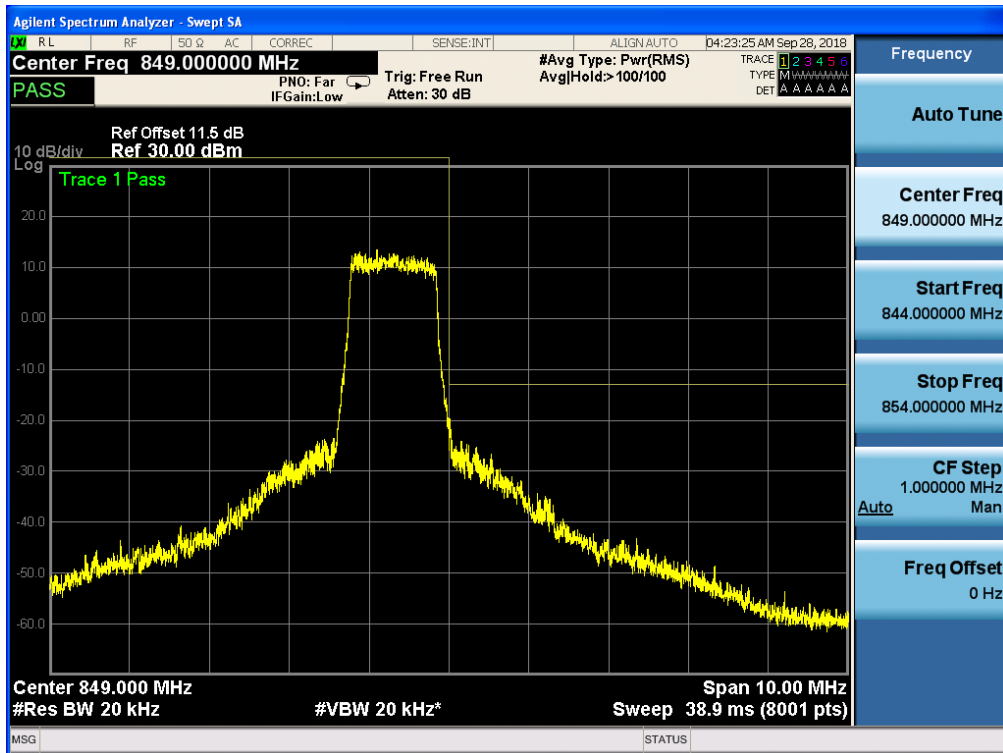
Band 5, UL Channel 20643, UL Frequency 848.3, BW 1.4, NO. RB 6, RB POS. Low, QPSK



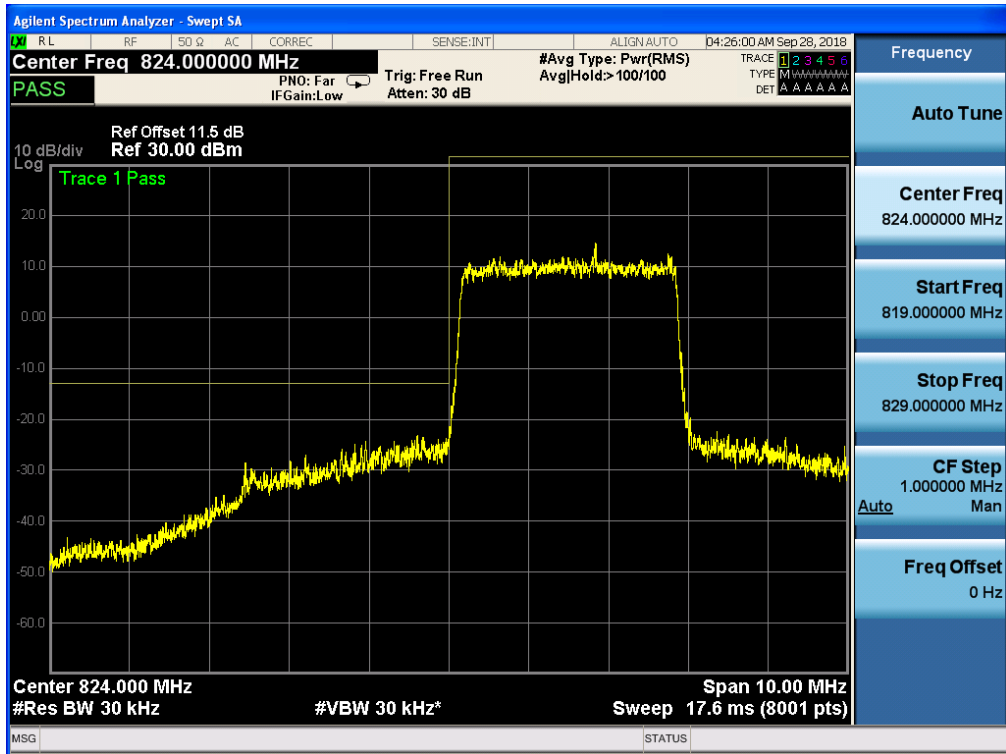
Band 5, UL Channel 20643, UL Frequency 848.3, BW 1.4, NO. RB 6, RB POS. Low, 16-QAM



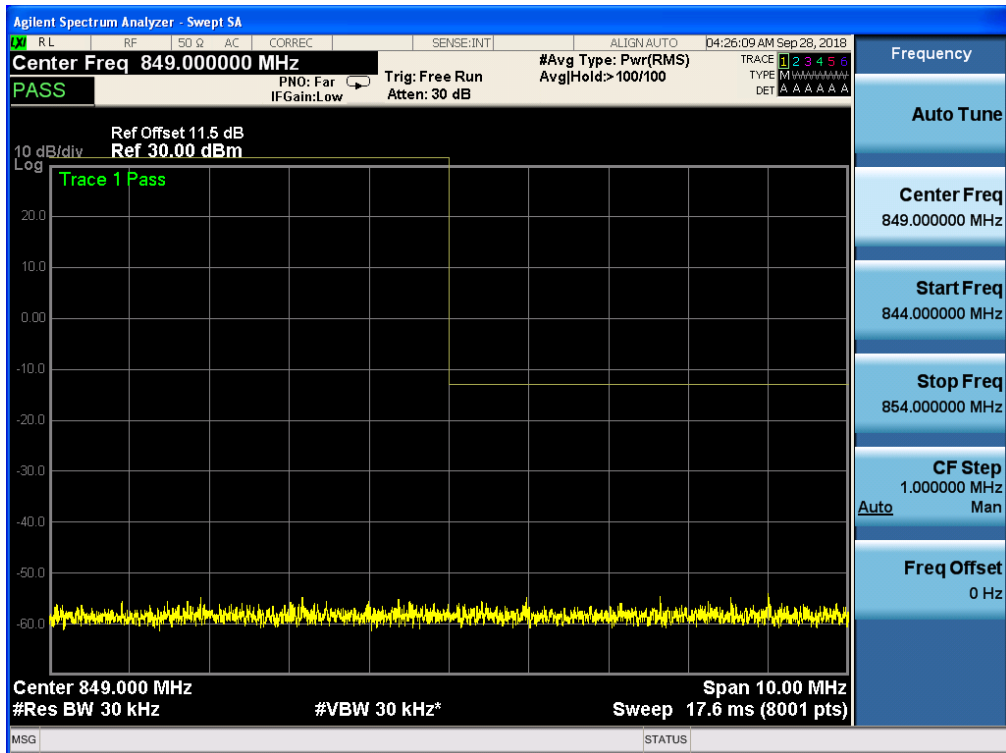
Band 5, UL Channel 20643, UL Frequency 848.3, BW 1.4, NO. RB 6, RB POS. Low, 16-QAM



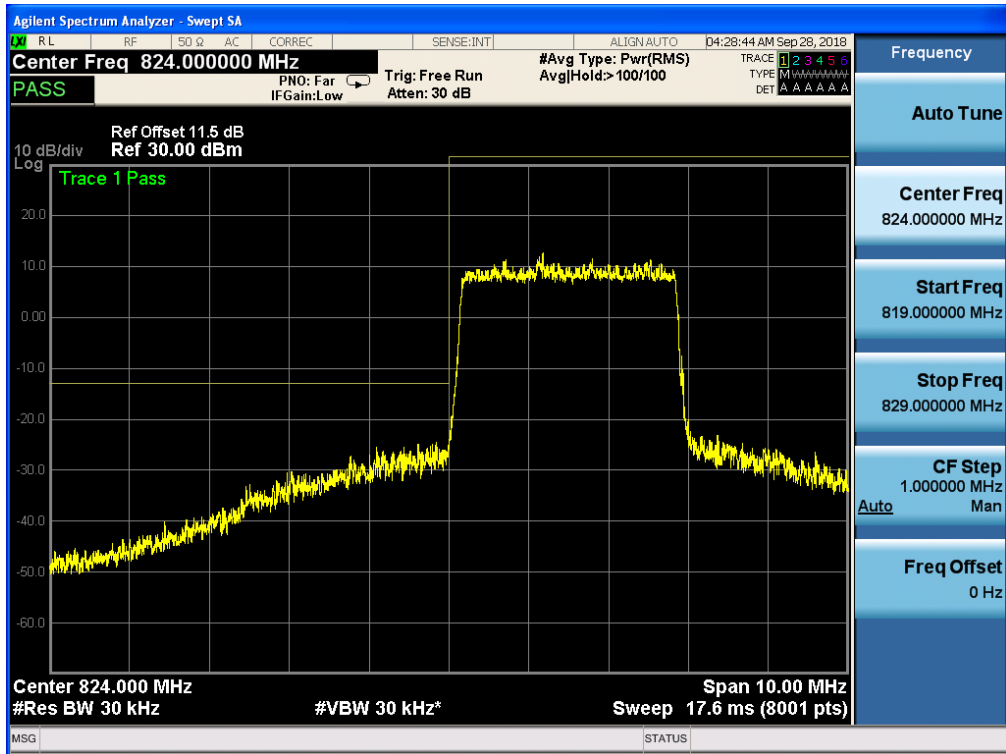
Band 5, UL Channel 20415, UL Frequency 825.5, BW 3.0, NO. RB 15, RB POS. Low, QPSK



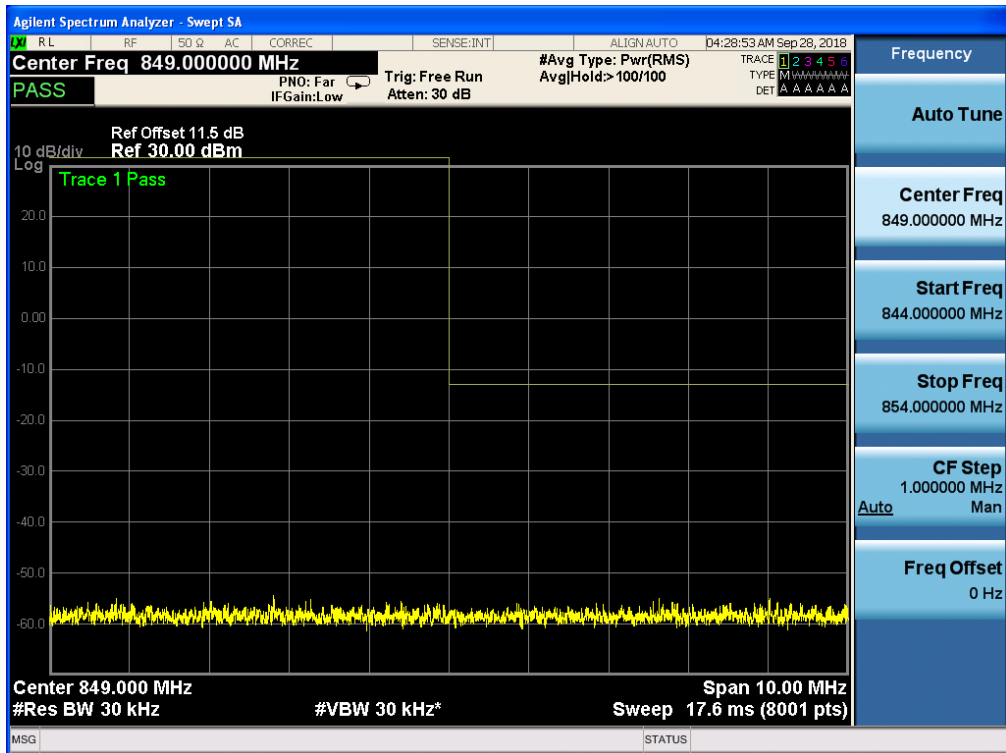
Band 5, UL Channel 20415, UL Frequency 825.5, BW 3.0, NO. RB 15, RB POS. Low, QPSK



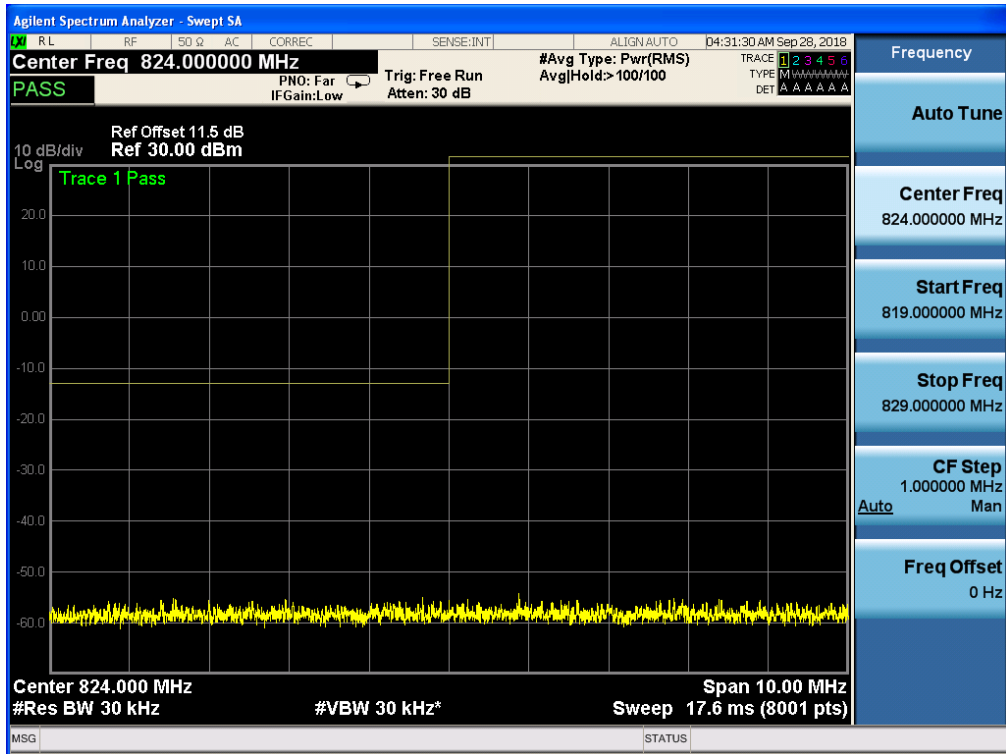
Band 5, UL Channel 20415, UL Frequency 825.5, BW 3.0, NO. RB 15, RB POS. Low, 16-QAM



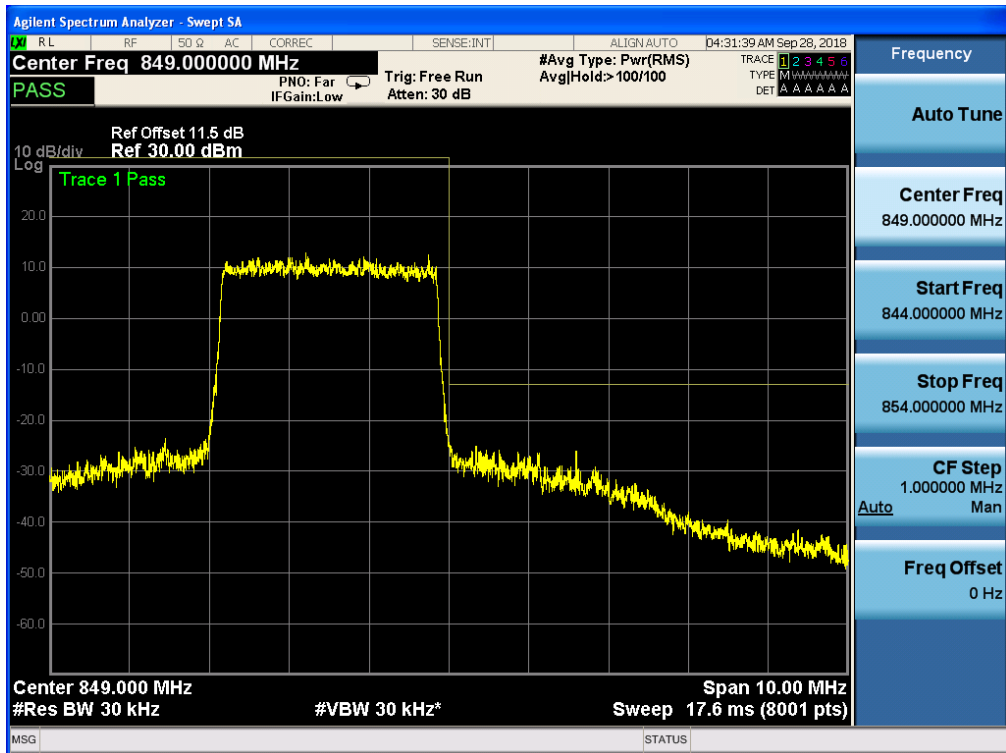
Band 5, UL Channel 20415, UL Frequency 825.5, BW 3.0, NO. RB 15, RB POS. Low, 16-QAM



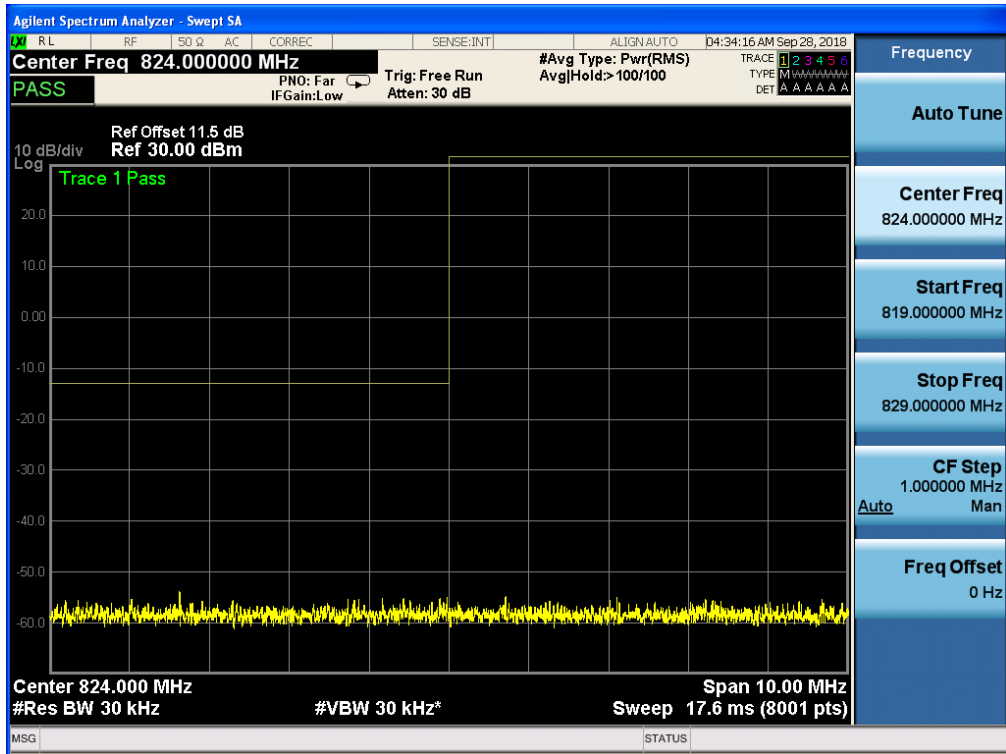
Band 5, UL Channel 20635, UL Frequency 847.5, BW 3.0, NO. RB 15, RB POS. Low, QPSK



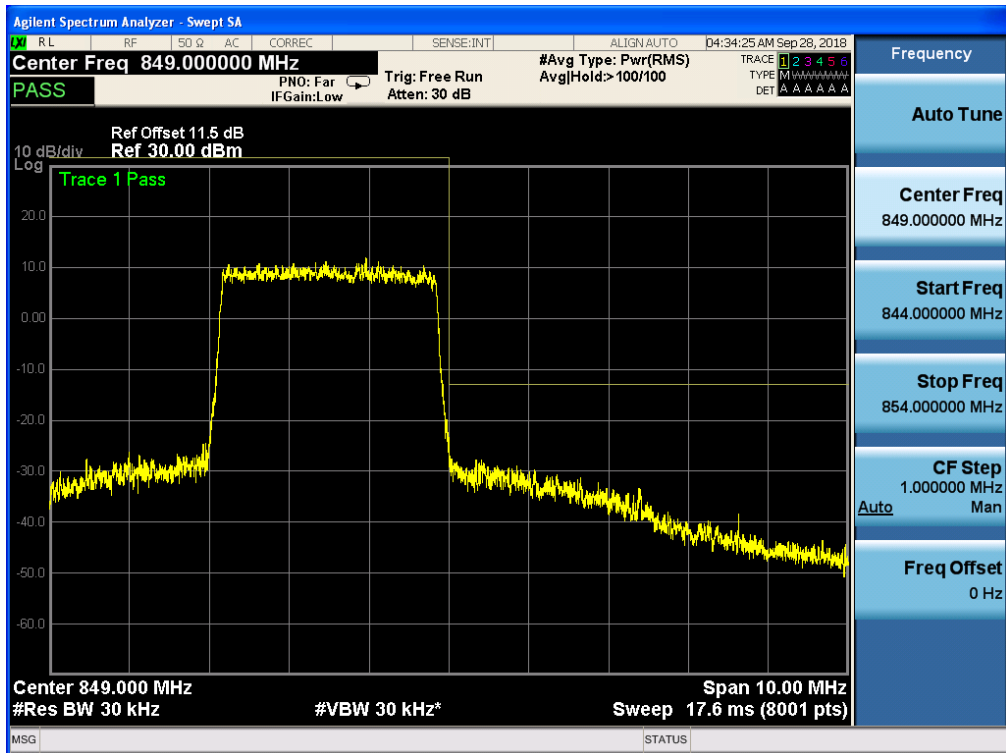
Band 5, UL Channel 20635, UL Frequency 847.5, BW 3.0, NO. RB 15, RB POS. Low, QPSK



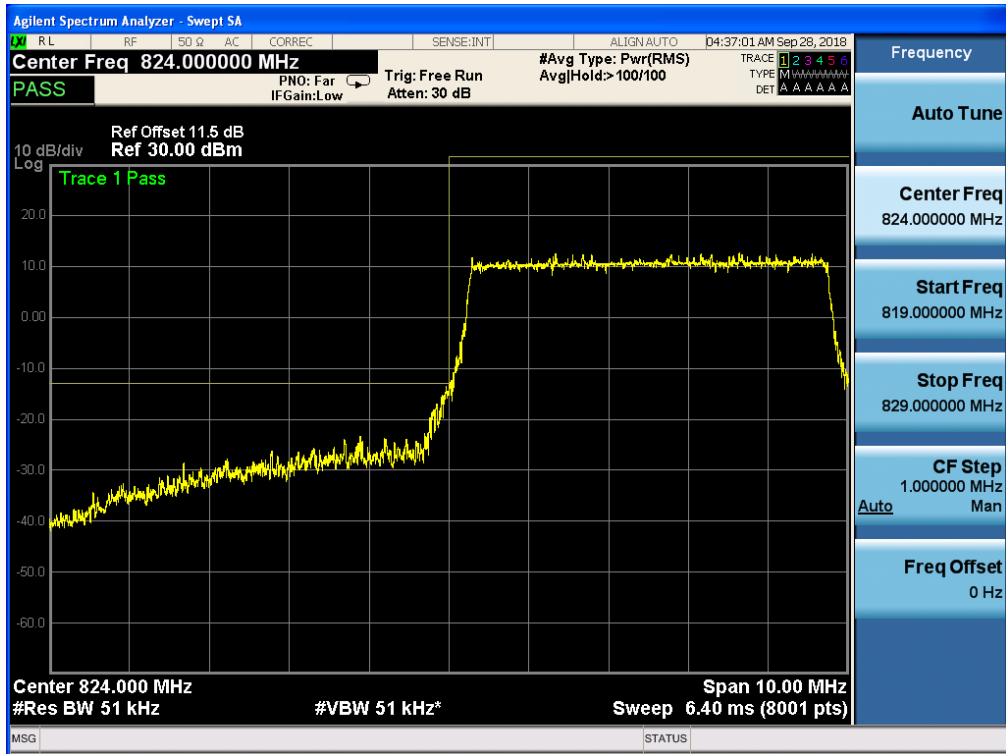
Band 5, UL Channel 20635, UL Frequency 847.5, BW 3.0, NO. RB 15, RB POS. Low, 16-QAM



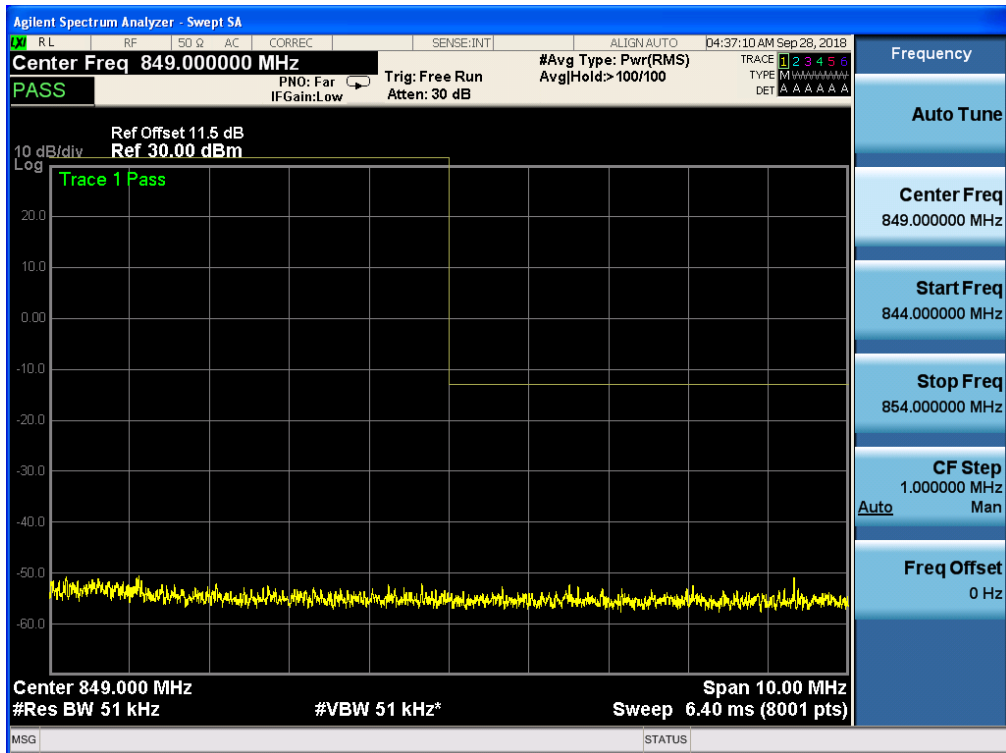
Band 5, UL Channel 20635, UL Frequency 847.5, BW 3.0, NO. RB 15, RB POS. Low, 16-QAM



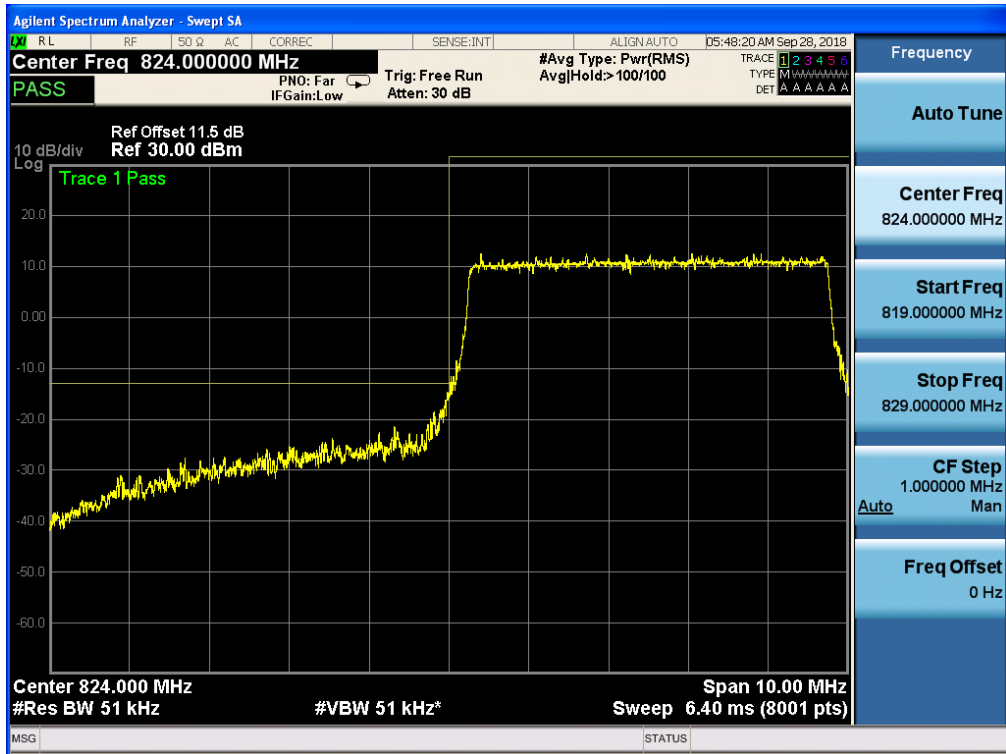
Band 5, UL Channel 20425, UL Frequency 826.5, BW 5.0, NO. RB 25, RB POS. Low, QPSK



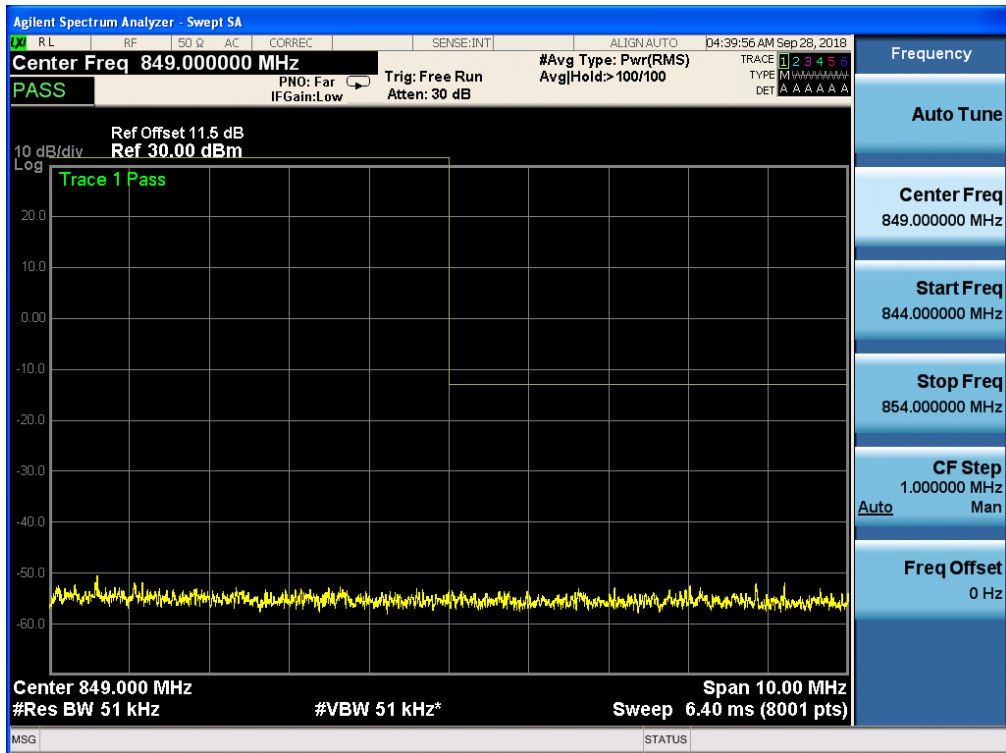
Band 5, UL Channel 20425, UL Frequency 826.5, BW 5.0, NO. RB 25, RB POS. Low, QPSK



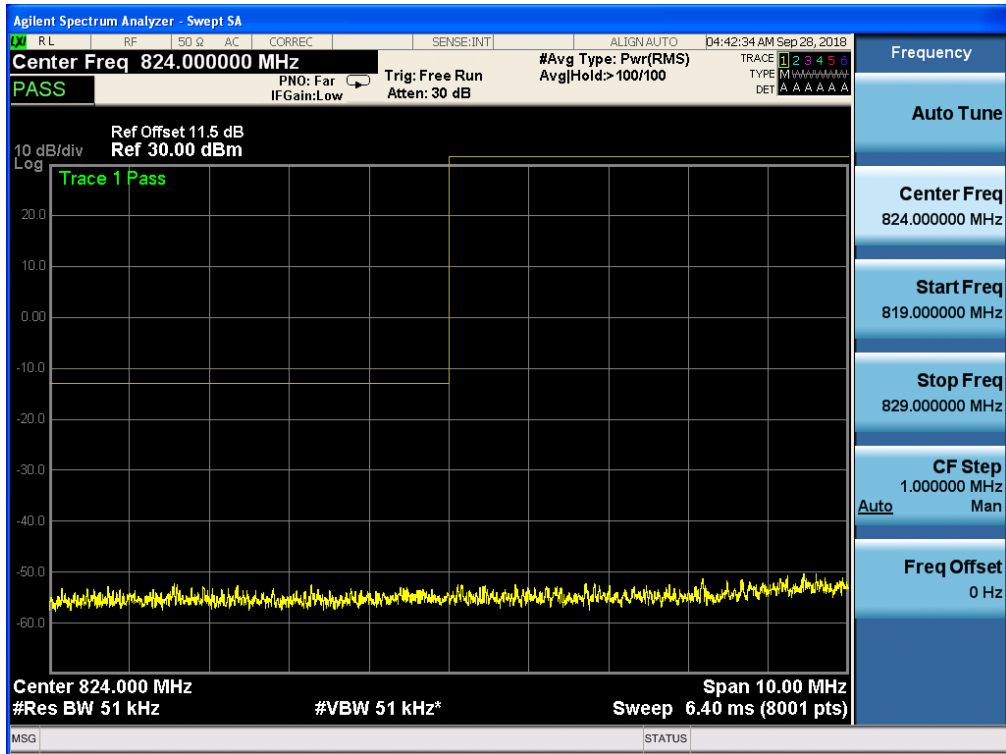
Band 5, UL Channel 20425, UL Frequency 826.5, BW 5.0, NO. RB 25, RB POS. Low, 16-QAM



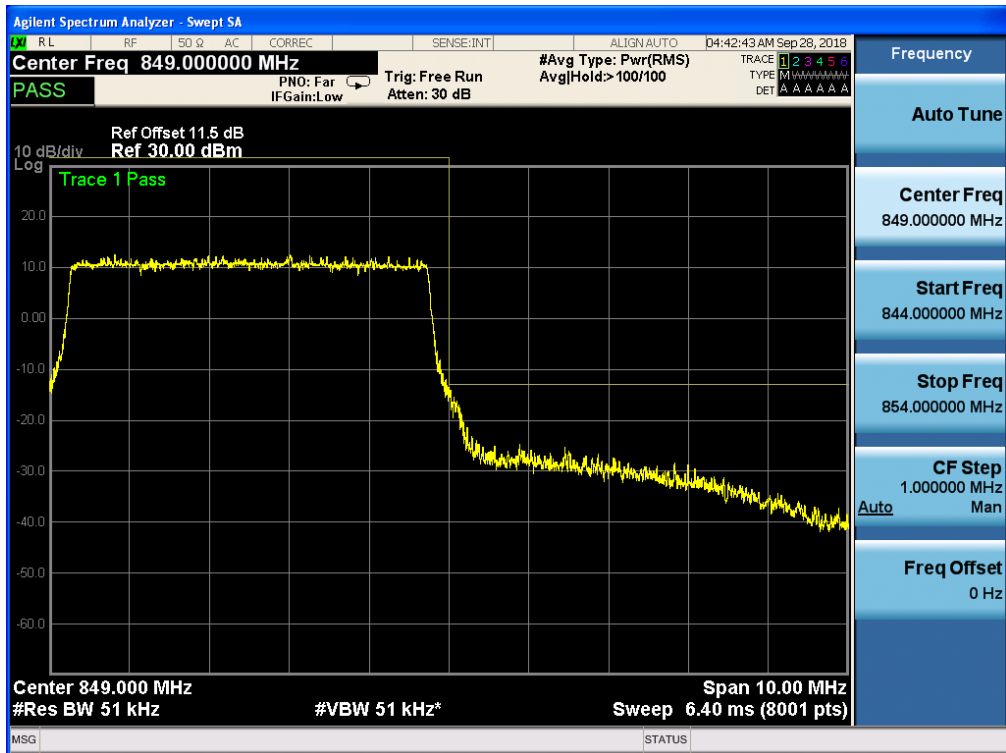
Band 5, UL Channel 20425, UL Frequency 826.5, BW 5.0, NO. RB 25, RB POS. Low, 16-QAM



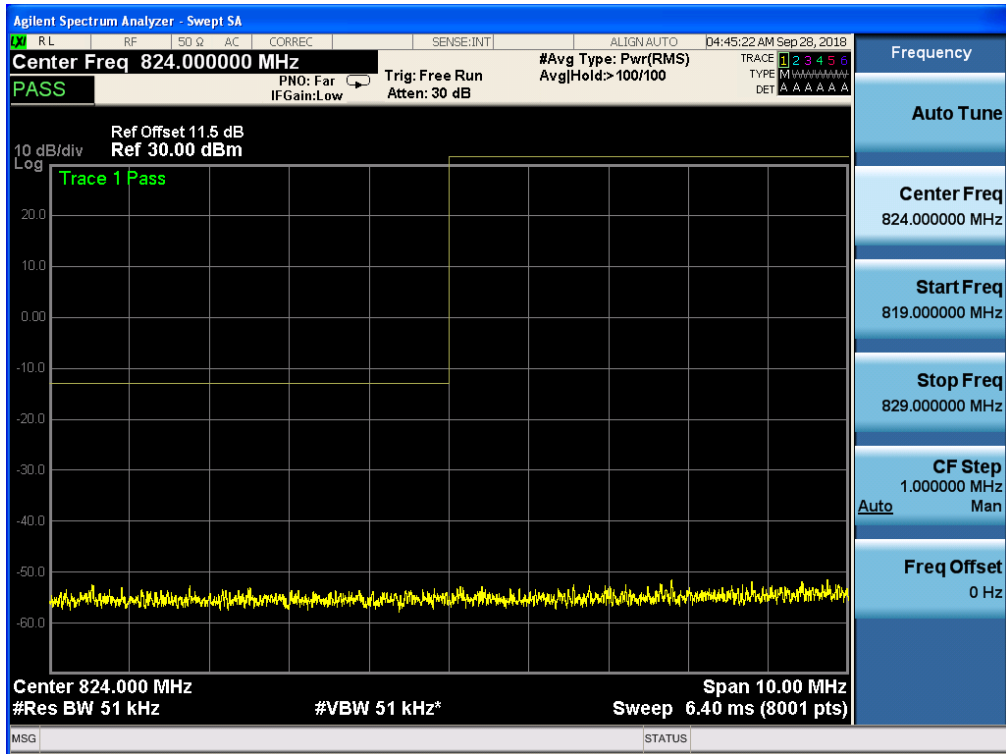
Band 5, UL Channel 20625, UL Frequency 846.5, BW 5.0, NO. RB 25, RB POS. Low, QPSK



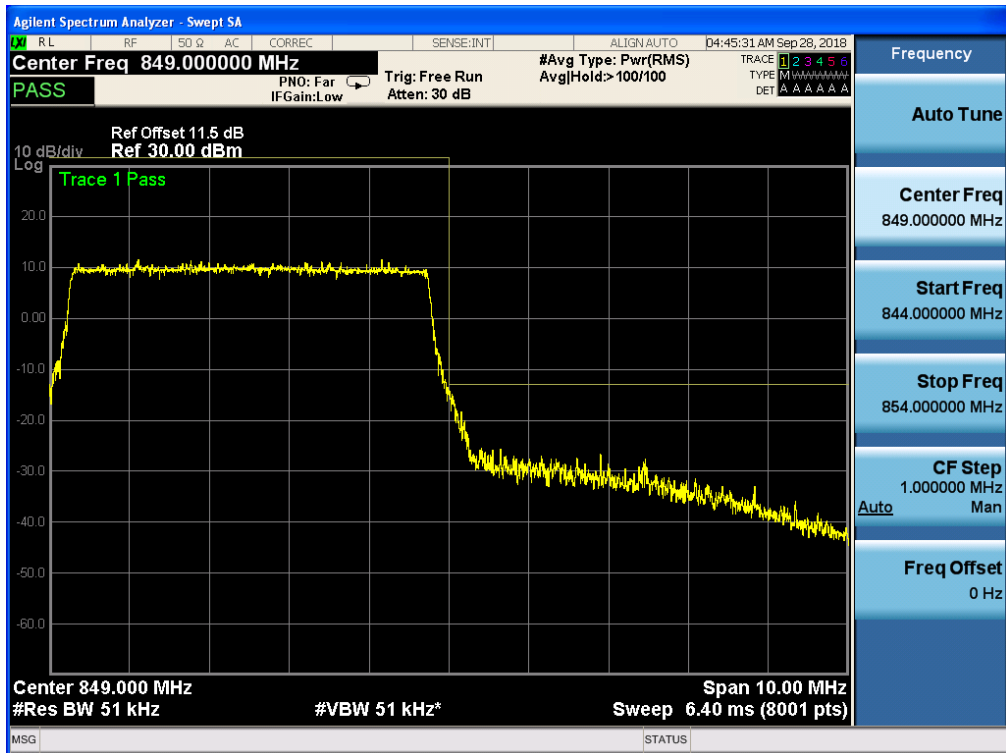
Band 5, UL Channel 20625, UL Frequency 846.5, BW 5.0, NO. RB 25, RB POS. Low, QPSK



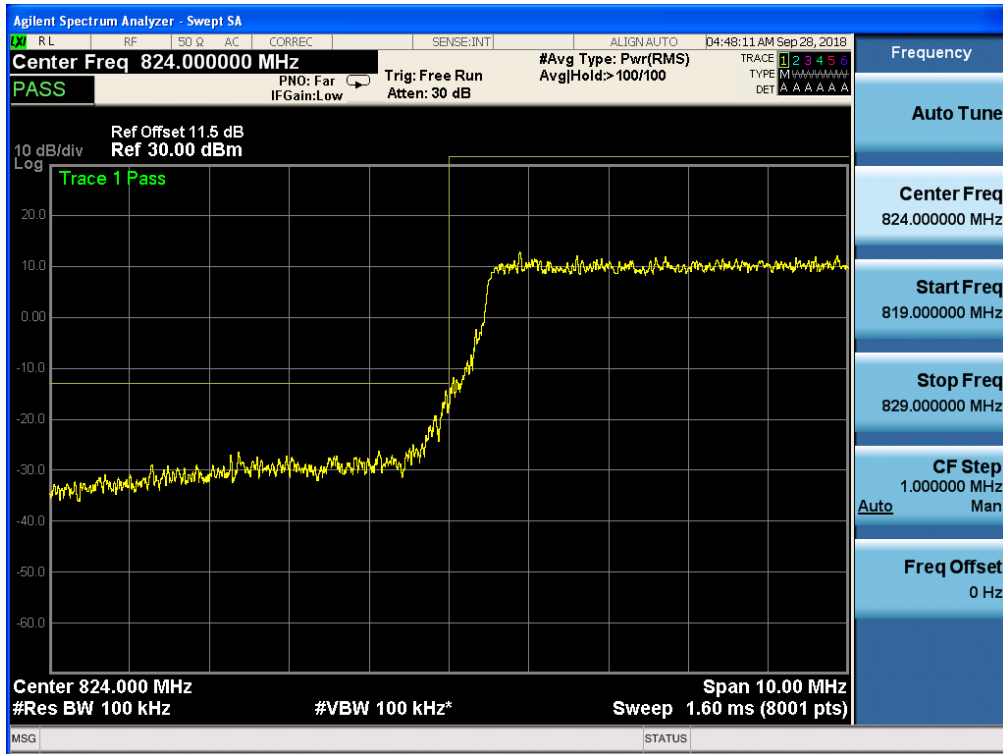
Band 5, UL Channel 20625, UL Frequency 846.5, BW 5.0, NO. RB 25, RB POS. Low, 16-QAM



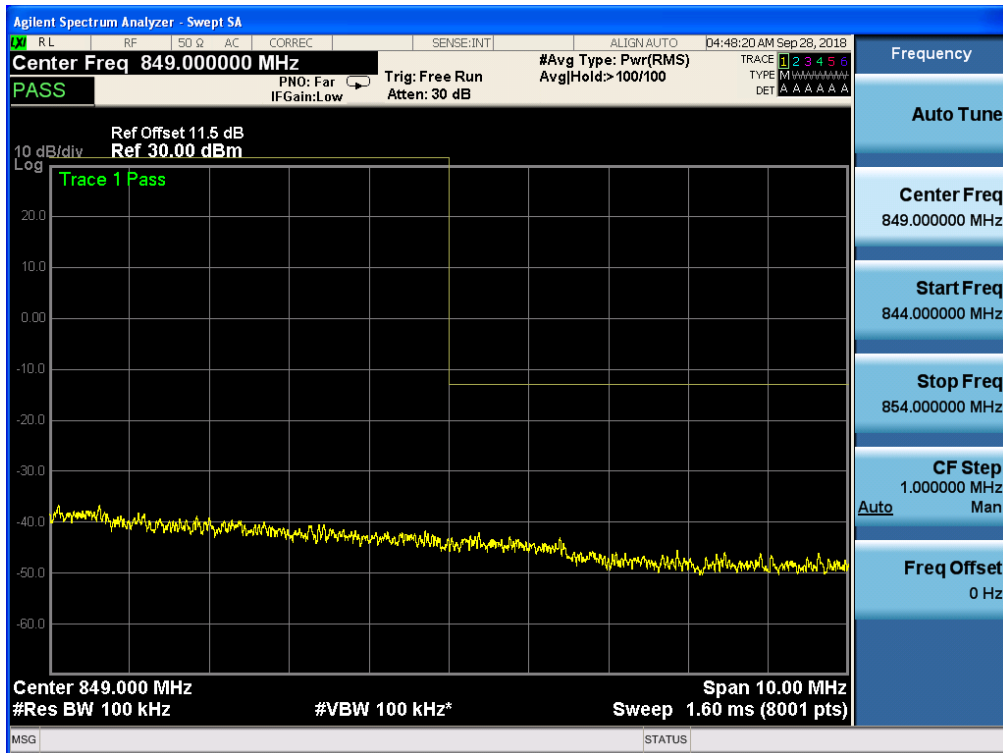
Band 5, UL Channel 20625, UL Frequency 846.5, BW 5.0, NO. RB 25, RB POS. Low, 16-QAM



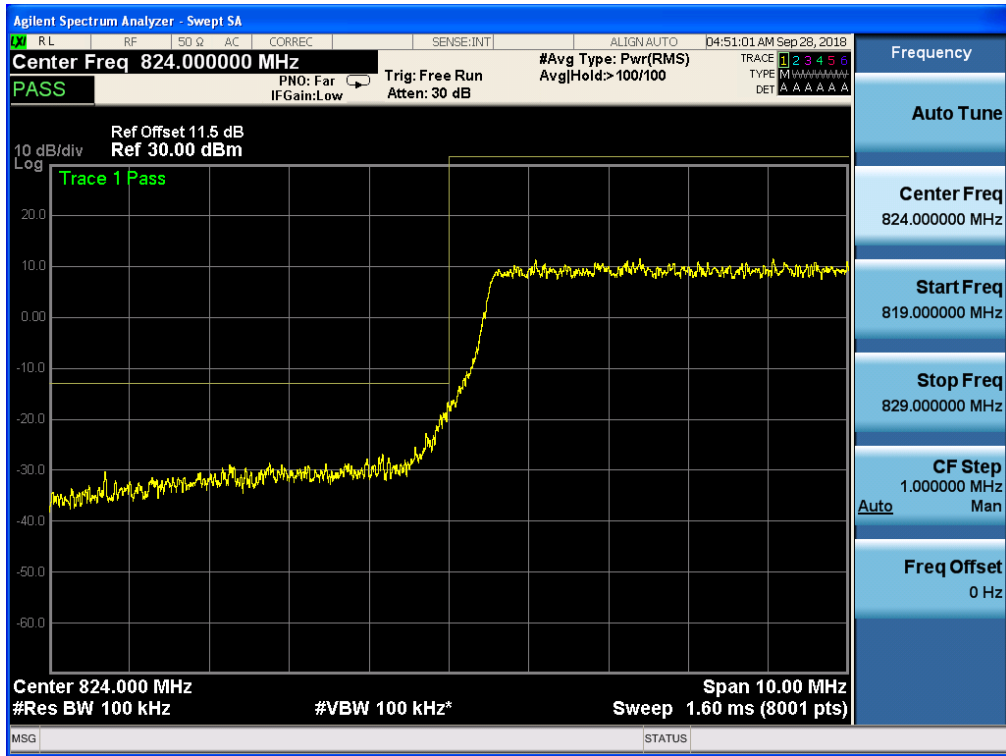
Band 5, UL Channel 20450, UL Frequency 829.0, BW 10.0, NO. RB 50, RB POS. Low, QPSK



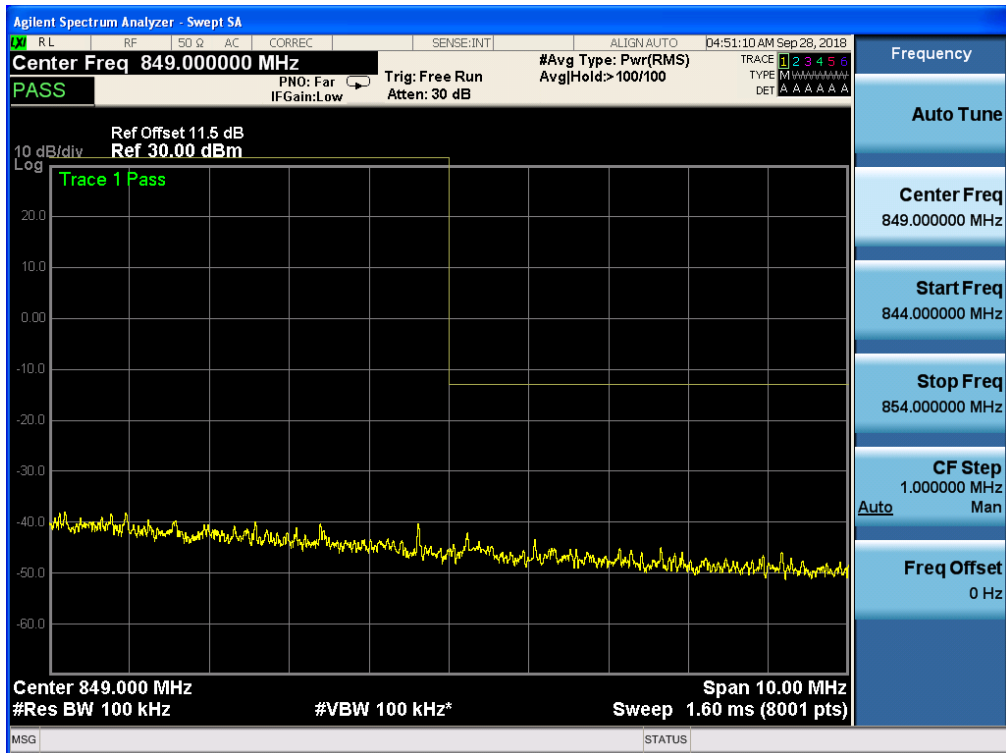
Band 5, UL Channel 20450, UL Frequency 829.0, BW 10.0, NO. RB 50, RB POS. Low, QPSK



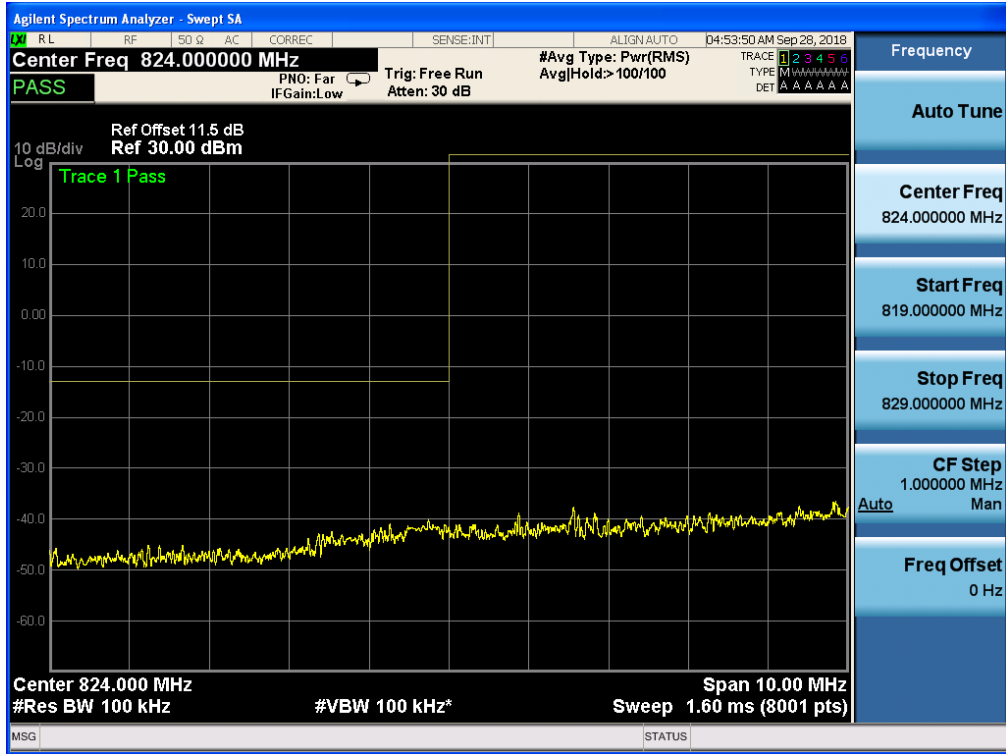
Band 5, UL Channel 20450, UL Frequency 829.0, BW 10.0, NO. RB 50, RB POS. Low, 16-QAM



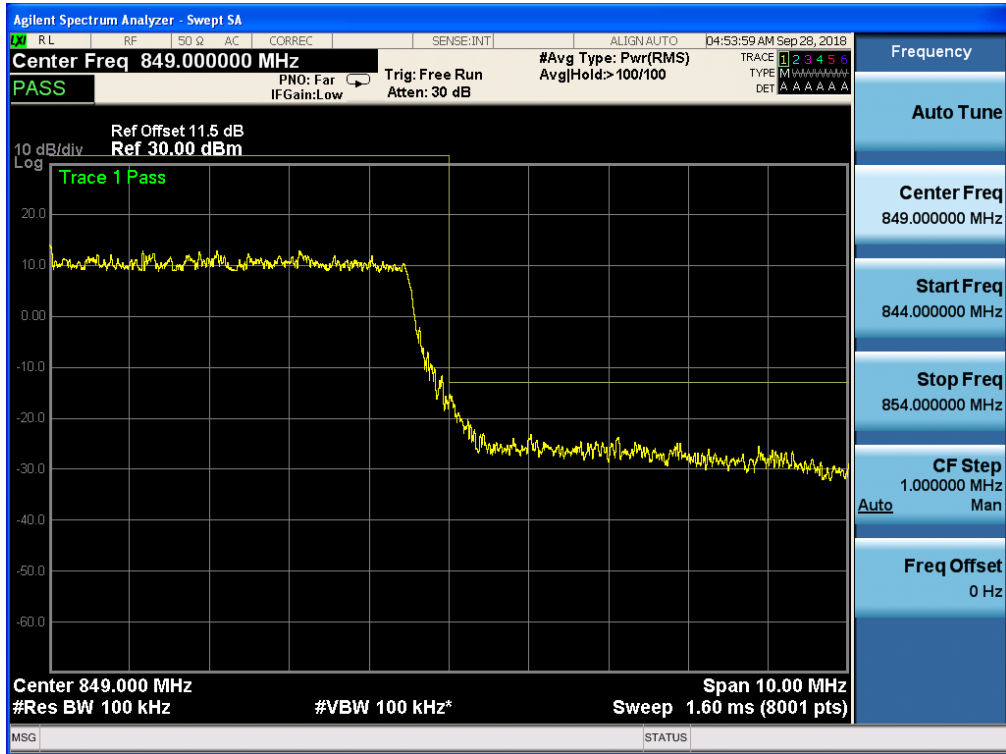
Band 5, UL Channel 20450, UL Frequency 829.0, BW 10.0, NO. RB 50, RB POS. Low, 16-QAM



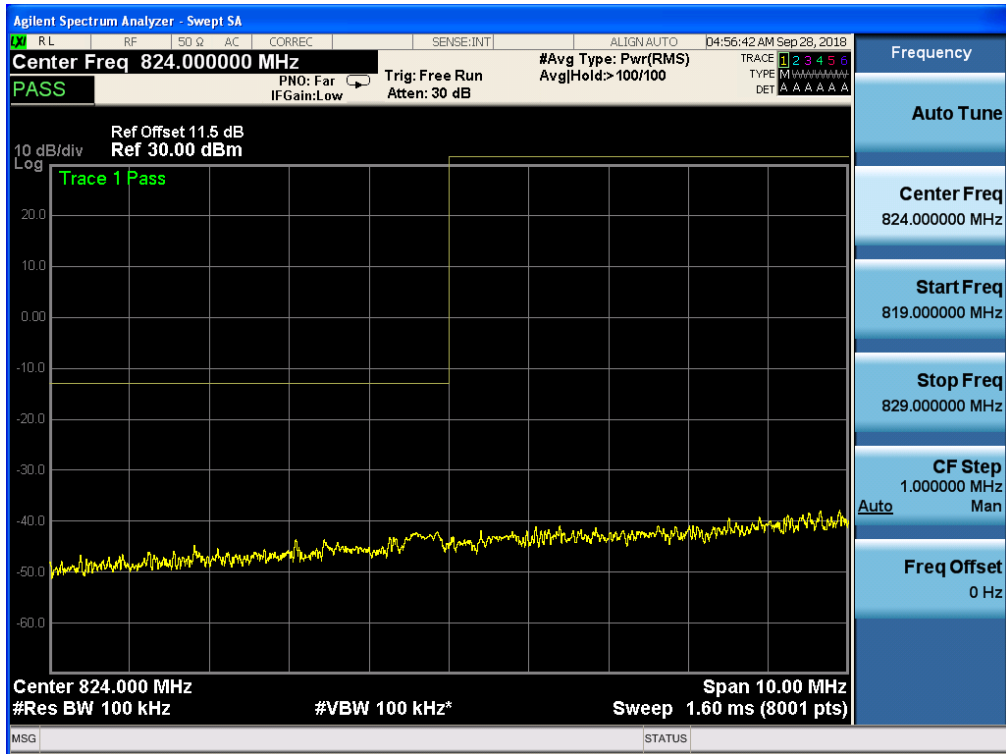
Band 5, UL Channel 20600, UL Frequency 844.0, BW 10.0, NO. RB 50, RB POS. Low, QPSK



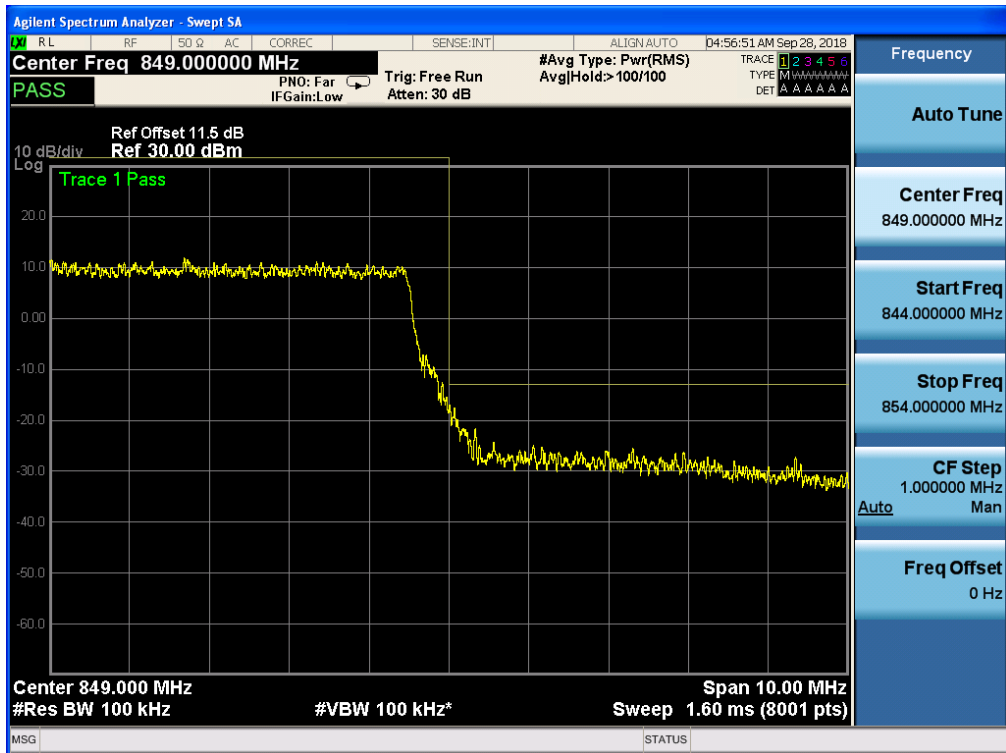
Band 5, UL Channel 20600, UL Frequency 844.0, BW 10.0, NO. RB 50, RB POS. Low, QPSK



Band 5, UL Channel 20600, UL Frequency 844.0, BW 10.0, NO. RB 50, RB POS. Low, 16-QAM

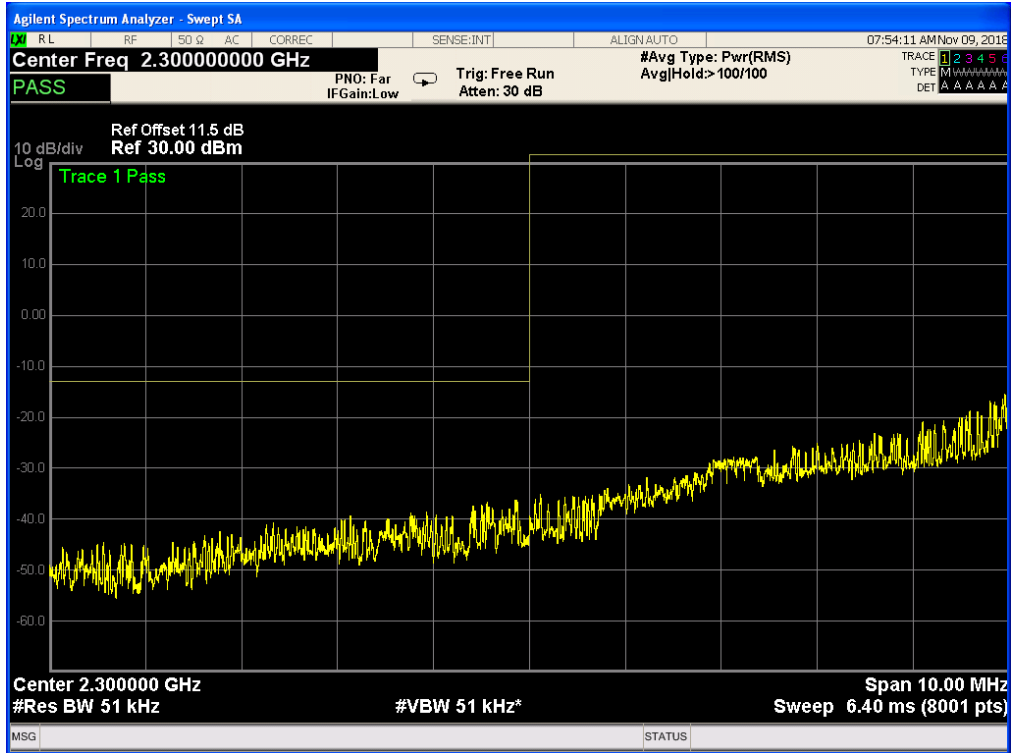


Band 5, UL Channel 20600, UL Frequency 844.0, BW 10.0, NO. RB 50, RB POS. Low, 16-QAM

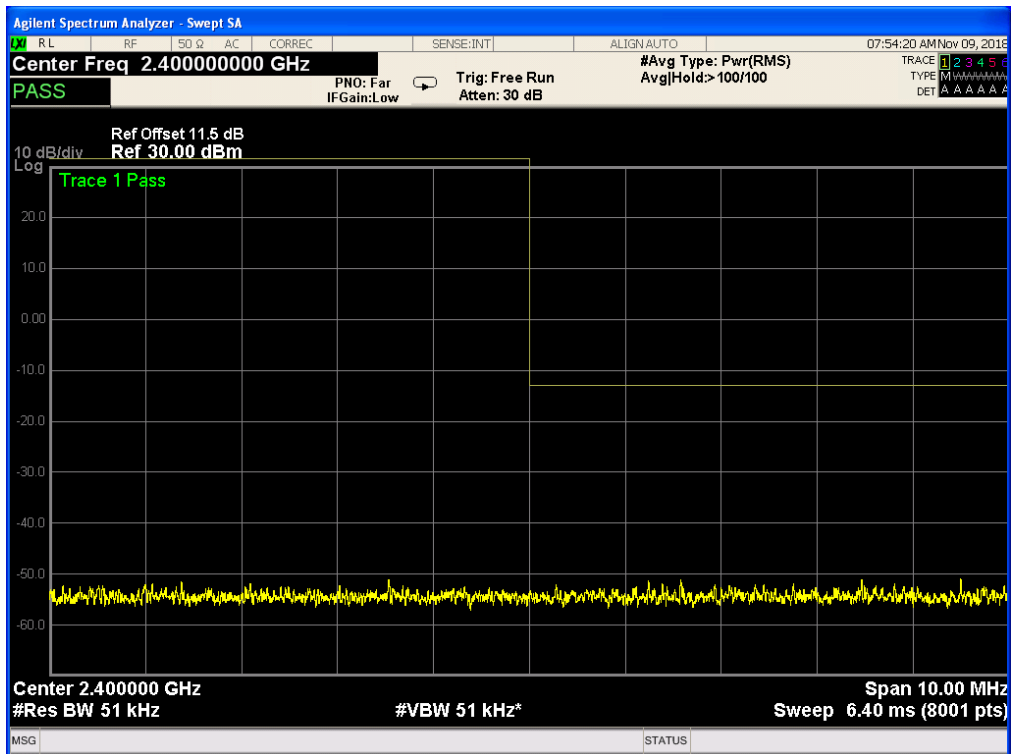


6.2 LTE BAND 40 (2305-2320MHz)

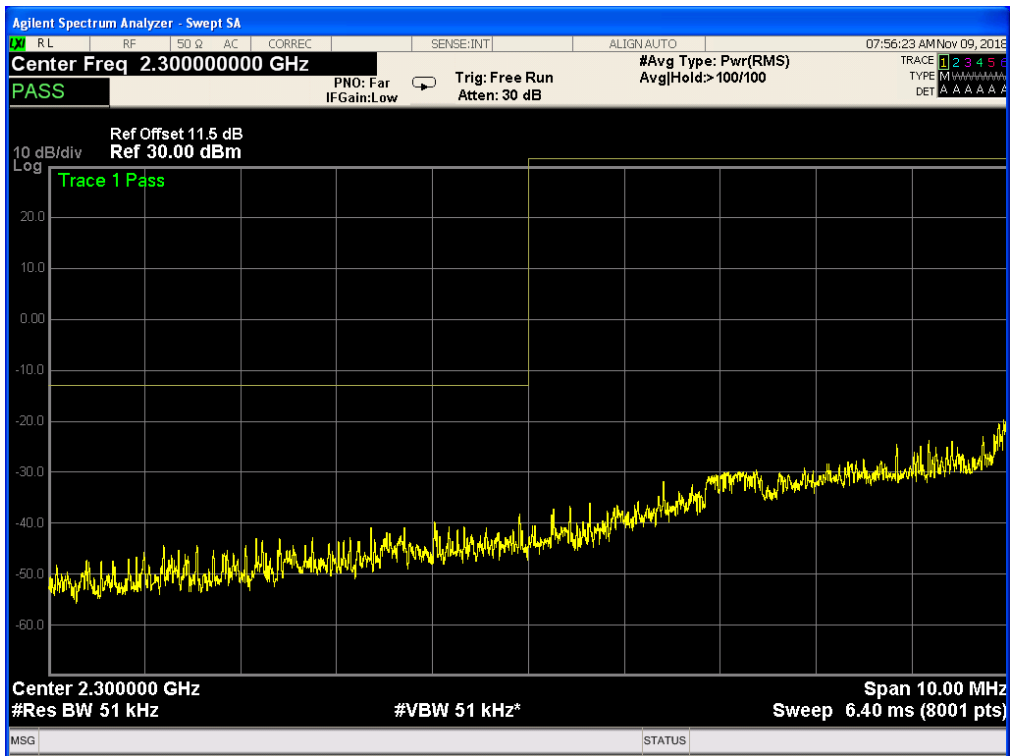
Band 40, UL Channel 38725, UL Frequency 2307.5, BW 5.0, NO. RB 25, RB POS. Low, QPSK



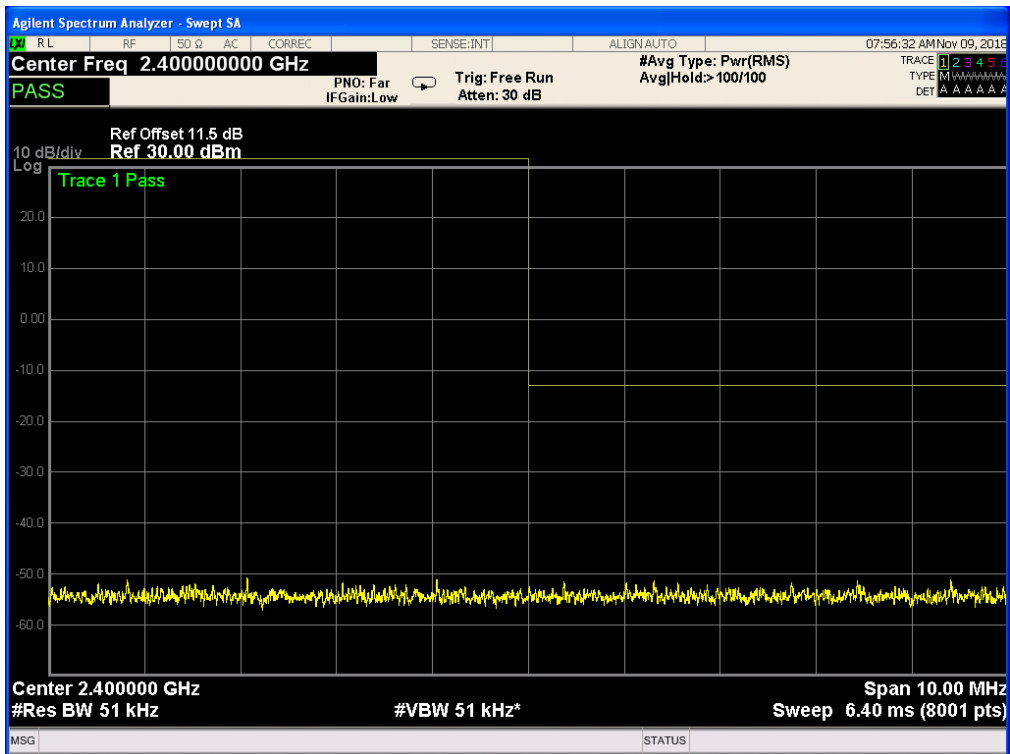
Band 40, UL Channel 38725, UL Frequency 2307.5, BW 5.0, NO. RB 25, RB POS. Low, QPSK



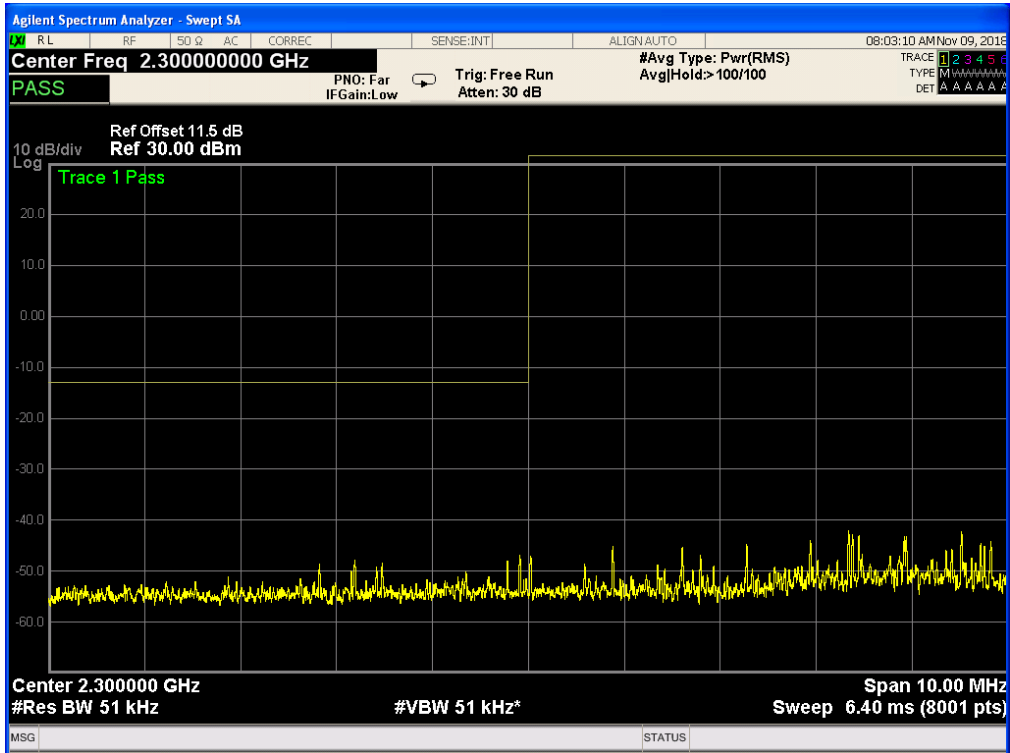
Band 40,UL Channel 38725,UL Frequency 2307.5,BW 5.0,NO. RB 25,RB POS. Low,16-QAM



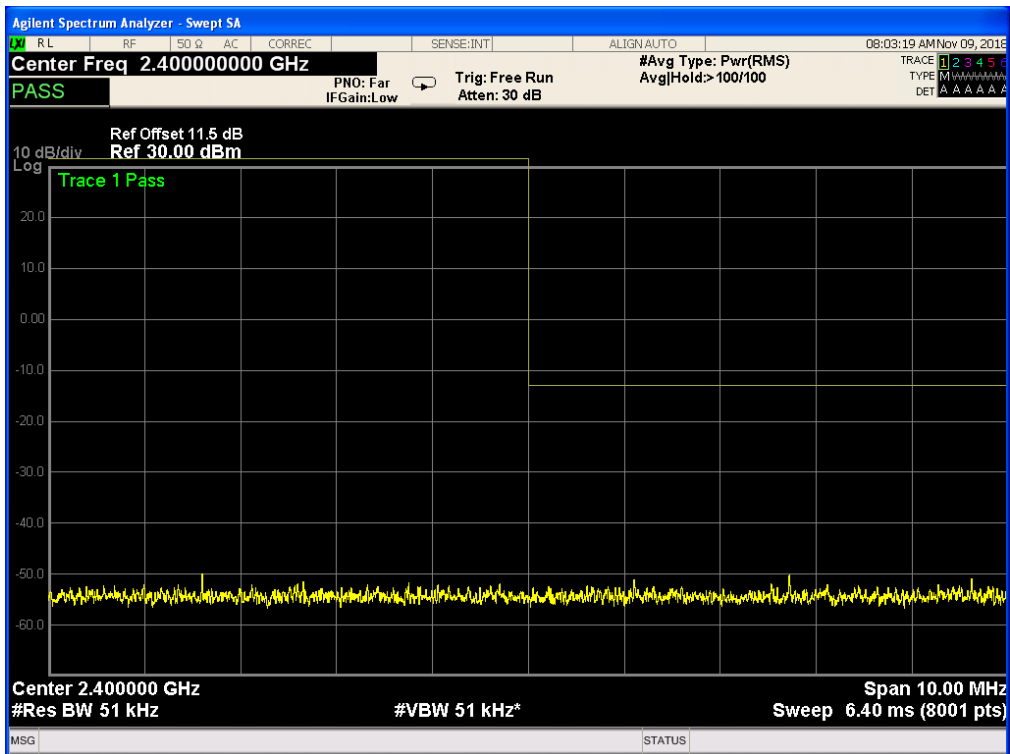
Band 40,UL Channel 38725,UL Frequency 2307.5,BW 5.0,NO. RB 25,RB POS. Low,16-QAM



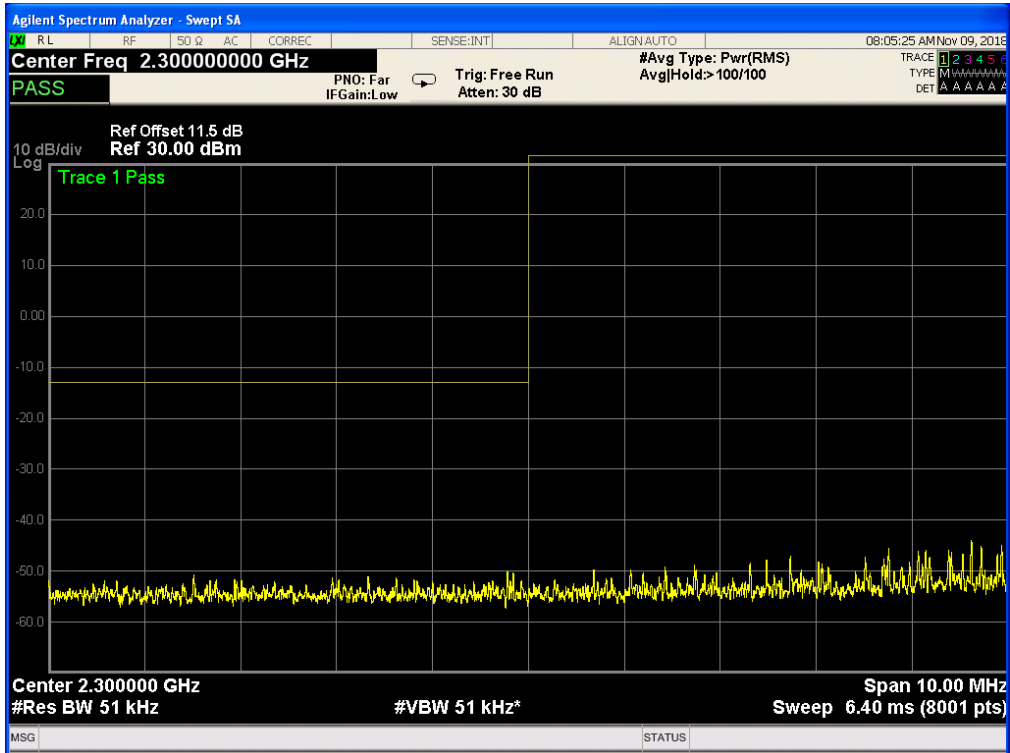
Band 40, UL Channel 38825, UL Frequency 2317.5, BW 5.0, NO. RB 25, RB POS. Low, QPSK



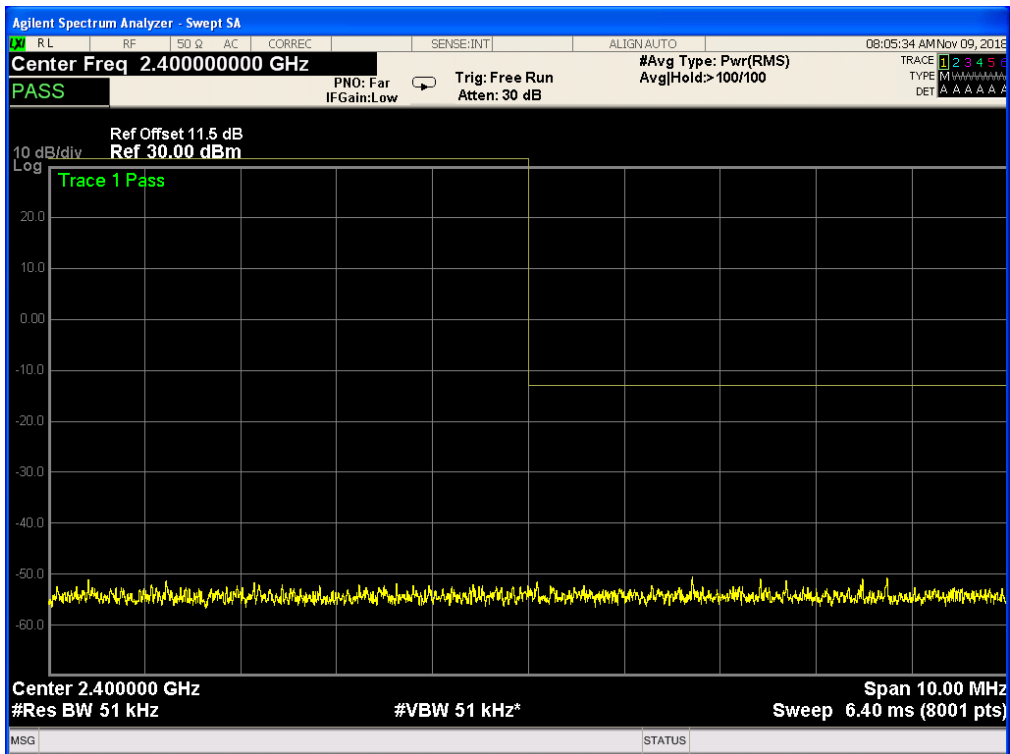
Band 40, UL Channel 38825, UL Frequency 2317.5, BW 5.0, NO. RB 25, RB POS. Low, QPSK



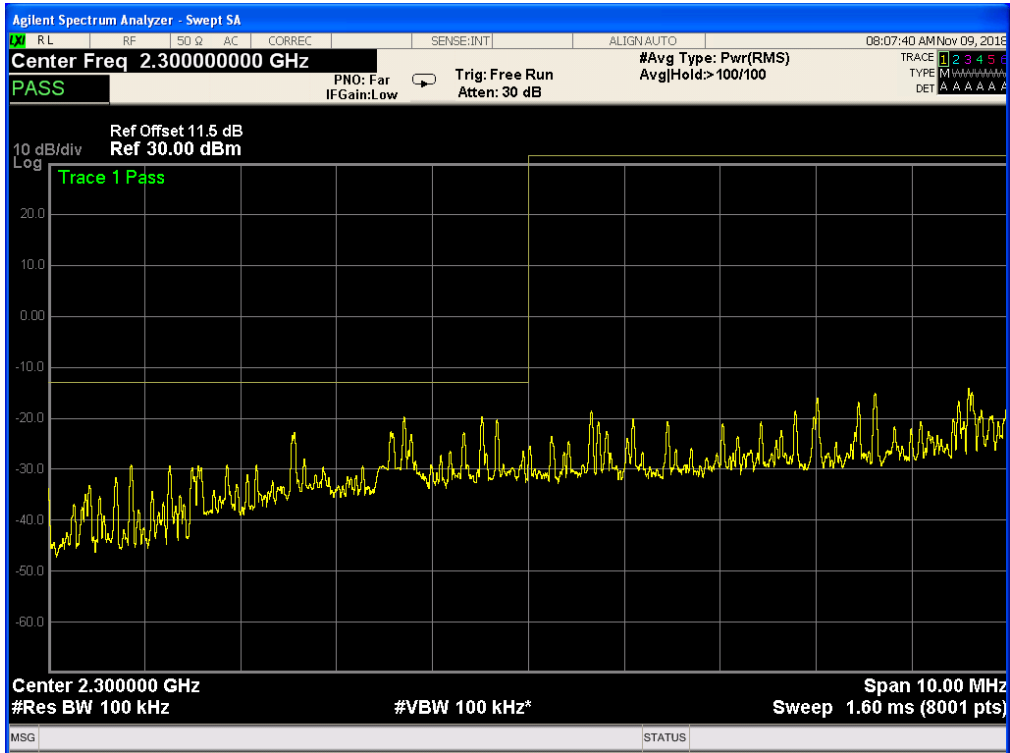
Band 40, UL Channel 38825, UL Frequency 2317.5, BW 5.0, NO. RB 25, RB POS. Low, 16-QAM



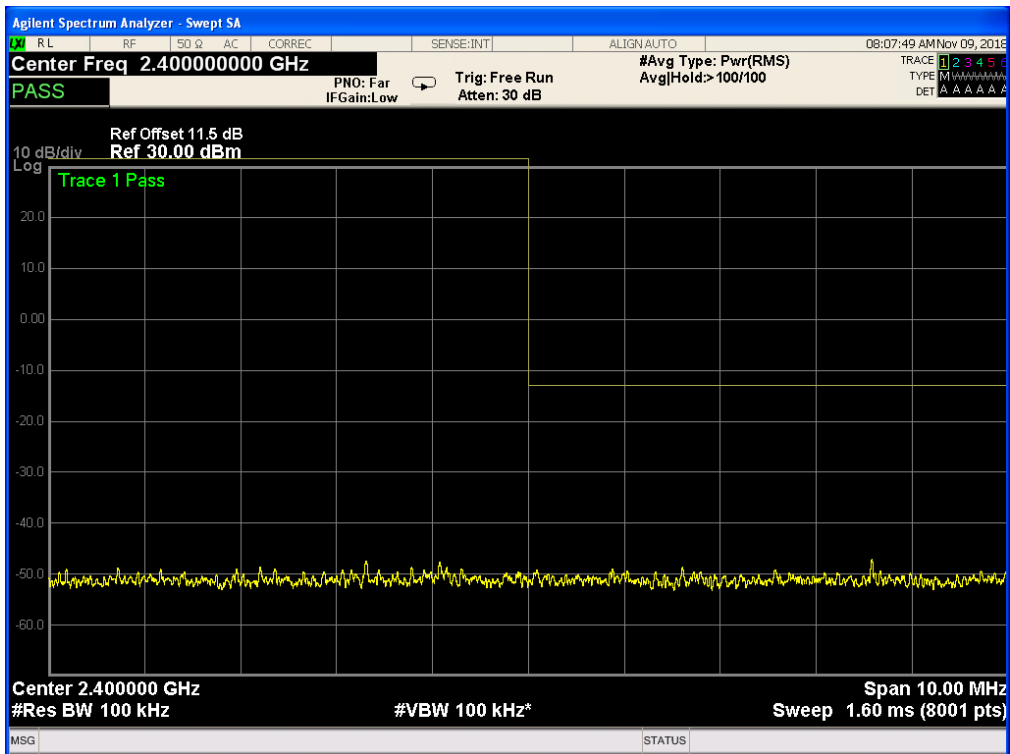
Band 40, UL Channel 38825, UL Frequency 2317.5, BW 5.0, NO. RB 25, RB POS. Low, 16-QAM



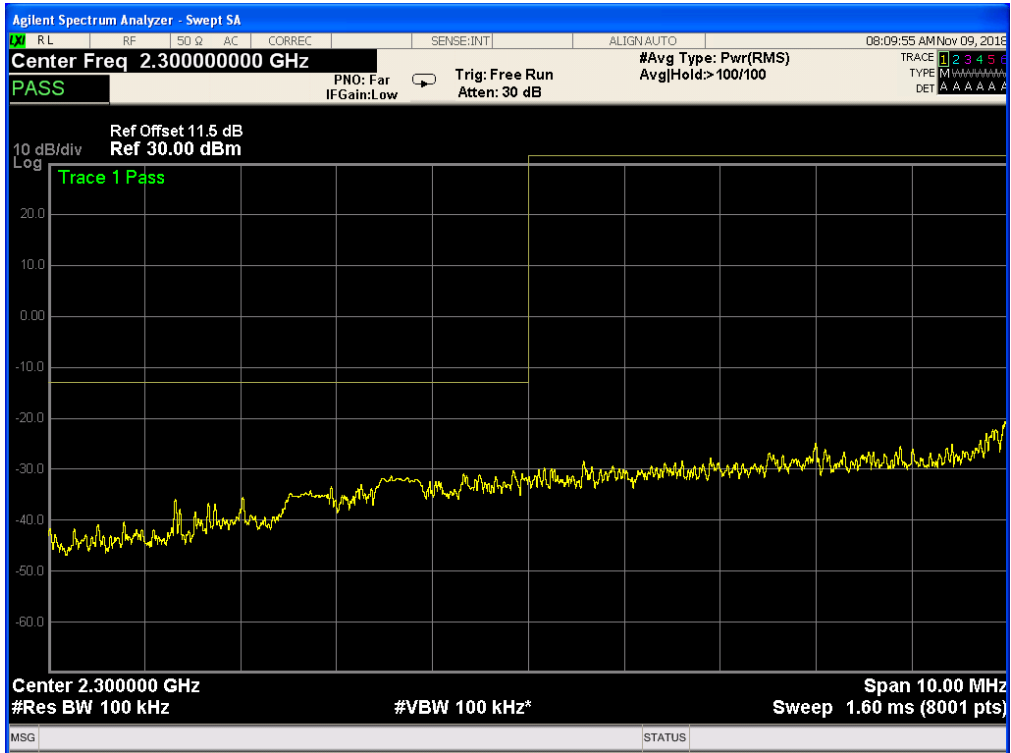
Band 40, UL Channel 38750, UL Frequency 2310.0, BW 10.0, NO. RB 50, RB POS. Low, QPSK



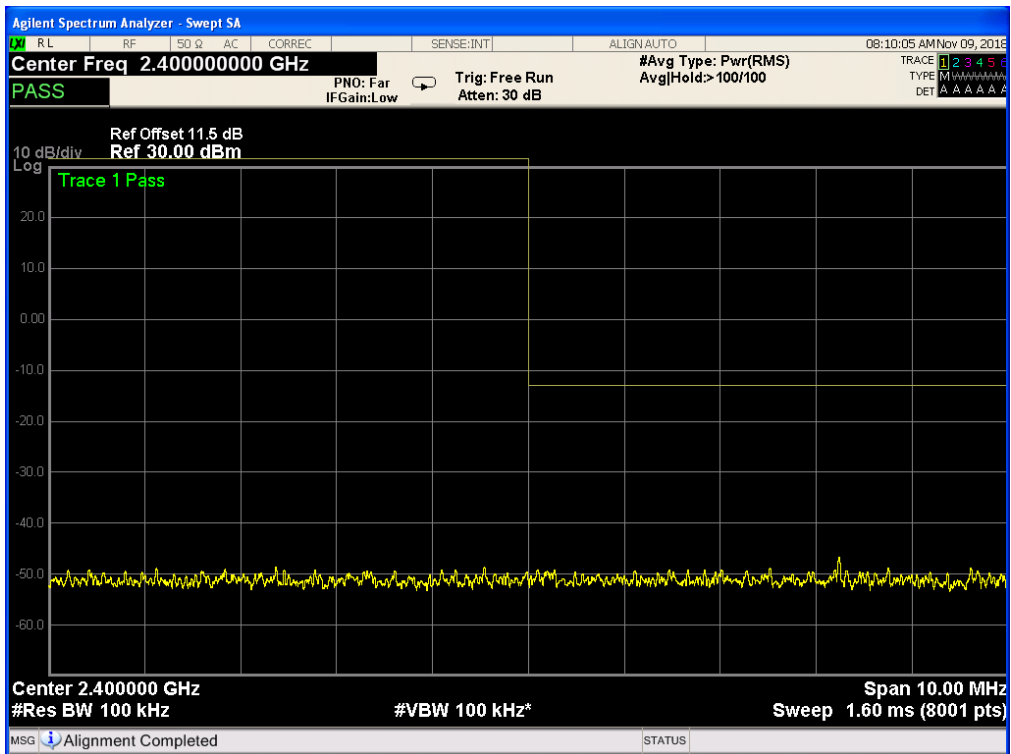
Band 40, UL Channel 38750, UL Frequency 2310.0, BW 10.0, NO. RB 50, RB POS. Low, QPSK



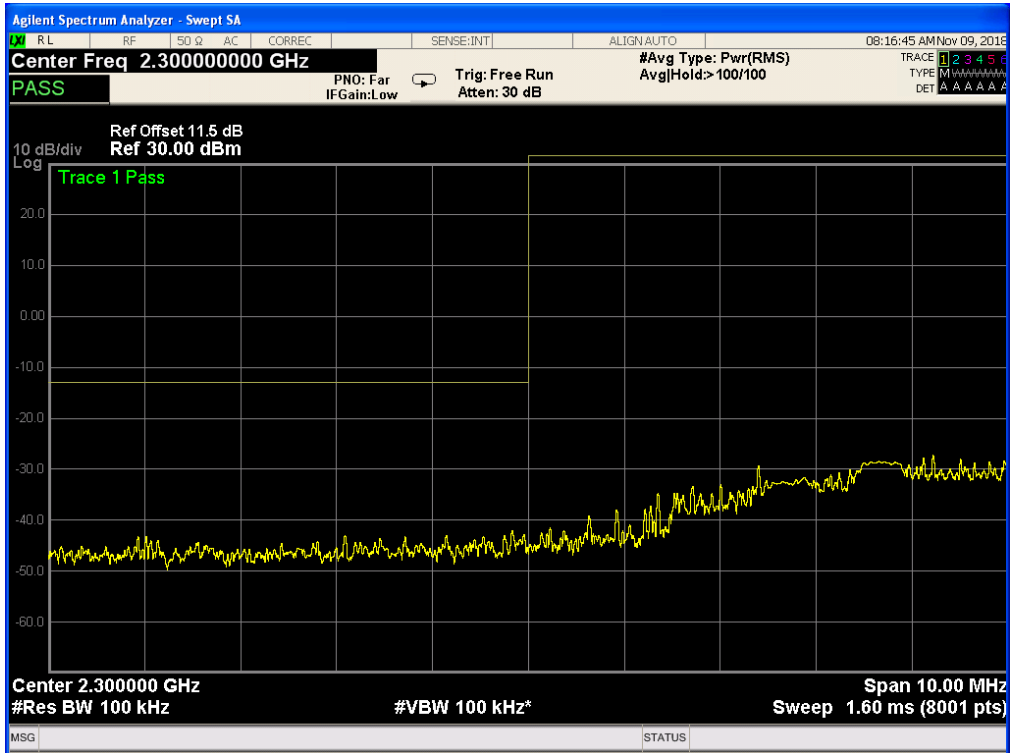
Band 40, UL Channel 38750, UL Frequency 2310.0, BW 10.0, NO. RB 50, RB POS. Low, 16-QAM



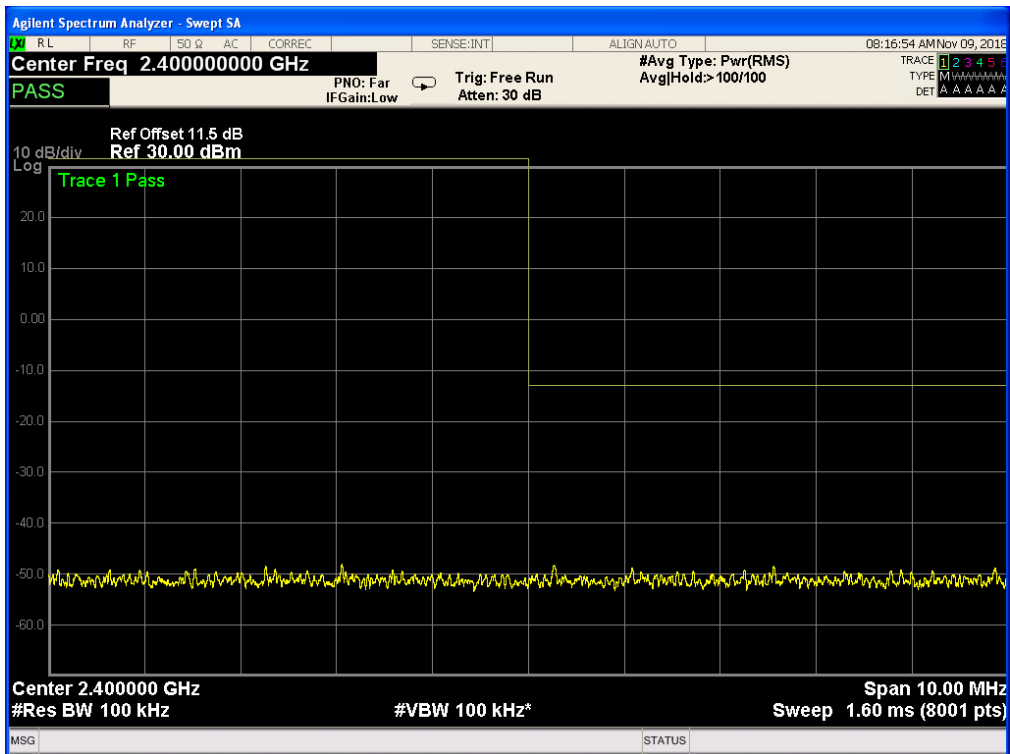
Band 40, UL Channel 38750, UL Frequency 2310.0, BW 10.0, NO. RB 50, RB POS. Low, 16-QAM



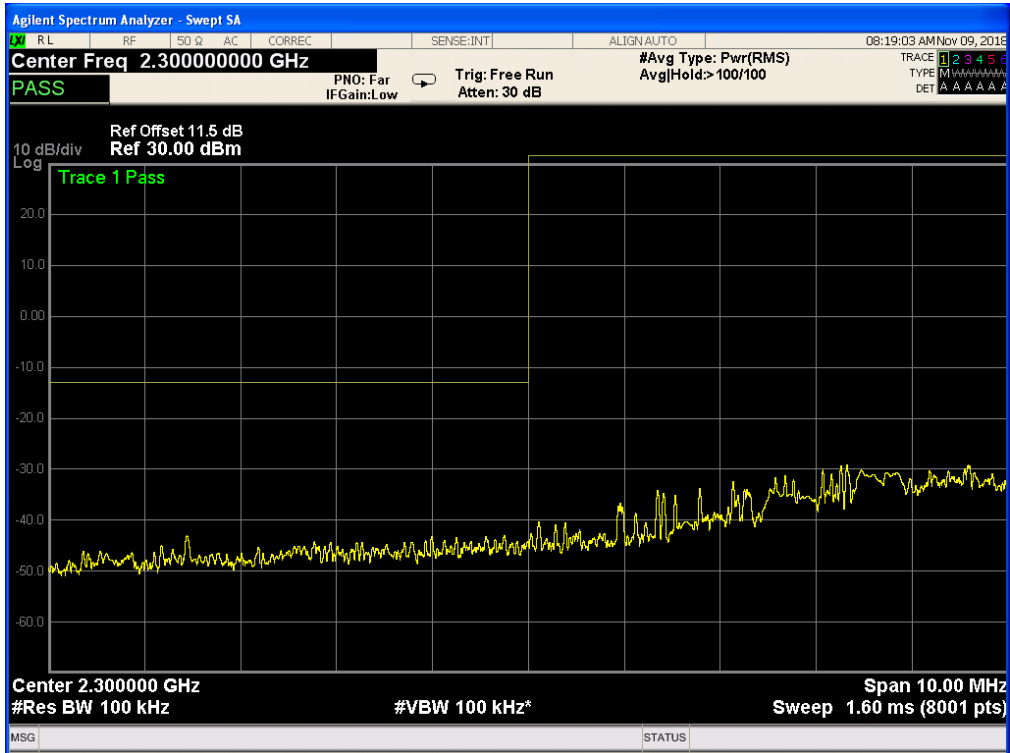
Band 40,UL Channel 3880,UL Frequency 2315.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



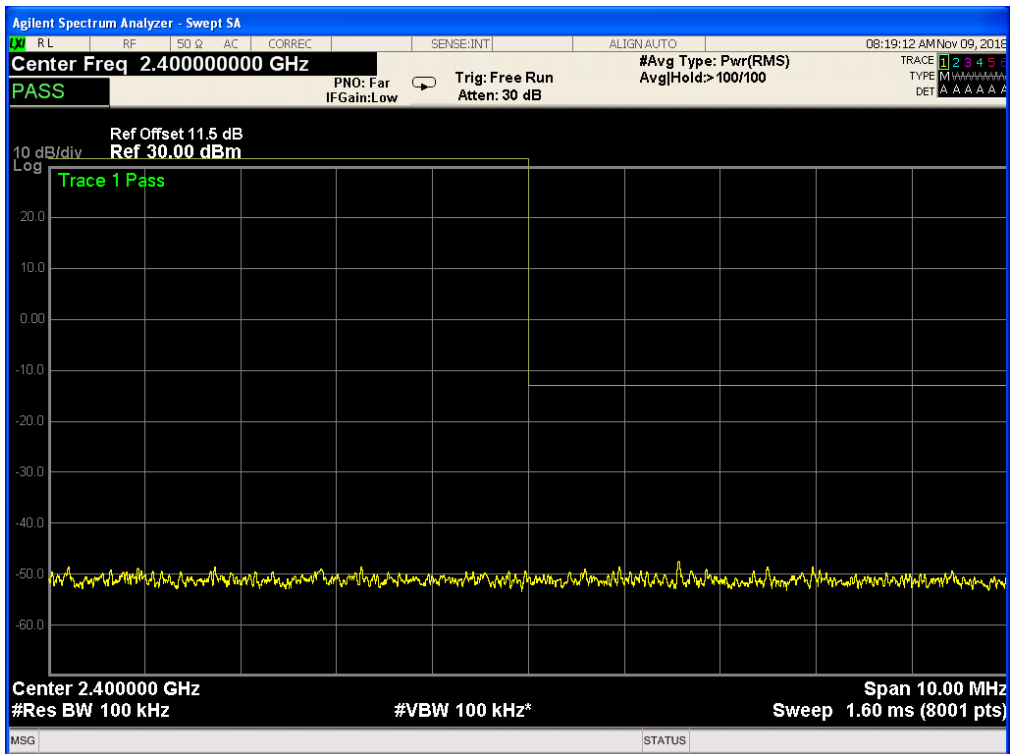
Band 40,UL Channel 3880,UL Frequency 2315.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



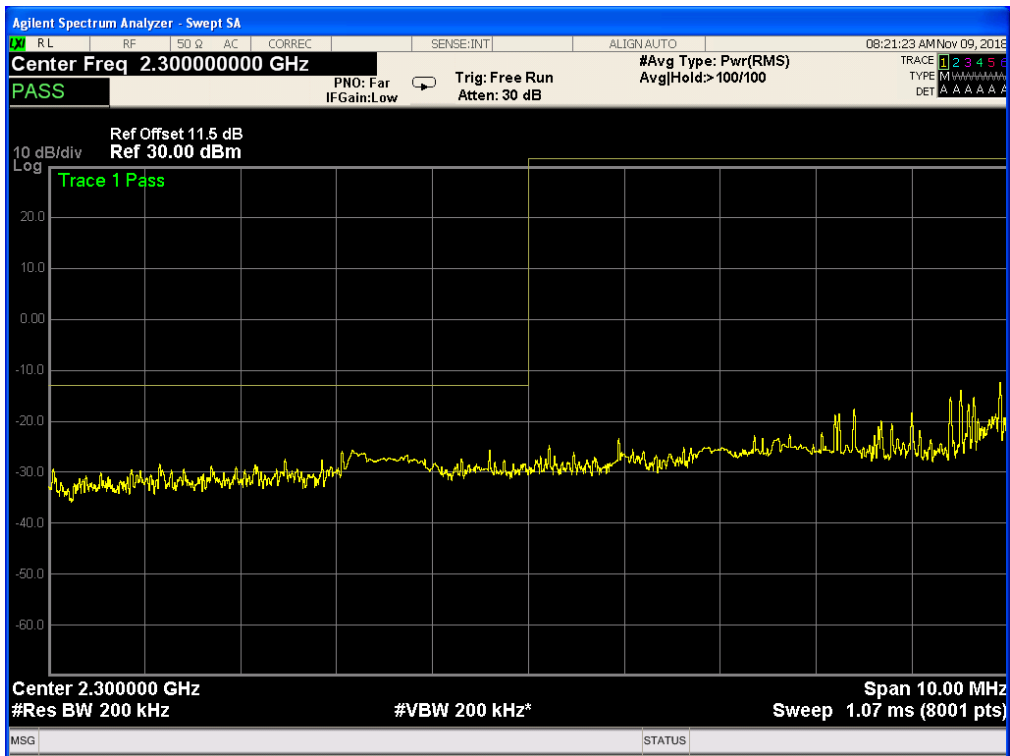
Band 40, UL Channel 38800, UL Frequency 2315.0, BW 10.0, NO. RB 50, RB POS. Low, 16-QAM



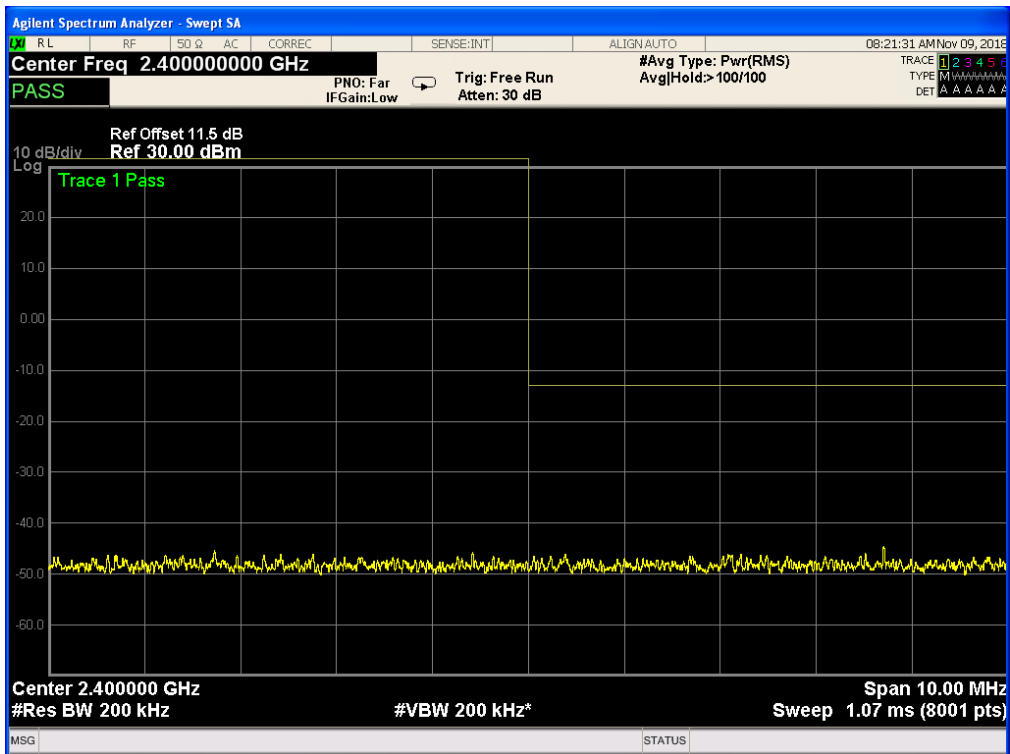
Band 40, UL Channel 38800, UL Frequency 2315.0, BW 10.0, NO. RB 50, RB POS. Low, 16-QAM



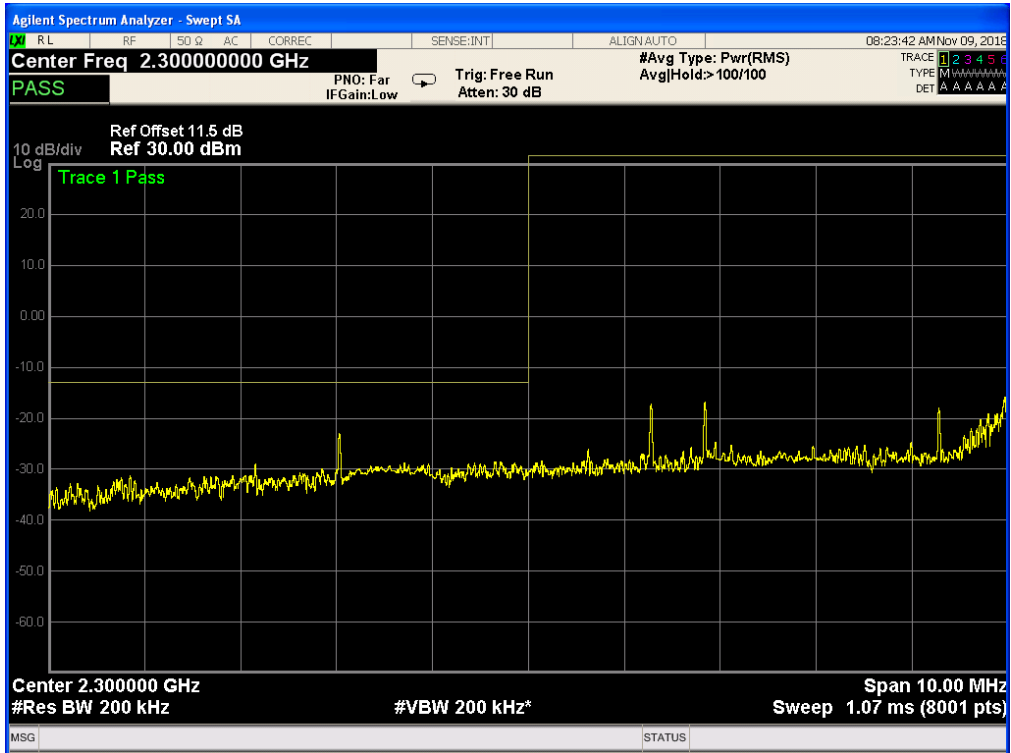
Band 40,UL Channel 38775,UL Frequency 2312.5,BW 15.0,NO. RB 75,RB POS. Low,QPSK



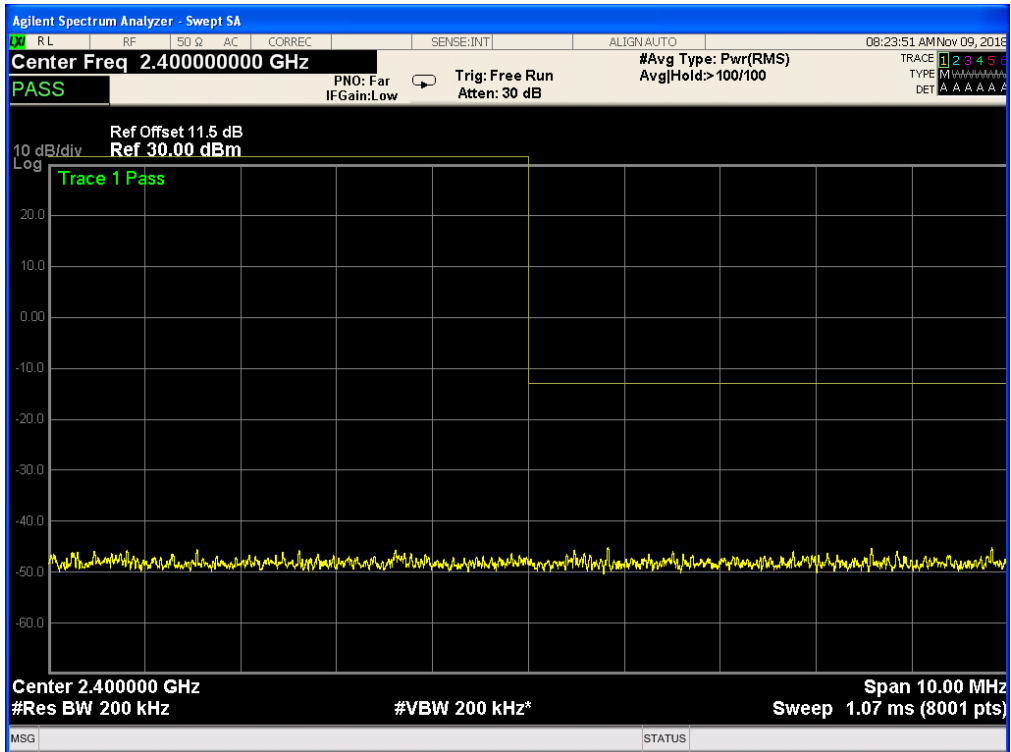
Band 40,UL Channel 38775,UL Frequency 2312.5,BW 15.0,NO. RB 75,RB POS. Low,QPSK



Band 40, UL Channel 38775, UL Frequency 2312.5, BW 15.0, NO. RB 75, RB POS. Low, 16-QAM

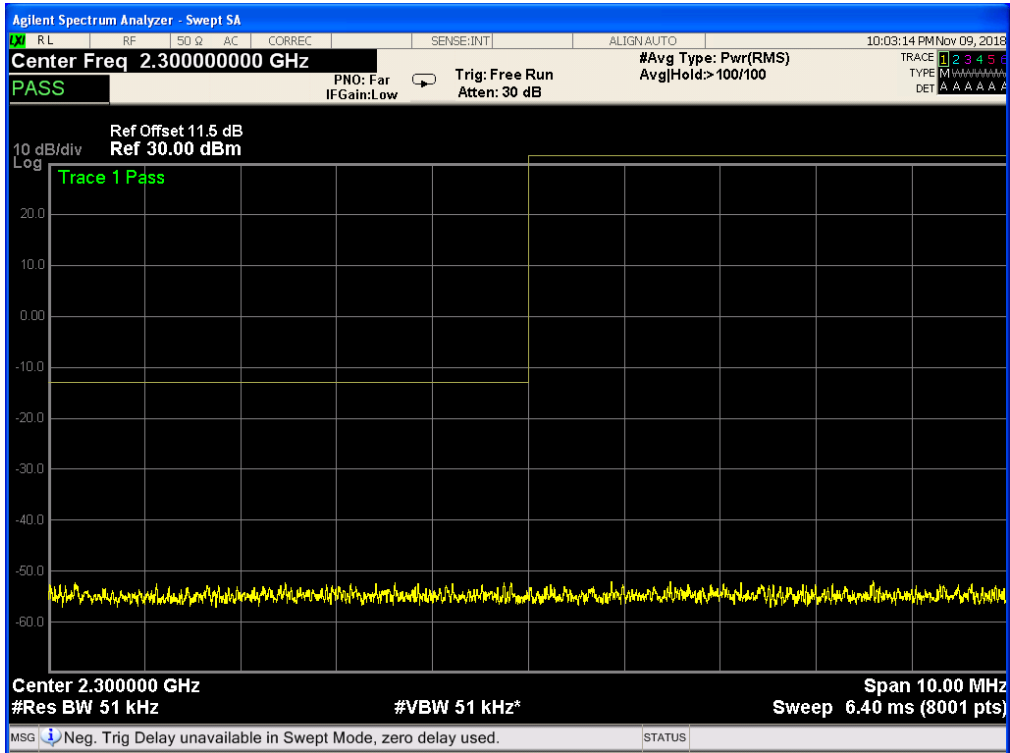


Band 40, UL Channel 38775, UL Frequency 2312.5, BW 15.0, NO. RB 75, RB POS. Low, 16-QAM

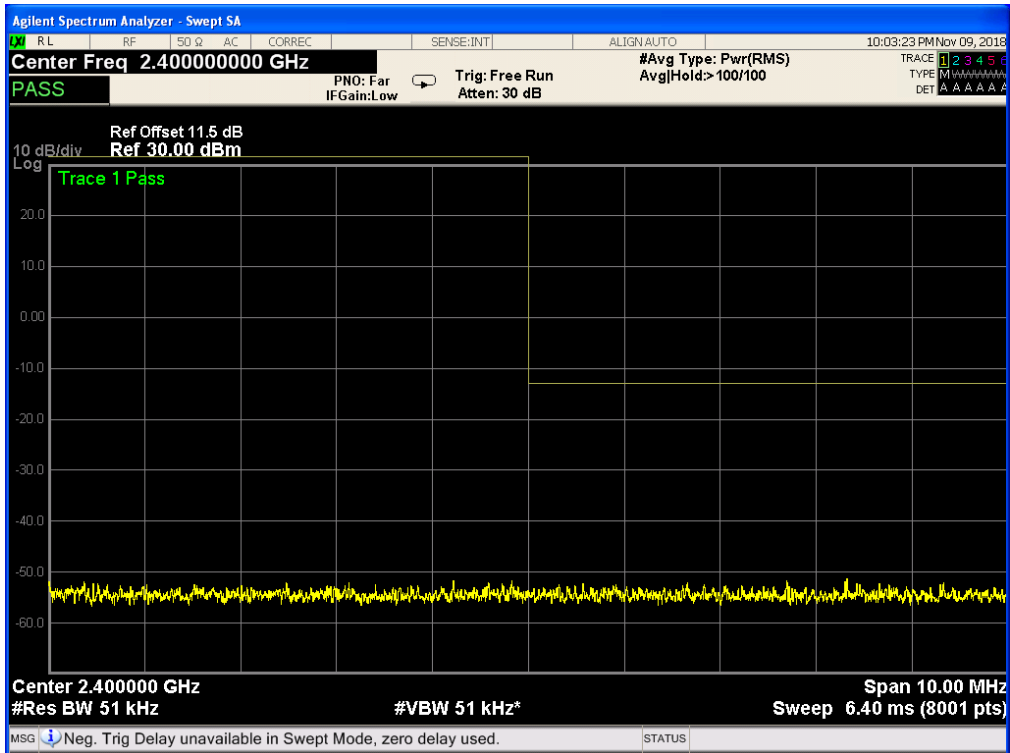


6.3 LTE BAND 40 (2345-2360MHz)

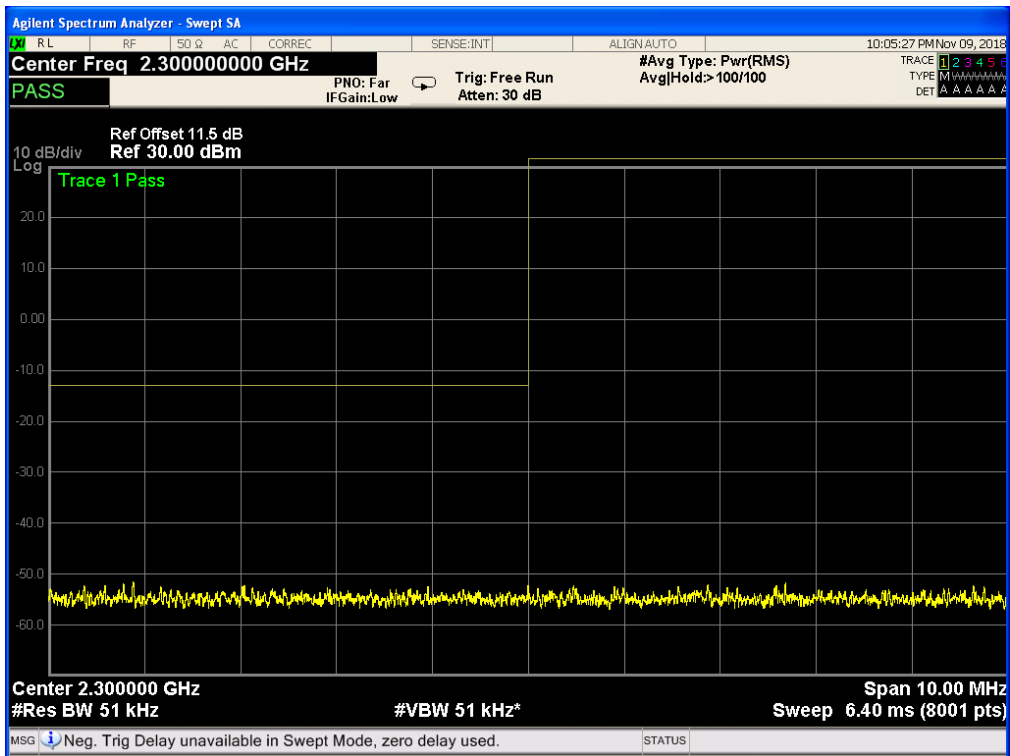
Band 40, UL Channel 39125, UL Frequency 2347.5, BW 5.0, NO. RB 25, RB POS. Low, QPSK



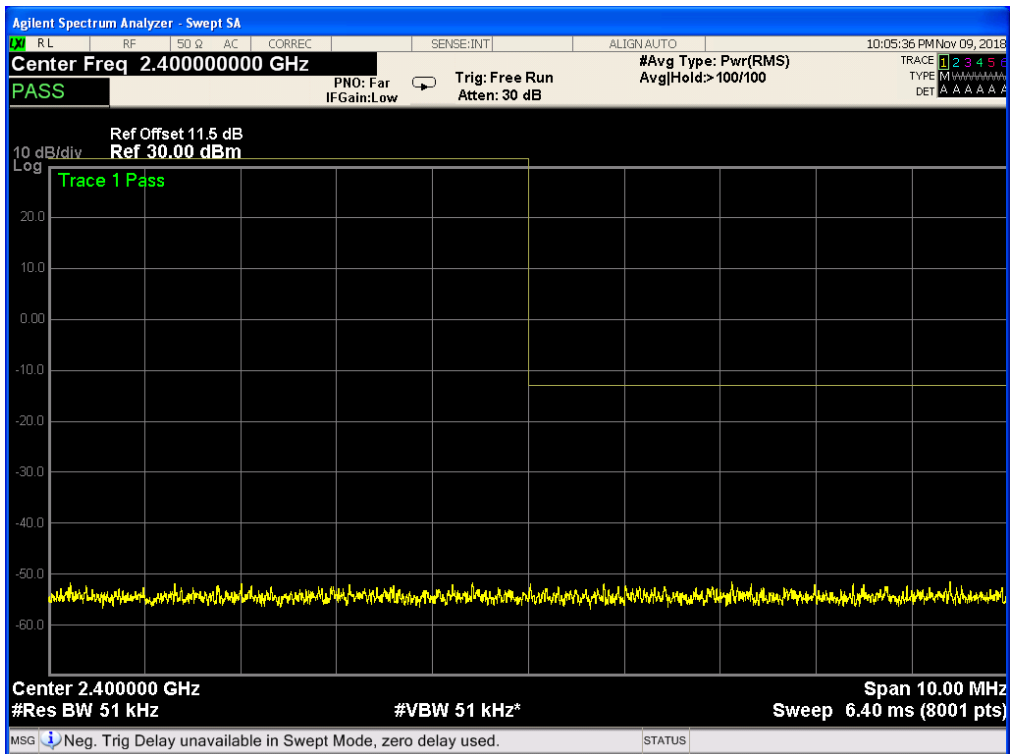
Band 40, UL Channel 39125, UL Frequency 2347.5, BW 5.0, NO. RB 25, RB POS. Low, QPSK



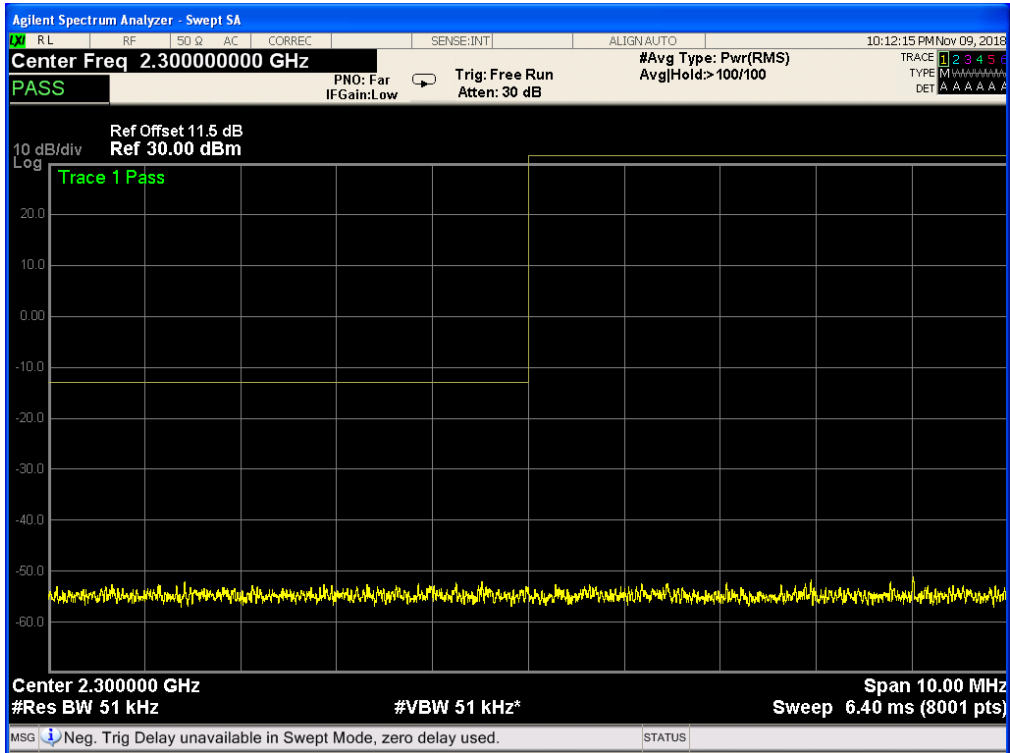
Band 40, UL Channel 39125, UL Frequency 2347.5, BW 5.0, NO. RB 25, RB POS. Low, 16-QAM



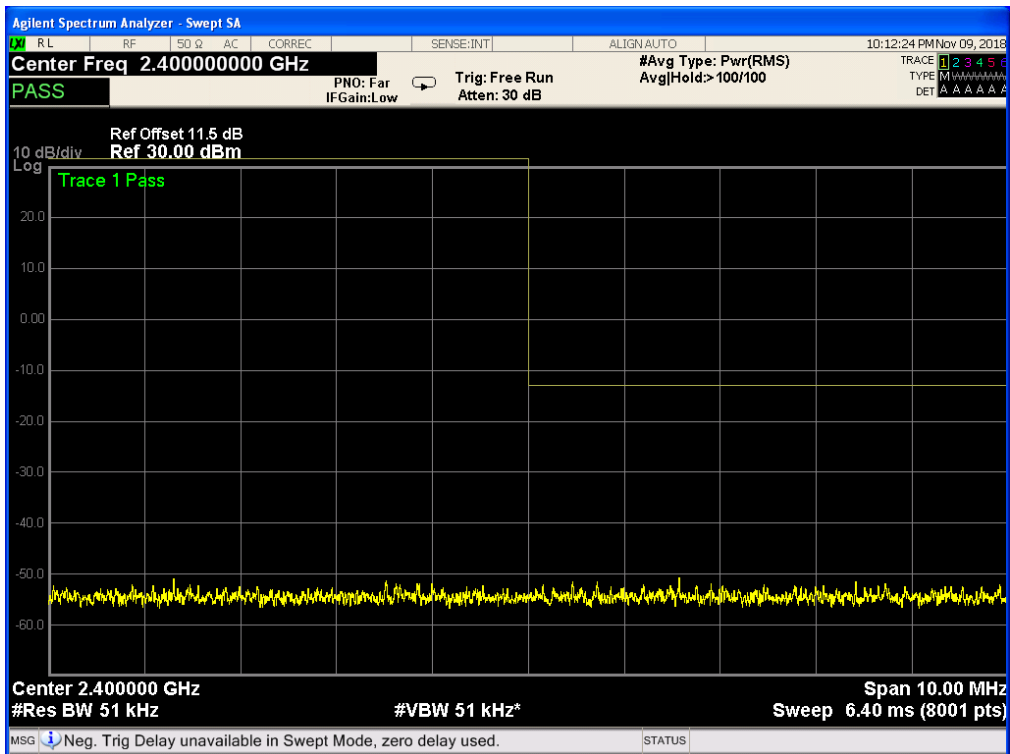
Band 40, UL Channel 39125, UL Frequency 2347.5, BW 5.0, NO. RB 25, RB POS. Low, 16-QAM



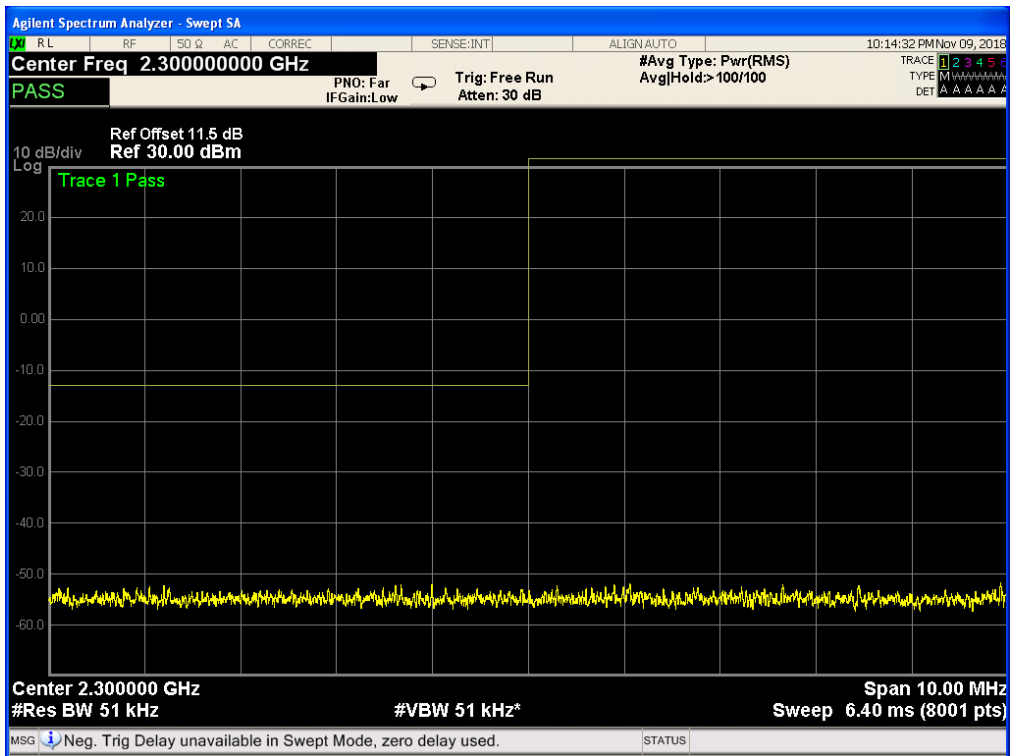
Band 40, UL Channel 39225, UL Frequency 2357.5, BW 5.0, NO. RB 25, RB POS. Low, QPSK



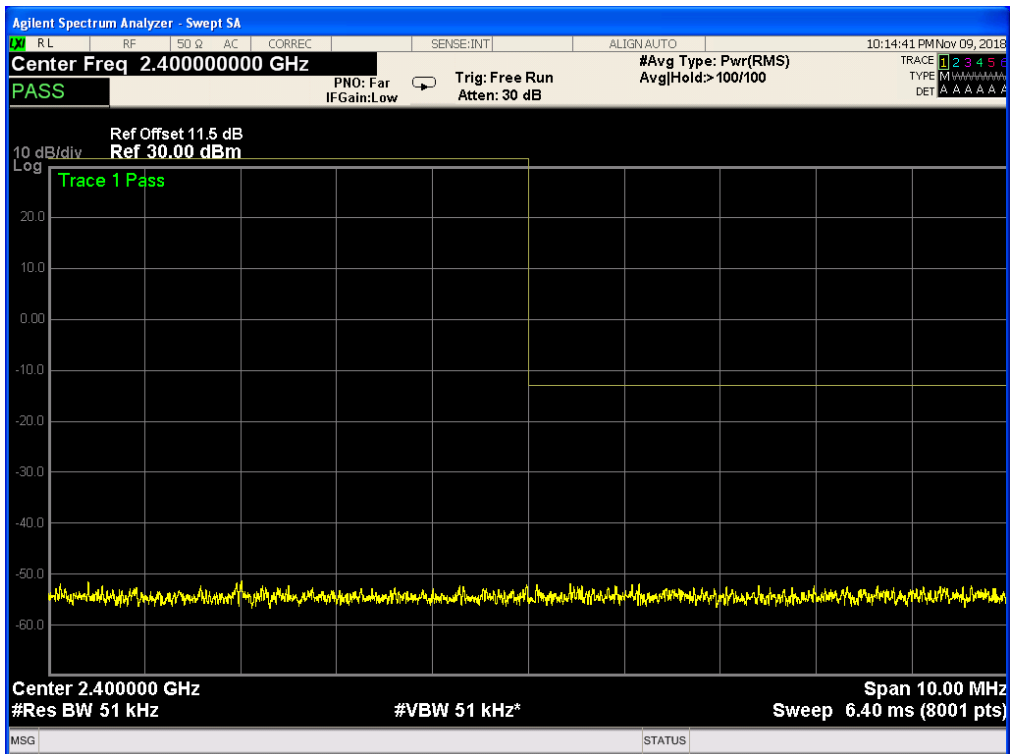
Band 40, UL Channel 39225, UL Frequency 2357.5, BW 5.0, NO. RB 25, RB POS. Low, QPSK



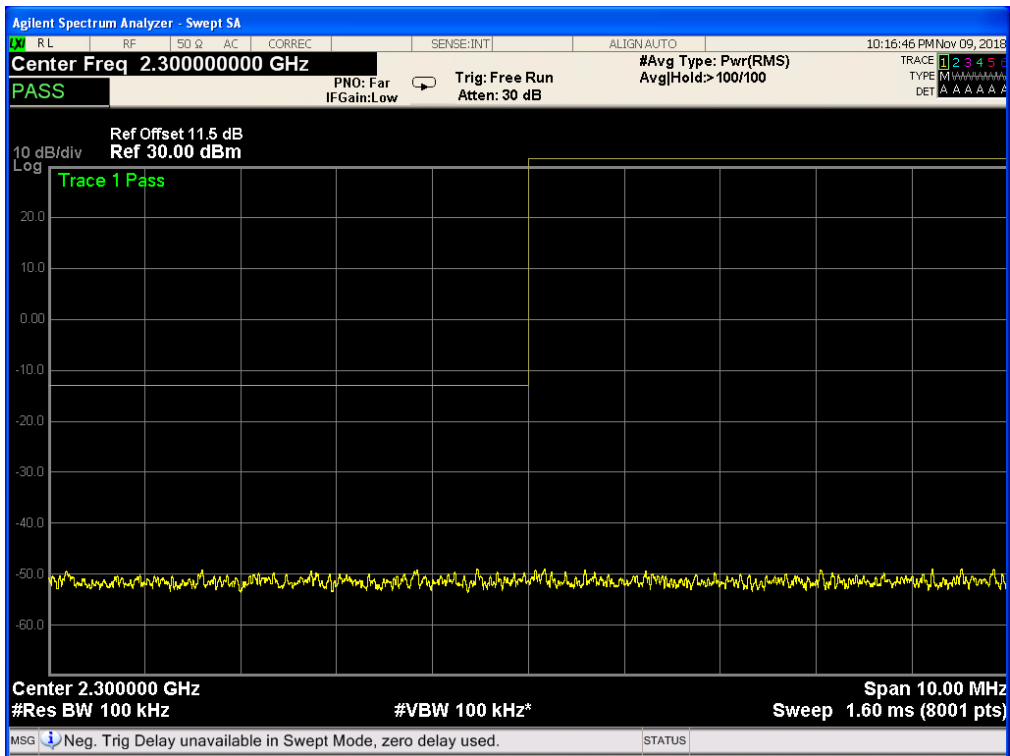
Band 40, UL Channel 39225, UL Frequency 2357.5, BW 5.0, NO. RB 25, RB POS. Low, 16-QAM



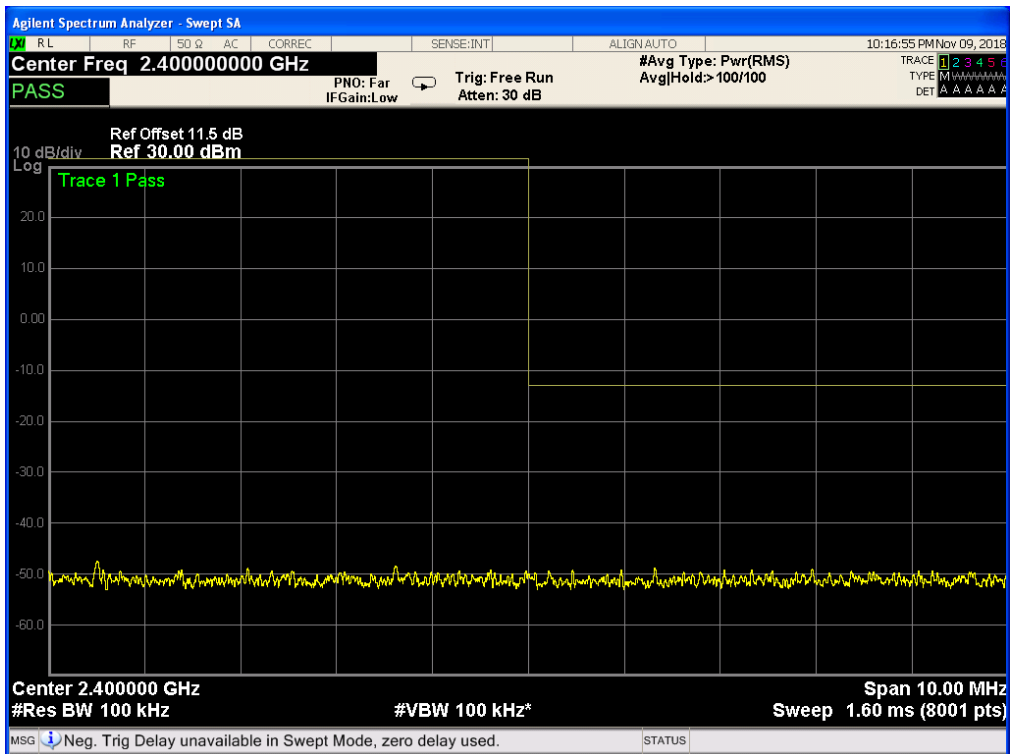
Band 40, UL Channel 39225, UL Frequency 2357.5, BW 5.0, NO. RB 25, RB POS. Low, 16-QAM



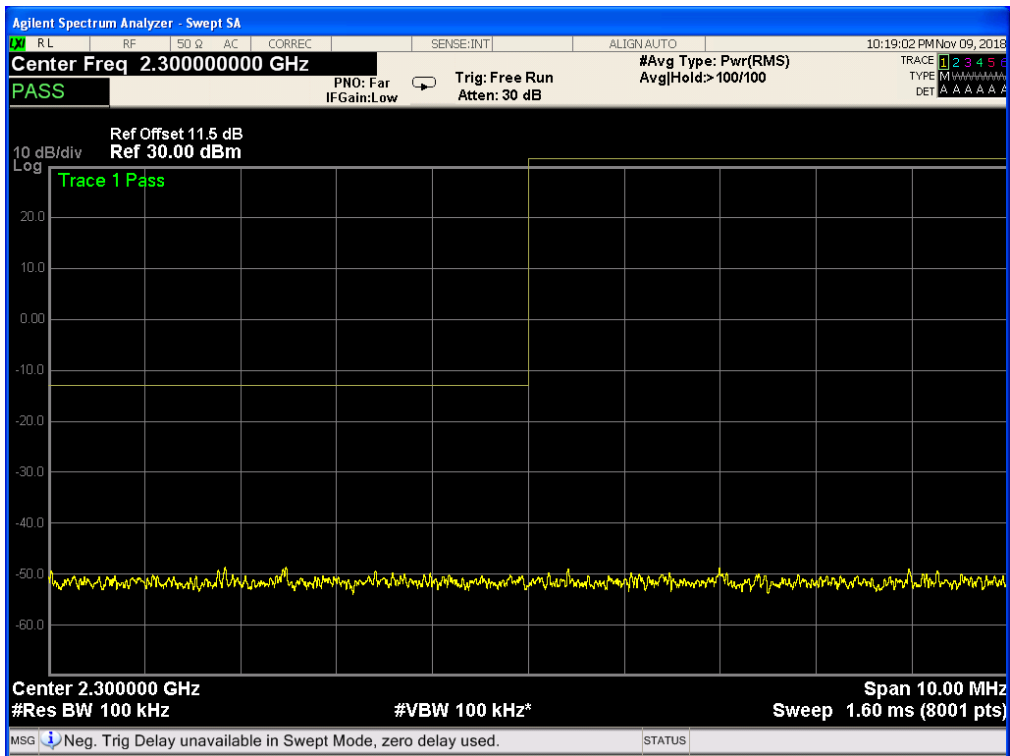
Band 40,UL Channel 39150,UL Frequency 2350.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



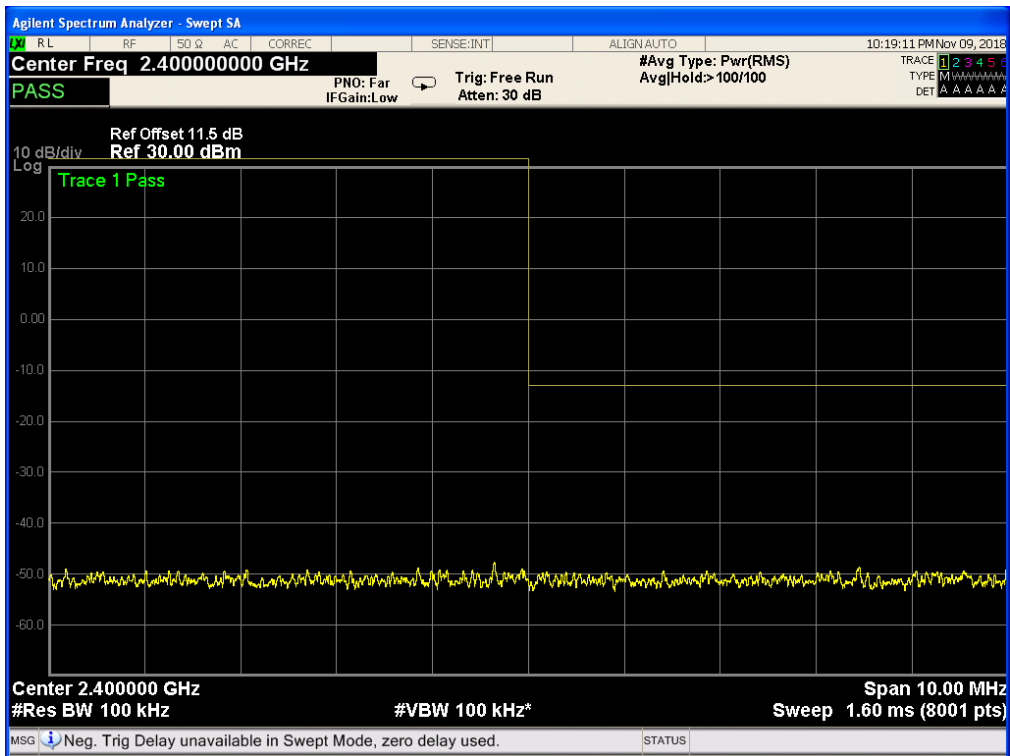
Band 40,UL Channel 39150,UL Frequency 2350.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



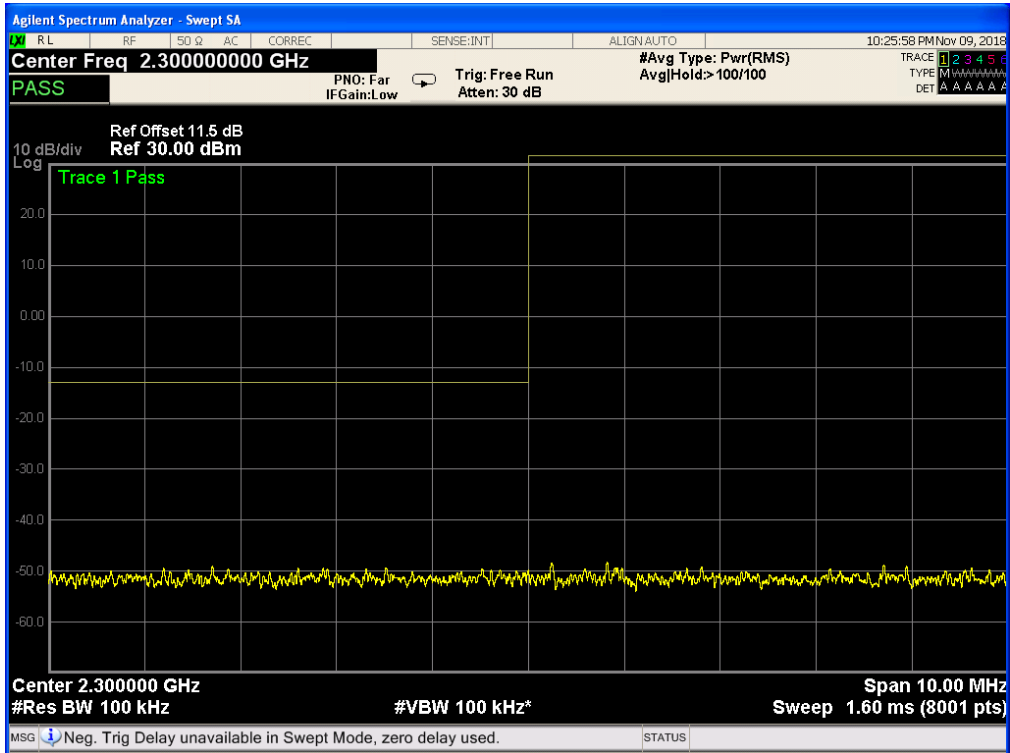
Band 40, UL Channel 39150, UL Frequency 2350.0, BW 10.0, NO. RB 50, RB POS. Low, 16-QAM



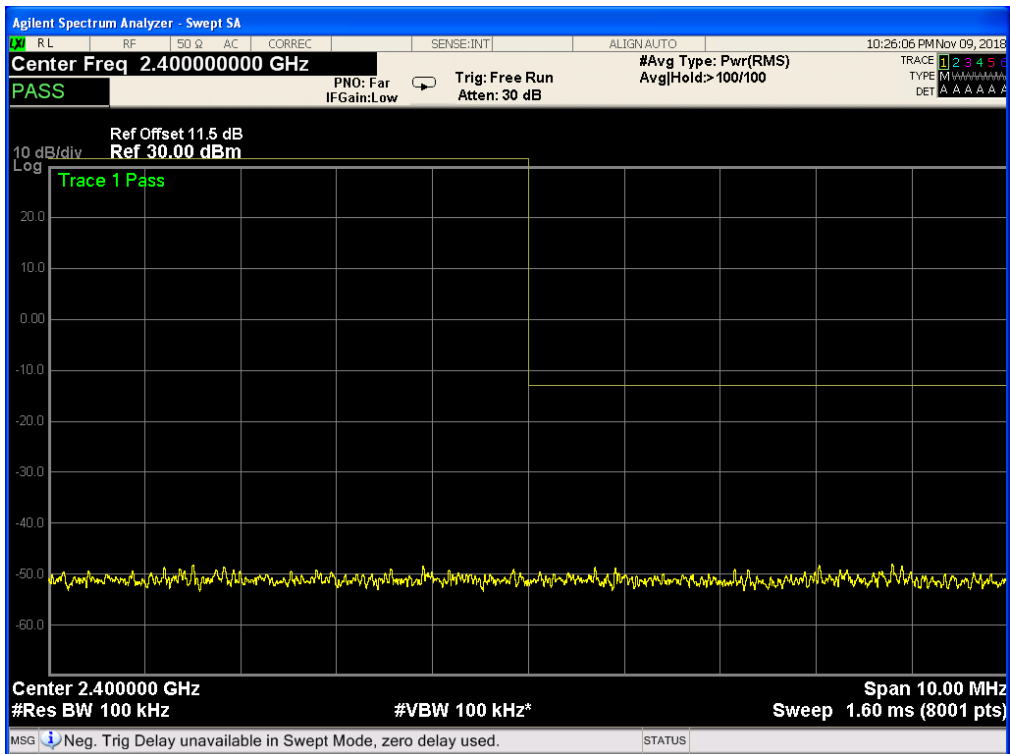
Band 40, UL Channel 39150, UL Frequency 2350.0, BW 10.0, NO. RB 50, RB POS. Low, 16-QAM



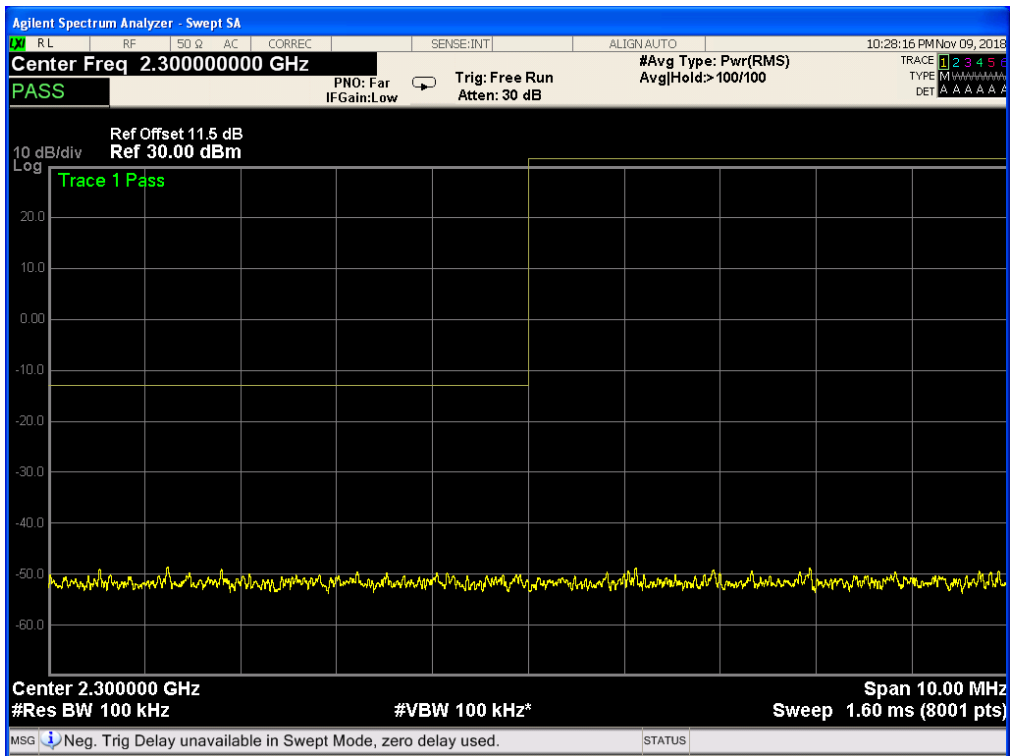
Band 40,UL Channel 39200,UL Frequency 2355.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



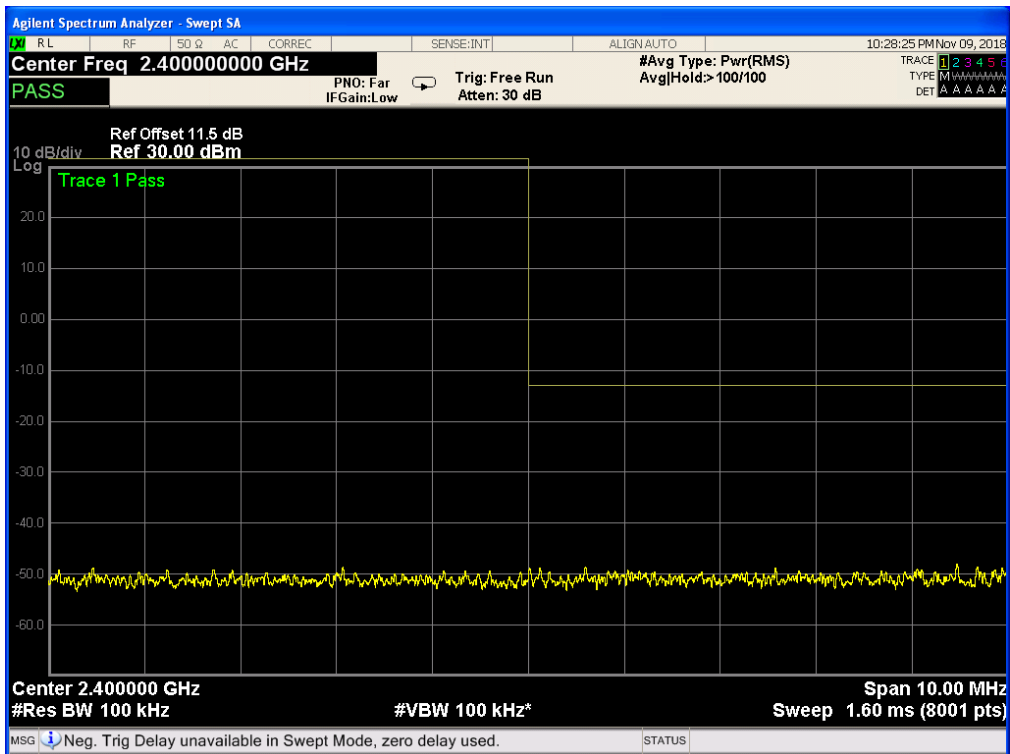
Band 40,UL Channel 39200,UL Frequency 2355.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



Band 40, UL Channel 39200, UL Frequency 2355.0, BW 10.0, NO. RB 50, RB POS. Low, 16-QAM



Band 40, UL Channel 39200, UL Frequency 2355.0, BW 10.0, NO. RB 50, RB POS. Low, 16-QAM



7. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238 and §27.53

LIMITS

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

TEST PROCEDURE

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

Set display line at -13 dBm

Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

MODES TESTED

LTE Band 5

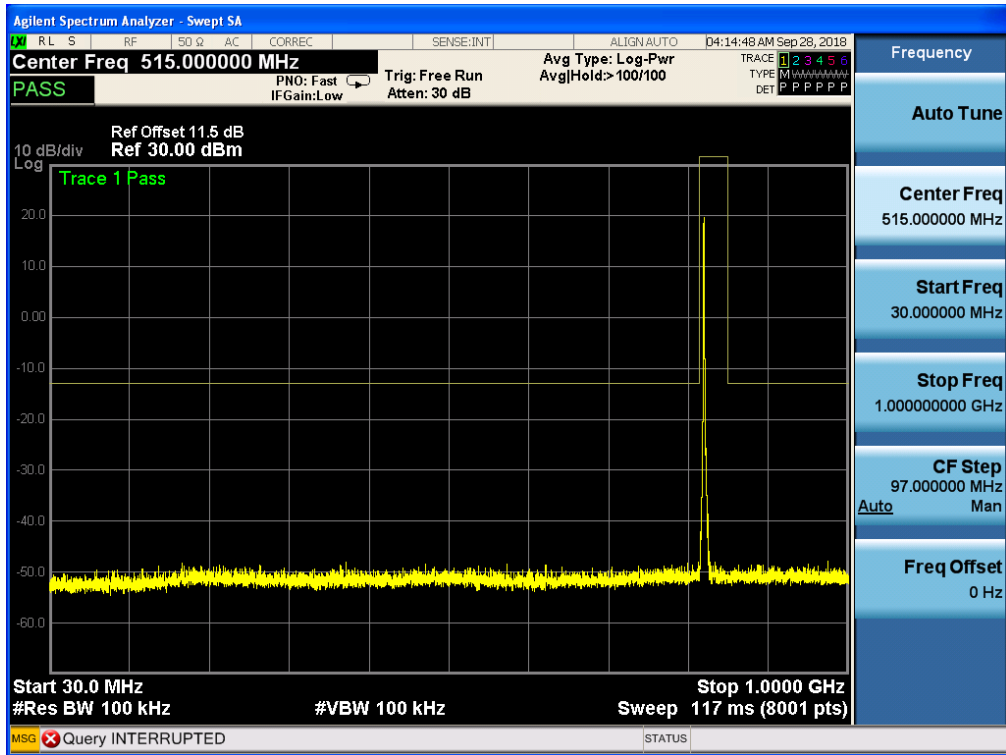
LTE Band 40

7.1 MEASUREMENT METHOD

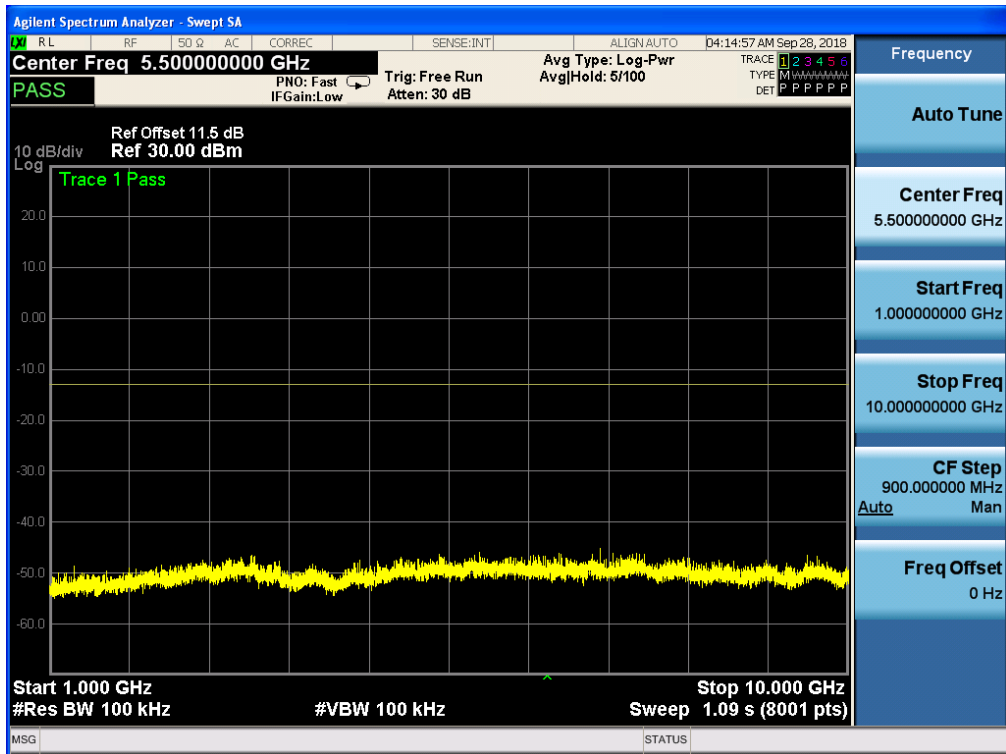
The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

7.1 LTE BAND 5

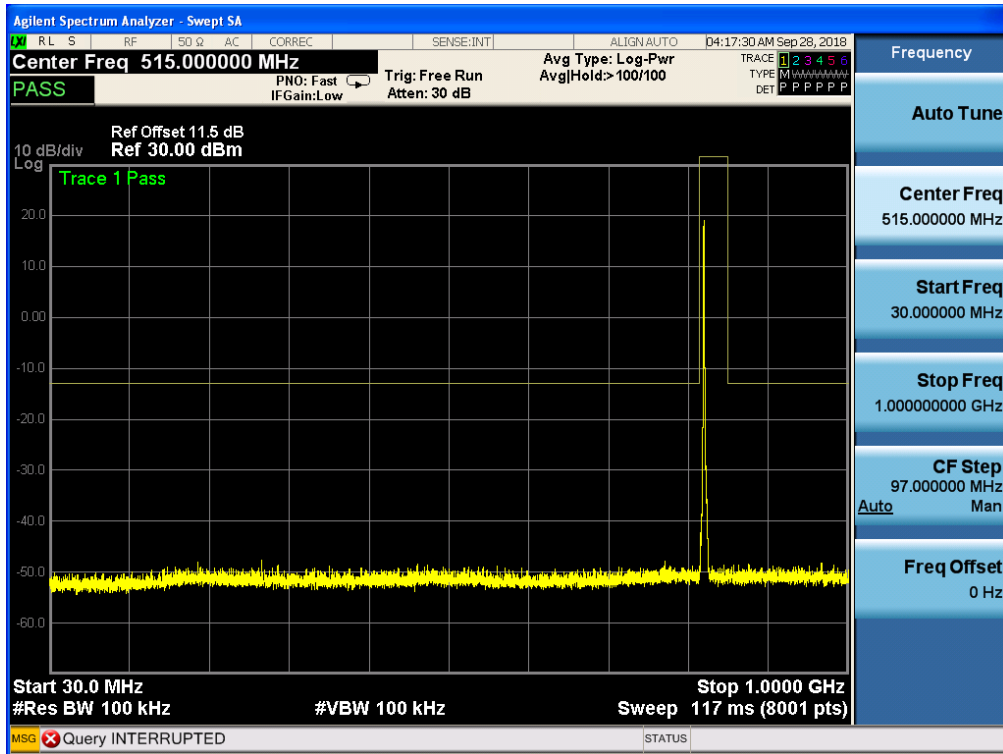
Band 5, UL Channel 20407, UL Frequency 824.7, BW 1.4, NO. RB 6, RB POS. Low, QPSK



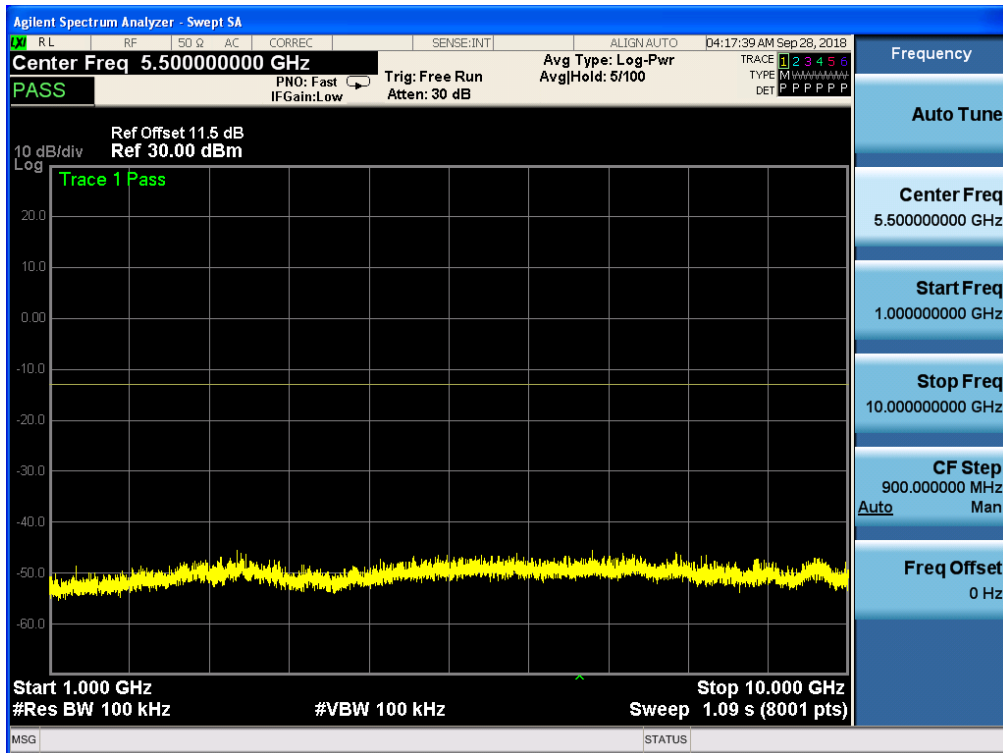
Band 5, UL Channel 20407, UL Frequency 824.7, BW 1.4, NO. RB 6, RB POS. Low, QPSK



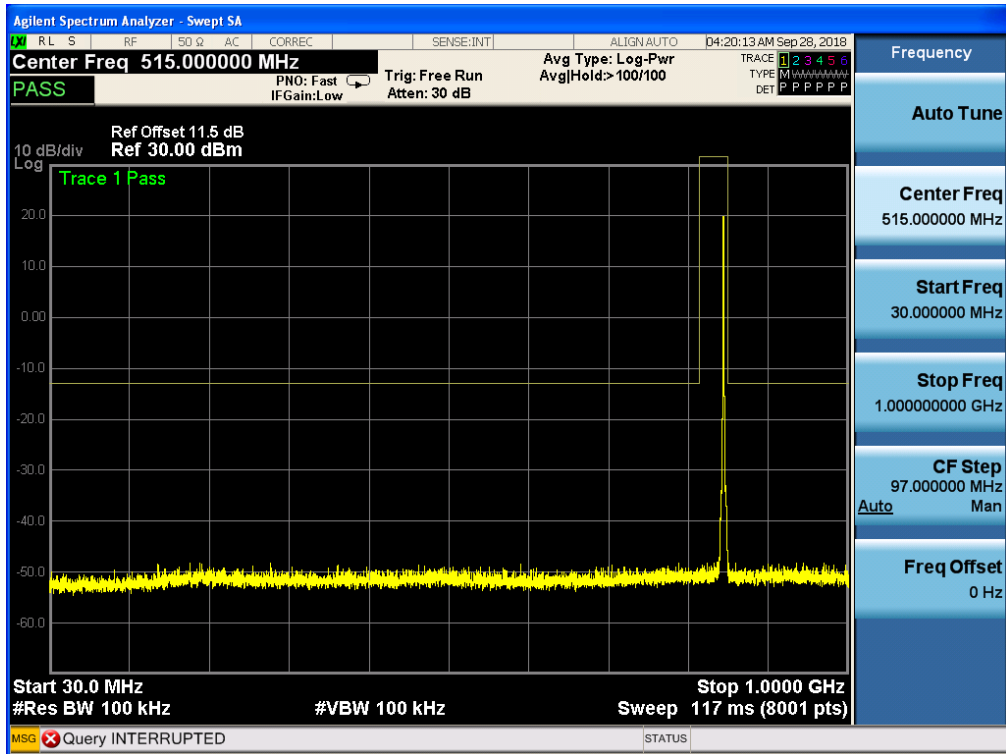
Band 5, UL Channel 20407, UL Frequency 824.7, BW 1.4, NO. RB 6, RB POS. Low, 16-QAM



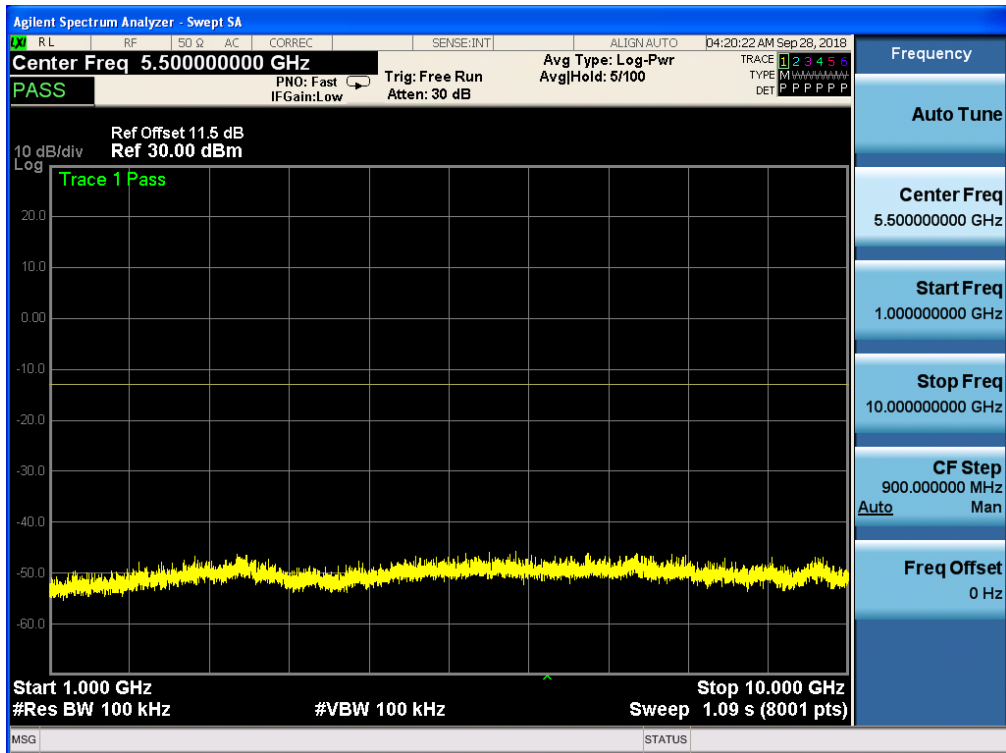
Band 5, UL Channel 20407, UL Frequency 824.7, BW 1.4, NO. RB 6, RB POS. Low, 16-QAM



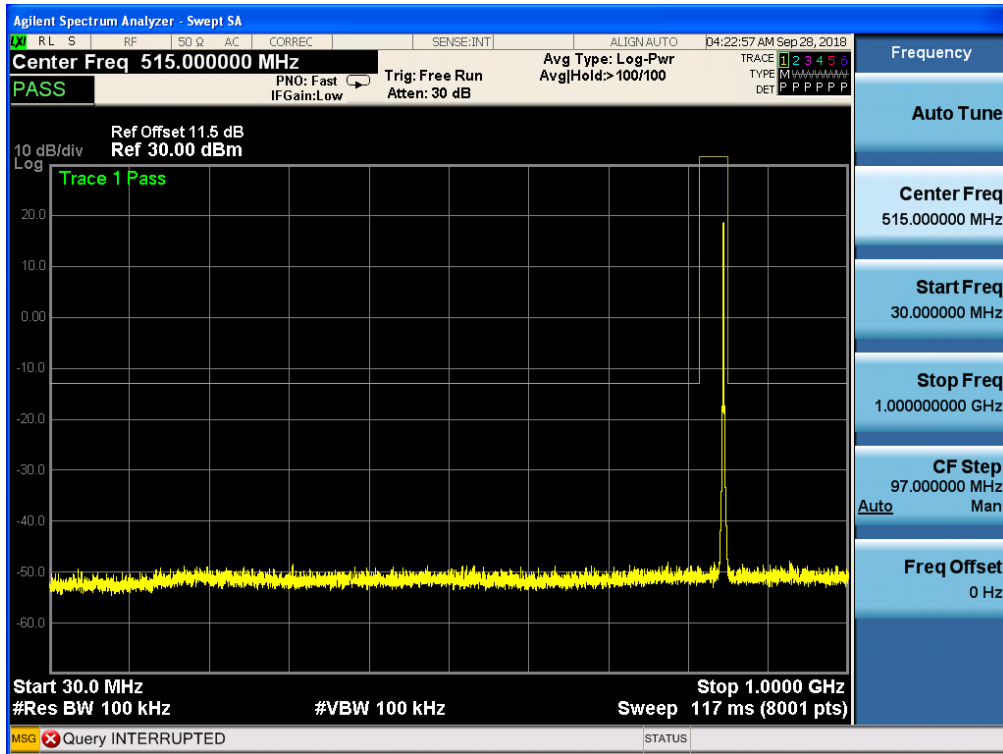
Band 5, UL Channel 20643, UL Frequency 848.3, BW 1.4, NO. RB 6, RB POS. Low, QPSK



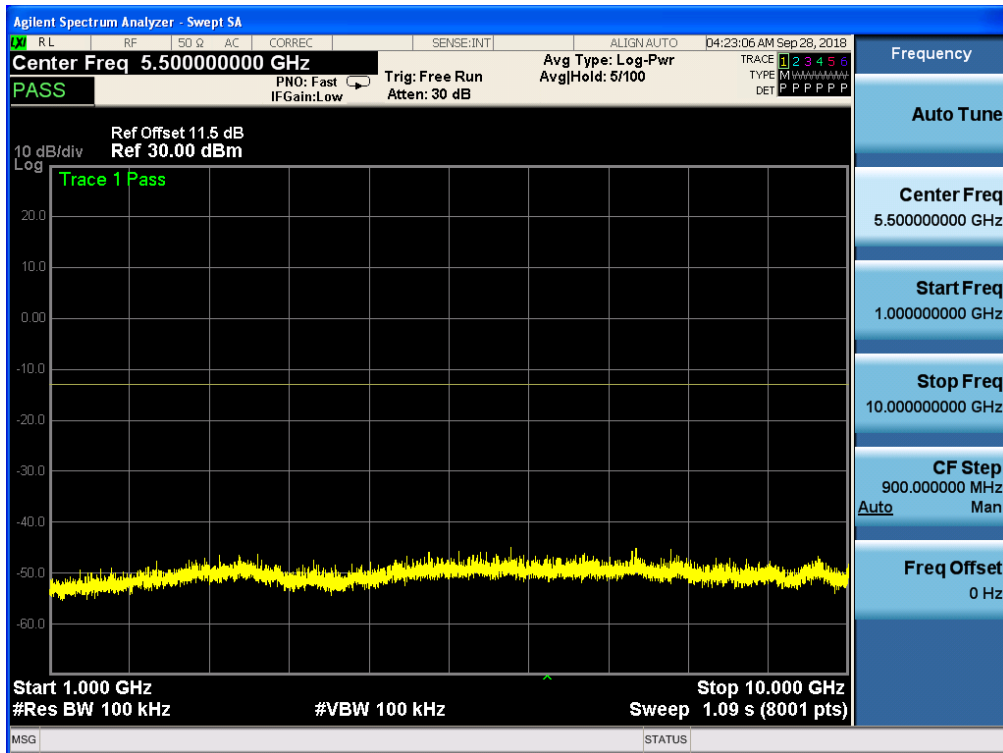
Band 5, UL Channel 20643, UL Frequency 848.3, BW 1.4, NO. RB 6, RB POS. Low, QPSK



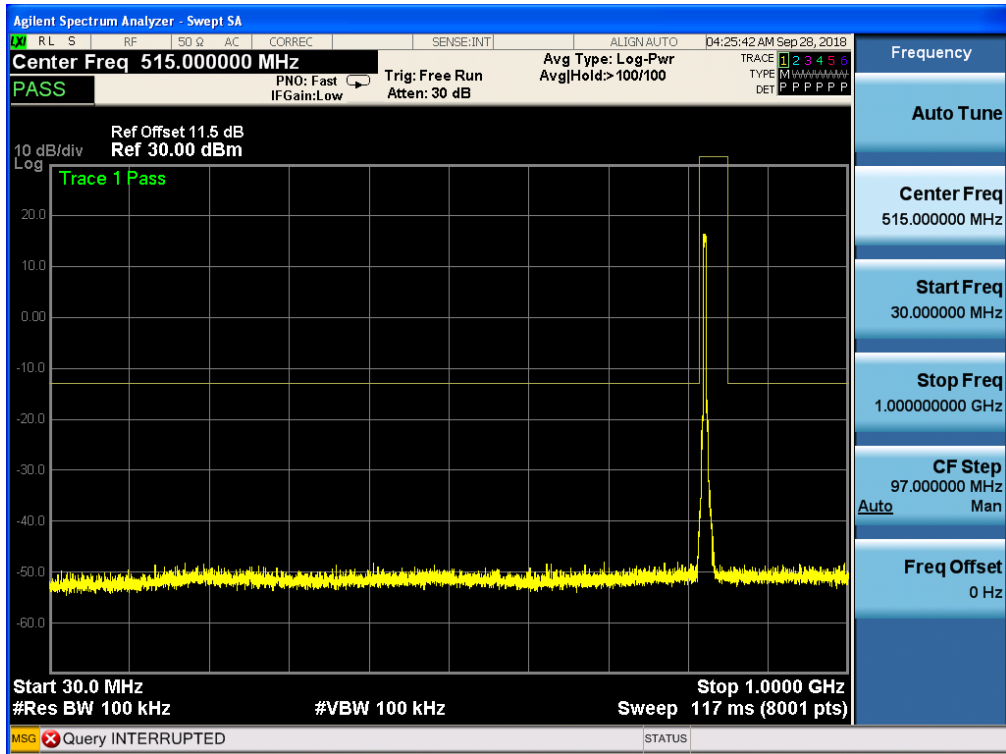
Band 5, UL Channel 20643, UL Frequency 848.3, BW 1.4, NO. RB 6, RB POS. Low, 16-QAM



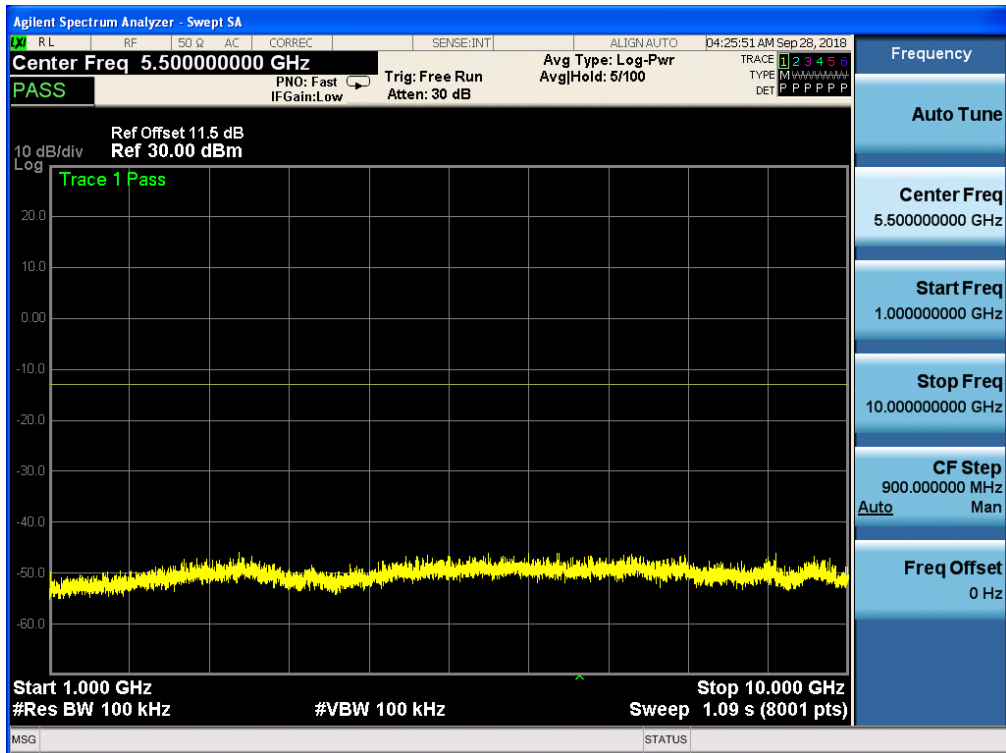
Band 5, UL Channel 20643, UL Frequency 848.3, BW 1.4, NO. RB 6, RB POS. Low, 16-QAM



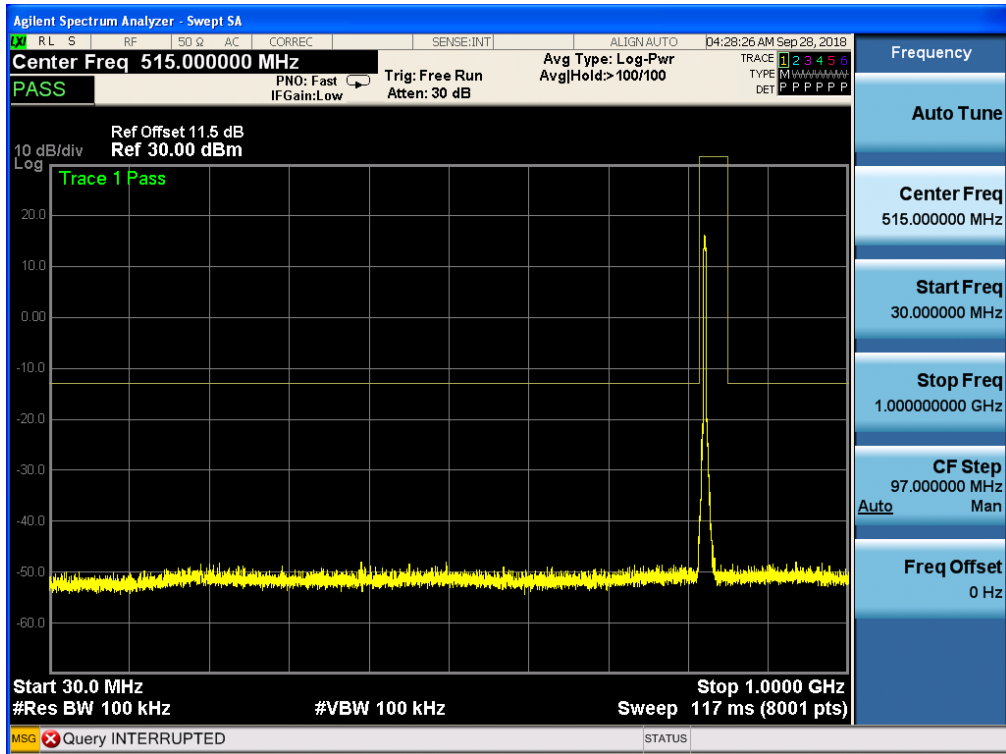
Band 5, UL Channel 20415, UL Frequency 825.5, BW 3.0, NO. RB 15, RB POS. Low, QPSK



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

