

FCC REPORT

FCC Certification

Applicant Name:
SAMSUNG Electronics Co.,Ltd.

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

Date of Issue:
November 9, 2016
Test Site/Location:
HCT CO., LTD.,

74, Seoicheon-ro 578beon-gil, Majang-myeon,
Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA

Report No.: HCT-R-1610-F012-1
HCT FRN: 0005866421

FCC ID:	A3LSLS-BU10A
APPLICANT:	SAMSUNG Electronics Co.,Ltd.

FCC Model(s): SLS-BU10A
EUT Type: uFemto
Frequency of Operation: 1930 MHz ~ 1990 MHz (Band 2)
2110 MHz ~ 2155 MHz (Band 4)
2155 MHz ~ 2180 MHz (AWS-3)

Emission Designator:

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	
		QPSK (G7D)	16QAM/64QAM (W7D)
LTE Band 2 (5)	1932.5 ~ 1987.5	4M44G7D	4M45W7D
LTE Band 2 (10)	1935.0 ~ 1985.0	8M96G7D	8M96W7D
LTE Band 2 (15)	1937.5 ~ 1982.5	13M4G7D	13M4W7D
LTE Band 2 (20)	1940.0 ~ 1980.0	18M0G7D	18M0W7D
LTE Band 4 + AWS-3 (5)	2112.5 ~ 2177.5	4M44G7D	4M45W7D
LTE Band 4 + AWS-3 (10)	2115.0 ~ 2175.0	8M96G7D	8M97W7D
LTE Band 4 + AWS-3 (15)	2117.5 ~ 2172.5	13M4G7D	13M4W7D
LTE Band 4 + AWS-3 (20)	2120.0 ~ 2170.0	18M0G7D	18M0W7D

TX Output Power : 500 mW (250 mW * 2 ports)
FCC Rule Part(s): FCC CFR 47 Part 2, 24, 27.
Data of Test: September 22, 2016 ~ November 8, 2016

Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of FCC Part 27 of the FCC Rules under normal use and maintenance.



Report prepared by
: Kyung Soo Kang
Test engineer of RF Team



Approved by
: Yong Hyun Lee
Manager of RF Team

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Report Revision

TEST REPORT NO.	DATE	DESCRIPTION
HCT-R-1610-F012	November 3, 2016	- First Approval Report
HCT-R-1610-F012-1	November 9, 2016	- Revise the test equipment. - Revise the power data on page 12. - Add the PAR test requirements and datas.

Result of Test

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1. GENERAL INFORMATION

1.1. CLIENT INFORMATION

Company	Samsung Electronics Co., Ltd.
Contact Point	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Contact person	Name: Jong In KIM / Principal Research Engineer E-mail : jered.kim@samsung.com Tel: +82-31-279-3092 Fax: +82-31-279-0476

1.2. PRODUCT INFORMATION

EUT TYPE	uFemto																																						
EMISSION DESIGNATOR	<table border="1"> <thead> <tr> <th rowspan="2">Mode (MHz)</th> <th rowspan="2">Tx Frequency (MHz)</th> <th colspan="2">Emission Designator</th> </tr> <tr> <th>QPSK (G7D)</th> <th>16QAM/64QAM (W7D)</th> </tr> </thead> <tbody> <tr> <td>LTE Band 2 (5)</td> <td>1932.5 ~ 1987.5</td> <td>4M44G7D</td> <td>4M45W7D</td> </tr> <tr> <td>LTE Band 2 (10)</td> <td>1935.0 ~ 1985.0</td> <td>8M96G7D</td> <td>8M96W7D</td> </tr> <tr> <td>LTE Band 2 (15)</td> <td>1937.5 ~ 1982.5</td> <td>13M4G7D</td> <td>13M4W7D</td> </tr> <tr> <td>LTE Band 2 (20)</td> <td>1940.0 ~ 1980.0</td> <td>18M0G7D</td> <td>18M0W7D</td> </tr> <tr> <td>LTE Band 4 + AWS-3 (5)</td> <td>2112.5 ~ 2177.5</td> <td>4M44G7D</td> <td>4M45W7D</td> </tr> <tr> <td>LTE Band 4 + AWS-3 (10)</td> <td>2115.0 ~ 2175.0</td> <td>8M96G7D</td> <td>8M97W7D</td> </tr> <tr> <td>LTE Band 4 + AWS-3 (15)</td> <td>2117.5 ~ 2172.5</td> <td>13M4G7D</td> <td>13M4W7D</td> </tr> <tr> <td>LTE Band 4 + AWS-3 (20)</td> <td>2120.0 ~ 2170.0</td> <td>18M0G7D</td> <td>18M0W7D</td> </tr> </tbody> </table>	Mode (MHz)	Tx Frequency (MHz)	Emission Designator		QPSK (G7D)	16QAM/64QAM (W7D)	LTE Band 2 (5)	1932.5 ~ 1987.5	4M44G7D	4M45W7D	LTE Band 2 (10)	1935.0 ~ 1985.0	8M96G7D	8M96W7D	LTE Band 2 (15)	1937.5 ~ 1982.5	13M4G7D	13M4W7D	LTE Band 2 (20)	1940.0 ~ 1980.0	18M0G7D	18M0W7D	LTE Band 4 + AWS-3 (5)	2112.5 ~ 2177.5	4M44G7D	4M45W7D	LTE Band 4 + AWS-3 (10)	2115.0 ~ 2175.0	8M96G7D	8M97W7D	LTE Band 4 + AWS-3 (15)	2117.5 ~ 2172.5	13M4G7D	13M4W7D	LTE Band 4 + AWS-3 (20)	2120.0 ~ 2170.0	18M0G7D	18M0W7D
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OPERATING FREQUENCY	1930 MHz ~ 1990 MHz (Band 2) 2110 MHz ~ 2155 MHz (Band 4) 2155 MHz ~ 2180 MHz (AWS-3)																																						
TX OUTPUT POWER	500 mW (250 mW * 2 ports)																																						
CHANNEL BANDWIDTH	LTE : 5 MHz, 10 MHz, 15 MHz, 20 MHz																																						
MEASUREMENT STANDARDS	ANSI/TIA-603-C-2004, KDB 971168 D01 v02r02, KDB 935210 D02 v03r02, KDB 935210 D05 v01r01																																						
MODULATION TYPE	QPSK, 16QAM, 64QAM																																						
ANTENNA SPECIFICATION	Manufacturer: Ace Technology Antenna type: INTERNAL ANTENNA Peak Gain : 4 dBi																																						

2. FACILITIES AND ACCREDITATIONS

2.1. FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA. The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2014) and CISPR Publication 22. Detailed description of test facility was submitted to the Commission and accepted dated July 07, 2015 (Registration Number: 90661).

2.2. EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

3. TEST SPECIFICATIONS

3.1. STANDARDS

The following tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with FCC Part 24, Part 27

SECTION	TEST ITEMS	RESULTS
§2.1046, §24.232, §27.50(d)	Conducted Output Power	Compliant
§2.1049	Occupied Bandwidth	Compliant
§2.1051, §24.238, §27.53(h)	Spurious Emissions at Antenna Terminals	Compliant
§2.1051, §24.238, §27.53(h)	Band edge	Compliant
§2.1053, §24.238, §27.53(h)	Spurious Radiated Emissions.	Compliant
§2.1055(a)(1), §24.235, §27.54	Frequency Stability over Temperature variation	Compliant
§2.1055(d), §24.235, §27.54	Frequency stability over Voltage variation	Compliant

3.2. MODE OF OPERATION DURING THE TEST

The EUT was operated in a manner representative of the typical usage of the equipment.

During all testing, system components were manipulated within the confines of typical usage to maximize each emission. All Modulation (QPSK, 16QAM and 64QAM) modes were tested.

3.3. MAXIMUM MEASUREMENT UNCERTAINTY

The value of the measurement uncertainty for the measurement of each parameter.

Coverage factor $k = 2$, Confidence levels of 95 %

Description	Condition	Uncertainty
Conducted RF Output Power	-	± 0.72 dB
Occupied Bandwidth	OBW ≤ 20 MHz	± 52 kHz
Passband Gain and Bandwidth & Out of Band Rejection	Gain 20 dB bandwidth	± 0.89 dB ± 0.58 MHz
Spurious Emissions at Antenna Terminals	-	± 1.08 dB
Radiated Spurious Emissions	$f \leq 1$ GHz $f > 1$ GHz	± 4.80 dB ± 6.07 dB
Frequency Stability	-	$\pm 1.22 \times 10^{-6}$

3.4. STANDARDS ENVIRONMENTAL TEST CONDITIONS

Temperature :	+ 15 °C to + 35 °C
Relative humidity:	30 % to 60 %
Air pressure	860 mbar to 1 060 mbar

4. TEST EQUIPMENT

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Agilent	N9030A / Signal Analyzer	11/24/2015	Annual	MY49431210
Weinschel	67-30-33 / Fixed Attenuator	02/16/2016	Annual	CC7264
Rohde&Schwarz	ATT / 10dB Attenuator	05/17/2016	Annual	N/A
NANGYEUL CO., LTD.	NY-THR18750 / Temperature and Humidity Chamber	10/21/2016	Annual	NY-2009012201A
Innco system	MA4000-EP / Antenna Position Tower	N/A	N/A	N/A
Innco system	CT0800 / Turn Table	N/A	N/A	N/A
Innco system	CO3000 / Controller(Antenna mast)	N/A	N/A	CO3000-4p
ETS	2090 / Controller(Turn table)	N/A	N/A	1646
Rohde&Schwarz	Loop Antenna	02/23/2016	Biennial	1513-175
Schwarzbeck	VULB 9168 / Hybrid Antenna	04/15/2015	Biennial	255
Schwarzbeck	BBHA 9120D / Horn Antenna	12/11/2015	Biennial	9120D-1191
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	09/03/2015	Biennial	BBHA9170541
Rohde & Schwarz	FSP / Spectrum Analyzer	09/29/2016	Annual	836650/016
Rohde & Schwarz	FSV40-N / Spectrum Analyzer	09/23/2016	Annual	101068-SZ
Wainwright Instruments	WHK1.2/15G-10EF / Highpass Filter	04/11/2016	Annual	4
Wainwright Instruments	WHK3.0/18G-10EF / Highpass Filter	06/24/2016	Annual	8
CERNEX	CBLU1183540 / Power Amplifier	02/01/2016	Annual	24614
CERNEX	CBL06185030 / Power Amplifier	02/01/2016	Annual	24615
CERNEX	CBL18265035 / Power Amplifier	07/11/2016	Annual	22966

5. CONDUCTED OUTPUT POWER

Test Requirements:

§24.232 Power limits and duty cycle.

(a)(2) Base stations with an emission bandwidth greater than 1 MHz are limited to 1640 watts/MHz equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT, except as described in paragraph (b) below.

(d) Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

§27.50 Power limits and duty cycle.

(d) The following power and antenna height requirements apply to stations transmitting in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz and 2180-2200 MHz bands:

(1) The power of each fixed or base station transmitting in the 1995-2000 MHz, 2110-2155 MHz, 2155-2180 MHz or 2180-2200 MHz band and located in any county with population density of 100 or fewer persons per square mile, based upon the most recently available population statistics from the Bureau of the Census, is limited to:

- (i) An equivalent isotropically radiated power (EIRP) of 3280 watts when transmitting with an emission bandwidth of 1 MHz or less;
- (ii) An EIRP of 3280 watts/MHz when transmitting with an emission bandwidth greater than 1 MHz.

(2) The power of each fixed or base station transmitting in the 1995-2000 MHz, the 2110-2155 MHz 2155-2180 MHz band, or 2180-2200 MHz band and situated in any geographic location other than that described in paragraph (d)(1) of this section is limited to:

- (i) An equivalent isotropically radiated power (EIRP) of 1640 watts when transmitting with an emission bandwidth of 1 MHz or less;
- (ii) An EIRP of 1640 watts/MHz when transmitting with an emission bandwidth greater than 1 MHz.

(3) A licensee operating a base or fixed station in the 2110-2155 MHz band utilizing a power greater than 1640 watts EIRP and greater than 1640 watts/MHz EIRP must coordinate such operations in advance with all Government and non-Government satellite entities in the 2025-2110 MHz band. A licensee operating a base or fixed station in the 2110-2180 MHz band utilizing power greater than 1640 watts EIRP and greater than 1640 watts/MHz EIRP must be

coordinated in advance with the following licensees authorized to operate within 120 kilometers (75 miles) of the base or fixed station operating in this band: All Broadband Radio Service (BRS) licensees authorized under this part in the 2155-2160 MHz band and all advanced wireless services (AWS) licensees authorized to operate on adjacent frequency blocks in the 2110-2180 MHz band.

(5) Equipment employed must be authorized in accordance with the provisions of §24.51. Power measurements for transmissions by stations authorized under this section may be made either in accordance with a Commission-approved average power technique or in compliance with paragraph (d)(6) of this section. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

Test Procedures:

According to FCC §2.1046 (a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in § 2.1033(c). The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

- 1) The radio frequency load attached to the EUT antenna terminal was 50 Ohm. The loss of the cables the test system is calibrated to correct the reading.
- 2) The spectrum analyzer was set to RMS Detector function and Average mode.
- 3) The resolution bandwidth of the spectrum analyzer was comparable to the emission bandwidth.
- 4) The conducted emission level is measured at each antenna port and then summed mathematically to determine the total emission level from the device. (500m W = 250mW x 2 Ports)

Note:

Maximum EIRP(= 27.91 dBm + 4 dBi = 31.91 dBm) is sufficient level to pass the limit.

Test Results:

PCS 1900_LTE 5 MHz

Test Data at Output Port 0

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
1932.50	24.45	0.279	24.72	0.296	24.62	0.289
1960.00	24.72	0.296	24.85	0.305	24.83	0.304
1987.50	24.58	0.287	24.79	0.301	24.78	0.300

Test Data at Output Port 1

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
1932.50	24.50	0.282	24.56	0.286	24.43	0.277
1960.00	24.57	0.287	24.73	0.297	24.65	0.292
1987.50	24.76	0.299	24.74	0.298	24.70	0.295

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
1932.50	27.49	0.561	27.65	0.582	27.53	0.566
1960.00	27.66	0.583	27.80	0.602	27.75	0.596
1987.50	27.68	0.586	27.77	0.599	27.75	0.595

PCS 1900_LTE 10 MHz

Test Data at Output Port 0

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
1935.00	24.66	0.292	24.65	0.292	24.49	0.281
1960.00	24.92	0.311	24.76	0.300	24.63	0.290
1985.00	24.83	0.304	24.62	0.290	24.61	0.281

Test Data at Output Port 1

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
1935.00	24.62	0.289	24.60	0.288	24.55	0.285
1960.00	24.62	0.290	24.71	0.296	24.59	0.288
1985.00	24.71	0.296	24.63	0.291	24.58	0.287

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
1935.00	27.64	0.581	27.63	0.580	27.53	0.566
1960.00	27.79	0.601	27.75	0.596	27.62	0.578
1985.00	27.78	0.600	27.64	0.581	27.61	0.568

PCS 1900_LTE 15 MHz

Test Data at Output Port 0

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
1937.50	24.63	0.290	24.37	0.274	24.64	0.291
1960.00	24.99	0.316	24.56	0.285	24.79	0.301
1982.50	24.77	0.300	24.43	0.278	24.63	0.291

Test Data at Output Port 1

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
1937.50	24.53	0.284	24.33	0.271	24.57	0.286
1960.00	24.80	0.302	24.44	0.278	24.67	0.293
1982.50	24.77	0.300	24.24	0.265	24.67	0.293

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
1937.50	27.59	0.574	27.36	0.545	27.61	0.577
1960.00	27.91	0.618	27.51	0.563	27.74	0.594
1982.50	27.78	0.600	27.35	0.543	27.66	0.584

PCS 1900_LTE 20 MHz

Test Data at Output Port 0

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
1940.00	24.59	0.288	24.78	0.301	24.56	0.286
1960.00	24.72	0.297	24.76	0.299	24.75	0.299
1980.00	24.58	0.287	24.56	0.286	24.58	0.287

Test Data at Output Port 1

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
1940.00	24.74	0.298	24.72	0.296	24.70	0.295
1960.00	24.76	0.299	24.82	0.303	24.69	0.295
1980.00	24.70	0.295	24.70	0.295	24.66	0.292

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
1940.00	27.68	0.586	27.76	0.597	27.64	0.581
1960.00	27.75	0.596	27.80	0.602	27.74	0.594
1980.00	27.65	0.582	27.64	0.581	27.63	0.579

AWS 2100_LTE 5 MHz

Test Data at Output Port 0

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
2112.50	24.15	0.260	24.15	0.260	24.23	0.265
2145.00	24.71	0.296	24.81	0.302	24.66	0.293
2177.50	24.50	0.282	24.53	0.284	24.68	0.294

Test Data at Output Port 1

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
2112.50	24.23	0.265	24.33	0.271	24.24	0.265
2145.00	24.40	0.275	24.49	0.281	24.52	0.283
2177.50	24.35	0.272	24.51	0.282	24.46	0.279

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
2112.50	27.20	0.525	27.25	0.531	27.24	0.530
2145.00	27.57	0.571	27.66	0.583	27.60	0.576
2177.50	27.44	0.554	27.53	0.566	27.58	0.573

AWS 2100_LTE 10 MHz

Test Data at Output Port 0

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
2115.00	24.49	0.281	24.36	0.273	24.44	0.278
2145.00	24.60	0.289	24.57	0.286	24.53	0.284
2175.00	24.42	0.277	24.23	0.265	24.34	0.271

Test Data at Output Port 1

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
2115.00	24.38	0.274	24.39	0.275	24.28	0.268
2145.00	24.35	0.272	24.40	0.276	24.22	0.264
2175.00	24.20	0.263	24.32	0.270	24.20	0.263

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
2115.00	27.44	0.555	27.39	0.548	27.37	0.546
2145.00	27.49	0.561	27.50	0.562	27.39	0.548
2175.00	27.32	0.540	27.28	0.535	27.28	0.534

AWS 2100_LTE 15 MHz

Test Data at Output Port 0

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
2117.50	24.43	0.278	24.00	0.251	24.36	0.273
2145.00	24.74	0.298	24.27	0.267	24.51	0.282
2172.50	24.51	0.282	24.18	0.262	24.51	0.282

Test Data at Output Port 1

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
2117.50	24.34	0.272	24.03	0.253	24.34	0.272
2145.00	24.44	0.278	24.11	0.257	24.45	0.279
2172.50	24.30	0.269	24.02	0.253	24.24	0.266

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
2117.50	27.40	0.550	27.02	0.504	27.36	0.545
2145.00	27.60	0.576	27.19	0.524	27.49	0.561
2172.50	27.41	0.551	27.12	0.515	27.39	0.548

AWS 2100_LTE 20 MHz

Test Data at Output Port 0

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
2120.00	24.35	0.273	24.39	0.275	24.33	0.271
2145.00	24.68	0.293	24.53	0.284	24.54	0.284
2170.00	24.47	0.280	24.45	0.278	24.46	0.279

Test Data at Output Port 1

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
2120.00	24.40	0.276	24.38	0.274	24.23	0.265
2145.00	24.52	0.283	24.43	0.277	24.37	0.274
2170.00	24.27	0.268	24.45	0.279	24.29	0.269

Sum Data of Port 0 and Port 1

Frequency (MHz)	Output Power					
	QPSK		16QAM		64QAM	
	dBm	W	dBm	W	dBm	W
2120.00	27.40	0.549	27.40	0.549	27.29	0.536
2145.00	27.60	0.576	27.49	0.561	27.47	0.558
2170.00	27.39	0.548	27.46	0.557	27.39	0.548

[Peak-to-Average Ratio]

PCS 1900 Test Data

LTE Bandwidth	Frequency (MHz)	PAR [dB]					
		QPSK		16QAM		64QAM	
		Port 0	Port 1	Port 0	Port 1	Port 0	Port 1
5 MHz	1960.00	7.82	7.83	7.82	7.82	7.83	7.82
10 MHz		7.34	7.34	7.34	7.34	7.34	7.35
15 MHz		7.84	7.84	7.84	7.86	7.87	7.84
20 MHz		7.16	7.16	7.16	7.16	7.16	7.17

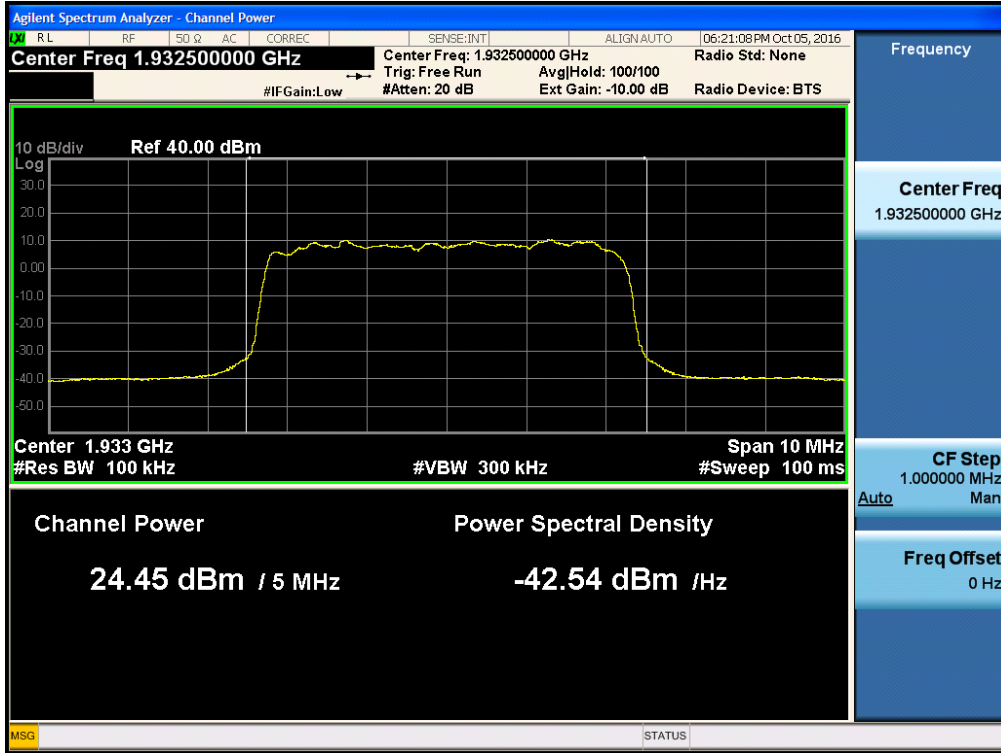
AWS 2100 Test Data

LTE Bandwidth	Frequency (MHz)	PAR [dB]					
		QPSK		16QAM		64QAM	
		Port 0	Port 1	Port 0	Port 1	Port 0	Port 1
5 MHz	2145.00	8.14	8.15	8.14	8.15	8.16	8.15
10 MHz		7.38	7.37	7.37	7.37	7.36	7.37
15 MHz		7.85	7.85	7.86	7.86	7.86	7.86
20 MHz		7.15	7.14	7.15	7.14	7.15	7.35

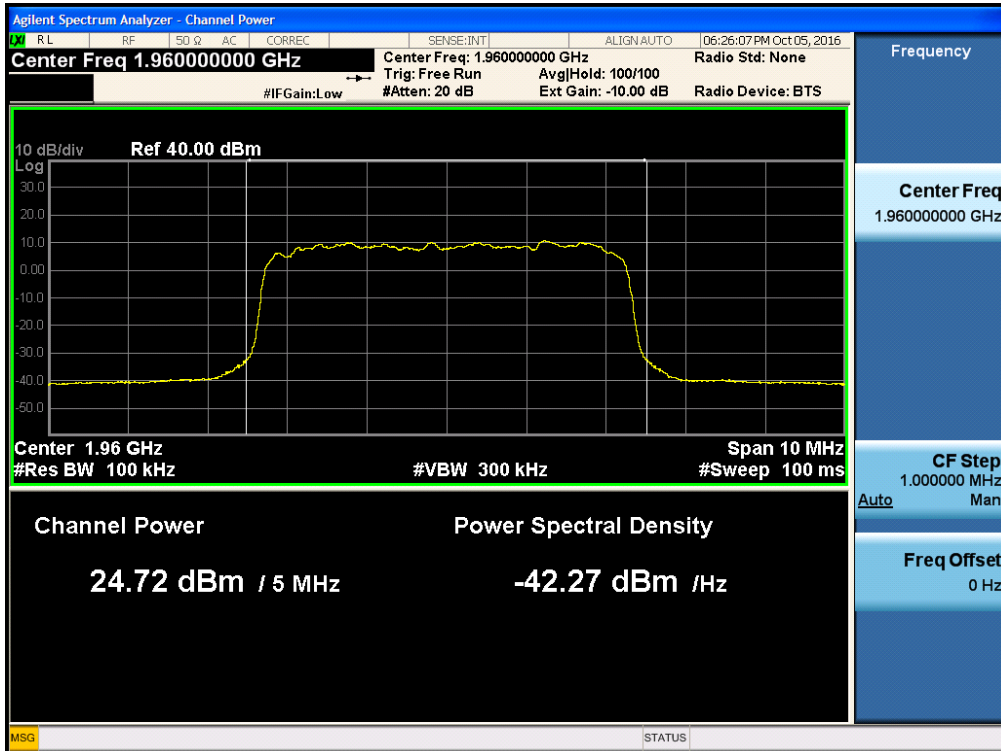
PCS 1900_LTE 5 MHz

Plot Data for Output Port 0 (Conducted Output Power)

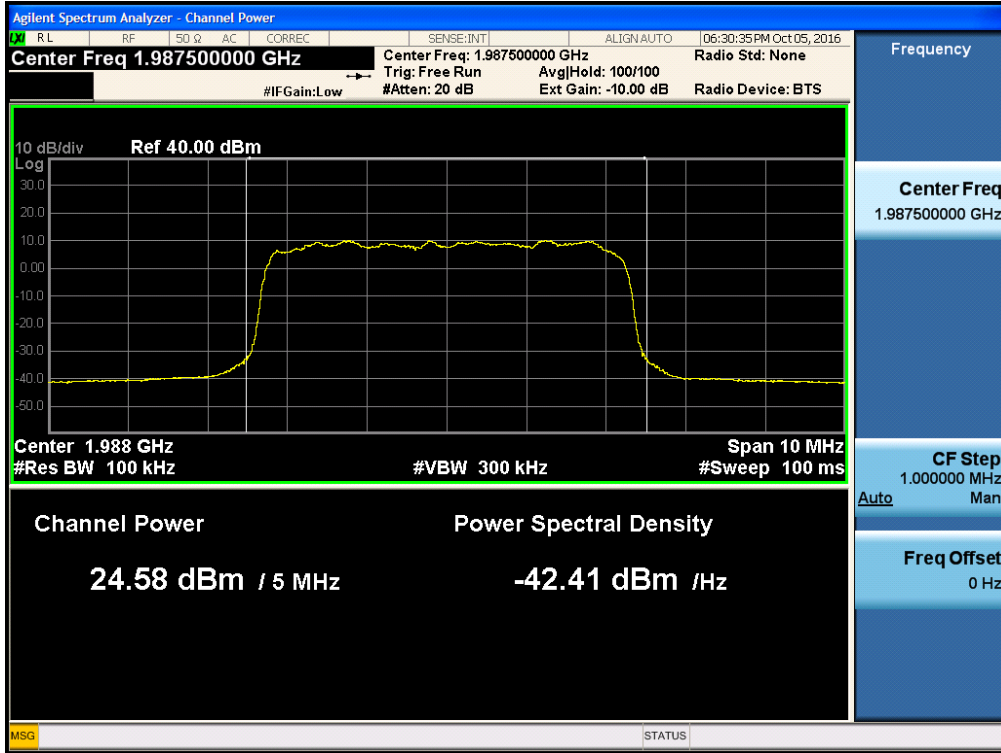
(QPSK Low Channel)



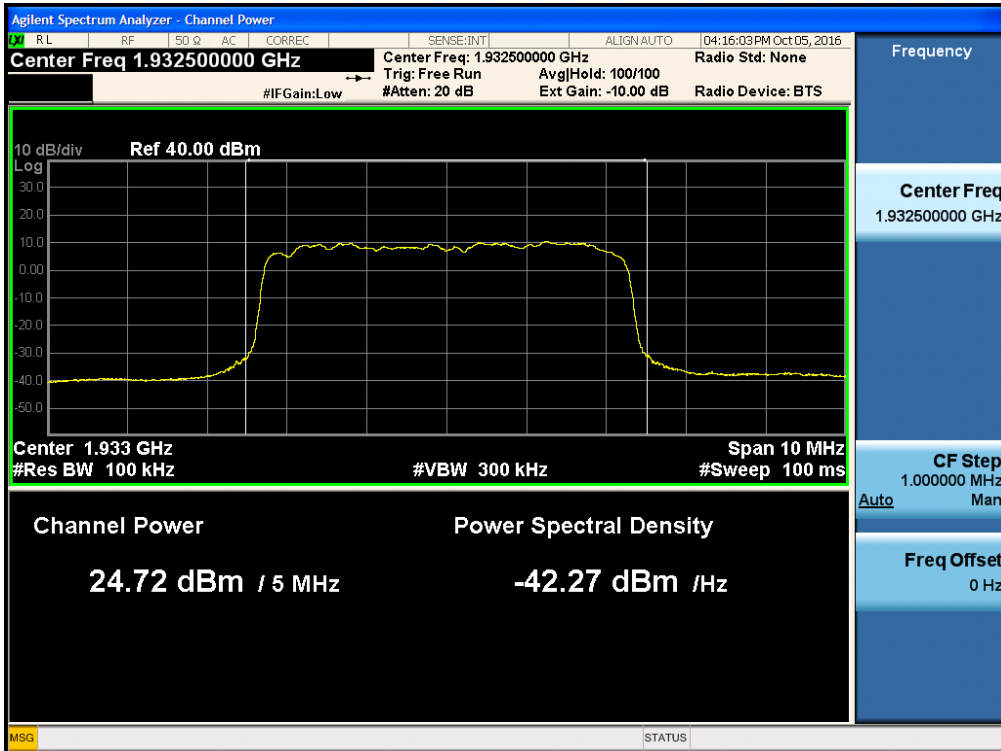
(QPSK Middle Channel)



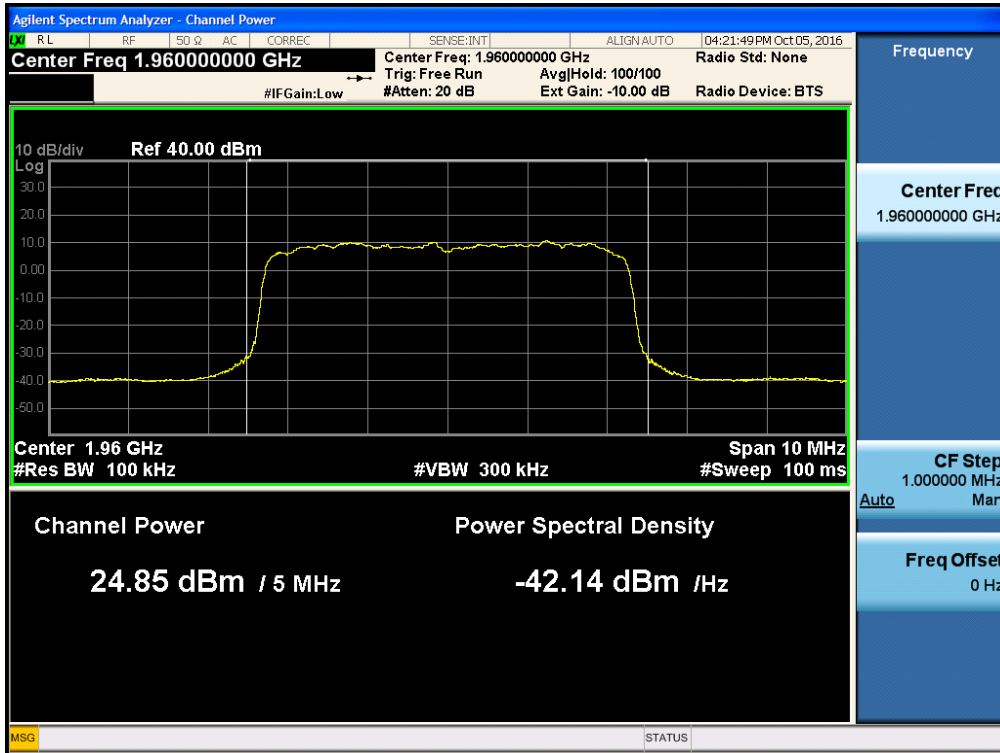
(QPSK High Channel)



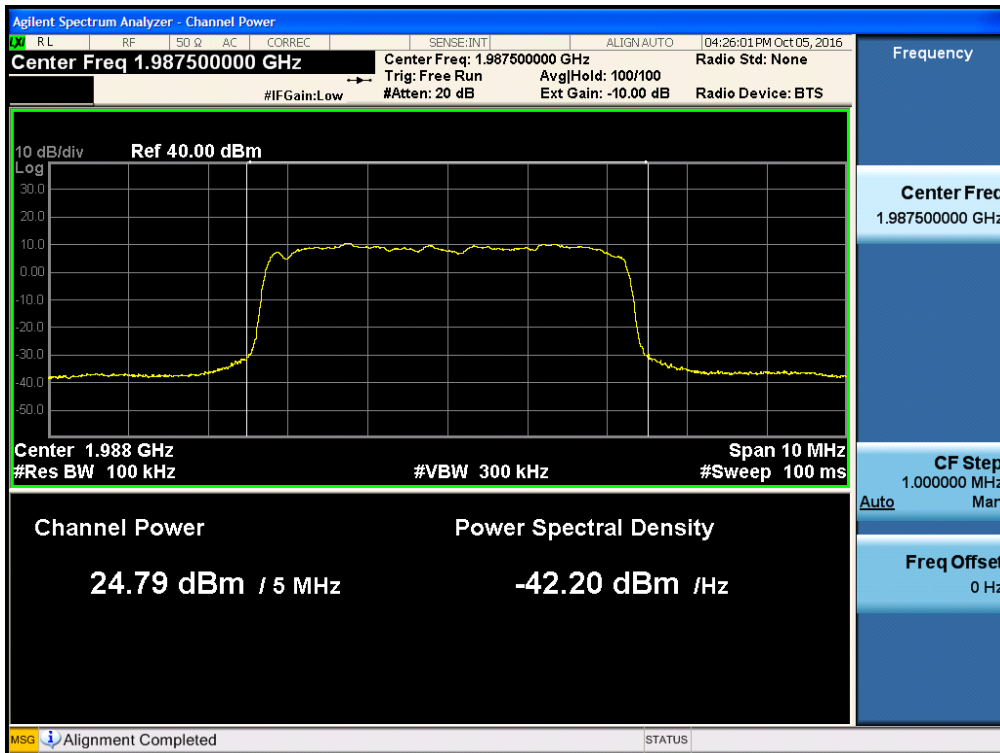
(16QAM Low Channel)



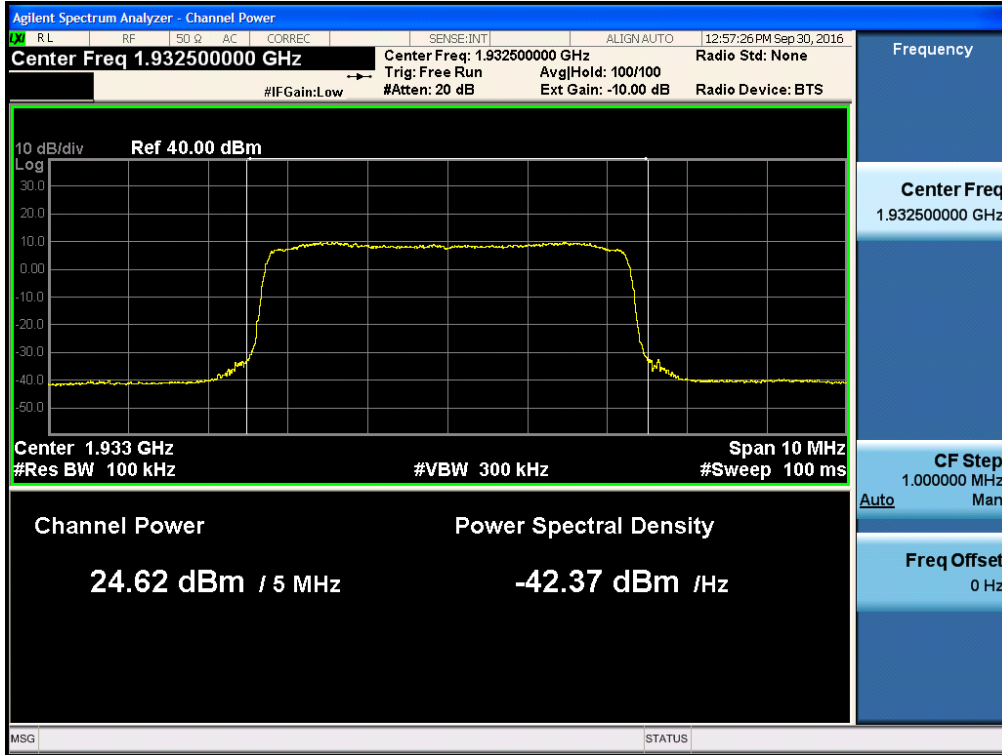
(16QAM Middle Channel)



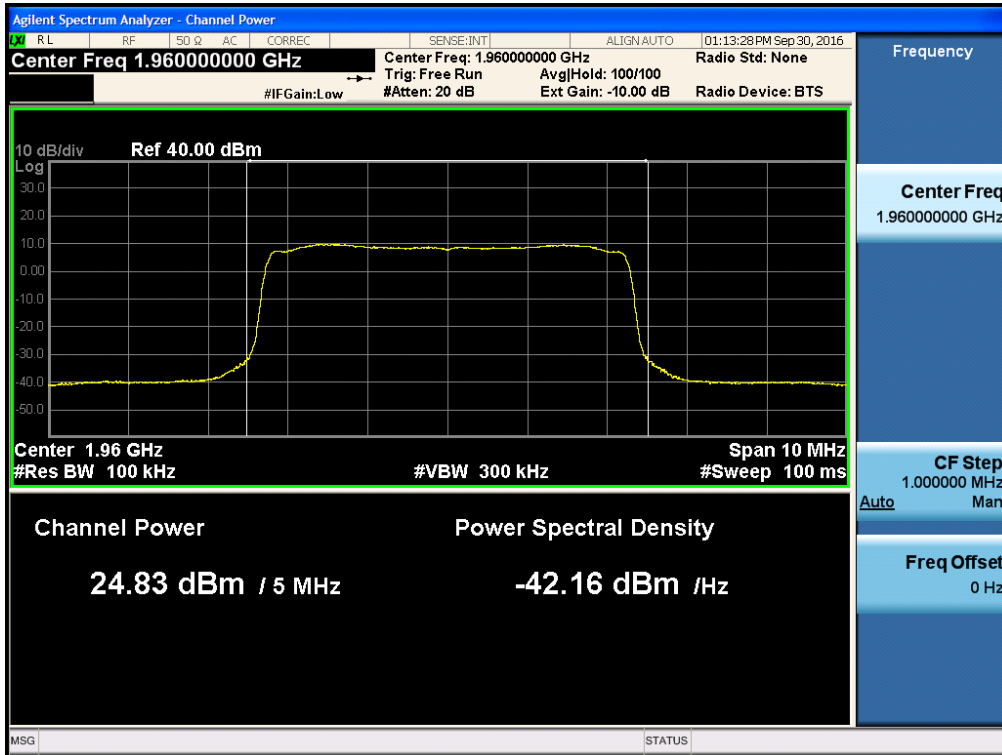
(16QAM High Channel)



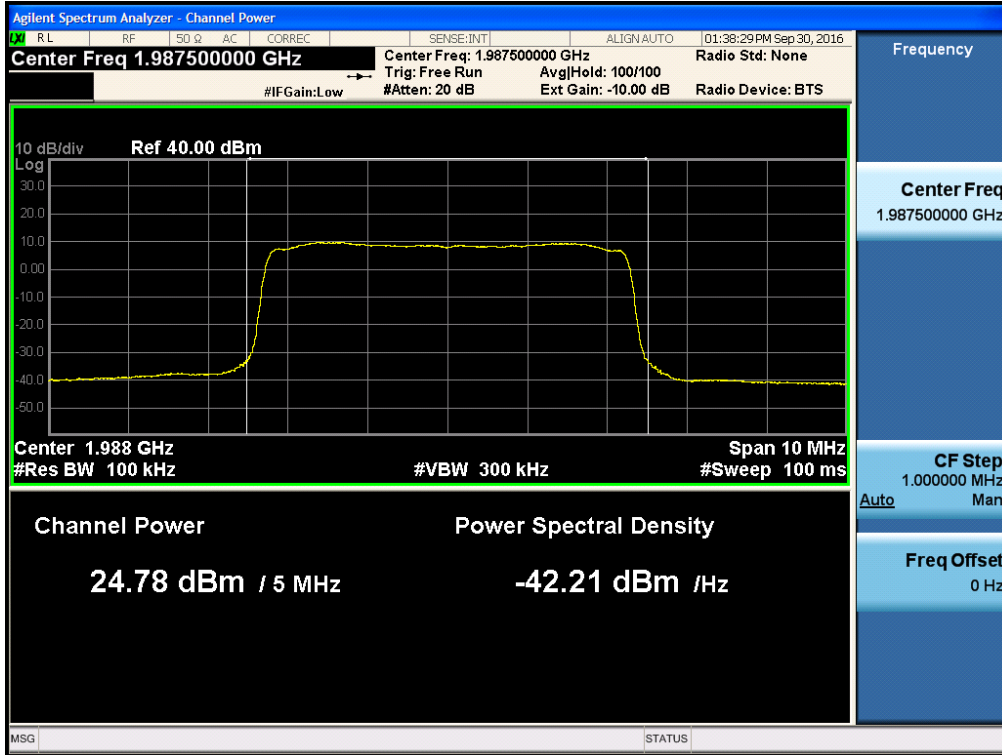
(64QAM Low Channel)



(64QAM Middle Channel)



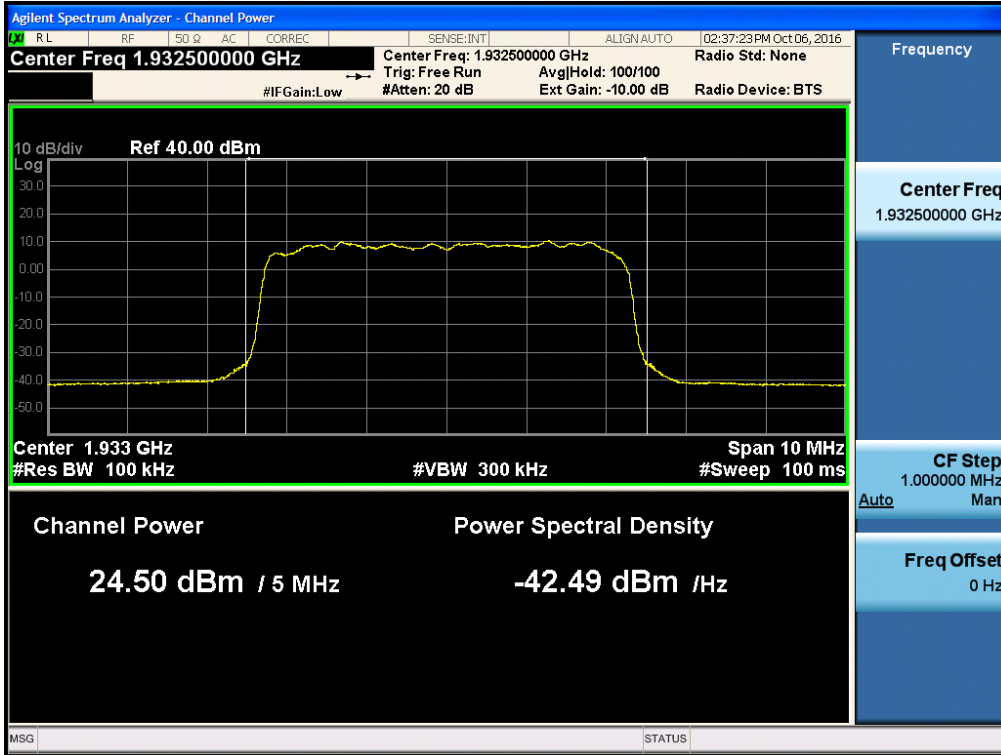
(64QAM High Channel)



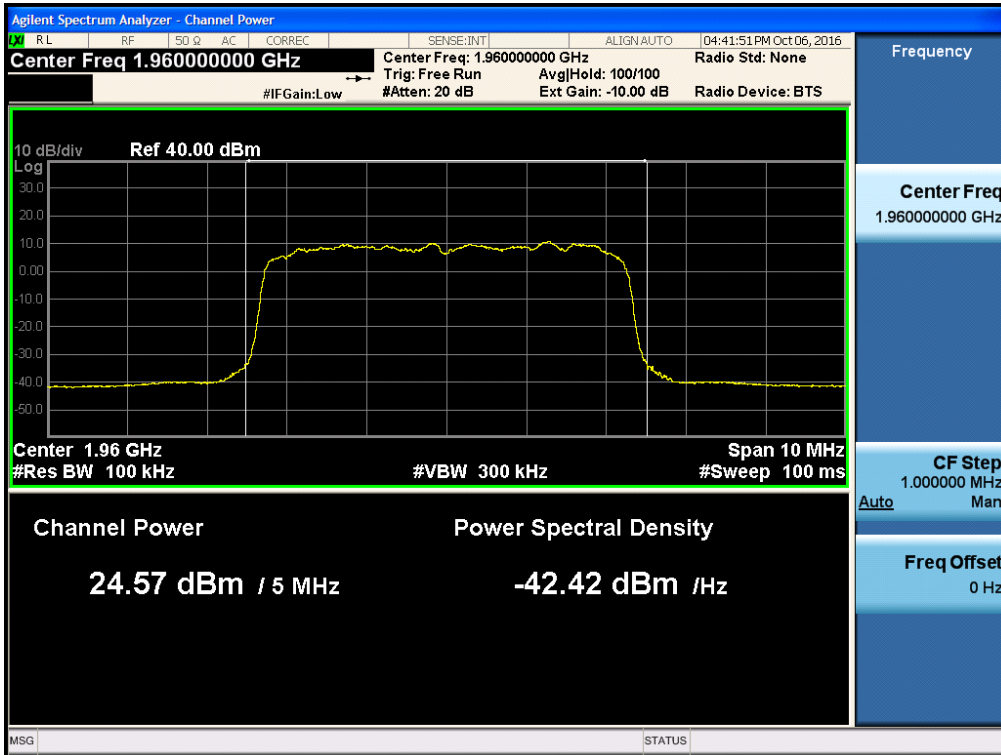
PCS 1900_LTE 5 MHz

Plot Data for Output Port 1 (Conducted Output Power)

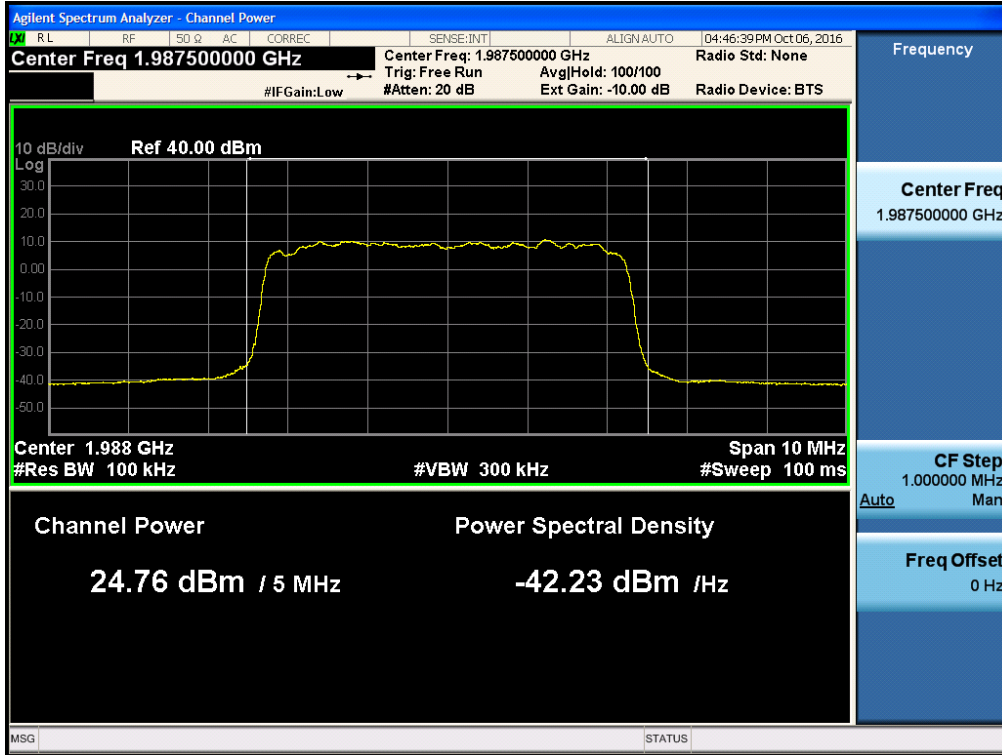
(QPSK Low Channel)



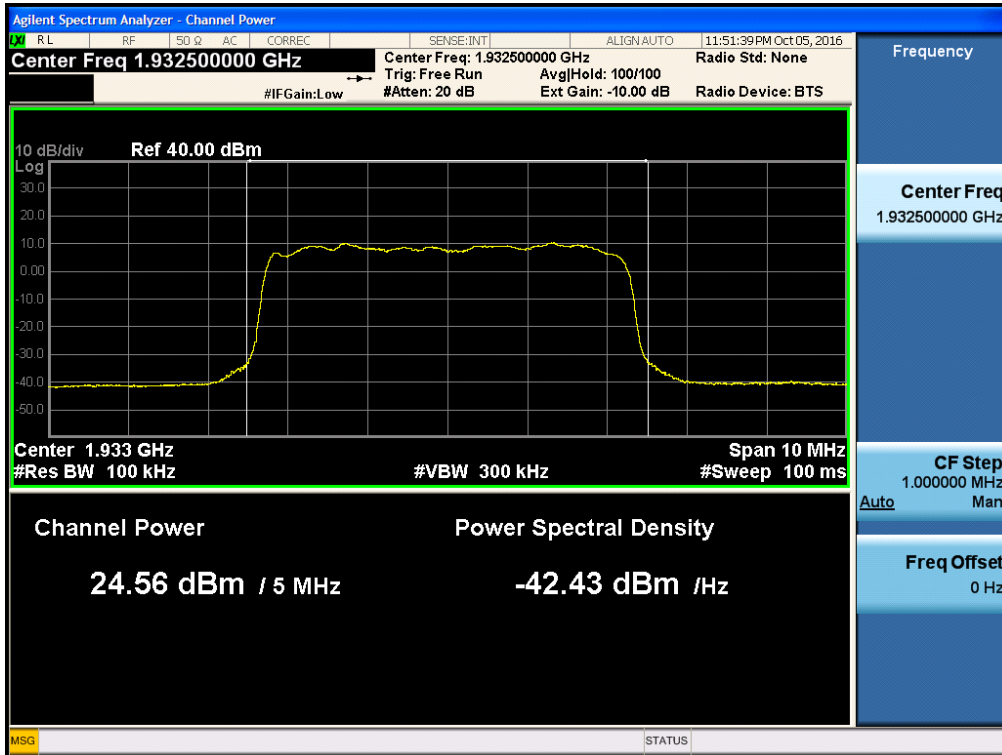
(QPSK Middle Channel)



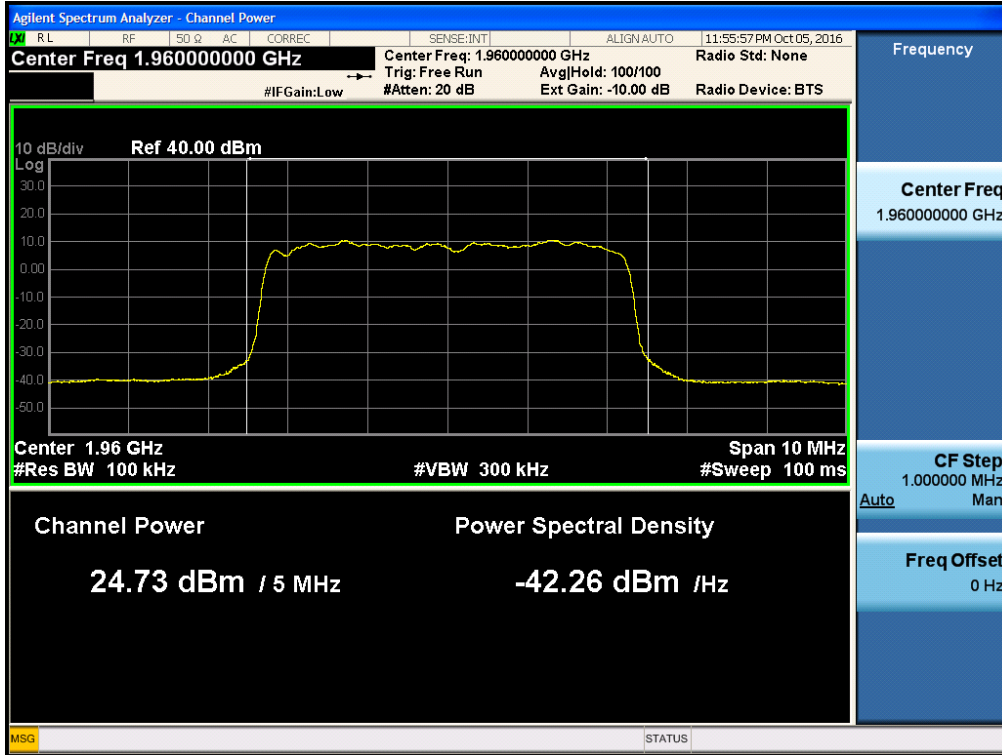
(QPSK High Channel)



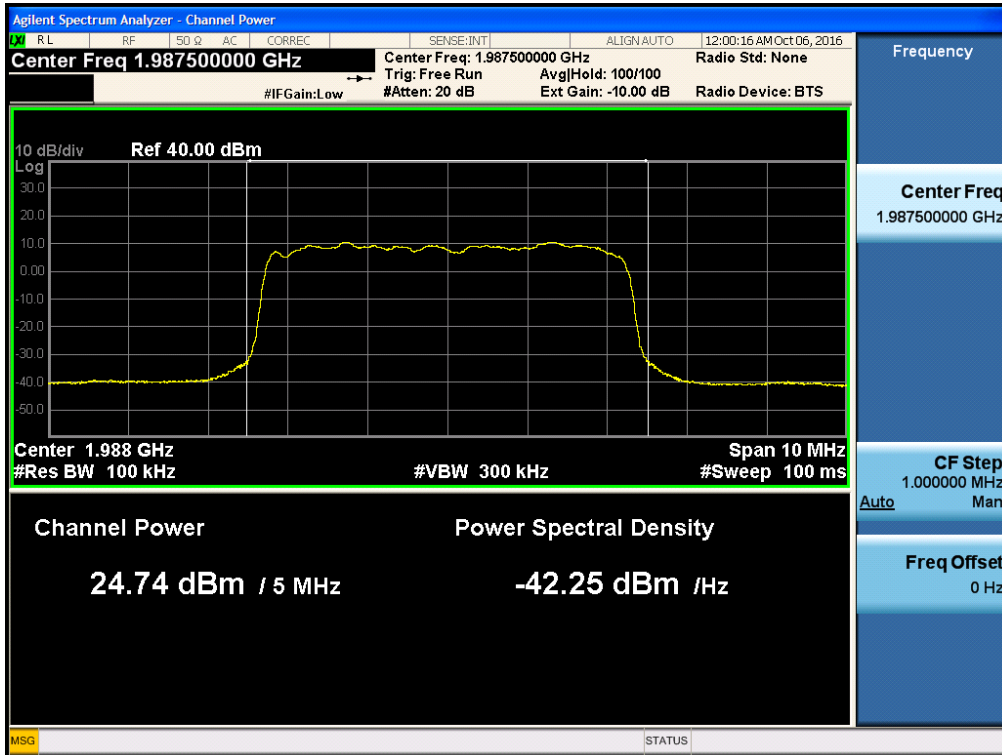
(16QAM Low Channel)



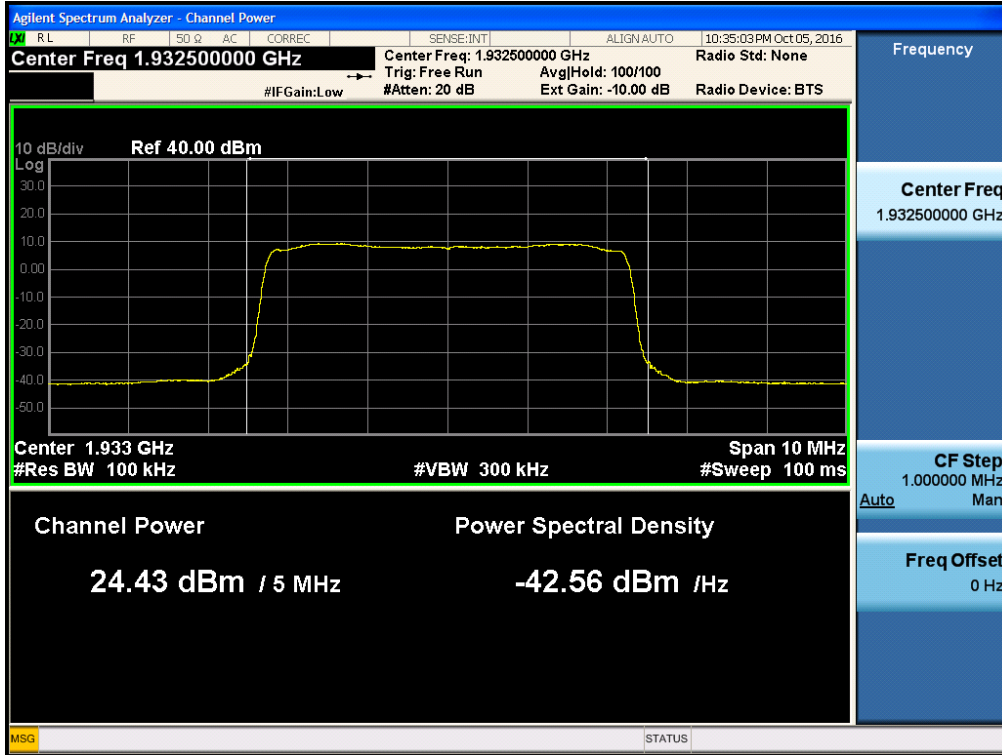
(16QAM Middle Channel)



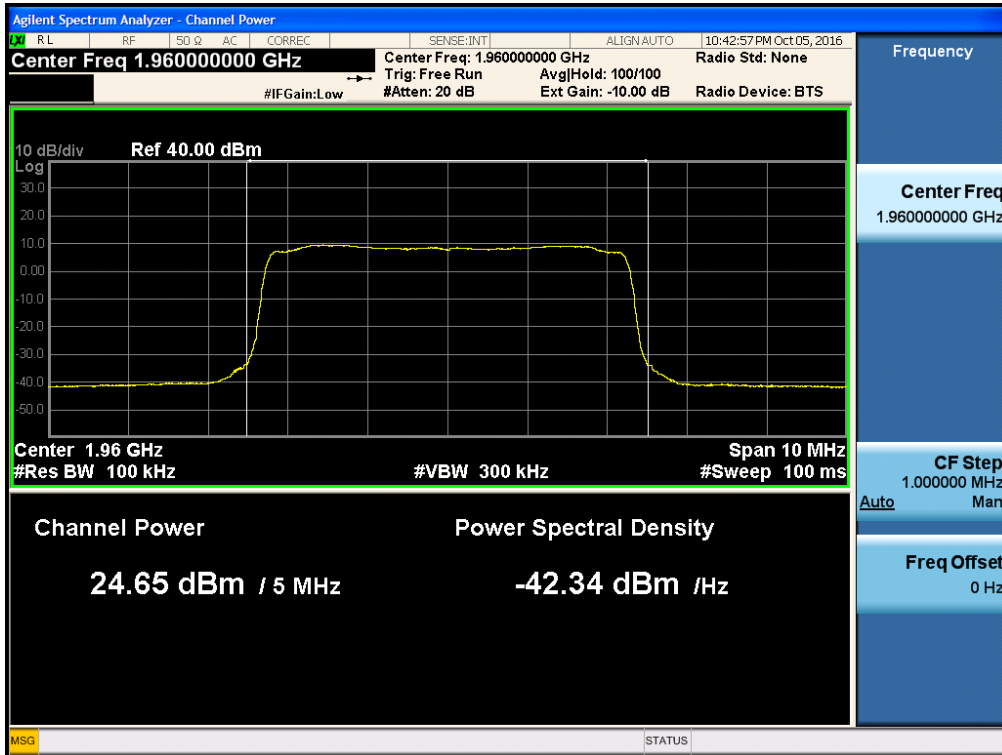
(16QAM High Channel)



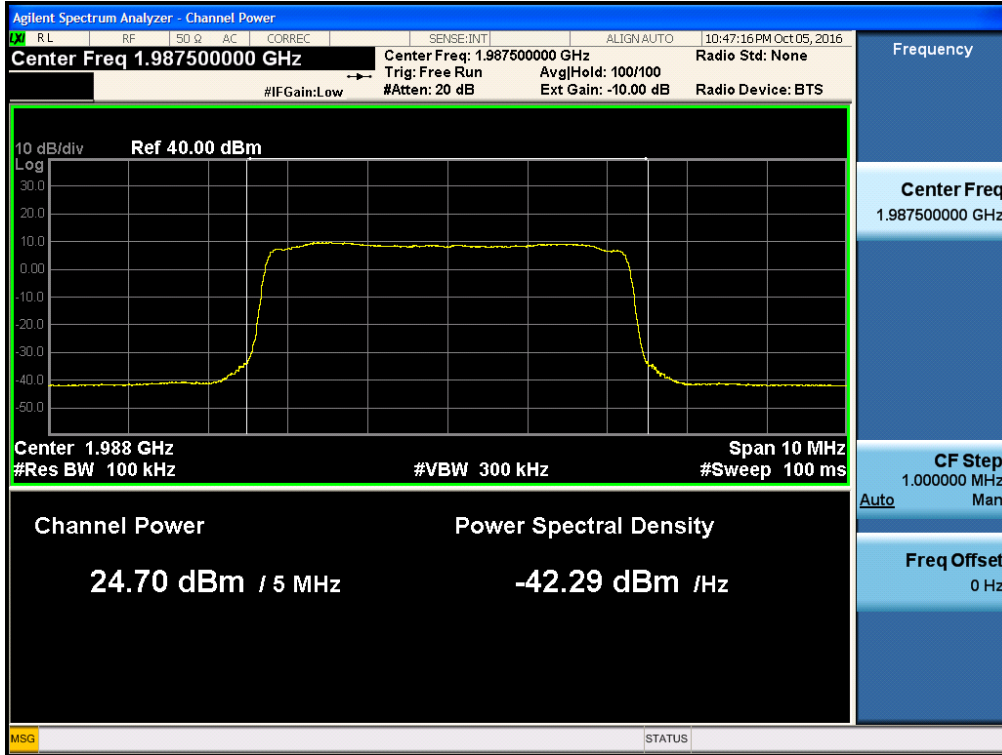
(64QAM Low Channel)



(64QAM Middle Channel)



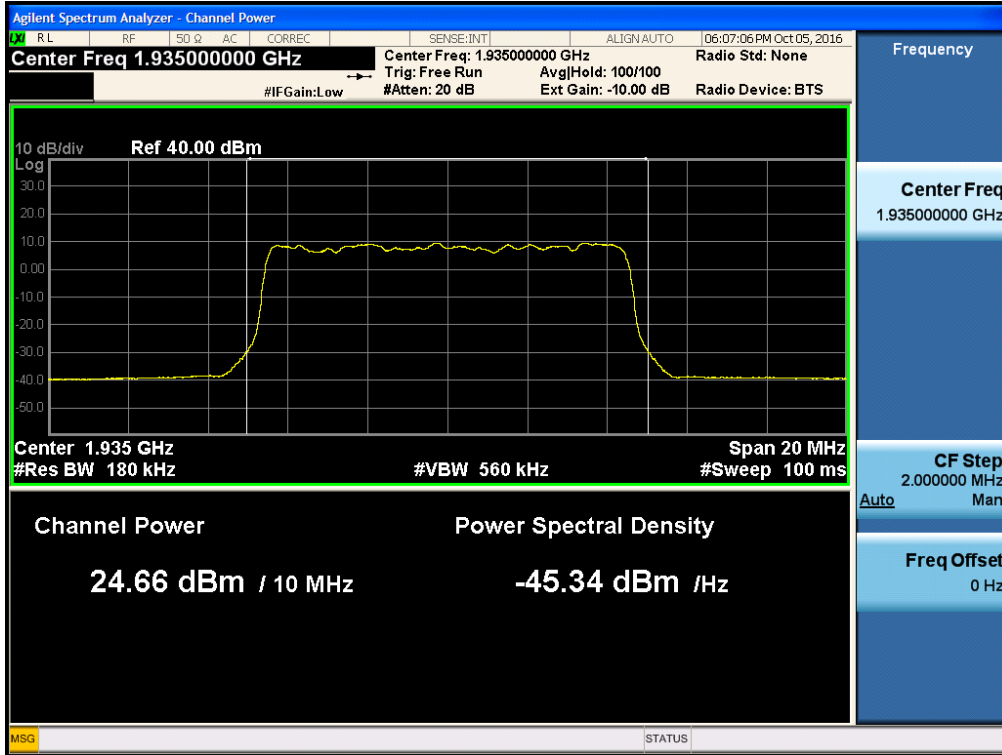
(64QAM High Channel)



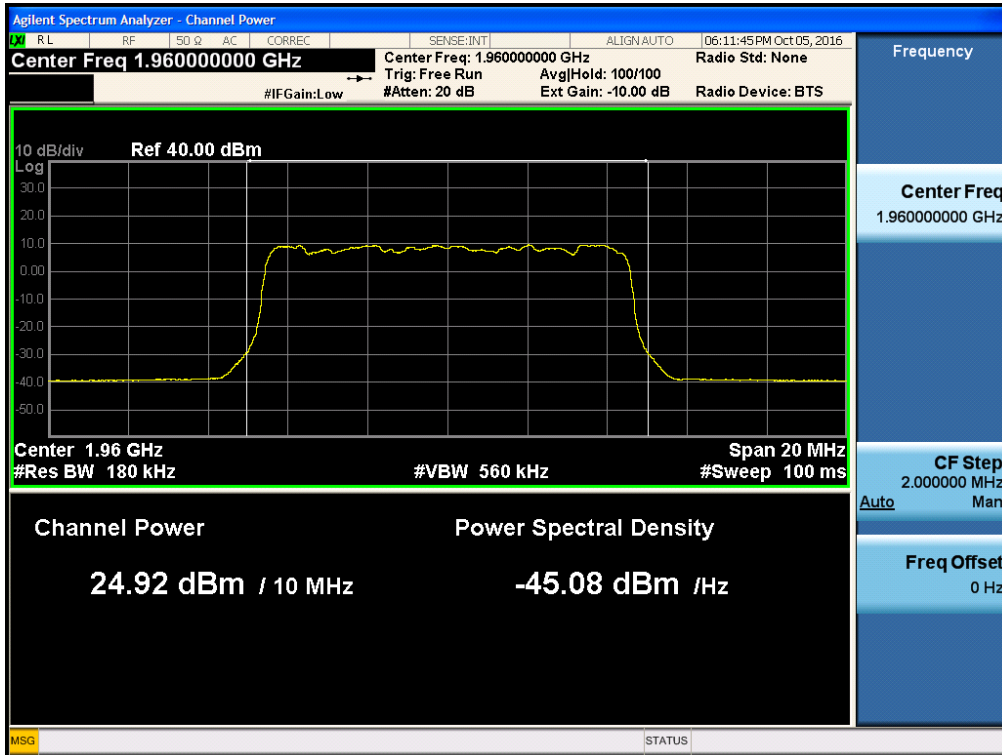
PCS 1900_LTE 10 MHz

Plot Data for Output Port 0 (Conducted Output Power)

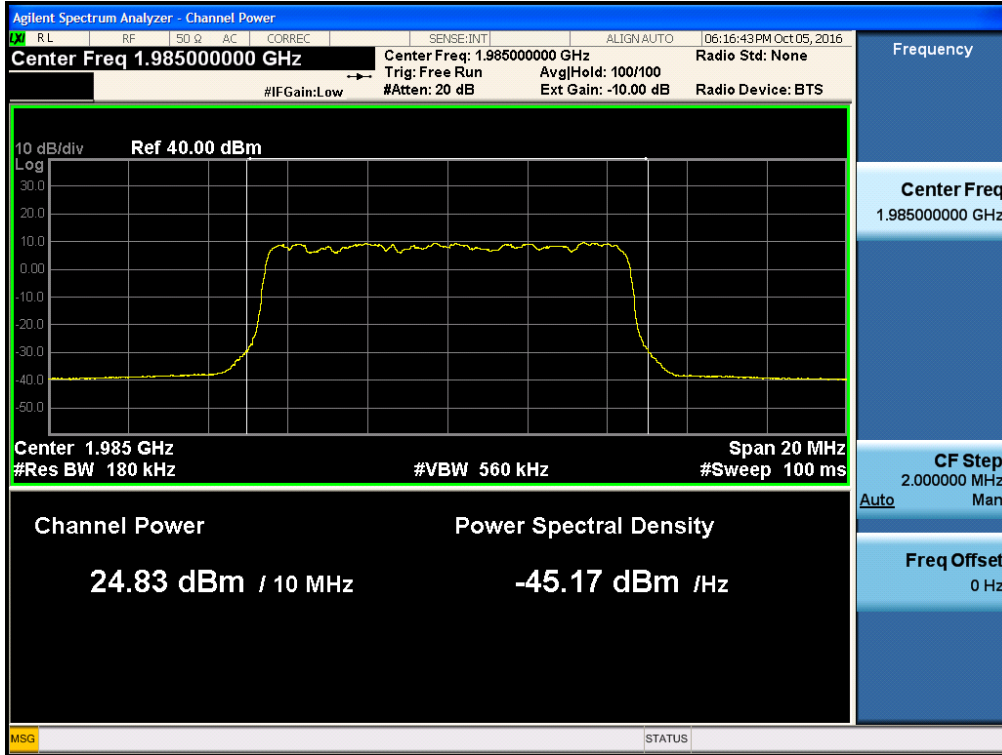
(QPSK Low Channel)



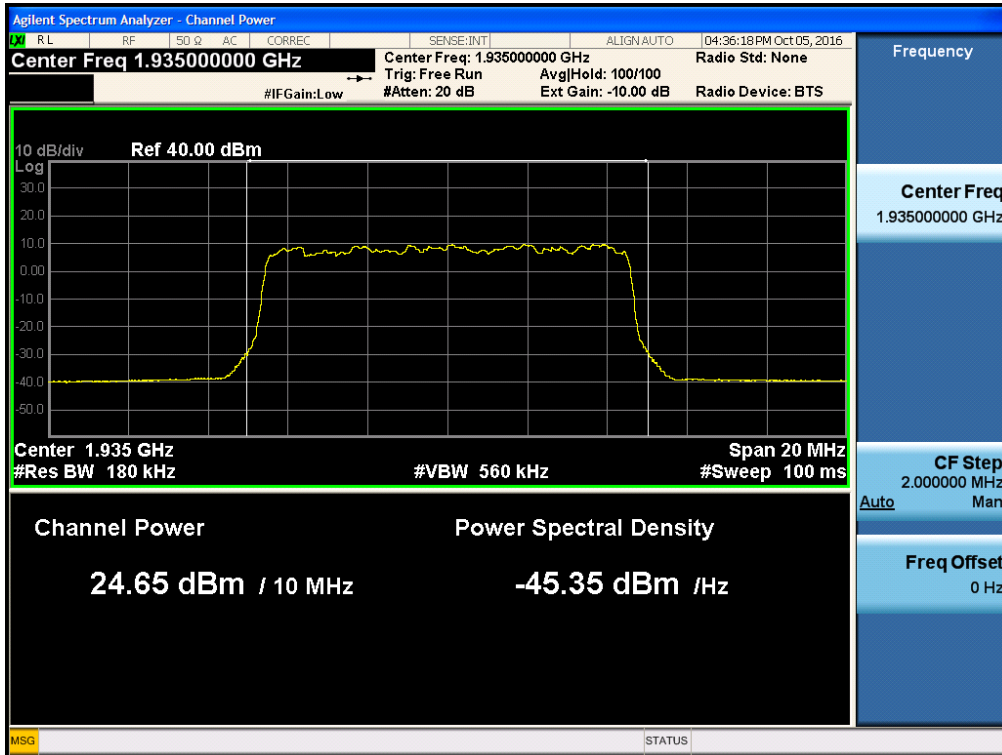
(QPSK Middle Channel)



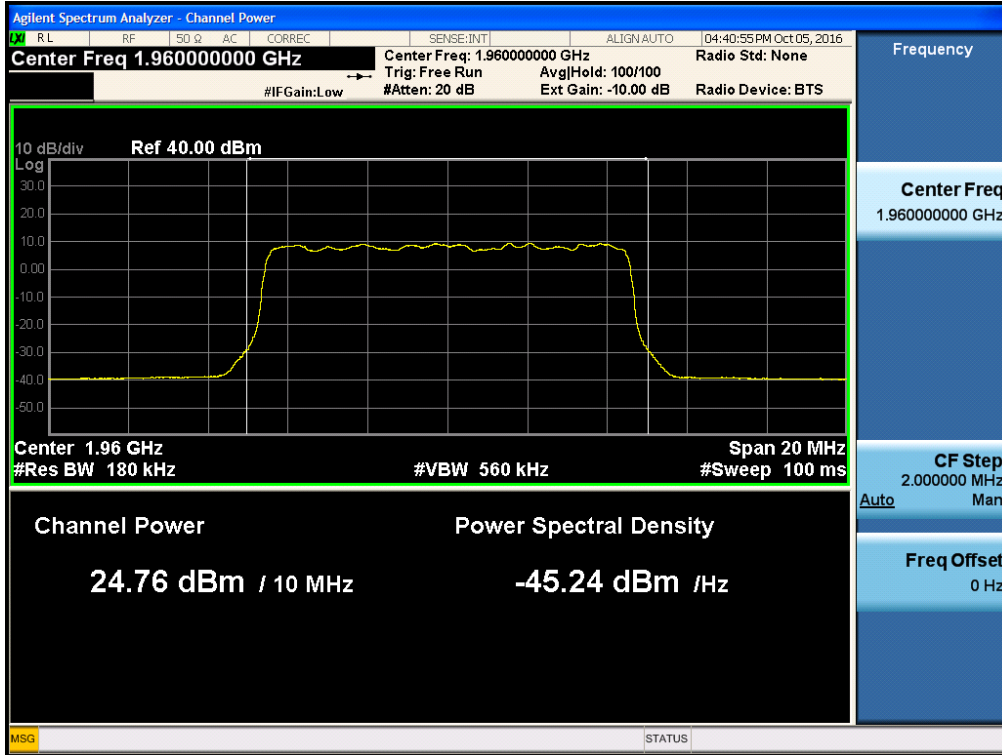
(QPSK High Channel)



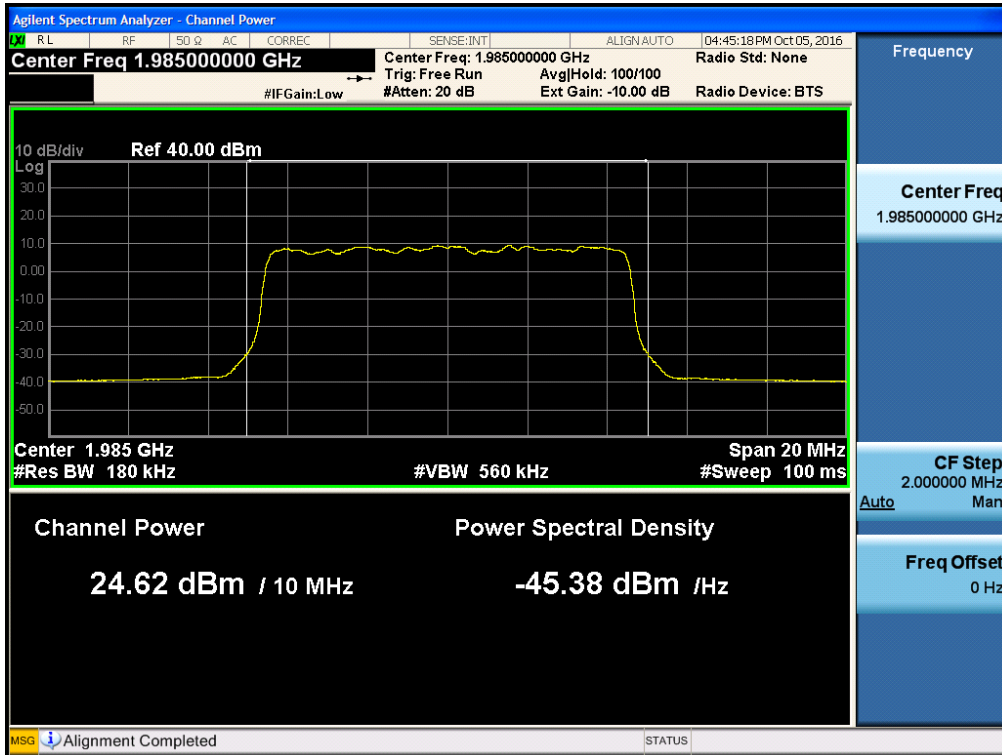
(16QAM Low Channel)



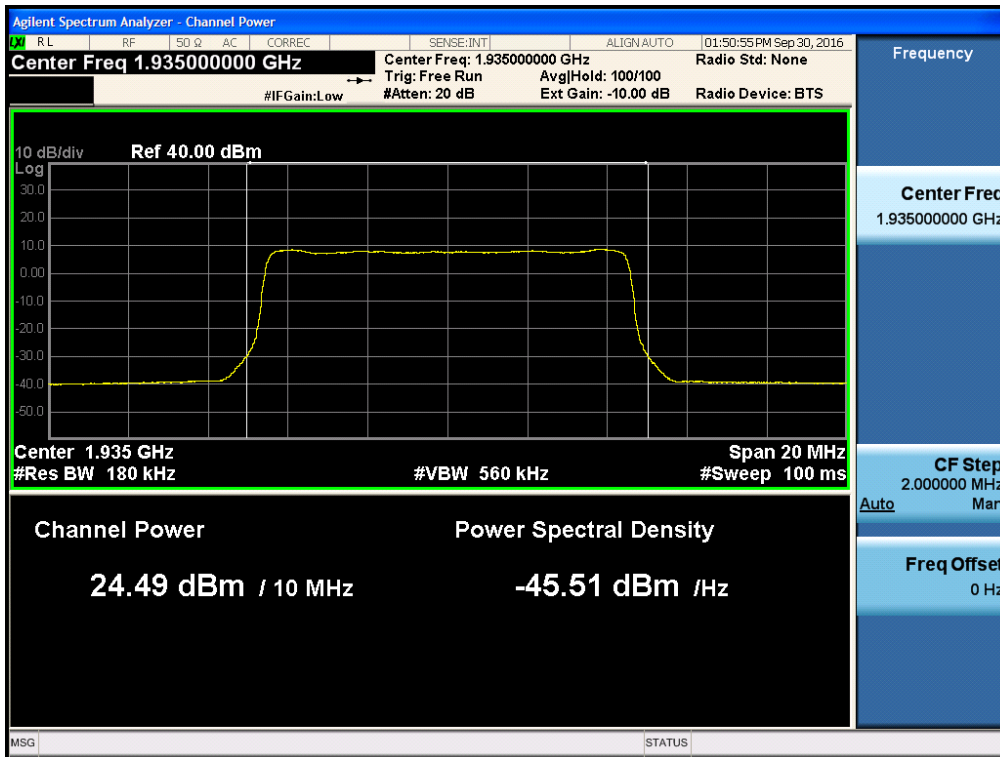
(16QAM Middle Channel)



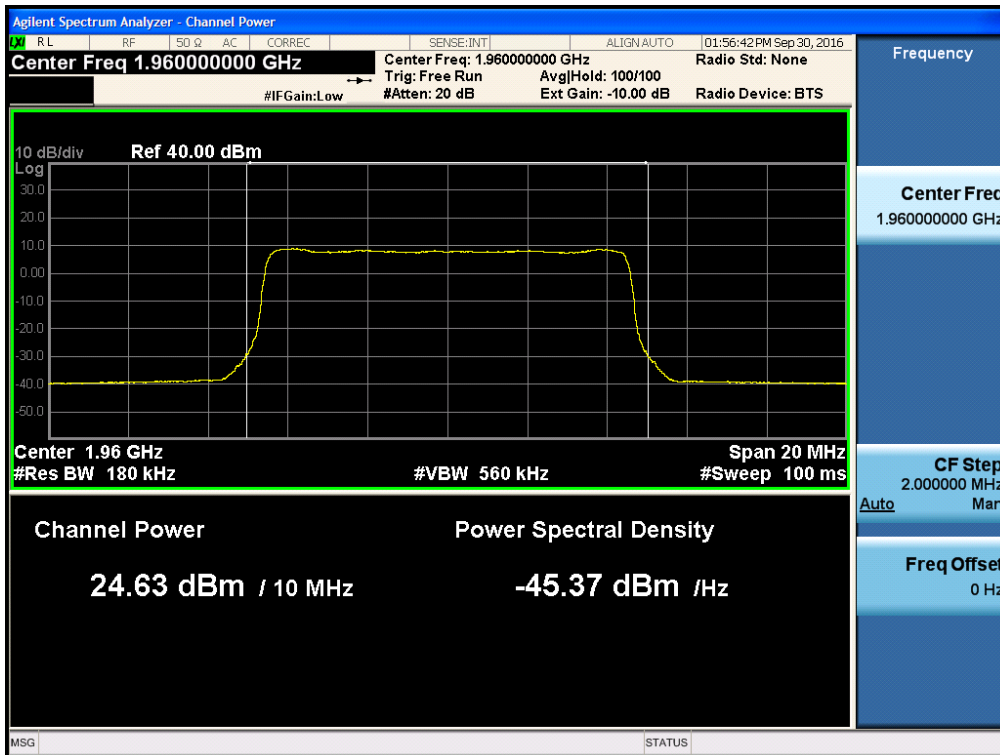
(16QAM High Channel)



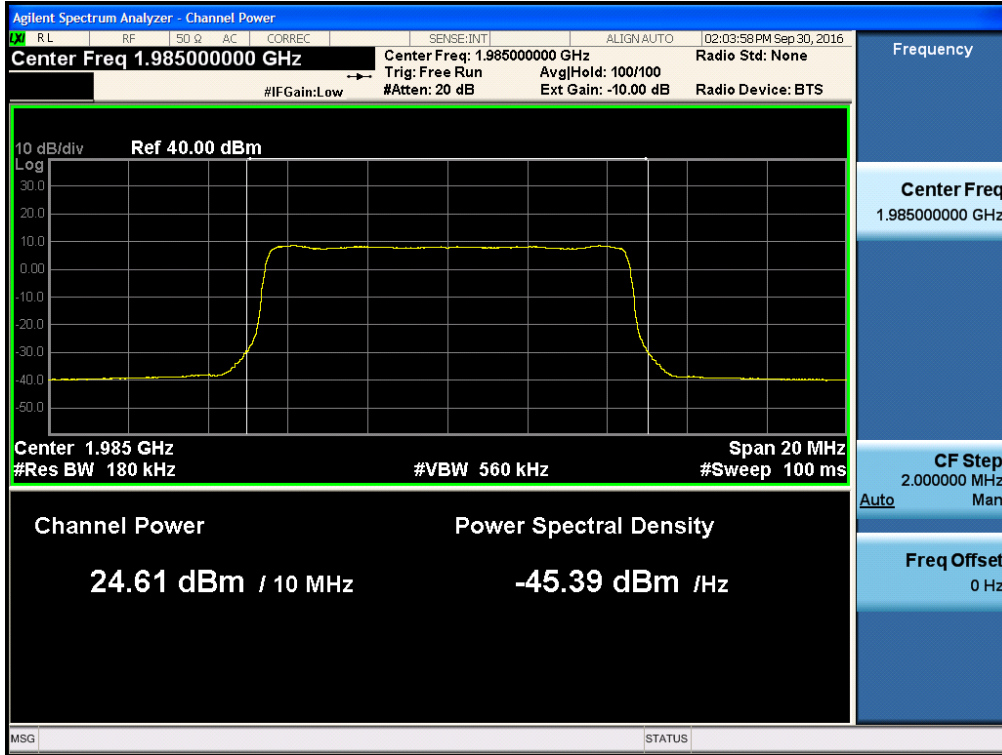
(64QAM Low Channel)



(64QAM Middle Channel)



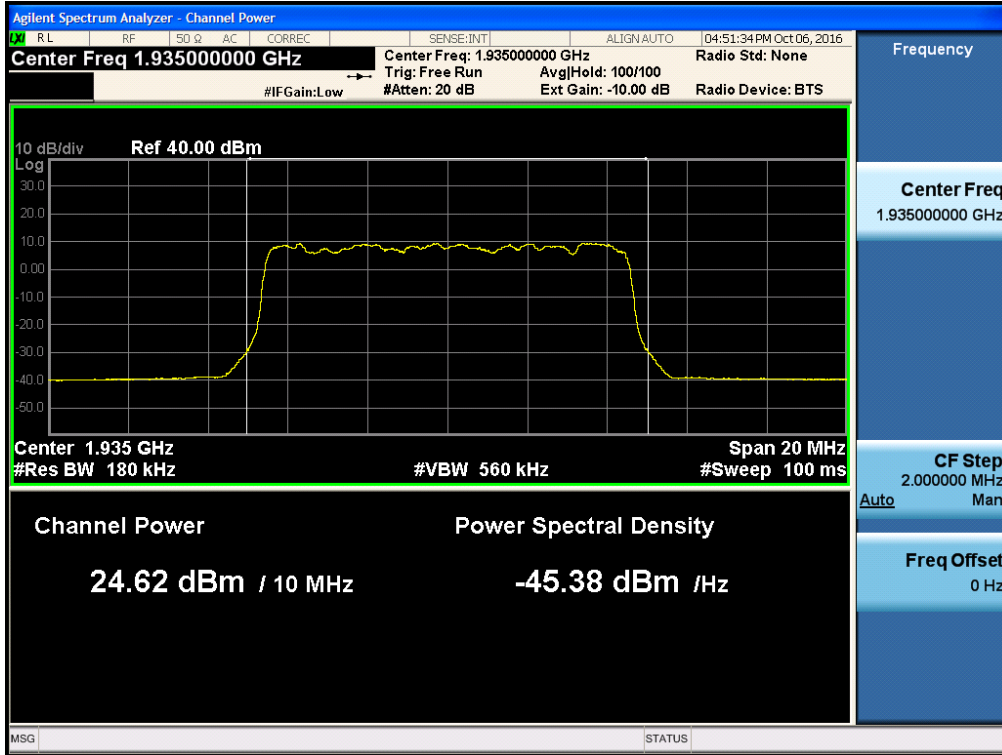
(64QAM High Channel)



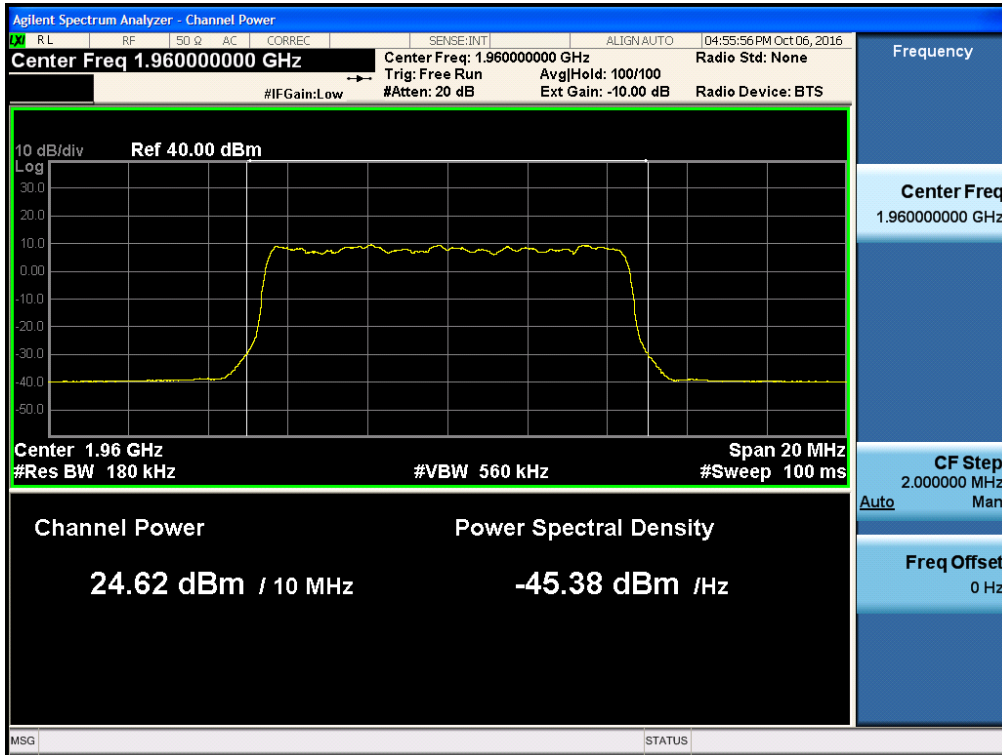
PCS 1900_LTE 10 MHz

Plot Data for Output Port 1 (Conducted Output Power)

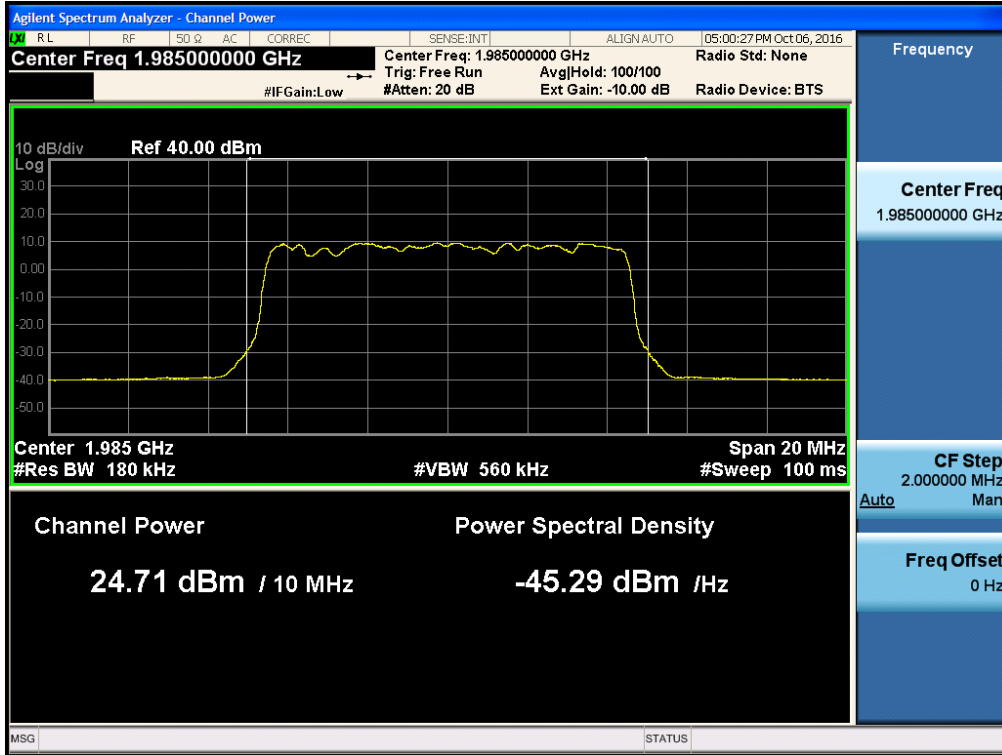
(QPSK Low Channel)



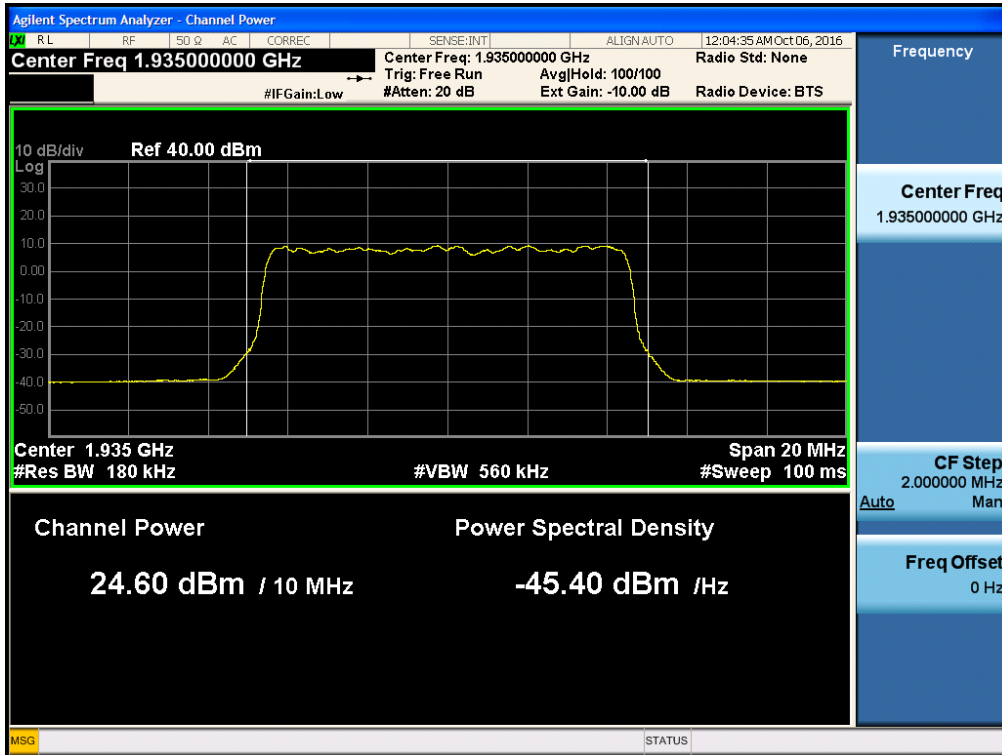
(QPSK Middle Channel)



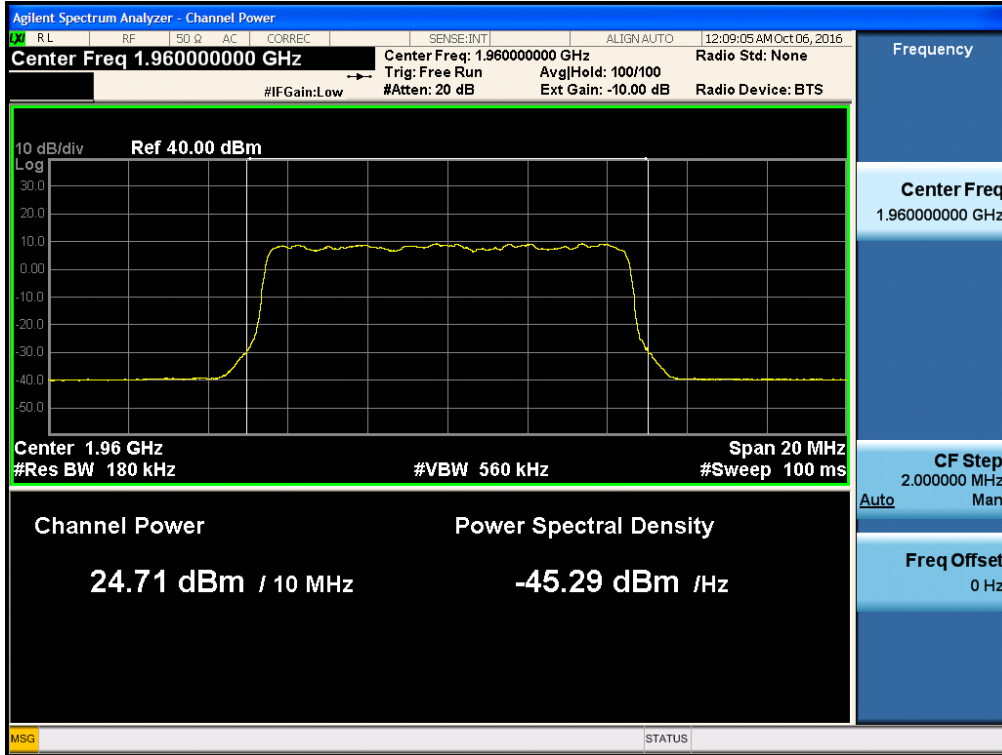
(QPSK High Channel)



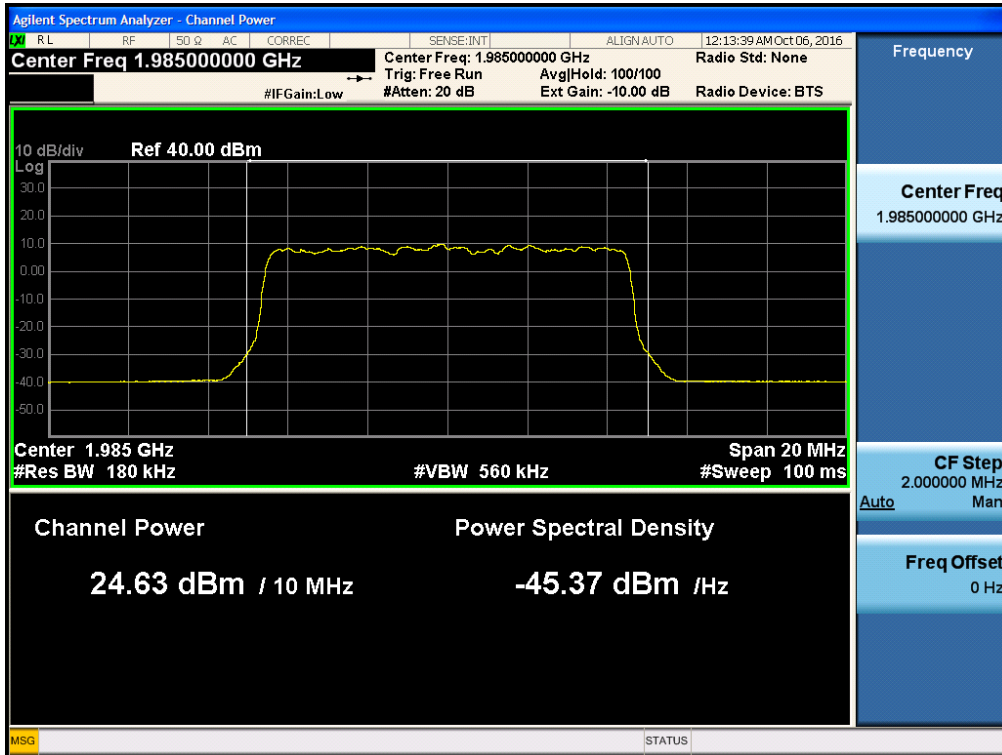
(16QAM Low Channel)



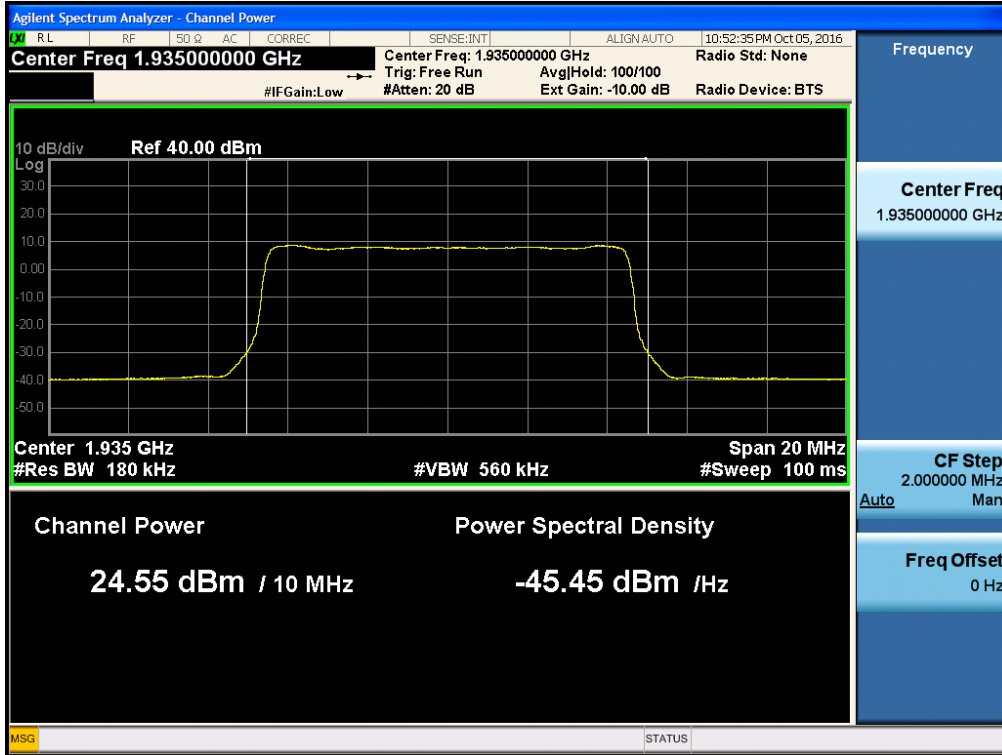
(16QAM Middle Channel)



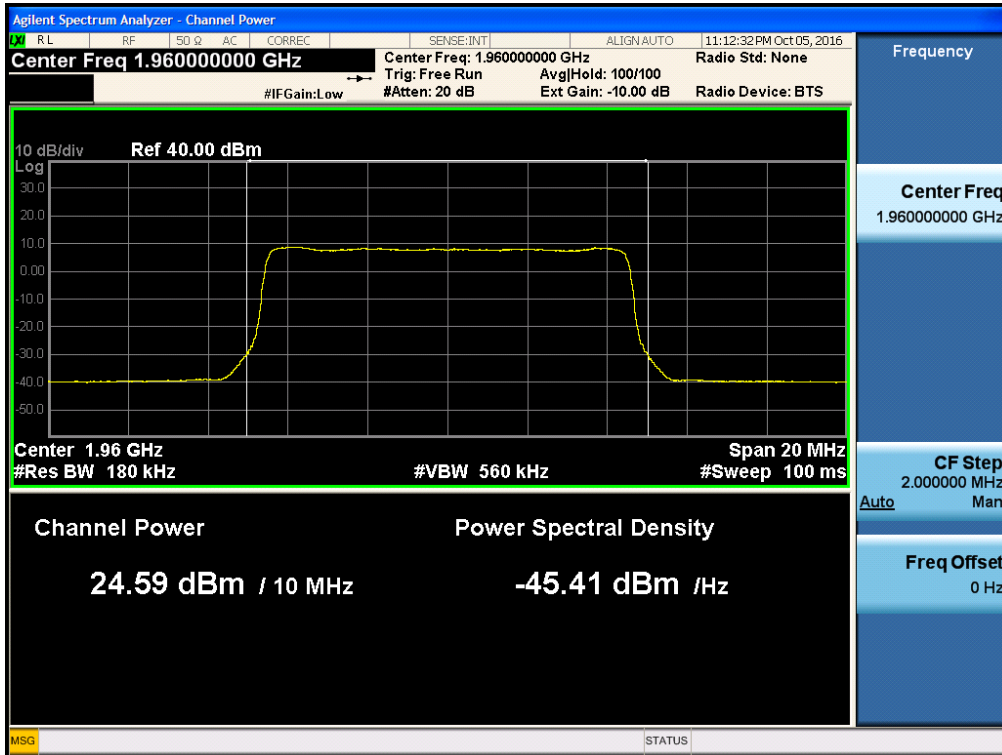
(16QAM High Channel)



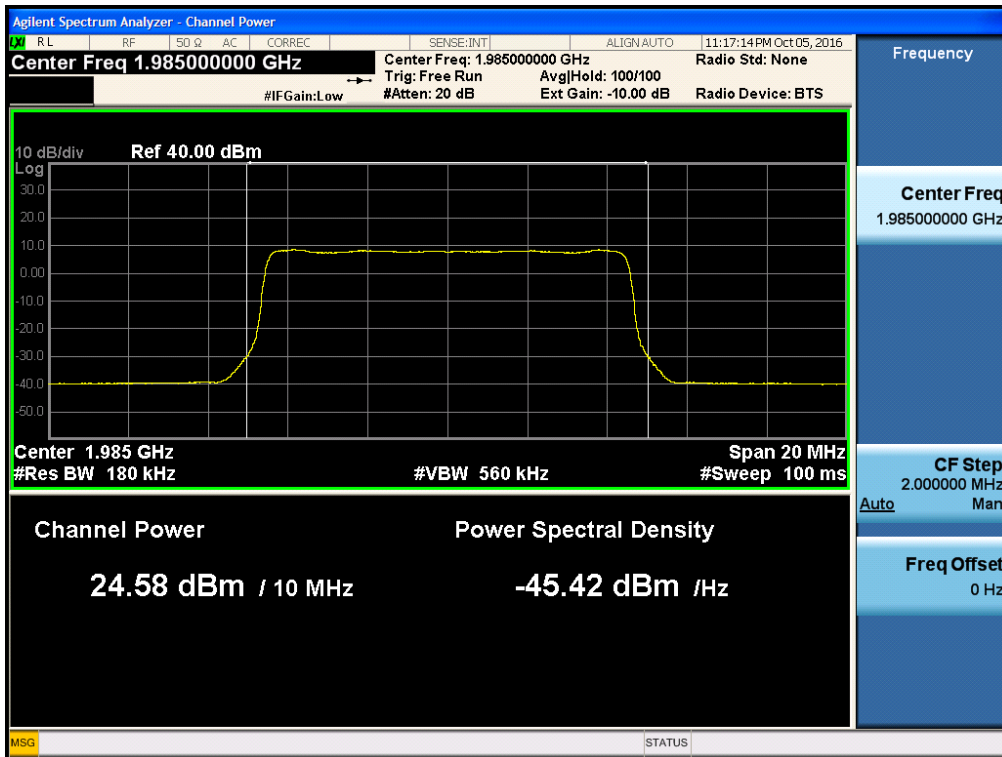
(64QAM Low Channel)



(64QAM Middle Channel)



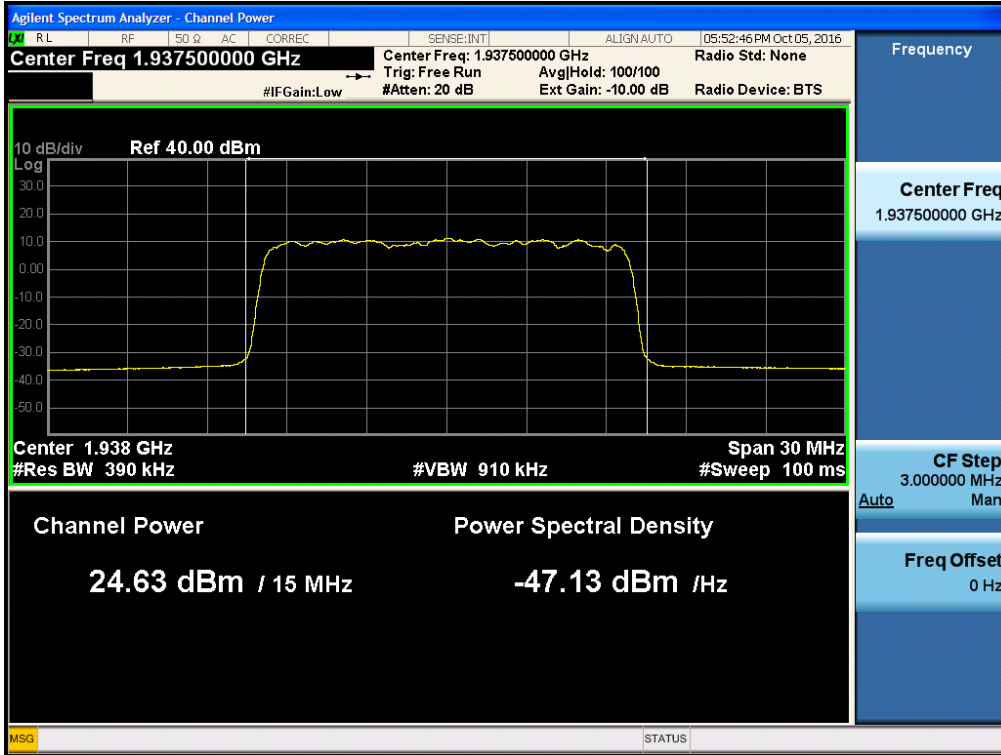
(64QAM High Channel)



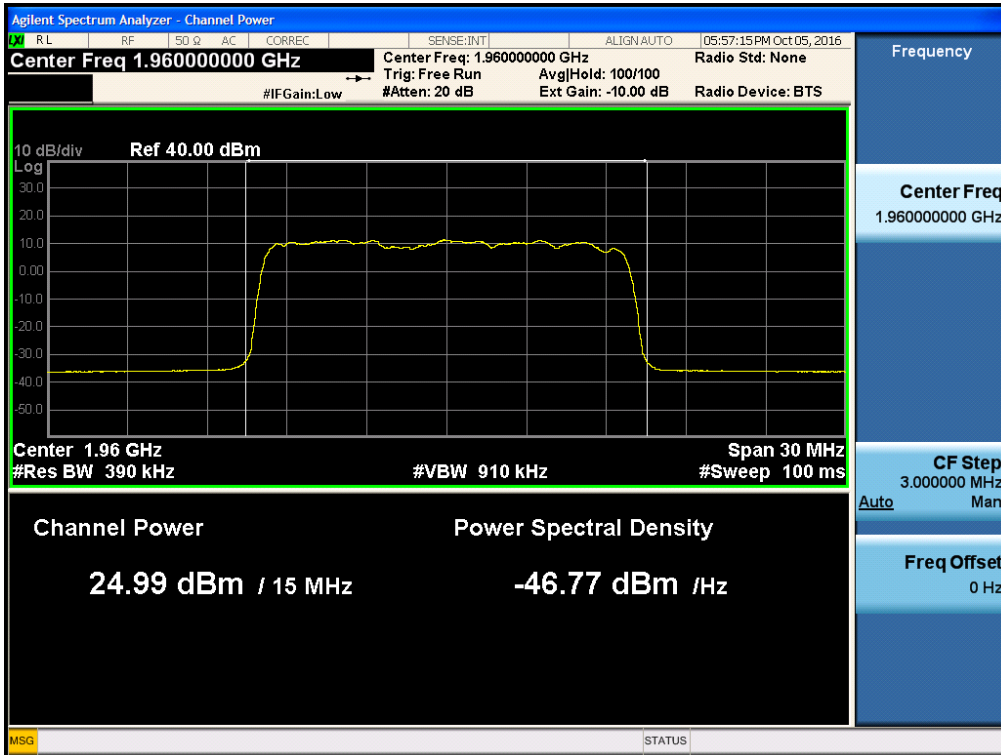
PCS 1900_LTE 15 MHz

Plot Data for Output Port 0 (Conducted Output Power)

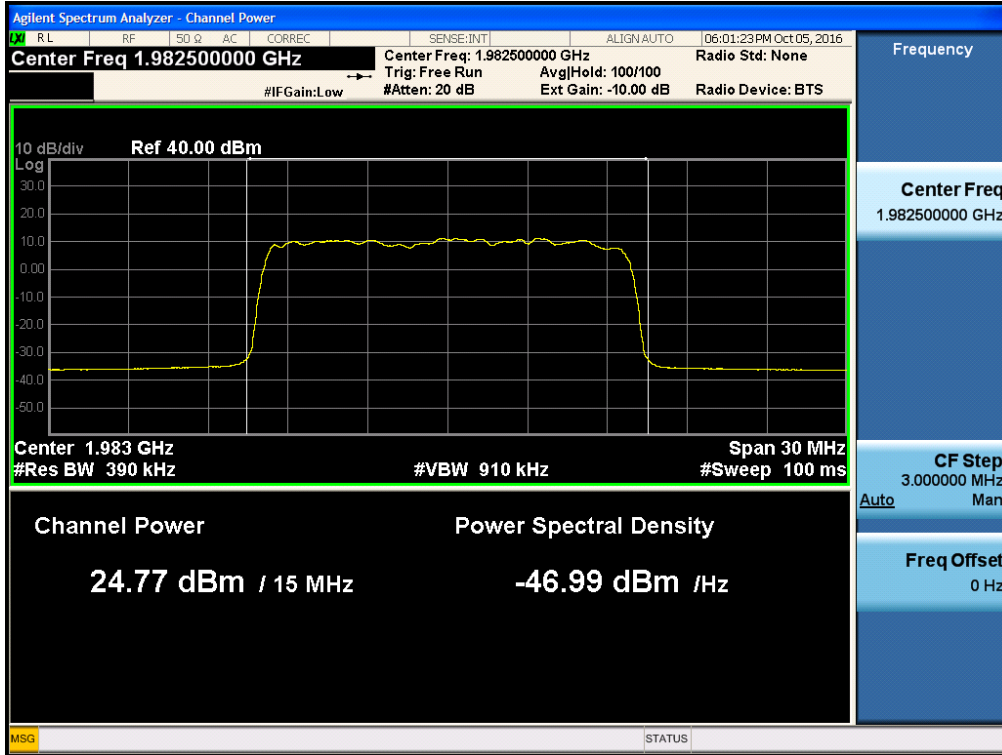
(QPSK Low Channel)



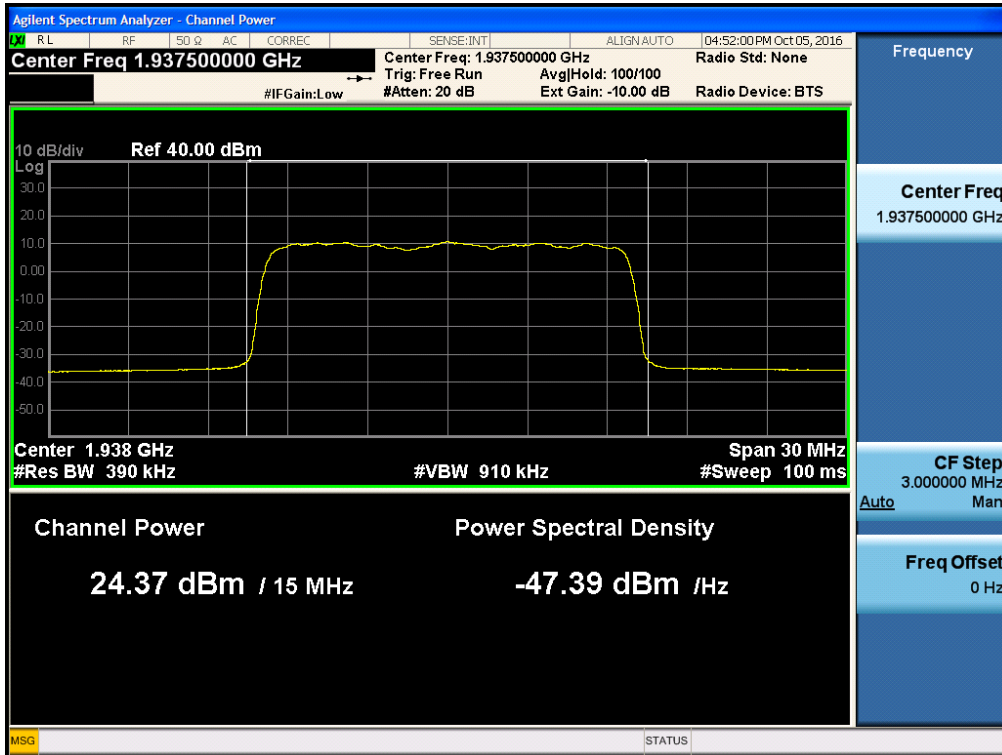
(QPSK Middle Channel)



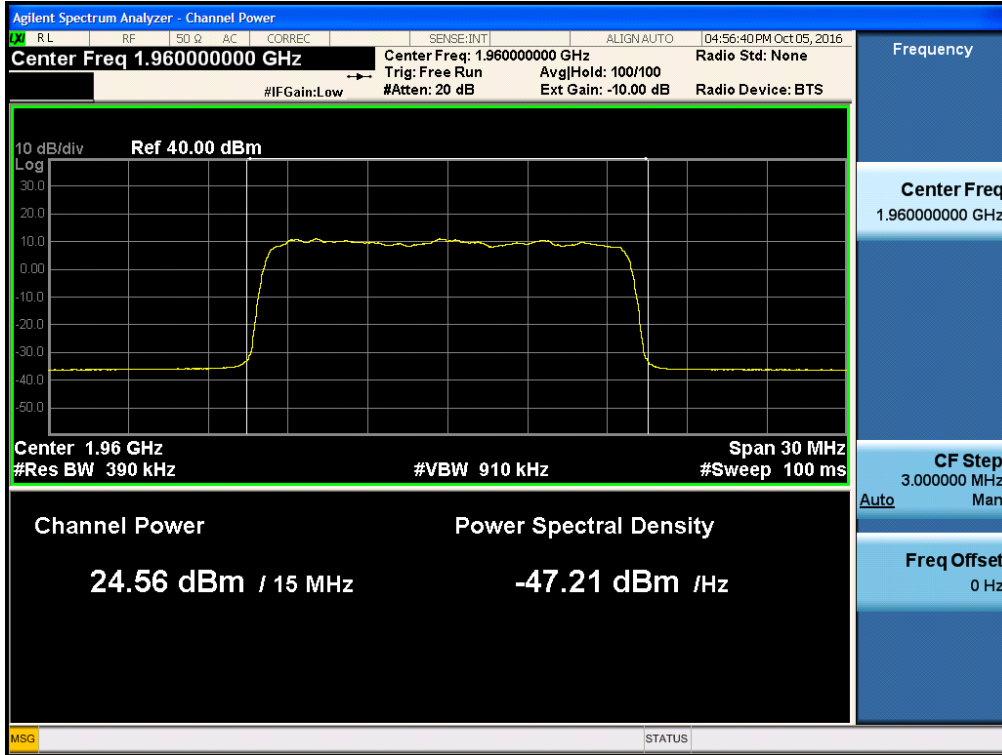
(QPSK High Channel)



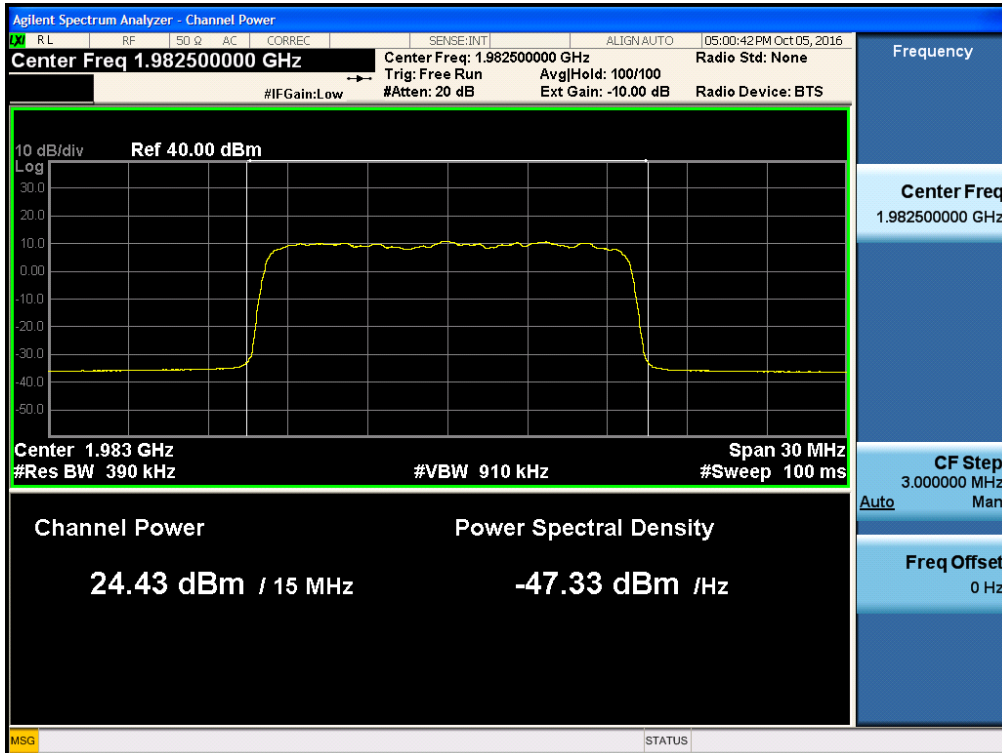
(16QAM Low Channel)



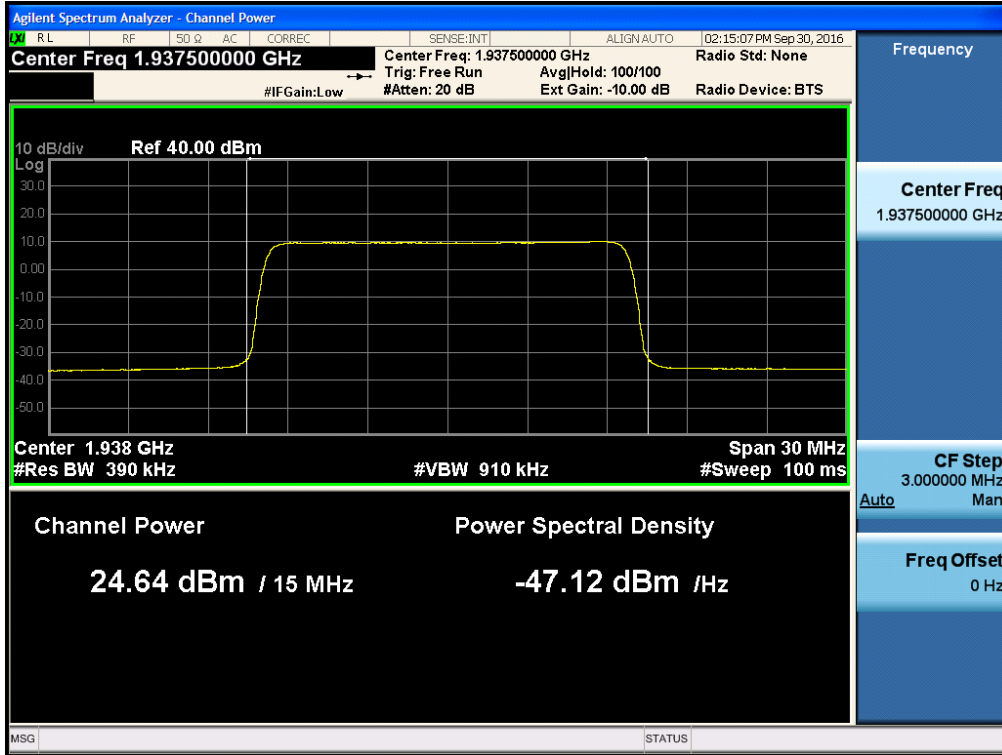
(16QAM Middle Channel)



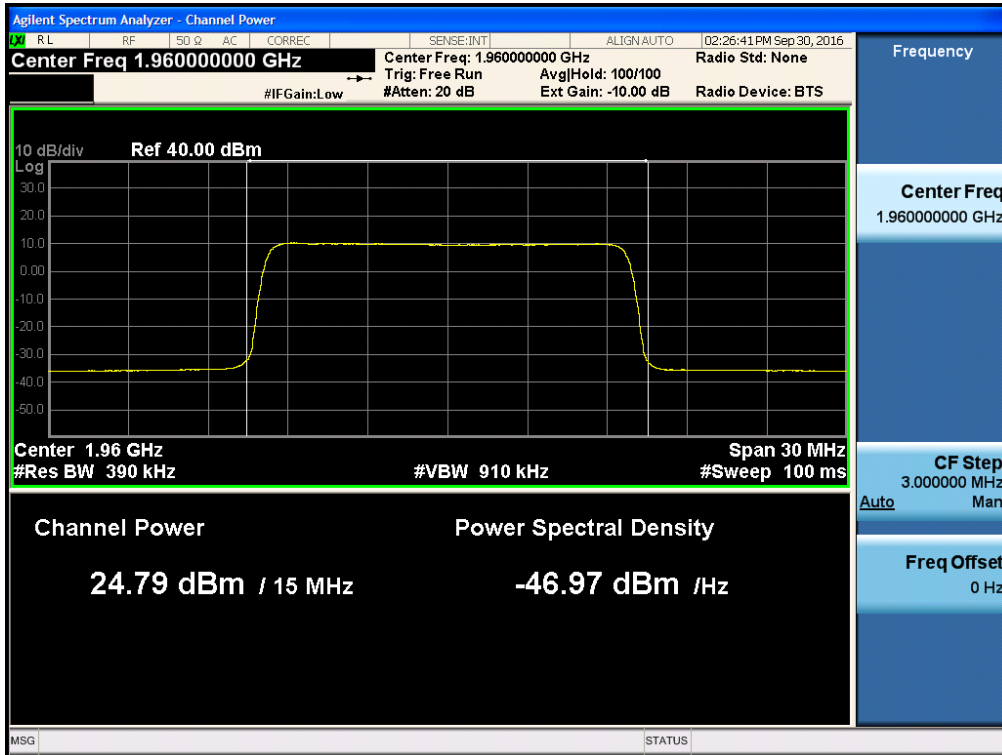
(16QAM High Channel)



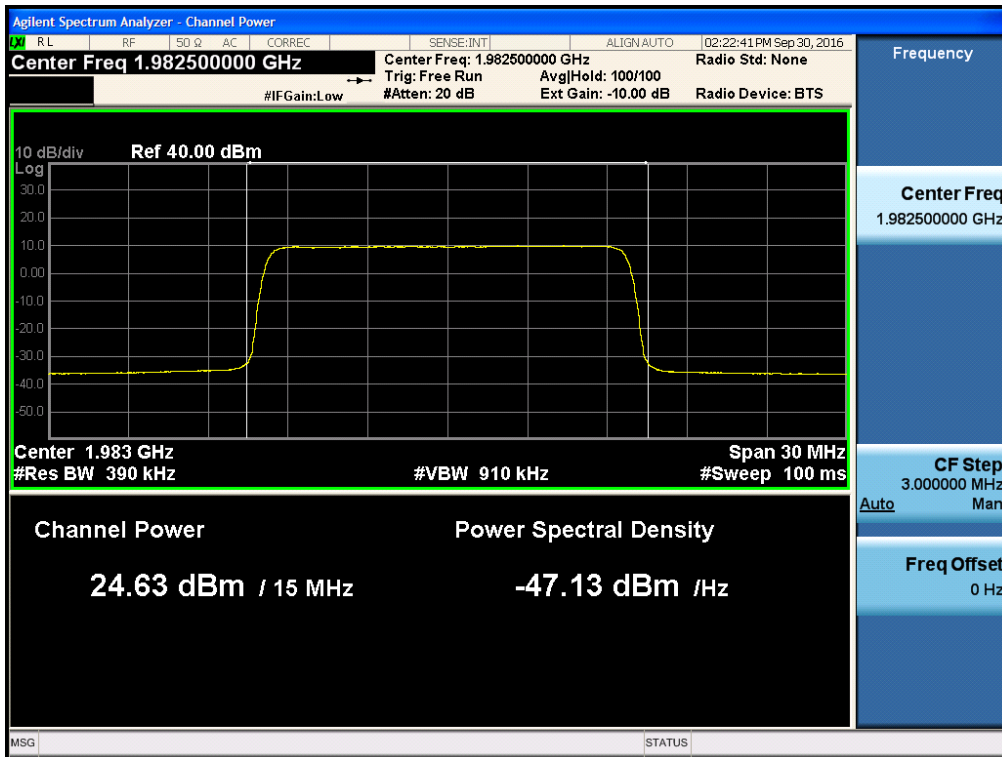
(64QAM Low Channel)



(64QAM Middle Channel)



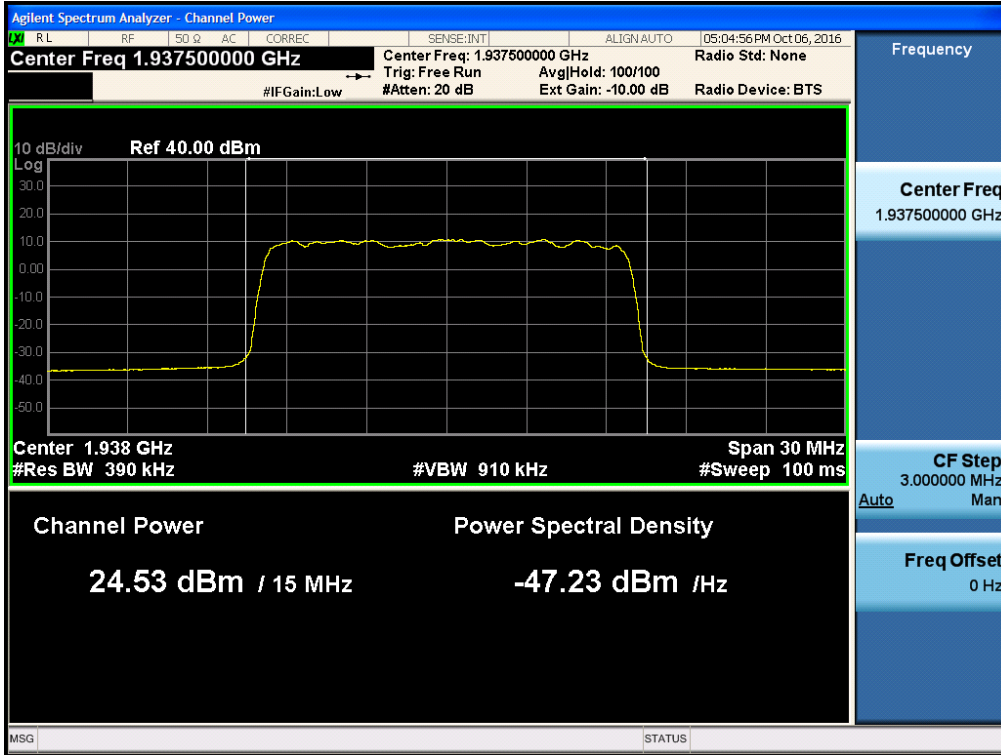
(64QAM High Channel)



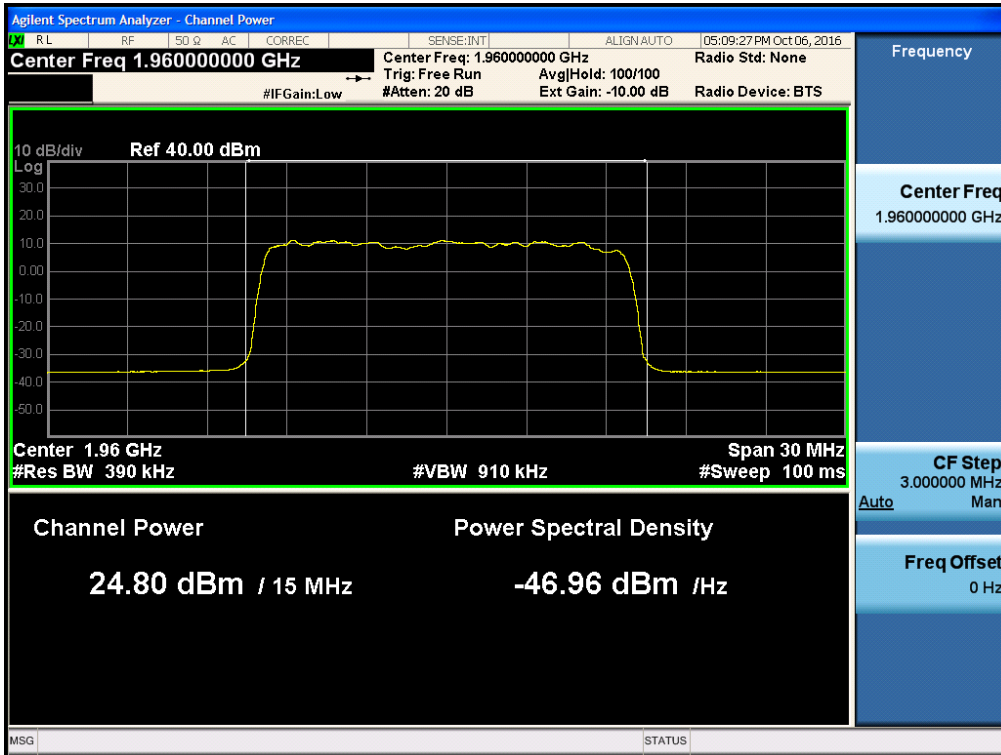
PCS 1900_LTE 15 MHz

Plot Data for Output Port 1 (Conducted Output Power)

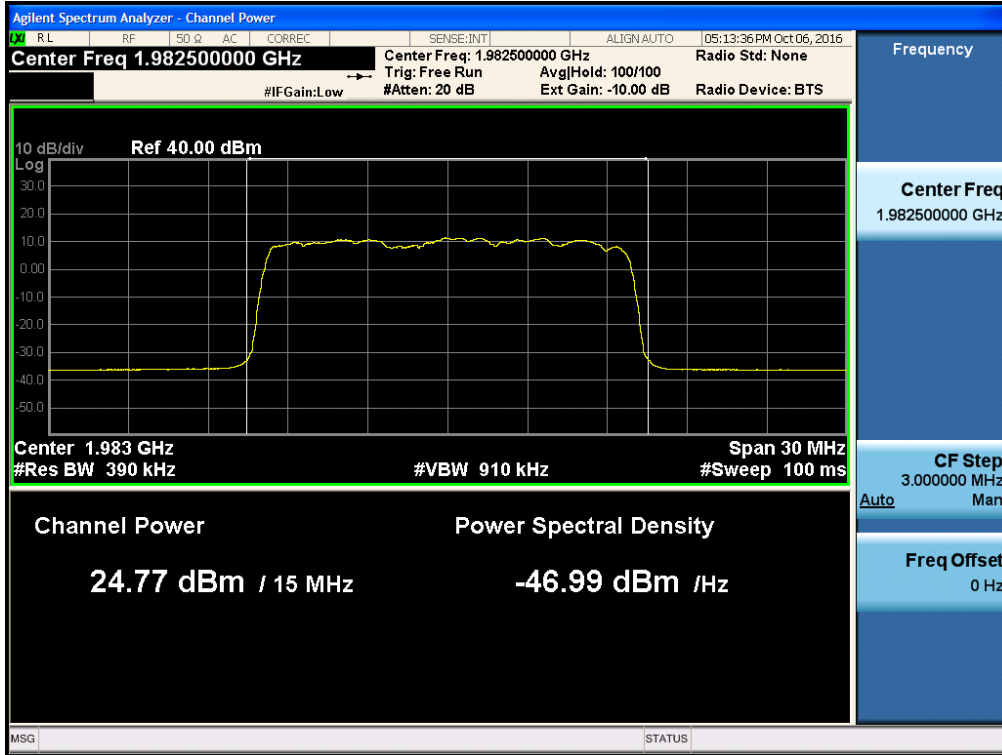
(QPSK Low Channel)



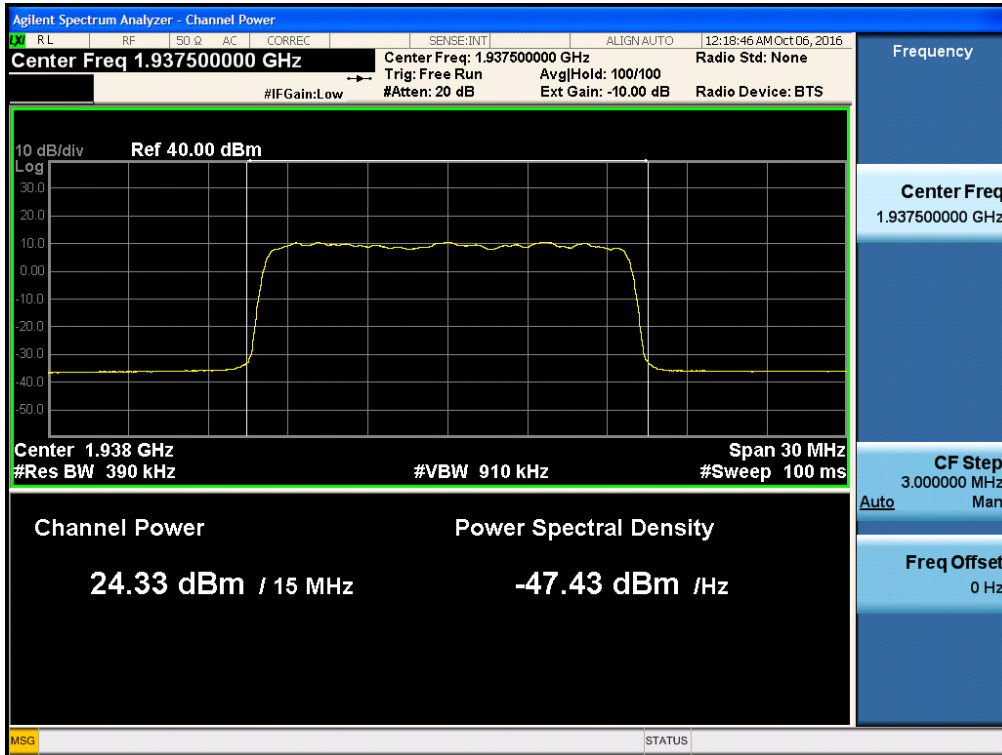
(QPSK Middle Channel)



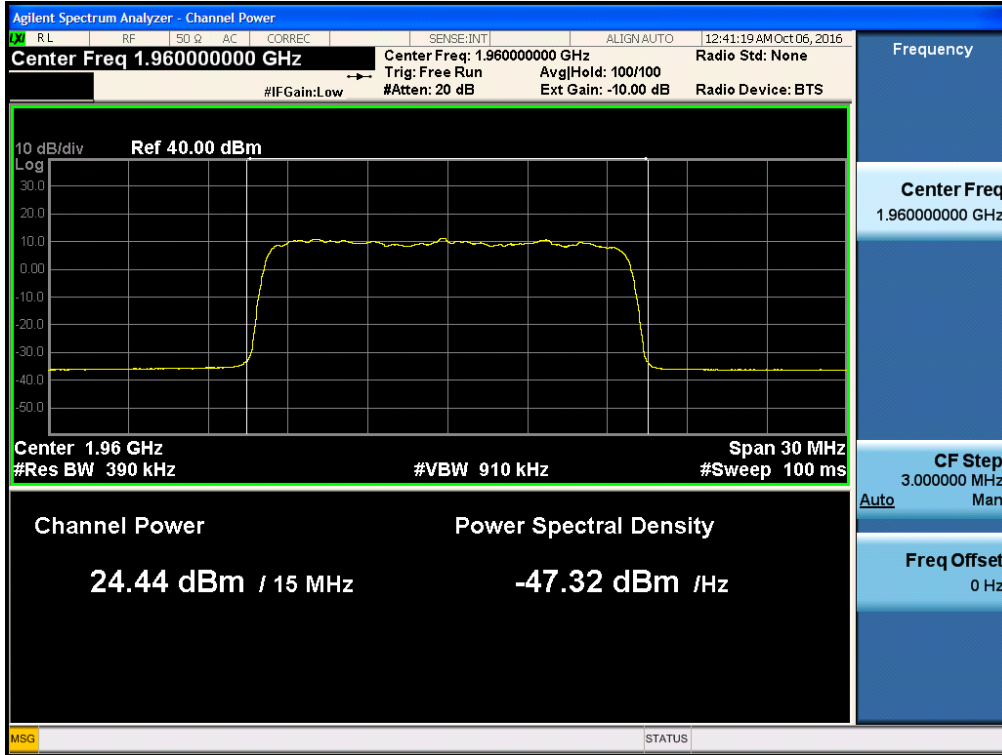
(QPSK High Channel)



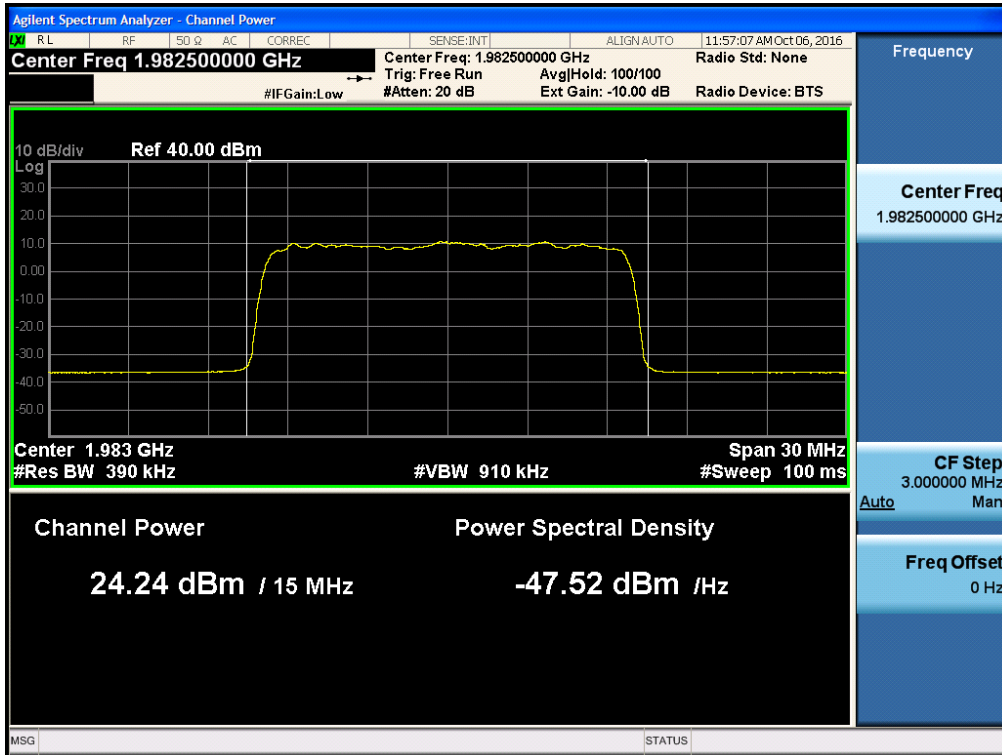
(16QAM Low Channel)



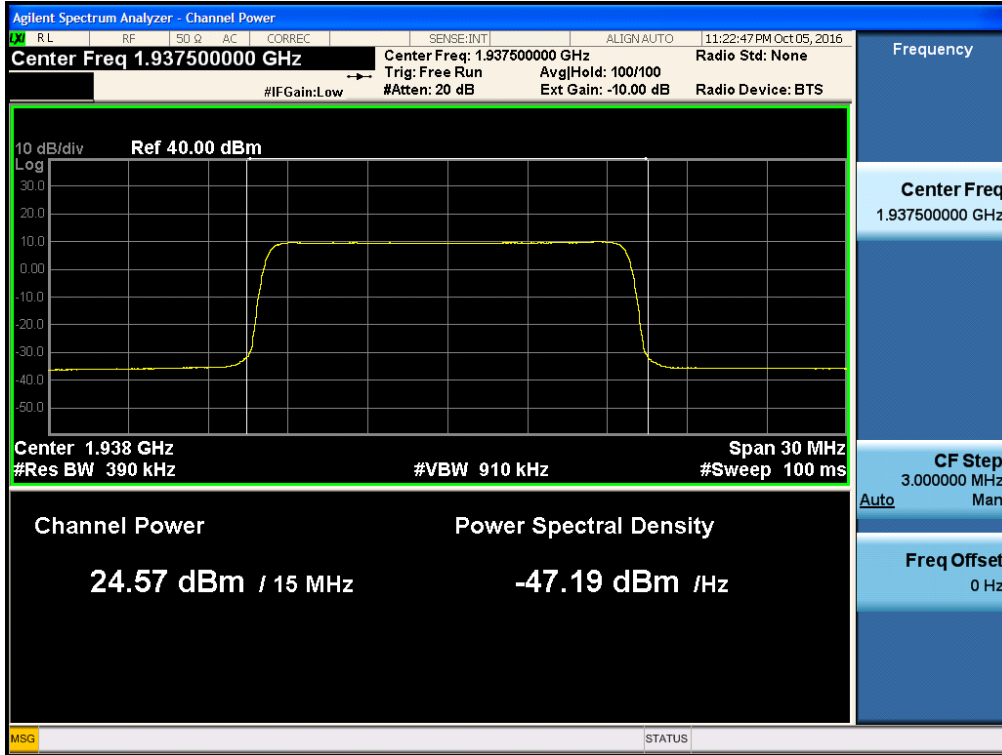
(16QAM Middle Channel)



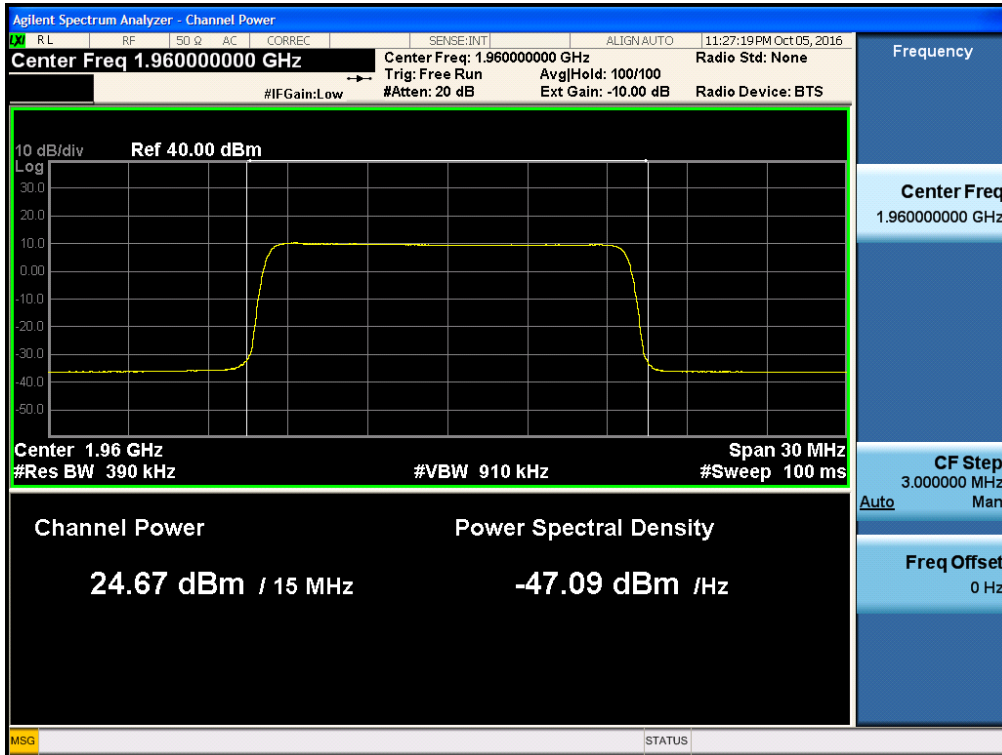
(16QAM High Channel)



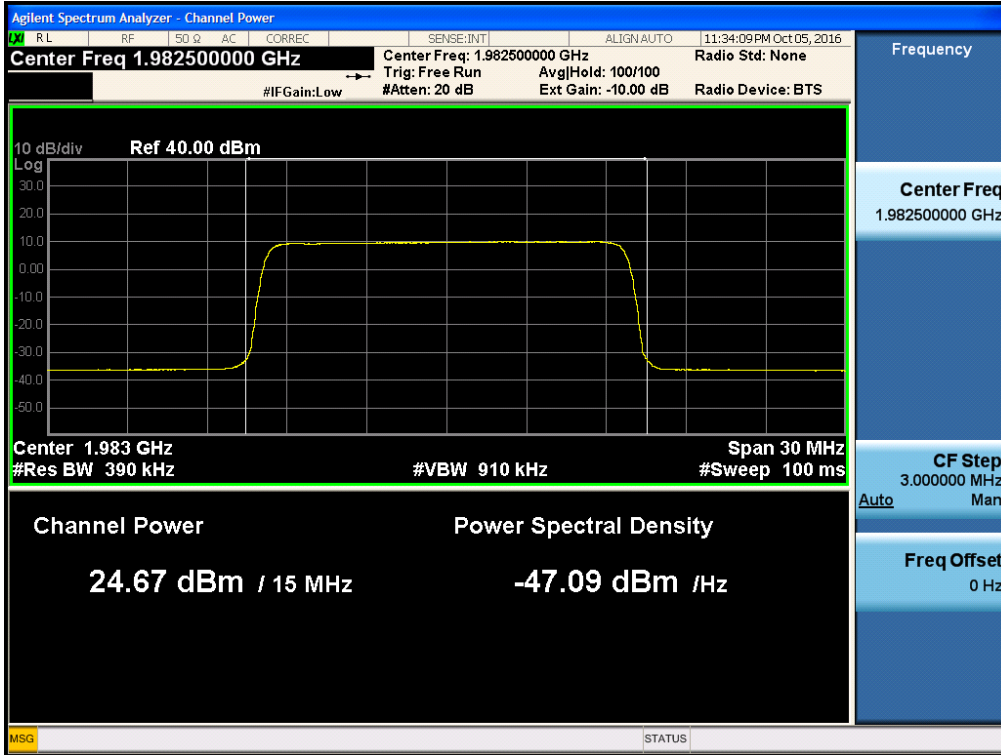
(64QAM Low Channel)



(64QAM Middle Channel)



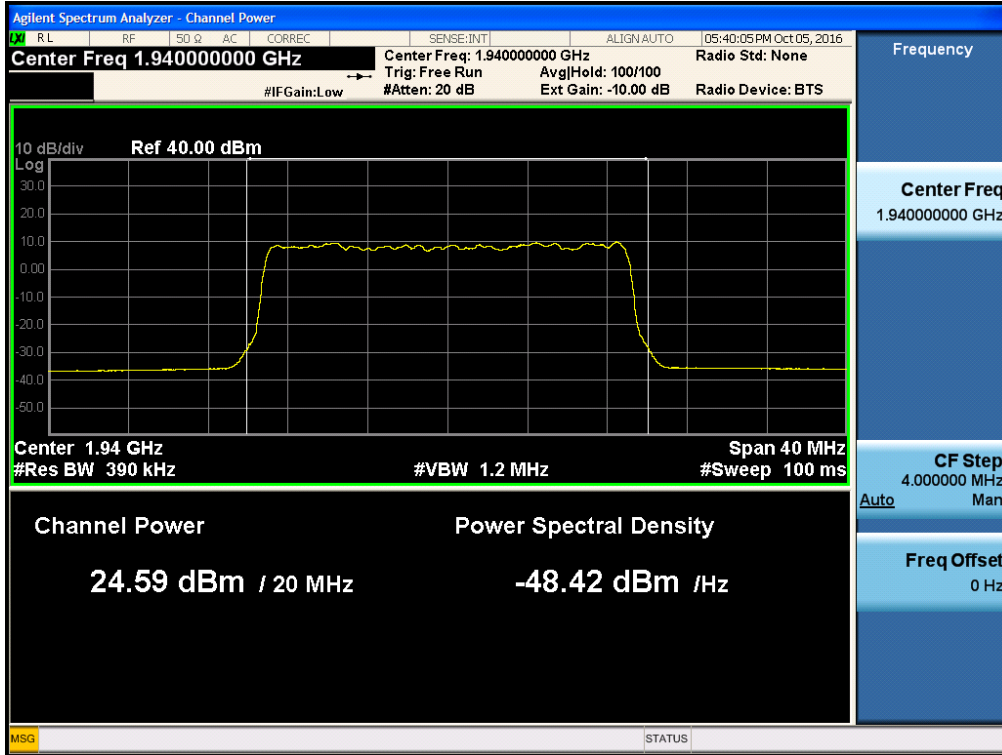
(64QAM High Channel)



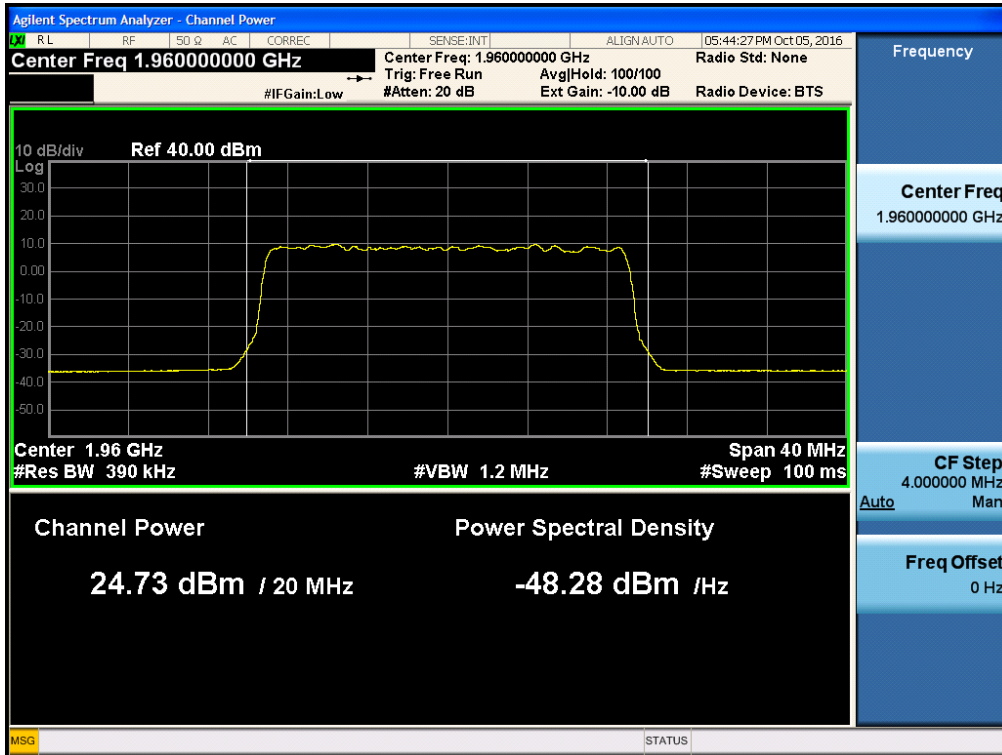
PCS 1900_LTE 20 MHz

Plot Data for Output Port 0 (Conducted Output Power)

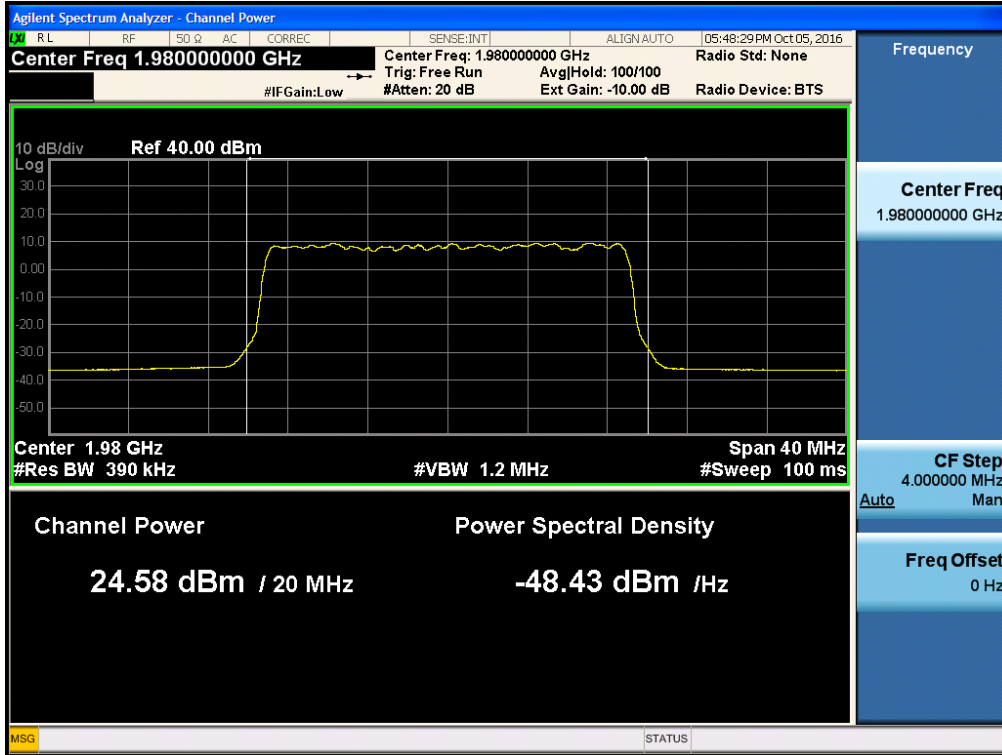
(QPSK Low Channel)



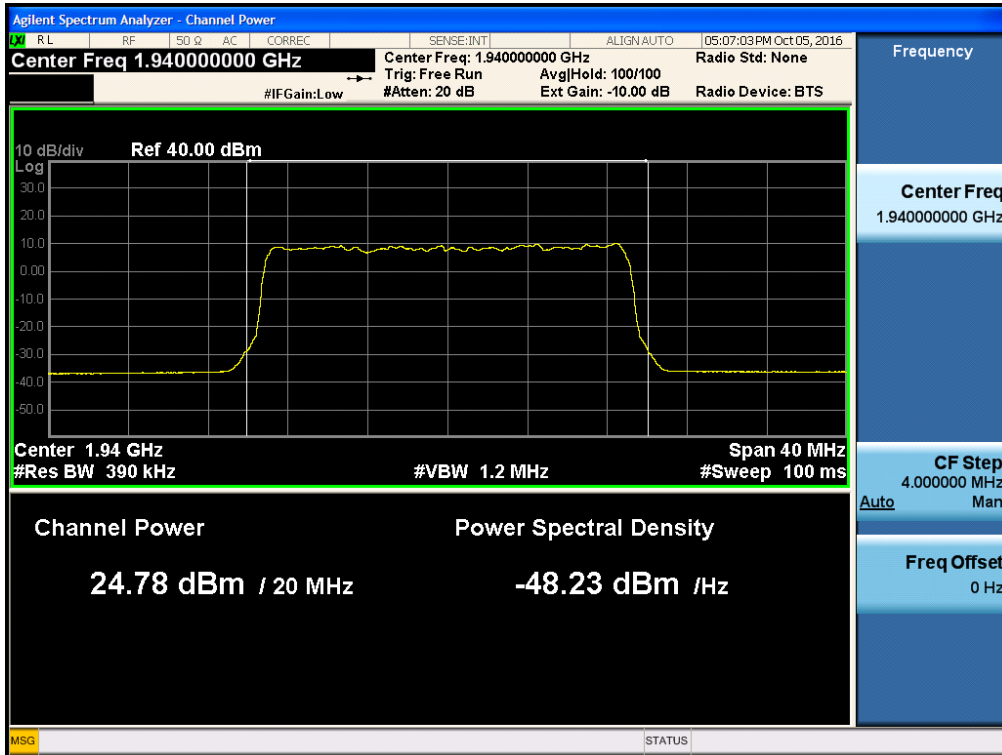
(QPSK Middle Channel)



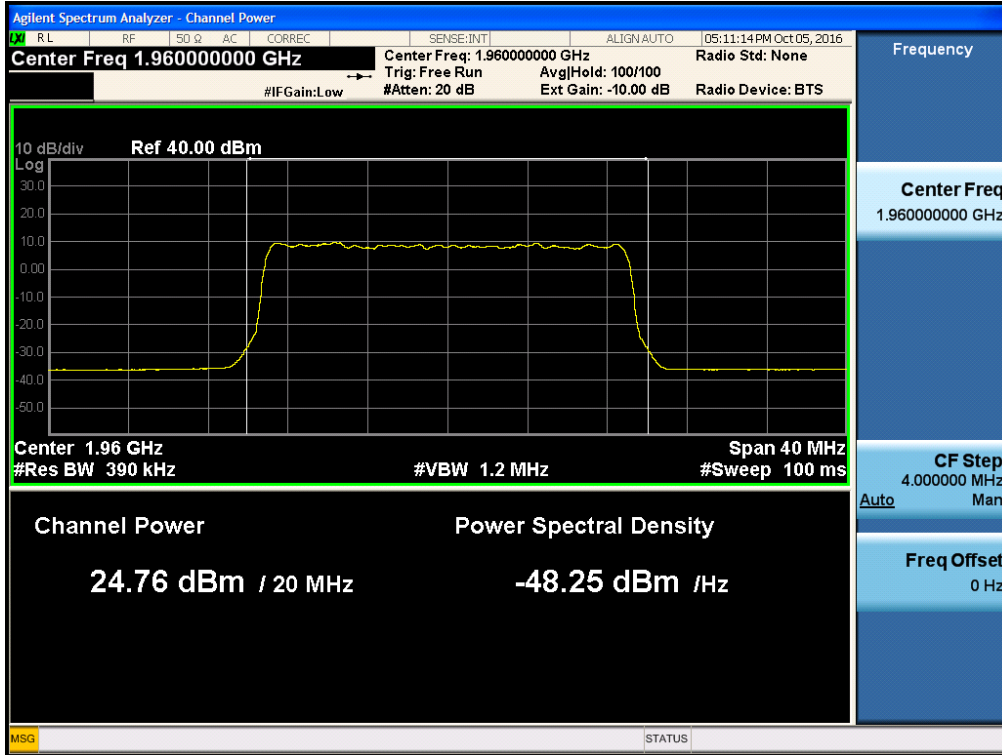
(QPSK High Channel)



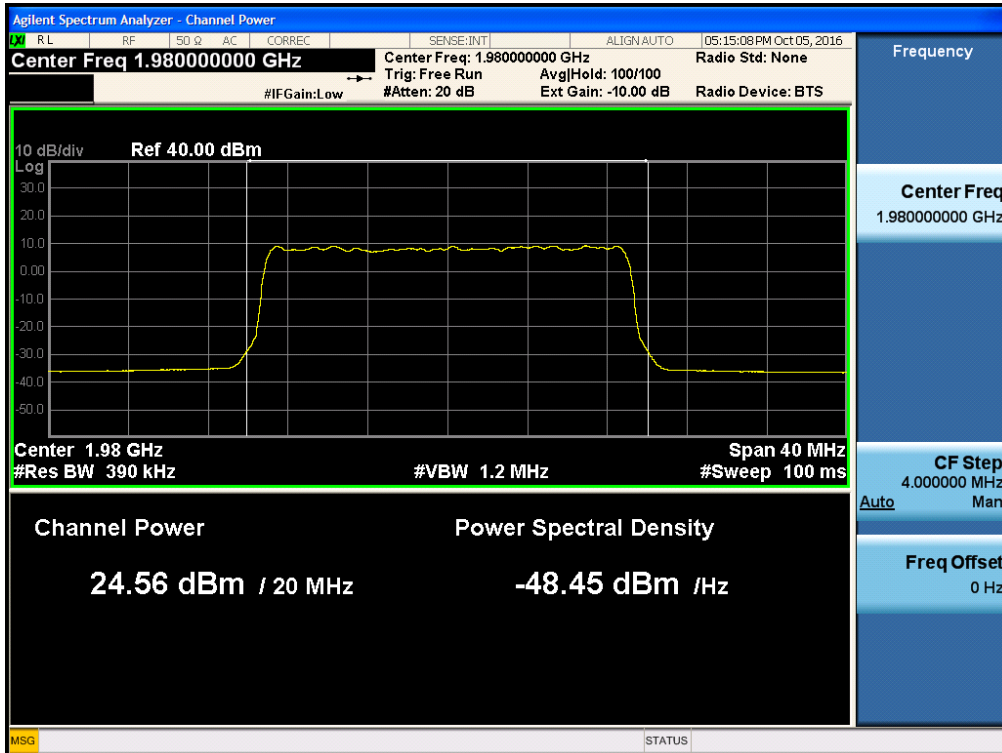
(16QAM Low Channel)



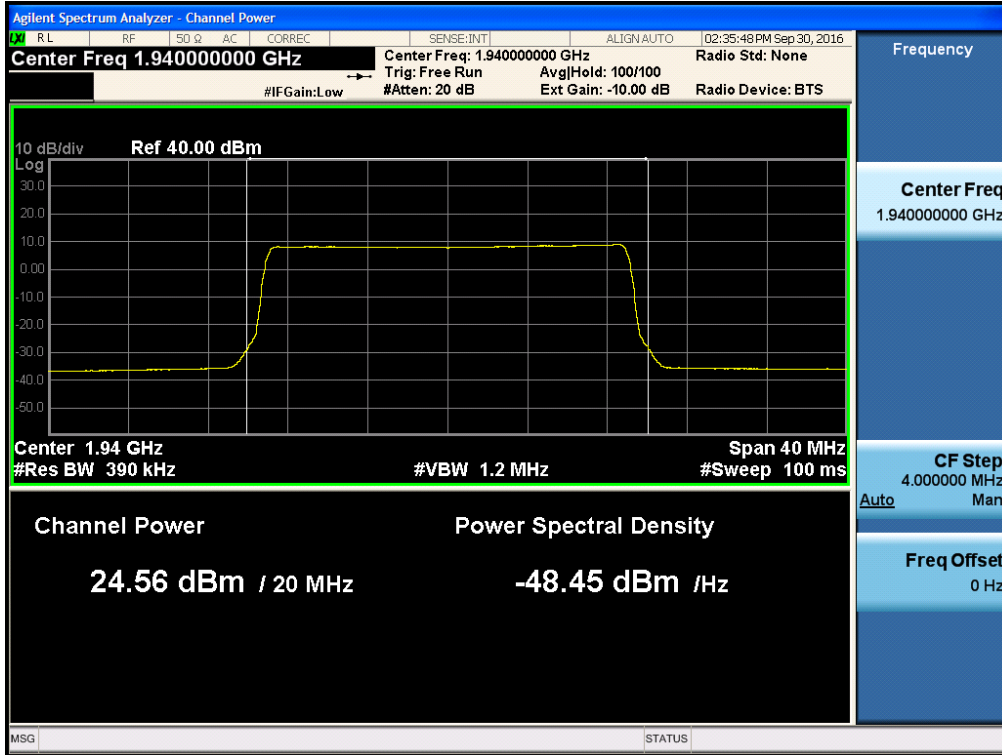
(16QAM Middle Channel)



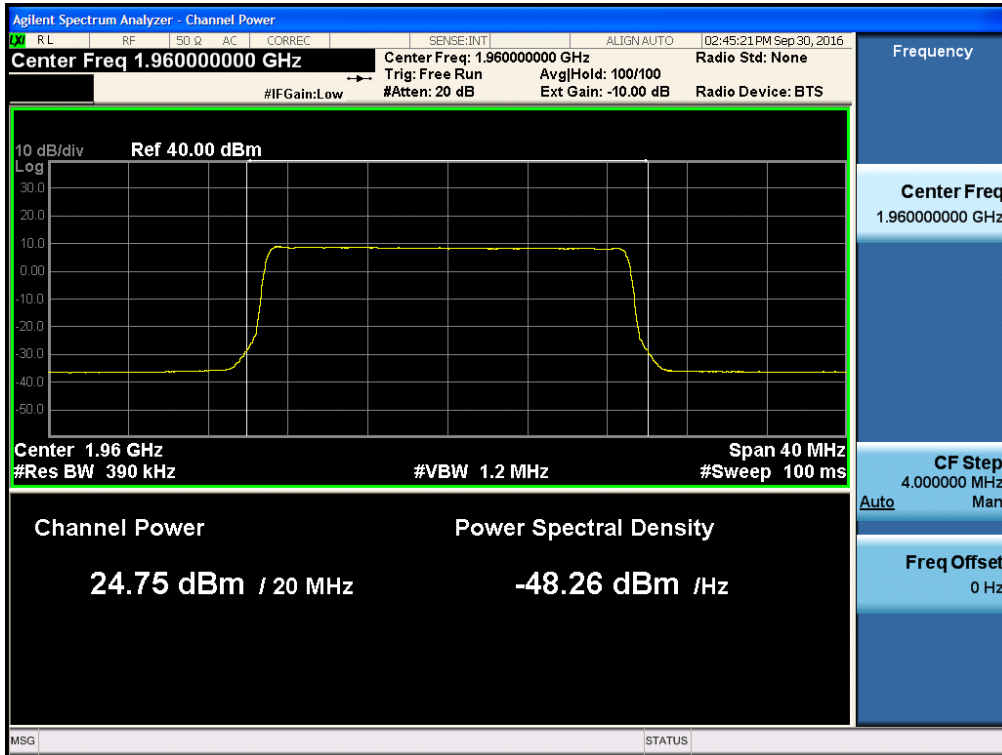
(16QAM High Channel)



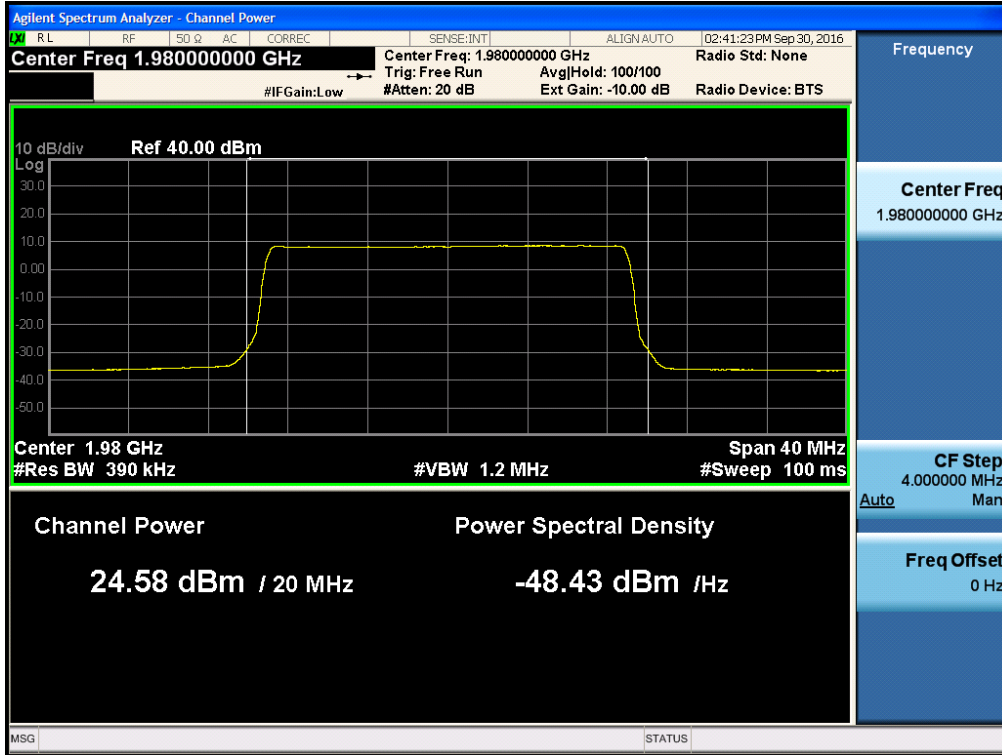
(64QAM Low Channel)



(64QAM Middle Channel)



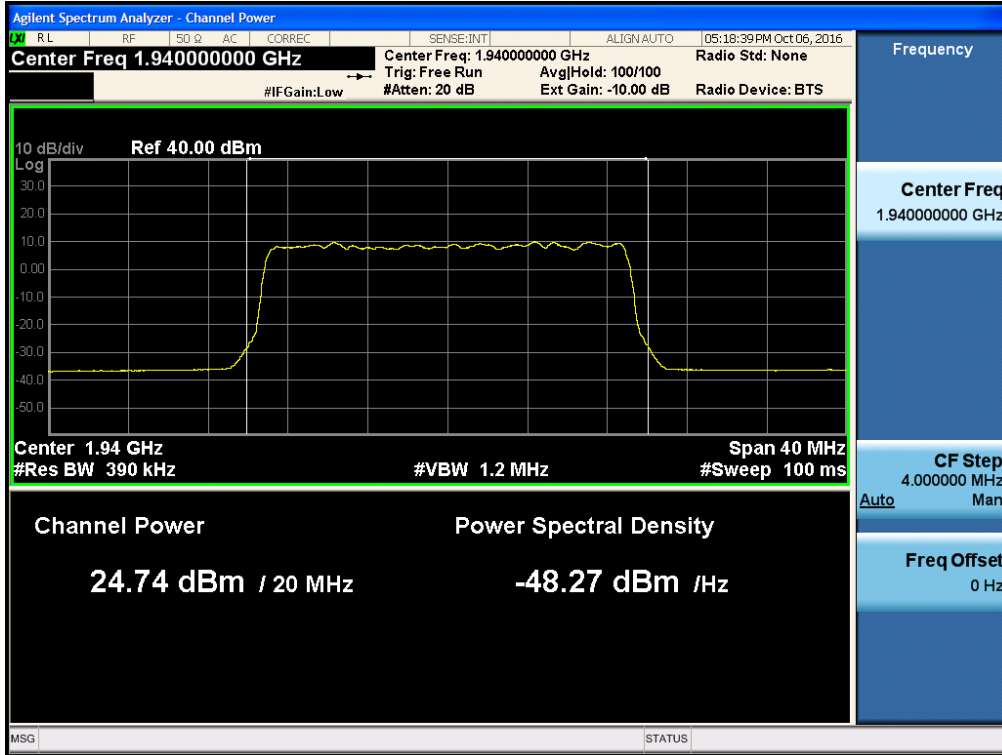
(64QAM High Channel)



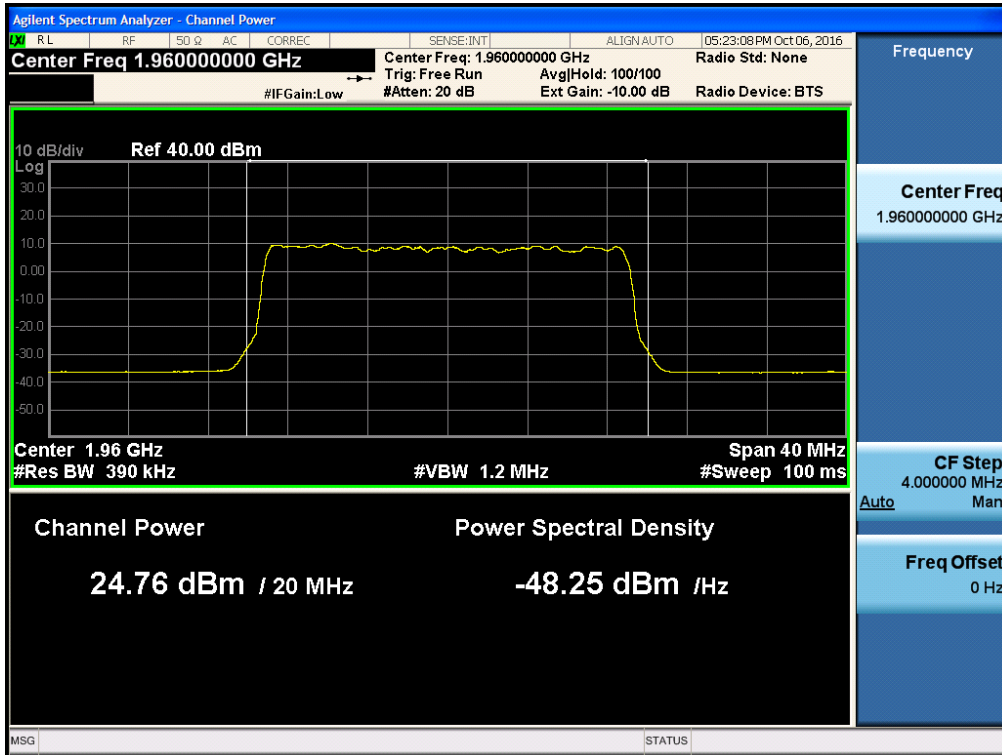
PCS 1900_LTE 20 MHz

Plot Data for Output Port 1 (Conducted Output Power)

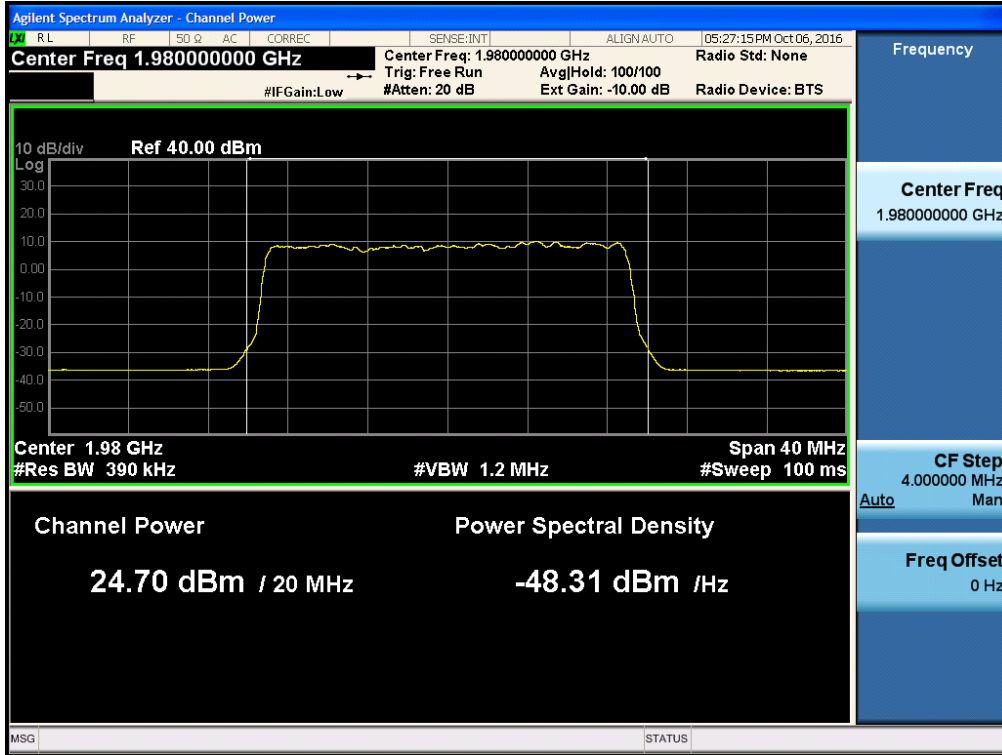
(QPSK Low Channel)



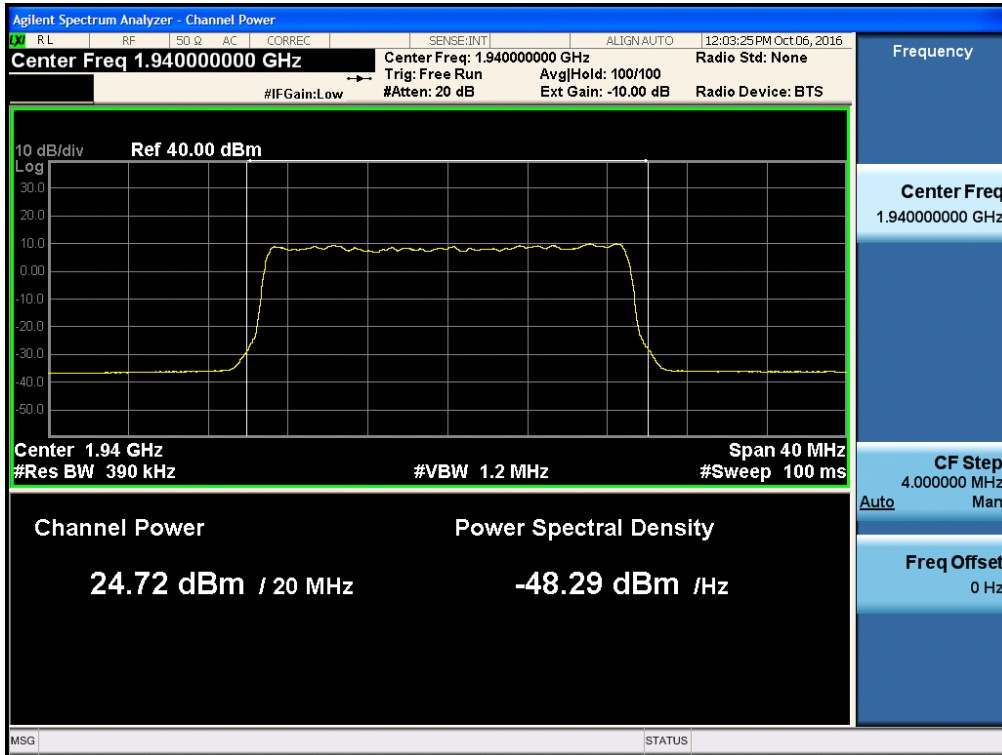
(QPSK Middle Channel)



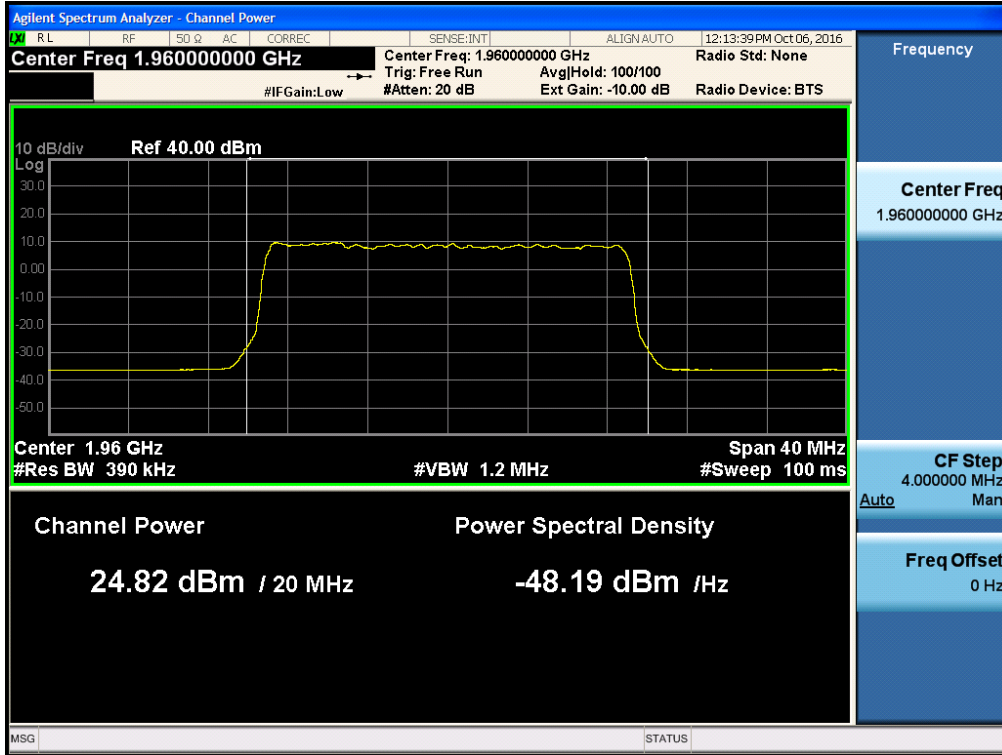
(QPSK High Channel)



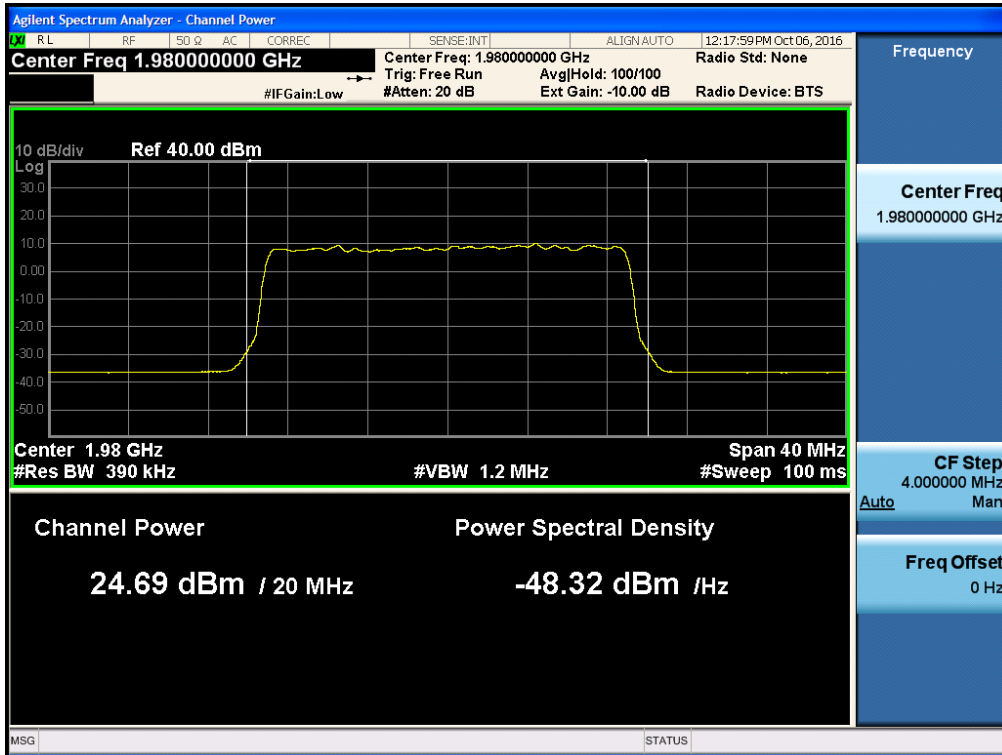
(16QAM Low Channel)



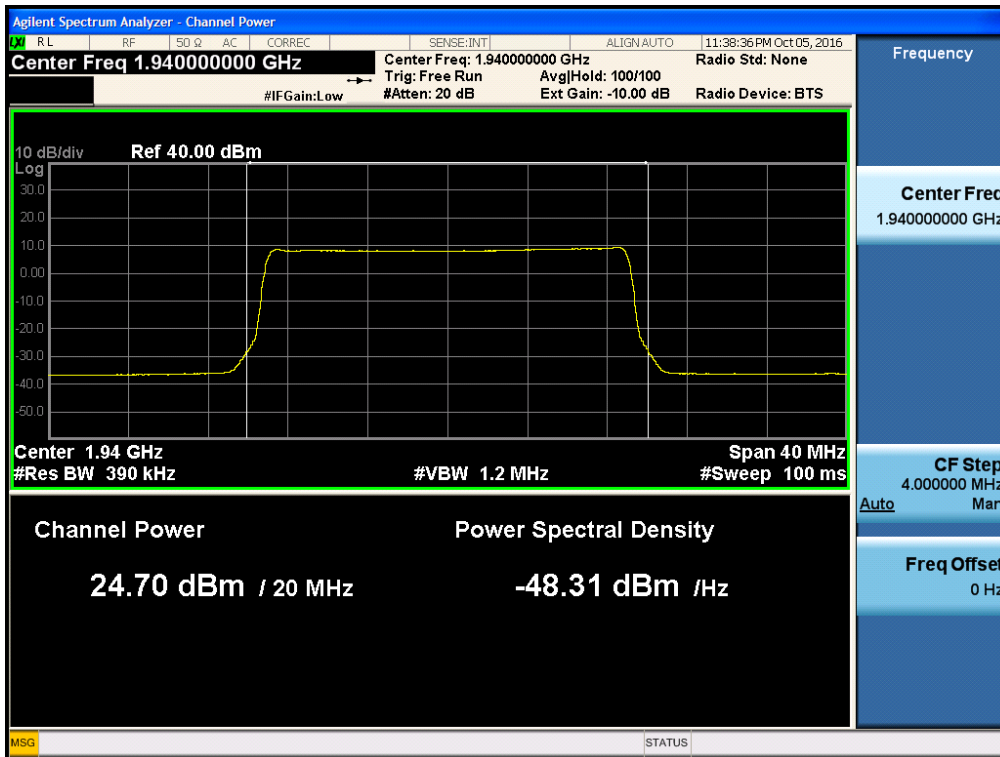
(16QAM Middle Channel)



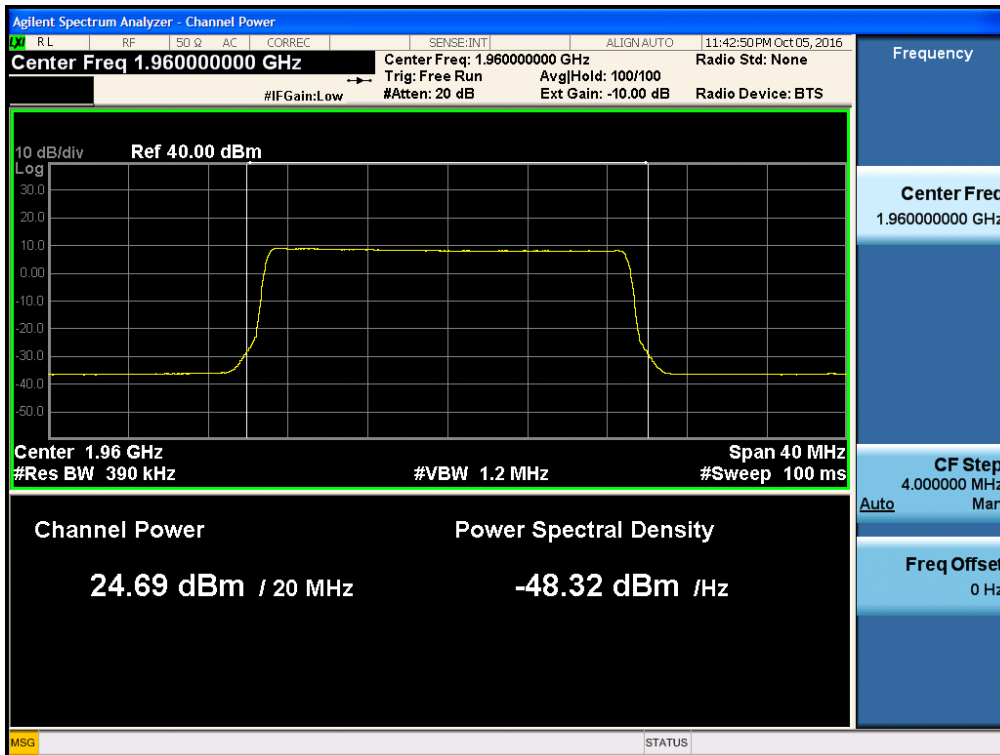
(16QAM High Channel)



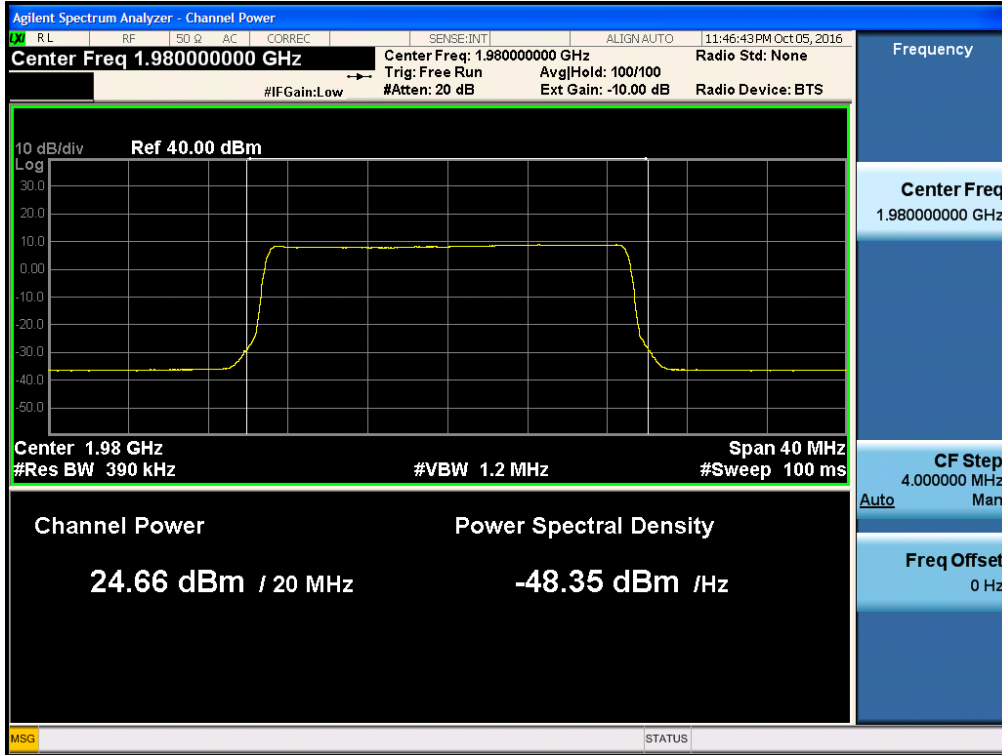
(64QAM Low Channel)



(64QAM Middle Channel)



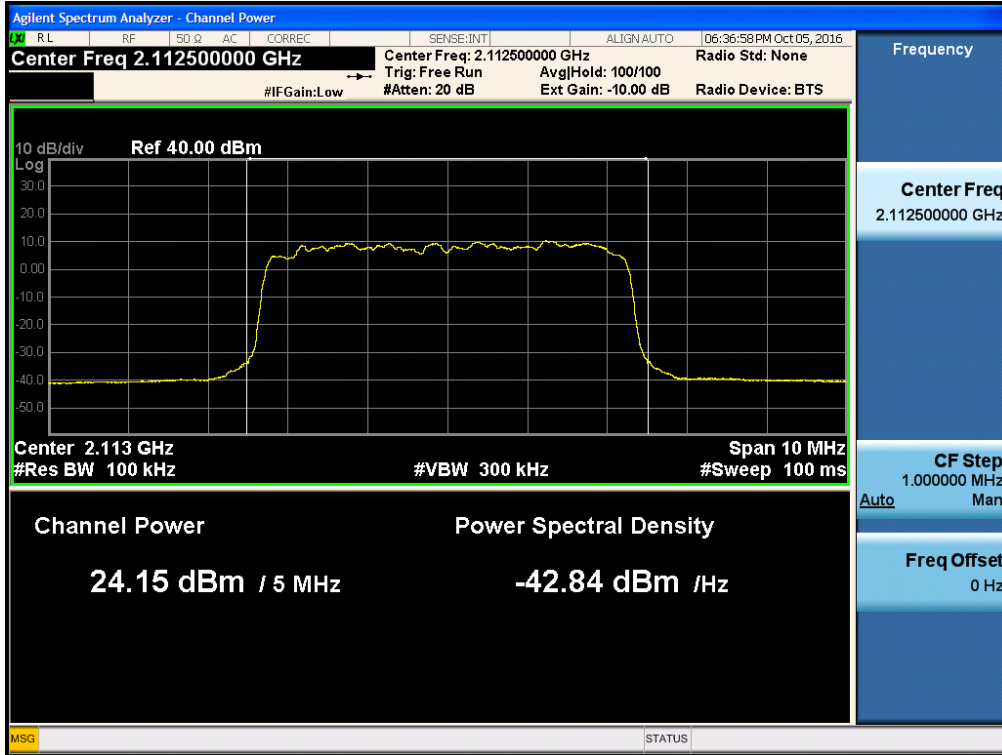
(64QAM High Channel)



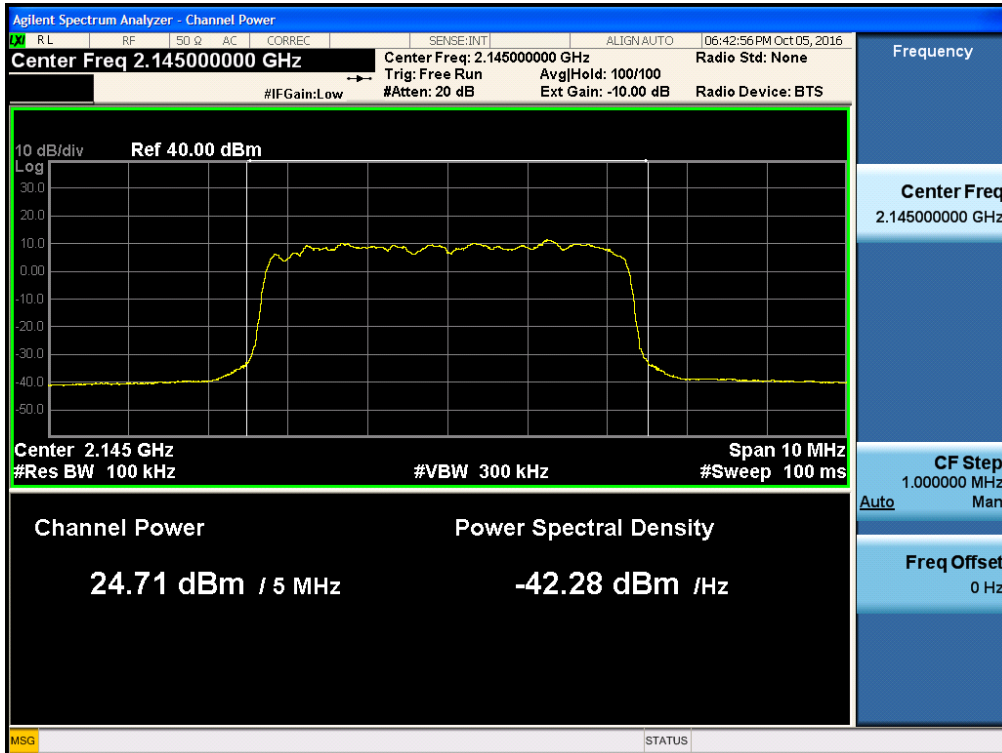
AWS 2100_LTE 5 MHz

Plot Data for Output Port 0 (Conducted Output Power)

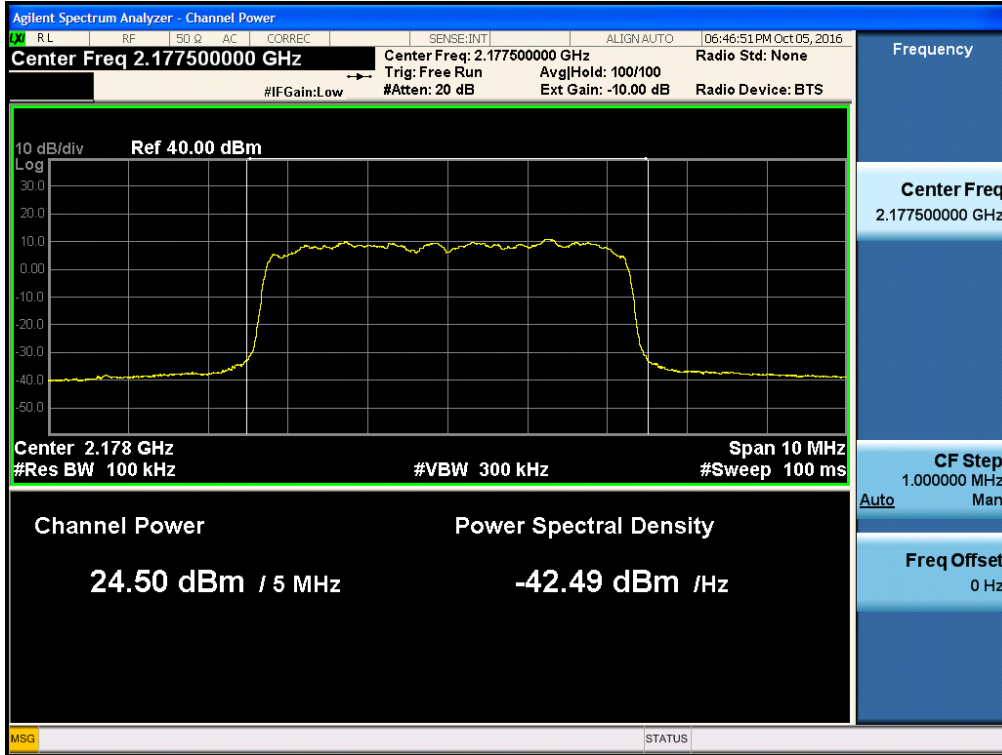
(QPSK Low Channel)



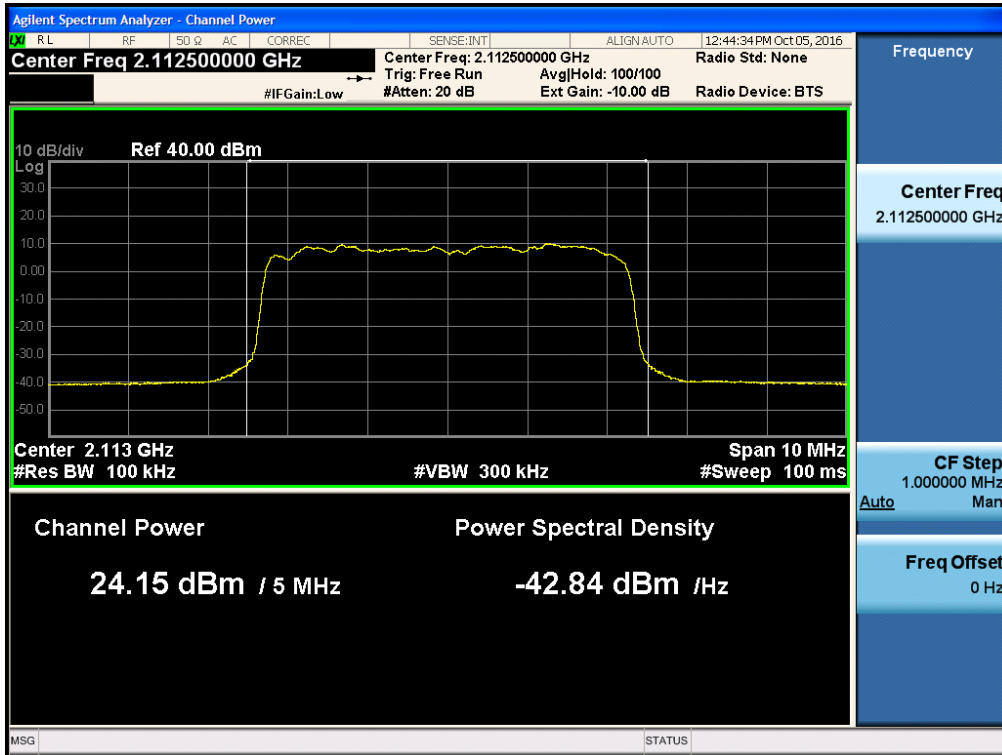
(QPSK Middle Channel)



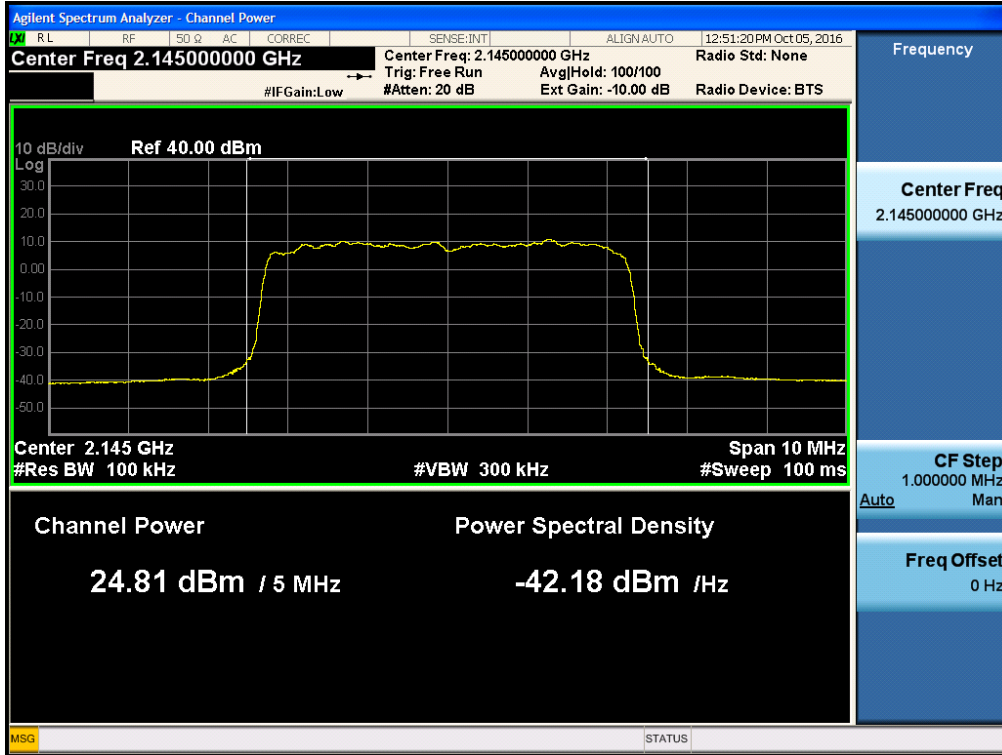
(QPSK High Channel)



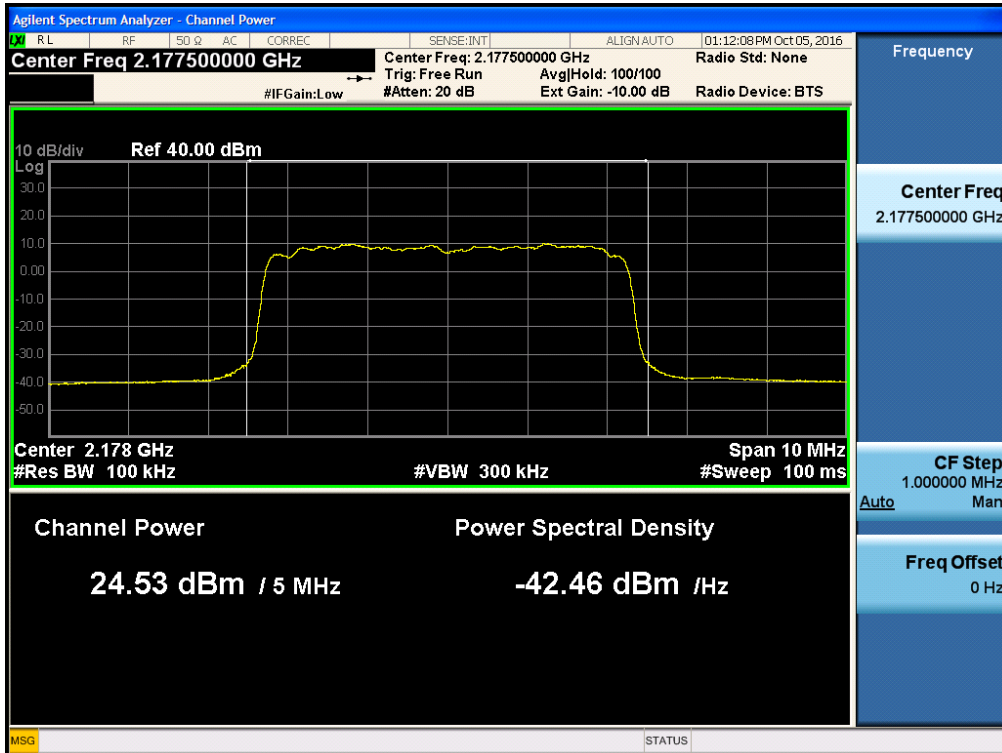
(16QAM Low Channel)



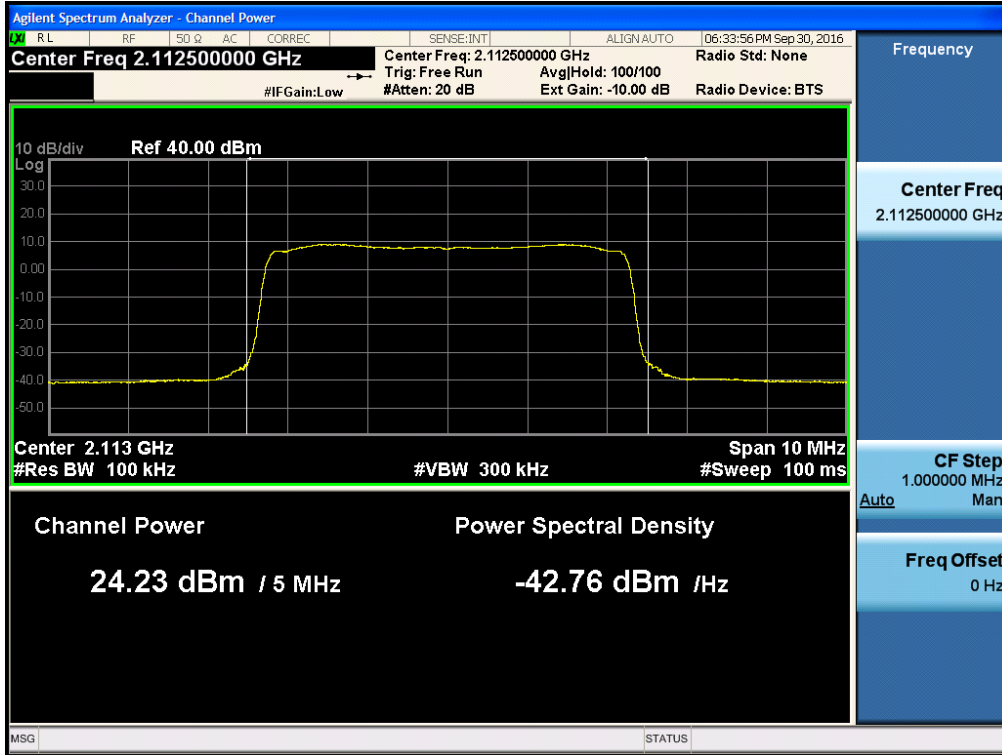
(16QAM Middle Channel)



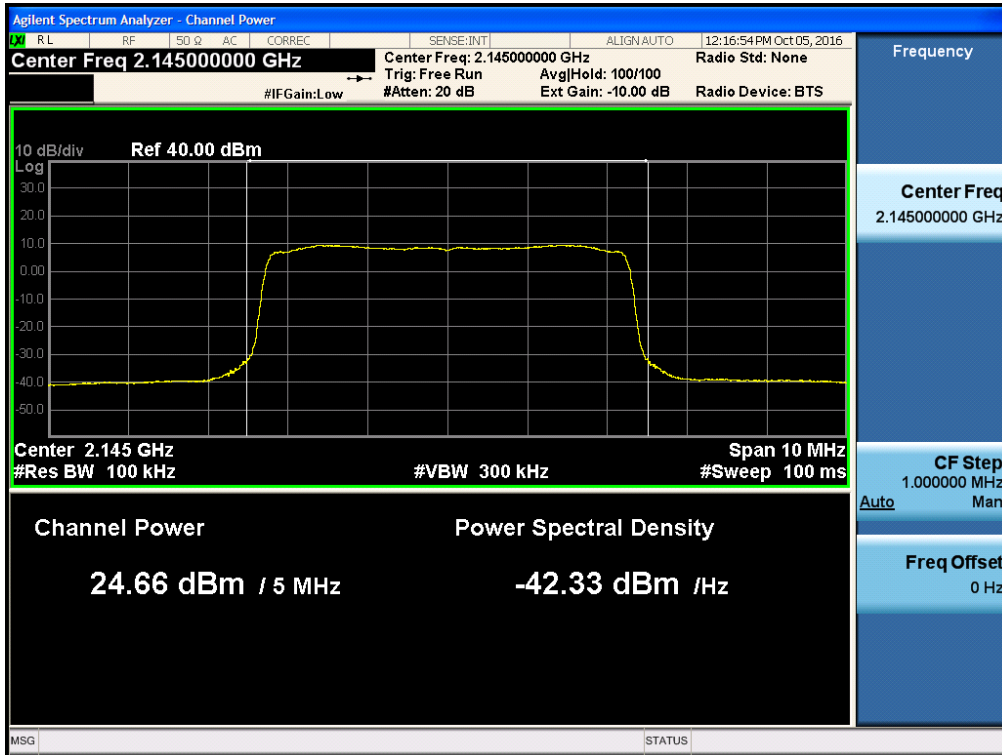
(16QAM High Channel)



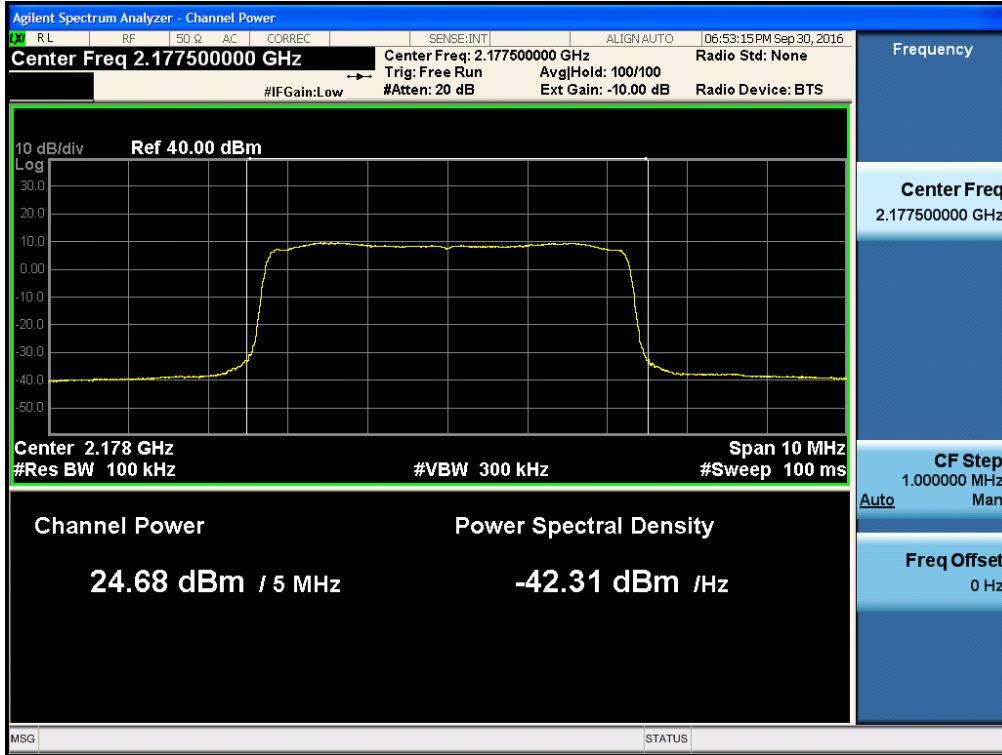
(64QAM Low Channel)



(64QAM Middle Channel)



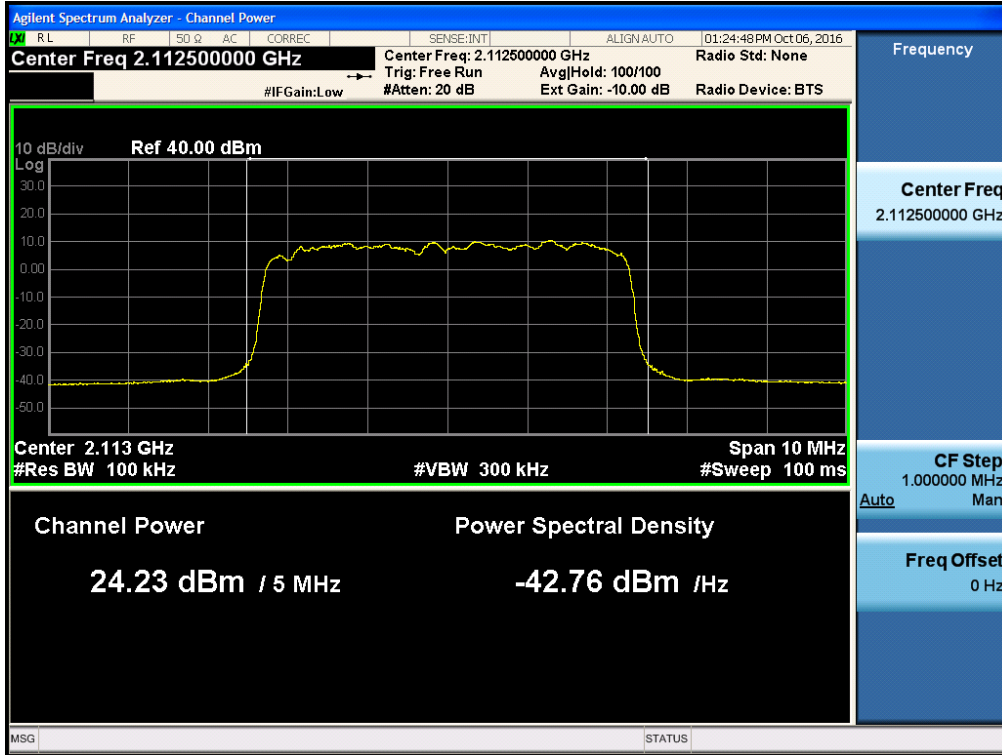
(64QAM High Channel)



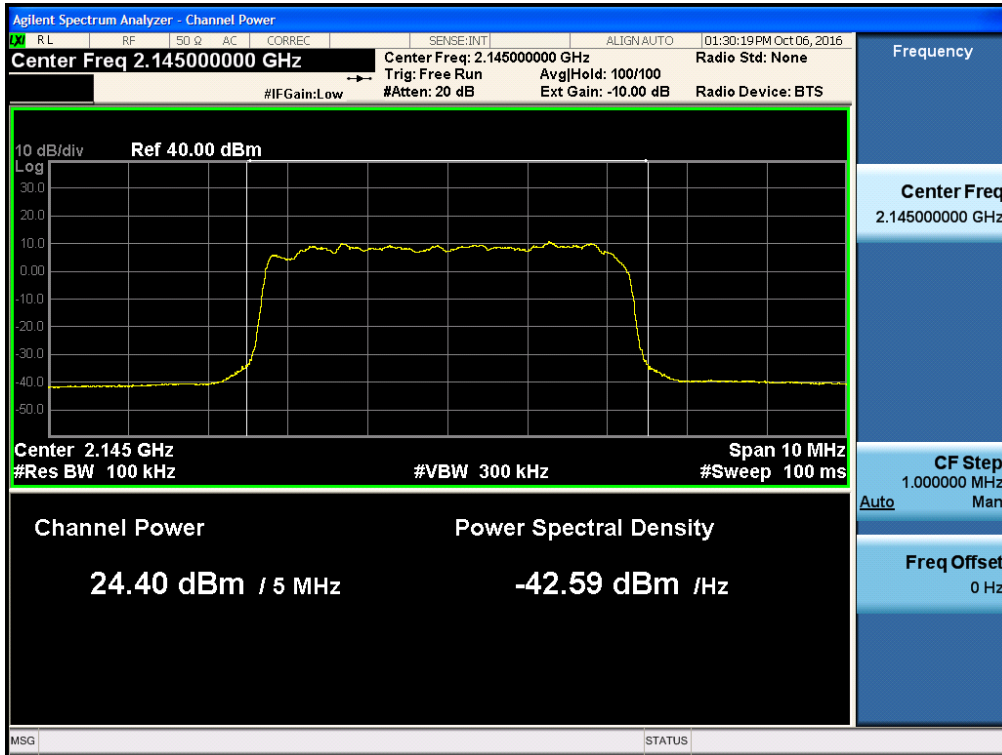
AWS 2100_LTE 5 MHz

Plot Data for Output Port 1 (Conducted Output Power)

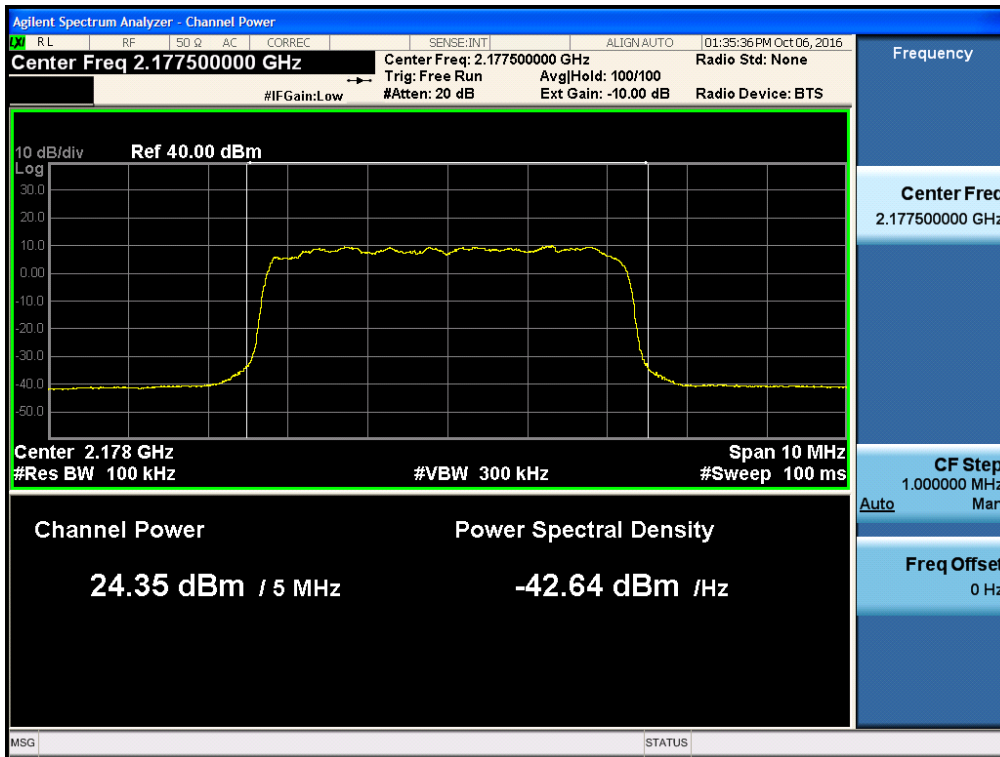
(QPSK Low Channel)



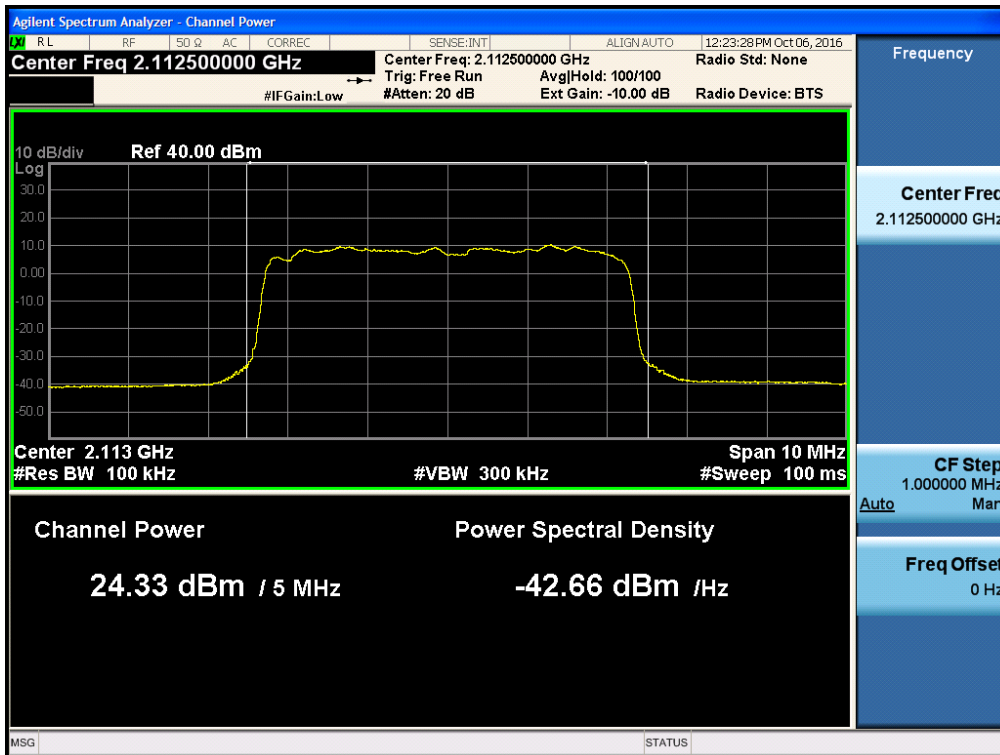
(QPSK Middle Channel)



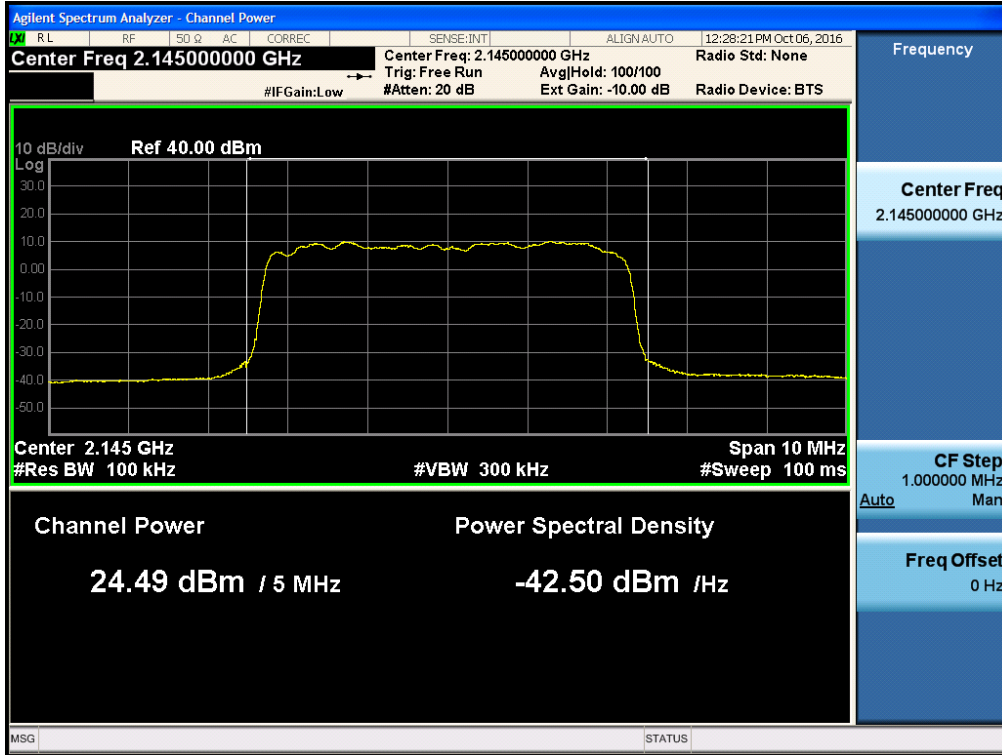
(QPSK High Channel)



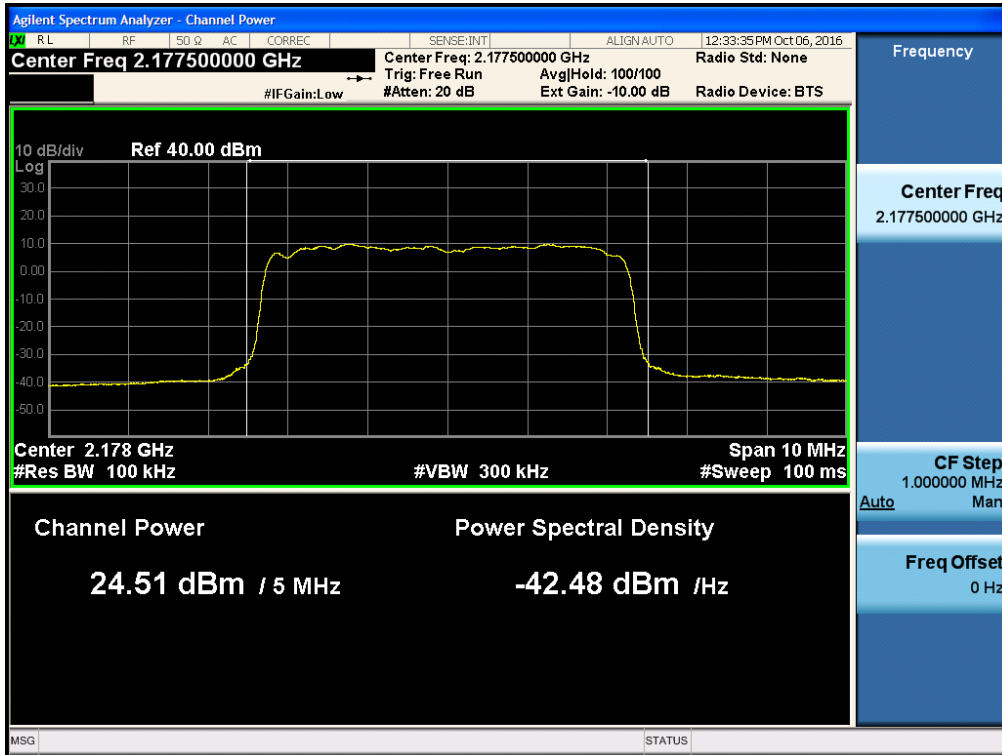
(16QAM Low Channel)



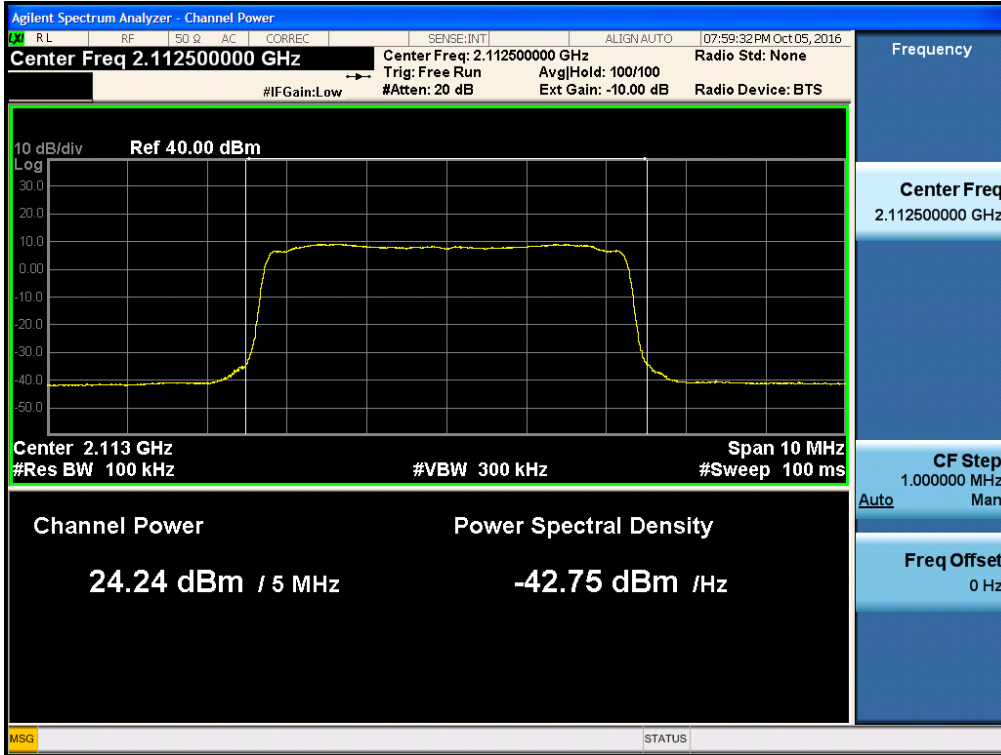
(16QAM Middle Channel)



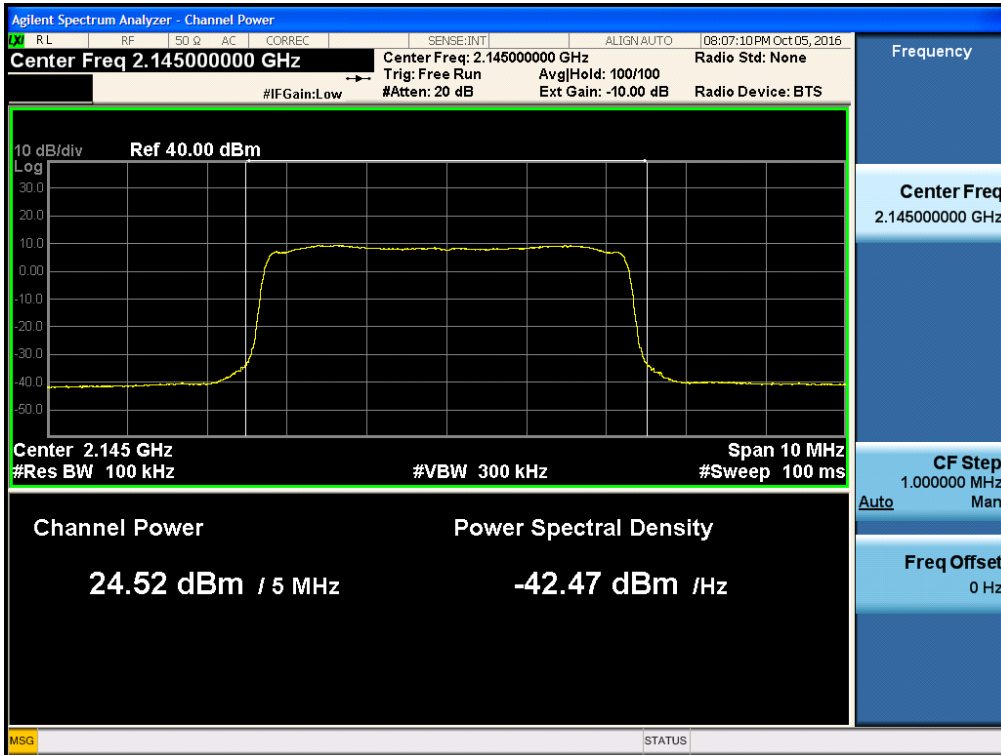
(16QAM High Channel)



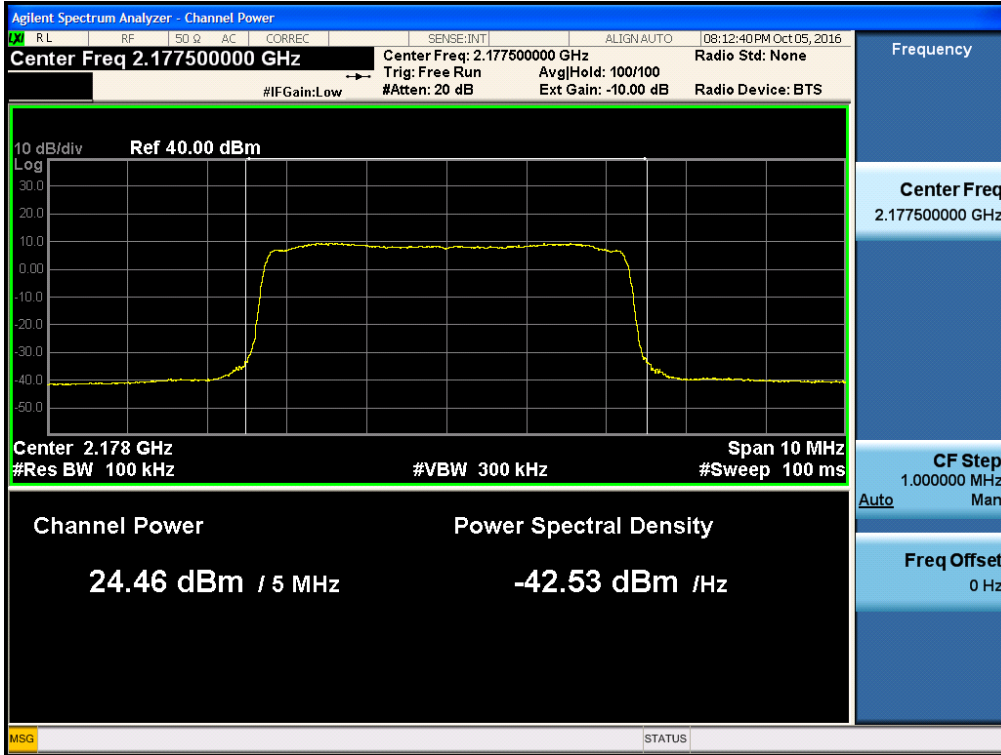
(64QAM Low Channel)



(64QAM Middle Channel)



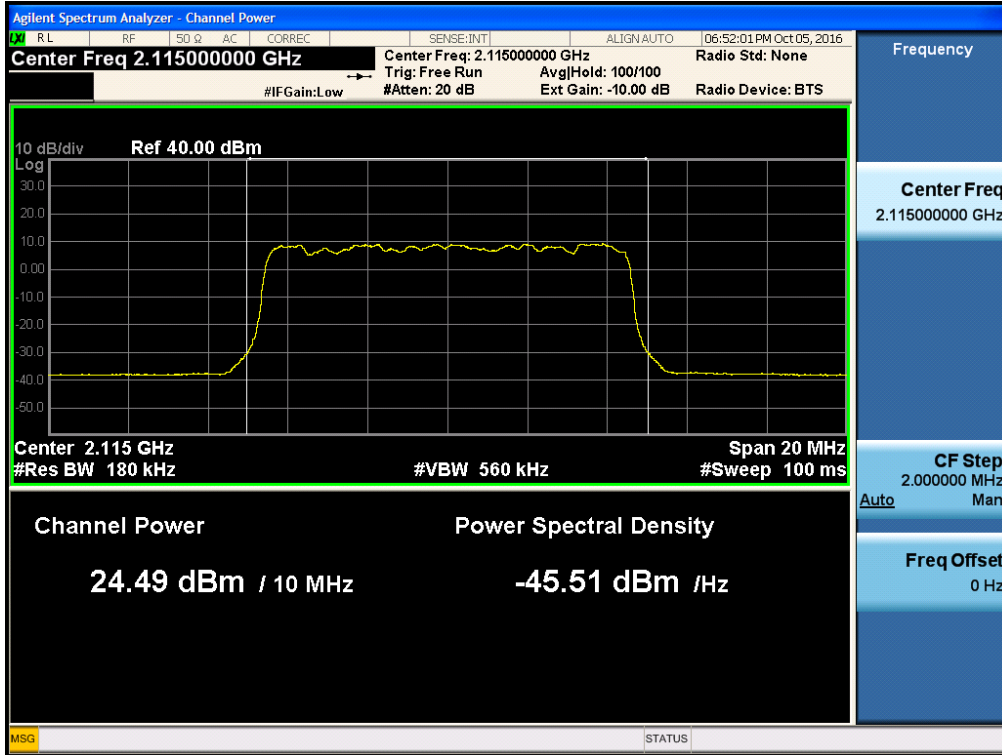
(64QAM High Channel)



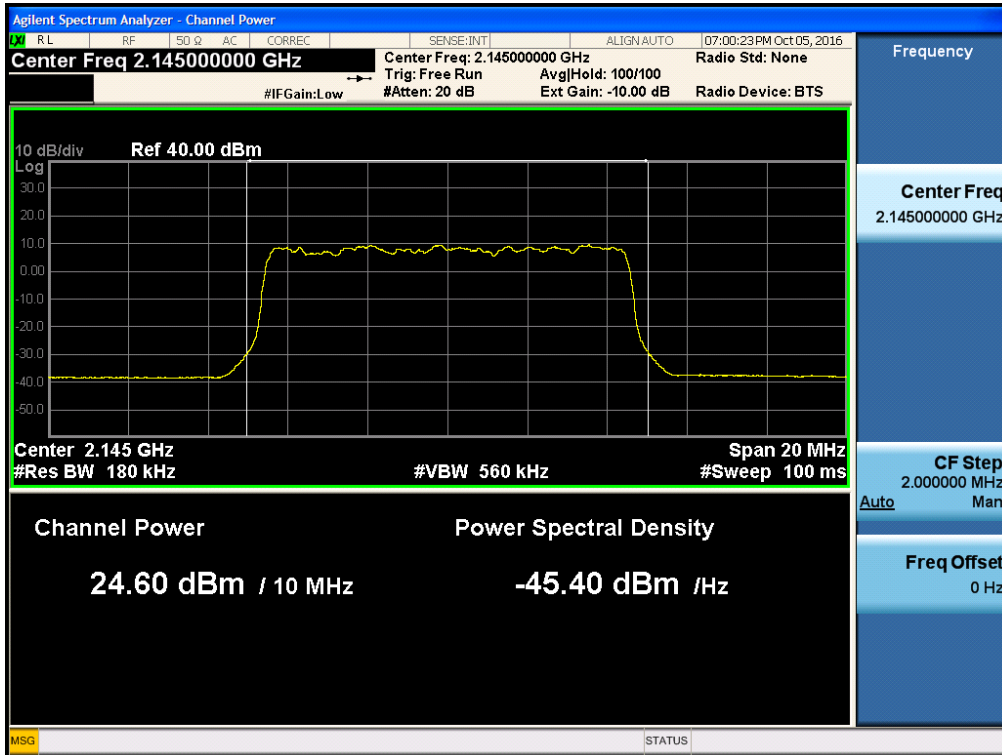
AWS 2100_LTE 10 MHz

Plot Data for Output Port 0 (Conducted Output Power)

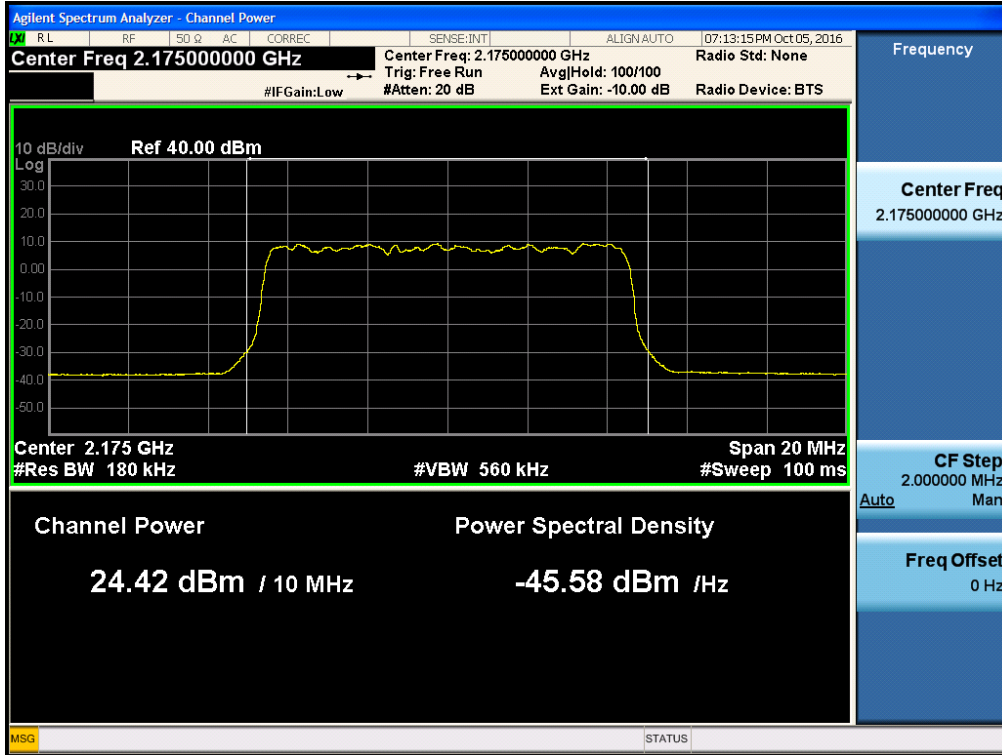
(QPSK Low Channel)



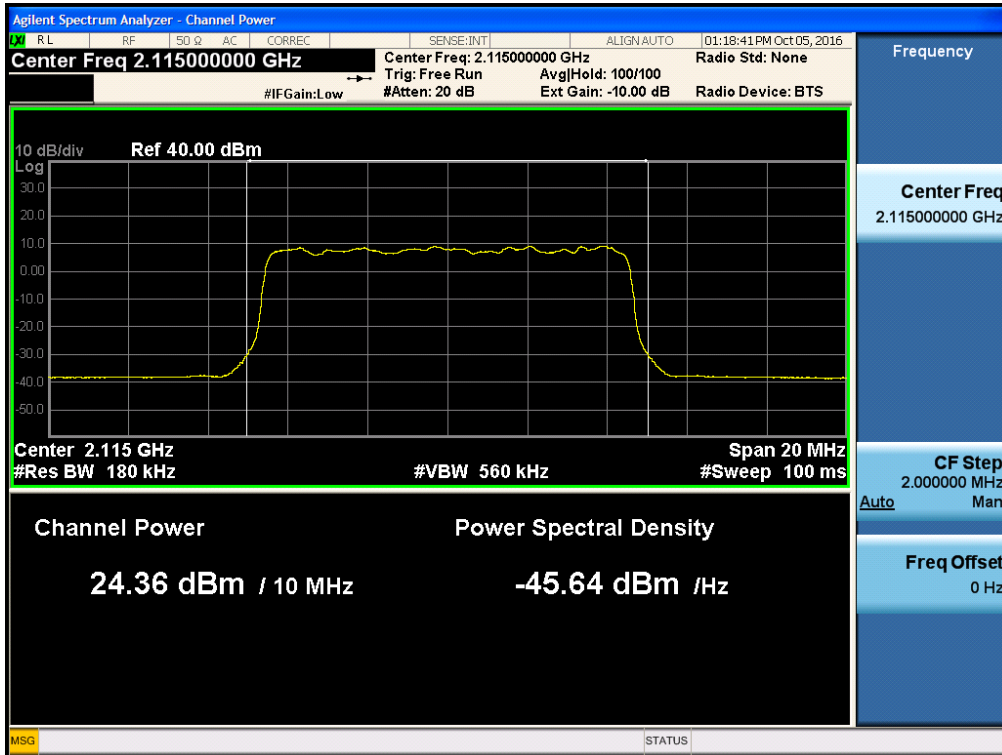
(QPSK Middle Channel)



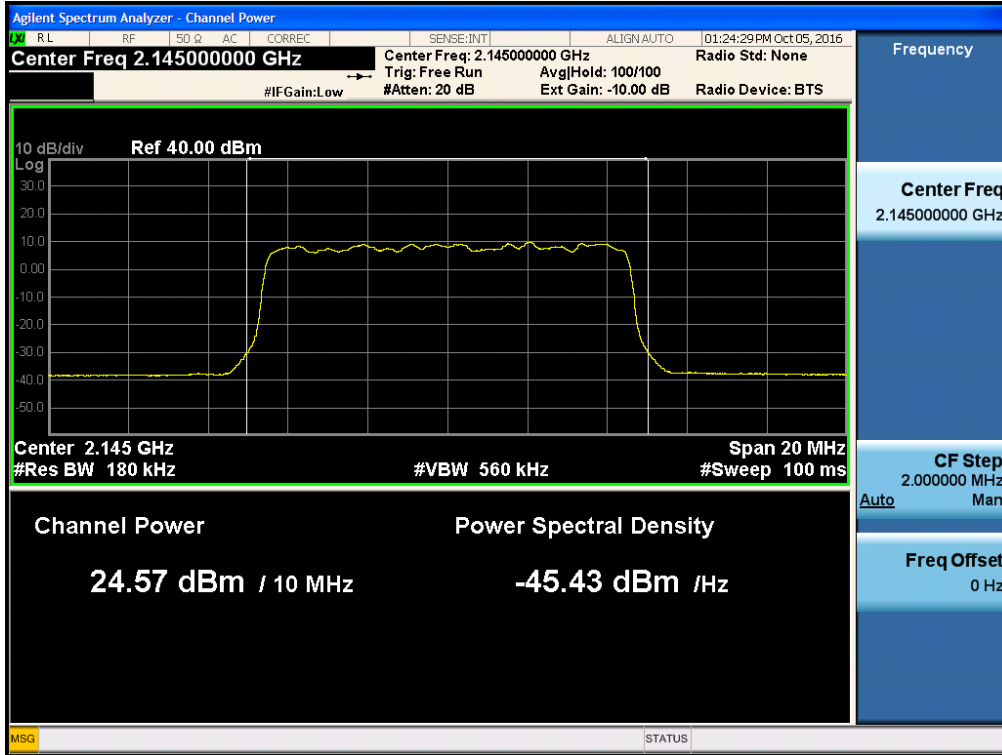
(QPSK High Channel)



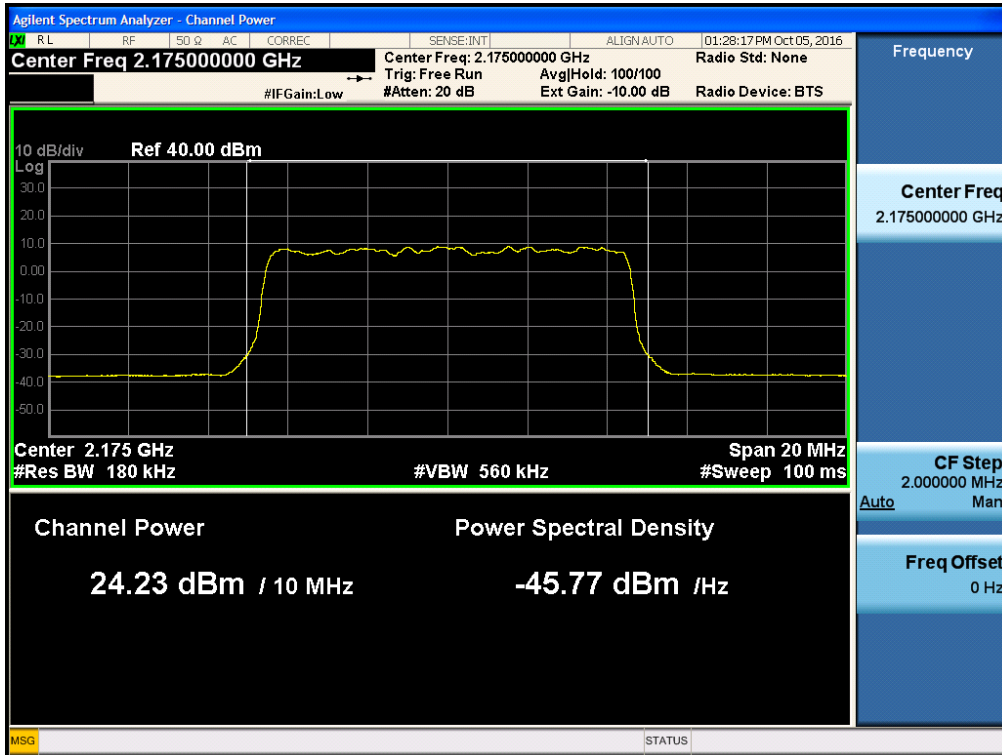
(16QAM Low Channel)



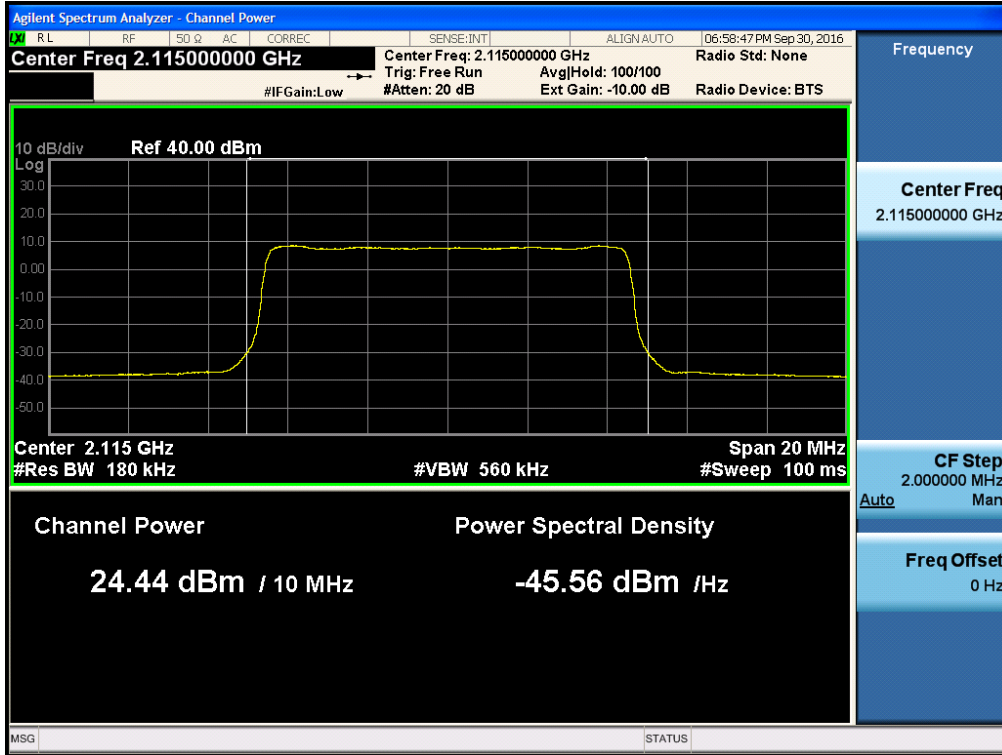
(16QAM Middle Channel)



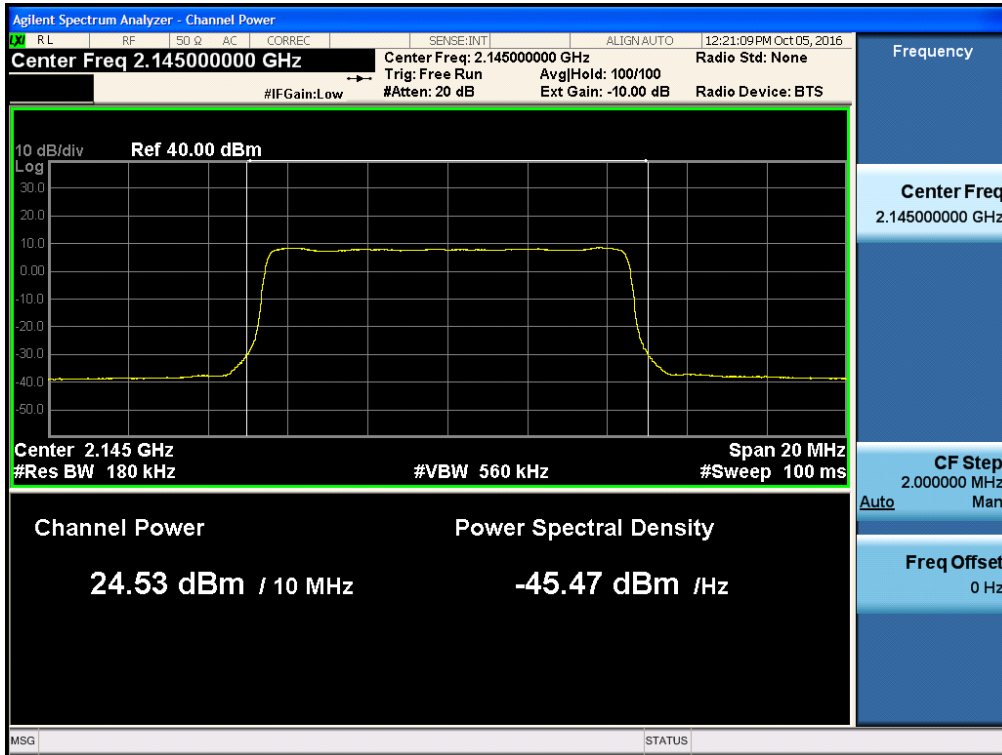
(16QAM High Channel)



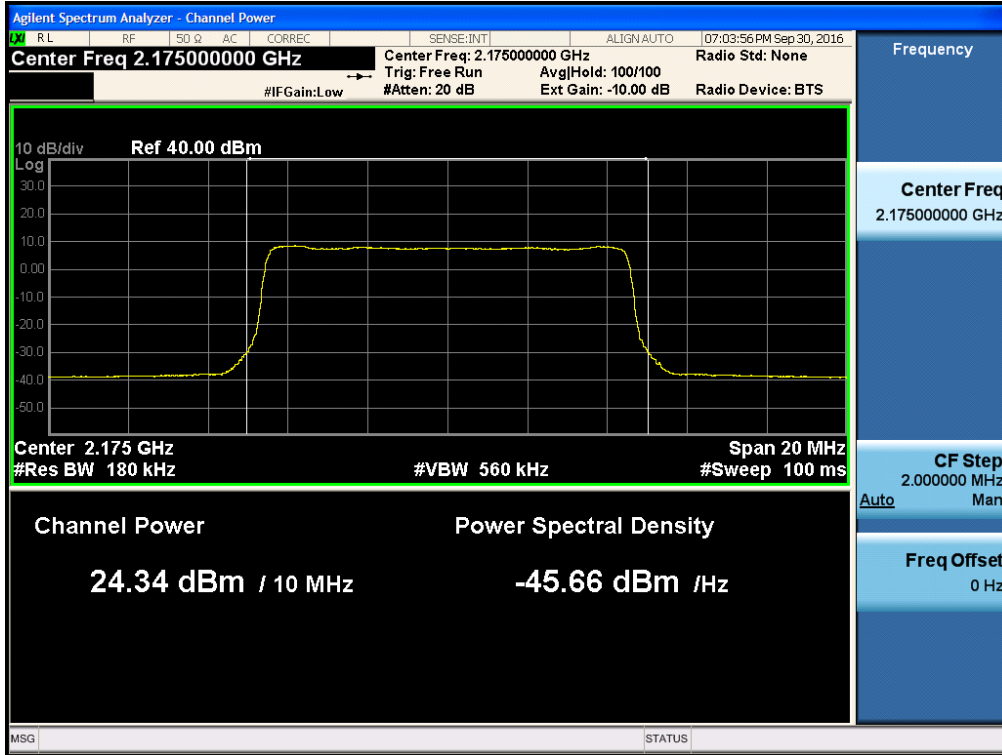
(64QAM Low Channel)



(64QAM Middle Channel)



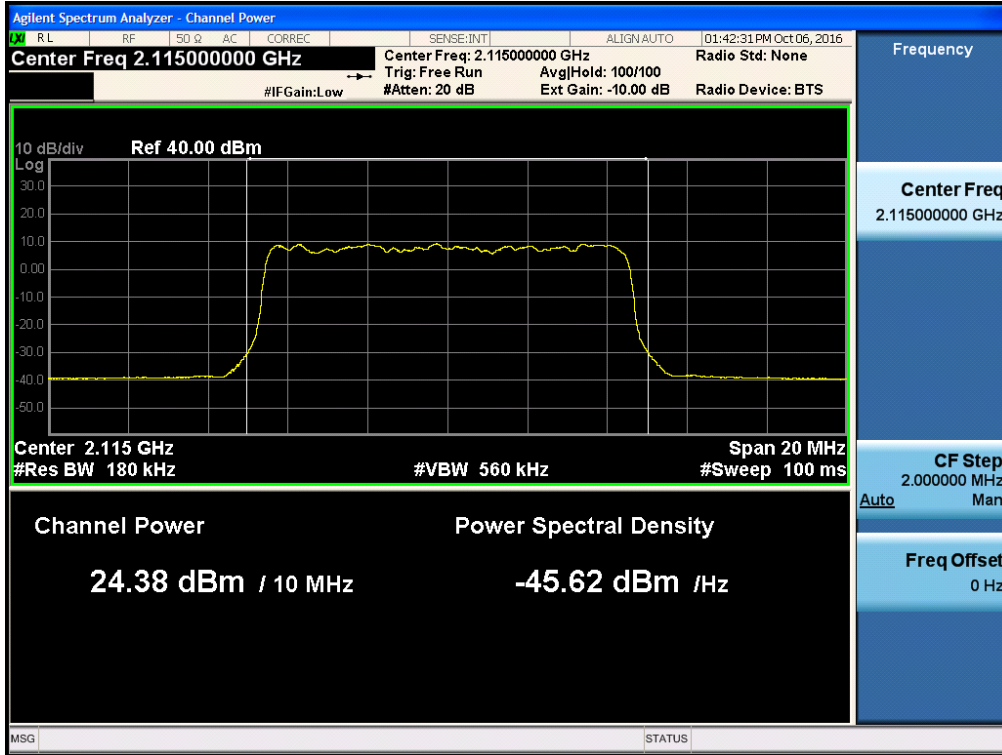
(64QAM High Channel)



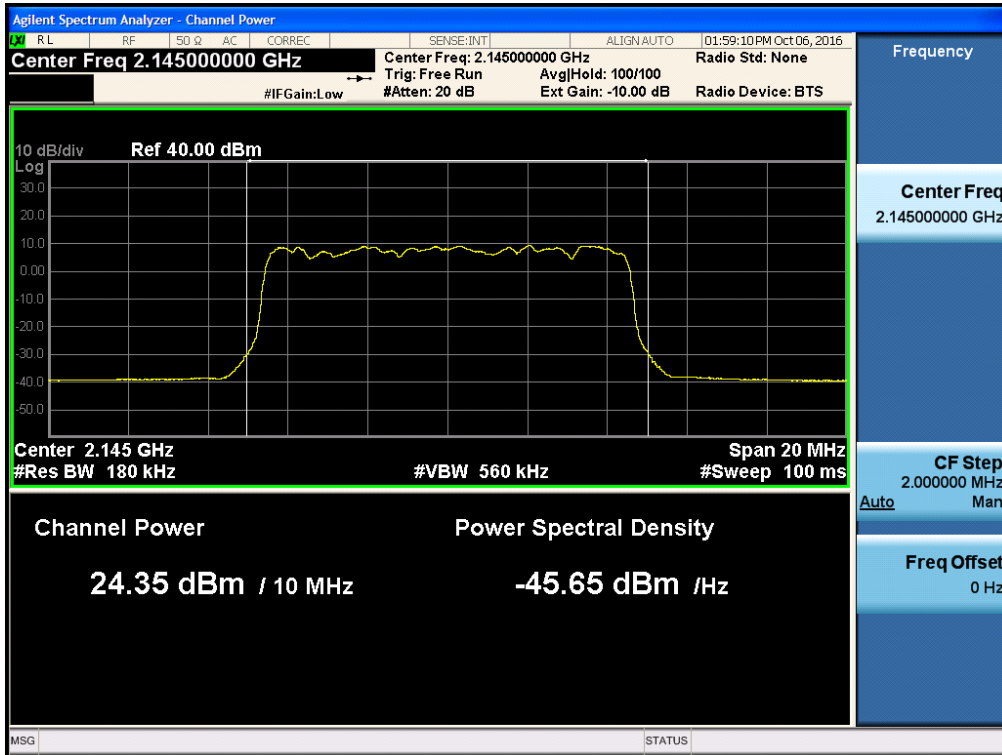
AWS 2100_LTE 10 MHz

Plot Data for Output Port 1 (Conducted Output Power)

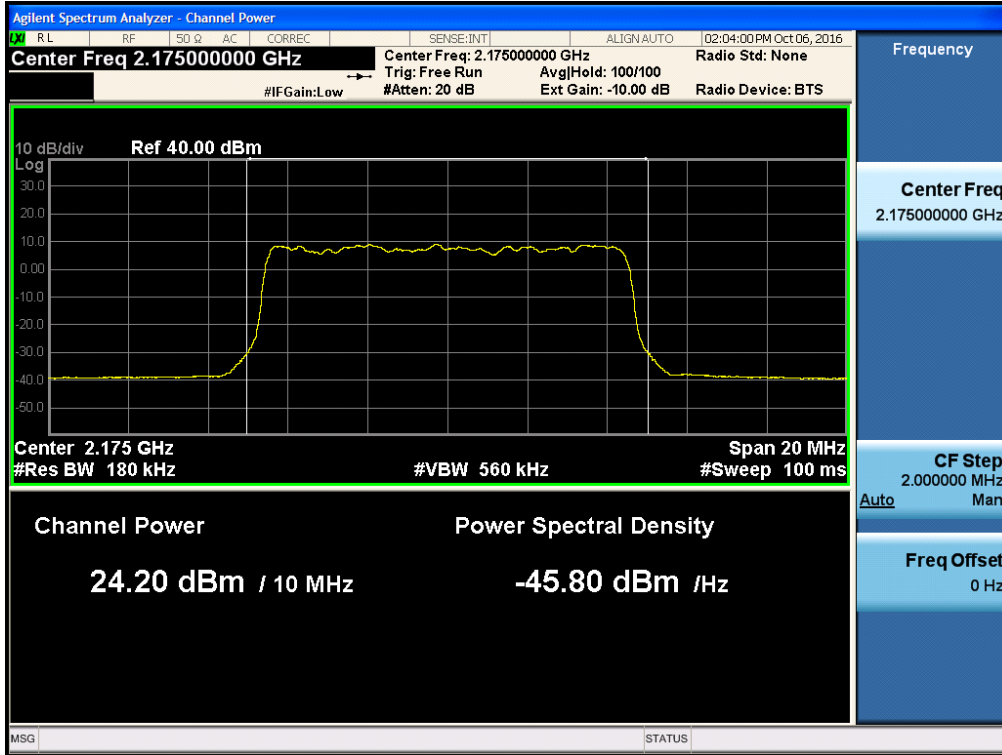
(QPSK Low Channel)



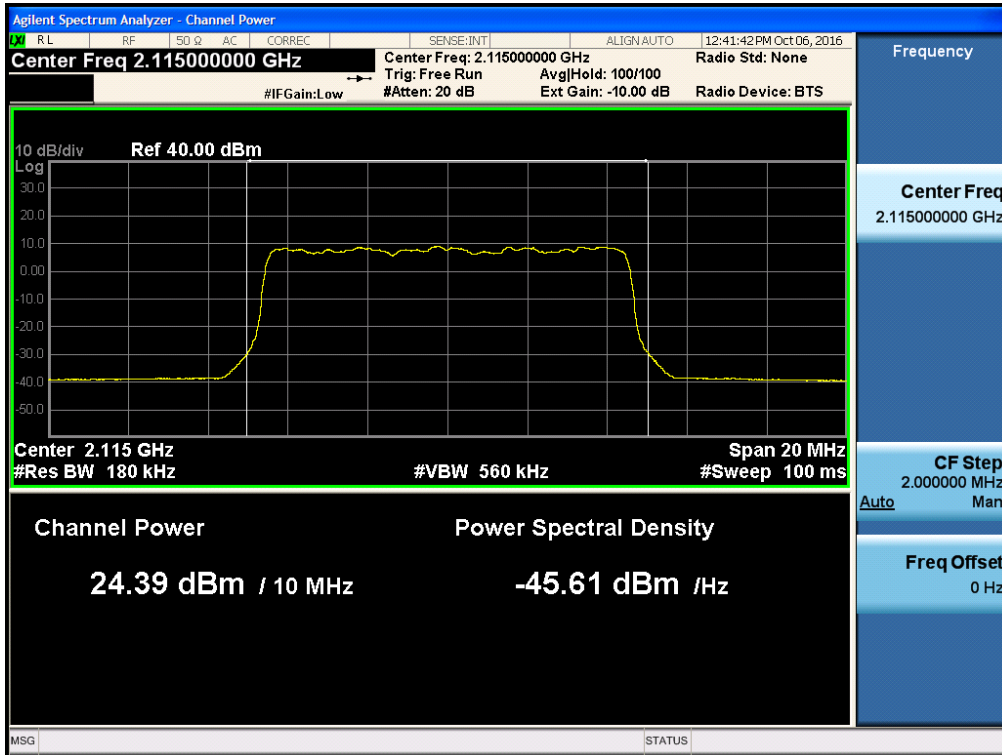
(QPSK Middle Channel)



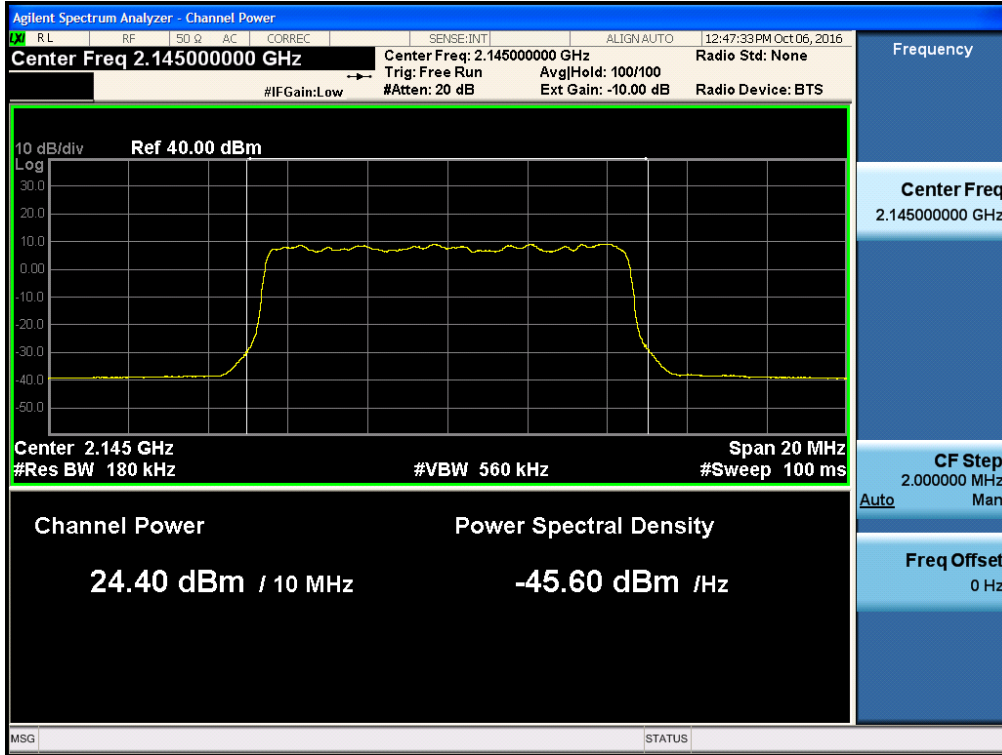
(QPSK High Channel)



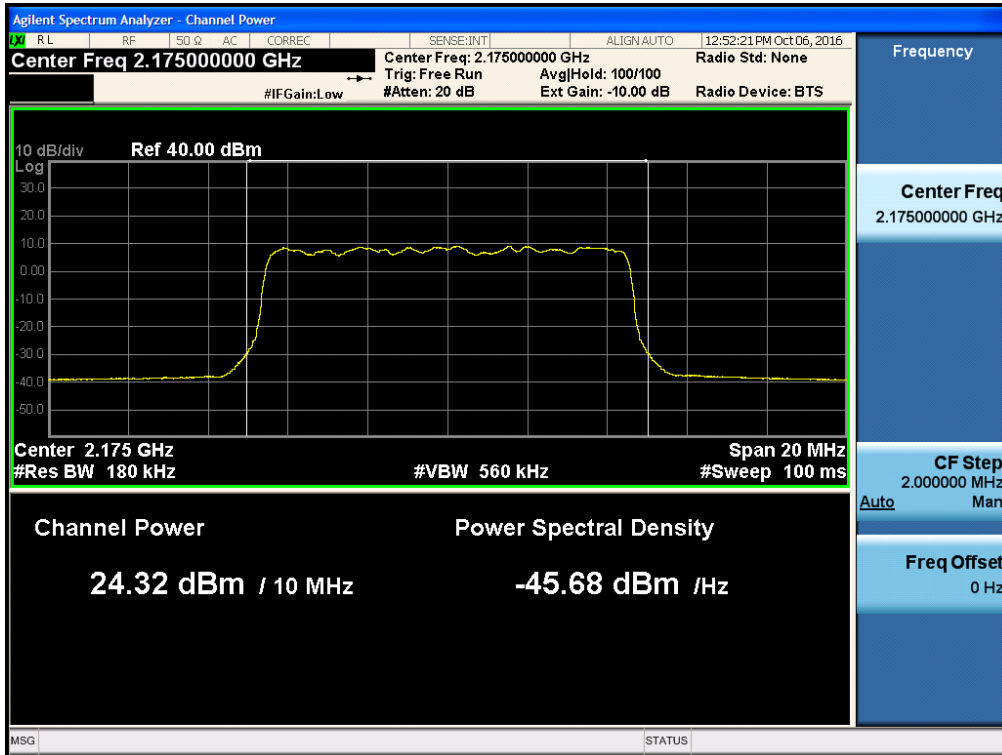
(16QAM Low Channel)



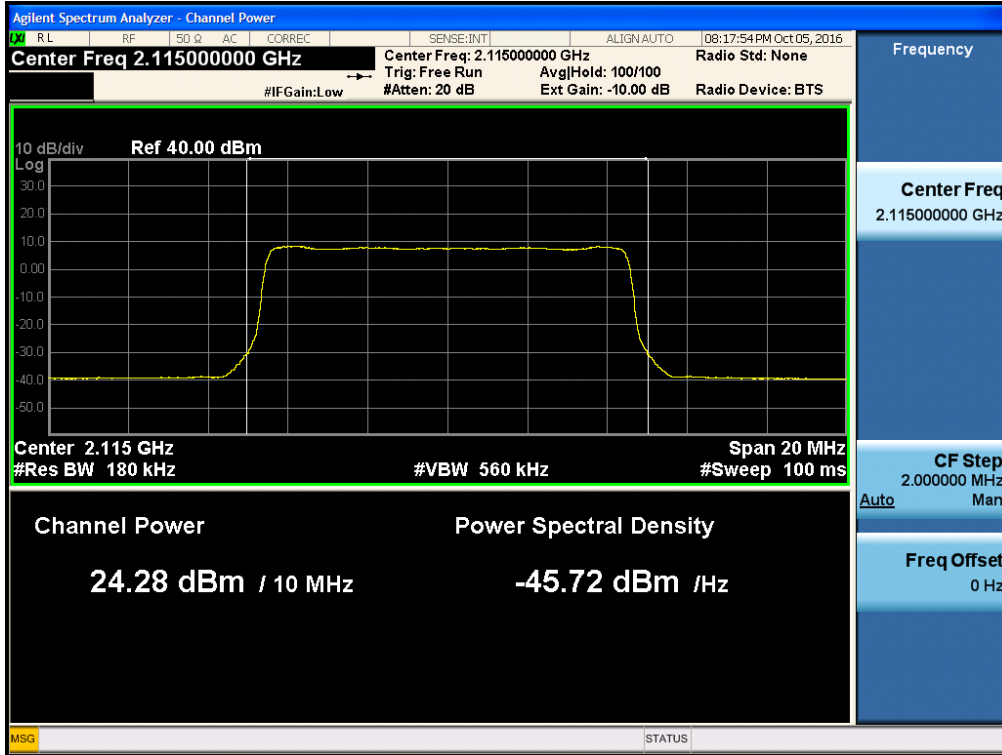
(16QAM Middle Channel)



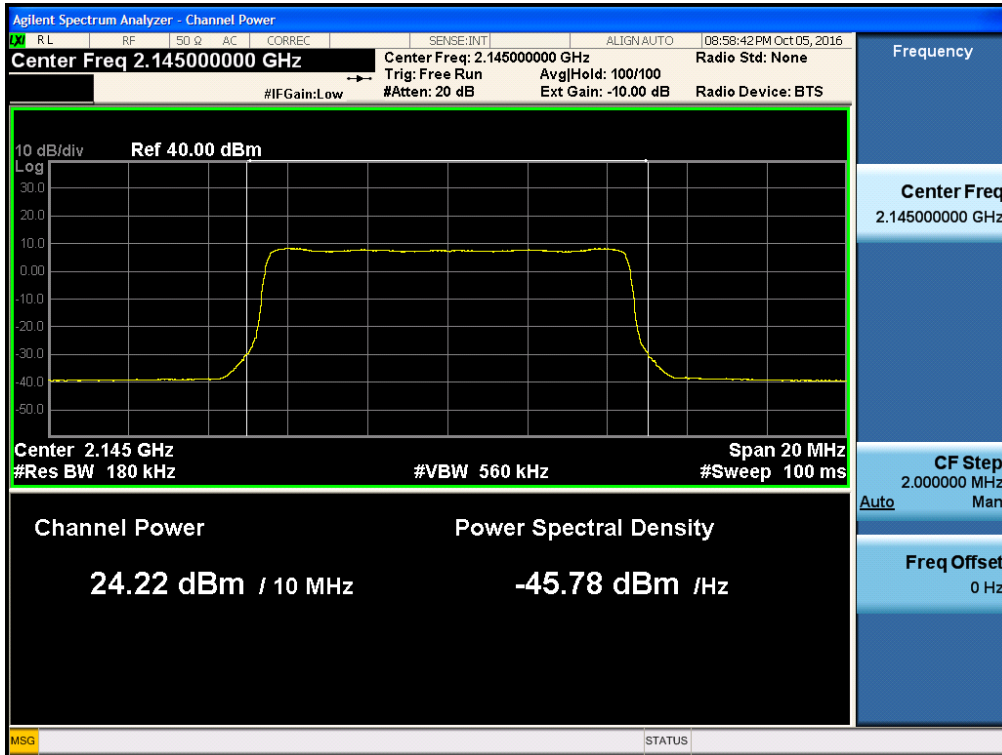
(16QAM High Channel)



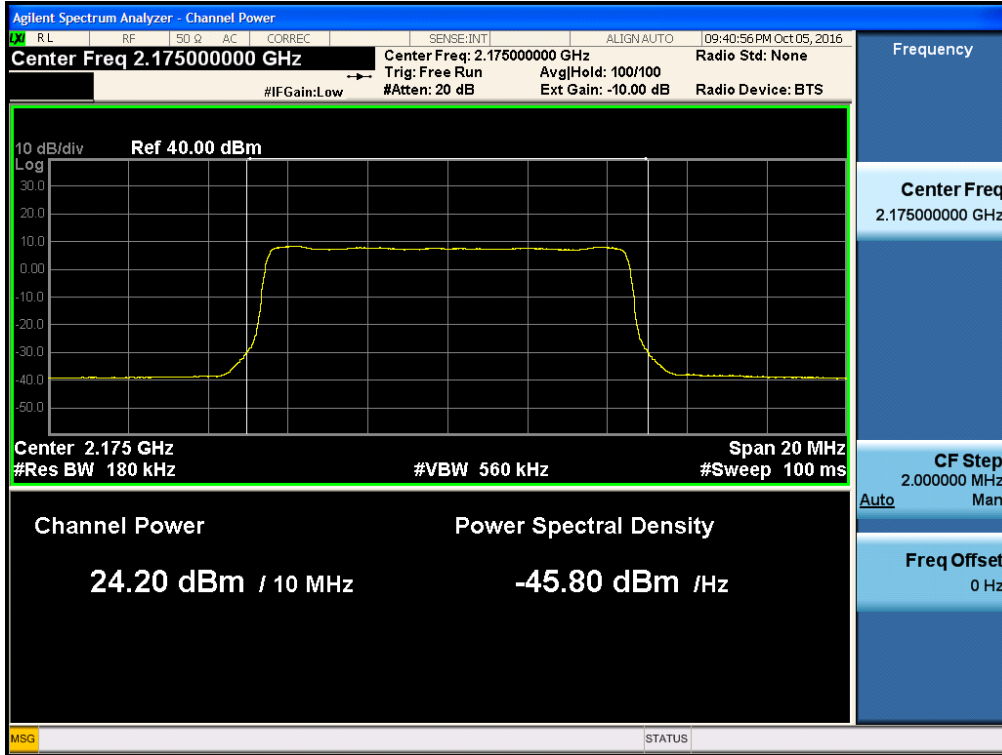
(64QAM Low Channel)



(64QAM Middle Channel)



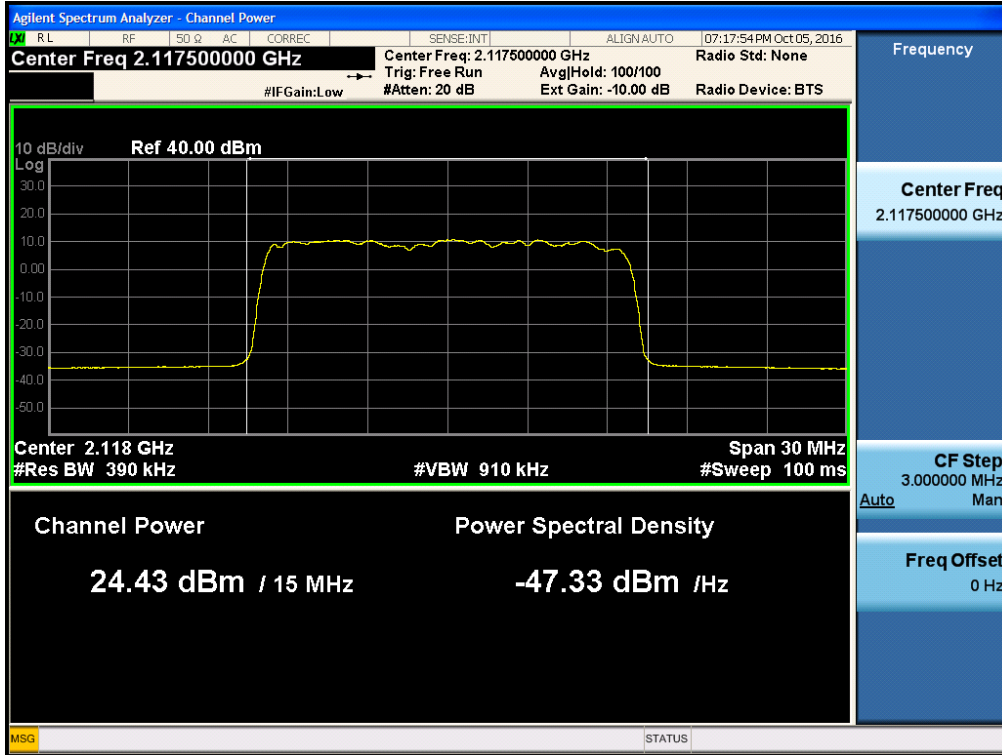
(64QAM High Channel)



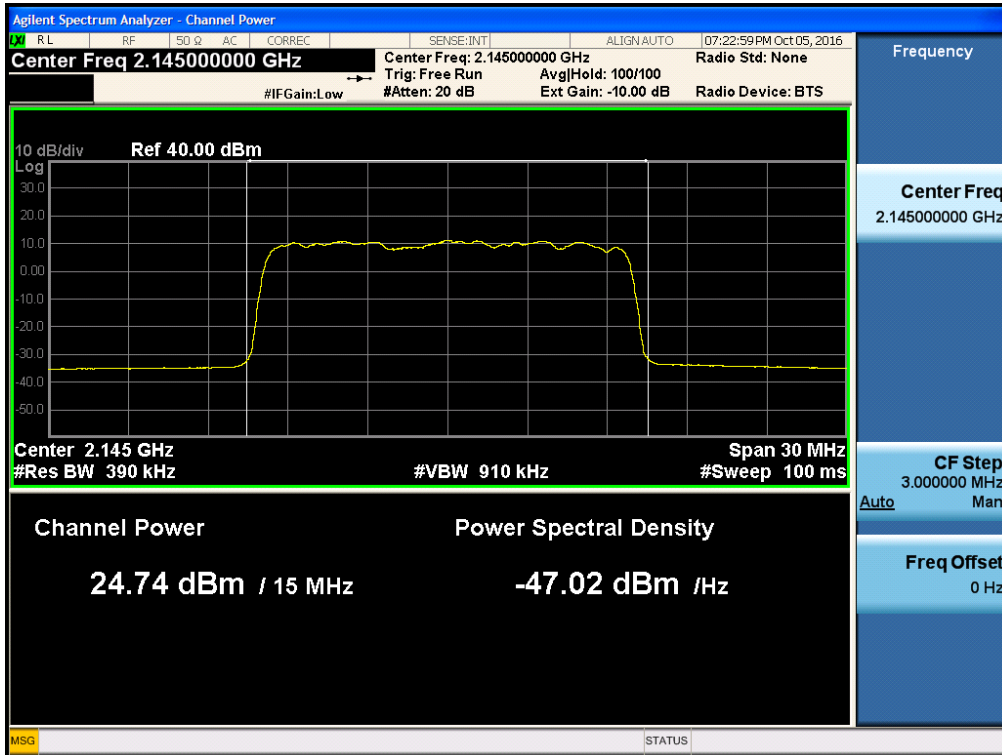
AWS 2100_LTE 15 MHz

Plot Data for Output Port 0 (Conducted Output Power)

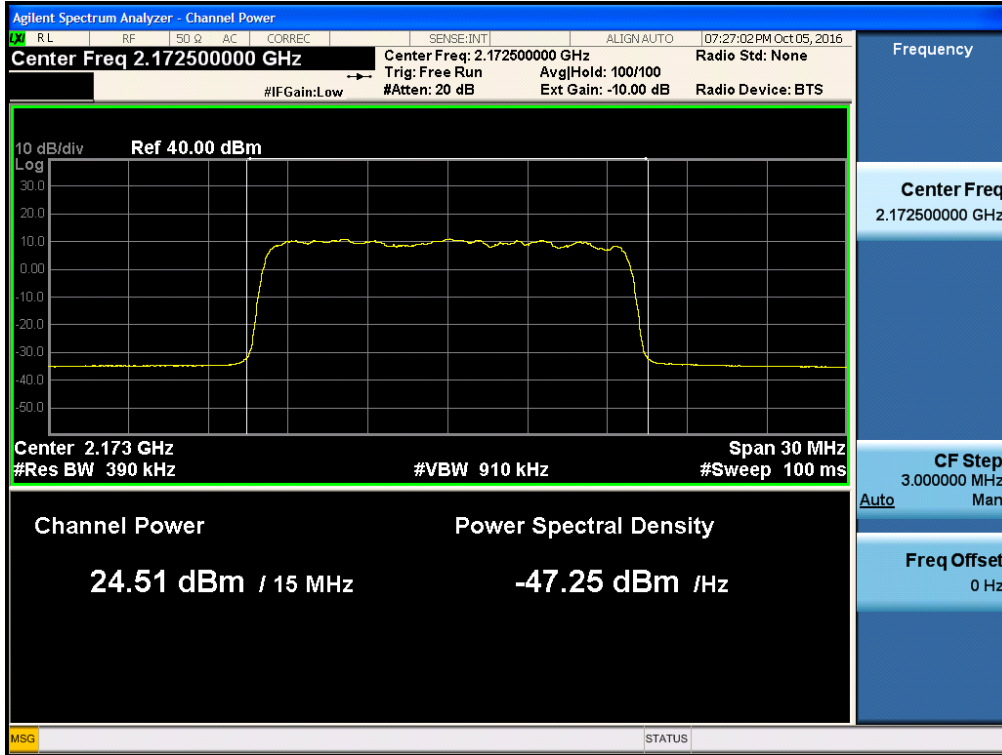
(QPSK Low Channel)



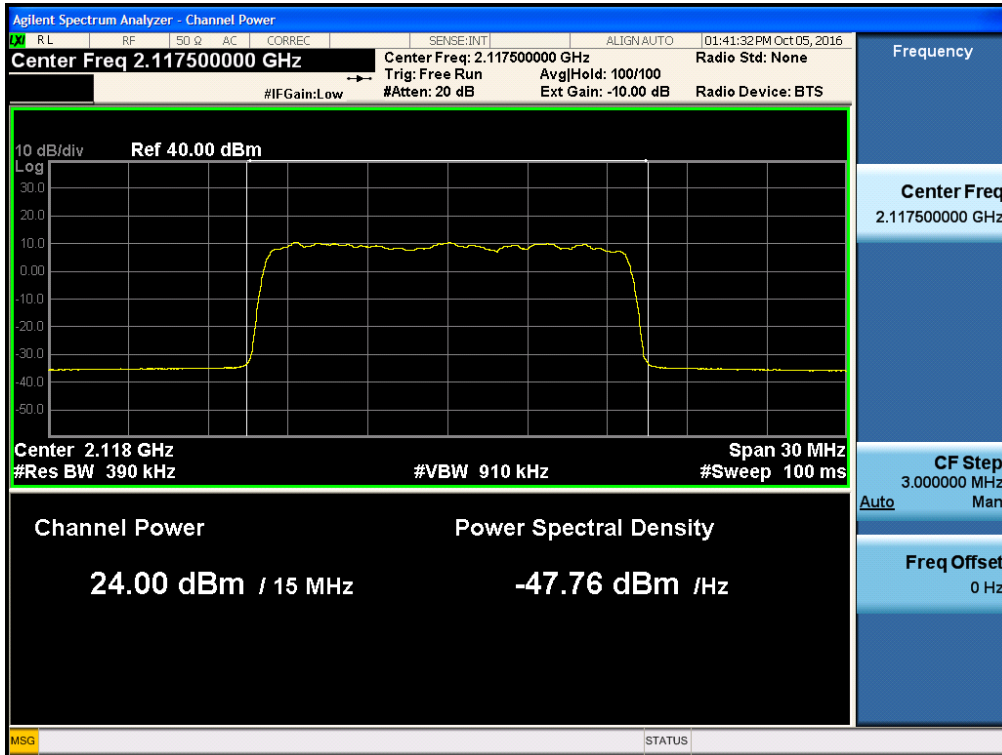
(QPSK Middle Channel)



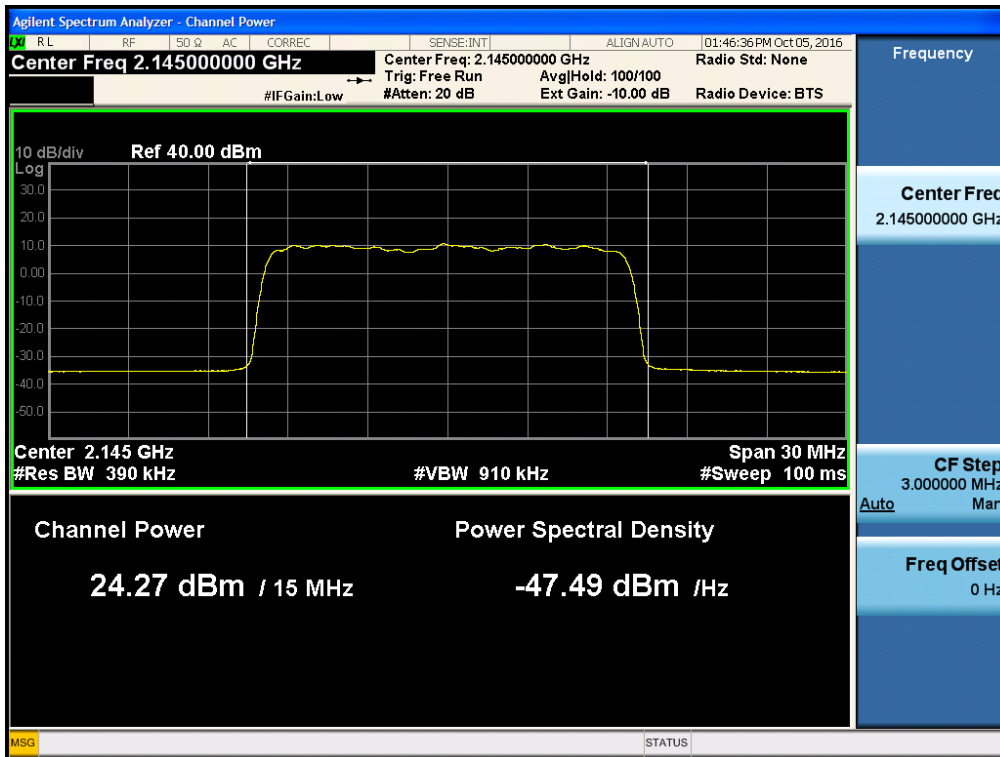
(QPSK High Channel)



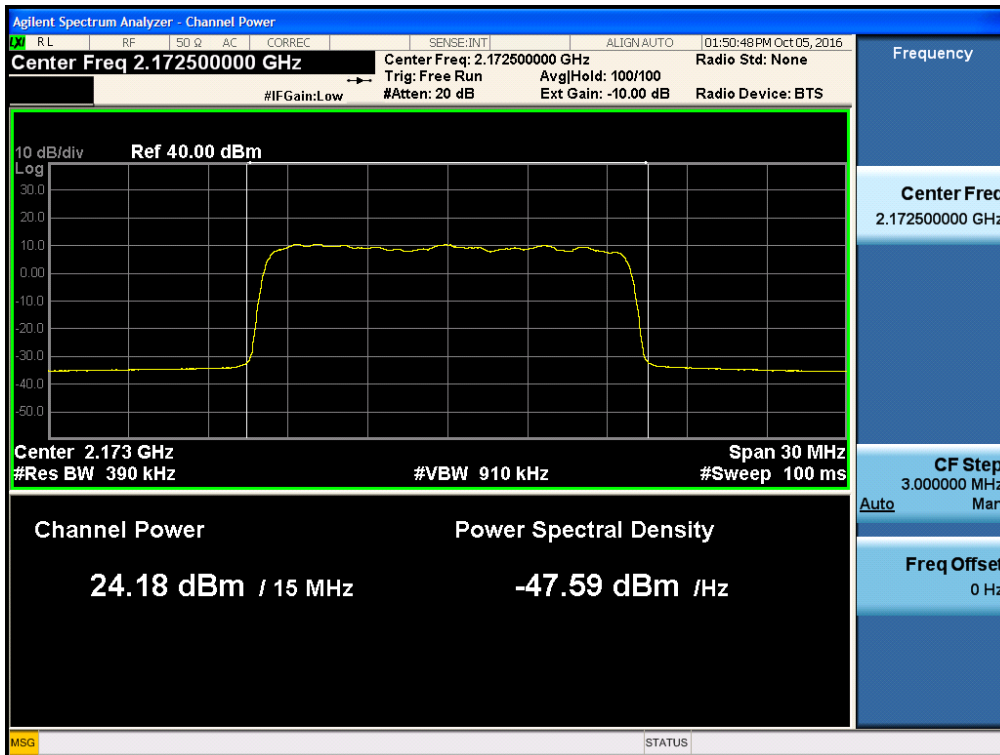
(16QAM Low Channel)



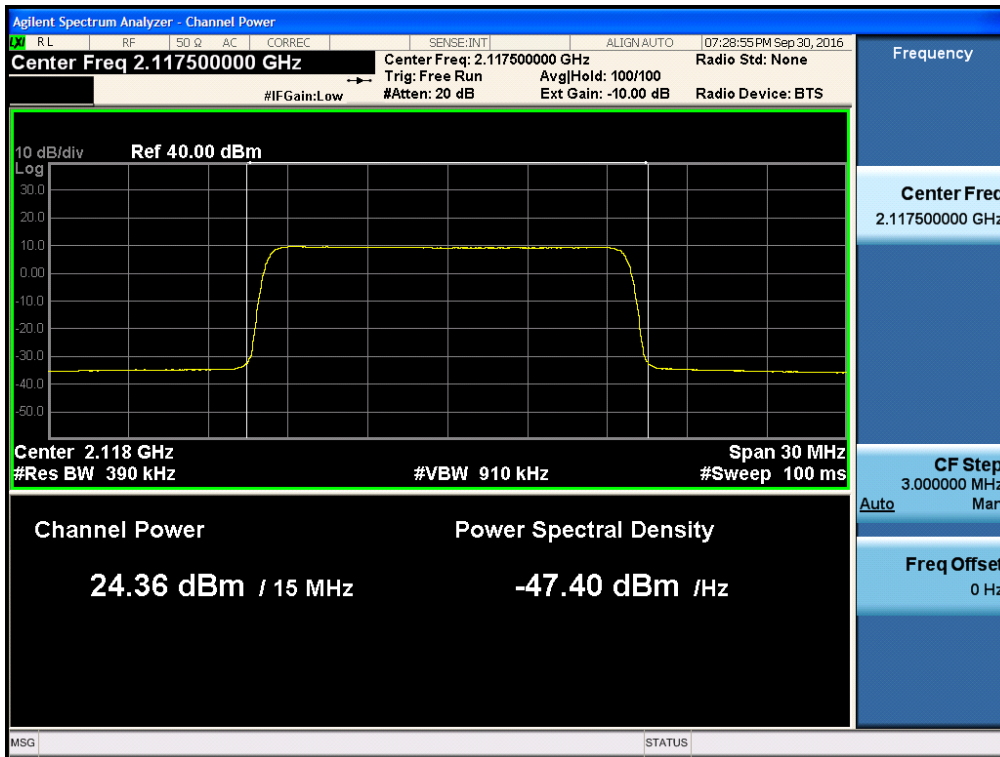
(16QAM Middle Channel)



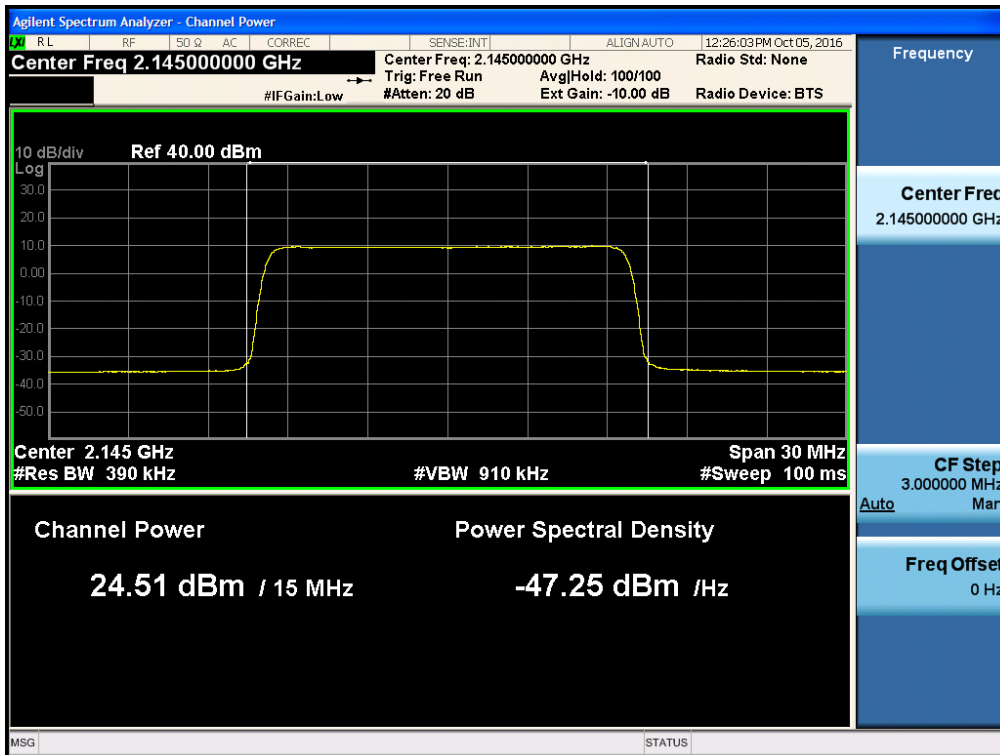
(16QAM High Channel)



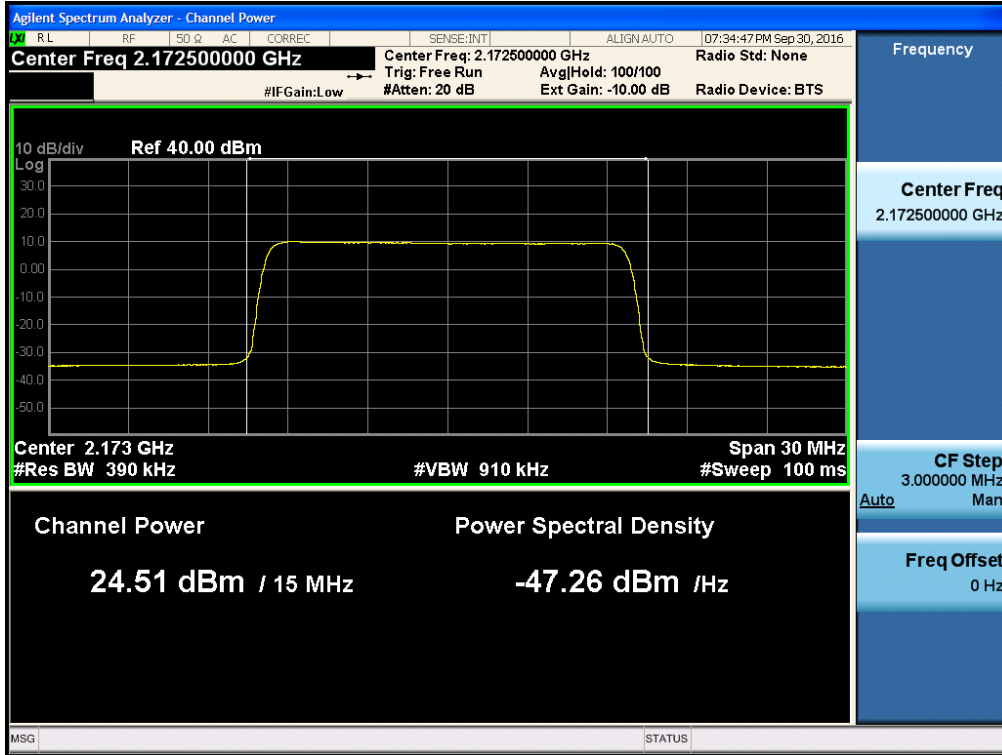
(64QAM Low Channel)



(64QAM Middle Channel)



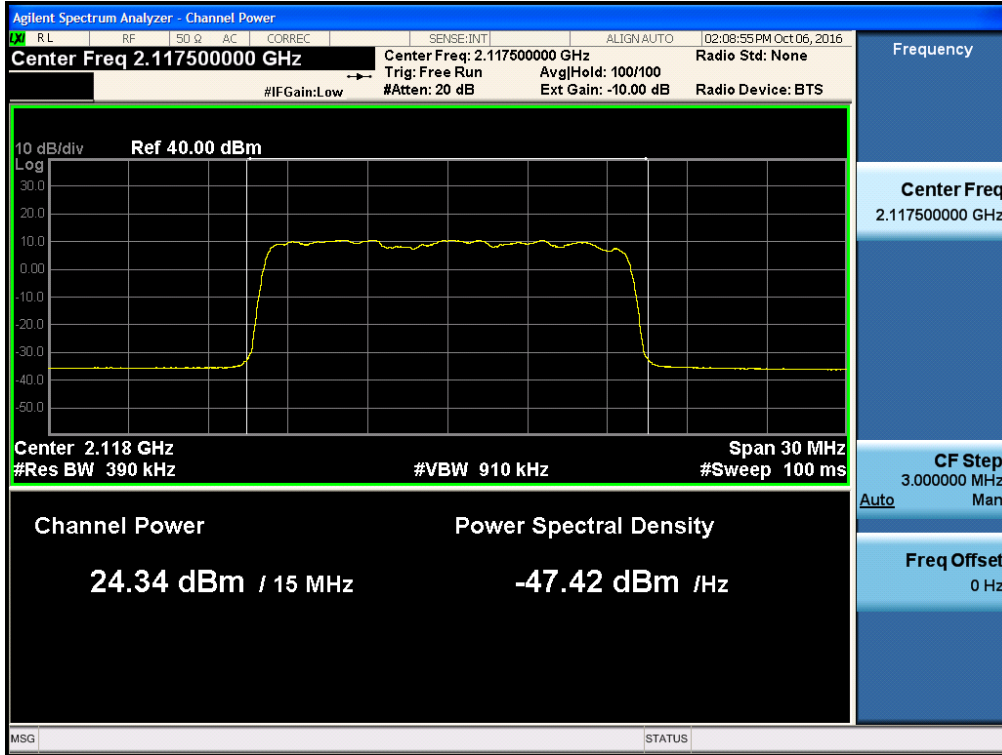
(64QAM High Channel)



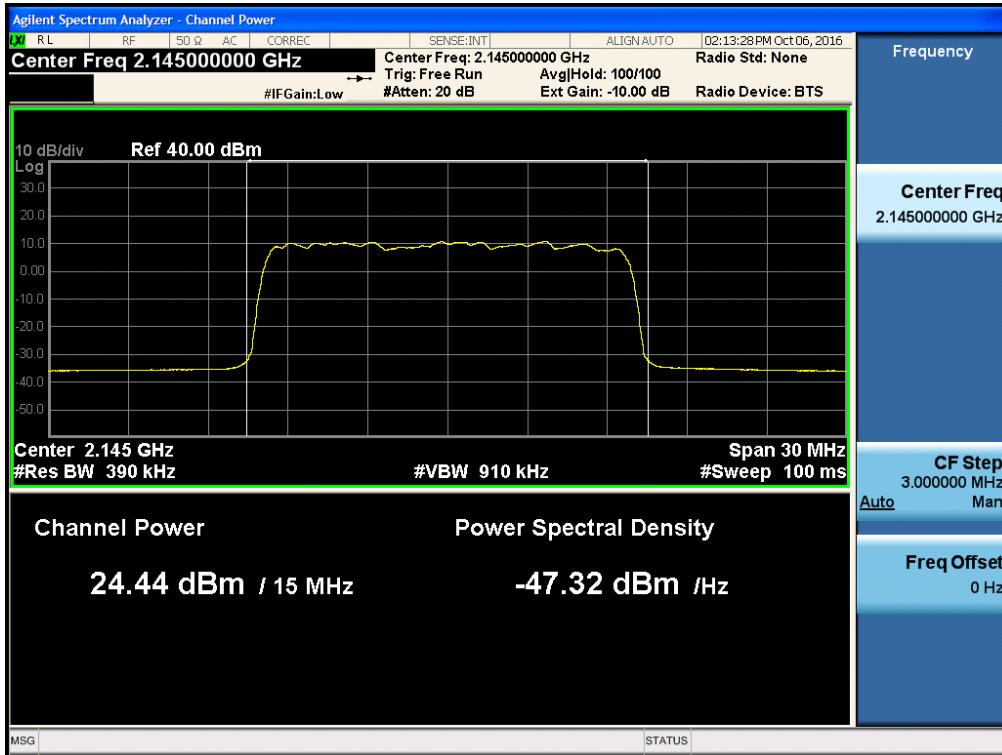
AWS 2100_LTE 15 MHz

Plot Data for Output Port 1 (Conducted Output Power)

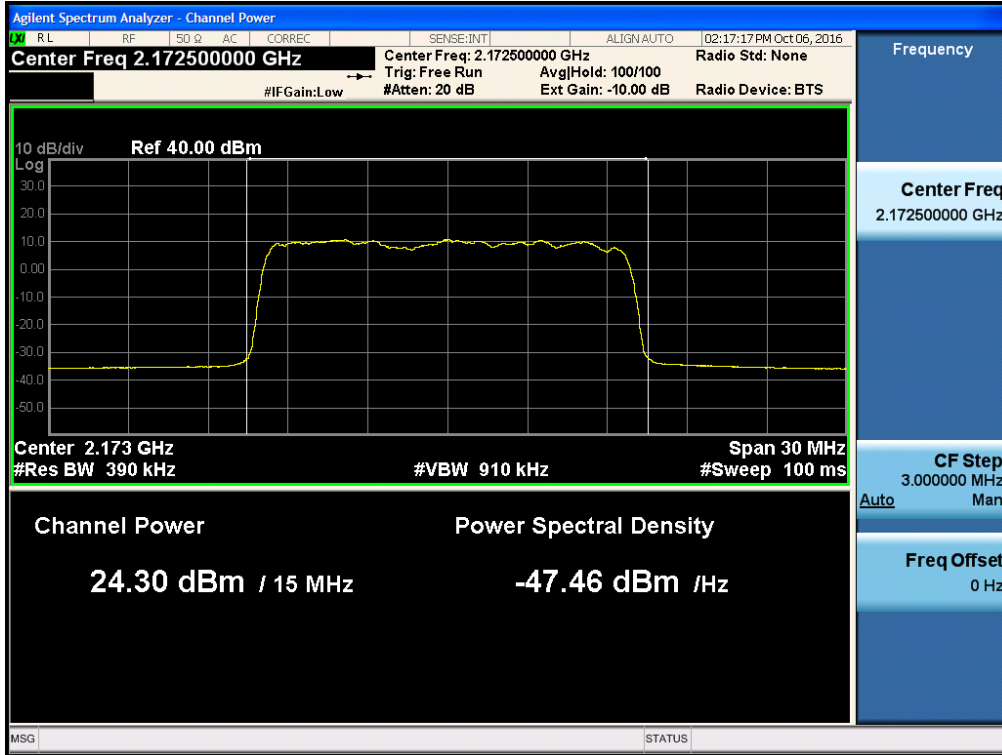
(QPSK Low Channel)



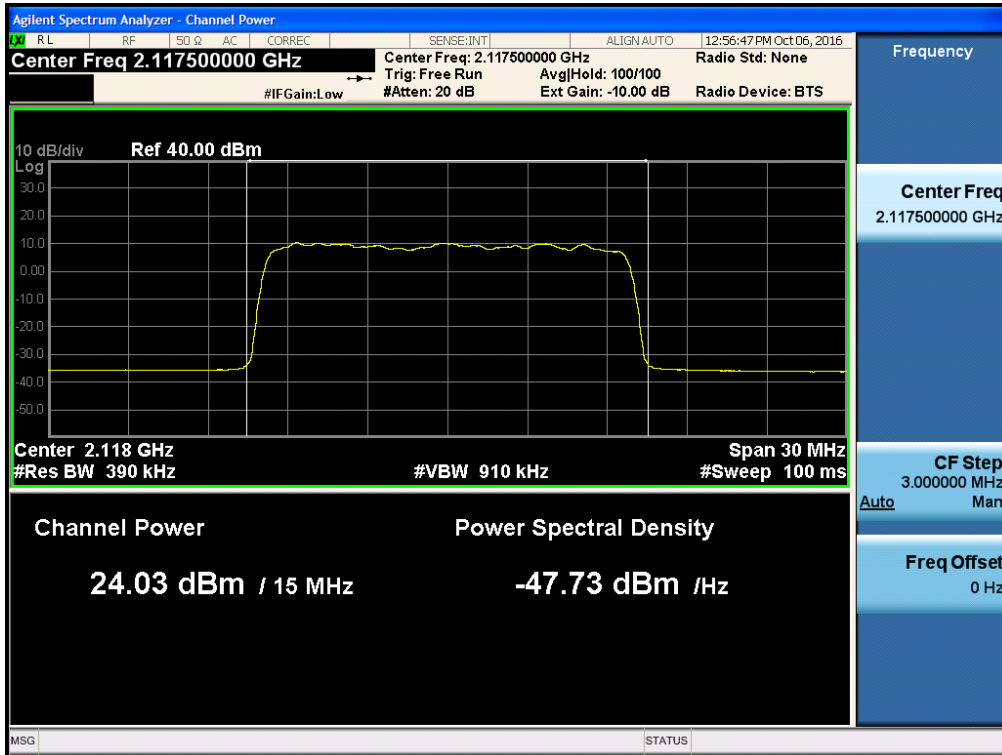
(QPSK Middle Channel)



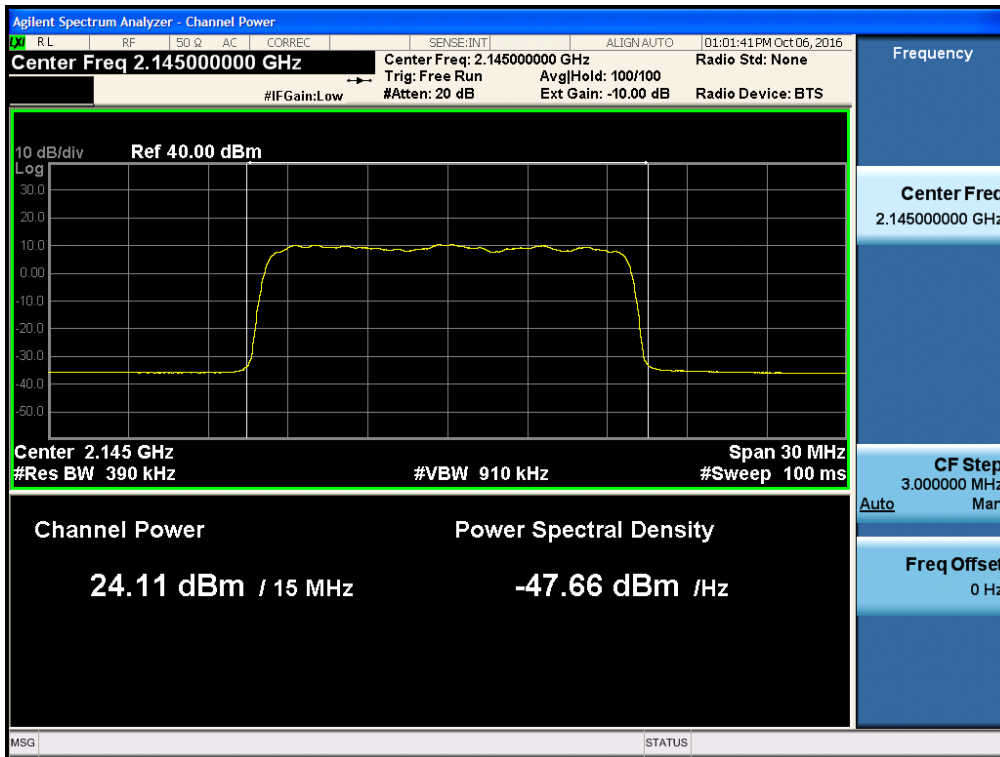
(QPSK High Channel)



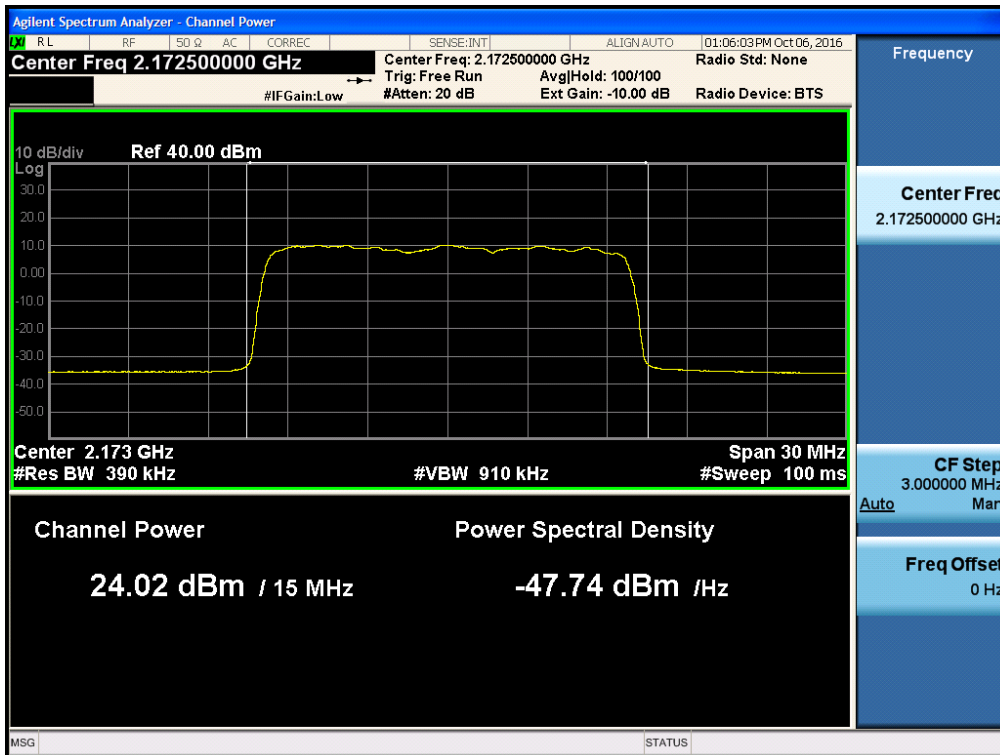
(16QAM Low Channel)



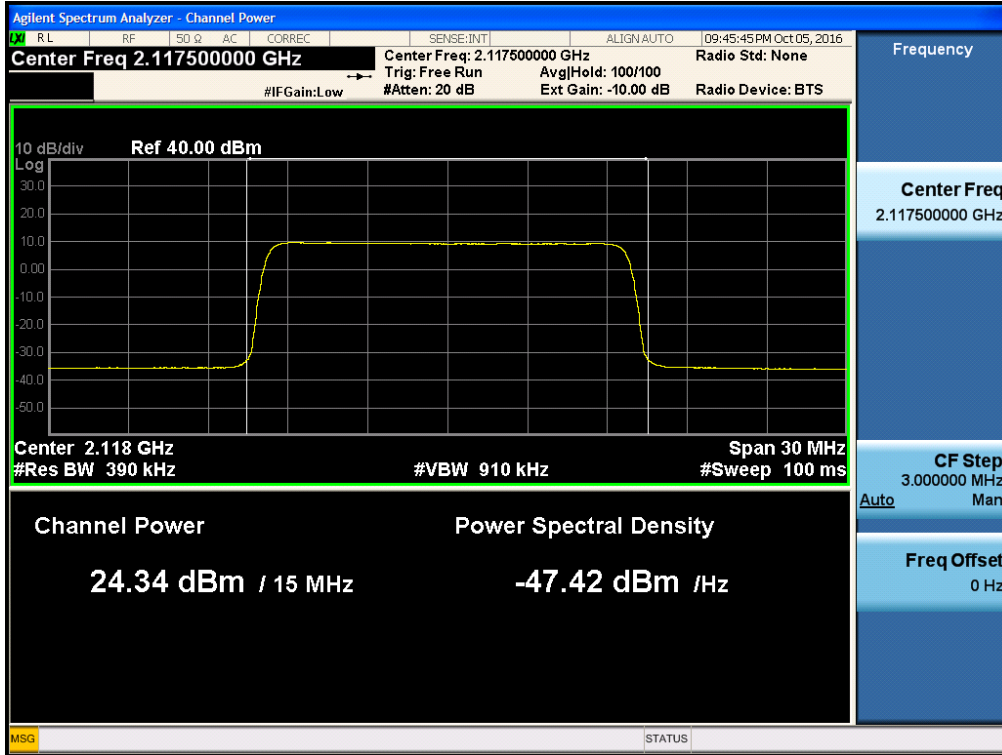
(16QAM Middle Channel)



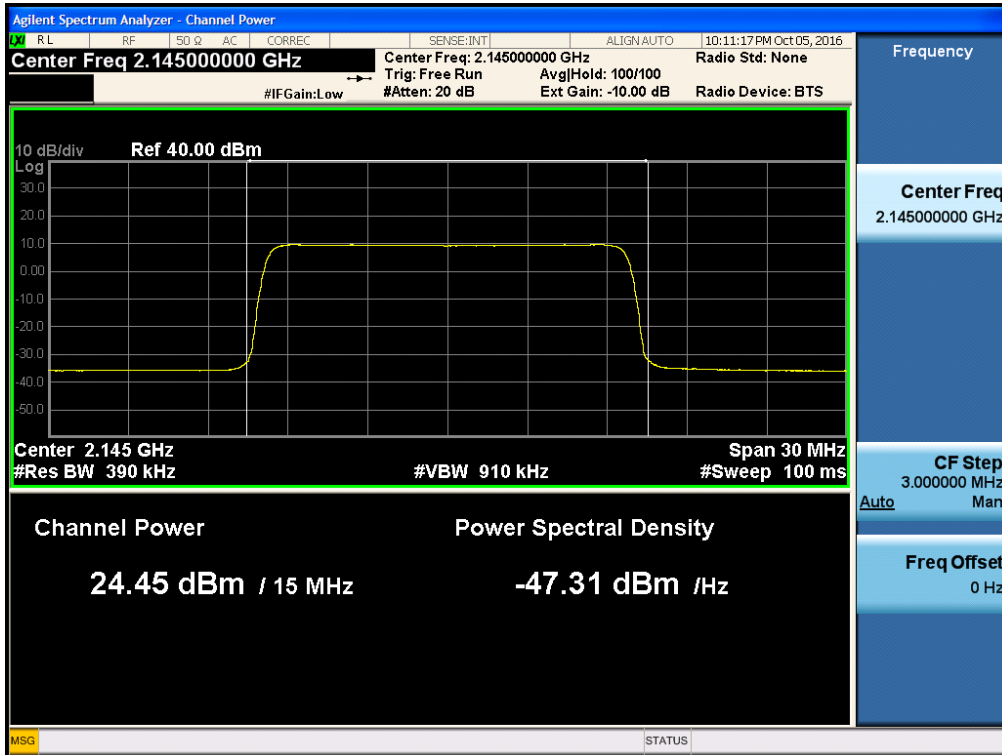
(16QAM High Channel)



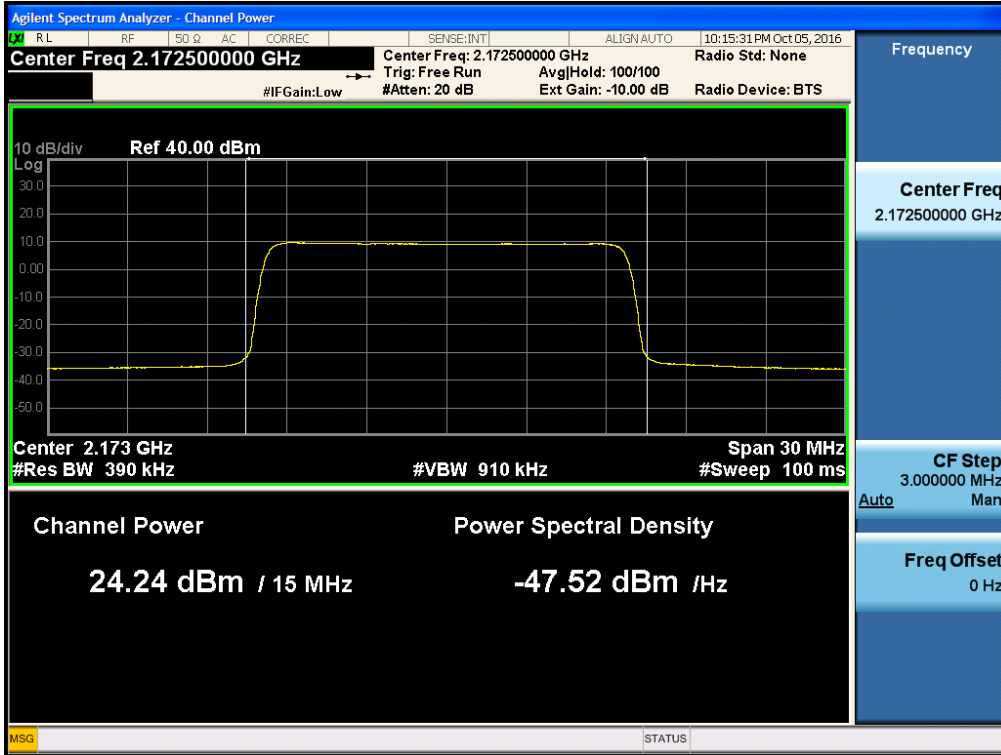
(64QAM Low Channel)



(64QAM Middle Channel)



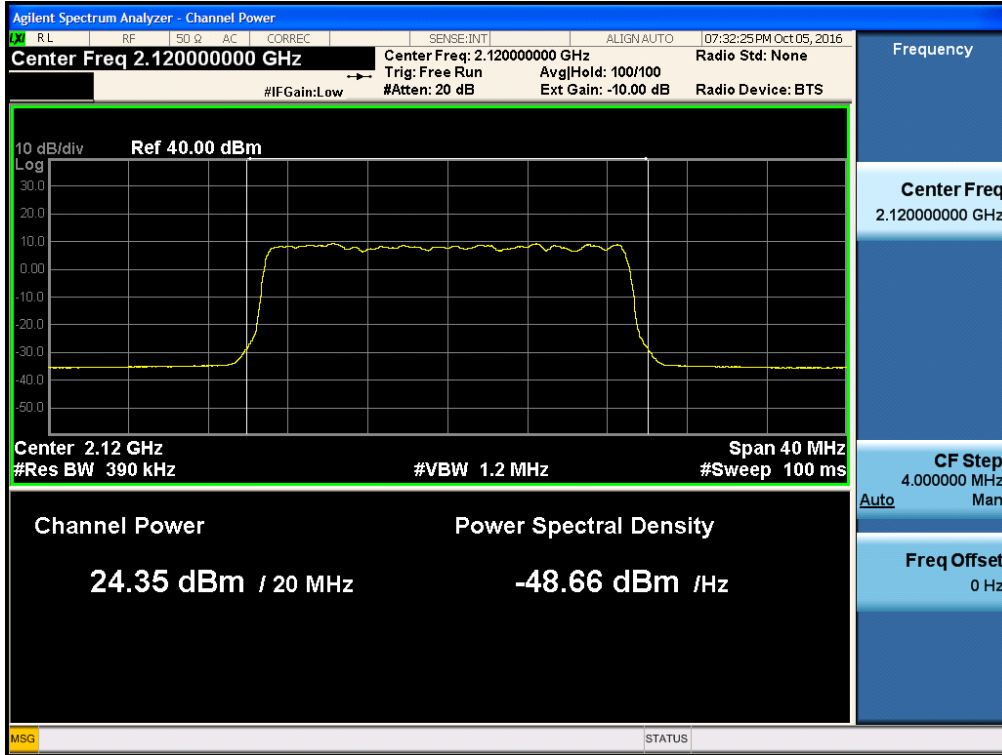
(64QAM High Channel)



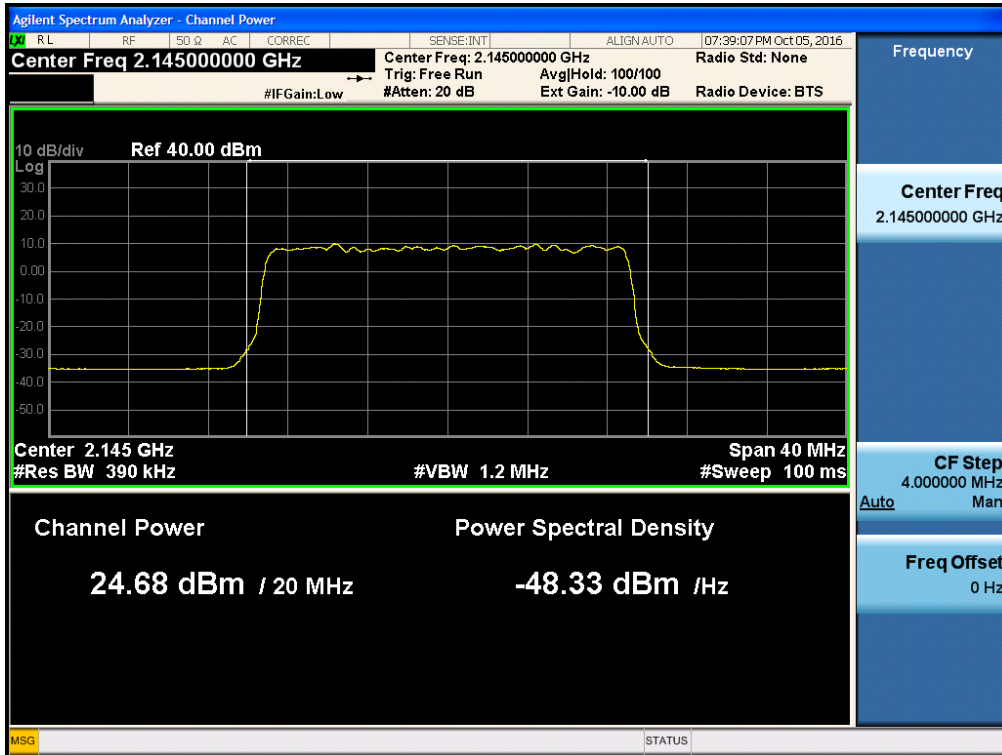
AWS 2100_LTE 20 MHz

Plot Data for Output Port 0 (Conducted Output Power)

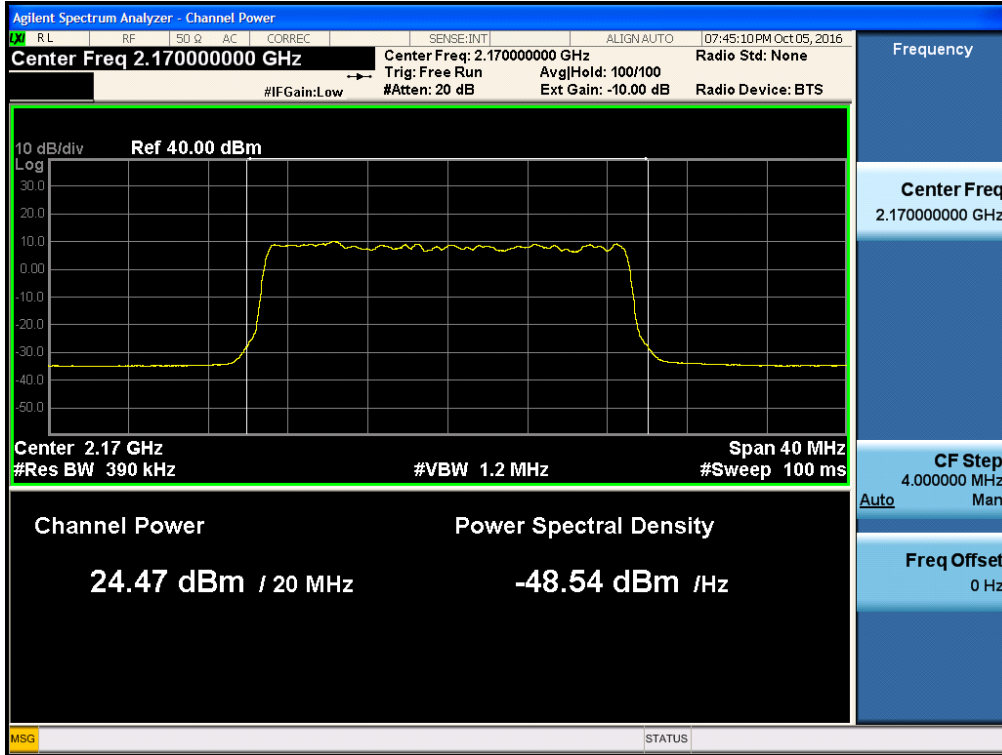
(QPSK Low Channel)



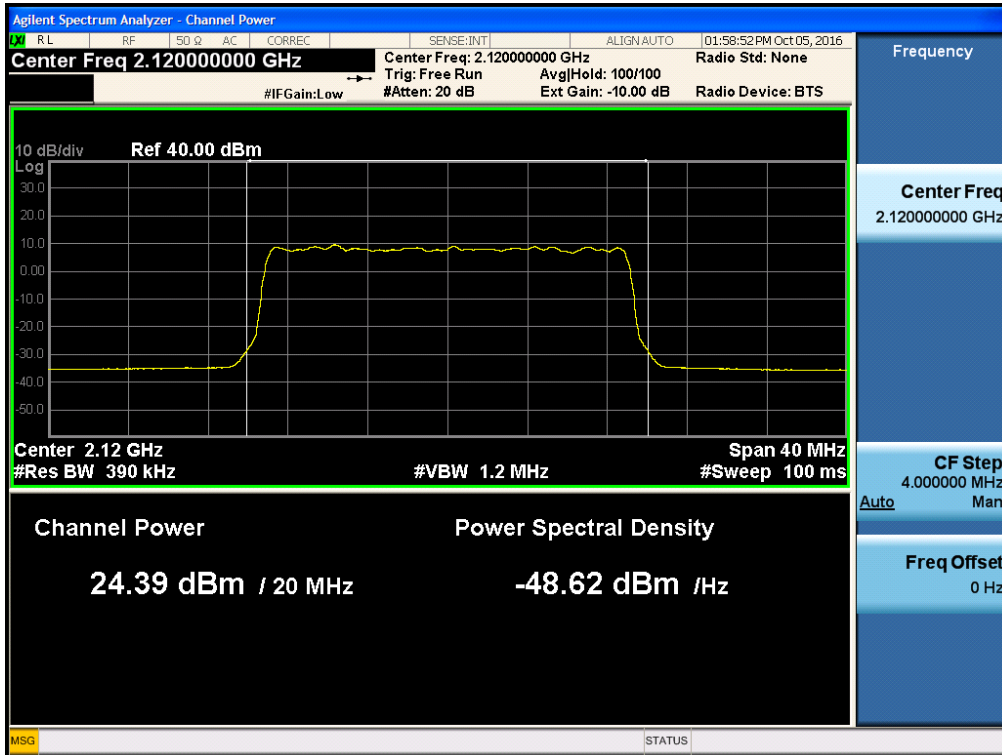
(QPSK Middle Channel)



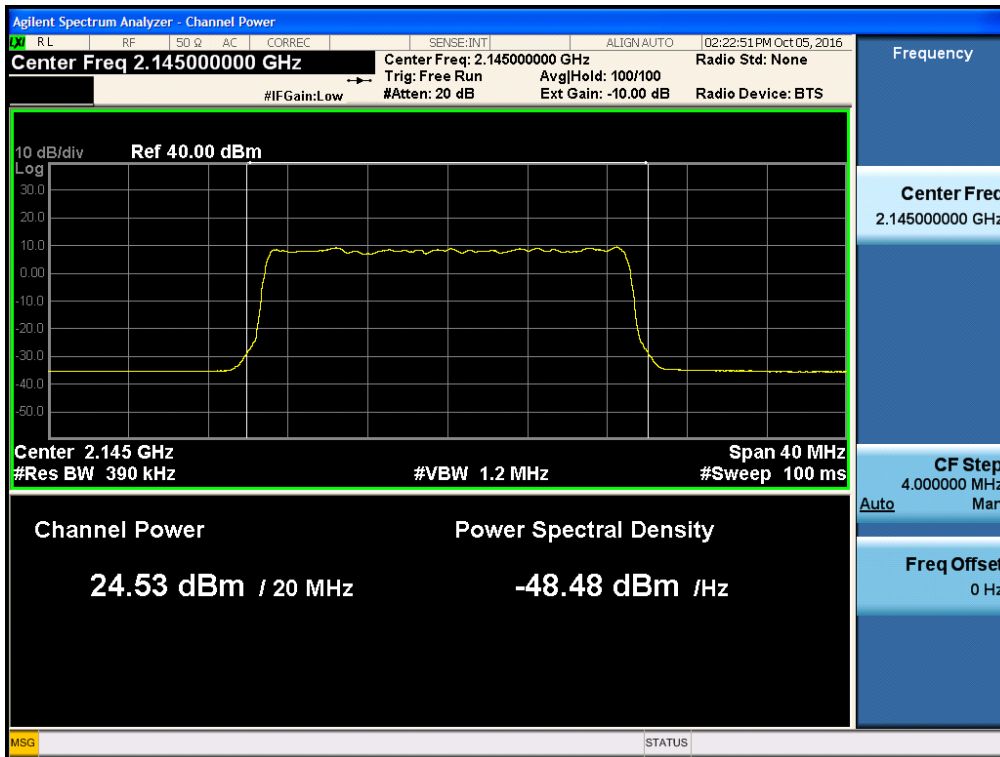
(QPSK High Channel)



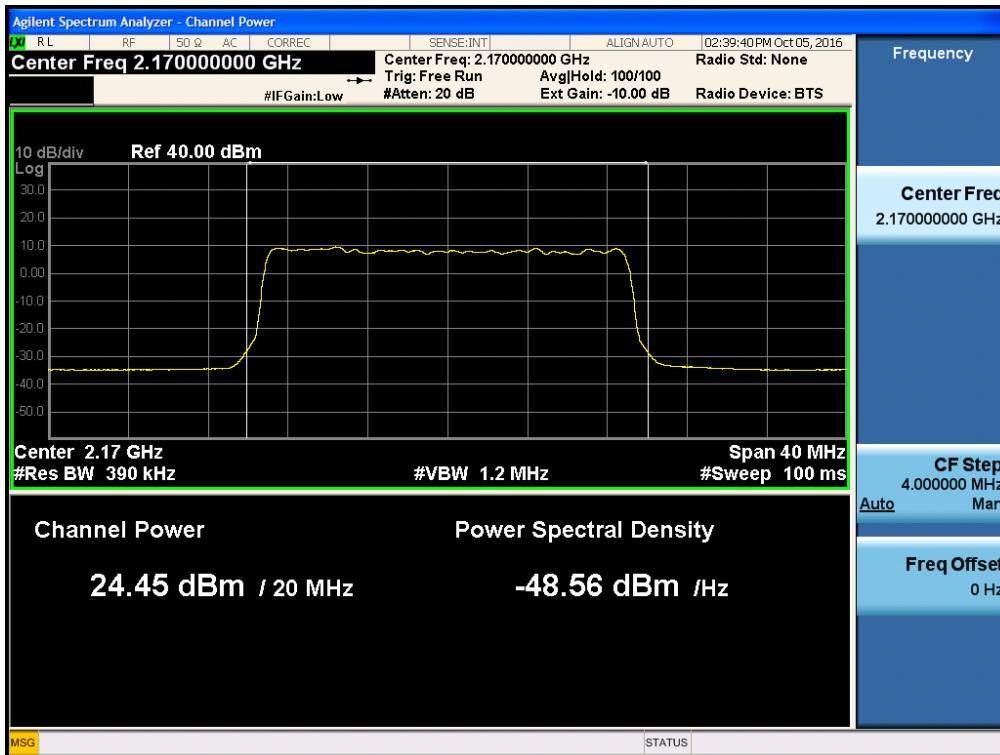
(16QAM Low Channel)



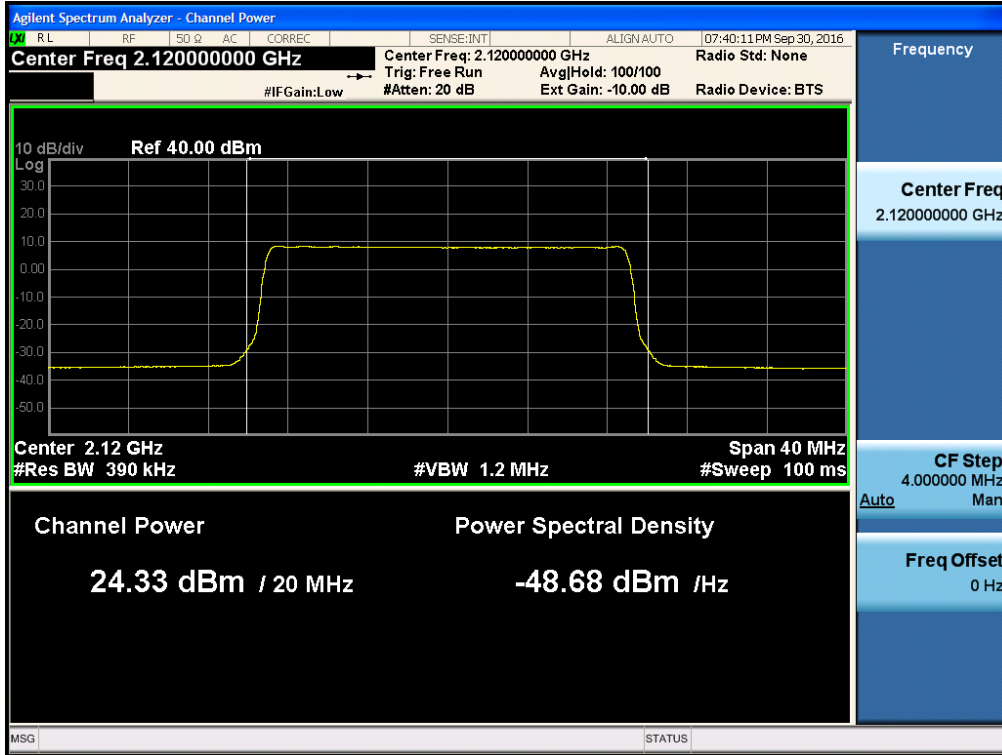
(16QAM Middle Channel)



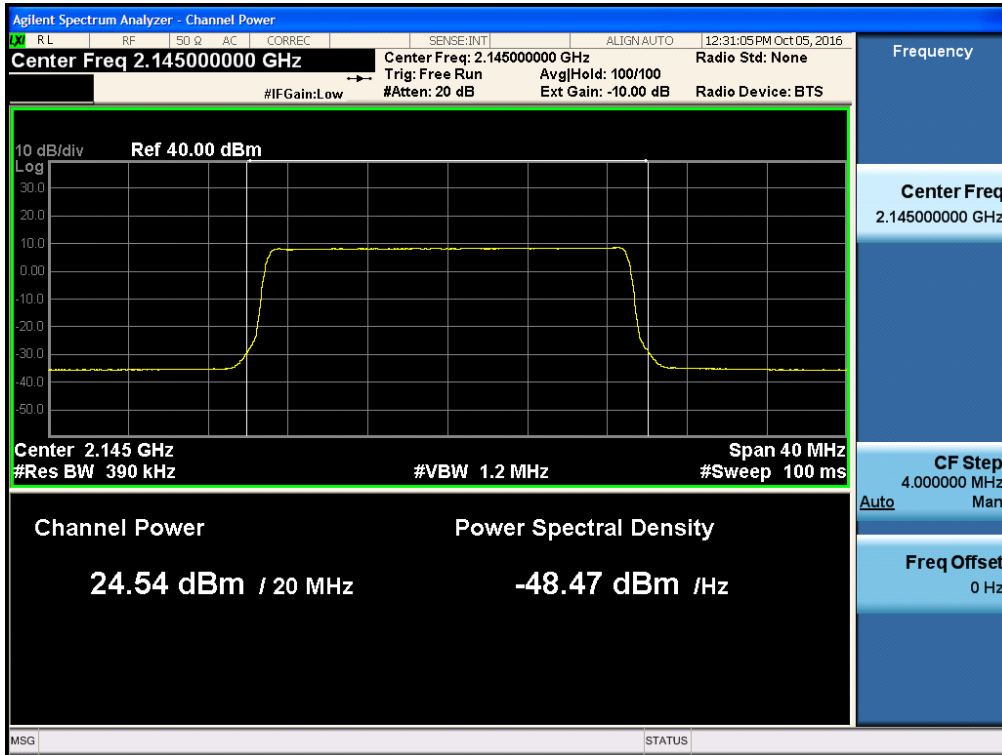
(16QAM High Channel)



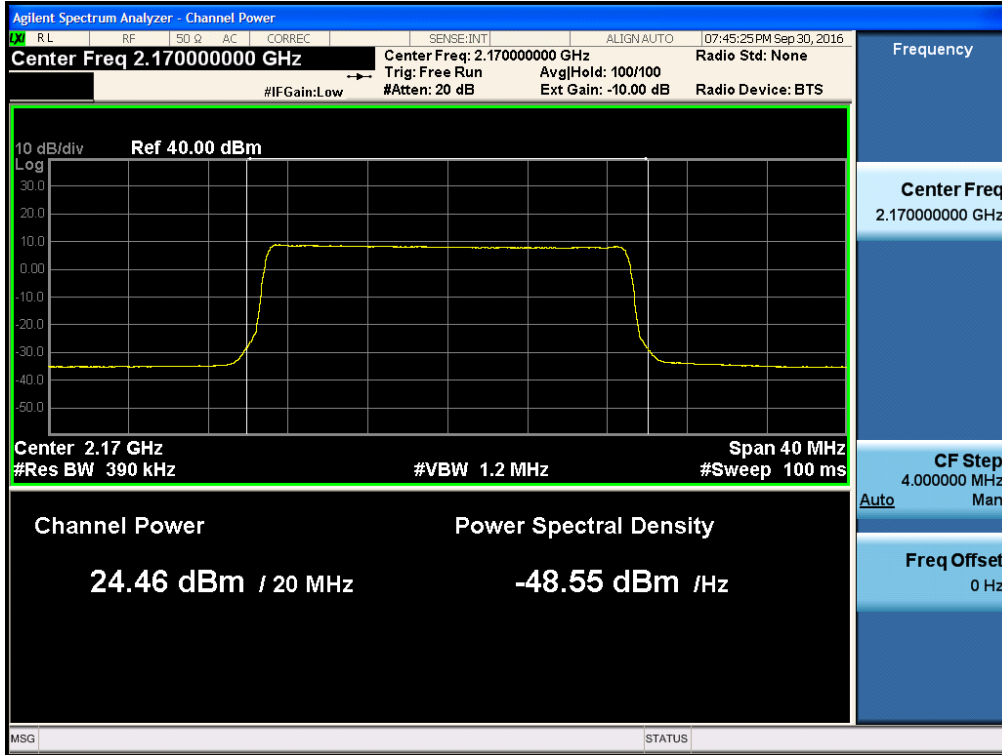
(64QAM Low Channel)



(64QAM Middle Channel)



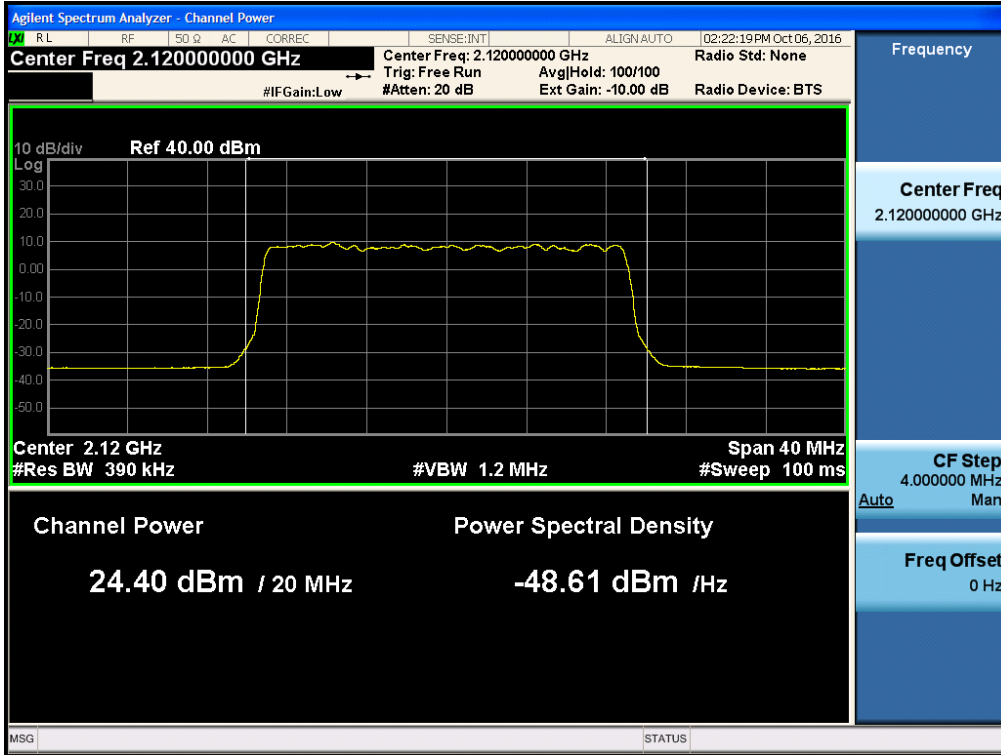
(64QAM High Channel)



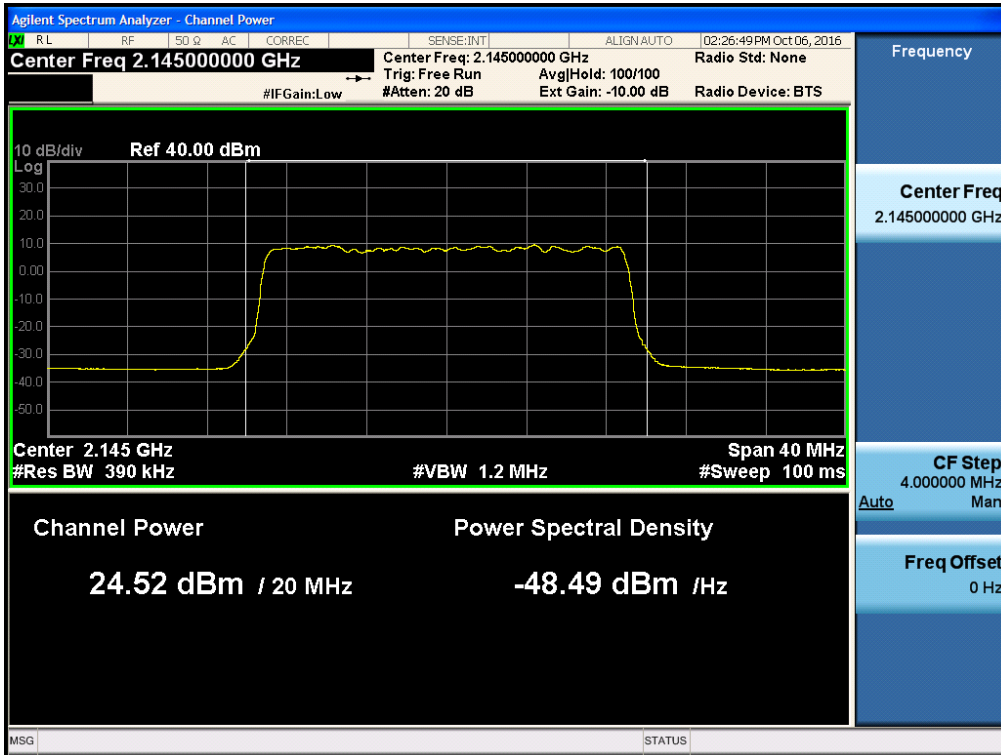
AWS 2100_LTE 20 MHz

Plot Data for Output Port 1 (Conducted Output Power)

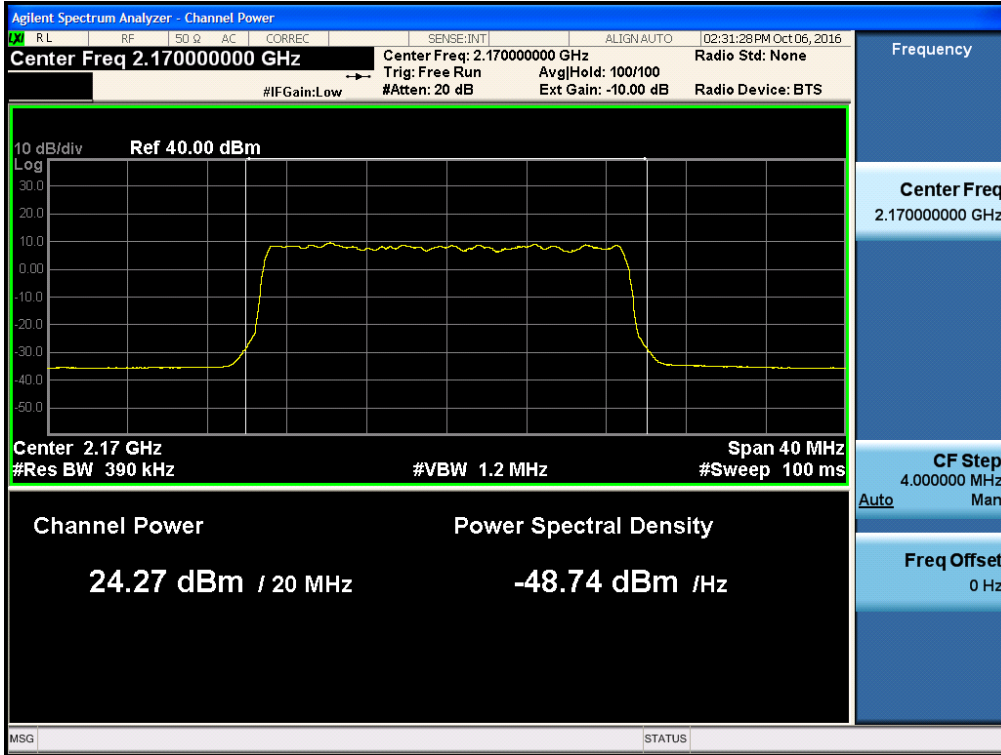
(QPSK Low Channel)



(QPSK Middle Channel)



(QPSK High Channel)



(16QAM Low Channel)

