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:
August 7, 2017
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-1707-F009-2
HCT FRN: 0005866421

FCC ID:	**A3LRFV01U-D2A**
APPLICANT:	**SAMSUNG Electronics Co.,Ltd.**

FCC Model:	RFV01U-D2A
EUT Type:	RRU(RFV01U)
Frequency Range:	TX : 746 ~ 756 MHz (Band 13) / 869 ~ 894 MHz (Band 5) RX : 777 ~ 787 MHz (Band 13) / 824 ~ 849 MHz (Band 5)
Conducted Output Power:	Band 13 : 40W/path x 4 paths or 60W/path x 2 paths (Max output power :160W) Band 5 : 40W/path x 4 paths or 60W/path x 2 paths (Max output power :160W)
FCC Rule Part(s):	CFR 47 Part 2, Part 22, Part 27
Data of Test:	June 28, 2017 ~ July 21, 2017

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
Engineer of Telecommunication testing center

Approved by : Jong Seok Lee
Manager of Telecommunication testing center

Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-R-1707-F009	July 13, 2017	- First Approval Report
HCT-R-1707-F009-1	July 28, 2017	- Removed the KDB 935210. - Added the PSD result for ERP on Section 5.
HCT-R-1707-F009-2	August 7, 2017	- Added the MIMO Power table.

Table of Contents

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	RRU(RFV01U)
POWER SUPPLY	-48 VDC
EMISSION DESIGNATOR	(see table below)
FREQUENCY RANGES	TX : 746 ~ 756 MHz (Band 13) / 869 ~ 894 MHz (Band 5) RX : 777 ~ 787 MHz (Band 13) / 824 ~ 849 MHz (Band 5)
TX OUTPUT POWER	Band 13 : 40W/path x 4 paths or 60W/path x 2 paths (Max output power :160W) Band 5 : 40W/path x 4 paths or 60W/path x 2 paths (Max output power :160W)
CHANNEL BANDWIDTH	LTE 13 : 10 MHz / LTE 5 : 5 MHz, 10 MHz
MEASUREMENT STANDARDS	ANSI/TIA-603-C-2004, KDB 971168 D01 v02r02
MODULATION TYPE	QPSK, 16QAM, 64QAM, 256QAM

EMISSION DESIGNATOR:

Mode (MHz)	Tx Frequency (MHz)	Emission Designator	
		QPSK (G7D)	16QAM/64QAM/256QAM (W7D)
LTE Band 13 (10)	751	8M98G7D	8M99W7D
LTE Band 5 (5)	871.5 ~ 891.5	4M51G7D	4M51W7D
LTE Band 5 (10)	874 ~ 889	9M00G7D	9M01W7D
LTE Band 5 (5 + 5)	871.5 ~ 891.5	24M57G7D	24M56W7D
LTE Band 5 (10 + 10)	874 ~ 889	23M95G7D	23M95W7D
LTE Band 5 (10 + 5 + 10)	874 ~ 889	23M86G7D	23M90W7D

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 2, Part 22, Part 27

SECTION	TEST ITEMS	RESULTS
§2.1046, §22.913, §27.50(b)	Conducted Output Power	Compliant
§2.1049	Occupied Bandwidth	Compliant
§2.1051, §22.917, §27.53(c)	Spurious Emissions at Antenna Terminals	Compliant
§2.1051, §22.917, §27.53(c)	Band edge	Compliant
§2.1053, §22.917, §27.53(c)	Spurious Radiated Emissions.	Compliant
§2.1055, §22.355, §27.54	Frequency Stability	Compliant

3.2. MODE OF OPERATION DURING THE TEST

The EUT is 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, 64QAM and 256 QAM) modes were tested.

Test results are only attached worst cases.

3.3. MAXIMUM MEASUREMENTUNCERTAINTY

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
Spurious Emissions at Antenna Terminals	-	± 1.08 dB
Radiated Spurious Emissions	f ≤ 1 GHz f > 1 GHz	± 4.80 dB ± 6.07 dB
Frequency Stability	-	± 1.22 x 10^{-6}

3.4. STANDARDS ENVIRONMENTAL TEST CONDITIONS

Temperature :	**+ 15 ℃ to + 35 ℃**
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	N9020A / MXA Signal Analyzer	06/13/2017	Annual	MY51110085
Weinschel	67-30-33 / Fixed Attenuator	02/09/2017	Annual	CC7264
Weinschel	67-30-33 / Fixed Attenuator	02/09/2017	Annual	BU5347
Weinschel	67-30-33 / Fixed Attenuator	09/22/2016	Annual	N/A
Weinschel	67-30-33 / Fixed Attenuator	09/22/2016	Annual	N/A
HP	6674A / System DC Power Supply	07/26/2016	Annual	3501A-00901
KIKUSUI	PWR800L / Regulated DC Power Supply	02/17/2017	Annual	NC02086-2
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	04/19/2017	Biennial	1513-175
Schwarzbeck	VULB 9168 / Hybrid Antenna	04/06/2017	Biennial	760
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	04/10/2017	Annual	4
CERNEX	CBLU1183540 / Power Amplifier	01/25/2017	Annual	24614

5. CONDUCTED OUTPUT POWER

Test Requirements:

§ 22.913 Effective radiated power limits.

Licensees in the Cellular Radiotelephone Service are subject to the effective radiated power (ERP) limits and other requirements in this Section. *See also* §22.169.

(a) *Maximum ERP.* The ERP of transmitters in the Cellular Radiotelephone Service must not exceed the limits in this section.

(1) Except as described in paragraphs (a)(2), (3), and (4) of this section, the ERP of base stations and repeaters must not exceed—

(i) 500 watts per emission; or

(ii) 400 watts/MHz (PSD) per sector.

(2) Except as described in paragraphs (a)(3) and (4) of this section, for systems operating in areas more than 72 kilometers (45 miles) from international borders that:

(i) Are located in counties with population densities of 100 persons or fewer per square mile, based upon the most recently available population statistics from the Bureau of the Census; or

(ii) Extend coverage into Unserved Area on a secondary basis (*see* §22.949), the ERP of base transmitters and repeaters must not exceed—

(A) 1000 watts per emission; or

(B) 800 watts/MHz (PSD) per sector.

(3) Provided that they also comply with paragraphs (b) and (c) of this section, licensees are permitted to operate their base transmitters and repeaters with an ERP greater than 400 watts/MHz (PSD) per sector, up to a maximum ERP of 1000 watts/MHz (PSD) per sector unless they meet the conditions in paragraph (a)(4) of this section.

(4) Provided that they also comply with paragraphs (b) and (c) of this section, licensees of systems operating in areas more than 72 kilometers (45 miles) from international borders that:

(i) Are located in counties with population densities of 100 persons or fewer per square mile, based upon the most recently available population statistics from the Bureau of the Census; or

(ii) Extend coverage into Unserved Area on a secondary basis (*see* §22.949), are permitted to operate base transmitters and repeaters with an ERP greater than 800 watts/MHz (PSD) per sector, up to a maximum of 2000 watts/MHz (PSD) per sector.

(5) The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

§27.50 Power limits and duty cycle.

(b) The following power and antenna height limits apply to transmitters operating in the 746-758 MHz, 775-788 MHz and 805-806 MHz bands:

(1) Fixed and base stations transmitting a signal in the 757-758 and 775-776 MHz bands must not exceed an effective radiated power (ERP) of 1000 watts and an antenna height of 305 m height above average terrain (HAAT), except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts ERP in accordance with Table 1 of this section.

(2) Fixed and base stations transmitting a signal in the 746-757 MHz and 776-787 MHz bands with an emission bandwidth of 1 MHz or less must not exceed an ERP of 1000 watts and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts ERP in accordance with Table 1 of this section.

(3) Fixed and base stations located in a 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, and transmitting a signal in the 746-757 MHz and 776-787 MHz bands with an emission bandwidth of 1 MHz or less must not exceed an ERP of 2000 watts and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 2000 watts ERP in accordance with Table 2 of this section.

(4) Fixed and base stations transmitting a signal in the 746-757 MHz and 776-787 MHz bands with an emission bandwidth greater than 1 MHz must not exceed an ERP of 1000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts/MHz ERP in accordance with Table 3 of this section.

(5) Fixed and base stations located in a 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, and transmitting a signal in the 746-757 MHz and 776-787 MHz bands with an emission bandwidth greater than 1 MHz must not exceed an ERP of 2000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 2000 watts/MHz ERP in accordance with Table 4 of this section.

(6) Licensees of fixed or base stations transmitting a signal in the 746-757 MHz and 776-787 MHz bands at an ERP greater than 1000 watts must comply with the provisions set forth in paragraph (b)(8) of this section and §27.55(c).

(7) Licensees seeking to operate a fixed or base station located in a 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, and transmitting a signal in the 746-757 MHz and 776-787 MHz bands at an ERP greater than 1000 watts must:

(i) Coordinate in advance with all licensees authorized to operate in the 698-758 MHz, 775-788, and 805-806 MHz bands within 120 kilometers (75 miles) of the base or fixed station;

(ii) coordinate in advance with all regional planning committees, as identified in §90.527 of this chapter, with jurisdiction within 120 kilometers (75 miles) of the base or fixed station.

(8) Licensees authorized to transmit in the 746-757 MHz and 776-787 MHz bands and intending to operate a base or fixed station at a power level permitted under the provisions of paragraph (b)(6) of this section must provide advanced notice of such operation to the Commission and to licensees authorized in their area of operation. Licensees who must be notified are all licensees authorized to operate in the 758-775 MHz and 788-805 MHz bands under part 90 of this chapter within 75 km of the base or fixed station and all regional planning committees, as identified in §90.527 of this chapter, with jurisdiction within 75 km of the base or fixed station. Notifications must provide the location and operating parameters of the base or fixed station, including the station's ERP, antenna coordinates, antenna height above ground, and vertical antenna pattern, and such notifications must be provided at least 90 days prior to the commencement of station operation.

(9) Control stations and mobile stations transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands and fixed stations transmitting in the 787-788 MHz and 805-806 MHz bands are limited to 30 watts ERP.

(10) Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

(11) For transmissions in the 757-758, 775-776, 787-788, and 805-806 MHz bands, maximum composite transmit power shall be measured over any interval of continuous transmission using instrumentation calibrated in terms of RMS-equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, etc., so as to obtain a true maximum composite measurement for the emission in question over the full bandwidth of the channel.

(12) For transmissions in the 746-757 and 776-787 MHz bands, licensees may employ equipment operating in compliance with either the measurement techniques described in paragraph (b)(11) of this section or a Commission-approved average power technique. In both instances, equipment employed must be authorized in accordance with the provisions of §27.51.

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 lost 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 meaured at each antenna port and then summed mathmatically to determine the total emission level from the device. (500m W = 250mW x 2 Ports)

Test Results:

LTE Band 13_1 Carrier

Test Data at Output Port 1 (2 paths)

Frequency (MHz)	Output Power							
	QPSK		16QAM		64QAM		256QAM	
	dBm	W	dBm	W	dBm	W	dBm	W
751	47.60	57.544	47.55	56.885	47.56	57.016	47.56	57.016

Test Data at Output Port 2 (2 paths)

Frequency (MHz)	Output Power							
	QPSK		16QAM		64QAM		256QAM	
	dBm	W	dBm	W	dBm	W	dBm	W
751	47.56	57.016	47.56	57.016	47.02	50.350	47.54	56.754

Test Data at Output Port 3 (4 paths)

Frequency (MHz)	Output Power							
	QPSK		16QAM		64QAM		256QAM	
	dBm	W	dBm	W	dBm	W	dBm	W
751	44.87	30.690	44.99	31.550	45.12	32.509	44.76	29.923

Test Data at Output Port 4 (4 paths)

Frequency (MHz)	Output Power							
	QPSK		16QAM		64QAM		256QAM	
	dBm	W	dBm	W	dBm	W	dBm	W
751	44.20	26.303	44.23	26.485	44.31	26.977	44.21	26.363

MIMO Power (60 W / path x 2 paths)

Frequency (MHz)	Output Power			
	QPSK	16QAM	64QAM	256QAM
	W	W	W	W
751	114.560	113.901	107.366	113.770

MIMO Power (40 W / path x 4 paths)

Frequency (MHz)	Output Power			
	QPSK	16QAM	64QAM	256QAM
	W	W	W	W
751	113.986	116.070	118.972	112.572

LTE Band 13_1 Carrier

Plot Data for Output Port 1 (2 paths)

(QPSK)

(16QAM)

(64QAM)

(256QAM)

Plot Data for Output Port 2 (2 paths)

(QPSK)

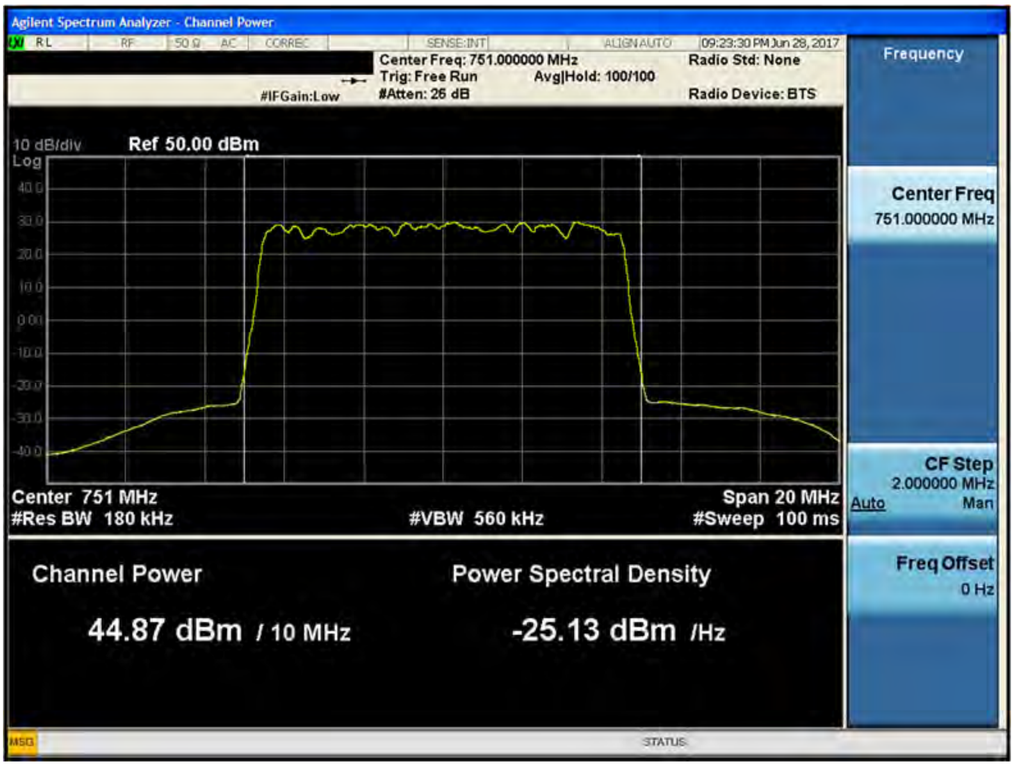
(16QAM)

(64QAM)

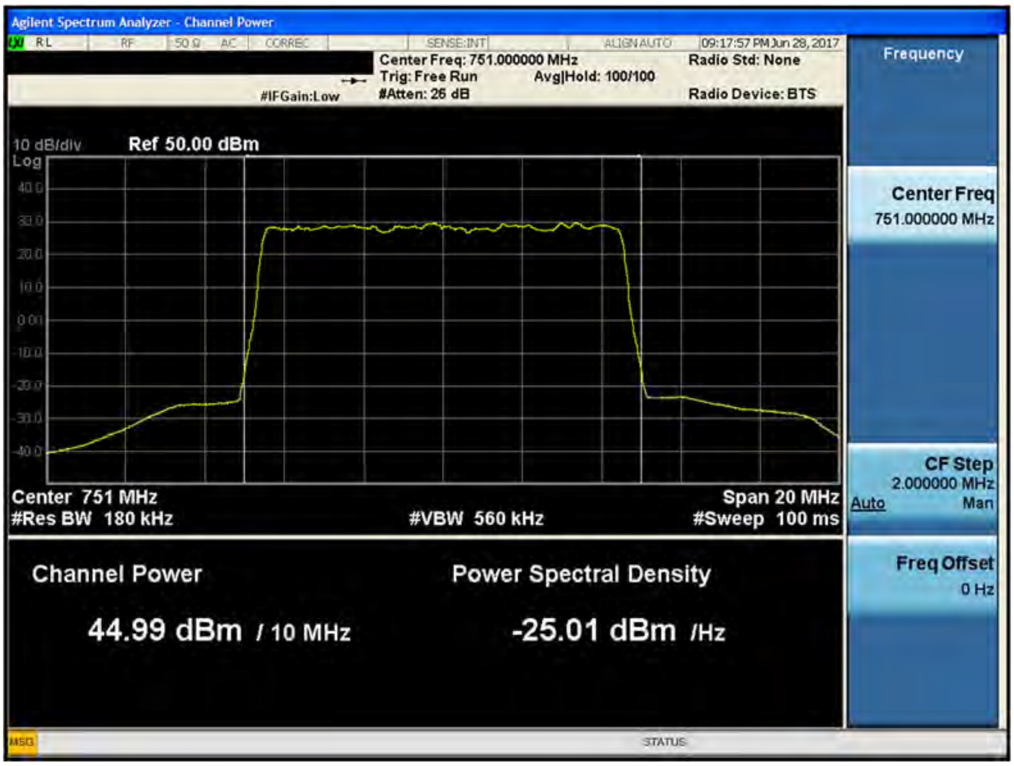
(256QAM)

Plot Data for Output Port 3 (4 paths)

(QPSK)



(16QAM)



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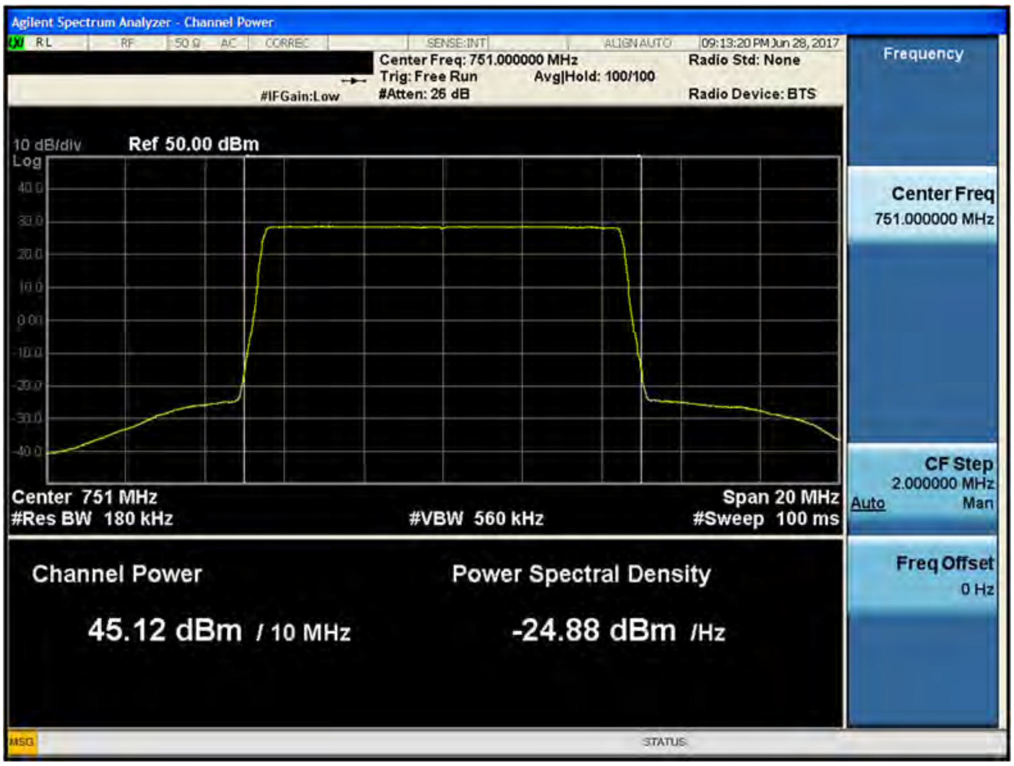

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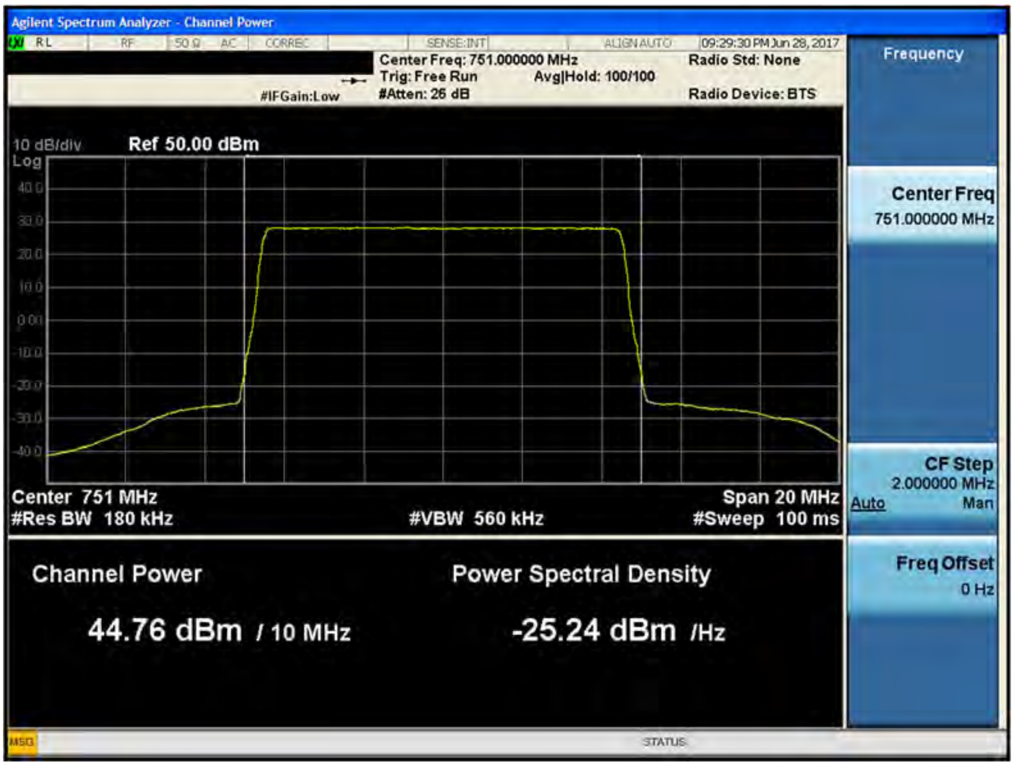


Plot Data for Output Port 4 (4 paths)

(QPSK)

(16QAM)

(64QAM)

(256QAM)

LTE Band 5_1 Carrier (5 MHz)

Test Data at Output Port 1 (2 paths)

Frequency (MHz)	Output Power							
	QPSK		16QAM		64QAM		256QAM	
	dBm	W	dBm	W	dBm	W	dBm	W
871.50	45.94	39.264	45.78	37.844	45.26	33.574	45.82	38.194
881.50	46.09	40.644	46.20	41.687	46.12	40.926	46.17	41.400
891.50	46.09	40.644	46.15	41.210	46.15	41.210	46.18	41.495

Test Data at Output Port 2 (2 paths)

Frequency (MHz)	Output Power							
	QPSK		16QAM		64QAM		256QAM	
	dBm	W	dBm	W	dBm	W	dBm	W
871.50	46.27	42.364	46.15	41.210	46.30	42.658	46.18	41.495
881.50	46.22	41.879	46.08	40.551	46.17	41.400	46.10	40.738
891.50	46.14	41.115	46.23	41.976	46.20	41.687	46.26	42.267

Test Data at Output Port 3 (4 paths)

Frequency (MHz)	Output Power							
	QPSK		16QAM		64QAM		256QAM	
	dBm	W	dBm	W	dBm	W	dBm	W
871.50	42.70	18.621	42.79	19.011	42.85	19.275	42.62	18.281
881.50	42.29	16.943	42.13	16.331	42.35	17.179	42.22	16.672
891.50	42.19	16.558	42.31	17.022	42.16	16.444	42.27	16.866

Test Data at Output Port 4 (4 paths)

Frequency (MHz)	Output Power							
	QPSK		16QAM		64QAM		256QAM	
	dBm	W	dBm	W	dBm	W	dBm	W
871.50	42.83	19.187	42.88	19.409	42.93	19.634	42.99	19.907
881.50	42.89	19.454	43.03	20.091	42.91	19.543	42.94	19.679
891.50	42.97	19.815	42.96	19.770	42.89	19.454	42.98	19.861

MIMO Power (40 W / path x 2 paths)

Frequency (MHz)	Output Power			
	QPSK	16QAM	64QAM	256QAM
	W	W	W	W
871.50	81.628	79.054	76.232	79.689
881.50	82.523	82.238	82.326	82.138
891.50	81.759	83.186	82.897	83.762

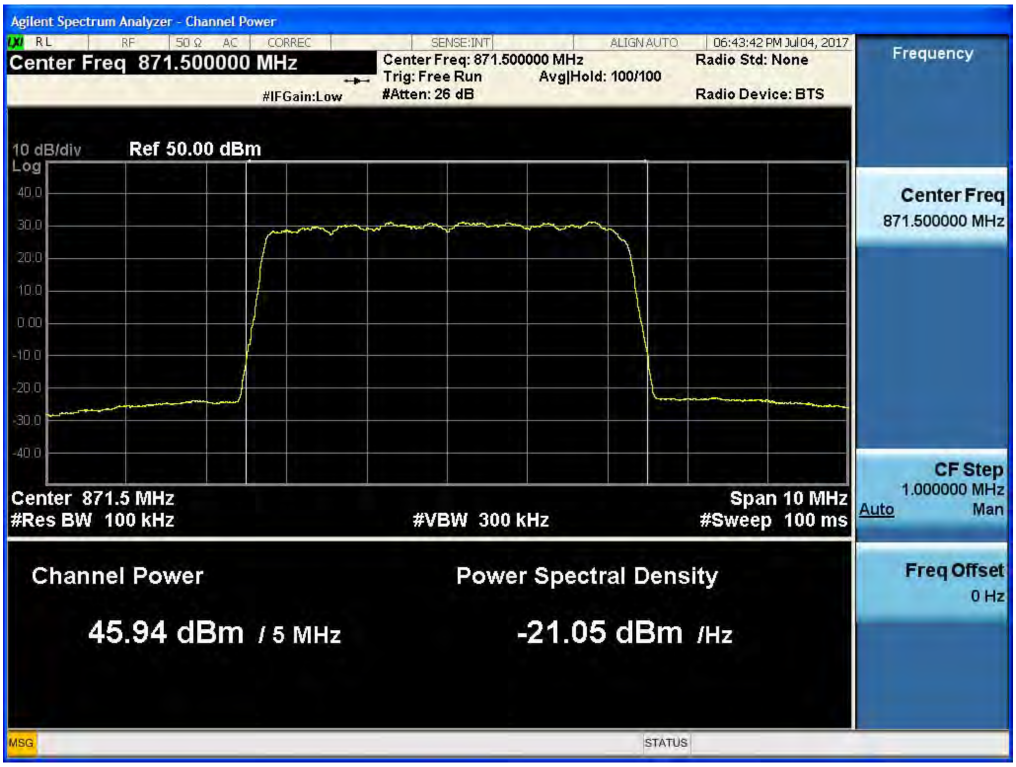
MIMO Power (20 W / path x 4 paths)

Frequency (MHz)	Output Power			
	QPSK	16QAM	64QAM	256QAM
	W	W	W	W
871.50	75.616	76.840	77.818	76.376
881.50	72.794	72.844	73.444	72.702
891.50	72.746	73.584	71.796	73.454

LTE Band 5_1 Carrier (5 MHz)

Plot Data for Output Port 1 (2 paths)

(QPSK Low Channel)



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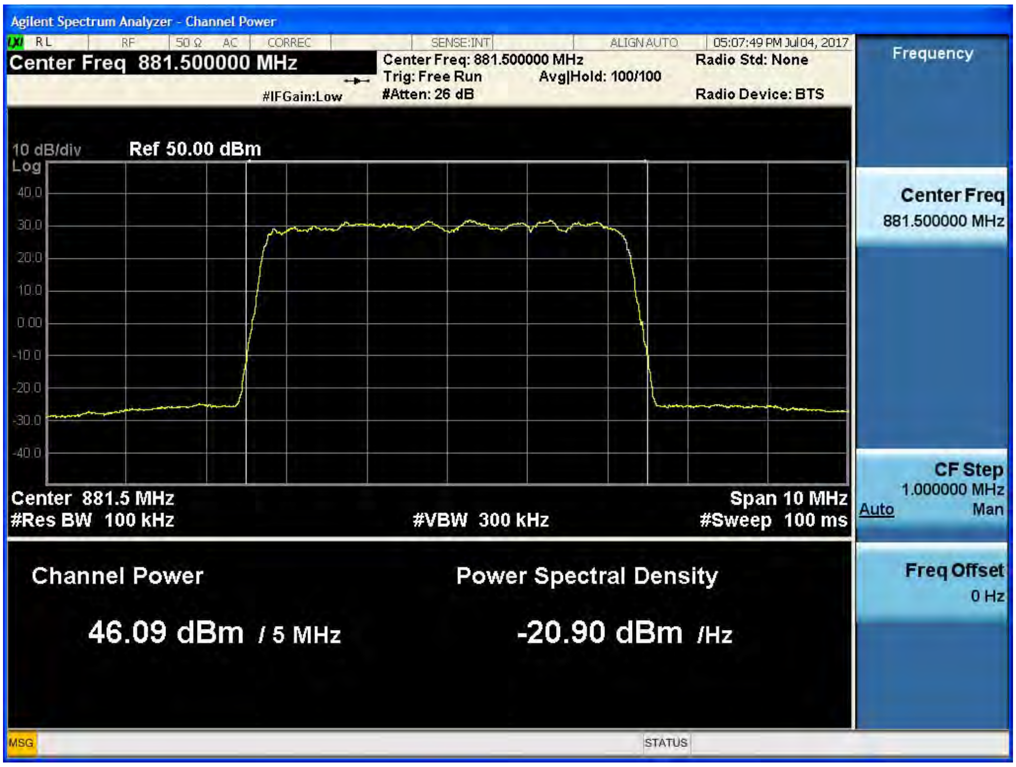
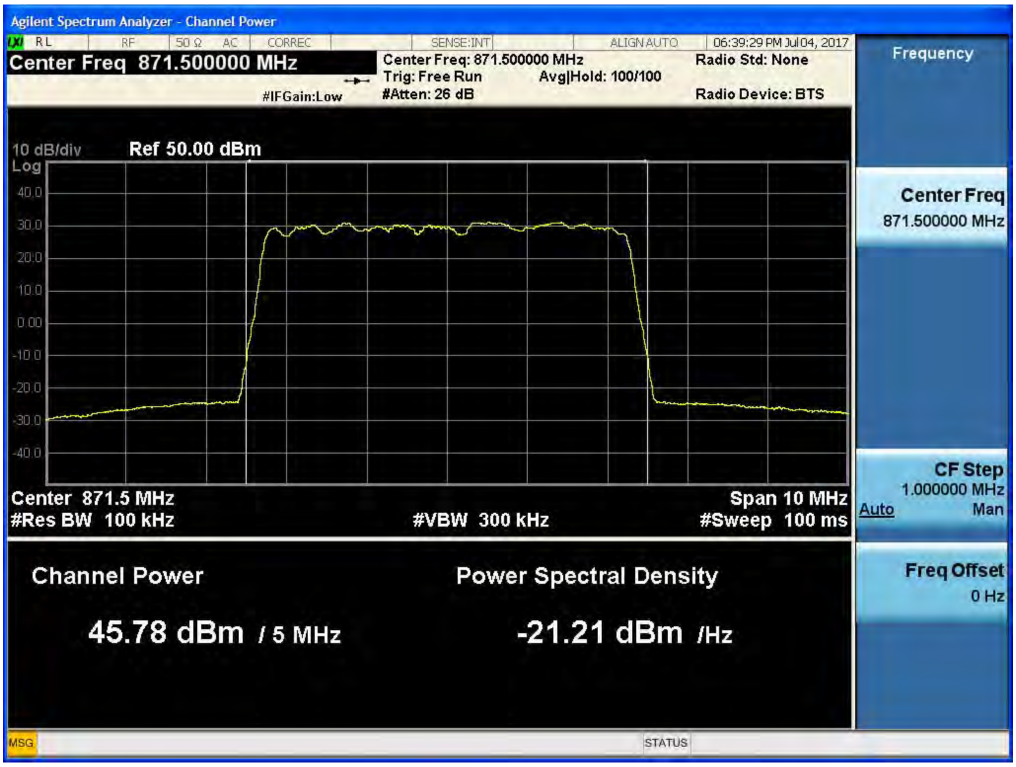


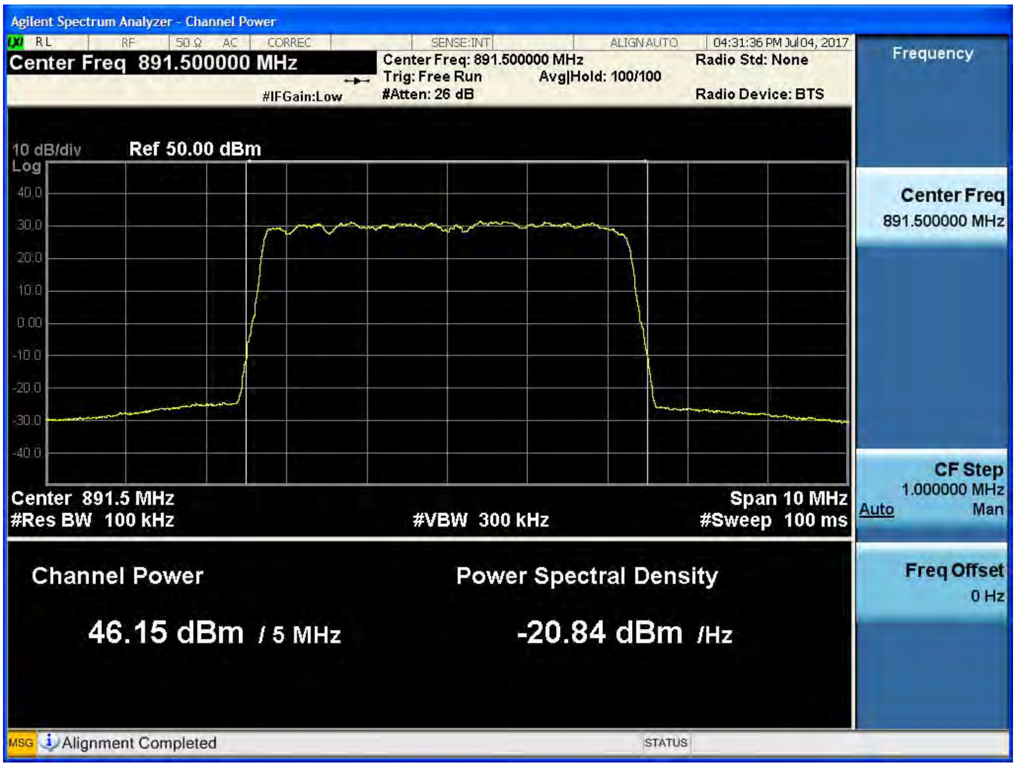
(QPSK High Channel)

(16QAM Low Channel)



(16QAM Middle Channel)

(16QAM High Channel)



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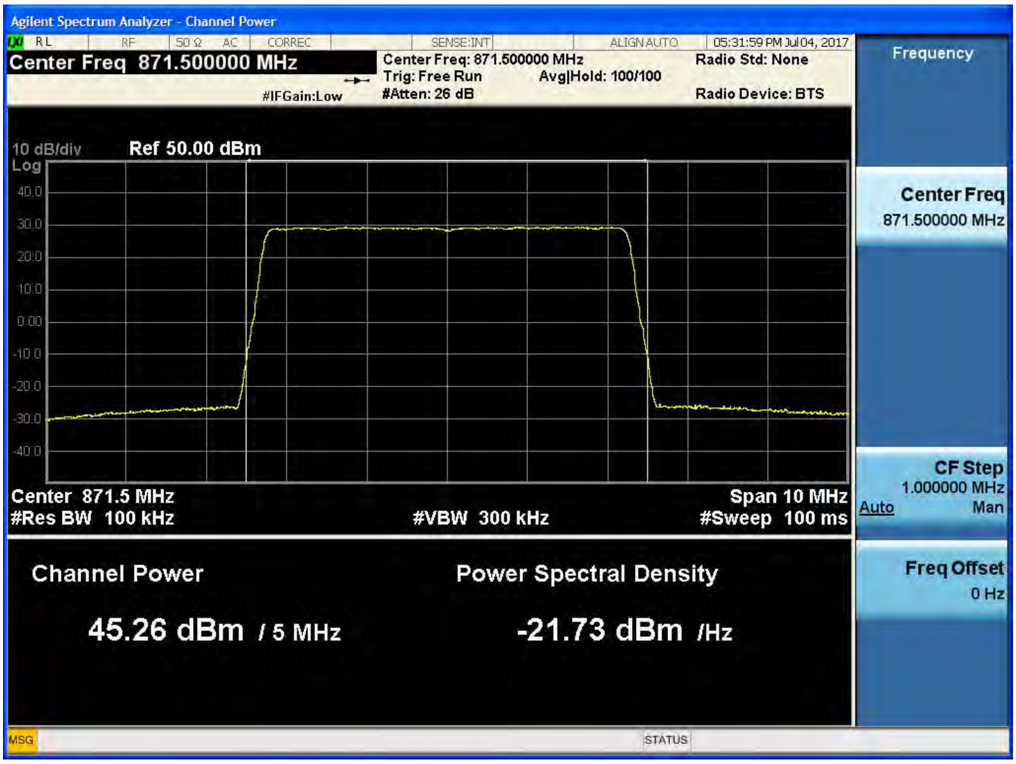
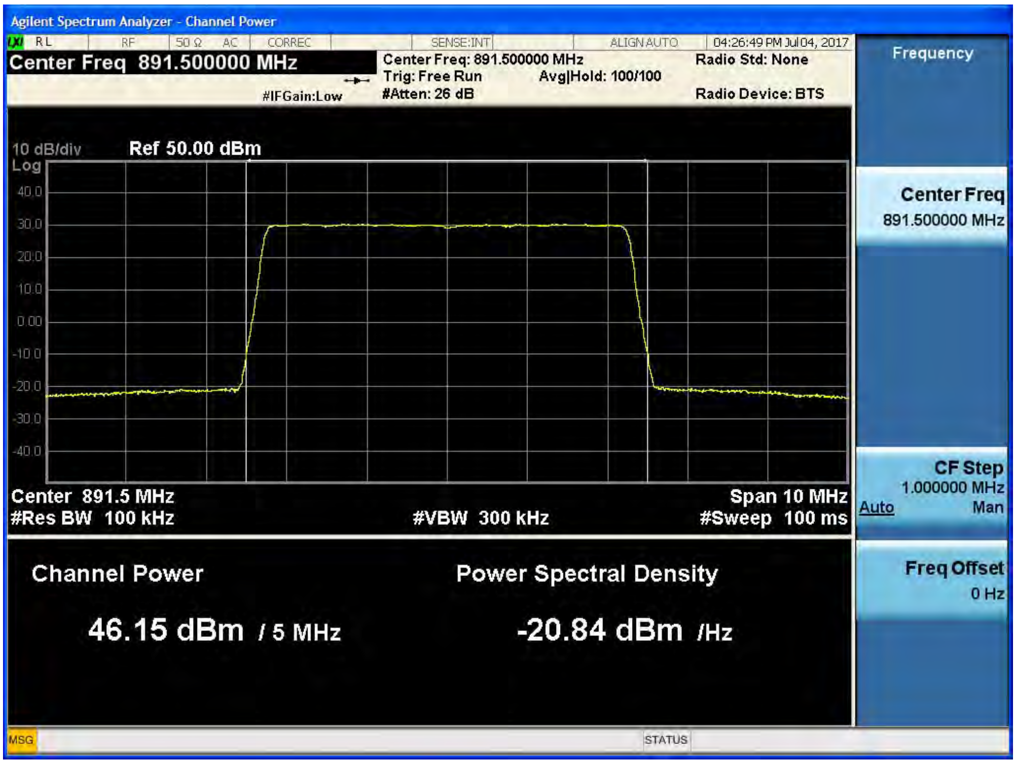


(64QAM Middle Channel)

(64QAM High Channel)



(256QAM Low Channel)

(256QAM Middle Channel)

(256QAM High Channel)

Plot Data for Output Port 2 (2 paths)

(QPSK Low Channel)

(QPSK Middle Channel)

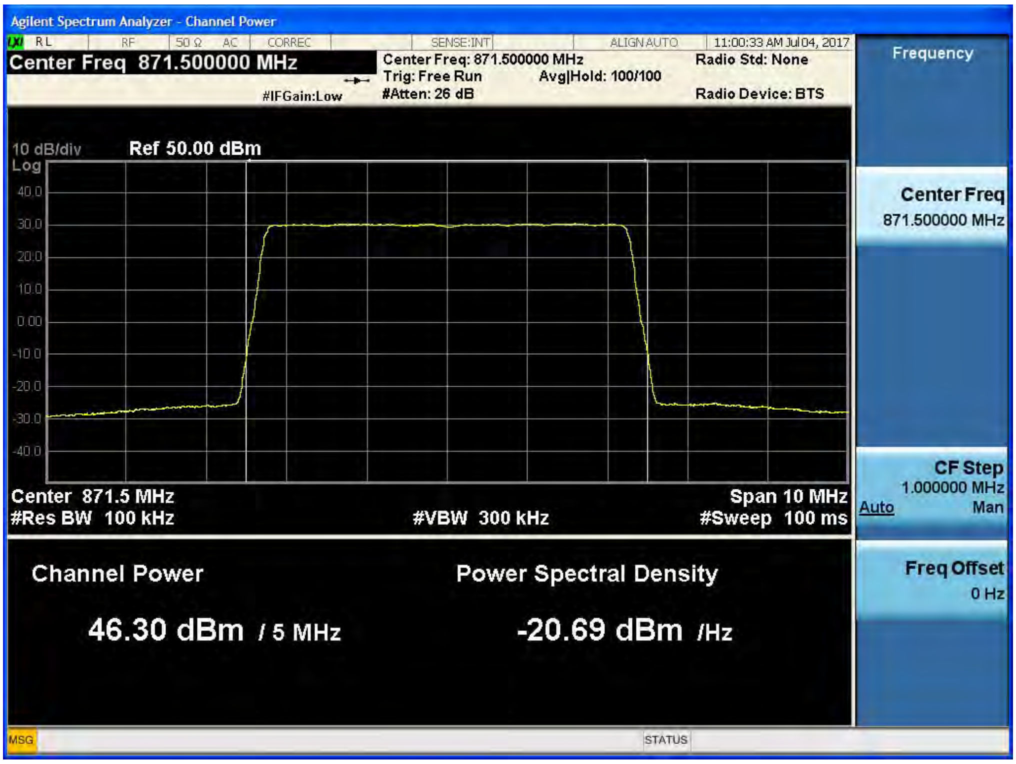
(QPSK High Channel)

(16QAM Low Channel)

(16QAM Middle Channel)

(16QAM High Channel)

(64QAM Low Channel)



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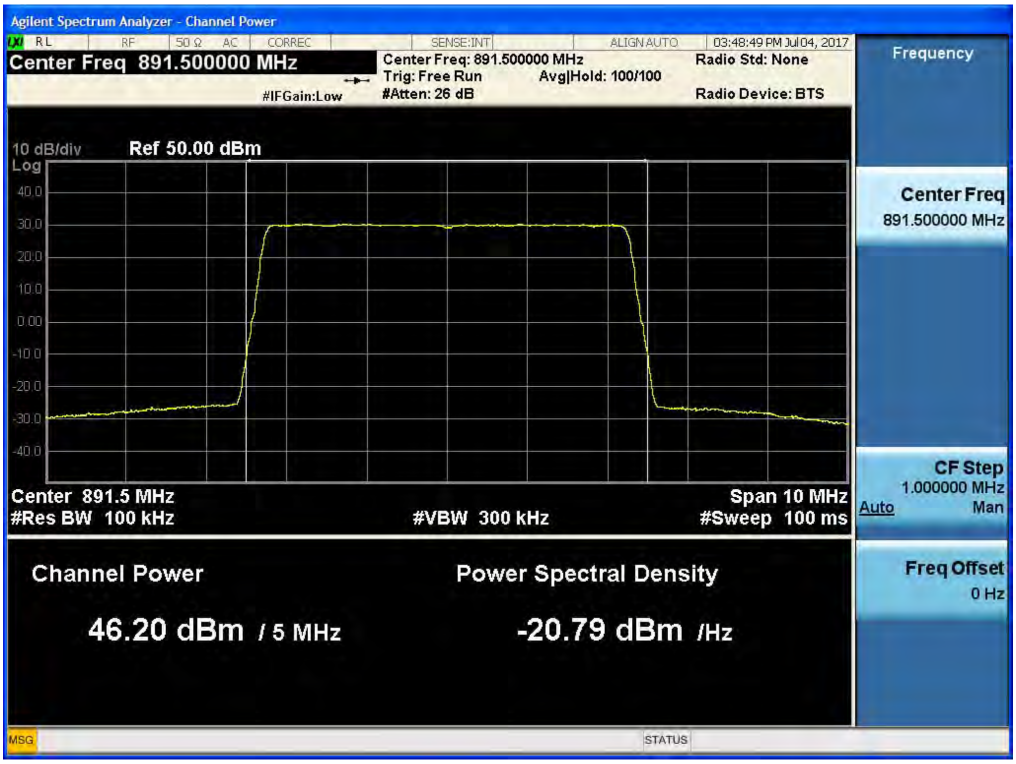
(64QAM High Channel)



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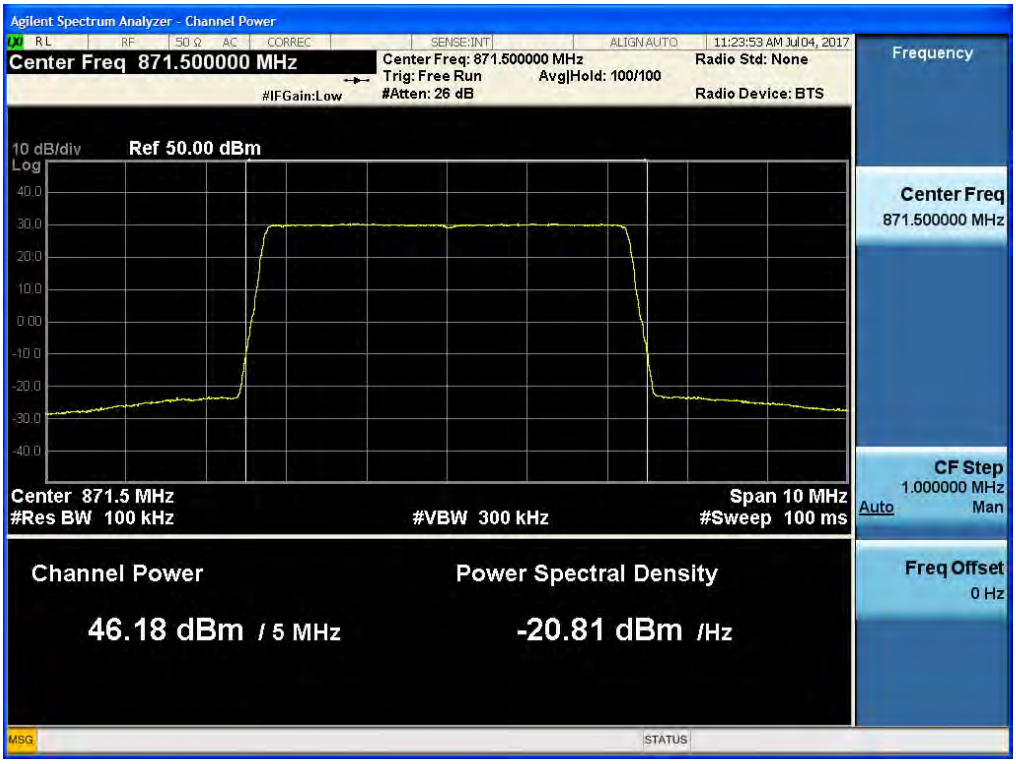


(256QAM Middle Channel)

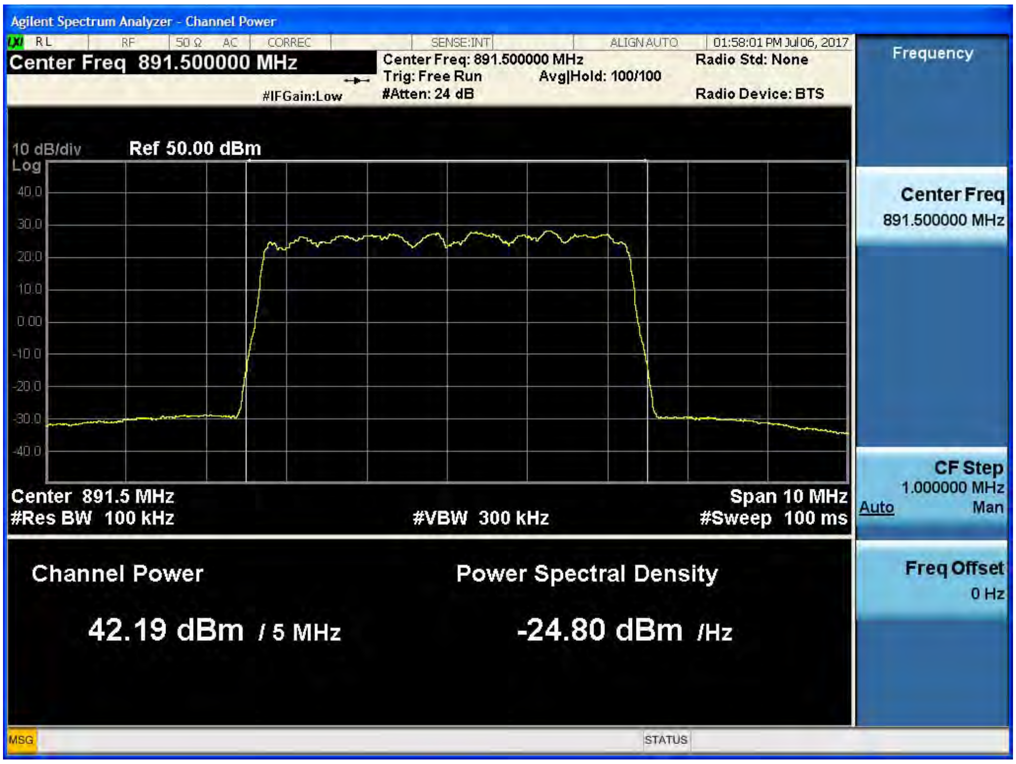
(256QAM High Channel)

Plot Data for Output Port 3 (4 paths)

(QPSK Low Channel)

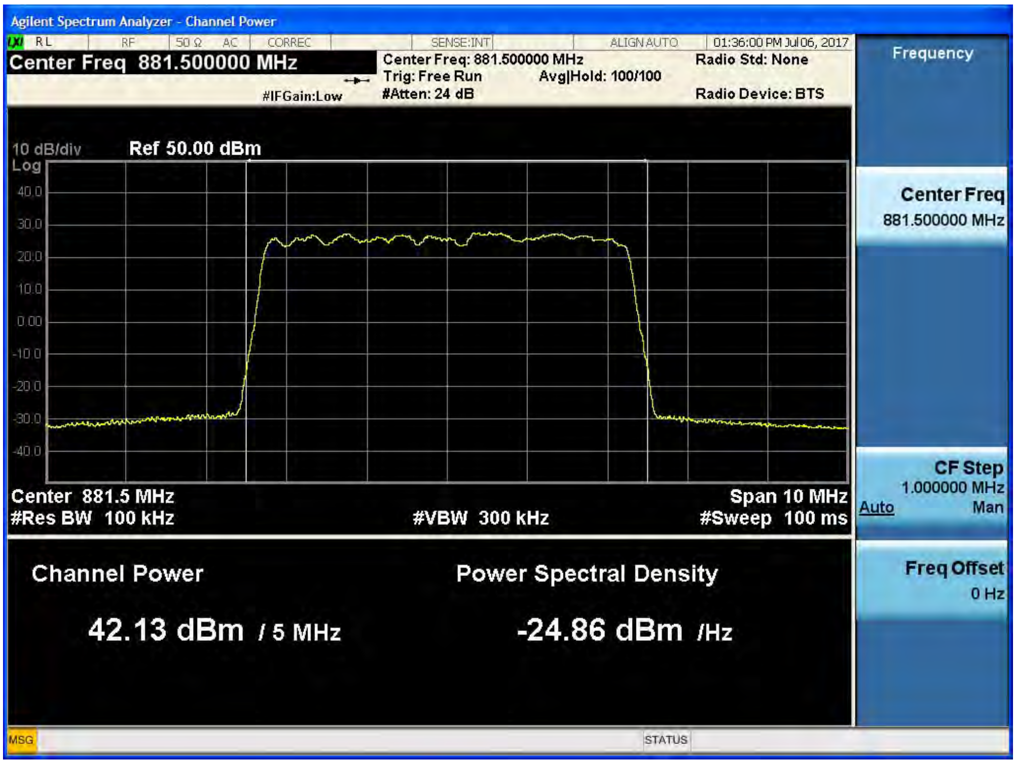
(QPSK Middle Channel)

(QPSK High Channel)



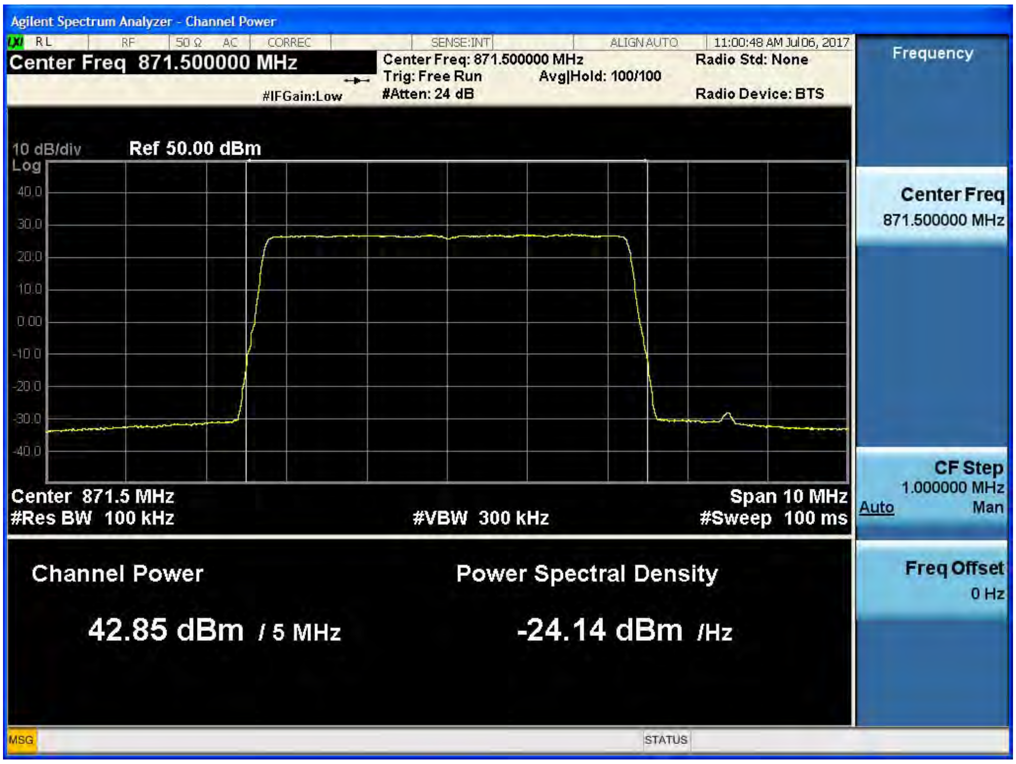
(16QAM Low Channel)

(16QAM Middle Channel)



(16QAM High Channel)

(64QAM Low Channel)



(64QAM Middle Channel)

(64QAM High Channel)

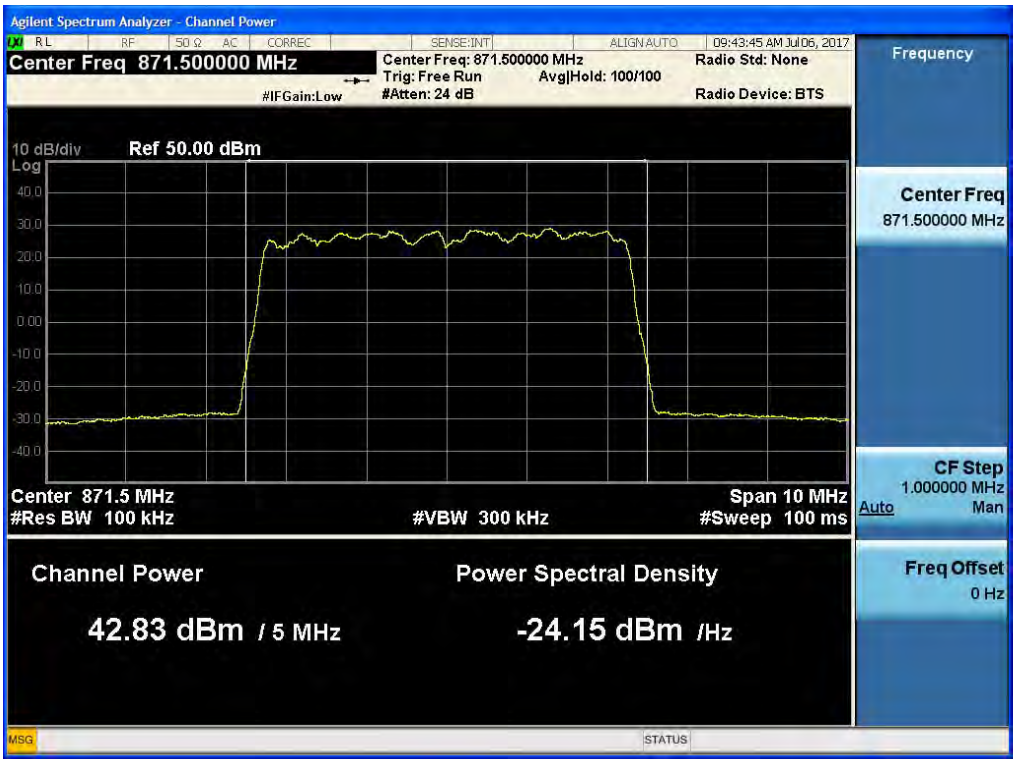
(256QAM Low Channel)

(256QAM Middle Channel)

(256QAM High Channel)

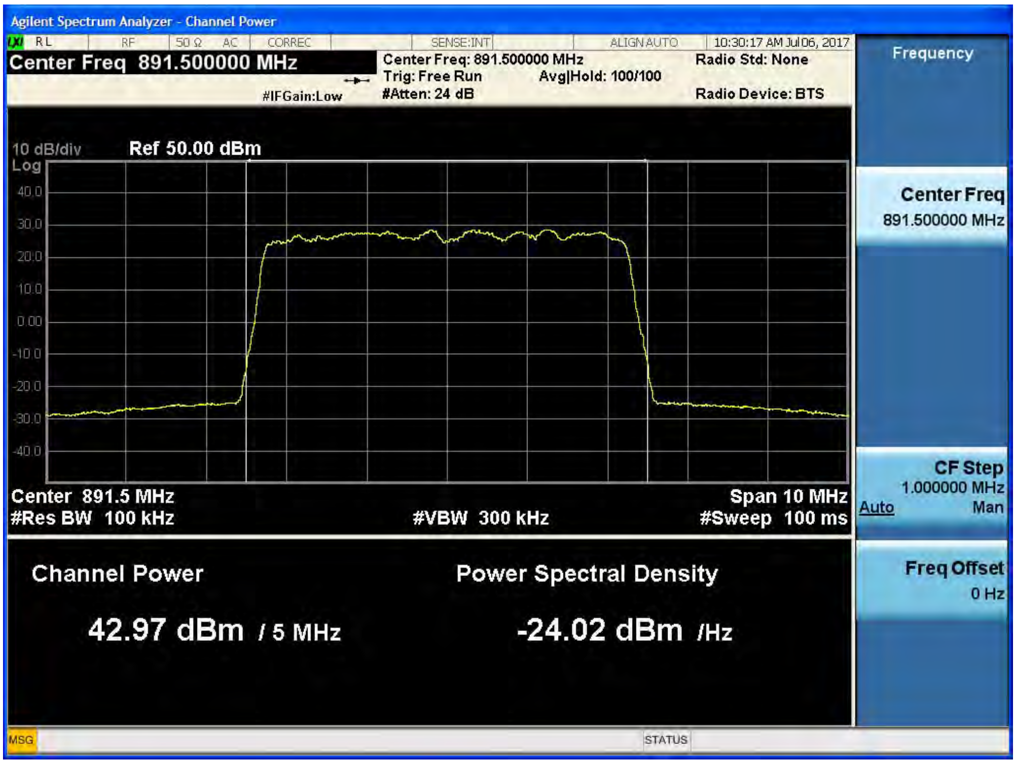
Plot Data for Output Port 4 (4 paths)

(QPSK Low Channel)



(QPSK Middle Channel)

(QPSK High Channel)

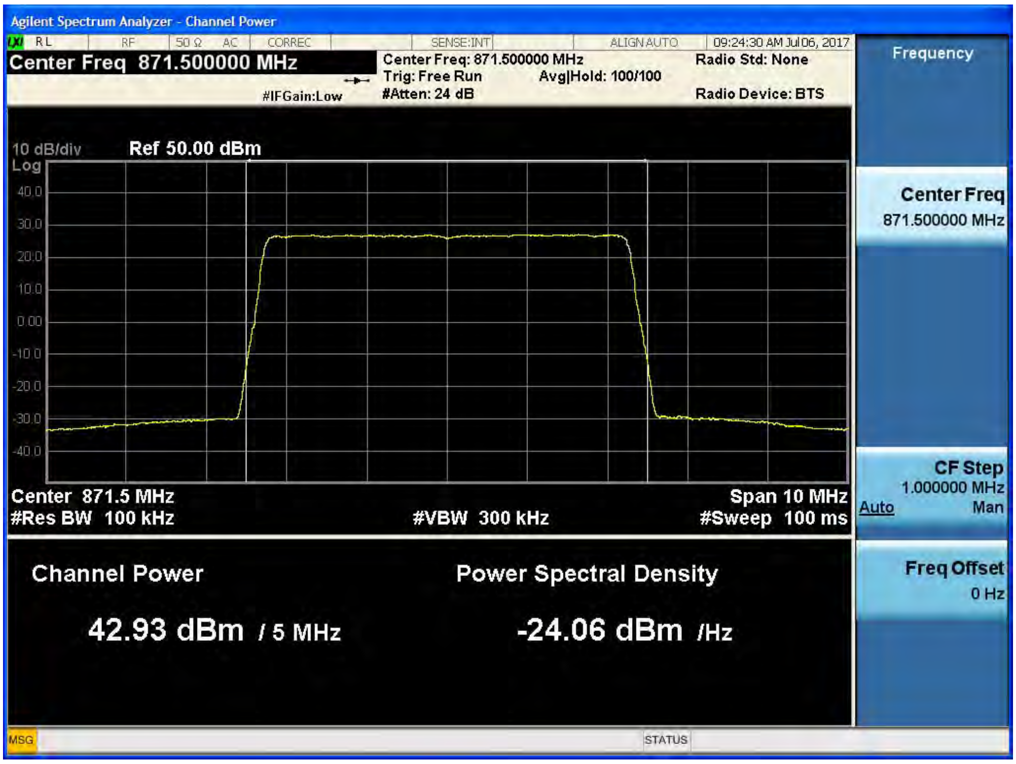


(16QAM Low Channel)

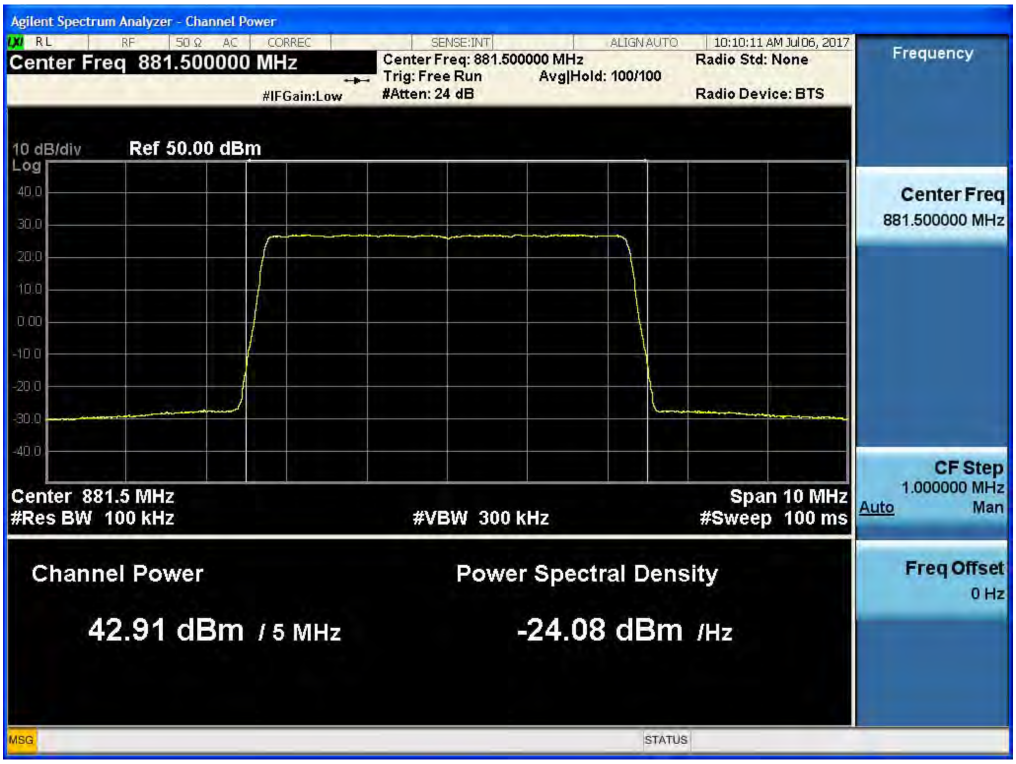
(16QAM Middle Channel)

(16QAM High Channel)

(64QAM Low Channel)



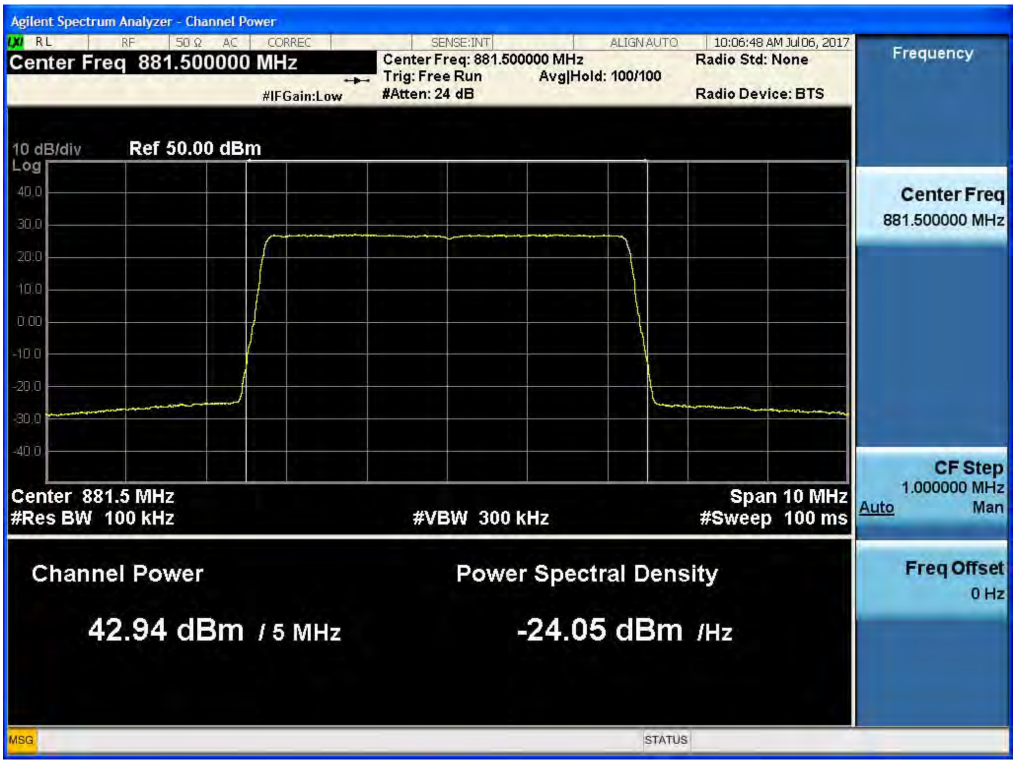
(64QAM Middle Channel)



(64QAM High Channel)

(256QAM Low Channel)

(256QAM Middle Channel)



(256QAM High Channel)

LTE Band 5_1 Carrier (10 MHz)

Test Data at Output Port 1 (2 paths)

Frequency (MHz)	Output Power							
	QPSK		16QAM		64QAM		256QAM	
	dBm	W	dBm	W	dBm	W	dBm	W
874.00	47.95	62.373	47.91	61.802	47.92	61.944	47.93	62.087
881.50	47.80	60.256	47.89	61.518	47.83	60.674	47.88	61.376
889.00	47.93	62.087	47.35	54.325	47.37	54.576	47.95	62.373

Test Data at Output Port 2 (2 paths)

Frequency (MHz)	Output Power							
	QPSK		16QAM		64QAM		256QAM	
	dBm	W	dBm	W	dBm	W	dBm	W
874.00	48.06	63.973	48.04	63.680	48.02	63.387	48.01	63.241
881.50	47.96	62.517	47.93	62.087	47.86	61.094	47.88	61.376
889.00	47.94	62.230	47.93	62.087	47.86	61.094	47.94	62.230

Test Data at Output Port 3 (4 paths)

Frequency (MHz)	Output Power							
	QPSK		16QAM		64QAM		256QAM	
	dBm	W	dBm	W	dBm	W	dBm	W
874.00	45.94	39.264	45.95	39.355	45.88	38.726	44.75	29.854
881.50	44.75	29.854	44.69	29.444	44.73	29.717	44.75	29.854
889.00	44.82	30.339	44.73	29.717	44.79	30.130	44.87	30.690

Test Data at Output Port 4 (4 paths)

Frequency (MHz)	Output Power							
	QPSK		16QAM		64QAM		256QAM	
	dBm	W	dBm	W	dBm	W	dBm	W
874.00	45.57	36.058	44.94	31.189	44.88	30.761	44.95	31.261
881.50	44.87	30.690	44.90	30.903	44.84	30.479	44.85	30.549
889.00	44.92	31.046	45.01	31.696	45.03	31.842	44.90	30.903

MIMO Power (60 W / path x 2 paths)

Frequency (MHz)	Output Power			
	QPSK	16QAM	64QAM	256QAM
	W	W	W	W
874.00	126.346	125.482	125.331	125.328
881.50	122.773	123.605	121.768	122.752
889.00	124.317	116.412	115.670	124.603

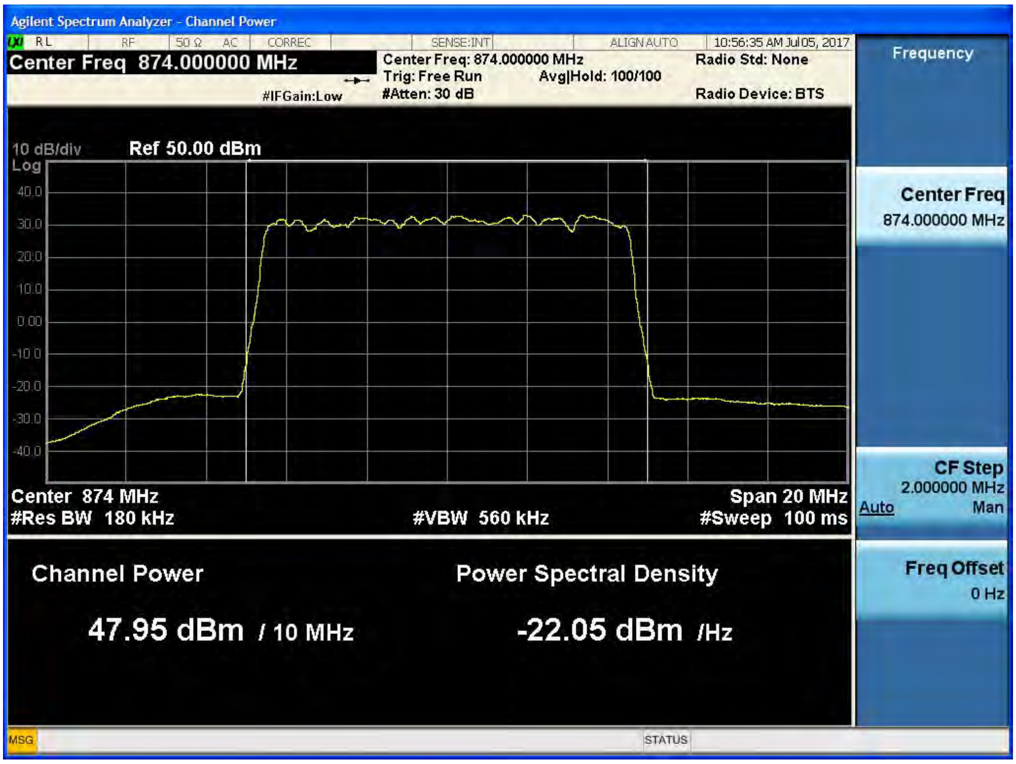
MIMO Power (40 W / path x 4 paths)

Frequency (MHz)	Output Power			
	QPSK	16QAM	64QAM	256QAM
	W	W	W	W
874.00	150.644	141.088	138.974	122.230
881.50	121.088	120.694	120.392	120.806
889.00	122.770	122.826	123.944	123.186

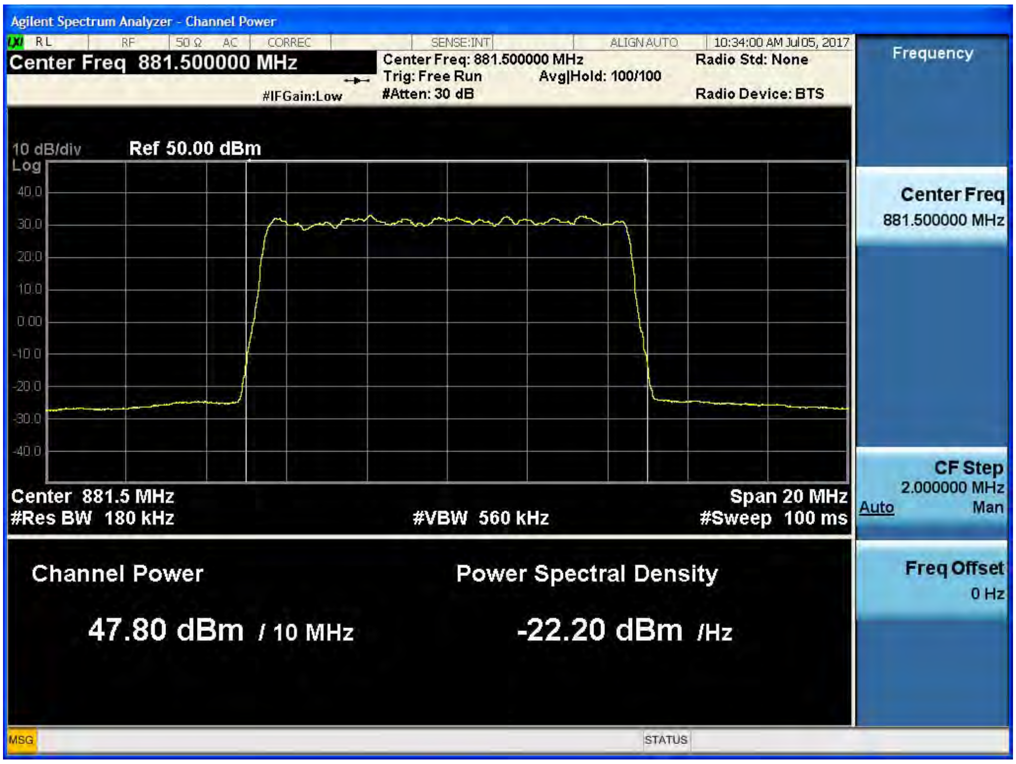
LTE Band 5_1 Carrier (10 MHz)

Plot Data for Output Port 1 (2 paths)

(QPSK Low Channel)



(QPSK Middle Channel)



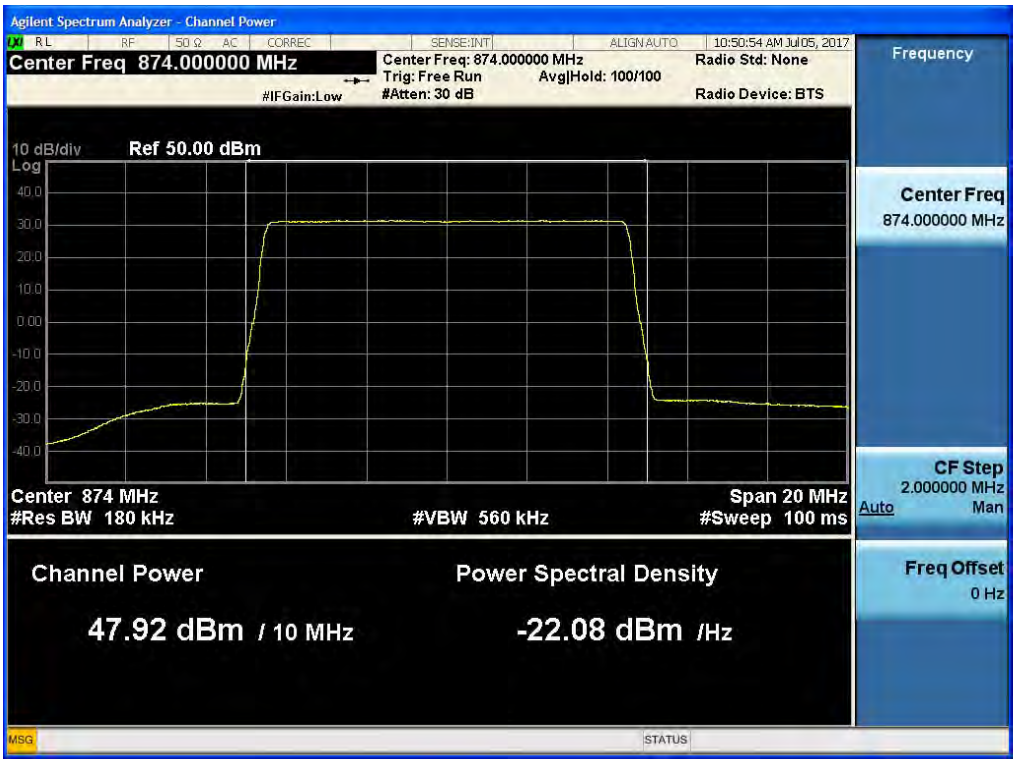
(QPSK High Channel)

(16QAM Low Channel)

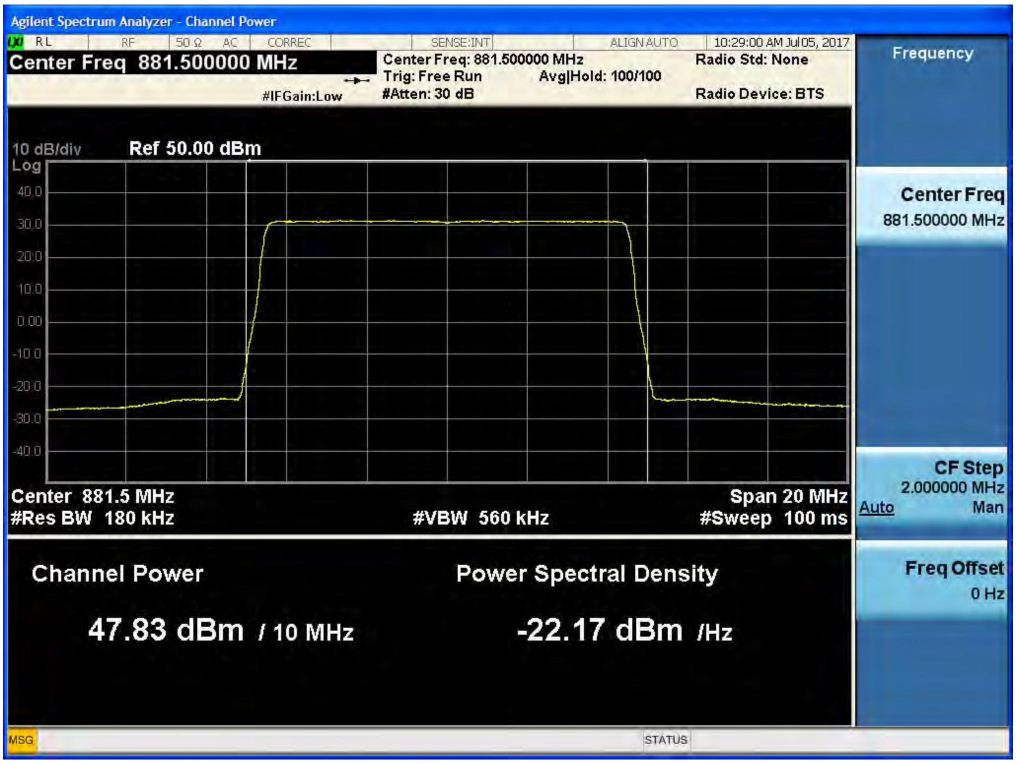
(16QAM Middle Channel)

(16QAM High Channel)

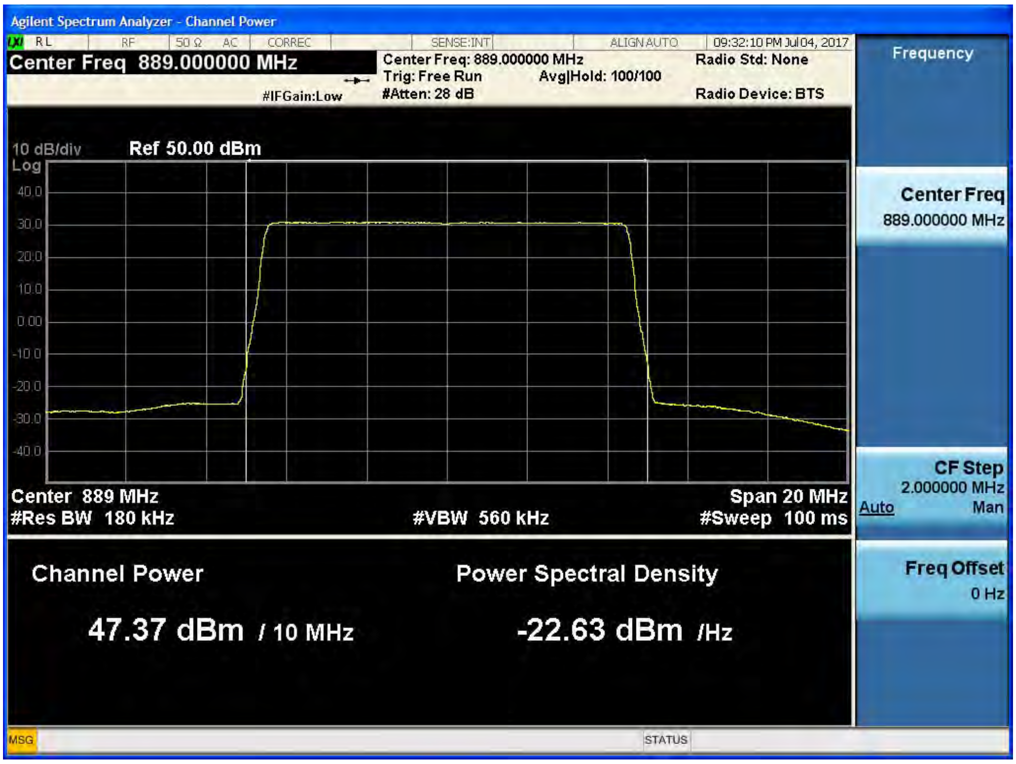
(64QAM Low Channel)



(64QAM Middle Channel)



(64QAM High Channel)



(256QAM Low Channel)

(256QAM Middle Channel)

(256QAM High Channel)

Plot Data for Output Port 2 (2 paths)

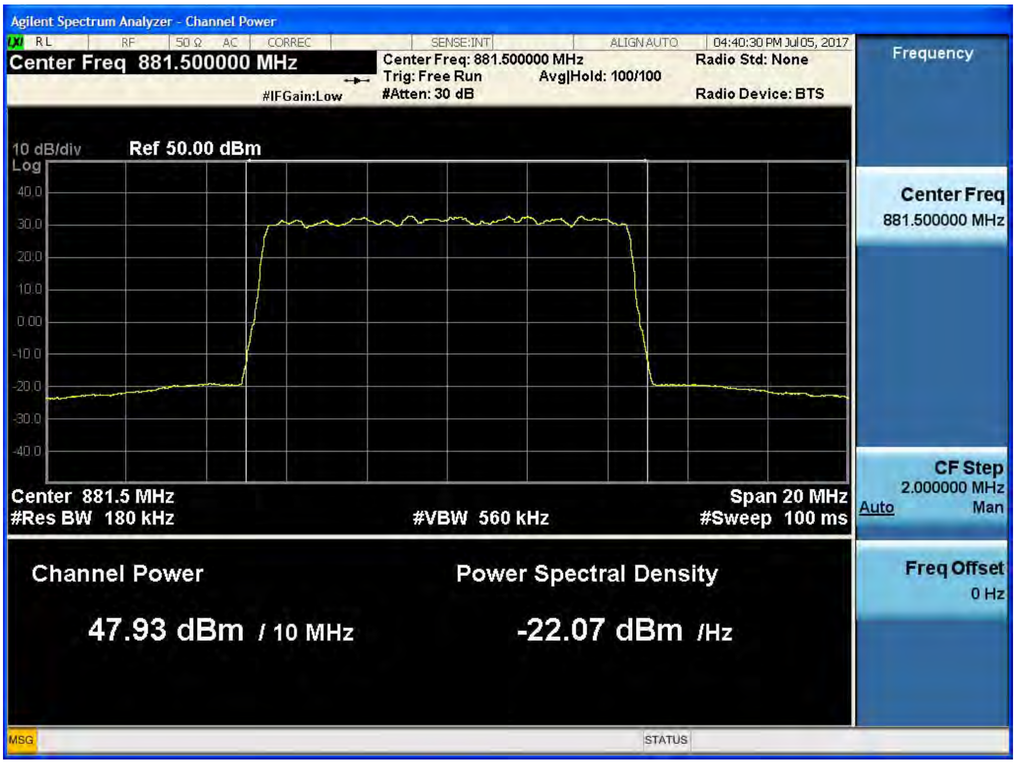
(QPSK Low Channel)

(QPSK Middle Channel)

(QPSK High Channel)

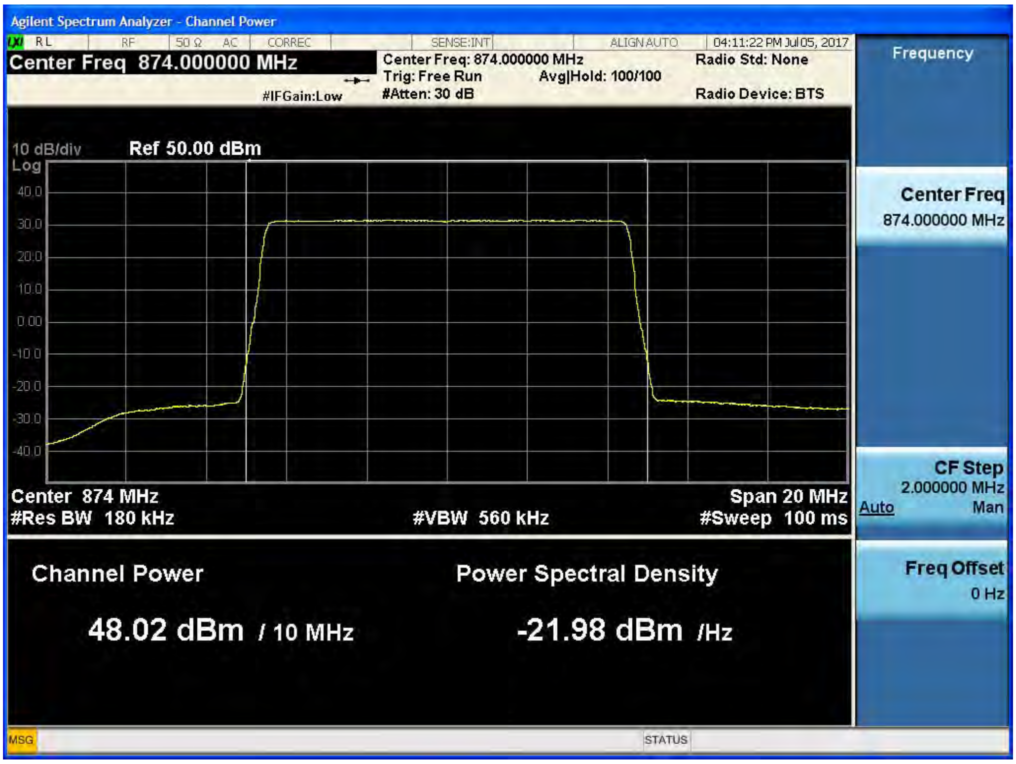
(16QAM Low Channel)

(16QAM Middle Channel)



(16QAM High Channel)

(64QAM Low Channel)



(64QAM Middle Channel)

(64QAM High Channel)

(256QAM Low Channel)

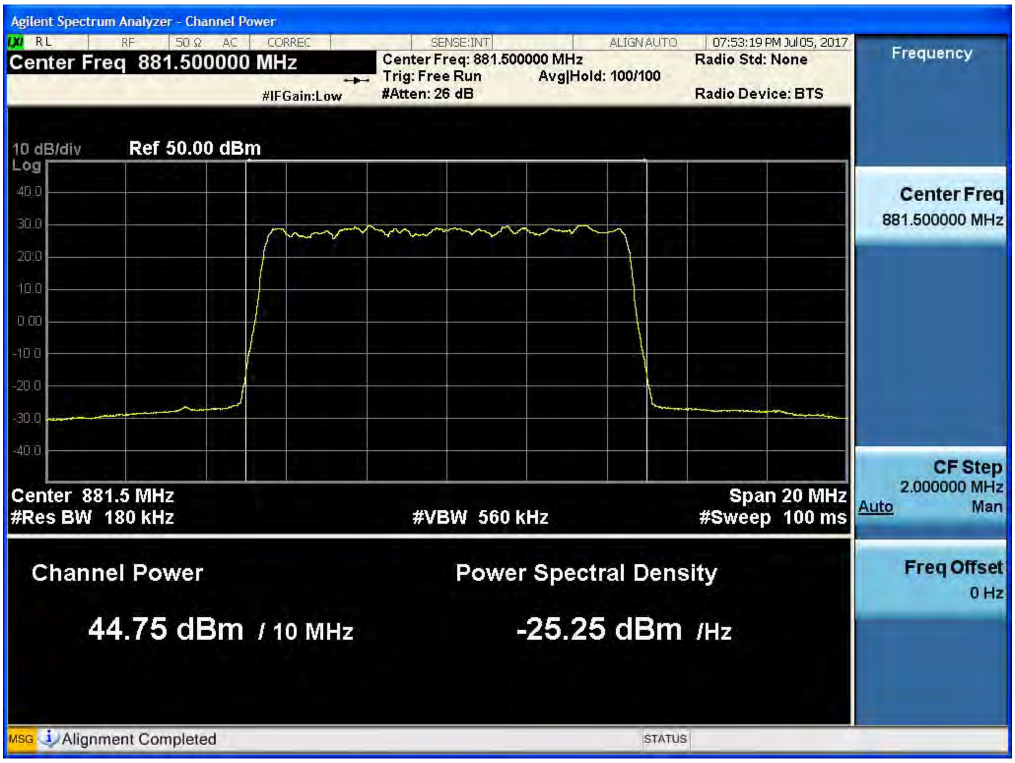
(256QAM Middle Channel)

(256QAM High Channel)

Plot Data for Output Port 3 (4 paths)

(QPSK Low Channel)

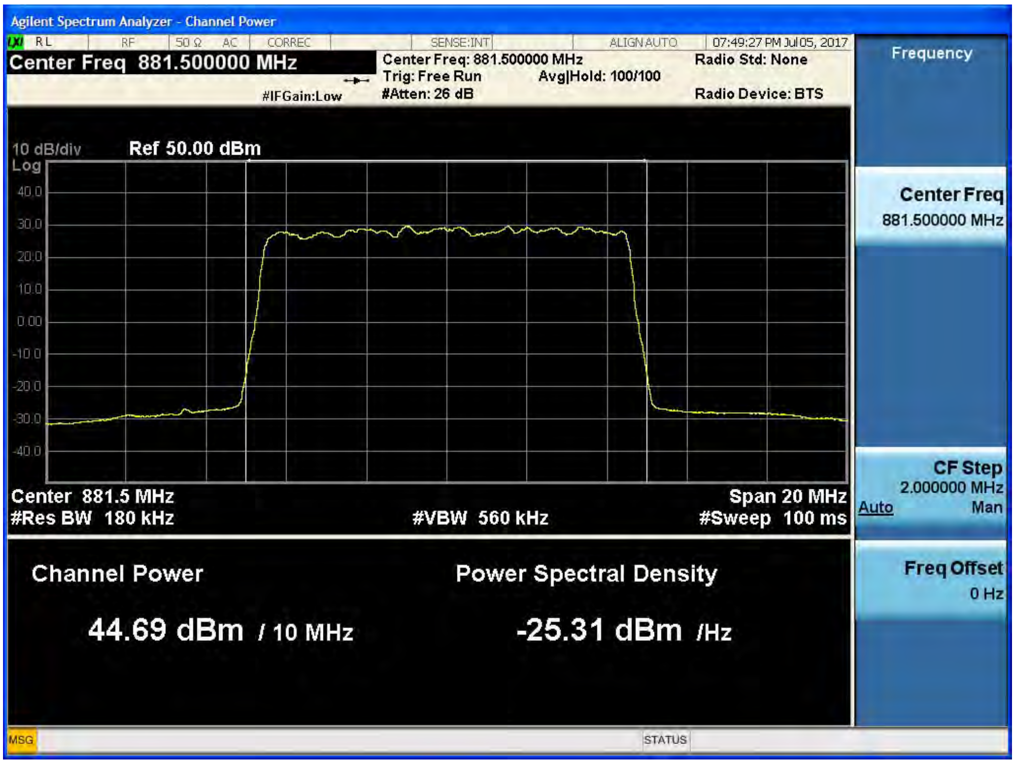
(QPSK Middle Channel)



(QPSK High Channel)

(16QAM Low Channel)

(16QAM Middle Channel)



(16QAM High Channel)

(64QAM Low Channel)

(64QAM Middle Channel)

(64QAM High Channel)

(256QAM Low Channel)

(256QAM Middle Channel)

(256QAM High Channel)

Plot Data for Output Port 4 (4 paths)

(QPSK Low Channel)

(QPSK Middle Channel)

(QPSK High Channel)

(16QAM Low Channel)