

TEST REPORT

 CTK Co., Ltd. The Power Leader of Global Regulatory Certification	CTK Co., Ltd. (Ho-dong), 113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2021-00288 Page (1) / (428) Pages	
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1. Client

- Name : Samsung Electronics Co., Ltd.
- Address : 19 Chapin Rd., Building D, Pine Brook, New Jersey
- Date of Receipt : 2021-01-13

2. Manufacturer

- Name : Samsung Electronics Co., Ltd.
- Address : 416, Maetan 3-Dong, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do, 16677, Korea

3. Use of Report : For FCC Certification

4. Test Sample / Model: RFV01U-D1A

5. Date of Test : 2021-01-14 to 2021-01-19

6. Test Standard(method) used : FCC 47 CFR Part 2, 27

7. Testing Environment: Temp.: (25 ± 1) °C, Humidity: (40 ± 1) % R.H.

8. Test Results : Compliance

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This Test Report cannot be reproduced, except in full.

Affirmation	Tested by  Bong-jun, Jang: (Signature)	Technical Manager  Young-taek, Lee: (Signature)
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2021-01-26

Republic of KOREA **CTK Co., Ltd.**

REPORT REVISION HISTORY

Date	Revision	Page No
2017-08-28	Issued (CTK-2017-01618)	All
2017-09-11	Issued (CTK-2021-01618-1) Addition of Bandwidth(Band 66 Single/Multi Carrier)	All
2021-01-26	Issued (CTK-2021-00288) Addition of Bandwidth	All
	2Carrier: 15 MHz + 15 MHz	
	3Carrier: 20 MHz + 5 MHz + 5 MHz, 15 MHz + 5 MHz + 5 MHz	

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1. General Information

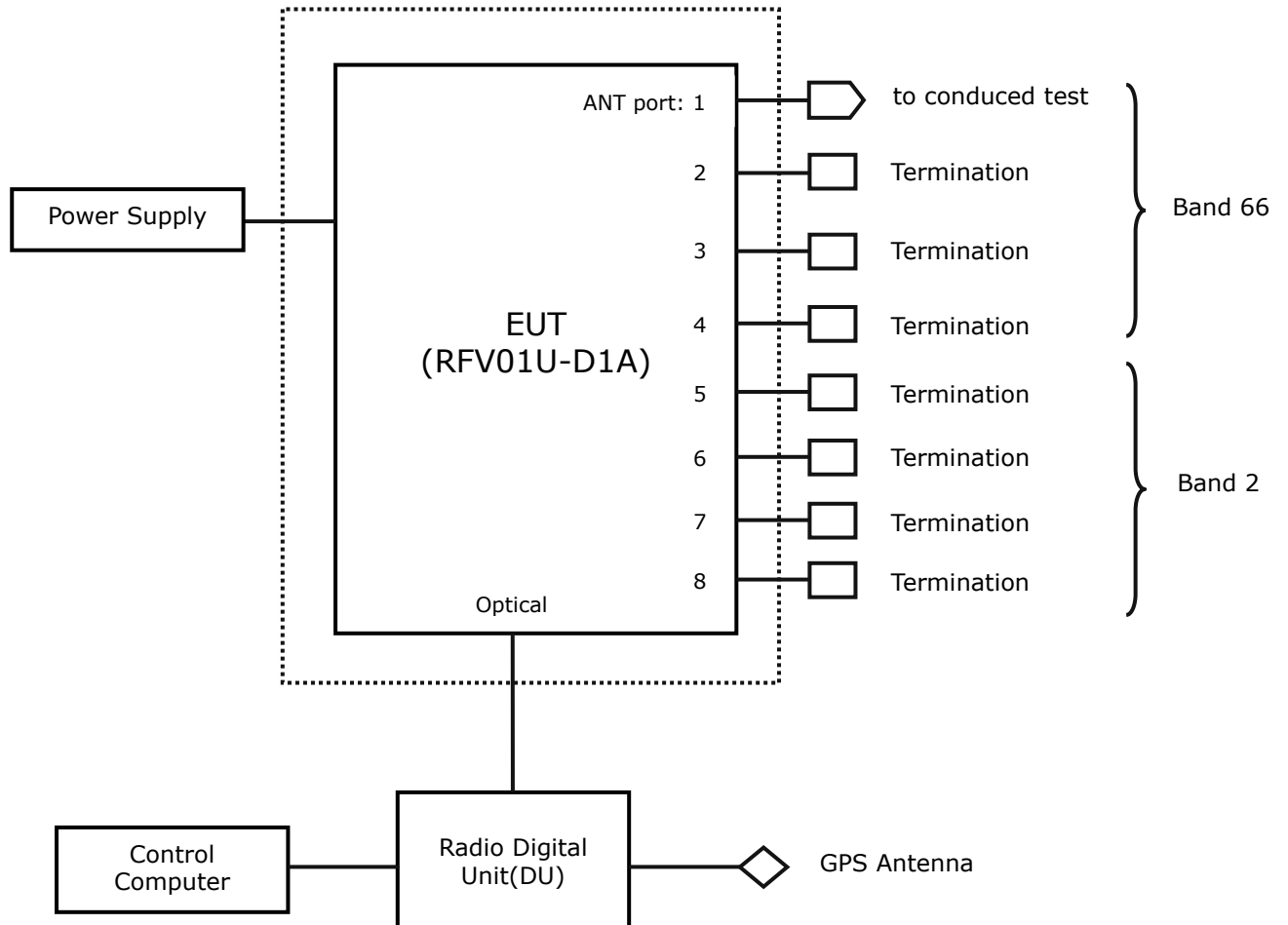
1.1 Client Information

Company	Samsung Electronics Co., Ltd.
Contact Point	129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Contact Person	Name : Kim, Jong-in E-mail : jered.kim@samsung.com Tel : +82-31-279-3096

1.2 Product Information

FCC ID	A3LRFV01U-D1A
Product Description	RRU(RFV01U)
Model name	RFV01U-D1A
Power Supply	-48 Vdc
Operating Frequency	- Band 66 DL : 2 110 MHz- 2 180 MHz, UL 1 710 MHz - 1 780 MHz
RF Output Power	- Band 66 Multi(2 Carrier) 2Tx(Contiguous)BW 15 MHz + BW 15 MHz : 180 W(path 90 W *2) 2Tx(Non-Contiguous)BW 15 MHz/BW 15 MHz : 180 W(path 90 W *2) 4Tx(Contiguous)BW 15 MHz + BW 15 MHz : 240 W(path 60 W *4) 4Tx(Non-Contiguous)BW 15 MHz/BW 15 MHz : 240 W(path 60 W *4) Multi(3 Carrier) 2Tx(Contiguous)BW 20 MHz + BW 5 MHz + BW 5 MHz : 180 W(path 90 W *2) 2Tx(Non-Contiguous)BW 20 MHz + BW 5 MHz/BW 5 MHz : 180 W(path 90 W *2) 4Tx(Contiguous)BW 20 MHz + BW 5 MHz + BW 5 MHz : 240 W(path 60 W *4) 4Tx(Non-Contiguous)BW 20 MHz + BW 5 MHz/BW 5 MHz : 240 W(path 60 W *4) 2Tx(Contiguous)BW 15 MHz + BW 5 MHz + BW 5 MHz : 180 W(path 90 W *2) 2Tx(Non-Contiguous)BW 15 MHz + BW 5 MHz/BW 5 MHz : 180 W(path 90 W *2) 4Tx(Contiguous)BW 15 MHz + BW 5 MHz + BW 5 MHz : 240 W(path 60 W *4) 4Tx(Non-Contiguous)BW 15 MHz + BW 5 MHz/BW 5 MHz : 240 W(path 60 W *4)
Channel Bandwidth	5 MHz, 15 MHz, 20 MHz
Modulation Type	QPSK, 16QAM, 64QAM, 256QAM
FCC Rule	Part 2 : FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS Part 27 : MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES KDB Publication 662911 D01 Multiple Transmitter Output v02r01

1.3 Configurations



2. Facility and Accreditations

2.1 Test Facility

The measurement facility is located at (Ho-dong), 113, Yejik-ro, Cheoin-gu, Yong-in-si, Gyeonggi-do, Korea.

2.2 Laboratory Accreditations and Listings

Country	Agency	Registration Number
USA	FCC	805871
CANADA	ISED	8737A-2
KOREA	NRRA	KR0025

2.3 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less. All test equipment calibrations are traceable to the Korea Research Institute of Standards and Science (KRISS), therefore, all test data recorded in this report is traceable to KRISS.

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 27.

Section	Test Items	Results
§2.1046, §27.50(d)(2)	RF output power	Compliant
§2.1049	Occupied bandwidth	Compliant
§2.1051, §27.53(h)	Spurious Emissions at Antenna Terminals	Compliant
§2.1051, §27.53(h)	Band edge	Compliant
§2.1051, §27.53(h)	Spurious Radiated Emissions	Compliant
§2.1055(a)(1), §27.54	Frequency Stability over Temperature variation	Compliant
§2.1055(d), §27.54	Frequency Stability over Voltage variation	Compliant

3.2 Mode of operation during the test

The EUT is operated in a manner representative of the typical of the equipments. During at testing, system components were manipulated within the confines of typical usage to maximize each emission. All modulation(QPSK, 16QAM, 64QAM, 256QAM) modes were tests. The results are only attached worst cases.

Operating band and Frequency range

Band 66	Transmit	2 110 MHz to 2 180 MHz
	Receive	1 710 MHz to 1 780 MHz

Operating Configurations

Supported configurations	Multi carrier
Spectrum Operation	Contiguous, Non-contiguous

Multi 2 carrier rated total output power as a sum of all carriers(15MHz + 15MHz)

Type	Bandwidth positions		1 st FA	2 nd FA	Power Sum	Output antenna port	Total (sum)
Contiguous	Bottom	Bandwidth	15 MHz	15 MHz			
		Frequency	2 117.5 MHz	2 132.5 MHz			
		Output Power	45 W	45 W	90 W	2Tx(1, 2)	180 W
			30 W	30 W	60 W	4Tx(1, 2, 3, 4)	240 W
	Middle	Bandwidth	15 MHz	15 MHz			
		Frequency	2 137.5 MHz	2 152.5 MHz			
		Output Power	45 W	45 W	90 W	2Tx(1, 2)	180 W
			30 W	30 W	60 W	4Tx(1, 2, 3, 4)	240 W
	Top	Bandwidth	15 MHz	15 MHz			
		Frequency	2 157.5 MHz	2 172.5 MHz			
		Output Power	45 W	45 W	90 W	2Tx(1, 2)	180 W
			30 W	30 W	60 W	4Tx(1, 2, 3, 4)	240 W
Non-Contiguous	Bottom / Top	Bandwidth	15 MHz	15 MHz			
		Frequency	2 117.5 MHz	2 172.5 MHz			
		Output Power	45 W	45 W	90 W	2Tx(1, 2)	180 W
			30 W	30 W	60 W	4Tx(1, 2, 3, 4)	240 W

Multi 3 carrier rated total output power as a sum of all carriers(20MHz+5MHz+5MHz)

Type	Bandwidth positions		1 st FA	2 nd FA	3 rd FA	Power Sum	Output antenna port	Total (sum)
Contiguous	Bottom	Bandwidth	20 MHz	5 MHz	5 MHz			
		Frequency	2 120 MHz	2 132.5 MHz	2 137.5 MHz			
		Output Power	60 W	15 W	15 W	90 W	2Tx(1, 2)	180 W
			40 W	10 W	10 W	60 W	4Tx(1, 2, 3, 4)	240 W
	Middle	Bandwidth	20 MHz	5 MHz	5MHz			
		Frequency	2 140 MHz	2 152.5 MHz	2 157.5 MHz			
		Output Power	60 W	15 W	15 W	90 W	2Tx(1, 2)	180 W
			40 W	10 W	10 W	60 W	4Tx(1, 2, 3, 4)	240 W
	Top	Bandwidth	20 MHz	5 MHz	5MHz			
		Frequency	2 160 MHz	2 172.5 MHz	2 177.5 MHz			
		Output Power	60 W	15 W	15 W	90 W	2Tx(1, 2)	180 W
			40 W	10 W	10 W	60 W	4Tx(1, 2, 3, 4)	240 W
Non-Contiguous	Bottom / Top	Bandwidth	20 MHz	5 MHz	5MHz			
		Frequency	2 120 MHz	2 132.5 MHz	2 177.5 MHz			
		Output Power	60 W	15 W	15 W	90 W	2Tx(1, 2)	180 W
			40 W	10 W	10 W	60 W	4Tx(1, 2, 3, 4)	240 W

Multi 3 carrier rated total output power as a sum of all carriers(15MHz+5MHz+5MHz)								
Type	Bandwidth positions		1 st FA	2 nd FA	3 rd FA	Power Sum	Output antenna port	Total (sum)
Contiguous	Bottom	Bandwidth	15 MHz	5 MHz	5 MHz			
		Frequency	2 117.5 MHz	2 127.5 MHz	2 132.5 MHz			
		Output Power	54 W	18 W	18 W	90 W	2Tx(1, 2)	180 W
			36 W	12 W	12 W	60 W	4Tx(1, 2, 3, 4)	240 W
	Middle	Bandwidth	15 MHz	5 MHz	5MHz			
		Frequency	2 140 MHz	2 150 MHz	2 155 MHz			
		Output Power	54 W	18 W	18 W	90 W	2Tx(1, 2)	180 W
			36 W	12 W	12 W	60 W	4Tx(1, 2, 3, 4)	240 W
	Top	Bandwidth	15 MHz	5 MHz	5MHz			
		Frequency	2 162.5 MHz	2 172.5 MHz	2 177.5 MHz			
		Output Power	54 W	18 W	18 W	90 W	2Tx(1, 2)	180 W
			36 W	12 W	12 W	60 W	4Tx(1, 2, 3, 4)	240 W
Non-Contiguous	Bottom / Top	Bandwidth	15 MHz	5 MHz	5MHz			
		Frequency	2 117.5 MHz	2 127.5 MHz	2 177.5 MHz			
		Output Power	54 W	18 W	18 W	90 W	2Tx(1, 2)	180 W
			36 W	12 W	12 W	60 W	4Tx(1, 2, 3, 4)	240 W

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	Uncertainty
Conducted RF output power	1.5 dB
Occupied bandwidth	0.1 MHz
Spurious emission at antenna terminals	3.0 dB
Radiated spurious emissions ($f \leq 1$ GHz)	4.0 dB
Radiated spurious emissions ($f > 1$ GHz)	5.0 dB
Frequency stability	0.1 kHz

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

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4. RF output power

Test Requirements :

§ 2.1046 Measurements required : RF power output :

- (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)(8). The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.
- (b) For single sideband, independent sideband, and single channel, controlled carrier radiotelephone transmitters the procedure specified in paragraph (a) of this section shall be employed and, in addition, the transmitter shall be modulated during the test as follows. In all tests, the input level of the modulating signal shall be such as to develop rated peak envelope power or carrier power, as appropriate, for the transmitter.
- (c) For measurements conducted pursuant to paragraphs (a) and (b) of this section, all calculations and methods used by the applicant for determining carrier power or peak envelope power, as appropriate, on the basis of measured power in the radio frequency load attached to the transmitter output terminals shall be shown. Under the test conditions specified, no components of the emission spectrum shall exceed the limits specified in the applicable rule parts as necessary for meeting occupied bandwidth or emission limitations.

§ 27.50 Power limits and duty cycle.

- (d) (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:
 - (ii) An EIRP of 1640 watts/MHz when transmitting with an emission bandwidth greater than 1 MHz.
- (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.

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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 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.

Note 1 : The conducted emission level is measured at each antenna port and then summed mathematically to determine the total emission level from the device.

Note 2: Maximum ERP is sufficient level to pass the limit.

Note 3 : Sum data is in a tolerance of specification provided from manufacturer.

Note 4 : If applicable, the EIRP[W] = $10^{((\text{channel power[dBm]} + \text{Antenna Gain[dBi]})/10)} / 10^{-3}$

Note 5: EIRP does not exceed the reference value even if the maximum antenna gain is applied according to Note 1.

Maximum output power for one port :

BW 15MHz + BW 15MHz : **2Tx : 49.542 dBm (Path 90 W)**
4Tx : 47.782 dBm (Path 60 W)
 BW 20MHz + BW 5MHz + BW 5MHz : **2Tx : 49.542 dBm (Path 90 W)**
4Tx : 47.782 dBm (Path 60 W)
 BW 15MHz + BW 5MHz + BW 5MHz : **2Tx : 49.542 dBm (Path 90 W)**
4Tx : 47.782 dBm (Path 60 W)

Maximum output sum power :

BW 15MHz + BW 15MHz : **2Tx : 52.553 dBm (Path 90 W * 2=180 W)**
4Tx : 53.802 dBm (Path 60 W * 4=240 W)
 BW 20MHz + BW 5MHz + BW 5MHz : **2Tx : 52.553 dBm (Path 90 W * 2=180 W)**
4Tx : 53.802 dBm (Path 60 W * 4=240 W)
 BW 15MHz + BW 5MHz + BW 5MHz : **2Tx : 52.553 dBm (Path 90 W * 2=180 W)**
4Tx : 53.802 dBm (Path 60 W * 4=240 W)

Measured sum maximum power : **53.66 dBm (232.34 W)**

Test Results :

Test Data : BW 15 MHz + BW 15 MHz, Multi 2carrier, 2Tx

Type	Channel	Modulation	Output Power [dBm]				Total Power	
			Test antenna port				[dBm]	[W]
			1	2	3	4		
Contiguous	Bottom	QPSK	49.16	49.02			52.10	162.22
		16QAM	49.29	49.20			52.26	168.10
		64QAM	49.38	49.21			52.31	170.07
		256QAM	49.28	49.14			52.22	166.76
	Middle	QPSK	49.17	49.12			52.16	164.26
		16QAM	49.29	49.13			52.22	166.77
		64QAM	49.28	49.15			52.23	166.95
		256QAM	49.25	49.14			52.21	166.18
	Top	QPSK	49.25	49.17			52.22	166.75
		16QAM	49.22	49.08			52.16	164.47
		64QAM	49.33	49.16			52.26	168.12
		256QAM	49.22	49.11			52.18	165.03

Type	Channel	Modulation	Output Power [dBm]				Total Power	
			Test antenna port				[dBm]	[W]
			1	2	3	4		
Non-Contiguous	Bottom	QPSK	46.02	45.83			48.94	78.28
		16QAM	45.99	45.83			48.92	78.00
		64QAM	45.97	45.81			48.90	77.65
		256QAM	46.00	45.84			48.93	78.18
	Top	QPSK	45.94	45.74			48.85	76.76
		16QAM	45.91	45.72			48.83	76.32
		64QAM	45.90	45.71			48.82	76.15
		256QAM	45.94	45.73			48.85	76.68
	Bottom + Top	QPSK					51.90	155.04
	Bottom + Top	16QAM					51.88	154.32
	Bottom + Top	64QAM					51.87	153.79
	Bottom + Top	256QAM					51.90	154.86

Test Data : BW 15 MHz + BW 15 MHz, Multi 2carrier, 4Tx

Type	Channel	Modulation	Output Power [dBm]				Total Power	
			Test antenna port				[dBm]	[W]
			1	2	3	4		
Contiguous	Bottom	QPSK	47.37	47.22	47.44	47.28	53.35	216.22
		16QAM	47.38	47.29	47.64	47.40	53.45	221.31
		64QAM	47.45	47.30	47.61	47.40	53.46	221.92
		256QAM	47.55	47.38	47.68	47.46	53.54	225.92
	Middle	QPSK	47.47	47.33	47.61	47.28	53.45	221.06
		16QAM	47.57	47.34	47.60	47.30	53.48	222.60
		64QAM	47.60	47.40	47.61	47.29	53.50	223.75
		256QAM	47.54	47.34	47.60	47.26	53.46	221.71
	Top	QPSK	47.45	47.26	47.64	47.25	53.42	219.97
		16QAM	47.44	47.23	47.58	47.24	53.40	218.55
		64QAM	47.52	47.27	47.63	47.25	53.44	220.86
		256QAM	47.45	47.26	47.62	47.25	53.42	219.70

Type	Channel	Modulation	Output Power [dBm]				Total Power	
			Test antenna port				[dBm]	[W]
			1	2	3	4		
Non-Contiguous	Bottom	QPSK	44.23	44.09	44.34	44.14	50.22	105.24
		16QAM	44.32	44.06	44.40	44.36	50.31	107.34
		64QAM	44.28	44.04	44.37	44.34	50.28	106.66
		256QAM	44.28	44.12	44.40	44.37	50.31	107.51
	Top	QPSK	44.12	44.03	44.24	43.90	50.09	102.21
		16QAM	44.16	44.00	44.29	44.11	50.16	103.80
		64QAM	44.16	43.96	44.25	44.08	50.13	103.14
		256QAM	44.14	44.04	44.29	44.11	50.17	103.91
	Bottom + Top	QPSK					53.17	207.44
	Bottom + Top	16QAM					53.25	211.14
	Bottom + Top	64QAM					53.22	209.80
	Bottom + Top	256QAM					53.25	211.42

Test Data : BW 20 MHz + BW 5 MHz + BW 5 MHz, Multi 3carrier, 2Tx

Type	Channel	Modulation	Output Power [dBm]				Total Power	
			Test antenna port				[dBm]	[W]
			1	2	3	4		
Contiguous	Bottom	QPSK	49.13	48.90			52.03	159.47
		16QAM	49.11	48.88			52.01	158.74
		64QAM	49.09	48.90			52.01	158.72
		256QAM	49.09	48.90			52.01	158.72
	Middle	QPSK	49.13	48.90			52.03	159.47
		16QAM	49.11	48.88			52.01	158.74
		64QAM	49.09	48.90			52.01	158.72
		256QAM	49.09	48.90			52.01	158.72
	Top	QPSK	49.01	48.84			51.94	156.18
		16QAM	49.03	48.79			51.92	155.67
		64QAM	49.02	48.84			51.94	156.36
		256QAM	48.98	48.83			51.92	155.45

Type	Channel	Modulation	Output Power [dBm]				Total Power	
			Test antenna port				[dBm]	[W]
			1	2	3	4		
Non-Contiguous	Bottom	QPSK	48.32	48.20			51.27	133.99
		16QAM	48.24	48.11			51.19	131.40
		64QAM	48.08	47.92			51.01	126.21
		256QAM	48.20	48.07			51.15	130.19
	Top	QPSK	41.02	41.25			44.15	25.98
		16QAM	41.15	41.16			44.17	26.10
		64QAM	41.02	40.95			44.00	25.09
		256QAM	41.12	41.11			44.13	25.86
	Bottom + Top	QPSK					52.04	159.98
	Bottom + Top	16QAM					51.97	157.49
	Bottom + Top	64QAM					51.80	151.31
	Bottom + Top	256QAM					51.93	156.05

Test Data : BW 20 MHz + BW 5 MHz + BW 5 MHz, Multi 3carrier, 4Tx

Type	Channel	Modulation	Output Power [dBm]				Total Power	
			Test antenna port				[dBm]	[W]
			1	2	3	4		
Contiguous	Bottom	QPSK	47.52	47.30	47.73	47.48	53.53	225.47
		16QAM	47.54	47.30	47.63	47.45	53.50	223.99
		64QAM	47.68	47.40	47.74	47.51	53.61	229.36
		256QAM	47.49	47.26	47.66	47.45	53.49	223.25
	Middle	QPSK	47.49	47.28	47.64	47.37	53.47	222.21
		16QAM	47.71	47.38	47.74	47.49	53.60	229.26
		64QAM	47.58	47.43	47.73	47.48	53.58	227.88
		256QAM	47.72	47.47	47.71	47.44	53.61	229.49
	Top	QPSK	47.52	47.33	47.61	47.20	53.44	220.73
		16QAM	47.44	47.25	47.60	47.19	53.39	218.46
		64QAM	47.49	47.27	47.56	47.19	53.40	218.81
		256QAM	47.50	47.28	47.60	47.21	53.42	219.84

Type	Channel	Modulation	Output Power [dBm]				Total Power	
			Test antenna port				[dBm]	[W]
			1	2	3	4		
Non-Contiguous	Bottom	QPSK	46.81	46.53	46.93	46.66	52.76	188.61
		16QAM	46.81	46.61	47.10	46.89	52.88	193.94
		64QAM	46.80	46.62	47.11	46.90	52.88	194.17
		256QAM	46.72	46.54	47.10	46.87	52.83	192.00
	Top	QPSK	39.81	39.53	39.85	39.51	45.70	37.14
		16QAM	39.78	39.65	40.01	39.70	45.81	38.09
		64QAM	39.79	39.63	40.01	39.75	45.82	38.17
		256QAM	39.74	39.57	40.00	39.72	45.78	37.85
	Bottom + Top	QPSK					53.54	225.75
	Bottom + Top	16QAM					53.66	232.03
	Bottom + Top	64QAM					53.66	232.34
	Bottom + Top	256QAM					53.61	229.85

Test Data : BW 15 MHz + BW 5 MHz + BW 5 MHz, Multi 3carrier, 2Tx

Type	Channel	Modulation	Output Power [dBm]				Total Power	
			Test antenna port				[dBm]	[W]
			1	2	3	4		
Contiguous	Bottom	QPSK	49.02	48.84			51.94	156.36
		16QAM	49.05	48.86			51.97	157.27
		64QAM	49.03	48.86			51.96	156.90
		256QAM	49.07	48.89			51.99	158.17
	Middle	QPSK	49.03	48.95			52.00	158.51
		16QAM	49.06	48.92			52.00	158.52
		64QAM	49.07	48.96			52.03	159.43
		256QAM	49.04	48.91			51.99	157.97
	Top	QPSK	48.94	48.79			51.88	154.03
		16QAM	48.88	48.74			51.82	152.09
		64QAM	48.91	48.76			51.85	152.97
		256QAM	48.91	48.77			51.85	153.14

Type	Channel	Modulation	Output Power [dBm]				Total Power	
			Test antenna port				[dBm]	[W]
			1	2	3	4		
Non-Contiguous	Bottom	QPSK	48.11	47.92			51.03	126.66
		16QAM	48.10	47.90			51.01	126.23
		64QAM	48.10	47.96			51.04	127.08
		256QAM	48.06	47.85			50.97	124.93
	Top	QPSK	42.09	41.89			45.00	31.64
		16QAM	42.07	41.90			45.00	31.60
		64QAM	42.08	41.94			45.02	31.78
		256QAM	42.04	41.85			44.96	31.31
	Bottom + Top	QPSK					51.99	158.30
	Bottom + Top	16QAM					51.98	157.82
	Bottom + Top	64QAM					52.01	158.86
	Bottom + Top	256QAM					51.94	156.24

Test Data : BW 15 MHz + BW 5 MHz + BW 5 MHz, Multi 3carrier, 4Tx

Type	Channel	Modulation	Output Power [dBm]				Total Power	
			Test antenna port				[dBm]	[W]
			1	2	3	4		
Contiguous	Bottom	QPSK	47.35	47.13	47.40	47.20	53.29	213.40
		16QAM	47.46	47.22	47.54	47.35	53.41	219.52
		64QAM	47.34	47.09	47.57	47.35	53.36	216.84
		256QAM	47.33	47.15	47.58	47.39	53.39	218.06
	Middle	QPSK	47.34	47.19	47.41	47.19	53.30	214.00
		16QAM	47.42	47.24	47.58	47.28	53.40	218.91
		64QAM	47.46	47.19	47.61	47.30	53.41	219.46
		256QAM	47.45	47.26	47.61	47.29	53.43	220.06
	Top	QPSK	47.30	47.25	47.53	47.18	53.34	215.66
		16QAM	47.40	47.23	47.59	47.22	53.38	217.93
		64QAM	47.37	47.18	47.55	47.19	53.35	216.06
		256QAM	47.45	47.25	47.61	47.23	53.41	219.20

Type	Channel	Modulation	Output Power [dBm]				Total Power	
			Test antenna port				[dBm]	[W]
			1	2	3	4		
Non-Contiguous	Bottom	QPSK	46.63	46.41	46.86	46.52	52.63	183.18
		16QAM	46.49	46.28	46.73	46.44	52.51	178.18
		64QAM	46.55	46.37	46.79	46.48	52.57	180.75
		256QAM	46.50	46.34	46.80	46.53	52.57	180.56
	Top	QPSK	40.56	40.26	40.61	40.20	46.43	43.97
		16QAM	40.38	40.14	40.51	40.13	46.31	42.79
		64QAM	40.48	40.22	40.56	40.16	46.38	43.44
		256QAM	40.46	40.19	40.59	40.20	46.38	43.49
	Bottom + Top	QPSK					53.56	227.15
	Bottom + Top	16QAM					53.44	220.97
	Bottom + Top	64QAM					53.51	224.19
	Bottom + Top	256QAM					53.50	224.05

Test Plot at Output Power

**BW 15MHz+15MHz, Multi 2 carrier(Contiguous), 2Tx, Bottom
ANT 1**

QPSK



16QAM



64QAM



256QAM



ANT 2

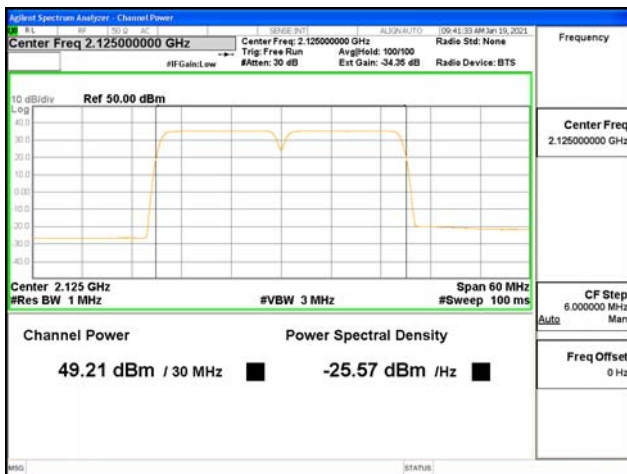
QPSK



16QAM



64QAM

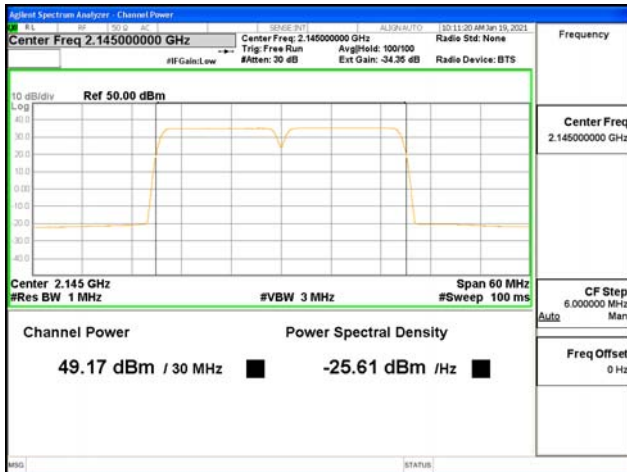


256QAM



**BW 15MHz+15MHz, Multi 2 carrier(Contiguous), 2Tx, Middle
ANT 1**

QPSK



16QAM



64QAM

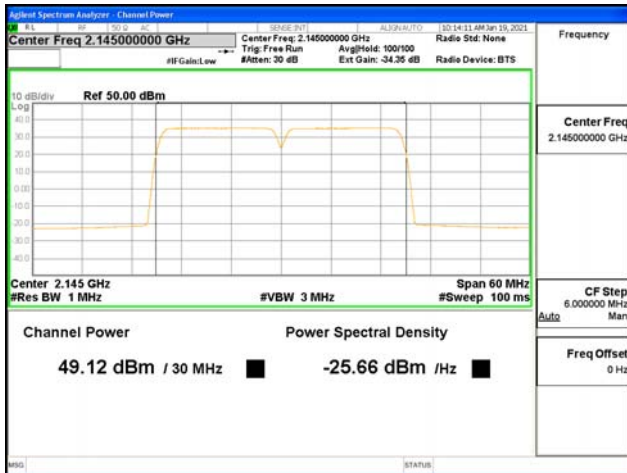


256QAM



ANT 2

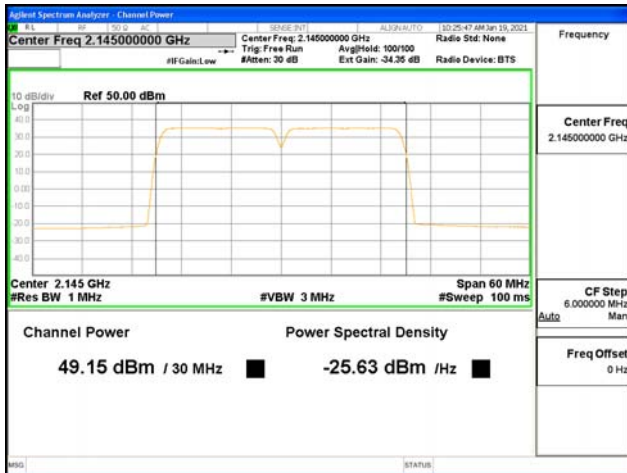
QPSK



16QAM



64QAM

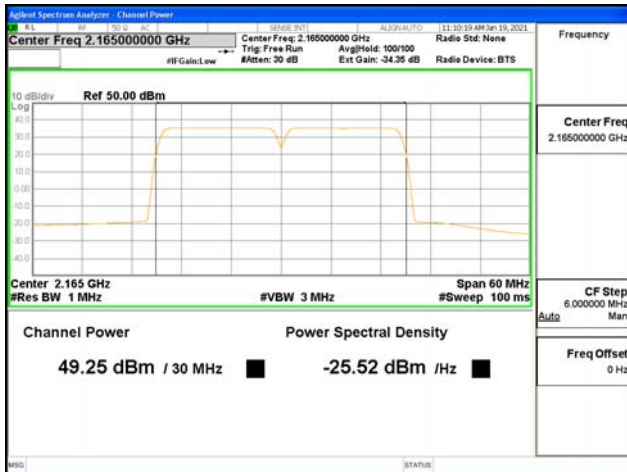


256QAM



**BW 15MHz+15MHz, Multi 2 carrier(Contiguous), 2Tx, Top
ANT 1**

QPSK



16QAM



64QAM



256QAM



ANT 2

QPSK



16QAM



64QAM



256QAM



**BW 15MHz+15MHz, Multi 2 carrier(Non-Contiguous), 2Tx, Bottom
ANT 1**

QPSK



16QAM



64QAM

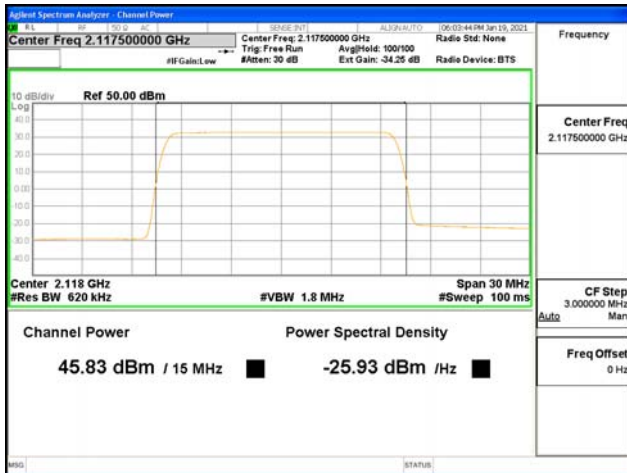


256QAM



ANT 2

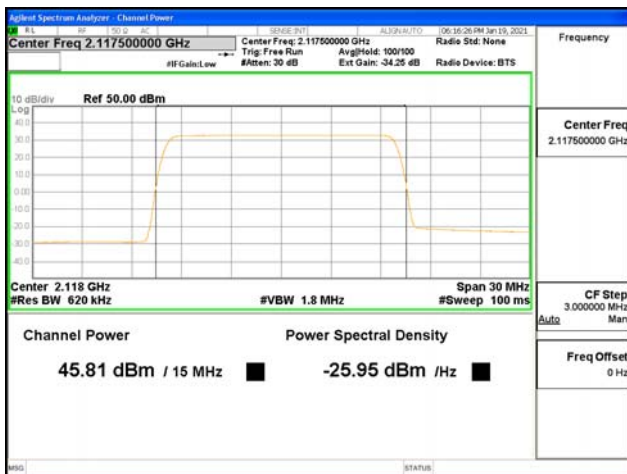
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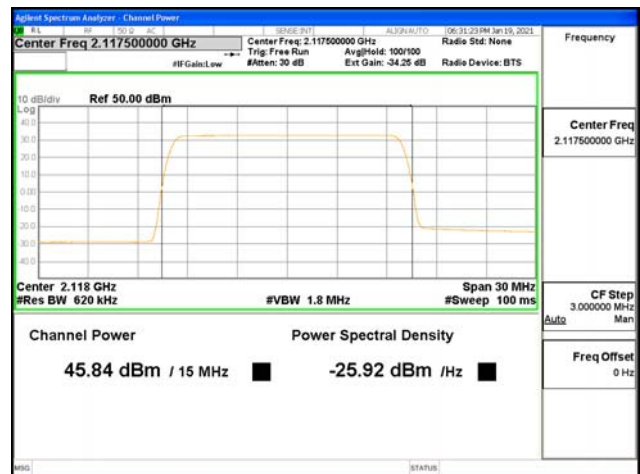
16QAM



64QAM

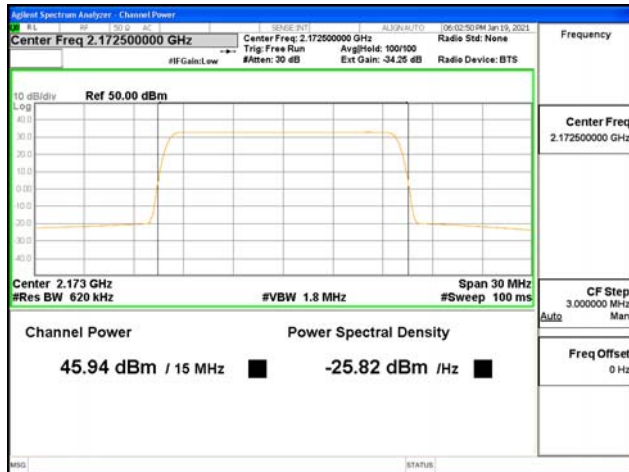


256QAM



**BW 15MHz+15MHz, Multi 2 carrier(Non-Contiguous), 2Tx, Top
ANT 1**

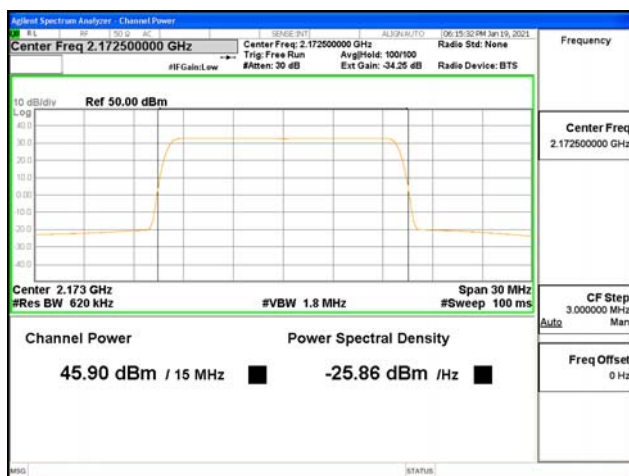
QPSK



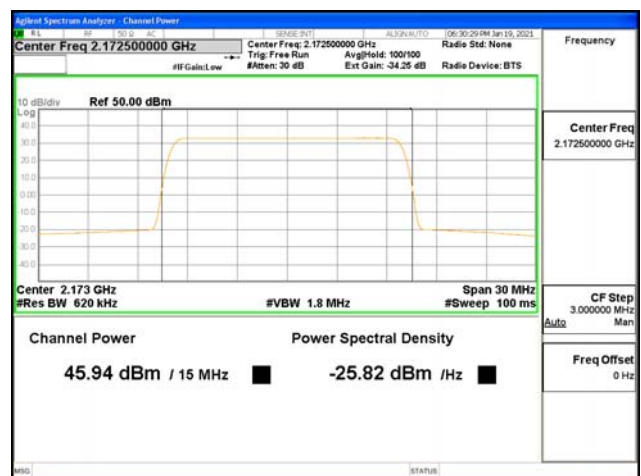
16QAM



64QAM

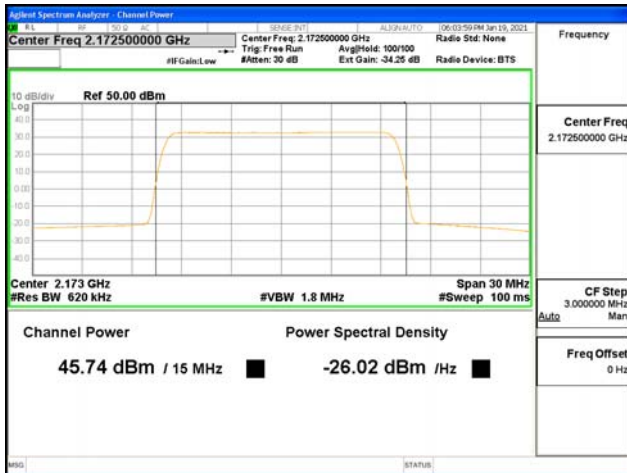


256QAM

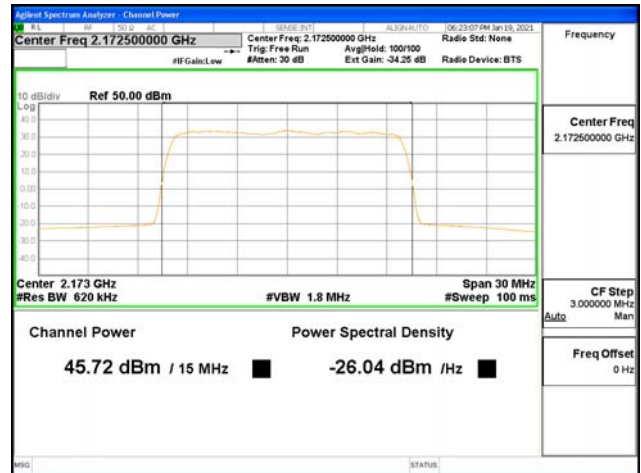


ANT 2

QPSK



16QAM



64QAM



256QAM



**BW 15MHz+15MHz, Multi 2 carrier(Contiguous), 4Tx, Bottom
ANT 1**

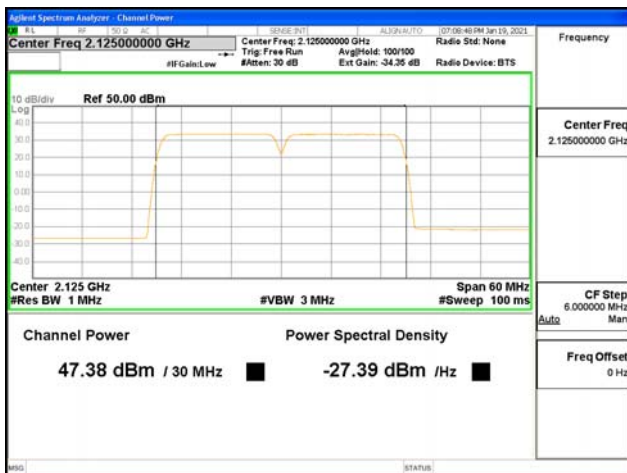
QPSK



16QAM



64QAM



256QAM



ANT 2

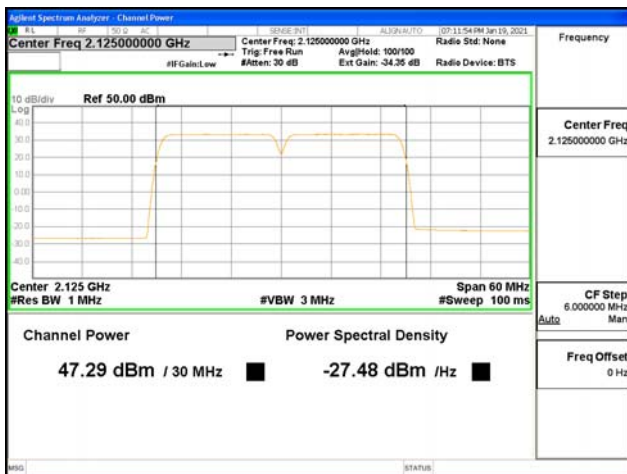
QPSK



16QAM



64QAM



256QAM



ANT 3

QPSK



16QAM



64QAM



256QAM



ANT 4

QPSK



16QAM



64QAM



256QAM



**BW 15MHz+15MHz, Multi 2 carrier(Contiguous), 4Tx, Middle
ANT 1**

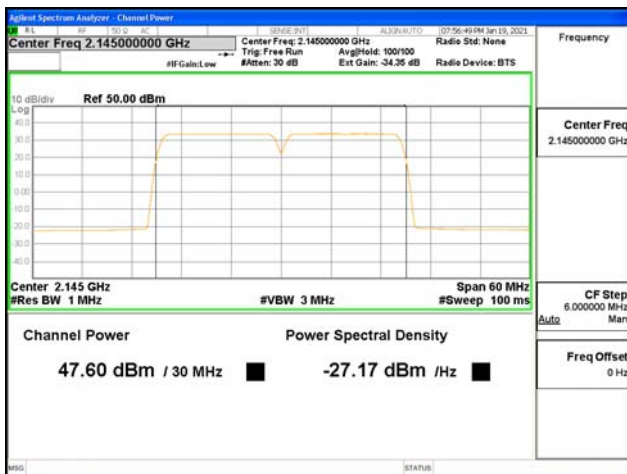
QPSK



16QAM



64QAM



256QAM



ANT 2

QPSK



16QAM



64QAM



256QAM



ANT 3

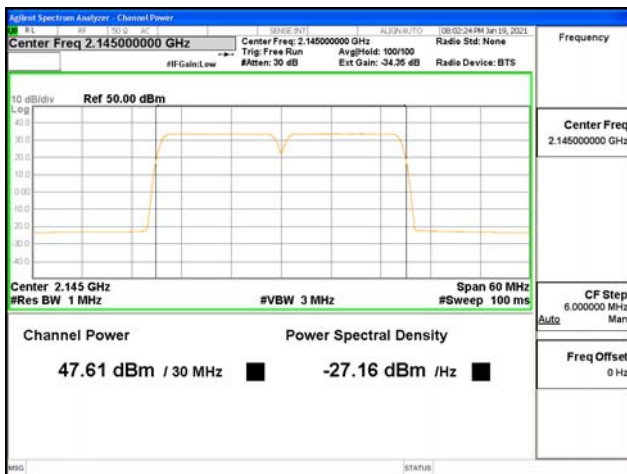
QPSK



16QAM



64QAM



256QAM



ANT 4

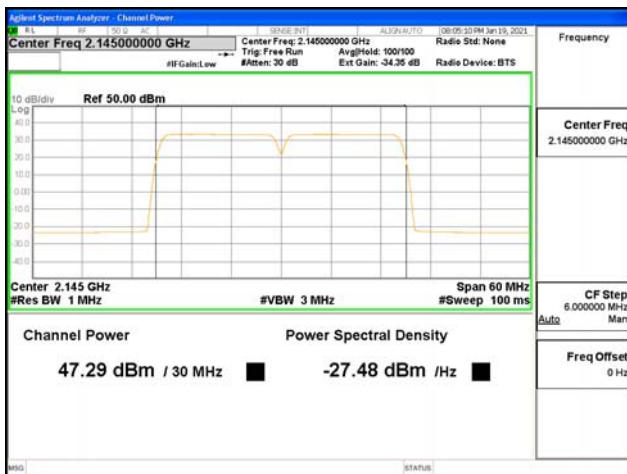
QPSK



16QAM



64QAM

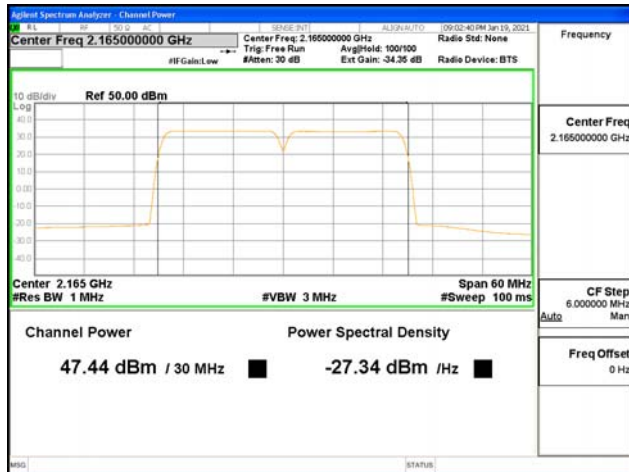


256QAM

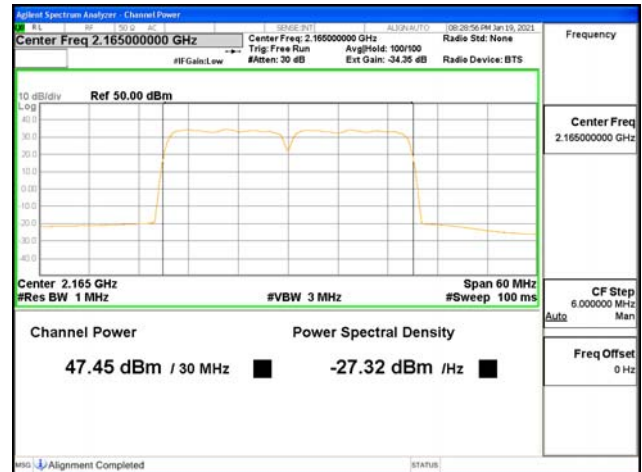


**BW 15MHz+15MHz, Multi 2 carrier(Contiguous), 4Tx, Top
ANT 1**

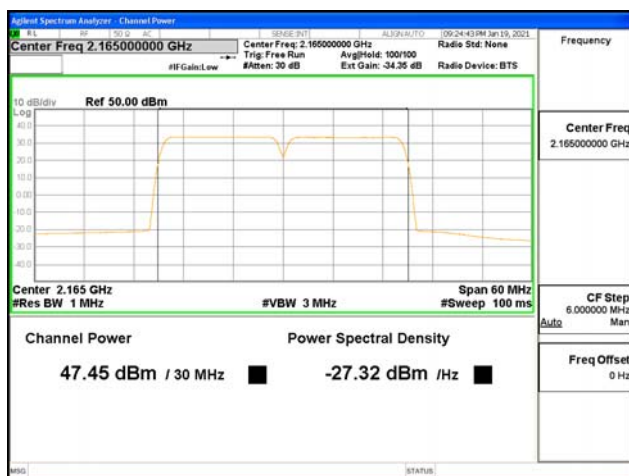
QPSK



16QAM



64QAM



256QAM



ANT 2

QPSK



16QAM



64QAM



256QAM



ANT 3

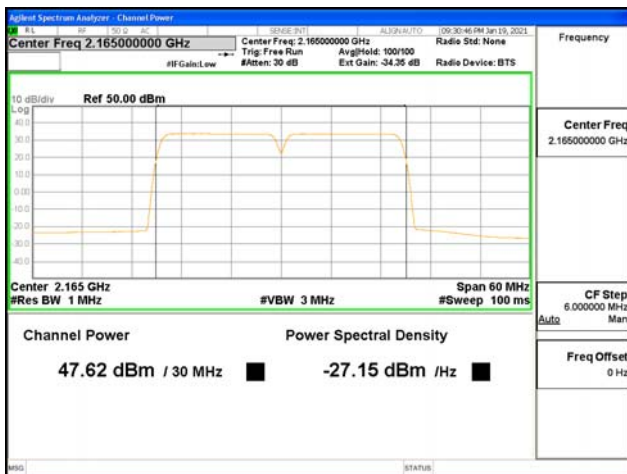
QPSK



16QAM



64QAM



256QAM



ANT 4

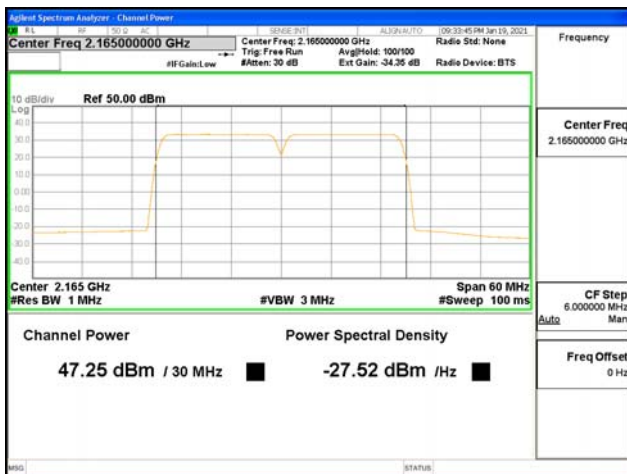
QPSK



16QAM



64QAM

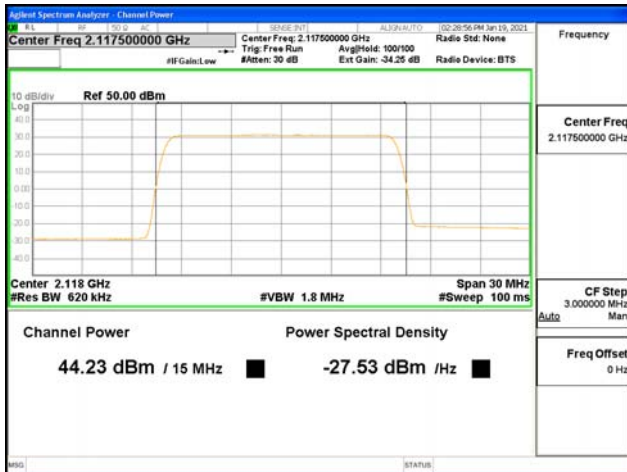


256QAM



**BW 15MHz+15MHz, Multi 2 carrier(Non-Contiguous), 4Tx, Bottom
ANT 1**

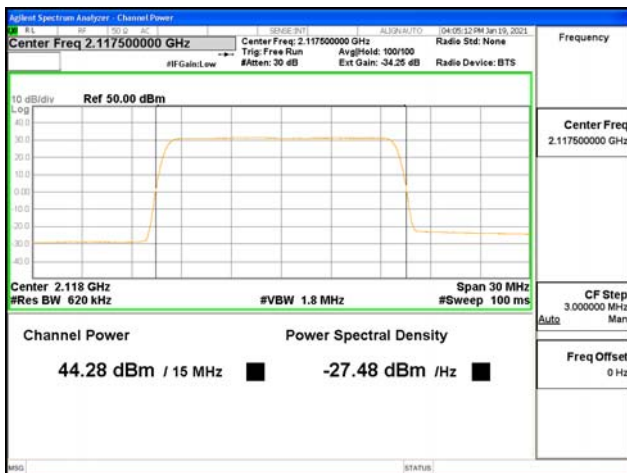
QPSK



16QAM



64QAM



256QAM



ANT 2

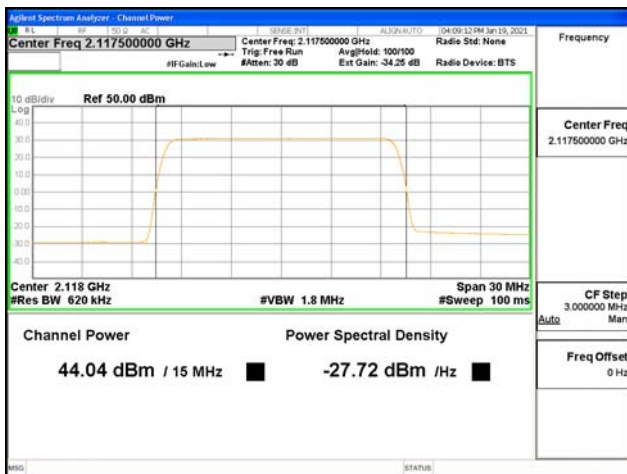
QPSK



16QAM



64QAM



256QAM



ANT 3

QPSK



16QAM



64QAM



256QAM



ANT 4

QPSK



16QAM



64QAM

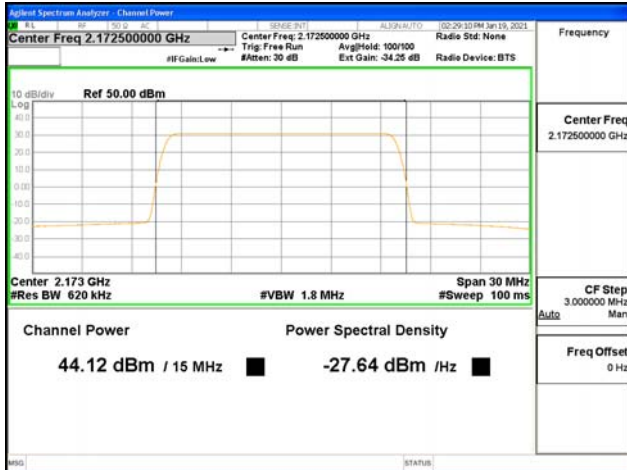


256QAM



**BW 15MHz+15MHz, Multi 2 carrier(Non-Contiguous), 4Tx, Top
ANT 1**

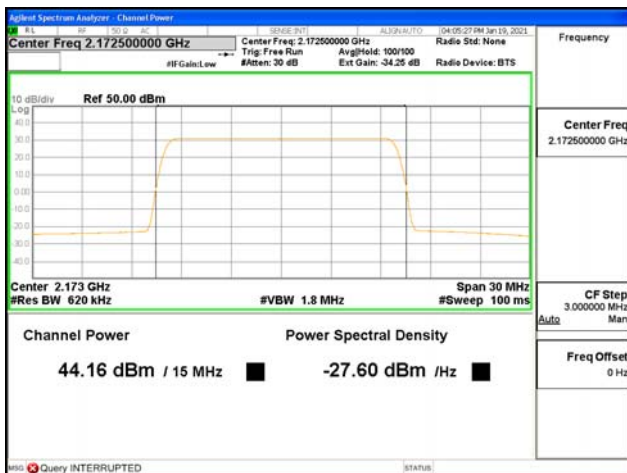
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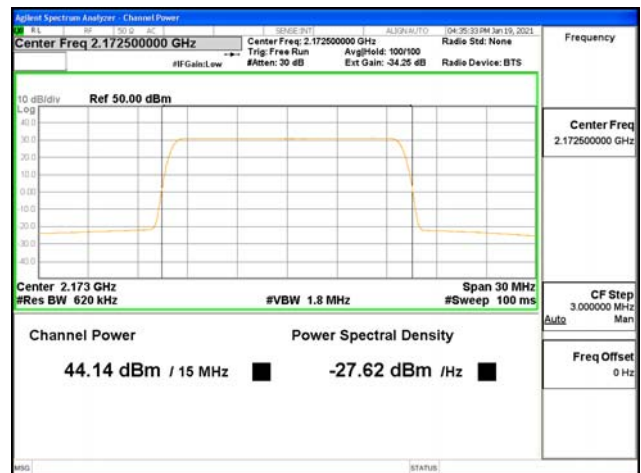
16QAM



64QAM



256QAM



ANT 2

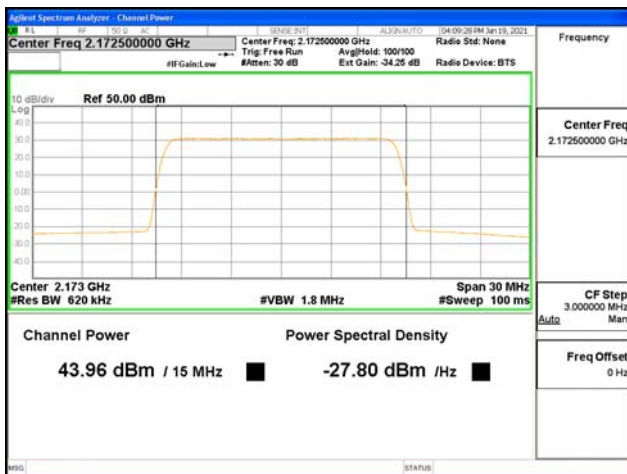
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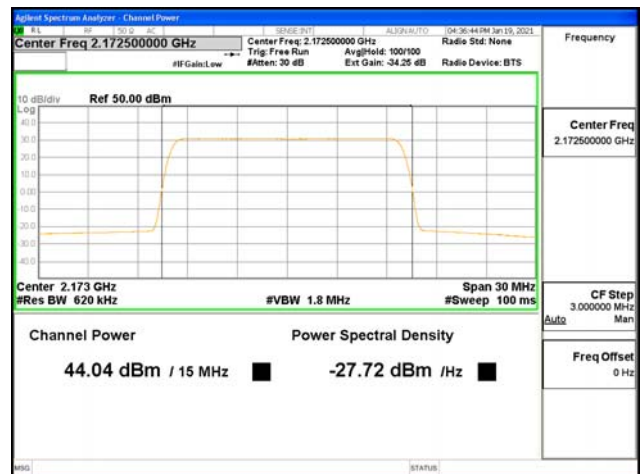
16QAM



64QAM



256QAM



ANT 3

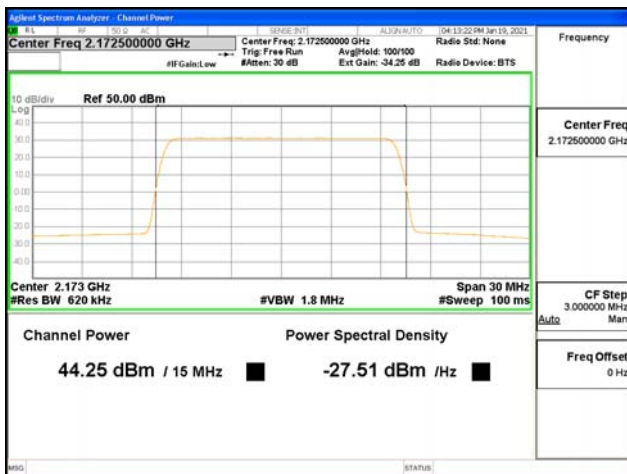
QPSK



16QAM



64QAM



256QAM



ANT 4

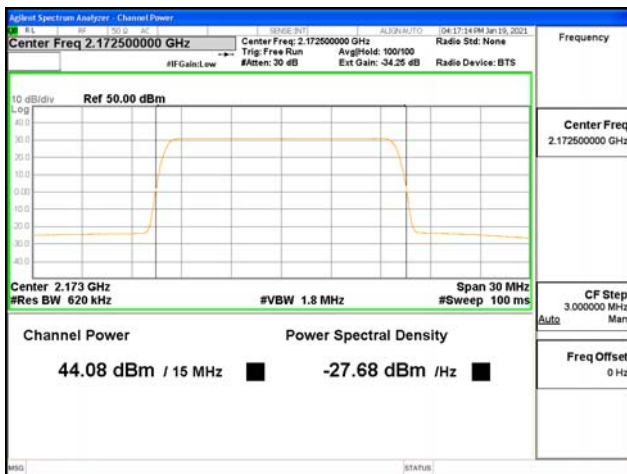
QPSK



16QAM



64QAM



256QAM



**BW 20MHz+5MHz+5MHz, Multi 3 carrier(Contiguous), 2Tx, Bottom
ANT 1**

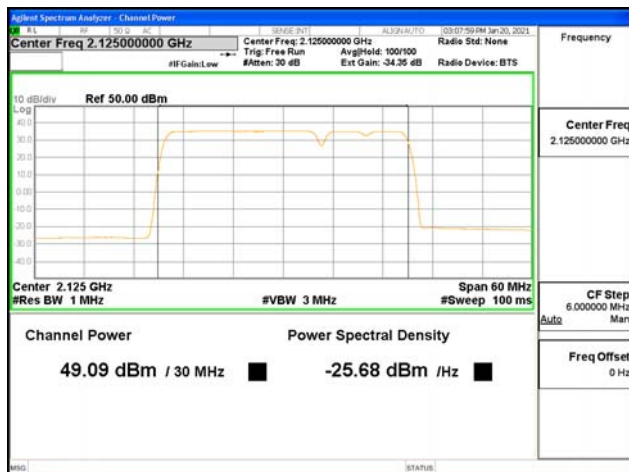
QPSK



16QAM



64QAM



256QAM



ANT 2

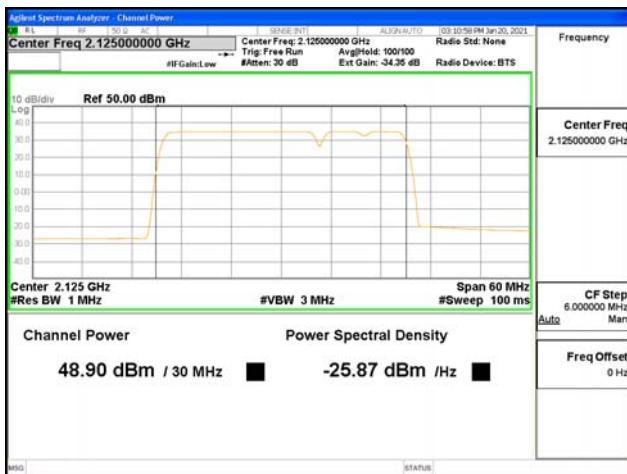
QPSK



16QAM



64QAM



256QAM



**BW 20MHz+5MHz+5MHz, Multi 3 carrier(Contiguous), 2Tx, Middle
ANT 1**

QPSK



16QAM



64QAM

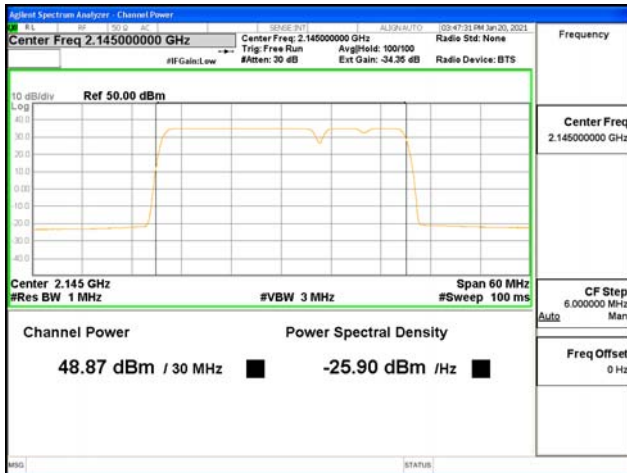


256QAM



ANT 2

QPSK



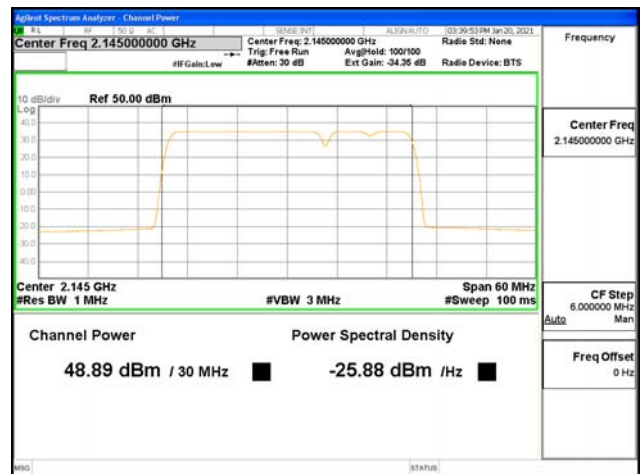
16QAM



64QAM



256QAM



**BW 20MHz+5MHz+5MHz, Multi 3 carrier(Contiguous), 2Tx, Top
ANT 1**

QPSK



16QAM



64QAM

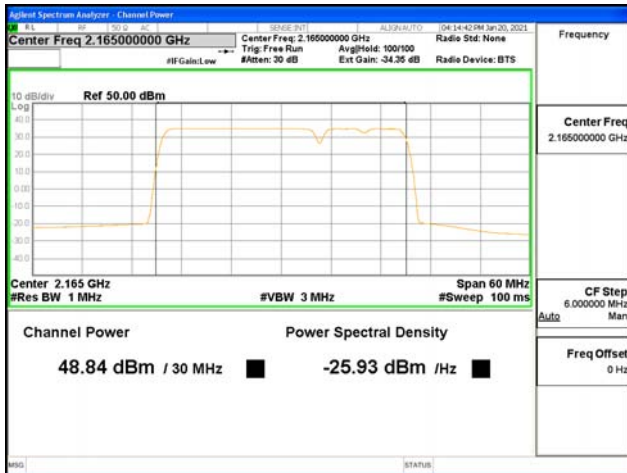


256QAM



ANT 2

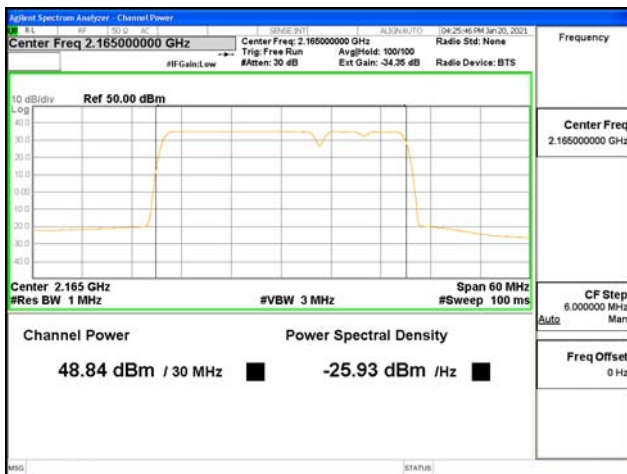
QPSK



16QAM



64QAM

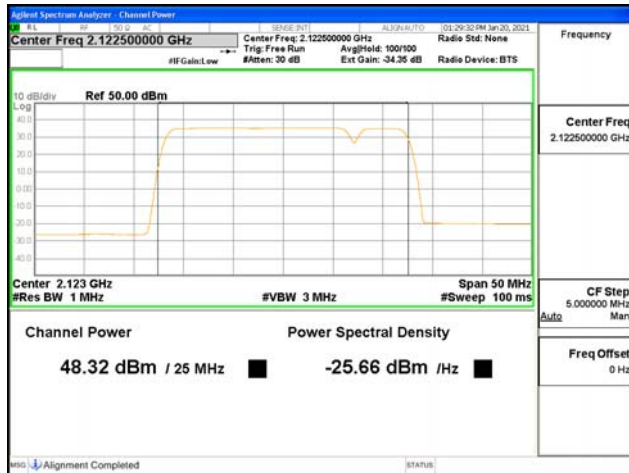


256QAM



**BW 20MHz+5MHz+5MHz, Multi 3 carrier(Non-Contiguous), 2Tx, Bottom
ANT 1**

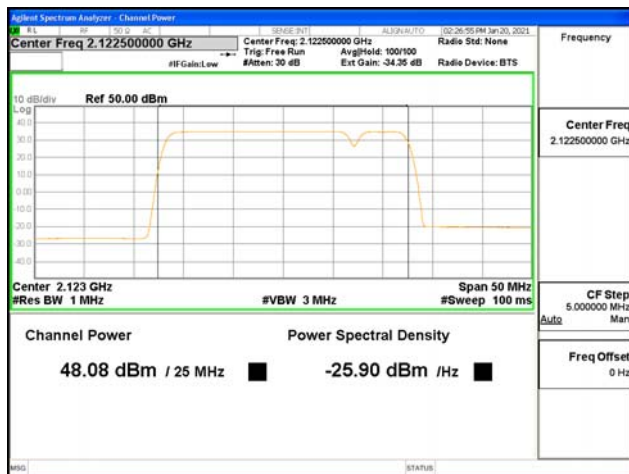
QPSK



16QAM



64QAM



256QAM



ANT 2

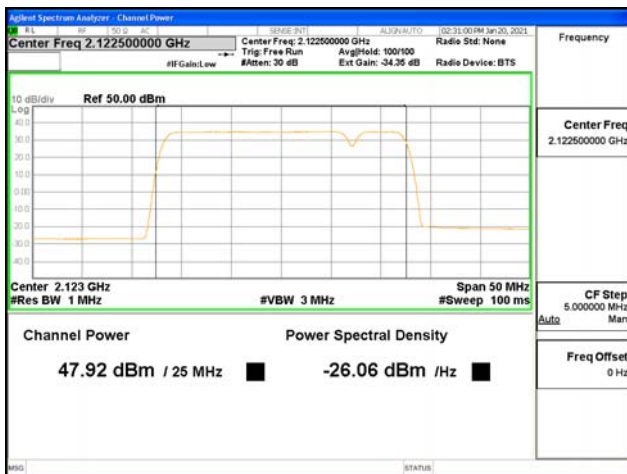
QPSK



16QAM



64QAM

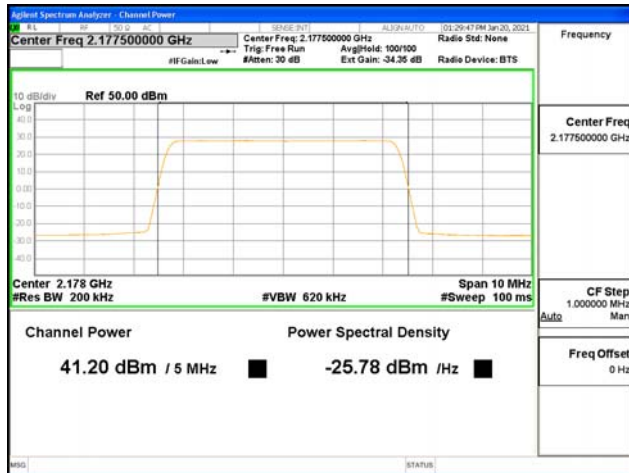


256QAM



**BW 20MHz+5MHz+5MHz, Multi 3 carrier(Non-Contiguous), 2Tx, Top
ANT 1**

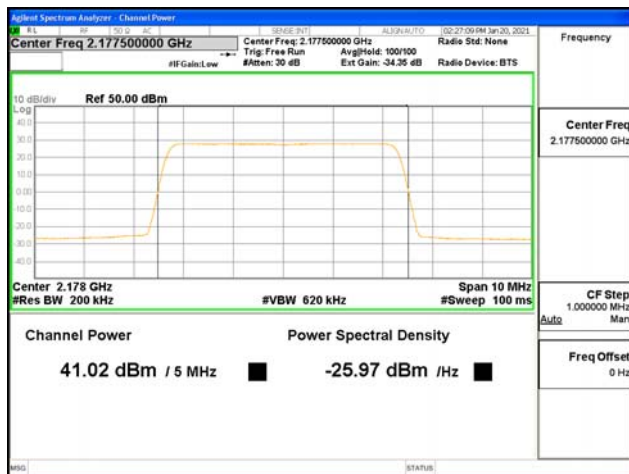
QPSK



16QAM



64QAM



256QAM



ANT 2

QPSK



16QAM



64QAM



256QAM



**BW 20MHz+5MHz+5MHz, Multi 3 carrier(Contiguous), 4Tx, Bottom
ANT 1**

QPSK



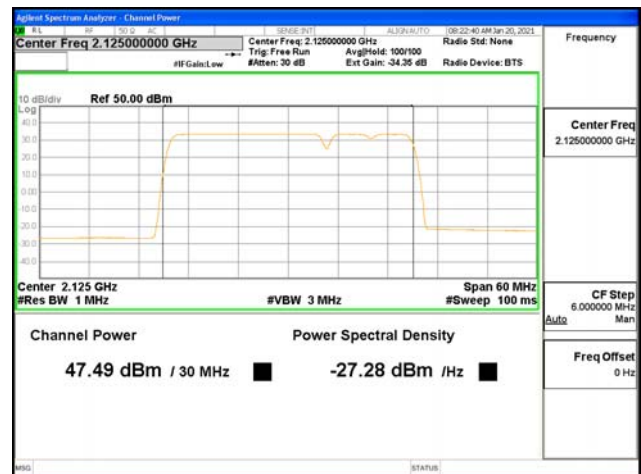
16QAM



64QAM



256QAM



ANT 2

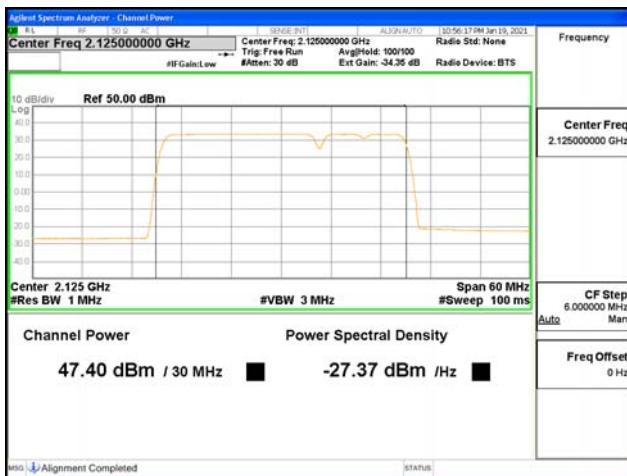
QPSK



16QAM



64QAM



256QAM



ANT 3

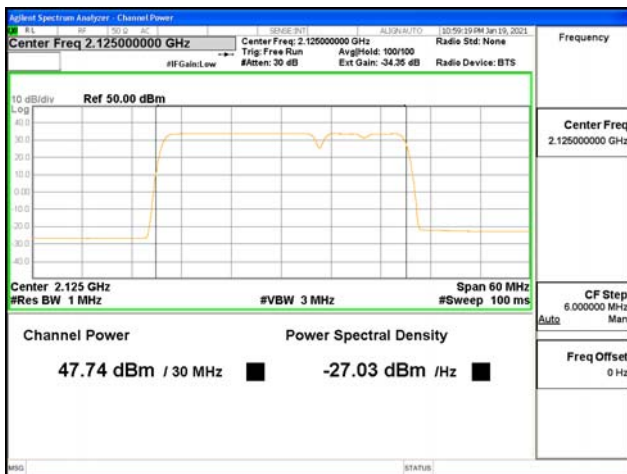
QPSK



16QAM



64QAM



256QAM



ANT 4

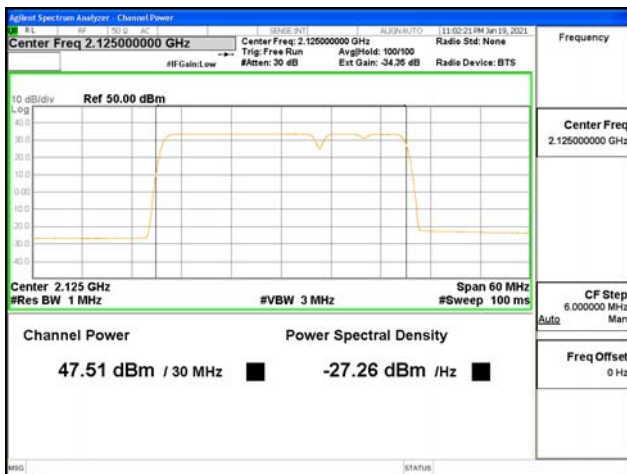
QPSK



16QAM



64QAM



256QAM



**BW 20MHz+5MHz+5MHz, Multi 3 carrier(Contiguous), 4Tx, Middle
ANT 1**

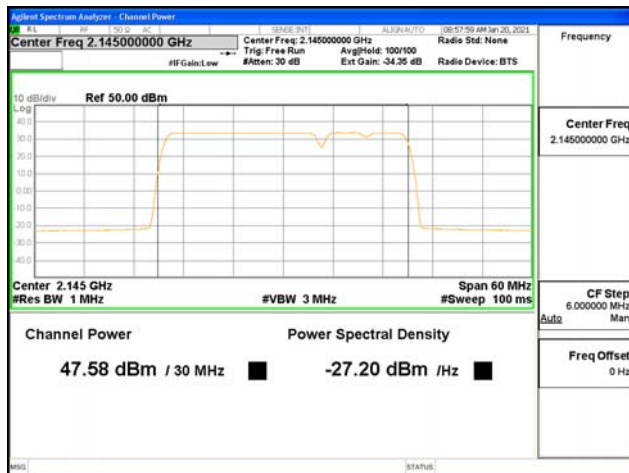
QPSK



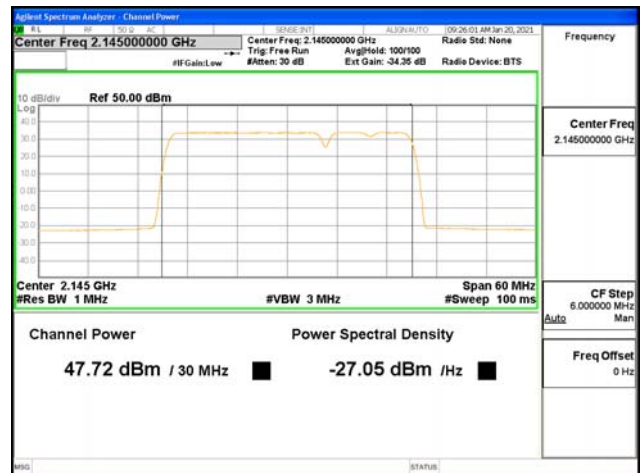
16QAM



64QAM



256QAM



ANT 2

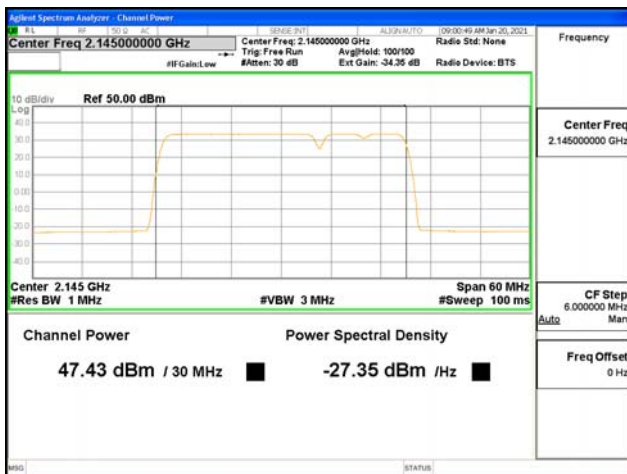
QPSK



16QAM



64QAM



256QAM

