

step f). If a marker is below this “-X dB amplitude” value it should be as close as possible to this value. The OBW is the positive frequency difference between the two markers. The spectral envelope can cross the “-X dB amplitude” at multiple points. The lowest or highest frequency shall be selected as the frequencies that are the farthest away from the center frequency at which the spectral envelope crosses the “-X dB amplitude.”

j) The OBW shall be reported by providing plot(s) of the measuring instrument display, to include markers depicting the relevant frequency and amplitude information (e.g., marker table). The frequency and amplitude axis and scale shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

5.4.4 Occupied bandwidth—Power bandwidth (99%) measurement procedure

a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (typically a span of $1.5 \times \text{OBW}$ is sufficient).

b) The nominal IF filter 3 dB bandwidth (RBW) shall be in the range of 1% to 5% of the anticipated OBW, and the VBW shall be set $\geq 3 \times \text{RBW}$.

c) Set the reference level of the instrument as required to prevent the signal amplitude from exceeding the maximum spectrum analyzer input mixer level for linear operation. See guidance provided in 4.2.3.

NOTE—Step a), step b), and step c) may require iteration to adjust within the specified tolerances.

d) Set the detection mode to peak, and the trace mode to max-hold.

e) If the instrument does not have a 99% OBW function, recover the trace data points and sum directly in linear power terms. Place the recovered amplitude data points, beginning at the lowest frequency, in a running sum until 0.5% of the total is reached. Record that frequency as the lower OBW frequency. Repeat the process until 99.5% of the total is reached and record that frequency as the upper OBW frequency. The 99% power OBW can be determined by computing the difference these two frequencies.

f) The OBW shall be reported and plot(s) of the measuring instrument display shall be provided with the test report. The frequency and amplitude axis and scale shall be clearly labeled. Tabular data can be reported in addition to the plot(s).

Max Power for External Ant Test Results:

10 MHz Bandwidth / 1 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3555.00	8.9819
		Middle	3625.00	8.9702
		High	3695.00	8.9603
	16QAM	Low	3555.00	8.9779
		Middle	3625.00	8.9688
		High	3695.00	8.9724
	64QAM	Low	3555.00	8.9684
		Middle	3625.00	8.9936
		High	3695.00	8.9994
	256QAM	Low	3555.00	8.9872
		Middle	3625.00	8.9826
		High	3695.00	9.0096
Port 1	QPSK	Low	3555.00	9.0037
		Middle	3625.00	8.9660
		High	3695.00	8.9645
	16QAM	Low	3555.00	9.0185
		Middle	3625.00	9.0019
		High	3695.00	8.9894
	64QAM	Low	3555.00	8.9538
		Middle	3625.00	8.9772
		High	3695.00	8.9874
	256QAM	Low	3555.00	8.9916
		Middle	3625.00	8.9991
		High	3695.00	8.9694
Port 2	QPSK	Low	3555.00	8.9588
		Middle	3625.00	8.9880
		High	3695.00	9.0024
	16QAM	Low	3555.00	8.9942
		Middle	3625.00	8.9667
		High	3695.00	8.9772
	64QAM	Low	3555.00	8.9637

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
		Middle	3625.00	9.0003
		High	3695.00	8.9638
	256QAM	Low	3555.00	8.9787
		Middle	3625.00	8.9980
		High	3695.00	8.9692
Port 3	QPSK	Low	3555.00	8.9722
		Middle	3625.00	9.0094
		High	3695.00	8.9682
	16QAM	Low	3555.00	9.0051
		Middle	3625.00	8.9902
		High	3695.00	9.0093
	64QAM	Low	3555.00	8.9813
		Middle	3625.00	8.9932
		High	3695.00	8.9944
	256QAM	Low	3555.00	8.9896
		Middle	3625.00	8.9725
		High	3695.00	8.9889

20 MHz Bandwidth / 1 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3560.00	17.9172
		Middle	3625.00	17.9422
		High	3690.00	17.9220
	16QAM	Low	3560.00	17.9025
		Middle	3625.00	17.9593
		High	3690.00	17.9346
	64QAM	Low	3560.00	17.9428
		Middle	3625.00	17.9144
		High	3690.00	17.9242
	256QAM	Low	3560.00	17.9193
		Middle	3625.00	17.9210
		High	3690.00	17.9014
Port 1	QPSK	Low	3560.00	17.9038
		Middle	3625.00	17.9197
		High	3690.00	17.9415
	16QAM	Low	3560.00	17.9840
		Middle	3625.00	17.9291
		High	3690.00	18.0053
	64QAM	Low	3560.00	17.9563
		Middle	3625.00	17.9386
		High	3690.00	17.9245
	256QAM	Low	3560.00	17.9314
		Middle	3625.00	17.9084
		High	3690.00	17.9320
Port 2	QPSK	Low	3560.00	17.8964
		Middle	3625.00	17.9375
		High	3690.00	17.8832
	16QAM	Low	3560.00	17.9295
		Middle	3625.00	17.9156
		High	3690.00	17.9669
	64QAM	Low	3560.00	17.9158
		Middle	3625.00	17.9421

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3690.00	17.9062
		Low	3560.00	17.9777
		Middle	3625.00	17.9062
		High	3690.00	17.9243
Port 3	QPSK	Low	3560.00	17.9574
		Middle	3625.00	17.9639
		High	3690.00	17.9966
	16QAM	Low	3560.00	17.9853
		Middle	3625.00	17.9207
		High	3690.00	17.9403
	64QAM	Low	3560.00	17.8937
		Middle	3625.00	17.9564
		High	3690.00	17.9078
	256QAM	Low	3560.00	17.9314
		Middle	3625.00	17.9158
		High	3690.00	17.8920

10 MHz Bandwidth + 10 MHz Bandwidth / 2 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3560.00	18.9110
		Middle	3625.00	18.9361
		High	3690.00	18.9339
	16QAM	Low	3560.00	18.9212
		Middle	3625.00	18.9203
		High	3690.00	18.9275
	64QAM	Low	3560.00	18.9130
		Middle	3625.00	18.9355
		High	3690.00	18.8877
	256QAM	Low	3560.00	18.9481
		Middle	3625.00	18.9648
		High	3690.00	18.9359
Port 1	QPSK	Low	3560.00	18.9317
		Middle	3625.00	18.9127
		High	3690.00	18.9090
	16QAM	Low	3560.00	18.9273
		Middle	3625.00	18.9042
		High	3690.00	18.9746
	64QAM	Low	3560.00	18.9251
		Middle	3625.00	18.9214
		High	3690.00	18.9336
	256QAM	Low	3560.00	18.9005
		Middle	3625.00	18.9684
		High	3690.00	18.9295
Port 2	QPSK	Low	3560.00	18.9235
		Middle	3625.00	18.9290
		High	3690.00	18.9196
	16QAM	Low	3560.00	18.9381
		Middle	3625.00	18.9149
		High	3690.00	18.9149
	64QAM	Low	3560.00	18.9382
		Middle	3625.00	18.9386

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3690.00	18.8801
		Low	3560.00	18.9895
		Middle	3625.00	18.9240
		High	3690.00	19.0313
Port 3	QPSK	Low	3560.00	18.9524
		Middle	3625.00	18.9495
		High	3690.00	18.9056
	16QAM	Low	3560.00	18.9893
		Middle	3625.00	18.9308
		High	3690.00	18.9269
	64QAM	Low	3560.00	18.9257
		Middle	3625.00	18.8968
		High	3690.00	18.9382
	256QAM	Low	3560.00	18.9662
		Middle	3625.00	18.9752
		High	3690.00	18.9488

20 MHz Bandwidth + 10 MHz Bandwidth / 2 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3565.00	28.4686
		Middle	3625.00	28.4323
		High	3685.00	28.3360
	16QAM	Low	3565.00	28.3068
		Middle	3625.00	28.4460
		High	3685.00	28.3536
	64QAM	Low	3565.00	28.3725
		Middle	3625.00	28.3328
		High	3685.00	28.3698
	256QAM	Low	3565.00	28.3705
		Middle	3625.00	28.3360
		High	3685.00	28.3584
Port 1	QPSK	Low	3565.00	28.3605
		Middle	3625.00	28.3684
		High	3685.00	28.3849
	16QAM	Low	3565.00	28.4075
		Middle	3625.00	28.4027
		High	3685.00	28.4181
	64QAM	Low	3565.00	28.3892
		Middle	3625.00	28.3301
		High	3685.00	28.3381
	256QAM	Low	3565.00	28.3351
		Middle	3625.00	28.4598
		High	3685.00	28.4157
Port 2	QPSK	Low	3565.00	28.4220
		Middle	3625.00	28.4007
		High	3685.00	28.4190
	16QAM	Low	3565.00	28.4140
		Middle	3625.00	28.3856
		High	3685.00	28.4546
	64QAM	Low	3565.00	28.3785
		Middle	3625.00	28.4013

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3685.00	28.3553
		Low	3565.00	28.3914
		Middle	3625.00	28.3334
		High	3685.00	28.3748
Port 3	QPSK	Low	3565.00	28.3707
		Middle	3625.00	28.3975
		High	3685.00	28.4269
	16QAM	Low	3565.00	28.4250
		Middle	3625.00	28.3753
		High	3685.00	28.4129
	64QAM	Low	3565.00	28.3606
		Middle	3625.00	28.5206
		High	3685.00	28.3681
	256QAM	Low	3565.00	28.4392
		Middle	3625.00	28.4304
		High	3685.00	28.4303

20 MHz Bandwidth + 20 MHz Bandwidth / 2 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3570.00	37.8175
		Middle	3625.00	37.8856
		High	3680.00	37.7748
	16QAM	Low	3570.00	37.8419
		Middle	3625.00	37.8164
		High	3680.00	37.7556
	64QAM	Low	3570.00	37.8100
		Middle	3625.00	37.8181
		High	3680.00	37.8737
	256QAM	Low	3570.00	37.7384
		Middle	3625.00	37.8483
		High	3680.00	37.8232
Port 1	QPSK	Low	3570.00	37.7774
		Middle	3625.00	37.8125
		High	3680.00	37.7266
	16QAM	Low	3570.00	37.8970
		Middle	3625.00	37.7826
		High	3680.00	37.8586
	64QAM	Low	3570.00	37.7908
		Middle	3625.00	37.8283
		High	3680.00	37.8265
	256QAM	Low	3570.00	37.7497
		Middle	3625.00	37.7896
		High	3680.00	37.8291
Port 2	QPSK	Low	3570.00	37.7148
		Middle	3625.00	37.8465
		High	3680.00	37.8780
	16QAM	Low	3570.00	37.8410
		Middle	3625.00	37.9211
		High	3680.00	37.7482
	64QAM	Low	3570.00	37.8382
		Middle	3625.00	37.7888

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3680.00	37.8151
		Low	3570.00	37.8277
		Middle	3625.00	37.7826
		High	3680.00	37.8820
Port 3	QPSK	Low	3570.00	37.7620
		Middle	3625.00	37.8460
		High	3680.00	37.8208
	16QAM	Low	3570.00	37.8950
		Middle	3625.00	37.9168
		High	3680.00	37.8229
	64QAM	Low	3570.00	37.7945
		Middle	3625.00	37.8026
		High	3680.00	37.7929
	256QAM	Low	3570.00	37.8276
		Middle	3625.00	37.8308
		High	3680.00	37.8874

10 MHz Bandwidth + 10 MHz Bandwidth + 10 MHz Bandwidth / 3 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3565.00	28.8880
		Middle	3625.00	28.8856
		High	3685.00	28.8302
	16QAM	Low	3565.00	28.9690
		Middle	3625.00	28.9209
		High	3685.00	28.9192
	64QAM	Low	3565.00	28.8520
		Middle	3625.00	28.9324
		High	3685.00	28.8630
	256QAM	Low	3565.00	28.8916
		Middle	3625.00	28.8814
		High	3685.00	28.8583
Port 1	QPSK	Low	3565.00	28.8984
		Middle	3625.00	28.8965
		High	3685.00	28.8993
	16QAM	Low	3565.00	28.8607
		Middle	3625.00	28.8734
		High	3685.00	28.8761
	64QAM	Low	3565.00	28.8537
		Middle	3625.00	28.8689
		High	3685.00	28.8211
	256QAM	Low	3565.00	28.8895
		Middle	3625.00	28.9199
		High	3685.00	28.9060
Port 2	QPSK	Low	3565.00	28.8445
		Middle	3625.00	28.8657
		High	3685.00	28.8781
	16QAM	Low	3565.00	28.8928
		Middle	3625.00	28.9267
		High	3685.00	28.8798
	64QAM	Low	3565.00	28.8447
		Middle	3625.00	28.9007

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3685.00	28.8393
		Low	3565.00	28.8832
		Middle	3625.00	28.9715
		High	3685.00	28.8070
Port 3	QPSK	Low	3565.00	28.8699
		Middle	3625.00	28.9654
		High	3685.00	28.8583
	16QAM	Low	3565.00	28.8805
		Middle	3625.00	28.8919
		High	3685.00	28.8464
	64QAM	Low	3565.00	28.8422
		Middle	3625.00	28.8898
		High	3685.00	28.8336
	256QAM	Low	3565.00	28.8328
		Middle	3625.00	28.9077
		High	3685.00	28.8945

20 MHz Bandwidth + 10 MHz Bandwidth + 10 MHz Bandwidth / 3 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3570.00	38.4254
		Middle	3625.00	38.3262
		High	3680.00	38.3144
	16QAM	Low	3570.00	38.3731
		Middle	3625.00	38.3005
		High	3680.00	38.3262
	64QAM	Low	3570.00	38.2725
		Middle	3625.00	38.3323
		High	3680.00	38.2960
	256QAM	Low	3570.00	38.3003
		Middle	3625.00	38.3513
		High	3680.00	38.2767
Port 1	QPSK	Low	3570.00	38.3322
		Middle	3625.00	38.3813
		High	3680.00	38.3243
	16QAM	Low	3570.00	38.2466
		Middle	3625.00	38.3684
		High	3680.00	38.3264
	64QAM	Low	3570.00	38.3582
		Middle	3625.00	38.2487
		High	3680.00	38.2684
	256QAM	Low	3570.00	38.3153
		Middle	3625.00	38.3073
		High	3680.00	38.3023
Port 2	QPSK	Low	3570.00	38.3125
		Middle	3625.00	38.3377
		High	3680.00	38.3193
	16QAM	Low	3570.00	38.3583
		Middle	3625.00	38.4076
		High	3680.00	38.2977
	64QAM	Low	3570.00	38.3147
		Middle	3625.00	38.3730

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3680.00	38.3788
		Low	3570.00	38.3000
		Middle	3625.00	38.3470
		High	3680.00	38.3242
Port 3	QPSK	Low	3570.00	38.4211
		Middle	3625.00	38.3493
		High	3680.00	38.3040
	16QAM	Low	3570.00	38.3266
		Middle	3625.00	38.3234
		High	3680.00	38.3663
	64QAM	Low	3570.00	38.3579
		Middle	3625.00	38.3280
		High	3680.00	38.3746
	256QAM	Low	3570.00	38.3638
		Middle	3625.00	38.3449
		High	3680.00	38.2875

20 MHz Bandwidth + 20 MHz Bandwidth + 10 MHz Bandwidth / 3 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3575.00	48.2289
		Middle	3625.00	48.2094
		High	3675.00	48.2681
	16QAM	Low	3575.00	48.2936
		Middle	3625.00	48.2768
		High	3675.00	48.2295
	64QAM	Low	3575.00	48.2043
		Middle	3625.00	48.2071
		High	3675.00	48.2174
	256QAM	Low	3575.00	48.2829
		Middle	3625.00	48.2718
		High	3675.00	48.2313
Port 1	QPSK	Low	3575.00	48.3026
		Middle	3625.00	48.3206
		High	3675.00	48.2564
	16QAM	Low	3575.00	48.3410
		Middle	3625.00	48.3627
		High	3675.00	48.2377
	64QAM	Low	3575.00	48.2632
		Middle	3625.00	48.2268
		High	3675.00	48.2326
	256QAM	Low	3575.00	48.2441
		Middle	3625.00	48.2268
		High	3675.00	48.1514
Port 2	QPSK	Low	3575.00	48.1741
		Middle	3625.00	48.2664
		High	3675.00	48.2548
	16QAM	Low	3575.00	48.2798
		Middle	3625.00	48.5261
		High	3675.00	48.2692
	64QAM	Low	3575.00	48.2698
		Middle	3625.00	48.3141

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3675.00	48.2923
		Low	3575.00	48.2424
		Middle	3625.00	48.3083
		High	3675.00	48.2461
Port 3	QPSK	Low	3575.00	48.2755
		Middle	3625.00	48.2186
		High	3675.00	48.1945
	16QAM	Low	3575.00	48.2074
		Middle	3625.00	48.2831
		High	3675.00	48.2014
	64QAM	Low	3575.00	48.2630
		Middle	3625.00	48.2925
		High	3675.00	48.2709
	256QAM	Low	3575.00	48.2029
		Middle	3625.00	48.3019
		High	3675.00	48.2615

20 MHz Bandwidth + 20 MHz Bandwidth + 20 MHz Bandwidth / 3 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3580.00	57.7438
		Middle	3625.00	57.7030
		High	3670.00	57.5665
	16QAM	Low	3580.00	57.8053
		Middle	3625.00	57.7033
		High	3670.00	57.6644
	64QAM	Low	3580.00	57.7302
		Middle	3625.00	57.6743
		High	3670.00	57.6936
	256QAM	Low	3580.00	57.8831
		Middle	3625.00	57.7638
		High	3670.00	57.6264
Port 1	QPSK	Low	3580.00	57.6590
		Middle	3625.00	57.6487
		High	3670.00	57.5332
	16QAM	Low	3580.00	57.6190
		Middle	3625.00	57.7594
		High	3670.00	57.6717
	64QAM	Low	3580.00	57.6127
		Middle	3625.00	57.7485
		High	3670.00	57.6954
	256QAM	Low	3580.00	57.6583
		Middle	3625.00	57.6674
		High	3670.00	57.5668
Port 2	QPSK	Low	3580.00	57.6614
		Middle	3625.00	57.6511
		High	3670.00	57.6591
	16QAM	Low	3580.00	57.7102
		Middle	3625.00	57.7418
		High	3670.00	57.6418
	64QAM	Low	3580.00	57.5645
		Middle	3625.00	57.6850

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3670.00	57.6513
		Low	3580.00	57.6396
		Middle	3625.00	57.7999
		High	3670.00	57.8077
Port 3	QPSK	Low	3580.00	57.7161
		Middle	3625.00	57.5984
		High	3670.00	57.7622
	16QAM	Low	3580.00	57.7161
		Middle	3625.00	57.6987
		High	3670.00	57.8663
	64QAM	Low	3580.00	57.7461
		Middle	3625.00	57.8209
		High	3670.00	57.6375
	256QAM	Low	3580.00	57.6127
		Middle	3625.00	57.8192
		High	3670.00	57.7471

10 MHz Bandwidth + 10 MHz Bandwidth + 10 MHz Bandwidth + 10 MHz Bandwidth/ 4 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3570.00	38.7693
		Middle	3625.00	38.8427
		High	3680.00	38.6932
	16QAM	Low	3570.00	38.8821
		Middle	3625.00	38.8279
		High	3680.00	38.8443
	64QAM	Low	3570.00	38.7689
		Middle	3625.00	38.8009
		High	3680.00	38.7718
	256QAM	Low	3570.00	38.7270
		Middle	3625.00	38.8349
		High	3680.00	38.7594
Port 1	QPSK	Low	3570.00	38.7431
		Middle	3625.00	38.8583
		High	3680.00	38.7790
	16QAM	Low	3570.00	38.7708
		Middle	3625.00	38.8542
		High	3680.00	38.8717
	64QAM	Low	3570.00	38.7681
		Middle	3625.00	38.8705
		High	3680.00	38.7881
	256QAM	Low	3570.00	38.8620
		Middle	3625.00	38.8357
		High	3680.00	38.7586
Port 2	QPSK	Low	3570.00	38.7839
		Middle	3625.00	38.7844
		High	3680.00	38.7033
	16QAM	Low	3570.00	38.8677
		Middle	3625.00	38.8425
		High	3680.00	38.8166
	64QAM	Low	3570.00	38.8627
		Middle	3625.00	38.7211

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3680.00	38.8317
		Low	3570.00	38.7700
		Middle	3625.00	38.8206
		High	3680.00	38.7819
Port 3	QPSK	Low	3570.00	38.7603
		Middle	3625.00	38.7453
		High	3680.00	38.7858
	16QAM	Low	3570.00	38.7926
		Middle	3625.00	38.8537
		High	3680.00	38.8305
	64QAM	Low	3570.00	38.7692
		Middle	3625.00	38.7546
		High	3680.00	38.8437
	256QAM	Low	3570.00	38.7499
		Middle	3625.00	38.8670
		High	3680.00	38.7520

20 MHz Bandwidth + 10 MHz Bandwidth + 10 MHz Bandwidth + 10 MHz Bandwidth/ 4 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3575.00	48.2226
		Middle	3625.00	48.2740
		High	3675.00	48.2483
	16QAM	Low	3575.00	48.3158
		Middle	3625.00	48.2569
		High	3675.00	48.2729
	64QAM	Low	3575.00	48.2158
		Middle	3625.00	48.2739
		High	3675.00	48.2684
	256QAM	Low	3575.00	48.2436
		Middle	3625.00	48.3114
		High	3675.00	48.1242
Port 1	QPSK	Low	3575.00	48.3040
		Middle	3625.00	48.2408
		High	3675.00	48.2955
	16QAM	Low	3575.00	48.2925
		Middle	3625.00	48.2716
		High	3675.00	48.3009
	64QAM	Low	3575.00	48.2887
		Middle	3625.00	48.3022
		High	3675.00	48.1585
	256QAM	Low	3575.00	48.2644
		Middle	3625.00	48.2121
		High	3675.00	48.1931
Port 2	QPSK	Low	3575.00	48.3135
		Middle	3625.00	48.2922
		High	3675.00	48.2986
	16QAM	Low	3575.00	48.2836
		Middle	3625.00	48.3019
		High	3675.00	48.2845
	64QAM	Low	3575.00	48.1622
		Middle	3625.00	48.2480

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3675.00	48.2181
		Low	3575.00	48.2872
		Middle	3625.00	48.2665
		High	3675.00	48.2551
Port 3	QPSK	Low	3575.00	48.2316
		Middle	3625.00	48.2445
		High	3675.00	48.3010
	16QAM	Low	3575.00	48.2949
		Middle	3625.00	48.3097
		High	3675.00	48.3058
	64QAM	Low	3575.00	48.2250
		Middle	3625.00	48.2851
		High	3675.00	48.2779
	256QAM	Low	3575.00	48.1898
		Middle	3625.00	48.2916
		High	3675.00	48.1946

20 MHz Bandwidth + 20 MHz Bandwidth + 10 MHz Bandwidth + 10 MHz Bandwidth/ 4 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3580.00	58.1692
		Middle	3625.00	58.1963
		High	3670.00	58.2294
	16QAM	Low	3580.00	58.3173
		Middle	3625.00	58.2266
		High	3670.00	58.2821
	64QAM	Low	3580.00	58.0780
		Middle	3625.00	58.2339
		High	3670.00	58.0876
	256QAM	Low	3580.00	58.0520
		Middle	3625.00	58.1293
		High	3670.00	58.1819
Port 1	QPSK	Low	3580.00	58.1081
		Middle	3625.00	58.2731
		High	3670.00	58.1501
	16QAM	Low	3580.00	58.2779
		Middle	3625.00	58.1608
		High	3670.00	58.1722
	64QAM	Low	3580.00	58.1075
		Middle	3625.00	58.2904
		High	3670.00	58.2377
	256QAM	Low	3580.00	58.1766
		Middle	3625.00	58.1338
		High	3670.00	58.0915
Port 2	QPSK	Low	3580.00	58.1401
		Middle	3625.00	58.1656
		High	3670.00	58.2397
	16QAM	Low	3580.00	58.2935
		Middle	3625.00	58.3185
		High	3670.00	58.2379
	64QAM	Low	3580.00	58.1166
		Middle	3625.00	58.1834

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3670.00	58.1722
		Low	3580.00	58.1058
		Middle	3625.00	58.1200
		High	3670.00	58.1494
Port 3	QPSK	Low	3580.00	58.1730
		Middle	3625.00	58.2534
		High	3670.00	58.1385
	16QAM	Low	3580.00	58.1843
		Middle	3625.00	58.3532
		High	3670.00	58.1496
	64QAM	Low	3580.00	58.1777
		Middle	3625.00	58.2564
		High	3670.00	58.1767
	256QAM	Low	3580.00	58.2738
		Middle	3625.00	58.0920
		High	3670.00	58.1526

20 MHz Bandwidth + 20 MHz Bandwidth + 20 MHz Bandwidth + 10 MHz Bandwidth/ 4 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3585.00	68.0813
		Middle	3625.00	68.1605
		High	3665.00	68.1136
	16QAM	Low	3585.00	68.2575
		Middle	3625.00	68.2535
		High	3665.00	68.2904
	64QAM	Low	3585.00	68.1882
		Middle	3625.00	68.2399
		High	3665.00	68.0877
	256QAM	Low	3585.00	68.1297
		Middle	3625.00	68.2943
		High	3665.00	68.2047
Port 1	QPSK	Low	3585.00	68.1117
		Middle	3625.00	68.2600
		High	3665.00	67.9997
	16QAM	Low	3585.00	68.1711
		Middle	3625.00	68.2272
		High	3665.00	68.1661
	64QAM	Low	3585.00	68.2752
		Middle	3625.00	68.2469
		High	3665.00	68.1895
	256QAM	Low	3585.00	68.1889
		Middle	3625.00	68.2056
		High	3665.00	68.1890
Port 2	QPSK	Low	3585.00	68.0798
		Middle	3625.00	68.1145
		High	3665.00	68.2177
	16QAM	Low	3585.00	68.1617
		Middle	3625.00	68.3279
		High	3665.00	68.1103
	64QAM	Low	3585.00	68.0111
		Middle	3625.00	68.2334

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3665.00	68.1618
		Low	3585.00	68.1026
		Middle	3625.00	68.1887
		High	3665.00	68.2031
Port 3	QPSK	Low	3585.00	68.0763
		Middle	3625.00	68.3019
		High	3665.00	68.1148
	16QAM	Low	3585.00	68.1537
		Middle	3625.00	68.2077
		High	3665.00	68.1759
	64QAM	Low	3585.00	68.2612
		Middle	3625.00	68.1871
		High	3665.00	68.1543
	256QAM	Low	3585.00	68.1008
		Middle	3625.00	68.2335
		High	3665.00	68.1549

20 MHz Bandwidth + 20 MHz Bandwidth + 20 MHz Bandwidth + 20 MHz Bandwidth/ 4 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3590.00	77.6363
		Middle	3625.00	77.4803
		High	3660.00	77.5664
	16QAM	Low	3590.00	77.5233
		Middle	3625.00	77.5909
		High	3660.00	77.4499
	64QAM	Low	3590.00	77.5110
		Middle	3625.00	77.6734
		High	3660.00	77.4553
	256QAM	Low	3590.00	77.5513
		Middle	3625.00	77.6025
		High	3660.00	77.6523
Port 1	QPSK	Low	3590.00	77.5322
		Middle	3625.00	77.6040
		High	3660.00	77.5230
	16QAM	Low	3590.00	77.6231
		Middle	3625.00	77.6535
		High	3660.00	77.4519
	64QAM	Low	3590.00	77.5180
		Middle	3625.00	77.6299
		High	3660.00	77.5648
	256QAM	Low	3590.00	77.6958
		Middle	3625.00	77.4695
		High	3660.00	77.6010
Port 2	QPSK	Low	3590.00	77.5711
		Middle	3625.00	77.5948
		High	3660.00	77.3241
	16QAM	Low	3590.00	77.6134
		Middle	3625.00	77.7632
		High	3660.00	77.4920
	64QAM	Low	3590.00	77.5787
		Middle	3625.00	77.5493

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3660.00	77.4779
		Low	3590.00	77.5163
		Middle	3625.00	77.6656
		High	3660.00	77.5647
Port 3	QPSK	Low	3590.00	77.5710
		Middle	3625.00	77.5855
		High	3660.00	77.5177
	16QAM	Low	3590.00	77.5792
		Middle	3625.00	77.6340
		High	3660.00	77.5556
	64QAM	Low	3590.00	77.4863
		Middle	3625.00	77.6584
		High	3660.00	77.4405
	256QAM	Low	3590.00	77.6046
		Middle	3625.00	77.4020
		High	3660.00	77.5656

* This test report only contains the worst case plot data for each port and modulation.

Max Power for Clip-on Ant Test Results:

10 MHz Bandwidth / 1 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3555.00	8.9912
		Middle	3625.00	8.9863
		High	3695.00	8.9764
	16QAM	Low	3555.00	8.9862
		Middle	3625.00	8.9892
		High	3695.00	8.9966
	64QAM	Low	3555.00	8.9916
		Middle	3625.00	9.0006
		High	3695.00	9.0149
	256QAM	Low	3555.00	8.9905
		Middle	3625.00	8.9779
		High	3695.00	8.9889
Port 1	QPSK	Low	3555.00	8.9973
		Middle	3625.00	8.9581
		High	3695.00	8.9533
	16QAM	Low	3555.00	8.9906
		Middle	3625.00	8.9773
		High	3695.00	8.9946
	64QAM	Low	3555.00	8.9995
		Middle	3625.00	8.9563
		High	3695.00	8.9945
	256QAM	Low	3555.00	8.9758
		Middle	3625.00	8.9815
		High	3695.00	8.9884
Port 2	QPSK	Low	3555.00	8.9911
		Middle	3625.00	8.9511
		High	3695.00	9.0158
	16QAM	Low	3555.00	9.0028
		Middle	3625.00	9.0051
		High	3695.00	8.9855
	64QAM	Low	3555.00	8.9896

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
		Middle	3625.00	8.9900
		High	3695.00	8.9906
	256QAM	Low	3555.00	8.9839
		Middle	3625.00	8.9659
		High	3695.00	8.9673
Port 3	QPSK	Low	3555.00	9.0140
		Middle	3625.00	8.9589
		High	3695.00	8.9809
	16QAM	Low	3555.00	8.9743
		Middle	3625.00	8.9591
		High	3695.00	8.9422
	64QAM	Low	3555.00	9.0020
		Middle	3625.00	8.9910
		High	3695.00	8.9756
	256QAM	Low	3555.00	8.9699
		Middle	3625.00	9.0052
		High	3695.00	9.0063

20 MHz Bandwidth / 1 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3560.00	17.9283
		Middle	3625.00	17.9646
		High	3690.00	17.9337
	16QAM	Low	3560.00	17.9636
		Middle	3625.00	17.9157
		High	3690.00	17.9395
	64QAM	Low	3560.00	17.9568
		Middle	3625.00	17.9566
		High	3690.00	17.9051
	256QAM	Low	3560.00	17.9633
		Middle	3625.00	17.9049
		High	3690.00	17.9435
Port 1	QPSK	Low	3560.00	17.9192
		Middle	3625.00	17.9442
		High	3690.00	17.9202
	16QAM	Low	3560.00	17.9666
		Middle	3625.00	17.9139
		High	3690.00	17.8987
	64QAM	Low	3560.00	17.9362
		Middle	3625.00	17.9427
		High	3690.00	17.9058
	256QAM	Low	3560.00	17.9617
		Middle	3625.00	17.9849
		High	3690.00	17.8882
Port 2	QPSK	Low	3560.00	17.9609
		Middle	3625.00	17.9304
		High	3690.00	17.9651
	16QAM	Low	3560.00	17.9650
		Middle	3625.00	17.8855
		High	3690.00	17.8929
	64QAM	Low	3560.00	17.9447
		Middle	3625.00	17.9425

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3690.00	17.9405
		Low	3560.00	17.9681
		Middle	3625.00	17.9602
		High	3690.00	17.9470
Port 3	QPSK	Low	3560.00	17.9269
		Middle	3625.00	17.9926
		High	3690.00	17.8886
	16QAM	Low	3560.00	17.9522
		Middle	3625.00	17.9324
		High	3690.00	17.9167
	64QAM	Low	3560.00	17.9510
		Middle	3625.00	17.9048
		High	3690.00	17.9215
	256QAM	Low	3560.00	17.9663
		Middle	3625.00	17.9656
		High	3690.00	17.9557

10 MHz Bandwidth + 10 MHz Bandwidth / 2 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3560.00	18.9292
		Middle	3625.00	18.9780
		High	3690.00	18.9519
	16QAM	Low	3560.00	18.9101
		Middle	3625.00	18.9286
		High	3690.00	18.8928
	64QAM	Low	3560.00	18.9136
		Middle	3625.00	18.8937
		High	3690.00	18.9087
	256QAM	Low	3560.00	18.9403
		Middle	3625.00	18.9377
		High	3690.00	18.9076
Port 1	QPSK	Low	3560.00	18.9460
		Middle	3625.00	18.9294
		High	3690.00	18.9148
	16QAM	Low	3560.00	18.9108
		Middle	3625.00	18.9261
		High	3690.00	18.8967
	64QAM	Low	3560.00	18.8879
		Middle	3625.00	18.8884
		High	3690.00	18.9348
	256QAM	Low	3560.00	18.9058
		Middle	3625.00	18.9620
		High	3690.00	18.9442
Port 2	QPSK	Low	3560.00	18.8962
		Middle	3625.00	18.9492
		High	3690.00	18.9084
	16QAM	Low	3560.00	18.9479
		Middle	3625.00	18.9555
		High	3690.00	18.9208
	64QAM	Low	3560.00	18.9146
		Middle	3625.00	18.9075

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3690.00	18.8975
		Low	3560.00	18.9883
		Middle	3625.00	18.8859
		High	3690.00	18.9212
Port 3	QPSK	Low	3560.00	18.9267
		Middle	3625.00	18.9455
		High	3690.00	18.9090
	16QAM	Low	3560.00	18.9139
		Middle	3625.00	18.9326
		High	3690.00	18.9302
	64QAM	Low	3560.00	18.8948
		Middle	3625.00	18.9293
		High	3690.00	18.9329
	256QAM	Low	3560.00	18.9360
		Middle	3625.00	18.9358
		High	3690.00	18.9375

20 MHz Bandwidth + 10 MHz Bandwidth / 2 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3565.00	28.4287
		Middle	3625.00	28.3670
		High	3685.00	28.3579
	16QAM	Low	3565.00	28.3695
		Middle	3625.00	28.4526
		High	3685.00	28.3763
	64QAM	Low	3565.00	28.3699
		Middle	3625.00	28.3645
		High	3685.00	28.3392
	256QAM	Low	3565.00	28.4541
		Middle	3625.00	28.3965
		High	3685.00	28.3248
Port 1	QPSK	Low	3565.00	28.4288
		Middle	3625.00	28.3507
		High	3685.00	28.4331
	16QAM	Low	3565.00	28.3940
		Middle	3625.00	28.3996
		High	3685.00	28.3778
	64QAM	Low	3565.00	28.3772
		Middle	3625.00	28.3857
		High	3685.00	28.3217
	256QAM	Low	3565.00	28.4298
		Middle	3625.00	28.4437
		High	3685.00	28.4141
Port 2	QPSK	Low	3565.00	28.4049
		Middle	3625.00	28.4823
		High	3685.00	28.4020
	16QAM	Low	3565.00	28.4357
		Middle	3625.00	28.4097
		High	3685.00	28.3871
	64QAM	Low	3565.00	28.3538
		Middle	3625.00	28.2862

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3685.00	28.3303
		Low	3565.00	28.3445
		Middle	3625.00	28.3983
		High	3685.00	28.3542
Port 3	QPSK	Low	3565.00	28.3778
		Middle	3625.00	28.4133
		High	3685.00	28.3919
	16QAM	Low	3565.00	28.3938
		Middle	3625.00	28.4283
		High	3685.00	28.4827
	64QAM	Low	3565.00	28.3766
		Middle	3625.00	28.3463
		High	3685.00	28.3968
	256QAM	Low	3565.00	28.3914
		Middle	3625.00	28.4135
		High	3685.00	28.3704

20 MHz Bandwidth + 20 MHz Bandwidth / 2 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3570.00	37.8523
		Middle	3625.00	37.8710
		High	3680.00	37.8288
	16QAM	Low	3570.00	37.8255
		Middle	3625.00	37.8704
		High	3680.00	37.8143
	64QAM	Low	3570.00	37.8763
		Middle	3625.00	37.9285
		High	3680.00	37.8347
	256QAM	Low	3570.00	37.9981
		Middle	3625.00	37.8270
		High	3680.00	37.8497
Port 1	QPSK	Low	3570.00	37.8361
		Middle	3625.00	37.8042
		High	3680.00	37.8215
	16QAM	Low	3570.00	37.8257
		Middle	3625.00	37.8456
		High	3680.00	37.8157
	64QAM	Low	3570.00	37.9059
		Middle	3625.00	37.8873
		High	3680.00	37.7562
	256QAM	Low	3570.00	37.8715
		Middle	3625.00	37.8683
		High	3680.00	37.7409
Port 2	QPSK	Low	3570.00	37.8987
		Middle	3625.00	37.9082
		High	3680.00	37.8659
	16QAM	Low	3570.00	37.8003
		Middle	3625.00	37.8650
		High	3680.00	37.7799
	64QAM	Low	3570.00	37.8364
		Middle	3625.00	37.8938

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3680.00	37.8400
		Low	3570.00	37.8271
		Middle	3625.00	37.7303
		High	3680.00	37.8284
Port 3	QPSK	Low	3570.00	37.8394
		Middle	3625.00	37.8794
		High	3680.00	37.8509
	16QAM	Low	3570.00	37.8691
		Middle	3625.00	37.7940
		High	3680.00	37.7632
	64QAM	Low	3570.00	37.8372
		Middle	3625.00	37.8514
		High	3680.00	37.8351
	256QAM	Low	3570.00	37.8462
		Middle	3625.00	37.7927
		High	3680.00	37.8529

10 MHz Bandwidth + 10 MHz Bandwidth + 10 MHz Bandwidth / 3 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3565.00	28.8977
		Middle	3625.00	28.9189
		High	3685.00	28.8764
	16QAM	Low	3565.00	28.8854
		Middle	3625.00	28.8896
		High	3685.00	28.8685
	64QAM	Low	3565.00	28.8679
		Middle	3625.00	28.8930
		High	3685.00	28.8445
	256QAM	Low	3565.00	28.8468
		Middle	3625.00	28.8393
		High	3685.00	28.8607
Port 1	QPSK	Low	3565.00	28.9002
		Middle	3625.00	28.8714
		High	3685.00	28.8362
	16QAM	Low	3565.00	28.8748
		Middle	3625.00	28.8680
		High	3685.00	28.8780
	64QAM	Low	3565.00	28.8767
		Middle	3625.00	28.8970
		High	3685.00	28.8853
	256QAM	Low	3565.00	28.8735
		Middle	3625.00	28.9045
		High	3685.00	28.8766
Port 2	QPSK	Low	3565.00	28.8952
		Middle	3625.00	28.9032
		High	3685.00	28.8992
	16QAM	Low	3565.00	28.8930
		Middle	3625.00	28.8643
		High	3685.00	28.8363
	64QAM	Low	3565.00	28.8707
		Middle	3625.00	28.9417

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3685.00	28.8718
		Low	3565.00	28.8715
		Middle	3625.00	28.8656
		High	3685.00	28.8374
Port 3	QPSK	Low	3565.00	28.8365
		Middle	3625.00	28.9279
		High	3685.00	28.9072
	16QAM	Low	3565.00	28.8642
		Middle	3625.00	28.8654
		High	3685.00	28.8573
	64QAM	Low	3565.00	28.8669
		Middle	3625.00	28.9234
		High	3685.00	28.8199
	256QAM	Low	3565.00	28.8527
		Middle	3625.00	28.8633
		High	3685.00	28.8581

20 MHz Bandwidth + 10 MHz Bandwidth + 10 MHz Bandwidth / 3 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3570.00	38.2777
		Middle	3625.00	38.3932
		High	3680.00	38.3044
	16QAM	Low	3570.00	38.3222
		Middle	3625.00	38.4063
		High	3680.00	38.4432
	64QAM	Low	3570.00	38.3509
		Middle	3625.00	38.3529
		High	3680.00	38.2911
	256QAM	Low	3570.00	38.2770
		Middle	3625.00	38.3281
		High	3680.00	38.3329
Port 1	QPSK	Low	3570.00	38.3228
		Middle	3625.00	38.3615
		High	3680.00	38.3005
	16QAM	Low	3570.00	38.3101
		Middle	3625.00	38.3545
		High	3680.00	38.3513
	64QAM	Low	3570.00	38.3017
		Middle	3625.00	38.2580
		High	3680.00	38.2455
	256QAM	Low	3570.00	38.3303
		Middle	3625.00	38.3347
		High	3680.00	38.2953
Port 2	QPSK	Low	3570.00	38.3839
		Middle	3625.00	38.3351
		High	3680.00	38.3933
	16QAM	Low	3570.00	38.3223
		Middle	3625.00	38.3515
		High	3680.00	38.2624
	64QAM	Low	3570.00	38.3033
		Middle	3625.00	38.2765

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3680.00	38.3089
		Low	3570.00	38.3374
		Middle	3625.00	38.3376
		High	3680.00	38.2535
Port 3	QPSK	Low	3570.00	38.3464
		Middle	3625.00	38.3350
		High	3680.00	38.2892
	16QAM	Low	3570.00	38.2849
		Middle	3625.00	38.3714
		High	3680.00	38.3275
	64QAM	Low	3570.00	38.3326
		Middle	3625.00	38.3203
		High	3680.00	38.3492
	256QAM	Low	3570.00	38.3265
		Middle	3625.00	38.2608
		High	3680.00	38.3260

20 MHz Bandwidth + 20 MHz Bandwidth + 10 MHz Bandwidth / 3 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3575.00	48.2466
		Middle	3625.00	48.3456
		High	3675.00	48.3764
	16QAM	Low	3575.00	48.2699
		Middle	3625.00	48.2457
		High	3675.00	48.2806
	64QAM	Low	3575.00	48.2668
		Middle	3625.00	48.2684
		High	3675.00	48.2390
	256QAM	Low	3575.00	48.2487
		Middle	3625.00	48.3717
		High	3675.00	48.1377
Port 1	QPSK	Low	3575.00	48.2307
		Middle	3625.00	48.3196
		High	3675.00	48.2784
	16QAM	Low	3575.00	48.2608
		Middle	3625.00	48.3100
		High	3675.00	48.2630
	64QAM	Low	3575.00	48.2530
		Middle	3625.00	48.2959
		High	3675.00	48.2474
	256QAM	Low	3575.00	48.2057
		Middle	3625.00	48.2434
		High	3675.00	48.1848
Port 2	QPSK	Low	3575.00	48.2599
		Middle	3625.00	48.3318
		High	3675.00	48.2446
	16QAM	Low	3575.00	48.2462
		Middle	3625.00	48.3012
		High	3675.00	48.2445
	64QAM	Low	3575.00	48.2264
		Middle	3625.00	48.2540

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3675.00	48.2603
		Low	3575.00	48.2504
		Middle	3625.00	48.3149
		High	3675.00	48.2686
Port 3	QPSK	Low	3575.00	48.3255
		Middle	3625.00	48.3621
		High	3675.00	48.2450
	16QAM	Low	3575.00	48.2354
		Middle	3625.00	48.3294
		High	3675.00	48.3264
	64QAM	Low	3575.00	48.2469
		Middle	3625.00	48.2449
		High	3675.00	48.1950
	256QAM	Low	3575.00	48.2508
		Middle	3625.00	48.2456
		High	3675.00	48.4118

20 MHz Bandwidth + 20 MHz Bandwidth + 20 MHz Bandwidth / 3 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3580.00	57.7375
		Middle	3625.00	57.6946
		High	3670.00	57.6347
	16QAM	Low	3580.00	57.8021
		Middle	3625.00	57.6454
		High	3670.00	57.6969
	64QAM	Low	3580.00	57.6735
		Middle	3625.00	57.7505
		High	3670.00	57.5991
	256QAM	Low	3580.00	57.7157
		Middle	3625.00	57.7518
		High	3670.00	57.6965
Port 1	QPSK	Low	3580.00	57.6238
		Middle	3625.00	57.7593
		High	3670.00	57.6728
	16QAM	Low	3580.00	57.6645
		Middle	3625.00	57.7101
		High	3670.00	57.8109
	64QAM	Low	3580.00	57.6213
		Middle	3625.00	57.8134
		High	3670.00	57.6718
	256QAM	Low	3580.00	57.7123
		Middle	3625.00	57.7327
		High	3670.00	57.6293
Port 2	QPSK	Low	3580.00	57.7508
		Middle	3625.00	57.7475
		High	3670.00	57.6021
	16QAM	Low	3580.00	57.6490
		Middle	3625.00	57.7156
		High	3670.00	57.6849
	64QAM	Low	3580.00	57.5731
		Middle	3625.00	57.6736

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3670.00	57.6576
		Low	3580.00	57.7383
		Middle	3625.00	57.7133
		High	3670.00	57.6741
Port 3	QPSK	Low	3580.00	57.7362
		Middle	3625.00	57.6111
		High	3670.00	57.6285
	16QAM	Low	3580.00	57.6752
		Middle	3625.00	57.7778
		High	3670.00	57.6608
	64QAM	Low	3580.00	57.8071
		Middle	3625.00	57.7039
		High	3670.00	57.6169
	256QAM	Low	3580.00	57.6431
		Middle	3625.00	57.6966
		High	3670.00	57.6765

10 MHz Bandwidth + 10 MHz Bandwidth + 10 MHz Bandwidth + 10 MHz Bandwidth/ 4 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3570.00	38.8228
		Middle	3625.00	38.8175
		High	3680.00	38.7607
	16QAM	Low	3570.00	38.7924
		Middle	3625.00	38.8105
		High	3680.00	38.8448
	64QAM	Low	3570.00	38.7857
		Middle	3625.00	38.8132
		High	3680.00	38.7782
	256QAM	Low	3570.00	38.7942
		Middle	3625.00	38.8184
		High	3680.00	38.7020
Port 1	QPSK	Low	3570.00	38.8110
		Middle	3625.00	38.8457
		High	3680.00	38.8098
	16QAM	Low	3570.00	38.8578
		Middle	3625.00	38.8508
		High	3680.00	38.8163
	64QAM	Low	3570.00	38.8241
		Middle	3625.00	38.7831
		High	3680.00	38.7817
	256QAM	Low	3570.00	38.7660
		Middle	3625.00	38.8302
		High	3680.00	38.7956
Port 2	QPSK	Low	3570.00	38.8301
		Middle	3625.00	38.7944
		High	3680.00	38.7452
	16QAM	Low	3570.00	38.8333
		Middle	3625.00	38.8381
		High	3680.00	38.8997
	64QAM	Low	3570.00	38.7632
		Middle	3625.00	38.7519

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3680.00	38.7745
		Low	3570.00	38.7833
		Middle	3625.00	38.8059
		High	3680.00	38.7311
Port 3	QPSK	Low	3570.00	38.7642
		Middle	3625.00	38.8124
		High	3680.00	38.7988
	16QAM	Low	3570.00	38.8222
		Middle	3625.00	38.8243
		High	3680.00	38.8959
	64QAM	Low	3570.00	38.7905
		Middle	3625.00	38.8733
		High	3680.00	38.7414
	256QAM	Low	3570.00	38.7813
		Middle	3625.00	38.8384
		High	3680.00	38.8099

20 MHz Bandwidth + 10 MHz Bandwidth + 10 MHz Bandwidth + 10 MHz Bandwidth/ 4 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3575.00	48.2100
		Middle	3625.00	48.2854
		High	3675.00	48.2568
	16QAM	Low	3575.00	48.2813
		Middle	3625.00	48.2610
		High	3675.00	48.2350
	64QAM	Low	3575.00	48.1889
		Middle	3625.00	48.2736
		High	3675.00	48.1710
	256QAM	Low	3575.00	48.1490
		Middle	3625.00	48.2343
		High	3675.00	48.2324
Port 1	QPSK	Low	3575.00	48.2540
		Middle	3625.00	48.2467
		High	3675.00	48.2779
	16QAM	Low	3575.00	48.3796
		Middle	3625.00	48.3206
		High	3675.00	48.1766
	64QAM	Low	3575.00	48.1756
		Middle	3625.00	48.2148
		High	3675.00	48.1449
	256QAM	Low	3575.00	48.1036
		Middle	3625.00	48.1859
		High	3675.00	48.2847
Port 2	QPSK	Low	3575.00	48.2376
		Middle	3625.00	48.2231
		High	3675.00	48.2045
	16QAM	Low	3575.00	48.2717
		Middle	3625.00	48.2764
		High	3675.00	48.2960
	64QAM	Low	3575.00	48.1859
		Middle	3625.00	48.2890

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3675.00	48.3189
		Low	3575.00	48.2750
		Middle	3625.00	48.3237
		High	3675.00	48.2620
Port 3	QPSK	Low	3575.00	48.1805
		Middle	3625.00	48.3194
		High	3675.00	48.2621
	16QAM	Low	3575.00	48.2376
		Middle	3625.00	48.2628
		High	3675.00	48.2677
	64QAM	Low	3575.00	48.2010
		Middle	3625.00	48.3225
		High	3675.00	48.2042
	256QAM	Low	3575.00	48.1881
		Middle	3625.00	48.2716
		High	3675.00	48.2427

20 MHz Bandwidth + 20 MHz Bandwidth + 10 MHz Bandwidth + 10 MHz Bandwidth/ 4 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3580.00	58.1743
		Middle	3625.00	58.2745
		High	3670.00	58.1671
	16QAM	Low	3580.00	58.2899
		Middle	3625.00	58.2182
		High	3670.00	58.1056
	64QAM	Low	3580.00	58.1012
		Middle	3625.00	58.2652
		High	3670.00	58.0555
	256QAM	Low	3580.00	58.1472
		Middle	3625.00	58.2190
		High	3670.00	58.1079
Port 1	QPSK	Low	3580.00	58.2138
		Middle	3625.00	58.2091
		High	3670.00	58.0746
	16QAM	Low	3580.00	58.2237
		Middle	3625.00	58.3029
		High	3670.00	58.2715
	64QAM	Low	3580.00	58.2290
		Middle	3625.00	58.2276
		High	3670.00	58.1584
	256QAM	Low	3580.00	58.1973
		Middle	3625.00	58.1872
		High	3670.00	58.2080
Port 2	QPSK	Low	3580.00	58.0565
		Middle	3625.00	58.2078
		High	3670.00	58.1499
	16QAM	Low	3580.00	58.2174
		Middle	3625.00	58.2016
		High	3670.00	58.2611
	64QAM	Low	3580.00	58.1935
		Middle	3625.00	58.3239

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3670.00	58.1789
		Low	3580.00	58.1545
		Middle	3625.00	58.1630
		High	3670.00	58.2133
Port 3	QPSK	Low	3580.00	58.1074
		Middle	3625.00	58.0882
		High	3670.00	58.2980
	16QAM	Low	3580.00	58.1845
		Middle	3625.00	58.2775
		High	3670.00	58.3032
	64QAM	Low	3580.00	58.0810
		Middle	3625.00	58.1845
		High	3670.00	58.0925
	256QAM	Low	3580.00	58.2842
		Middle	3625.00	58.1163
		High	3670.00	58.2180

20 MHz Bandwidth + 20 MHz Bandwidth + 20 MHz Bandwidth + 10 MHz Bandwidth/ 4 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3585.00	68.1426
		Middle	3625.00	68.2170
		High	3665.00	68.0900
	16QAM	Low	3585.00	68.2659
		Middle	3625.00	68.2126
		High	3665.00	68.1515
	64QAM	Low	3585.00	68.2035
		Middle	3625.00	68.1549
		High	3665.00	68.0214
	256QAM	Low	3585.00	68.1871
		Middle	3625.00	68.1617
		High	3665.00	68.0731
Port 1	QPSK	Low	3585.00	68.1299
		Middle	3625.00	68.2194
		High	3665.00	68.1098
	16QAM	Low	3585.00	68.2254
		Middle	3625.00	68.2913
		High	3665.00	68.2244
	64QAM	Low	3585.00	68.1778
		Middle	3625.00	68.1612
		High	3665.00	68.1202
	256QAM	Low	3585.00	68.0608
		Middle	3625.00	68.2282
		High	3665.00	68.1829
Port 2	QPSK	Low	3585.00	68.1712
		Middle	3625.00	68.2501
		High	3665.00	68.1787
	16QAM	Low	3585.00	68.3013
		Middle	3625.00	68.3225
		High	3665.00	68.2533
	64QAM	Low	3585.00	67.9813
		Middle	3625.00	68.2731

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3665.00	68.2081
		Low	3585.00	68.0996
		Middle	3625.00	68.2255
		High	3665.00	68.1232
Port 3	QPSK	Low	3585.00	68.0660
		Middle	3625.00	68.1790
		High	3665.00	68.1901
	16QAM	Low	3585.00	68.2166
		Middle	3625.00	68.3792
		High	3665.00	68.2891
	64QAM	Low	3585.00	68.1594
		Middle	3625.00	68.3340
		High	3665.00	68.2478
	256QAM	Low	3585.00	68.1156
		Middle	3625.00	68.2191
		High	3665.00	68.1644

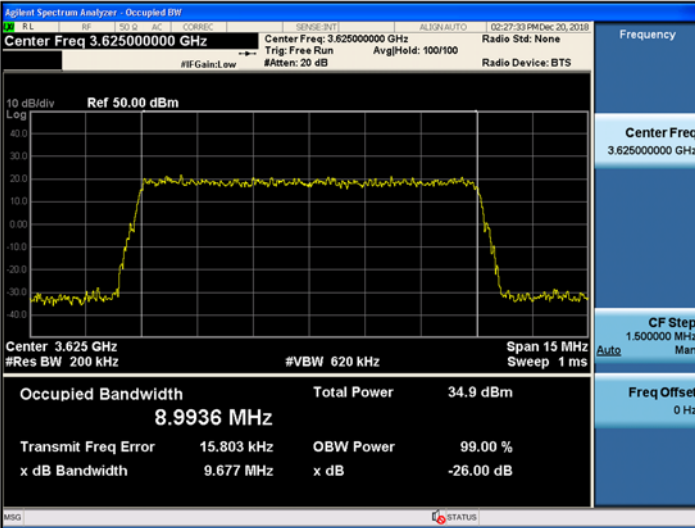
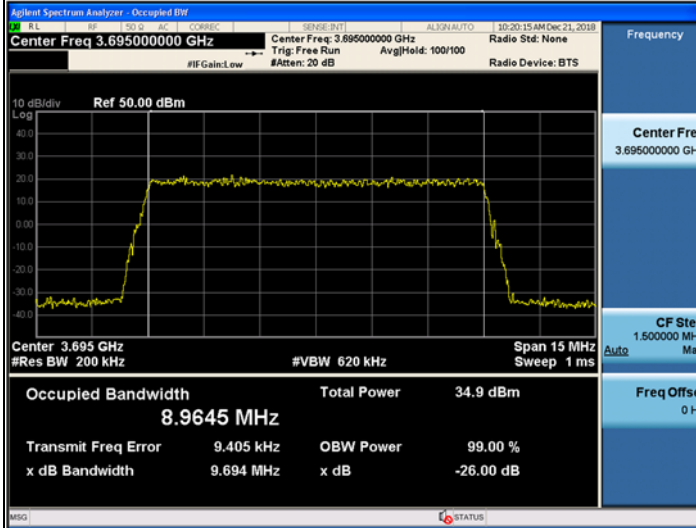
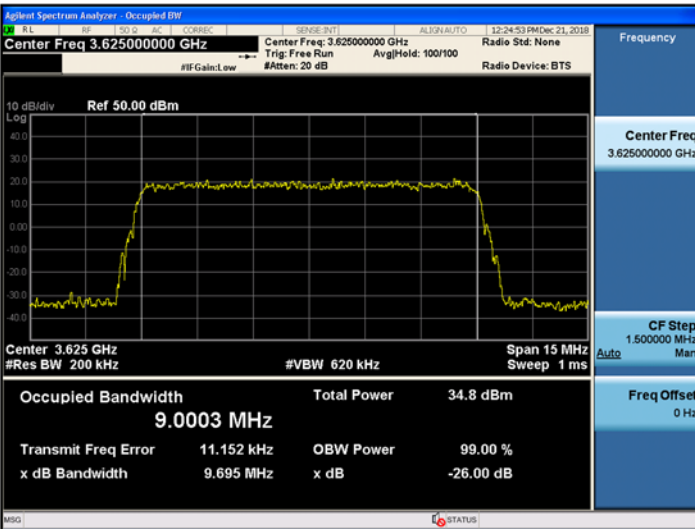
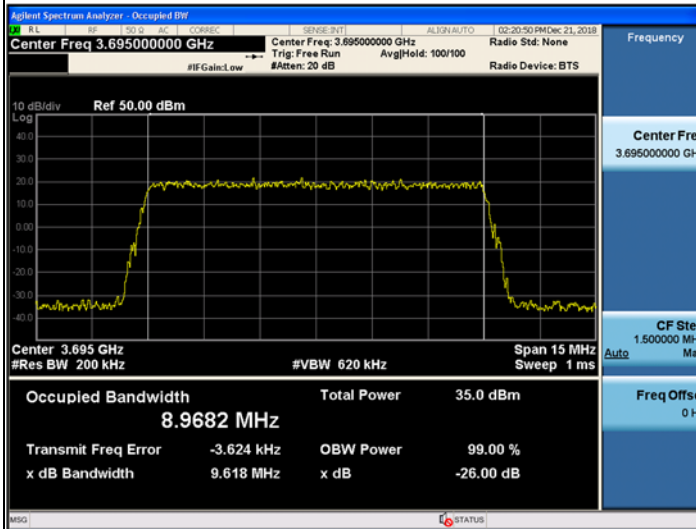
20 MHz Bandwidth + 20 MHz Bandwidth + 20 MHz Bandwidth + 20 MHz Bandwidth/ 4 Carriers

Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
Port 0	QPSK	Low	3590.00	77.7177
		Middle	3625.00	77.5279
		High	3660.00	77.4789
	16QAM	Low	3590.00	77.6590
		Middle	3625.00	77.6171
		High	3660.00	77.5661
	64QAM	Low	3590.00	77.5286
		Middle	3625.00	77.6029
		High	3660.00	77.5702
	256QAM	Low	3590.00	77.5809
		Middle	3625.00	77.6175
		High	3660.00	77.6252
Port 1	QPSK	Low	3590.00	77.5233
		Middle	3625.00	77.7825
		High	3660.00	77.6928
	16QAM	Low	3590.00	77.6124
		Middle	3625.00	77.6077
		High	3660.00	77.6237
	64QAM	Low	3590.00	77.5775
		Middle	3625.00	77.5477
		High	3660.00	77.3876
	256QAM	Low	3590.00	77.4099
		Middle	3625.00	77.5721
		High	3660.00	77.4715
Port 2	QPSK	Low	3590.00	77.6772
		Middle	3625.00	77.7069
		High	3660.00	77.4679
	16QAM	Low	3590.00	77.4444
		Middle	3625.00	77.6824
		High	3660.00	77.6266
	64QAM	Low	3590.00	77.5905
		Middle	3625.00	77.6547

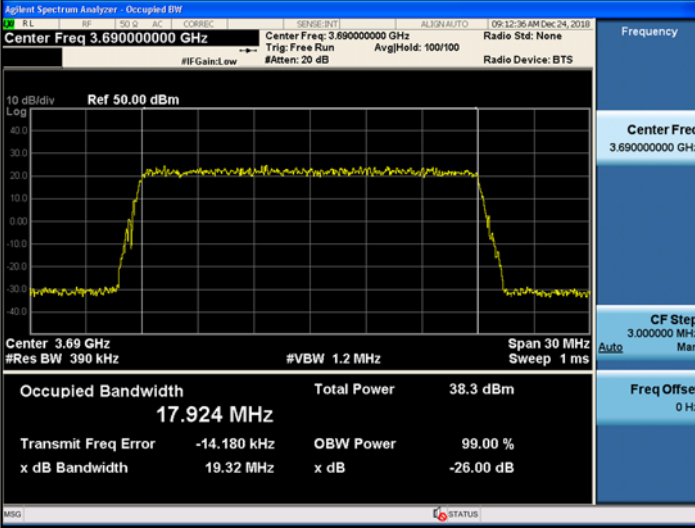
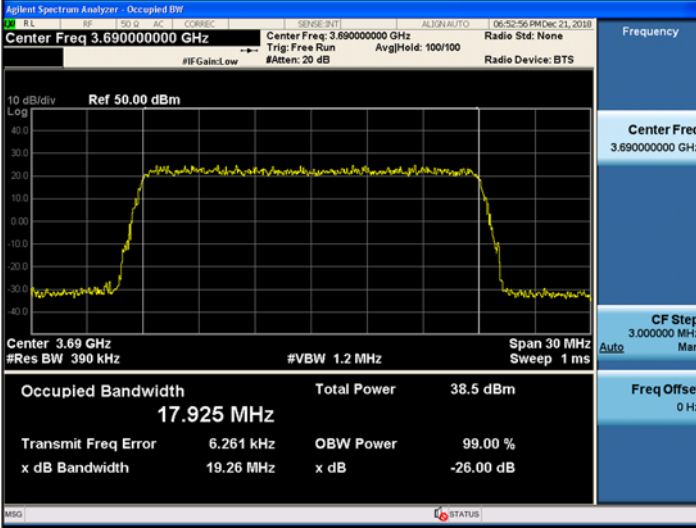
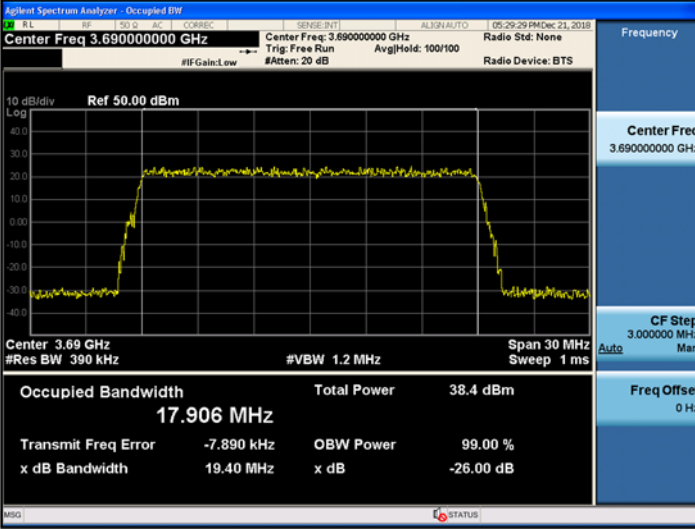
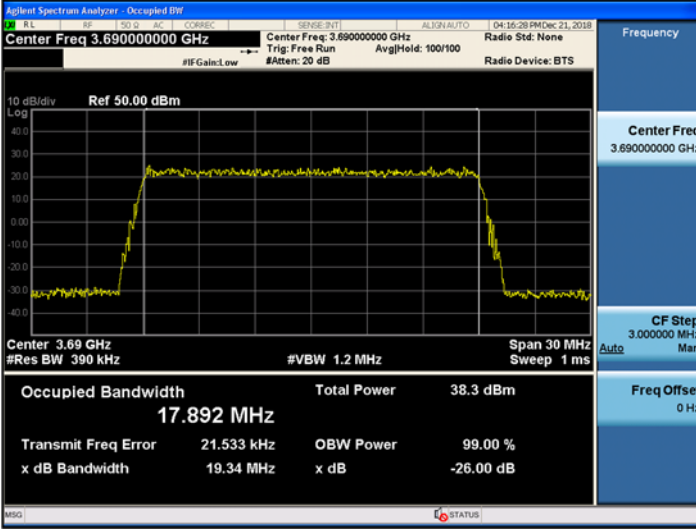
Port	Modulation	Channel	Frequency (MHz)	Measured Bandwidth (MHz)
	256QAM	High	3660.00	77.5294
		Low	3590.00	77.5998
		Middle	3625.00	77.6842
		High	3660.00	77.4245
Port 3	QPSK	Low	3590.00	77.6957
		Middle	3625.00	77.6367
		High	3660.00	77.6030
	16QAM	Low	3590.00	77.5781
		Middle	3625.00	77.6282
		High	3660.00	77.5665
	64QAM	Low	3590.00	77.6417
		Middle	3625.00	77.5223
		High	3660.00	77.5858
	256QAM	Low	3590.00	77.6381
		Middle	3625.00	77.5669
		High	3660.00	77.5599

* This test report only contains the worst case plot data for each port and modulation.

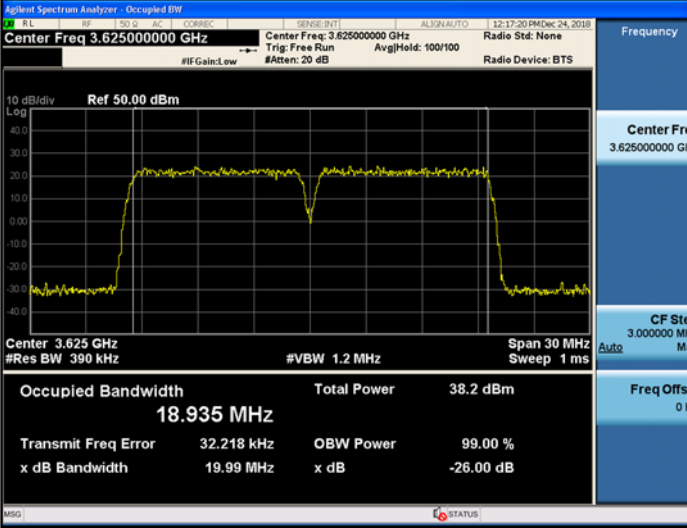
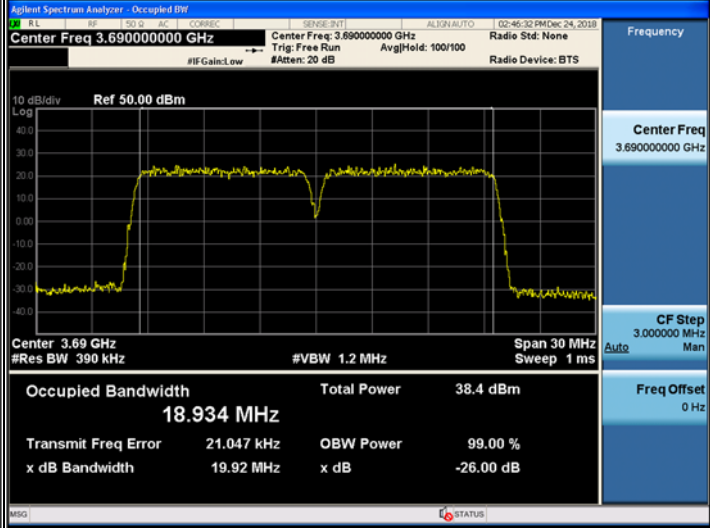
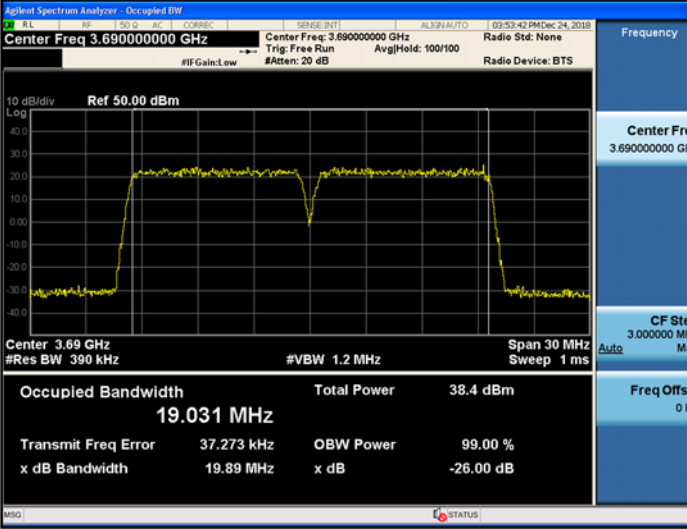
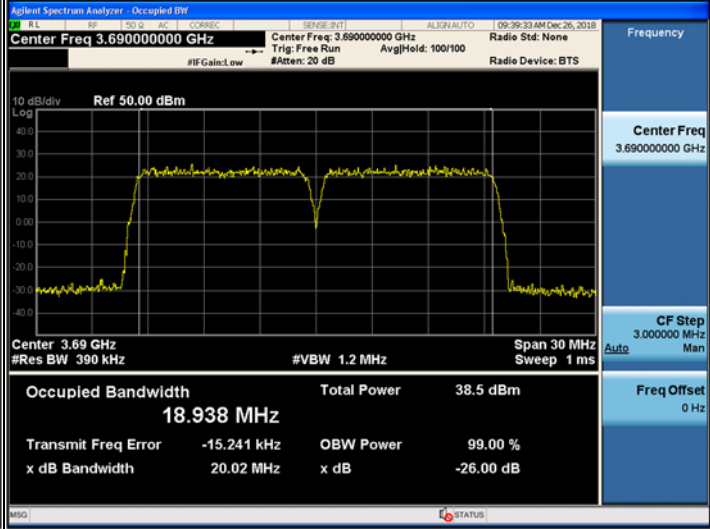
**Plots of Occupied Bandwidth_Max Power for External Ant
10 MHz Bandwidth / 1 Carriers**

Port	0	Port	1
Modulation:	64QAM	Modulation:	QPSK
Channel:	Middle	Channel:	High
			
Port	2	Port	3
Modulation:	64QAM	Modulation:	QPSK
Channel:	Middle	Channel:	High
			

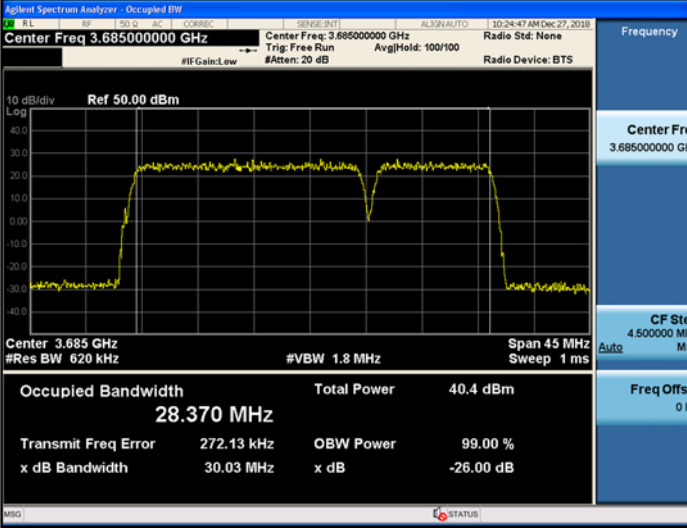
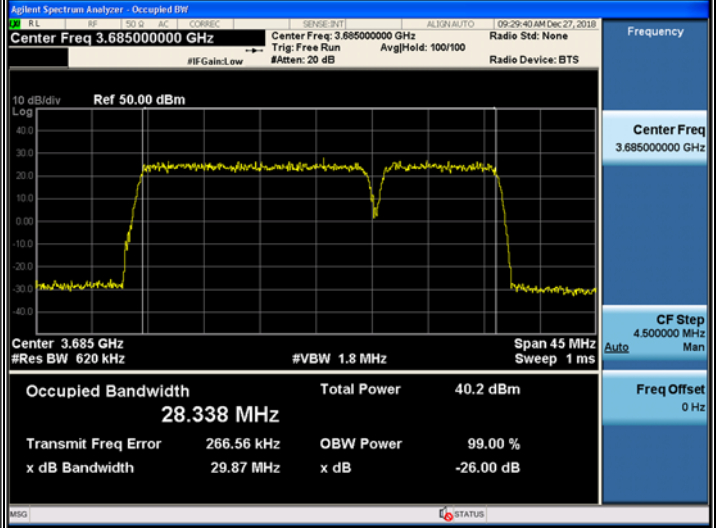
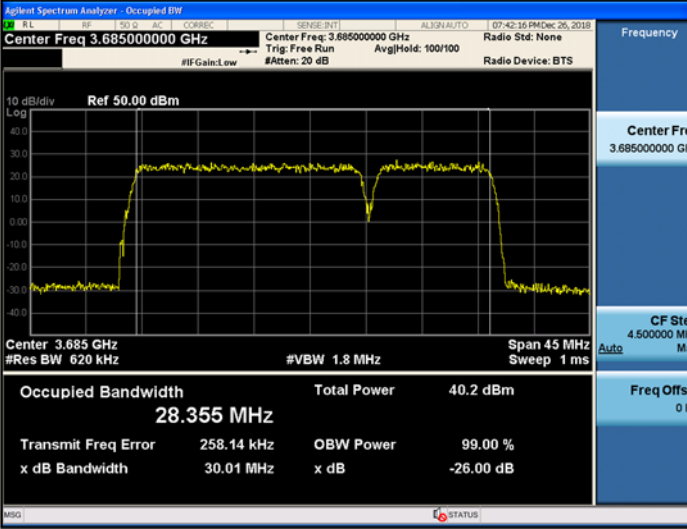
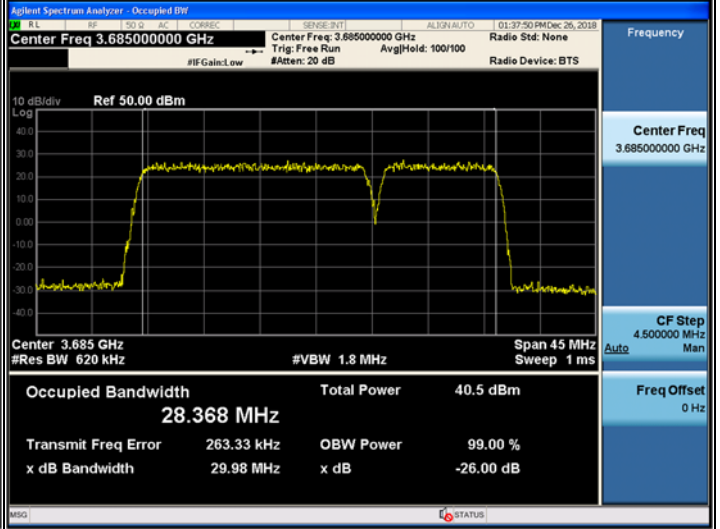
20 MHz Bandwidth / 1 Carriers

Port	0	Port	1
Modulation:	64QAM	Modulation:	64QAM
Channel:	High	Channel:	High
			
Port	2	Port	3
Modulation:	64QAM	Modulation:	256QAM
Channel:	High	Channel:	High
			

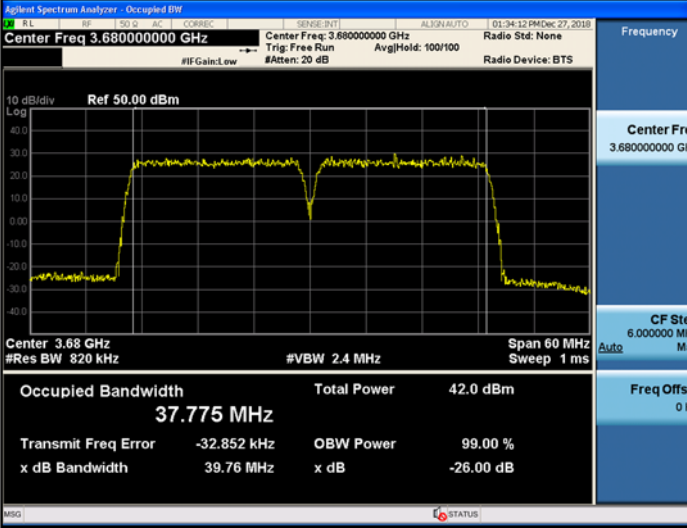
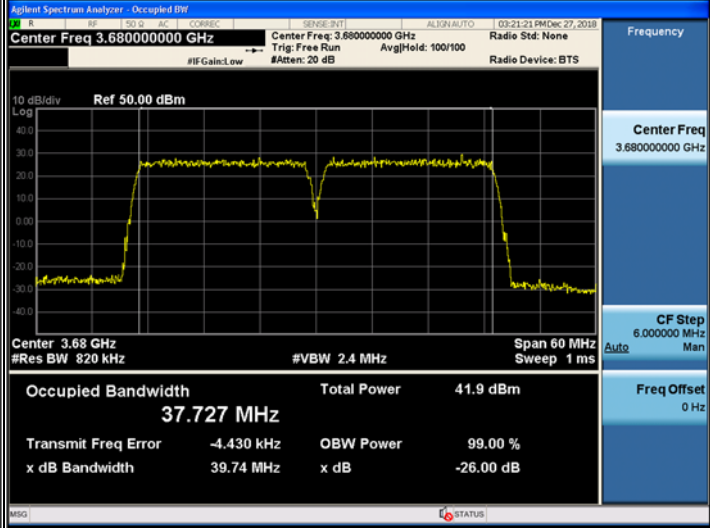
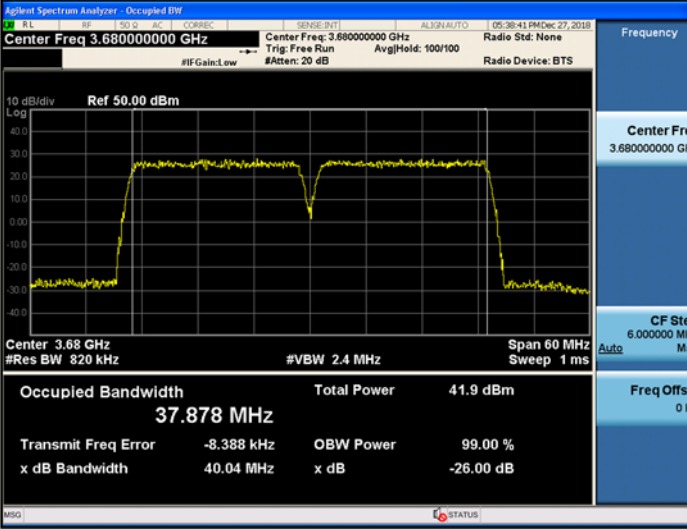
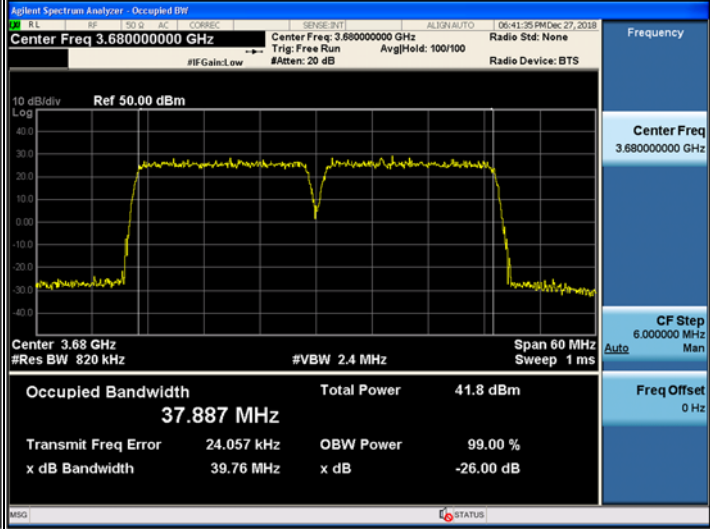
10 MHz Bandwidth + 10 MHz Bandwidth / 2 Carriers

Port	0	Port	1
Modulation:	64QAM	Modulation:	64QAM
Channel:	Middle	Channel:	High
			
Port	2	Port	3
Modulation:	256QAM	Modulation:	64QAM
Channel:	High	Channel:	High
			

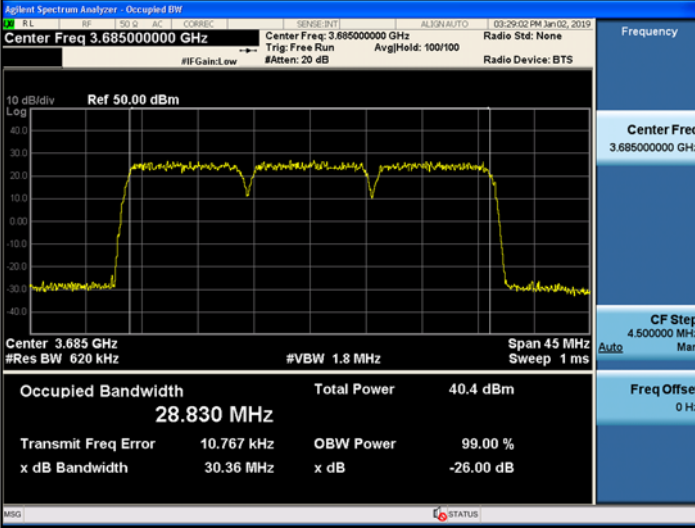
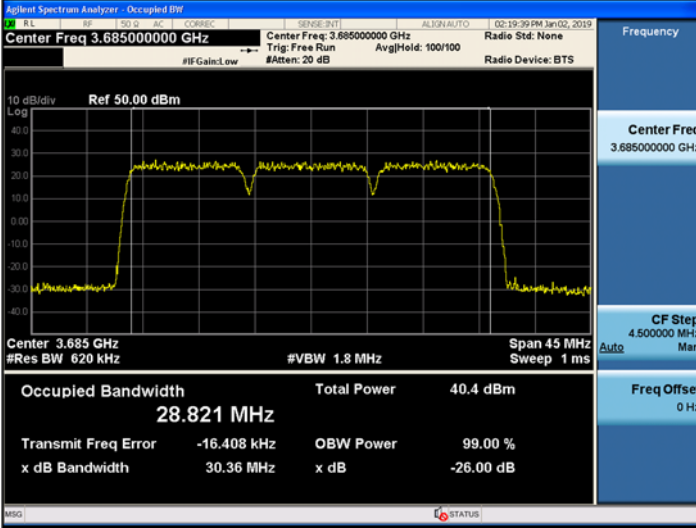
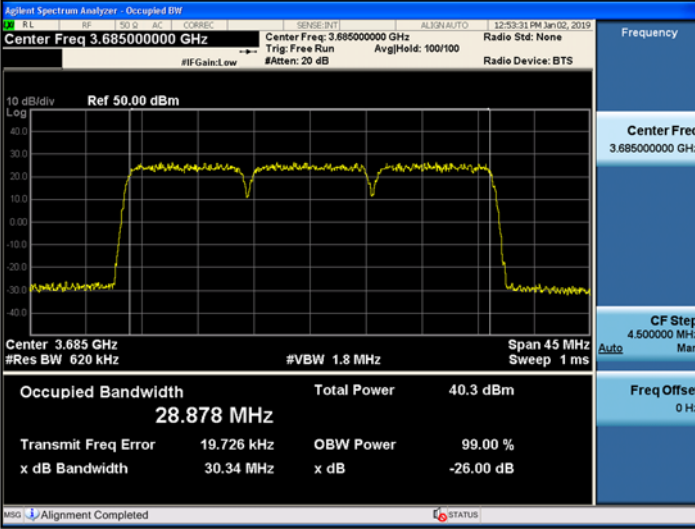
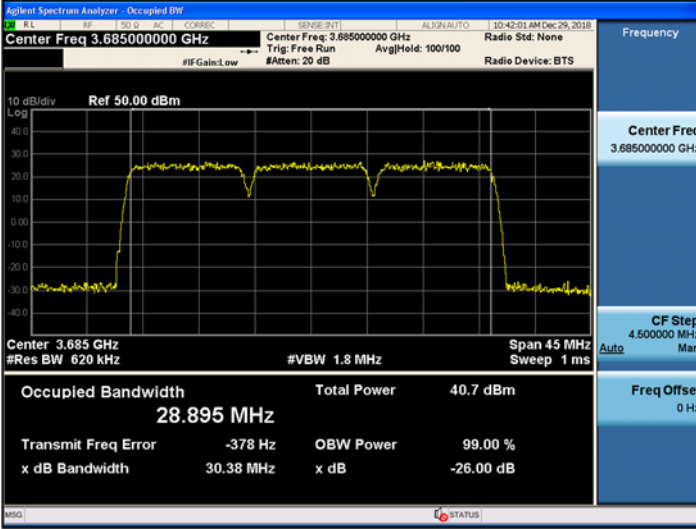
20 MHz Bandwidth + 10 MHz Bandwidth / 2 Carriers

Port	0	Port	1
Modulation:	64QAM	Modulation:	64QAM
Channel:	High	Channel:	High
			
Port	2	Port	3
Modulation:	64QAM	Modulation:	64QAM
Channel:	High	Channel:	High
			

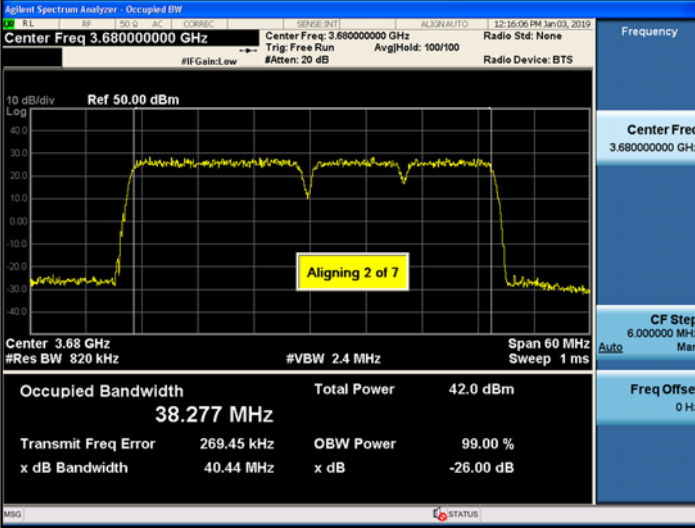
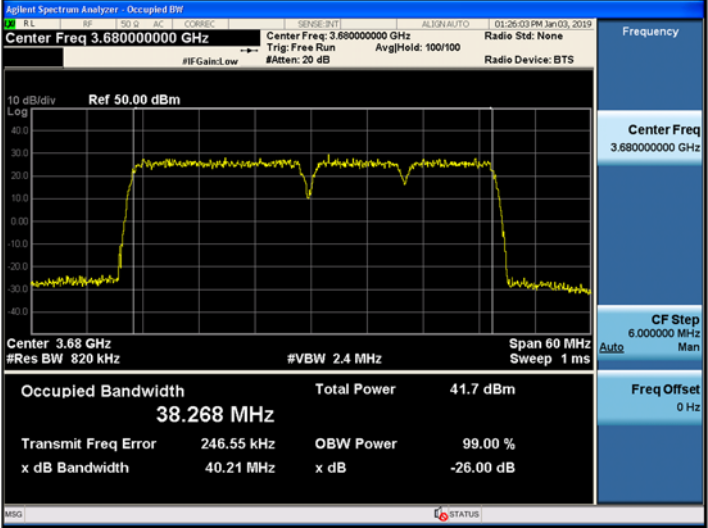
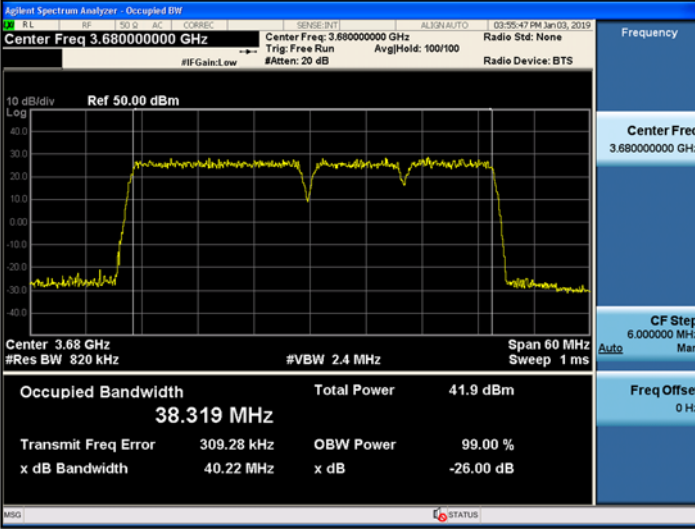
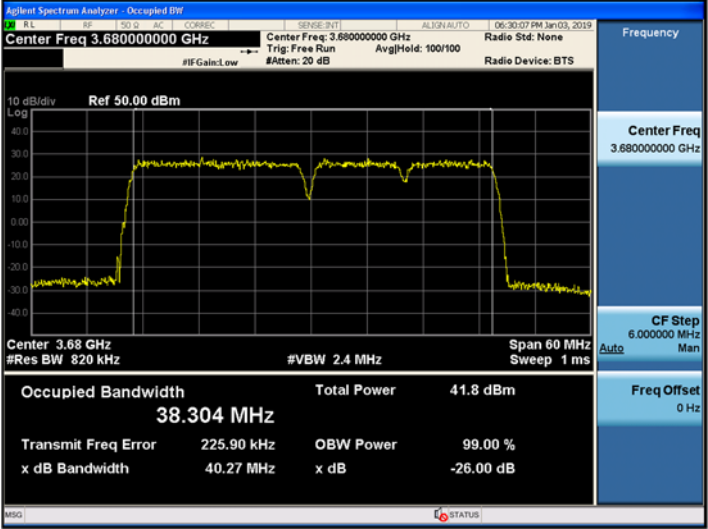
20 MHz Bandwidth + 20 MHz Bandwidth / 2 Carriers

Port	0	Port	1
Modulation:	QPSK	Modulation:	QPSK
Channel:	High	Channel:	High
			
Port	2	Port	3
Modulation:	QPSK	Modulation:	256QAM
Channel:	High	Channel:	High
			

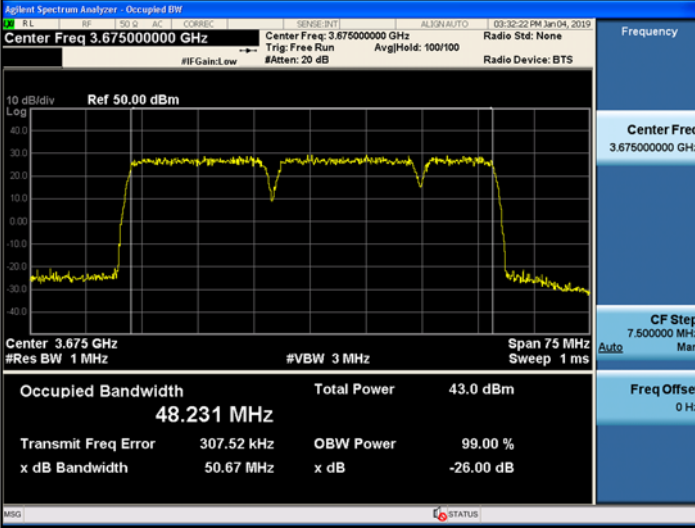
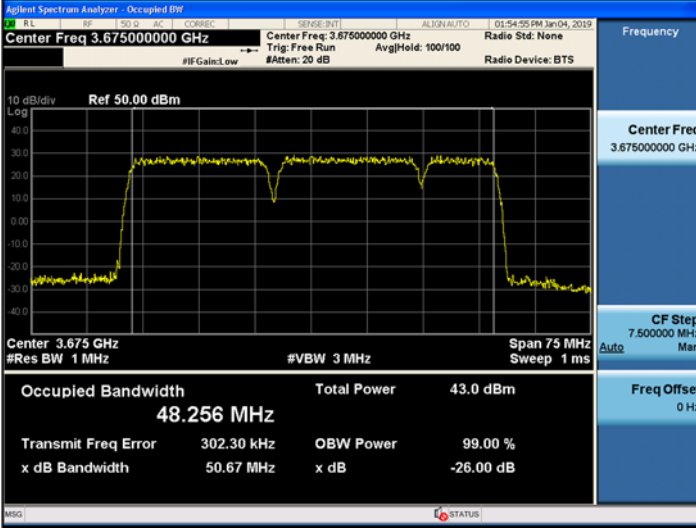
10 MHz Bandwidth + 10 MHz Bandwidth + 10 MHz Bandwidth / 3 Carriers

Port	0	Port	1
Modulation:	QPSK	Modulation:	64QAM
Channel:	High	Channel:	High
			
Port	2	Port	3
Modulation:	QPSK	Modulation:	256QAM
Channel:	High	Channel:	High
			

20 MHz Bandwidth + 10 MHz Bandwidth + 10 MHz Bandwidth / 3 Carriers

Port	0	Port	1
Modulation:	256QAM	Modulation:	64QAM
Channel:	High	Channel:	High
			
Port	2	Port	3
Modulation:	QPSK	Modulation:	QPSK
Channel:	High	Channel:	High
			

20 MHz Bandwidth + 20 MHz Bandwidth + 10 MHz Bandwidth / 3 Carriers

Port	0	Port	1
Modulation:	256QAM	Modulation:	QPSK
Channel:	High	Channel:	High
			
Port	2	Port	3
Modulation:	QPSK	Modulation:	QPSK
Channel:	Middle	Channel:	High
