Figure 62: QPSK 60MHz B.W.; 2526.0MHz, 30kHz

Figure 63: QPSK 60MHz B.W.; 2526.0MHz, 60kHz

Figure 64: QPSK 60MHz B.W.; 2593.0MHz, 30kHz

Figure 65: QPSK 60MHz B.W.; 2593.0MHz, 60kHz

Figure 66: QPSK 60MHz B.W.; 2660.0MHz, 30kHz

Figure 67: QPSK 60MHz B.W.; 2660.0MHz, 60kHz

4G

Bandwidth (MHz)	Modulation	Operation Frequency (MHz)	Reading (dBm)
20	16QAM	2506	40.06
		2593	40.96
		2680	40.65
	64QAM	2506	40.25
		2593	40.99
		2680	40.54
	QPSK	2506	40.06
		2593	40.85
		2680	40.56

Table 5 RF Power Output 16QAM/64QAM/QPSK

Figure 68: 16QAM 20MHz B.W.; 2506.0MHz

Figure 69: 16QAM 20MHz B.W.; 2593.0MHz

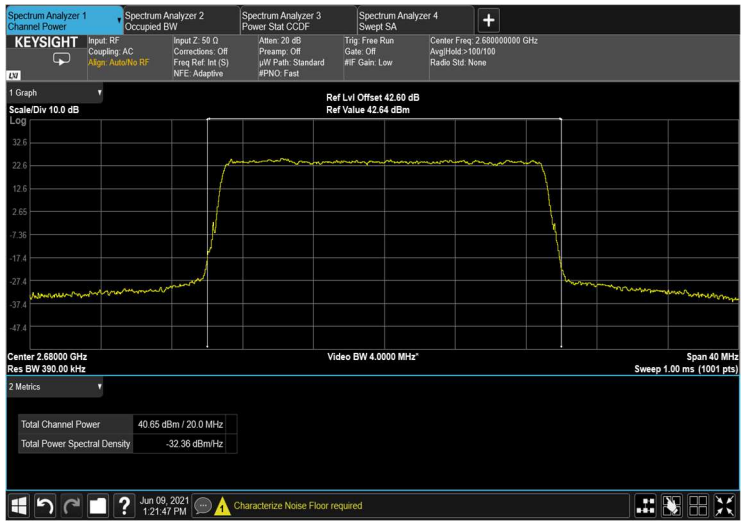

Figure 70: 16QAM 20MHz B.W.; 2680.0MHz

Figure 71: 64QAM 20MHz B.W.; 2506.0MHz

Figure 72: 64QAM 20MHz B.W.; 2593.0MHz

Figure 73: 64QAM 20MHz B.W.; 2680.0MHz

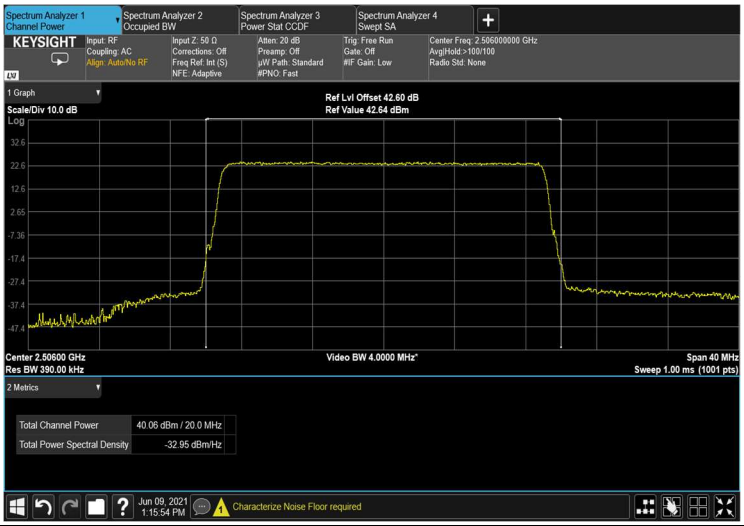

Figure 74: QPSK 20MHz B.W.; 2506.0MHz

Figure 75: QPSK 20MHz B.W.; 2593.0MHz

Figure 76: QPSK 20MHz B.W.; 2680.0MHz

4.5 Test Equipment Used; RF Power Output

Instrument	Manufacturer	Model	Serial Number	Calibration	
				Last Calibration	Calibration Due
EXA signal Analyzer	Keysight	UXA N9040B	MY56080119	January 31, 2020	January 31, 2022
EXG Vector Signal Generator	Agilent Technologies	N5172B	MY53051952	January 17, 2019	January 17, 2022
40 dB Attenuator	Weinschel Associates	WA 39-40-33	-	November 1, 2020	November 1, 2021
RF Coaxial Cable	Huber-Suner	SLLS210B	-	November 1, 2020	November 1, 2021

Table 6 Test Equipment Used

5 Occupied Bandwidth

5.1 Test Specification

FCC Part 2, Section 1049

5.2 Test Procedure

(Temperature (22°C)/ Humidity (35%RH))
The E.U.T. antenna terminal was connected to the spectrum analyzer through an external attenuator and an appropriate coaxial cable (loss=41.1 dB). The spectrum analyzer was set to proper resolution B.W.
OBW function (99%) was employed for this evaluation.
Occupied bandwidth measured was repeated in the input terminal of the E.U.T.

5.3 Test Limit

N/A

5.4 Test Results

JUDGEMENT: Passed

See additional information in:
5G: Table 7 to Table 13, and Figure 77 to Figure 196.
4G: Table 15 to Table 16, and Figure 197 to Figure 214.

5G

Modulation	Bandwidth (MHz)	Sub Carrier (kHz)	Operation Frequency (MHz)	Reading (MHz)
16QAM INPUT	40	15	2516	39.016
		30	2516	38.393
		60	2516	36.810
		15	2593	38.805
		30	2593	38.270
		60	2593	36.853
		15	2670	38.985
		30	2670	38.397
		60	2670	36.809
	60	30	2526	58.059
		60	2526	57.043
		30	2593	58.377
		60	2593	57.082
		30	2660	58.428
		60	2660	57.022

Table 7 Occupied Bandwidth 16 QAM

Modulation	Bandwidth (MHz)	Sub Carrier (kHz)	Operation Frequency (MHz)	Reading (MHz)
64QAM INPUT	40	15	2516	38.589
		30	2516	37.860
		60	2516	36.461
		15	2593	38.659
		30	2593	37.931
		60	2593	36.536
		15	2670	38.655
		30	2670	37.843
		60	2670	36.544
	60	30	2526	57.682
		60	2526	56.348
		30	2593	57.882
		60	2593	56.529
		30	2660	57.756
		60	2660	56.386

Table 8 Occupied Bandwidth 64QAM Input

Modulation	Bandwidth (MHz)	Sub Carrier (kHz)	Operation Frequency (MHz)	Reading (MHz)
256QAM INPUT	40	15	2516	38.627
		30	2516	37.943
		60	2516	36.567
		15	2593	38.685
		30	2593	37.994
		60	2593	35.591
		15	2670	38.688
		30	2670	38.021
		60	2670	36.611
	60	30	2526	57.951
		60	2526	58.545
		30	2593	57.924
		60	2593	56.524
		30	2660	57.896
		60	2660	56.523

Table 9 Occupied Bandwidth 256QAM Input

Modulation	Bandwidth (MHz)	Sub Carrier (kHz)	Operation Frequency (MHz)	Reading (MHz)
QPSK INPUT	40	15	2516	38.588
		30	2516	37.936
		60	2516	36.412
		15	2593	38.698
		30	2593	37.948
		60	2593	36.510
		15	2670	38.629
		30	2670	37.896
		60	2670	36.502
	60	30	2526	57.841
		60	2526	58.588
		30	2593	57.986
		60	2593	56.528
		30	2660	57.981
		60	2660	56.564

Table 10 Occupied Bandwidth QPSK Input

Modulation	Bandwidth (MHz)	Sub Carrier (kHz)	Operation Frequency (MHz)	Reading (MHz)
16QAM OUTPUT	40	15	2516	38.894
		30	2516	38.088
		60	2516	36.636
		15	2593	38.884
		30	2593	38.203
		60	2593	36.786
		15	2670	38.934
		30	2670	38.225
		60	2670	36.796
	60	30	2526	57.999
		60	2526	56.644
		30	2593	58.150
		60	2593	56.857
		30	2660	58.037
		60	2660	56.749

Table 11 Occupied Bandwidth 16QAM Output

Modulation	Bandwidth (MHz)	Sub Carrier (kHz)	Operation Frequency (MHz)	Reading (MHz)
64QAM OUTPUT	40	15	2516	38.589
		30	2516	37.860
		60	2516	36.461
		15	2593	38.659
		30	2593	37.931
		60	2593	36.536
		15	2670	38.655
		30	2670	37.843
		60	2670	36.544
	60	30	2526	57.682
		60	2526	56.348
		30	2593	57.882
		60	2593	56.529
		30	2660	57.726
		60	2660	56.386

Table 12 Occupied Bandwidth 64QAM Output

Modulation	Bandwidth (MHz)	Sub Carrier (kHz)	Operation Frequency (MHz)	Reading (MHz)
256QAM OUTPUT	40	15	2516	38.627
		30	2516	37.934
		60	2516	36.567
		15	2593	38.685
		30	2593	37.994
		60	2593	36.591
		15	2670	38.688
		30	2670	38.021
		60	2670	36.611
	60	30	2526	57.679
		60	2526	56.391
		30	2593	57.932
		60	2593	56.530
		30	2660	57.775
		60	2660	56.445

Table 13 Occupied Bandwidth 256QAM Output

Modulation	Bandwidth (MHz)	Sub Carrier (kHz)	Operation Frequency (MHz)	Reading (MHz)
QPSK OUTPUT	40	15	2516	38.574
		30	2516	37.987
		60	2516	36.547
		15	2593	38.680
		30	2593	38.016
		60	2593	36.611
		15	2670	38.639
		30	2670	37.996
		60	2670	36.626
	60	30	2526	57.709
		60	2526	56.391
		30	2593	57.391
		60	2593	56.584
		30	2660	57.749
		60	2660	56.455

Table 14 Occupied Bandwidth QPSK Output

Figure 77: input 16QAM 40MHz B.W.; 2516.0MHz, 15kHz

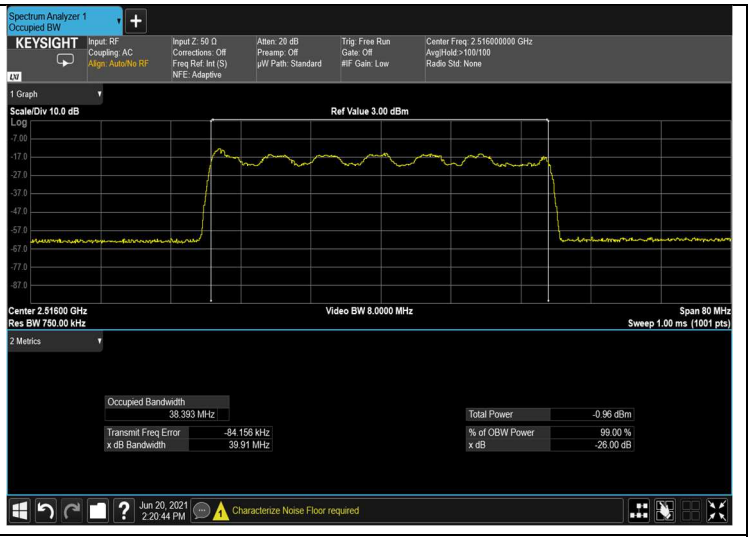

Figure 78: input 16QAM 40MHz B.W.; 2516.0MHz, 30kHz

Figure 79: input 16QAM 40MHz B.W.; 2516.0MHz, 60kHz

Figure 80: input 16QAM 40MHz B.W.; 2593.0MHz, 15kHz

Figure 81: input 16QAM 40MHz B.W.; 2593.0MHz, 30kHz

Figure 82: input 16QAM 40MHz B.W.; 2593.0MHz, 60kHz

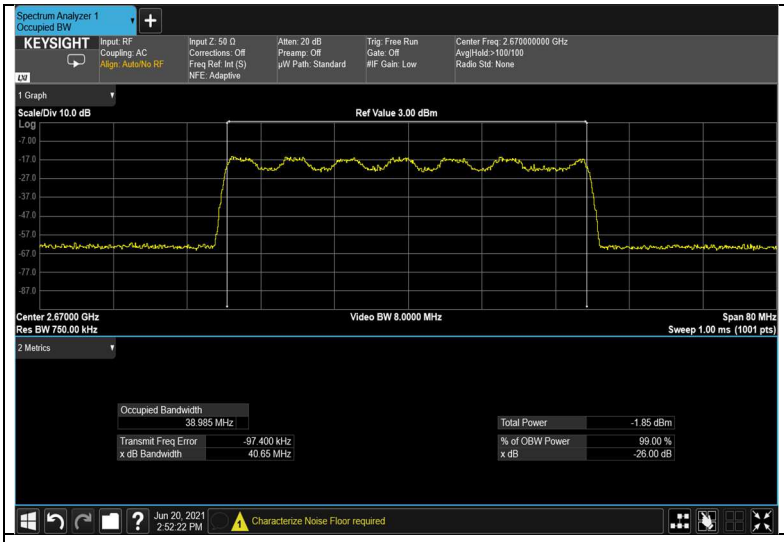

Figure 83: input 16QAM 40MHz B.W.; 2670.0MHz, 15kHz

Figure 84: input 16QAM 40MHz B.W.; 2670.0MHz, 30kHz

Figure 85: input 16QAM 40MHz B.W.; 2670.0MHz, 60kHz

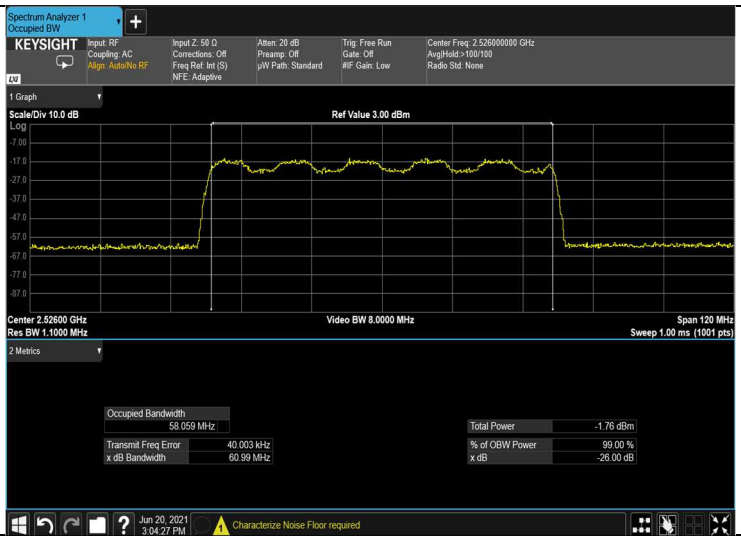

Figure 86: input 16QAM 60MHz B.W.; 2526.0MHz, 30kHz

Figure 87: input 16QAM 60MHz B.W.; 2526.0MHz, 60kHz

Figure 88: input 16QAM 60MHz B.W.; 2593.0MHz, 30kHz

Figure 89: input 16QAM 60MHz B.W.; 2593.0MHz, 60kHz

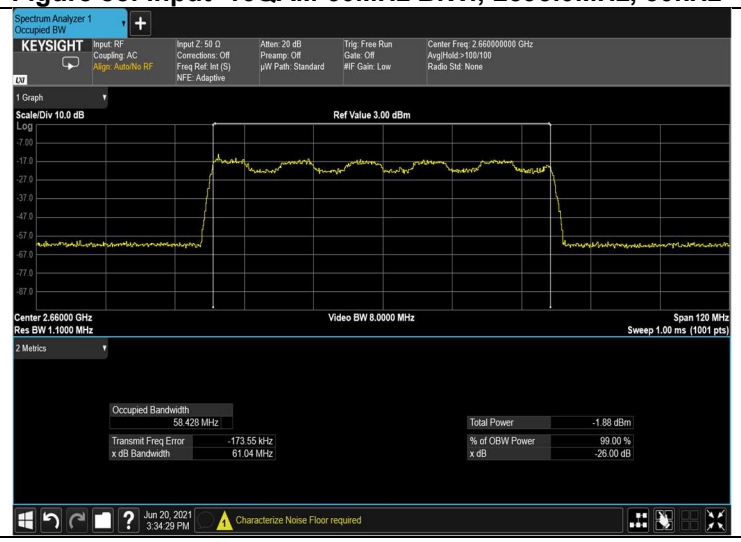

Figure 90: input 16QAM 60MHz B.W.; 2660.0MHz, 30kHz

Figure 91: input 16QAM 60MHz B.W.; 2660.0MHz, 60kHz

Figure 92: input 64QAM 40MHz B.W.; 2516.0MHz, 15kHz

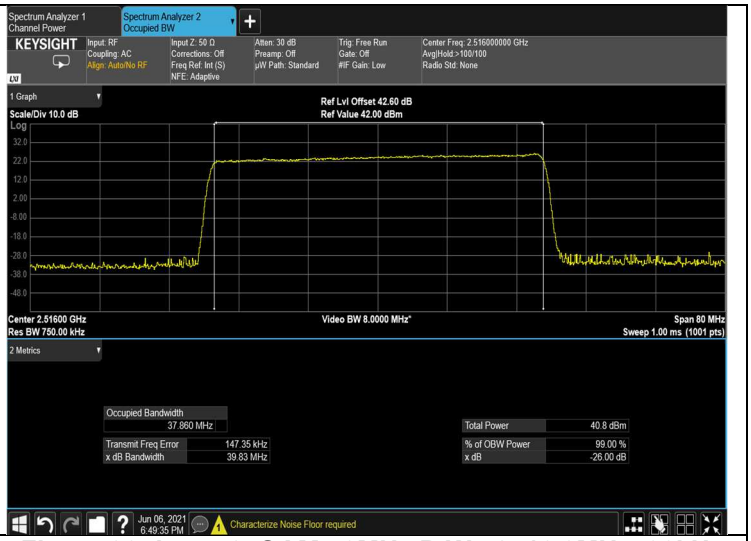

Figure 93: input 64QAM 40MHz B.W.; 2516.0MHz, 30kHz

Figure 94: input 64QAM 40MHz B.W.; 2516.0MHz, 60kHz

Figure 95: input 64QAM 40MHz B.W.; 2593.0MHz, 15kHz

Figure 96: input 64QAM 40MHz B.W.; 2593.0MHz, 30kHz

Figure 97: input 64QAM 40MHz B.W.; 2593.0MHz, 60kHz

Figure 98: input 64QAM 40MHz B.W.; 2670.0MHz, 15kHz

Figure 99: input 64QAM 40MHz B.W.; 2670.0MHz, 30kHz

Figure 100: input 64QAM 40MHz B.W.; 2670.0MHz, 60kHz

Figure 101: input 64QAM 60MHz B.W.; 2526.0MHz, 30kHz

Figure 102: input 64QAM 60MHz B.W.; 2526.0MHz, 60kHz

Figure 103: input 64QAM 60MHz B.W.; 2593.0MHz, 30kHz

Figure 104: input 64QAM 60MHz B.W.; 2593.0MHz, 60kHz

Figure 105: input 64QAM 60MHz B.W.; 2660.0MHz, 30kHz

Figure 106: input 64QAM 60MHz B.W.; 2660.0MHz, 60kHz