

Antenna 4:

Appendix A: Effective (Isotropic) Radiated Power Output Data

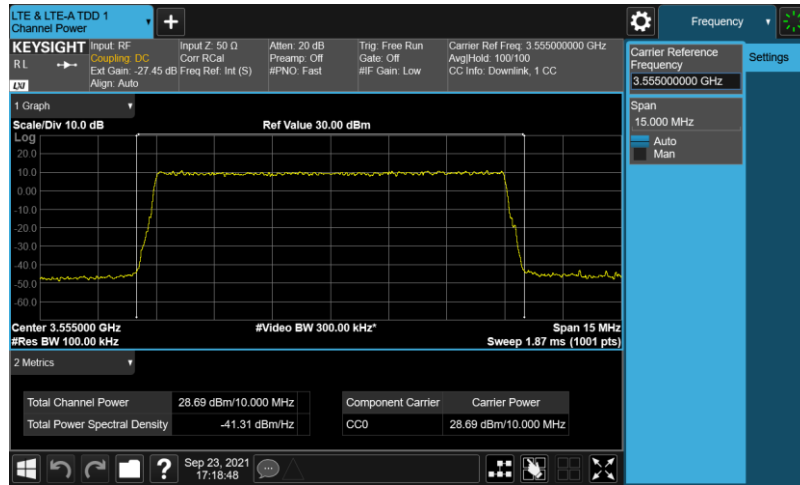
Test Result

Band	Bandwidth	Modulation	Channel	Mode	Power (dBm/10MHz)
Band48	10MHz	256QAM	55290	E-TM3.1A	28.69
Band48	10MHz	256QAM	55990	E-TM3.1A	27.67
Band48	10MHz	256QAM	56690	E-TM3.1A	27.90
Band48	10MHz	QPSK	55290	E-TM1.1	28.85
Band48	10MHz	QPSK	55990	E-TM1.1	28.30
Band48	10MHz	QPSK	56690	E-TM1.1	28.39
Band48	20MHz	256QAM	55340	E-TM3.1A	26.56
Band48	20MHz	256QAM	55990	E-TM3.1A	26.17
Band48	20MHz	256QAM	56640	E-TM3.1A	25.99
Band48	20MHz	QPSK	55340	E-TM1.1	26.29
Band48	20MHz	QPSK	55990	E-TM1.1	26.17
Band48	20MHz	QPSK	56640	E-TM1.1	26.17

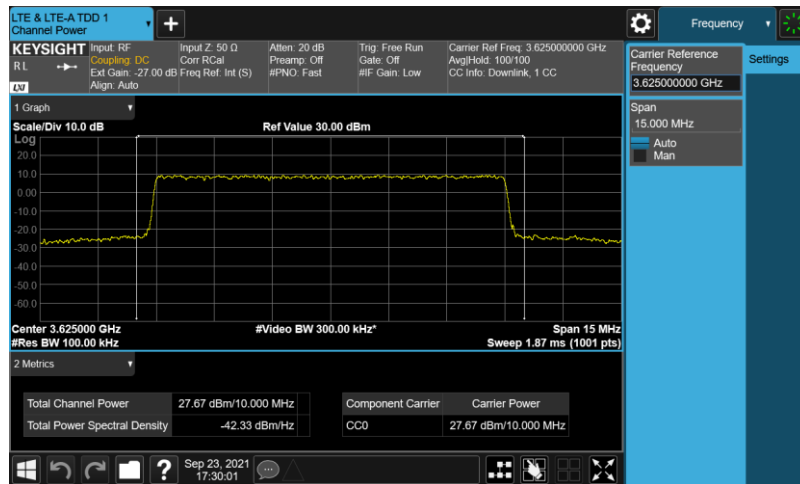
Band	Bandwidth	Modulation	Channel	Mode	Power (dBm/20MHz)
Band48	20MHz	256QAM	55340	E-TM3.1A	29.16
Band48	20MHz	256QAM	55990	E-TM3.1A	28.53
Band48	20MHz	256QAM	56640	E-TM3.1A	28.53
Band48	20MHz	QPSK	55340	E-TM1.1	28.95
Band48	20MHz	QPSK	55990	E-TM1.1	29.00
Band48	20MHz	QPSK	56640	E-TM1.1	28.72

Test Graphs

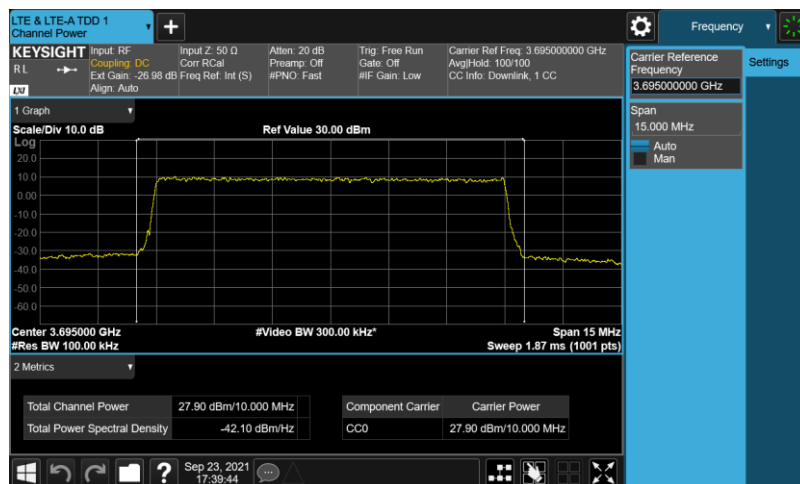
Band48-10MHz-256QAM-55290-E-TM3.1A-10



Band48-10MHz-256QAM-55990-E-TM3.1A-10



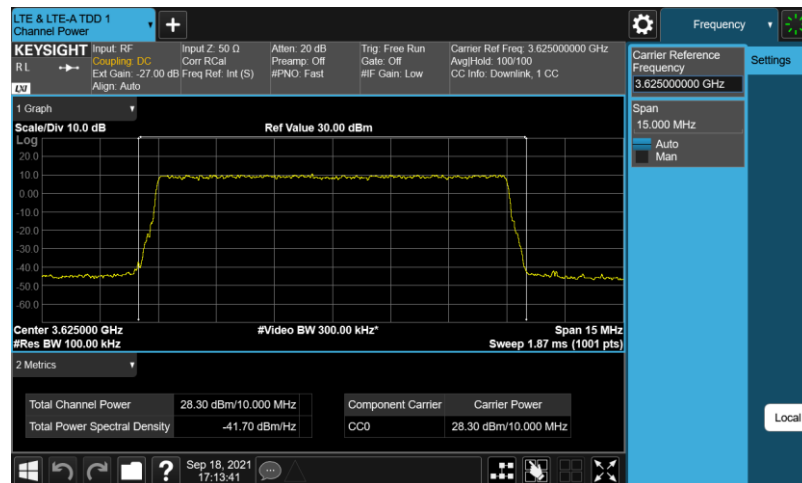
Band48-10MHz-256QAM-56690-E-TM3.1A-10



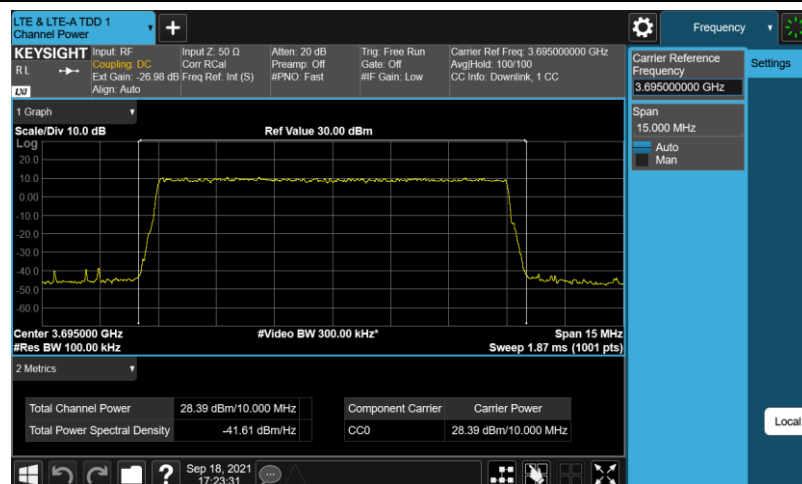
Band48-10MHz-QPSK-55290-E-TM1.1-10



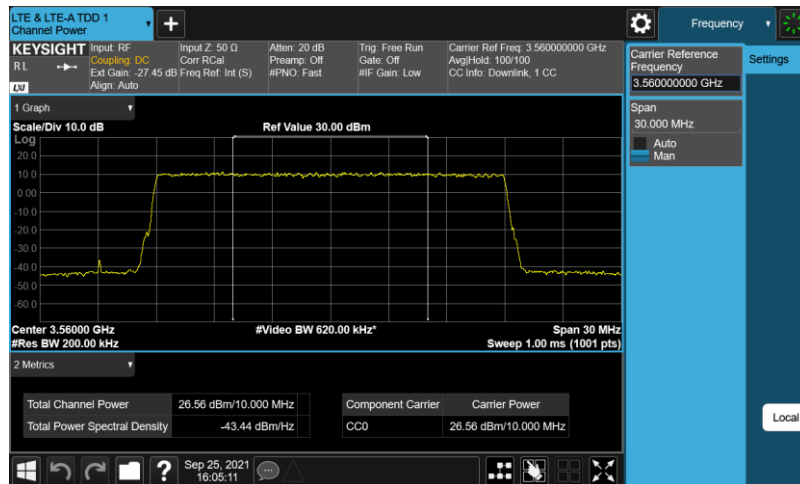
Band48-10MHz-QPSK-55990-E-TM1.1-10



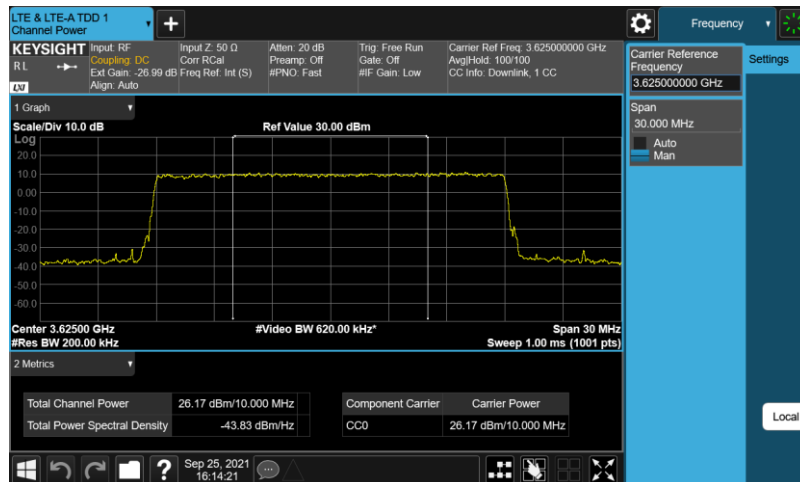
Band48-10MHz-QPSK-56690-E-TM1.1-10



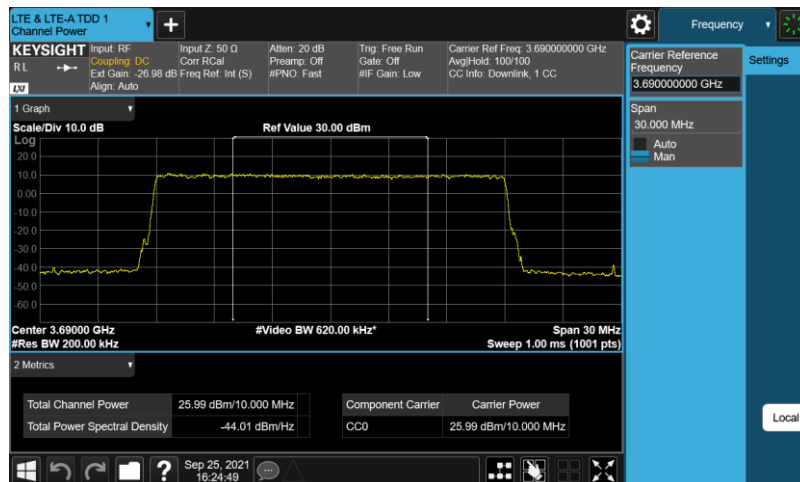
Band48-20MHz-256QAM-55340-E-TM3.1A-10



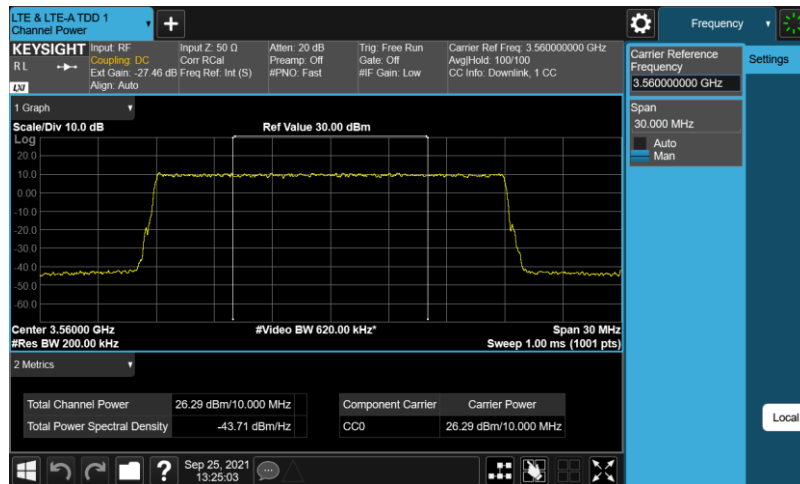
Band48-20MHz-256QAM-55990-E-TM3.1A-10



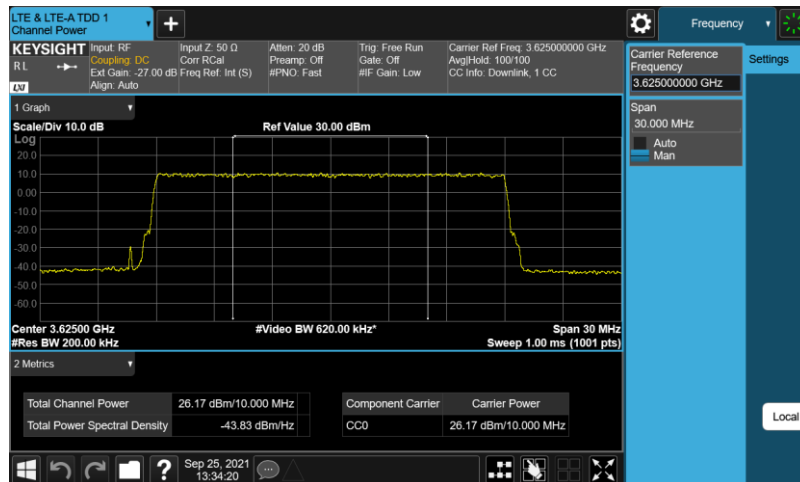
Band48-20MHz-256QAM-56640-E-TM3.1A-10



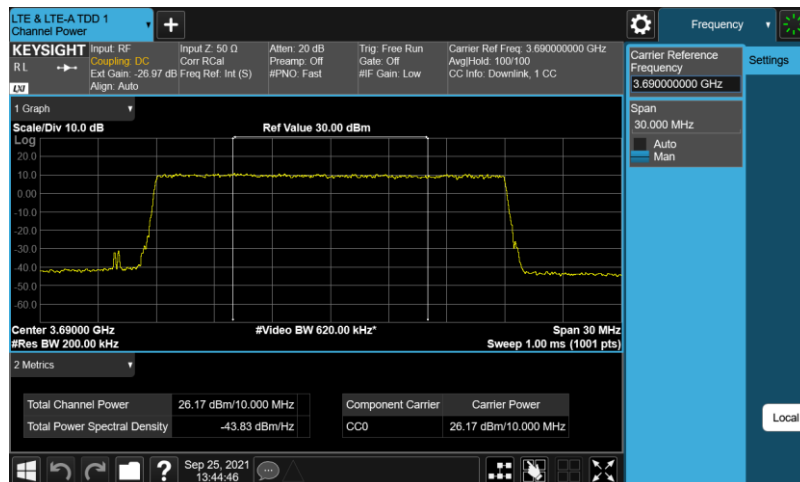
Band48-20MHz-QPSK-55340-E-TM1.1-10



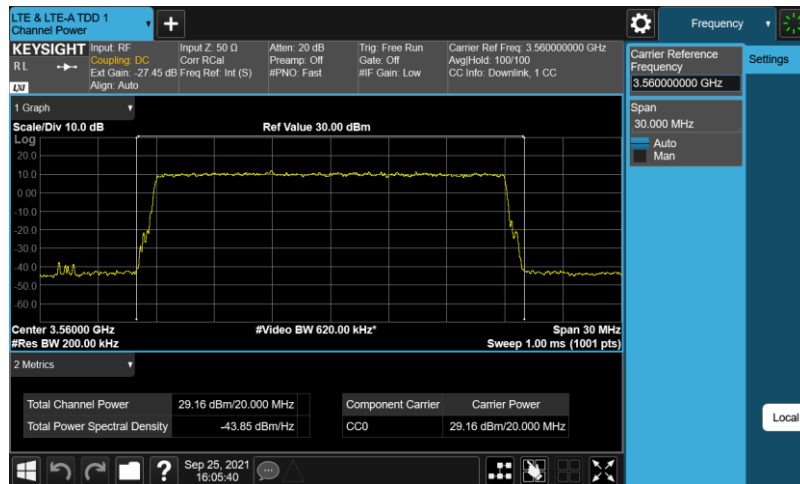
Band48-20MHz-QPSK-55990-E-TM1.1-10



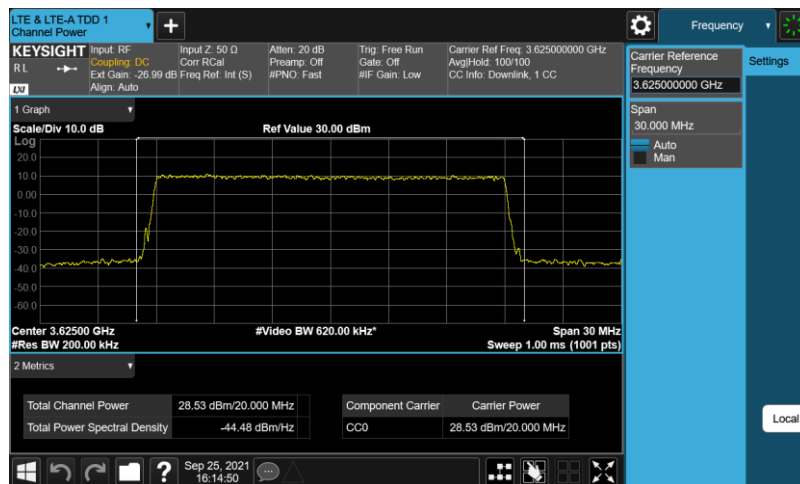
Band48-20MHz-QPSK-56640-E-TM1.1-10



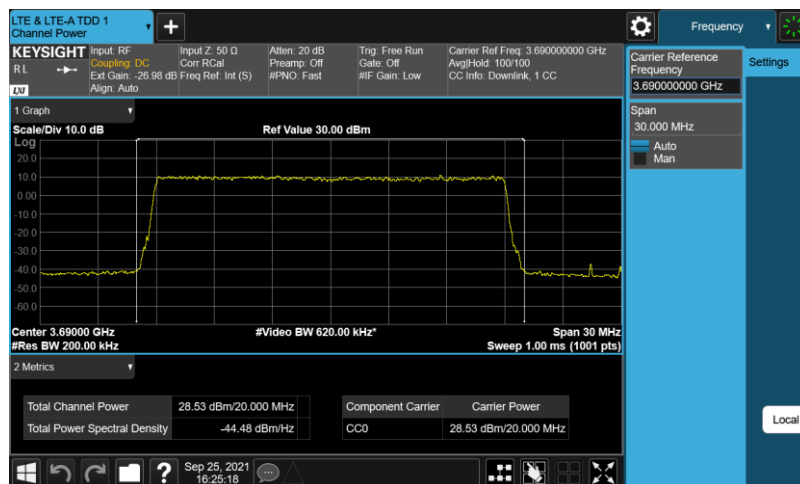
Band48-20MHz-256QAM-55340-E-TM3.1A-20



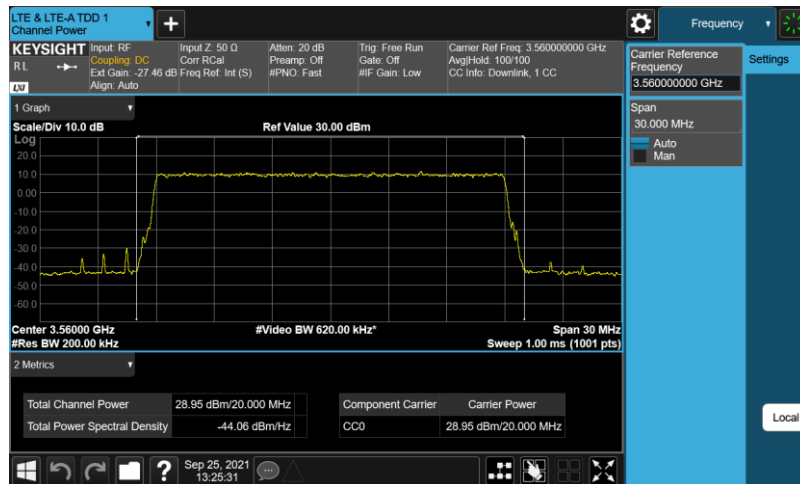
Band48-20MHz-256QAM-55990-E-TM3.1A-20



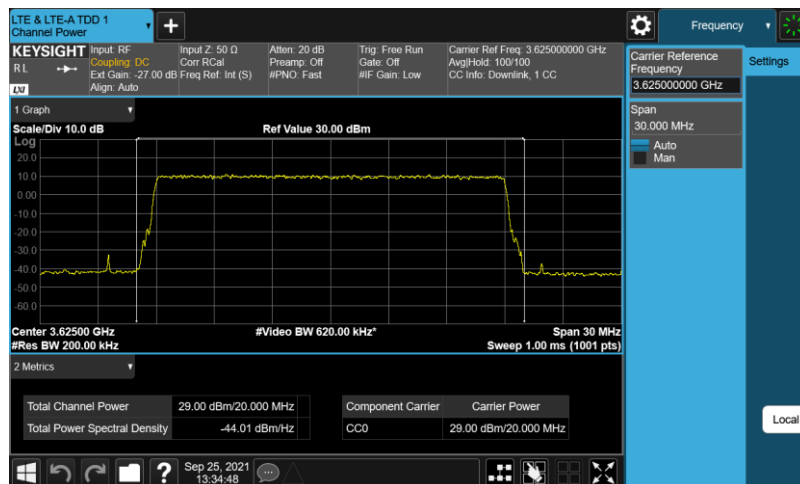
Band48-20MHz-256QAM-56640-E-TM3.1A-20



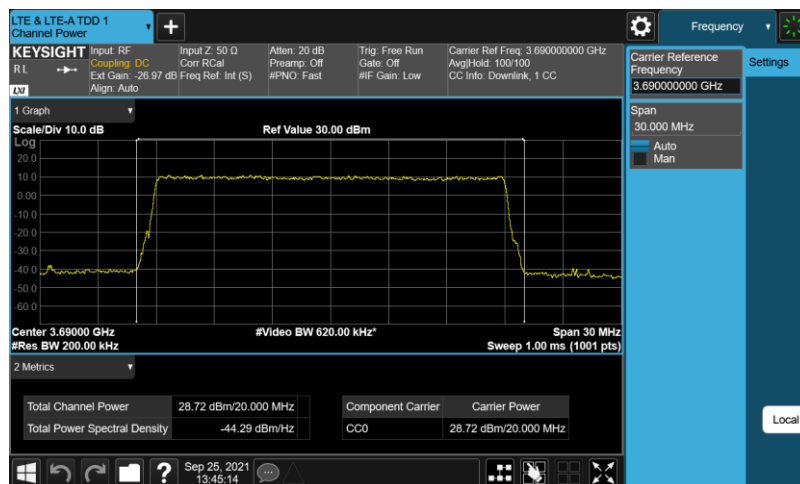
Band48-20MHz-QPSK-55340-E-TM1.1-20



Band48-20MHz-QPSK-55990-E-TM1.1-20



Band48-20MHz-QPSK-56640-E-TM1.1-20



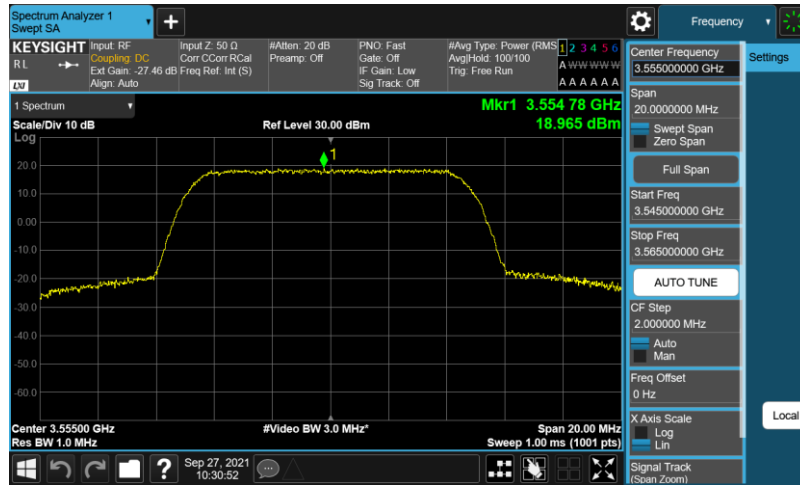
Appendix B: Power Spectral Density

Test Result

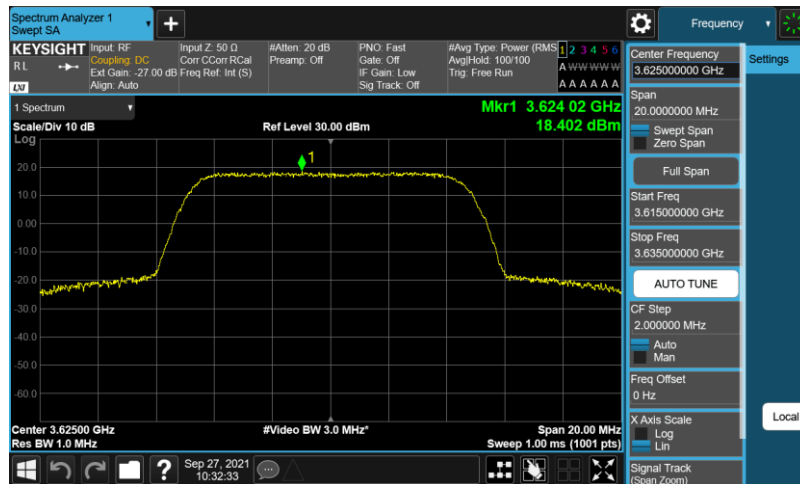
Band	Bandwidth	Modulation	Channel	Mode	PSD (dBm/MHz)
Band48	10MHz	256QAM	55290	E-TM3.1A	18.97
Band48	10MHz	256QAM	55990	E-TM3.1A	18.40
Band48	10MHz	256QAM	56690	E-TM3.1A	17.98
Band48	10MHz	QPSK	55290	E-TM1.1	18.78
Band48	10MHz	QPSK	55990	E-TM1.1	18.88
Band48	10MHz	QPSK	56690	E-TM1.1	18.49
Band48	20MHz	256QAM	55340	E-TM3.1A	16.20
Band48	20MHz	256QAM	55990	E-TM3.1A	16.26
Band48	20MHz	256QAM	56640	E-TM3.1A	16.25
Band48	20MHz	QPSK	55340	E-TM1.1	16.04
Band48	20MHz	QPSK	55990	E-TM1.1	16.06
Band48	20MHz	QPSK	56640	E-TM1.1	16.35

Test Graphs

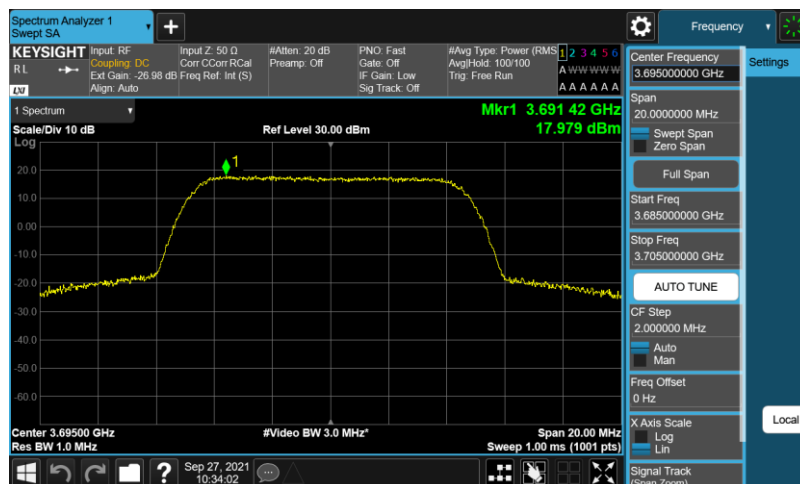
Band48-10MHz-256QAM-55290-E-TM3.1A



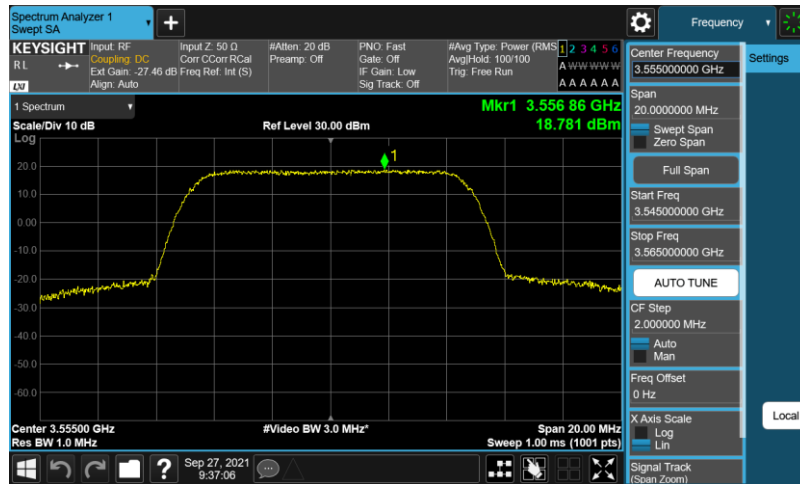
Band48-10MHz-256QAM-55990-E-TM3.1A



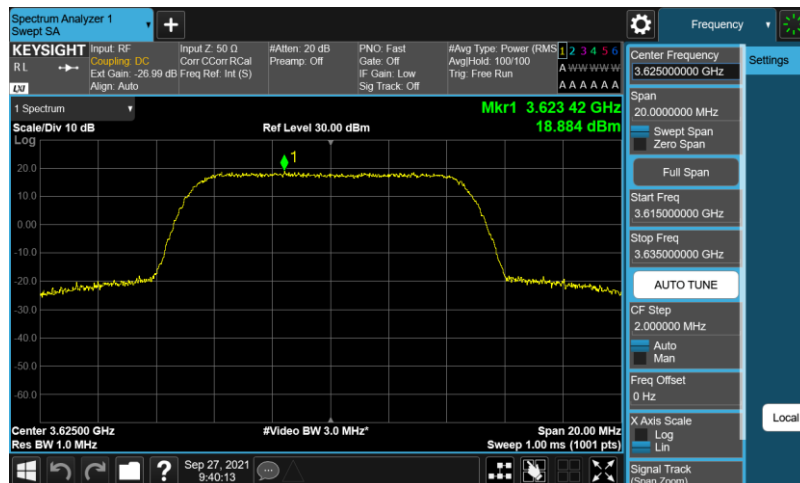
Band48-10MHz-256QAM-56690-E-TM3.1A



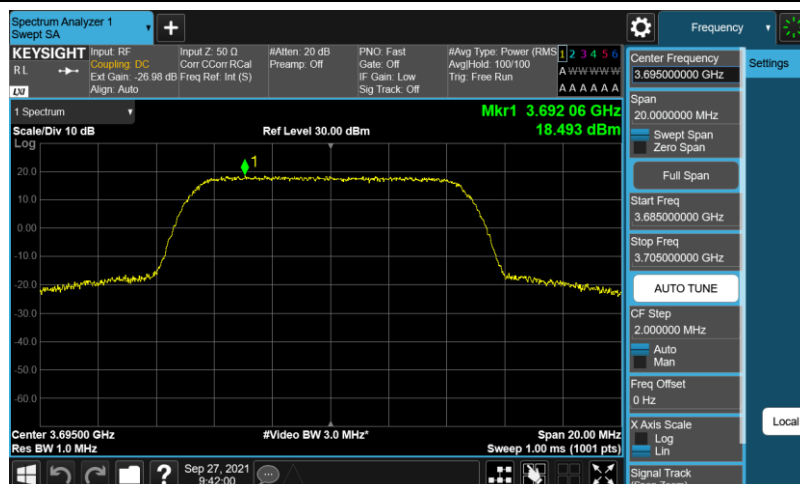
Band48-10MHz-QPSK-55290-E-TM1.1



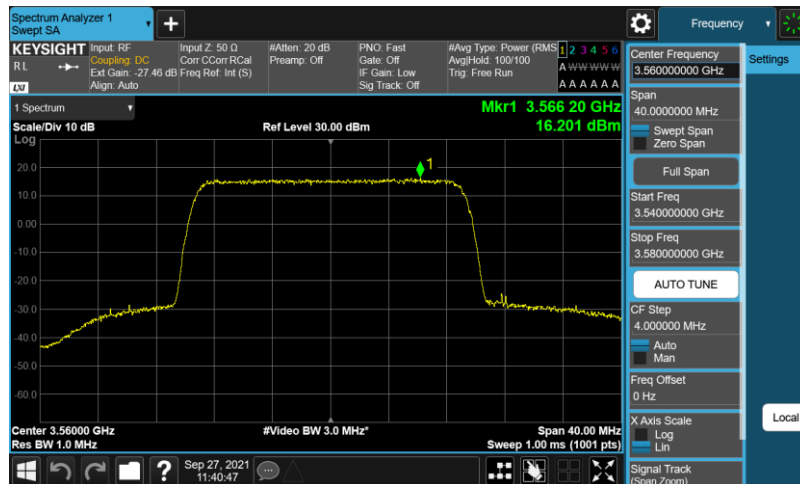
Band48-10MHz-QPSK-55990-E-TM1.1



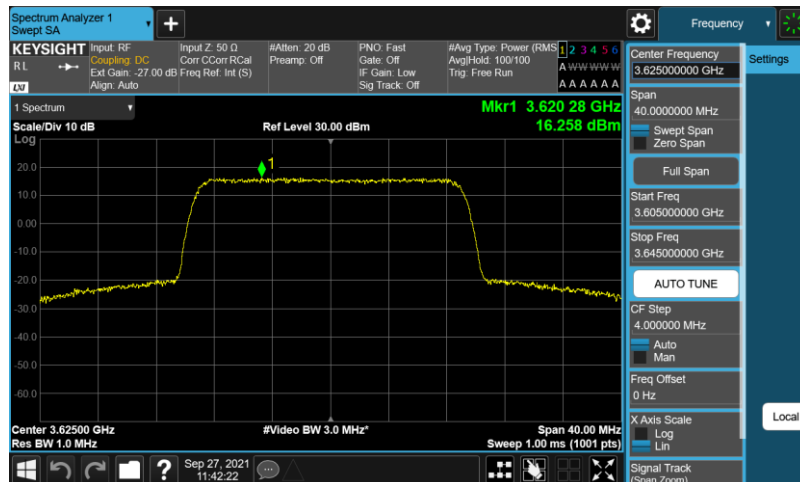
Band48-10MHz-QPSK-56690-E-TM1.1



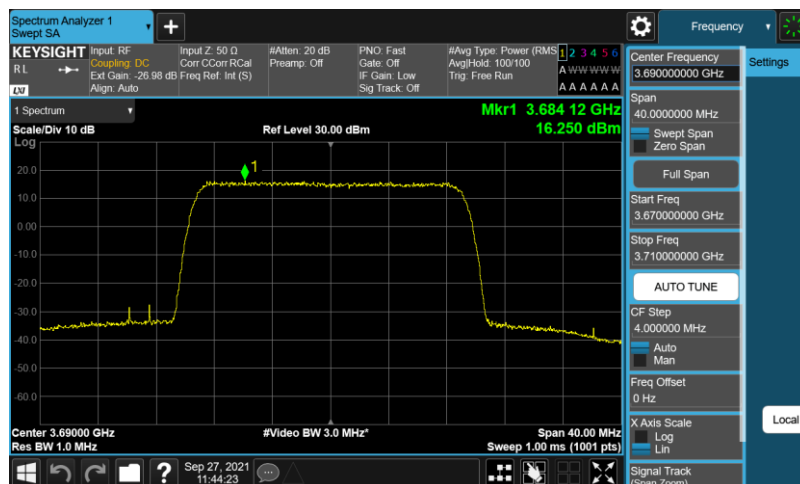
Band48-20MHz-256QAM-55340-E-TM3.1A



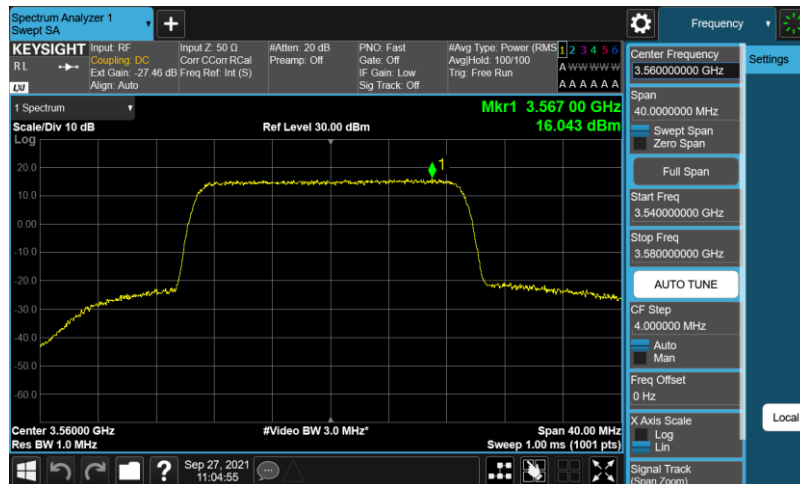
Band48-20MHz-256QAM-55990-E-TM3.1A



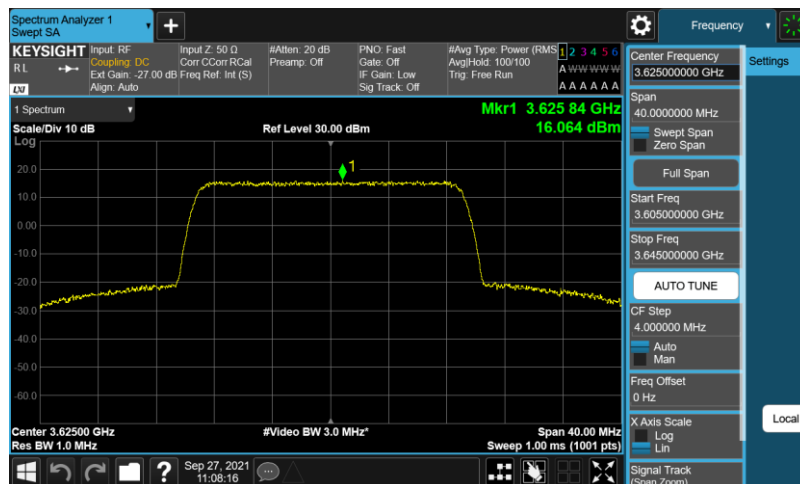
Band48-20MHz-256QAM-56640-E-TM3.1A



Band48-20MHz-QPSK-55340-E-TM1.1



Band48-20MHz-QPSK-55990-E-TM1.1



Band48-20MHz-QPSK-56640-E-TM1.1



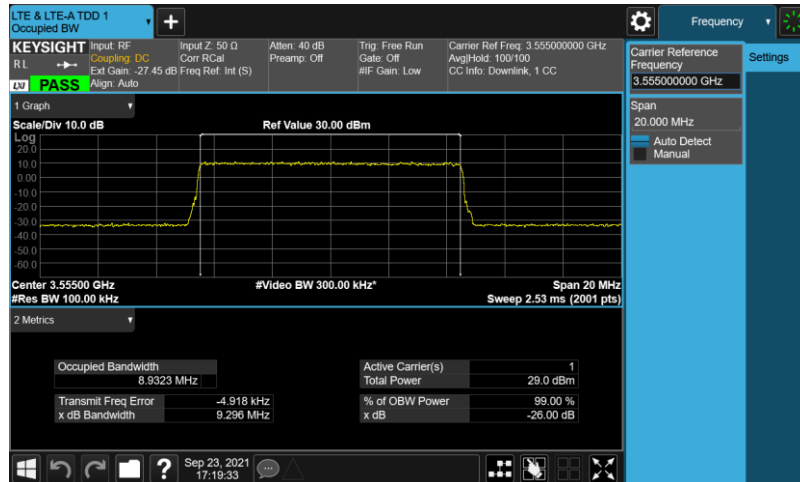
Appendix C: 26dB Bandwidth and Occupied Bandwidth

Test Result

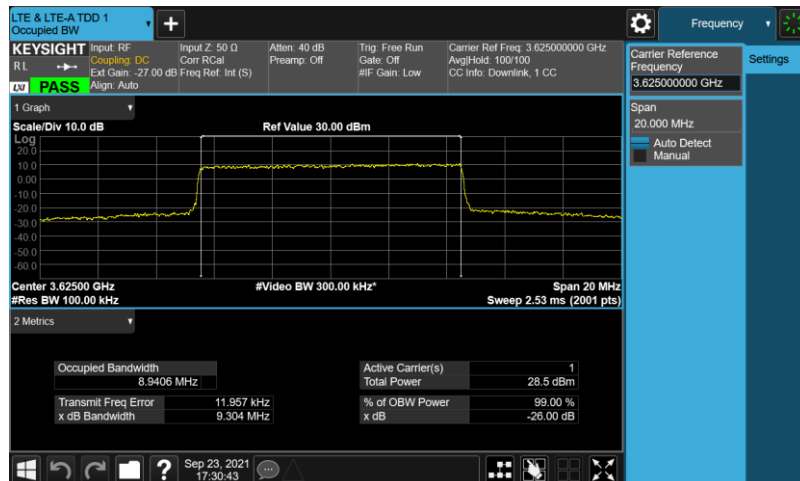
Band	Bandwidth	Modulation	Channel	Mode	99%(MHz)	EBW(MHz)
Band48	10MHz	256QAM	55290	E-TM3.1A	8.9323	9.296
Band48	10MHz	256QAM	55990	E-TM3.1A	8.9406	9.304
Band48	10MHz	256QAM	56690	E-TM3.1A	8.9292	9.268
Band48	10MHz	QPSK	55290	E-TM1.1	8.9395	9.309
Band48	10MHz	QPSK	55990	E-TM1.1	8.9240	9.330
Band48	10MHz	QPSK	56690	E-TM1.1	8.9445	9.274
Band48	20MHz	256QAM	55340	E-TM3.1A	17.870	18.56
Band48	20MHz	256QAM	55990	E-TM3.1A	17.883	18.57
Band48	20MHz	256QAM	56640	E-TM3.1A	17.863	18.64
Band48	20MHz	QPSK	55340	E-TM1.1	17.859	18.49
Band48	20MHz	QPSK	55990	E-TM1.1	17.859	18.52
Band48	20MHz	QPSK	56640	E-TM1.1	17.850	18.51

Test Graphs

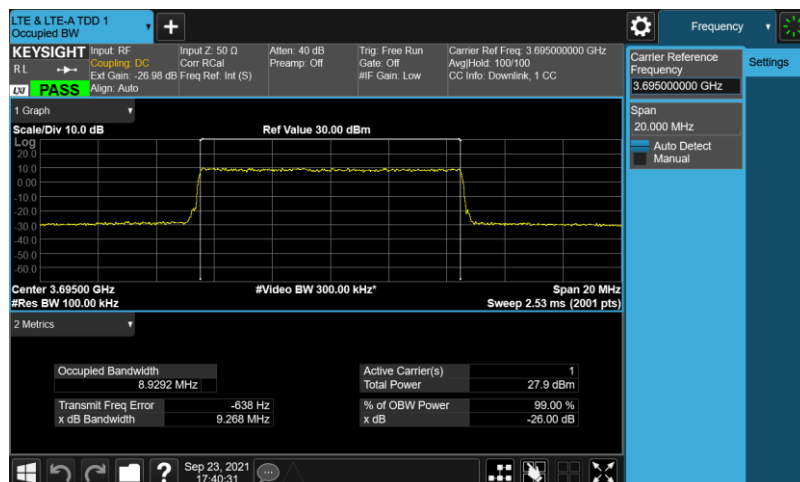
Band48-10MHz-256QAM-55290-E-TM3.1A



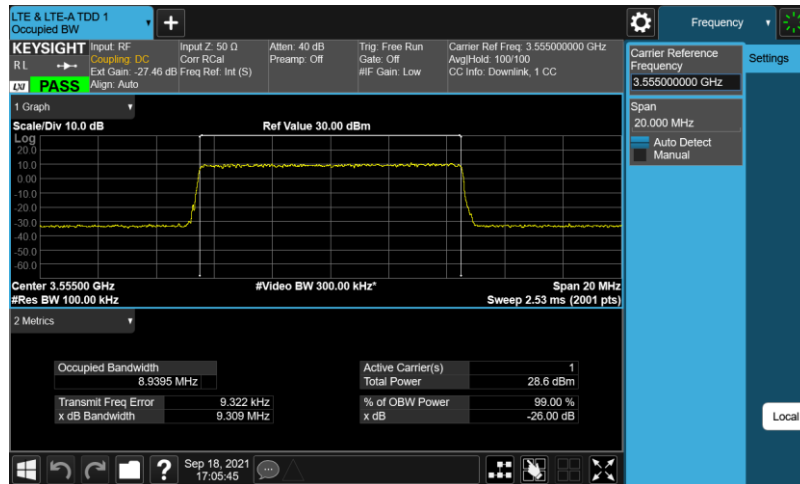
Band48-10MHz-256QAM-55990-E-TM3.1A



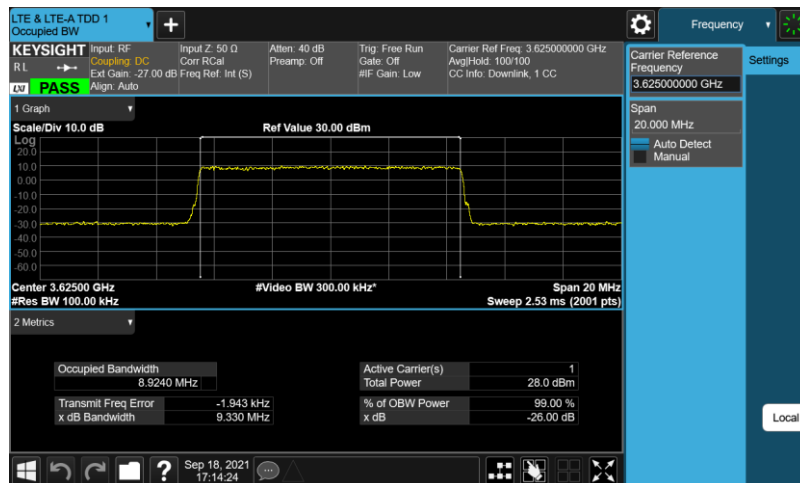
Band48-10MHz-256QAM-56690-E-TM3.1A



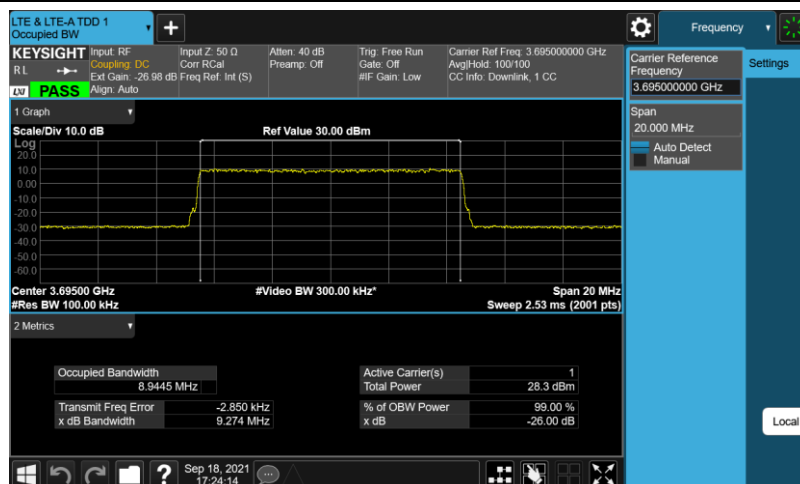
Band48-10MHz-QPSK-55290-E-TM1.1



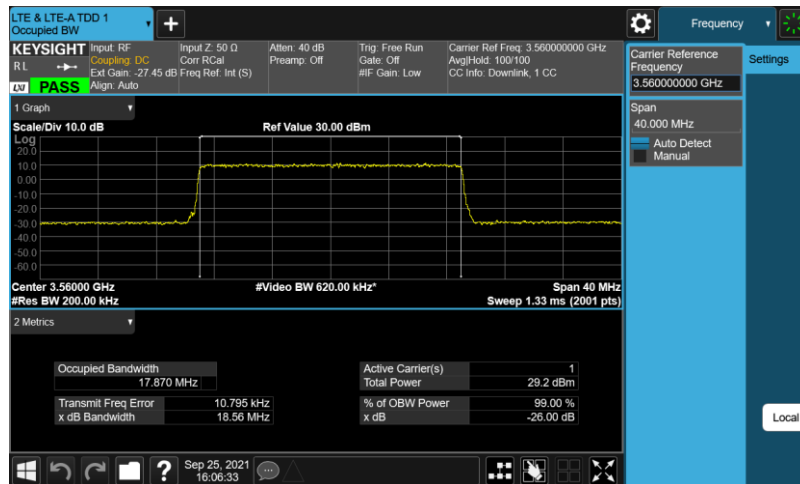
Band48-10MHz-QPSK-55990-E-TM1.1



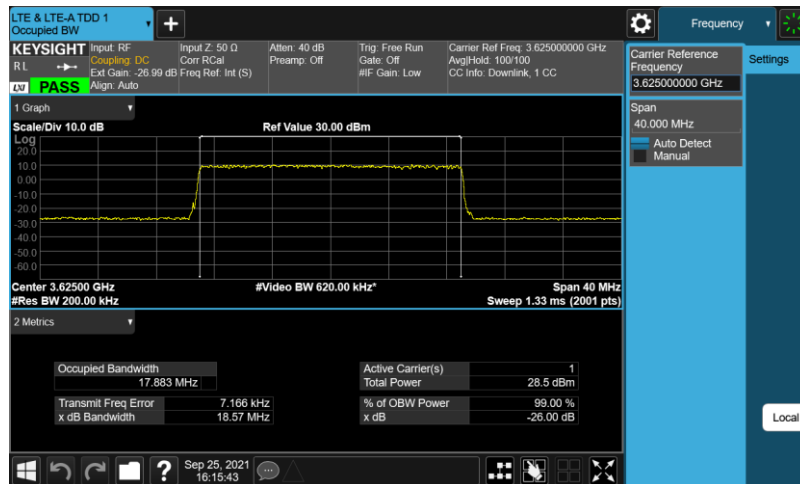
Band48-10MHz-QPSK-56690-E-TM1.1



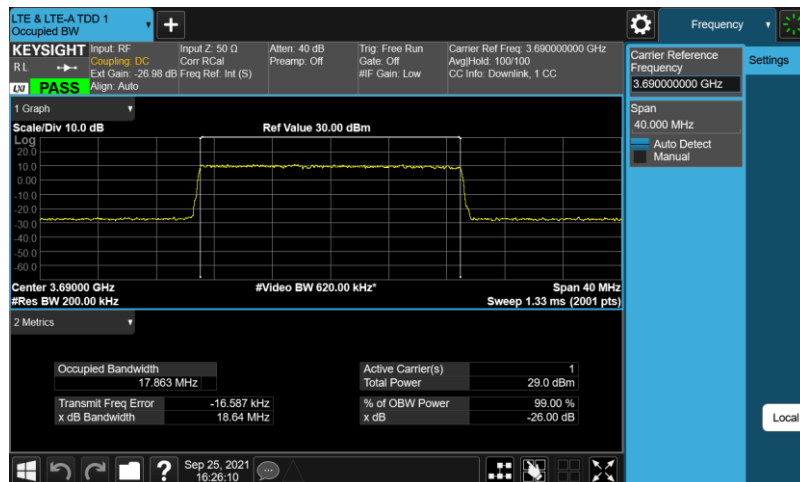
Band48-20MHz-256QAM-55340-E-TM3.1A



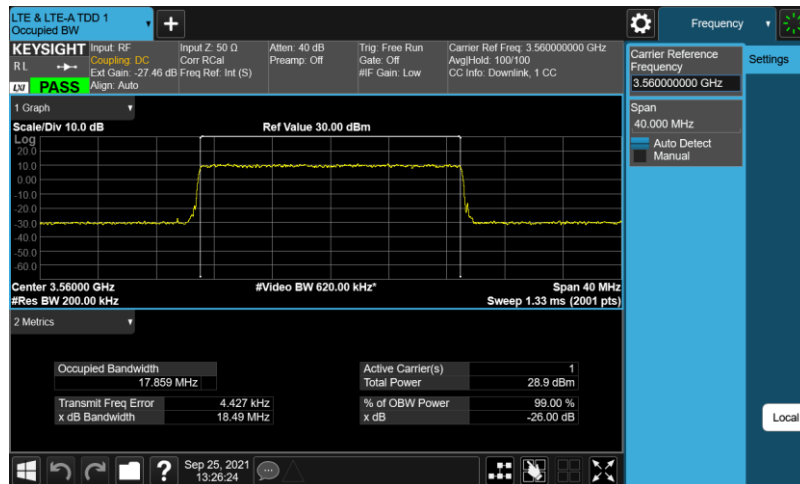
Band48-20MHz-256QAM-55990-E-TM3.1A



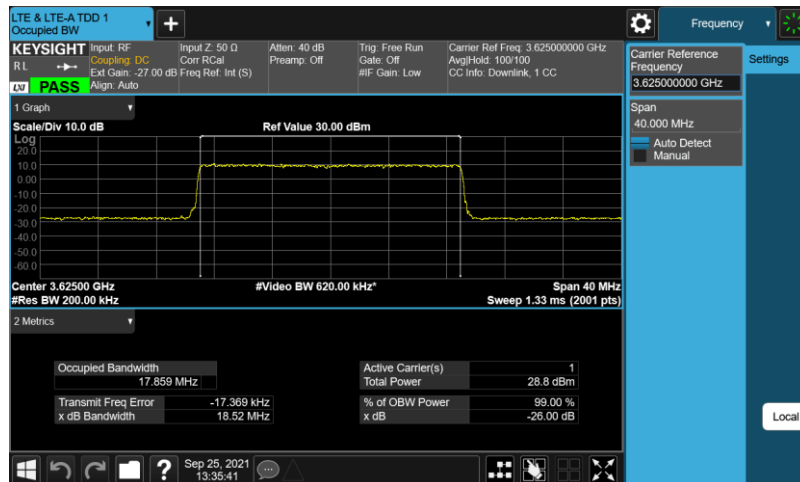
Band48-20MHz-256QAM-56640-E-TM3.1A



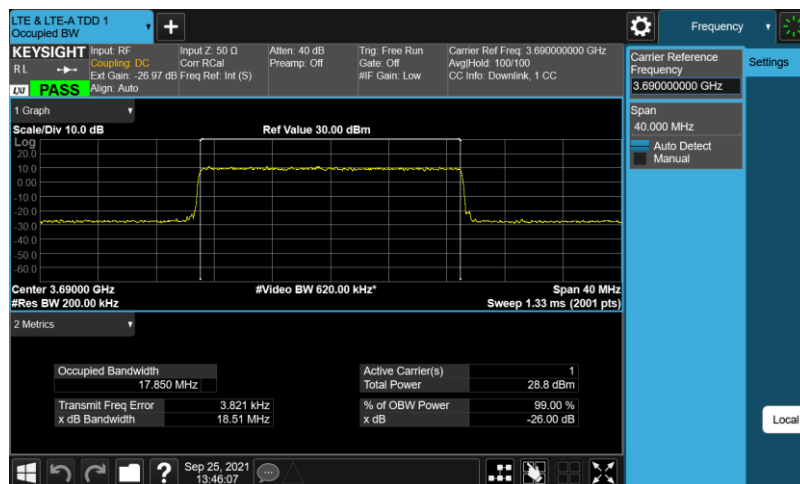
Band48-20MHz-QPSK-55340-E-TM1.1



Band48-20MHz-QPSK-55990-E-TM1.1



Band48-20MHz-QPSK-56640-E-TM1.1



Appendix D: Frequency Stability

Test Result

Voltage measurement									
Band	Bandwidth	Modulation	Channel	Mode	Voltage [Vac]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)
Band48	10MHz	256QAM	55990	E-TM3.1A	102	25	55	0.015	within the authorized bands
Band48	10MHz	256QAM	55990	E-TM3.1A	120	25	54	0.015	
Band48	10MHz	256QAM	55990	E-TM3.1A	138	25	55	0.015	
Band48	10MHz	QPSK	55990	E-TM1.1	102	25	62	0.017	
Band48	10MHz	QPSK	55990	E-TM1.1	120	25	68	0.019	
Band48	10MHz	QPSK	55990	E-TM1.1	138	25	69	0.019	
Band48	20MHz	256QAM	55990	E-TM3.1A	102	25	65	0.018	
Band48	20MHz	256QAM	55990	E-TM3.1A	120	25	66	0.018	
Band48	20MHz	256QAM	55990	E-TM3.1A	138	25	68	0.019	
Band48	20MHz	QPSK	55990	E-TM1.1	102	25	74	0.020	
Band48	20MHz	QPSK	55990	E-TM1.1	120	25	76	0.021	
Band48	20MHz	QPSK	55990	E-TM1.1	138	25	72	0.020	

Temperature measurement									
Band	Bandwidth	Modulation	Channel	Mode	Voltage [Vac]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)
Band48	10MHz	256QAM	55990	E-TM3.1A	120	-30	74	0.020	within the authorized bands
Band48	10MHz	256QAM	55990	E-TM3.1A	120	-20	75	0.021	
Band48	10MHz	256QAM	55990	E-TM3.1A	120	-10	68	0.019	
Band48	10MHz	256QAM	55990	E-TM3.1A	120	0	72	0.020	
Band48	10MHz	256QAM	55990	E-TM3.1A	120	10	79	0.022	
Band48	10MHz	256QAM	55990	E-TM3.1A	120	20	78	0.022	
Band48	10MHz	256QAM	55990	E-TM3.1A	120	30	76	0.021	
Band48	10MHz	256QAM	55990	E-TM3.1A	120	40	70	0.019	
Band48	10MHz	256QAM	55990	E-TM3.1A	120	50	78	0.022	
Band48	10MHz	QPSK	55990	E-TM1.1	120	-30	77	0.021	
Band48	10MHz	QPSK	55990	E-TM1.1	120	-20	68	0.019	
Band48	10MHz	QPSK	55990	E-TM1.1	120	-10	75	0.021	
Band48	10MHz	QPSK	55990	E-TM1.1	120	0	72	0.020	
Band48	10MHz	QPSK	55990	E-TM1.1	120	10	66	0.018	
Band48	10MHz	QPSK	55990	E-TM1.1	120	20	68	0.019	
Band48	10MHz	QPSK	55990	E-TM1.1	120	30	70	0.019	

Band48	10MHz	QPSK	55990	E-TM1.1	120	40	68	0.019	
Band48	10MHz	QPSK	55990	E-TM1.1	120	50	66	0.018	
Band48	20MHz	256QAM	55990	E-TM3.1A	120	-30	66	0.018	
Band48	20MHz	256QAM	55990	E-TM3.1A	120	-20	68	0.019	
Band48	20MHz	256QAM	55990	E-TM3.1A	120	-10	61	0.017	
Band48	20MHz	256QAM	55990	E-TM3.1A	120	0	61	0.017	
Band48	20MHz	256QAM	55990	E-TM3.1A	120	10	65	0.018	
Band48	20MHz	256QAM	55990	E-TM3.1A	120	20	66	0.018	
Band48	20MHz	256QAM	55990	E-TM3.1A	120	30	62	0.017	
Band48	20MHz	256QAM	55990	E-TM3.1A	120	40	68	0.019	
Band48	20MHz	256QAM	55990	E-TM3.1A	120	50	65	0.018	
Band48	20MHz	QPSK	55990	E-TM1.1	120	-30	70	0.019	
Band48	20MHz	QPSK	55990	E-TM1.1	120	-20	72	0.020	
Band48	20MHz	QPSK	55990	E-TM1.1	120	-10	75	0.021	
Band48	20MHz	QPSK	55990	E-TM1.1	120	0	72	0.020	
Band48	20MHz	QPSK	55990	E-TM1.1	120	10	68	0.019	
Band48	20MHz	QPSK	55990	E-TM1.1	120	20	69	0.019	
Band48	20MHz	QPSK	55990	E-TM1.1	120	30	69	0.019	
Band48	20MHz	QPSK	55990	E-TM1.1	120	40	70	0.019	
Band48	20MHz	QPSK	55990	E-TM1.1	120	50	72	0.020	

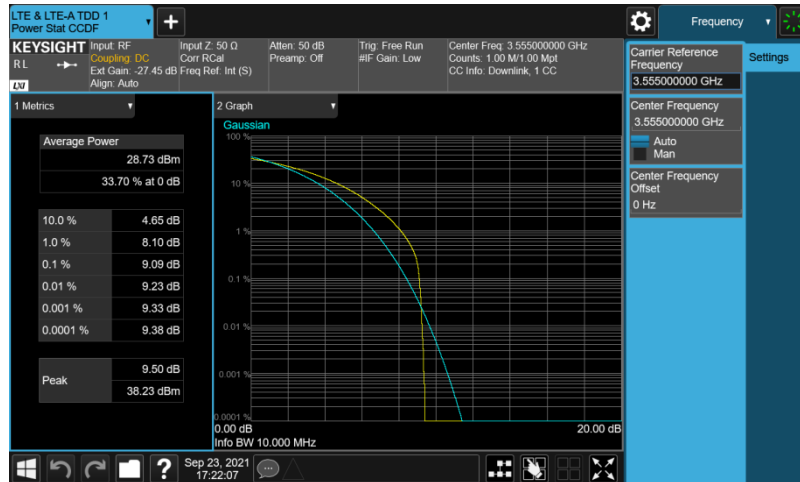
Appendix E: Peak-to-Average Ratio(CCDF)

Test Result

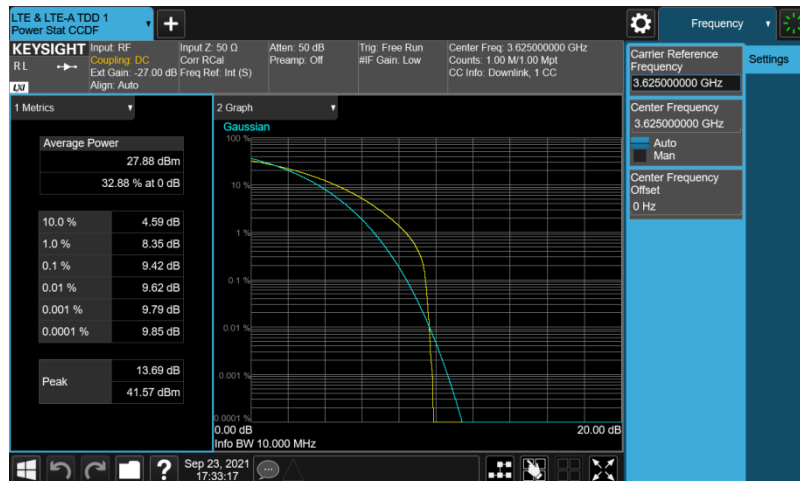
Band	Bandwidth	Modulation	Channel	Mode	Result(dBm)
Band48	10MHz	256QAM	55290	E-TM3.1A	9.09
Band48	10MHz	256QAM	55990	E-TM3.1A	9.42
Band48	10MHz	256QAM	56690	E-TM3.1A	8.91
Band48	10MHz	QPSK	55290	E-TM1.1	9.08
Band48	10MHz	QPSK	55990	E-TM1.1	9.02
Band48	10MHz	QPSK	56690	E-TM1.1	9.03
Band48	20MHz	256QAM	55340	E-TM3.1A	9.53
Band48	20MHz	256QAM	55990	E-TM3.1A	9.39
Band48	20MHz	256QAM	56640	E-TM3.1A	8.71
Band48	20MHz	QPSK	55340	E-TM1.1	9.62
Band48	20MHz	QPSK	55990	E-TM1.1	8.80
Band48	20MHz	QPSK	56640	E-TM1.1	9.34

Test Graphs

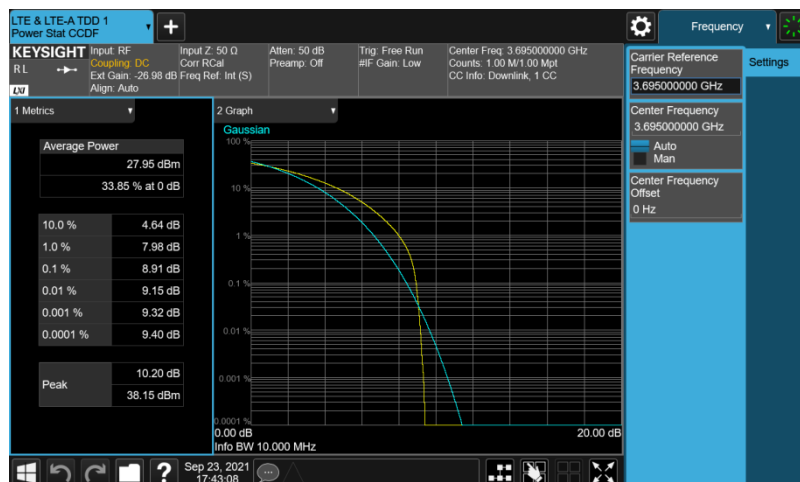
Band48-10MHz-256QAM-55290-E-TM3.1A



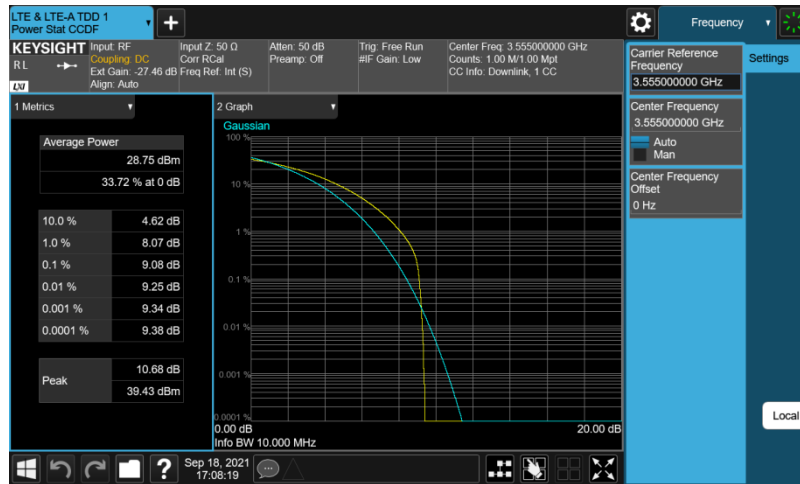
Band48-10MHz-256QAM-55990-E-TM3.1A



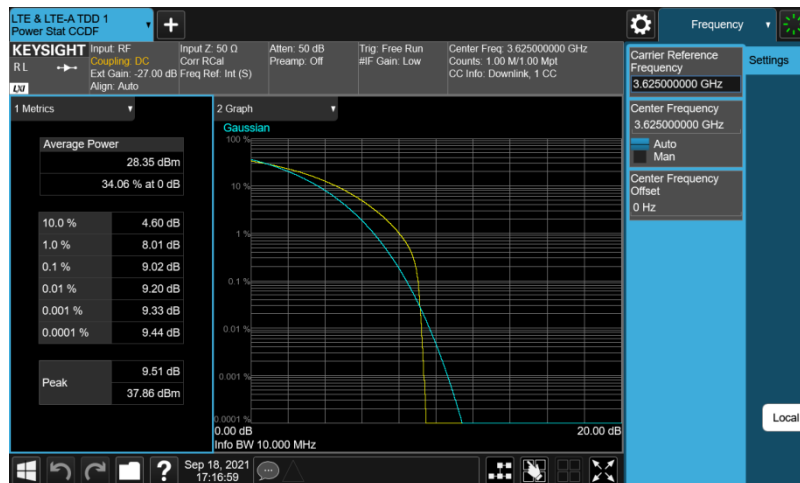
Band48-10MHz-256QAM-56690-E-TM3.1A



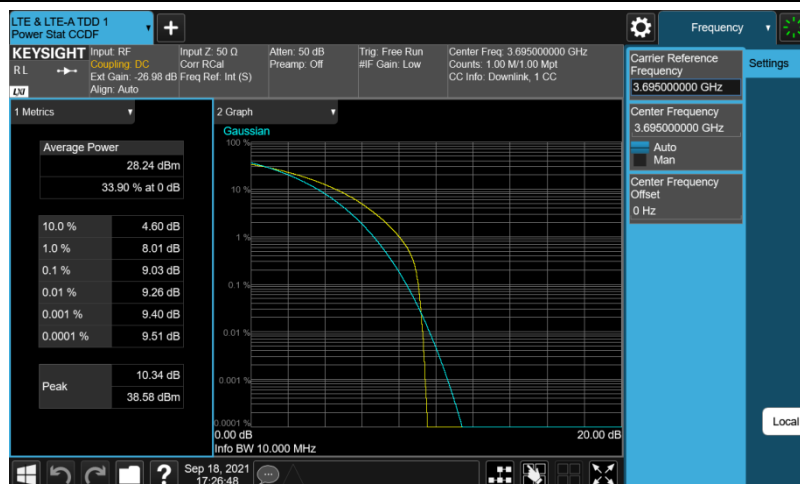
Band48-10MHz-QPSK-55290-E-TM1.1



Band48-10MHz-QPSK-55990-E-TM1.1



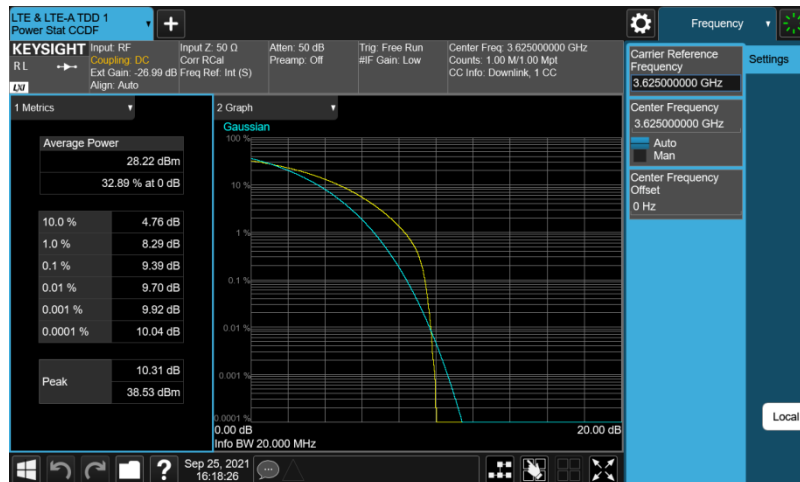
Band48-10MHz-QPSK-56690-E-TM1.1



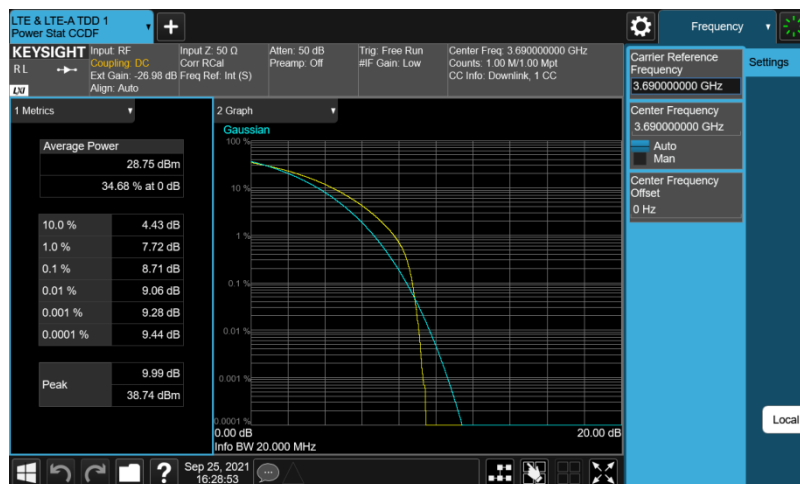
Band48-20MHz-256QAM-55340-E-TM3.1A



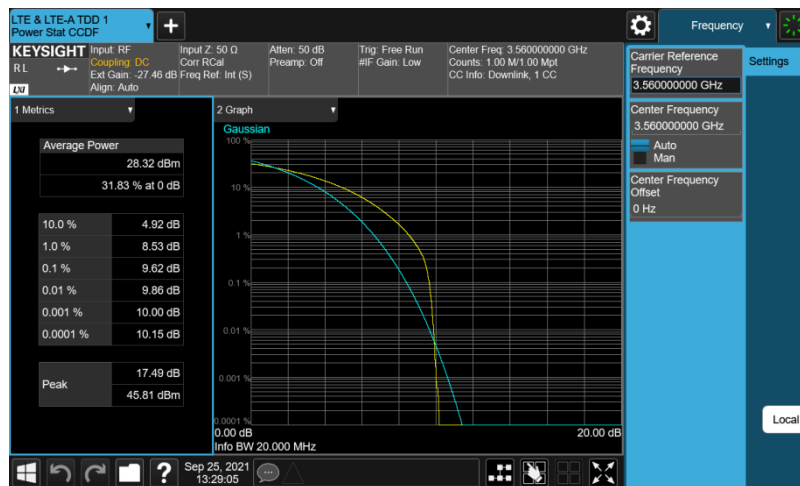
Band48-20MHz-256QAM-55990-E-TM3.1A



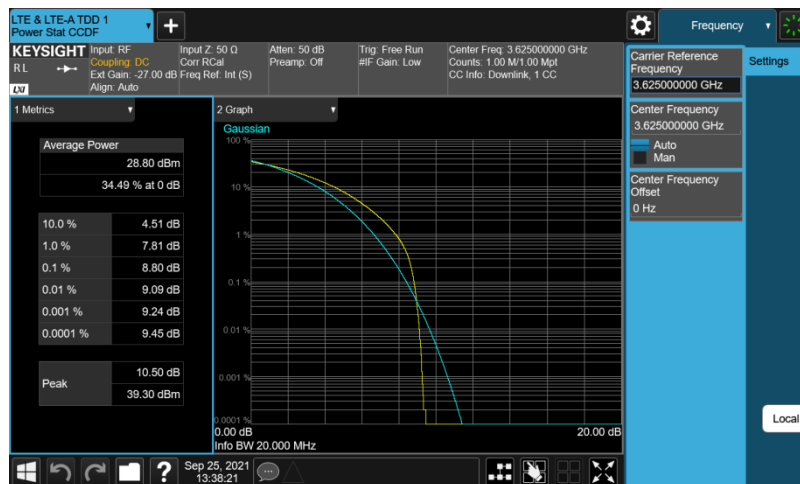
Band48-20MHz-256QAM-56640-E-TM3.1A



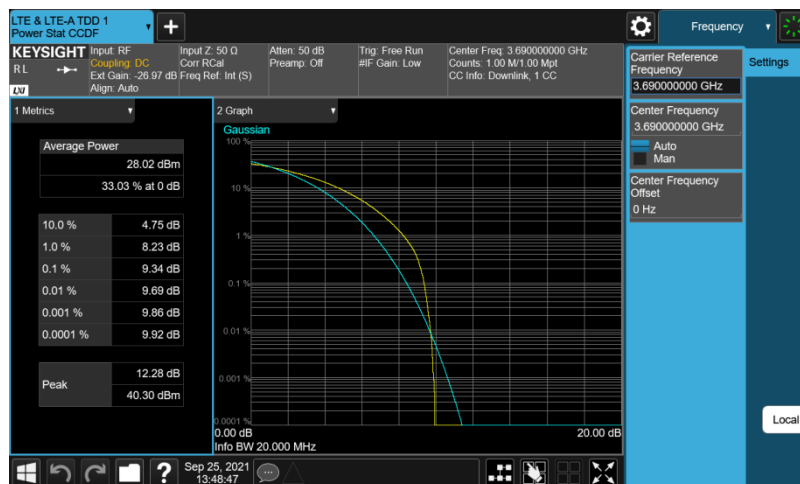
Band48-20MHz-QPSK-55340-E-TM1.1



Band48-20MHz-QPSK-55990-E-TM1.1



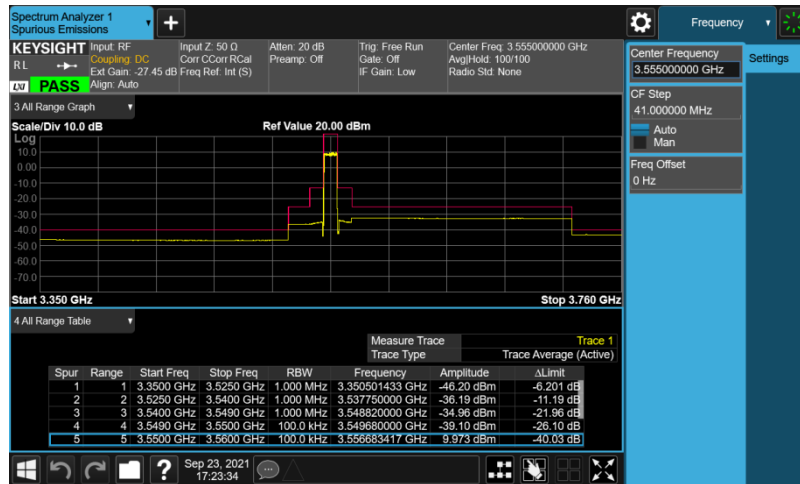
Band48-20MHz-QPSK-56640-E-TM1.1



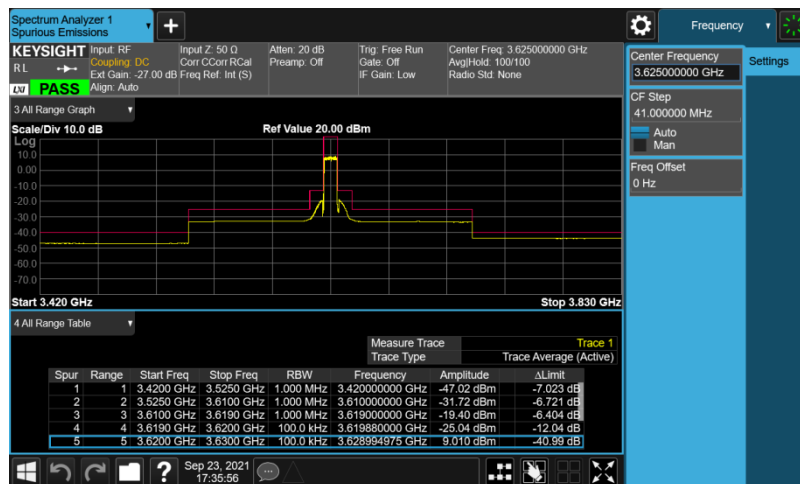
Appendix F: Emission Mask

Test Graphs

Band48-10MHz-256QAM-55290-E-TM3.1A



Band48-10MHz-256QAM-55990-E-TM3.1A



Band48-10MHz-256QAM-56690-E-TM3.1A

