

Test Results

LTE Band 4								
Bandwidth	Frequency (MHz)	Ant Pot (H/V)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	EIRP (dBm)	Conclusion
1.4MHz (QPSK)	1710.7	H	-26.70	-54.30	0.00	1.44	29.04	Pass
	1732.5	H	-26.63	-54.32	0.00	1.57	29.25	Pass
	1754.3	H	-26.30	-54.10	0.00	1.72	29.52	Pass
	1710.7	V	-28.67	-54.35	0.00	1.44	27.12	Pass
	1732.5	V	-29.08	-54.41	0.00	1.57	26.90	Pass
	1754.3	V	-29.95	-54.52	0.00	1.72	26.29	Pass
1.4MHz (16QAM)	1710.7	H	-26.02	-54.30	0.00	1.44	29.72	Pass
	1732.5	H	-25.94	-54.32	0.00	1.57	29.94	Pass
	1754.3	H	-26.61	-54.10	0.00	1.72	29.21	Pass
	1710.7	V	-28.98	-54.35	0.00	1.44	26.81	Pass
	1732.5	V	-29.38	-54.41	0.00	1.57	26.60	Pass
	1754.3	V	-30.25	-54.52	0.00	1.72	25.99	Pass
3MHz (QPSK)	1711.5	H	-26.52	-54.33	0.00	1.44	29.25	Pass
	1732.5	H	-25.90	-54.32	0.00	1.57	29.98	Pass
	1753.5	H	-26.51	-54.11	0.00	1.72	29.32	Pass
	1711.5	V	-28.89	-54.35	0.00	1.44	26.90	Pass
	1732.5	V	-29.30	-54.41	0.00	1.57	26.68	Pass
	1753.5	V	-29.82	-54.48	0.00	1.72	26.38	Pass
3MHz (16QAM)	1711.5	H	-25.82	-54.33	0.00	1.44	29.95	Pass
	1732.5	H	-26.22	-54.32	0.00	1.57	29.66	Pass
	1753.5	H	-26.82	-54.11	0.00	1.72	29.01	Pass
	1711.5	V	-29.19	-54.35	0.00	1.44	26.60	Pass
	1732.5	V	-29.63	-54.41	0.00	1.57	26.35	Pass
	1753.5	V	-30.15	-54.48	0.00	1.72	26.05	Pass
5MHz (QPSK)	1712.5	H	-26.05	-54.34	0.00	1.44	29.73	Pass
	1732.5	H	-26.70	-54.32	0.00	1.57	29.18	Pass
	1752.5	H	-26.55	-54.13	0.00	1.72	29.29	Pass
	1712.5	V	-29.08	-54.38	0.00	1.44	26.74	Pass
	1732.5	V	-29.47	-54.41	0.00	1.57	26.51	Pass
	1752.5	V	-29.74	-54.47	0.00	1.72	26.45	Pass
5MHz (16QAM)	1712.5	H	-26.37	-54.34	0.00	1.44	29.41	Pass
	1732.5	H	-26.33	-54.32	0.00	1.57	29.55	Pass
	1752.5	H	-26.84	-54.13	0.00	1.72	29.00	Pass
	1712.5	V	-29.40	-54.38	0.00	1.44	26.42	Pass
	1732.5	V	-29.77	-54.41	0.00	1.57	26.21	Pass
	1752.5	V	-30.04	-54.47	0.00	1.72	26.15	Pass
10MHz (QPSK)	1715	H	-26.72	-54.33	0.00	1.44	29.05	Pass
	1732.5	H	-26.64	-54.32	0.00	1.57	29.24	Pass
	1750	H	-26.31	-54.12	0.00	1.66	29.47	Pass



	1715	V	-29.72	-54.32	0.00	1.44	26.04	Pass
	1732.5	V	-30.17	-54.41	0.00	1.57	25.81	Pass
	1750	V	-30.45	-54.52	0.00	1.66	25.73	Pass
10MHz (16QAM)	1715	H	-27.07	-54.33	0.00	1.44	28.70	Pass
	1732.5	H	-26.96	-54.32	0.00	1.57	28.92	Pass
	1750	H	-26.63	-54.12	0.00	1.66	29.15	Pass
	1715	V	-30.04	-54.32	0.00	1.44	25.72	Pass
	1732.5	V	-30.48	-54.41	0.00	1.57	25.50	Pass
	1750	V	-30.77	-54.52	0.00	1.66	25.41	Pass
15MHz (QPSK)	1717.5	H	-28.55	-54.35	0.00	1.49	27.28	Pass
	1732.5	H	-28.08	-54.32	0.00	1.57	27.80	Pass
	1747.5	H	-27.90	-54.17	0.00	1.66	27.93	Pass
	1717.5	V	-28.97	-54.39	0.00	1.49	26.91	Pass
	1732.5	V	-29.69	-54.41	0.00	1.57	26.29	Pass
	1747.5	V	-29.66	-54.51	0.00	1.66	26.51	Pass
15MHz (16QAM)	1717.5	H	-28.86	-54.35	0.00	1.49	26.97	Pass
	1732.5	H	-28.38	-54.32	0.00	1.57	27.50	Pass
	1747.5	H	-28.21	-54.17	0.00	1.66	27.62	Pass
	1717.5	V	-29.28	-54.39	0.00	1.49	26.60	Pass
	1732.5	V	-30.00	-54.41	0.00	1.57	25.98	Pass
	1747.5	V	-29.97	-54.51	0.00	1.66	26.20	Pass
20MHz (QPSK)	1720	H	-29.21	-54.37	0.00	1.49	26.65	Pass
	1732.5	H	-28.93	-54.32	0.00	1.57	26.95	Pass
	1745	H	-29.80	-54.23	0.00	1.63	26.06	Pass
	1720	V	-30.22	-54.44	0.00	1.49	25.71	Pass
	1732.5	V	-30.37	-54.41	0.00	1.57	25.61	Pass
	1745	V	-30.72	-54.59	0.00	1.63	25.50	Pass
20MHz (16QAM)	1720	H	-29.54	-54.37	0.00	1.49	26.32	Pass
	1732.5	H	-29.25	-54.32	0.00	1.57	26.63	Pass
	1745	H	-30.11	-54.23	0.00	1.63	25.75	Pass
	1720	V	-30.53	-54.44	0.00	1.49	25.40	Pass
	1732.5	V	-30.69	-54.41	0.00	1.57	25.29	Pass
	1745	V	-31.02	-54.59	0.00	1.63	25.20	Pass

LTE Band 12								
bandwidth	Frequency (MHz)	Ant Pot (H/V)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	ERP (dBm)	Conclusion
1.4MHz (QPSK)	699.7	H	-25.65	-49.12	0.00	2.04	25.51	Pass
	707.5	H	-25.33	-49.39	0.00	2.03	26.10	Pass
	715.3	H	-23.83	-49.76	0.00	1.99	27.92	Pass
	699.7	V	-23.87	-48.91	0.00	2.04	27.09	Pass
	707.5	V	-23.44	-49.12	0.00	2.03	27.71	Pass



	715.3	V	-23.74	-49.43	0.00	1.99	27.69	Pass
1.4MHz (16QAM)	699.7	H	-25.98	-49.12	0.00	2.04	25.18	Pass
	707.5	H	-25.63	-49.39	0.00	2.03	25.80	Pass
	715.3	H	-24.15	-49.76	0.00	1.99	27.60	Pass
	699.7	V	-24.18	-48.91	0.00	2.04	26.78	Pass
	707.5	V	-23.75	-49.12	0.00	2.03	27.40	Pass
	715.3	V	-24.08	-49.43	0.00	1.99	27.35	Pass
	3MHz (QPSK)	700.5	H	-25.69	-49.15	0.00	2.04	25.50
707.5		H	-24.64	-49.39	0.00	2.03	26.79	Pass
714.5		H	-23.94	-49.73	0.00	2.00	27.79	Pass
700.5		V	-23.15	-48.94	0.00	2.04	27.83	Pass
707.5		V	-23.44	-49.12	0.00	2.03	27.71	Pass
714.5		V	-23.70	-49.37	0.00	2.00	27.67	Pass
3MHz (16QAM)	700.5	H	-26.02	-49.15	0.00	2.04	25.17	Pass
	707.5	H	-24.98	-49.39	0.00	2.03	26.45	Pass
	714.5	H	-24.26	-49.73	0.00	2.00	27.47	Pass
	700.5	V	-23.48	-48.94	0.00	2.04	27.50	Pass
	707.5	V	-23.74	-49.12	0.00	2.03	27.41	Pass
	714.5	V	-24.01	-49.37	0.00	2.00	27.36	Pass
5MHz (QPSK)	701.5	H	-25.86	-49.17	0.00	2.04	25.36	Pass
	707.5	H	-25.11	-49.39	0.00	2.03	26.32	Pass
	713.5	H	-24.42	-49.72	0.00	2.01	27.30	Pass
	701.5	V	-23.32	-48.95	0.00	2.04	27.67	Pass
	707.5	V	-23.73	-49.12	0.00	2.03	27.42	Pass
	713.5	V	-23.96	-49.35	0.00	2.01	27.40	Pass
5MHz (16QAM)	701.5	H	-26.15	-49.17	0.00	2.04	25.07	Pass
	707.5	H	-25.43	-49.39	0.00	2.03	26.00	Pass
	713.5	H	-24.74	-49.72	0.00	2.01	26.98	Pass
	701.5	V	-23.64	-48.95	0.00	2.04	27.35	Pass
	707.5	V	-24.05	-49.12	0.00	2.03	27.10	Pass
	713.5	V	-24.28	-49.35	0.00	2.01	27.08	Pass
10MHz (QPSK)	704	H	-26.59	-49.25	0.00	2.04	24.70	Pass
	707.5	H	-25.99	-49.39	0.00	2.03	25.44	Pass
	711	H	-25.70	-49.65	0.00	2.02	25.97	Pass
	704	V	-24.14	-49.00	0.00	2.04	26.90	Pass
	707.5	V	-24.12	-49.12	0.00	2.03	27.03	Pass
	711	V	-24.67	-49.33	0.00	2.02	26.67	Pass
10MHz (16QAM)	704	H	-26.89	-49.25	0.00	2.04	24.40	Pass
	707.5	H	-26.33	-49.39	0.00	2.03	25.10	Pass
	711	H	-26.01	-49.65	0.00	2.02	25.66	Pass
	704	V	-24.44	-49.00	0.00	2.04	26.60	Pass
	707.5	V	-24.43	-49.12	0.00	2.03	26.72	Pass
	711	V	-24.98	-49.33	0.00	2.02	26.36	Pass

LTE Band 13								
Bandwidth	Frequency (MHz)	Ant Pot (H/V)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBi)	ERP (dBm)	Conclusion
5MHz (QPSK)	779.5	H	-24.21	-49.85	0.00	2.06	27.70	Pass
	782	H	-24.78	-50.19	0.00	2.05	27.47	Pass
	784.5	H	-24.99	-50.45	0.00	2.04	27.50	Pass
	779.5	V	-26.41	-49.80	0.00	2.06	25.45	Pass
	782	V	-27.01	-49.92	0.00	2.05	24.96	Pass
	784.5	V	-27.01	-50.13	0.00	2.04	25.15	Pass
5MHz (16QAM)	779.5	H	-24.72	-50.05	0.00	2.06	27.39	Pass
	782	H	-25.09	-50.19	0.00	2.05	27.16	Pass
	784.5	H	-25.32	-50.45	0.00	2.04	27.17	Pass
	779.5	V	-26.71	-49.80	0.00	2.06	25.15	Pass
	782	V	-27.31	-49.92	0.00	2.05	24.66	Pass
	784.5	V	-27.31	-50.13	0.00	2.04	24.85	Pass
10MHz (QPSK)	782	H	-25.97	-50.75	0.00	2.07	26.86	Pass
	782	V	-27.79	-50.10	0.00	2.02	24.33	Pass
10MHz (16QAM)	782	H	-25.71	-50.22	0.00	2.04	26.55	Pass
	782	V	-28.50	-50.43	0.00	2.07	24.00	Pass

Note: 1. EIRP= E.R.P+2.15

4.3 Occupied Bandwidth

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

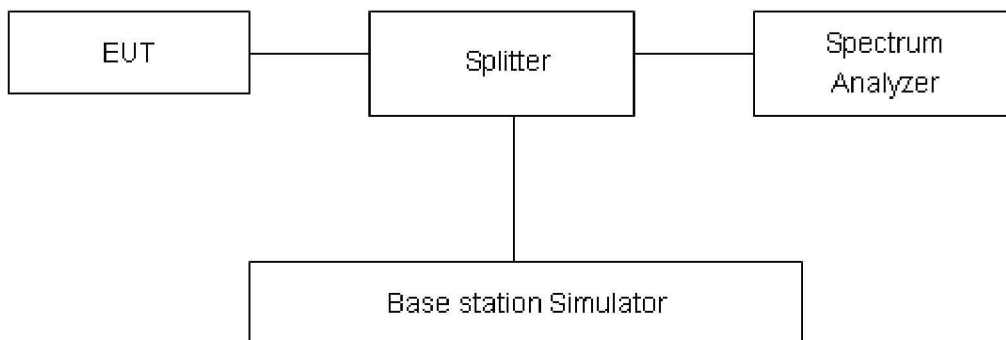
Method of Measurement

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer.

RBW is set to 51 kHz, VBW is set to 160 kHz for LTE Band 4/12/13 .

99% power and -26dBc occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

Test Setup



Limits

No specific occupied bandwidth requirements in part 2.1049.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U=624\text{Hz}$.



Test Result

LTE Band 4						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	19957	1710.7	1.108	1.329
			20175	1732.5	1.118	1.345
			20393	1754.3	1.111	1.366
		3	19965	1711.5	1.150	1.643
			20175	1732.5	1.150	1.655
			20385	1753.5	1.135	1.471
		5	19975	1712.5	1.151	1.499
			20175	1732.5	1.130	1.472
			20375	1752.5	1.154	2.015
		10	20000	1715	1.179	1.769
			20175	1732.5	1.184	1.796
			20350	1750	1.188	1.932
		15	20025	1717.5	1.194	1.915
			20175	1732.5	1.196	1.894
			20325	1747.5	1.194	1.935
		20	20050	1720	1.192	1.816
			20175	1732.5	1.208	1.782
			20300	1745	1.207	1.806
	16QAM	1.4	19957	1710.7	0.948	1.312
			20175	1732.5	0.939	1.215
			20393	1754.3	0.937	1.206
		3	19965	1711.5	0.974	1.322
			20175	1732.5	0.981	1.337
			20385	1753.5	0.981	1.313
		5	19975	1712.5	0.983	1.357
			20175	1732.5	1.016	1.496
			20375	1752.5	0.996	1.410
		10	20000	1715	1.014	1.550
			20175	1732.5	1.066	1.795
			20350	1750	1.050	1.707
15		20025	1717.5	1.088	2.074	
		20175	1732.5	1.058	1.889	
		20325	1747.5	1.066	1.900	
20		20050	1720	1.081	1.945	
		20175	1732.5	1.113	1.862	
		20300	1745	1.098	1.880	

LTE Band 12						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(MHz)	-26dBc Bandwidth(MHz)
100%	QPSK	1.4	23017	699.7	1.105	1.317
			23095	707.5	1.108	1.332
			23173	715.3	1.108	1.322
		3	23025	700.5	1.152	1.653
			23095	707.5	1.153	1.660
			23165	714.5	1.151	1.549
		5	23035	701.5	1.143	1.875
			23095	707.5	1.145	1.506
			23155	713.5	1.127	1.496
		10	23060	704	1.190	1.756
			23095	707.5	1.205	1.738
			23130	711	1.178	1.893
	16QAM	1.4	23017	699.7	0.950	1.191
			23095	707.5	0.939	1.195
			23173	715.3	0.948	1.203
		3	23025	700.5	0.983	1.331
			23095	707.5	0.985	1.343
			23165	714.5	0.971	1.348
		5	23035	701.5	0.991	1.376
			23095	707.5	0.976	1.423
			23155	713.5	1.004	1.494
10	23060	704	1.029	1.528		
	23095	707.5	1.084	1.731		
	23130	711	1.072	1.762		

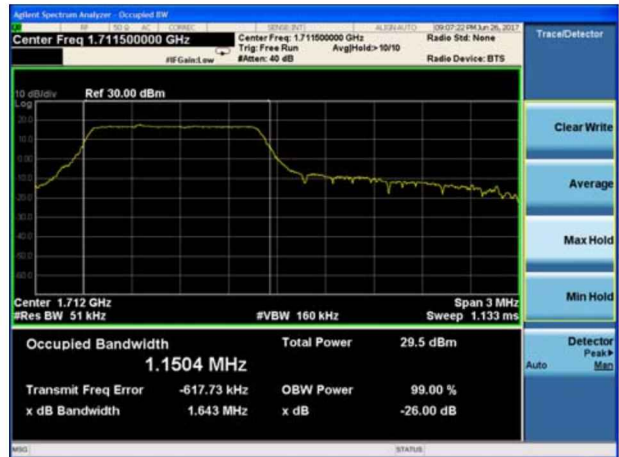
LTE Band 13						
RB	Modulation	Bandwidth (MHz)	Channel	Frequency (MHz)	99% Power Bandwidth(kHz)	-26dBc Bandwidth(kHz)
100%	QPSK	5	23205	779.5	1.144	1.828
			23230	782	1.149	1.481
			23255	784.5	1.123	1.482
		10	23230	782	1.191	1.731
			23230	782	1.178	1.721
			23230	782	1.193	1.722
	16QAM	5	23205	779.5	0.990	1.438
			23230	782	0.977	1.356
			23255	784.5	1.005	1.497
		10	23230	782	1.035	1.504
			23230	782	1.033	1.537
			23230	782	1.051	1.613



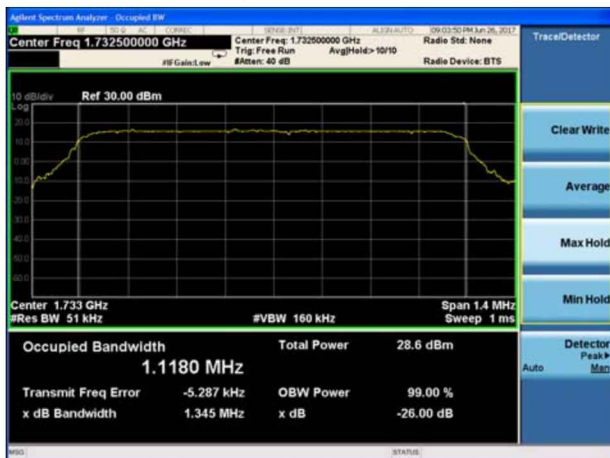
LTE Band 4 QPSK 1.4MHz CH-Low



LTE Band 4 QPSK 3MHz CH-Low



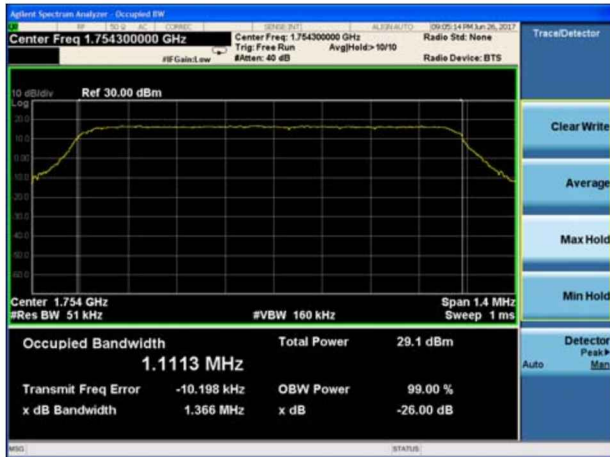
LTE Band 4 QPSK 1.4MHz CH-Middle



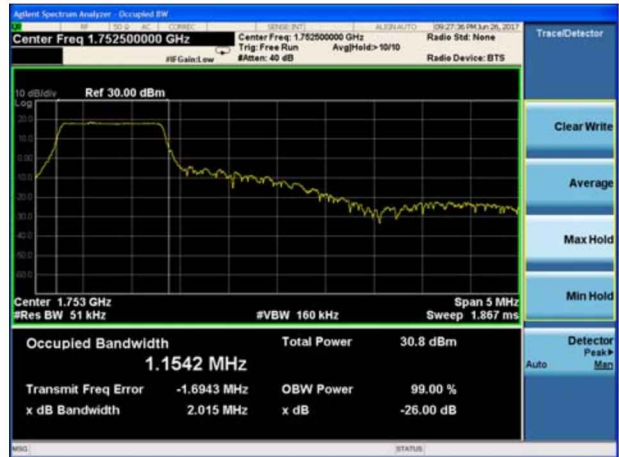
LTE Band 4 QPSK 3MHz CH-Middle



LTE Band 4 QPSK 1.4MHz CH-High



LTE Band 4 QPSK 3MHz CH-High

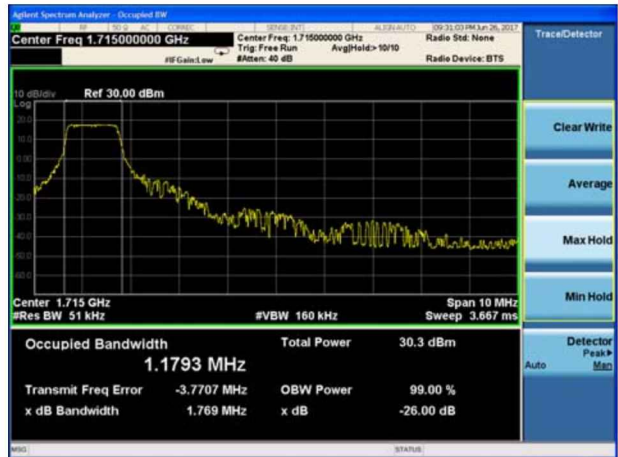




LTE Band 4 QPSK 5MHz CH-Low



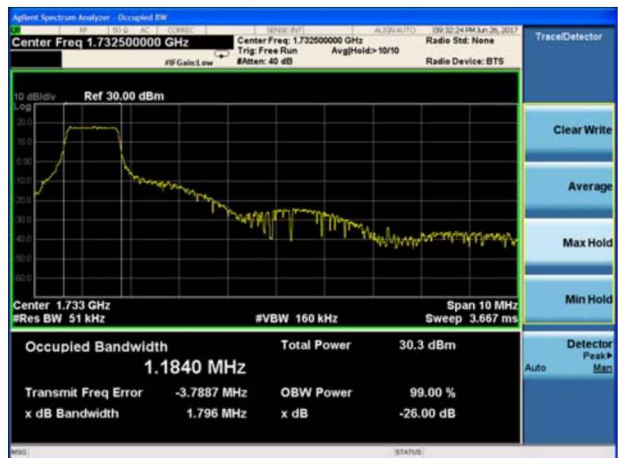
LTE Band 4 QPSK 10MHz CH-Low



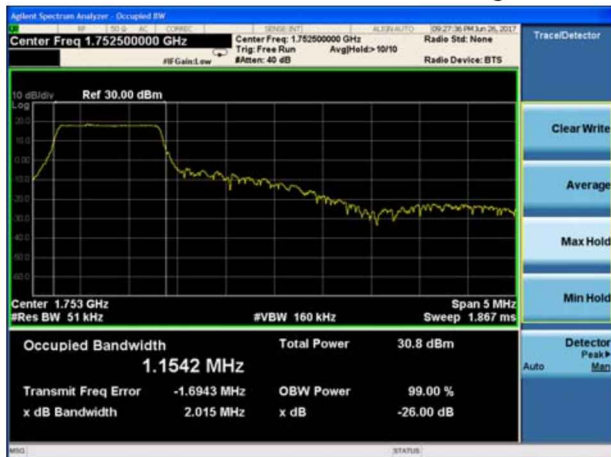
LTE Band 4 QPSK 5MHz CH-Middle



LTE Band 4 QPSK 10MHz CH-Middle



LTE Band 4 QPSK 5MHz CH-High



LTE Band 4 QPSK 10MHz CH-High





LTE Band 4 16QAM 1.4MHz CH-Low



LTE Band 4 16QAM 3MHz CH-Low



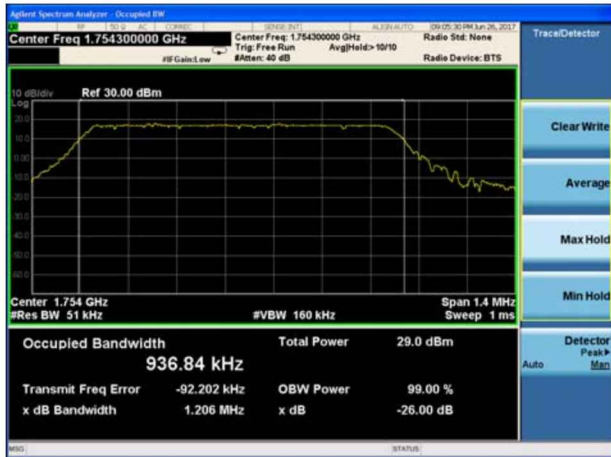
LTE Band 4 16QAM 1.4MHz CH-Middle



LTE Band 4 16QAM 3MHz CH-Middle



LTE Band 4 16QAM 1.4MHz CH-High



LTE Band 4 16QAM 3MHz CH-High

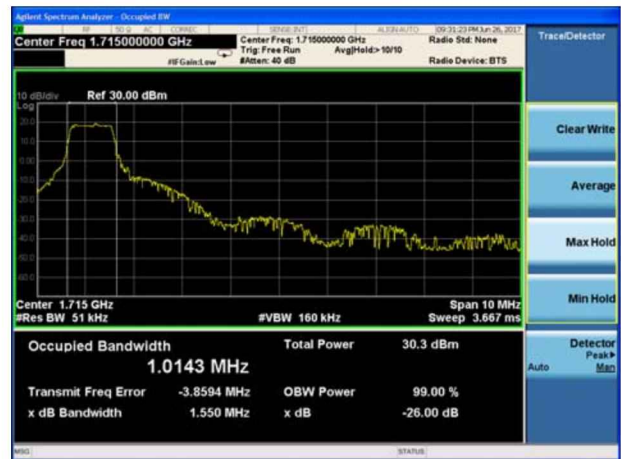




LTE Band 4 16QAM 5MHz CH-Low



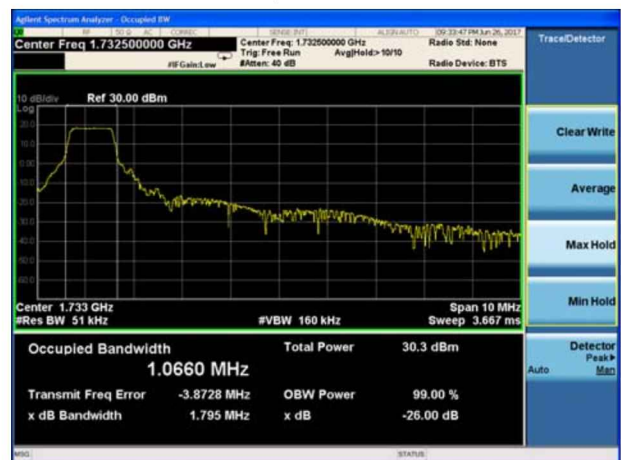
LTE Band 4 16QAM 10MHz CH-Low



LTE Band 4 16QAM 5MHz CH-Middle



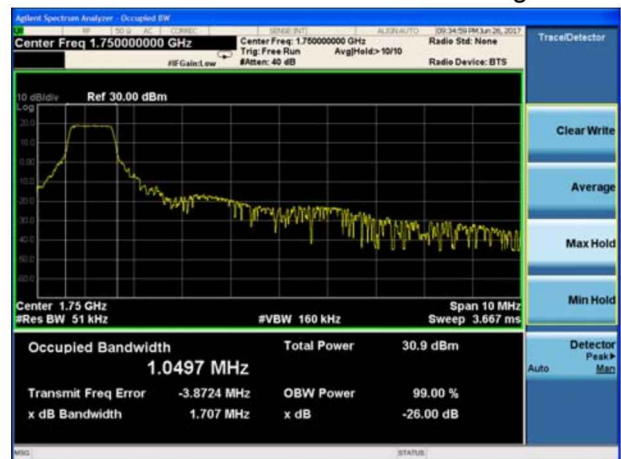
LTE Band 4 16QAM 10MHz CH-Middle



LTE Band 4 16QAM 5MHz CH-High



LTE Band 4 16QAM 10MHz CH-High

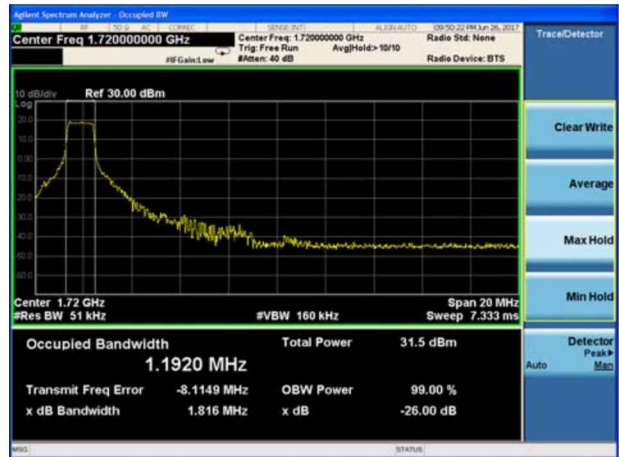




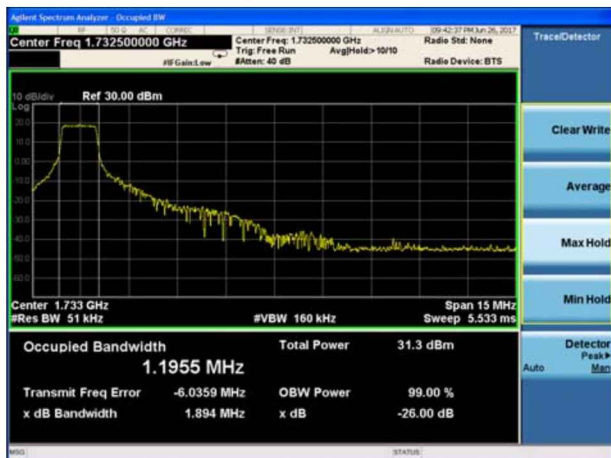
LTE Band 4 QPSK 15MHz CH-Low



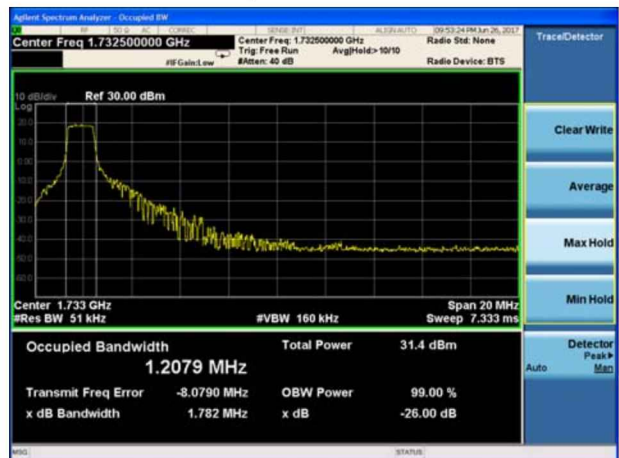
LTE Band 4 QPSK 20MHz CH-Low



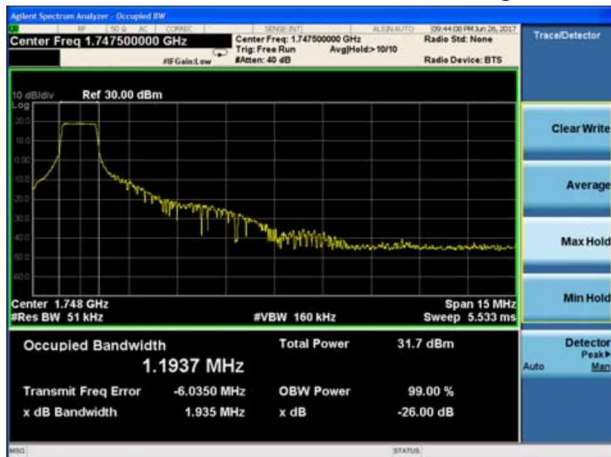
LTE Band 4 QPSK 15MHz CH-Middle



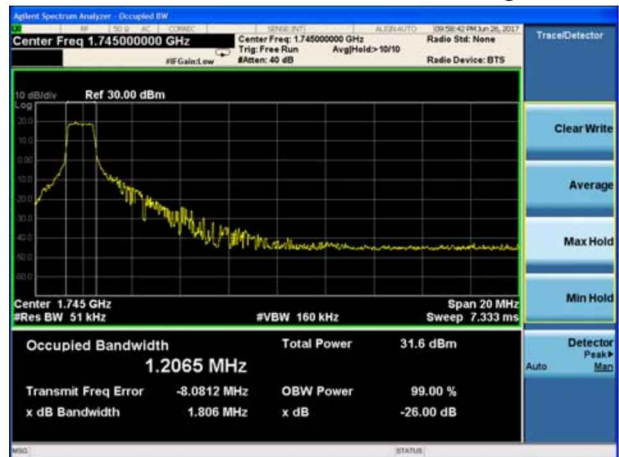
LTE Band 4 QPSK 20MHz CH-Middle



LTE Band 4 QPSK 15MHz CH-High



LTE Band 4 QPSK 20MHz CH-High

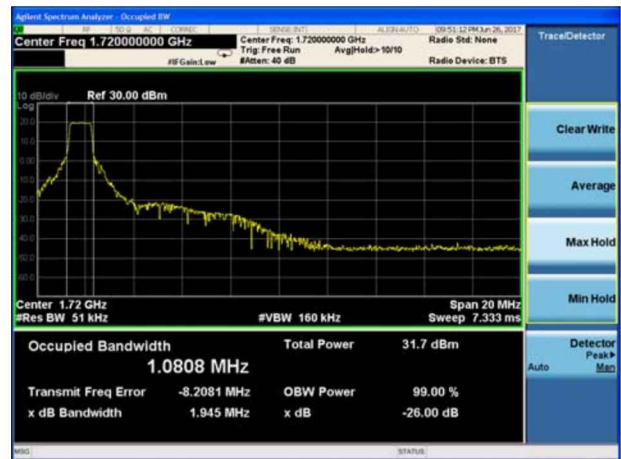




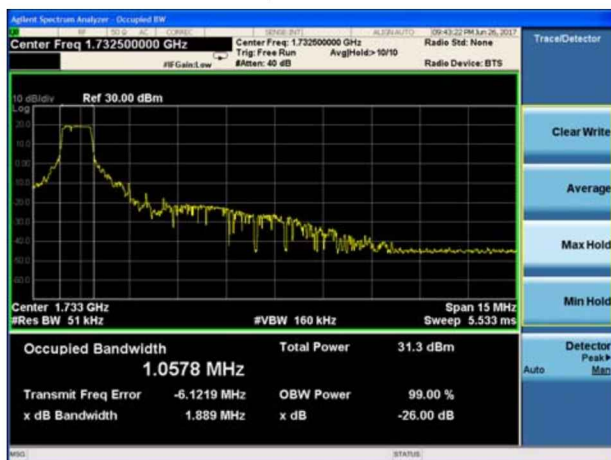
LTE Band 4 16QAM 15MHz CH-Low



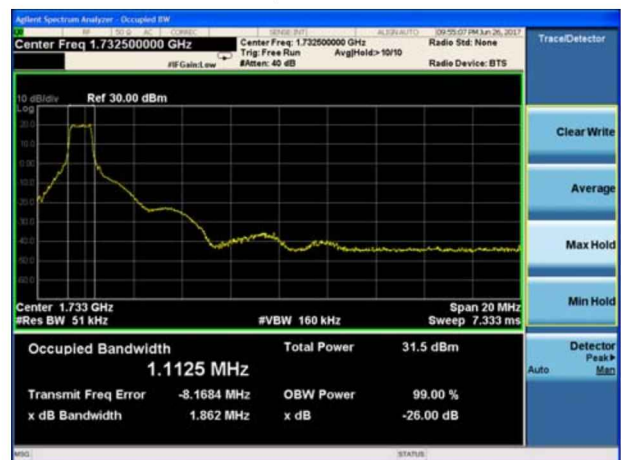
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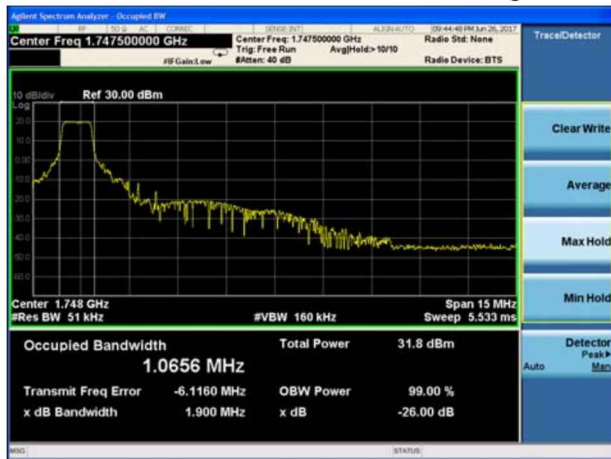
LTE Band 4 16QAM 15MHz CH-Middle



LTE Band 4 16QAM 20MHz CH-Middle



LTE Band 4 16QAM 15MHz CH-High



LTE Band 4 16QAM 20MHz CH-High

