

5.8.9 LTE Band 26

LTE Band 26_ 15 MHz_ QPSK							
No.	Frequency	SA Reading	Correction factor	EIRP Result	Limit	Margin	Ant. Pol.
	(MHz)	(dBm)	(dB/m)	(dBm)	(dBm)	(dB)	
Lowest Channel							
1	674.677	-88.41	39.82	-48.59	-13.00	-35.59	Horizontal
2	838.887	-87.63	42.44	-45.19	-13.00	-32.19	Horizontal
3	938.714	-87.79	43.51	-44.28	-13.00	-31.28	Horizontal
4	1633.000	-60.62	-0.04	-60.66	-13.00	-47.66	Horizontal
5	2449.500	-62.89	3.88	-59.01	-13.00	-46.01	Horizontal
6	637.795	-88.38	39.10	-49.28	-13.00	-36.28	Vertical
7	739.214	-88.70	40.87	-47.83	-13.00	-34.83	Vertical
8	925.613	-88.00	43.47	-44.53	-13.00	-31.53	Vertical
9	1633.000	-61.45	-0.04	-61.49	-13.00	-48.49	Vertical
10	2449.500	-64.84	3.88	-60.96	-13.00	-47.96	Vertical
Middle Channel							
1	793.028	-88.34	41.65	-46.69	-13.00	-33.69	Horizontal
2	919.132	-87.36	43.55	-43.81	-13.00	-30.81	Horizontal
3	972.283	-86.76	43.98	-42.78	-13.00	-29.78	Horizontal
4	1638.000	-62.57	-0.01	-62.58	-13.00	-49.58	Horizontal
5	2457.000	-64.53	3.93	-60.60	-13.00	-47.60	Horizontal
6	781.961	-87.61	41.30	-46.31	-13.00	-33.31	Vertical
7	899.958	-87.75	43.37	-44.38	-13.00	-31.38	Vertical
8	965.474	-85.92	43.86	-42.06	-13.00	-29.06	Vertical
9	1638.000	-62.71	-0.01	-62.72	-13.00	-49.72	Vertical
10	2457.000	-63.61	3.93	-59.68	-13.00	-46.68	Vertical
Highest Channel							
1	684.226	-88.33	40.19	-48.14	-13.00	-35.14	Horizontal
2	793.028	-88.12	41.65	-46.47	-13.00	-33.47	Horizontal
3	906.304	-88.26	43.57	-44.69	-13.00	-31.69	Horizontal
4	1643.000	-61.33	0.01	-61.32	-13.00	-48.32	Horizontal
5	2464.500	-63.26	3.97	-59.29	-13.00	-46.29	Horizontal
6	868.886	-87.83	42.90	-44.93	-13.00	-31.93	Vertical
7	925.613	-87.52	43.47	-44.05	-13.00	-31.05	Vertical
8	979.139	-87.40	44.18	-43.22	-13.00	-30.22	Vertical
9	1643.000	-61.01	0.01	-61.00	-13.00	-48.00	Vertical
10	2464.500	-63.50	3.97	-59.53	-13.00	-46.53	Vertical

5.8.10 LTE Band 26 (Part 90S)

LTE Band 26_ 5 MHz_ QPSK							
No.	Frequency (MHz)	SA Reading (dBm)	Correction factor (dB/m)	EIRP Result (dBm)	Limit (dBm)	Margin (dB)	Ant. Pol.
Lowest Channel							
1	703.731	-88.33	40.80	-47.53	-13.00	-34.53	Horizontal
2	925.613	-87.60	43.47	-44.13	-13.00	-31.13	Horizontal
3	952.000	-86.60	43.79	-42.81	-13.00	-29.81	Horizontal
4	1638.000	-62.37	-0.01	-62.38	-13.00	-49.38	Horizontal
5	2457.000	-62.92	3.93	-58.99	-13.00	-45.99	Horizontal
6	35.762	-80.97	31.76	-49.21	-13.00	-36.21	Vertical
7	856.760	-87.22	42.78	-44.44	-13.00	-31.44	Vertical
8	952.000	-87.07	43.79	-43.28	-13.00	-30.28	Vertical
9	1638.000	-62.49	-0.01	-62.50	-13.00	-49.50	Vertical
10	2457.000	-63.37	3.93	-59.44	-13.00	-46.44	Vertical
Middle Channel							
1	856.760	-88.26	42.78	-45.48	-13.00	-32.48	Horizontal
2	906.304	-88.00	43.57	-44.43	-13.00	-31.43	Horizontal
3	952.000	-86.96	43.79	-43.17	-13.00	-30.17	Horizontal
4	1663.000	-61.51	0.10	-61.41	-13.00	-48.41	Horizontal
5	2494.500	-65.61	4.15	-61.46	-13.00	-48.46	Horizontal
6	35.762	-82.69	31.76	-50.93	-13.00	-37.93	Vertical
7	899.958	-86.81	43.37	-43.44	-13.00	-30.44	Vertical
8	952.000	-87.37	43.79	-43.58	-13.00	-30.58	Vertical
9	1663.000	-59.77	0.10	-59.67	-13.00	-46.67	Vertical
10	2494.500	-64.14	4.15	-59.99	-13.00	-46.99	Vertical
Highest Channel							
1	35.762	-81.08	31.76	-49.32	-13.00	-36.32	Horizontal
2	723.793	-87.37	40.89	-46.48	-13.00	-33.48	Horizontal
3	952.000	-86.37	43.79	-42.58	-13.00	-29.58	Horizontal
4	1673.000	-60.56	0.15	-60.41	-13.00	-47.41	Horizontal
5	1673.000	-60.56	0.15	-60.41	-13.00	-47.41	Horizontal
6	36.014	-82.81	31.77	-51.04	-13.00	-38.04	Vertical
7	698.804	-87.88	40.79	-47.09	-13.00	-34.09	Vertical
8	952.000	-85.99	43.79	-42.20	-13.00	-29.20	Vertical
9	1673.000	-60.03	0.15	-59.88	-13.00	-46.88	Vertical
10	2509.500	-62.88	4.20	-58.68	-13.00	-45.68	Vertical

LTE Band 26_ 10 MHz_ QPSK							
No.	Frequency	SA Reading	Correction factor	EIRP Result	Limit	Margin	Ant. Pol.
	(MHz)	(dBm)	(dB/m)	(dBm)	(dBm)	(dB)	
Middle Channel							
1	781.961	-87.51	41.30	-46.21	-13.00	-33.21	Horizontal
2	804.252	-88.17	41.94	-46.23	-13.00	-33.23	Horizontal
3	965.474	-87.46	43.86	-43.60	-13.00	-30.60	Horizontal
4	1683.000	-61.17	0.20	-60.97	-13.00	-47.97	Horizontal
5	2524.500	-65.25	4.22	-61.03	-13.00	-48.03	Horizontal
6	798.620	-88.15	41.73	-46.42	-13.00	-33.42	Vertical
7	887.398	-88.07	43.24	-44.83	-13.00	-31.83	Vertical
8	952.000	-85.76	43.79	-41.97	-13.00	-28.97	Vertical
9	1683.000	-61.11	0.20	-60.91	-13.00	-47.91	Vertical
10	2524.500	-65.72	4.22	-61.50	-13.00	-48.50	Vertical

5.8.11 LTE Band 30

LTE Band 30_ 10 MHz_ QPSK							
No.	Frequency	SA Reading	Correction factor	EIRP Result	Limit	Margin	Ant. Pol.
	(MHz)	(dBm)	(dB/m)	(dBm)	(dBm)	(dB)	
Middle Channel							
1	833.013	-80.52	13.24	-67.28	-40.00	-27.28	Horizontal
2	919.132	-80.41	14.53	-65.88	-40.00	-25.88	Horizontal
3	986.044	-80.60	15.44	-65.16	-40.00	-25.16	Horizontal
4	4620.000	-69.66	9.95	-59.71	-40.00	-19.71	Horizontal
5	6930.000	-67.84	13.83	-54.01	-40.00	-14.01	Horizontal
6	776.485	-80.62	11.90	-68.72	-40.00	-28.72	Vertical
7	899.958	-81.43	14.32	-67.11	-40.00	-27.11	Vertical
8	965.474	-80.97	14.91	-66.06	-40.00	-26.06	Vertical
9	4620.000	-69.08	9.95	-59.13	-40.00	-19.13	Vertical
10	6930.000	-68.43	13.83	-54.60	-40.00	-14.60	Vertical

5.8.12 LTE Band 38

LTE Band 38_ 20 MHz_ QPSK							
No.	Frequency (MHz)	SA Reading (dBm)	Correction factor (dB/m)	EIRP Result (dBm)	Limit (dBm)	Margin (dB)	Ant. Pol.
Lowest Channel							
1	718.725	-78.63	8.92	-69.71	-25.00	-44.71	Horizontal
2	887.398	-80.05	11.94	-68.11	-25.00	-43.11	Horizontal
3	965.474	-81.18	15.44	-65.74	-25.00	-40.74	Horizontal
4	5160.000	-65.76	10.88	-54.88	-25.00	-29.88	Horizontal
5	7740.000	-67.44	14.72	-52.72	-25.00	-27.72	Horizontal
6	512.948	-79.49	11.90	-67.59	-25.00	-42.59	Vertical
7	728.897	-80.39	13.20	-67.19	-25.00	-42.19	Vertical
8	906.304	-79.84	14.20	-65.64	-25.00	-40.64	Vertical
9	5160.000	-66.50	10.88	-55.62	-25.00	-30.62	Vertical
10	7740.000	-68.95	14.72	-54.23	-25.00	-29.23	Vertical
Middle Channel							
1	602.929	-78.63	8.92	-69.71	-25.00	-44.71	Horizontal
2	771.047	-80.05	11.94	-68.11	-25.00	-43.11	Horizontal
3	986.044	-81.18	15.44	-65.74	-25.00	-40.74	Horizontal
4	5190.000	-65.76	10.88	-54.88	-25.00	-29.88	Horizontal
5	7785.000	-67.44	14.72	-52.72	-25.00	-27.72	Horizontal
6	776.485	-79.49	11.90	-67.59	-25.00	-42.59	Vertical
7	821.387	-80.39	13.20	-67.19	-25.00	-42.19	Vertical
8	893.656	-79.84	14.20	-65.64	-25.00	-40.64	Vertical
9	5190.000	-66.50	10.88	-55.62	-25.00	-30.62	Vertical
10	7785.000	-68.95	14.72	-54.23	-25.00	-29.23	Vertical
Highest Channel							
1	856.760	-80.56	13.67	-66.89	-25.00	-41.89	Horizontal
2	881.184	-80.33	14.07	-66.26	-25.00	-41.26	Horizontal
3	986.044	-81.11	15.44	-65.67	-25.00	-40.67	Horizontal
4	5220.000	-65.98	11.00	-54.98	-25.00	-29.98	Horizontal
5	7830.000	-68.23	14.81	-53.42	-25.00	-28.42	Horizontal
6	815.635	-80.58	13.04	-67.54	-25.00	-42.54	Vertical
7	862.802	-80.37	13.74	-66.63	-25.00	-41.63	Vertical
8	932.141	-80.50	14.41	-66.09	-25.00	-41.09	Vertical
9	5220.000	-66.39	11.00	-55.39	-25.00	-30.39	Vertical
10	7830.000	-68.55	14.81	-53.74	-25.00	-28.74	Vertical

5.8.13 LTE Band 40A

LTE Band 40_ 10 MHz_ QPSK							
No.	Frequency	SA Reading	Correction factor	EIRP Result	Limit	Margin	Ant. Pol.
	(MHz)	(dBm)	(dB/m)	(dBm)	(dBm)	(dB)	
1	833.013	-80.51	13.24	-67.27	-40.00	-27.27	Horizontal
2	862.802	-80.63	13.74	-66.89	-40.00	-26.89	Horizontal
3	958.714	-81.49	14.93	-66.56	-40.00	-26.56	Horizontal
4	5160.000	-66.43	10.81	-55.62	-40.00	-15.62	Horizontal
5	7740.000	-70.13	14.63	-55.50	-40.00	-15.50	Horizontal
6	723.793	-79.63	11.58	-68.05	-40.00	-28.05	Vertical
7	827.179	-80.61	13.16	-67.45	-40.00	-27.45	Vertical
8	906.304	-81.25	14.53	-66.72	-40.00	-26.72	Vertical
9	5160.000	-67.13	10.81	-56.32	-40.00	-16.32	Vertical
10	7740.000	-69.51	14.63	-54.88	-40.00	-14.88	Vertical

5.8.1 LTE Band 40B

LTE Band 40_ 10 MHz_ QPSK							
No.	Frequency	SA Reading	Correction factor	EIRP Result	Limit	Margin	Ant. Pol.
	(MHz)	(dBm)	(dB/m)	(dBm)	(dBm)	(dB)	
1	713.692	-80.71	11.53	-69.18	-40.00	-29.18	Horizontal
2	906.304	-81.81	14.53	-67.28	-40.00	-27.28	Horizontal
3	992.997	-81.63	15.56	-66.07	-40.00	-26.07	Horizontal
4	4710.000	-70.30	10.07	-60.23	-40.00	-20.23	Horizontal
5	7065.000	-70.63	13.95	-56.68	-40.00	-16.68	Horizontal
6	793.028	-80.13	12.44	-67.69	-40.00	-27.69	Vertical
7	893.656	-81.08	14.20	-66.88	-40.00	-26.88	Vertical
8	992.997	-82.03	15.56	-66.47	-40.00	-26.47	Vertical
9	4710.000	-69.64	10.07	-59.57	-40.00	-19.57	Vertical
10	7065.000	-69.92	13.95	-55.97	-40.00	-15.97	Vertical

5.8.2 LTE Band 41

LTE Band 41_ 20 MHz_ QPSK							
No.	Frequency (MHz)	SA Reading (dBm)	Correction factor (dB/m)	EIRP Result (dBm)	Limit (dBm)	Margin (dB)	Ant. Pol.
Lowest Channel							
1	833.013	-79.96	13.24	-66.72	-25.00	-41.72	Horizontal
2	881.184	-80.59	14.07	-66.52	-25.00	-41.52	Horizontal
3	986.044	-81.49	15.44	-66.05	-25.00	-41.05	Horizontal
4	5012.000	-65.90	10.44	-55.46	-25.00	-30.46	Horizontal
5	7518.000	-68.73	14.17	-54.56	-25.00	-29.56	Horizontal
6	620.117	-78.95	9.31	-69.64	-25.00	-44.64	Vertical
7	881.184	-80.78	14.07	-66.71	-25.00	-41.71	Vertical
8	958.714	-81.61	14.93	-66.68	-25.00	-41.68	Vertical
9	5012.000	-65.55	10.44	-55.11	-25.00	-30.11	Vertical
10	7518.000	-70.00	14.17	-55.83	-25.00	-30.83	Vertical
Middle Channel							
1	815.635	-81.19	13.04	-68.15	-25.00	-43.15	Horizontal
2	887.398	-80.95	14.17	-66.78	-25.00	-41.78	Horizontal
3	972.283	-81.47	15.04	-66.43	-25.00	-41.43	Horizontal
4	5186.000	-65.82	10.87	-54.95	-25.00	-29.95	Horizontal
5	7779.000	-69.94	14.71	-55.23	-25.00	-30.23	Horizontal
6	833.013	-80.75	13.24	-67.51	-25.00	-42.51	Vertical
7	945.334	-81.06	14.69	-66.37	-25.00	-41.37	Vertical
8	986.044	-81.78	15.44	-66.34	-25.00	-41.34	Vertical
9	5186.000	-66.33	10.87	-55.46	-25.00	-30.46	Vertical
10	7779.000	-69.94	14.71	-55.23	-25.00	-30.23	Vertical
Highest Channel							
1	868.886	-81.00	13.80	-67.20	-25.00	-42.20	Horizontal
2	906.304	-81.49	14.53	-66.96	-25.00	-41.96	Horizontal
3	952.000	-81.01	14.82	-66.19	-25.00	-41.19	Horizontal
4	5360.000	-68.80	11.59	-57.21	-25.00	-32.21	Horizontal
5	8040.000	-71.22	15.21	-56.01	-25.00	-31.01	Horizontal
6	850.760	-81.39	13.57	-67.82	-25.00	-42.82	Vertical
7	893.656	-81.44	14.20	-67.24	-25.00	-42.24	Vertical
8	972.283	-81.05	15.04	-66.01	-25.00	-41.01	Vertical
9	5360.000	-69.37	11.59	-57.78	-25.00	-32.78	Vertical
10	8040.000	-69.05	15.21	-53.84	-25.00	-28.84	Vertical

5.8.3 LTE Band 66

LTE Band 66_ 20 MHz_ QPSK							
No.	Frequency (MHz)	SA Reading (dBm)	Correction factor (dB/m)	EIRP Result (dBm)	Limit (dBm)	Margin (dB)	Ant. Pol.
Lowest Channel							
1	718.725	-79.41	11.51	-67.90	-13.00	-54.90	Horizontal
2	919.132	-80.92	14.53	-66.39	-13.00	-53.39	Horizontal
3	952.000	-81.08	14.82	-66.26	-13.00	-53.26	Horizontal
4	3440.000	-65.04	7.60	-57.44	-13.00	-44.44	Horizontal
5	5160.000	-67.18	10.81	-56.37	-13.00	-43.37	Horizontal
6	862.802	-80.13	13.74	-66.39	-13.00	-53.39	Vertical
7	887.398	-81.00	14.17	-66.83	-13.00	-53.83	Vertical
8	965.474	-81.24	14.91	-66.33	-13.00	-53.33	Vertical
9	3440.000	-65.94	7.60	-58.34	-13.00	-45.34	Vertical
10	5160.000	-67.71	10.81	-56.90	-13.00	-43.90	Vertical
Middle Channel							
1	531.291	-79.97	7.82	-72.15	-13.00	-59.15	Horizontal
2	771.047	-80.22	11.94	-68.28	-13.00	-55.28	Horizontal
3	992.997	-82.09	15.56	-66.53	-13.00	-53.53	Horizontal
4	3490.000	-65.42	7.89	-57.53	-13.00	-44.53	Horizontal
5	5235.000	-68.42	11.06	-57.36	-13.00	-44.36	Horizontal
6	713.692	-80.06	11.53	-68.53	-13.00	-55.53	Vertical
7	821.387	-81.31	13.20	-68.11	-13.00	-55.11	Vertical
8	899.958	-80.93	14.32	-66.61	-13.00	-53.61	Vertical
9	3490.000	-64.54	7.89	-56.65	-13.00	-43.65	Vertical
10	5235.000	-66.77	11.06	-55.71	-13.00	-42.71	Vertical
Highest Channel							
1	535.038	-79.84	7.82	-72.02	-13.00	-59.02	Horizontal
2	749.676	-80.41	11.67	-68.74	-13.00	-55.74	Horizontal
3	972.283	-81.48	15.04	-66.44	-13.00	-53.44	Horizontal
4	3540.000	-71.09	8.08	-63.01	-13.00	-50.01	Horizontal
5	5310.000	-73.83	11.38	-62.45	-13.00	-49.45	Horizontal
6	598.707	-80.01	8.81	-71.20	-13.00	-58.20	Vertical
7	723.793	-80.79	11.58	-69.21	-13.00	-56.21	Vertical
8	925.613	-81.17	14.46	-66.71	-13.00	-53.71	Vertical
9	3540.000	-70.86	8.08	-62.78	-13.00	-49.78	Vertical
10	5310.000	-72.96	11.38	-61.58	-13.00	-48.58	Vertical

5.8.4 LTE Band 71

LTE Band 71_ 20 MHz_ QPSK							
No.	Frequency (MHz)	SA Reading (dBm)	Correction factor (dB/m)	EIRP Result (dBm)	Limit (dBm)	Margin (dB)	Ant. Pol.
Lowest Channel							
1	728.897	-88.54	40.92	-47.62	-13.00	-34.62	Horizontal
2	887.398	-87.28	43.24	-44.04	-13.00	-31.04	Horizontal
3	945.334	-86.19	43.67	-42.52	-13.00	-29.52	Horizontal
4	1346.000	-59.87	-0.97	-60.84	-13.00	-47.84	Horizontal
5	2019.000	-62.51	1.47	-61.04	-13.00	-48.04	Horizontal
6	734.037	-87.83	41.01	-46.82	-13.00	-33.82	Vertical
7	809.924	-88.36	42.08	-46.28	-13.00	-33.28	Vertical
8	899.958	-87.79	43.37	-44.42	-13.00	-31.42	Vertical
9	1346.000	-59.44	-0.97	-60.41	-13.00	-47.41	Vertical
10	2019.000	-63.05	1.47	-61.58	-13.00	-48.58	Vertical
Middle Channel							
1	809.924	-88.24	42.08	-46.16	-13.00	-33.16	Horizontal
2	862.802	-88.23	42.85	-45.38	-13.00	-32.38	Horizontal
3	952.000	-86.75	43.79	-42.96	-13.00	-29.96	Horizontal
4	1361.000	-59.95	-0.91	-60.86	-13.00	-47.86	Horizontal
5	2041.500	-61.47	1.58	-59.89	-13.00	-46.89	Horizontal
6	821.387	-87.08	42.37	-44.71	-13.00	-31.71	Vertical
7	887.398	-87.72	43.24	-44.48	-13.00	-31.48	Vertical
8	952.000	-85.16	43.79	-41.37	-13.00	-28.37	Vertical
9	1361.000	-59.00	-0.91	-59.91	-13.00	-46.91	Vertical
10	2041.500	-62.01	1.58	-60.43	-13.00	-47.43	Vertical
Highest Channel							
1	765.648	-87.35	41.10	-46.25	-13.00	-33.25	Horizontal
2	881.184	-88.25	43.15	-45.10	-13.00	-32.10	Horizontal
3	1000.000	-87.28	44.50	-42.78	-13.00	-29.78	Horizontal
4	1381.000	-60.54	-0.86	-61.40	-13.00	-48.40	Horizontal
5	2071.500	-62.46	1.73	-60.73	-13.00	-47.73	Horizontal
6	754.963	-88.10	40.87	-47.23	-13.00	-34.23	Vertical
7	821.387	-88.71	42.37	-46.34	-13.00	-33.34	Vertical
8	912.695	-87.83	43.52	-44.31	-13.00	-31.31	Vertical
9	1381.000	-63.14	-0.86	-64.00	-13.00	-51.00	Vertical
10	2071.500	-61.77	1.73	-60.04	-13.00	-47.04	Vertical

Remark:

1. Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain, the value was added to Original Receiver Reading by the software automatically.
2. Result = Reading + Correct Factor.
3. Margin = Result – Limit

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UTTR-RF-FCC4G-V1.1

5.9 FREQUENCY STABILITY

Test Requirement: FCC 47 CFR Part 2.1055 &
 FCC 47 CFR Part 22.355 &
 FCC 47 CFR Part 24.235 &
 FCC 47 CFR Part 27.54

Test Method: ANSI C63.26-2015 & KDB 971168 D01v03r01

Limits:
FCC 47 CFR Part 22.355, FCC 47 CFR Par 90.213
 The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations.

FCC 47 CFR Part 24.235, FCC 47 CFR Part 27.54
 The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Setup: Refer to section 4.2.2 for details.

Test Procedures:

- 1) Use CMW 500 with Frequency Error measurement capability.
 - a) Temp. = -30° to $+50^{\circ}$ Ca
 - b) Voltage =low voltage, 3.6 Vdc, Normal, 3.8 Vdc and High voltage, 4.35 Vdc.

2) Frequency Stability vs Temperature:

The EUT is place inside a temperature chamber. The temperature is set to 20° C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until $+50^{\circ}$ C is reached.

3) Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

Equipment Used: Refer to section 3 for details.

Test Result: Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail	
	(MHz)	(Vdc)	($^{\circ}$ C)	(Hz)	(ppm)	(ppm)		
LTE Band 2 / 20MHz / Full RB								
QPSK	18900 / 1880.0	VL	TN	-7.88	-0.0042	Note 1	Pass	
		VN		-5.18	-0.0028		Pass	
		VH		-8.24	-0.0044		Pass	
				50	-10.13		-0.0054	Pass
				40	-8.25		-0.0044	Pass
				30	-7.91		-0.0042	Pass
				20	-5.18		-0.0028	Pass
				10	-7.25		-0.0039	Pass
				0	-6.41		-0.0034	Pass
				-10	-8.16		-0.0043	Pass
				-20	-7.11		-0.0038	Pass
				-30	-9.35		-0.0050	Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 4 / 20MHz / Full RB							
QPSK	20175 / 1732.5	VL	TN	9.39	0.0054	Note 1	Pass
		VN		8.62	0.0050		Pass
		VH		6.18	0.0036		Pass
		VN	50	8.62	0.0050		Pass
			40	9.23	0.0053		Pass
			30	7.22	0.0042		Pass
			20	8.62	0.0050		Pass
			10	9.31	0.0054		Pass
			0	11.34	0.0065		Pass
			-10	7.81	0.0045		Pass
			-20	8.25	0.0048		Pass
			-30	9.33	0.0054		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 5 / 10MHz / Full RB							
QPSK	20525 / 836.5	VL	TN	-5.89	-0.0070	± 2.5	Pass
		VN		-4.43	-0.0053	± 2.5	Pass
		VH		-6.03	-0.0072	± 2.5	Pass
		VN	50	-6.52	-0.0078	± 2.5	Pass
			40	-5.19	-0.0062	± 2.5	Pass
			30	-7.63	-0.0091	± 2.5	Pass
			20	-4.43	-0.0053	± 2.5	Pass
			10	-6.11	-0.0073	± 2.5	Pass
			0	-5.67	-0.0068	± 2.5	Pass
			-10	-3.65	-0.0044	± 2.5	Pass
			-20	-5.88	-0.0070	± 2.5	Pass
			-30	-4.75	-0.0057	± 2.5	Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 7 / 20MHz / Full RB							
QPSK	21100 / 2535	VL	TN	-14.29	-0.0056	± 2.5	Pass
		VN		-15.74	-0.0062	± 2.5	Pass
		VH		-15.21	-0.0060	± 2.5	Pass
		VN	50	-15.25	-0.0060	± 2.5	Pass
			40	-16.43	-0.0065	± 2.5	Pass
			30	-14.36	-0.0057	± 2.5	Pass
			20	-15.74	-0.0062	± 2.5	Pass
			10	-16.25	-0.0064	± 2.5	Pass
			0	-18.34	-0.0072	± 2.5	Pass
			-10	-17.73	-0.0070	± 2.5	Pass
			-20	-16.23	-0.0064	± 2.5	Pass
			-30	-15.62	-0.0062	± 2.5	Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 12 / 10MHz / Full RB							
QPSK	23095 / 707.5	VL	TN	-6.15	-0.0087	Note 1	Pass
		VN		-4.24	-0.0060		Pass
		VH		-5.83	-0.0082		Pass
		VN	50	-10.33	-0.0146		Pass
			40	-9.24	-0.0131		Pass
			30	-6.52	-0.0092		Pass
			20	-4.24	-0.0060		Pass
			10	-5.56	-0.0079		Pass
			0	-6.98	-0.0099		Pass
			-10	-5.03	-0.0071		Pass
			-20	-7.91	-0.0112		Pass
			-30	-11.72	-0.0166		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 13 / 20MHz / Full RB							
QPSK	23230 / 782	VL	TN	8.52	0.0109	Note 1	Pass
		VN		5.46	0.0070		Pass
		VH		6.95	0.0089		Pass
		VN	50	10.16	0.0130		Pass
			40	9.08	0.0116		Pass
			30	7.22	0.0092		Pass
			20	5.46	0.0070		Pass
			10	6.32	0.0081		Pass
			0	7.55	0.0097		Pass
			-10	4.27	0.0055		Pass
			-20	6.18	0.0079		Pass
			-30	7.79	0.0100		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 17 / 10MHz / Full RB							
QPSK	23790 / 710	VL	TN	-13.75	-0.0194	Note 1	Pass
		VN		-7.26	-0.0102		Pass
		VH		-5.06	-0.0071		Pass
		VN	50	-9.67	-0.0136		Pass
			40	-7.51	-0.0106		Pass
			30	-6.69	-0.0094		Pass
			20	-7.26	-0.0102		Pass
			10	-8.57	-0.0121		Pass
			0	-6.49	-0.0091		Pass
			-10	-9.47	-0.0133		Pass
			-20	-8.61	-0.0121		Pass
			-30	-7.19	-0.0101		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 25 / 20MHz / Full RB							
QPSK	26590 / 1905	VL	TN	7.13	-0.0033	Note 1	Pass
		VN		8.42	0.0044		Pass
		VH		11.35	0.0060		Pass
		VN	50	9.35	0.0049		Pass
			40	8.43	0.0044		Pass
			30	9.37	0.0049		Pass
			20	8.42	0.0044		Pass
			10	8.66	0.0045		Pass
			0	7.58	0.0040		Pass
			-10	8.12	0.0043		Pass
			-20	6.34	0.0033		Pass
			-30	7.41	0.0039		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 26 / 15MHz / Full RB							
QPSK	26915 / 836.5	VL	TN	-7.35	-0.0088	± 2.5	Pass
		VN		-6.4	-0.0077	± 2.5	Pass
		VH		-7.25	-0.0087	± 2.5	Pass
		VN	50	-9.91	-0.0118	± 2.5	Pass
			40	-7.82	-0.0093	± 2.5	Pass
			30	-7.82	-0.0093	± 2.5	Pass
			20	-4.54	-0.0054	± 2.5	Pass
			10	-6.93	-0.0083	± 2.5	Pass
			0	-5.91	-0.0071	± 2.5	Pass
			-10	-8.13	-0.0097	± 2.5	Pass
			-20	-6.33	-0.0076	± 2.5	Pass
			-30	-8.75	-0.0105	± 2.5	Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail	
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)		
LTE Band 26 / 10MHz / Full RB(Part 90S)								
QPSK	26740 / 819	VL	TN	-3.21	-0.0039	± 2.5	Pass	
		VN		-4.82	-0.0059	± 2.5	Pass	
		VH		-4.3	-0.0053	± 2.5	Pass	
		VN	50	50	-4.13	-0.0050	± 2.5	Pass
			40	40	-5.38	-0.0066	± 2.5	Pass
			30	30	-6.29	-0.0077	± 2.5	Pass
			20	20	-4.82	-0.0059	± 2.5	Pass
			10	10	-4.36	-0.0053	± 2.5	Pass
			0	0	-5.06	-0.0062	± 2.5	Pass
			-10	-10	-7.31	-0.0089	± 2.5	Pass
			-20	-20	-3.44	-0.0042	± 2.5	Pass
			-30	-30	-5.28	-0.0064	± 2.5	Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail	
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)		
LTE Band 30 / 10MHz / Full RB								
QPSK	27710 / 2310	VL	TN	-7.77	-0.0034	Note 1	Pass	
		VN		-6.69	-0.0029		Pass	
		VH		-9.41	-0.0041		Pass	
		VN	50	50	-7.57		-0.0033	Pass
			40	40	-9.84		-0.0043	Pass
			30	30	-6.92		-0.0030	Pass
			20	20	-6.69		-0.0029	Pass
			10	10	-5.67		-0.0025	Pass
			0	0	-3.75		-0.0016	Pass
			-10	-10	-6.47		-0.0028	Pass
			-20	-20	-8.18		-0.0035	Pass
			-30	-30	-6.66		-0.0029	Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 38 / 20MHz / Full RB							
QPSK	38000 / 2595	VL	TN	8.51	0.0033	Note 1	Pass
		VN		6.68	0.0026		Pass
		VH		7.22	0.0028		Pass
		VN	50	8.24	0.0032		Pass
			40	7.26	0.0028		Pass
			30	6.19	0.0024		Pass
			20	6.68	0.0026		Pass
			10	4.69	0.0018		Pass
			0	6.86	0.0026		Pass
			-10	5.19	0.0020		Pass
			-20	6.71	0.0026		Pass
			-30	7.84	0.0030		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 40A / 10MHz / Full RB							
QPSK	38750 / 2310	VL	TN	-7.24	-0.0031	Note 1	Pass
		VN		-5.08	-0.0022		Pass
		VH		-8.91	-0.0039		Pass
		VN	50	-6.41	-0.0028		Pass
			40	-8.97	-0.0039		Pass
			30	-5.47	-0.0024		Pass
			20	-5.91	-0.0026		Pass
			10	-4.85	-0.0021		Pass
			0	-6.81	-0.0029		Pass
			-10	-5.64	-0.0024		Pass
			-20	-6.25	-0.0027		Pass
			-30	-6.26	-0.0027		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 40B / 10MHz / Full RB							
QPSK	39200 / 2355	VL	TN	-6.2	-0.0026	Note 1	Pass
		VN		-6.16	-0.0026		Pass
		VH		-8.82	-0.0037		Pass
		VN	50	-6.43	-0.0027		Pass
			40	-9.62	-0.0041		Pass
			30	-6.21	-0.0026		Pass
			20	-5.08	-0.0022		Pass
			10	-5.35	-0.0023		Pass
			0	-7.29	-0.0031		Pass
			-10	-5.68	-0.0024		Pass
			-20	-6.31	-0.0027		Pass
			-30	-6.32	-0.0027		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 41 / 20MHz / Full RB							
QPSK	40620 / 2593	VL	TN	-7.24	-0.0028	Note 1	Pass
		VN		-4.31	-0.0017		Pass
		VH		-5.83	-0.0022		Pass
		VN	50	-6.45	-0.0025		Pass
			40	-7.83	-0.0030		Pass
			30	-5.37	-0.0021		Pass
			20	-4.31	-0.0017		Pass
			10	-6.37	-0.0025		Pass
			0	-5.76	-0.0022		Pass
			-10	-7.24	-0.0028		Pass
			-20	-6.93	-0.0027		Pass
			-30	-7.42	-0.0029		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 66 / 20MHz / Full RB							
QPSK	132322 /1745	VL	TN	6.36	0.0036	Note 1	Pass
		VN		3.57	0.0020		Pass
		VH		5.79	0.0033		Pass
		VN	50	4.19	0.0024		Pass
			40	5.51	0.0032		Pass
			30	3.83	0.0022		Pass
			20	3.57	0.0020		Pass
			10	4.55	0.0026		Pass
			0	3.31	0.0019		Pass
			-10	4.15	0.0024		Pass
			-20	5.37	0.0031		Pass
			-30	3.24	0.0019		Pass

Modulation	Channel/ Frequency	Voltage	Temperature	Deviation	Deviation	Limit	Pass/ Fail
	(MHz)	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	
LTE Band 71 / 20MHz / Full RB							
QPSK	133322 / 683.0	VL	TN	-13.86	-0.0203	Note 1	Pass
		VN		-15.22	-0.0223		Pass
		VH		-14.91	-0.0218		Pass
		VN	50	-16.27	-0.0238		Pass
			40	-15.11	-0.0221		Pass
			30	-16.13	-0.0236		Pass
			20	-15.22	-0.0223		Pass
			10	-15.04	-0.0220		Pass
			0	-14.19	-0.0208		Pass
			-10	-13.87	-0.0203		Pass
			-20	-15.21	-0.0223		Pass
			-30	-14.39	-0.0211		Pass

Note 1: The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

APPENDIX A RF TEST DATA

A.1 LTE BAND 2

Peak to Average Ratio

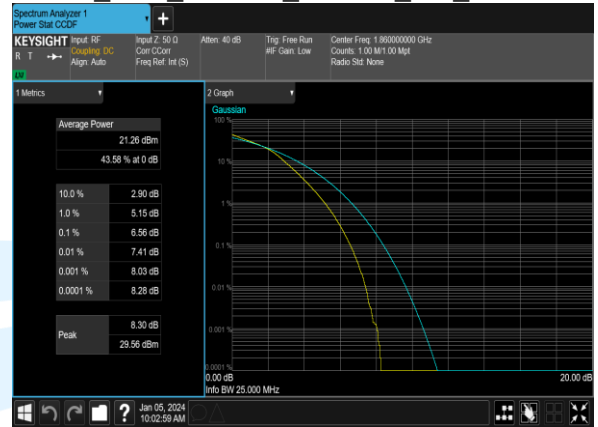
Band	Bandwidth (MHz)	Channel	Freq (MHz)	Modulation	RB	Result (dB)	Limit (dB)	Verdict
2	20.0	18700	1860.0	QPSK	100@0	5.76	13	PASS
2	20.0	18700	1860.0	16QAM	100@0	6.56	13	PASS
2	20.0	18900	1880.0	QPSK	100@0	5.76	13	PASS
2	20.0	18900	1880.0	16QAM	100@0	6.52	13	PASS
2	20.0	19100	1900.0	QPSK	100@0	5.67	13	PASS
2	20.0	19100	1900.0	16QAM	100@0	6.42	13	PASS
2	15.0	18675	1857.5	QPSK	75@0	5.56	13	PASS
2	15.0	18675	1857.5	16QAM	75@0	6.37	13	PASS
2	15.0	18900	1880.0	QPSK	75@0	5.60	13	PASS
2	15.0	18900	1880.0	16QAM	75@0	6.35	13	PASS
2	15.0	19125	1902.5	QPSK	75@0	5.55	13	PASS
2	15.0	19125	1902.5	16QAM	75@0	6.28	13	PASS
2	10.0	18650	1855.0	QPSK	50@0	5.67	13	PASS
2	10.0	18650	1855.0	16QAM	50@0	6.49	13	PASS
2	10.0	18900	1880.0	QPSK	50@0	5.75	13	PASS
2	10.0	18900	1880.0	16QAM	50@0	6.50	13	PASS
2	10.0	19150	1905.0	QPSK	50@0	5.77	13	PASS
2	10.0	19150	1905.0	16QAM	50@0	6.51	13	PASS
2	5.0	18625	1852.5	QPSK	25@0	5.68	13	PASS
2	5.0	18625	1852.5	16QAM	25@0	6.47	13	PASS
2	5.0	18900	1880.0	QPSK	25@0	5.85	13	PASS
2	5.0	18900	1880.0	16QAM	25@0	6.51	13	PASS
2	5.0	19175	1907.5	QPSK	25@0	5.87	13	PASS
2	5.0	19175	1907.5	16QAM	25@0	6.54	13	PASS
2	3.0	18615	1851.5	QPSK	15@0	5.56	13	PASS
2	3.0	18615	1851.5	16QAM	15@0	6.39	13	PASS
2	3.0	18900	1880.0	QPSK	15@0	5.61	13	PASS
2	3.0	18900	1880.0	16QAM	15@0	6.45	13	PASS
2	3.0	19185	1908.5	QPSK	15@0	5.73	13	PASS
2	3.0	19185	1908.5	16QAM	15@0	6.53	13	PASS
2	1.4	18607	1850.7	QPSK	6@0	5.56	13	PASS
2	1.4	18607	1850.7	16QAM	6@0	6.41	13	PASS
2	1.4	18900	1880.0	QPSK	6@0	5.79	13	PASS
2	1.4	18900	1880.0	16QAM	6@0	6.58	13	PASS
2	1.4	19193	1909.3	QPSK	6@0	5.85	13	PASS
2	1.4	19193	1909.3	16QAM	6@0	6.63	13	PASS

Test Graphs

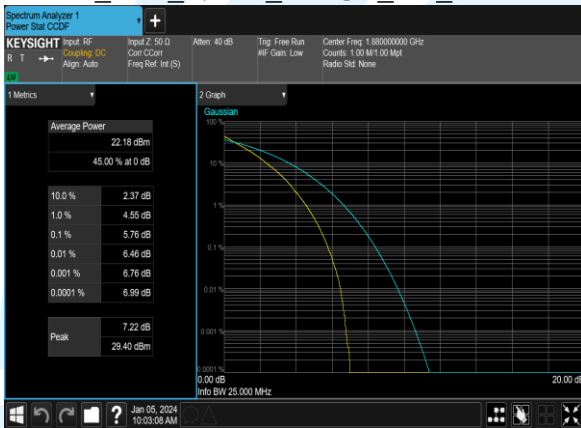
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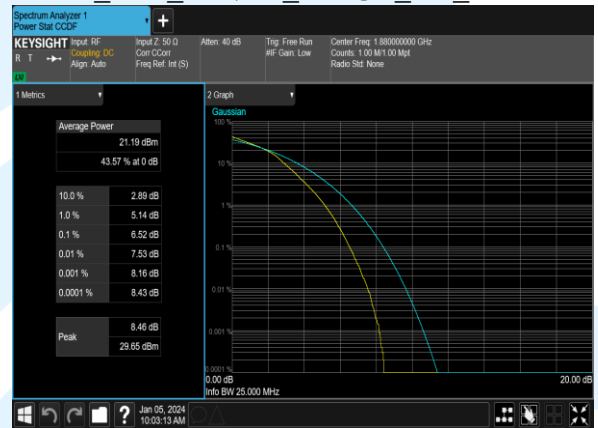
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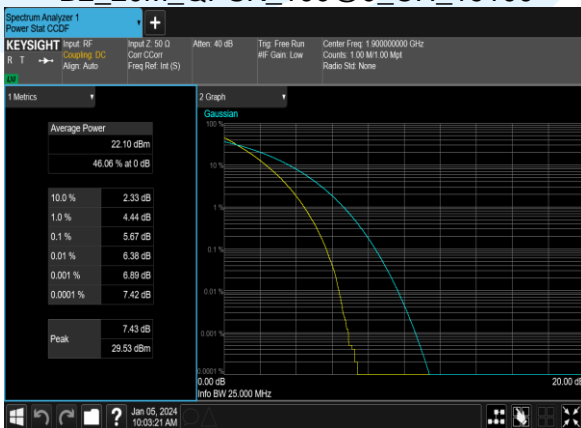
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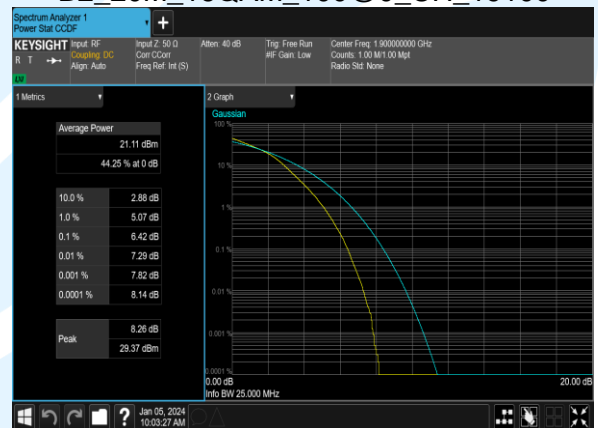
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B2_15M_QPSK_75@0_CH_18675



B2_15M_16QAM_75@0_CH_18675



B2_15M_QPSK_75@0_CH_18900



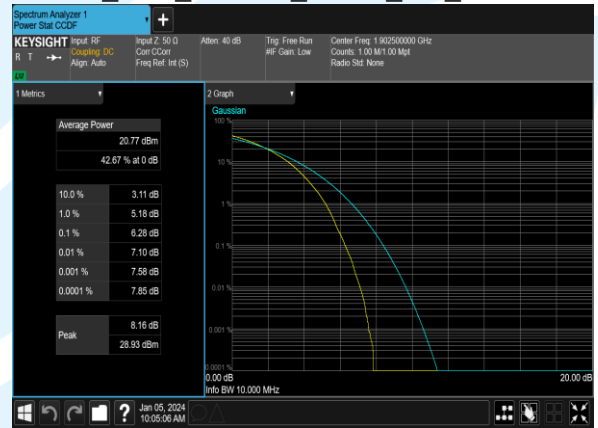
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B2_15M_QPSK_75@0_CH_19125



B2_15M_16QAM_75@0_CH_19125



B2_10M_QPSK_50@0_CH_18650



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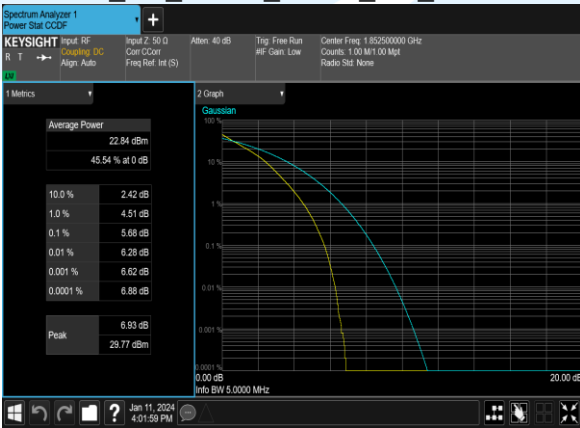
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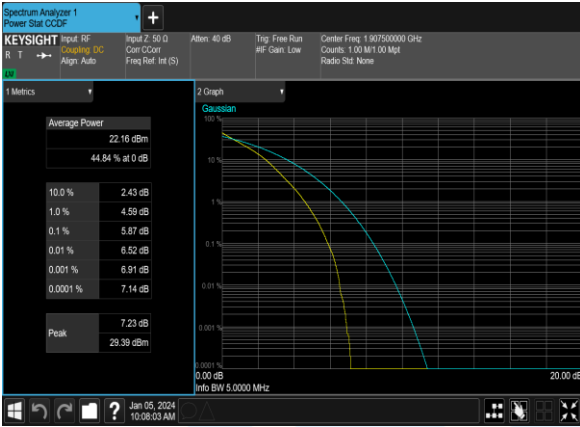
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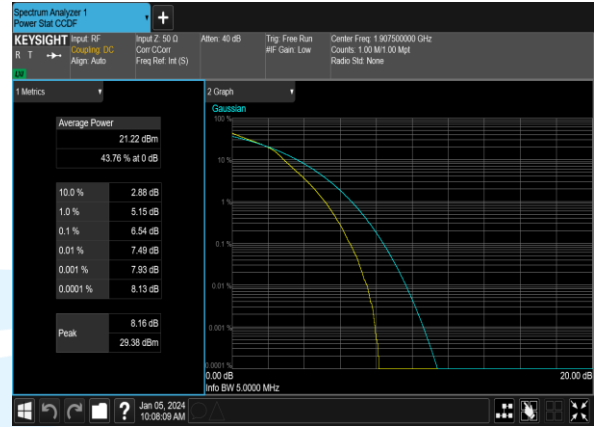
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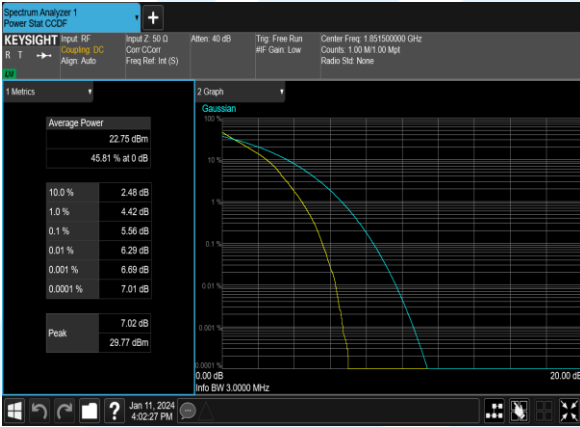
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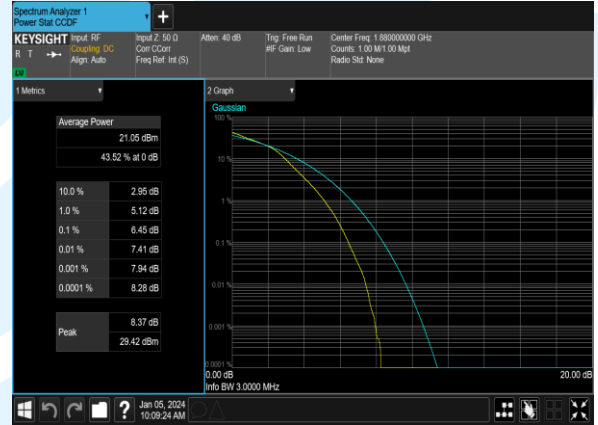
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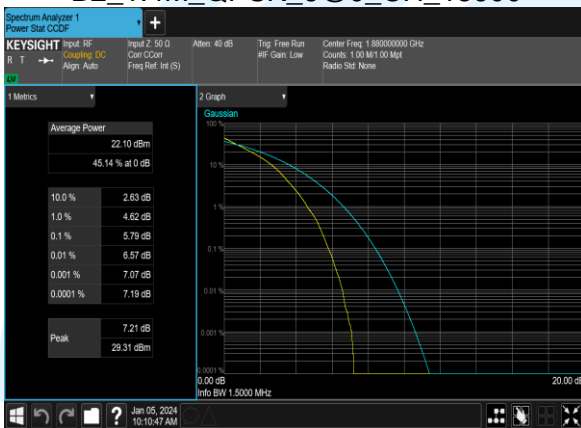
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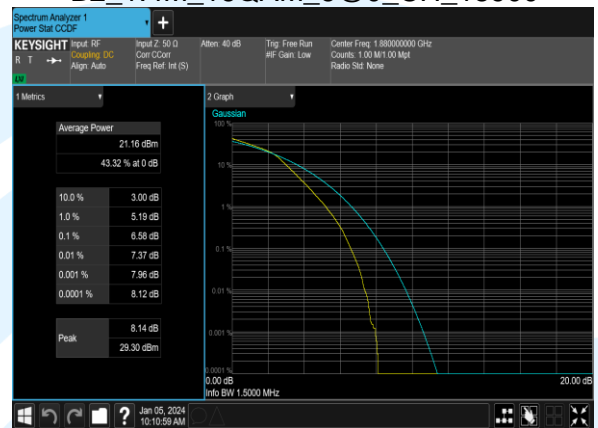
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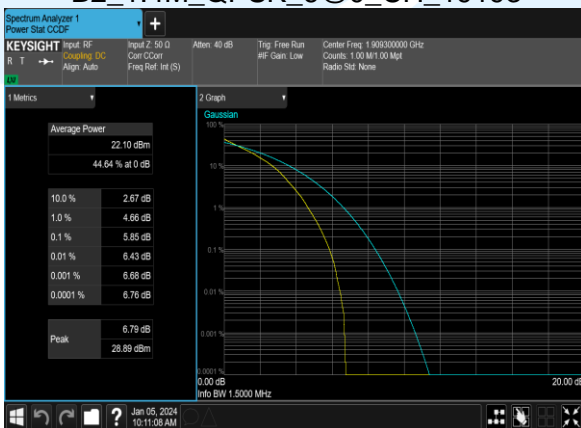
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B2_1.4M_16QAM_6@0_CH_18900



B2_1.4M_QPSK_6@0_CH_19193



B2_1.4M_16QAM_6@0_CH_19193



Occupied Bandwidth

Band	Bandwidth (MHz)	Channel	Freq (MHz)	Modulation	RB	OBW (MHz)	26dB BW (MHz)
2	20.0	18700	1860.0	QPSK	100@0	17.843	18.74
2	20.0	18700	1860.0	16QAM	100@0	17.836	18.76
2	20.0	18900	1880.0	QPSK	100@0	17.857	18.98
2	20.0	18900	1880.0	16QAM	100@0	17.844	18.78
2	20.0	19100	1900.0	QPSK	100@0	17.823	18.74
2	20.0	19100	1900.0	16QAM	100@0	17.848	18.75
2	15.0	18675	1857.5	QPSK	75@0	13.433	14.21
2	15.0	18675	1857.5	16QAM	75@0	13.422	14.09
2	15.0	18900	1880.0	QPSK	75@0	13.412	14.10
2	15.0	18900	1880.0	16QAM	75@0	13.408	14.18
2	15.0	19125	1902.5	QPSK	75@0	13.405	14.30
2	15.0	19125	1902.5	16QAM	75@0	13.410	14.29
2	10.0	18650	1855.0	QPSK	50@0	8.9149	9.396
2	10.0	18650	1855.0	16QAM	50@0	8.9341	9.470
2	10.0	18900	1880.0	QPSK	50@0	8.9318	9.502
2	10.0	18900	1880.0	16QAM	50@0	8.9350	9.468
2	10.0	19150	1905.0	QPSK	50@0	8.9325	9.461
2	10.0	19150	1905.0	16QAM	50@0	8.9408	9.482
2	5.0	18625	1852.5	QPSK	25@0	4.4598	4.780
2	5.0	18625	1852.5	16QAM	25@0	4.4613	4.846
2	5.0	18900	1880.0	QPSK	25@0	4.4595	4.829
2	5.0	18900	1880.0	16QAM	25@0	4.4677	4.757
2	5.0	19175	1907.5	QPSK	25@0	4.4626	4.810
2	5.0	19175	1907.5	16QAM	25@0	4.4694	4.823
2	3.0	18615	1851.5	QPSK	15@0	2.6800	2.877
2	3.0	18615	1851.5	16QAM	15@0	2.6751	2.920
2	3.0	18900	1880.0	QPSK	15@0	2.6684	2.914
2	3.0	18900	1880.0	16QAM	15@0	2.6721	2.916
2	3.0	19185	1908.5	QPSK	15@0	2.6761	2.895
2	3.0	19185	1908.5	16QAM	15@0	2.6688	2.902
2	1.4	18607	1850.7	QPSK	6@0	1.0792	1.241
2	1.4	18607	1850.7	16QAM	6@0	1.0746	1.232
2	1.4	18900	1880.0	QPSK	6@0	1.0788	1.235
2	1.4	18900	1880.0	16QAM	6@0	1.0781	1.240
2	1.4	19193	1909.3	QPSK	6@0	1.0748	1.241
2	1.4	19193	1909.3	16QAM	6@0	1.0758	1.217

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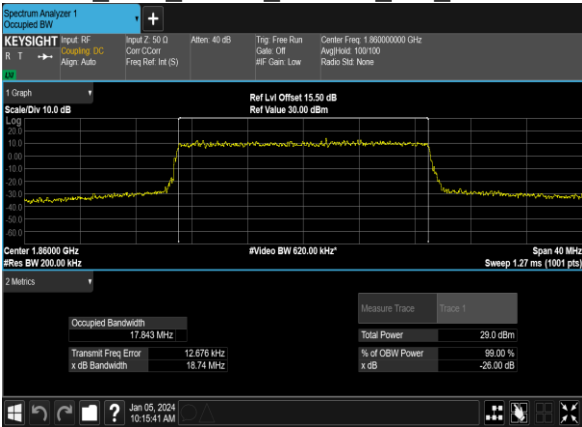
E-mail: info@uttlab.com

<http://www.uttlab.com>

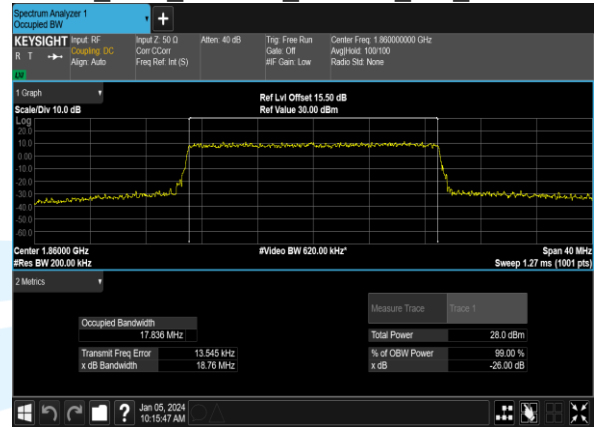
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Test Graphs

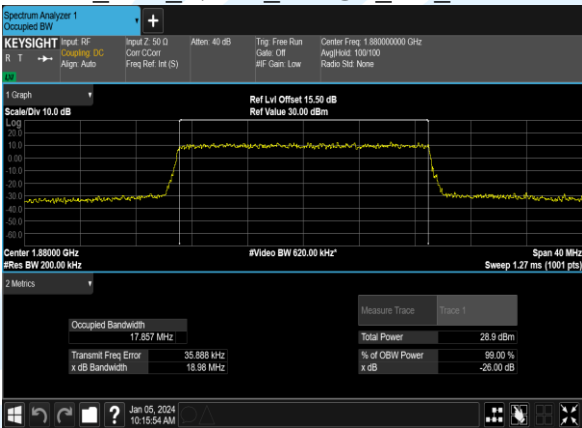
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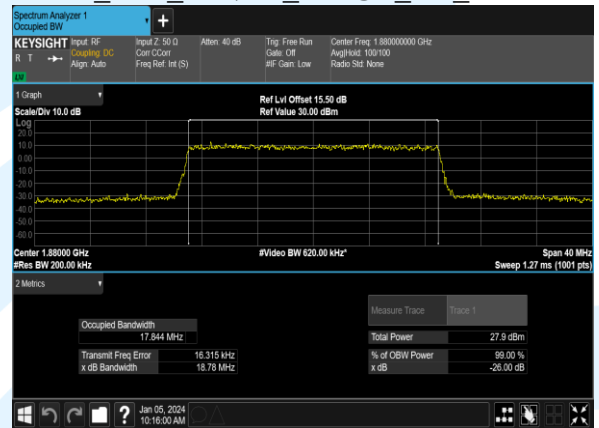
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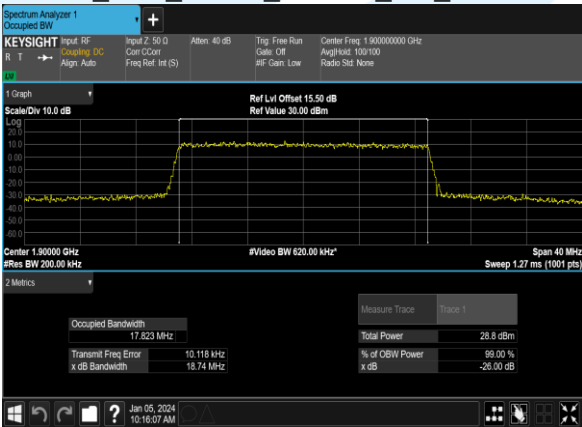
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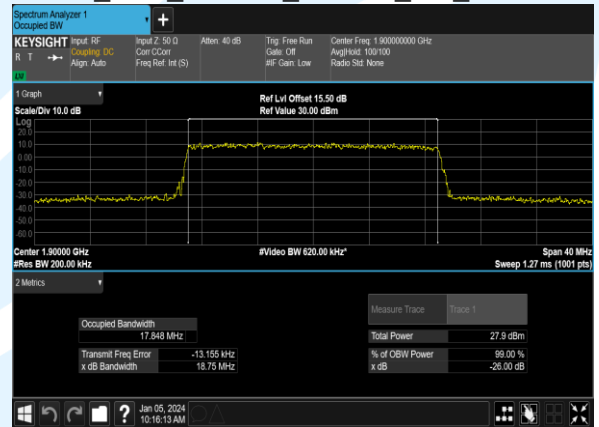
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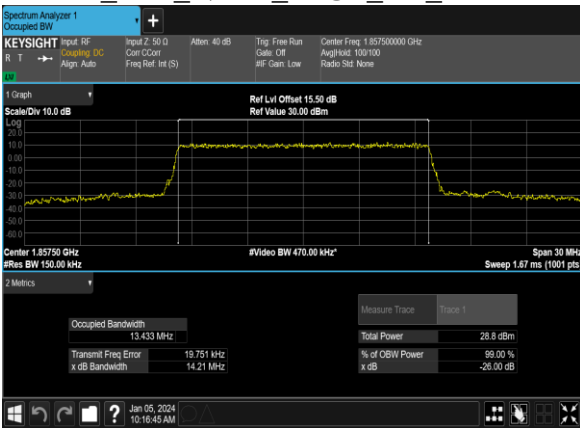
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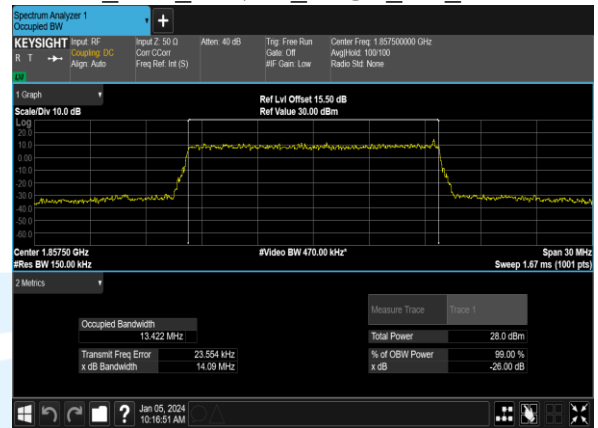
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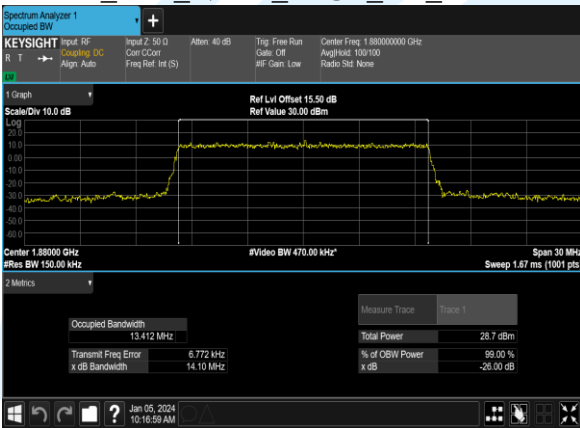
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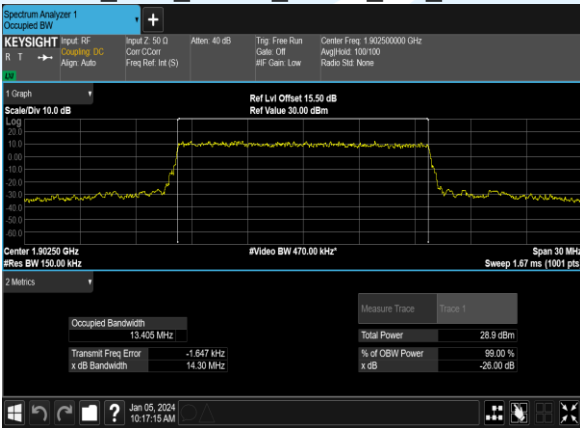
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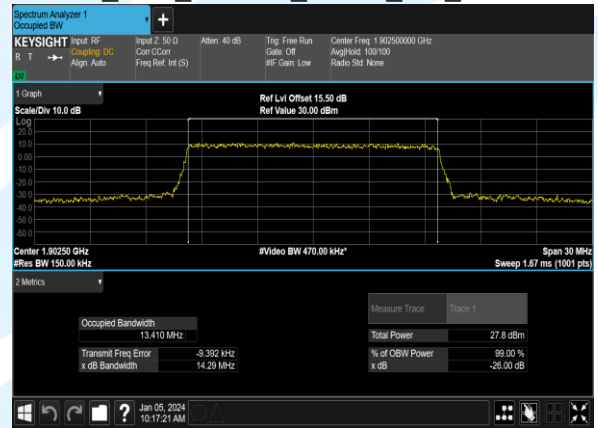
B2_15M_16QAM_75@0_CH_18900



B2_15M_QPSK_75@0_CH_19125



B2_15M_16QAM_75@0_CH_19125



B2_10M_QPSK_50@0_CH_18650



B2_10M_16QAM_50@0_CH_18650

