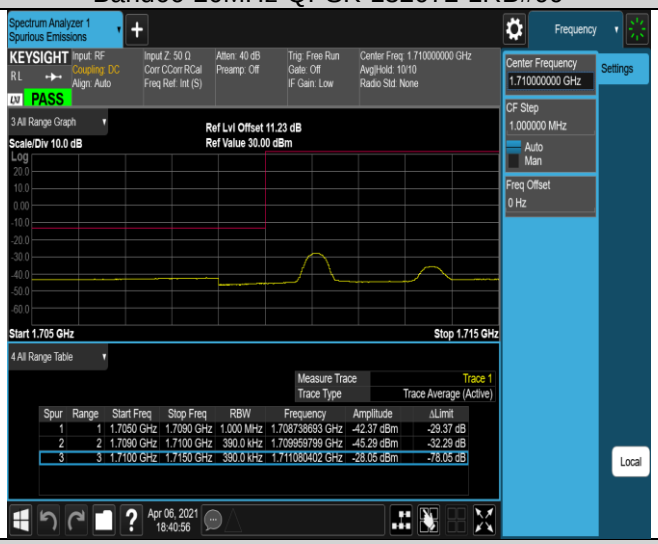
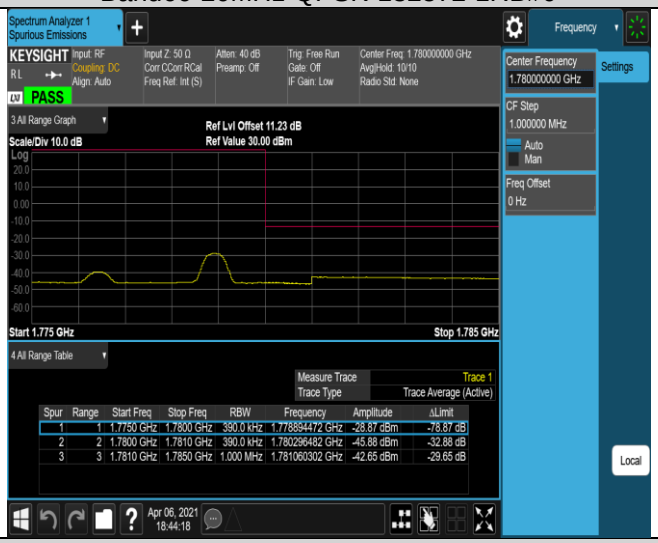
Band66-20MHz-QPSK-132072-1RB#0

Band66-20MHz-QPSK-132072-1RB#99



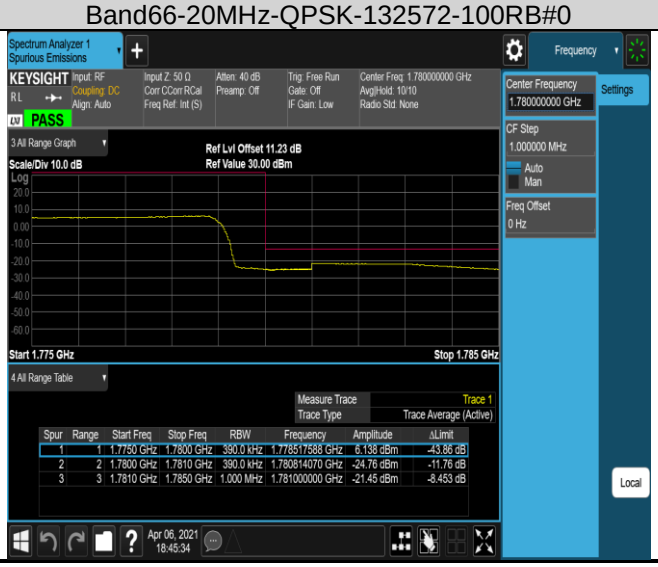
Band66-20MHz-QPSK-132072-100RB#0

Band66-20MHz-QPSK-132572-1RB#0

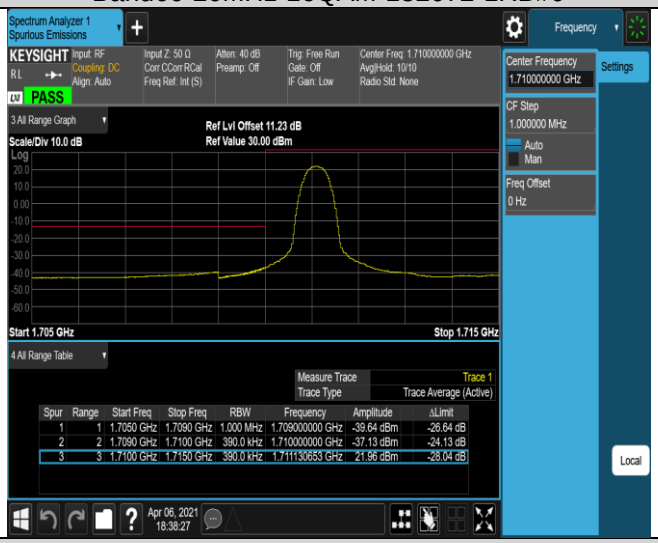


Band66-20MHz-QPSK-132572-1RB#99

Band66-20MHz-QPSK-132572-100RB#0



Band66-20MHz-16QAM-132072-1RB#0



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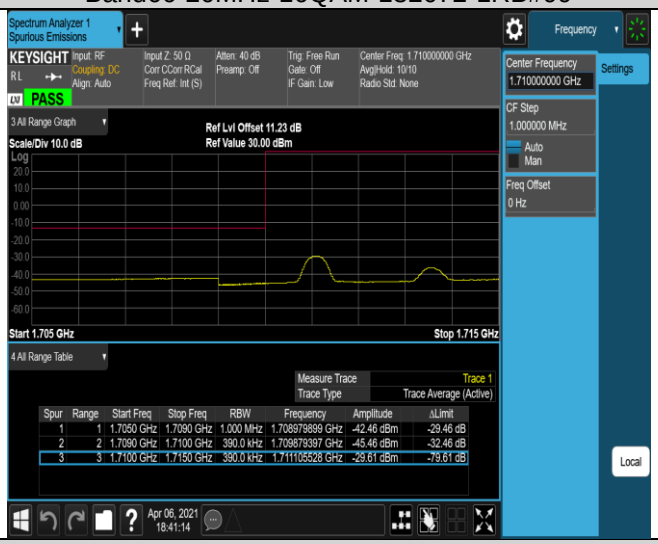

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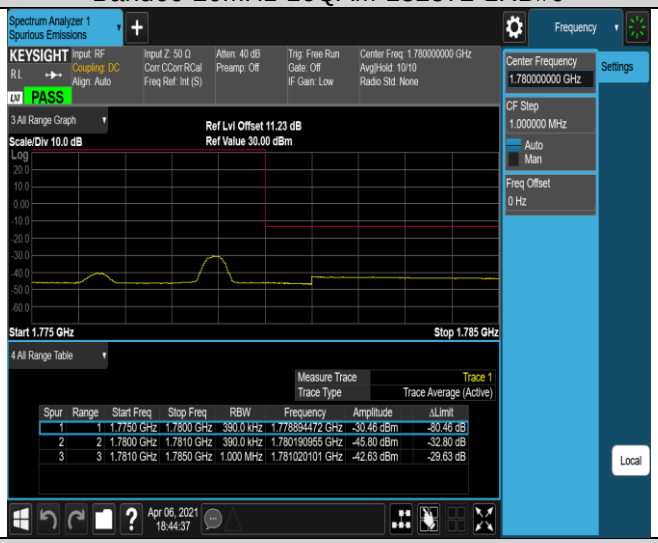

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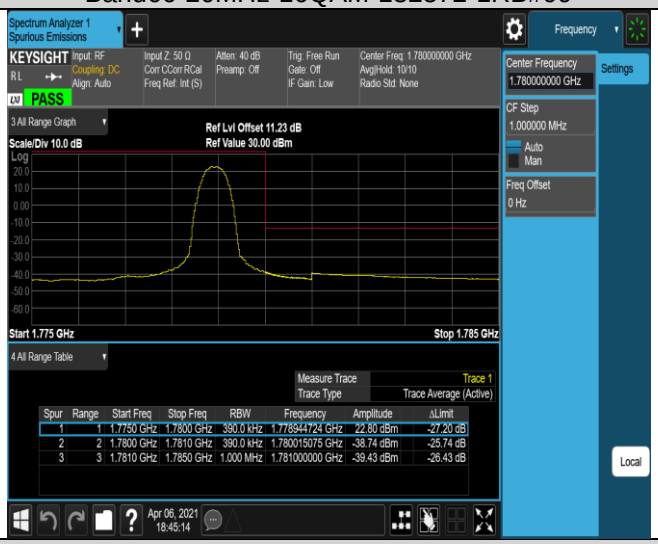

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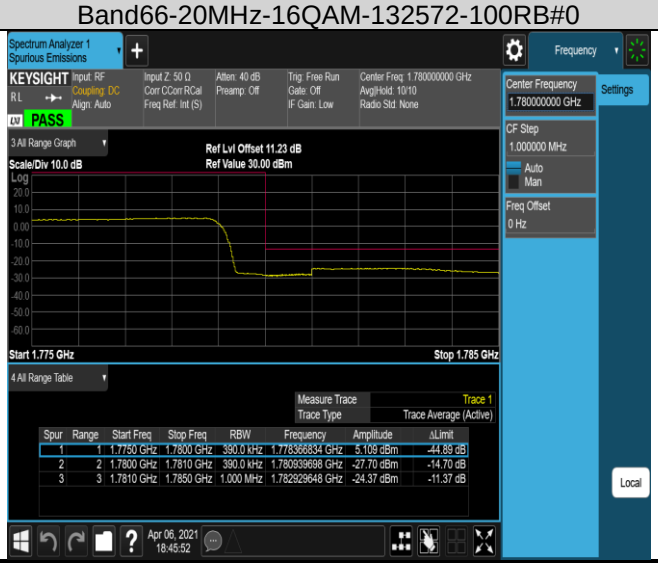
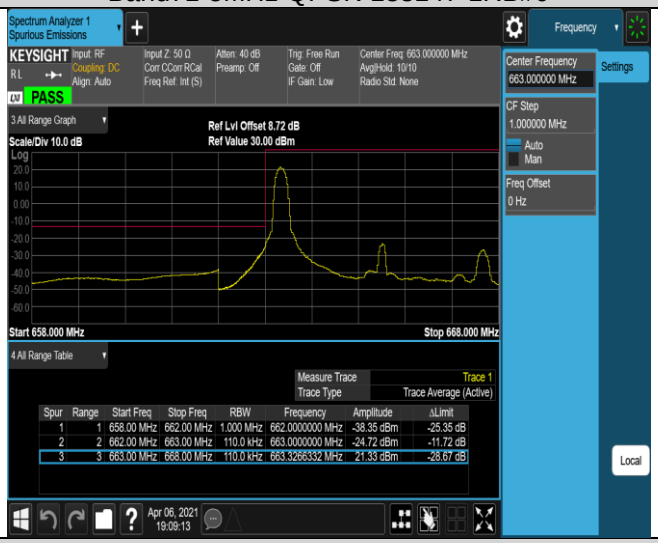
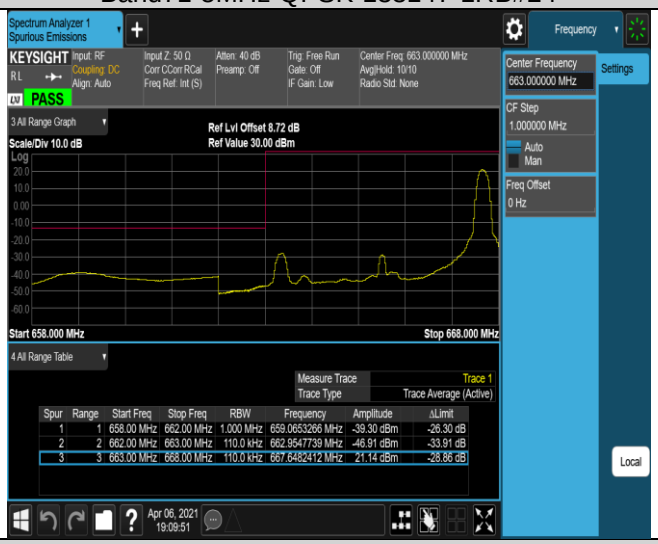


Band71-5MHz-QPSK-133147-1RB#0

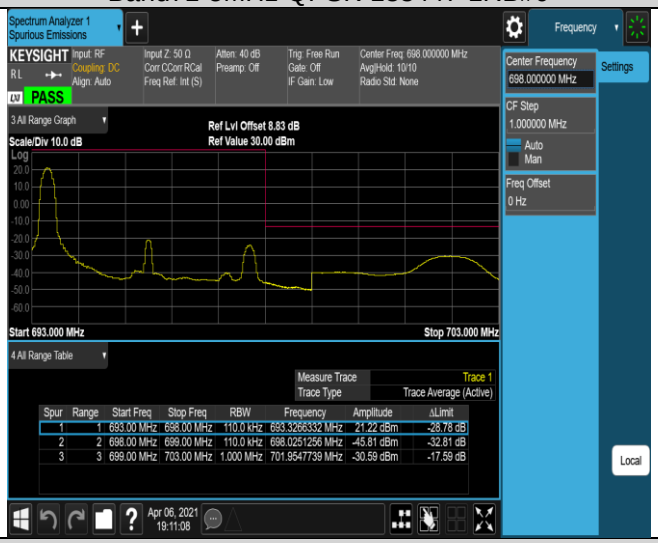


Band71-5MHz-QPSK-133147-1RB#24



Band71-5MHz-QPSK-133147-25RB#0

Band71-5MHz-QPSK-133447-1RB#0



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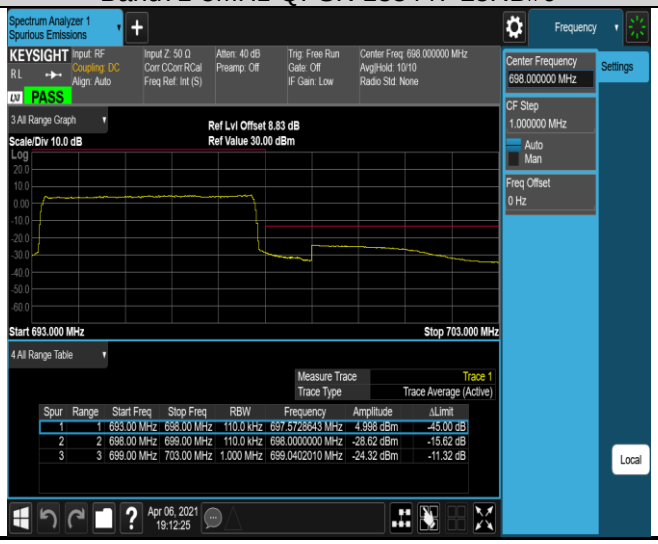
Band71-5MHz-QPSK-133447-25RB#0



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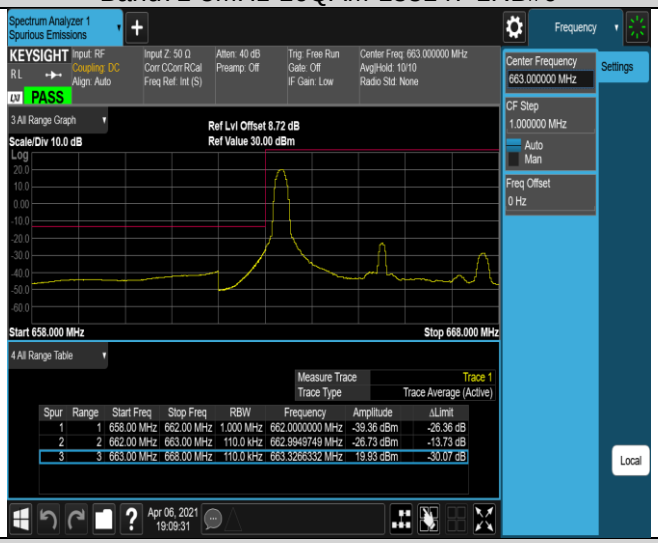
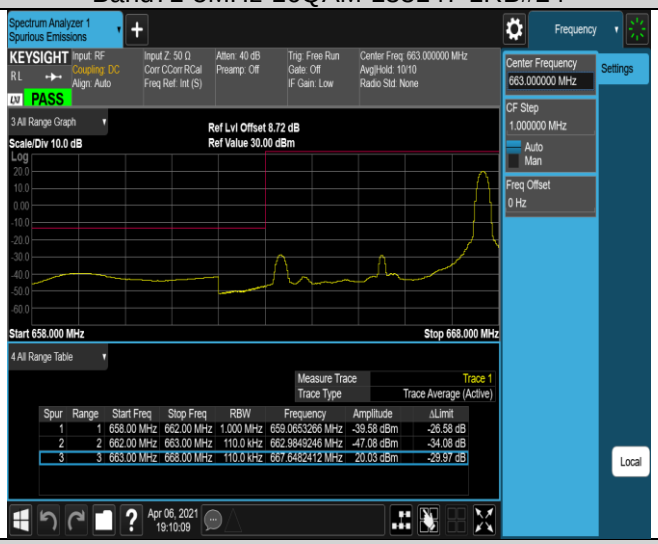
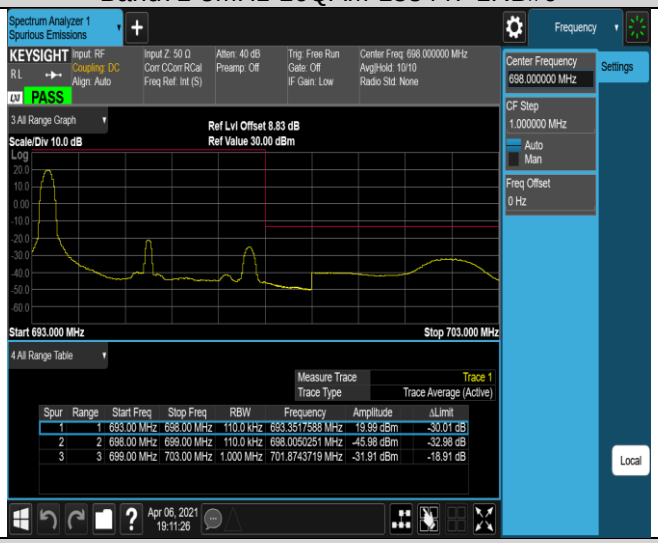


Band71-5MHz-16QAM-133147-1RB#24



Band71-5MHz-16QAM-133147-25RB#0

Band71-5MHz-16QAM-133447-1RB#0



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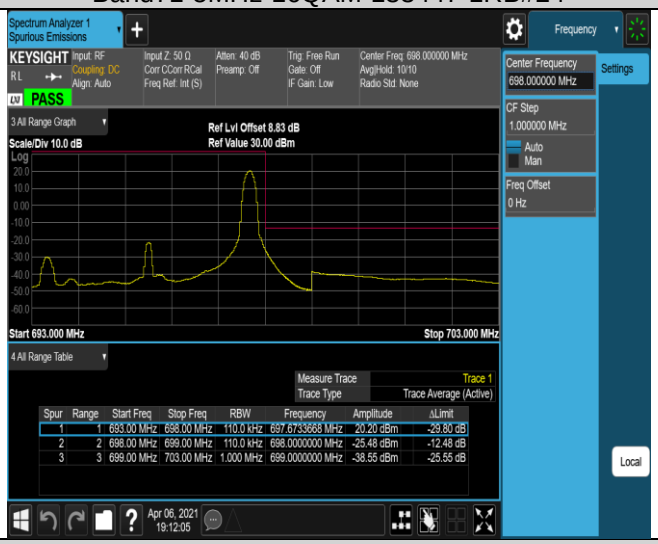

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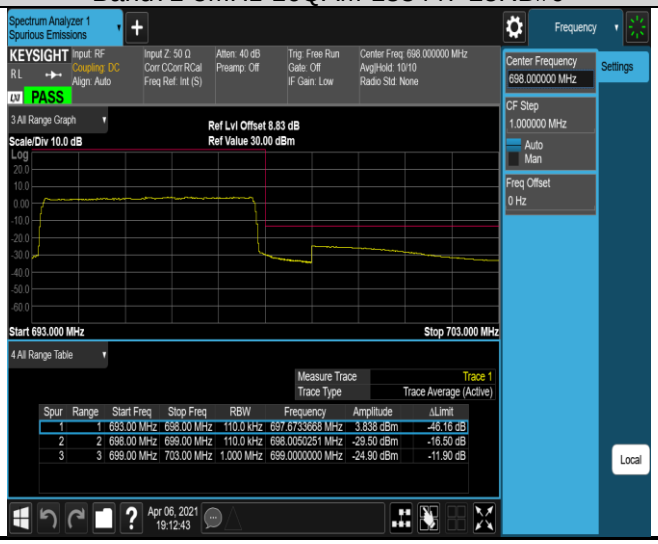
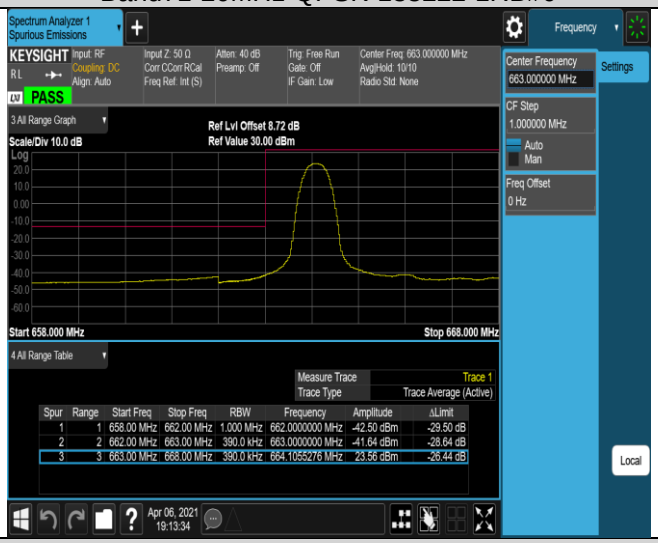


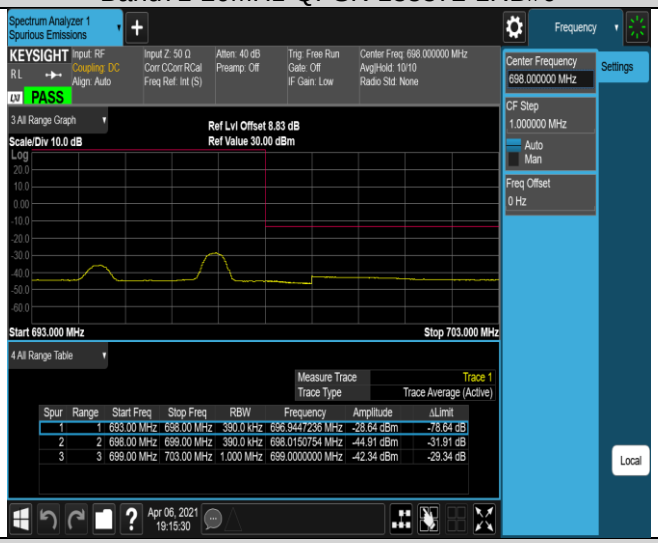
Band71-20MHz-QPSK-133222-1RB#0



Band71-20MHz-QPSK-133222-1RB#99

Band71-20MHz-QPSK-133222-100RB#0

Band71-20MHz-QPSK-133372-1RB#0



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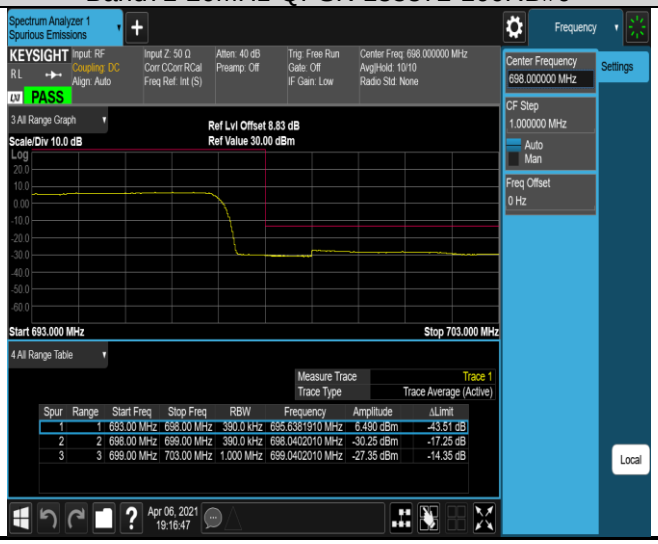

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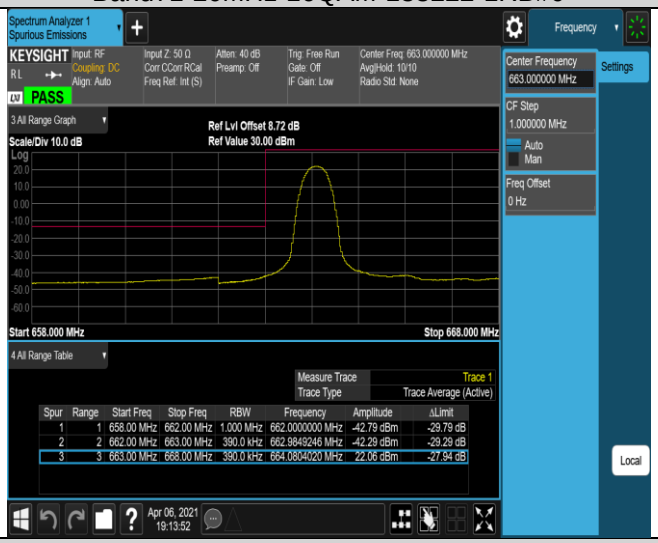
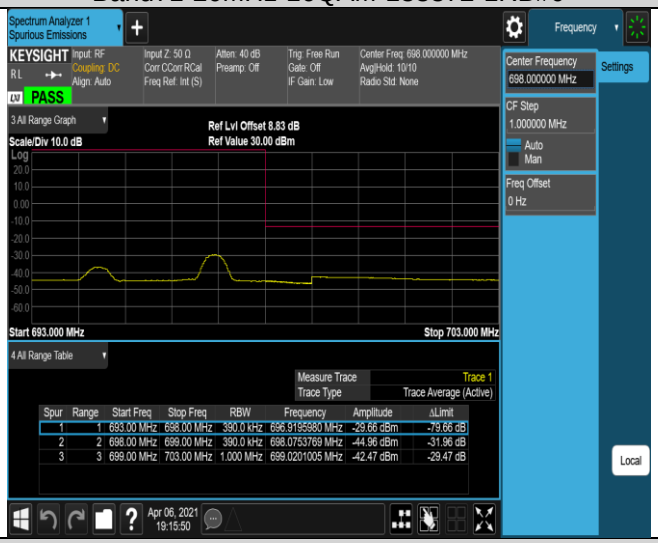


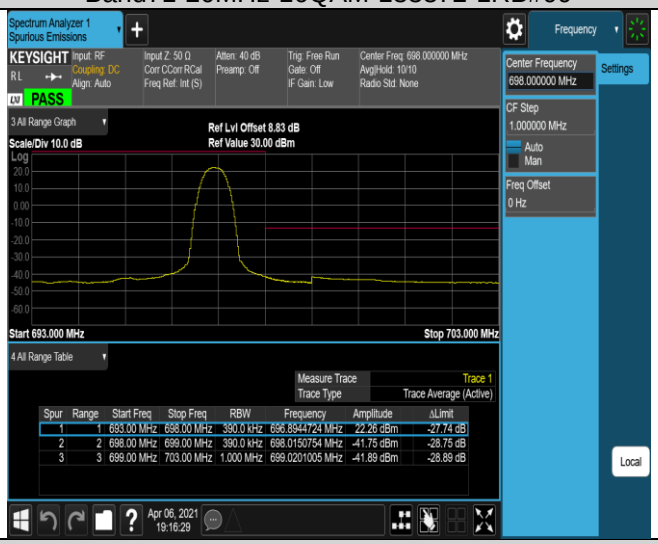
Band71-20MHz-16QAM-133222-1RB#99

Band71-20MHz-16QAM-133222-100RB#0

Band71-20MHz-16QAM-133372-1RB#0



Band71-20MHz-16QAM-133372-1RB#99



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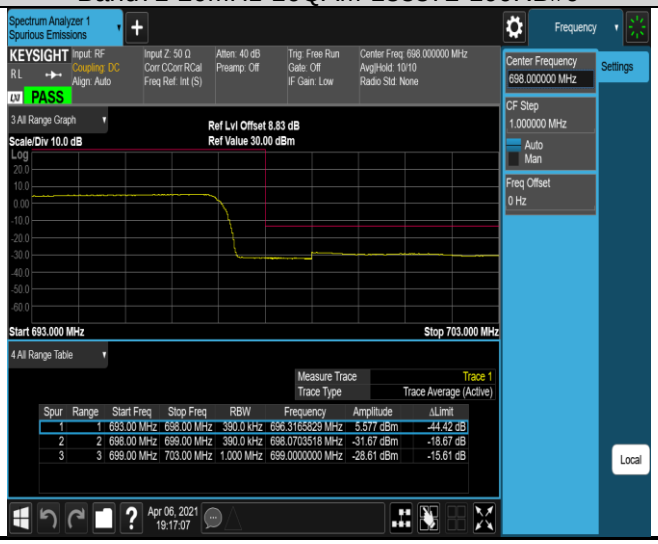
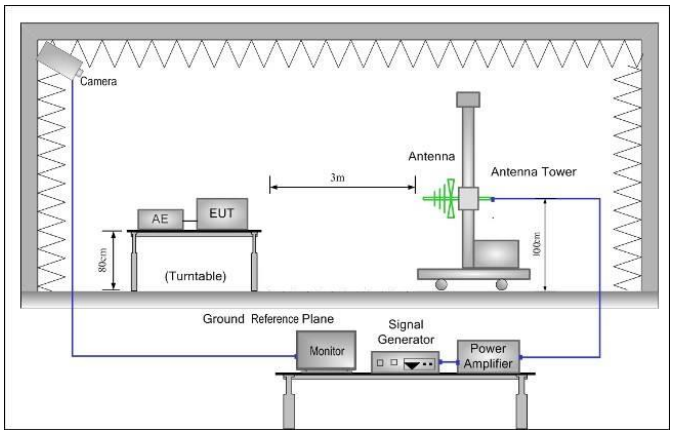
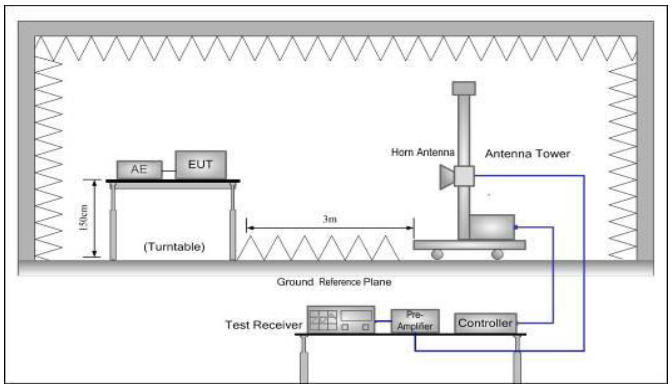


6.5 Field strength of spurious radiation measurement

Test Requirement:	Part 22.917(a), Part 24.238 (a), Part 27.53(g), Part 27.53(h)
Limit:	LTE Band 2 & 4 & 5 & 12 & 66 &71: The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 $\log_{10}$(P) dB (-13 dBm).
Test setup:	Below 1GHz  Above 1GHz 
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8m(below 1GHz)/1.5m(above 1GHz) above the ground at a 3 meter camber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer. 2. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations. 3. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method. 4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency. ERP / EIRP = S.G. output (dBm) + Antenna Gain(dB/dBi) – Cable Loss (dB)
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details.
Test results:	Passed

Measurement Data:

LTE Band 2 part:

Band 2 (1.4MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3701.40	-59.76	12.64	0.75	-47.87	-13.00	-34.87	Vertical
5552.10	-53.33	12.76	1.13	-41.70	-13.00	-28.70	Vertical
7402.00	-56.84	11.44	1.63	-47.03	-13.00	-34.03	Vertical
3701.40	-58.45	12.64	0.75	-46.56	-13.00	-33.56	Horizontal
5552.10	-50.41	12.76	1.13	-38.78	-13.00	-25.78	Horizontal
7402.00	-55.88	11.44	1.63	-46.07	-13.00	-33.07	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3760.00	-58.57	12.71	0.79	-46.65	-13.00	-33.65	Vertical
5640.00	-53.24	12.87	1.15	-41.52	-13.00	-28.52	Vertical
7520.00	-56.47	11.48	1.66	-46.65	-13.00	-33.65	Vertical
3760.00	-57.17	12.71	0.79	-45.25	-13.00	-32.25	Horizontal
5640.00	-48.41	12.87	1.15	-36.69	-13.00	-23.69	Horizontal
7520.00	-54.69	11.48	1.66	-44.87	-13.00	-31.87	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3816.60	-58.62	12.78	0.81	-46.65	-13.00	-33.65	Vertical
5724.90	-53.28	12.97	1.19	-41.50	-13.00	-28.50	Vertical
7633.20	-54.61	11.34	1.71	-44.98	-13.00	-31.98	Vertical
3816.60	-57.47	12.78	0.81	-45.50	-13.00	-32.50	Horizontal
5724.90	-48.43	12.97	1.19	-36.65	-13.00	-23.65	Horizontal
7633.20	-54.76	11.34	1.71	-45.13	-13.00	-32.13	Horizontal
Remark: *The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.*							

Band 2 (20MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3720.00	-58.54	12.66	0.77	-46.65	-13.00	-33.65	Vertical
5580.00	-50.62	12.80	1.15	-38.97	-13.00	-25.97	Vertical
7440.00	-55.00	11.46	1.64	-45.18	-13.00	-32.18	Vertical
3720.00	-56.49	12.66	0.77	-44.60	-13.00	-31.60	Horizontal
5580.00	-49.63	12.80	1.15	-37.98	-13.00	-24.98	Horizontal
7440.00	-54.69	11.46	1.64	-44.87	-13.00	-31.87	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3760.00	-56.57	12.71	0.79	-44.65	-13.00	-31.65	Vertical
5640.00	-54.23	12.87	1.15	-42.51	-13.00	-29.51	Vertical
7520.00	-55.51	11.48	1.66	-45.69	-13.00	-32.69	Vertical
3760.00	-56.54	12.71	0.79	-44.62	-13.00	-31.62	Horizontal
5640.00	-47.70	12.87	1.15	-35.98	-13.00	-22.98	Horizontal
7520.00	-54.99	11.48	1.66	-45.17	-13.00	-32.17	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3800.00	-56.62	12.76	0.79	-44.65	-13.00	-31.65	Vertical
5700.00	-54.36	12.94	1.18	-42.60	-13.00	-29.60	Vertical
7600.00	-52.84	11.38	1.69	-43.15	-13.00	-30.15	Vertical
3800.00	-56.95	12.76	0.79	-44.98	-13.00	-31.98	Horizontal
5700.00	-47.41	12.94	1.18	-35.65	-13.00	-22.65	Horizontal
7600.00	-53.08	11.38	1.69	-43.39	-13.00	-30.39	Horizontal
Remark: *The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.*							

LTE Band 4 part:

Band 4 (1.4MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3421.40	-46.21	12.24	0.70	-34.67	-13.00	-21.67	Vertical
5132.10	-55.78	12.92	1.01	-43.87	-13.00	-30.87	Vertical
6842.80	-51.88	11.42	1.53	-41.99	-13.00	-28.99	Vertical
3421.40	-46.81	12.24	0.70	-35.27	-13.00	-22.27	Horizontal
5132.10	-56.80	12.92	1.01	-44.89	-13.00	-31.89	Horizontal
6842.80	-53.18	11.42	1.53	-43.29	-13.00	-30.29	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3465.00	-45.23	12.33	0.72	-33.62	-13.00	-20.62	Vertical
5197.50	-54.35	12.88	1.04	-42.51	-13.00	-29.51	Vertical
6930.00	-51.43	11.30	1.56	-41.69	-13.00	-28.69	Vertical
3465.00	-48.26	12.33	0.72	-36.65	-13.00	-23.65	Horizontal
5197.50	-57.36	12.88	1.04	-45.52	-13.00	-32.52	Horizontal
6930.00	-52.53	11.30	1.56	-42.79	-13.00	-29.79	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3508.60	-43.99	12.41	0.74	-32.32	-13.00	-19.32	Vertical
5262.90	-53.27	12.84	1.07	-41.50	-13.00	-28.50	Vertical
7017.20	-49.37	11.21	1.58	-39.74	-13.00	-26.74	Vertical
3508.60	-46.86	12.41	0.74	-35.19	-13.00	-22.19	Horizontal
5262.90	-56.27	12.84	1.07	-44.50	-13.00	-31.50	Horizontal
7017.20	-49.24	11.21	1.58	-39.61	-13.00	-26.61	Horizontal
Remark: *The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.*							

Band 4 (20MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3440.00	-48.19	12.28	0.71	-36.62	-13.00	-23.62	Vertical
5160.00	-53.39	12.90	1.03	-41.52	-13.00	-28.52	Vertical
6880.00	-49.58	11.37	1.54	-39.75	-13.00	-26.75	Vertical
3440.00	-48.19	12.28	0.71	-36.62	-13.00	-23.62	Horizontal
5160.00	-55.87	12.90	1.03	-44.00	-13.00	-31.00	Horizontal
6880.00	-51.39	11.37	1.54	-41.56	-13.00	-28.56	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3465.00	-44.13	12.33	0.72	-32.52	-13.00	-19.52	Vertical
5197.50	-53.49	12.88	1.04	-41.65	-13.00	-28.65	Vertical
6930.00	-52.33	11.30	1.56	-42.59	-13.00	-29.59	Vertical
3465.00	-47.26	12.33	0.72	-35.65	-13.00	-22.65	Horizontal
5197.50	-56.53	12.88	1.04	-44.69	-13.00	-31.69	Horizontal
6930.00	-51.52	11.30	1.56	-41.78	-13.00	-28.78	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3490.00	-43.17	12.38	0.73	-31.52	-13.00	-18.52	Vertical
5235.00	-54.45	12.86	1.06	-42.65	-13.00	-29.65	Vertical
6980.00	-48.61	11.23	1.57	-38.95	-13.00	-25.95	Vertical
3490.00	-48.63	12.38	0.73	-36.98	-13.00	-23.98	Horizontal
5235.00	-53.32	12.86	1.06	-41.52	-13.00	-28.52	Horizontal
6980.00	-48.38	11.23	1.57	-38.72	-13.00	-25.72	Horizontal
Remark: *The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.*							

Band 5 (1.4MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1649.40	-57.66	9.57	0.20	-48.29	-13.00	-35.29	Vertical
2474.10	-43.16	10.86	0.43	-32.73	-13.00	-19.73	Vertical
3298.80	-67.95	12.00	0.64	-56.59	-13.00	-43.59	Vertical
1649.40	-55.03	9.57	0.20	-45.66	-13.00	-32.66	Horizontal
2474.10	-46.15	10.86	0.43	-35.72	-13.00	-22.72	Horizontal
3298.80	-62.80	12.00	0.64	-51.44	-13.00	-38.44	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1673.30	-56.09	9.66	0.22	-46.65	-13.00	-33.65	Vertical
2509.50	-41.95	10.91	0.46	-31.50	-13.00	-18.50	Vertical
3346.00	-66.60	12.09	0.66	-55.17	-13.00	-42.17	Vertical
1673.30	-53.80	9.66	0.22	-44.36	-13.00	-31.36	Horizontal
2509.50	-47.10	10.91	0.46	-36.65	-13.00	-23.65	Horizontal
3346.00	-64.22	12.09	0.66	-52.79	-13.00	-39.79	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1696.60	-56.16	9.74	0.23	-46.65	-13.00	-33.65	Vertical
2544.90	-41.95	10.94	0.49	-31.50	-13.00	-18.50	Vertical
3393.20	-66.94	12.19	0.68	-55.43	-13.00	-42.43	Vertical
1696.60	-56.13	9.74	0.23	-46.62	-13.00	-33.62	Horizontal
2544.90	-46.62	10.94	0.49	-36.17	-13.00	-23.17	Horizontal
3393.20	-61.49	12.19	0.68	-49.98	-13.00	-36.98	Horizontal
Remark: *The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.*							

Band 5 (10MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1658.00	-56.04	9.60	0.21	-46.65	-13.00	-33.65	Vertical
2487.00	-41.95	10.88	0.45	-31.52	-13.00	-18.52	Vertical
3316.00	-67.33	12.03	0.65	-55.95	-13.00	-42.95	Vertical
1658.00	-56.08	9.60	0.21	-46.69	-13.00	-33.69	Horizontal
2487.00	-45.17	10.88	0.45	-34.74	-13.00	-21.74	Horizontal
3316.00	-63.97	12.03	0.65	-52.59	-13.00	-39.59	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1673.30	-55.05	9.66	0.21	-45.60	-13.00	-32.60	Vertical
2509.50	-42.94	10.91	0.46	-32.49	-13.00	-19.49	Vertical
3346.00	-65.58	12.09	0.66	-54.15	-13.00	-41.15	Vertical
1673.30	-53.10	9.66	0.21	-43.65	-13.00	-30.65	Horizontal
2509.50	-46.43	10.91	0.46	-35.98	-13.00	-22.98	Horizontal
3346.00	-63.16	12.09	0.66	-51.73	-13.00	-38.73	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1688.00	-55.00	9.71	0.23	-45.52	-13.00	-32.52	Vertical
2532.00	-43.05	10.93	0.48	-32.60	-13.00	-19.60	Vertical
3376.00	-66.87	12.15	0.67	-55.39	-13.00	-42.39	Vertical
1688.00	-55.46	9.71	0.23	-45.98	-13.00	-32.98	Horizontal
2532.00	-45.86	10.93	0.48	-35.41	-13.00	-22.41	Horizontal
3376.00	-59.33	12.15	0.67	-47.85	-13.00	-34.85	Horizontal
Remark: *The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.*							

LTE Band 12 part:

Band 12 (1.4MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1399.40	-55.93	7.80	0.11	-48.24	-13.00	-35.24	Vertical
2099.10	-47.55	10.34	0.29	-37.50	-13.00	-24.50	Vertical
2798.80	-67.40	11.20	0.53	-56.73	-13.00	-43.73	Vertical
1399.40	-53.41	7.80	0.11	-45.72	-13.00	-32.72	Horizontal
2099.10	-44.59	10.34	0.29	-34.54	-13.00	-21.54	Horizontal
2798.80	-67.42	11.20	0.53	-56.75	-13.00	-43.75	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1415.00	-54.44	7.92	0.13	-46.65	-13.00	-33.65	Vertical
2122.50	-46.30	10.37	0.32	-36.25	-13.00	-23.25	Vertical
2830.00	-66.19	11.23	0.55	-55.51	-13.00	-42.51	Vertical
1415.00	-52.15	7.92	0.13	-44.36	-13.00	-31.36	Horizontal
2122.50	-45.95	10.37	0.32	-35.90	-13.00	-22.90	Horizontal
2830.00	-65.46	11.23	0.55	-54.78	-13.00	-41.78	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1430.60	-54.53	8.04	0.16	-46.65	-13.00	-33.65	Vertical
2145.90	-46.65	10.40	0.35	-36.60	-13.00	-23.60	Vertical
2861.20	-65.66	11.26	0.58	-54.98	-13.00	-41.98	Vertical
1430.60	-53.40	8.04	0.16	-45.52	-13.00	-32.52	Horizontal
2145.90	-46.65	10.40	0.35	-36.60	-13.00	-23.60	Horizontal
2861.20	-64.85	11.26	0.58	-54.17	-13.00	-41.17	Horizontal
Remark: *The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.*							

Band 12 (10MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1408.00	-54.39	7.86	0.12	-46.65	-13.00	-33.65	Vertical
2112.00	-46.18	10.36	0.30	-36.12	-13.00	-23.12	Vertical
2816.00	-65.20	11.22	0.54	-54.52	-13.00	-41.52	Vertical
1408.00	-54.43	7.86	0.12	-46.69	-13.00	-33.69	Horizontal
2112.00	-43.43	10.36	0.30	-33.37	-13.00	-20.37	Horizontal
2816.00	-64.85	11.22	0.54	-54.17	-13.00	-41.17	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1415.00	-53.74	7.92	0.13	-45.95	-13.00	-32.95	Vertical
2122.50	-45.70	10.37	0.32	-35.65	-13.00	-22.65	Vertical
2830.00	-64.94	11.23	0.55	-54.26	-13.00	-41.26	Vertical
1415.00	-51.41	7.92	0.13	-43.62	-13.00	-30.62	Horizontal
2122.50	-46.62	10.37	0.32	-36.57	-13.00	-23.57	Horizontal
2830.00	-63.89	11.23	0.55	-53.21	-13.00	-40.21	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1422.00	-52.15	7.98	0.15	-44.32	-13.00	-31.32	Vertical
2133.00	-46.00	10.39	0.34	-35.95	-13.00	-22.95	Vertical
2844.00	-63.82	11.24	0.57	-53.15	-13.00	-40.15	Vertical
1422.00	-54.52	7.98	0.15	-46.69	-13.00	-33.69	Horizontal
2133.00	-45.57	10.39	0.34	-35.52	-13.00	-22.52	Horizontal
2844.00	-64.41	11.24	0.57	-53.74	-13.00	-40.74	Horizontal
Remark: *The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.*							

LTE Band 66 part:

Band 66 (1.4MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3421.40	-40.90	12.24	0.70	-29.36	-13.00	-16.36	Vertical
5132.10	-54.89	12.92	1.01	-42.98	-13.00	-29.98	Vertical
6842.80	-48.60	11.42	1.53	-38.71	-13.00	-25.71	Vertical
3421.40	-42.37	12.24	0.70	-30.83	-13.00	-17.83	Horizontal
5132.10	-53.37	12.92	1.01	-41.46	-13.00	-28.46	Horizontal
6842.80	-48.24	11.42	1.53	-38.35	-13.00	-25.35	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3490.00	-42.17	12.38	0.73	-30.52	-13.00	-17.52	Vertical
5235.00	-53.19	12.86	1.06	-41.39	-13.00	-28.39	Vertical
6980.00	-47.31	11.23	1.57	-37.65	-13.00	-24.65	Vertical
3490.00	-41.60	12.38	0.73	-29.95	-13.00	-16.95	Horizontal
5235.00	-53.03	12.86	1.06	-41.23	-13.00	-28.23	Horizontal
6980.00	-47.13	11.23	1.57	-37.47	-13.00	-24.47	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3558.60	-41.38	12.47	0.74	-29.65	-13.00	-16.65	Vertical
5337.90	-54.35	12.80	1.08	-42.63	-13.00	-29.63	Vertical
7117.20	-46.28	11.27	1.59	-36.60	-13.00	-23.60	Vertical
3558.60	-40.52	12.47	0.74	-28.79	-13.00	-15.79	Horizontal
5337.90	-54.35	12.80	1.08	-42.63	-13.00	-29.63	Horizontal
7117.20	-45.82	11.27	1.59	-36.14	-13.00	-23.14	Horizontal
Remark: *The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.*							

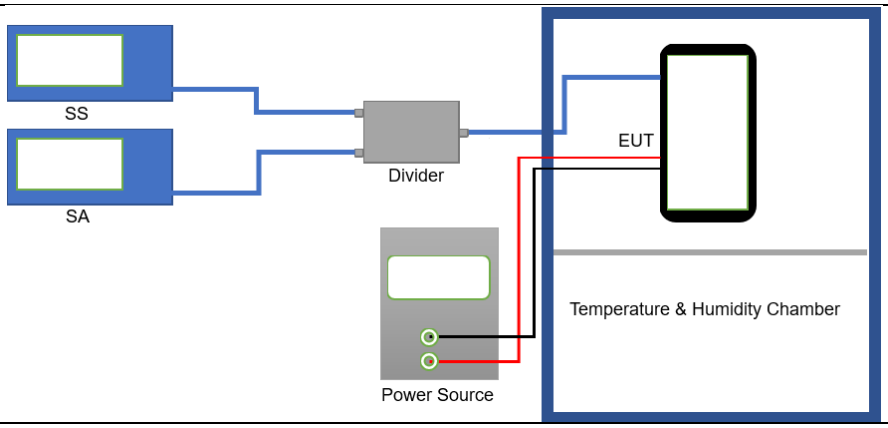
Band 66 (20MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3440.00	-39.89	12.28	0.71	-28.32	-13.00	-15.32	Vertical
5160.00	-53.39	12.90	1.03	-41.52	-13.00	-28.52	Vertical
6880.00	-46.48	11.37	1.54	-36.65	-13.00	-23.65	Vertical
3440.00	-41.54	12.28	0.71	-29.97	-13.00	-16.97	Horizontal
5160.00	-54.01	12.90	1.03	-42.14	-13.00	-29.14	Horizontal
6880.00	-46.52	11.37	1.54	-36.69	-13.00	-23.69	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3490.00	-41.30	12.38	0.73	-29.65	-13.00	-16.65	Vertical
5235.00	-54.30	12.86	1.06	-42.50	-13.00	-29.50	Vertical
6980.00	-46.03	11.23	1.57	-36.37	-13.00	-23.37	Vertical
3490.00	-40.40	12.38	0.73	-28.75	-13.00	-15.75	Horizontal
5235.00	-53.95	12.86	1.06	-42.15	-13.00	-29.15	Horizontal
6980.00	-46.35	11.23	1.57	-36.69	-13.00	-23.69	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3540.00	-40.16	12.45	0.74	-28.45	-13.00	-15.45	Vertical
5310.00	-53.29	12.81	1.08	-41.56	-13.00	-28.56	Vertical
7080.00	-45.65	11.25	1.59	-35.99	-13.00	-22.99	Vertical
3540.00	-38.45	12.45	0.74	-26.74	-13.00	-13.74	Horizontal
5310.00	-53.14	12.81	1.08	-41.41	-13.00	-28.41	Horizontal
7080.00	-45.35	11.25	1.59	-35.69	-13.00	-22.69	Horizontal
Remark: *The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.*							

LTE Band 71 part:

Band 71 (5MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1331.00	-59.19	7.70	0.11	-51.60	-13.00	-38.60	Vertical
1996.50	-50.72	7.79	0.26	-43.19	-13.00	-30.19	Vertical
2662.00	-61.36	11.06	0.52	-50.82	-13.00	-37.82	Vertical
1331.00	-59.88	7.70	0.11	-52.29	-13.00	-39.29	Horizontal
1996.50	-43.46	7.79	0.26	-35.93	-13.00	-22.93	Horizontal
2662.00	-62.74	11.06	0.52	-52.20	-13.00	-39.20	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1361.00	-57.28	7.74	0.11	-49.65	-13.00	-36.65	Vertical
2041.50	-52.51	10.26	0.27	-42.52	-13.00	-29.52	Vertical
2722.00	-58.73	11.12	0.52	-48.13	-13.00	-35.13	Vertical
1361.00	-59.15	7.74	0.11	-51.52	-13.00	-38.52	Horizontal
2041.50	-46.59	10.26	0.27	-36.60	-13.00	-23.60	Horizontal
2722.00	-62.34	11.12	0.52	-51.74	-13.00	-38.74	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1391.00	-55.93	7.79	0.11	-48.25	-13.00	-35.25	Vertical
2086.50	-51.63	10.32	0.29	-41.60	-13.00	-28.60	Vertical
2782.00	-56.88	11.18	0.53	-46.23	-13.00	-33.23	Vertical
1391.00	-57.33	7.79	0.11	-49.65	-13.00	-36.65	Horizontal
2086.50	-44.65	10.32	0.29	-34.62	-13.00	-21.62	Horizontal
2782.00	-62.84	11.18	0.53	-52.19	-13.00	-39.19	Horizontal
Remark: *The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.*							

Band 71 (20MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1346.00	-57.26	7.72	0.11	-49.65	-13.00	-36.65	Vertical
2019.00	-52.59	10.23	0.26	-42.62	-13.00	-29.62	Vertical
2692.00	-60.30	11.09	0.52	-49.73	-13.00	-36.73	Vertical
1346.00	-58.93	7.72	0.11	-51.32	-13.00	-38.32	Horizontal
2019.00	-46.53	10.23	0.26	-36.56	-13.00	-23.56	Horizontal
2692.00	-62.31	11.09	0.52	-51.74	-13.00	-38.74	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1366.00	-56.29	7.75	0.11	-48.65	-13.00	-35.65	Vertical
2049.00	-51.33	10.27	0.27	-41.33	-13.00	-28.33	Vertical
2732.00	-58.56	11.13	0.52	-47.95	-13.00	-34.95	Vertical
1366.00	-60.17	7.75	0.11	-52.53	-13.00	-39.53	Horizontal
2049.00	-45.98	10.27	0.27	-35.98	-13.00	-22.98	Horizontal
2732.00	-63.08	11.13	0.52	-52.47	-13.00	-39.47	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurous Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1376.00	-53.97	7.76	0.11	-46.32	-13.00	-33.32	Vertical
2064.00	-52.53	10.29	0.27	-42.51	-13.00	-29.51	Vertical
2752.00	-56.41	11.15	0.52	-45.78	-13.00	-32.78	Vertical
1376.00	-56.11	7.76	0.11	-48.46	-13.00	-35.46	Horizontal
2064.00	-45.53	10.29	0.27	-35.51	-13.00	-22.51	Horizontal
2752.00	-61.90	11.15	0.52	-51.27	-13.00	-38.27	Horizontal
Remark: *The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.*							

6.6 Frequency stability V.S. Temperature measurement

Test Requirement:	Part 22.355, Part 24.235, Part 27.54, Part 2.1055(a)(1)(b)
Limit:	±2.5 ppm for Band 5 Within authorized band for Band 2 & 4 & 12 & 66 & 71
Test setup:	
Test procedure:	1. The equipment under test was connected to an external DC power supply and input rated voltage. 2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. 3. The EUT was placed inside the temperature chamber. 4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25℃ operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to –30℃. After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10℃ increased per stage until the highest temperature of +50℃ reached
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data (worst case):

LTE Band 2 part:

Reference Frequency: LTE Band 2 (10MHz) Middle channel=18900 channel=1880.00MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	171	0.090957	Within authorized band for Band 2	Pass
	-20	160	0.085106		
	-10	153	0.081383		
	0	145	0.077128		
	10	136	0.072340		
	20	130	0.069149		
	30	121	0.064362		
	40	116	0.061702		
	50	107	0.056915		
16QAM					
3.80	-30	167	0.088830	Within authorized band for Band 2	Pass
	-20	159	0.084574		
	-10	154	0.081915		
	0	124	0.065957		
	10	116	0.061702		
	20	105	0.055851		
	30	130	0.069149		
	40	143	0.076064		
	50	136	0.072340		
Note: Only the worst case shown in the report.					

LTE Band 4 part:

Reference Frequency: LTE Band 4 (10MHz) Middle channel=20175 channel=1732.50MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	174	0.100433	Within authorized band for Band 4	Pass
	-20	156	0.090043		
	-10	140	0.080808		
	0	130	0.075036		
	10	120	0.069264		
	20	110	0.063492		
	30	134	0.077345		
	40	148	0.085426		
	50	162	0.093506		
16QAM					
3.80	-30	170	0.098124	Within authorized band for Band 4	Pass
	-20	166	0.095815		
	-10	143	0.082540		
	0	134	0.077345		
	10	125	0.072150		
	20	109	0.062915		
	30	150	0.086580		
	40	157	0.090620		
	50	118	0.068110		
Note: Only the worst case shown in the report.					

LTE Band 5 part:

Reference Frequency: LTE Band 5 (10MHz) Middle channel=20525 channel=836.50MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	180	0.215182	±2.5	Pass
	-20	173	0.206814		
	-10	165	0.197250		
	0	159	0.190078		
	10	142	0.169755		
	20	138	0.164973		
	30	120	0.143455		
	40	130	0.155409		
	50	150	0.179319		
16QAM					
3.80	-30	176	0.210400	±2.5	Pass
	-20	154	0.184100		
	-10	149	0.178123		
	0	133	0.158996		
	10	126	0.150628		
	20	160	0.191273		
	30	116	0.138673		
	40	140	0.167364		
	50	169	0.202032		
Note: Only the worst case shown in the report.					

LTE Band 12 part:

Reference Frequency: LTE Band 12 (10MHz) Middle channel=23095 channel=707.50MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	169	0.238869	Within authorized band for Band 12	Pass
	-20	156	0.220495		
	-10	149	0.210601		
	0	127	0.179505		
	10	162	0.228975		
	20	142	0.200707		
	30	135	0.190813		
	40	121	0.171025		
	50	113	0.159717		
16QAM					
3.80	-30	165	0.233216	Within authorized band for Band 12	Pass
	-20	159	0.224735		
	-10	121	0.171025		
	0	111	0.156890		
	10	134	0.189399		
	20	127	0.179505		
	30	153	0.216254		
	40	146	0.206360		
	50	139	0.196466		
Note: Only the worst case shown in the report.					

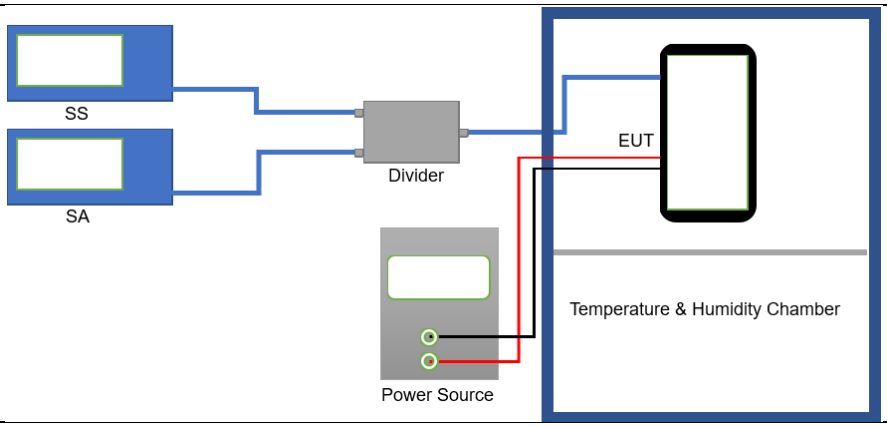
LTE Band 66 part:

Reference Frequency: LTE Band 66 (10MHz) Middle channel=132322 channel=1745.00MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.70	-30	180	0.103152	Within authorized band for Band 66	Pass
	-20	173	0.099140		
	-10	165	0.094556		
	0	159	0.091117		
	10	142	0.081375		
	20	138	0.079083		
	30	120	0.068768		
	40	130	0.074499		
	50	150	0.085960		
16QAM					
3.70	-30	172	0.098567	Within authorized band for Band 66	Pass
	-20	160	0.091691		
	-10	154	0.088252		
	0	124	0.071060		
	10	119	0.068195		
	20	130	0.074499		
	30	112	0.064183		
	40	144	0.082521		
	50	136	0.077937		
Note: Only the worst case shown in the report.					

LTE Band 71 part:

Reference Frequency: LTE Band 71 (10MHz) Middle channel=133297 Frequency=680.50MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.70	-30	173	0.254225	Within authorized band for Band 71	Pass
	-20	165	0.242469		
	-10	157	0.230713		
	0	134	0.196914		
	10	126	0.185158		
	20	152	0.223365		
	30	146	0.214548		
	40	139	0.204262		
	50	115	0.168993		
16QAM					
3.70	-30	169	0.248347	Within authorized band for Band 71	Pass
	-20	154	0.226304		
	-10	137	0.201323		
	0	160	0.235121		
	10	123	0.180749		
	20	117	0.171932		
	30	110	0.161646		
	40	133	0.195445		
	50	127	0.186627		
Note: Only the worst case shown in the report.					

6.7 Frequency stability V.S. Voltage measurement

Test Requirement:	Part 22.355, Part 24.235, Part 27.54, Part 2.1055(d)(2)
Limit:	±2.5 ppm for Band 5 Within authorized band for Band 2 & 4 & 12 & 66 & 71
Test setup:	
Test procedure:	1. Set chamber temperature to 25℃. Use a variable DC power source to power the EUT and set the voltage to rated voltage. 2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. 3. Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data (worst case):

LTE Band 2 part:

Reference Frequency: LTE Band 2(10MHz) Middle channel=18900 channel=1880.00MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.35	80	0.042553	Within authorized band for Band 2	Pass
	3.80	73	0.038830		
	3.50	60	0.031915		
16QAM					
25	4.35	78	0.041489	Within authorized band for Band 2	Pass
	3.80	83	0.044149		
	3.50	61	0.032447		
Note: Only the worst case shown in the report.					

LTE Band 4 part:

Reference Frequency: LTE Band 4(10MHz) Middle channel=20175 channel=1732.50MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.35	90	0.051948	Within authorized band for Band 4	Pass
	3.80	80	0.046176		
	3.50	71	0.040981		
16QAM					
25	4.35	86	0.049639	Within authorized band for Band 4	Pass
	3.80	75	0.043290		
	3.50	65	0.037518		
Note: Only the worst case shown in the report.					

LTE Band 5 part:

Reference Frequency: LTE Band 5(10MHz) Middle channel=20525 channel=836.50MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.35	87	0.104005	±2.5	Pass
	3.80	65	0.077705		
	3.50	53	0.063359		
16QAM					
25	4.35	84	0.100418	±2.5	Pass
	3.80	53	0.063359		
	3.50	69	0.082487		
Note: Only the worst case shown in the report.					

LTE Band 12 part:

Reference Frequency: LTE Band 12(10MHz) Middle channel=23095 channel=707.50MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.35	86	0.121555	Within authorized band for Band 12	Pass
	3.80	72	0.101767		
	3.50	58	0.081979		
16QAM					
25	4.35	70	0.098940	Within authorized band for Band 12	Pass
	3.80	84	0.118728		
	3.50	62	0.087633		
Note: Only the worst case shown in the report.					

LTE Band 66 part:

Reference Frequency: LTE Band 66(10MHz) Middle channel=132332 channel=1745.00MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.20	88	0.050430	Within authorized band for Band 66	Pass
	3.70	73	0.041834		
	3.50	60	0.034384		
16QAM					
25	4.20	85	0.048711	Within authorized band for Band 66	Pass
	3.70	70	0.040115		
	3.50	60	0.034384		
Note: Only the worst case shown in the report.					

LTE Band 71 part:

Reference Frequency: LTE Band 71(10MHz) Middle channel=133297 Frequency=680.50MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.20	89	0.130786	Within authorized band for Band 71	Pass
	3.70	70	0.102866		
	3.50	62	0.091109		
16QAM					
25	4.20	70	0.102866	Within authorized band for Band 71	Pass
	3.70	83	0.121969		
	3.50	60	0.088170		
Note: Only the worst case shown in the report.					