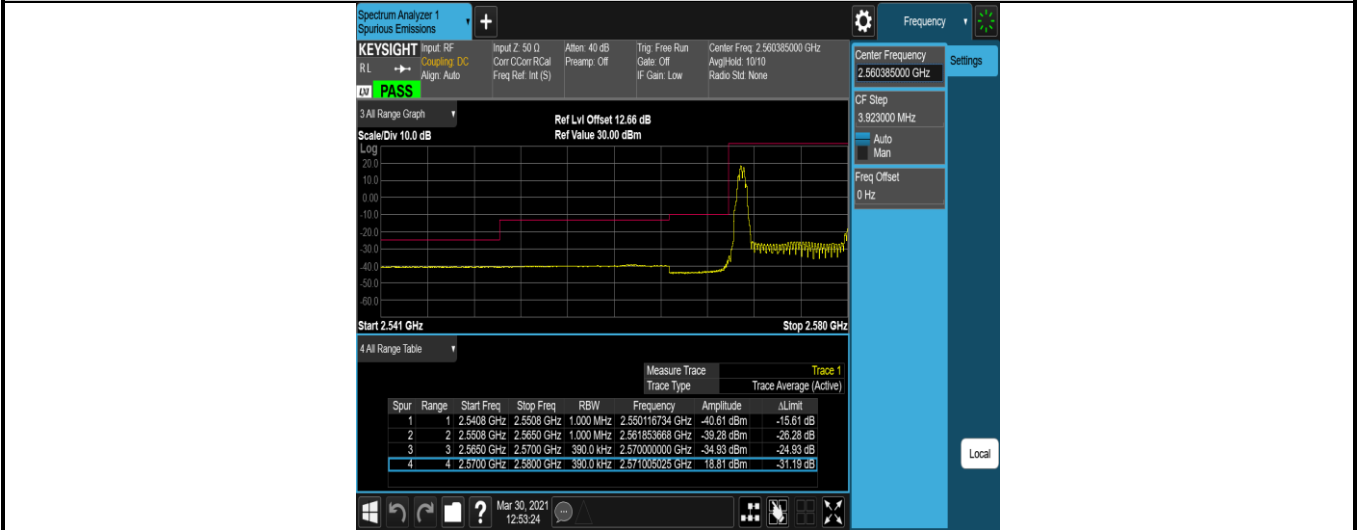
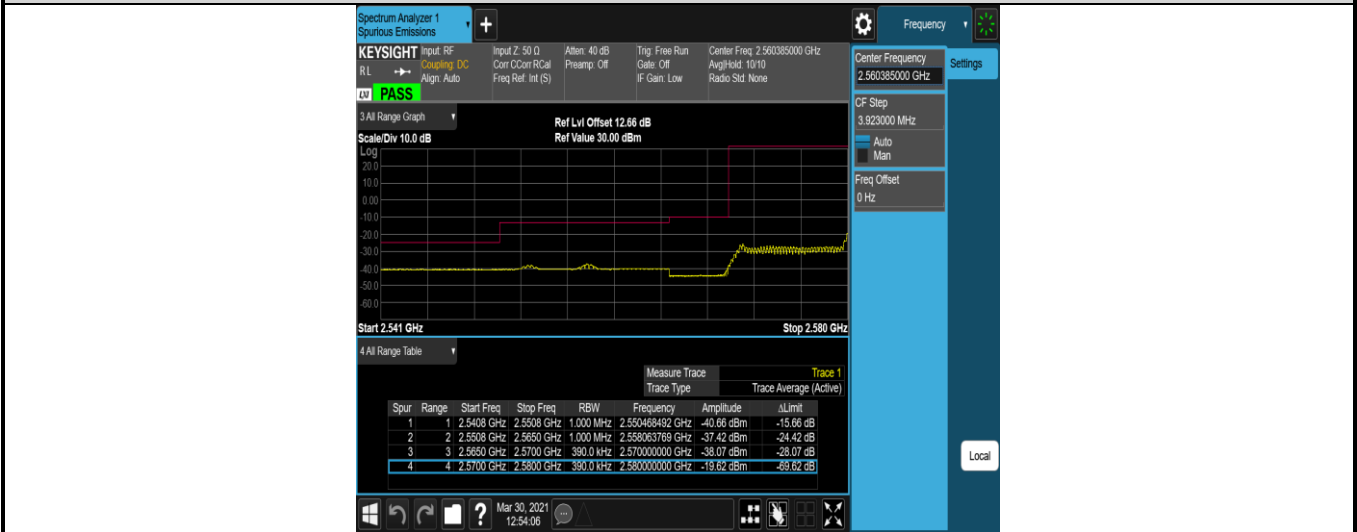


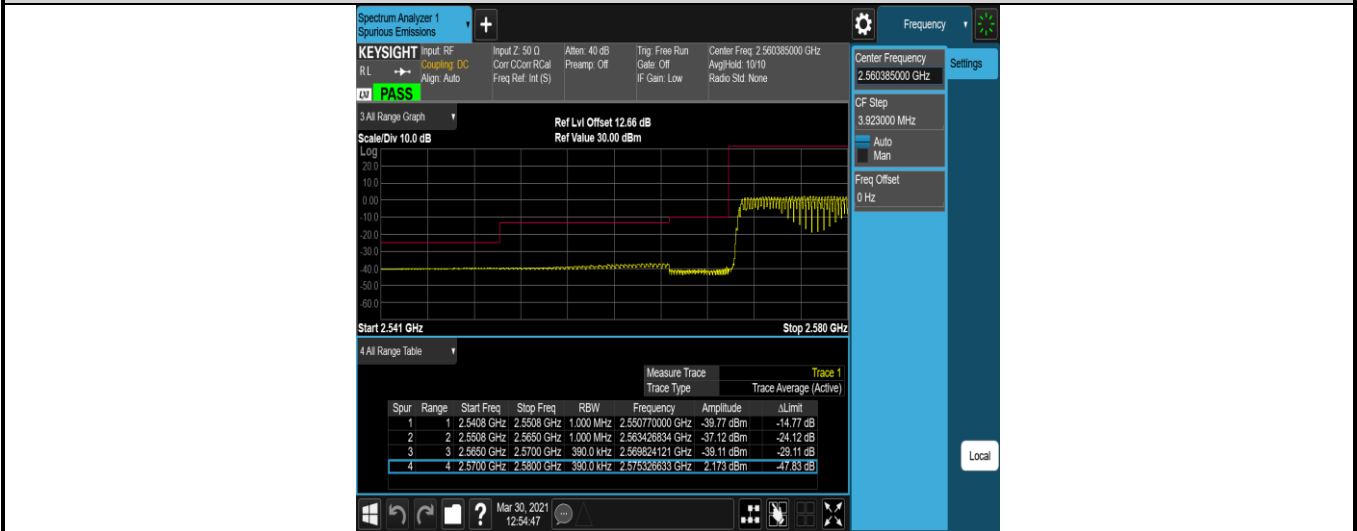
Band38-20MHz-16QAM-37850-1RB#0

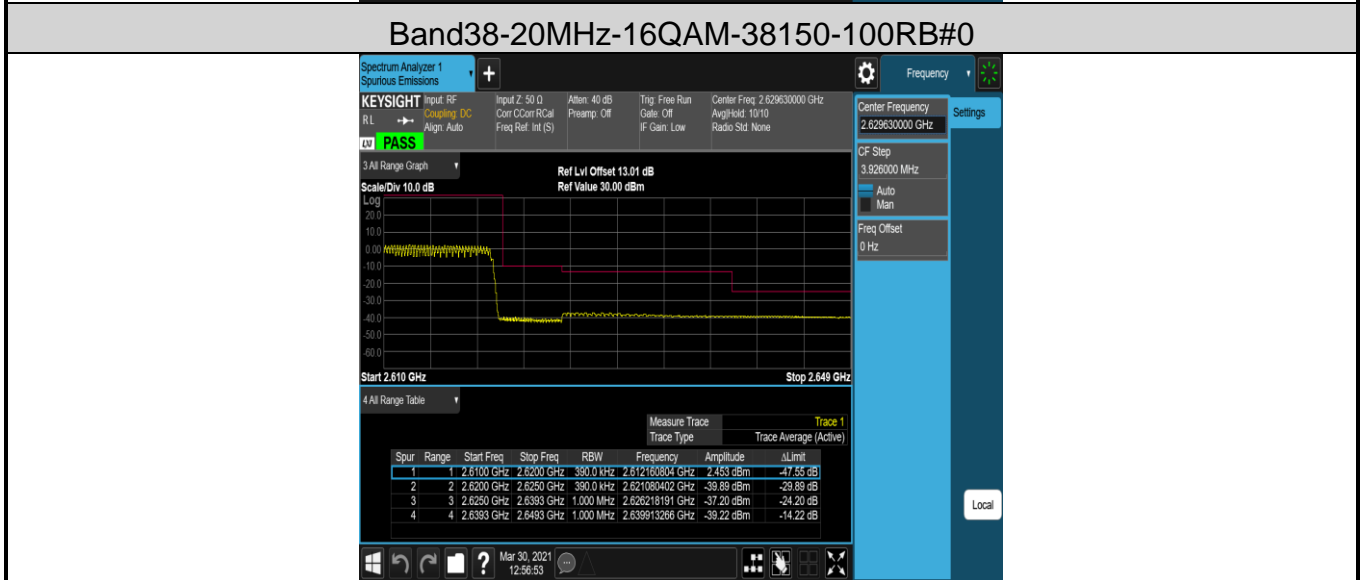
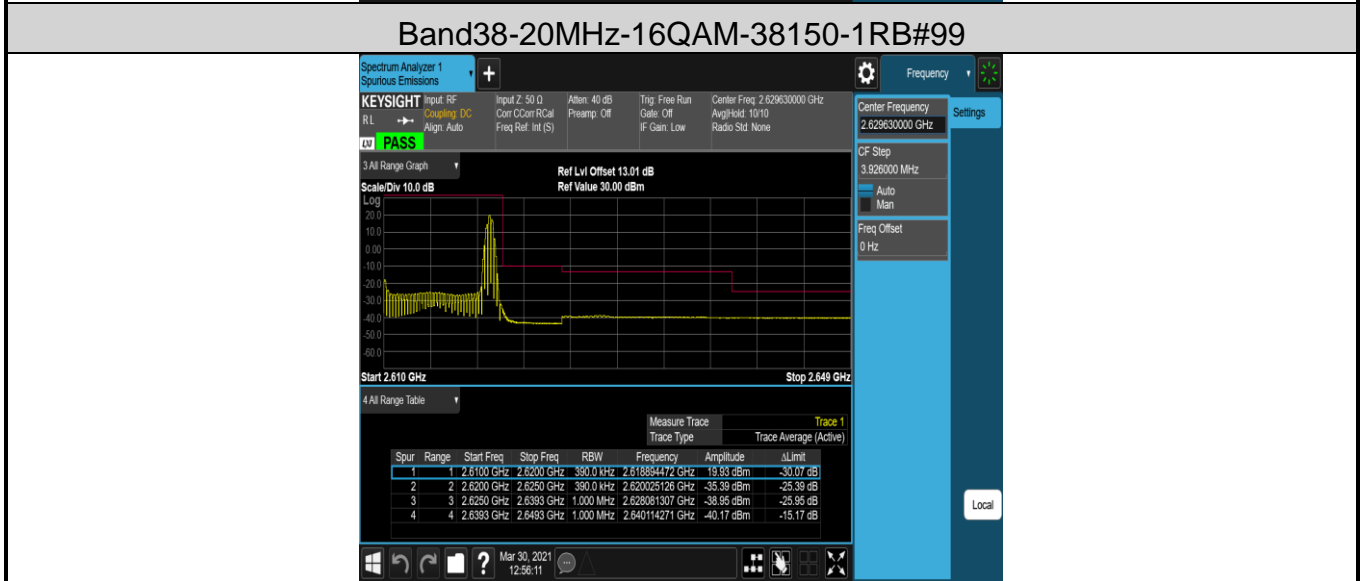
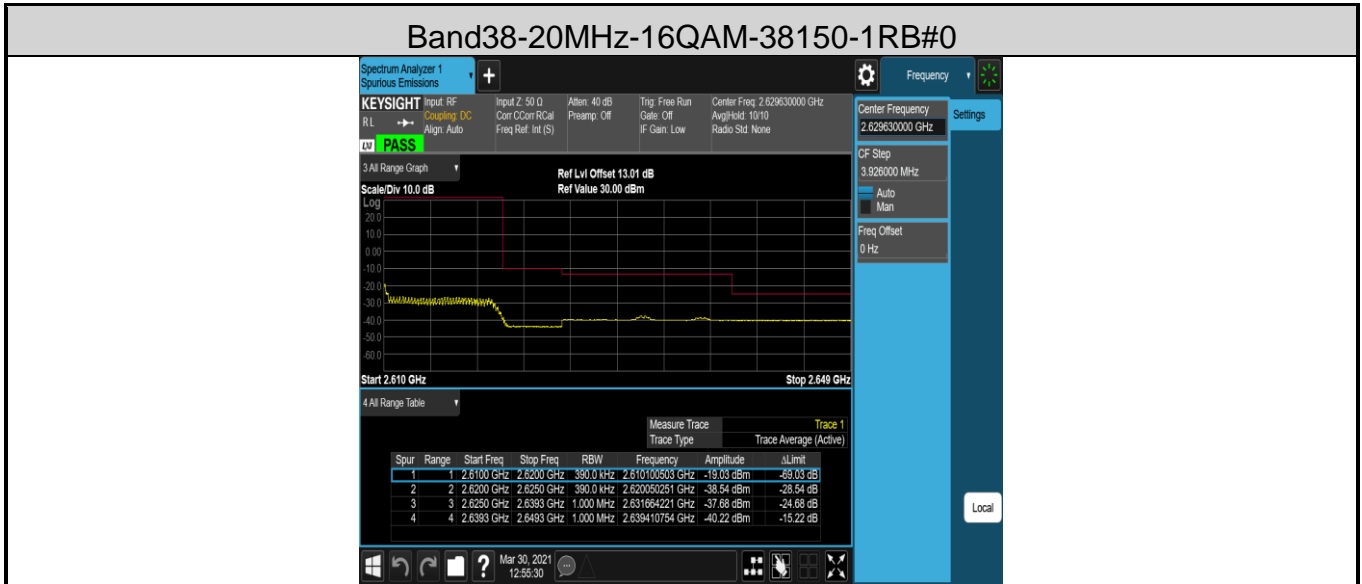


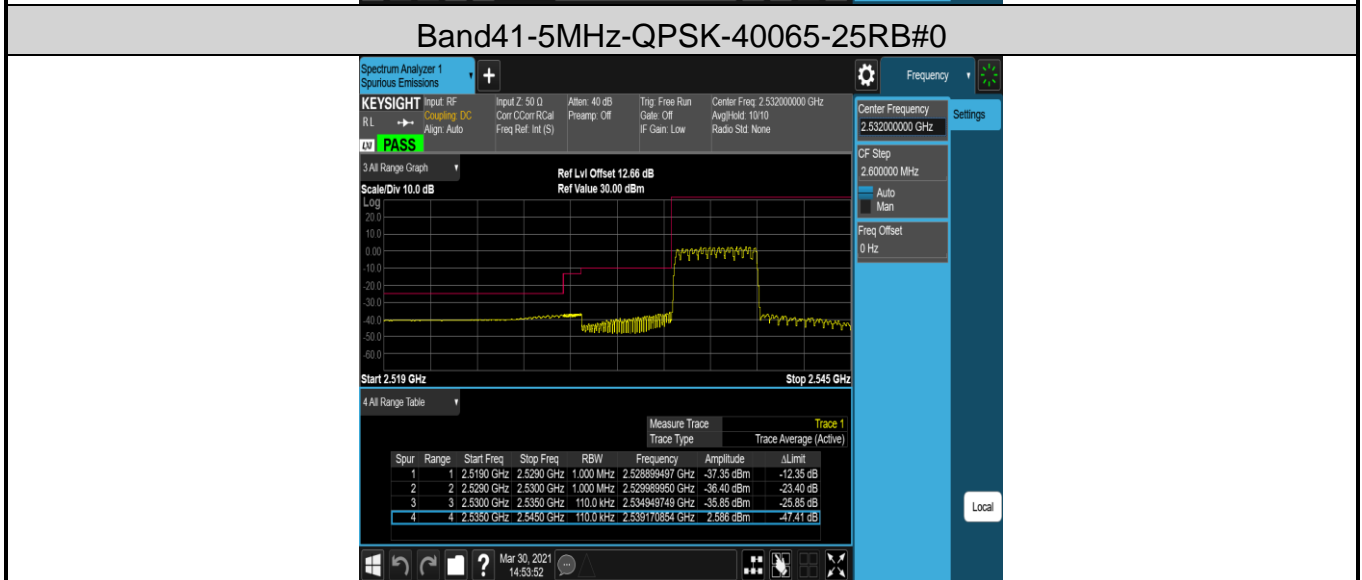
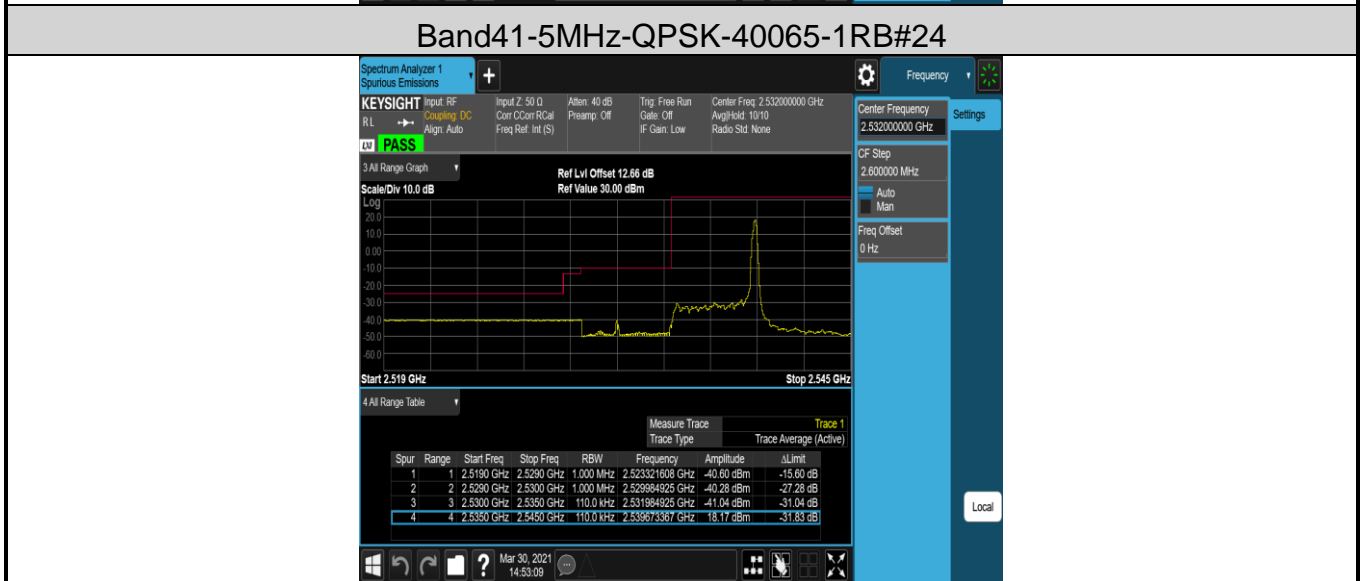
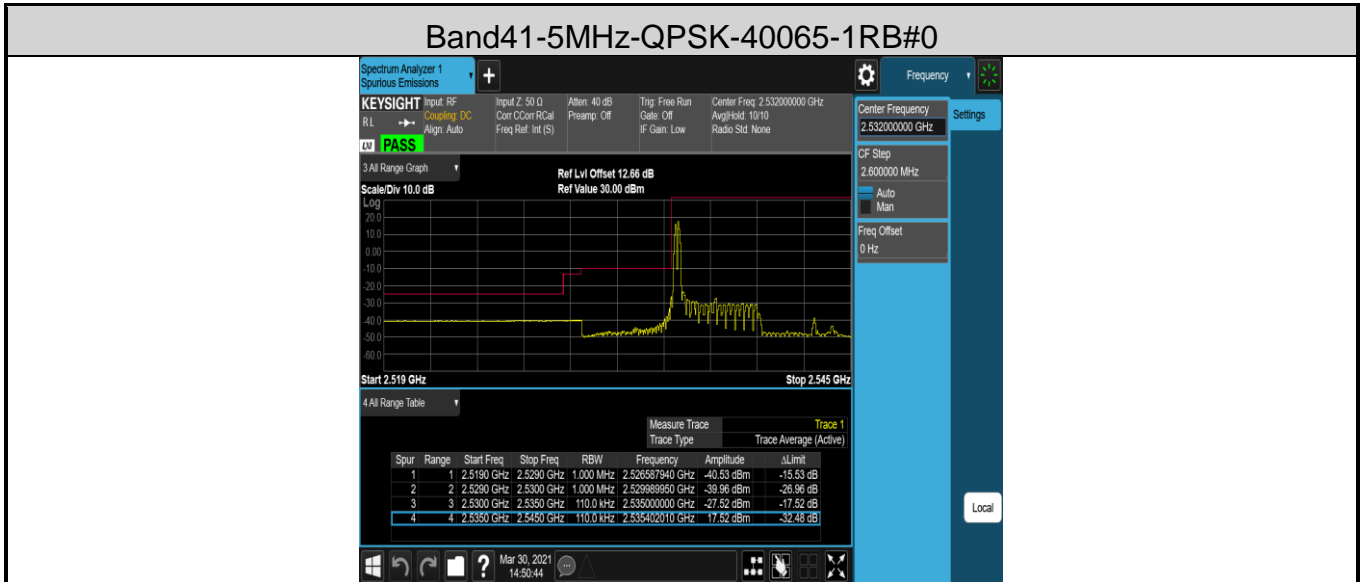
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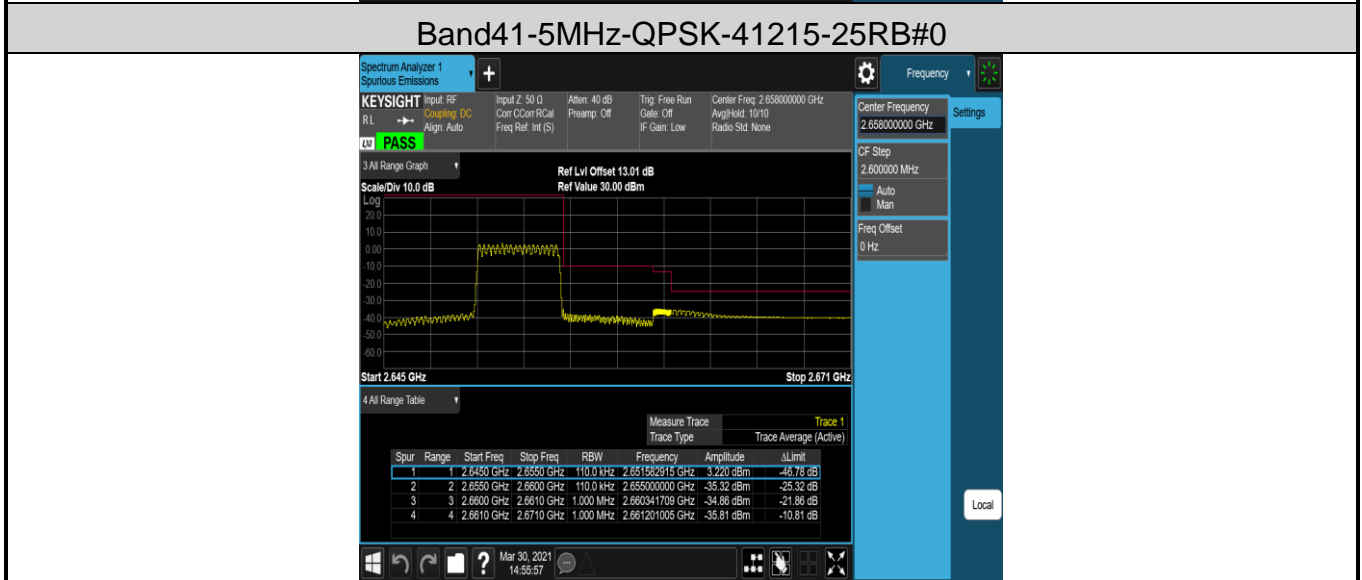
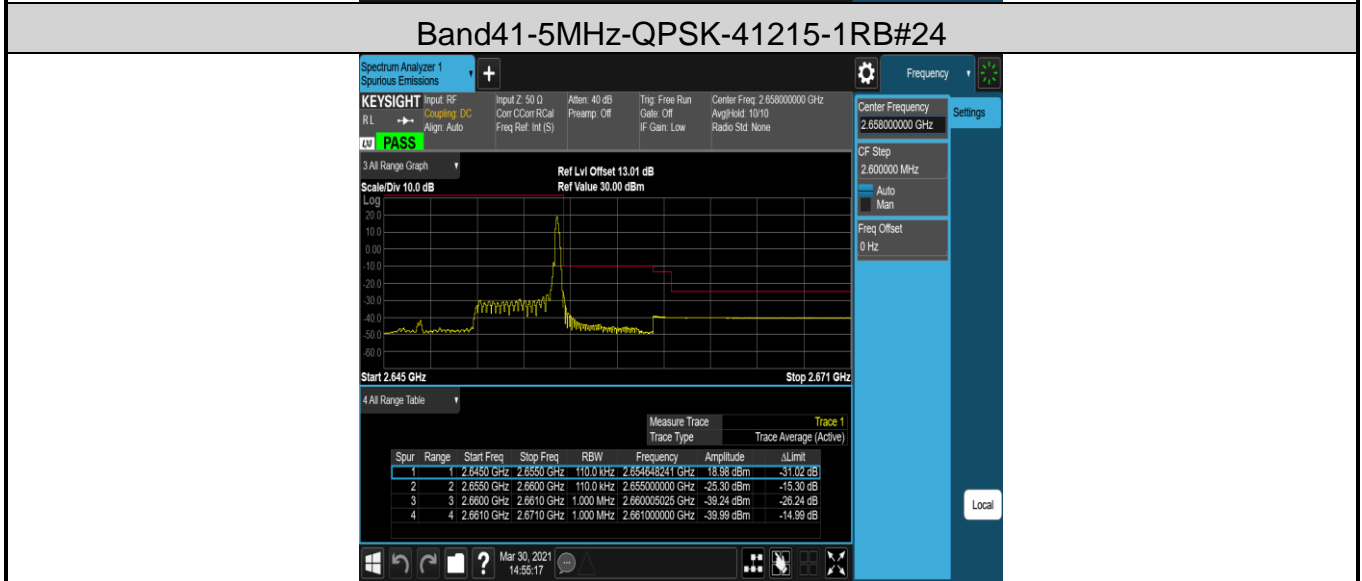
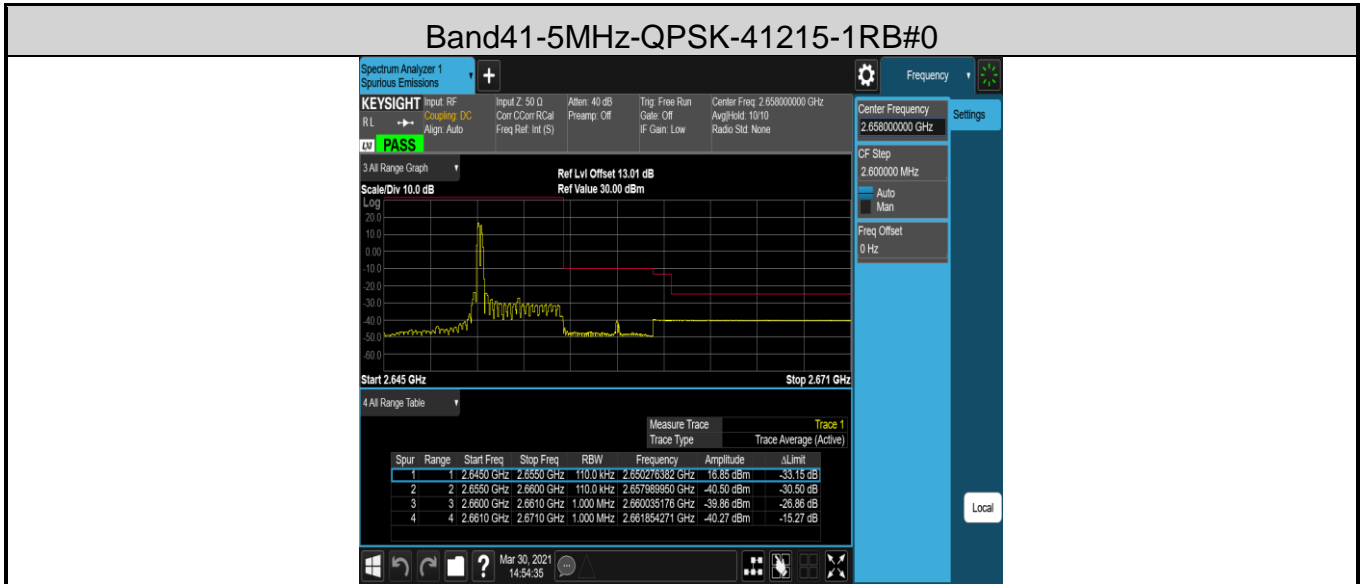


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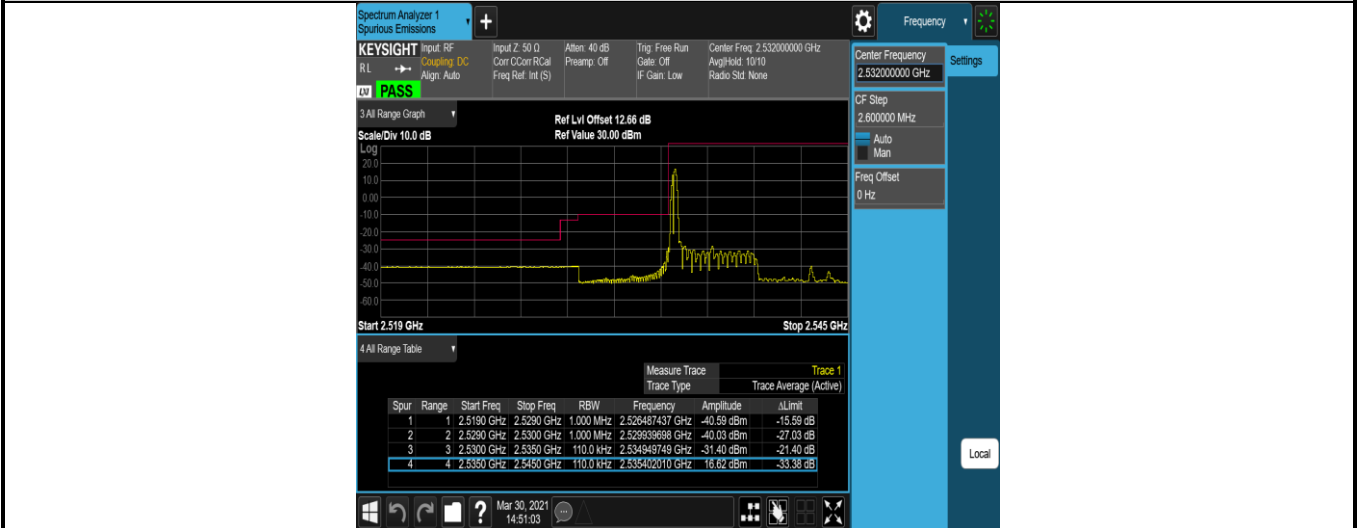




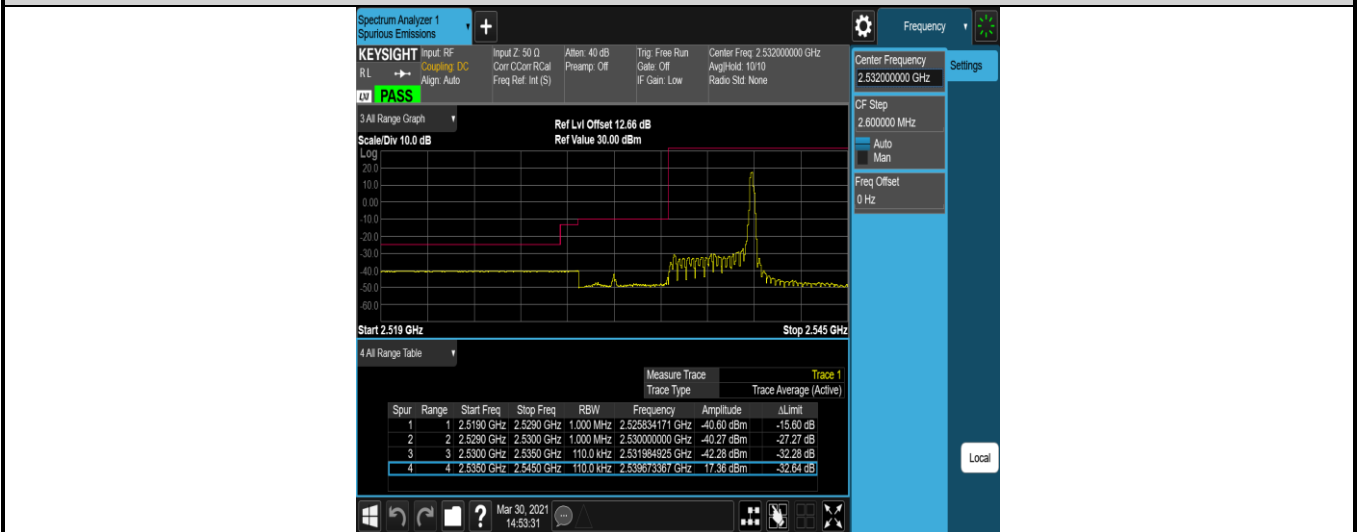




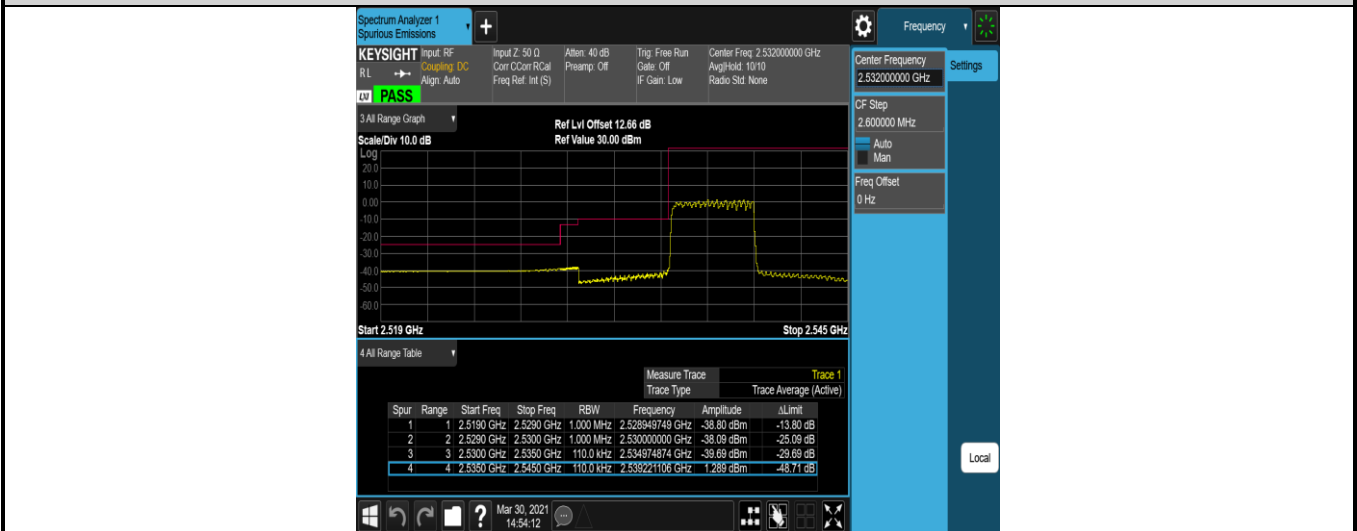
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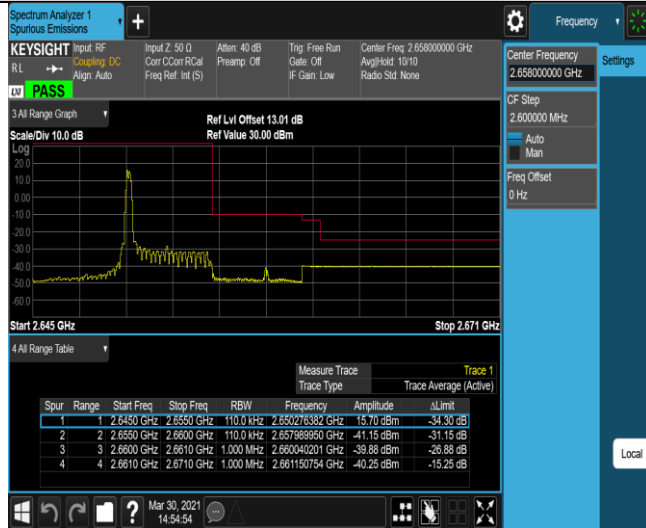
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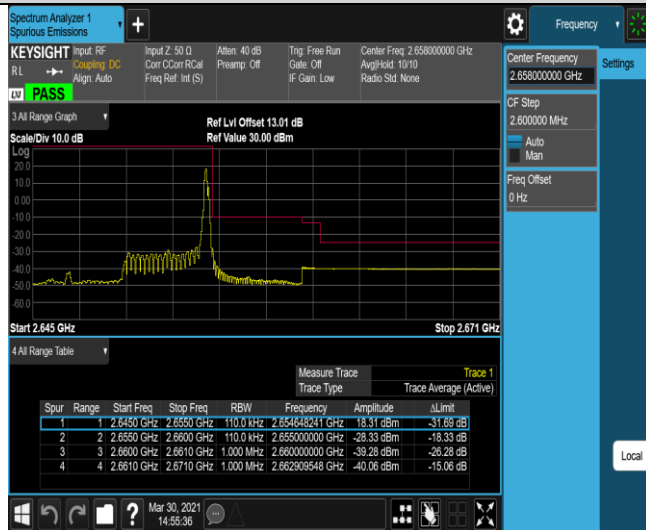
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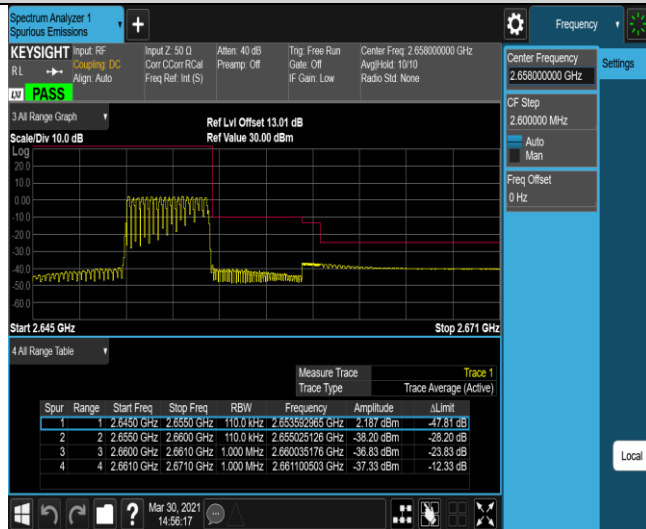
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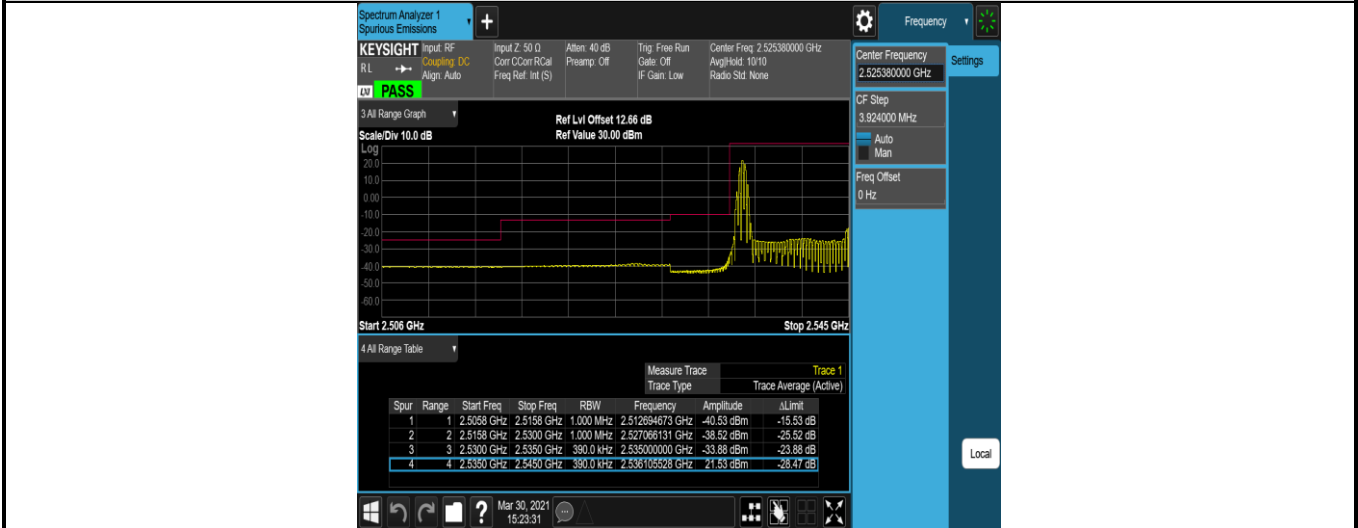
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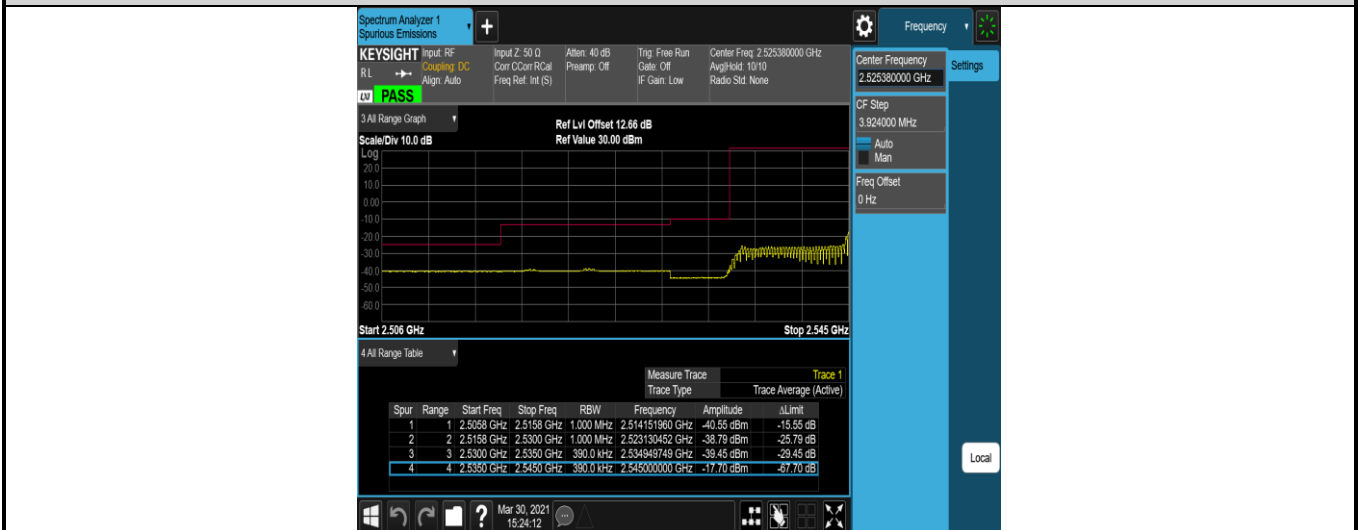
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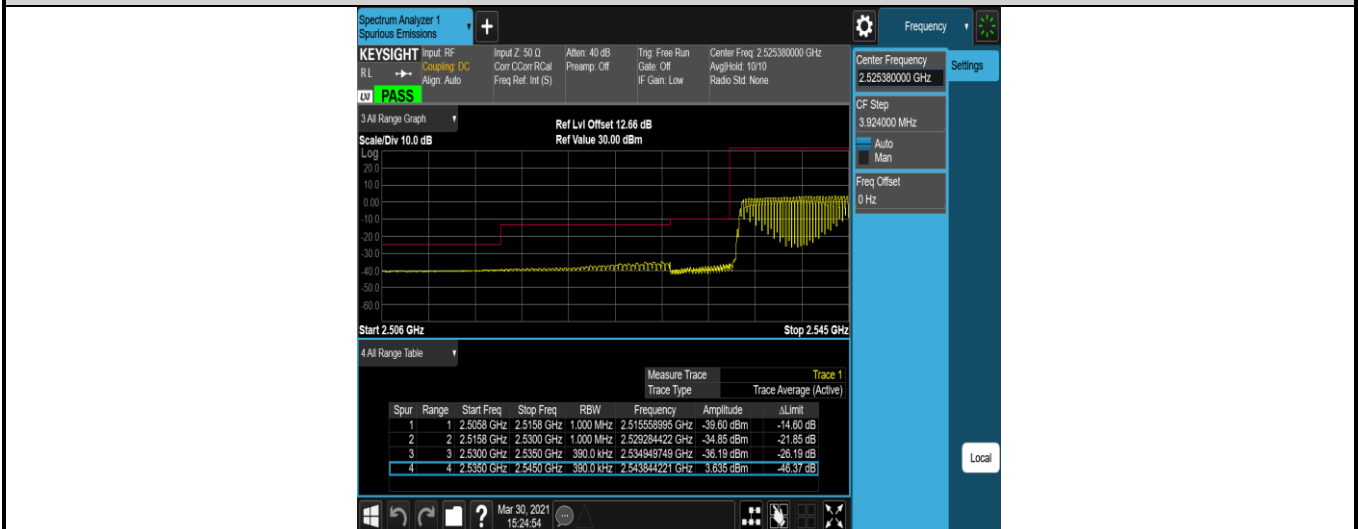
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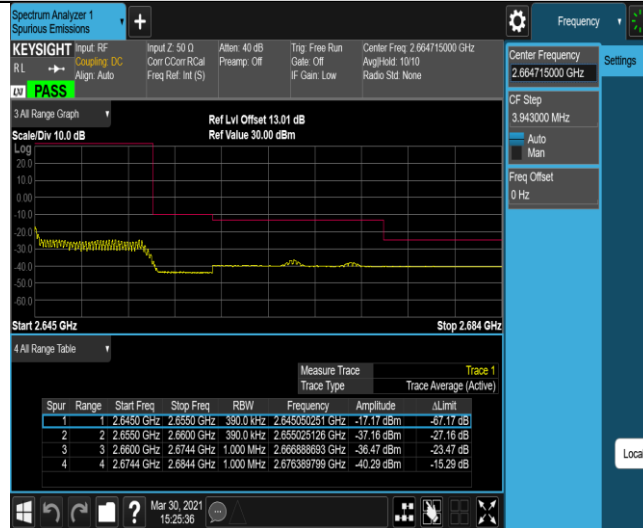
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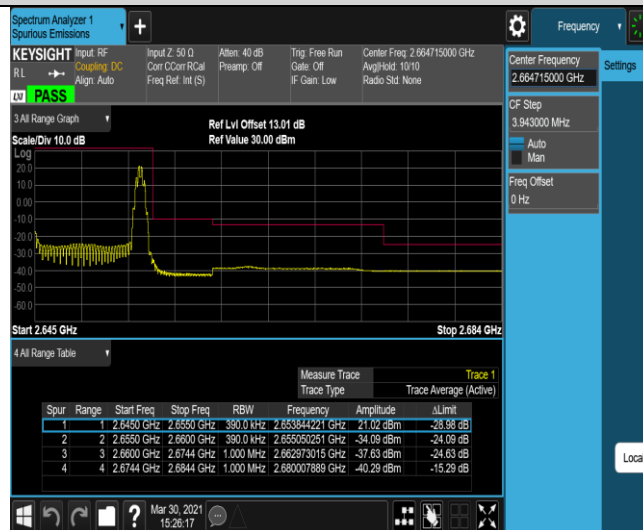
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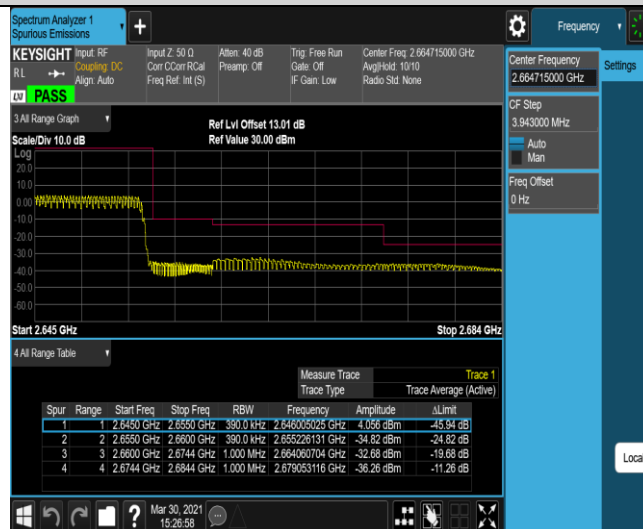
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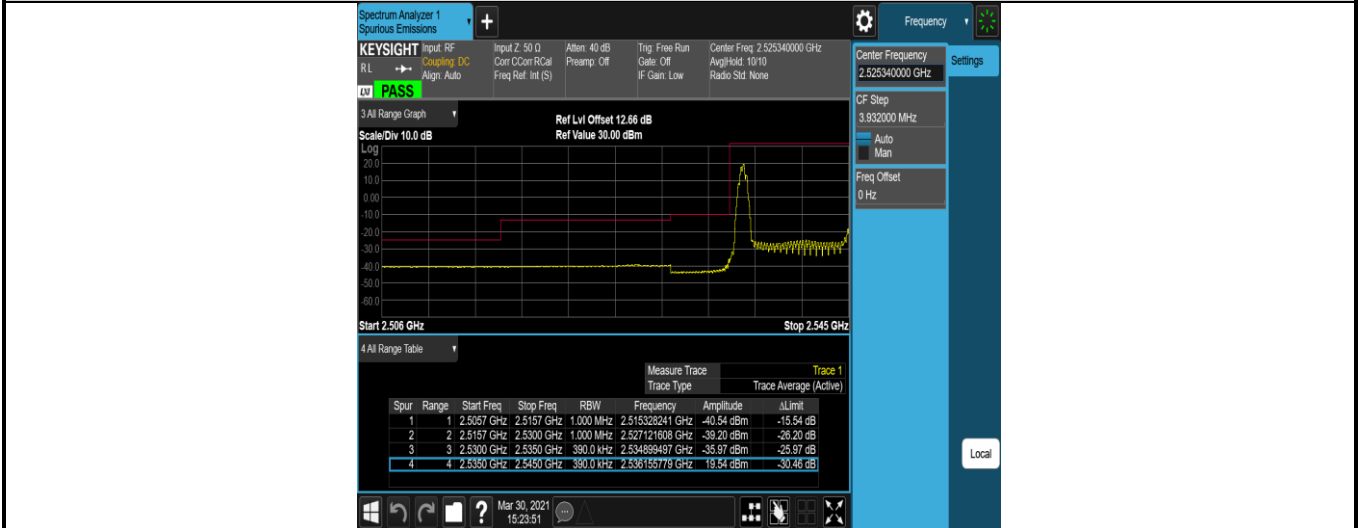
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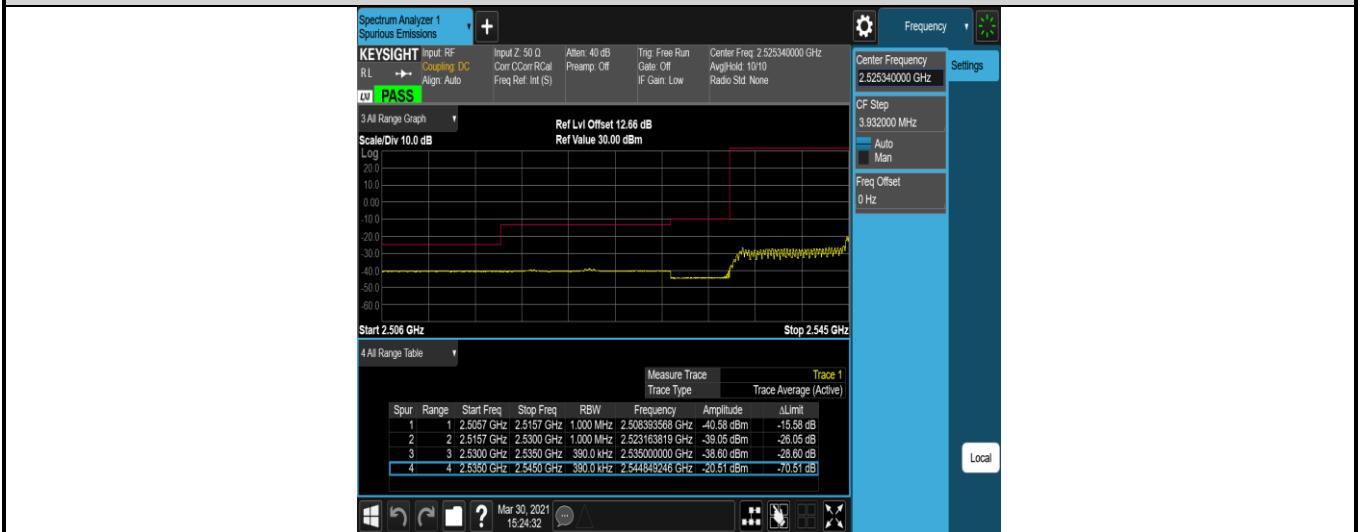
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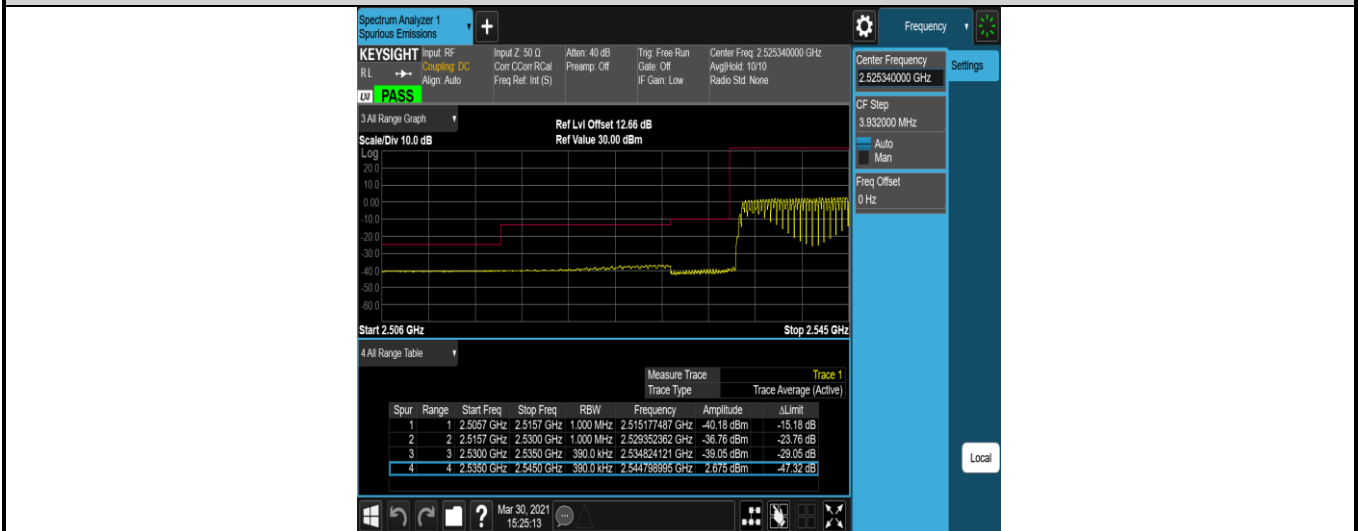
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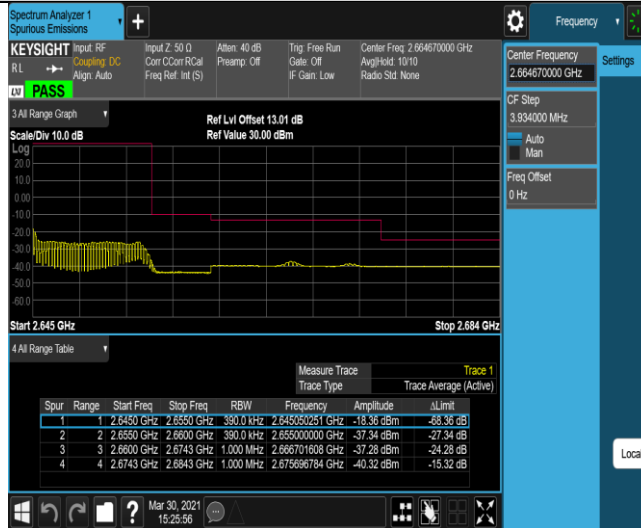
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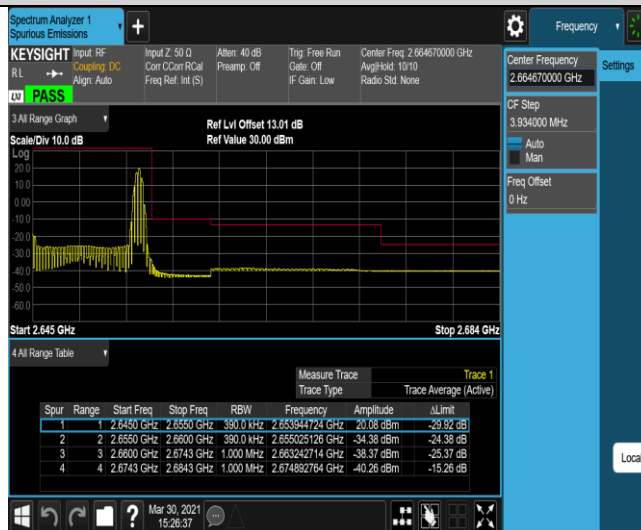
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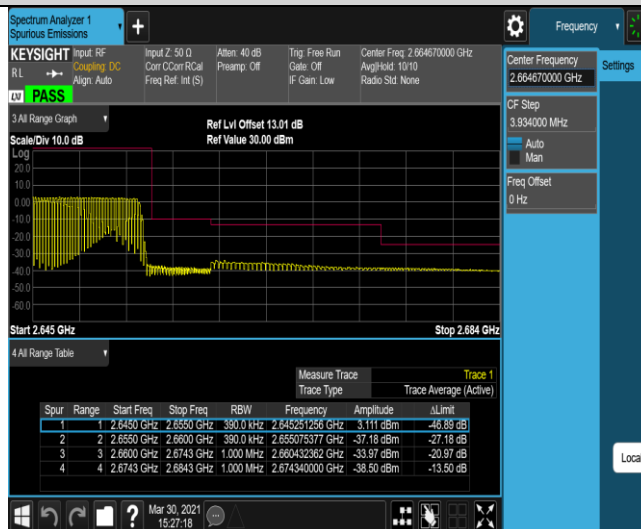
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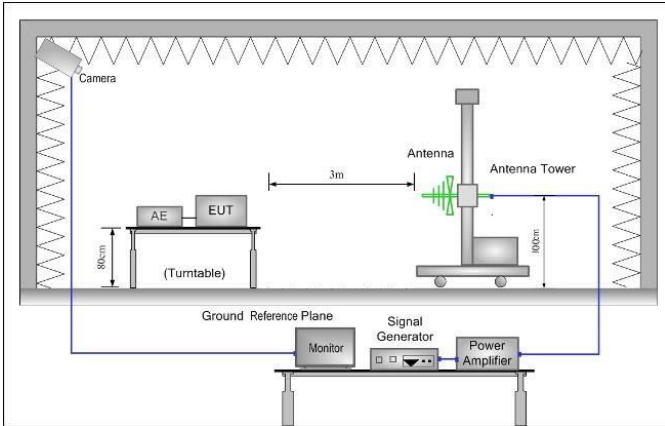
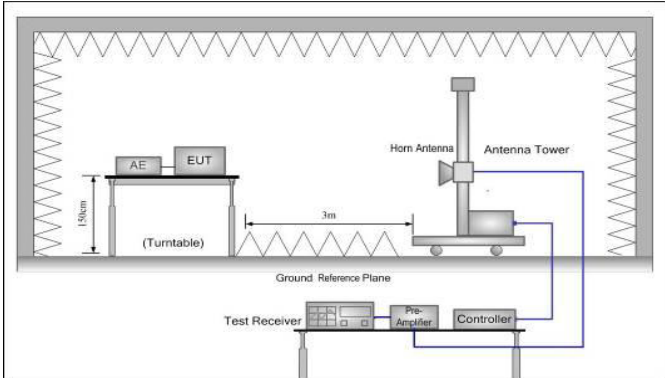
Band41-20MHz-16QAM-41140-1RB#99



Band41-20MHz-16QAM-41140-100RB#0



6.5 Field strength of spurious radiation measurement

<p>Test Requirement:</p>	<p>Part 22.917(a), Part 24.238 (a), Part 27.53(m), Part 27.53(h)</p>
<p>Limit:</p>	<p>LTE Band 2 & 4 & 5: 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). LTE Band 7 & 38 & 41: For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz.</p>
<p>Test setup:</p>	<p>Below 1GHz</p>  <p>Above 1GHz</p> 
<p>Test Procedure:</p>	<ol style="list-style-type: none"> 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

	<p>was determined using the substitution method.</p> <p>4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.</p> $\text{ERP / EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain(dB/dBi)} - \text{Cable Loss (dB)}$
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)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3701.40	-52.08	12.64	0.75	-40.19	-13.00	-27.19	Vertical
5552.10	-49.49	12.76	1.13	-37.86	-13.00	-24.86	Vertical
7402.00	-46.47	11.44	1.63	-36.66	-13.00	-23.66	Vertical
3701.40	-49.48	12.64	0.75	-37.59	-13.00	-24.59	Horizontal
5552.10	-48.63	12.76	1.13	-37.00	-13.00	-24.00	Horizontal
7402.00	-46.47	11.44	1.63	-36.66	-13.00	-23.66	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3760.00	-52.25	12.71	0.79	-40.33	-13.00	-27.33	Vertical
5640.00	-49.61	12.87	1.15	-37.89	-13.00	-24.89	Vertical
7520.00	-46.29	11.48	1.66	-36.47	-13.00	-23.47	Vertical
3760.00	-49.71	12.71	0.79	-37.79	-13.00	-24.79	Horizontal
5640.00	-48.73	12.87	1.15	-37.01	-13.00	-24.01	Horizontal
7520.00	-46.33	11.48	1.66	-36.51	-13.00	-23.51	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3816.60	-52.35	12.78	0.81	-40.38	-13.00	-27.38	Vertical
5724.90	-49.62	12.97	1.19	-37.84	-13.00	-24.84	Vertical
7633.20	-46.20	11.34	1.71	-36.57	-13.00	-23.57	Vertical
3816.60	-49.47	12.78	0.81	-37.50	-13.00	-24.50	Horizontal
5724.90	-48.95	12.97	1.19	-37.17	-13.00	-24.17	Horizontal
7633.20	-46.72	11.34	1.71	-37.09	-13.00	-24.09	Horizontal
<i>Remark:</i>							
<i>The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.</i>							

Band 2 (20MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3720.00	-52.42	12.66	0.77	-40.53	-13.00	-27.53	Vertical
5580.00	-50.04	12.80	1.15	-38.39	-13.00	-25.39	Vertical
7440.00	-45.90	11.46	1.64	-36.08	-13.00	-23.08	Vertical
3720.00	-49.90	12.66	0.77	-38.01	-13.00	-25.01	Horizontal
5580.00	-48.82	12.80	1.15	-37.17	-13.00	-24.17	Horizontal
7440.00	-47.43	11.46	1.64	-37.61	-13.00	-24.61	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3760.00	-52.01	12.71	0.79	-40.09	-13.00	-27.09	Vertical
5640.00	-49.88	12.87	1.15	-38.16	-13.00	-25.16	Vertical
7520.00	-45.74	11.48	1.66	-35.92	-13.00	-22.92	Vertical
3760.00	-50.06	12.71	0.79	-38.14	-13.00	-25.14	Horizontal
5640.00	-48.44	12.87	1.15	-36.72	-13.00	-23.72	Horizontal
7520.00	-47.00	11.48	1.66	-37.18	-13.00	-24.18	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3800.00	-51.95	12.76	0.79	-39.98	-13.00	-26.98	Vertical
5700.00	-49.76	12.94	1.18	-38.00	-13.00	-25.00	Vertical
7600.00	-45.90	11.38	1.69	-36.21	-13.00	-23.21	Vertical
3800.00	-49.83	12.76	0.79	-37.86	-13.00	-24.86	Horizontal
5700.00	-48.66	12.94	1.18	-36.90	-13.00	-23.90	Horizontal
7600.00	-47.17	11.38	1.69	-37.48	-13.00	-24.48	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)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3421.40	-59.83	12.24	0.70	-48.29	-13.00	-35.29	Vertical
5132.10	-55.83	12.92	1.01	-43.92	-13.00	-30.92	Vertical
6842.80	-49.01	11.42	1.53	-39.12	-13.00	-26.12	Vertical
3421.40	-58.15	12.24	0.70	-46.61	-13.00	-33.61	Horizontal
5132.10	-56.04	12.92	1.01	-44.13	-13.00	-31.13	Horizontal
6842.80	-49.08	11.42	1.53	-39.19	-13.00	-26.19	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3465.00	-59.77	12.33	0.72	-48.16	-13.00	-35.16	Vertical
5197.50	-55.41	12.88	1.04	-43.57	-13.00	-30.57	Vertical
6930.00	-48.84	11.30	1.56	-39.10	-13.00	-26.10	Vertical
3465.00	-58.22	12.33	0.72	-46.61	-13.00	-33.61	Horizontal
5197.50	-56.21	12.88	1.04	-44.37	-13.00	-31.37	Horizontal
6930.00	-49.42	11.30	1.56	-39.68	-13.00	-26.68	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3508.60	-59.90	12.41	0.74	-48.23	-13.00	-35.23	Vertical
5262.90	-55.13	12.84	1.07	-43.36	-13.00	-30.36	Vertical
7017.20	-48.87	11.21	1.58	-39.24	-13.00	-26.24	Vertical
3508.60	-58.08	12.41	0.74	-46.41	-13.00	-33.41	Horizontal
5262.90	-56.22	12.84	1.07	-44.45	-13.00	-31.45	Horizontal
7017.20	-48.81	11.21	1.58	-39.18	-13.00	-26.18	Horizontal
<i>Remark:</i>							
<i>The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.</i>							

Band 4 (20MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3440.00	-60.10	12.28	0.71	-48.53	-13.00	-35.53	Vertical
5160.00	-55.62	12.90	1.03	-43.75	-13.00	-30.75	Vertical
6880.00	-49.97	11.37	1.54	-40.14	-13.00	-27.14	Vertical
3440.00	-57.99	12.28	0.71	-46.42	-13.00	-33.42	Horizontal
5160.00	-56.01	12.90	1.03	-44.14	-13.00	-31.14	Horizontal
6880.00	-48.20	11.37	1.54	-38.37	-13.00	-25.37	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3465.00	-60.38	12.33	0.72	-48.77	-13.00	-35.77	Vertical
5197.50	-55.29	12.88	1.04	-43.45	-13.00	-30.45	Vertical
6930.00	-49.68	11.30	1.56	-39.94	-13.00	-26.94	Vertical
3465.00	-58.33	12.33	0.72	-46.72	-13.00	-33.72	Horizontal
5197.50	-56.04	12.88	1.04	-44.20	-13.00	-31.20	Horizontal
6930.00	-48.13	11.30	1.56	-38.39	-13.00	-25.39	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
3490.00	-60.36	12.38	0.73	-48.71	-13.00	-35.71	Vertical
5235.00	-54.85	12.86	1.06	-43.05	-13.00	-30.05	Vertical
6980.00	-49.19	11.23	1.57	-39.53	-13.00	-26.53	Vertical
3490.00	-58.54	12.38	0.73	-46.89	-13.00	-33.89	Horizontal
5235.00	-55.91	12.86	1.06	-44.11	-13.00	-31.11	Horizontal
6980.00	-48.48	11.23	1.57	-38.82	-13.00	-25.82	Horizontal
<i>Remark:</i>							
<i>The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.</i>							

Band 5 (1.4MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1649.40	-61.49	9.57	0.20	-52.12	-13.00	-39.12	Vertical
2474.10	-60.31	10.86	0.43	-49.88	-13.00	-36.88	Vertical
3298.80	-59.31	12.00	0.64	-47.95	-13.00	-34.95	Vertical
1649.40	-64.29	9.57	0.20	-54.92	-13.00	-41.92	Horizontal
2474.10	-63.24	10.86	0.43	-52.81	-13.00	-39.81	Horizontal
3298.80	-58.90	12.00	0.64	-47.54	-13.00	-34.54	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1673.30	-61.86	9.66	0.22	-52.42	-13.00	-39.42	Vertical
2509.50	-59.97	10.91	0.46	-49.52	-13.00	-36.52	Vertical
3346.00	-59.25	12.09	0.66	-47.82	-13.00	-34.82	Vertical
1673.30	-64.83	9.66	0.22	-55.39	-13.00	-42.39	Horizontal
2509.50	-62.90	10.91	0.46	-52.45	-13.00	-39.45	Horizontal
3346.00	-58.79	12.09	0.66	-47.36	-13.00	-34.36	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1696.60	-61.71	9.74	0.23	-52.20	-13.00	-39.20	Vertical
2544.90	-60.12	10.94	0.49	-49.67	-13.00	-36.67	Vertical
3393.20	-59.82	12.19	0.68	-48.31	-13.00	-35.31	Vertical
1696.60	-65.39	9.74	0.23	-55.88	-13.00	-42.88	Horizontal
2544.90	-63.26	10.94	0.49	-52.81	-13.00	-39.81	Horizontal
3393.20	-58.49	12.19	0.68	-46.98	-13.00	-33.98	Horizontal
<p><i>Remark:</i> The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.</p>							

Band 5 (10MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1658.00	-62.12	9.60	0.21	-52.73	-13.00	-39.73	Vertical
2487.00	-60.76	10.88	0.45	-50.33	-13.00	-37.33	Vertical
3316.00	-59.28	12.03	0.65	-47.90	-13.00	-34.90	Vertical
1658.00	-65.32	9.60	0.21	-55.93	-13.00	-42.93	Horizontal
2487.00	-62.59	10.88	0.45	-52.16	-13.00	-39.16	Horizontal
3316.00	-58.01	12.03	0.65	-46.63	-13.00	-33.63	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1673.30	-61.82	9.66	0.21	-52.37	-13.00	-39.37	Vertical
2509.50	-60.37	10.91	0.46	-49.92	-13.00	-36.92	Vertical
3346.00	-58.98	12.09	0.66	-47.55	-13.00	-34.55	Vertical
1673.30	-65.33	9.66	0.21	-55.88	-13.00	-42.88	Horizontal
2509.50	-62.98	10.91	0.46	-52.53	-13.00	-39.53	Horizontal
3346.00	-58.45	12.09	0.66	-47.02	-13.00	-34.02	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
1688.00	-62.06	9.71	0.23	-52.58	-13.00	-39.58	Vertical
2532.00	-60.08	10.93	0.48	-49.63	-13.00	-36.63	Vertical
3376.00	-59.51	12.15	0.67	-48.03	-13.00	-35.03	Vertical
1688.00	-65.79	9.71	0.23	-56.31	-13.00	-43.31	Horizontal
2532.00	-63.04	10.93	0.48	-52.59	-13.00	-39.59	Horizontal
3376.00	-58.92	12.15	0.67	-47.44	-13.00	-34.44	Horizontal
Remark: The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.							

LTE Band 7 part:

Band 7 (5MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5005.00	-57.31	13.00	0.94	-45.25	-25.00	-20.25	Vertical
7507.50	-48.81	11.49	1.65	-38.97	-25.00	-13.97	Vertical
10010.00	-43.03	11.69	1.91	-33.25	-25.00	-8.25	Vertical
5005.00	-55.64	13.00	0.94	-43.58	-25.00	-18.58	Horizontal
7507.50	-46.32	11.49	1.65	-36.48	-25.00	-11.48	Horizontal
10010.00	-42.79	11.69	1.91	-33.01	-25.00	-8.01	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5070.00	-56.94	12.96	0.98	-44.96	-25.00	-19.96	Vertical
7605.00	-48.19	11.37	1.69	-38.51	-25.00	-13.51	Vertical
10140.00	-42.69	11.62	1.94	-33.01	-25.00	-8.01	Vertical
5070.00	-55.91	12.96	0.98	-43.93	-25.00	-18.93	Horizontal
7605.00	-45.69	11.37	1.69	-36.01	-25.00	-11.01	Horizontal
10140.00	-42.40	11.62	1.94	-32.72	-25.00	-7.72	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5135.00	-57.08	12.92	1.01	-45.17	-25.00	-20.17	Vertical
7702.50	-48.06	11.26	1.72	-38.52	-25.00	-13.52	Vertical
10270.00	-42.11	11.54	1.95	-32.52	-25.00	-7.52	Vertical
5135.00	-56.09	12.92	1.01	-44.18	-25.00	-19.18	Horizontal
7702.50	-46.05	11.26	1.72	-36.51	-25.00	-11.51	Horizontal
10270.00	-42.07	11.54	1.95	-32.48	-25.00	-7.48	Horizontal
Remark: The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.							

Band 7 (20MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5020.00	-56.35	12.99	0.97	-44.33	-25.00	-19.33	Vertical
7530.00	-49.00	11.46	1.68	-39.22	-25.00	-14.22	Vertical
10040.00	-42.05	11.68	1.94	-32.31	-25.00	-7.31	Vertical
5020.00	-56.71	12.99	0.97	-44.69	-25.00	-19.69	Horizontal
7530.00	-46.71	11.46	1.68	-36.93	-25.00	-11.93	Horizontal
10040.00	-41.30	11.68	1.94	-31.56	-25.00	-6.56	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5070.00	-56.36	12.96	0.98	-44.38	-25.00	-19.38	Vertical
7605.00	-48.90	11.37	1.69	-39.22	-25.00	-14.22	Vertical
10140.00	-42.15	11.62	1.94	-32.47	-25.00	-7.47	Vertical
5070.00	-56.25	12.96	0.98	-44.27	-25.00	-19.27	Horizontal
7605.00	-46.68	11.37	1.69	-37.00	-25.00	-12.00	Horizontal
10140.00	-41.43	11.62	1.94	-31.75	-25.00	-6.75	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5120.00	-56.80	12.93	1.00	-44.87	-25.00	-19.87	Vertical
7680.00	-48.34	11.28	1.72	-38.78	-25.00	-13.78	Vertical
10240.00	-42.14	11.56	1.95	-32.53	-25.00	-7.53	Vertical
5120.00	-55.86	12.93	1.00	-43.93	-25.00	-18.93	Horizontal
7680.00	-46.17	11.28	1.72	-36.61	-25.00	-11.61	Horizontal
10240.00	-41.84	11.56	1.95	-32.23	-25.00	-7.23	Horizontal
<i>Remark:</i>							
<i>The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.</i>							

LTE Band 38 part:

Band 38 (5MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5145.00	-55.22	13.01	0.94	-43.15	-25.00	-18.15	Vertical
7717.50	-45.72	11.51	1.65	-35.86	-25.00	-10.86	Vertical
10290.00	-43.06	11.71	1.91	-33.26	-25.00	-8.26	Vertical
5145.00	-54.78	13.02	0.94	-42.70	-25.00	-17.70	Horizontal
7717.50	-45.82	11.52	1.65	-35.95	-25.00	-10.95	Horizontal
10290.00	-42.45	11.71	1.91	-32.65	-25.00	-7.65	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5190.00	-55.24	12.90	1.05	-43.39	-25.00	-18.39	Vertical
7785.00	-45.46	11.18	1.74	-36.02	-25.00	-11.02	Vertical
10380.00	-42.72	11.49	1.98	-33.21	-25.00	-8.21	Vertical
5190.00	-54.90	12.90	1.05	-43.05	-25.00	-18.05	Horizontal
7785.00	-45.55	11.18	1.74	-36.11	-25.00	-11.11	Horizontal
10380.00	-42.14	11.49	1.98	-32.63	-25.00	-7.63	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5235.00	-54.90	12.77	1.09	-43.22	-25.00	-18.22	Vertical
7852.50	-45.55	10.91	1.79	-36.43	-25.00	-11.43	Vertical
10470.00	-42.63	11.24	1.98	-33.37	-25.00	-8.37	Vertical
5235.00	-53.60	11.77	1.09	-42.92	-25.00	-17.92	Horizontal
7852.50	-45.45	10.91	1.80	-36.34	-25.00	-11.34	Horizontal
10470.00	-41.79	11.24	1.98	-32.53	-25.00	-7.53	Horizontal
<i>Remark:</i>							
<i>The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.</i>							

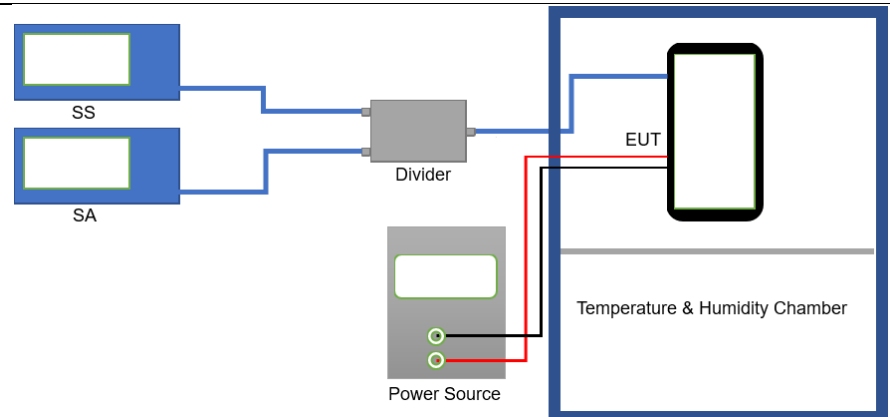
Band 38 (20MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5160.00	-55.11	13.00	0.96	-43.07	-25.00	-18.07	Vertical
7740.00	-46.01	11.49	1.67	-36.19	-25.00	-11.19	Vertical
10320.00	-43.40	11.70	1.93	-33.63	-25.00	-8.63	Vertical
5160.00	-55.45	13.00	0.96	-43.41	-25.00	-18.41	Horizontal
7740.00	-45.70	11.49	1.67	-35.88	-25.00	-10.88	Horizontal
10320.00	-41.94	11.70	1.93	-32.17	-25.00	-7.17	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5190.00	-54.54	12.90	1.05	-42.69	-25.00	-17.69	Vertical
7785.00	-46.03	11.18	1.74	-36.59	-25.00	-11.59	Vertical
10380.00	-43.48	11.49	1.98	-33.97	-25.00	-8.97	Vertical
5190.00	-55.30	12.90	1.05	-43.45	-25.00	-18.45	Horizontal
7785.00	-45.21	11.18	1.74	-35.77	-25.00	-10.77	Horizontal
10380.00	-41.55	11.49	1.98	-32.04	-25.00	-7.04	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5220.00	-54.22	12.77	1.09	-42.54	-25.00	-17.54	Vertical
7830.00	-45.38	10.90	1.78	-36.26	-25.00	-11.26	Vertical
10440.00	-43.02	11.26	1.98	-33.74	-25.00	-8.74	Vertical
5220.00	-54.50	11.77	1.09	-43.82	-25.00	-18.82	Horizontal
7830.00	-44.96	10.90	1.78	-35.84	-25.00	-10.84	Horizontal
10440.00	-41.04	11.26	1.98	-31.76	-25.00	-6.76	Horizontal
<i>Remark:</i>							
<i>The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.</i>							

LTE Band 41 part:

Band 41 (5MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5075.00	-55.10	13.00	0.94	-43.04	-25.00	-18.04	Vertical
7612.50	-45.72	11.50	1.65	-35.87	-25.00	-10.87	Vertical
10150.00	-42.72	11.70	1.91	-32.93	-25.00	-7.93	Vertical
5075.00	-55.08	13.00	0.94	-43.02	-25.00	-18.02	Horizontal
7612.50	-46.24	11.50	1.65	-36.39	-25.00	-11.39	Horizontal
10150.00	-42.24	11.70	1.91	-32.45	-25.00	-7.45	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5190.00	-55.10	12.89	1.04	-43.25	-25.00	-18.25	Vertical
7785.00	-45.45	11.17	1.73	-36.01	-25.00	-11.01	Vertical
10380.00	-42.05	11.48	1.97	-32.54	-25.00	-7.54	Vertical
5190.00	-54.87	12.89	1.04	-43.02	-25.00	-18.02	Horizontal
7785.00	-45.65	11.17	1.73	-36.21	-25.00	-11.21	Horizontal
10380.00	-42.43	11.48	1.97	-32.92	-25.00	-7.92	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5125.00	-54.85	12.78	1.11	-43.18	-25.00	-18.18	Vertical
7687.50	-44.91	10.92	1.82	-35.81	-25.00	-10.81	Vertical
10250.00	-42.44	11.25	2.00	-33.19	-25.00	-8.19	Vertical
5125.00	-55.01	12.78	1.11	-43.34	-25.00	-18.34	Horizontal
7687.50	-45.07	10.92	1.82	-35.97	-25.00	-10.97	Horizontal
10250.00	-41.80	11.25	2.00	-32.55	-25.00	-7.55	Horizontal
Remark: The emission levels of below 1 GHz are lower than the limit 20dB and not show in test report.							

Band 17 (10MHz)							
Lowest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5090.00	-55.62	12.99	0.95	-43.58	-25.00	-18.58	Vertical
7635.00	-45.59	11.48	1.66	-35.77	-25.00	-10.77	Vertical
10180.00	-42.67	11.69	1.92	-32.90	-25.00	-7.90	Vertical
5090.00	-55.82	12.99	0.95	-43.78	-25.00	-18.78	Horizontal
7635.00	-45.59	11.48	1.66	-35.77	-25.00	-10.77	Horizontal
10180.00	-42.77	11.69	1.92	-33.00	-25.00	-8.00	Horizontal
Middle channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5190.00	-55.52	12.89	1.04	-43.67	-25.00	-18.67	Vertical
7785.00	-45.21	11.17	1.73	-35.77	-25.00	-10.77	Vertical
10380.00	-42.90	11.48	1.97	-33.39	-25.00	-8.39	Vertical
5190.00	-55.35	12.89	1.04	-43.50	-25.00	-18.50	Horizontal
7785.00	-44.98	11.17	1.73	-35.54	-25.00	-10.54	Horizontal
10380.00	-42.67	11.48	1.97	-33.16	-25.00	-8.16	Horizontal
Highest channel							
Frequency (MHz)	Level at antenna terminals (dBm)	Substitute antenna gain (dBi)	Cable Loss (dBi)	Spurious Emission level (dBm)	Limit Line (dBm)	Over Limit (dBm)	Polarization
5290.00	-55.00	12.78	1.10	-43.32	-25.00	-18.32	Vertical
7935.00	-44.61	10.91	1.79	-35.49	-25.00	-10.49	Vertical
10580.00	-42.95	11.27	1.99	-33.67	-25.00	-8.67	Vertical
5290.00	-55.21	12.78	1.10	-43.53	-25.00	-18.53	Horizontal
7935.00	-45.03	10.91	1.79	-35.91	-25.00	-10.91	Horizontal
10580.00	-42.70	11.27	1.99	-33.42	-25.00	-8.42	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 & 7 & 38 & 41
Test setup:	
Test procedure:	<ol style="list-style-type: none"> 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°C operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C 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 (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	170	0.090426	Within authorized band for Band 2	Pass
	-20	160	0.085106		
	-10	153	0.081383		
	0	145	0.077128		
	10	136	0.072340		
	20	121	0.064362		
	30	116	0.061702		
	40	107	0.056915		
	50	130	0.069149		
16QAM					
3.80	-30	167	0.088830	Within authorized band for Band 2	Pass
	-20	159	0.084574		
	-10	154	0.081915		
	0	143	0.076064		
	10	136	0.072340		
	20	130	0.069149		
	30	124	0.065957		
	40	116	0.061702		
	50	105	0.055851		

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 (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	173	0.099856	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	157	0.090620		
	0	150	0.086580		
	10	143	0.082540		
	20	134	0.077345		
	30	125	0.072150		
	40	118	0.068110		
	50	109	0.062915		

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 (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	168	0.200837	±2.5	Pass
	-20	156	0.186491		
	-10	149	0.178123		
	0	127	0.151823		
	10	121	0.144650		
	20	113	0.135087		
	30	162	0.193664		
	40	142	0.169755		
	50	135	0.161387		
16QAM					
3.80	-30	166	0.198446	±2.5	Pass
	-20	159	0.190078		
	-10	153	0.182905		
	0	146	0.174537		
	10	139	0.166169		
	20	134	0.160191		
	30	127	0.151823		
	40	121	0.144650		
	50	111	0.132696		

Note: Only the worst case shown in the report.

LTE Band 7 part:

Reference Frequency: LTE Band 7 (10MHz) Middle channel=21100 Frequency=2535.00MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	173	0.068245	Within authorized band for Band 7	Pass
	-20	167	0.065878		
	-10	159	0.062722		
	0	130	0.051282		
	10	124	0.048915		
	20	113	0.044576		
	30	153	0.060355		
	40	144	0.056805		
	50	136	0.053649		
16QAM					
3.80	-30	170	0.067061	Within authorized band for Band 7	Pass
	-20	160	0.063116		
	-10	154	0.060750		
	0	144	0.056805		
	10	136	0.053649		
	20	130	0.051282		
	30	124	0.048915		
	40	119	0.046943		
	50	112	0.044181		

Note: Only the worst case shown in the report.

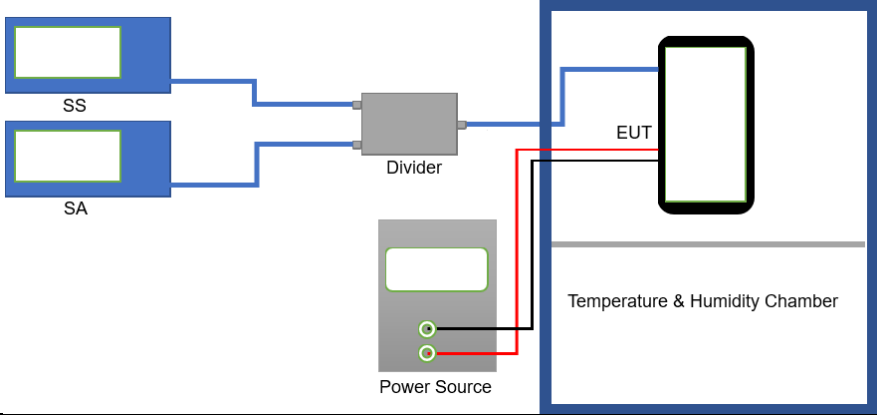
LTE Band 38 part:

Reference Frequency: LTE Band 38 (10MHz) Middle channel=38000 channel=2595.00MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	176	0.067823	Within authorized band for Band 12	Pass
	-20	155	0.059730		
	-10	136	0.052408		
	0	125	0.048170		
	10	114	0.043931		
	20	142	0.054721		
	30	139	0.053565		
	40	128	0.049326		
	50	163	0.062813		
16QAM					
3.87	-30	179	0.068979	Within authorized band for Band 12	Pass
	-20	156	0.060116		
	-10	142	0.054721		
	0	130	0.050096		
	10	126	0.048555		
	20	117	0.045087		
	30	108	0.041618		
	40	150	0.057803		
	50	168	0.064740		
Note: Only the worst case shown in the report.					

LTE Band 41 part:

Reference Frequency: LTE Band 41 (5MHz)Middle channel=40740 channel=2605.0MHz					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	170	0.065259	±2.5	Pass
	-20	142	0.054511		
	-10	135	0.051823		
	0	122	0.046833		
	10	108	0.041459		
	20	155	0.059501		
	30	162	0.062188		
	40	139	0.053359		
	50	148	0.056814		
16QAM					
3.87	-30	181	0.069482	±2.5	Pass
	-20	174	0.066795		
	-10	120	0.046065		
	0	166	0.063724		
	10	141	0.054127		
	20	127	0.048752		
	30	148	0.056814		
	40	136	0.052207		
	50	152	0.058349		
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 & 7 & 38 & 41
Test setup:	
Test procedure:	<ol style="list-style-type: none"> 1. Set chamber temperature to 25°C. 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 (°C)	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	70	0.037234		
	3.50	50	0.026596		
16QAM					
25	4.35	75	0.039894	Within authorized band for Band 2	Pass
	3.80	65	0.034574		
	3.50	59	0.031383		

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 (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.35	80	0.046176	Within authorized band for Band 4	Pass
	3.80	71	0.040981		
	3.50	58	0.033478		
16QAM					
25	4.35	79	0.045599	Within authorized band for Band 4	Pass
	3.80	61	0.035209		
	3.50	54	0.031169		

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 (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.35	82	0.098027	±2.5	Pass
	3.80	70	0.083682		
	3.50	63	0.075314		
16QAM					
25	4.35	80	0.095637	±2.5	Pass
	3.80	73	0.087268		
	3.50	61	0.072923		

Note: Only the worst case shown in the report.

LTE Band 7 part:

Reference Frequency: LTE Band 7(10MHz) Middle channel=21100 Frequency=2535.00MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.35	83	0.032742	Within authorized band for Band 7	Pass
	3.80	70	0.027613		
	3.50	57	0.022485		
16QAM					
25	4.35	80	0.031558	Within authorized band for Band 7	Pass
	3.80	69	0.027219		
	3.50	54	0.021302		

Note: Only the worst case shown in the report.

LTE Band 38 part:

Reference Frequency: LTE Band 38(10MHz) Middle channel=38000 channel=2595.00MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.40	88	0.033911	±2.5	Pass
	3.85	78	0.030058		
	3.55	68	0.026204		
16QAM					
25	4.40	90	0.034682	±2.5	Pass
	3.85	69	0.026590		
	3.55	81	0.031214		

Note: Only the worst case shown in the report.

LTE Band 41 part:

Reference Frequency: LTE Band 41 (10MHz) Middle channel=40740 channel=2605.0MHz					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	4.40	80	0.030710	±2.5	Pass
	3.85	73	0.028023		
	3.55	57	0.021881		
16QAM					
25	4.40	85	0.032630	±2.5	Pass
	3.85	74	0.028407		
	3.55	53	0.020345		
Note: Only the worst case shown in the report.					