

4.5.4 Test Results

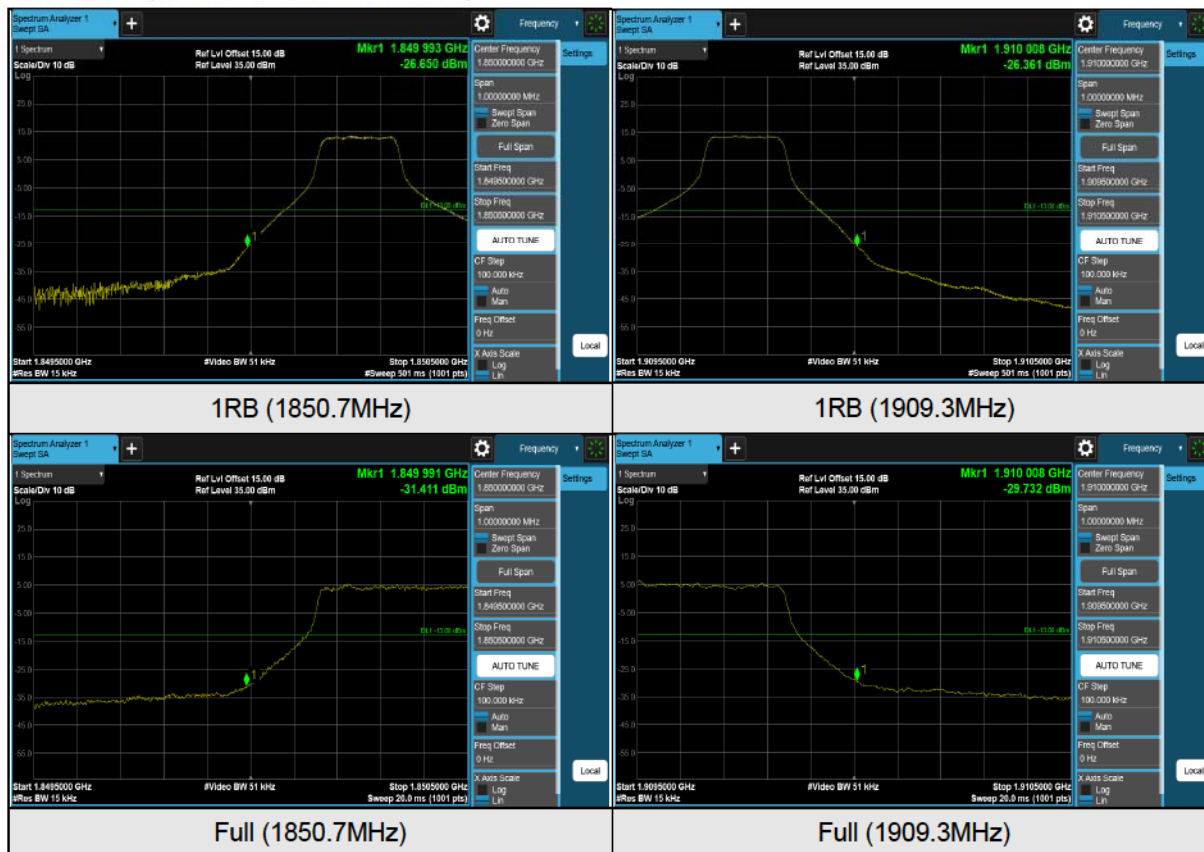
GPRS



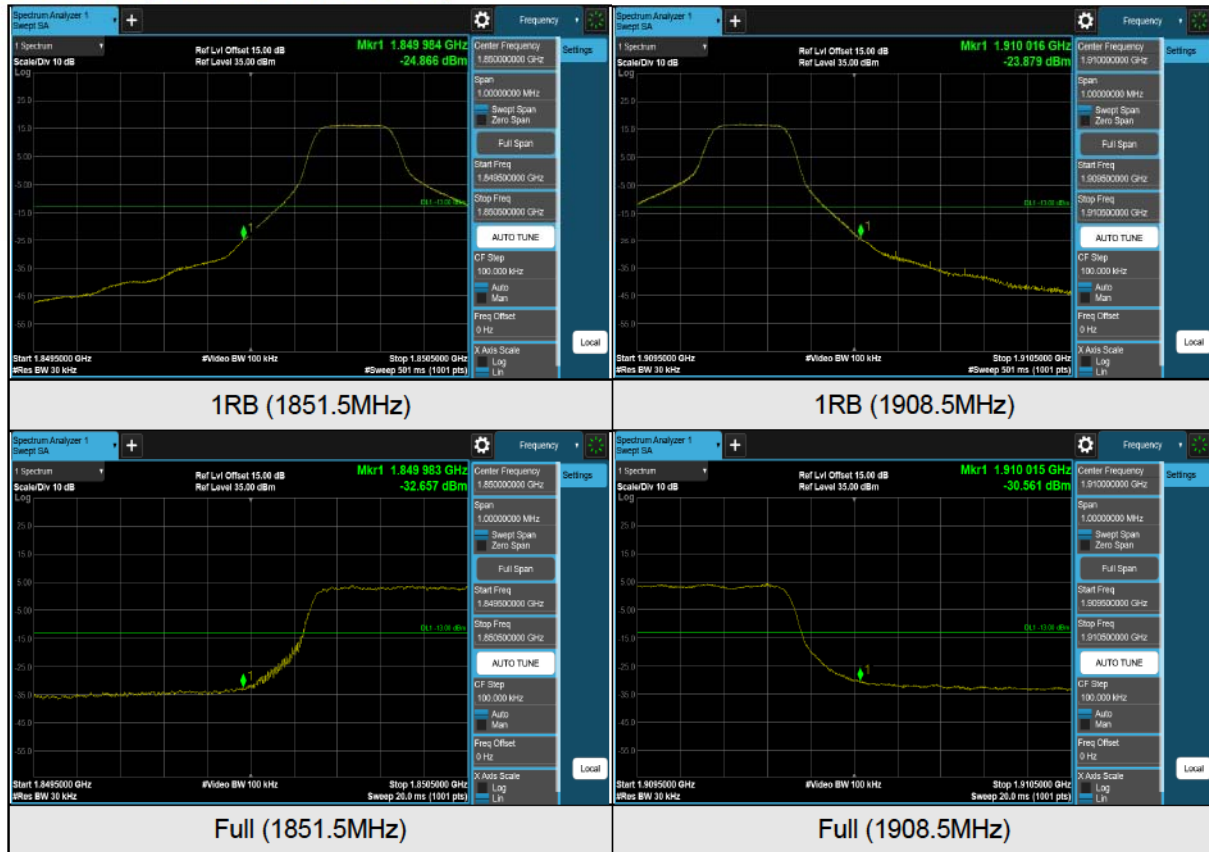
EDGE



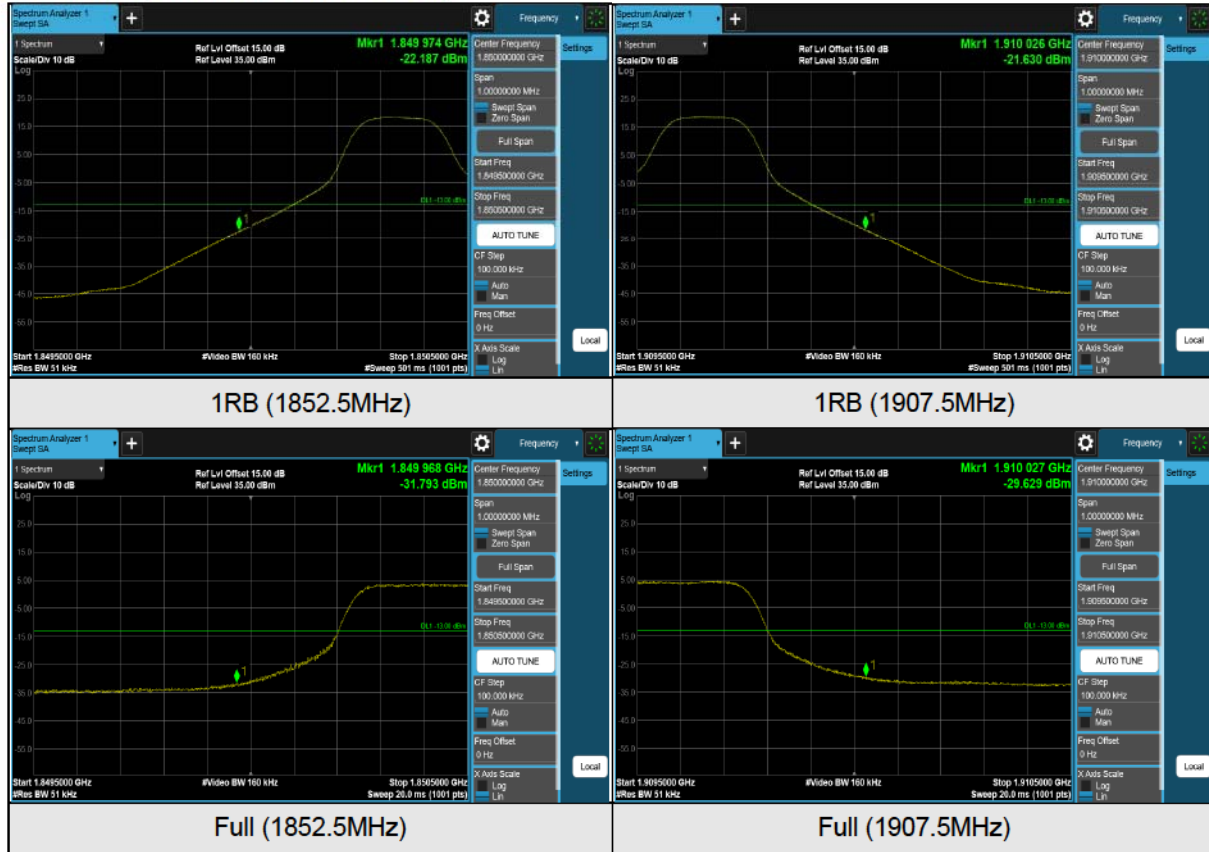
LTE Band 2 (Channel Bandwidth 1.4MHz)



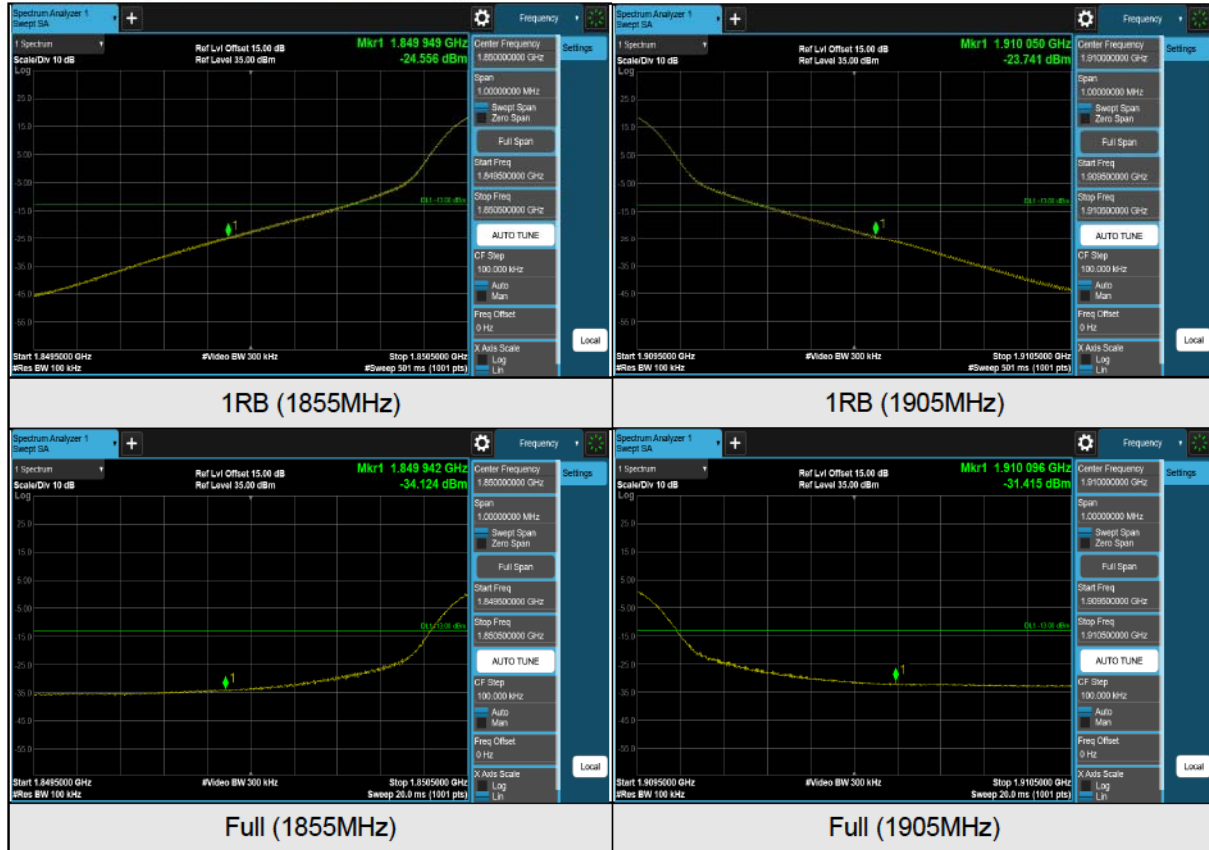
LTE Band 2 (Channel Bandwidth 3MHz)



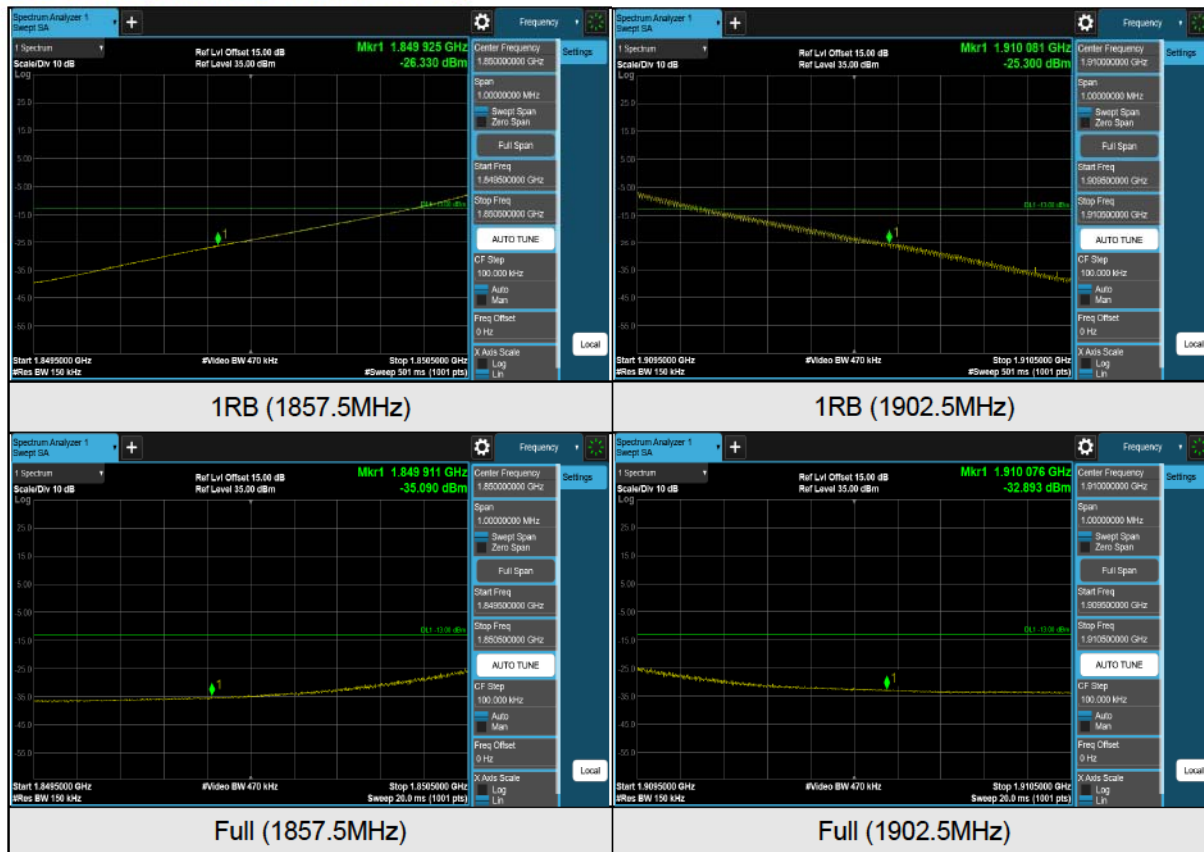
LTE Band 2 (Channel Bandwidth 5MHz)



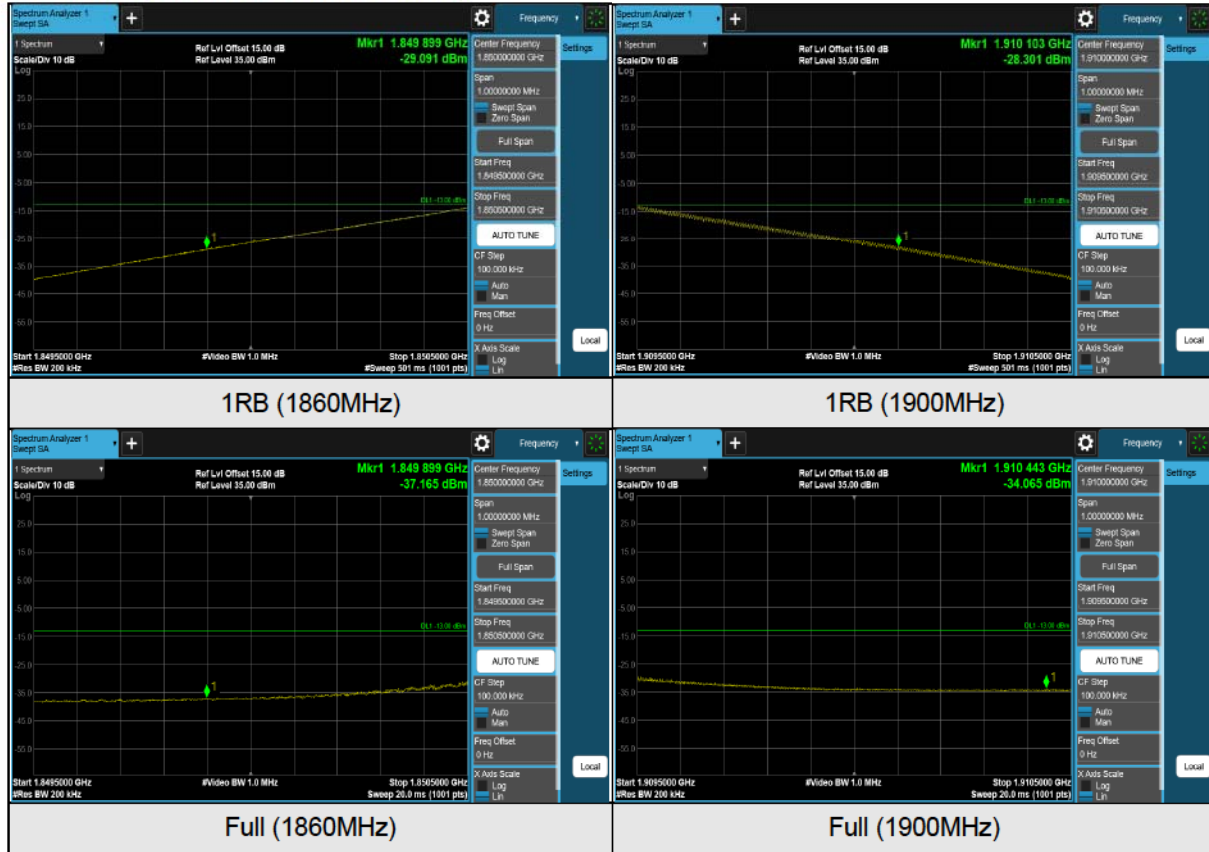
LTE Band 2 (Channel Bandwidth 10MHz)



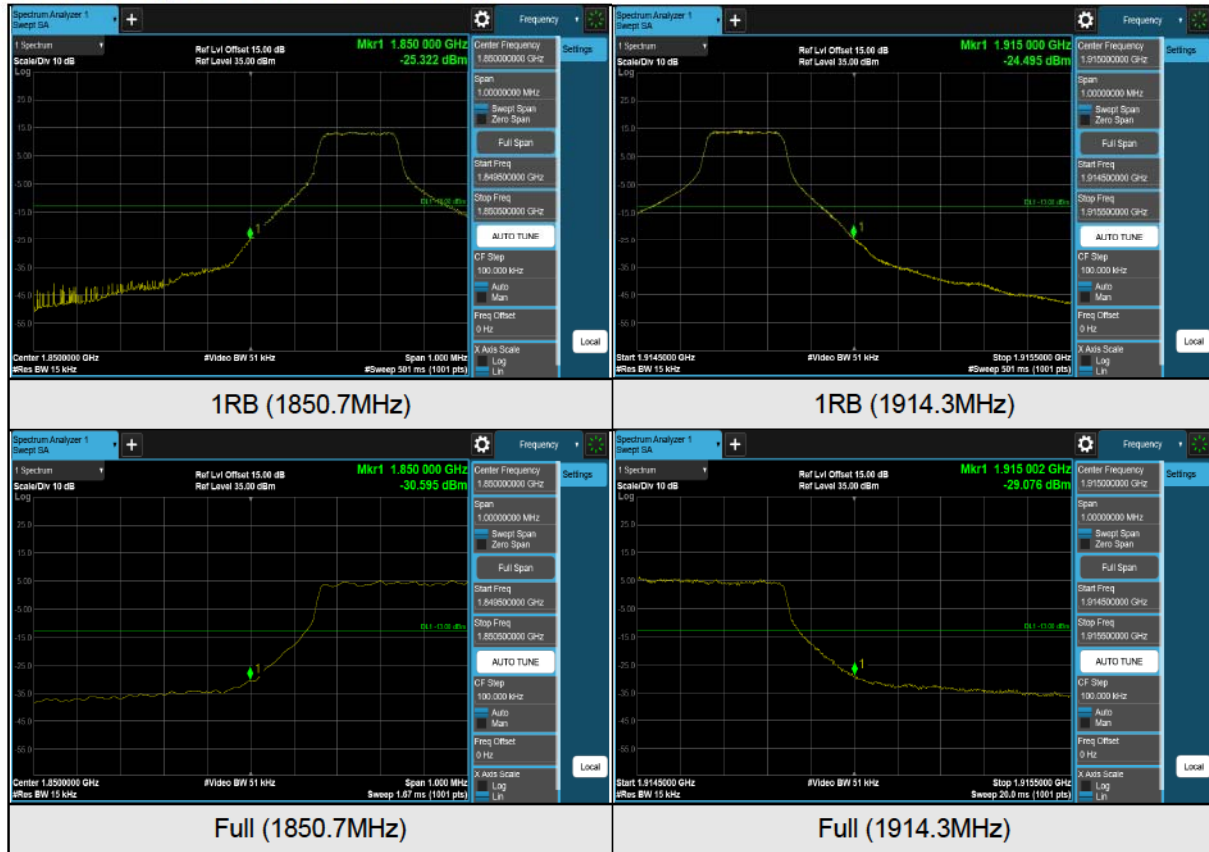
LTE Band 2 (Channel Bandwidth 15MHz)



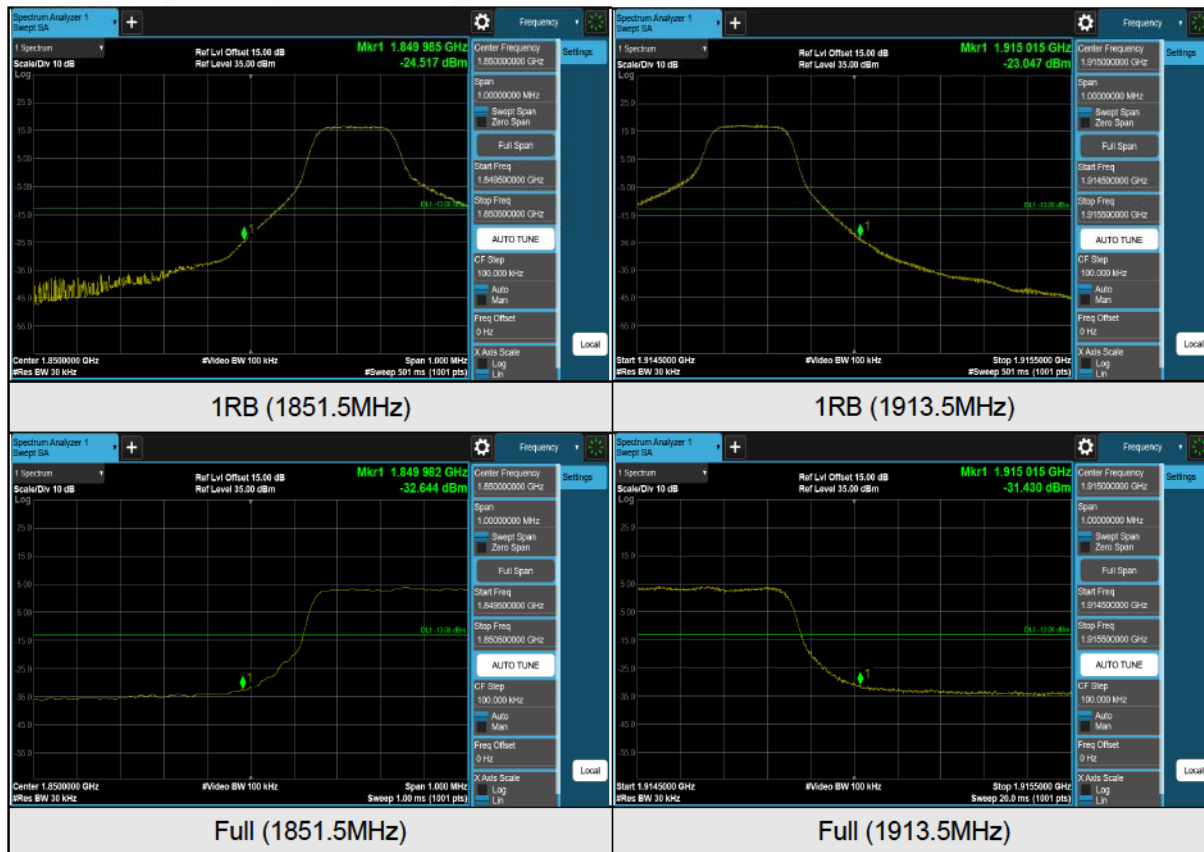
LTE Band 2 (Channel Bandwidth 20MHz)



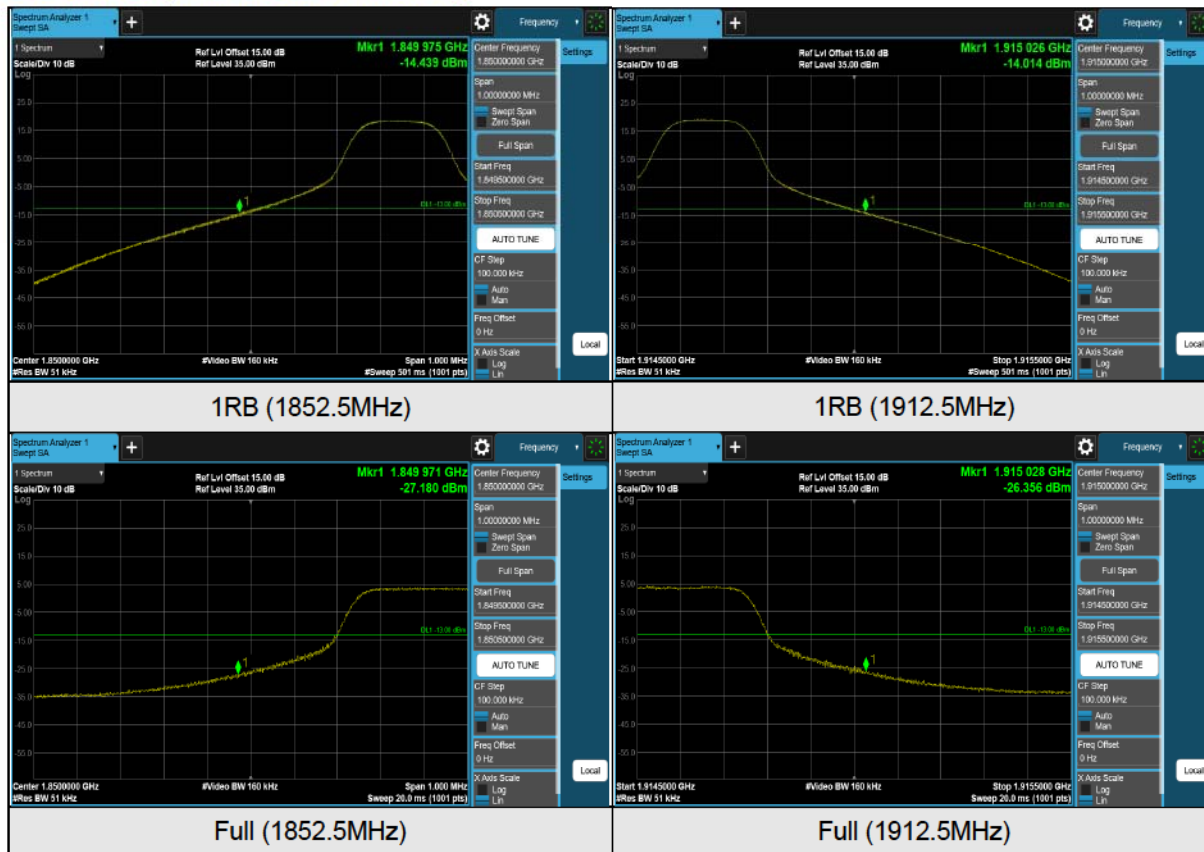
LTE Band 25 (Channel Bandwidth 1.4MHz)



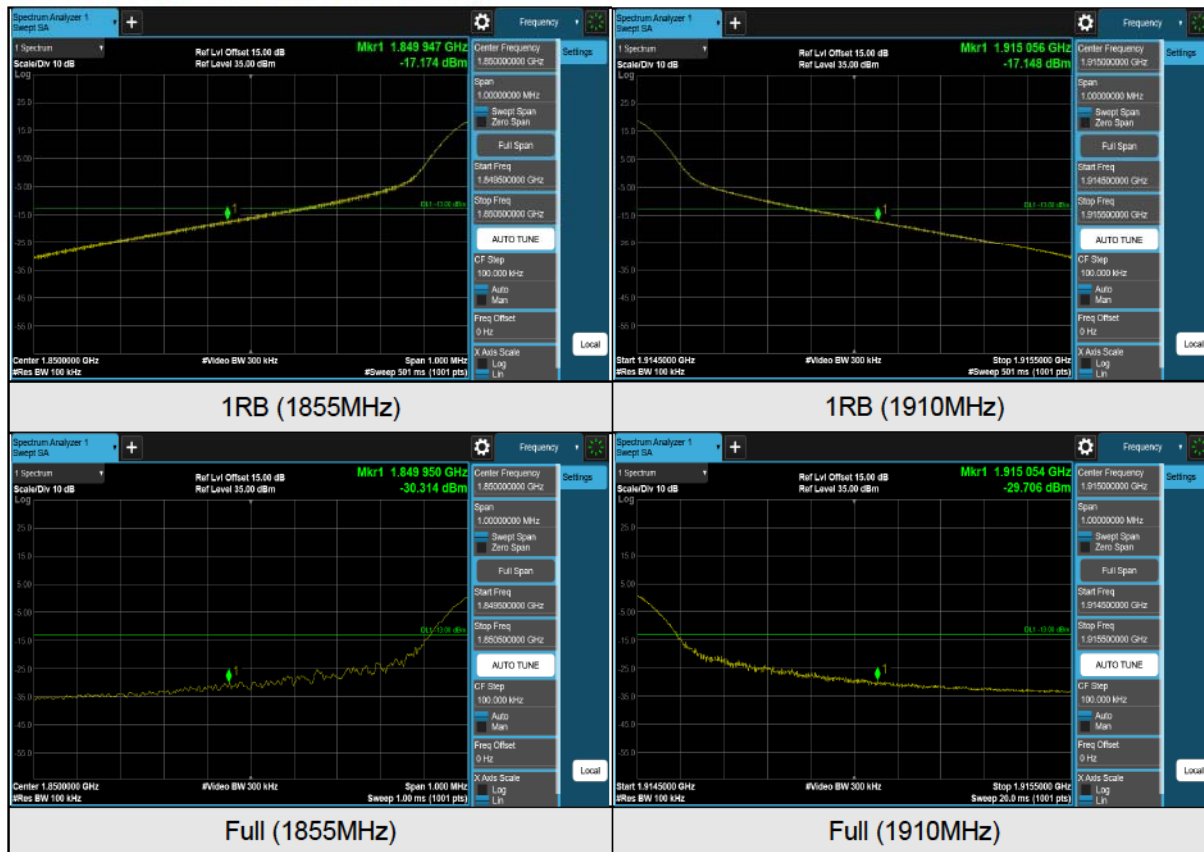
LTE Band 25 (Channel Bandwidth 3MHz)



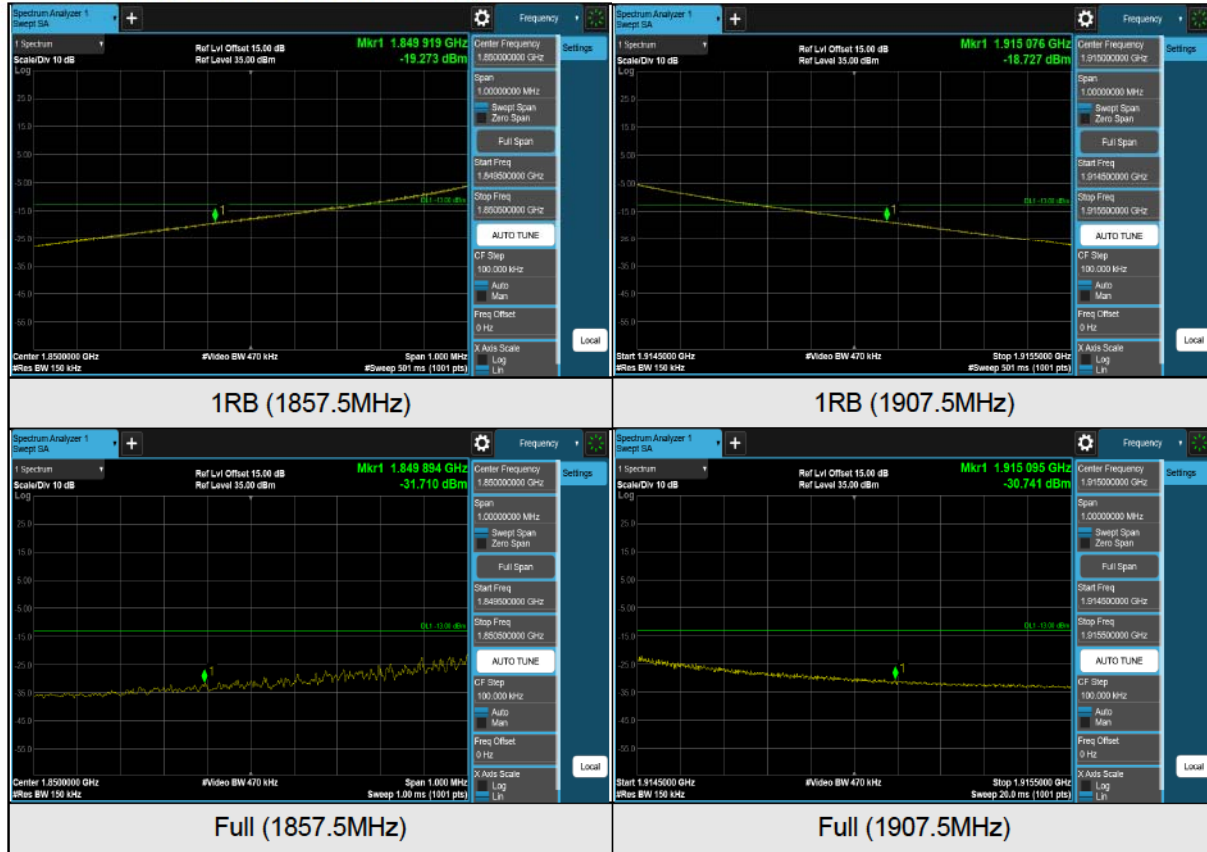
LTE Band 25 (Channel Bandwidth 5MHz)



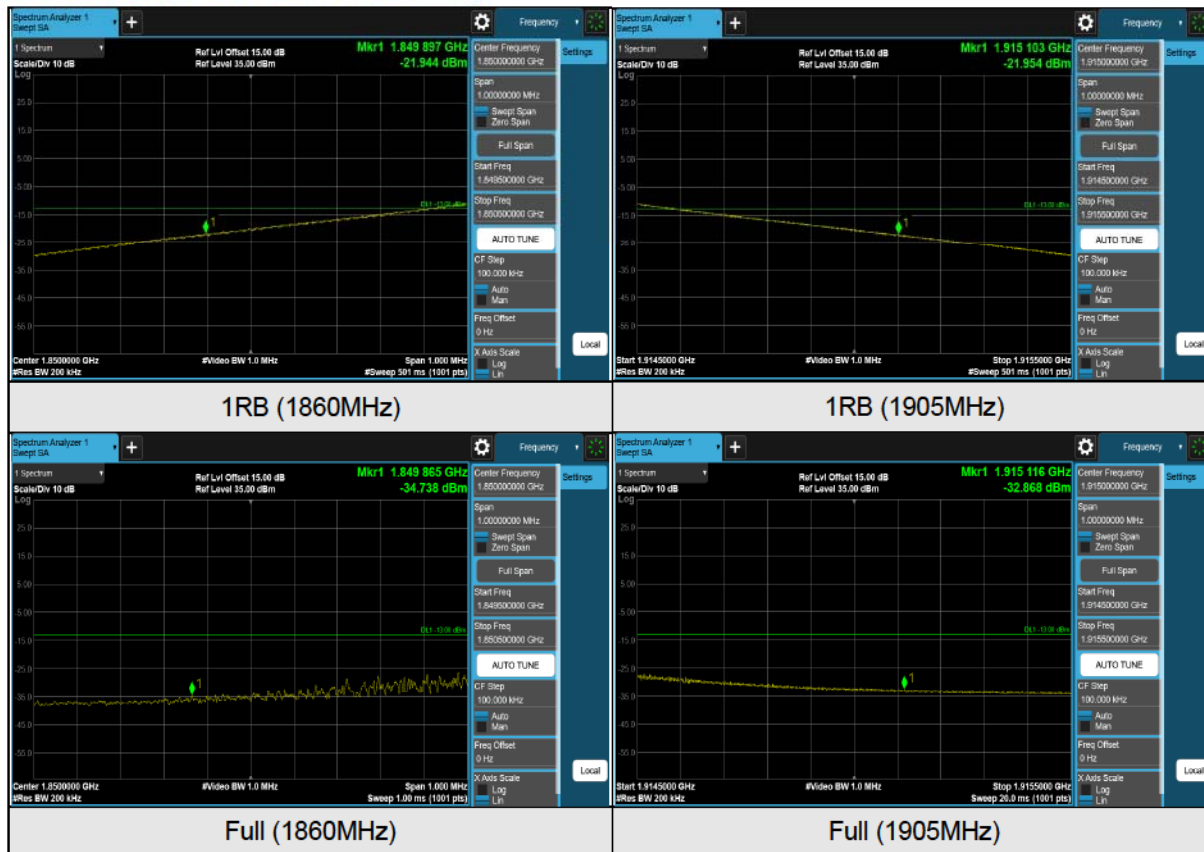
LTE Band 25 (Channel Bandwidth 10MHz)



LTE Band 25 (Channel Bandwidth 15MHz)



LTE Band 25 (Channel Bandwidth 20MHz)

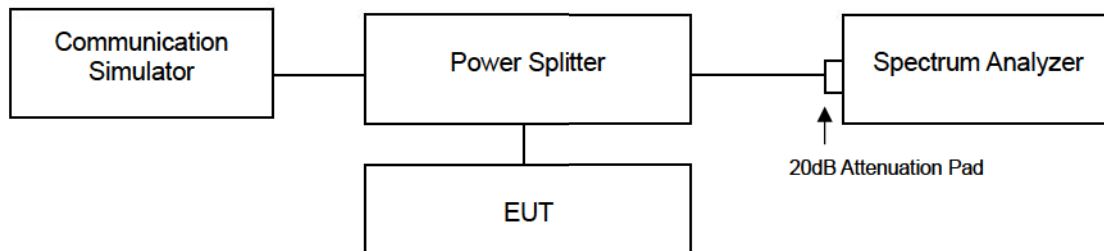


4.6 Peak to Average Ratio

4.6.1 Limits of Peak to Average Ratio Measurement

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

4.6.2 Test Setup



4.6.3 Test Procedures

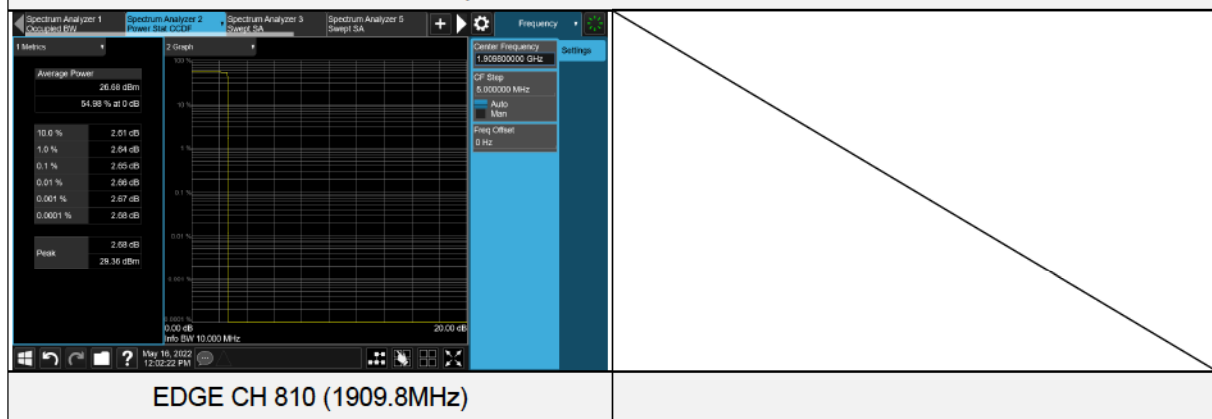
- Set resolution/measurement bandwidth \geq signal's occupied bandwidth;
- Set the number of counts to a value that stabilizes the measured CCDF curve;
- Record the maximum PAPR level associated with a probability of 0.1%.

4.6.4 Test Results

GPRS, EDGE

Test Condition	Channel	Frequency (MHz)	Measure. Value (dB)	Limit (dB)	Result
GPRS	512	1850.2	2.63	13	Pass
GPRS	661	1880	2.64	13	Pass
GPRS	810	1909.8	2.65	13	Pass
EDGE	512	1850.2	2.63	13	Pass
EDGE	661	1880	2.63	13	Pass
EDGE	810	1909.8	2.65	13	Pass

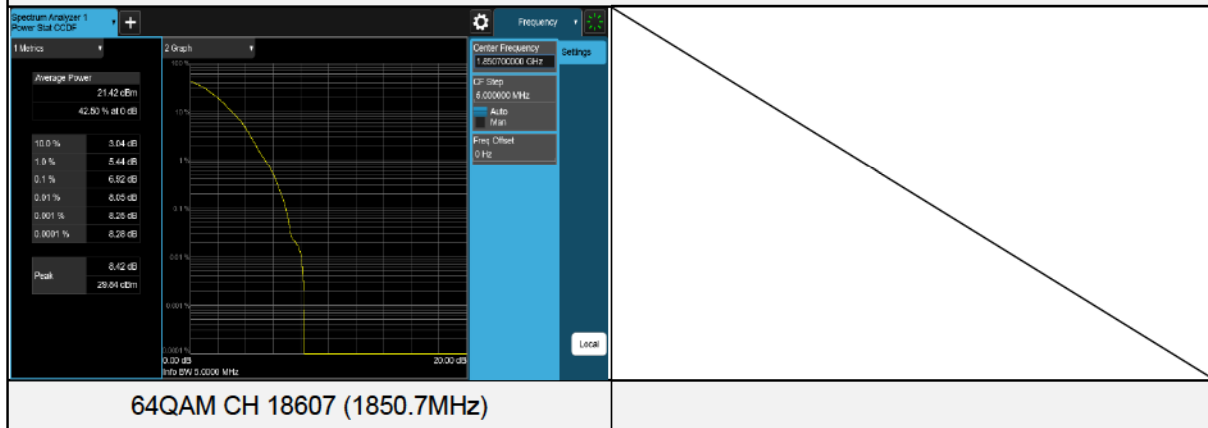
Spectrum Plot of Worst Value



LTE Band 2 (Channel Bandwidth 1.4MHz)

Test Condition	Channel	Frequency (MHz)	Measure. Value (dB)	Limit (dB)	Result
QPSK	18607	1850.7	5.69	13	Pass
QPSK	18900	1880	5.39	13	Pass
QPSK	19193	1909.3	5.46	13	Pass
16QAM	18607	1850.7	6.91	13	Pass
16QAM	18900	1880	6.68	13	Pass
16QAM	19193	1909.3	6.73	13	Pass
64QAM	18607	1850.7	6.92	13	Pass
64QAM	18900	1880	6.70	13	Pass
64QAM	19193	1909.3	6.83	13	Pass

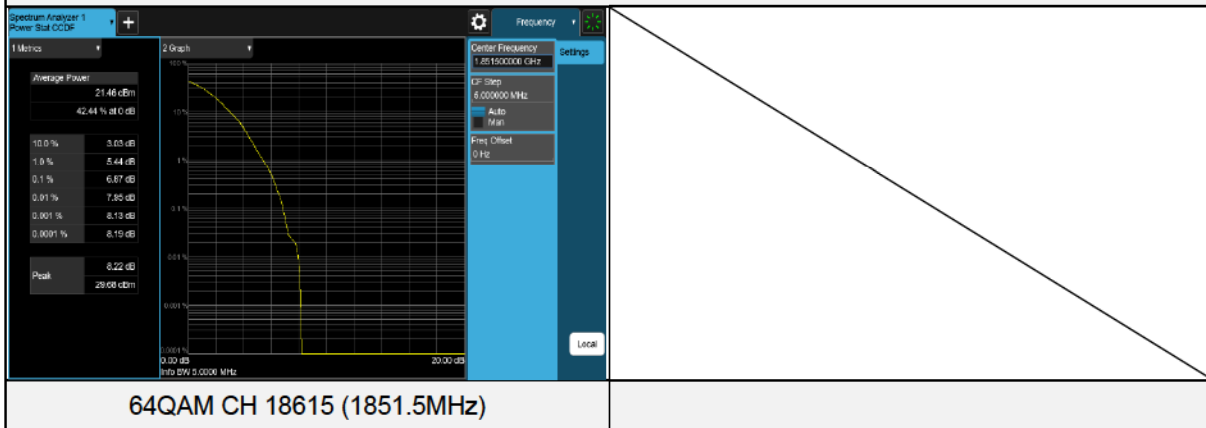
Spectrum Plot of Worst Value



LTE Band 2 (Channel Bandwidth 3MHz)

Test Condition	Channel	Frequency (MHz)	Measure. Value (dB)	Limit (dB)	Result
QPSK	18615	1851.5	5.69	13	Pass
QPSK	18900	1880	5.46	13	Pass
QPSK	19185	1908.5	5.49	13	Pass
16QAM	18615	1851.5	6.80	13	Pass
16QAM	18900	1880	6.36	13	Pass
16QAM	19185	1908.5	6.63	13	Pass
64QAM	18615	1851.5	6.87	13	Pass
64QAM	18900	1880	6.67	13	Pass
64QAM	19185	1908.5	6.84	13	Pass

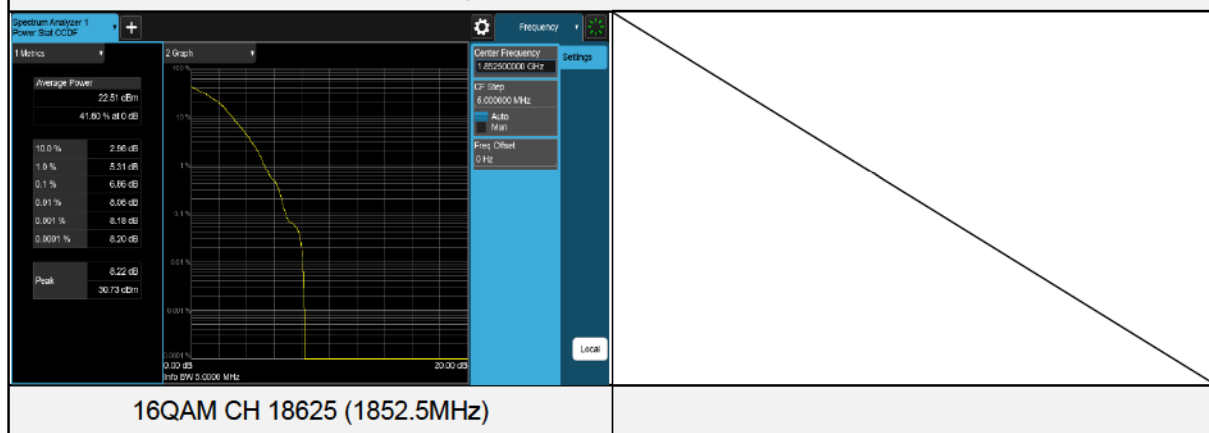
Spectrum Plot of Worst Value



LTE Band 2 (Channel Bandwidth 5MHz)

Test Condition	Channel	Frequency (MHz)	Measure. Value (dB)	Limit (dB)	Result
QPSK	18625	1852.5	5.69	13	Pass
QPSK	18900	1880	5.30	13	Pass
QPSK	19175	1907.5	5.51	13	Pass
16QAM	18625	1852.5	6.86	13	Pass
16QAM	18900	1880	6.35	13	Pass
16QAM	19175	1907.5	6.65	13	Pass
64QAM	18625	1852.5	6.82	13	Pass
64QAM	18900	1880	6.59	13	Pass
64QAM	19175	1907.5	6.77	13	Pass

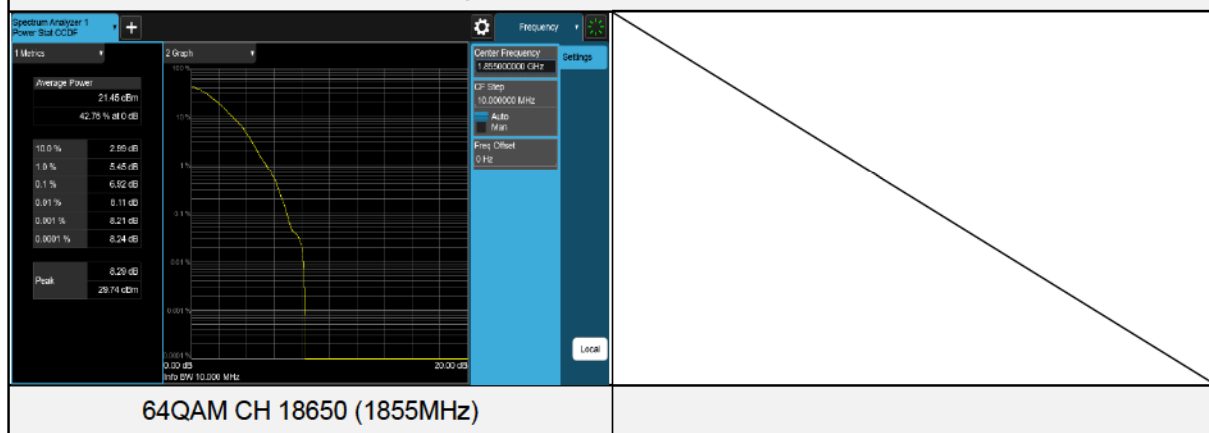
Spectrum Plot of Worst Value



LTE Band 2 (Channel Bandwidth 10MHz)

Test Condition	Channel	Frequency (MHz)	Measure. Value (dB)	Limit (dB)	Result
QPSK	18650	1855	5.65	13	Pass
QPSK	18900	1880	5.13	13	Pass
QPSK	19150	1905	5.22	13	Pass
16QAM	18650	1855	6.88	13	Pass
16QAM	18900	1880	6.34	13	Pass
16QAM	19150	1905	6.27	13	Pass
64QAM	18650	1855	6.92	13	Pass
64QAM	18900	1880	6.51	13	Pass
64QAM	19150	1905	6.58	13	Pass

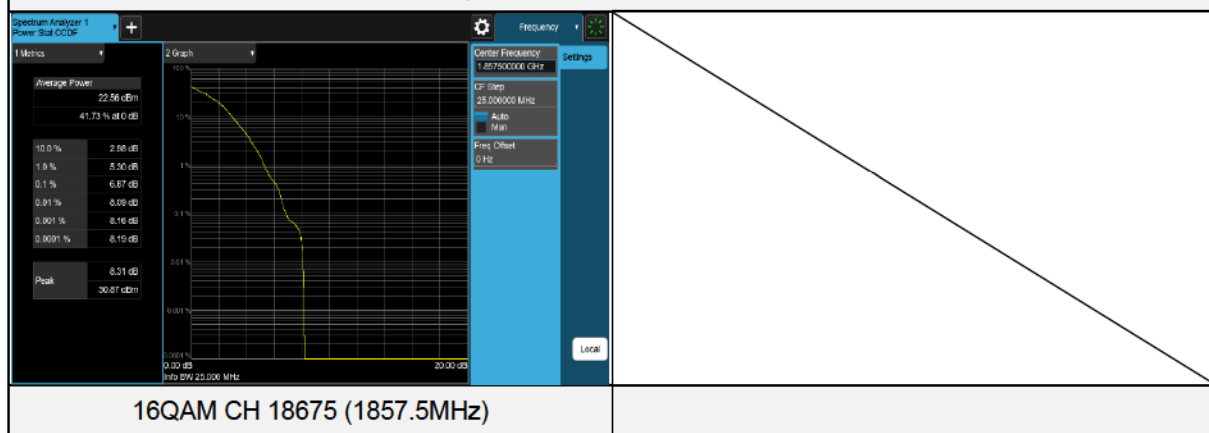
Spectrum Plot of Worst Value



LTE Band 2 (Channel Bandwidth 15MHz)

Test Condition	Channel	Frequency (MHz)	Measure. Value (dB)	Limit (dB)	Result
QPSK	18675	1857.5	5.66	13	Pass
QPSK	18900	1880	5.17	13	Pass
QPSK	19125	1902.5	5.14	13	Pass
16QAM	18675	1857.5	6.87	13	Pass
16QAM	18900	1880	6.22	13	Pass
16QAM	19125	1902.5	6.46	13	Pass
64QAM	18675	1857.5	6.85	13	Pass
64QAM	18900	1880	6.42	13	Pass
64QAM	19125	1902.5	6.53	13	Pass

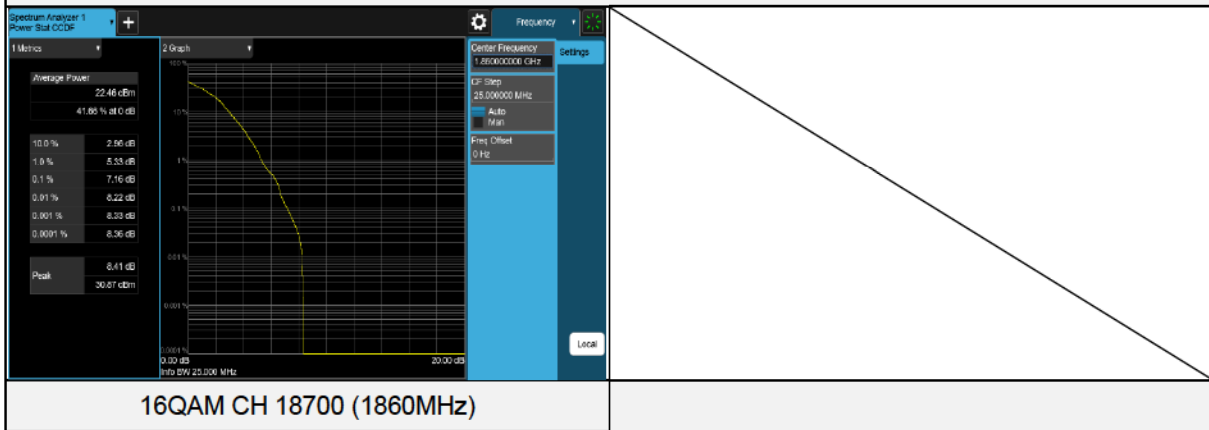
Spectrum Plot of Worst Value



LTE Band 2 (Channel Bandwidth 20MHz)

Test Condition	Channel	Frequency (MHz)	Measure. Value (dB)	Limit (dB)	Result
QPSK	18700	1860	5.70	13	Pass
QPSK	18900	1880	5.07	13	Pass
QPSK	19100	1900	5.45	13	Pass
16QAM	18700	1860	7.16	13	Pass
16QAM	18900	1880	6.03	13	Pass
16QAM	19100	1900	6.56	13	Pass
64QAM	18700	1860	6.86	13	Pass
64QAM	18900	1880	6.39	13	Pass
64QAM	19100	1900	6.69	13	Pass

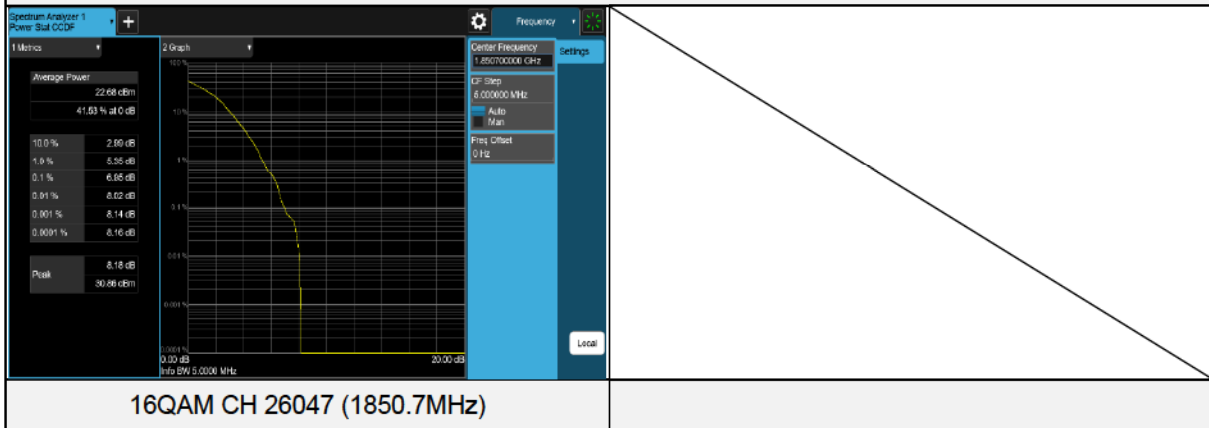
Spectrum Plot of Worst Value



LTE Band 25 (Channel Bandwidth 1.4MHz)

Test Condition	Channel	Frequency (MHz)	Measure. Value (dB)	Limit (dB)	Result
QPSK	26047	1850.7	5.86	13	Pass
QPSK	26365	1882.5	5.51	13	Pass
QPSK	26683	1914.3	5.19	13	Pass
16QAM	26047	1850.7	6.95	13	Pass
16QAM	26365	1882.5	6.77	13	Pass
16QAM	26683	1914.3	6.35	13	Pass
64QAM	26047	1850.7	6.90	13	Pass
64QAM	26365	1882.5	6.77	13	Pass
64QAM	26683	1914.3	6.57	13	Pass

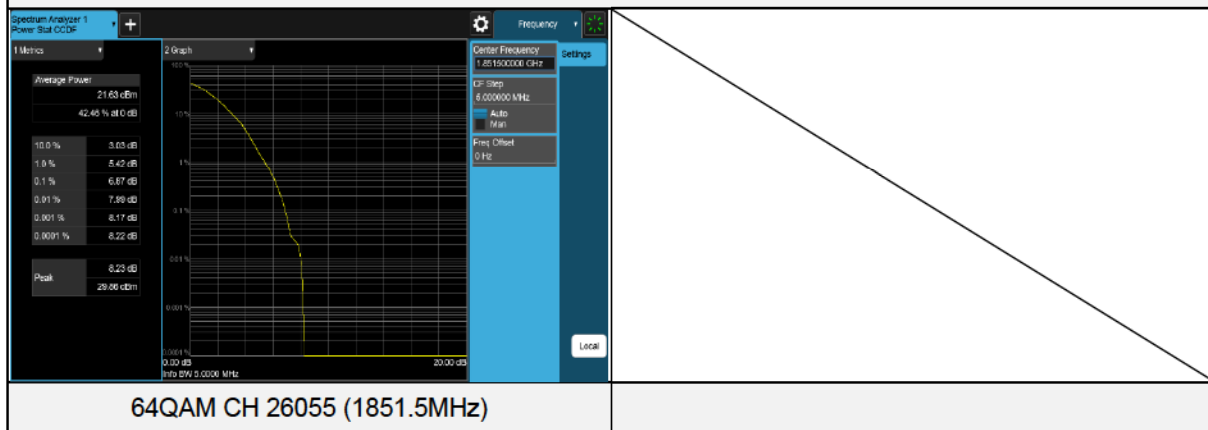
Spectrum Plot of Worst Value



LTE Band 25 (Channel Bandwidth 3MHz)

Test Condition	Channel	Frequency (MHz)	Measure. Value (dB)	Limit (dB)	Result
QPSK	26055	1851.5	5.70	13	Pass
QPSK	26365	1882.5	5.41	13	Pass
QPSK	26675	1913.5	5.23	13	Pass
16QAM	26055	1851.5	6.81	13	Pass
16QAM	26365	1882.5	6.44	13	Pass
16QAM	26675	1913.5	6.25	13	Pass
64QAM	26055	1851.5	6.87	13	Pass
64QAM	26365	1882.5	6.68	13	Pass
64QAM	26675	1913.5	6.57	13	Pass

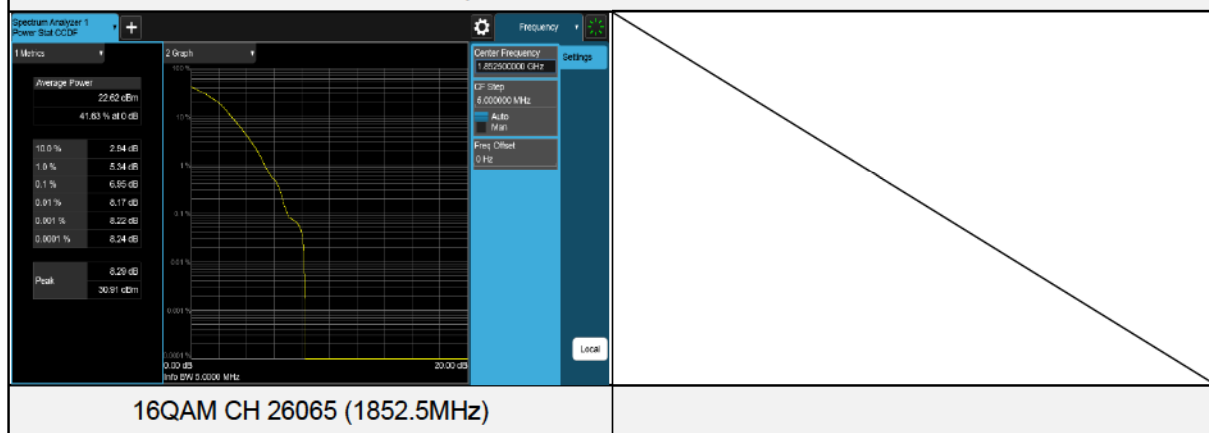
Spectrum Plot of Worst Value



LTE Band 25 (Channel Bandwidth 5MHz)

Test Condition	Channel	Frequency (MHz)	Measure. Value (dB)	Limit (dB)	Result
QPSK	26065	1852.5	5.62	13	Pass
QPSK	26365	1882.5	5.42	13	Pass
QPSK	26665	1912.5	5.43	13	Pass
16QAM	26065	1852.5	6.95	13	Pass
16QAM	26365	1882.5	6.58	13	Pass
16QAM	26665	1912.5	6.61	13	Pass
64QAM	26065	1852.5	6.85	13	Pass
64QAM	26365	1882.5	6.68	13	Pass
64QAM	26665	1912.5	6.70	13	Pass

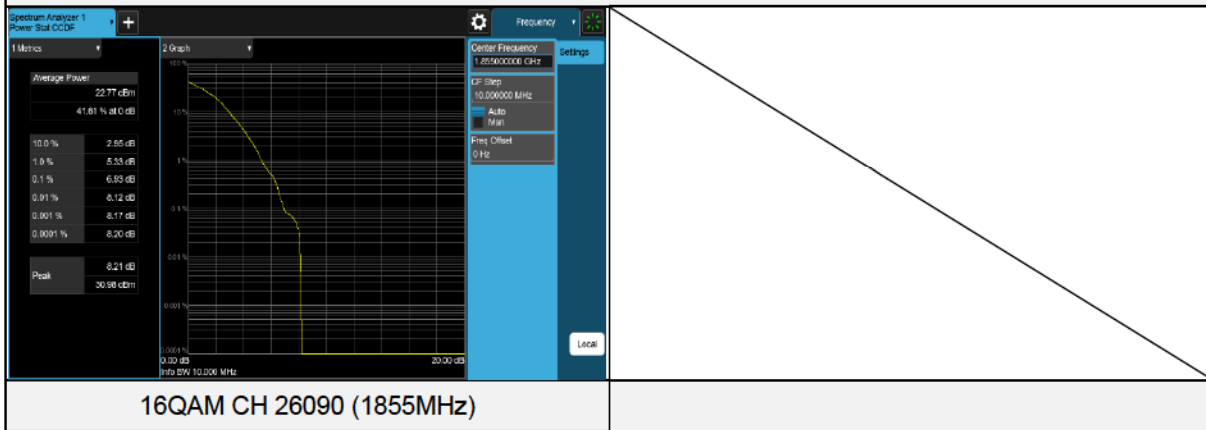
Spectrum Plot of Worst Value



LTE Band 25 (Channel Bandwidth 10MHz)

Test Condition	Channel	Frequency (MHz)	Measure. Value (dB)	Limit (dB)	Result
QPSK	26090	1855	5.73	13	Pass
QPSK	26365	1882.5	5.32	13	Pass
QPSK	26640	1910	5.45	13	Pass
16QAM	26090	1855	6.93	13	Pass
16QAM	26365	1882.5	6.50	13	Pass
16QAM	26640	1910	6.65	13	Pass
64QAM	26090	1855	6.84	13	Pass
64QAM	26365	1882.5	6.55	13	Pass
64QAM	26640	1910	6.79	13	Pass

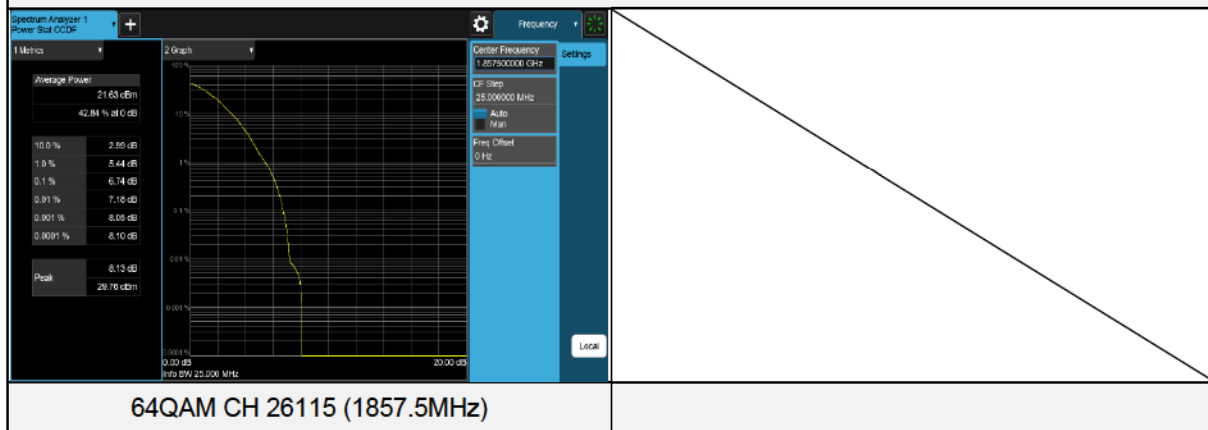
Spectrum Plot of Worst Value



LTE Band 25 (Channel Bandwidth 15MHz)

Test Condition	Channel	Frequency (MHz)	Measure. Value (dB)	Limit (dB)	Result
QPSK	26115	1857.5	5.72	13	Pass
QPSK	26365	1882.5	5.12	13	Pass
QPSK	26615	1907.5	5.28	13	Pass
16QAM	26115	1857.5	6.66	13	Pass
16QAM	26365	1882.5	6.21	13	Pass
16QAM	26615	1907.5	6.17	13	Pass
64QAM	26115	1857.5	6.74	13	Pass
64QAM	26365	1882.5	6.45	13	Pass
64QAM	26615	1907.5	6.63	13	Pass

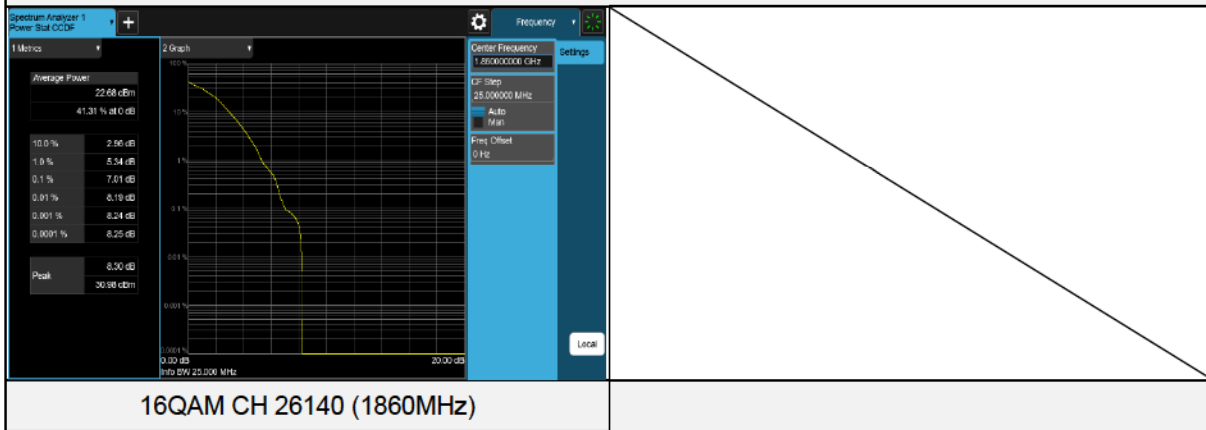
Spectrum Plot of Worst Value



LTE Band 25 (Channel Bandwidth 20MHz)

Test Condition	Channel	Frequency (MHz)	Measure. Value (dB)	Limit (dB)	Result
QPSK	26140	1860	5.66	13	Pass
QPSK	26365	1882.5	5.22	13	Pass
QPSK	26590	1905	5.22	13	Pass
16QAM	26140	1860	7.01	13	Pass
16QAM	26365	1882.5	6.10	13	Pass
16QAM	26590	1905	6.40	13	Pass
64QAM	26140	1860	6.84	13	Pass
64QAM	26365	1882.5	6.26	13	Pass
64QAM	26590	1905	6.64	13	Pass

Spectrum Plot of Worst Value

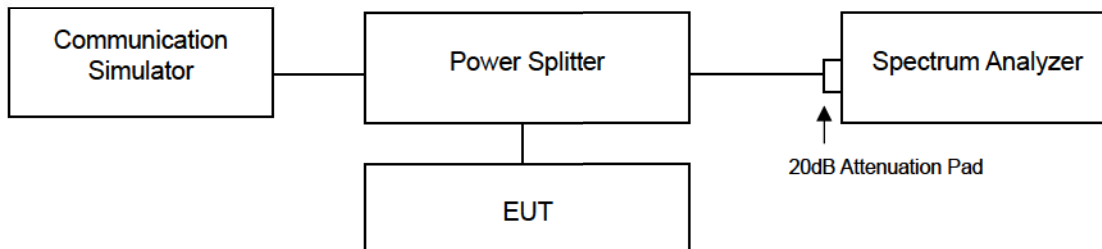


4.7 Conducted Spurious Emissions

4.7.1 Limits of Conducted Spurious Emissions Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit equal to -13dBm .

4.7.2 Test Setup



4.7.3 Test Procedure

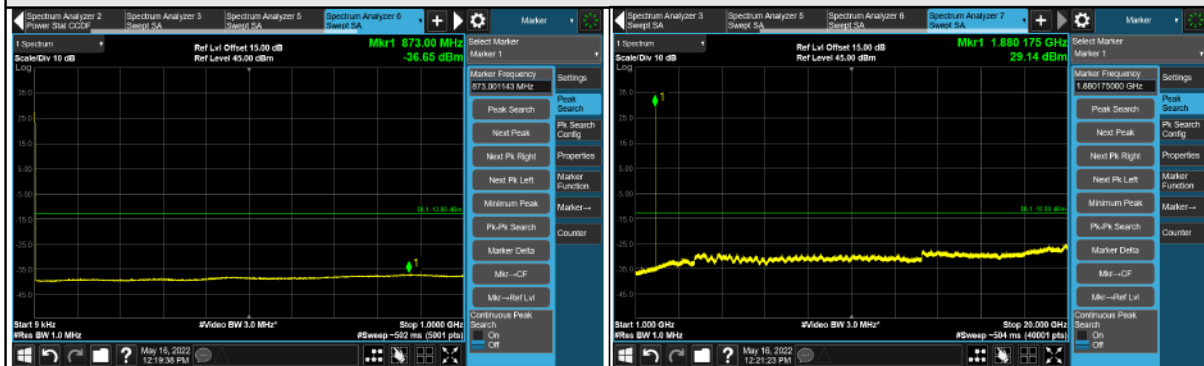
- All measurements were done at low, middle and high channels operational frequency range.
- Measuring frequency range is from 9kHz to 20GHz. 20dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

4.7.4 Test Results

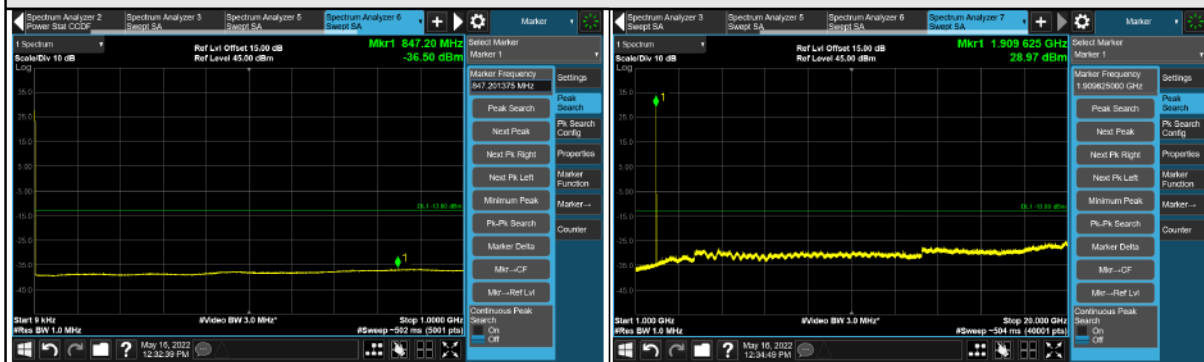
GPRS



CH 512 (1850.2MHz)



CH 661 (1880MHz)



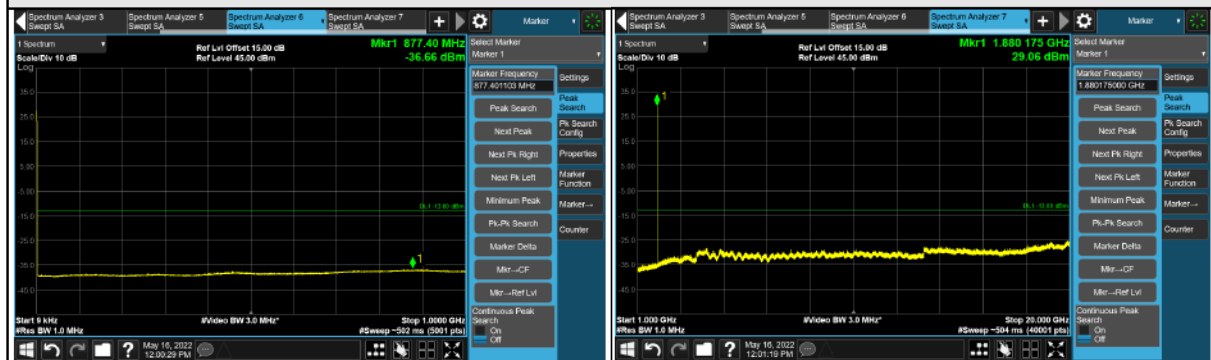
CH 810 (1909.8MHz)

*The 9kHz signal over the limit is from Spectrum.

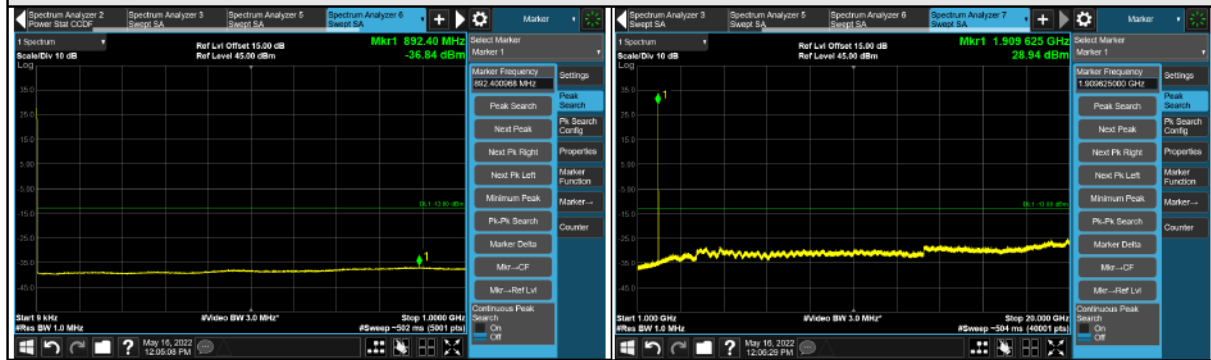
EDGE



CH 512 (1850.2MHz)



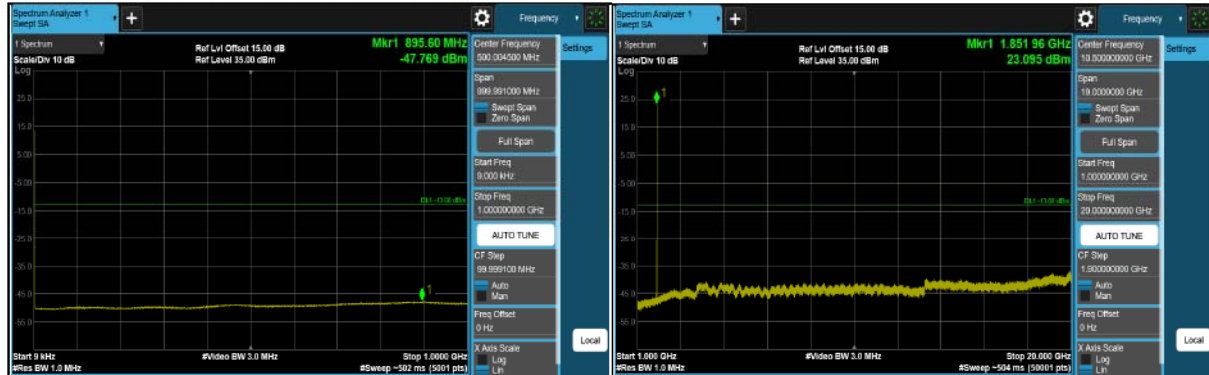
CH 661 (1880MHz)



CH 810 (1909.8MHz)

*The 9kHz signal over the limit is from Spectrum.

LTE Band 2 (Channel Bandwidth 1.4MHz)



CH 18607 (1850.7MHz)



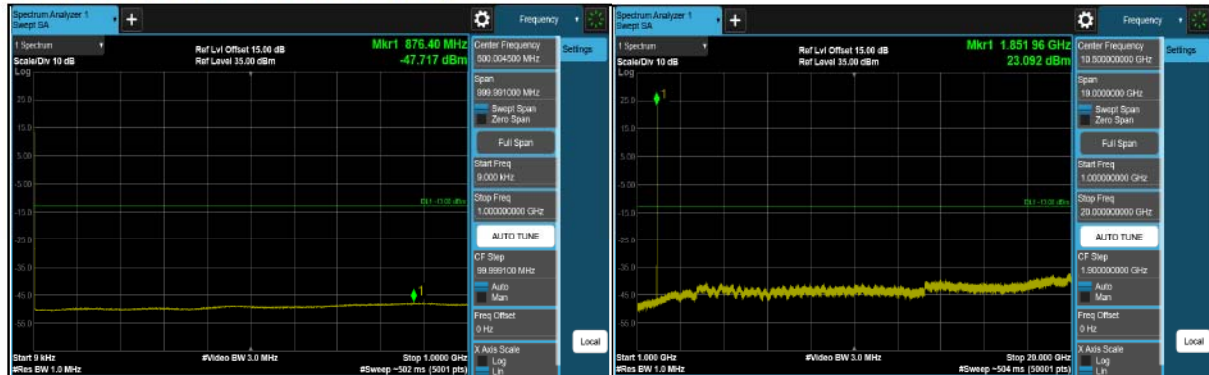
CH 18900 (1880MHz)



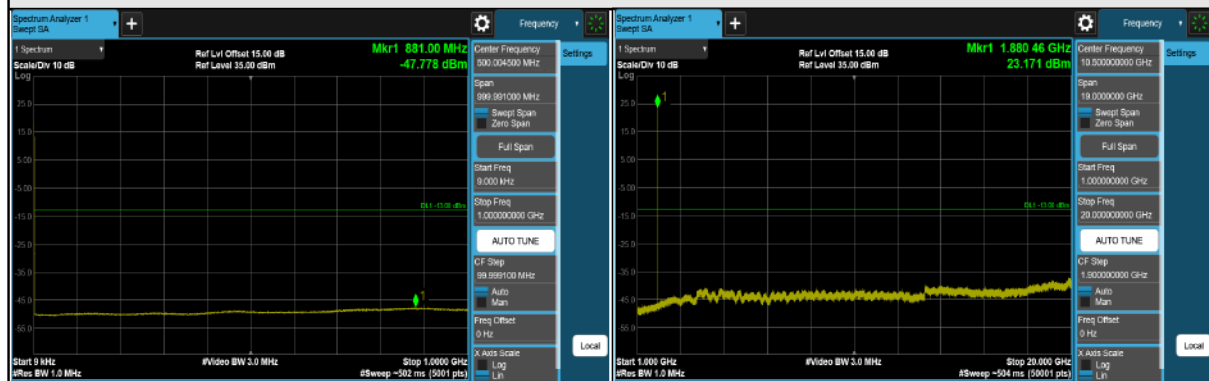
CH 19193 (1909.3MHz)

*The 9kHz signal over the limit is from Spectrum.

LTE Band 2 (Channel Bandwidth 3MHz)



CH 18615 (1851.5MHz)



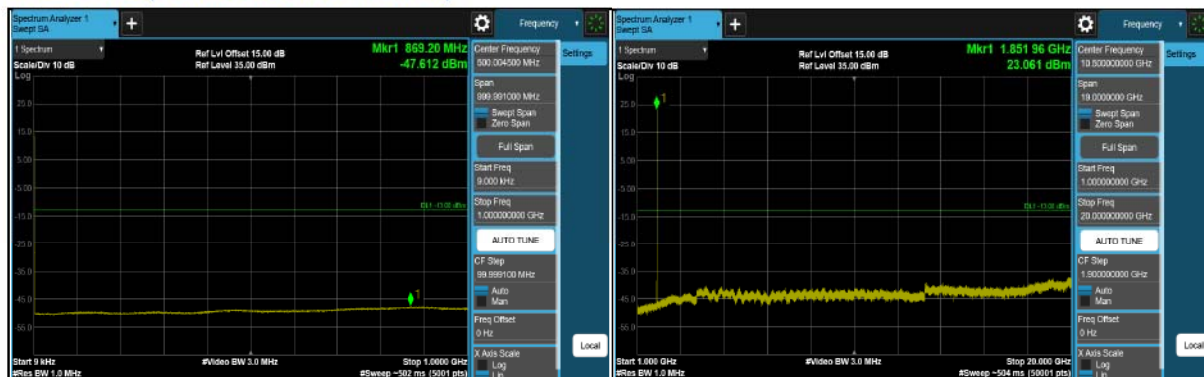
CH 18900 (1880MHz)



CH 19185 (1908.5MHz)

*The 9kHz signal over the limit is from Spectrum.

LTE Band 2 (Channel Bandwidth 5MHz)



CH 18625 (1852.5MHz)



CH 18900 (1880MHz)



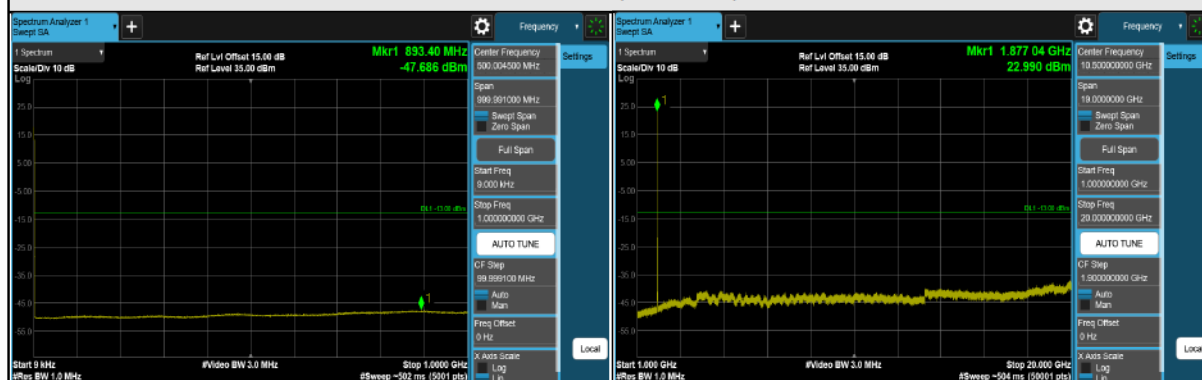
CH 19175 (1907.5MHz)

*The 9kHz signal over the limit is from Spectrum.

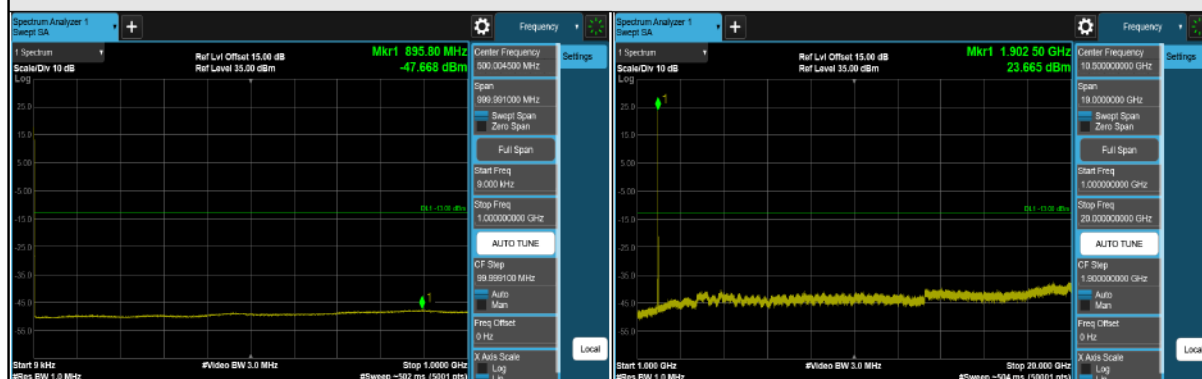
LTE Band 2 (Channel Bandwidth 10MHz)



CH 18650 (1855MHz)



CH 18900 (1880MHz)



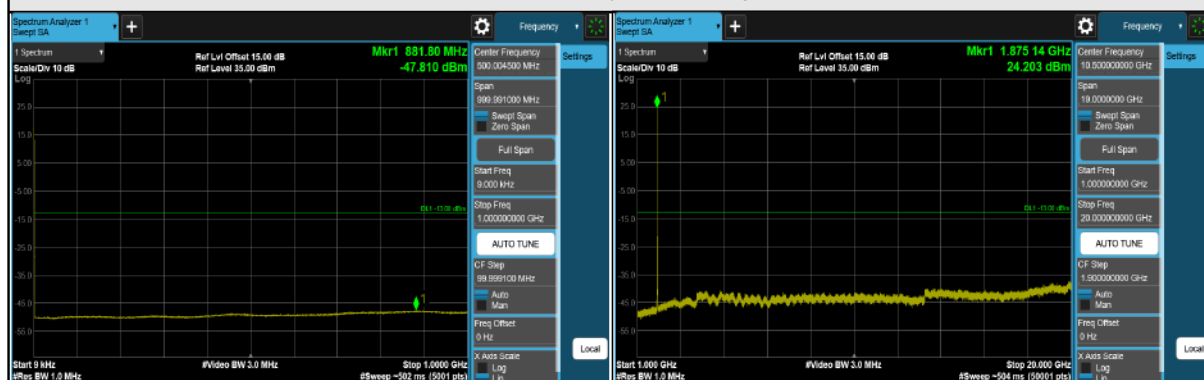
CH 19150 (1905MHz)

*The 9kHz signal over the limit is from Spectrum.

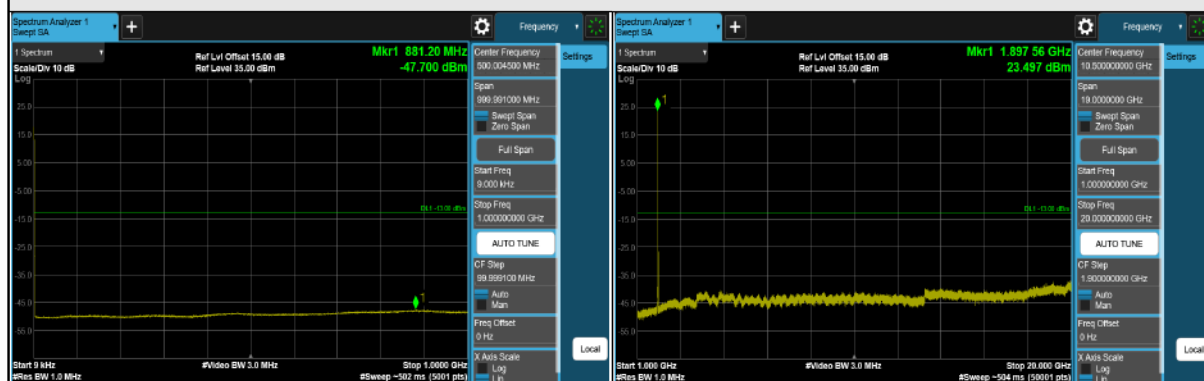
LTE Band 2 (Channel Bandwidth 15MHz)



CH 18675 (1857.5MHz)



CH 18900 (1880MHz)



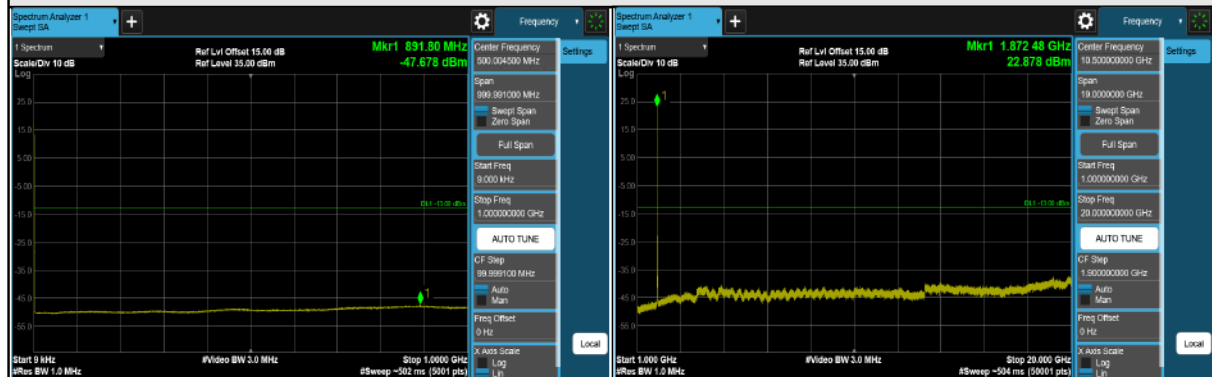
CH 19125 (1902.5MHz)

*The 9kHz signal over the limit is from Spectrum.

LTE Band 2 (Channel Bandwidth 20MHz)



CH 1870 (1860MHz)



CH 1890 (1880MHz)



CH 1910 (1900MHz)

*The 9kHz signal over the limit is from Spectrum.

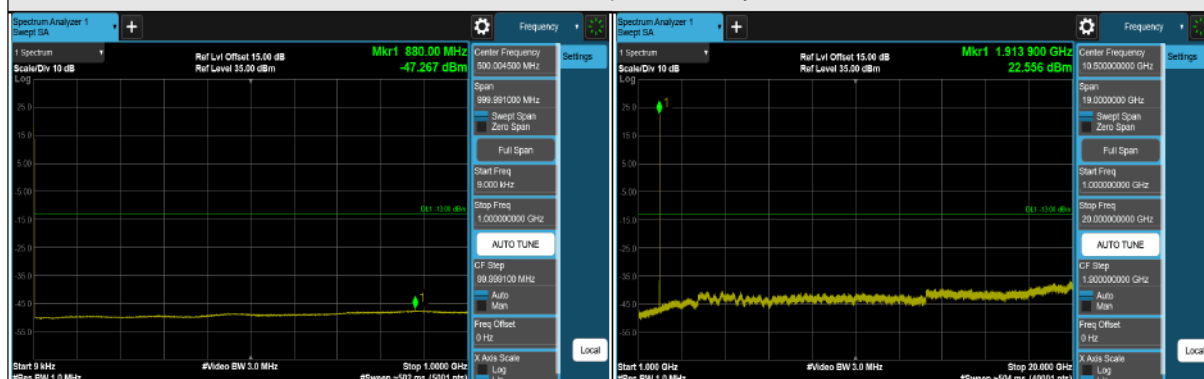
LTE Band 25 (Channel Bandwidth 1.4MHz)



CH 26047 (1850.7MHz)



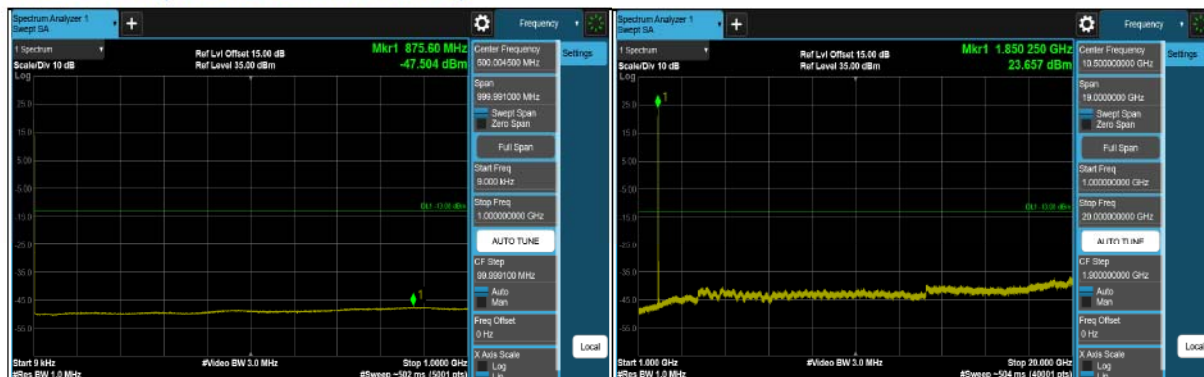
CH 26365 (1882.5MHz)



CH 26683 (1914.3MHz)

*The 9kHz signal over the limit is from Spectrum.

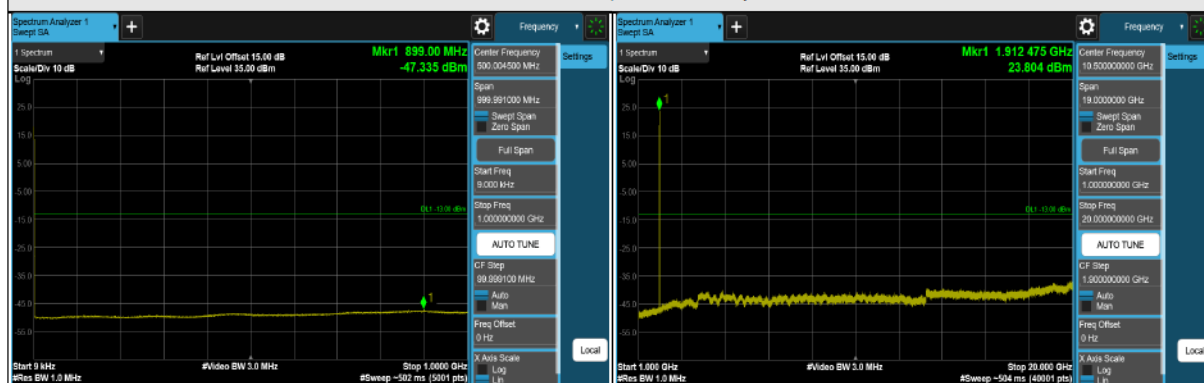
LTE Band 25 (Channel Bandwidth 3MHz)



CH 26055 (1851.5MHz)



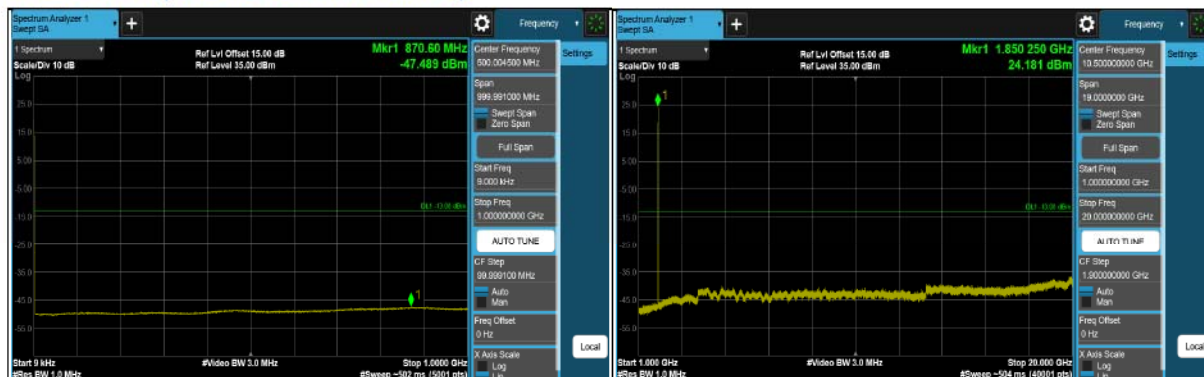
CH 26365 (1882.5MHz)



CH 26675 (1913.5MHz)

*The 9kHz signal over the limit is from Spectrum.

LTE Band 25 (Channel Bandwidth 5MHz)



CH 26065 (1852.5MHz)



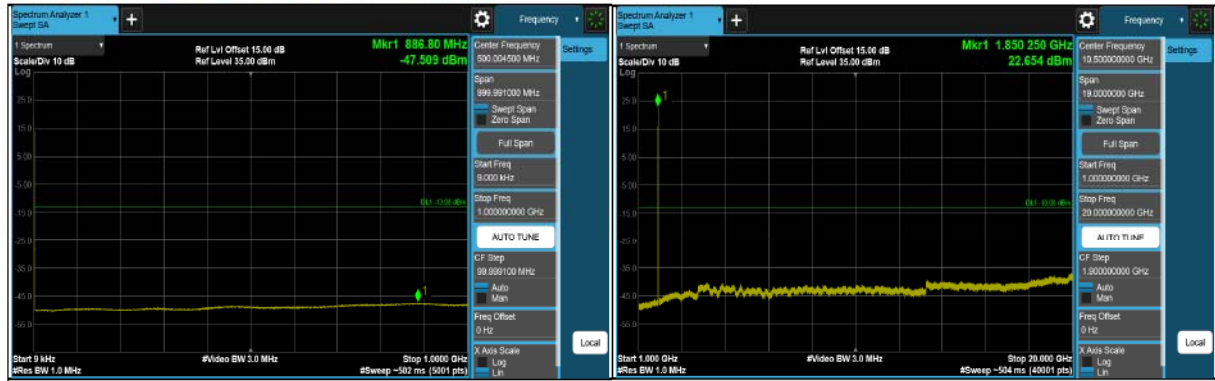
CH 26365 (1882.5MHz)



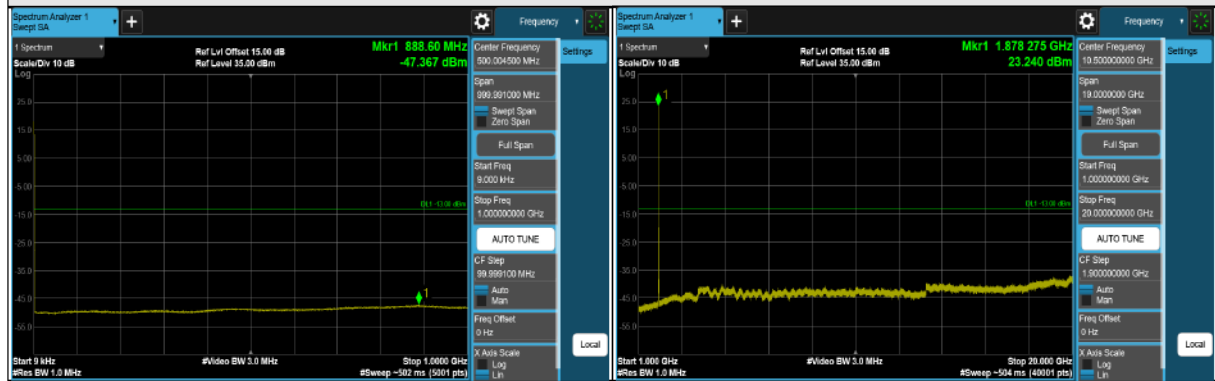
CH 26665 (1912.5MHz)

*The 9kHz signal over the limit is from Spectrum.

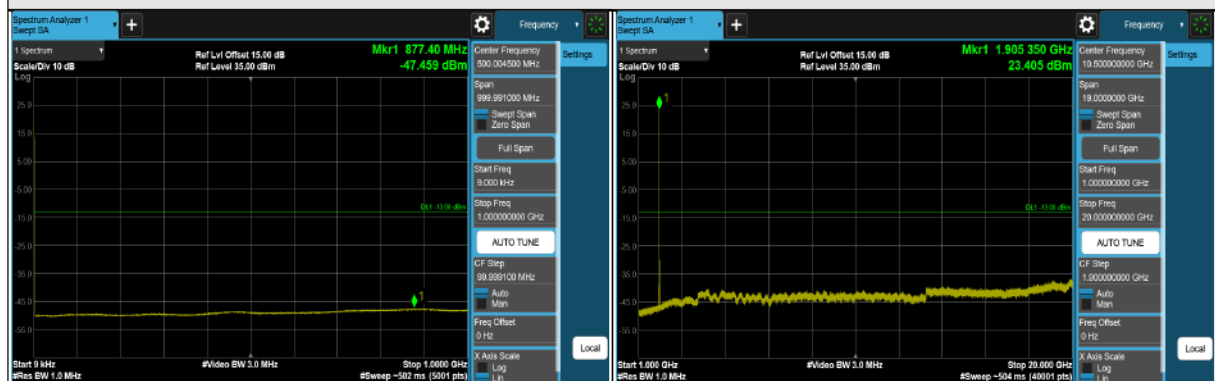
LTE Band 25 (Channel Bandwidth 10MHz)



CH 26090 (1855MHz)



CH 26365 (1882.5MHz)



CH 26640 (1910MHz)

*The 9kHz signal over the limit is from Spectrum.