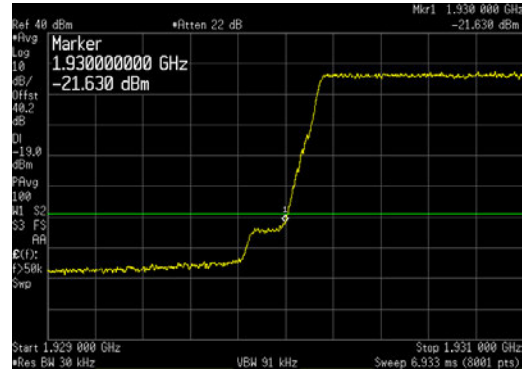
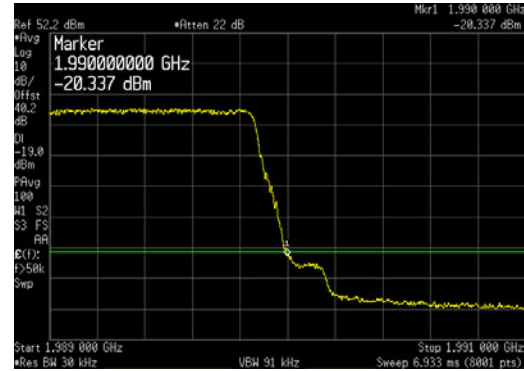


LTE3 Band Edge Plots for Antenna Port 7 and QPSK Modulation:

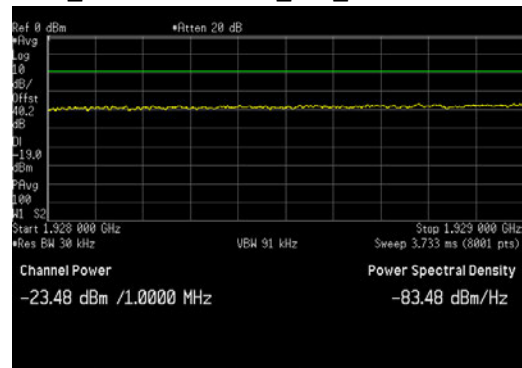
LTE3_Bottom Channel_LBE_1929 to 1931MHz



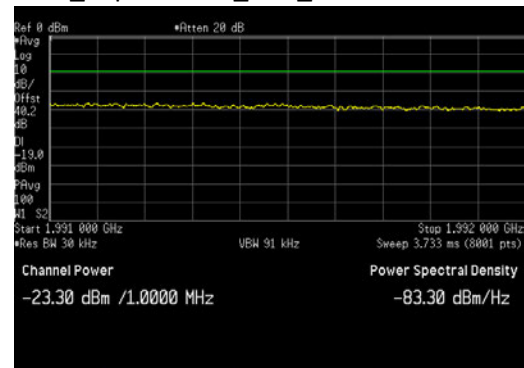
LTE3_Top Channel_UBE_1989 to 1991MHz



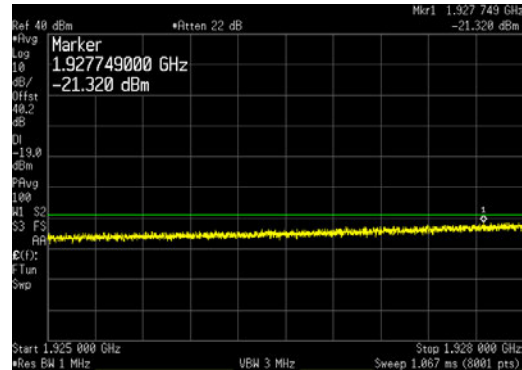
LTE3_Bottom Channel_LBE_1928 to 1929MHz



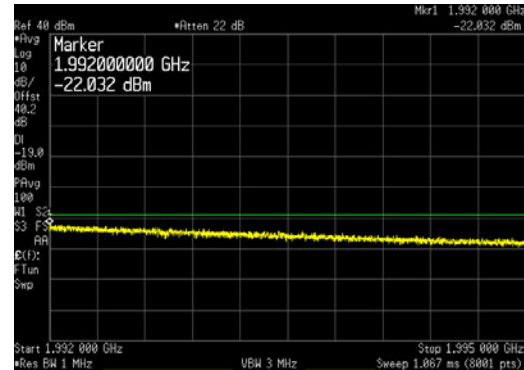
LTE3_Top Channel_UBE_1991 to 1992MHz



LTE3_Bottom Channel_LBE_1925 to 1928MHz

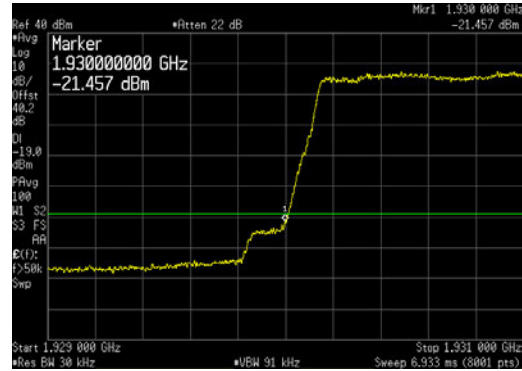


LTE3_Top Channel_UBE_1992 to 1995MHz

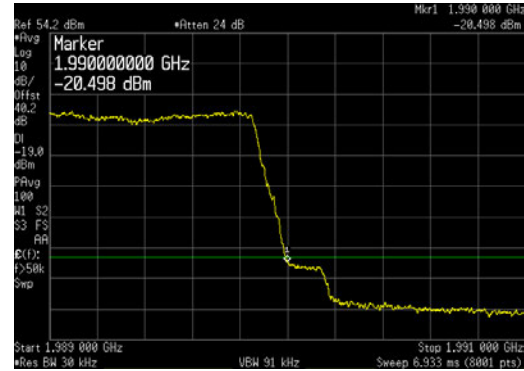


LTE3 Band Edge Plots for Antenna Port 7 and 16QAM Modulation:

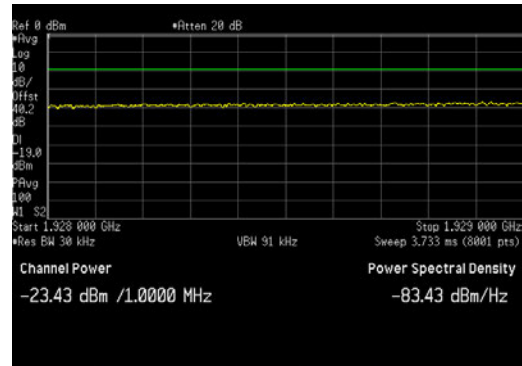
LTE3_Bottom Channel_LBE_1929 to 1931MHz



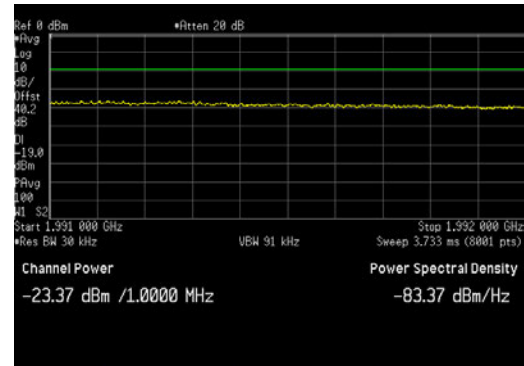
LTE3_Top Channel_UBE_1989 to 1991MHz



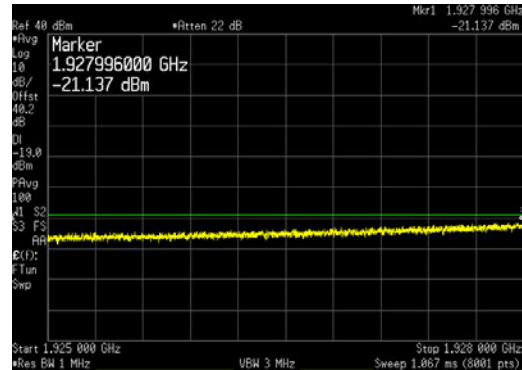
LTE3_Bottom Channel_LBE_1928 to 1929MHz



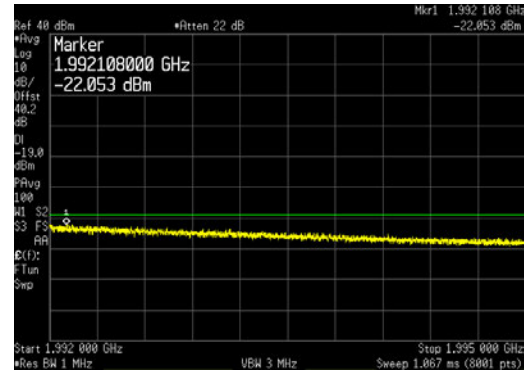
LTE3_Top Channel_UBE_1991 to 1992MHz



LTE3_Bottom Channel_LBE_1925 to 1928MHz

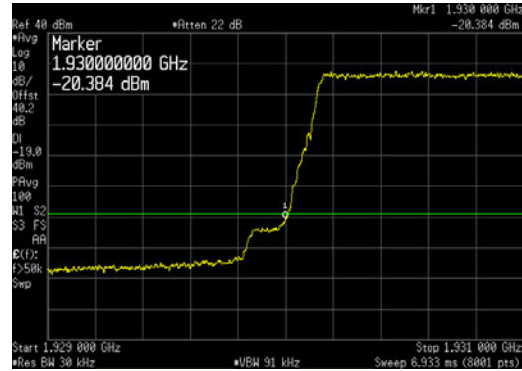


LTE3_Top Channel_UBE_1992 to 1995MHz

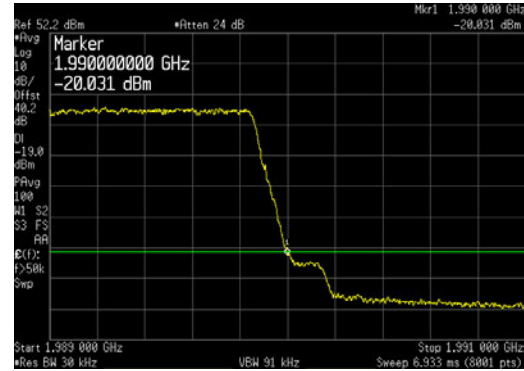


LTE3 Band Edge Plots for Antenna Port 7 and 64QAM Modulation:

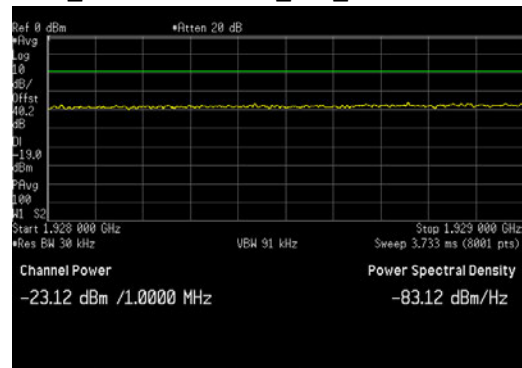
LTE3_Bottom Channel_LBE_1929 to 1931MHz



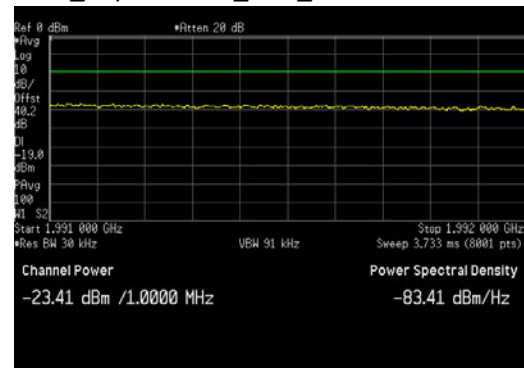
LTE3_Top Channel_UBE_1989 to 1991MHz



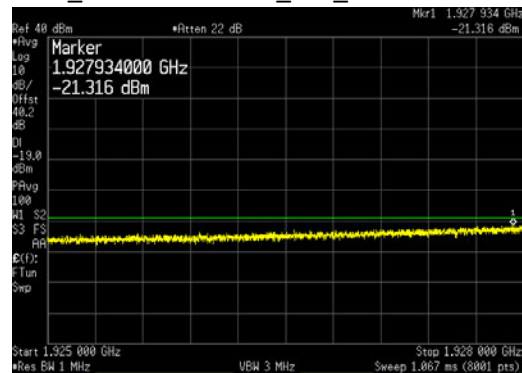
LTE3_Bottom Channel_LBE_1928 to 1929MHz



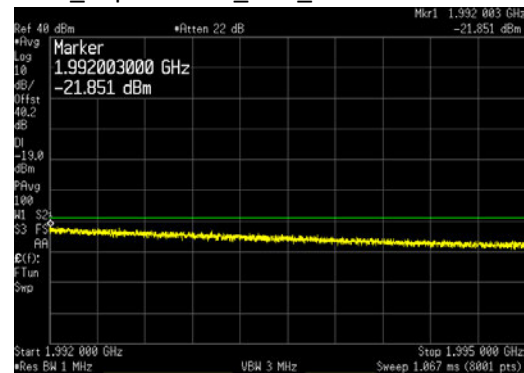
LTE3_Top Channel_UBE_1991 to 1992MHz



LTE3_Bottom Channel_LBE_1925 to 1928MHz

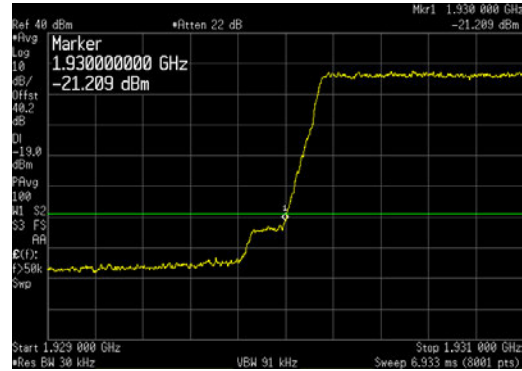


LTE3_Top Channel_UBE_1992 to 1995MHz

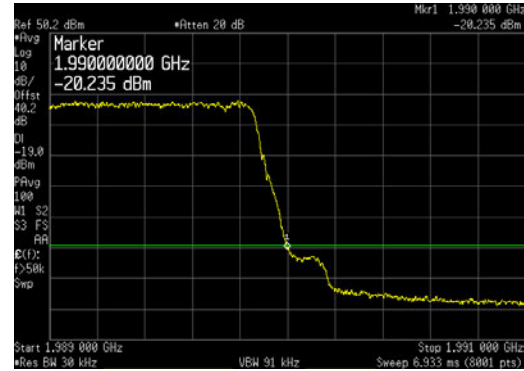


LTE3 Band Edge Plots for Antenna Port 7 and 256QAM Modulation:

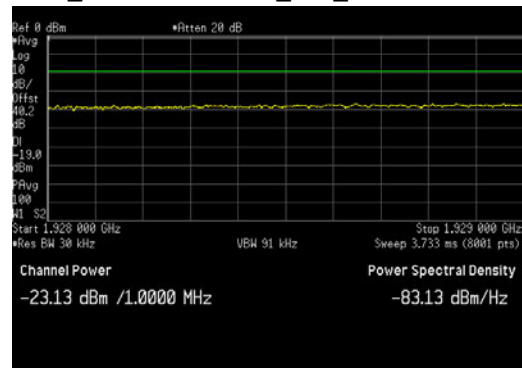
LTE3_Bottom Channel_LBE_1929 to 1931MHz



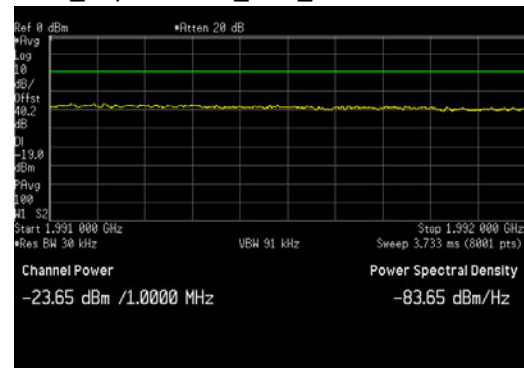
LTE3_Top Channel_UBE_1989 to 1991MHz



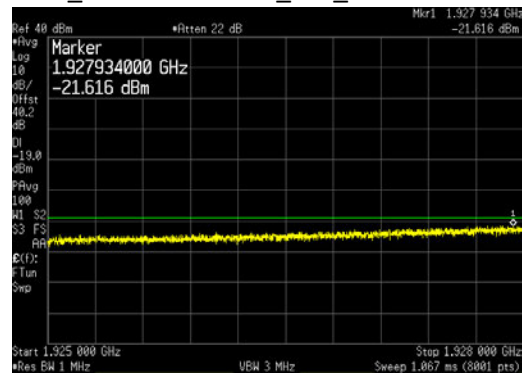
LTE3_Bottom Channel_LBE_1928 to 1929MHz



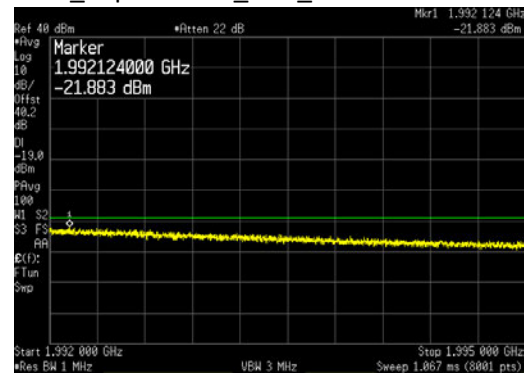
LTE3_Top Channel_UBE_1991 to 1992MHz



LTE3_Bottom Channel_LBE_1925 to 1928MHz

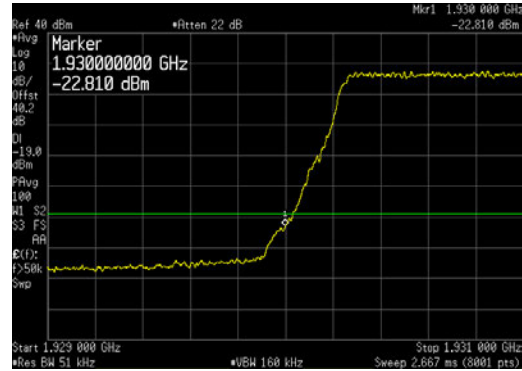


LTE3_Top Channel_UBE_1992 to 1995MHz

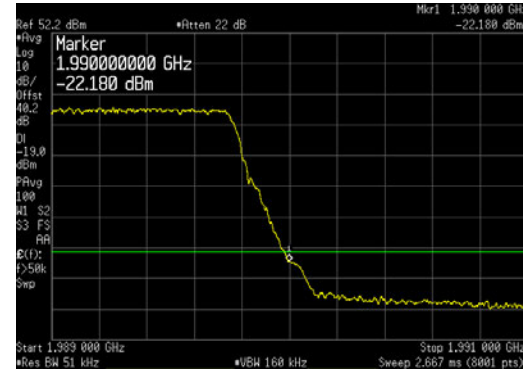


LTE5 Band Edge Plots for Antenna Port 7 and QPSK Modulation:

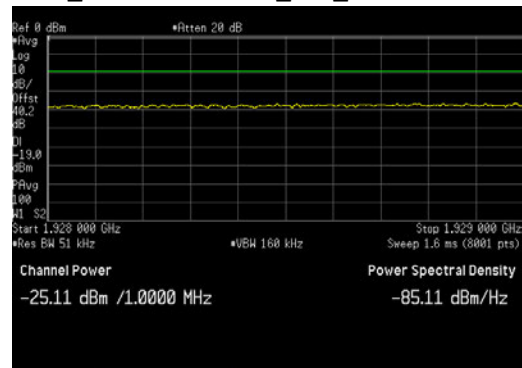
LTE5_Bottom Channel_LBE_1929 to 1931MHz



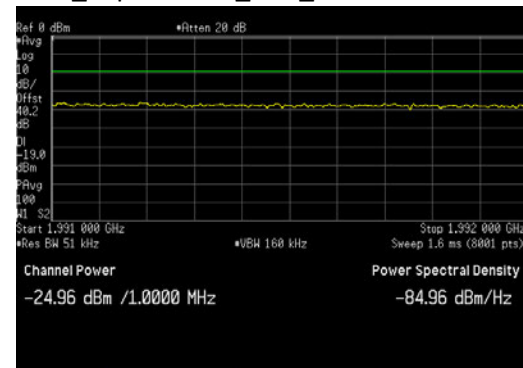
LTE5_Top Channel_UBE_1989 to 1991MHz



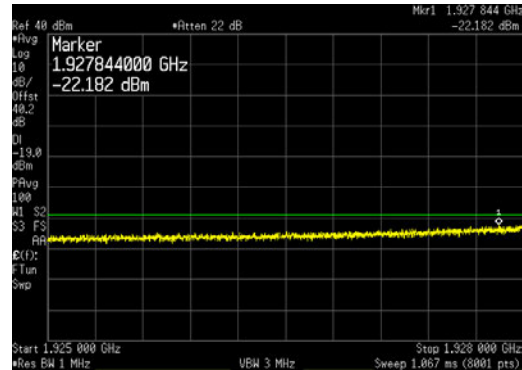
LTE5_Bottom Channel_LBE_1928 to 1929MHz



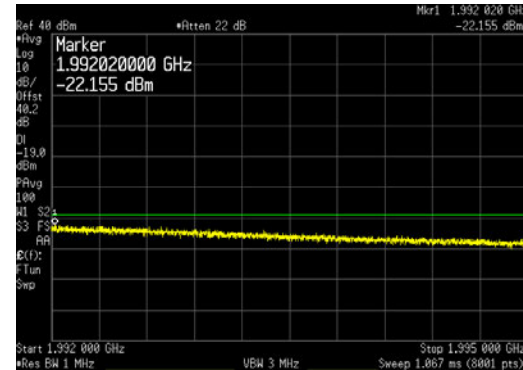
LTE5_Top Channel_UBE_1991 to 1992MHz



LTE5_Bottom Channel_LBE_1925 to 1928MHz

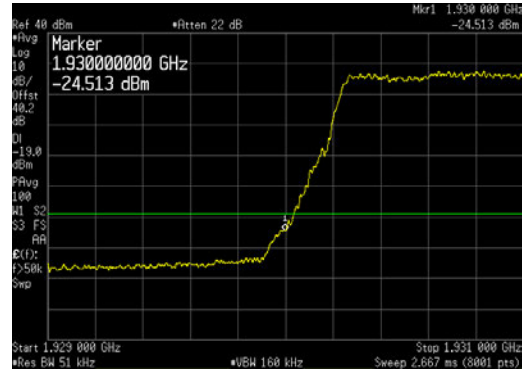


LTE5_Top Channel_UBE_1992 to 1995MHz

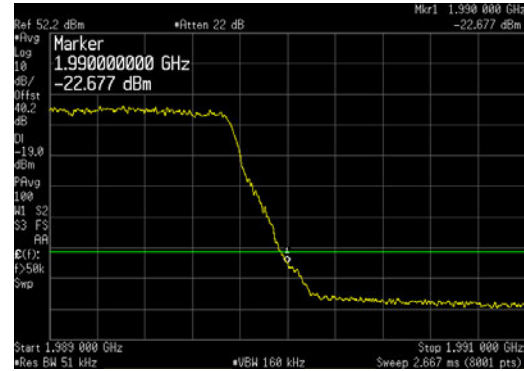


LTE5 Band Edge Plots for Antenna Port 7 and 16QAM Modulation:

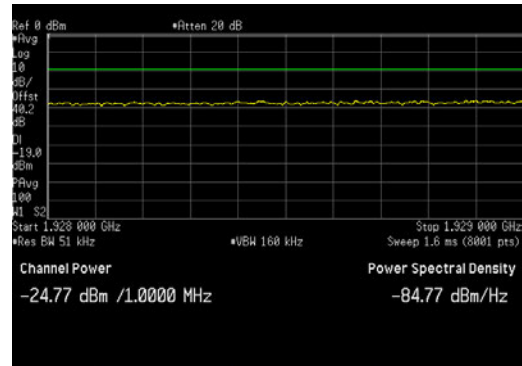
LTE5_Bottom Channel_LBE_1929 to 1931MHz



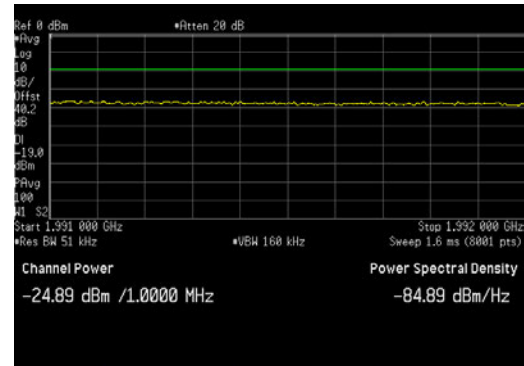
LTE5_Top Channel_UBE_1989 to 1991MHz



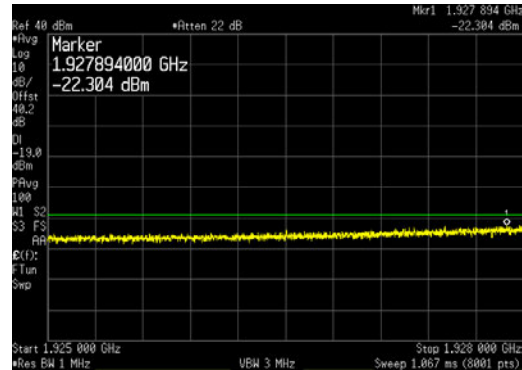
LTE5_Bottom Channel_LBE_1928 to 1929MHz



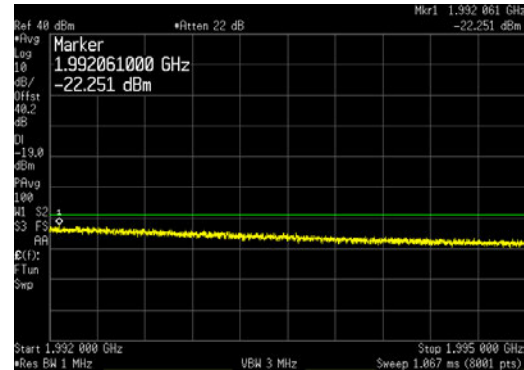
LTE5_Top Channel_UBE_1991 to 1992MHz



LTE5_Bottom Channel_LBE_1925 to 1928MHz

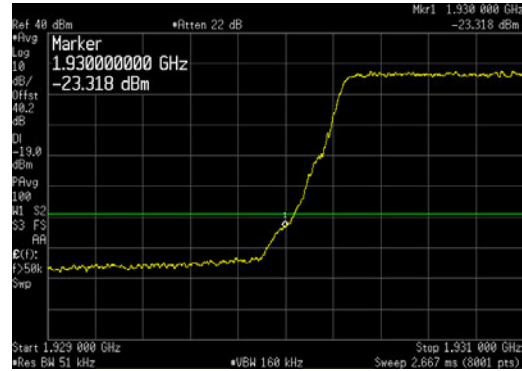


LTE5_Top Channel_UBE_1992 to 1995MHz

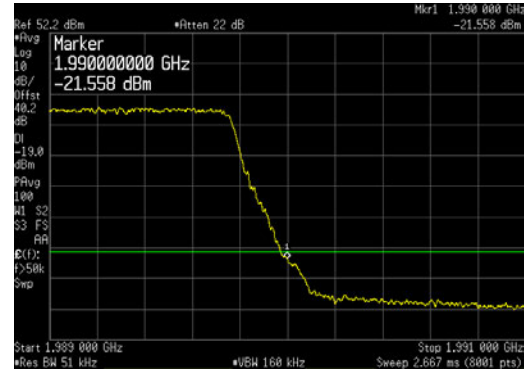


LTE5 Band Edge Plots for Antenna Port 7 and 64QAM Modulation:

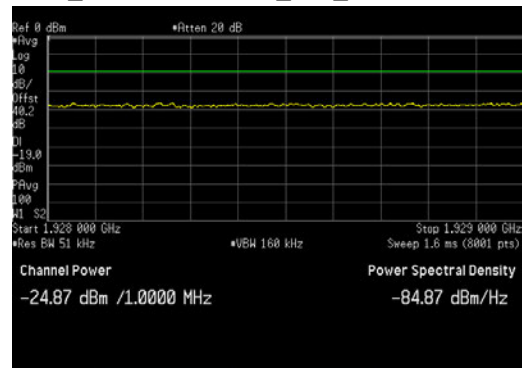
LTE5_Bottom Channel_LBE_1929 to 1931MHz



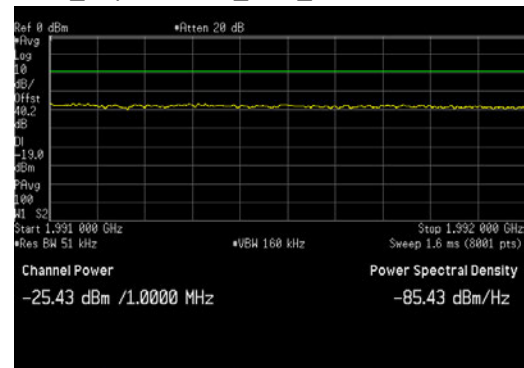
LTE5_Top Channel_UBE_1989 to 1991MHz



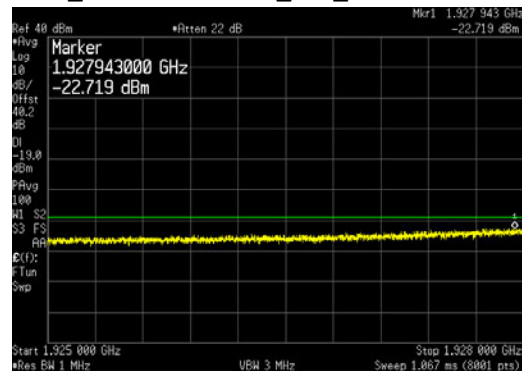
LTE5_Bottom Channel_LBE_1928 to 1929MHz



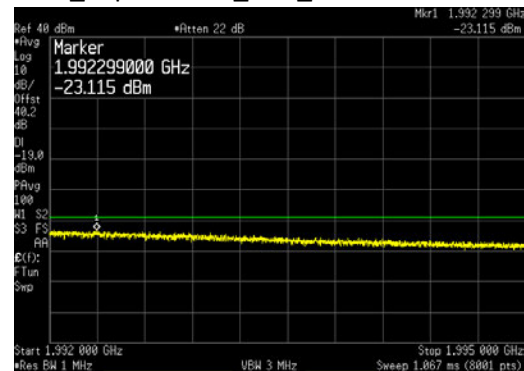
LTE5_Top Channel_UBE_1991 to 1992MHz



LTE5_Bottom Channel_LBE_1925 to 1928MHz

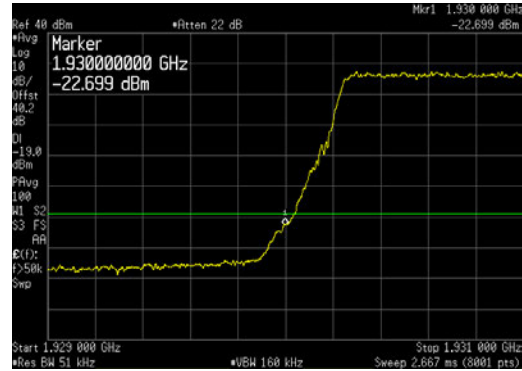


LTE5_Top Channel_UBE_1992 to 1995MHz

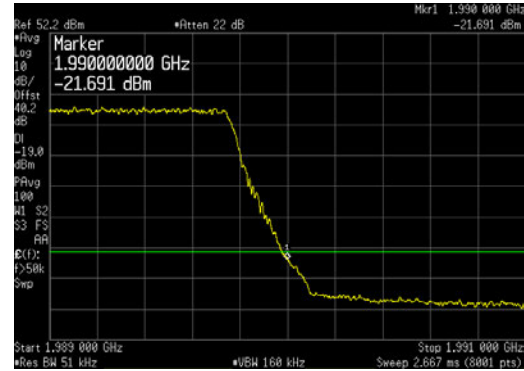


LTE5 Band Edge Plots for Antenna Port 7 and 256QAM Modulation:

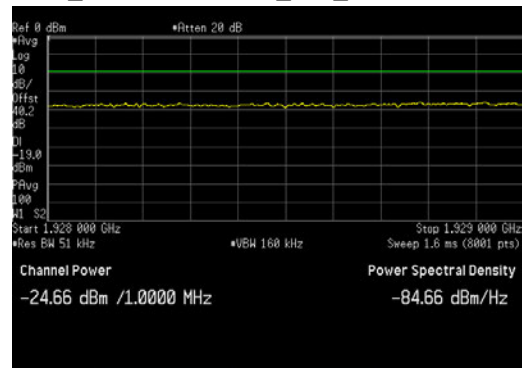
LTE5_Bottom Channel_LBE_1929 to 1931MHz



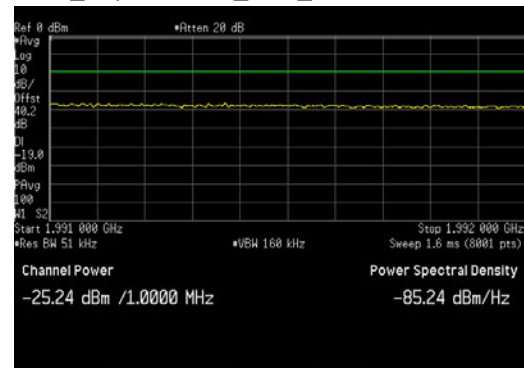
LTE5_Top Channel_UBE_1989 to 1991MHz



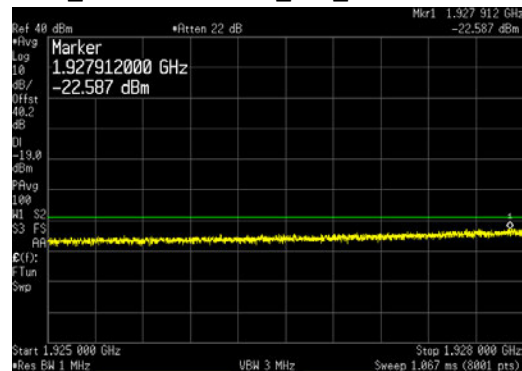
LTE5_Bottom Channel_LBE_1928 to 1929MHz



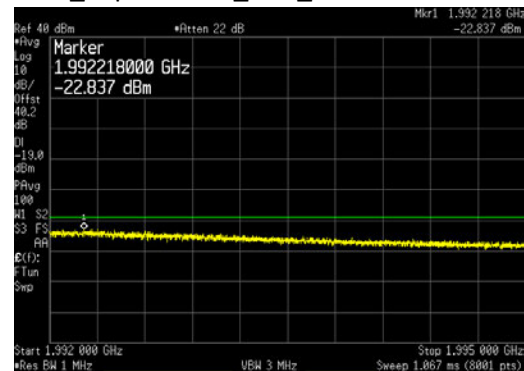
LTE5_Top Channel_UBE_1991 to 1992MHz



LTE5_Bottom Channel_LBE_1925 to 1928MHz

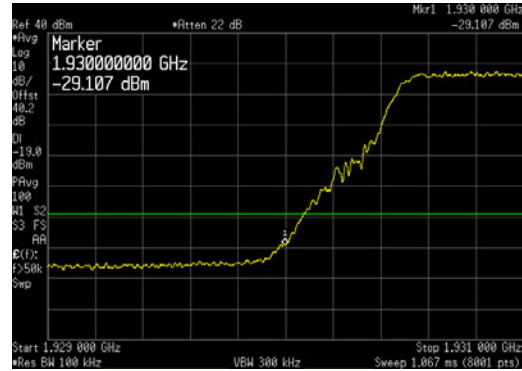


LTE5_Top Channel_UBE_1992 to 1995MHz

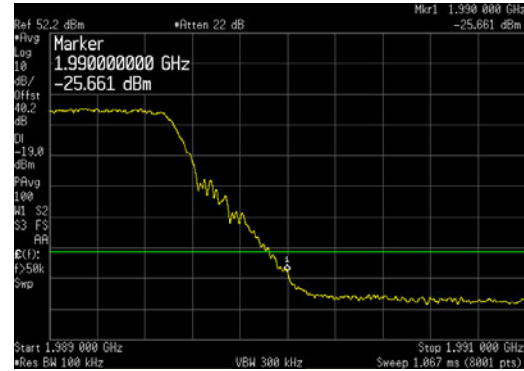


LTE10 Band Edge Plots for Antenna Port 7 and QPSK Modulation:

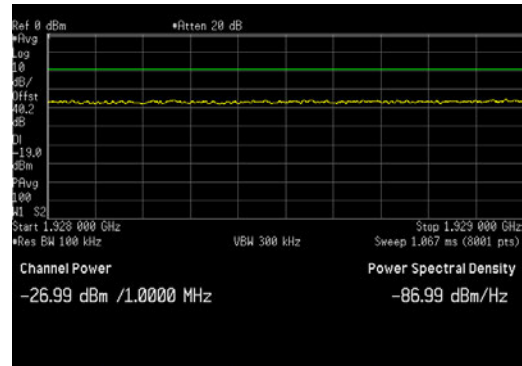
LTE10_Bottom Channel_LBE_1929 to 1931MHz



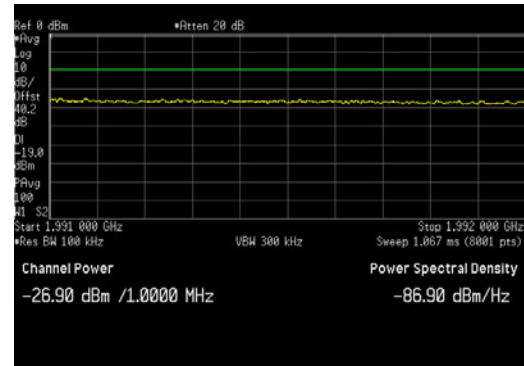
LTE10_Top Channel_UBE_1989 to 1991MHz



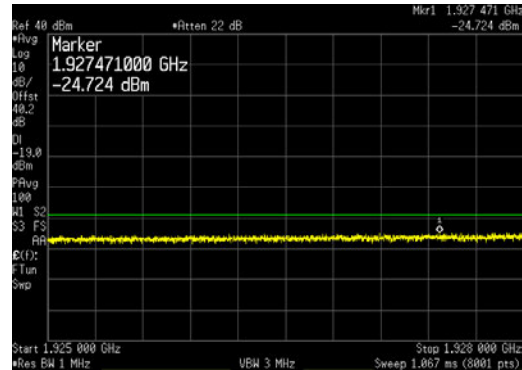
LTE10_Bottom Channel_LBE_1928 to 1929MHz



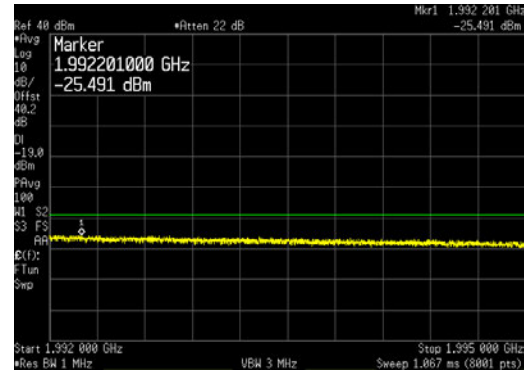
LTE10_Top Channel_UBE_1991 to 1992MHz



LTE10_Bottom Channel_LBE_1925 to 1928MHz

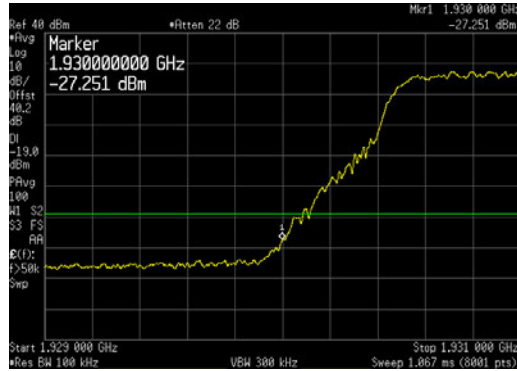


LTE10_Top Channel_UBE_1992 to 1995MHz

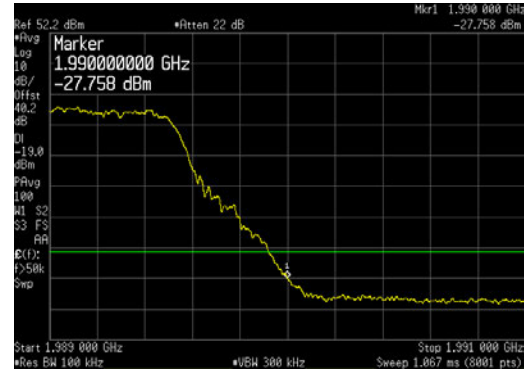


LTE10 Band Edge Plots for Antenna Port 7 and 16QAM Modulation:

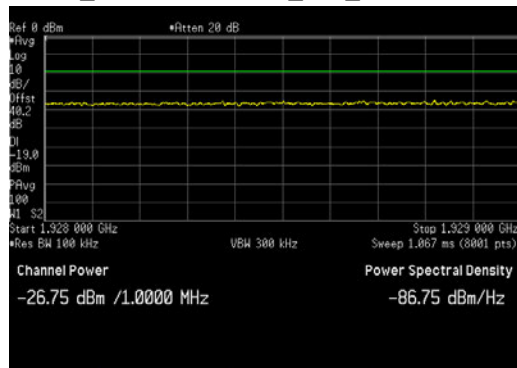
LTE10_Bottom Channel_LBE_1929 to 1931MHz



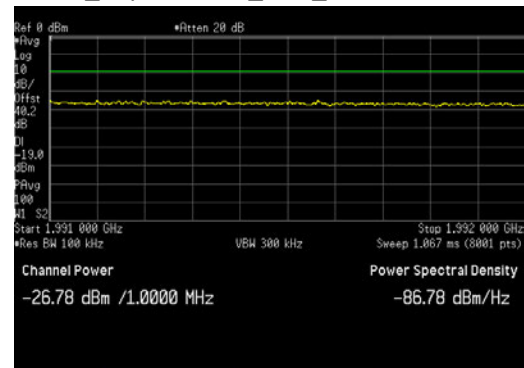
LTE10_Top Channel_UBE_1989 to 1991MHz



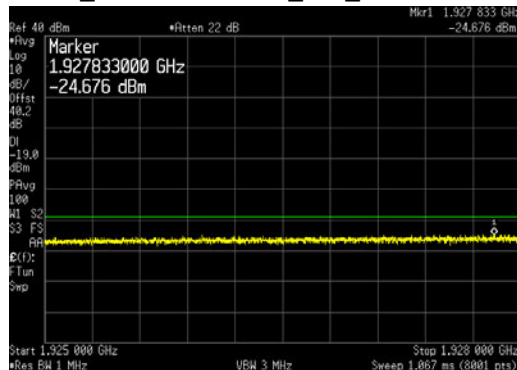
LTE10_Bottom Channel_LBE_1928 to 1929MHz



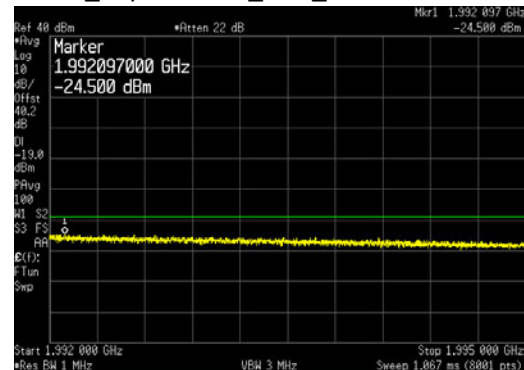
LTE10_Top Channel_UBE_1991 to 1992MHz



LTE10_Bottom Channel_LBE_1925 to 1928MHz

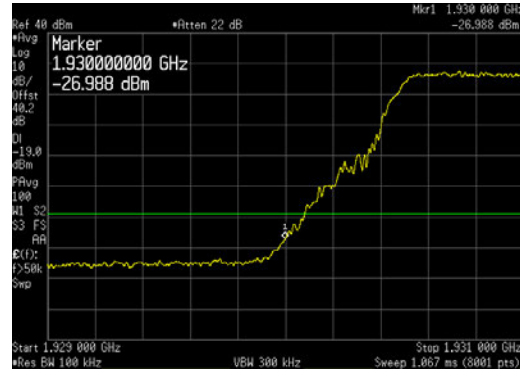


LTE10_Top Channel_UBE_1992 to 1995MHz

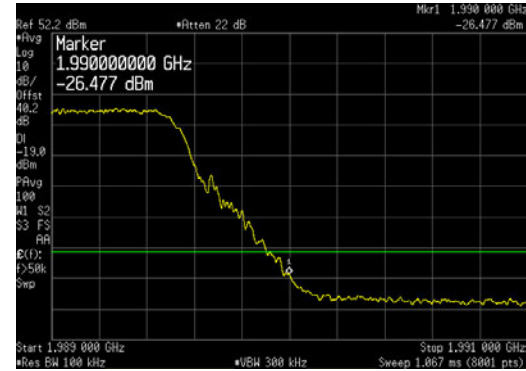


LTE10 Band Edge Plots for Antenna Port 7 and 64QAM Modulation:

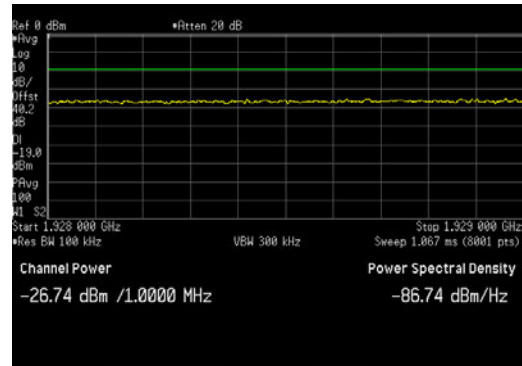
LTE10_Bottom Channel_LBE_1929 to 1931MHz



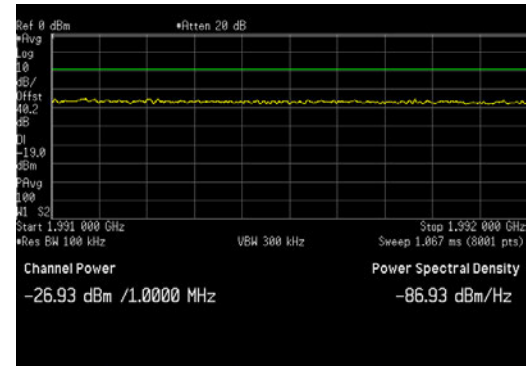
LTE10_Top Channel_UBE_1989 to 1991MHz



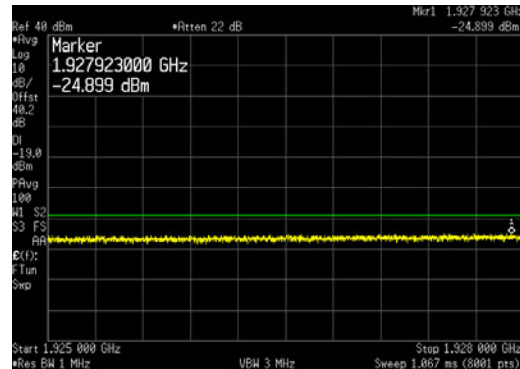
LTE10_Bottom Channel_LBE_1928 to 1929MHz



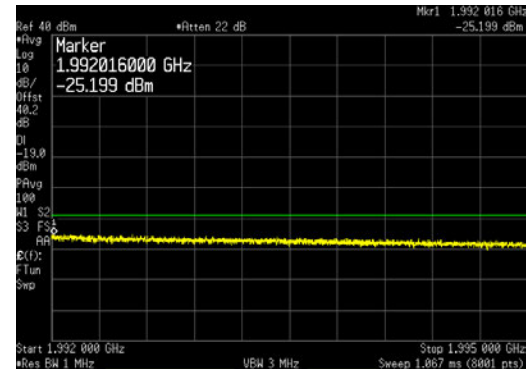
LTE10_Top Channel_UBE_1991 to 1992MHz



LTE10_Bottom Channel_LBE_1925 to 1928MHz

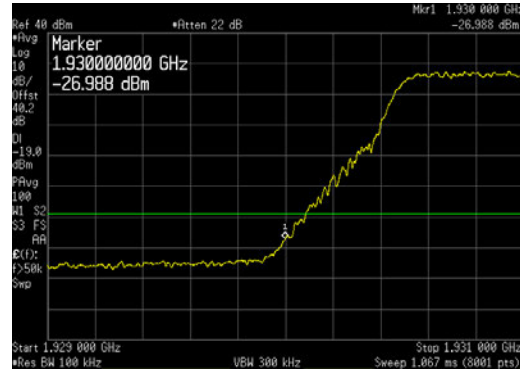


LTE10_Top Channel_UBE_1992 to 1995MHz

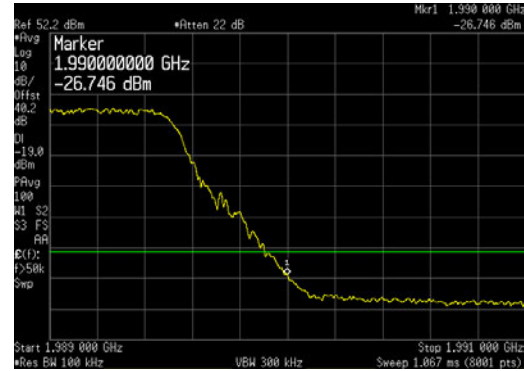


LTE10 Band Edge Plots for Antenna Port 7 and 256QAM Modulation:

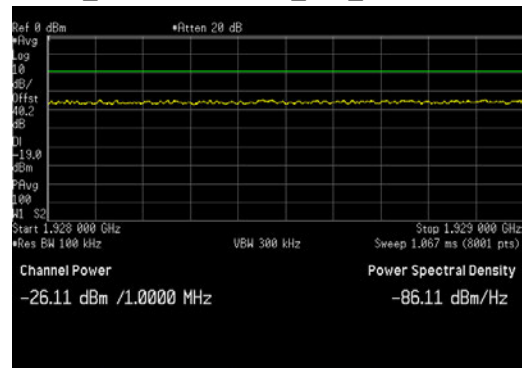
LTE10_Bottom Channel_LBE_1929 to 1931MHz



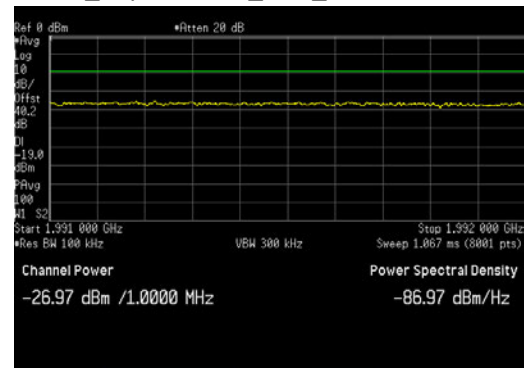
LTE10_Top Channel_UBE_1989 to 1991MHz



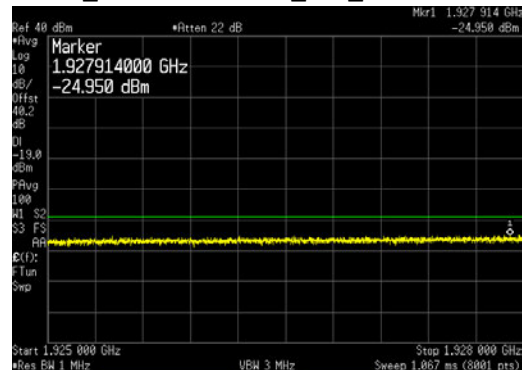
LTE10_Bottom Channel_LBE_1928 to 1929MHz



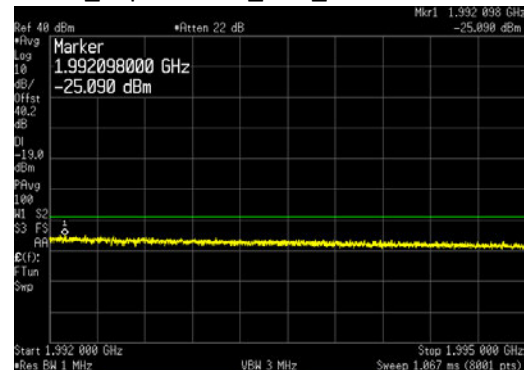
LTE10_Top Channel_UBE_1991 to 1992MHz



LTE10_Bottom Channel_LBE_1925 to 1928MHz

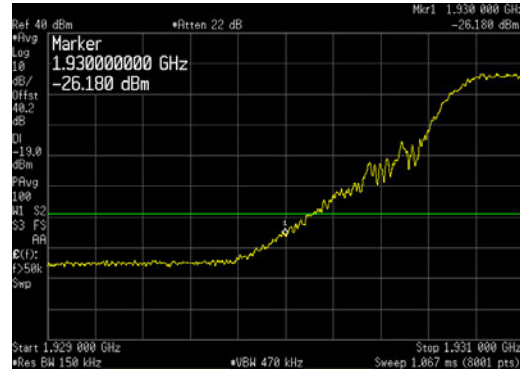


LTE10_Top Channel_UBE_1992 to 1995MHz

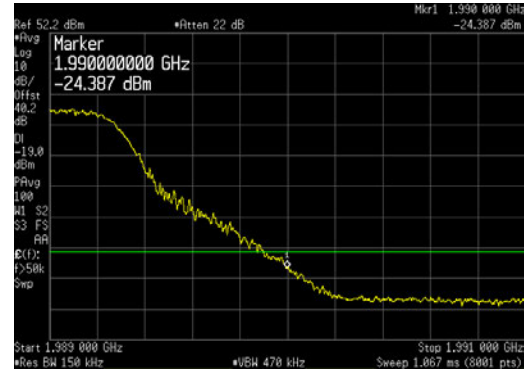


LTE15 Band Edge Plots for Antenna Port 7 and QPSK Modulation:

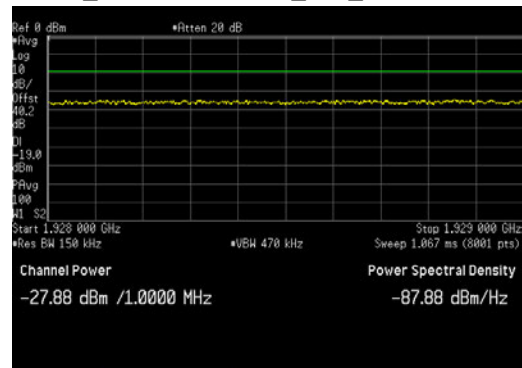
LTE15_Bottom Channel_LBE_1929 to 1931MHz



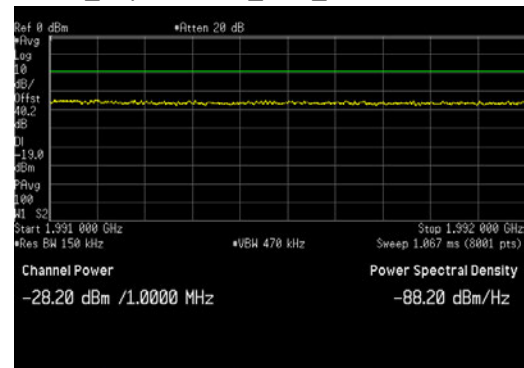
LTE15_Top Channel_UBE_1989 to 1991MHz



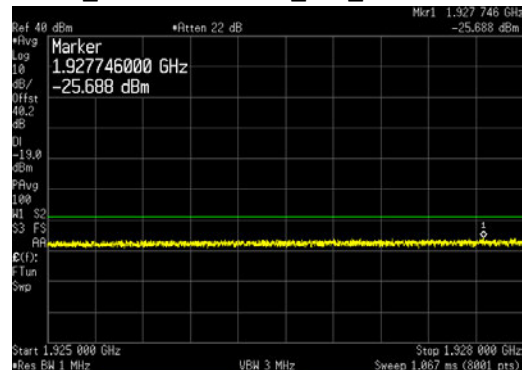
LTE15_Bottom Channel_LBE_1928 to 1929MHz



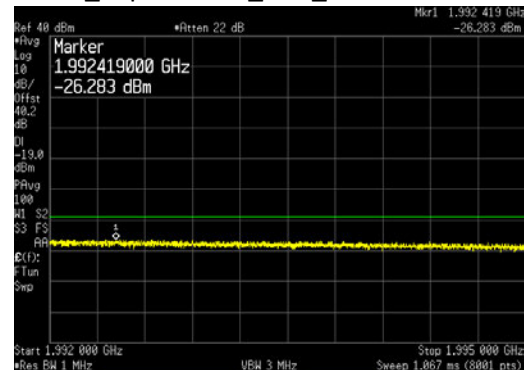
LTE15_Top Channel_UBE_1991 to 1992MHz



LTE15_Bottom Channel_LBE_1925 to 1928MHz

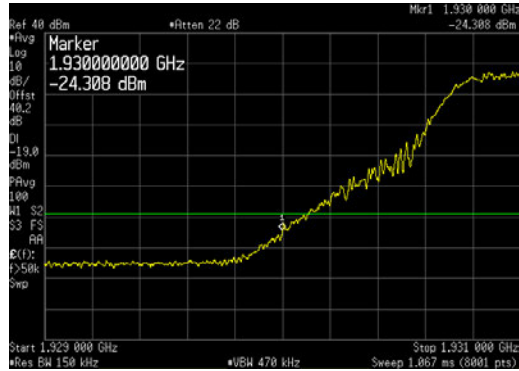


LTE15_Top Channel_UBE_1992 to 1995MHz

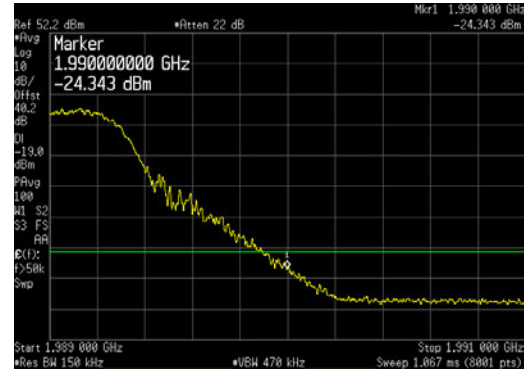


LTE15 Band Edge Plots for Antenna Port 7 and 16QAM Modulation:

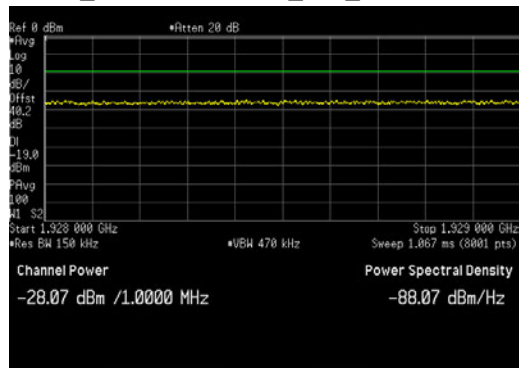
LTE15_Bottom Channel_LBE_1929 to 1931MHz



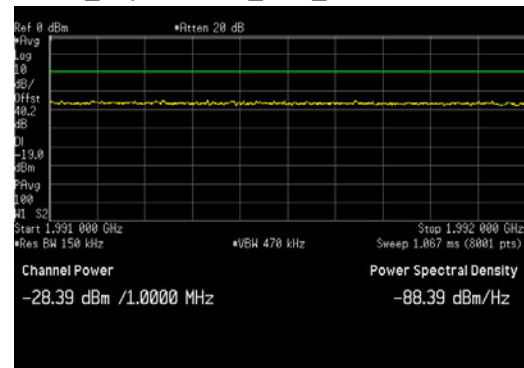
LTE15_Top Channel_UBE_1989 to 1991MHz



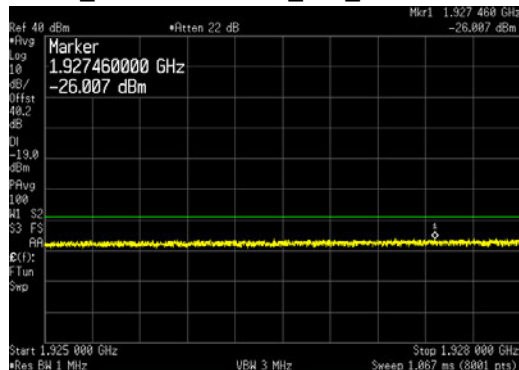
LTE15_Bottom Channel_LBE_1928 to 1929MHz



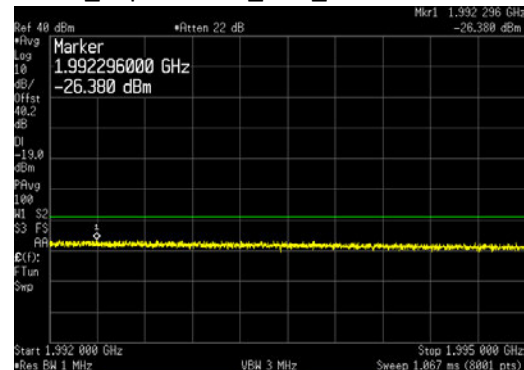
LTE15_Top Channel_UBE_1991 to 1992MHz



LTE15_Bottom Channel_LBE_1925 to 1928MHz

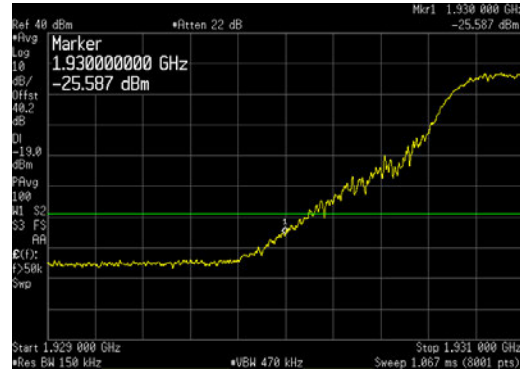


LTE15_Top Channel_UBE_1992 to 1995MHz

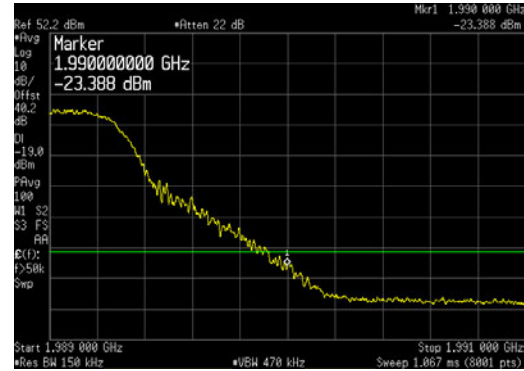


LTE15 Band Edge Plots for Antenna Port 7 and 64QAM Modulation:

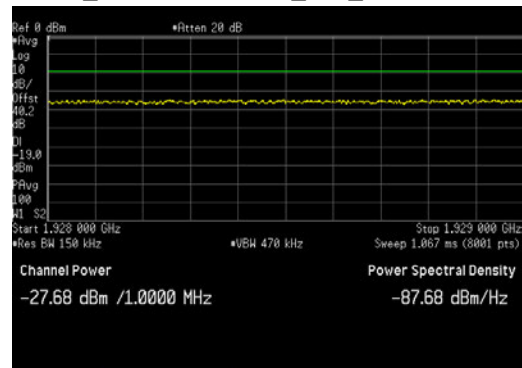
LTE15_Bottom Channel_LBE_1929 to 1931MHz



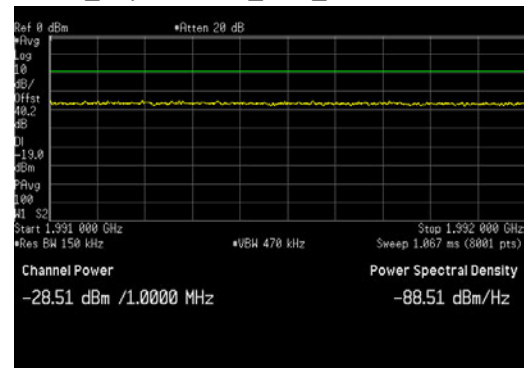
LTE15_Top Channel_UBE_1989 to 1991MHz



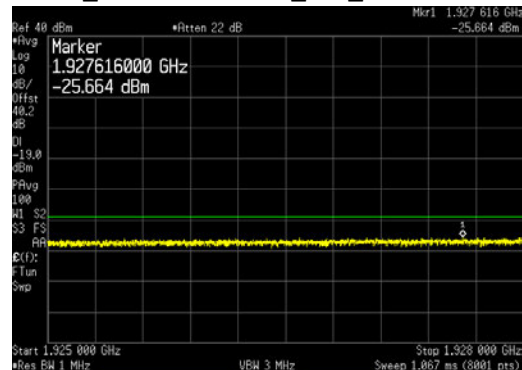
LTE15_Bottom Channel_LBE_1928 to 1929MHz



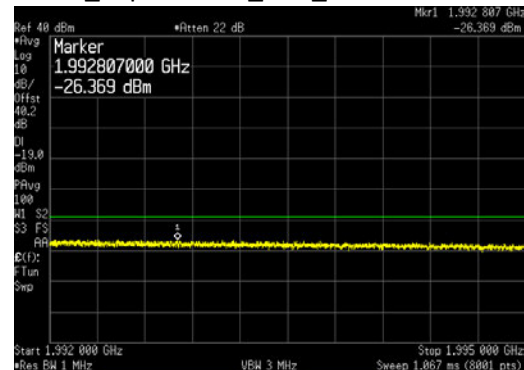
LTE15_Top Channel_UBE_1991 to 1992MHz



LTE15_Bottom Channel_LBE_1925 to 1928MHz

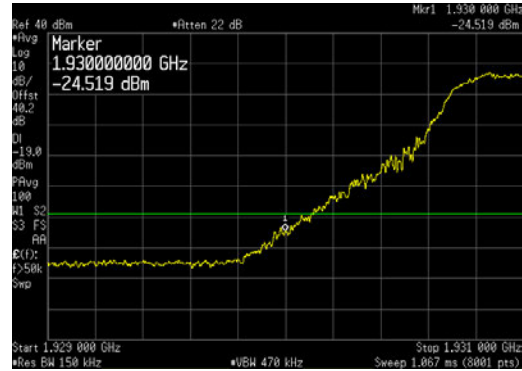


LTE15_Top Channel_UBE_1992 to 1995MHz

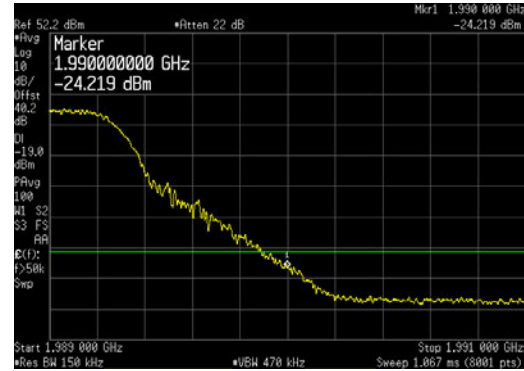


LTE15 Band Edge Plots for Antenna Port 7 and 256QAM Modulation:

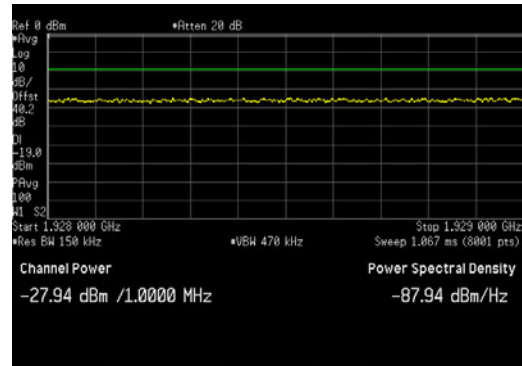
LTE15_Bottom Channel_LBE_1929 to 1931MHz



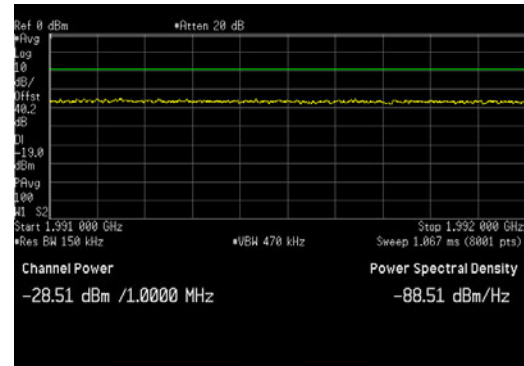
LTE15_Top Channel_UBE_1989 to 1991MHz



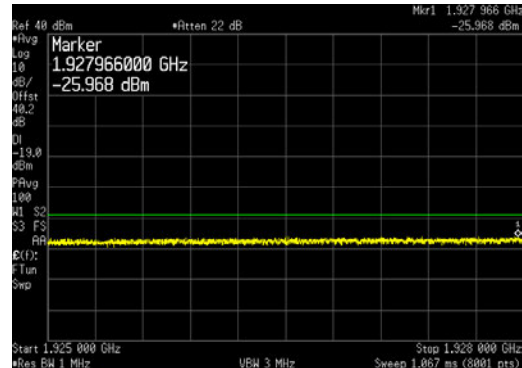
LTE15_Bottom Channel_LBE_1928 to 1929MHz



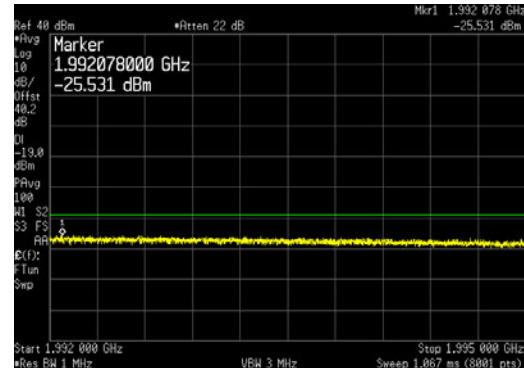
LTE15_Top Channel_UBE_1991 to 1992MHz



LTE15_Bottom Channel_LBE_1925 to 1928MHz

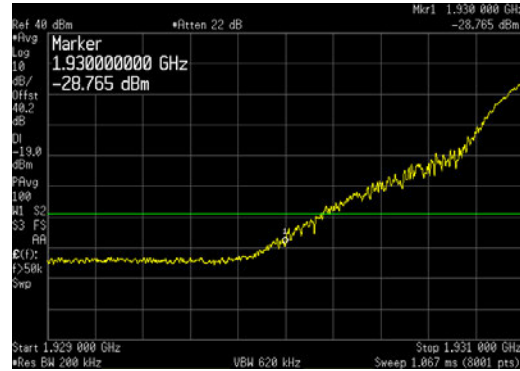


LTE15_Top Channel_UBE_1992 to 1995MHz

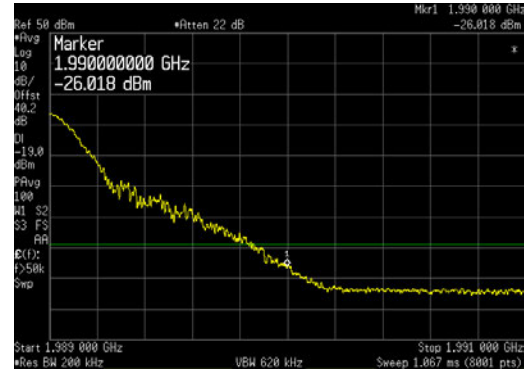


LTE20 Band Edge Plots for Antenna Port 7 and QPSK Modulation:

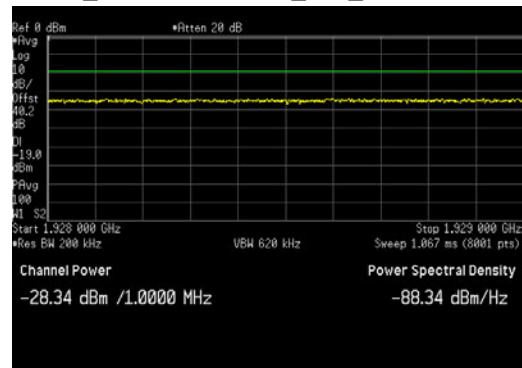
LTE20_Bottom Channel_LBE_1929 to 1931MHz



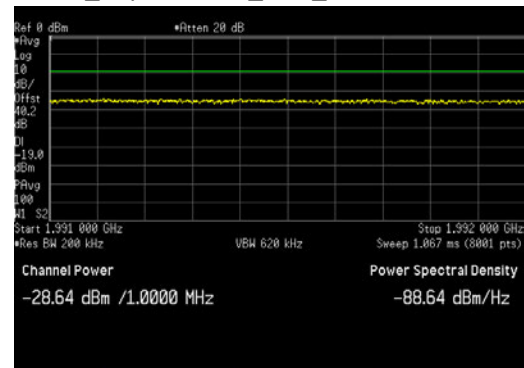
LTE20_Top Channel_UBE_1989 to 1991MHz



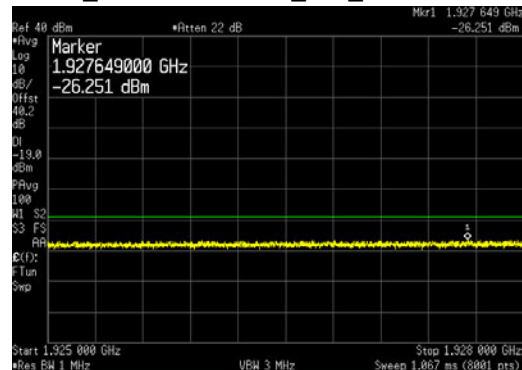
LTE20_Bottom Channel_LBE_1928 to 1929MHz



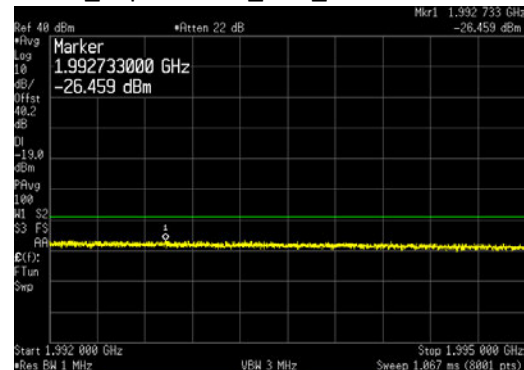
LTE20_Top Channel_UBE_1991 to 1992MHz



LTE20_Bottom Channel_LBE_1925 to 1928MHz

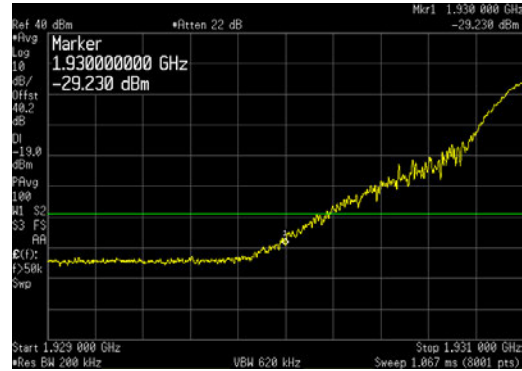


LTE20_Top Channel_UBE_1992 to 1995MHz

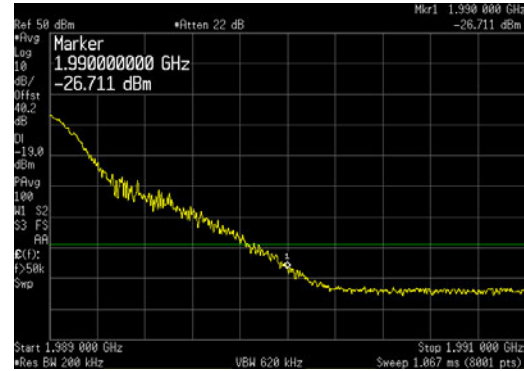


LTE20 Band Edge Plots for Antenna Port 7 and 16QAM Modulation:

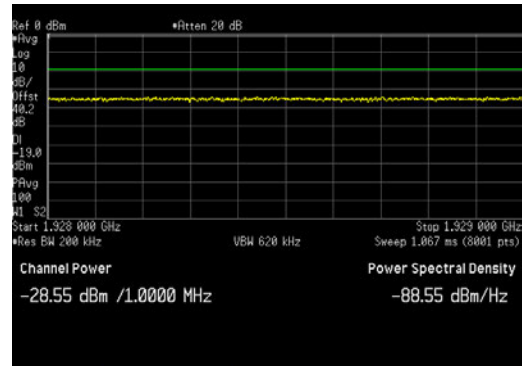
LTE20_Bottom Channel_LBE_1929 to 1931MHz



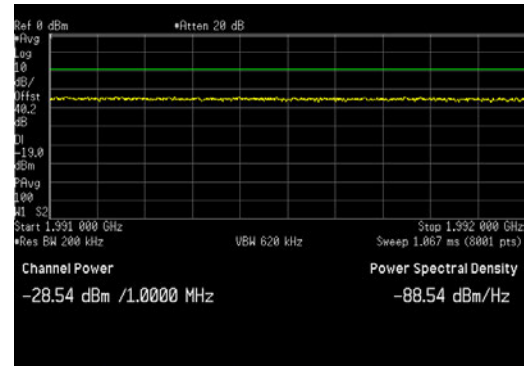
LTE20_Top Channel_UBE_1989 to 1991MHz



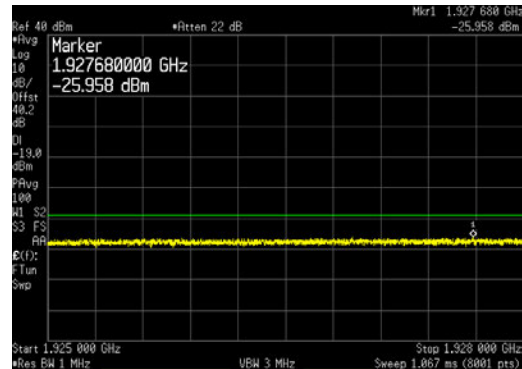
LTE20_Bottom Channel_LBE_1928 to 1929MHz



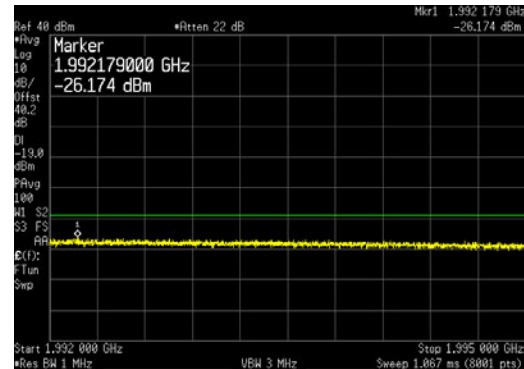
LTE20_Top Channel_UBE_1991 to 1992MHz



LTE20_Bottom Channel_LBE_1925 to 1928MHz

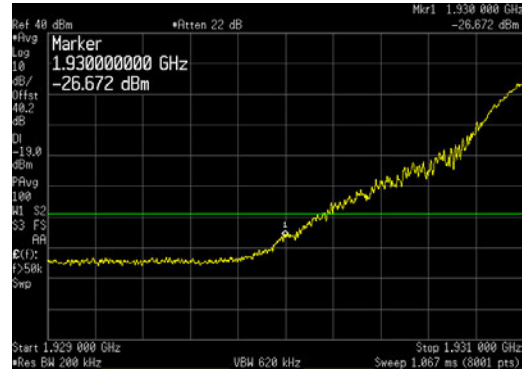


LTE20_Top Channel_UBE_1992 to 1995MHz

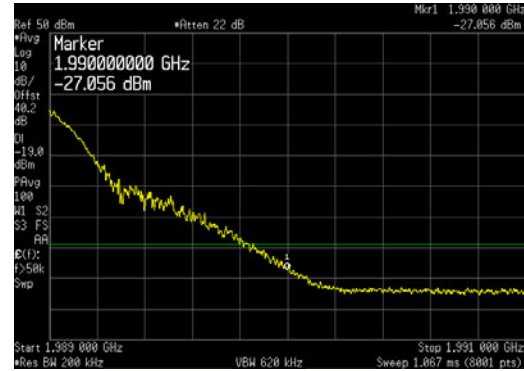


LTE20 Band Edge Plots for Antenna Port 7 and 64QAM Modulation:

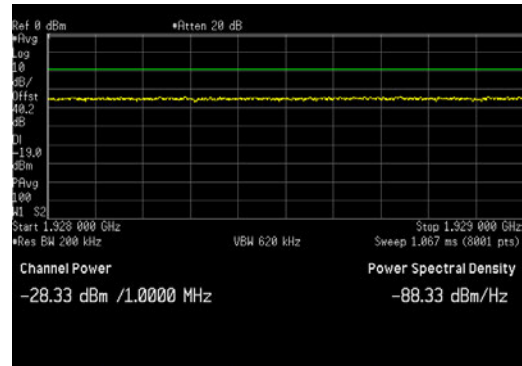
LTE20_Bottom Channel_LBE_1929 to 1931MHz



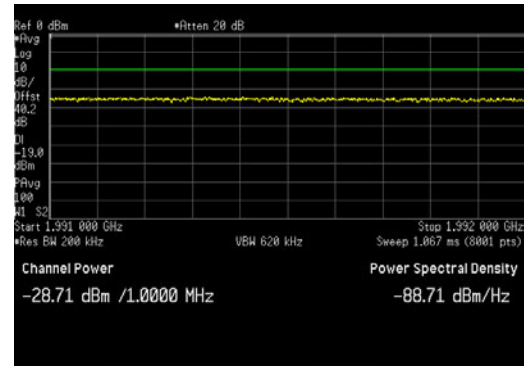
LTE20_Top Channel_UBE_1989 to 1991MHz



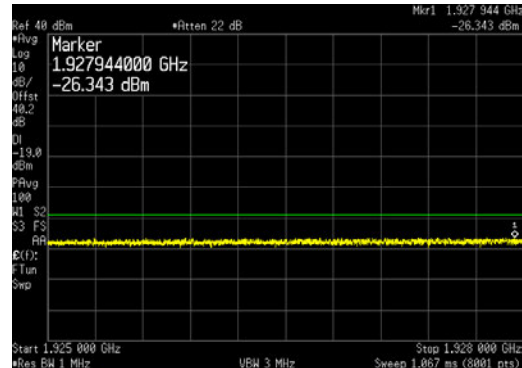
LTE20_Bottom Channel_LBE_1928 to 1929MHz



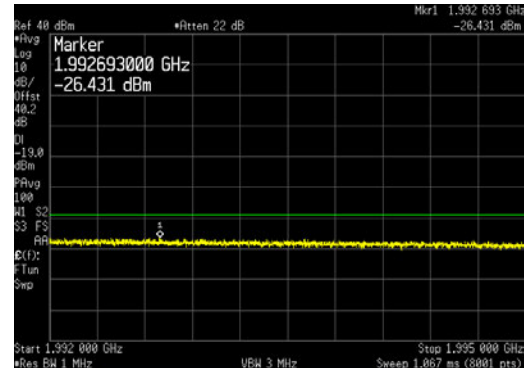
LTE20_Top Channel_UBE_1991 to 1992MHz



LTE20_Bottom Channel_LBE_1925 to 1928MHz

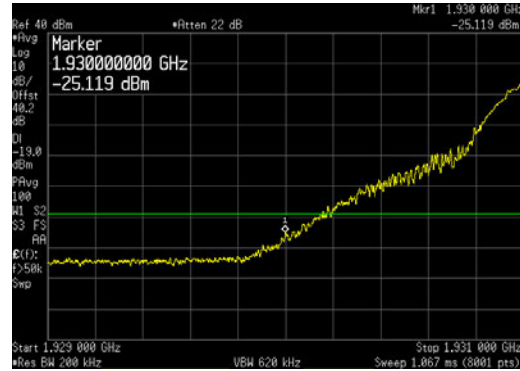


LTE20_Top Channel_UBE_1992 to 1995MHz

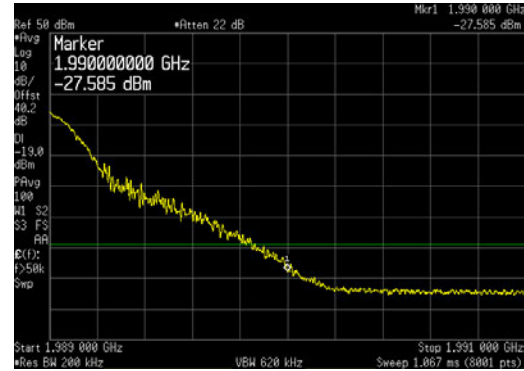


LTE20 Band Edge Plots for Antenna Port 7 and 256QAM Modulation:

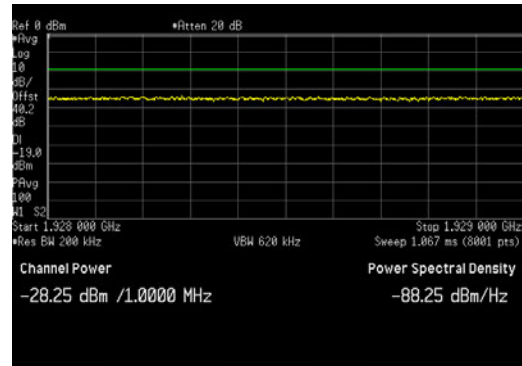
LTE20_Bottom Channel_LBE_1929 to 1931MHz



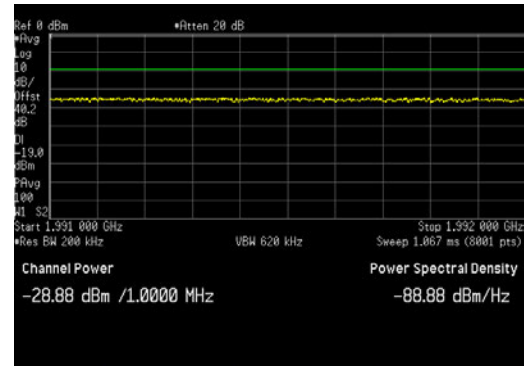
LTE20_Top Channel_UBE_1989 to 1991MHz



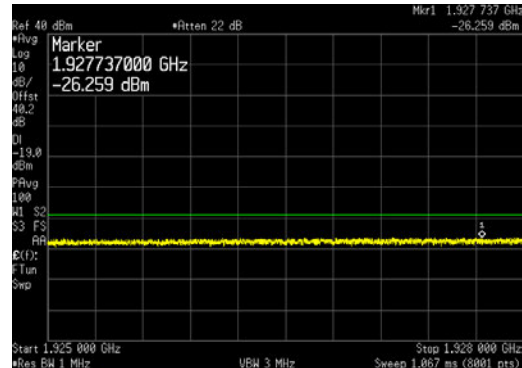
LTE20_Bottom Channel_LBE_1928 to 1929MHz



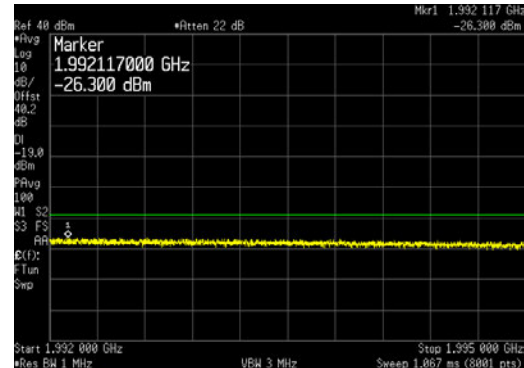
LTE20_Top Channel_UBE_1991 to 1992MHz



LTE20_Bottom Channel_LBE_1925 to 1928MHz

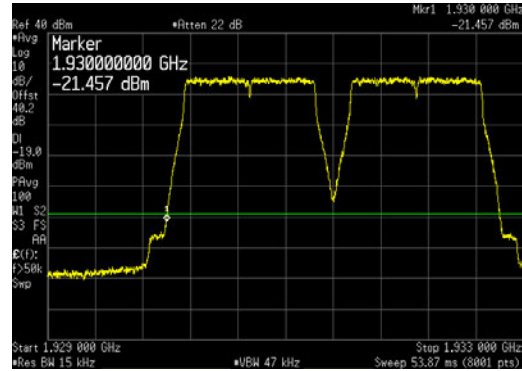


LTE20_Top Channel_UBE_1992 to 1995MHz

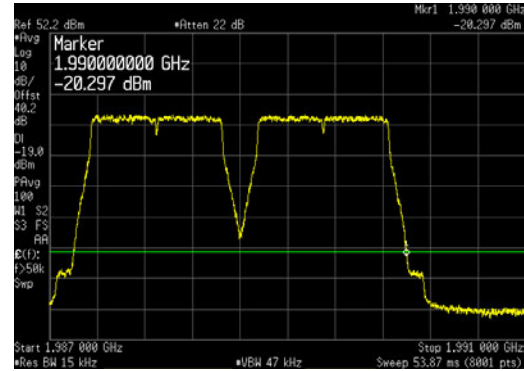


Dual LTE1.4_Band Edge Plots for Antenna Port 7 and QPSK Modulation:

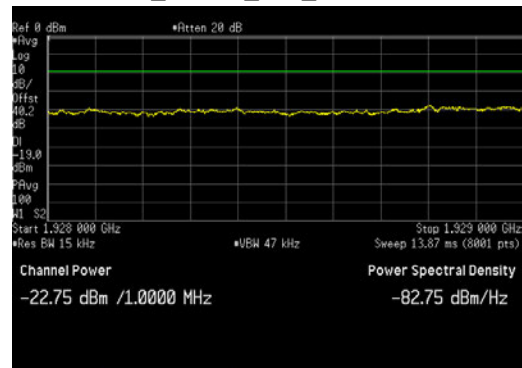
Dual LTE1.4_Bot Ch_LBE_1929 to 1933MHz



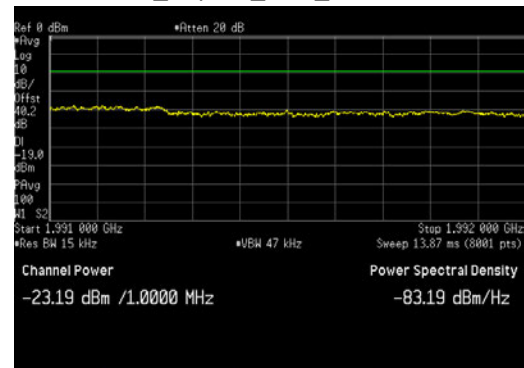
Dual LTE1.4_Top Ch_UBE_1987 to 1991MHz



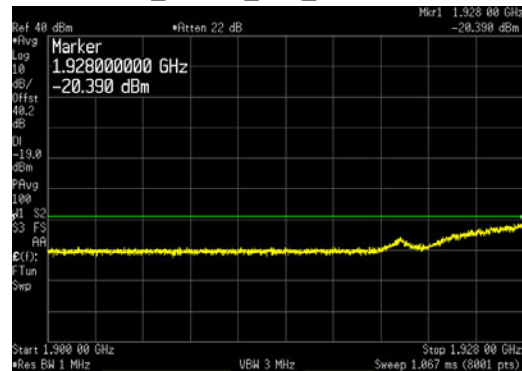
Dual LTE1.4_Bot Ch_LBE_1928 to 1929MHz



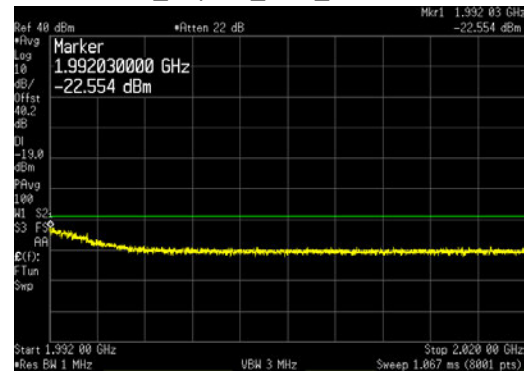
Dual LTE1.4_Top Ch_UBE_1991 to 1992MHz



Dual LTE1.4_Bot Ch_LBE_1900 to 1928MHz

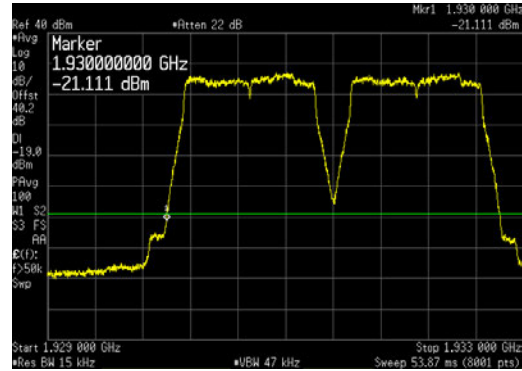


Dual LTE1.4_Top Ch_UBE_1992 to 2020MHz

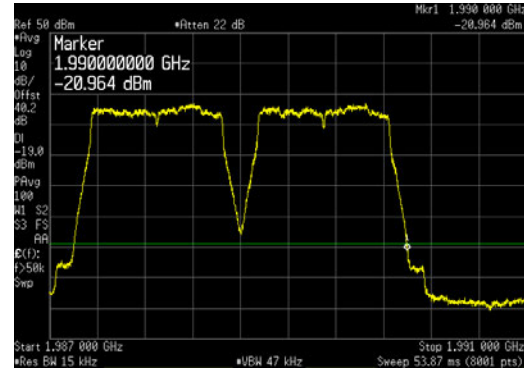


Dual LTE5_Band Edge Plots for Antenna Port 7 and 16QAM Modulation:

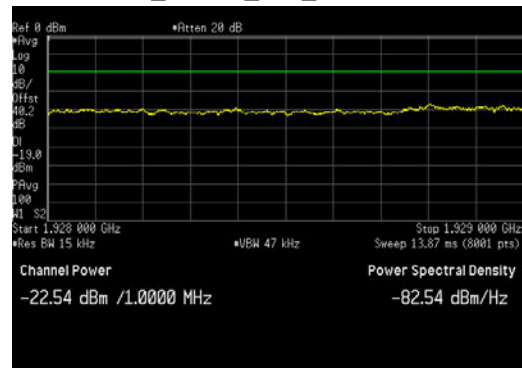
Dual LTE1.4_Bot Ch_LBE_1929 to 1933MHz



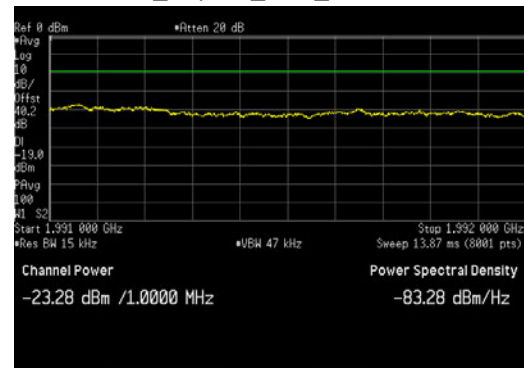
Dual LTE1.4_Top Ch_UBE_1987 to 1991MHz



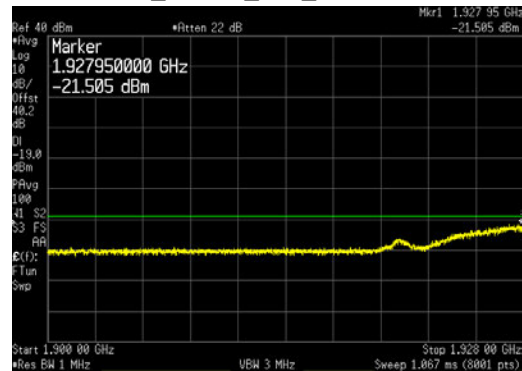
Dual LTE1.4_Bot Ch_LBE_1928 to 1929MHz



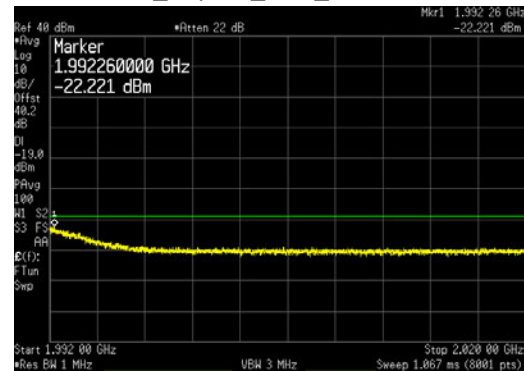
Dual LTE1.4_Top Ch_UBE_1991 to 1992MHz



Dual LTE1.4_Bot Ch_LBE_1900 to 1928MHz

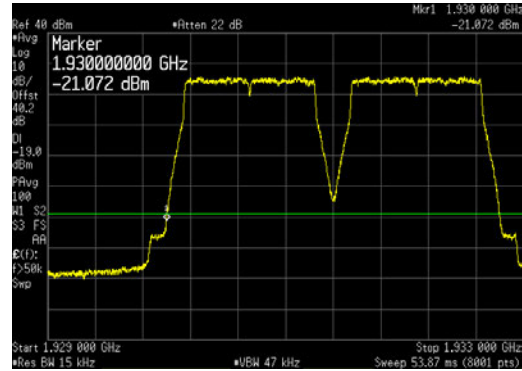


Dual LTE1.4_Top Ch_UBE_1992 to 2020MHz

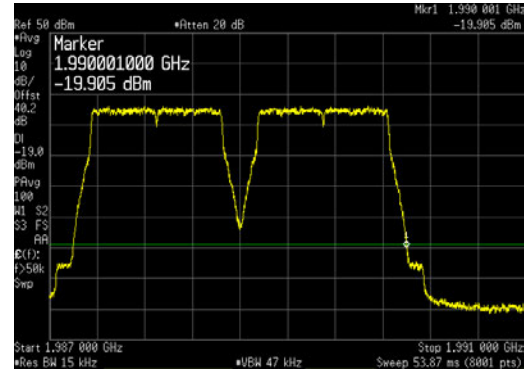


Dual LTE5_Band Edge Plots for Antenna Port 7 and 64QAM Modulation:

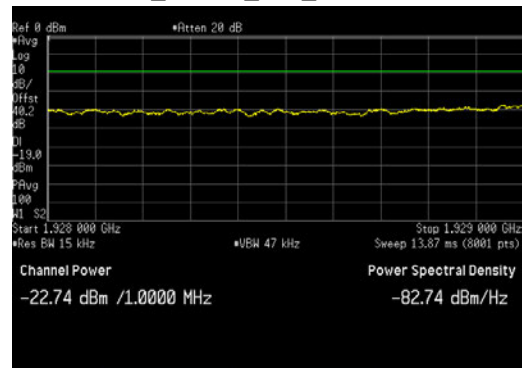
Dual LTE1.4_Bot Ch_LBE_1929 to 1933MHz



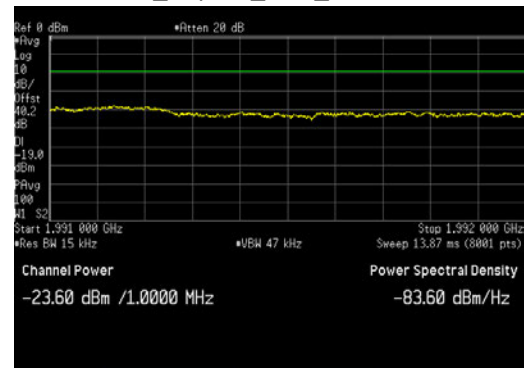
Dual LTE1.4_Top Ch_UBE_1987 to 1991MHz



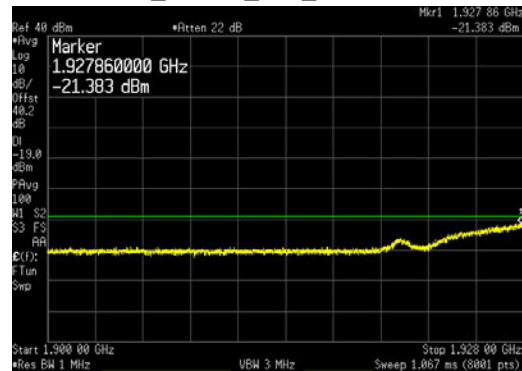
Dual LTE1.4_Bot Ch_LBE_1928 to 1929MHz



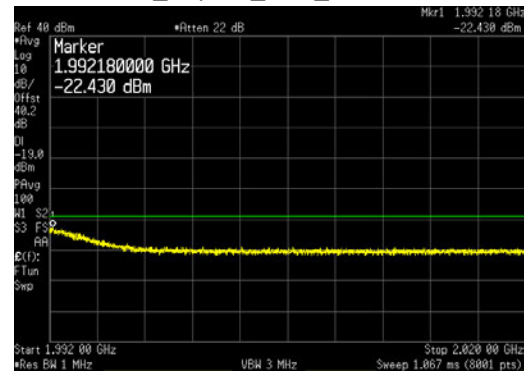
Dual LTE1.4_Top Ch_UBE_1991 to 1992MHz



Dual LTE1.4_Bot Ch_LBE_1900 to 1928MHz

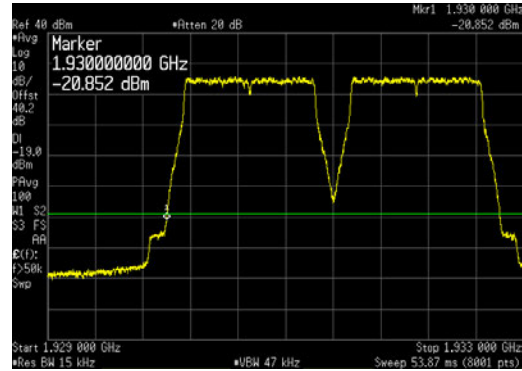


Dual LTE1.4_Top Ch_UBE_1992 to 2020MHz

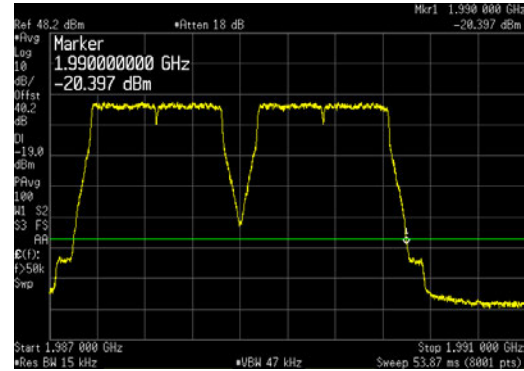


Dual LTE5_Band Edge Plots for Antenna Port 7 and 256QAM Modulation:

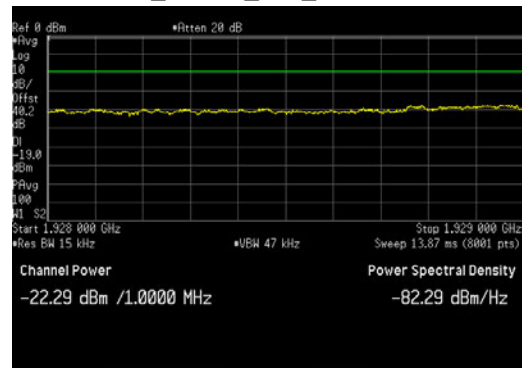
Dual LTE1.4_Bot Ch_LBE_1929 to 1933MHz



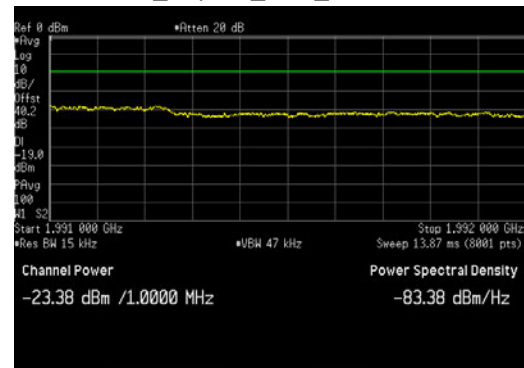
Dual LTE1.4_Top Ch_UBE_1987 to 1991MHz



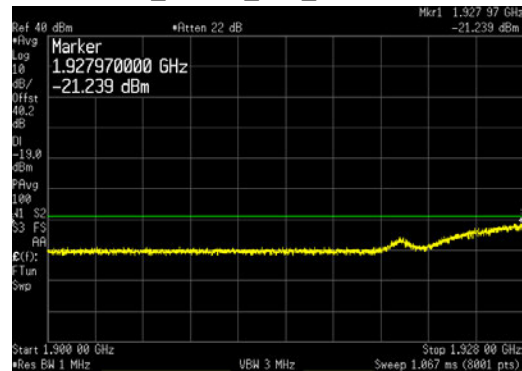
Dual LTE1.4_Bot Ch_LBE_1928 to 1929MHz



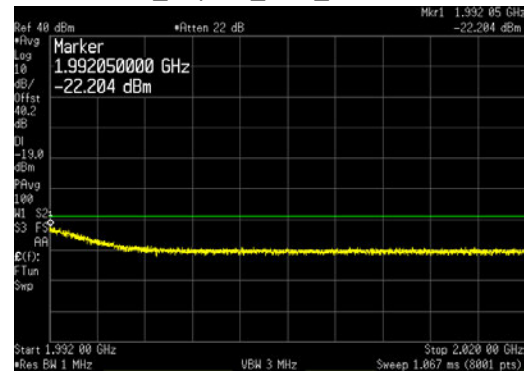
Dual LTE1.4_Top Ch_UBE_1991 to 1992MHz



Dual LTE1.4_Bot Ch_LBE_1900 to 1928MHz



Dual LTE1.4_Top Ch_UBE_1992 to 2020MHz



Transmitter Antenna Port Conducted Emissions

Transmitter conducted emission measurements are made at RRH antenna port 7 (highest power PCS port). Measurements are performed over the 9kHz to 22GHz frequency range. The RRH was operated on Band 2 middle channel (1960MHz) and Band 66a middle channel (2145MHz) simultaneously with all LTE modulation types (QPSK, 16QAM, 64QAM and 256QAM) for all available LTE bandwidths (Band 2: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz and 20MHz; Band 66a: 5MHz, 10MHz, 15MHz and 20MHz). The same LTE bandwidth was used for both frequency bands when available. If the same LTE bandwidth for both bands was not available then the smallest LTE bandwidth was used. The 3GPP Band 2 transmitters (antenna ports 5-8) are enabled at 40 watts per carrier (the 3GPP Band 66a transmitters are enabled at 40 watts per carrier on antenna ports 1-4).

The limit of -19dBm was used in the certification testing. The limit is adjusted to -19dBm $[-13\text{dBm} - 10 \log(4)]$ per FCC KDB 662911D01 v02r01 because the BTS may operate as a 4 port MIMO transmitter. The required measurement parameters include a 1MHz bandwidth with power measured in average value (since transmitter power was measured in average value). Measurements were performed with a spectrum analyzer using a peak detector with max hold over 50 sweeps (except for the 20MHz to 3GHz frequency range). Measurements for the 20MHz to 3GHz frequency range were performed with the spectrum analyzer in the RMS average mode over 100 traces.

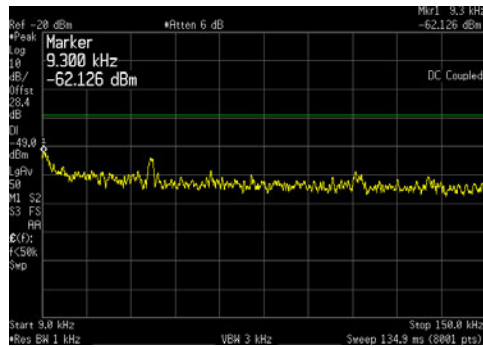
The limit for the 9kHz to 150kHz frequency range was adjusted to -49dBm to correct for a spectrum analyzer RBW of 1kHz versus required RBW of 1MHz [i.e.: $-49\text{dBm} = -19\text{dBm} - 10\log(1\text{MHz}/1\text{kHz})$]. The limit for the 150kHz to 20MHz frequency range was adjusted to -29dBm to correct for a spectrum analyzer RBW of 100kHz versus required RBW of 1MHz [i.e.: $-29\text{dBm} = -19\text{dBm} - 10\log(1\text{MHz}/100\text{kHz})$]. The required limit of -19dBm with a RBW of 1MHz was used for all other frequency ranges. The spectrum analyzer settings that were used for this test are summarized in the following table.

Frequency Range	RBW	VBW	Number of Data Points	Detector	Sweep Time	Max Hold over	Offset Note (1)
9kHz to 150kHz	1kHz	3kHz	8001	Peak	Auto	50 Sweeps	28.4dB
150kHz to 20MHz	100kHz	300kHz	8001	Peak	Auto	50 Sweeps	28.2dB
20MHz to 3GHz	1MHz	3MHz	8001	Average	Auto	Note (2)	40.2dB
3GHz to 6GHz	1MHz	3MHz	8001	Peak	Auto	50 Sweeps	40.0dB
6GHz to 10GHz	1MHz	3MHz	8001	Peak	Auto	50 Sweeps	31.0dB
10GHz to 14GHz	1MHz	3MHz	8001	Peak	Auto	50 Sweeps	32.8dB
14GHz to 18GHz	1MHz	3MHz	8001	Peak	Auto	50 Sweeps	33.8dB
18GHz to 22GHz	1MHz	3MHz	8001	Peak	Auto	50 Sweeps	38.9dB
Note 1: The total measurement RF path loss of the test setup (attenuators, test cables and filters) is accounted for by the spectrum analyzer reference level offset.							
Note 2: Max Hold not used and instead measurements were performed with the spectrum analyzer in the RMS average mode over 100 traces.							

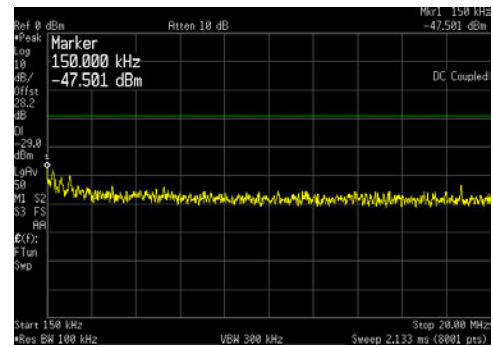
A low pass filter was used to reduce measurement instrumentation noise floor for the frequency ranges less than 20MHz. A high pass filter was used to reduce measurement instrumentation noise floor for the frequency ranges above 6GHz. The total measurement RF path loss of the test setup (attenuators, low pass filter, high pass filter and test cables) as shown in the table is accounted for by the spectrum analyzer reference level offset. The display line on the plots reflects the required limit. Conducted spurious emission plots/measurements are provided in the following pages.

LTE1.4 Channel Bandwidth _ QPSK _ Middle Channel (1960MHz) at 40 watts/carrier:

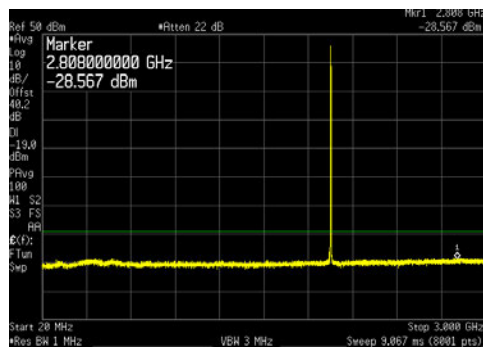
9kHz to 150kHz



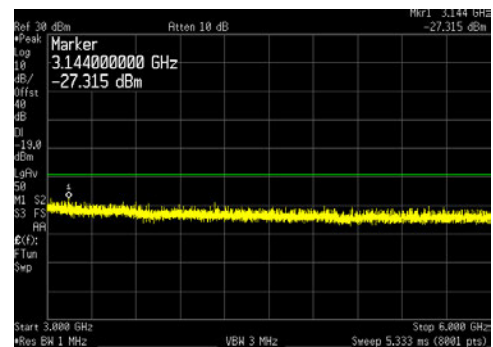
150kHz to 20MHz



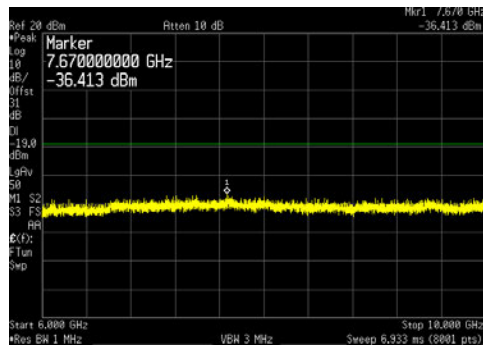
20MHz to 3GHz



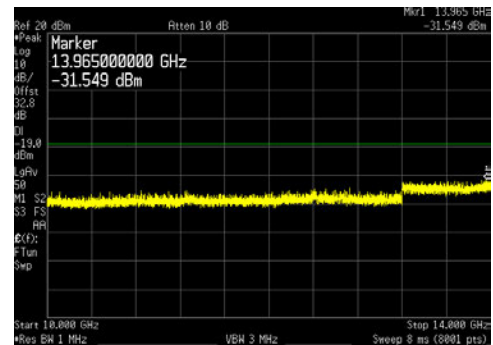
3GHz to 6GHz



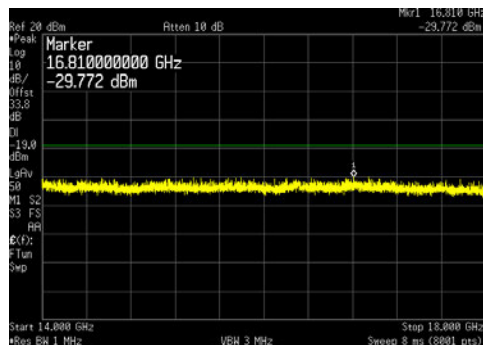
6GHz to 10GHz



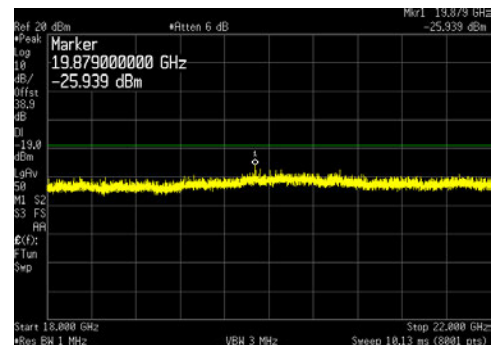
10GHz to 14GHz



14GHz to 18GHz

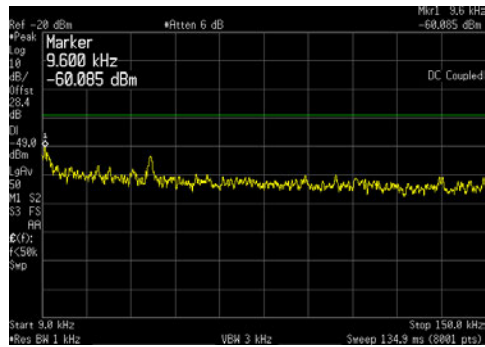


18GHz to 22GHz

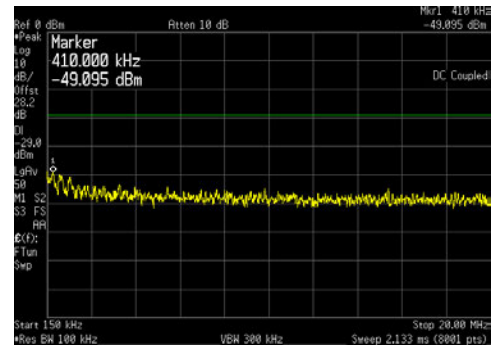


LTE1.4 Channel Bandwidth _ 16QAM _ Middle Channel (1960MHz) at 40 watts/carrier:

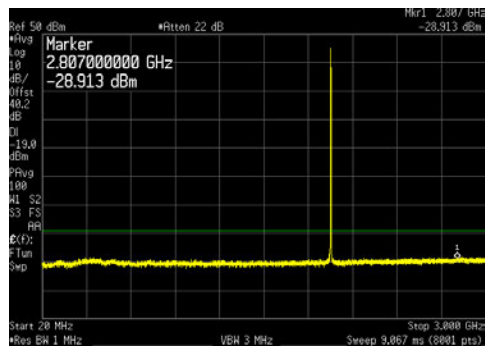
9kHz to 150kHz



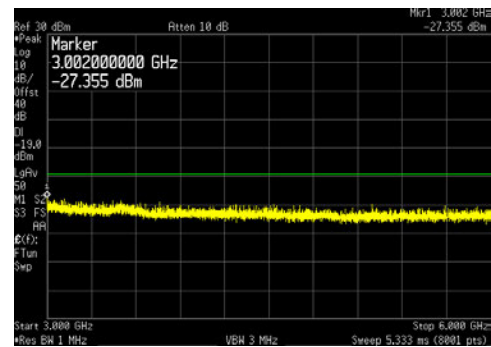
150kHz to 20MHz



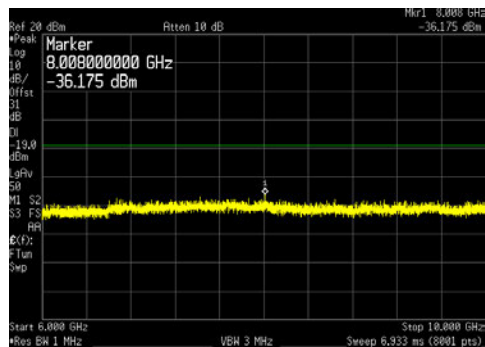
20MHz to 3GHz



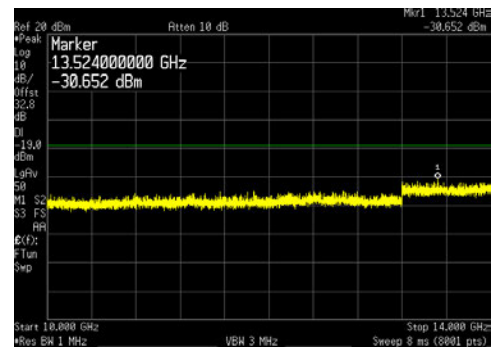
3GHz to 6GHz



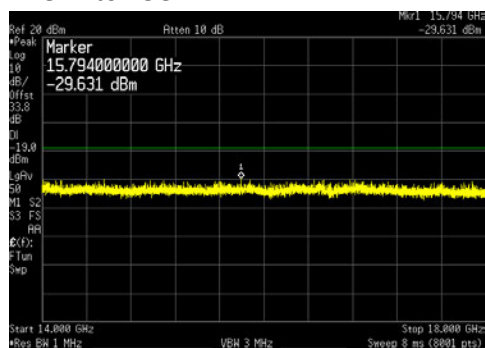
6GHz to 10GHz



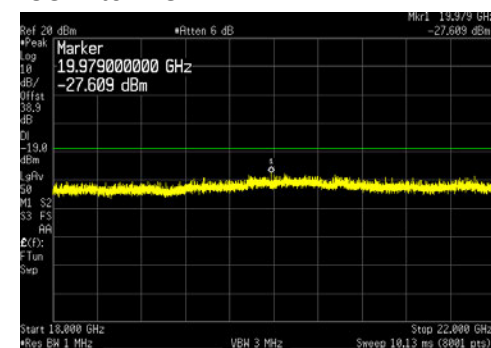
10GHz to 14GHz



14GHz to 18GHz

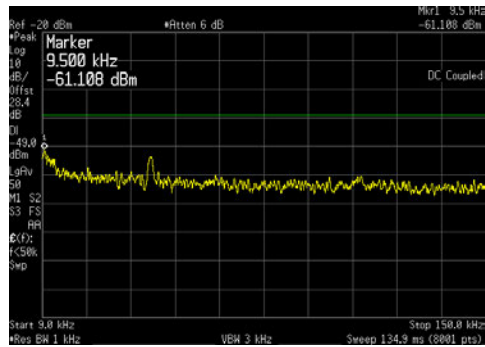


18GHz to 22GHz

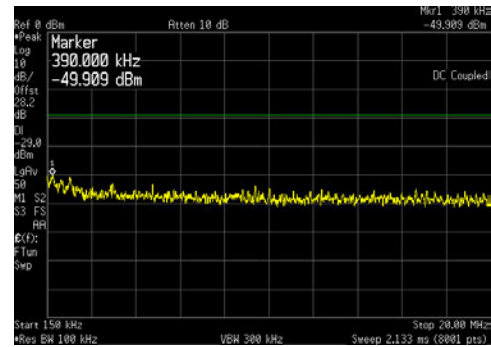


LTE1.4 Channel Bandwidth _ 64QAM _ Middle Channel (1960MHz) at 40 watts/carrier:

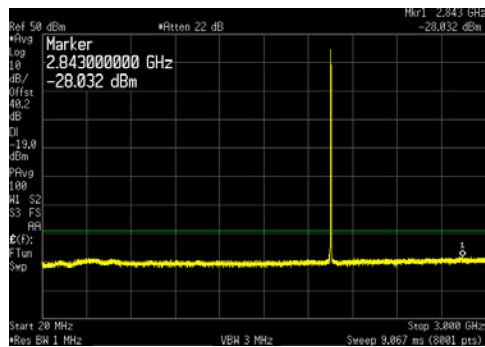
9kHz to 150kHz



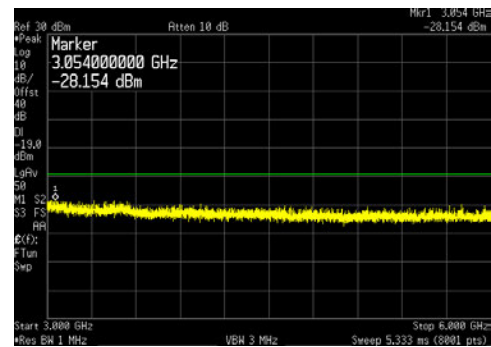
150kHz to 20MHz



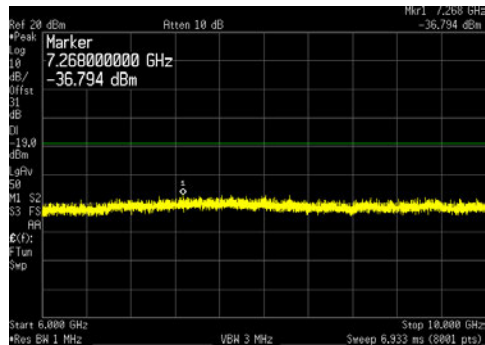
20MHz to 3GHz



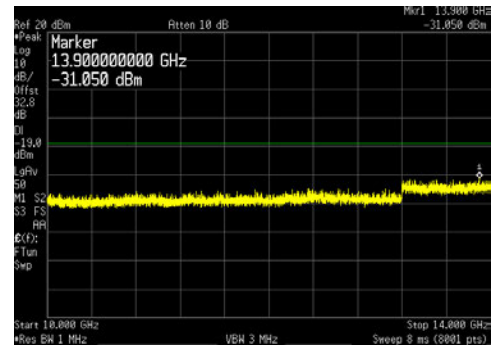
3GHz to 6GHz



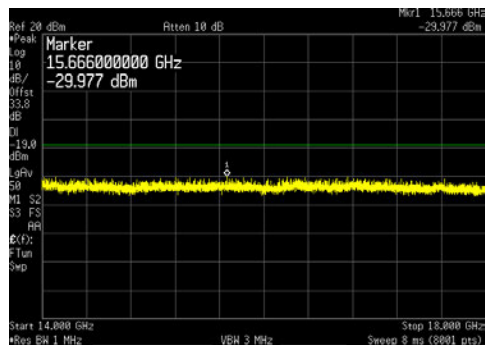
6GHz to 10GHz



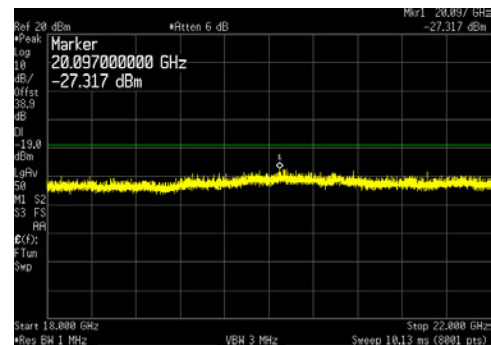
10GHz to 14GHz



14GHz to 18GHz

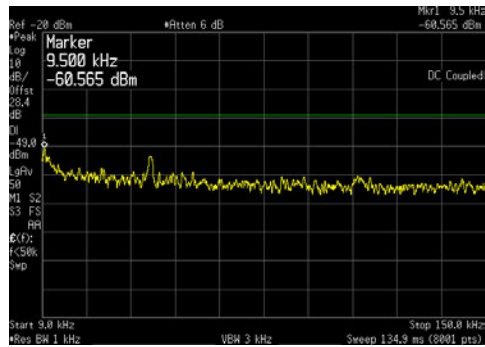


18GHz to 22GHz

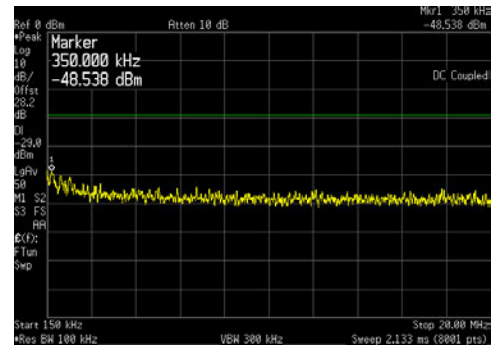


LTE1.4 Channel Bandwidth _ 256QAM _ Middle Channel (1960MHz) at 40 watts/carrier:

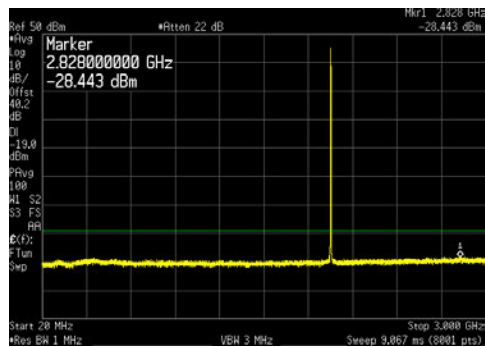
9kHz to 150kHz



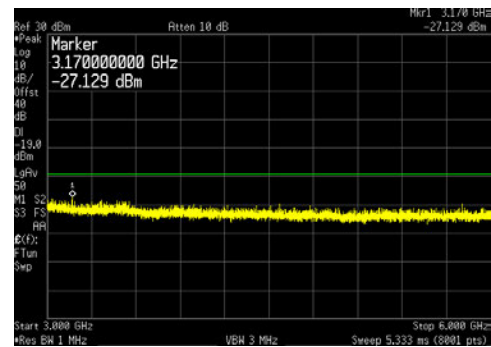
150kHz to 20MHz



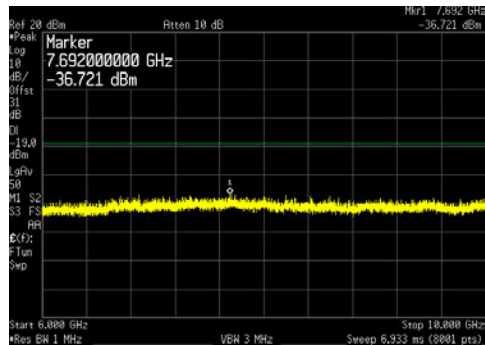
20MHz to 3GHz



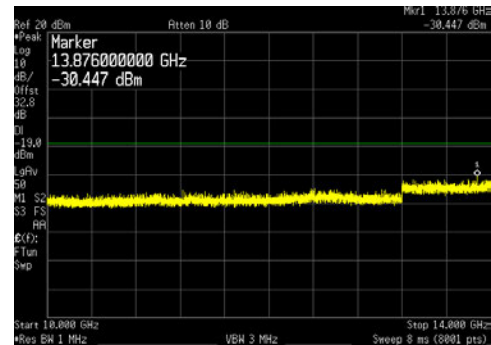
3GHz to 6GHz



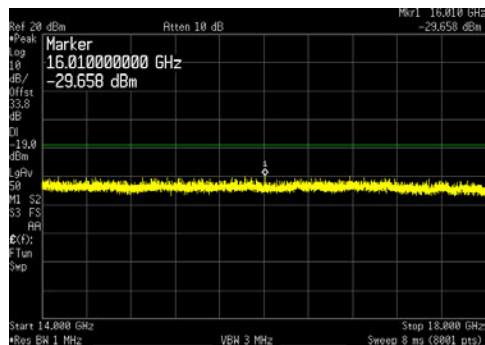
6GHz to 10GHz



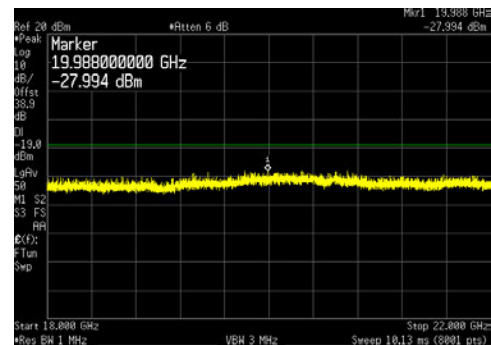
10GHz to 14GHz



14GHz to 18GHz

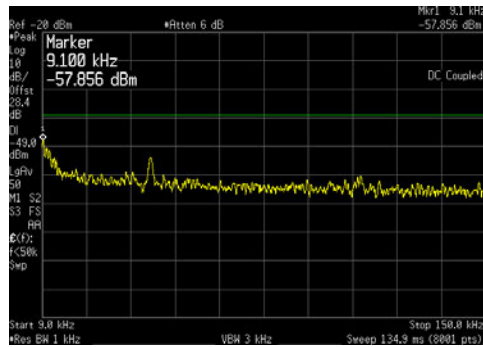


18GHz to 22GHz

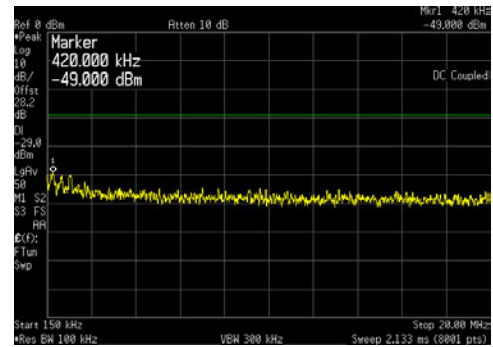


LTE3 Channel Bandwidth _ QPSK _ Middle Channel (1960MHz) at 40 watts/carrier:

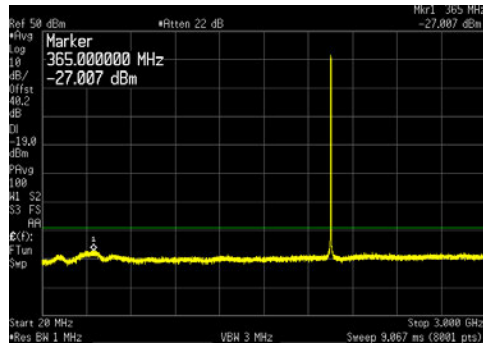
9kHz to 150kHz



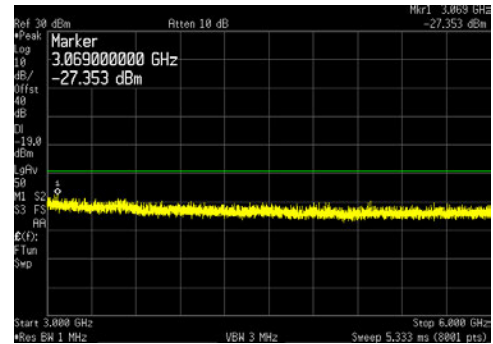
150kHz to 20MHz



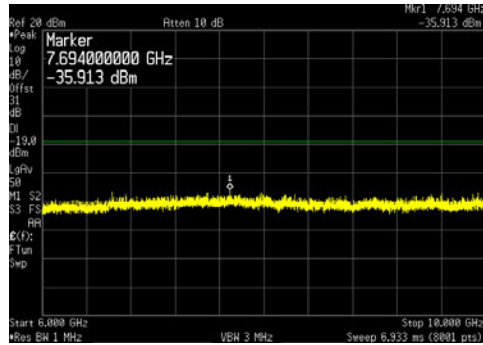
20MHz to 3GHz



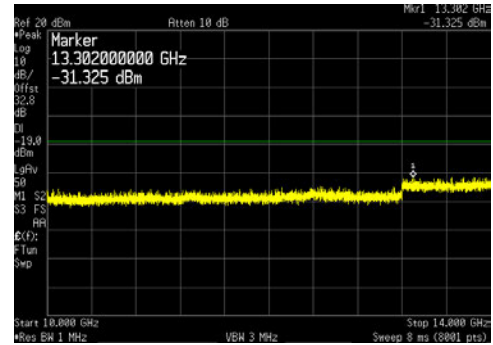
3GHz to 6GHz



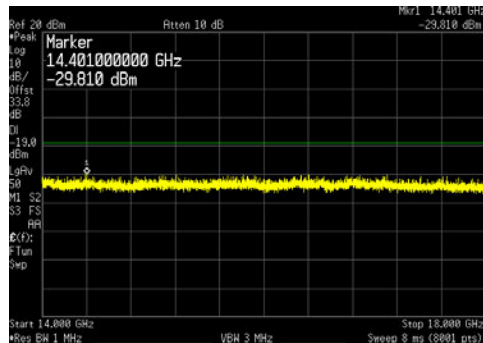
6GHz to 10GHz



10GHz to 14GHz



14GHz to 18GHz



18GHz to 22GHz

