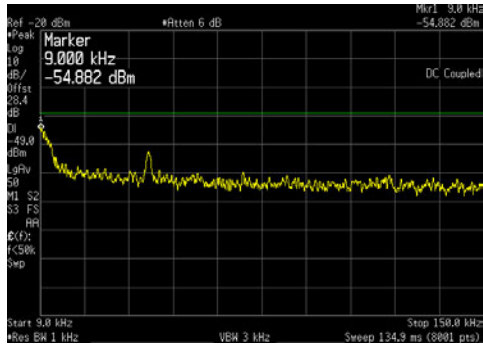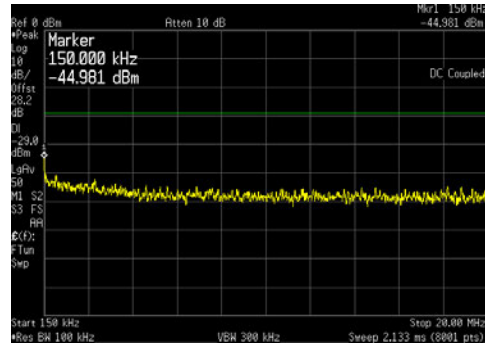LTE5 Channel Bandwidth _ 64QAM _ Middle Channel (2145MHz) at 60 watts/carrier:
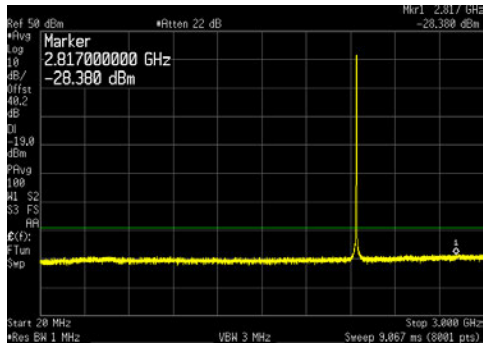
9kHz to 150kHz

150kHz to 20MHz

20MHz to 3GHz

3GHz to 6GHz

6GHz to 10GHz

10GHz to 14GHz

14GHz to 18GHz

18GHz to 22GHz

LTE5 Channel Bandwidth _ 256QAM _ Middle Channel (2145MHz) at 60 watts/carrier:

9kHz to 150kHz
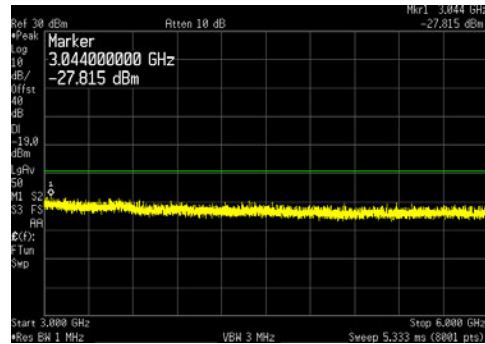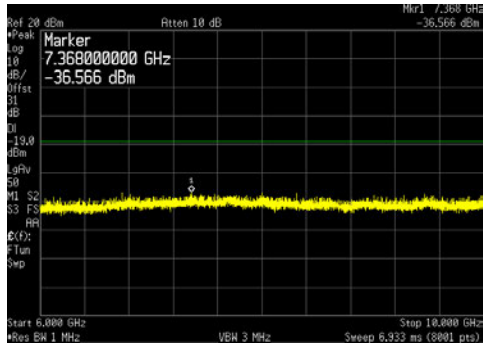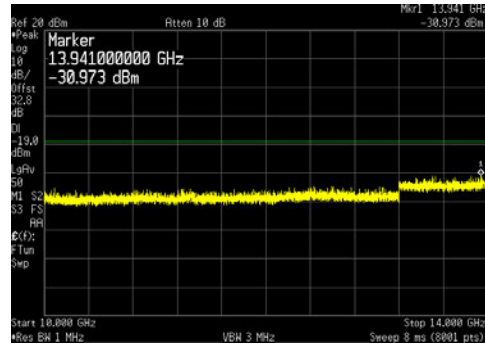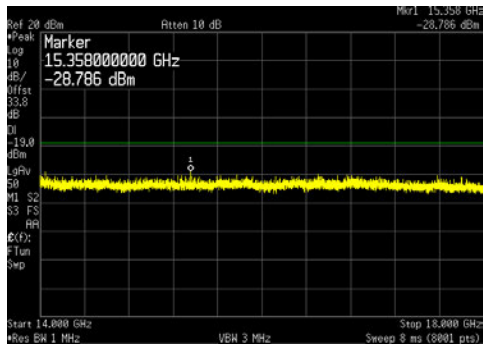
150kHz to 20MHz

20MHz to 3GHz

3GHz to 6GHz

6GHz to 10GHz

10GHz to 14GHz

14GHz to 18GHz

18GHz to 22GHz

LTE10 Channel Bandwidth _ QPSK _ Middle Channel (2145MHz) at 60 watts/carrier:

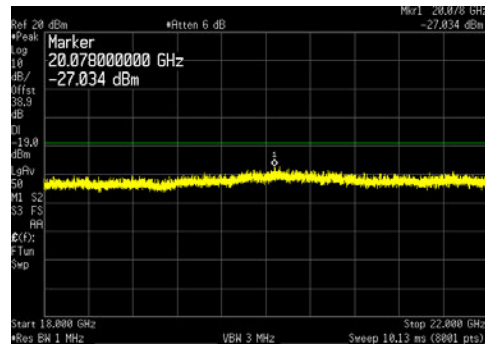9kHz to 150kHz

150kHz to 20MHz

20MHz to 3GHz

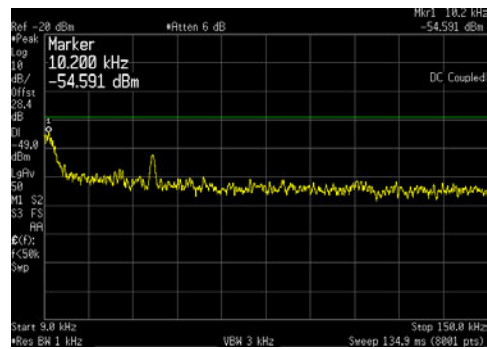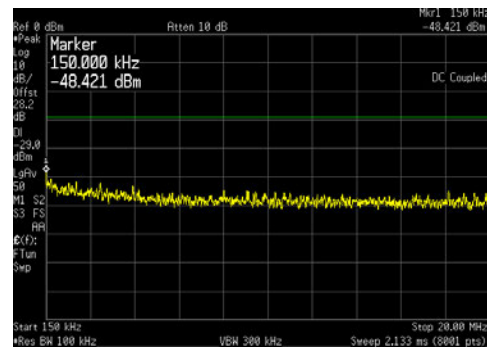3GHz to 6GHz

6GHz to 10GHz

10GHz to 14GHz

14GHz to 18GHz

18GHz to 22GHz

LTE10 Channel Bandwidth _ 16QAM _ Middle Channel (2145MHz) at 60 watts/carrier:

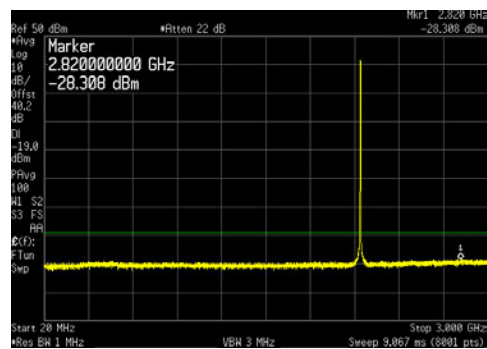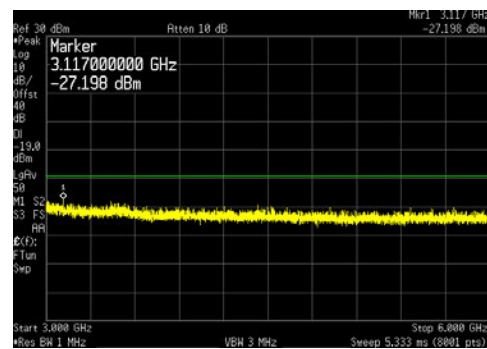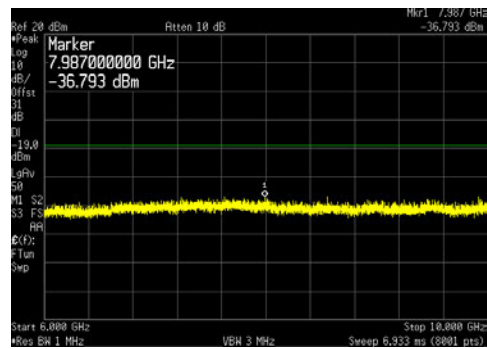9kHz to 150kHz

150kHz to 20MHz

20MHz to 3GHz

3GHz to 6GHz

6GHz to 10GHz

10GHz to 14GHz

14GHz to 18GHz

18GHz to 22GHz

LTE10 Channel Bandwidth _ 64QAM _ Middle Channel (2145MHz) at 60 watts/carrier:
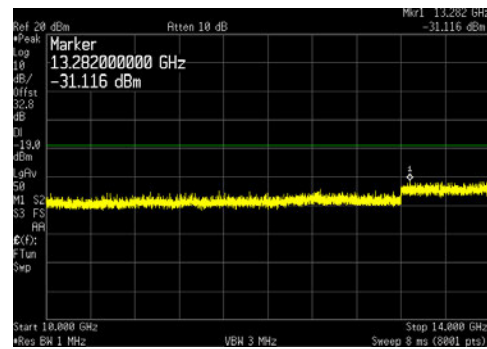
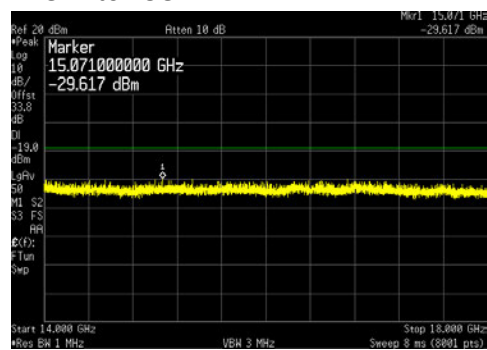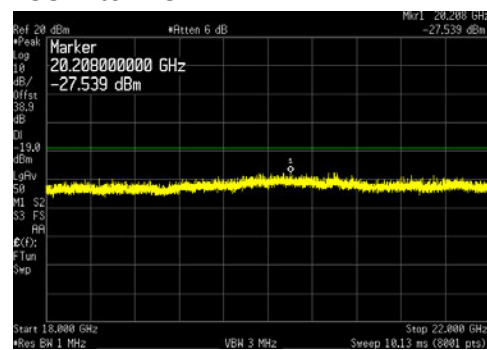9kHz to 150kHz

150kHz to 20MHz

20MHz to 3GHz

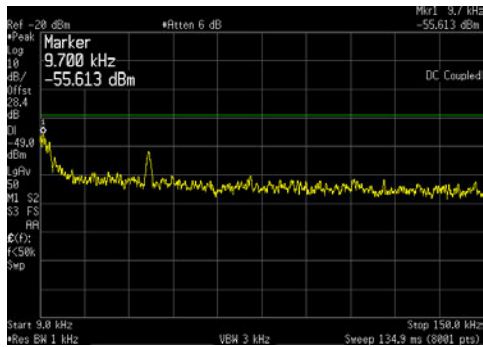3GHz to 6GHz

6GHz to 10GHz

10GHz to 14GHz

14GHz to 18GHz

18GHz to 22GHz

LTE10 Channel Bandwidth _ 256QAM _ Middle Channel (2145MHz) at 60 watts/carrier:

9kHz to 150kHz

150kHz to 20MHz

20MHz to 3GHz

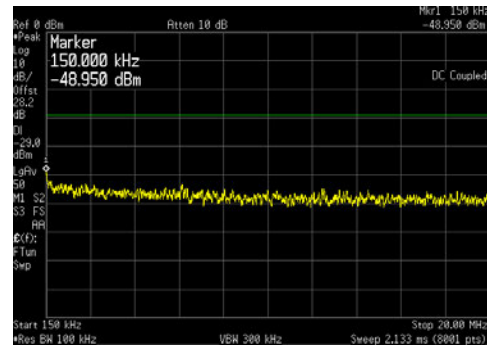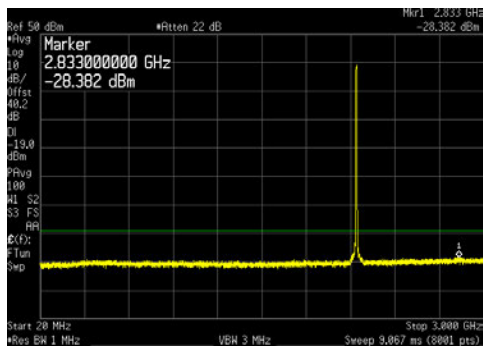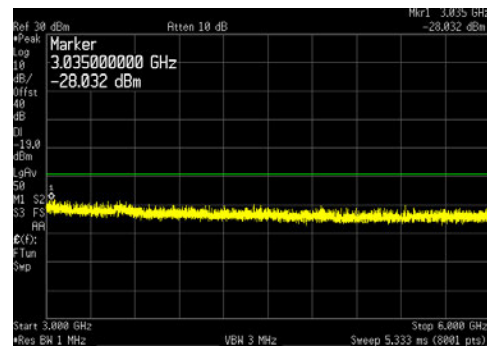3GHz to 6GHz

6GHz to 10GHz

10GHz to 14GHz

14GHz to 18GHz

18GHz to 22GHz

LTE15 Channel Bandwidth _ QPSK _ Middle Channel (2145MHz) at 60 watts/carrier:
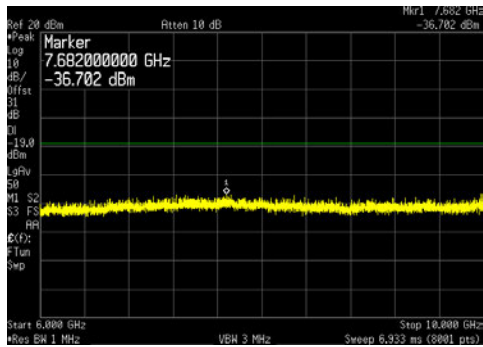
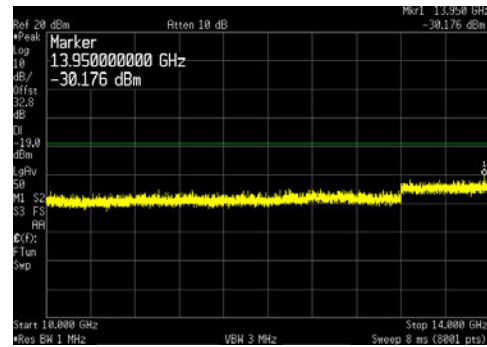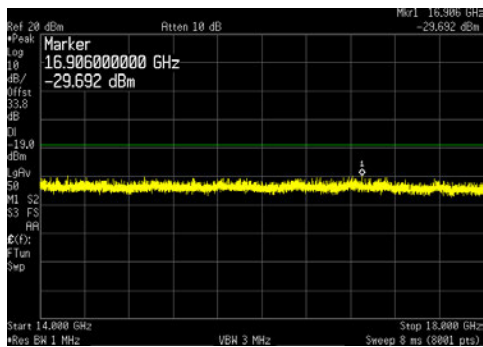9kHz to 150kHz

150kHz to 20MHz

20MHz to 3GHz

3GHz to 6GHz
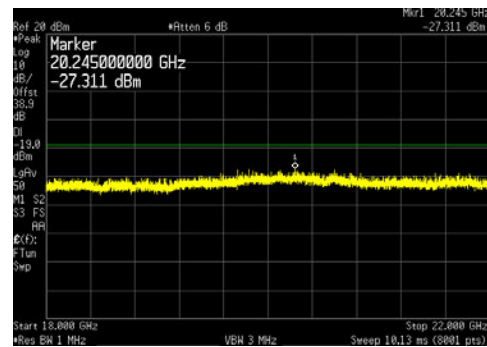

6GHz to 10GHz

10GHz to 14GHz

14GHz to 18GHz

18GHz to 22GHz

LTE15 Channel Bandwidth _ 16QAM _ Middle Channel (2145MHz) at 60 watts/carrier:

9kHz to 150kHz

150kHz to 20MHz

20MHz to 3GHz

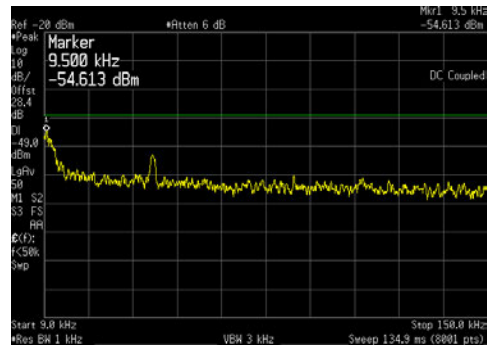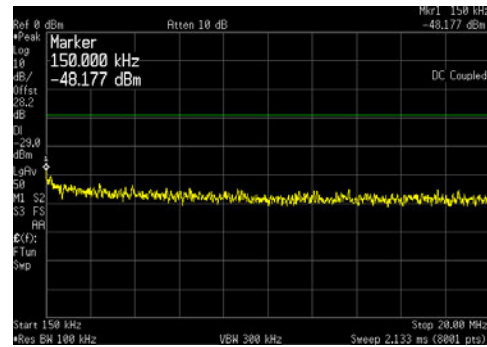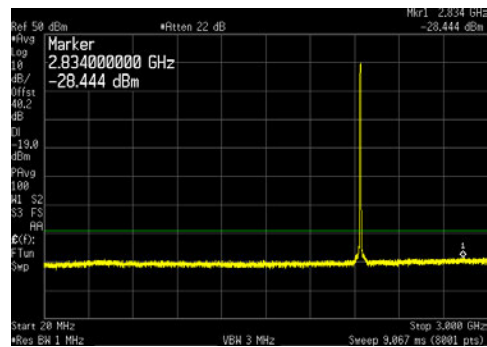3GHz to 6GHz

6GHz to 10GHz

10GHz to 14GHz

14GHz to 18GHz

18GHz to 22GHz

LTE15 Channel Bandwidth _ 64QAM _ Middle Channel (2145MHz) at 60 watts/carrier:

9kHz to 150kHz
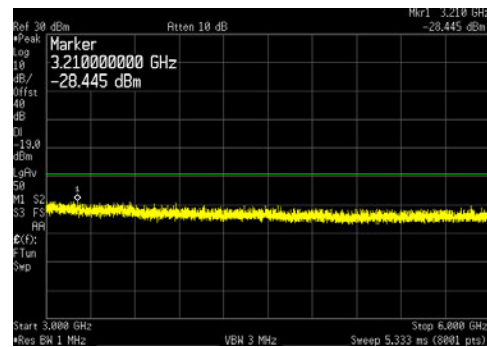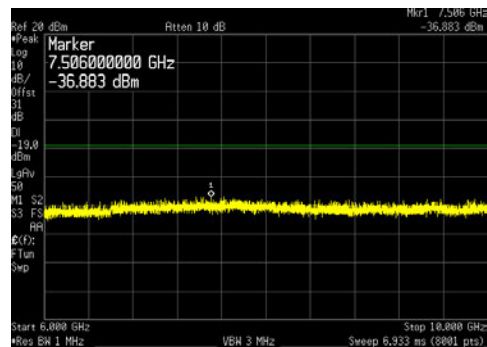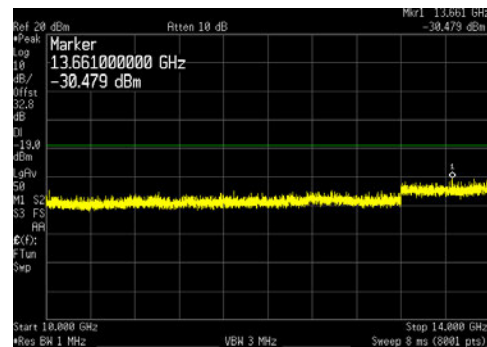
150kHz to 20MHz

20MHz to 3GHz

3GHz to 6GHz

6GHz to 10GHz

10GHz to 14GHz

14GHz to 18GHz

18GHz to 22GHz

LTE15 Channel Bandwidth _ 256QAM _ Middle Channel (2145MHz) at 60 watts/carrier:

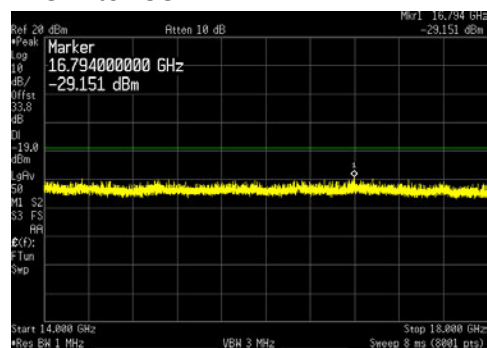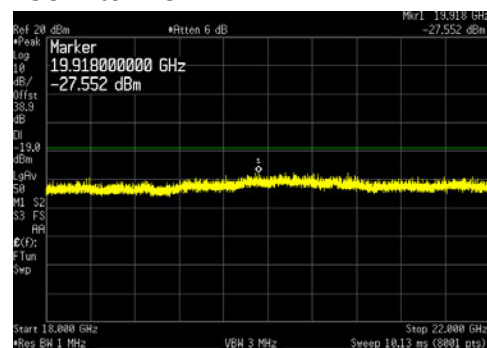9kHz to 150kHz

150kHz to 20MHz

20MHz to 3GHz

3GHz to 6GHz
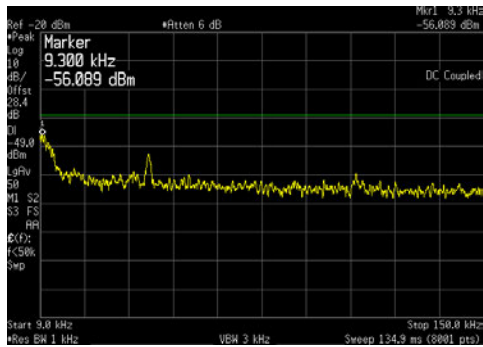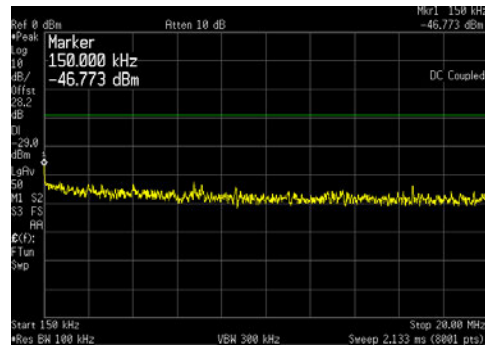
6GHz to 10GHz

10GHz to 14GHz

14GHz to 18GHz

18GHz to 22GHz

LTE20 Channel Bandwidth _ QPSK _ Middle Channel (2145MHz) at 60 watts/carrier:

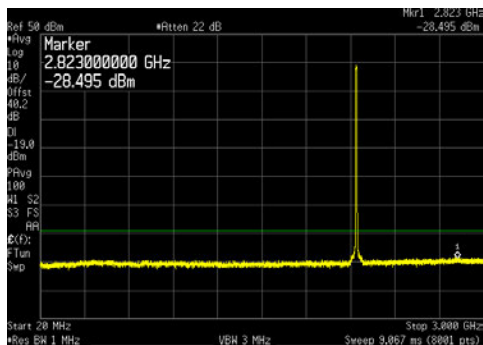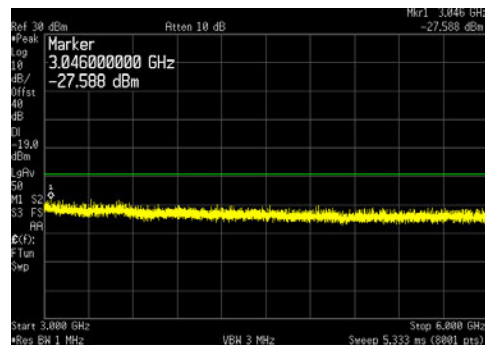9kHz to 150kHz

150kHz to 20MHz

20MHz to 3GHz

3GHz to 6GHz

6GHz to 10GHz

10GHz to 14GHz

14GHz to 18GHz

18GHz to 22GHz

LTE20 Channel Bandwidth _ 16QAM _ Middle Channel (2145MHz) at 60 watts/carrier:
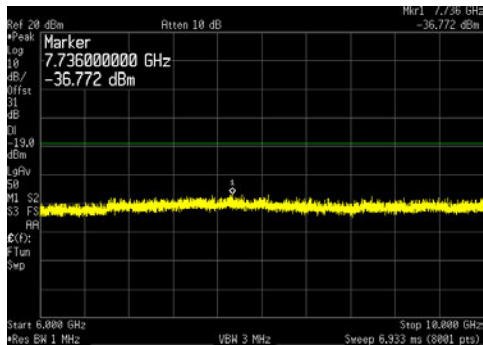
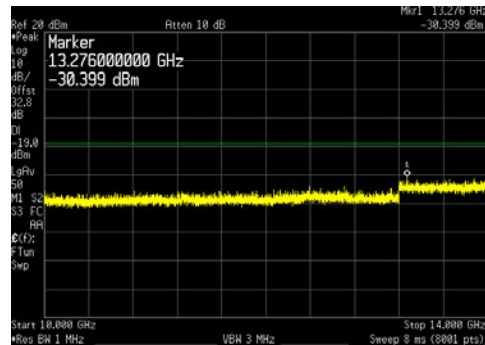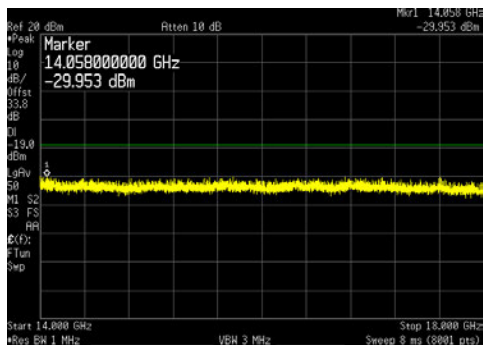9kHz to 150kHz

150kHz to 20MHz

20MHz to 3GHz

3GHz to 6GHz

6GHz to 10GHz

10GHz to 14GHz

14GHz to 18GHz

18GHz to 22GHz

LTE20 Channel Bandwidth _ 64QAM _ Middle Channel (2145MHz) at 60 watts/carrier:

9kHz to 150kHz

150kHz to 20MHz

20MHz to 3GHz

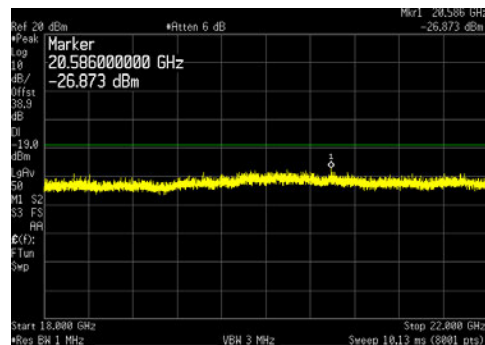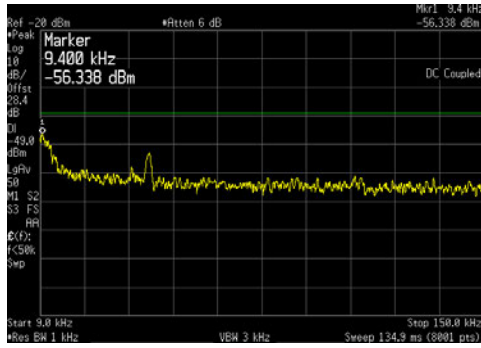3GHz to 6GHz
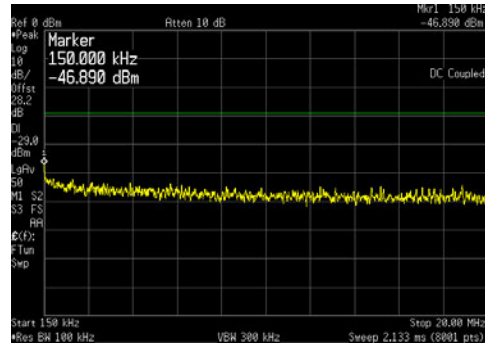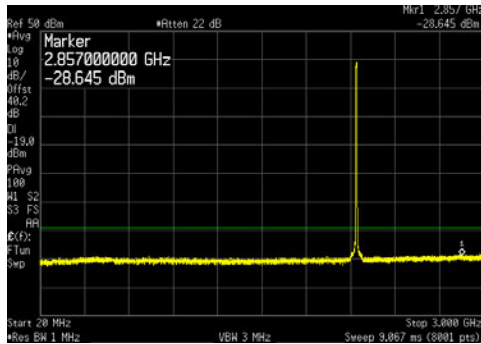
6GHz to 10GHz

10GHz to 14GHz

14GHz to 18GHz

18GHz to 22GHz

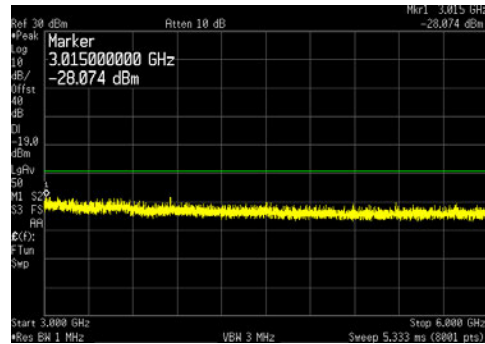LTE20 Channel Bandwidth _ 256QAM _ Middle Channel (2145MHz) at 60 watts/carrier:
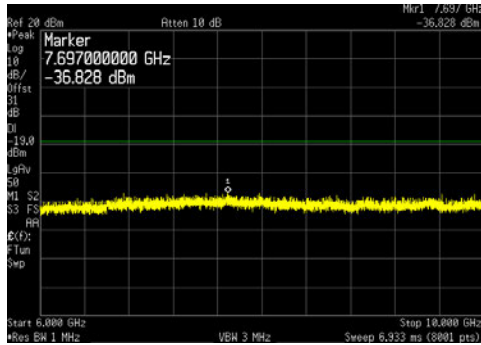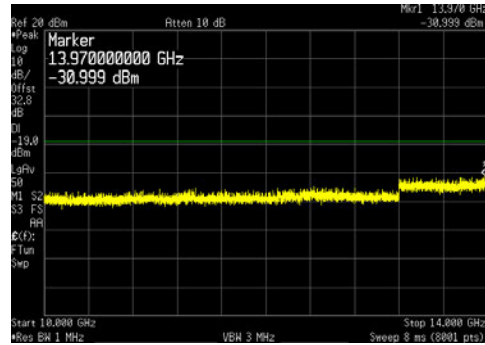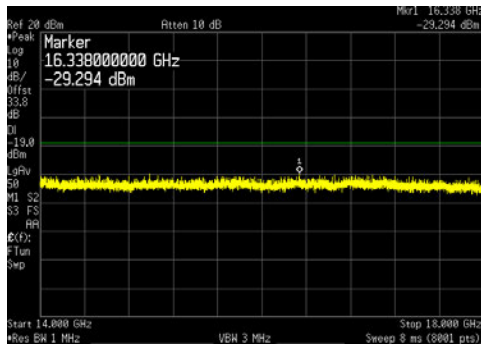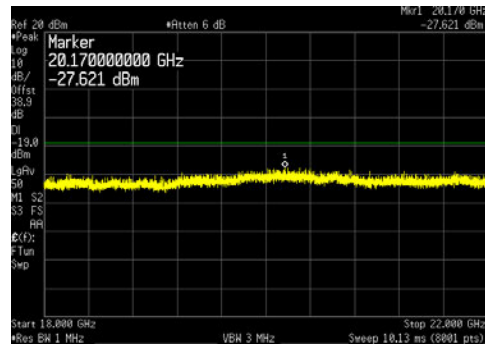
9kHz to 150kHz

150kHz to 20MHz

20MHz to 3GHz

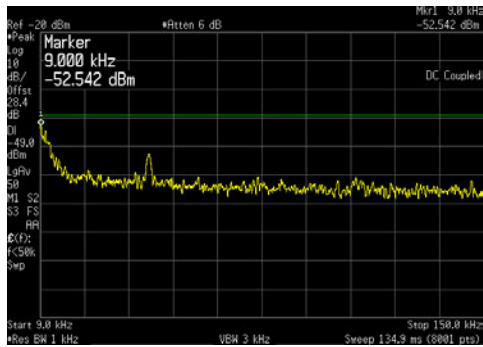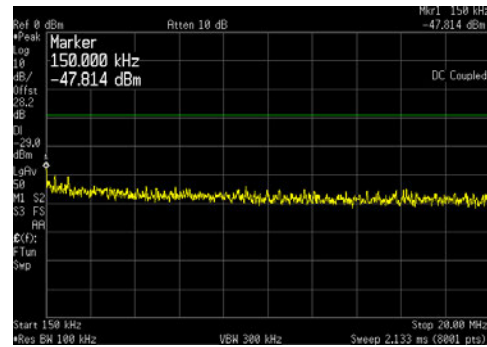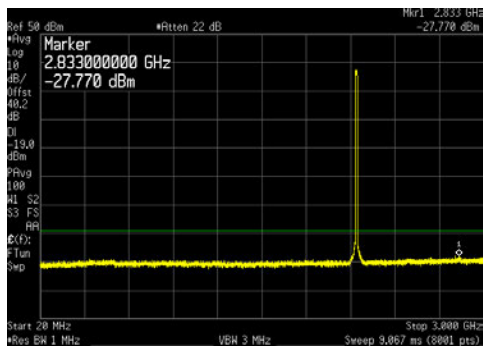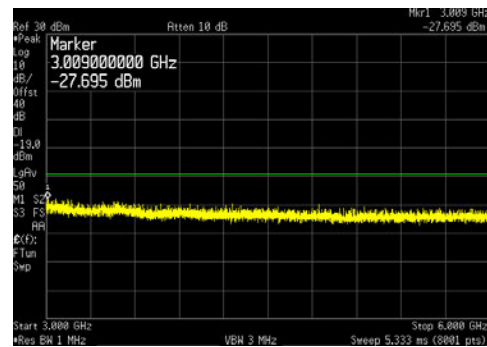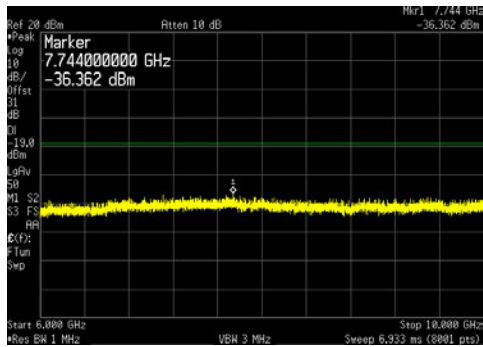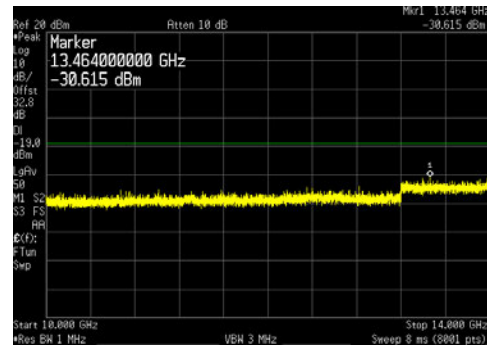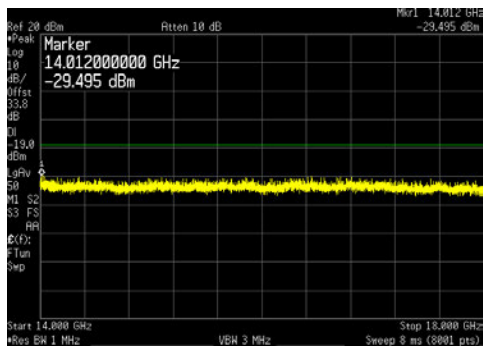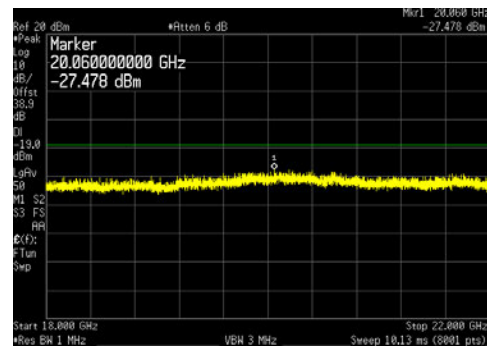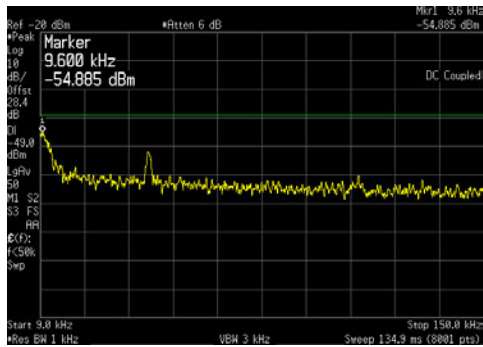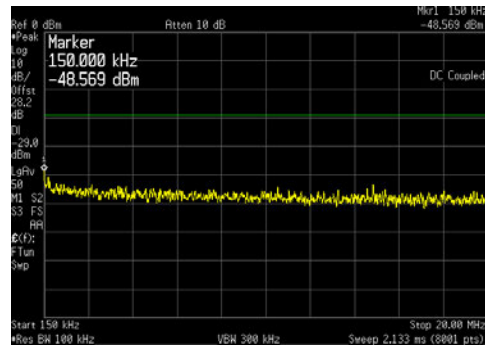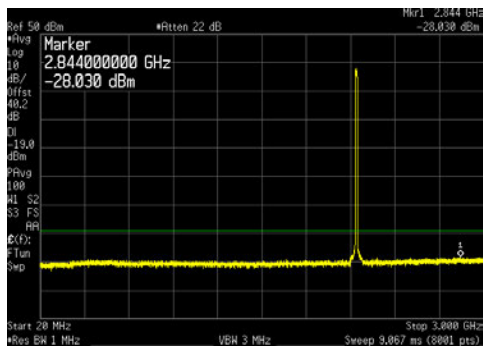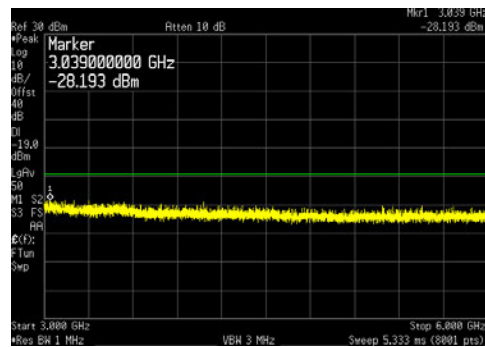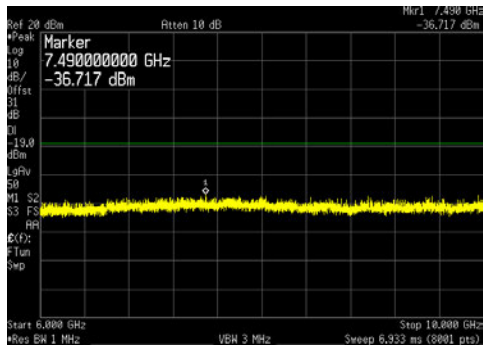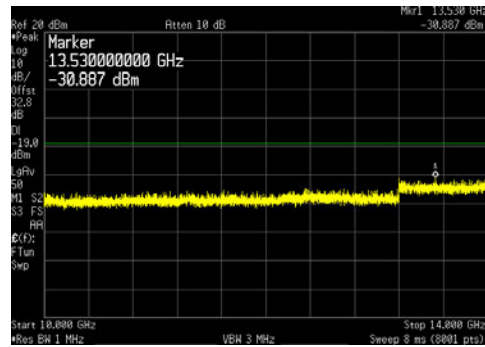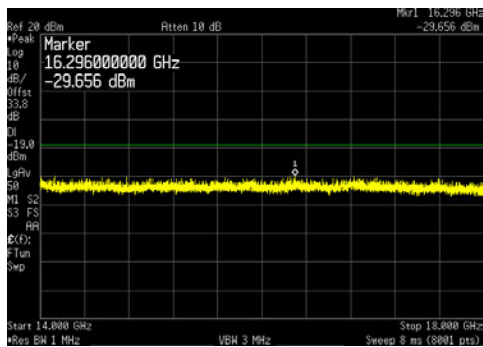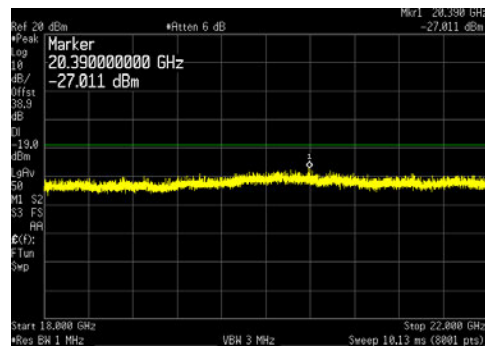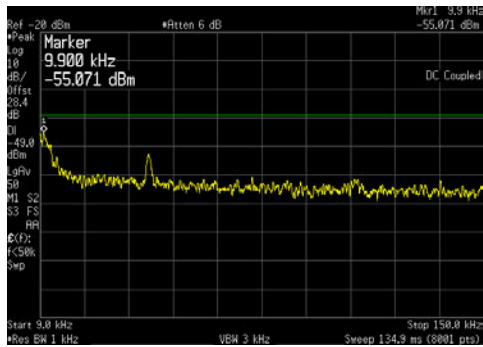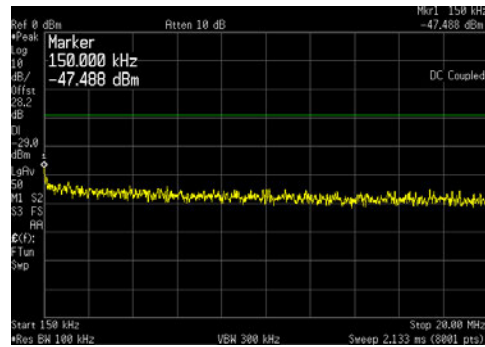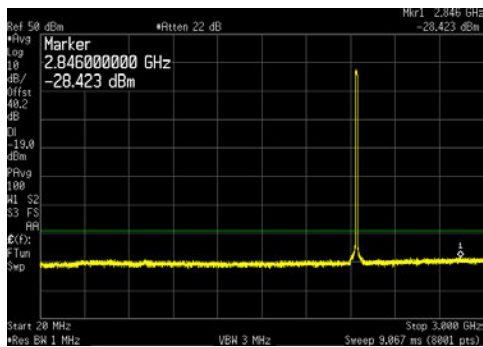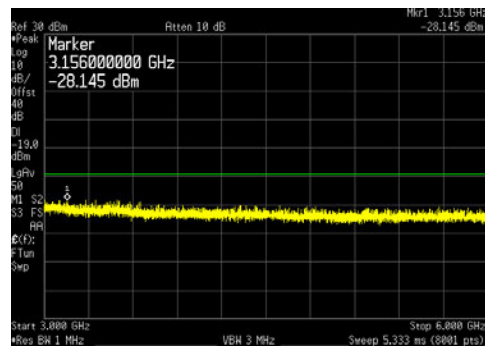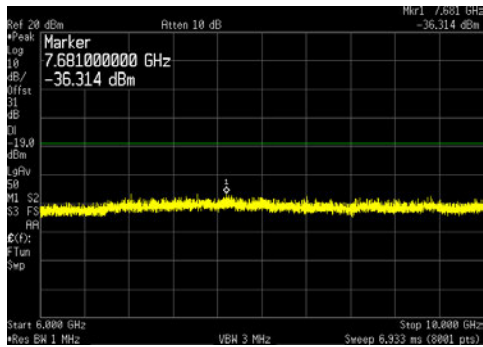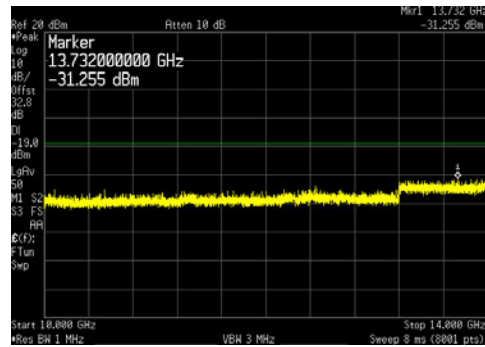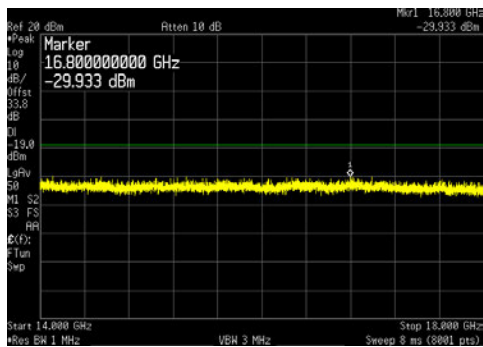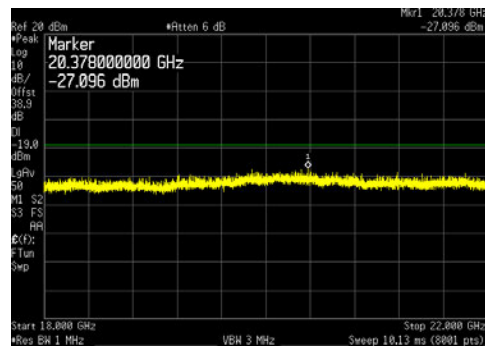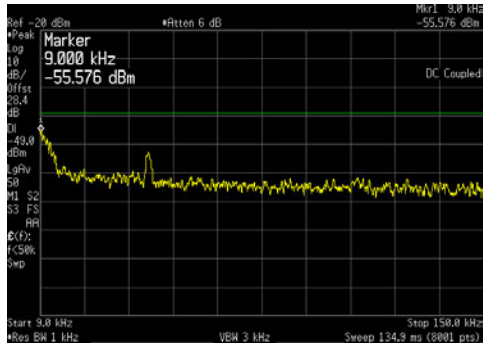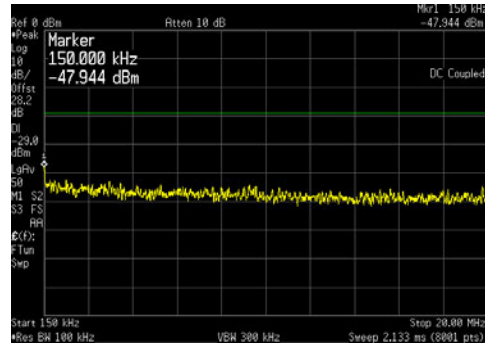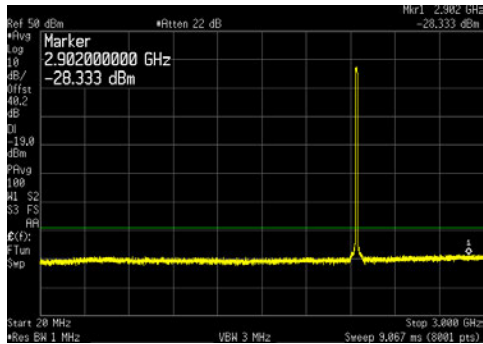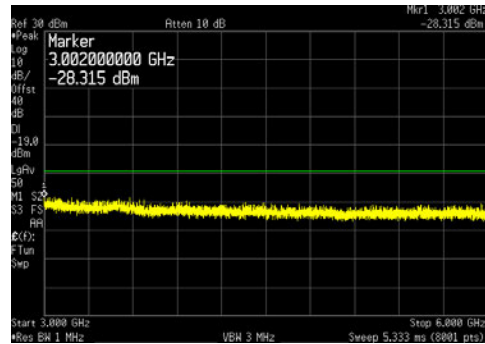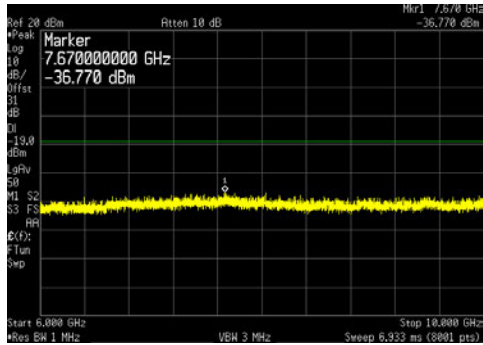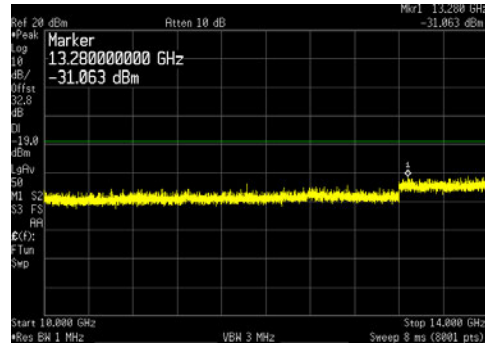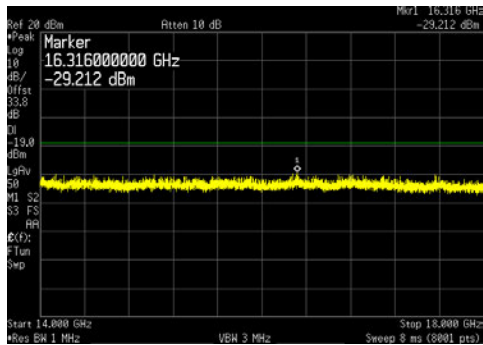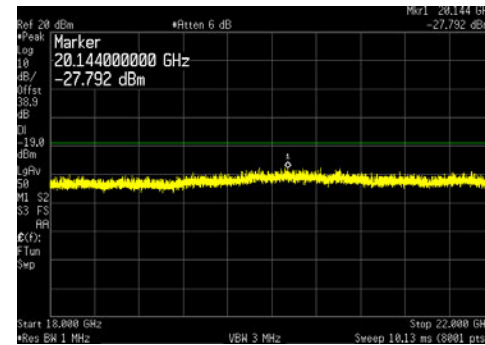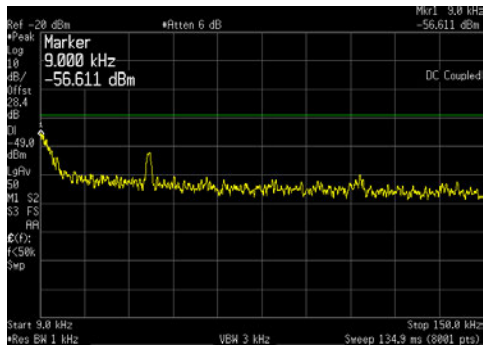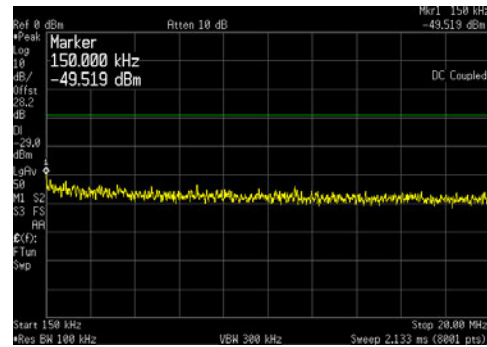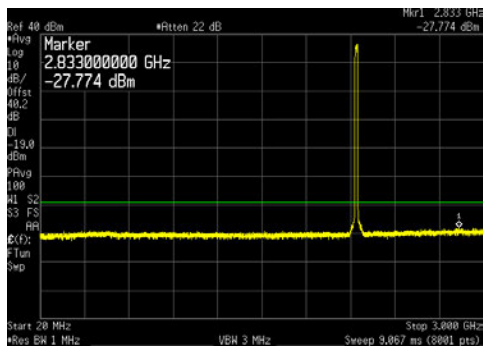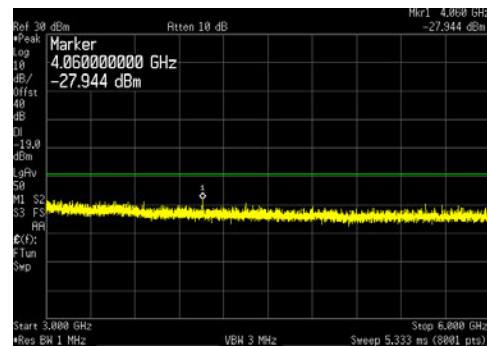3GHz to 6GHz

6GHz to 10GHz

10GHz to 14GHz

14GHz to 18GHz

18GHz to 22GHz

Transmitter Radiated Spurious Emissions

During radiated emission testing all antenna ports of the base station were terminated with 50ohm termination blocks as shown in the diagram below.

```
┌─────────────────┐
│ AHFIC           │
│                 │            ┌──────────┐
│   Antenna 1 ────┼──────────► │ 50 Ohm   │
│                 │            │ Load     │
│                 │            └──────────┘
│                 │            ┌──────────┐
│   Antenna 2 ────┼──────────► │ 50 Ohm   │
│                 │            │ Load     │
│                 │            └──────────┘
│                 │            ┌──────────┐
│   Antenna 3 ────┼──────────► │ 50 Ohm   │
│                 │            │ Load     │
│                 │            └──────────┘
│                 │            ┌──────────┐
│   Antenna 4 ────┼──────────► │ 50 Ohm   │
│                 │            │ Load     │
│                 │            └──────────┘
│                 │            ┌──────────┐
│   Antenna 5 ────┼──────────► │ 50 Ohm   │
│                 │            │ Load     │
│                 │            └──────────┘
│                 │            ┌──────────┐
│   Antenna 6 ────┼──────────► │ 50 Ohm   │
│                 │            │ Load     │
│                 │            └──────────┘
│                 │            ┌──────────┐
│   Antenna 7 ────┼──────────► │ 50 Ohm   │
│                 │            │ Load     │
│                 │            └──────────┘
│                 │            ┌──────────┐
│   Antenna 8 ────┼──────────► │ 50 Ohm   │
│                 │            │ Load     │
└─────────────────┘            └──────────┘
```
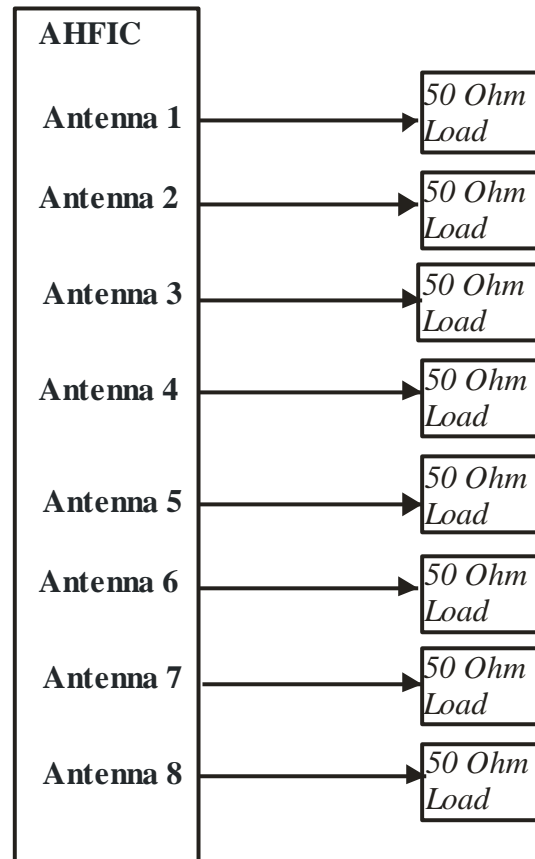
Based on antenna port conducted spurious emissions tests results, preliminary scans for radiated spurious emissions were performed in 30MHz – 22GHz frequency range. Two test configurations are needed for radiated spurious emission measurements. The first test is with PCS and AWS carriers operating at 40W/carrier. The second test is with the PCS carriers operating at 20W/carrier and the AWS carriers operating at 60W/carrier.

The tests include channel bandwidth with the highest spectral density for both frequency bands. The bottom, middle and top frequency channels for each band are enabled. The carrier configurations for the radiated emission testing are provided below. Final maximized radiated emissions were measured in these modes.

Frequency Band	Ant Port	RF BW	EARFCN	Transmit Frequency	Carrier Power
AWS	1	5 MHz	66443 (Bottom Channel)	2112.5 MHz	40 Watts
AWS	2	5 MHz	66786 (Middle Channel)	2145.0 MHz	40 Watts
AWS	3	5 MHz	66786 (Middle Channel)	2145.0 MHz	40 Watts
AWS	4	5 MHz	67129 (Top Channel)	2177.5 MHz	40 Watts
PCS	5	1.4 MHz	607 (Bottom Channel)	1930.7 MHz	40 Watts
PCS	6	1.4 MHz	900 (Middle Channel)	1960.0 MHz	40 Watts
PCS	7	1.4 MHz	900 (Middle Channel)	1960.0 MHz	40 Watts
PCS	8	1.4 MHz	1193 (Top Channel)	1989.3 MHz	40 Watts

PCS (at 40W/carrier) & AWS (at 40W/carrier) Carriers Enabled Simultaneously

Frequency Band	Ant Port	RF BW	EARFCN	Transmit Frequency	Carrier Power
AWS	1	5 MHz	66443 (Bottom Channel)	2112.5 MHz	60 Watts
AWS	2	5 MHz	66786 (Middle Channel)	2145.0 MHz	60 Watts
AWS	3	5 MHz	66786 (Middle Channel)	2145.0 MHz	60 Watts
AWS	4	5 MHz	67129 (Top Channel)	2177.5 MHz	60 Watts
PCS	5	1.4 MHz	607 (Bottom Channel)	1930.7 MHz	20 Watts
PCS	6	1.4 MHz	900 (Middle Channel)	1960.0 MHz	20 Watts
PCS	7	1.4 MHz	900 (Middle Channel)	1960.0 MHz	20 Watts
PCS	8	1.4 MHz	1193 (Top Channel)	1989.3 MHz	20 Watts

PCS (at 20W/carrier) & AWS (at 60W/carrier) Carriers Enabled Simultaneously

Radiated spurious emission plots/measurement results are in Appendix A.

Frequency Stability/Accuracy

Carrier frequency stability of the EUT at extreme temperatures and voltages was measured. The frequency error was measured as follows:
(1) EUT transmitting in 5MHz-QPSK-LTE mode at center channel (2145.0MHz) on port 3.
(2) The EUT temperature was stabilized at each temperature step (for a minimum of 30 minutes) prior to frequency accuracy measurement.

Nominal operating voltage of the product is declared as 48VDC.

Frequency error results are listed below for extreme voltages and temperatures.

Extreme Voltages:

Percentage of Rated Supply	DC Voltage (VDC)	Frequency Error (Hz) at 20°C
85%	40.8	1.46
100%	48.0	1.27
115%	55.2	1.21

Extreme Temperatures:

Temperature	Frequency Error (Hz) at 48VDC
-30 °C	1.95
-20 °C	1.46
-10 °C	1.69
0 °C	1.76
10 °C	**1.98**
20 °C	1.27
30 °C	1.49
40 °C	1.78
50 °C	1.67

Based on the results above, highest recorded frequency error (1.98 Hz or ~0.001 ppm) ensures that the transmitted signal remains in its authorized frequency block at extreme voltages and temperatures.

The results above are deemed sufficient to demonstrate carrier frequency stability for all other channel bandwidth modes and modulations since all carriers are controlled by the same frequency stabilization circuitry that was subjected to the extreme conditions under this test.