

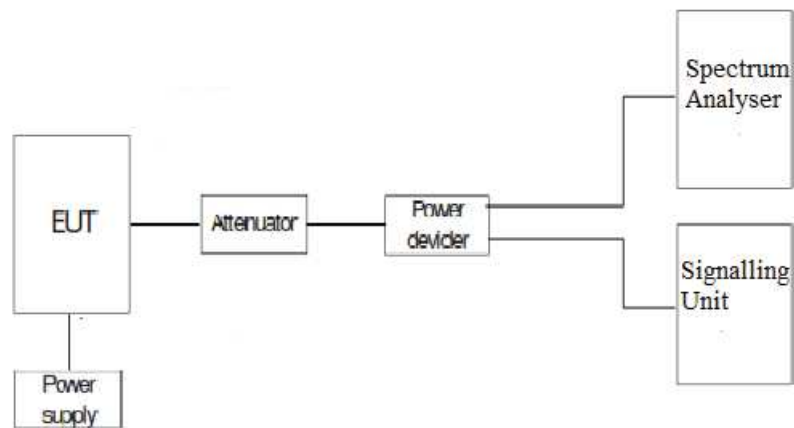
METHOD:

The EUT RF output connector was connected to a spectrum analyser and to the Universal Radio Communication tester R&S CMW500 (selecting maximum transmission power of the EUT and different modes of modulation) using a 50 Ohm attenuator and a power splitter.

The spectrum was investigated from 9 kHz to 18 GHz for 3G Band IV and LTE Band 4 and from 9 kHz to 8 GHz for LTE Band 12, 13 and from 9 kHz to 26 GHz for LTE Band 7.

The configuration of Resource Blocks and modulation which is the worst case for conducted power was used.

TEST SETUP:



RESULTS:

3G Band IV. WCDMA MODULATION.

- Lowest Channel:

No spurious frequencies detected at less than 20 dB below the limit in all the range.

- Middle Channel:

No spurious frequencies detected at less than 20 dB below the limit in all the range.

- Highest Channel:

No spurious frequencies detected at less than 20 dB below the limit in all the range.

Verdict: PASS

3G Band IV. HSUPA MODULATION.

- Lowest Channel:

No spurious frequencies detected at less than 20 dB below the limit in all the range.

- Middle Channel:

No spurious frequencies detected at less than 20 dB below the limit in all the range.

- Highest Channel:

No spurious frequencies detected at less than 20 dB below the limit in all the range.

Verdict: PASS

LTE BANDS: Test performed on the worst-case modulation and worst RB and worst Offset for all the nominal BW of each LTE band.

LTE Band 4. QPSK MODULATION. BW = 1.4 MHz.

- Lowest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Middle Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Highest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.

LTE Band 4. QPSK MODULATION. BW = 3 MHz.

- Lowest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Middle Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Highest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.

LTE Band 4. QPSK MODULATION. BW = 5 MHz.

- Lowest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Middle Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Highest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.

LTE Band 4. QPSK MODULATION. BW = 10 MHz.

- Lowest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Middle Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Highest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.

LTE Band 4. QPSK MODULATION. BW = 15 MHz.

- Lowest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Middle Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Highest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.

LTE Band 4. QPSK MODULATION. BW = 20 MHz.

- Lowest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Middle Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Highest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.

Verdict: PASS

LTE Band 7. QPSK MODULATION. BW = 5 MHz.

- Lowest Channel:

Spurious frequencies detected at less than 20 dB below the limit:

Frequency (MHz)	Level (dBm)	Measurement uncertainty (dB)
2491.50733	-29.87	< ± 2.03
2495.98121	-20.29	< ± 2.03
5000.23900	-43.24	< ± 2.03

- Middle Channel:

Spurious frequencies detected at less than 20 dB below the limit:

Frequency (MHz)	Level (dBm)	Measurement uncertainty (dB)
5066.10900	-37.33	< ± 2.03

- Highest Channel:

Spurious frequencies detected at less than 20 dB below the limit:

Frequency (MHz)	Level (dBm)	Measurement uncertainty (dB)
5131.10900	-40.82	< ± 2.03

LTE Band 7. QPSK MODULATION. BW = 10 MHz.

- Lowest Channel:

Spurious frequencies detected at less than 20 dB below the limit:

Frequency (MHz)	Level (dBm)	Measurement uncertainty (dB)
2491.68076	-22.57	< ± 2.03
5019.30900	-40.60	< ± 2.03

- Middle Channel:

Spurious frequencies detected at less than 20 dB below the limit:

Frequency (MHz)	Level (dBm)	Measurement uncertainty (dB)
5079.10900	-38.53	< ± 2.03

- Highest Channel:

Spurious frequencies detected at less than 20 dB below the limit:

Frequency (MHz)	Level (dBm)	Measurement uncertainty (dB)
5138.90900	-41.82	< ± 2.03

LTE Band 7. QPSK MODULATION. BW = 15 MHz.

- Lowest Channel:

Spurious frequencies detected at less than 20 dB below the limit:

Frequency (MHz)	Level (dBm)	Measurement uncertainty (dB)
5027.96900	-41.29	< ± 2.03

- Middle Channel:

Spurious frequencies detected at less than 20 dB below the limit:

Frequency (MHz)	Level (dBm)	Measurement uncertainty (dB)
5083.43900	-40.04	< ± 2.03

- Highest Channel:

Spurious frequencies detected at less than 20 dB below the limit:

Frequency (MHz)	Level (dBm)	Measurement uncertainty (dB)
5138.03900	-41.62	< ± 2.03

LTE Band 7. 16QAM MODULATION. BW = 20 MHz.

- Lowest Channel:

Spurious frequencies detected at less than 20 dB below the limit:

Frequency (MHz)	Level (dBm)	Measurement uncertainty (dB)
2495.99954	-28.22	< ± 2.03
5001.96900	-43.51	< ± 2.03

- Middle Channel:

Spurious frequencies detected at less than 20 dB below the limit:

Frequency (MHz)	Level (dBm)	Measurement uncertainty (dB)
2490.50229	-31.06	< ± 2.03
5052.23900	-38.45	< ± 2.03

- Highest Channel:

Spurious frequencies detected at less than 20 dB below the limit:

Frequency (MHz)	Level (dBm)	Measurement uncertainty (dB)
5102.50900	-38.42	< ± 2.03

Verdict: PASS

LTE Band 12. QPSK MODULATION. BW = 1.4 MHz.

- Lowest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Middle Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Highest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.

LTE Band 12. QPSK MODULATION. BW = 3 MHz.

- Lowest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Middle Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Highest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.

LTE Band 12. QPSK MODULATION. BW = 5 MHz.

- Lowest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Middle Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Highest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.

LTE Band 12. QPSK MODULATION. BW = 10 MHz.

- Lowest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Middle Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Highest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.

Verdict: PASS

LTE Band 13. QPSK MODULATION. BW = 5 MHz.

- Lowest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Middle Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.
- Highest Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.

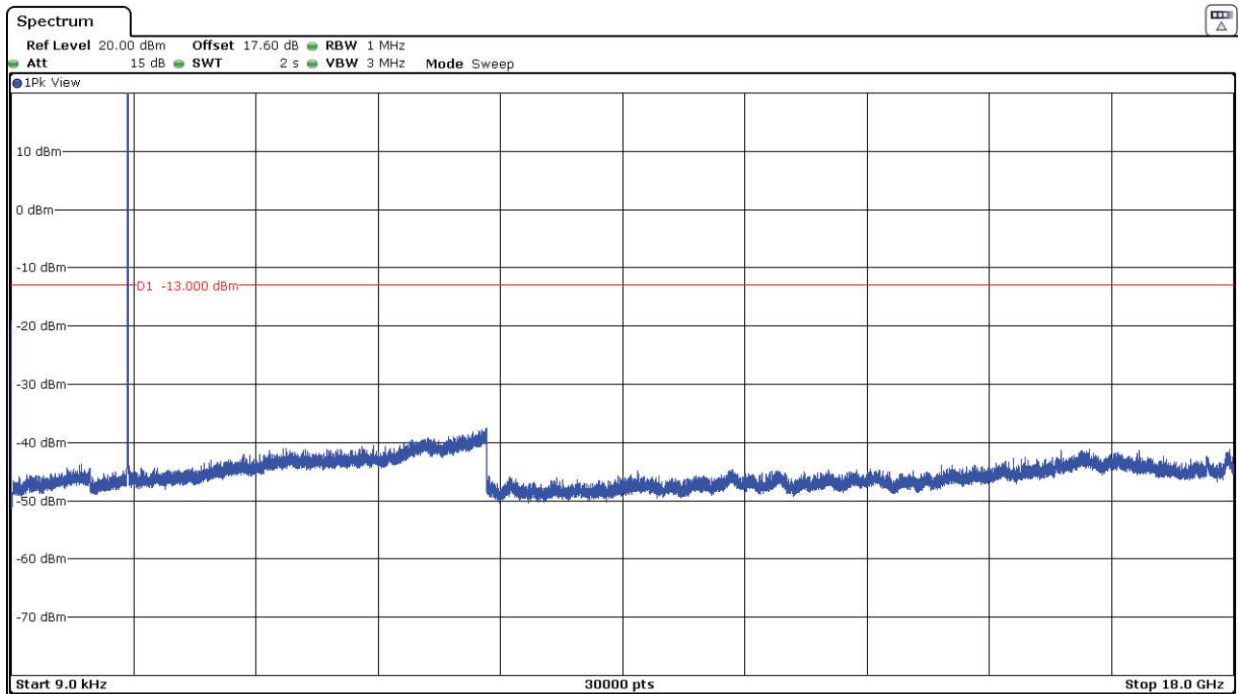
LTE Band 13. QPSK MODULATION. BW = 10 MHz.

- Middle Channel:
No spurious frequencies detected at less than 20 dB below the limit in all the range.

Verdict: PASS

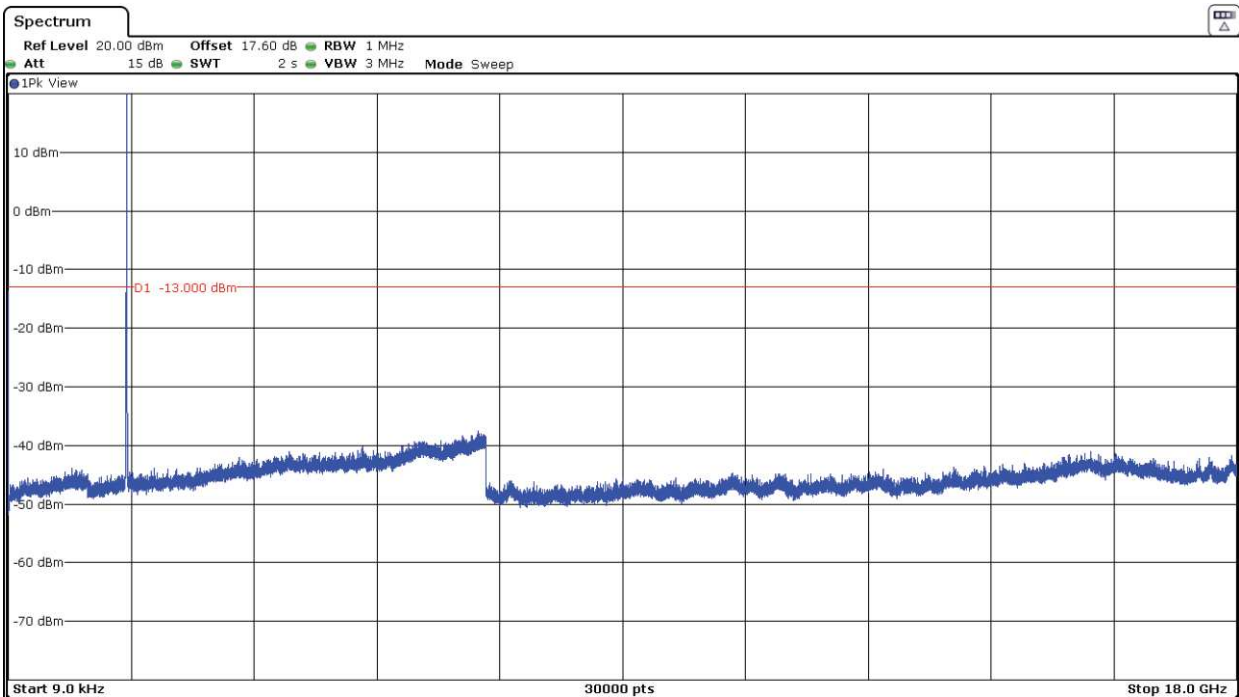
3G Band IV. WCDMA MODULATION.

Lowest Channel:



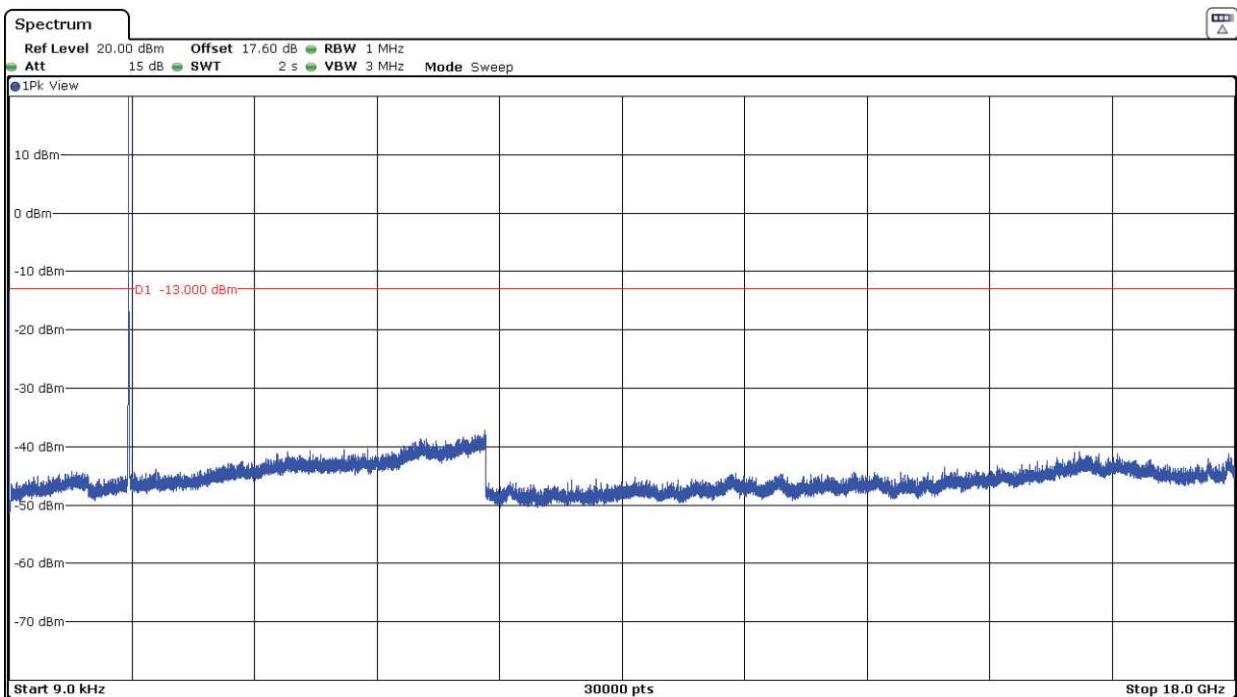
The peak above the limit is the carrier frequency.

Middle Channel:



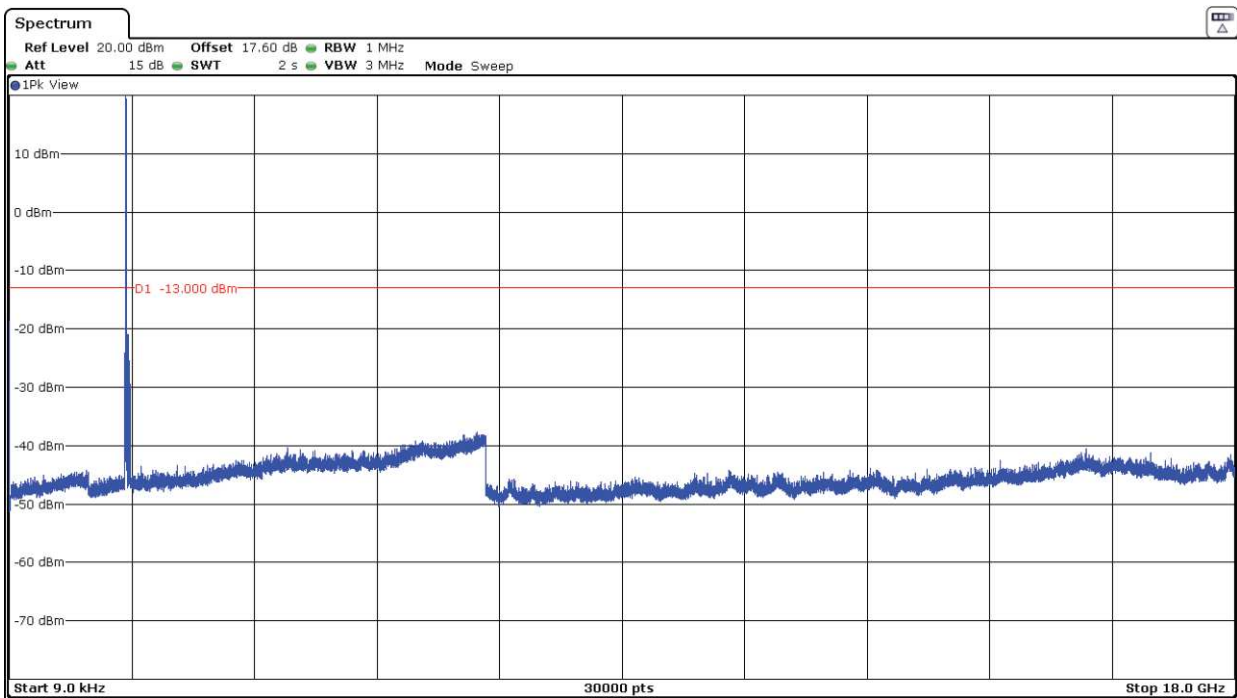
The peak above the limit is the carrier frequency.

Highest Channel:



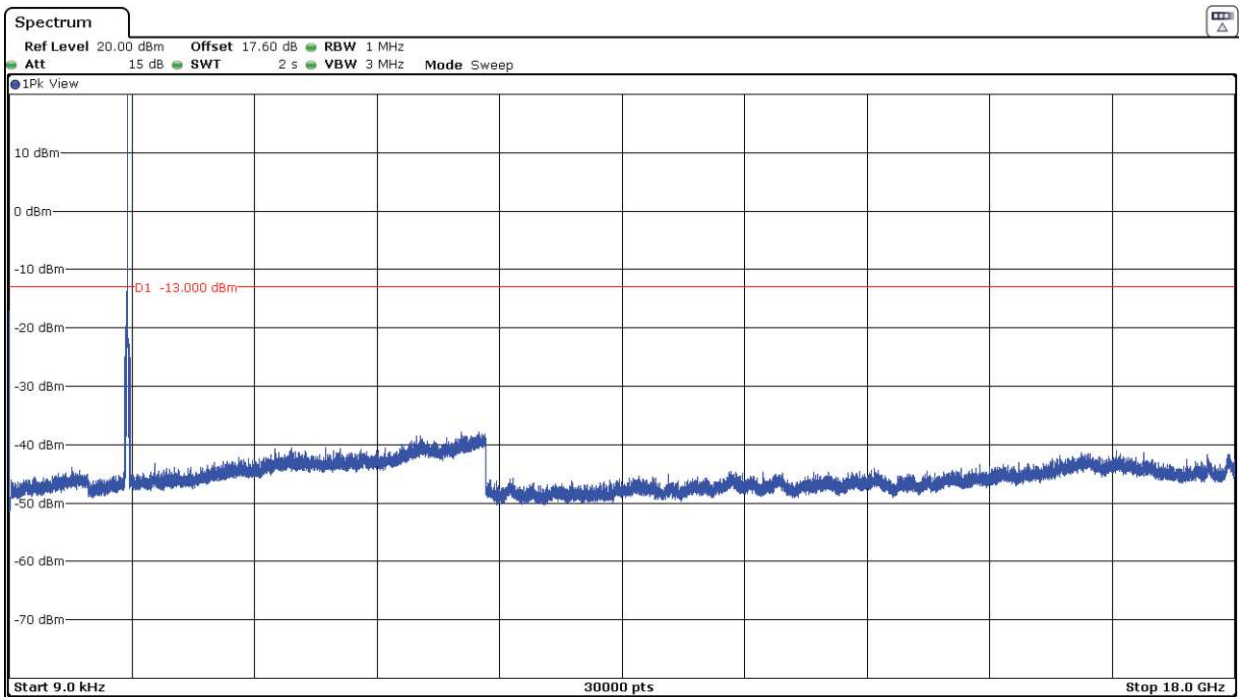
3G Band IV. HSUPA MODULATION.

Lowest Channel:



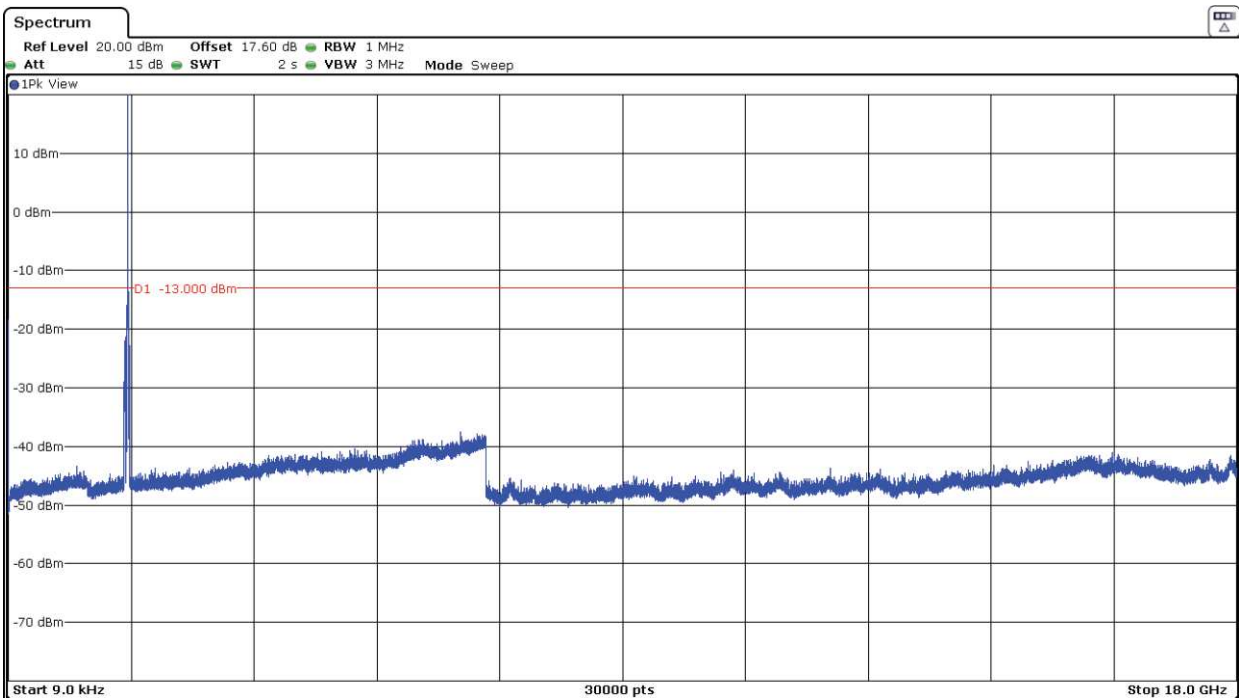
The peak above the limit is the carrier frequency.

Middle Channel:



The peak above the limit is the carrier frequency.

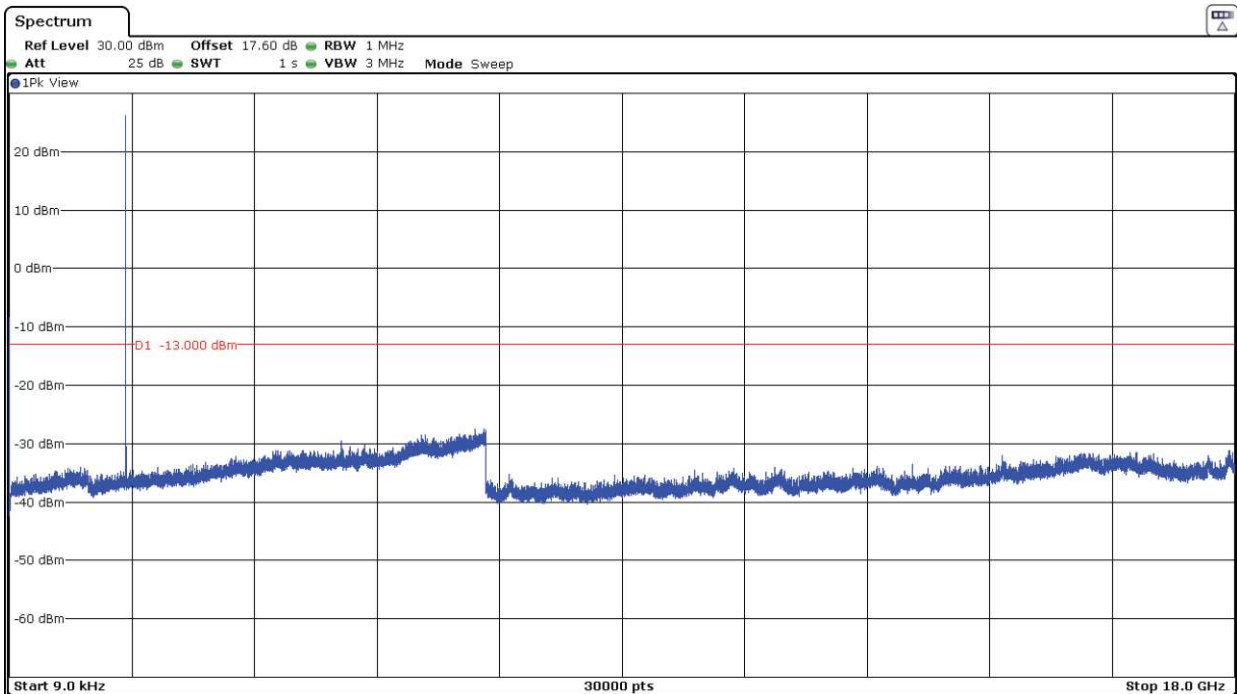
Highest Channel:



The peak above the limit is the carrier frequency.

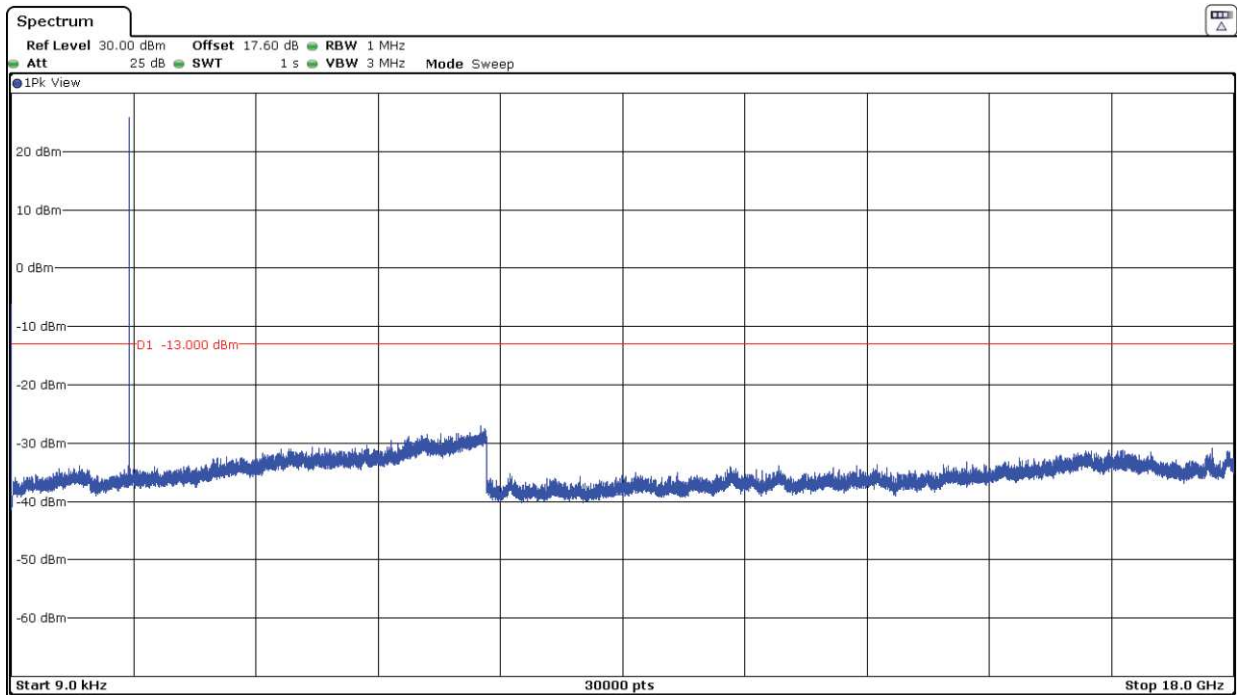
LTE Band 4. QPSK MODULATION. BW = 1.4 MHz.

Lowest Channel:



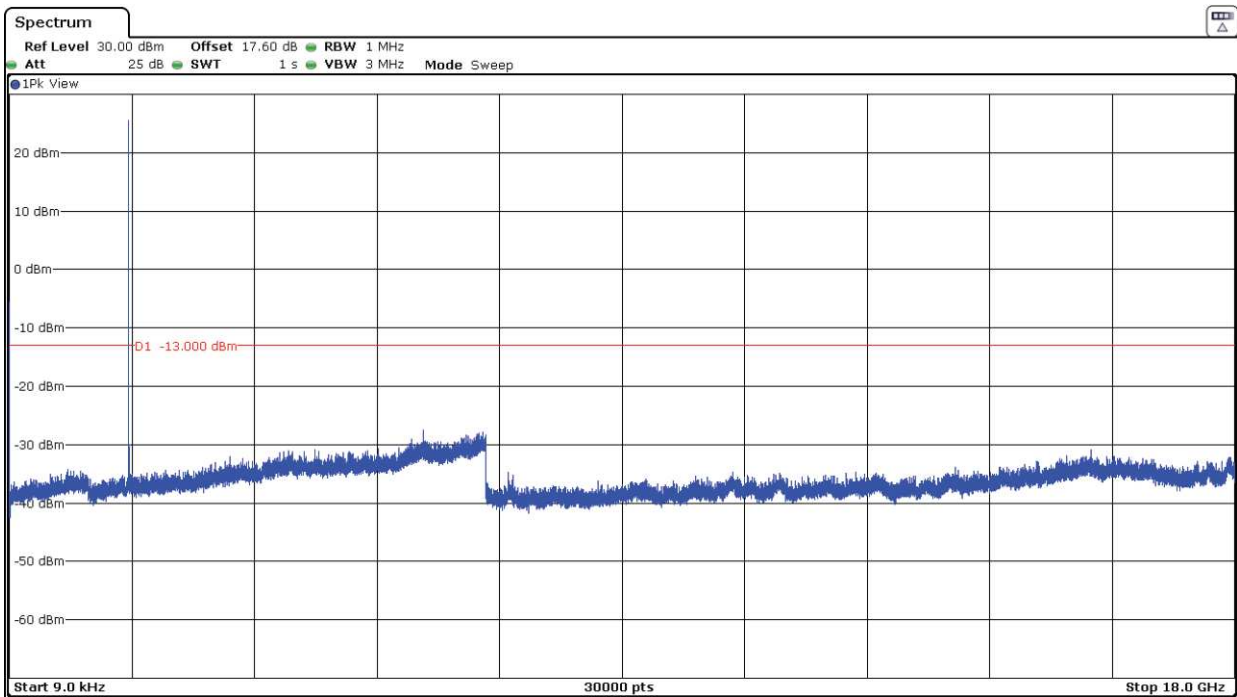
The peak above the limit is the carrier frequency.

Middle Channel:



The peak above the limit is the carrier frequency.

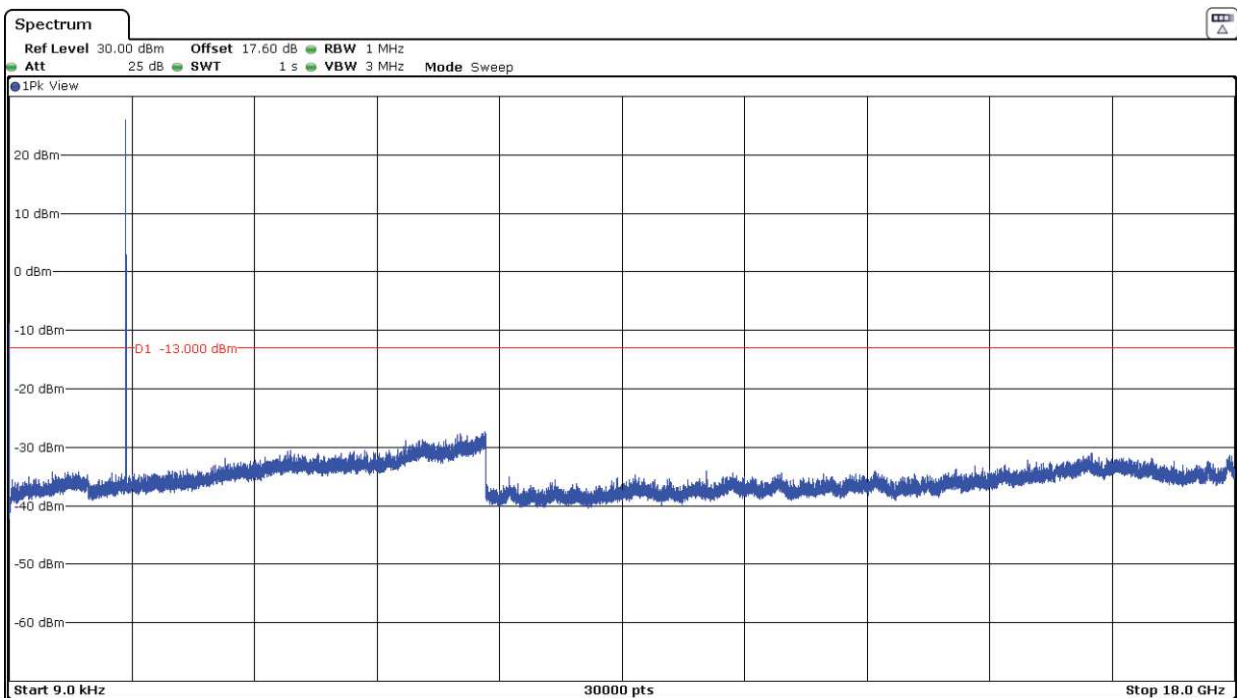
Highest Channel:



The peak above the limit is the carrier frequency.

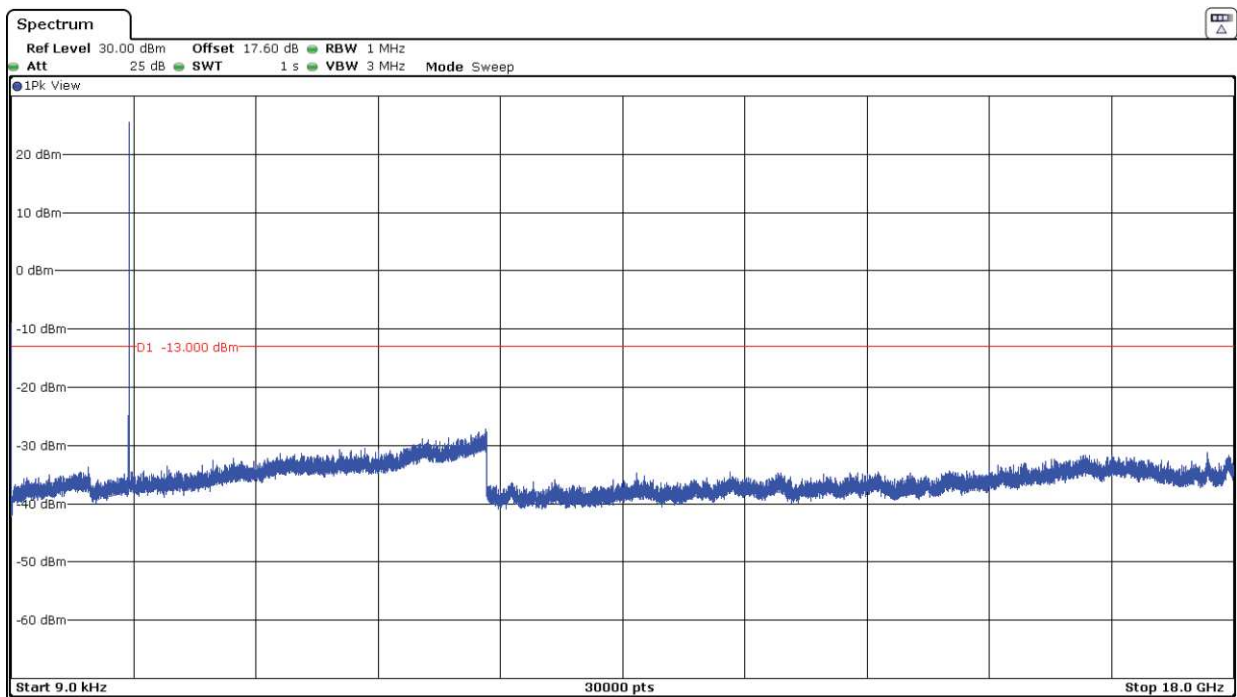
LTE Band 4. QPSK MODULATION. BW = 3 MHz.

Lowest Channel:



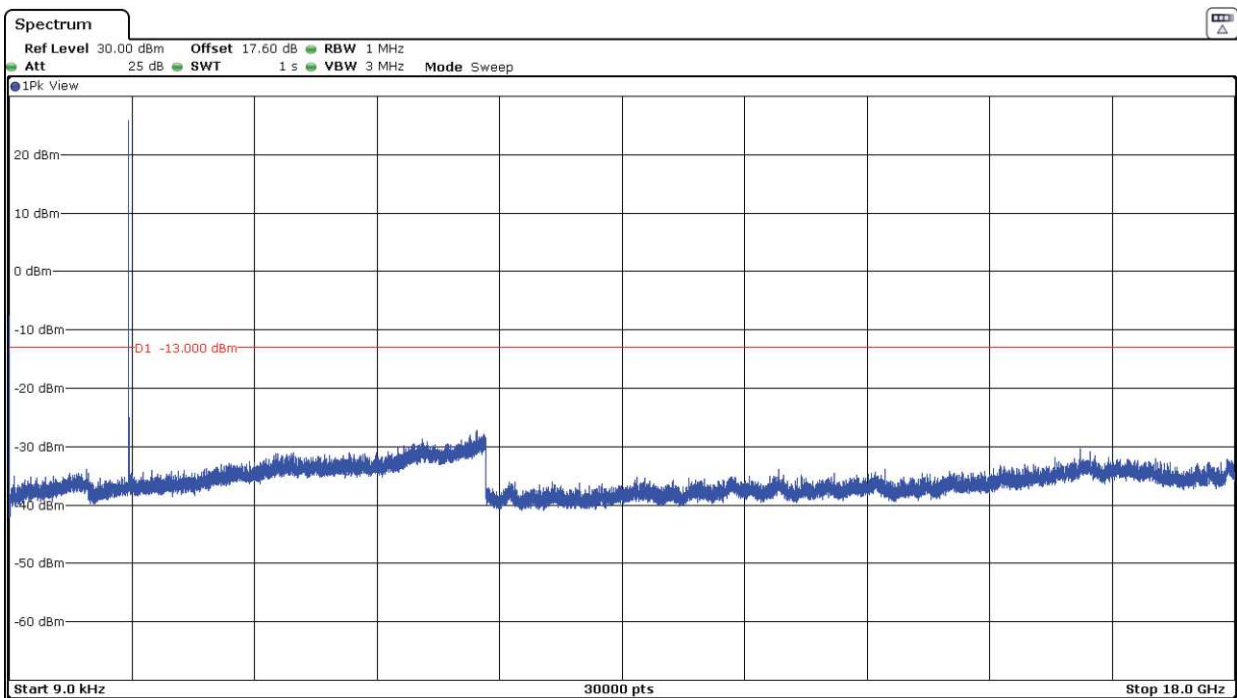
The peak above the limit is the carrier frequency.

Middle Channel:



The peak above the limit is the carrier frequency.

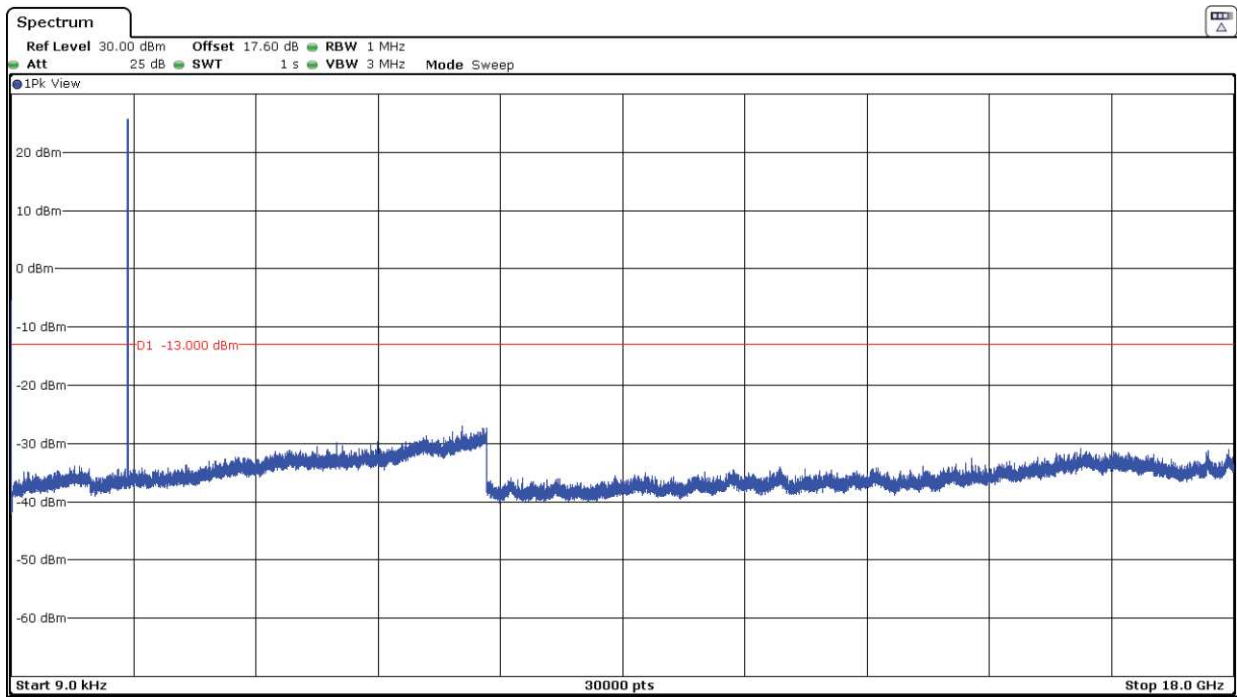
Highest Channel:



The peak above the limit is the carrier frequency.

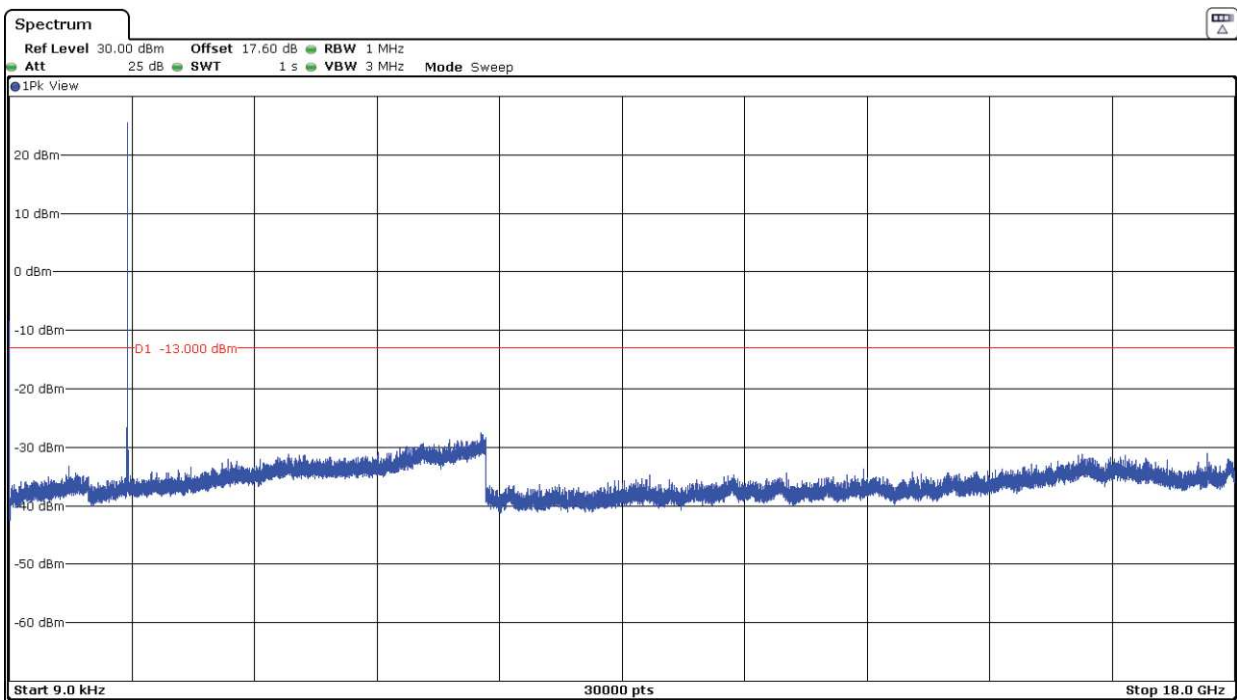
LTE Band 4. QPSK MODULATION. BW = 5 MHz.

Lowest Channel:



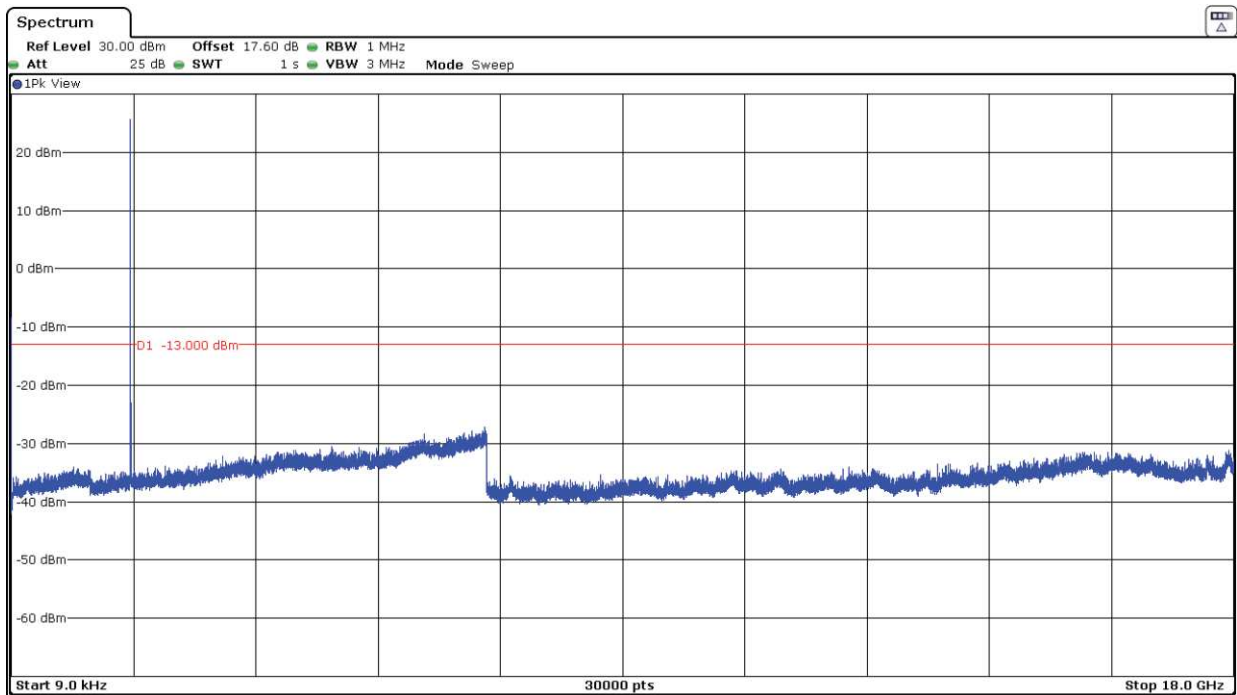
The peak above the limit is the carrier frequency.

Middle Channel:



The peak above the limit is the carrier frequency.

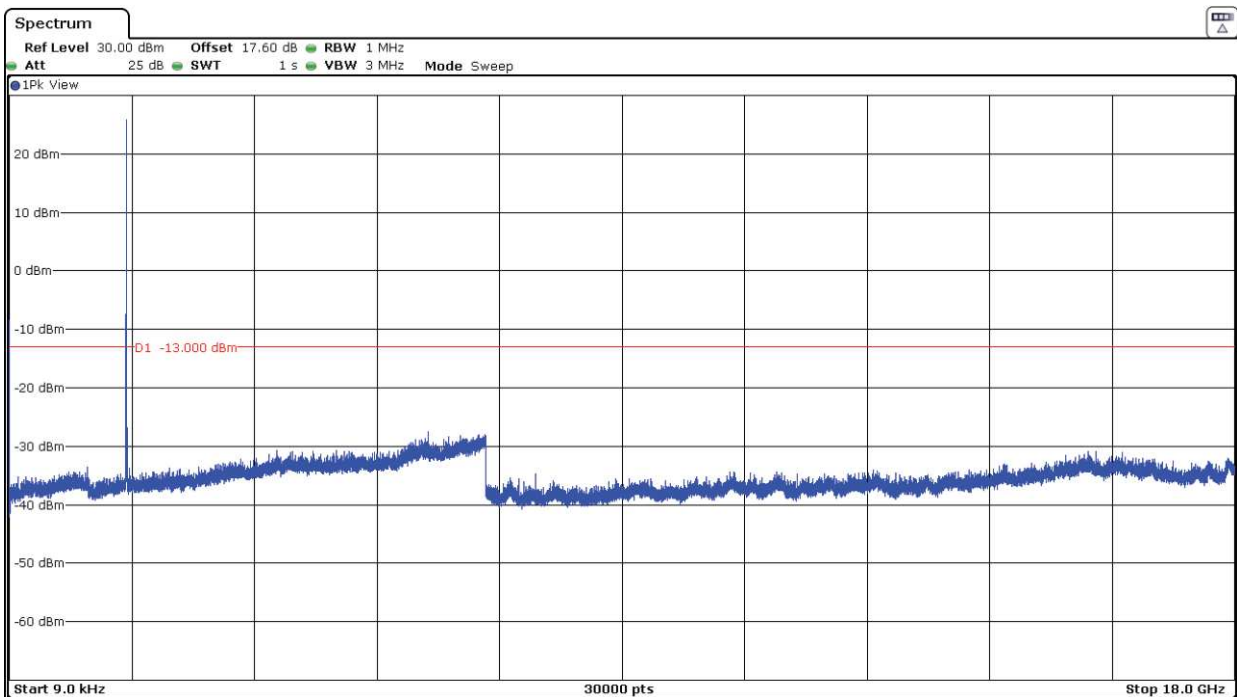
Highest Channel:



The peak above the limit is the carrier frequency.

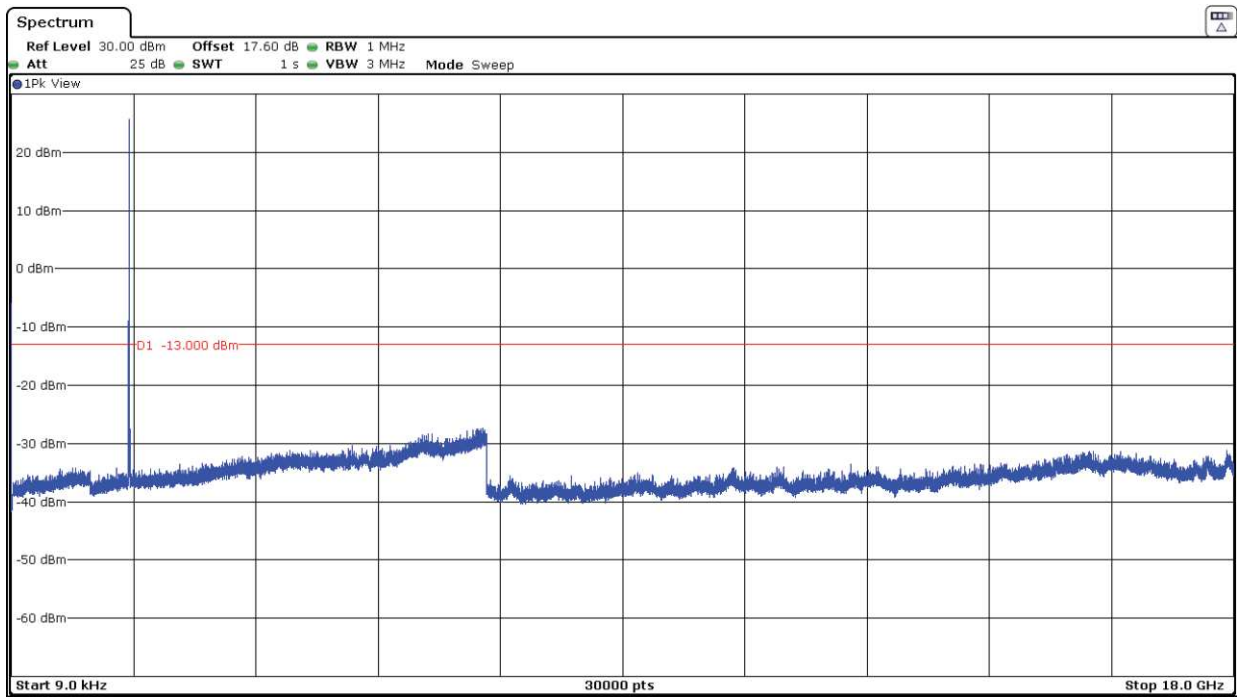
LTE Band 4. QPSK MODULATION. BW = 10 MHz.

Lowest Channel:



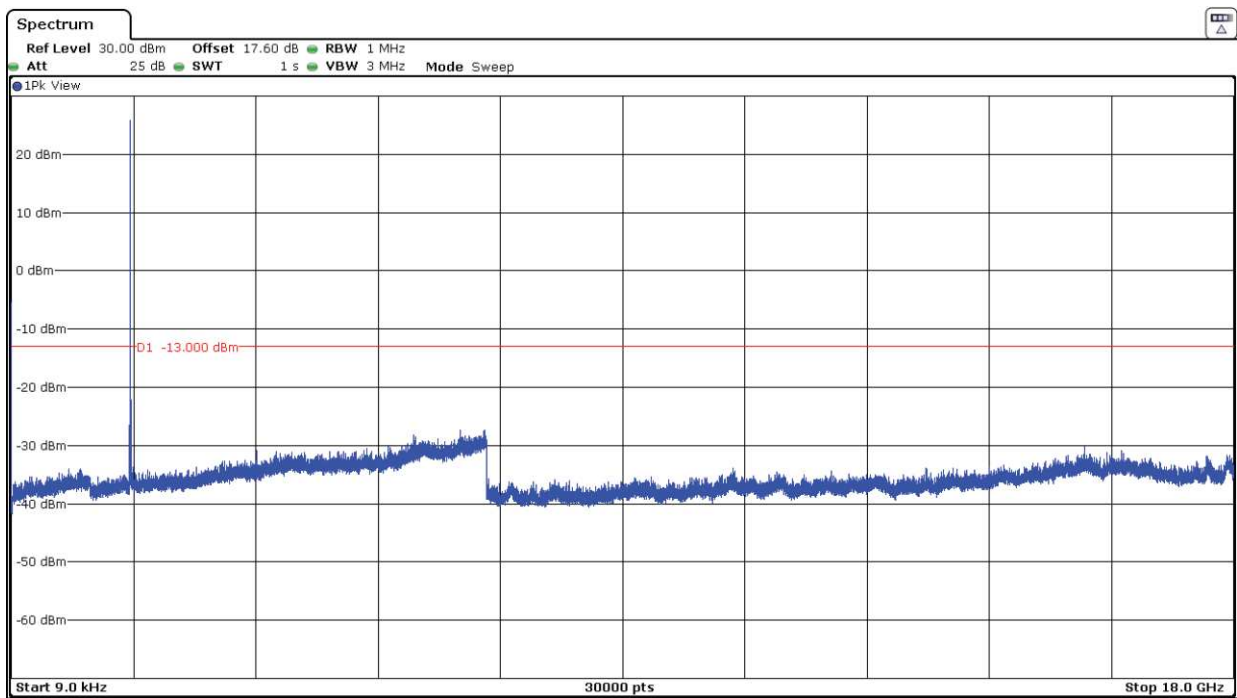
The peak above the limit is the carrier frequency.

Middle Channel:



The peak above the limit is the carrier frequency.

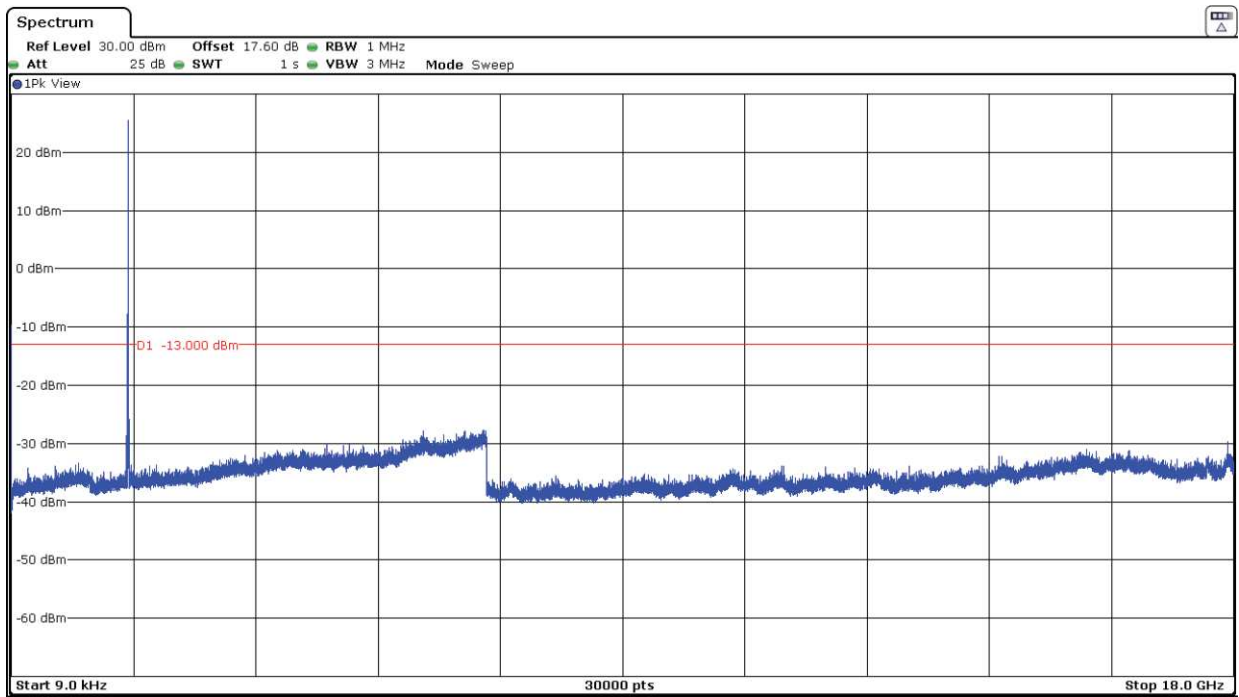
Highest Channel:



The peak above the limit is the carrier frequency.

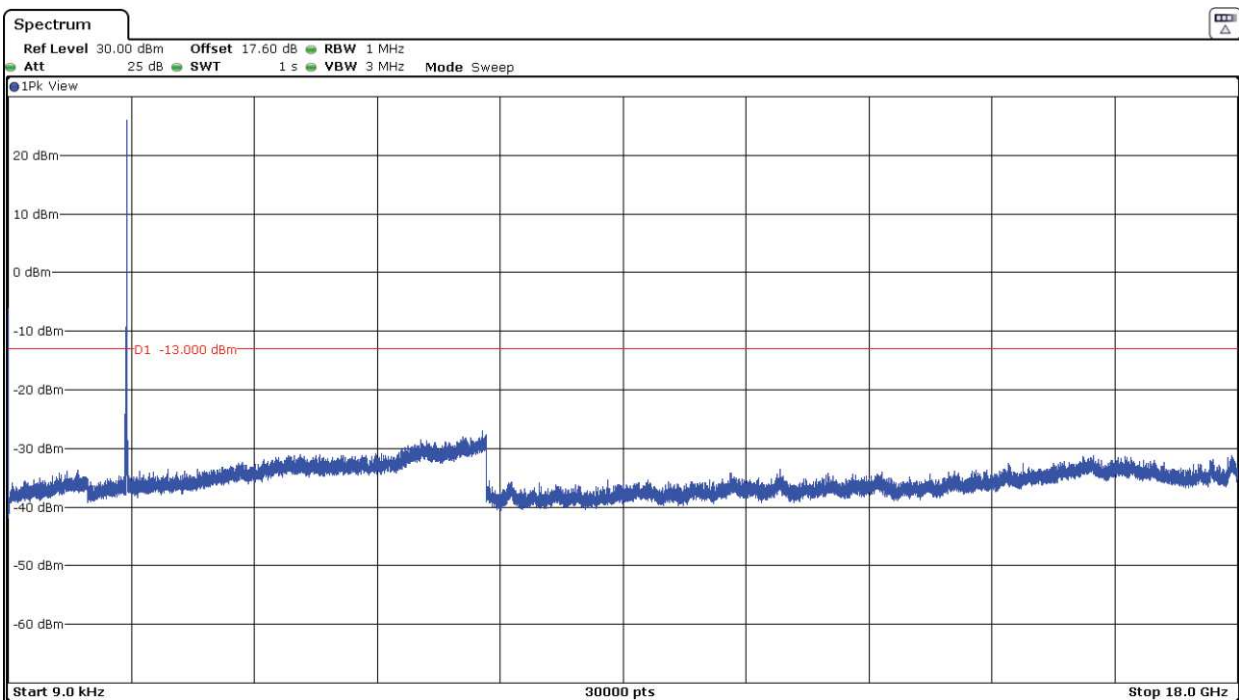
LTE Band 4. QPSK MODULATION. BW = 15 MHz.

Lowest Channel:



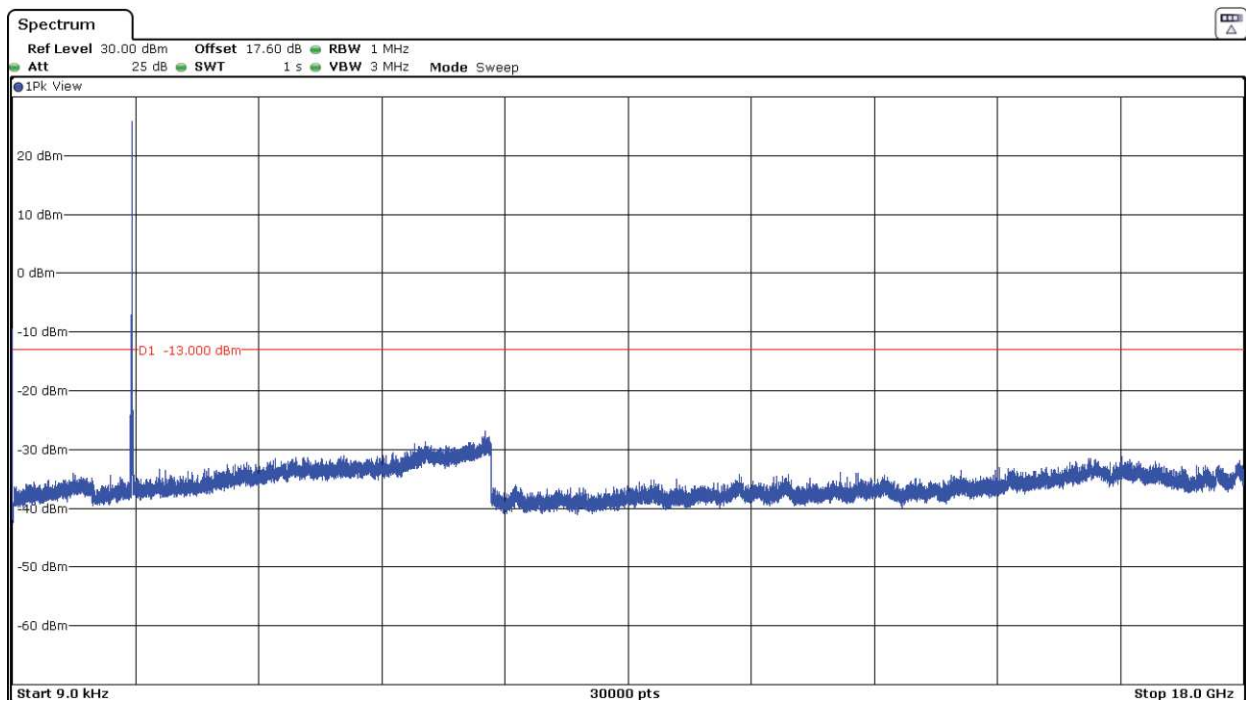
The peak above the limit is the carrier frequency.

Middle Channel:



The peak above the limit is the carrier frequency.

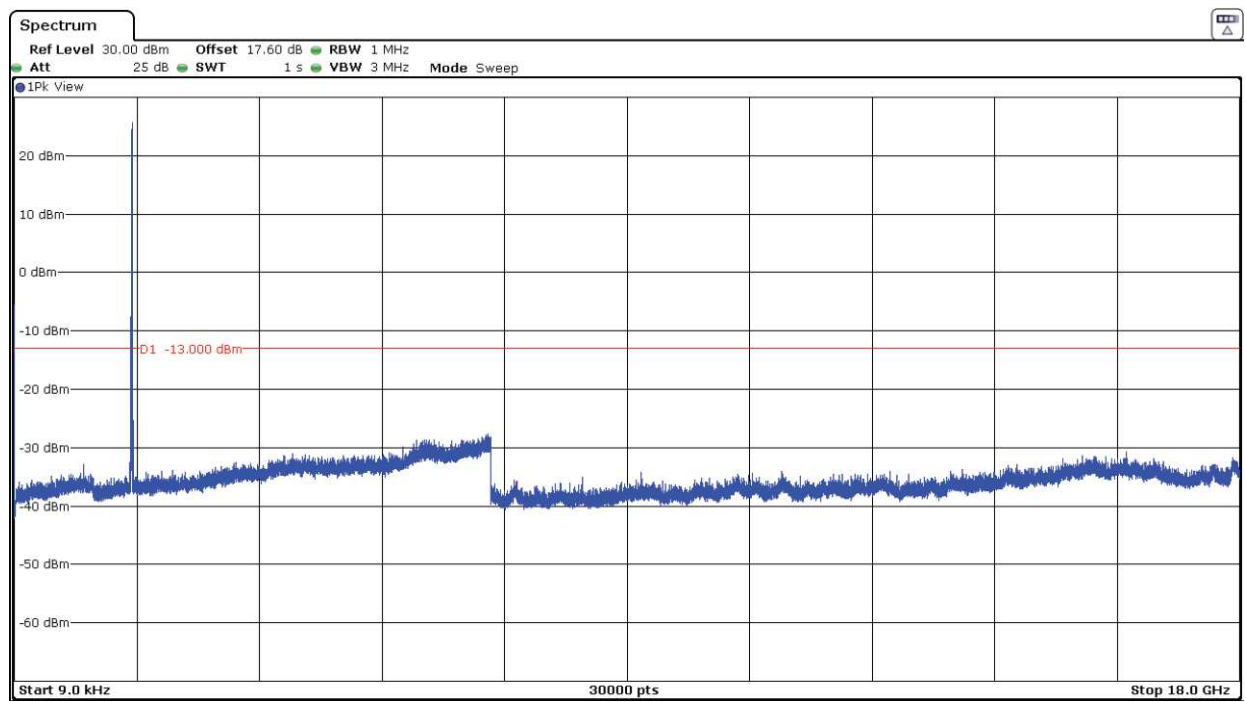
Highest Channel:



The peak above the limit is the carrier frequency.

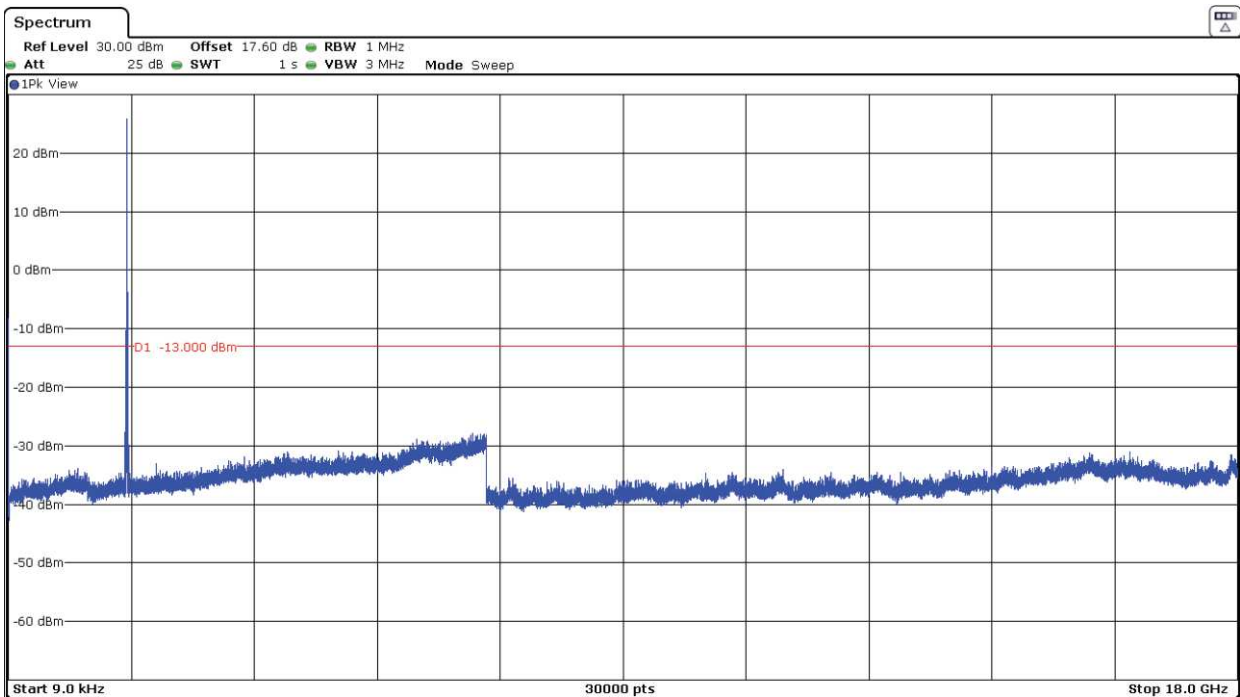
LTE Band 4. QPSK MODULATION. BW = 20 MHz.

Lowest Channel:



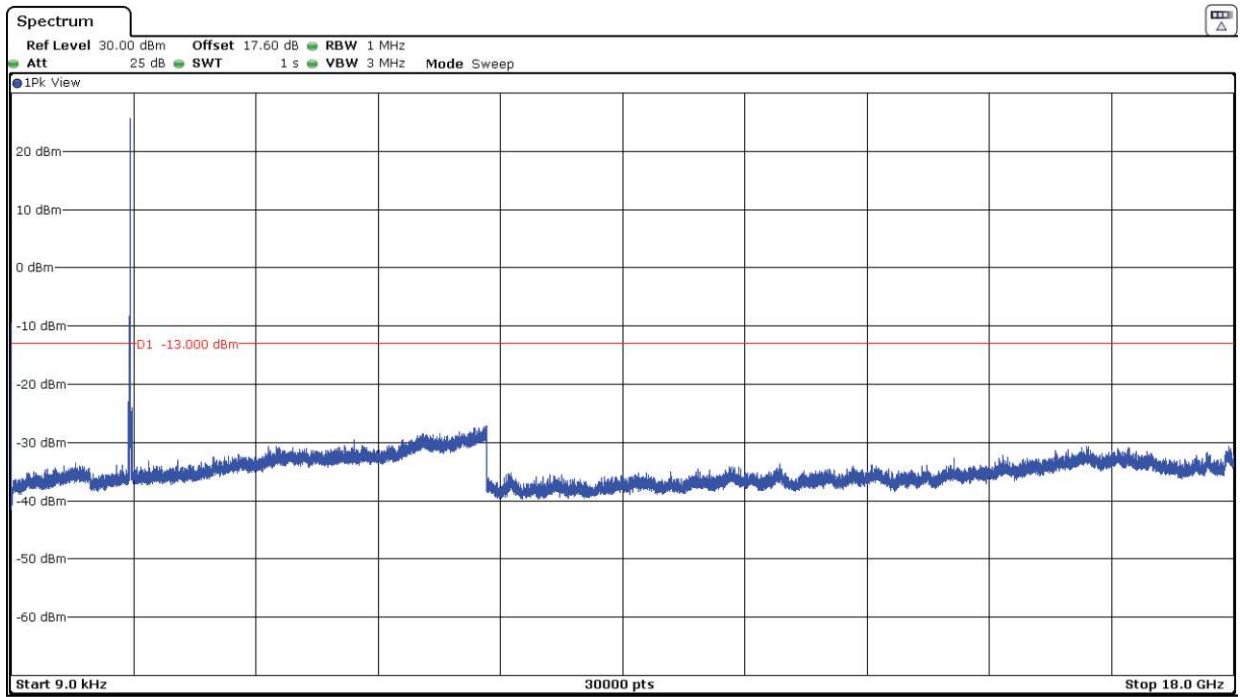
The peak above the limit is the carrier frequency.

Middle Channel:



The peak above the limit is the carrier frequency.

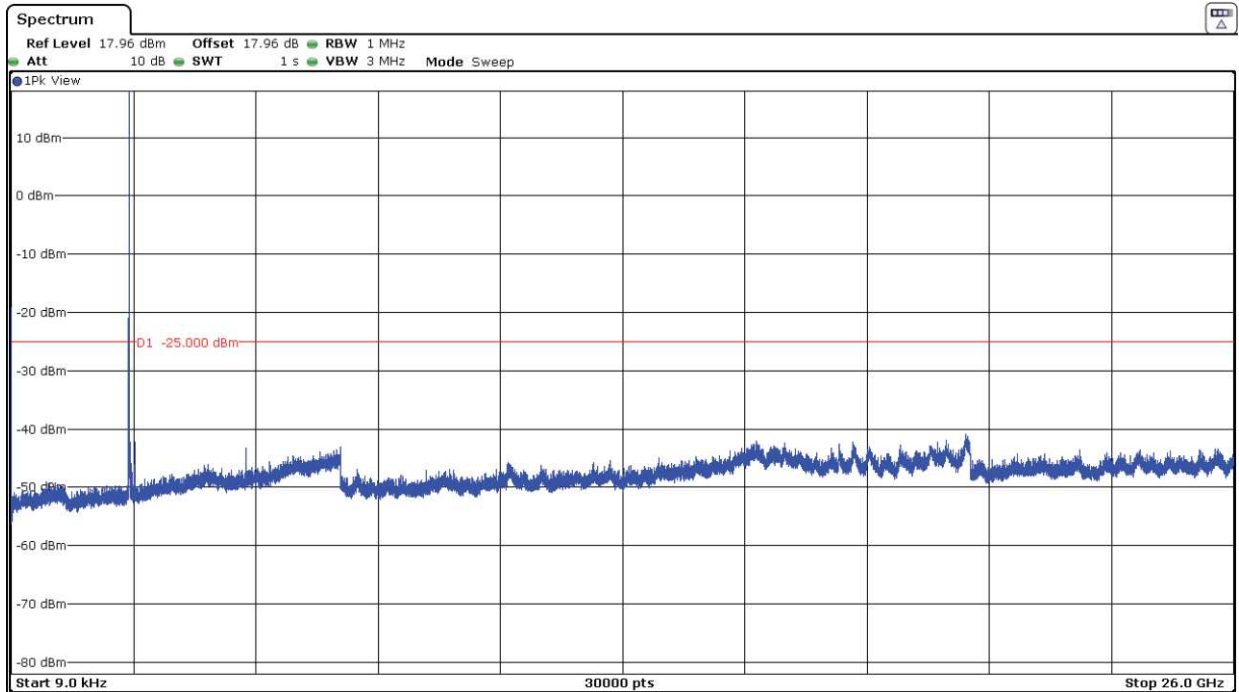
Highest Channel:



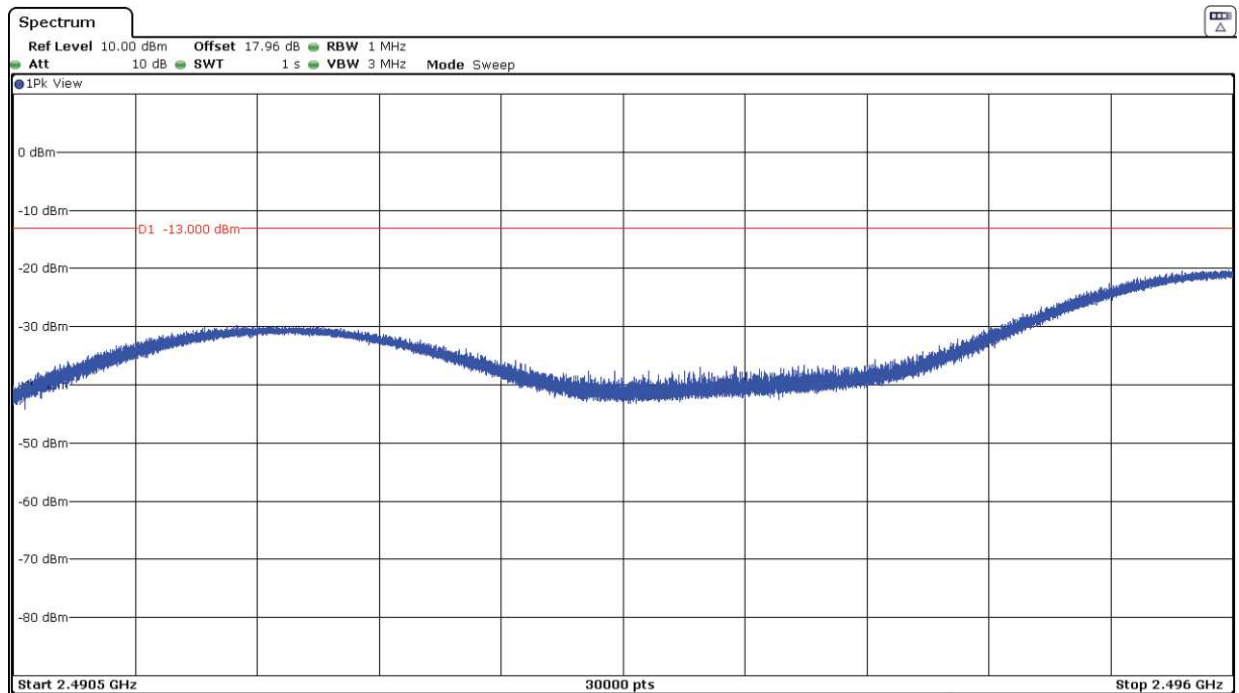
The peak above the limit is the carrier frequency.

LTE Band 7. QPSK MODULATION. BW = 5 MHz.

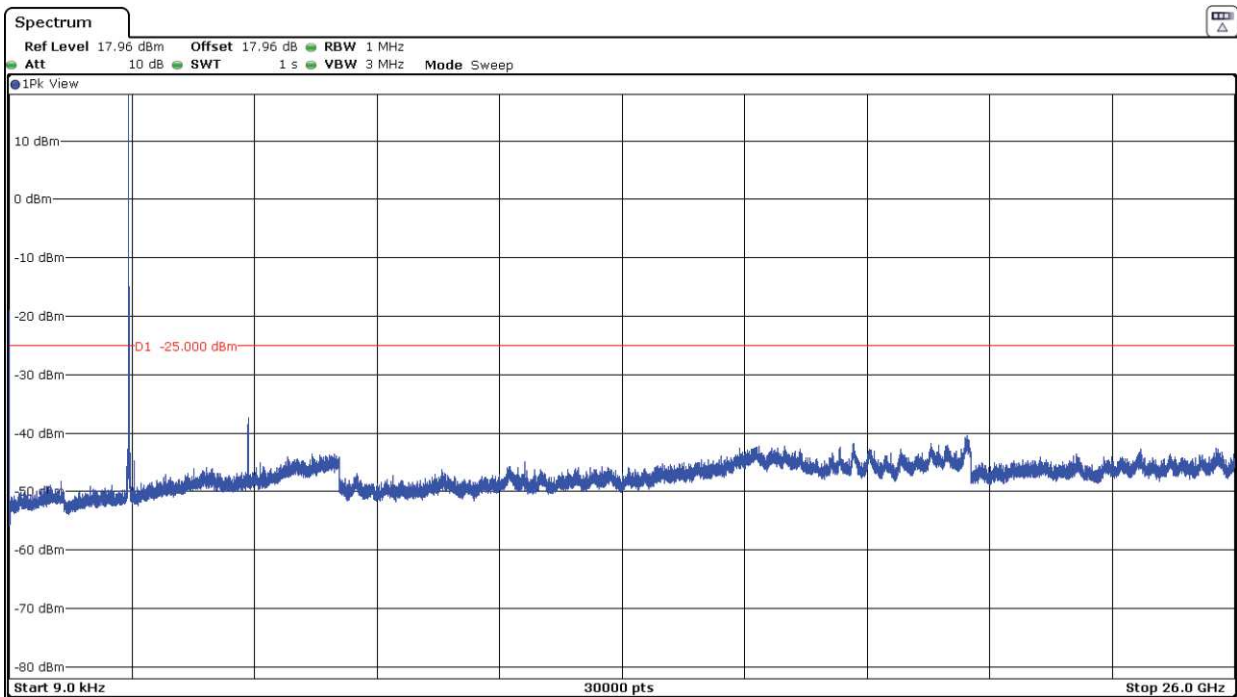
Lowest Channel:



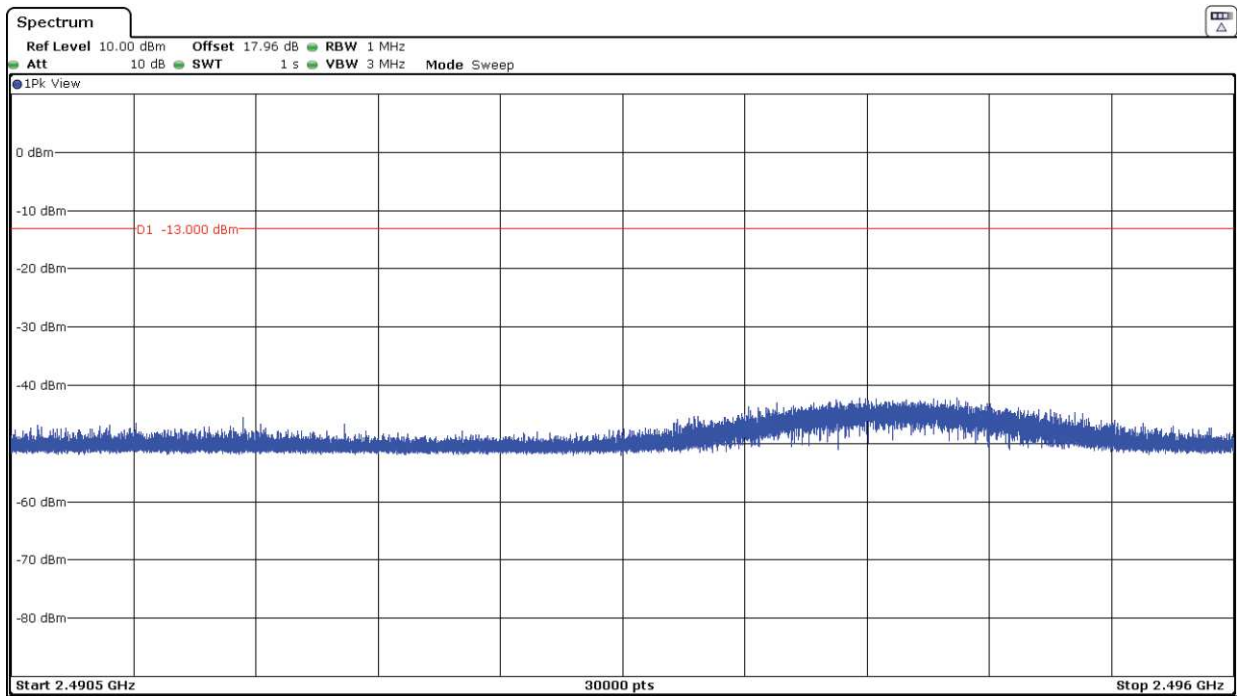
The peak above the limit is the carrier frequency.



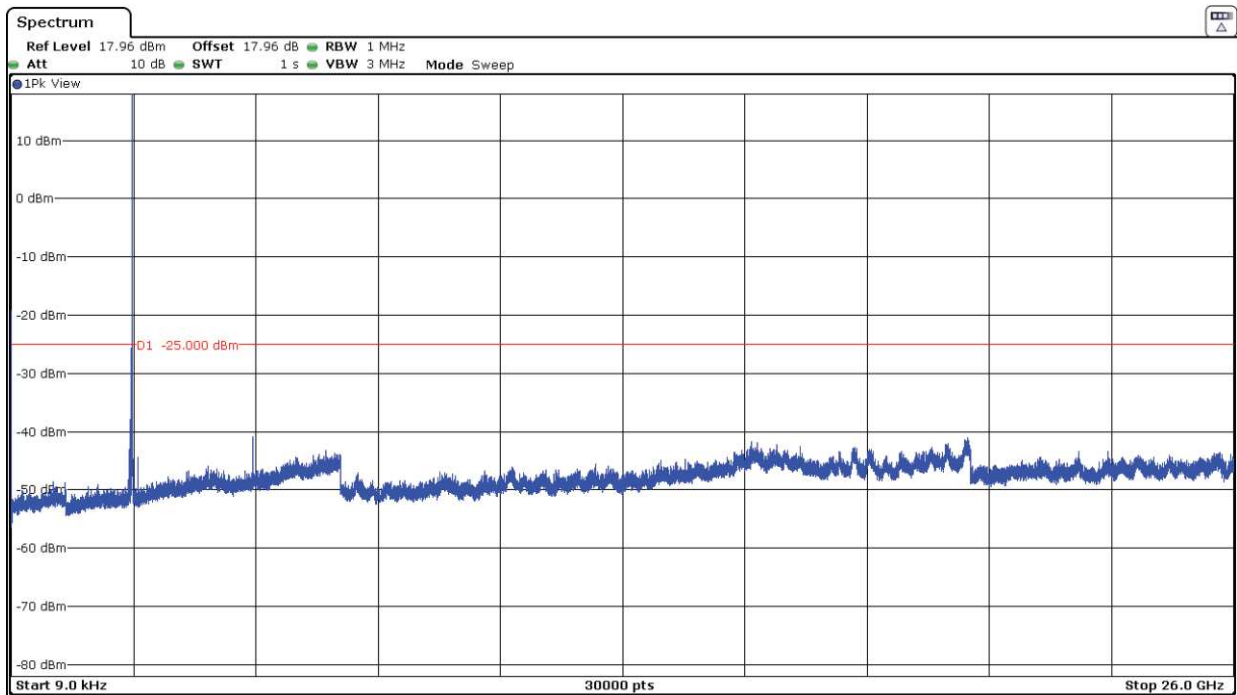
Middle Channel:



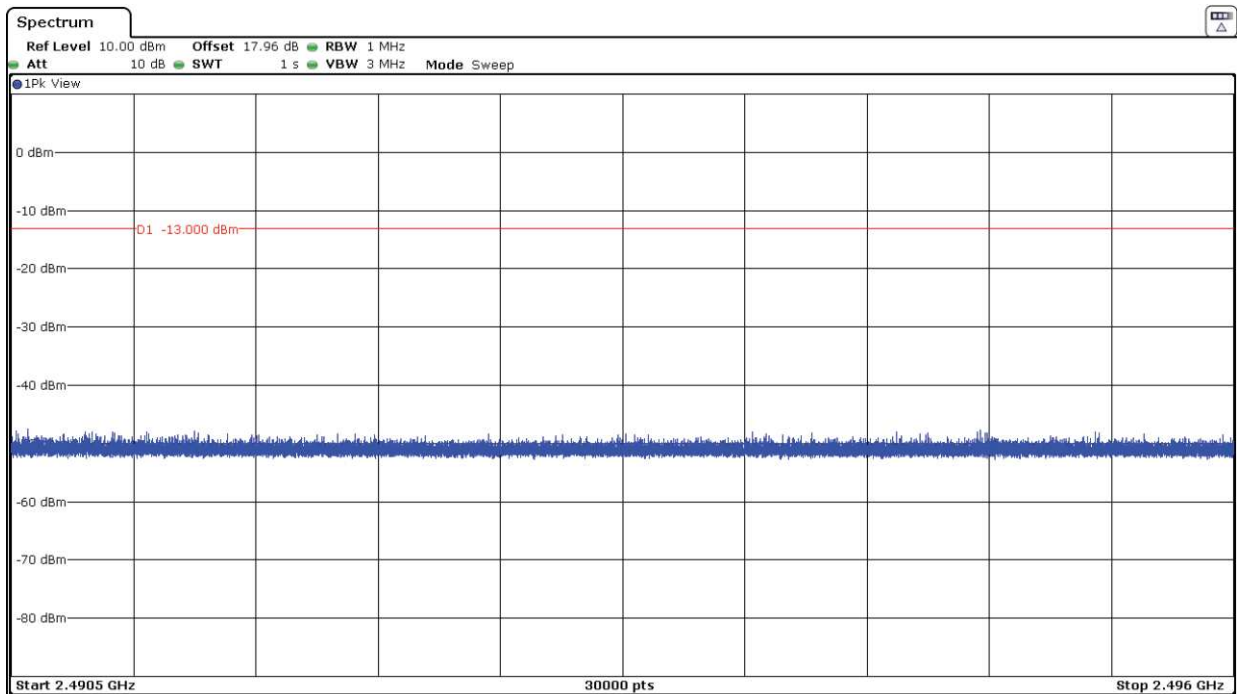
The peak above the limit is the carrier frequency.



Highest Channel:

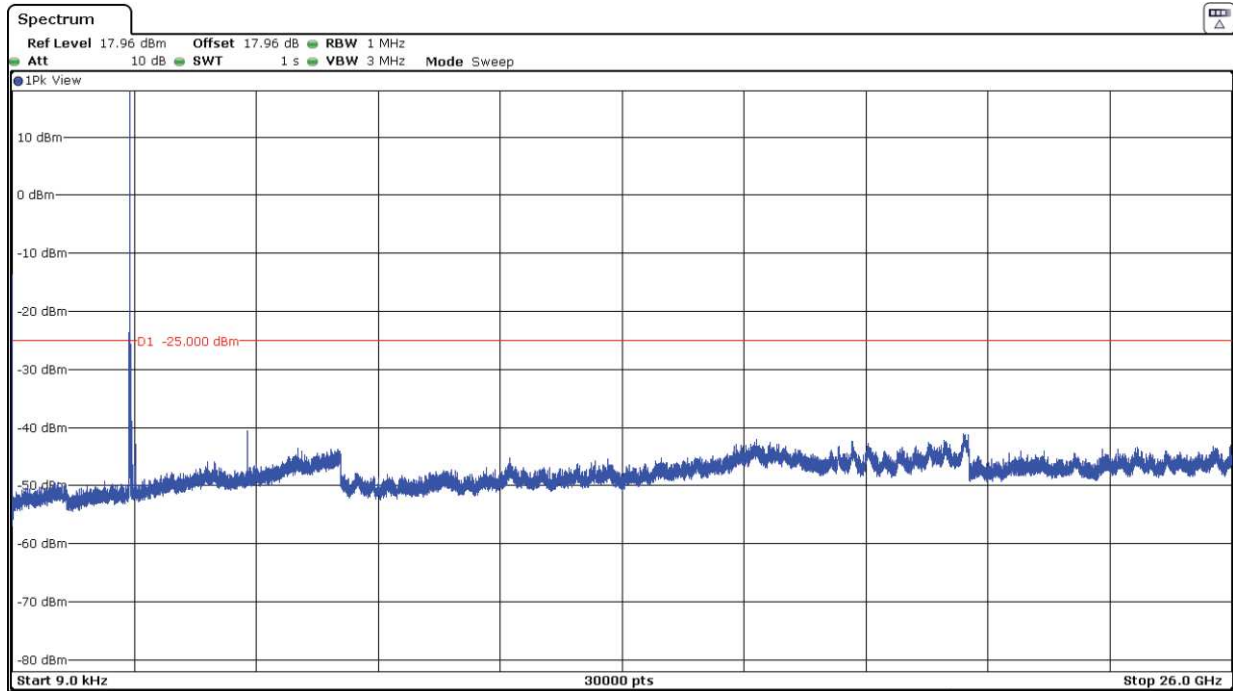


The peak above the limit is the carrier frequency.

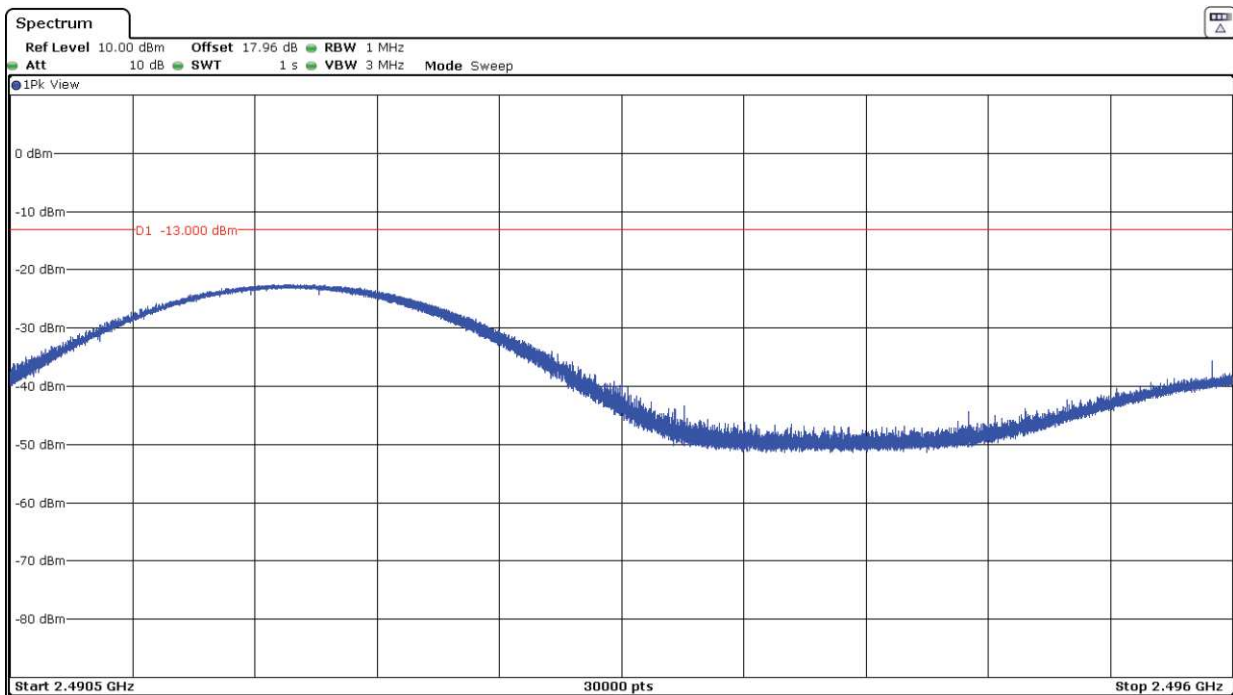


LTE Band 7. QPSK MODULATION. BW = 10 MHz.

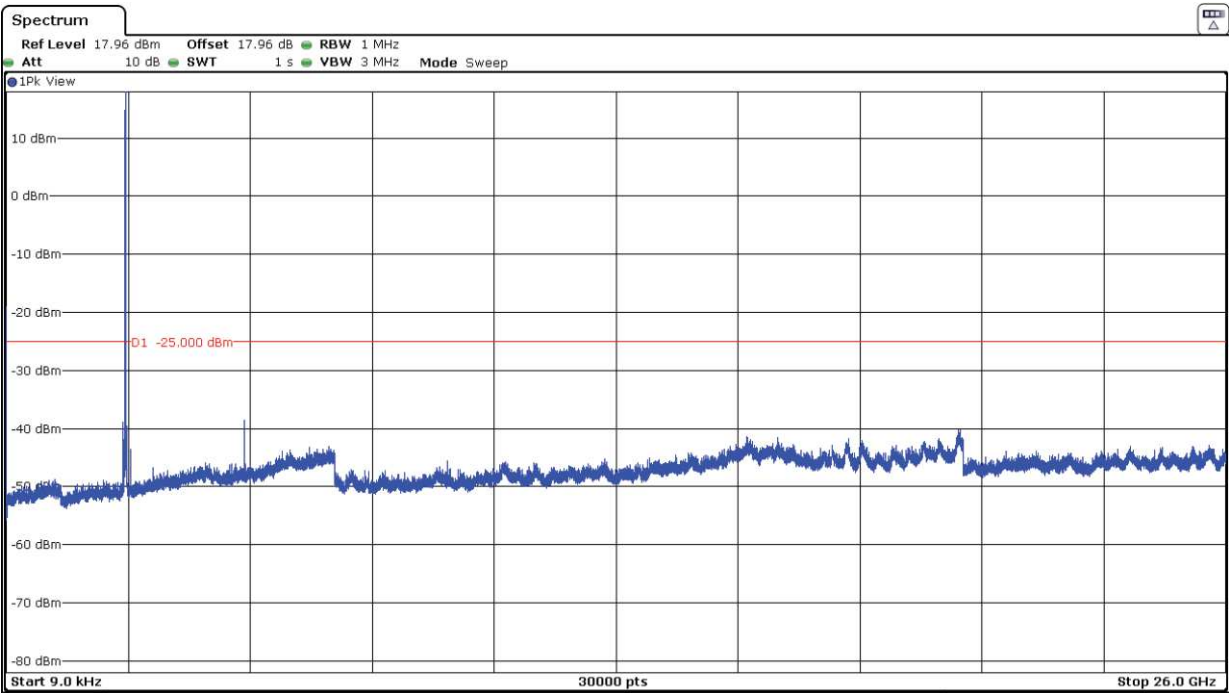
Lowest Channel:



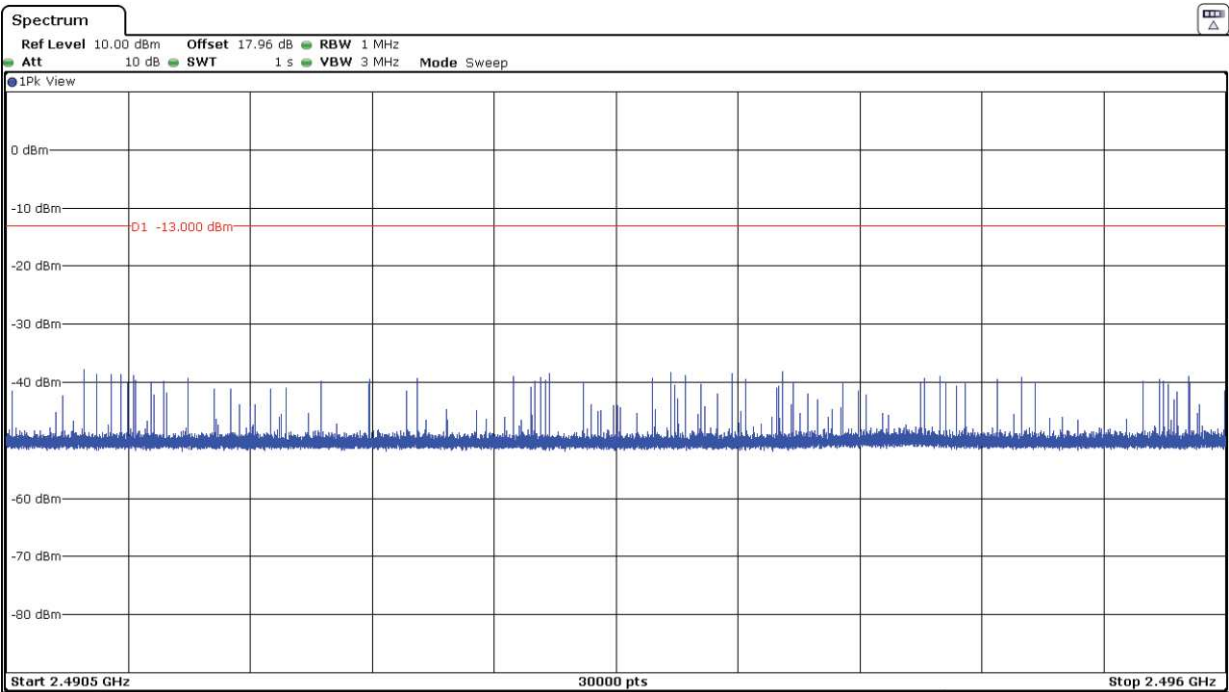
The peak above the limit is the carrier frequency.



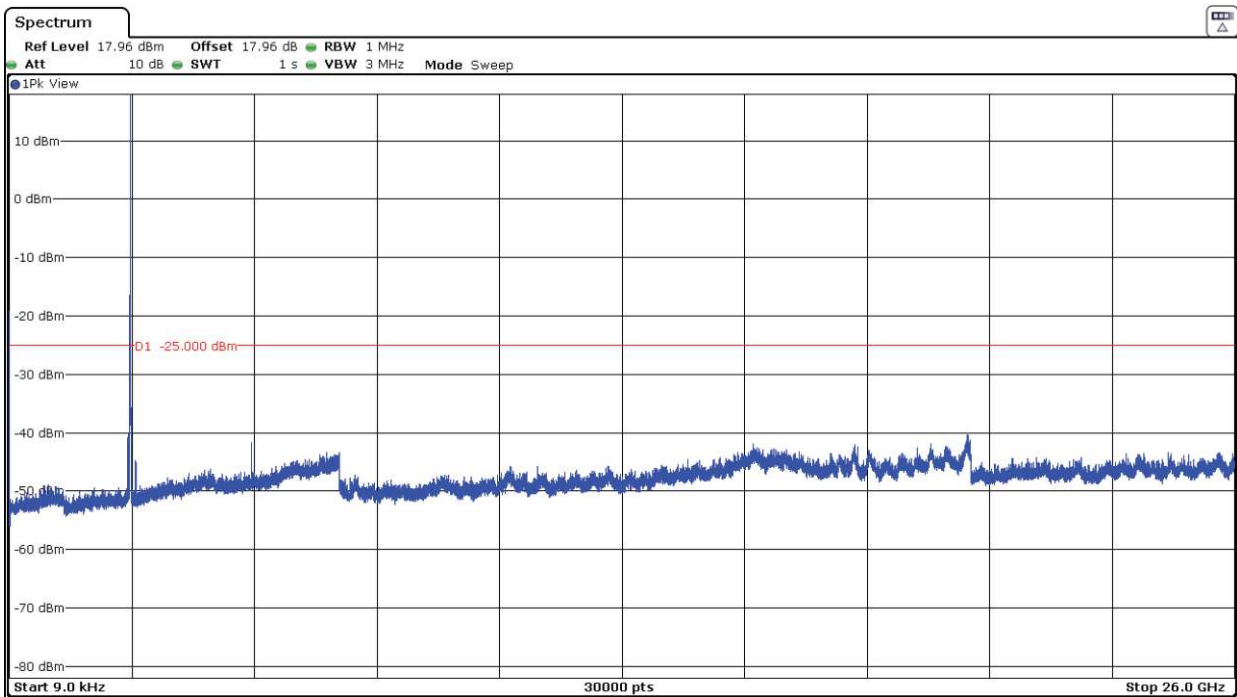
Middle Channel:



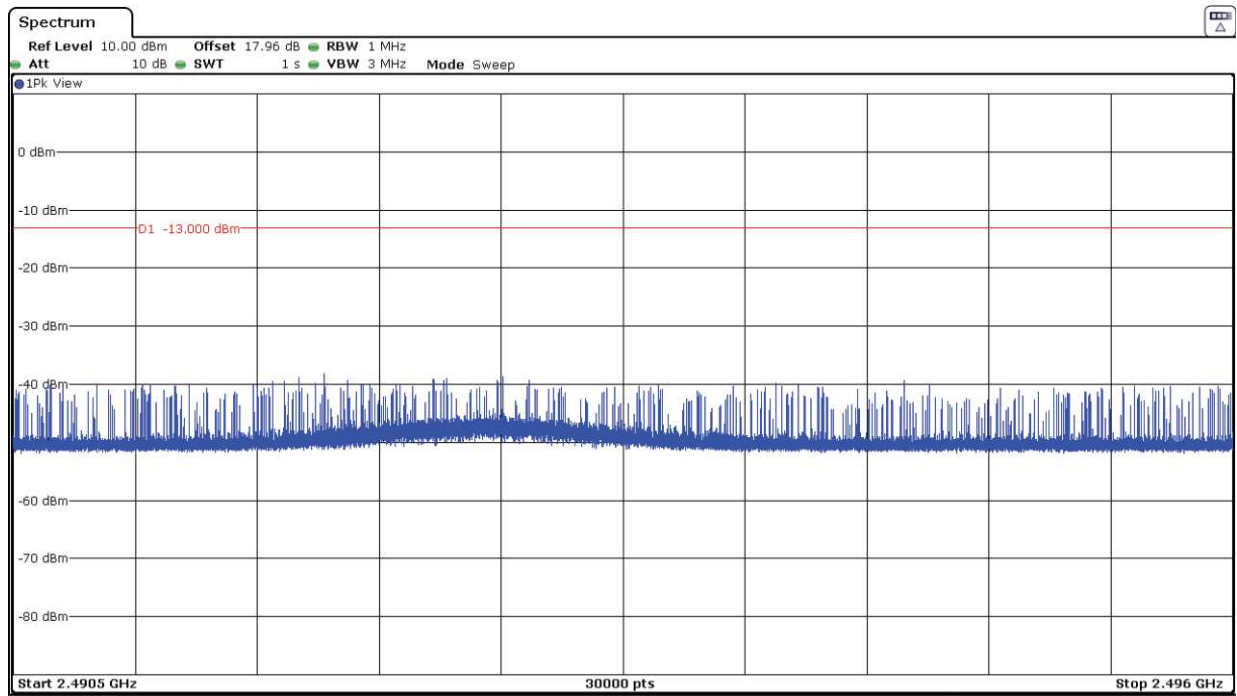
The peak above the limit is the carrier frequency.



Highest Channel:

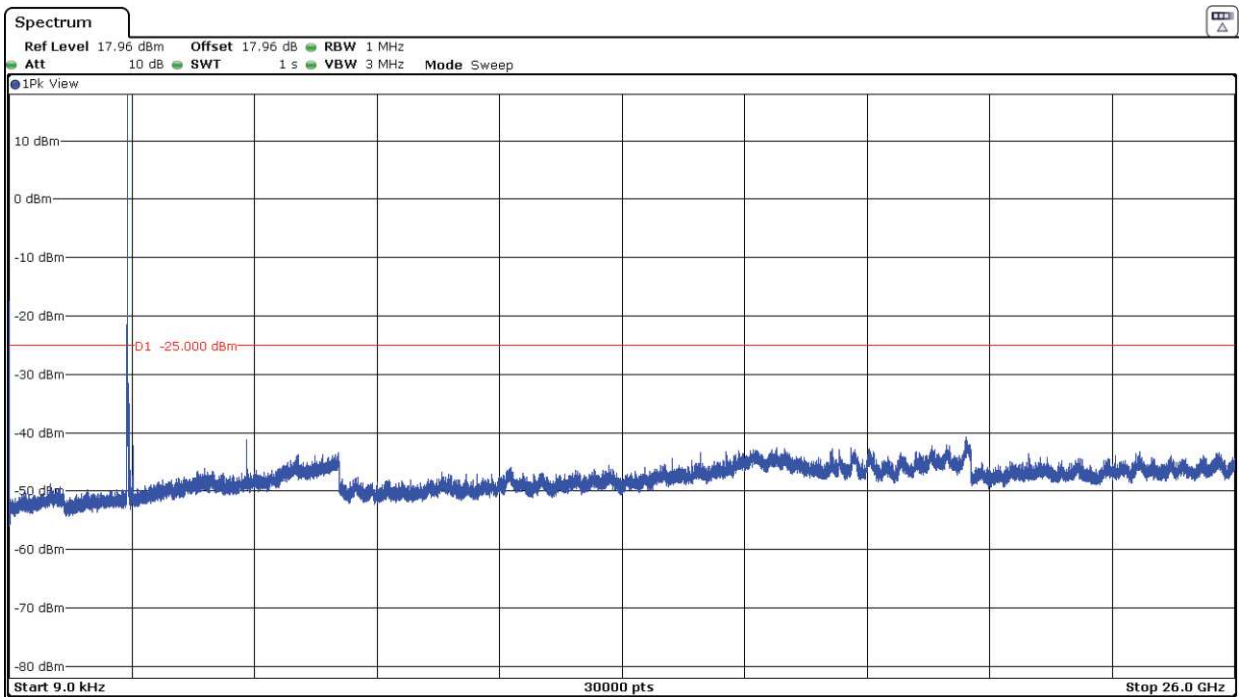


The peak above the limit is the carrier frequency.

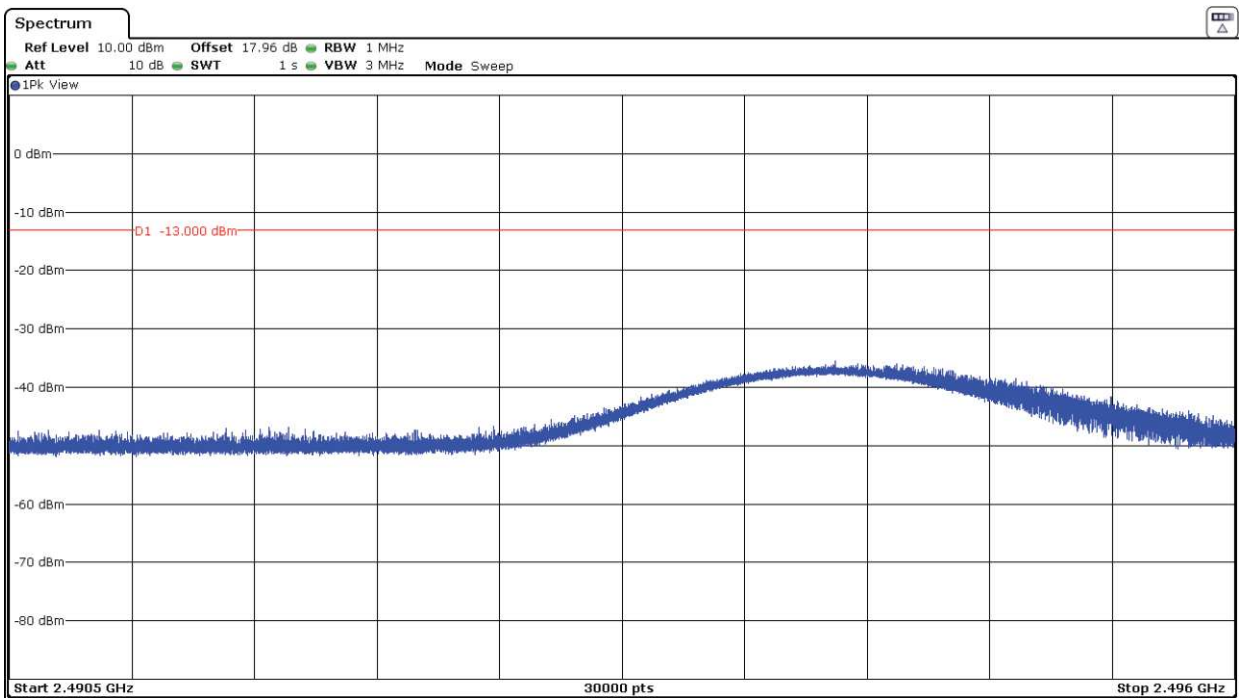


LTE Band 7. QPSK MODULATION. BW = 15 MHz.

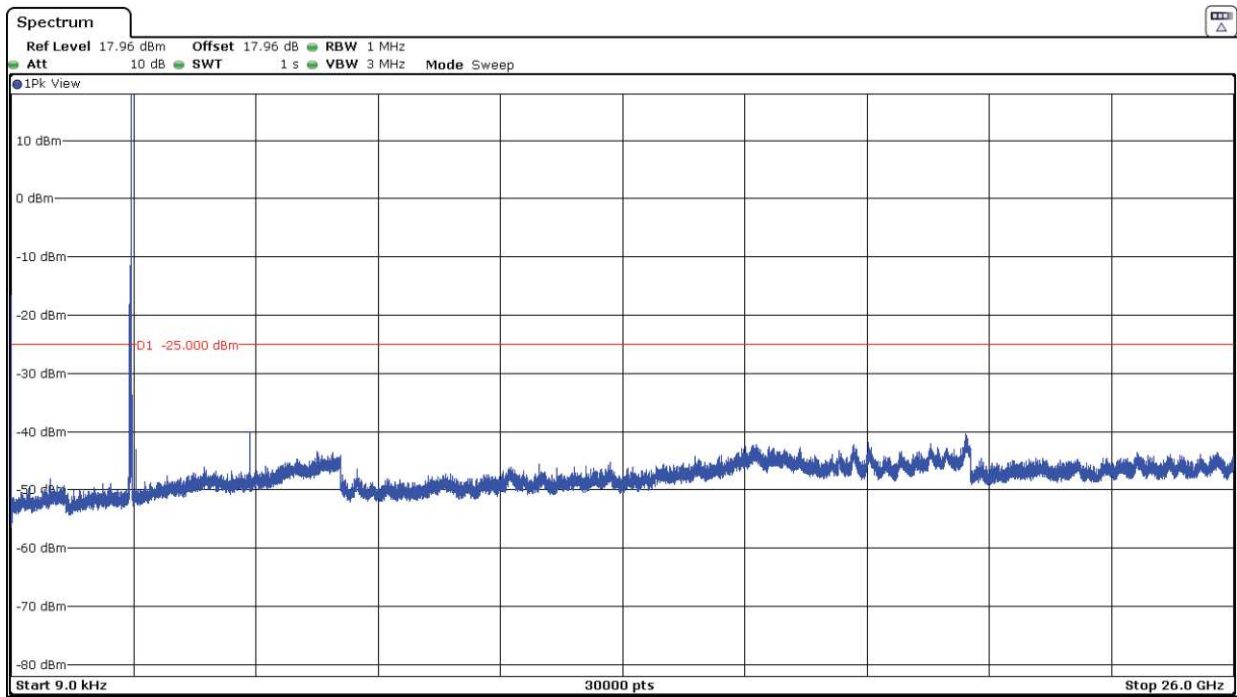
Lowest Channel:



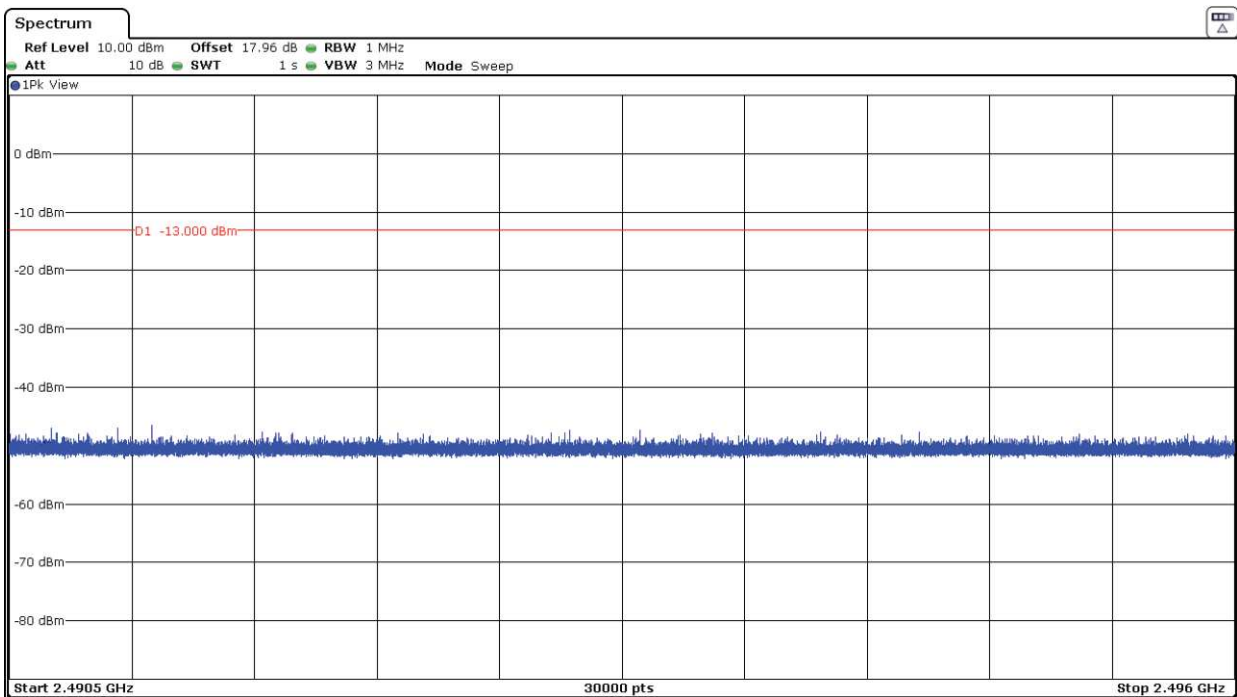
The peak above the limit is the carrier frequency.



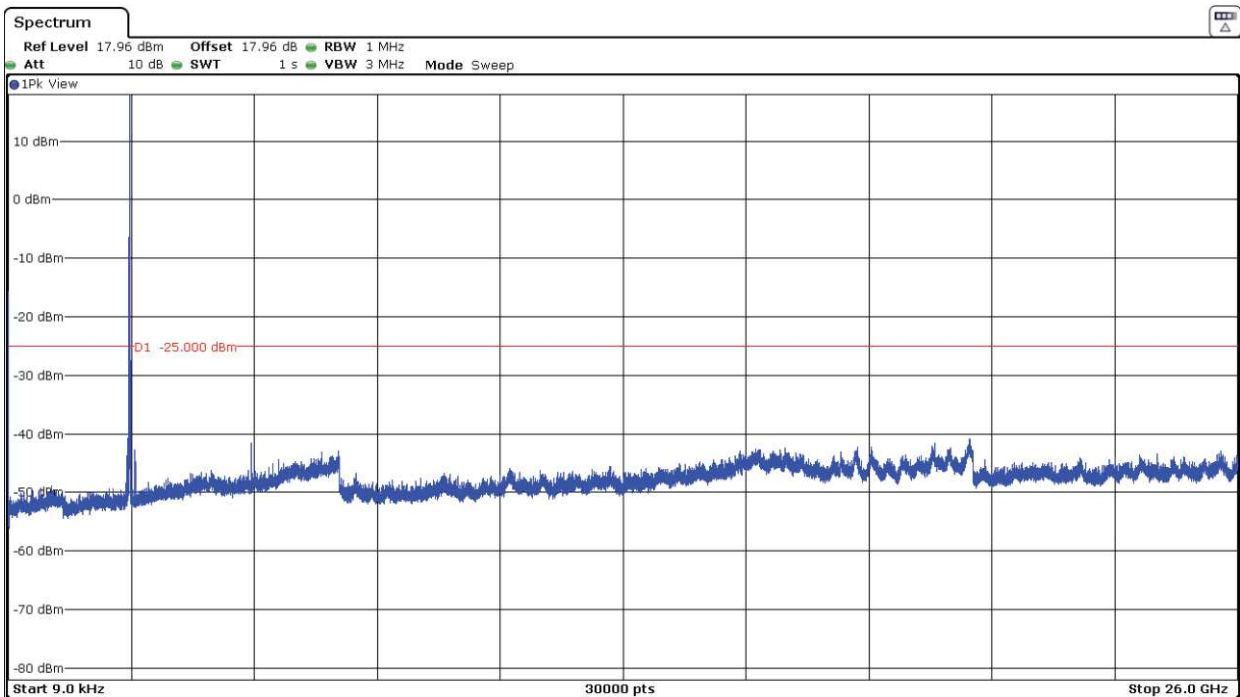
Middle Channel:



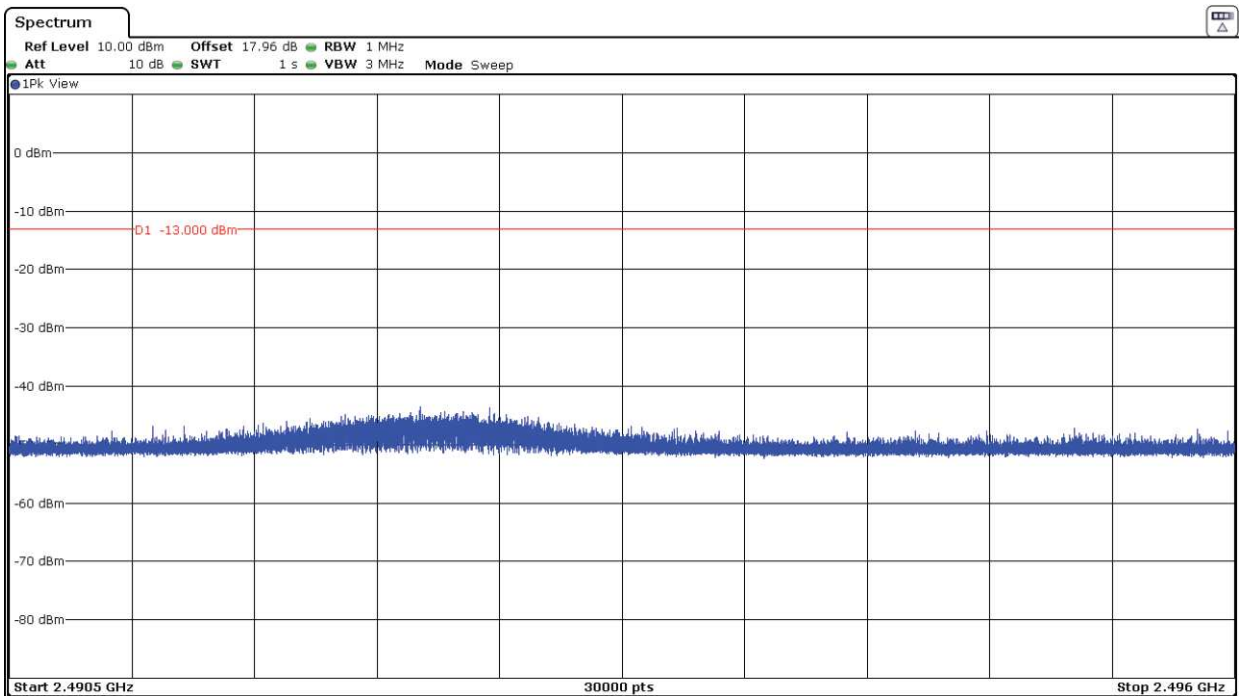
The peak above the limit is the carrier frequency.



Highest Channel:

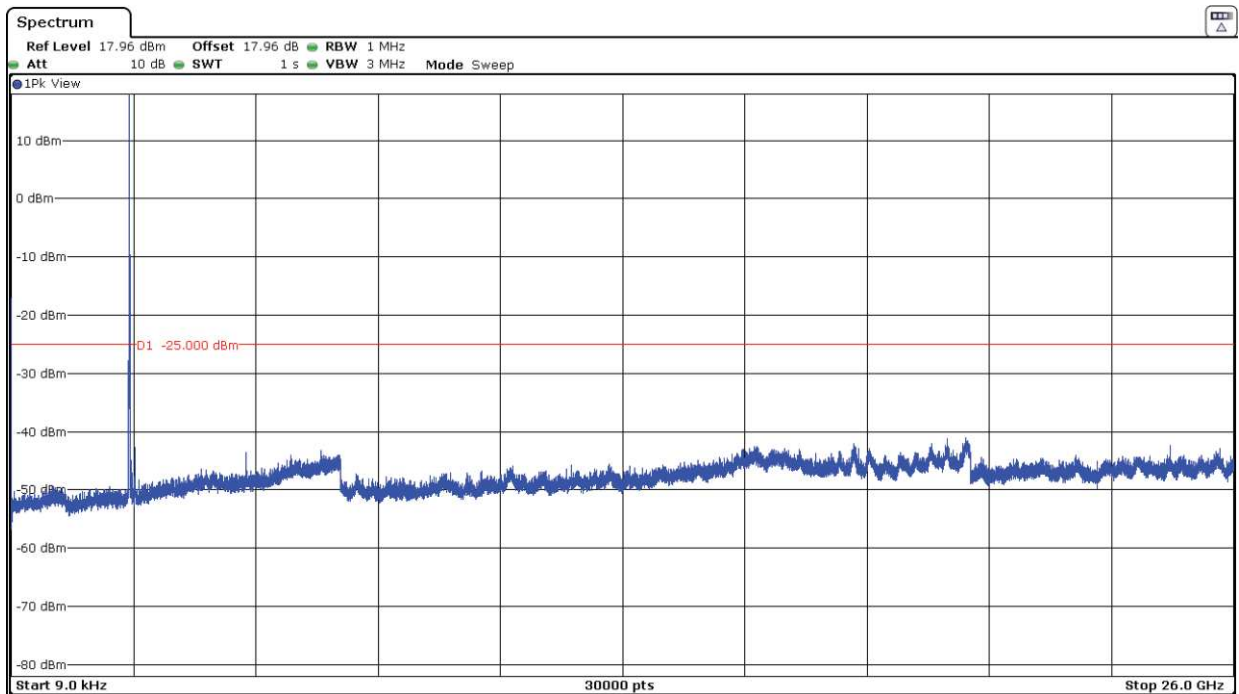


The peak above the limit is the carrier frequency.

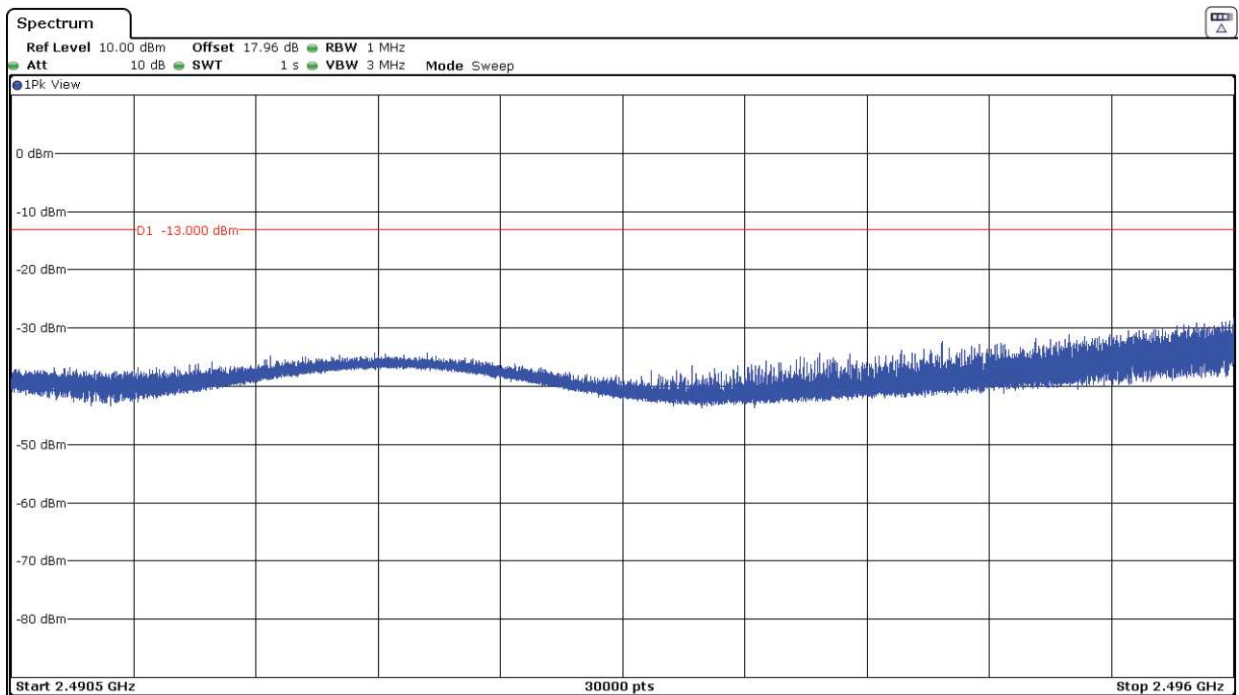


LTE Band 7. 16QAM MODULATION. BW = 20 MHz.

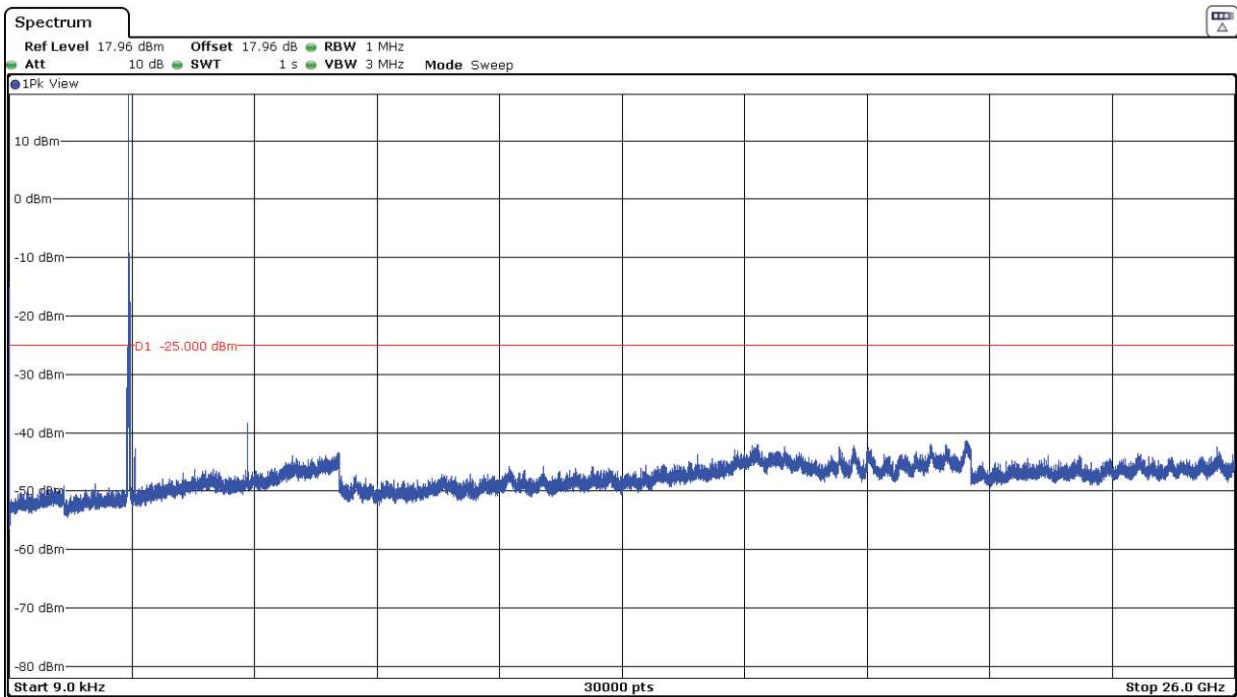
Lowest Channel:



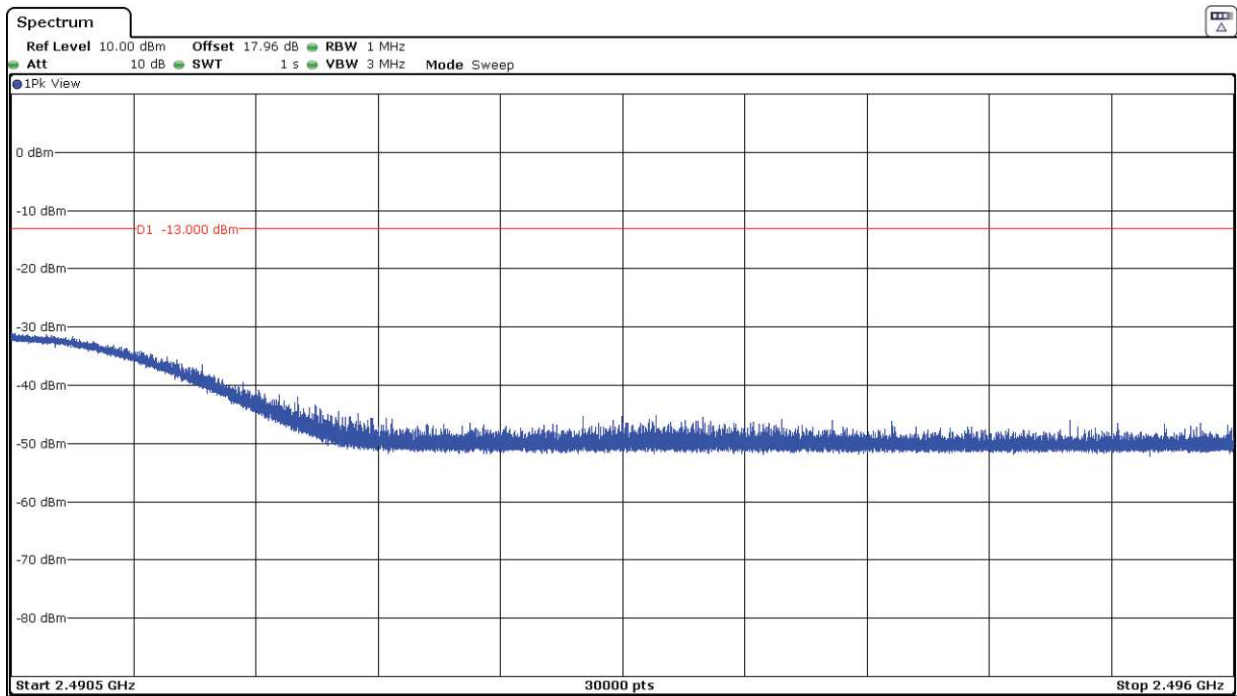
The peak above the limit is the carrier frequency.



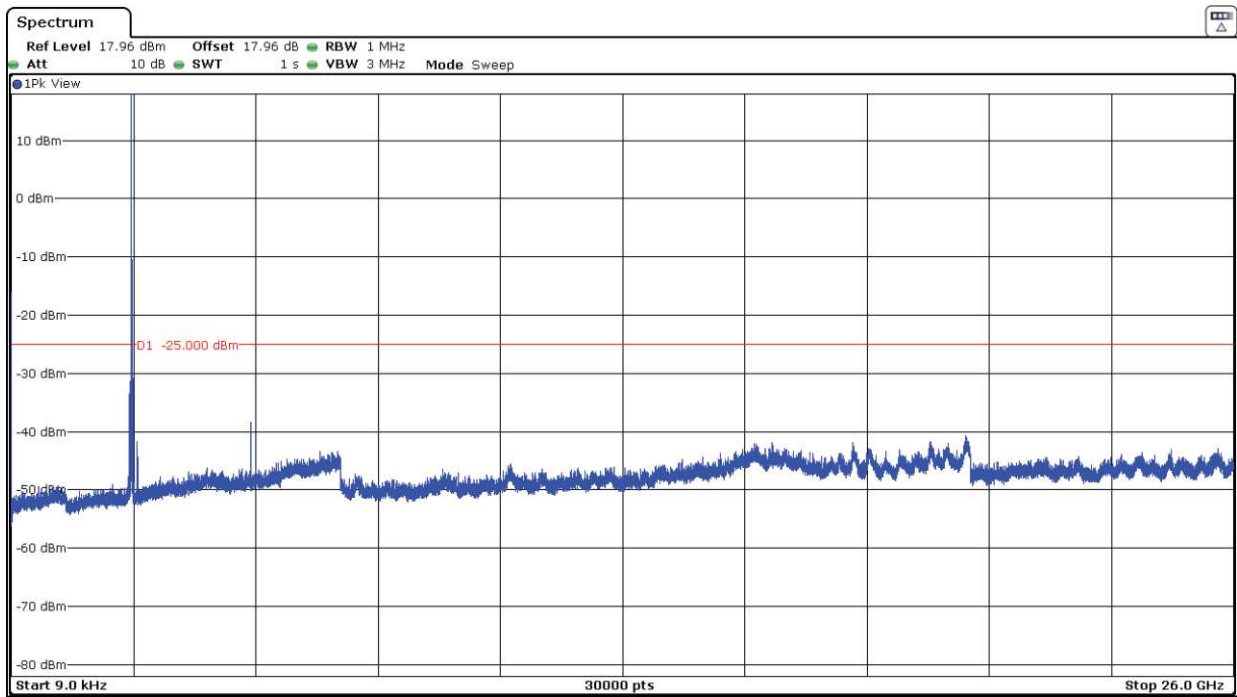
Middle Channel:



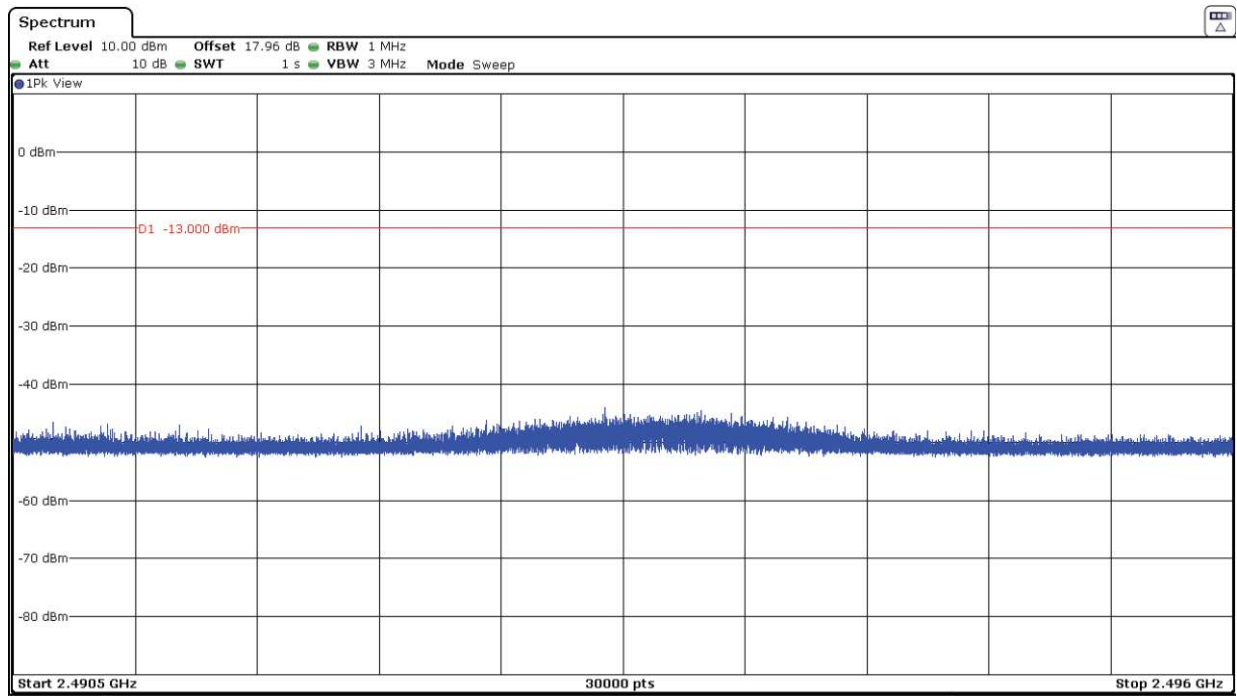
The peak above the limit is the carrier frequency.



Highest Channel:

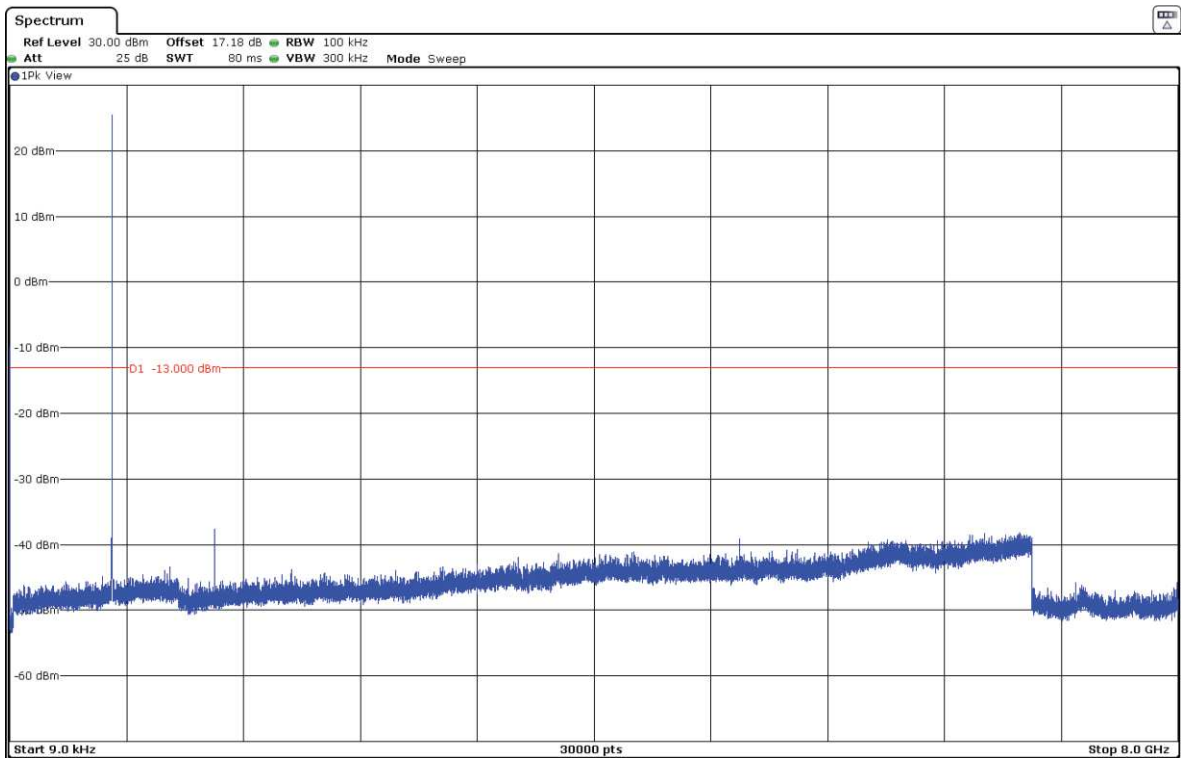


The peak above the limit is the carrier frequency.



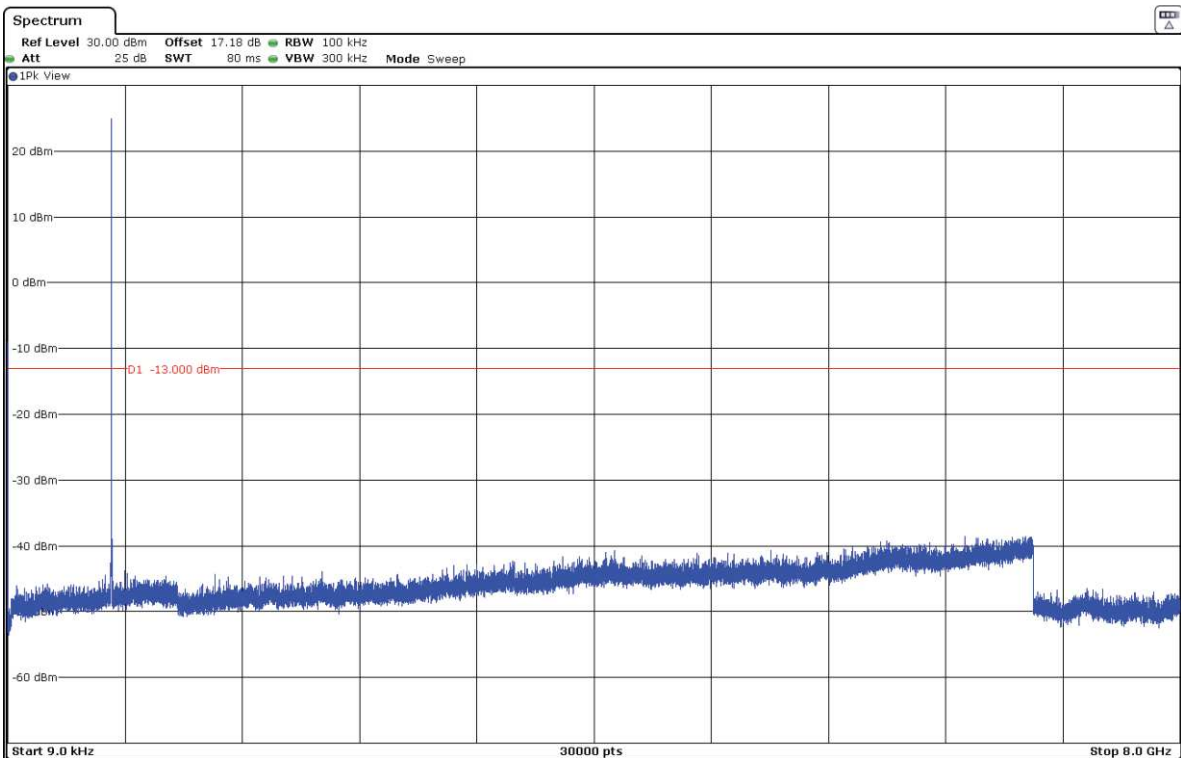
LTE Band 12. QPSK MODULATION. BW = 1.4 MHz.

Lowest Channel:



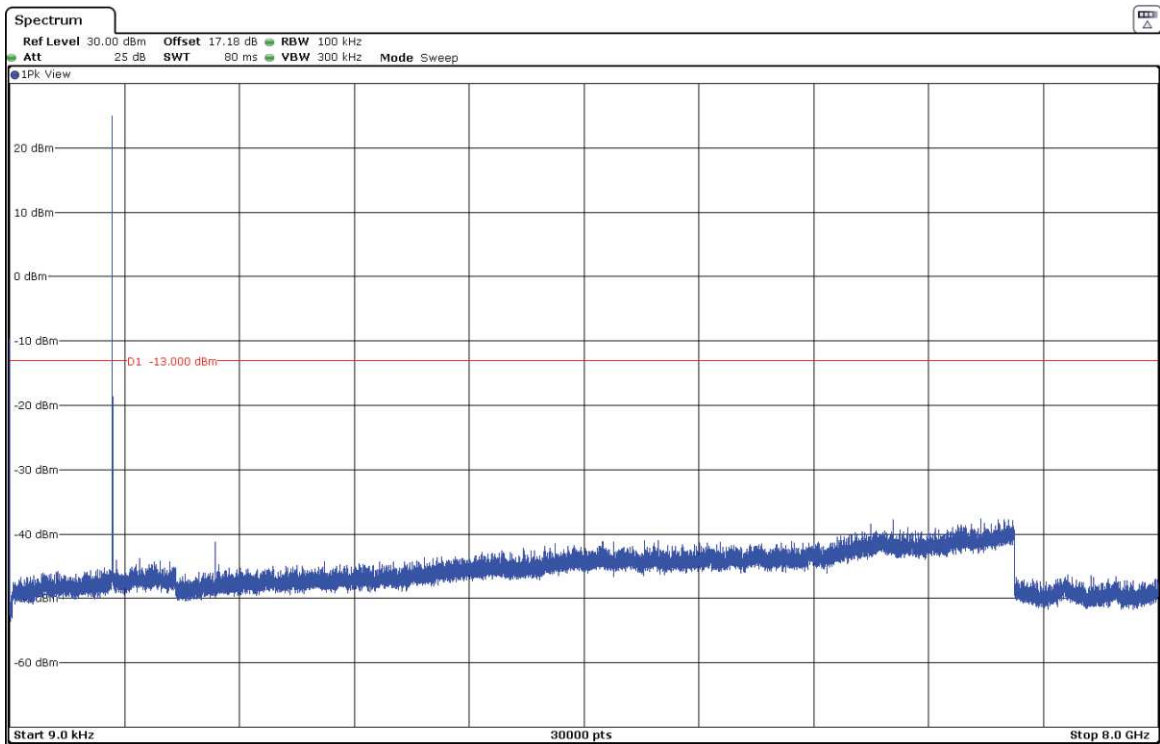
The peak above the limit is the carrier frequency.

Middle Channel:



The peak above the limit is the carrier frequency.

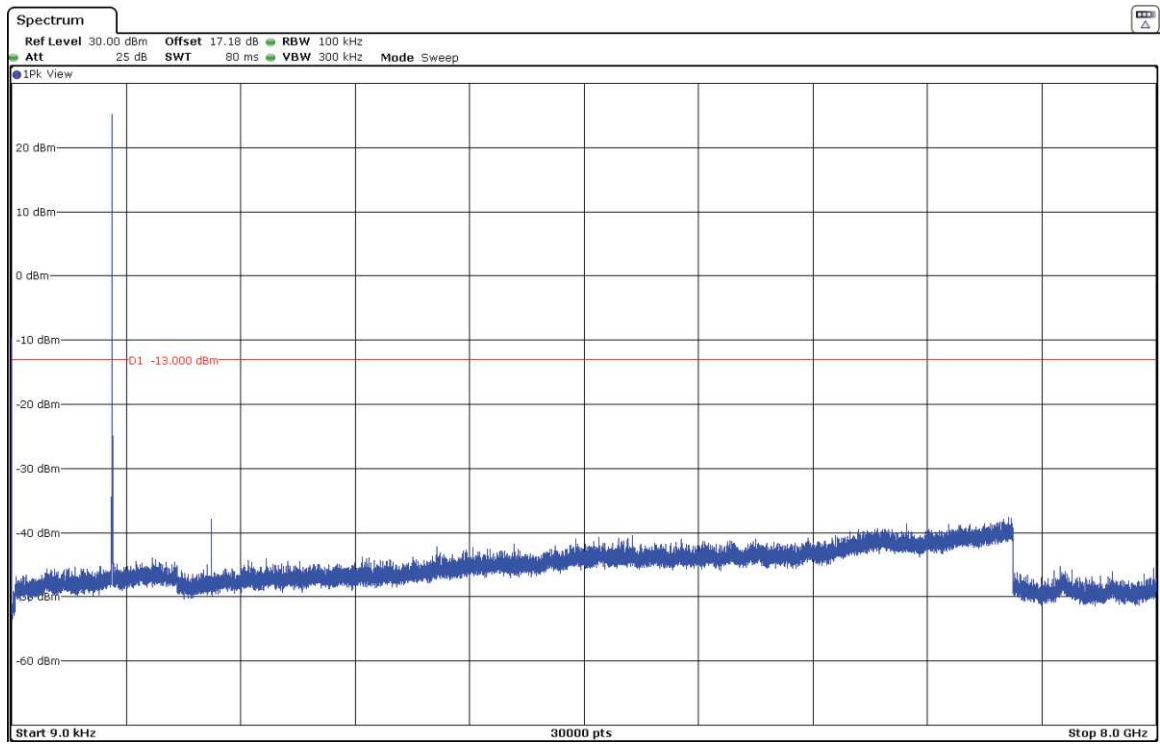
Highest Channel:



The peak above the limit is the carrier frequency.

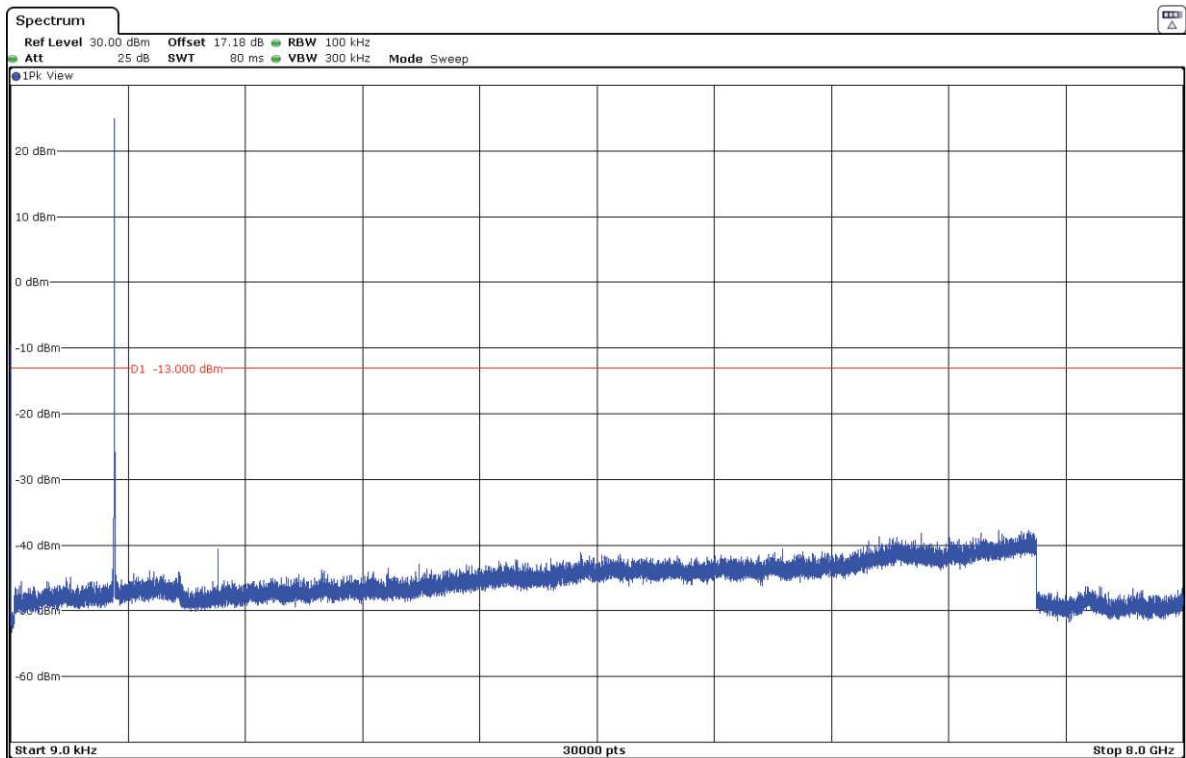
LTE Band 12. QPSK MODULATION. BW = 3 MHz.

Lowest Channel:



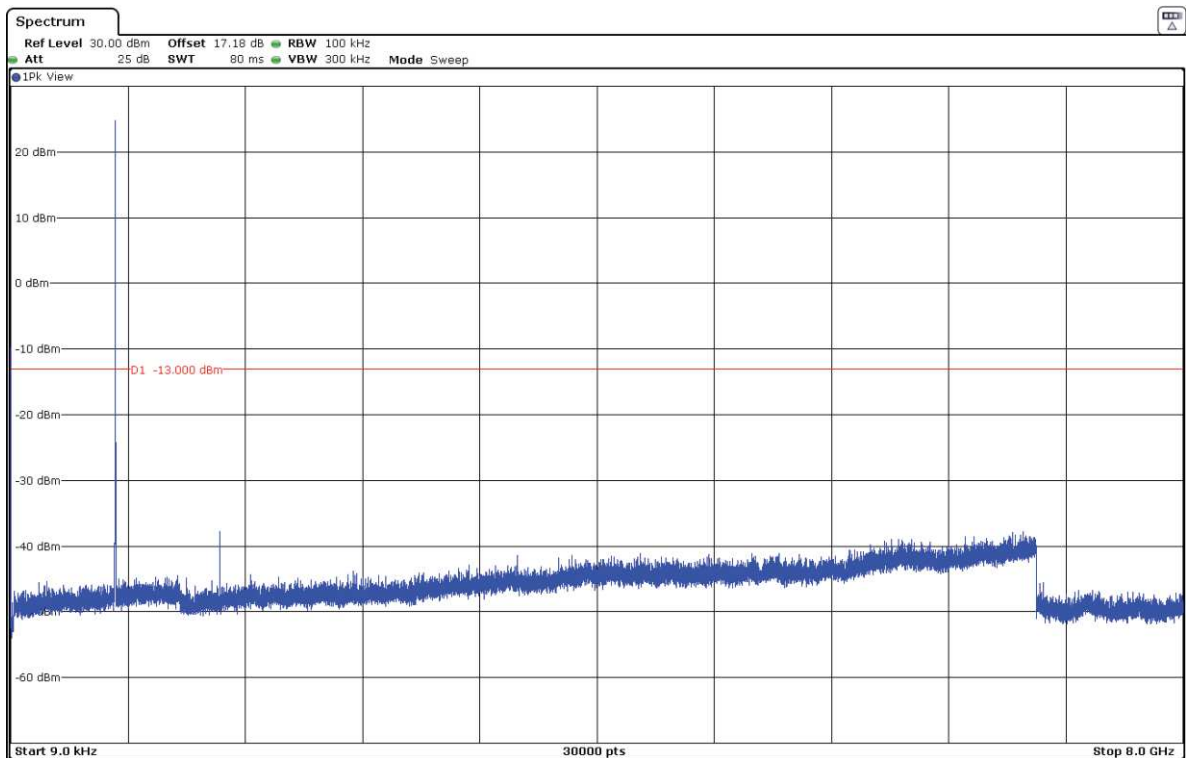
The peak above the limit is the carrier frequency.

Middle Channel:



The peak above the limit is the carrier frequency.

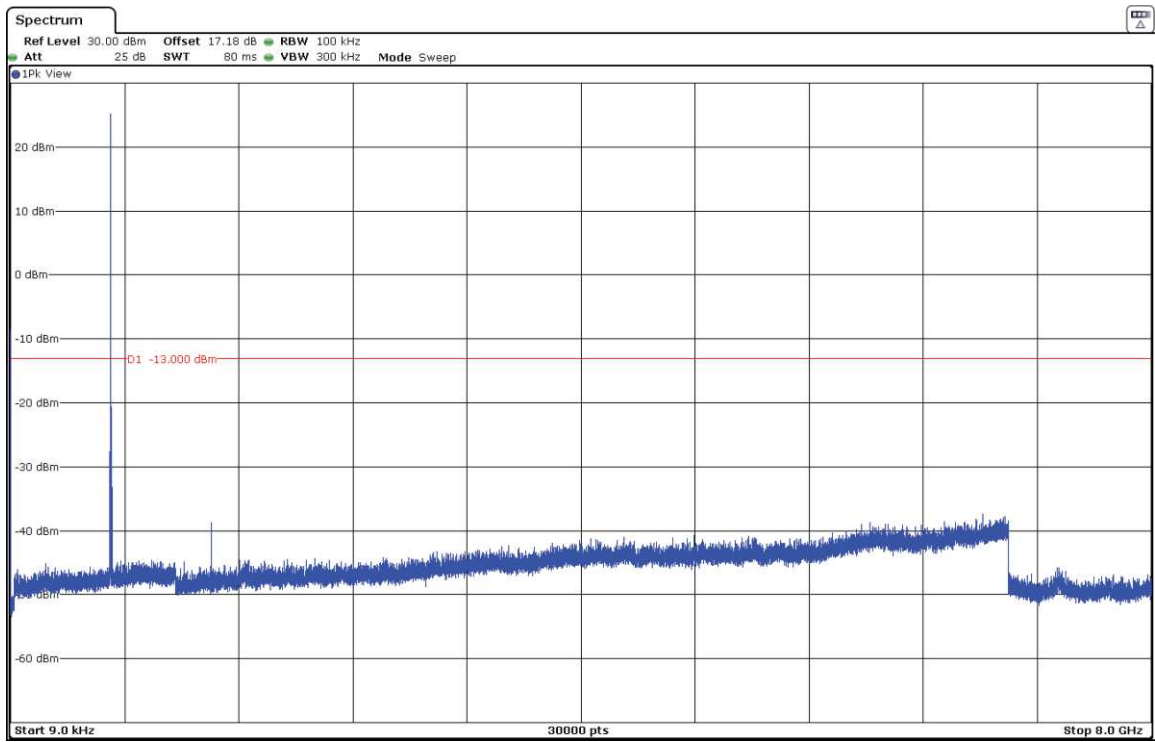
Highest Channel:



The peak above the limit is the carrier frequency.

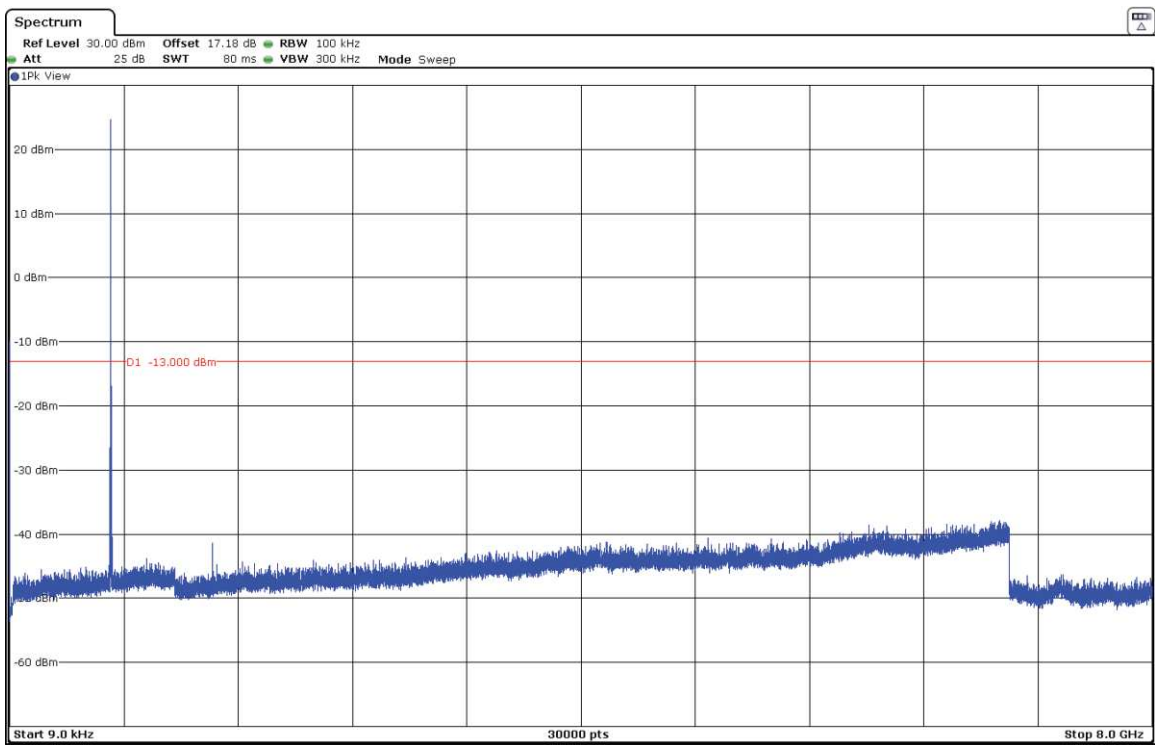
LTE Band 12. QPSK MODULATION. BW = 5 MHz.

Lowest Channel:



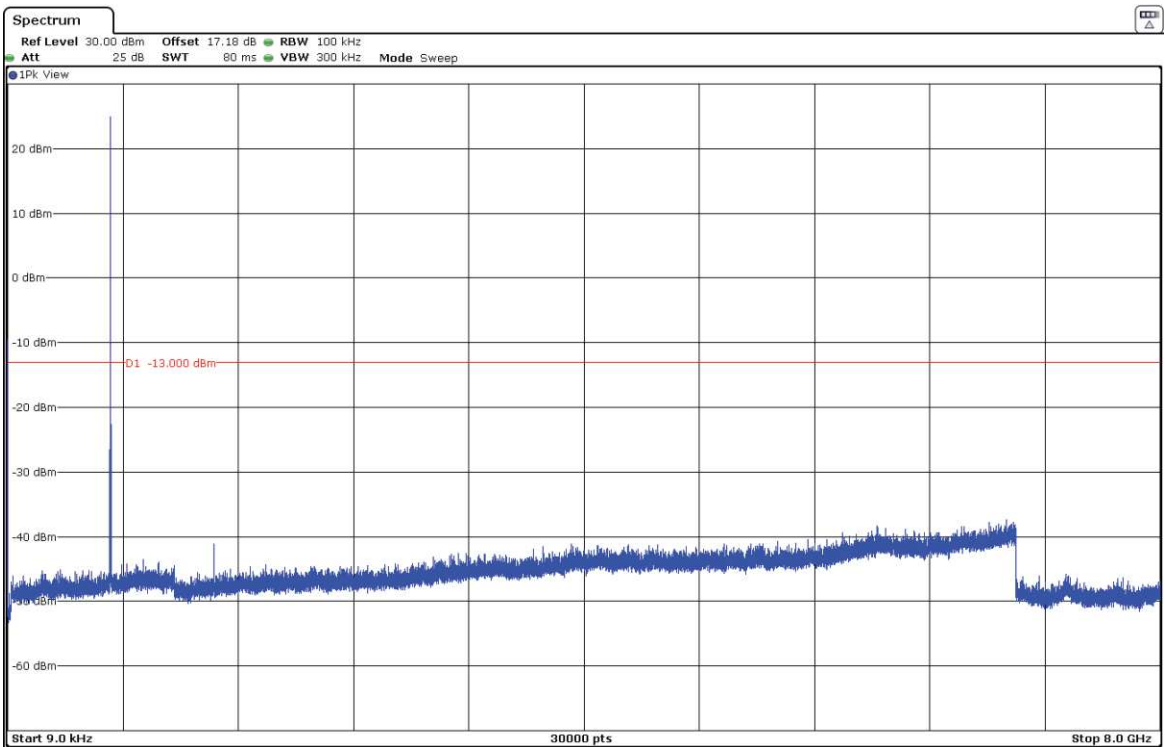
The peak above the limit is the carrier frequency.

Middle Channel:



The peak above the limit is the carrier frequency.

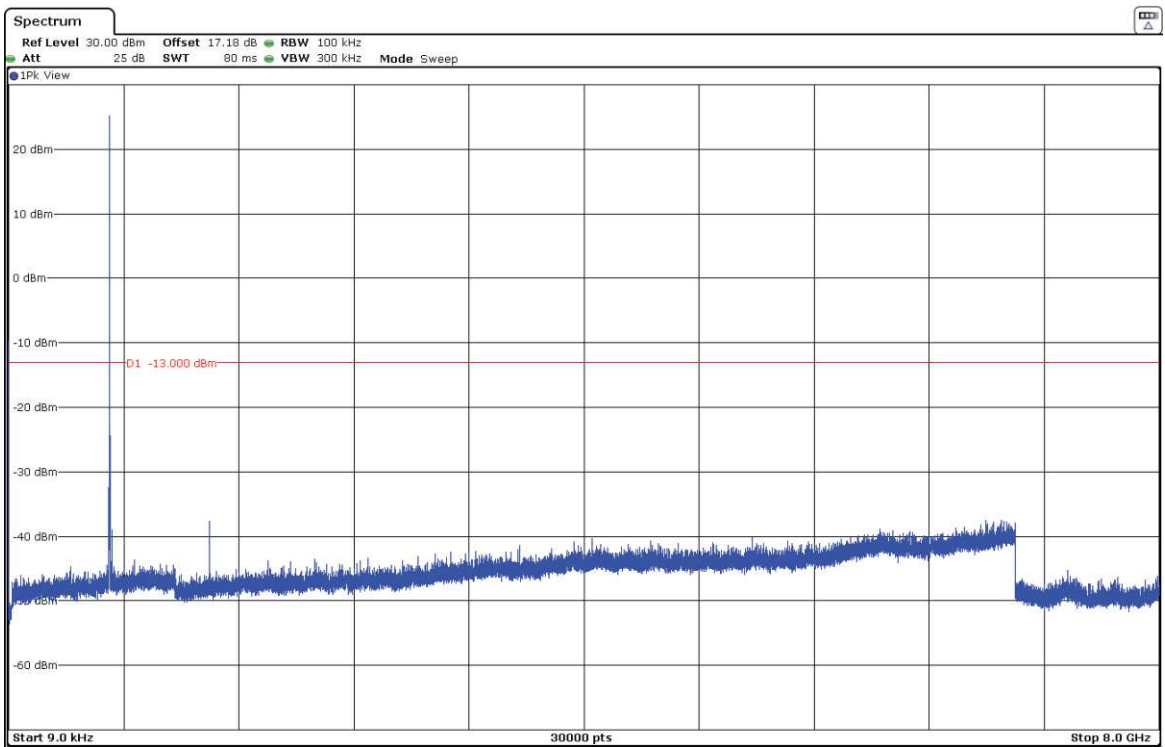
Highest Channel:



The peak above the limit is the carrier frequency.

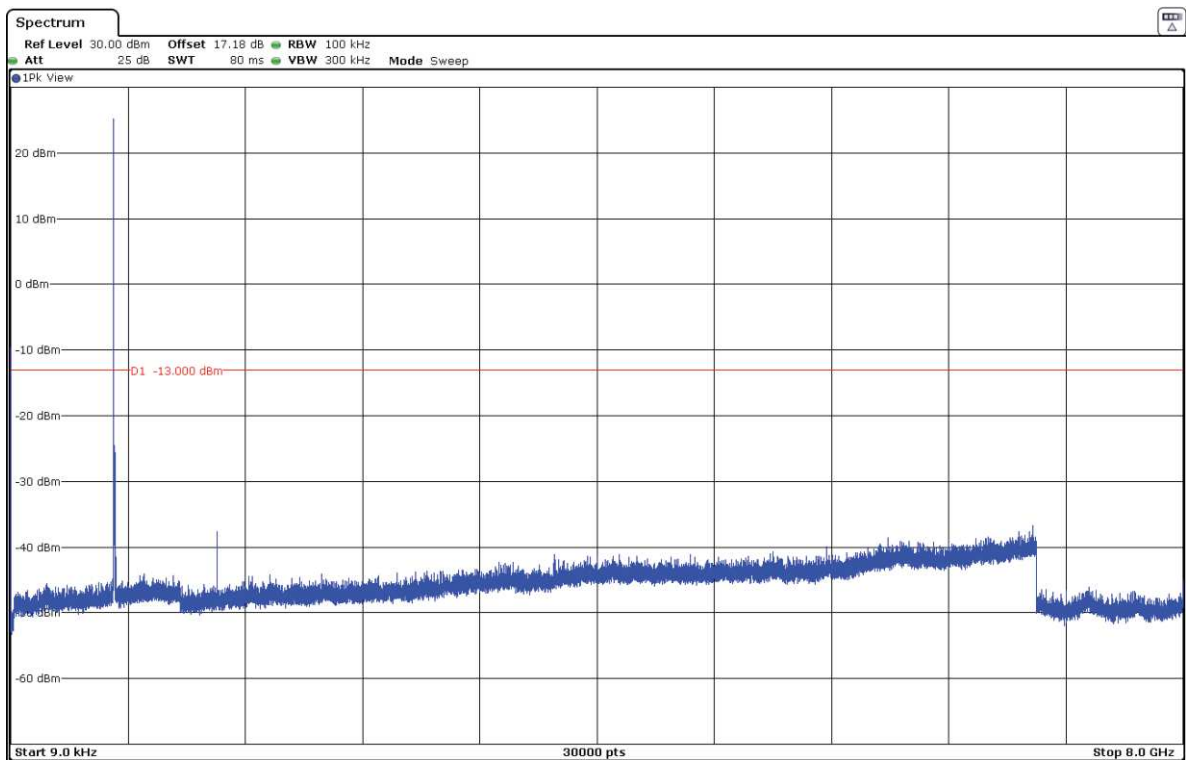
LTE Band 12. QPSK MODULATION. BW = 10 MHz.

Lowest Channel:



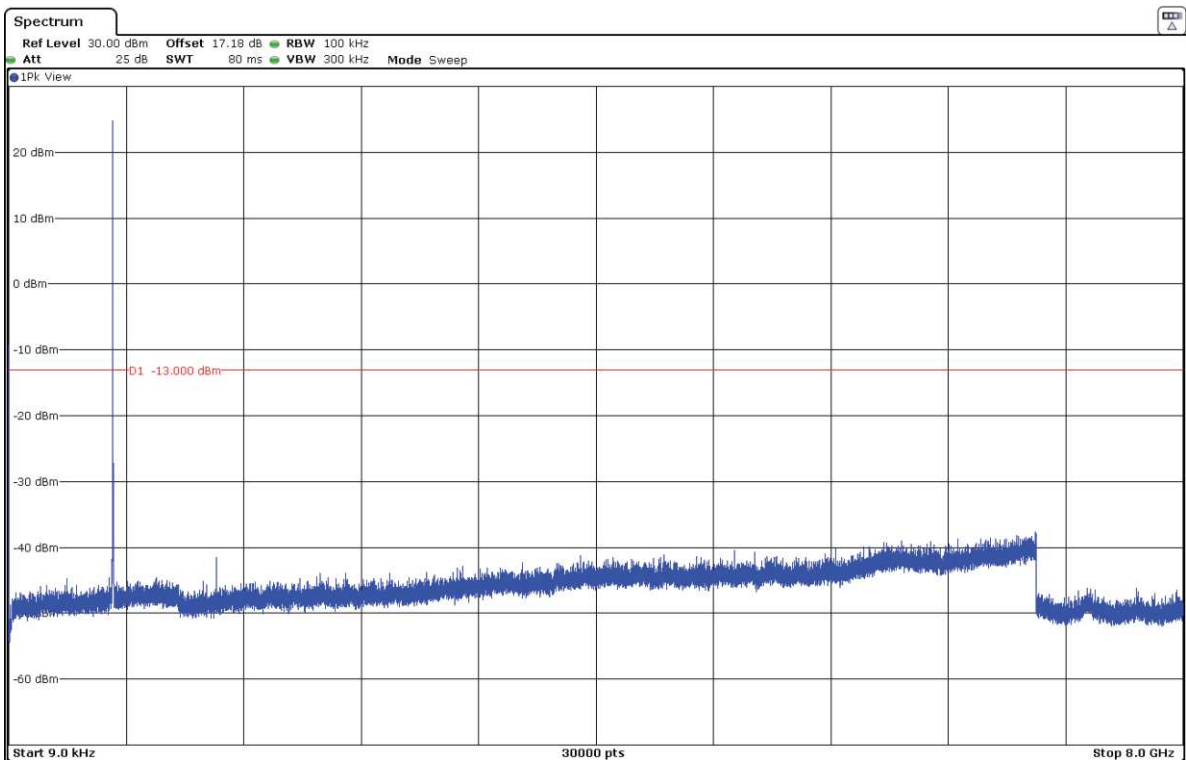
The peak above the limit is the carrier frequency.

Middle Channel:



The peak above the limit is the carrier frequency.

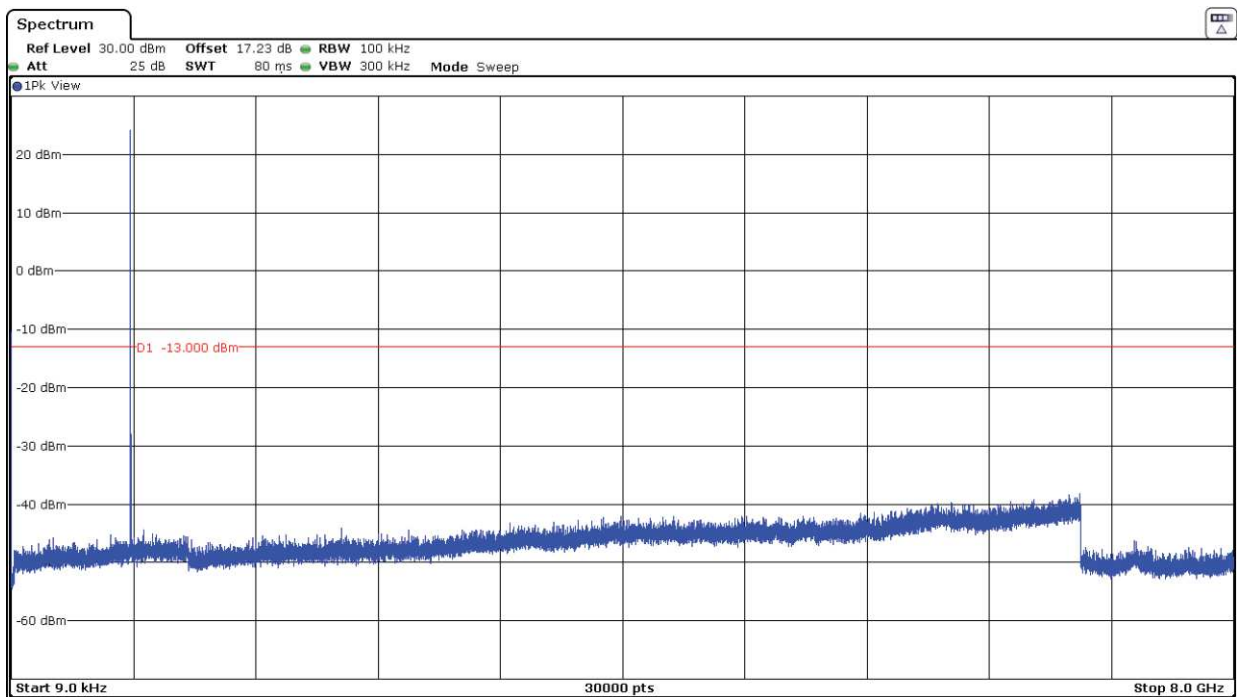
Highest Channel:



The peak above the limit is the carrier frequency.

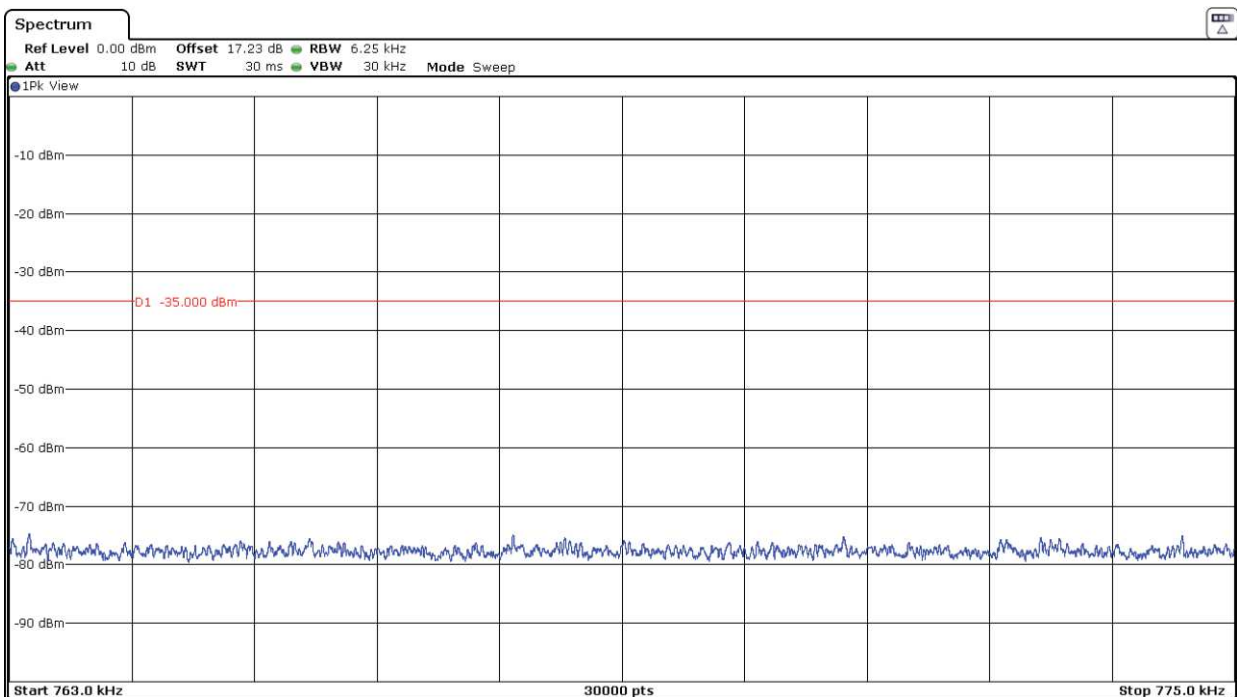
LTE Band 13. QPSK MODULATION. BW = 5 MHz.

Lowest Channel:

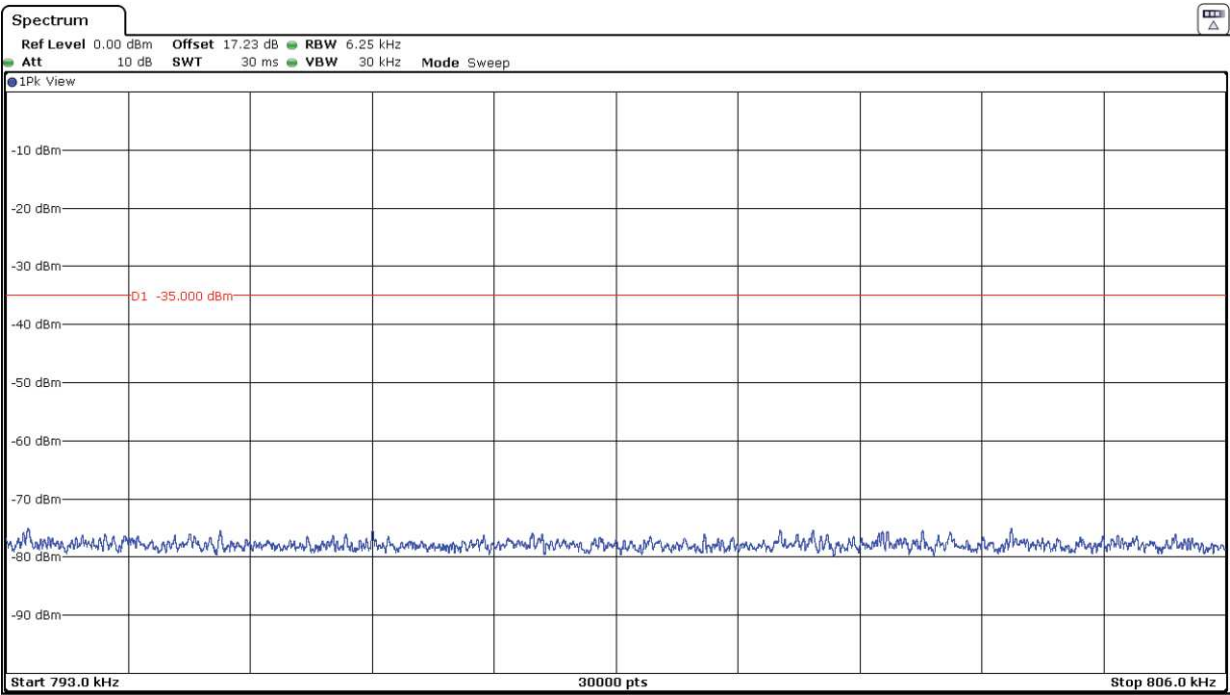


The peak above the limit is the carrier frequency.

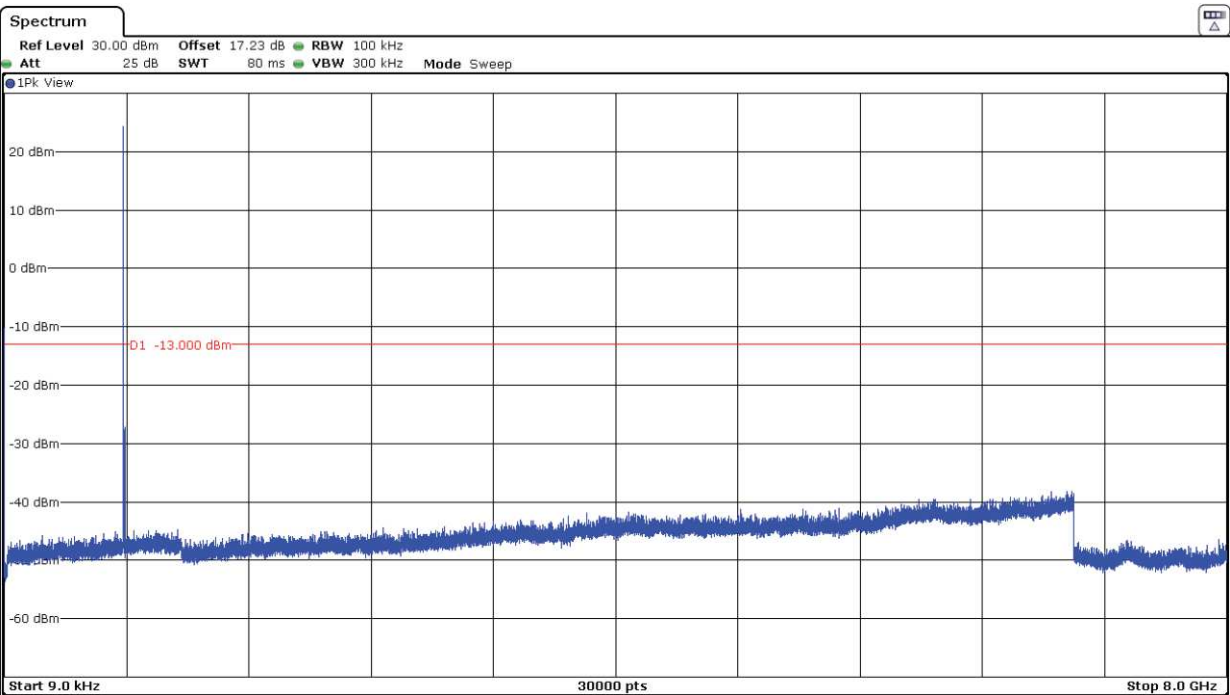
Frequency Range 763 MHz - 775 MHz



Frequency Range 793 MHz - 806 MHz



Middle Channel:



The peak above the limit is the carrier frequency.