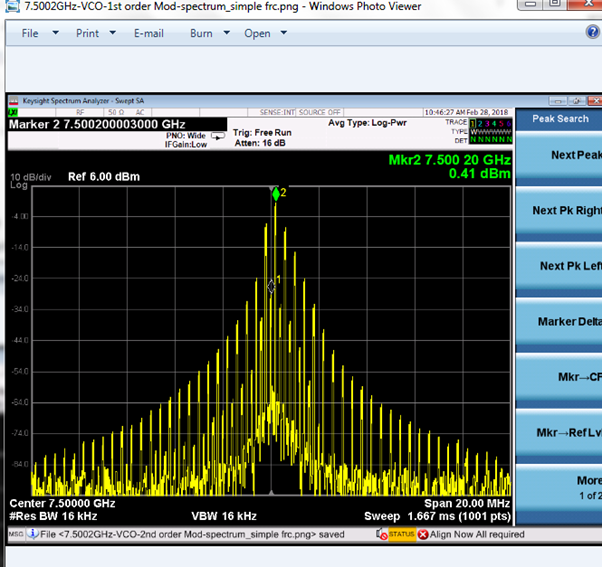
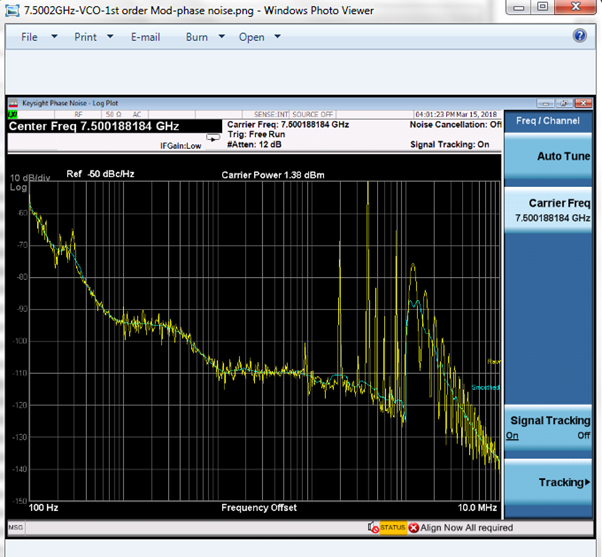
**At 7500.2MHz VCO output**

**1st order modulator**

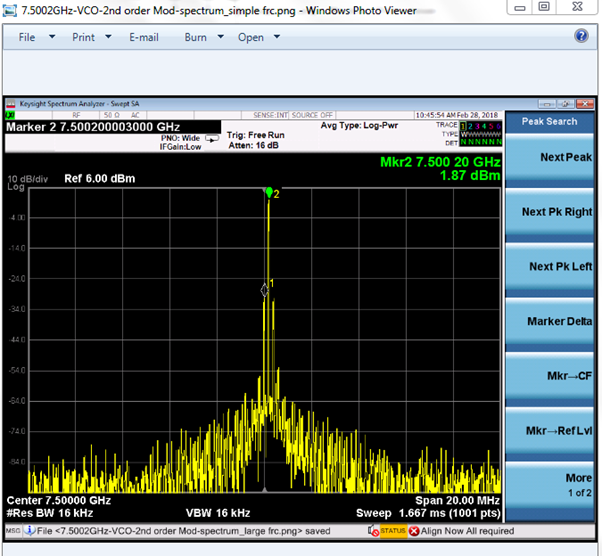
**Spectrum and Phase Noise**

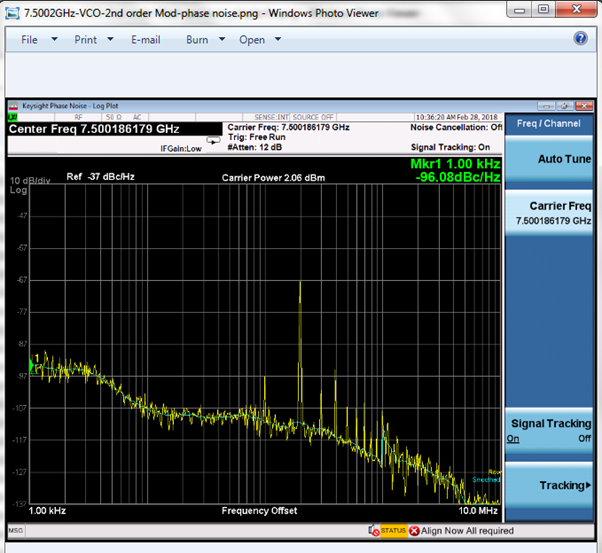
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**2nd order modulator**

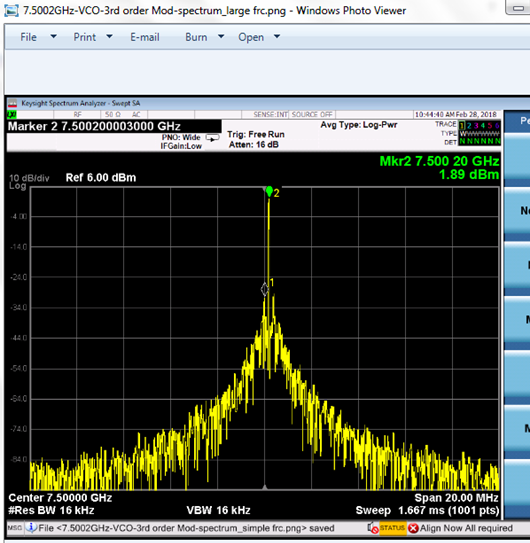
**Spectrum and Phase Noise**

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****

**3rd order modulator**

**Spectrum and Phase Noise**

****

**\*Remark:**

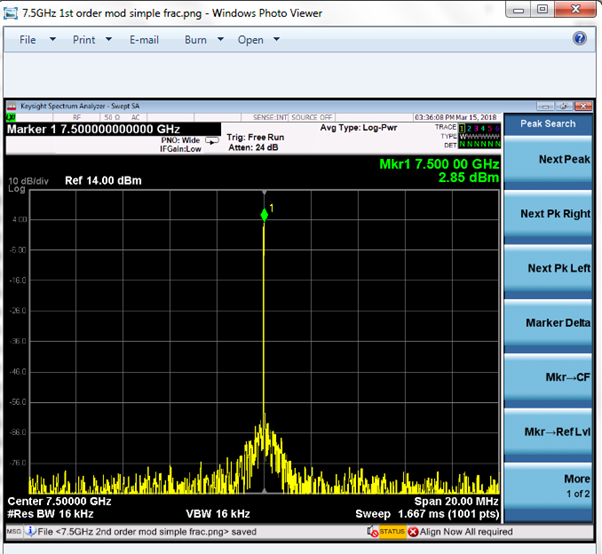
**-1st and 3rd Order Modulators give very bad phase noise.**

**-While the 2nd order modulator gives better performance, close in spurs are still present**

**- This issue does not occur at 7500MHz or whole number frequencies where fractions are not used**

**At 7500MHz via VCO**

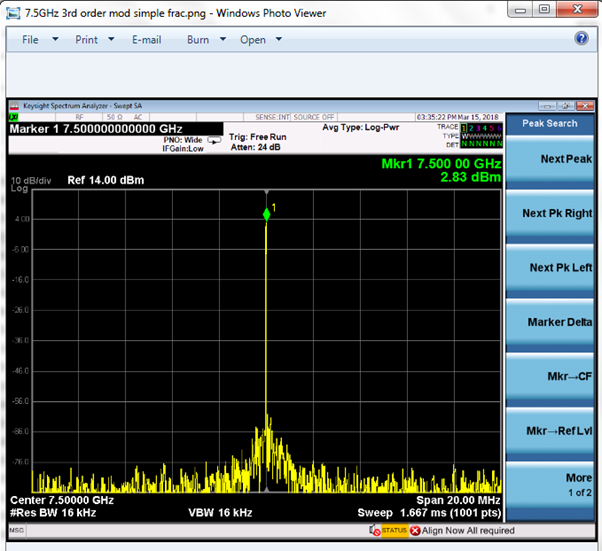
**1st Order Modulator**

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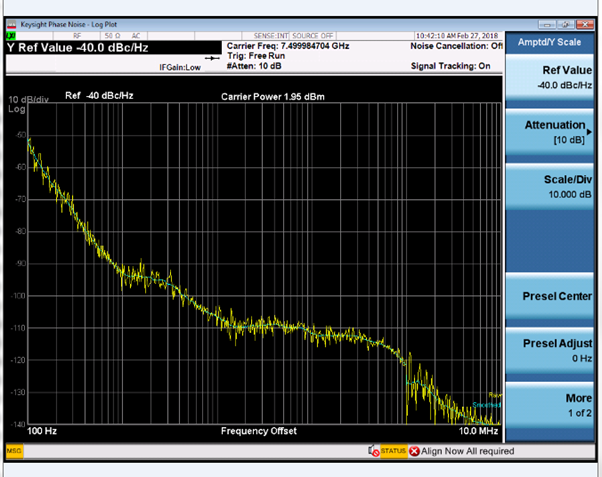
**2nd Order Modulator**

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**3rd Order Modulator**

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**Phase noise measurement**

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