Quiz

- True or false: You should always use a 4th order loop filter when designing a fractional PLL.
- True or false: A practical way to get the best spur attenuation is to design the loop filter pole ratios to a target value of 68%.
- True or false: When the clocking device selected has an integrated VCO, an op-amp can be used to gain up the charge pump current to ensure the tuning voltage ranges across the entire input voltage range of the VCO.

Please read the following sentences and determine if each statement is true or false. The next page will have the answers.

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- **True** or false: A practical way to get the best spur attenuation is to design the loop filter pole ratios to a target value of 68%.
- True or **false**: When the clocking device selected has an integrated VCO, an op-amp can be used to gain up the charge pump current to ensure the tuning voltage ranges across the entire input voltage range of the VCO.

Statement 1:

False – You do not ***always*** have to use a 4th order loop filter. A 3rd order loop filter may provide the spur attenuation that you need. If spurs are not a concern for your design a 2nd order loop filter might be fine too. The higher order loop filters translate to added costs and additional board area.

Statement 2:

True– Designing for a loop filter with pole ratios of 1 is ***not practical***. A pole ratio of 68% gets you pretty close to the best attenuation.

Statement 3:

False – An op-amp can be used when the VCO is ***external*** to the device. Devices with integrated VCOs are designed to ensure the charge pump and VCO tuning voltage range are compatible.