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For applications requiring a PECL or ECL VCXO having an RMS jitter of < 1.0 ps within the bandwidth of 12KHz to 20 MHz, VI is offering our CO-600V Series.

The phase noise on two VCXO's of VI's model CO-624V-D @ 155.52 MHz were measured on the HP 3048A Phase Noise Measurement System. The phase noise was then integrated from 12 kHz to 20 MHz using the Trace Integration function of the 3048A. The equivalent sideband level of the integrated phase noise was -74.76 dBc. Per the methodology outlined in VI's "Jitter in Clock Sources" by Joe Adler, (available for download at VI's website [www.vectron.com](http://www.vectron.com)) the RMS jitter can be treated as small index phase modulation and can be converted from radians to degrees:

$$X := -74.76 \quad \text{dB}$$

Equivalent sideband level or  
the integrated phase noise

$$J_{\text{rms}} := \left\{ \frac{360}{2\pi} \right\} \cdot 10^{\frac{X}{20}}$$

Conversion from radians to degrees

$$\left\{ \frac{J_{\text{rms}}}{360} \right\} \cdot \frac{1}{155.52 \cdot 10^6} = 1.871 \cdot 10^{-13}$$

RMS jitter in seconds

The sideband level of -74.76 dBc for the integration of the phase noise over 12KHz to 20 MHz has an equivalent RMS jitter value of 0.187 ps. Therefore, the CO-600V series VCXO can satisfy the performance requirement of < 1ps RMS jitter for 12kHz to 20 MHz.