A PicoPak Test at a 15 MHz Signal Frequency

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An overnight run was made with PicoPak S/N 104 with a coherent 15 MHz signal frequency to confirm the expectation that the quantization noise is lower because the DDS LSB phase resolution is better than at 10 MHz (4.1 ps versus 6.1 ps). The 1-second ADEV should therefore improve from (say) 1.5×10^{-11} to 1.0×10^{-11}. The 15 MHz test source was obtained from a laboratory DDS synthesizer coherently referenced from the same Rb oscillator that was used as the PicoPak reference.

The resulting ADEV is shown in the figure below. As expected, the white PM noise level is about 50% lower 0.92×10^{-11} versus about 1.38×10^{-11} for a 10 MHz signal frequency.