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**THE COLOR BAR PHASE METER—A SIMPLE AND
ECONOMICAL METHOD FOR CALIBRATING
CRYSTAL OSCILLATORS**

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ABSTRACT

Comparison of crystal oscillators to the rubidium stabilized color burst is made easy and inexpensive by use of the color bar phase meter. Required equipment consists of an unmodified color TV receiver, a color bar synthesizer and a stop watch (a wrist watch or clock with sweep second hand may be used with reduced precision). Measurement precision of 1×10^{-10} can be realized in measurement times of less than two minutes. If the color bar synthesizer were commercially available, user cost should be less than \$200.00, exclusive of the TV receiver. Parts cost for the color bar synthesizer which translates the crystal oscillator frequency to 3.579 MHz and modulates the received RF signal before it is fed to the receiver antenna terminals is about \$25.00. A more sophisticated automated version, with precision of 1×10^{-11} would cost about twice as much.