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Independent measurements of the frequency and wavelength of electromagnetic waves CRAIG HOWALD, Marietta College — Very few measurements that directly investigate the frequency of electromagnetic waves are accessible to undergraduate or high school laboratories because of the expense of most spectrum analyzers as well as the extremely high frequencies of many electromagnetic waves. However, an affordable setup for measuring electromagnetic wave properties, including frequency and wavelength, can be made using a wireless network spectrum analyzer. Capabilities of an inexpensive spectrum analyzer are examined and illustrative samples of wave property measurements are presented. These allow determination of the speed of propagation so that comparison with the speed of visible light can help integrate student understanding of the electromagnetic spectrum.

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