

Measuring the Power & Wavelength of Pulsed Sources using the OMM-6810B Optical Multimeter



This Technical Note presents the experimental results showing how the OMM-6810B Optical Multimeter coupled to a power and wavelength measurement head will respond to a pulsed laser.

MEASUREMENT SETUP

The OMM-6810B coupled to an OMH-6722B Silicon Power/WaveHead was set up as shown in Figure 1. A Helium Neon gas laser (632.8 nm) was pulsed using a mechanical chopper. For each setting of the chopper wheel, the computer would take 100 wavelength and power readings over a 20 second period.

The maximum change in the wavelength and power readings was determined and recorded for this period. The OMM-6810B was put into fast, medium and slow update rates. The gain range of the 6810B was manually selected.

RESULTS

As shown in Graphs 1 and 2, the OMM-6810B will accurately measure the wavelength and power of large duty cycle pulsed lasers to frequencies below 10 Hz in the slow update rate. If the duty cycle of the pulsed laser is less than 15%, the 6810B may not be able to obtain a wavelength reading. Although this data was taken using a OMH-6722B Silicon Power/Wavehead, the results would be similar if using an OMH-6727B InGaAs Power/WaveHead.

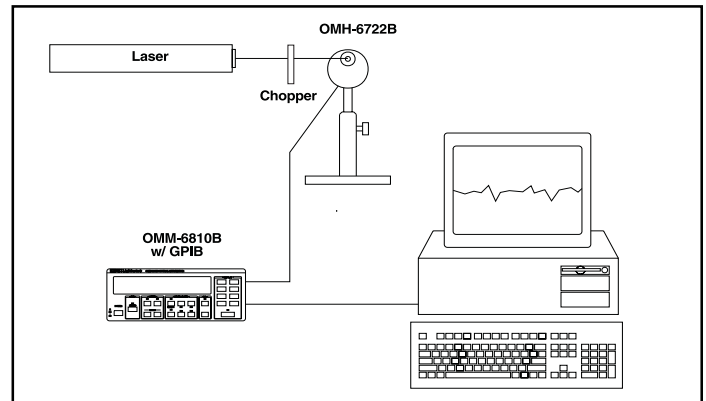
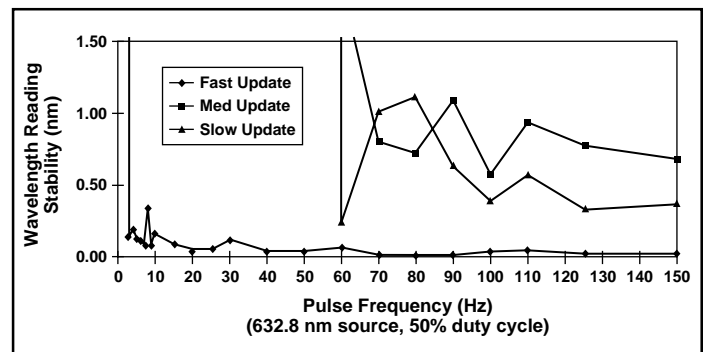
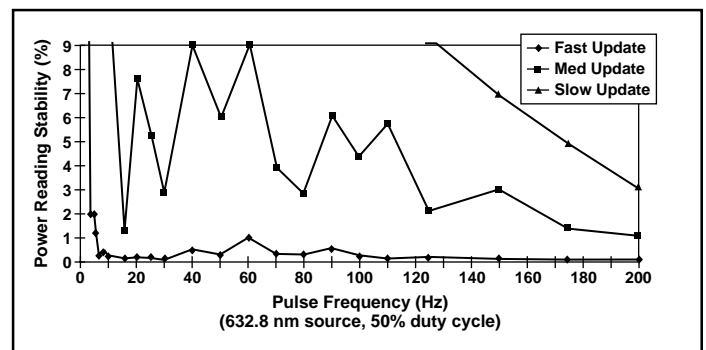


Figure 1. Measurement Setup.



Graph 1. Wavelength Reading Stability with a Pulsed Laser Input.



Graph 2. OMM-6810B Power Reading Stability with a Pulsed Laser Input.