

# Repeatability of Wavelength and Power Measurements using the OMM-6810B Optical Multimeter



This Technical Note presents the experimental results showing the repeatability of power and wavelength measurements using the OMM-6810B Optical Multimeter coupled to a OMH-6722B Silicon Power/WaveHead.

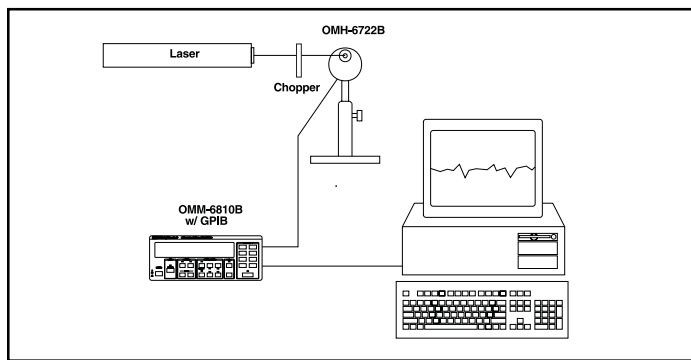


Figure 1. Measurement Setup.

## MEASUREMENT SETUP

The measurement setup is shown in Figure 1. A 780 nm laser diode was mounted in an ILX Lightwave LDM-4412 Laser Diode Mount and controlled with a LDC-3722 Laser Diode Controller. This served as the highly stable light source.

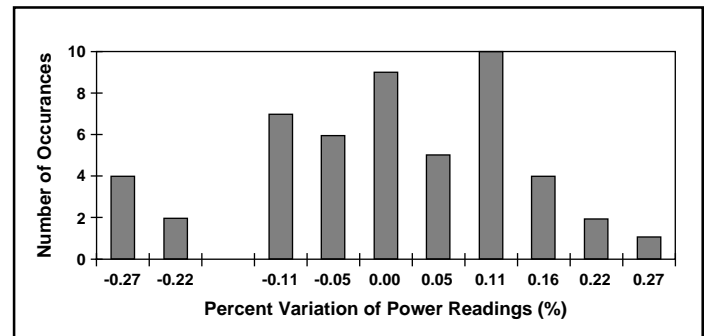
An OMM-6810B Optical Multimeter was coupled to an OMH-6722B Silicon Power/WaveHead to measure power and wavelength. The OMH-6722B head was aligned by hand and the power and wavelength reading was recorded using a computer with a GPIB interface.

The OMH-6722B was aligned with the laser beam 50 times. A power and wavelength reading was taken after each alignment. The results of the experiment are illustrated in Graphs 1 and 2.

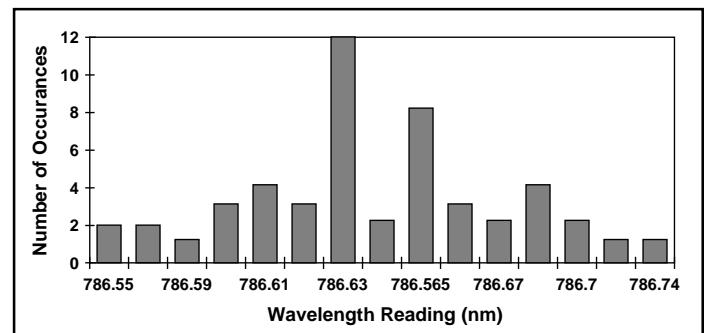
## RESULTS

As shown in Graph 1, the maximum deviation in power measurements was  $\pm 0.27\%$  from the median. Graph 2 illustrates that the maximum deviation in wavelength measurements was  $\pm 0.1$  nm from the median.

These results indicate that a measurement system based on an integrating sphere is very forgiving to misalignment.



Graph 1. Variation of Power Measurements.



Graph 2. Variation of Wavelength Measurements.