Wavelength Accuracy of the FOS-79800 DFB Source Module

TECH NOTE

At a fixed temperature, the wavelength of a laser diode shifts as the drive current changes. A firmware algorithm in the FOS-79800 DFB Source Module maintains a constant wavelength while the output power is changed over its dynamic range.

This technical note describes the wavelength accuracy of the FOS-79800 DFB Source Module using a 1550 nm DFB laser diode. The test described here was performed at the source's center wavelength.

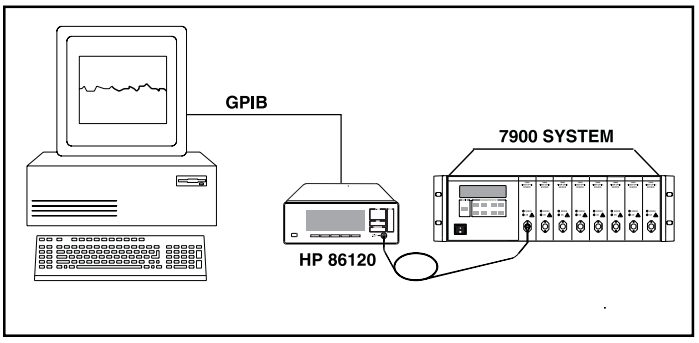

Figure 1. Measurement Setup.

MEASUREMENT SETUP

The setup for measuring wavelength accuracy is shown in Figure 1 above. The output of the FOS-79800 DFB Source Module was connected to a Hewlett-Packard® HP86120 Multi-Wavelength Meter. The FOM-7900/ FOS-79800 was allowed to stabilize for one hour prior to the start of the test.

The wavelength was measured as the output power of the FOS-79800 was swept from +3.00 dBm to –7.00 dBm. The test was performed twice. Once with the wavelength tracking algorithm enabled and once with the wavelength tracking algorithm disabled. The results of the test are shown in Figure 2.

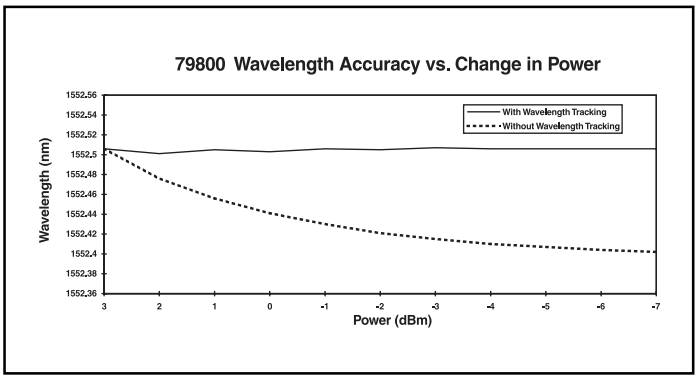

Figure 2. FOS-79800 Wavelength Accuracy vs. Change in Power.

RESULTS

As shown in Figure 2, the wavelength "tracking" algorithm in the FOS-79800 maintains wavelength accuracy better than 0.01 nm as the output power is changed 10 dB. Without this algorithm the wavelength would change by more than 0.1 nm over the same power range.