

TECH NOTE

Long-Term Output Stability of the LDX-3620B Ultra Low Noise Laser Diode Current Source

PURPOSE

This technical note presents the results of output drift measurements performed on a typical production model LDX-3620B Ultra-Low Noise Laser Diode Current Source.

BACKGROUND

The LDX-3620B is an ultra-low noise laser diode current source, capable of output currents up to 500mA and compliance voltage exceeding 5V. A temperature controlled laser diode is driven using the current source while output current is measured externally.

MEASUREMENT SETUP

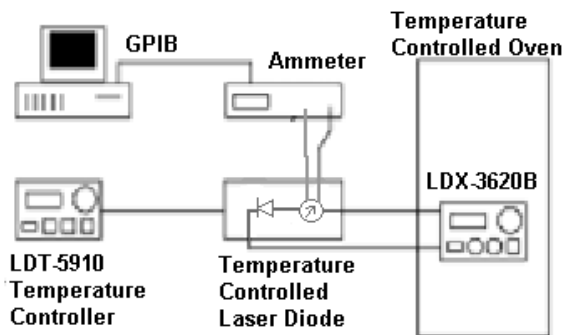


Figure 1. Measurement Setup Diagram

The measurement setup is shown in Figure 1. The LDX-3620B was placed in a temperature controlled oven with the output stabilized for one and a half hours at 23°C. Current measurements were taken by measuring the current flow through a temperature controlled laser diode. The starting current was 100mA, and the LDX-3620B battery charger was on. Raw data was recorded by a computer and converted to drift data in parts per million (ppm). The results can be seen in Figure 2. The test was repeated with the battery charger removed, operating the instrument in battery mode. The results can be seen in Figure 3.

LDX-3620B AC Stability

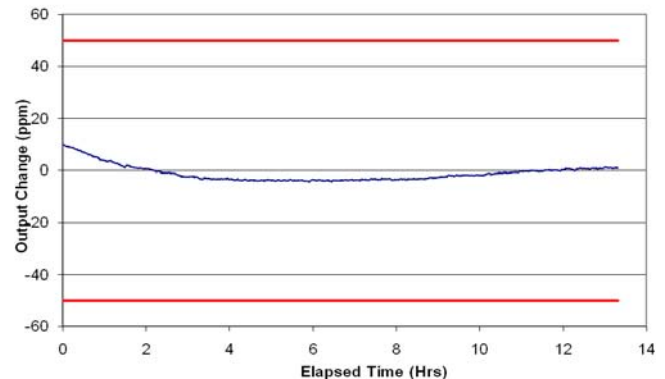


Figure 2. LDX-3620B Longterm Drift in AC Mode

LDX-3620B Battery Stability

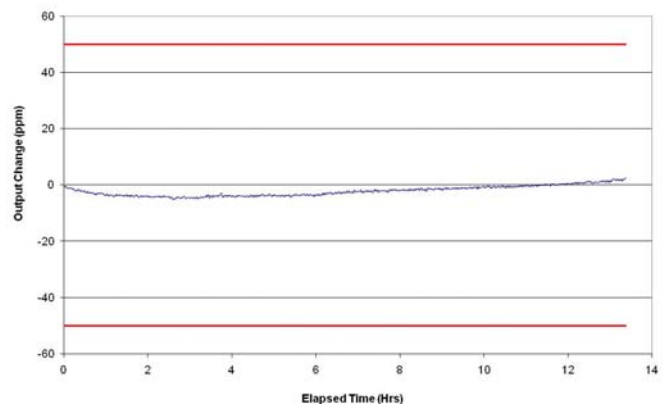


Figure 3. LDX-3620B Longterm Drift in Battery Mode

CONCLUSION

It can be seen from the results in Figure 2 and Figure 3 that the LDX-3620B maintained a stability of better than ± 6 ppm for a period of up to 14 hours when operating in battery mode and better than ± 15 ppm when operating in charging mode.