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Find the *Newport / ILX Lightwave FOM-7900B* at our website: ***Click HERE***

Switching Transient of the SS-810 Optional Source Shutter for the 79800 Fiber Optic Source Modules

TECH NOTE

Certain applications, such as WDM channel equalization, require a user to turn off the current to DFB lasers in the ILX Lightwave FOS-79800 modules. Turning off the current in the laser can lead to short-term instability in the output power and wavelength when the laser is turned back on. The instability ends when the laser has again reached thermal equilibrium. This technical note describes the transient behavior of a 79800/315 module when the output power of the module is turned on and off using a fiber optic switch (source shutter) instead of turning on and off the laser current.

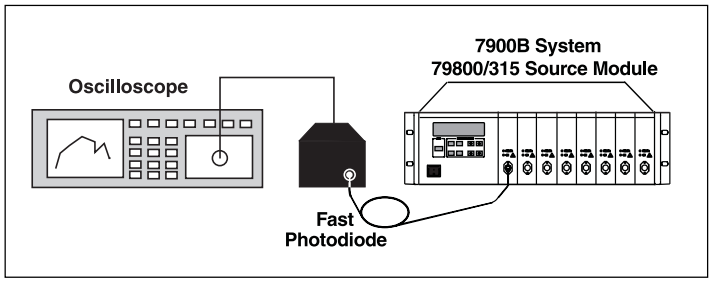


Figure 1. Measurement setup.

MEASUREMENT SETUP

The measurement setup is shown in Figure 1. The output of the DFB source module is connected to a fast photodiode and amplifier. The voltage from the amplifier, which is proportional to the output power of the source, is observed on a digital oscilloscope and recorded using a printer.

RESULTS

Figure 2 shows the transient response of the source shutter when the output of the module is turned on. There is an approximate 1 ms delay before the light level responds. This is due to the physical action of the shutter.

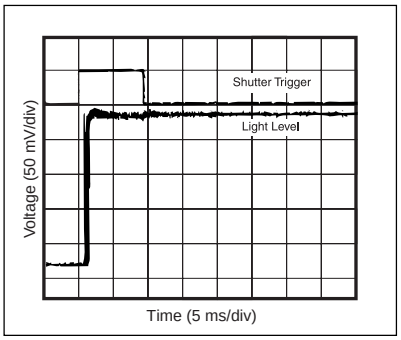


Figure 2. Transient response for source shutter turn on.

The output turns on, but has a period during which the signal level changes as the shutter "bounces." The majority of the bouncing stops after less than 3 ms, but it takes more time for the output power to achieve the ILX Lightwave power stability specification. This is achieved in less than 30 ms.

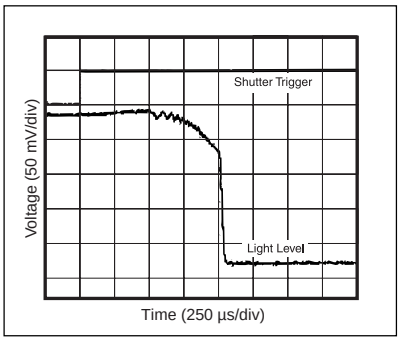


Figure 3. Transient response for source shutter turn off.

Figure 3 shows the transient response of the source shutter when the output of the module is turned off. The entire action of turning off the light is much more rapid than turning it on. In the figure the time is less than 1.5 ms. ILX Lightwave specifies this time will always be less than 10 ms.

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