

# Bandwidth of OMM-6810B Optical Multimeter Analog Output

## PURPOSE

This ILX Lightwave Internal Technical Note presents the results of bandwidth measurements on the OMM-6810B Optical Multimeter analog output.

## MEASUREMENT SETUP

The following equipment was used for this experiment.

Power Meter:	OMM-6810B with OMH-6727B Power/Wave Head
Current Source:	LDX-3210, high bandwidth mode Mount: LDM-4982
Laser:	1310nm FP, uncooled
Function Generator:	Hewlett-Packard 33120A
Oscilloscope:	Tektronix TDS-3032

A 1310 nm uncooled FP laser was driven with the LDX-3210 Precision Laser Current Source and the fiber connected to the OMM-6727B power/wave head. A Hewlett-Packard 322120A function generator was used to modulate the current source first at 0.5V p-p, which resulted in a current modulation of  $\pm 2.5$  mA about the CW set point of 15 mA. The second used a 0.1V p-p signal, which modulated the current source  $\pm 0.5$  mA about the 15 mA set point.

The laser was modulated to produce approximately mid-range analog output signals, and the output observed on the Tektronix oscilloscope.

## RESULTS

Figure 1 shows a graph of the analog output voltage amplitude vs. modulation frequency. Oddly, the analog output amplitude increased as the modulation frequency increased. This trial was limited in bandwidth so that the 10V maximum amplitude of the analog output was not exceeded.

The second trial reduced the amplitude of the modulation signal so the non-linear response of the analog output did not exceed 10V, and the frequency was increased to find the 3dB-down point. Results of this trial are shown in Figure 2. The 3dB-down point is approximately 5.3 kHz.

Figure 1  
Limited Bandwidth Trial

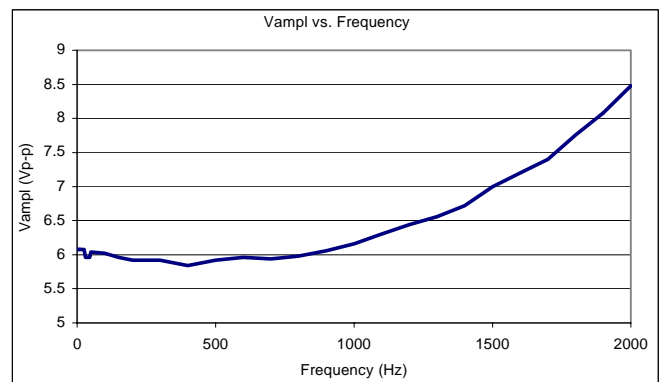


Figure 2  
Expanded Bandwidth Trial

