



## Measuring Optical Power In Fiber Optic Systems

<p>This test will measure the optical power exiting the end of a fiber optic cable. This test is commonly used to measure the coupled power of a fiber optic source in a transmitter, power into a receiver or for setting references for optical loss measurements.</p>	<p style="text-align: center;"><b>Test Diagram</b></p>
<p><b>Equipment Needed To Perform This Test</b></p> <ol style="list-style-type: none"> <li>1. Fiber optic power meter calibrated at the same wavelength as the source output (e.g. multimode: 850 and/or 1300nm, singlemode, 1310, 1490 and/or 1550 nm, POF 650 nm) capable of measuring optical power in the power range of the source.</li> <li>2. Optical power meter adapters to mate to connector type on cable.</li> <li>3. Reference cable that is the same fiber type and size as the cable plant and have connectors compatible to those on the source and cables.</li> <li>4. Cleaning supplies</li> </ol>	
<p><b>Test Procedure</b></p> <ol style="list-style-type: none"> <li>1. Turn on meter and allow time to warm-up</li> <li>2. Set meter to wavelength of source and “dBm” to measure calibrated optical power.</li> <li>3. Clean all connectors and mating adapters.</li> <li>4. Attach reference cable to source if testing source power or disconnect cable from receiver.</li> <li>5. Attach power meter to end of cable and read measured power.</li> </ol>	<p><b>Note:</b> A reference cable or known good patchcord is used for testing source power coupled into a fiber. Receiver power is tested by disconnecting the system cable connecting to the receiver and attaching it to the power meter to measure power.</p>
<p><b>Options For Testing</b> Power is generally measured in “dBm” or dB referenced to 1 milliwatt of optical power. Optical power measurements may also be made in Milliwatts (mW) or microwatts (μW)</p>	
<p><b>Reducing Measurement Uncertainty</b></p> <ol style="list-style-type: none"> <li>1. Calibrate optical power meter according to manufacturer specified intervals.</li> <li>2. Clean all connectors and remove meter adapter periodically to clean the adapter and power meter detector.</li> <li>3. Do not bend fiber optic cables tightly to cause stress loss.</li> </ol>	
<p><b>Documentation</b> Record the date of the test, operator, test equipment used, cable and fiber identification, test wavelength and measured power.</p>	