### FOA Standard FOA-3



# **Measuring Optical Power In Fiber Optic Systems**

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.

### **Equipment Needed To Perform This Test**

- 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.
- 2. Optical power meter adapters to mate to connector type on cable.
- 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.
- 4. Cleaning supplies

#### Test Procedure

- 1. Turn on meter and allow time to warm-up
- 2. Set meter to wavelength of source and "dBm" to measure calibrated optical power.
- 3. Clean all connectors and mating adapters.
- 4. Attach reference cable to source if testing source power or disconnect cable from receiver.
- 5. Attach power meter to end of cable and read measured power.

## **Options For Testing**

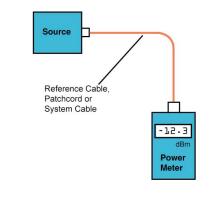
Power is generally measured in "dBm" or dB referenced to 1 milliwatt of optical power. Optical power measurements may also be made in Milliwatts (mW) or microwatts (µW)

# **Reducing Measurement Uncertainty**

- 1. Calibrate optical power meter according to manufacturer specified intervals.
- 2. Clean all connectors and remove meter adapter periodically to clean the adapter and power meter detector.
- Do not bend fiber optic cables tightly to cause stress loss.

### Documentation

Record the date of the test, operator, test equipment used, cable and fiber identification, test wavelength and measured power.



**Test Diagram** 

#### Note:

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.