Active Optical Networks, Inc.

Application Note 0401 : Testing Antero Variable Optical Attenuator

Antero VOA is a MEMS based, voltage controlled VOA.

Features:

- Low Insertion Loss
- Low Polarization Dependent Loss
- Low Wavelength Dependent Loss
- Fast response
- Low power consumption
- Compact package

Applications:

- WDM channel equalization
- Optical power management
- Gain tilt control

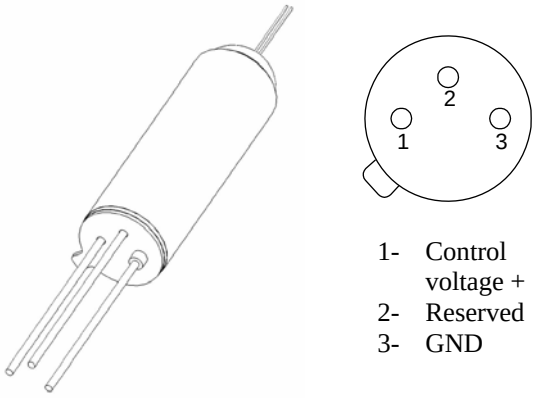

Figure 1. Antero VOA

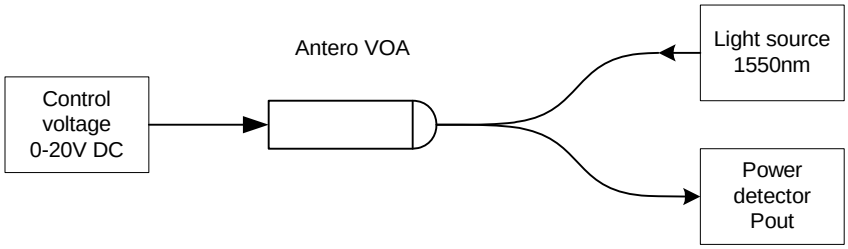

Figure 2. Antero VOA Test Setup

Test setup:

In order to test the Attenuator you will need the following instruments:

1. Stable single mode laser light source
   - laser with operating wavelength of 1550 nm and output power up to 6 dBm such as Agilent 8163A, 8164A or 8166A with 89689A or 81682A module
2. Power detector
   - InGaAs photo detector such as Agilent 8163A, 8164A or 8166A with 81633A or 81634A module
3. DC voltage source
   - Protek 3015B DC power supply.

Connect the VOA as depicted on Figure 2. Sweep the control voltage from 0 to 20V and record the Pout values. Plot the results as an attenuation versus voltage curve.

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Test results:

For non-blocking (normally open) devices your results should be similar to the curve in Figure 3. For a blocking (normally closed) device you will get a similar curve but in reverse order. Blocking devices have maximum attenuation when no voltage is applied to the control pins. Non-blocking devices have minimum attenuation (equal to the insertion loss) when no voltage is applied to the control pins, and maximum attenuation is typically around 14 to 15 Volts.

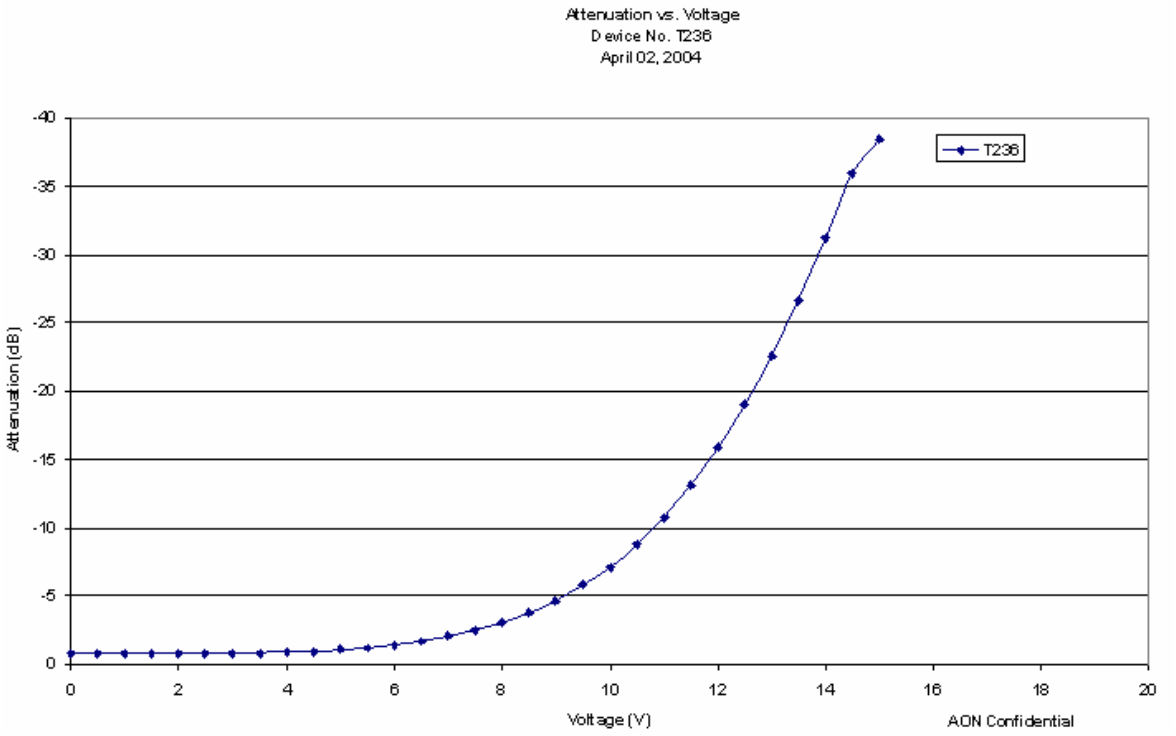

Figure 3. Typical attenuation vs. voltage curve