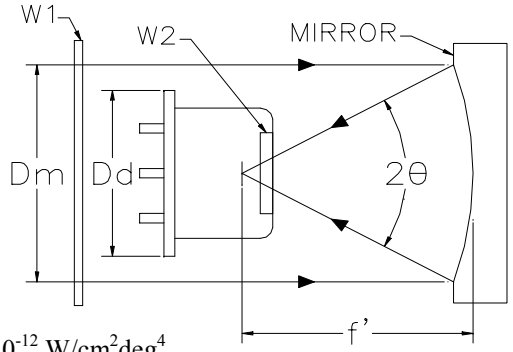
DEXTER RESEARCH CENTER, INC.

Detector Signal Calculation



Power On Detector: $\Delta\Phi = \tau 0 \tau 1 \tau 2 \rho(\Delta L)\pi SIN^2\theta Ad$ Watts

$$\theta \approx TAN^{-1}\left(\frac{Dm}{2f'}\right) \qquad \Delta L = \frac{4\sigma T^3 \Delta T}{\pi}$$

Where:

$\tau 1 \tau 2$ = Transmission of Windows W_1 & W_2 $\quad \sigma = 5.6686 \times 10^{-12}$ W/cm^{2}deg^4

$\tau_0 = 1 - \left(\frac{Dd}{Dm}\right)^2$ $\quad$ T = 273 + °C (T in Kelvin)

ρ = Mirror Reflectance $\quad$ Ad = Detector Area in cm^2

Voltage from Detector: $\Delta V = R\Delta\Phi$ Volts

Signal to Noise Ratio: (S/N) = RΔΦ/N; Where N = Amplifier & Detector Noise

Sensitivity:

$$\Delta T = \frac{N(S/N)}{\tau_0 \tau_1 \tau_2 \rho(4\sigma T^3)(RAd)SIN^2\theta} \,^oC$$

Postal Mail: 7300 Huron River Dr.
Dexter, MI 48130 U.S.A

Phone: 734-426-3921
Fax: 734-426-5090

Email: Sales@DexterResearch.com
Web: www.DexterResearch.com