Laser light is confined in a hollow waveguide between two highly reflective mirrors. This waveguide cavity is used to conduct Cavity Ringdown Absorption Spectroscopy of loss mechanisms in the cavity including absorption or scattering by gases, liquid, solids, and/or optical elements.
Entrained Gas

Laser Source
Mirror, R1
Gas Cell Volume
Gas Analyte
Mirror, R2
IR Detector

Fig. 1

\[
\begin{align*}
\alpha_{x=0} &= 1 \\
\alpha_{x \text{ odd}} &= 3.4 + i \times 10^{-5} \\
\alpha_{x \text{ even}} &= 1.4 + i \times 10^{-7}
\end{align*}
\]

Fig. 2