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.

23 Claims, 8 Drawing Sheets
Entrained Gas

Laser Source

Mirror, R1

Gas Cell Volume

Gas Analyte

Mirror, R2

IR Detector

Fig. 1

\[ n_{x=0} = 1 \]
\[ n_{x\ odd} = 3.4 + i 1 \times 10^{-5} \]
\[ n_{x\ even} = 1.4 + i 1 \times 10^{-7} \]

Fig. 2
Fig. 3A  Exemplary TM Mode

Fig. 3B  Exemplary TE Mode