FASSST RING DOWN SPECTROSCOPY: LABORATORY MEASUREMENTS OF THE ATMOSPHERIC CONTINUUM ABSORPTION

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A number of important phenomena, including those associated with the atmospheric continuum, require measurement of absolute absorptions of slowly varying phenomena. This is commonly accomplished by the measurement of cavity Q from the cavity resonance curve. We alternatively measure the cavity losses by measuring the ring down time. This approach, combined with a FASSST system, allows us to measure the absorption in >5000 cavity modes over $\sim$ 100 GHz in a few seconds. These essentially simultaneous measurements make possible the observation and elimination of many classes of systematic errors.

Measurements of both dry and moist (water vapor) atmospheric continuum absorption over the range of temperatures and water fractions in 170-270 GHz frequency region will be presented.