THE MEASUREMENT OF AMBIENT NO_2 BY CAVITY RING-DOWN SPECTROSCOPY

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Nitrogen dioxide (NO_2) is a principle component of photochemical smog that is present in polluted atmospheres at the parts per billion (ppb) level. In this work, cavity ring-down spectroscopy (CRDS) is utilized for the detection of ambient NO_2. Sub ppb limit of detection is routinely achieved. Experimental approaches to remove the particulates and to improve the detection limit and accuracy are investigated. Ambient measurements of NO_2 by CRDS are evaluated, and are compared side by side with the NO_2 measurements by chemiluminescence analysis.