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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Extinction efficiencies of coated absorbing aerosols measured by cavity ring down aerosol spectrometry" *by* A. A. Riziq et al.

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This is a very interesting paper. Aerosol scattering and absorption are of critical interest, and this study helps explore this difficult topic. I did not see any mention of the limit of detection that you were able to obtain but at 60 microseconds I suspect it is pretty good.

A second question is whether you see any response for water vapor with your apparatus. I noticed you used dry nitrogen. I measured a quadratic response to 532 nm light due to water vapor (Hargrove 2007) Are you able to confirm this?

On the error you measured, I noticed you are using a Le Croy oscilloscope that is prob-

ably 8-bit. If so, you might want to look into whether you are getting a digitization error that is different in your baseline and upscale. In my experience this consistently results in a 9.8% error on an 8-bit oscilloscope if the time scale is kept constant and three time constants are used for the baseline (Hargrove et al. 2006). It can be approximated by limiting pure exponential curves to 8-bits in a spreadsheet and subtracting the resulting curve fits. If it is a 12-bit or higher resolution model I would not expect a 10% error.

Hargrove, J. (2007). "Water dimer absorption of visible light." Atmos. Chem. Phys. Discuss. 7(4): 11123-11140. Hargrove, J. et al. (2006). "Cavity Ring-Down Spectroscopy of Ambient NO2 with Quantification and Elimination of Interferences." Environ. Sci. Technol. 40(24): 7868-7873.

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 18113, 2007.