

## ***Interactive comment on “Absolute accuracy and sensitivity analysis of OP-FTIR retrievals of CO<sub>2</sub>, CH<sub>4</sub> and CO over concentrations representative of clean air and polluted plumes” by T. E. L. Smith et al.***

### **Anonymous Referee #2**

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The paper “Absolute accuracy and sensitivity analysis of OP-FTIR retrievals of CO<sub>2</sub>, CH<sub>4</sub>, and CO over concentrations representative of ‘clean air’ and polluted plumes” by T. E. L. Smith et al. presents a laboratory study on the accuracy of OP-FTIR retrievals. The results are interesting and well suited for AMT. Therefore I would recommend the paper for publication in AMT after consideration of the following comments:

The statement that increasing the mixing ratio is equivalent to a longer path length is not true in general due to broadening effects (self-broadening, air broadening). It

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needs to be shown that these effects do not play a role.

The paper is quite detailed and comprehensive, which is very good to get a complete overview. However, it takes a long time to read and it is sometimes difficult to extract the relevant results from the details. I would suggest a table that summarizes the accuracies for different path-lengths assuming typical atmospheric variations.

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Interactive comment on Atmos. Meas. Tech. Discuss., 3, 3675, 2010.

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