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Atmospheric Measurement Techniques Discussions
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Interactive comment on "A novel single-cavity multi-wavelength photoacoustic spectrometer for atmospheric aerosol research" *by* Claudia Linke et al.

Anonymous Referee #3

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This a well written description of a photoacoustic spectrometer and few examples of laboratory and ambient measurements, but there are a few issues that could be discussed in more detail.

1) A detailed discussion of accuracy. I expected to see discussion of possible systematic biases and overall determination of accuracy at high signal to noise.

2) How is the resonant frequency determined? Calculated based on the cell geometry? is it set such that there is 90 deg. Phase between the light and mic signal? What is the acoustic amplification, Q, of the cell?

3) What is the level of the bkg in units of absorption? How stable is the background? Is

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the background due to absorption in the windows? Or scattered light absorbed in the cell walls?

4) Absorption of PAS light by NO2 will convert some for the NO2 to NO. This effect will bias the calibration. Could the authors quantify the magnitude of this effect? It is important?

5) Can you describe the lockin amplifier gain in a more meaningful manner. Settings 6 and 7 do not mean much to the reader.

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