

Interactive comment on “Portable Ozone Calibration Source Independent of Changes in Temperature, Pressure and Humidity for Research and Regulatory Applications” by John W. Birks et al.

Anonymous Referee #1

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General comments

Birks et al. present a technical paper describing a portable ozone calibrator developed by 2B Technologies. The paper is very well written and covers all the technical aspects for qualifying this equipment as an EPA Level 4 transfer. The interest of this equipment is to be easily portable, with low weight and low power consumption. The authors present clearly the technical layout and specifications of the instrument, with all figures being very clear and well presented. Based on theory and experimental tests, the authors prove that the instrument operation is free of pressure dependence

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or water vapour interference. I recommend the publication of this paper with only minor corrections.

Specific comments

1. For “Air In”, the instrument use a chemical scrubber (Line 150 and Figure 2) to remove O₃ and NO_x. The authors should specify the composition of this scrubber. A related question is the capacity of this scrubber to remove potential atmospheric interferences (as VOC) in highly polluted areas.

2. Table 2 should specify the robustness of the instrument to be used as EPA transfer (estimation of how often it must be calibrated through a higher level EPA transfer).

3. RH sensor HIH8000 is installed in the flow path upstream the cell. Its layout in the tubing should be slightly described. Its response time should be specified, to prove that potential rapid variations of RH will be included in the lamp intensity process for constant O₃ production.

Technical corrections

Line 334: the mathematic formula should use slightly bigger characters police, in order to be more readable.

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