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Comment

Interactive comment on “Determination of car on-road black carbon and particle number emission factors and comparison between mobile and stationary measurements” by I. Ježek et al.

Anonymous Referee #1

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This paper focuses on the application of two techniques to determine the emission factors of particle number and black carbon from vehicles in use. On the whole the paper is interesting and contains sufficient new material to merit publication. I do however recommend the authors address the issues below.

There has been more work than suggested by the authors on using the ‘chase’ technique. For example, Shorter et al:

Shorter, J. H., Herndon, S., Zahniser, M. S., Nelson, D. D., Wormhoudt, J. Demerjian, K. L., Kolb, C. E., 2005. Real-time measurements of nitrogen oxide emissions from

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in-use New York City transit buses using a chase vehicle. Environmental Science & Technology 39 (20), 7991–8000.

The authors need to consider more of the previous work in this area.

I find the terminology rather clumsy e.g. EURO3 (00) etc. It would be better to use a system that revealed the Euro class and the fuel for all vehicles studied. The use of 'emission factor' needs to be considered carefully. Usually when considering vehicle emissions the units most commonly used are g/km (as the authors suggest 4.3.3). Most of the time the authors are considering emission ratios or g/kg fuel burnt (also a ratio). A careful definition of these terms earlier on in the manuscript would help the reader.

There needs to be much more information on the vehicles tested including fuel type, engine size, mileage and after-treatment used (e.g. particle filter). These factors are very important when considering the results and it is currently difficult to draw clear conclusions from the discussion. I would recommend a new table.

In the discussion and conclusions there should be a much fuller treatment of the results in terms of fuels used etc. i.e. how much better are gasoline vehicles than diesel for BC, effect of vehicle age etc.

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 5423, 2014.

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