

Interactive comment on “Technical note: Dimensioning IRGA gas sampling system: laboratory and field experiments” by M. Aubinet et al.

Anonymous Referee #4

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General:

The paper describes an important topic necessary in the EC community and evolving networks. This is a very interesting content, but value could be added to this publication by more precise formulations, descriptions and graphs. Field tests as well as lab investigations were performed to describe the behavior of different filters and rain guards used with the LI-7200. In the abstract it seems that several analyzers were tested but only the LI-7200 was investigated with different designs. The rain guard is very specific for the LI-7200 and has to be tested under field conditions more intensively. Lab measurements: how did you ensure that always the same amount of CO₂-free air was

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injected per pulse to make sure that mixing is always the same? As stated by referee #1 I also stumbled over the ‘stuffing gland’: could you please draw a figure/sketch? As well as over the definition of the cut-off frequency which is commonly defined as $\sqrt{1/2}$. Some other items may be repeated in the following but were already written down:

Specific:

P10740L14: ‘..modulation frequency can only.’ P10740L17: cut-off frequency defined as $\sqrt{1/2}$, to be checked P10741L23: can be cited as ‘Kolle, O. and Rebmann, C., 2007. Eddysoft - Documentation of a Software Package to Acquire and Process Eddy Covariance Data. 10, Technical Reports - Max-Planck-Institute for Biogeochemistry 10, Jena, Germany.’ P10742L5: re-formulate: ‘The response of pressure drop to flow rate across the tube ...’ P10742L15: to which extend do exchange surfaces vary? Could this information be added in Table 1? P10742L17: re-formulate: ‘The response of cut-off frequency to flow rate due to tube effects and filters. ...’ P10742L22: re-formulate: ‘The observed cut-off frequencies are however systematically 1 Hz lower than the theoretical ones, ...’

P10743L6-L7: Please extend the formulation: ‘Results are summarized...They ...differed from’.

P10743L19: ‘The lowest cut-off frequency corresponded. . . , the highest. . .’

P10744L17: re-formulate: ‘. . . not exhaustive, not all types of filters being tested.’

P10744L19: see above, to which extend do exchange surfaces vary? How large is large?

Tab. 2: as a lazy reader, I would prefer to see in the table which system contains which filter, rain cap.

Fig. 1: ‘computer’ instead of ‘computeur’ Fig. 2: why did you use an arbitrary scale? Fig. 3: symbols for Pall 2um are squares, not crosses, for no filters these are dots or

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circles Fig. 4: legend and figure description do not fit for red circles and green squares, 'losange' is not a common word in English (diamonds?). Re-formulate figure caption: 'Cut-off frequencies [Hz] as a function of the flow rate ...', Continuous line: theoretical estimate of cut-off frequencies according to. . .'

Fig. 5: legend and figure description do not fit for HM1 and HM2

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