

Figure 1. Scheme of the experimental set-up.

Number particle size distributions within the exposure chamber were measured using a Scanning Mobility Particle Sizer (TSI, SMPS). Particulate mass concentrations were measured using a TEOM microbalance and total number concentrations with a Condensation Particle Counter (TSI, CPC 3752). Finally, black carbon concentrations were determined with two aethalometers (AE33, Magee scientific) and one portable black carbon monitor (AE43, Magee scientific) was used as reference method.

2. RESULTS

Figure 2 shows linearity correlation of portable instruments in comparison with the AE33 reference instrument for $T = 19.91^{\circ}\text{C} \pm 0.04^{\circ}\text{C}$ and $RH = 10.2 \pm 0.3\%$.

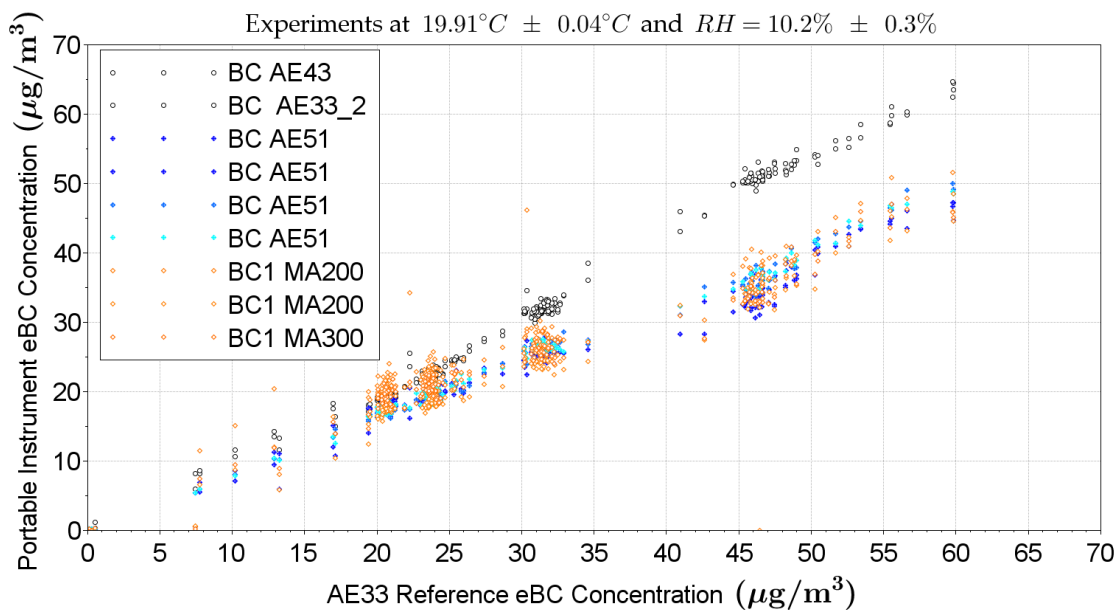


Figure 2. Linearity correlation between portable instrument and reference method

The slope of the linear regressions (measured values of the portable instruments versus the values of the AE33 reference) varied between 0.40 and 0.57 for AE51. R^2 value (square of the Pearson correlation coefficient) was in the range between 0.91 and 0.98 for AE51. There is however a necessity to correct all datas with an harmonized approach for all devices (taking into account loading effect). The impact of temperature and relative humidity from corrected datas will be shown during the presentation.

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