

Interactive comment on “Fast time response measurements of particle size distributions in the 3–60 nm size range with the Nucleation Mode Aerosol Size Spectrometer” by Christina Williamson et al.

Anonymous Referee #2

Received and published: 12 March 2018

The present manuscript by Williamson et al. presents a very exhaustive description and characterization of two nucleation mode aerosol size spectrometer (NMASS) units, which consists of five CPCs operated in parallel and at constant low pressure. The NMASS sizing, inversion and field performance is verified experimentally and the error sources are investigated thoroughly. The manuscript is well written and the experiments and data analysis are properly conducted. I have only very minor comments on the manuscript, and suggest its publication in AMT.

P4 I3-13, an SMPS has been shown to work quite well down to 3 s scan time (Trostl et

C1

al. 2015).

P13 I15-19, how is the theoretical Kelvin diameter estimated for Fig3? Does it take into account the flow velocity and supersaturation profiles inside the condenser? Check for example Giechaskiel et al. (2011). This should be discussed a little bit more in the main text, since the disagreement in fig3 is quite large

Giechaskiel, B., Wang, X., Gilliland, D., Drossinos, Y. (2011). The effect of particle chemical composition on the activation probability in n-butanol condensation particle counters. *J Aerosol Sci* 42:20-37.

Trostl, J., Tritscher, T., Bischof, O. F., Horn, H. G., Krinke, T., Baltensperger, U., Gysel, M. (2015). Fast and precise measurement in the sub-20 nm size range using a Scanning Mobility Particle Sizer. *J Aerosol Sci* 87:75-87.

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2018-27, 2018.

C2