Interactive comment on “Characterization and first results from LACIS-T: A moist-air wind tunnel to study aerosol-cloud-turbulence interactions” by Dennis Niedermeier et al.

Anonymous Referee #2

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General Comment: This manuscript presents the newly developed turbulent moist-air wind tunnel, called the Turbulent Leipzig Aerosol Cloud Interaction Simulator (LACIS-T). LACIS-T is able to study different cloud processes taking into account interactions between turbulence and cloud microphysical processes. Additionally, the authors complemented their LACIS-T experiments with Computational Fluid Dynamics (CFD) simulations to explain their observations. The behavior of the LACIS-T was tested by performing deliquescence and hygroscopic growth as well as droplet activation and growth experiments using NaCl particles.

This is as well written manuscript, with a very detailed descriptions of this newly developed turbulent moist-air wind tunnel. The LACIS-T is a great and valuable instrument for the cloud physics community that can be used to fulfill many gaps in knowledge. Given the lack of instruments like this, LACIS-T can have a huge impact in the near future. I congratulate the authors for developing such a great instrument and for the careful characterization. I only have one “Major Comment”. The manuscript can be accepted after the following minor comments are added to the revised manuscript.

Major Comment: It would have been nice to add a reference experiment, especially for the droplet activation experiments. I mean, is it possible to run a droplet activation experiment under steady conditions, i.e., without any turbulence? This will show how monodisperse is the droplet size distribution (DSD) in comparison to the DSD shown in Figure 12.

