

Wind Energ. Sci. Discuss., referee comment RC2  
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## **Comment on wes-2021-145**

Anonymous Referee #2

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Referee comment on "A new base of wind turbine noise measurement data and its application for a systematic validation of sound propagation models" by Susanne Könecke et al., Wind Energ. Sci. Discuss., <https://doi.org/10.5194/wes-2021-145-RC2>, 2022

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This research article aims at providing wind turbine noise measurement data that can be used for the validation of sound propagation models. It is indeed of great importance to be able to predict the impact of wind turbine noise at relative long ranges, and there not many detailed datasets available to perform systematic model validation. I think the 10 validation cases that have been selected and analyzed by the authors will be of interest for the community. However, as explained in my specific comments, I don't think that atmospheric turbulence can be characterized with the sensors available in this experimental campaign.

The part of the article devoted to the model description and the comparison with measurements is less convincing, and suffers from several shortcomings. In particular, the choice of a source model with 3 point sources need to be discussed, and may be the cause of the discrepancy between the modeled and measured 1/3 octave band spectra. The ground effect is not well characterized, and the modeling of atmospheric turbulence is not convincing. Finally, the use of the total SPL to judge the accuracy of the model is misleading because very small differences between model predictions and measurements can be obtained while the corresponding spectra differ significantly.

I thus recommend major corrections to be done according to the detailed comments described in the attached document.

Please also note the supplement to this comment:

<https://wes.copernicus.org/preprints/wes-2021-145/wes-2021-145-RC2-supplement.pdf>