Referee's comments to wes-2024-93 – Version 2

General comments

Thanks to the authors for taking the time to profoundly revise the manuscript. Narrowing down the scope and including sonic data really improved the quality of the discussion. There are minor revisions that are advised before publication.

Specific comments

- L37: is there a way to better define the intra-beam effect to include also the time-average correctly described next? Something like "probe-time averaging".
- Eq. 1 seems different from Eq. 19 in Kristensen et al. 2011. Please add additional references or a brief derivation.
- L214: "However, this method performs correctly only if the range in which the turbulent cascade occurs is fully captured. "Is this because of the 2/3 power law extrapolation? Lenschow shows also simpler extrapolation methods that do not require any assumption on the shape of the AFC. Please clarify.
- L221: this is the first mention of the assumption of instantaneous homogeneity. It could be better to introduce this concept earlier, possibly in the introduction, because it is fundamental to understand inter-beam contamination.
- L245: what is the tolerance around the nominal wind direction to consider it "aligned"?
- Fig. 4a: was there any consideration on the statistical or sampling error when evaluating mean wind speed profile? If statistical error bars were added to the mean profile (e.g., through bootstrapping, possibly circular) we may find out that the profiles are statistically indistinguishable. I doubt DNV does not require any statistical significance test.
- Section 3.4.1: The application of AFC requires stationary data. If this requirement was enforced, please explain how. Otherwise, clarify that the larger scattering in the AFC method could be due to the presence of non-stationarity in the data.