

## ***Interactive comment on “Performance evaluation of an all-fiber image-reject homodyne coherent Doppler wind lidar” by C. F. Abari et al.***

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### 1- Referee's comments:

"It is common knowledge that homodyne cw lidar systems suffer from spurious reflections (e.g. from the telescope), not white noise or even the autodyne effect at near zero velocities. This paper describes an approach to reduce those limitations with inphase and quadrature estimation technique. The detailed statistical analysis of two datasets in comparison with a sonic anemometer is well presented. Was the short range associated with a small sensitive volume only chosen for comparison reason with the sonic anemometer? If not some words should be added what is the advantage of an extreme short range lidar compared to a cheaper sonic anemometer."

C2836

### 2- Author's response:

Dear Stephan Rahm,

Please accept my many sincere thanks for reviewing our paper and providing your valuable feedback. You are right about the relatively small sampling volume of the lidar system in this specific measurement campaign. Due to the nature of the instrument the sampling volume for CW CDLs is usually small for very short ranges. In this specific experiment, as we have stated in the paper, and you have pointed it out, the set-up was designed such that the sampling volume of the lidar is comparable with that of the sonic anemometer, hence the small sampling volume. Besides, as stated in the paper the main purpose of our experiment was not to compare the sonic and lidar but to compare the performance of two different CW CDLs; the sonic is simply used as a reference instrument to validate the results. Whether a cheaper sonic is superior over a more costly lidar for point measurements requires a research article of its own and is beyond the scope of this paper.

Best, Cyrus F Abari

### 3- Changes to the manuscript:

In light of the above discussion/response, a change in the manuscript does not seem necessary. In case the referee is not convinced I will be more than happy to add a few words to address the reviewers comments.

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