

Interactive comment on “Development and feasibility study of segment blade test methodology” by Kwangtae Ha et al.

Kwangtae Ha et al.

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Dear a Referee,

Thanks for your helpful and beneficial comments on the paper.

Here are my feedback to your comments.

Comment #1: Line 34. Could the author be more specific about which blades have been used for the simulations?

Author feedback #1: It is not allowed to open more information unfortunately without customer’s permission.

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Comment #2: Motivate why the limit of 300kN/m and 100kN were chosen.

Author feedback #2: This is based on applicable range of load frame. Cylinder force can go more than 100kN. But Structural strength of loadframe was not validated more than 100kN at this moment. So, force (either spring force or cylinder force) was set to 100kN as upper limit for this study based on our experience.

Comment #3: Line 186/187. Comment that the test time is lower for 70%, for the lead-lag fatigue results

Author comment #3: . For the lead-lag fatigue, test time of the 70% root segment is lower than 80% root segment time because root segment is stiffer over the whole blade length in lead-lag direction than in flap direction, which require less masses at the outboard of the root segment to generate target curvature at the outboard of the root segment.

Comment #4 & #5 : Line 191. Reduction up to 42% referred to the test case without stiffness. It might be better to refer to the full-length test, giving an absolute %. Line 191. Comment the reduction for both 60m and 90m.

Author feedback #4 & #5: . Depending on the separation point and test direction, the test duration can be reduced up to 43% for a 60m blade and 52% for a 90m blade compared to full-length blades cases without stiffness elements.

Comment #6 : Figures 11 and 12. Switch the figures, in order to have the same sequence as Fig. 10 (first Flap and second Lead-lag). (Or switch Fig.10, just be coherent).

Author feedback #6: Changed Fig. 10 as suggested (see attached figure)

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Comment #7: Conclusion. Start with a short paragraph which explains the purpose of the study.

Author feedback #7: This paper proposed a novel segment test methodology for wind turbine rotor blades which mainly aims at improving the efficiency of the fatigue test as a future test method at Fraunhofer IWES.

Technical corrections : I corrected typos and errors as your suggestions.

Thanks for your valuable comments again.

Best regards,

Kwangtae Ha

Interactive comment on Wind Energ. Sci. Discuss., <https://doi.org/10.5194/wes-2019-60>, 2019.

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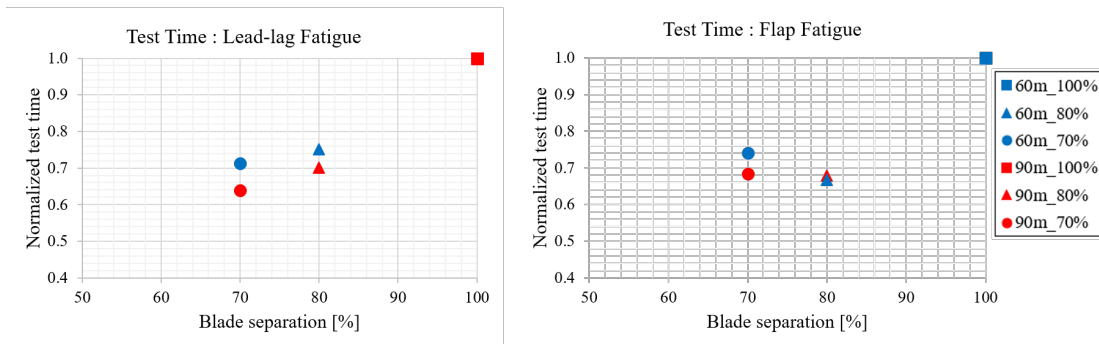


Fig. 1.

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