We would like to sincerely thank the reviewer for their constructive review and valuable comments which helped us provide an improved presentation of our work. Please find below answers to the reviewer's comments .

General Comment Manuscript focuses on the CFD-based analysis of a flatback airfoil with various trailing edge treatments and comparison of the numerically obtained results using RANS,URANS, and DES with wind-tunnel measured results. The manuscript addresses the important topic of design and analysis of unconventional airfoils for wind turbine rotors. It is well written although the ratio of number of illustrations to number of lines of text is high and this negatively impacts the readability of the manuscript.

Thank you for the kind comment, regarding figures, we believe all illustrations are useful and serve their purpose in the manuscript. The vortex dynamics discussion figures have been given independently in an Appendix. The readability of the manuscript should be improved when the paper adopts the journal format.

Comment 1. One issue is the focus on 2D airfoils where it is important to note that on 3D blades, the flow unsteadiness and particularly the Von Karman vortex shedding encountered in 2D may well be mitigated by spanwise pressure gradients and geometry changes. This brings up the question if the trailing edge treatment studied in this manuscript are effective and/or are needed on a wind turbine blade? Especially in the inboard region of the blade, where the flatback airfoils are being applied, spanwise pressure gradients and geometry changes are significant causing the flow to be very three dimensional.

The reviewer is correct. The following sentence has been added in the revised manuscript to highlight the limitations of this study.
"*It is noted that the study is limited to extruded airfoil with no twist or profile change and extension of any findings to 3D rotating blades would require further validation.* "

Comment 2 Line 104. These trailing edge treatments may affect the high angle of attack characteristics including maximum lift coefficient and stall angle. By limiting the analysis to an angle of attack of zero degrees, the impact of these treatments on this important part of the operating envelope of airfoils is not assessed. Based on this, I would be careful recommending any of the trailing-edge treatments.

The reviewer rightly mentions the very limited AoA range of this study. Indeed, the higher AoA are of significant interest both for the numerical approach and for the actual results and analysis. However, for this work we decided to limit the scope to a single AoA so that there is a focus (a) on the different numerical schemes and (b) on the analysis of the wake structures. Indeed, even at 0deg, the 3D unsteady bluff body wake flow is challenging for CFD methods and rich in flow dynamics.

Preliminary simulations at high AoA, beyond Cl_max, show that the von Karman-like wake is mixed with Stall Cell like structures, increasing the complexity and level of difficulty well beyond the scope of the present submission. We believe the single AoA data are sufficient to achieve the objectives of this study, which are (a) to examine which numerical approach is most suitable to study the flow in question and (b) to provide insight into the effect of the various flow control devices on the airfoil wake.

Comment 3. Line 188. Concern is that because of the deflection, the flap configuration is not constant in the spanwise direction and that this spanwise variation, not captured in the numerical simulations, causes the discrepancies between experiment and CFD.

The reviewer is correct. This is exactly why we mentioned it. Given the good agreement between the predictions and the experiments, it is concluded that the effect of this deflection does alter the findings of this study.

Comment 4 Line 273. Delta-criterion is used for the streamwise vorticity. However, in the corresponding figures, Omega_x is listed. In Fig. 13, Delta is listed in caption but Omega_x in the figure. Consistently use Omega_x or, if this causes any issues, more clearly explain the Delta-criterion.

Omega_x stands for streamwise vorticity. The Δ isosurfaces are coloured with streamwise vorticity. In Fig 13 and 14 two types of isosurfaces are overlaid, Δ and spanwise vorticity. The former are coloured by streamwise vorticity and the latter by spanwise vorticity. This is why both are mentioned and shown in the legend. The word *overlaid* has been added to the captions to clarify this.

Technical Comments

1. Line 118. 0.62 h. Should this be 0.62 h_TE?

Yes, this has been corrected in the manuscript.

2. Line 120. Forces non-dimensionalized using the chord of the baseline airfoil? Want to be precise because in line 118 the chord of the flap is mentioned.
This has been clarified and the sentence below has been added to the manuscript:

"In the remaining of this article all quantities are non-dimensionalized using the baseline airfoil chord and the free stream velocity, as reference values, unless otherwise stated. "

3. Line 121. "misalignment of the model has been aligned of the model has been allowed for". Please reword.

This sentence now reads:

"A constant misalignment of the model has been allowed for in the results. "

4. Lines 137&138. Please reword.

This has been corrected. The sentence now reads:
"*The error bars are based on the standard deviation values. For completeness the relevant values are also given in Table 2 and Table 3, in the Appendix. "*

5. Line 200. Fig. 6 is very unclear. As is this figure is less than useful.

The figure has been replaced, given below for convenience

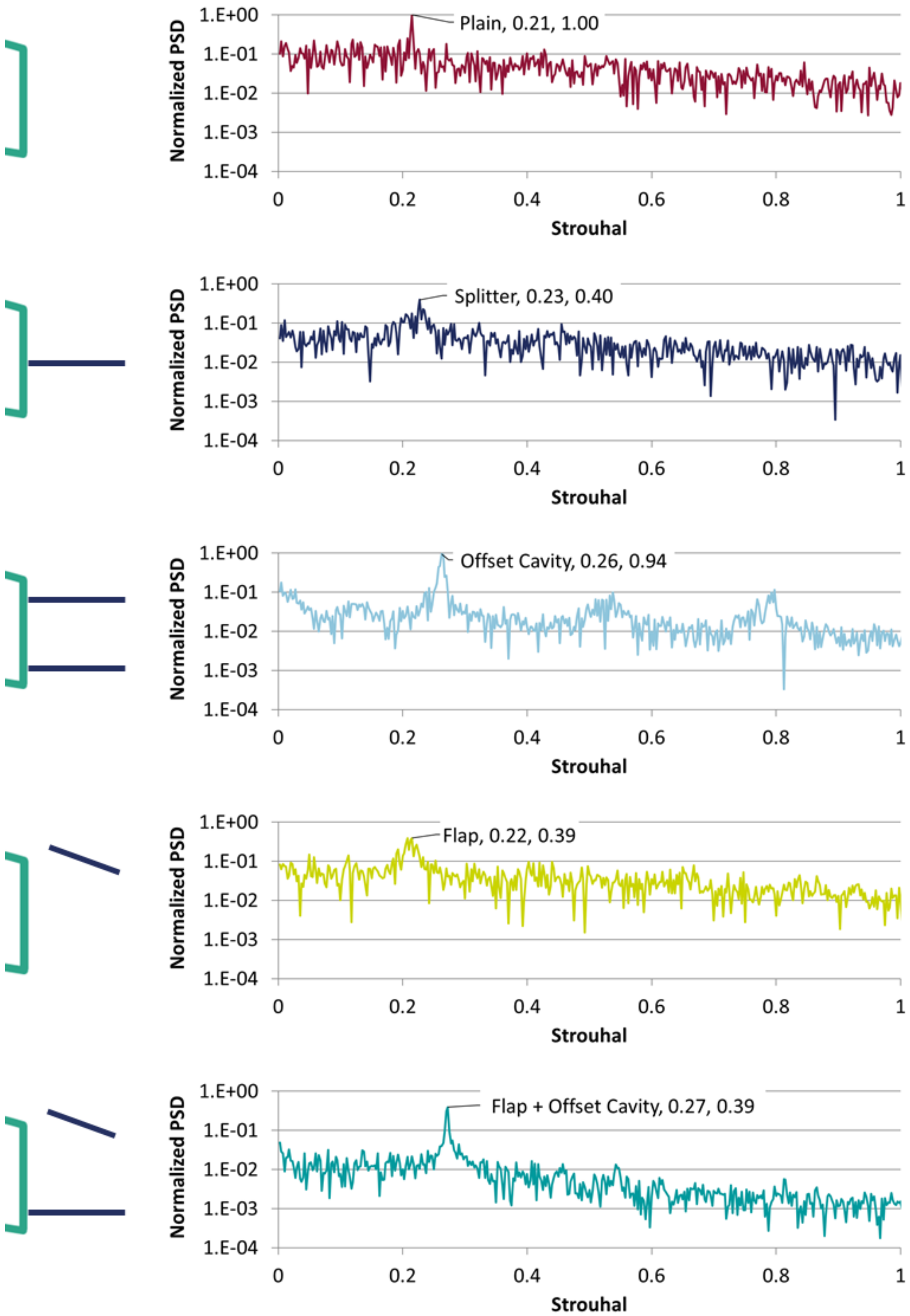

Figure 1: Normalized Power Spectral Density of the velocity time series for the Plain airfoil and all the TE device cases from Fine IDDES simulations. The vertical velocity is considered at (x, y) = (1.57c, 0) see also Figure 2. Strouhal number is defined based on the trailing edge thickness, $St = fh_{TE}/V_\infty$