Comment on “High Reynolds investigations on the ability of the full scale e-TellTale sensor to detect flow separation on a wind turbine blade section” by Antoine Soulier et al.

General comments

In this manuscript, the authors intend to show the ability of the full scale e-TellTale sensor to detect the separation state of the flow on turbine blades.

The wind tunnel experiment of 2D NACA 65_4-421 with 0.693m in chord length was conducted at Reynolds number of 8.85×10^5 with pressure measurement. Several configurations of e-TellTale sensor are tested on the surface and the signal was measured for each configuration. The result shows that the sensors can detect the separation states from both leading edge and trailing edge. It is also found that its sensitivity for different states are depend on its configuration.

This work presents an important evaluation of the innovative device for the progress of the sophisticated turbine control including active flow control technologies on the blade.

I strongly recommend this paper for publication with however revised to raise the reliability of the work. I hope the following comments help the authors for revision.

Specific comments

1. The authors failed to convince readers the explanation in Section 3 because there are no data. The authors should show the pressure distribution measured in this experiment to show the flow separation state for each slope of Cl.
2. The inconsistency between Cl in Figure 8 and 9 is also confusing for the readers to believe the reliability of this manuscript.
3. Cl for Figure 10-12 seems to be the same data. The authors should show measured lift curve for each experiment together with each strain gauge signal as explained in l.126 to show the ability of the sensor for the detection of the slope of Cl for each configuration. Otherwise, the authors should describe that the slope for all configurations are the same.
4. The authors should explain some features of the following Figures to make them reliable. For Figure 12, the authors should explain the reason why the Mean LENSL signals are kept 0.1 from 0 to 18 degrees of AOAs. For Figure 13, the authors should explain the possibility of interaction of the Shell of the sensor on the standard deviation of TENSS signal at low AOAs.

Technical corrections

Errors or strange phrases should be checked as follows. I strongly recommend the review by a native English speaker.

- Title: High Reynolds investigation → High Reynolds number investigation
- P.1, l.3: high Reynolds → high Reynolds number
- P.1, l.10: strong shears upstream of the rotor due to a malfunction of the wind turbine: check the phrases.

- P.1, l.11: In order to limit the influence of these disturbances on the wind turbine, modern pitch-regulated wind turbines are operational today. : Is this means the IPC system?
- P.1, l.15: The former → The latter?
- P.1, l.17: rotation → adjustment?
- P.2, l.25: silicon → silicone
- P.2, l.32: high Reynolds → high Reynolds number
- P.2, l.33: 8.85 → 8.85 x
- P.3, l.56: framework → coordinate axis?
- P.3, l.56: y i → y in
- P.3, l.68: silicon → silicone
- P.3, l.72: high Reynolds → high Reynolds number
- P.3, l.73: lift coefficient → lift coefficient variations?
- P.3, l.73: angle of incidence → AOA? Use the same words throughout the manuscript.
- P.4, Figure 4.: Also show a picture of the TENSS type for the readers understanding.
- P.4, l.80: What is “this last position”?
- P.4, l.86: “the more rigid the strip is, the less signal is transmitted”: Is this a result of the experiment?
- P.4, l.87: “by keeping only the central part of the strip that is thicker”: Add a picture with Figure.4 to understand this phrase.
- P.4, l.91: slope modifications → slope?
- P.5, l.96: “which may be at the origin of some discrepancies in the exact values of the separations angles.”: discrepancies from what?
- P.5, l.98: separation → separation point?
- P.5, l.102: separated ←→ attached?
- P.5, l.102: separated ←→ attached?
- P.5, l.108: not always: Did you repeat the test?
- P.5, Figure 8: Make clear the border line of the figure.
- P.6, Figure 9: Make clear the border line of the figure.
- P.6, l.115: pressure distributions: How do we know the pressure distribution from the lines?
- P.6, l.118: There is not any significant difference: There are indeed differences.
- P.6, l.121: slope change → slope?
- P.10, l.135: show the region of the transition flow state in Figure 10.
- P.10, l.147: low Reynolds → low Reynolds number
- P.10, Figure 10: Add proper labels and units on each axis.
- P.11, l.154: Define A and T.
- P.11, l.170: Refer Figure 12 in this subsection.
- P.11, l.171: trailing → leading
- P.12, Figure 11: Add proper labels and units on each axis.
- P.13, Figure 12: Add proper labels and units on each axis.
- P.12, Figure 12: Add proper labels and units on each axis.
- P.14, l.205: shared is → shared
- P.15, l 213: Bartholomay2018: Correct the title.
- P.15, l 233: Shaquarin2013: Correct the authors.
- P.15, l 241: Swytink2016: Correct the title.