General Comments

The topic of the manuscript for review, namely the characteristics of a novel device for the detection of flow separation and the onset of stall, is of relevance for the wind energy community. Different sensor setups and locations have been investigated in wind tunnel experiments at Re=885.000 for this purpose. The characterization of the sensor performance dependency on angle of attack is carried out mainly by comparison of the mean signal and its standard deviation. The presented results indicate the ability of the novel sensor to identify the onset of trailing edge separation and the stall angle. This ability is reduced in some configurations due to the position of the sensor.
The presented experimental investgations provide interesting information about the sensor characteristics and possible limitations for certain use cases, depending on sensor location. However, the description of the results could be improved by taking the detected pressure distribtions into account in order to explain the sensor sensitivity differences at certain positions of the airfoil. These improvements can be easily done based on the already existing plots.

I recommend this paper for publication after very minor revisions.

Specific Comments

- In section 3 (p. 8, line 104f) the authors mention, that transition from an attached to seprated flow can be seen "from the intermittent appearance of a plateau on the pressure distribution". It is unclear, how the authors define this "intermittency", since only temporally and spatially averaged pressure distributions for two AoAs (6° and 8°) are plotted. One could argue, that for intermediade AoAs a gradual increase of the plateau is expected, rather than an intermitted occurence.

- In section 3 (p. 9, line 111f) the authors mention, that the flow separation location is "really close to the leading edge". An estimate in terms of chordwise location should be given based on the information from the pressure distributions.

- On page 10, figure 10 is presented without any reference in the text. The only reference to figure 10 appears on page 14. The figure should be moved closer to the reference in the text or a reference / explanation in the text should be given close to its current position.

- In section 4.1 (p.11, lines 137ff) the authors describe the increase of the sensor signal in the AoA range of 5° to 8°, which is followed by decreasing "linearly" to 0. On the one hand, linearity is hard to conlcude from just three measurement points. On the other hand, the authors do not give any explanation or hypothesis for this unexpected behaviour. At least an attempt to reason this sudden reduction in signal value should be undertaken.

- In section 4.1 (p.11, lines 140) the authors claim that the sensor is appropriate for the detection of TE flow separtion "at least for this type of profile". Which limitations on the usability would the authors expect, and

for which other types of profile? What would be the benefit of a sensor, that can only be appropriately used for one type of profile? Although I don't expect significant limitations for typical wind energy profiles, the authors should give an explanation or argument once they raise this concern.

- In section 4.3 the authors compare the signals of the sensor depending on loaction close to the TE or LE. Figure 13 (a and b) show strong increases of signal and standard deviation for the LE loaction once the AoA reaches the stall region. It would be of great benefit for the reader to relate the position of the sensor to the actual position of the flow separation as it can be concluded from the pressure distributions. An assumption would be, that the LENSL sensor is located upstream of the location of flow separation until AoA 18°. A comparison of sensor location and separation location would help to understand the reason for the low responsiveness in lower AoAs and the sudden signal increase afterwards, though.

Technical Comments

The labeling of the plots in figure 11 to 14 lacks a proper label for the y-axes as only the unit [Volts] are given. Meaningful labels should be added

The formatting of physical units, mathematical symbols and abbreviations should be checked and modified in compliance with the guidelines (upright vs. italics; blank spaces) .
`https://www.wind-energy-science.net/submission.html#math`

p.1, line 21:
Year of publication is missing.

p.2, line 33:
Format of Reynolds number: Use `\cdot` or `\times` instead of x or blank space. Several different instances occur during the course of the manuscript.

p.2, line 43:
Subsection: consitent use of uppercase and lowercase initials.

p.3, line 54:
stalled regulated -> stall-regulated

p.10, figure 9:
There is no left plot in the manuscript draft, just two plots underneath each other. A consitent label a) and b) would be helpful.
The placement of the legend in the zoomed-in figure should be changed so no plot is covered by it.

p.13, figure 12 b, p.14, figure 13 b:
Legend "mean TENS* signal" should be "Standard deviation"

p.13, line 182:
there -> they

p.15, line 204:
shorten -> shortened

p.15, line 206:
have -> has

p.6, line 212:
have -> has