















Fig. 13 Velocity variation in the x direction around the profile in the 5 regions

## 4 Conclusion

This paper presents the numerical analysis of a medium-sized wing, which has an aileron as control device. In this case, three positions of the aileron:  $2^\circ$ ,  $5^\circ$  and  $10^\circ$ , were analyzed.

The results obtained from these analyses show that the aileron position and the velocity value have a great impact on the flow around a wing. With the increase of the aileron angle, an aerodynamic instability can be noticed. In the case of the  $10^\circ$  angle, the stream of vortices forming downstream of

the wing in the area of the aileron can be observed. The pressure is another important factor to be taken into account in studies of this kind, the value of the pressure on the suction side is lower compared to the pressure side, which is absolutely normal – for generating lift force.

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