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## ***Interactive comment on “Dual plane PIV investigation of acoustically excited jets in a swirl nozzle” by G. S. Regunath et al.***

### **Anonymous Referee #1**

Received and published: 24 September 2015

General comment The paper regards an analysis of vorticity and helicity in a swirling jet of pressurized air comparing the unexcited jet with cases in which the jet is excited by sound waves. Measurements were taken using a dual plane PIV. The work is a continuation of a previous work (Regunath et al., 2008) in which the same PIV approach has been used in an unexcited jet. Nevertheless, the additional results reported here are worthy of publication and the topic is suitable for the journal. However, there are some aspects that should be discussed in more detail (see my specific comments) before publication.

Specific comments 1) It would be better to include a Figure, or to modify Figure 1, to show the position of the loudspeakers. If I have well understood there are four couple of loudspeakers, each couple emit sound in phase, and the different couples

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are arranged like in a windrose at  $45^\circ$ , however, it would be more immediate with an image. 2) Regarding the images some more details should be given like the resolution and the acquisition frequency so that the reader could understand which time span is associate to the 1000 images pairs and, consequently, what is the time span of the average images reported in the paper. 3) Regarding the velocity profiles shown in Figure 4, it is not clear at what distance  $y$  are calculated or if they are an average along the  $y$  direction. Please explain. Additionally, would the feature shown here (larger velocities for the unexcited jet) be valid also at other distance  $y$  or this is a  $y$ -dependent feature? 4) Authors should give an estimation of the uncertainties associated to the vorticity, helicity and to the helicity angle. This is an important information useful in the discussion (page 1416 lines 4-8) in which an angle of  $178.5^\circ$  is considered different from  $180^\circ$ . Is this coherent with the uncertainty estimates? 5) What particle tracers are used as seeding?

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Interactive comment on Nonlin. Processes Geophys. Discuss., 2, 1407, 2015.

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