Jet Noise Reduction by Downstream Fluidic Injection: Effect of Injection Pressure Ratio and Number of Injection Ports

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The main aim of this investigation is to examine the noise reduction using a novel approach involving fluidic injection. The objective is to determine how fluidic injection at specific locations can influence the noise signature of jet noise. The experiment involves placing multiple orifices on the wall at each of the locations, with the injection orifice being at a distance behind the jet. The main outcome is that the noise pressure is reduced, and the noise signature is altered. The results are promising, and further research is needed to optimize the injection parameters to achieve the best noise reduction.

Non-dimensional characteristics
- Jet velocity
- Injection velocity
- Injection pressure
- Distance between orifices
- Number of orifices

2017

Directionally-Targeted Jet Noise Suppression: Benefits of Asymmetric Downstream Fluidic Injection

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The objective of this investigation is to examine the noise reduction benefits of installing multiple injection ports downstream of the jet. The experiment involves placing multiple orifices on the wall at different locations, with the injection orifice being at a distance behind the jet. The main outcome is that the noise pressure is reduced, and the noise signature is altered. The results are promising, and further research is needed to optimize the injection parameters to achieve the best noise reduction.

Non-dimensional characteristics
- Jet velocity
- Injection velocity
- Injection pressure
- Distance between orifices
- Number of orifices

2018