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**Numerical Investigation of the Effect of Trailing Edge Deformations on Noise from Jets Exhausting Over Flat Plates** COLBY HORNER, ADRIAN SESCO, Department of Aerospace Engineering, Mississippi State University, MOHAMMED AFSAR, Department of Mechanical Aerospace Engineering, Strathclyde University, ERIC COLLINS, Center for Advanced Vehicular Systems, Mississippi State University — The design of aircraft propulsion configurations must digress from the typical configurations that are utilized on the majority of aircraft in order to consider the effects of environmental issues as well as the noise that is generated from the engines. One unconventional approach under consideration involves rectangular jets near flat surfaces that are parallel to the jet axis. This type of configuration makes an attempt to muffle the noise that propagates to the ground, but previous experimental work showed that the noise generated by this configuration was actually increased due to the effect that the plate trailing edge exerts on the flow. We conduct large eddy simulations to determine if wall deformations at the plate trailing edge could reduce the jet noise. A high aspect ratio rectangular nozzle is placed over a flat surface featuring sinusoidal deformations at the leading edge, with different wavenumbers and amplitudes. Our previous numerical simulations, which targeted configurations with small deformation amplitudes and high wavenumbers, showed that the trailing edge deformations only had a small effect on the noise. Here, we consider new configurations in an attempt to determine if a more significant reduction of the jet noise is possible.

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