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**A simple-source model of military jet aircraft noise**<sup>1</sup> JESSICA MORGAN, KENT L. GEE, TRACIANNE NEILSEN, ALAN T. WALL, Brigham Young University — The jet plumes produced by military jet aircraft radiate significant amounts of noise. A need to better understand the characteristics of the turbulence-induced aeroacoustic sources has motivated the present study. The purpose of the study is to develop a simple-source model of jet noise that can be compared to the measured data. The study is based off of acoustic data collected near a tied-down F-22 Raptor. The simplest model consisted of adjusting the origin of a monopole above a rigid planar reflector until the locations of the predicted and measured interference nulls matched. The model has developed into an extended Rayleigh distribution of partially correlated monopoles which fits the measured data from the F-22 significantly better. The results and basis for the model match the current prevailing theory that jet noise consists of both correlated and uncorrelated sources. In addition, this simple-source model conforms to the theory that the peak source location moves upstream with increasing frequency and lower engine conditions.

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