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Determining Atmospheric Absorption for Jet Noise Analysis JOSEPH THADEN, BRENT REICHMAN, TRACIANNE NEILSEN, KENT GEE, BYU — In high-amplitude noise propagation, as is the case with the military jet, nonlinear effects have to be taken into account. This paper will highlight and compare these nonlinear effects with those of geometric spreading and atmospheric absorption. Extensive measurements were taken at Holloman Air Force Base, New Mexico during which one engine was cycled through four power settings while the other engine was set to idle. Measurements were conducted over five days during which atmospheric conditions changed significantly. Such changes in temperature, humidity, ambient pressure, and wind speed affect absorption and other important acoustic variables, such as speed of sound and density. Although the changes were drastic over the course of a day, within a measurement period (typically 30 minutes), the changes are small enough that these variables can be treated as constants.

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