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Aeroacoustic measurements in a vocal tract model

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An experiment to clarify the relation between turbulent jet structure, vocal tract wall shape and the resulting sound is described. A life-scale model of the vocal tract (18cm length, 2.6cmx2.6cm square cross-section), fabricated from clear cast acrylic is used. A jet, formed at a constriction, passes over or against a simple obstacle, generating sound. Correlated aerodynamic and acoustic measurements are used to determine the transfer function between the obstacle and the measurement location outside the model and the aeroacoustic source spectrum. For comparison the source spectrum is also estimated using the model described in Krane (JASA, 2005), using aerodynamic measurements as empirical input.