



A study of acoustic wavefronts radiated from trombones and trumpets through Schlieren imaging and direct measurements

P. Rendon^a, T. Vázquez^a, R. Velasco^a, C. Echeverría^b, D. Porta^b, A. Pérez-López^a and C. Stern^b

^aUni. Nacional Autonoma de Mexico, CCADET, Ciudad Universitaria, 04510 Mexico, Mexico

^bUni. Nacional Autonoma de Mexico, Facultad de Ciencias, Ciudad Universitaria, 04510 Mexico, Mexico
pablo.rendon@ccadet.unam.mx

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The flaring bell section of modern trombones and trumpets is known to be critical in determining a wide variety of properties associated with the sound radiated by these instruments. We are particularly interested in the shape of the radiated wavefront, which is not exactly plane nor spherical, and clearly depends on the bell profile. The outlines of both a trombone and a trumpet bell have been traced, and these instruments have then been used to measure the radiated sound pressure field directly. The radiated wavefronts have also been visualised using Schlieren imaging. We observe shock formation, and we are able to estimate from our results both the shock velocity and the shock rise time.