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High fidelity measurements in the far-field of a Mach 3 jet ROMAIN FIÉVET[1], The University of Texas at Austin, WOUTIJN J. BAARS[2], The University of Melbourne, DAVID SILVA[3], CHARLES E. TINNEY[4], The University of Texas at Austin — Recent studies by Baars & Tinney (2012) [APS DFD12-2012-002085] used 1/4inch pressure-field microphones to produce spatial mappings of the far field spectra, OASPL, skewness and kurtosis of the pressure and pressure derivative, as well as other indicators of local and cumulative nonlinear waveform distortion (quadrature spectral density) of the sound field produced by a laboratory-scale Mach 3 jet flow. It was shown that, despite the presence of crackle, cumulative nonlinear distortions were absent along the peak noise path, where such effects have been shown to reside in full-scale studies. The findings were supported by estimates of the Gol'dberg number using relevant jet operating conditions. The experiment of Baars & Tinney is revisited here using higher fidelity instruments (1/8th inch pressure field microphones resolving up to 140kHz +/-1dB) to identify the effects imposed by the larger microphones used by Baars & Tinney (2012).

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