Investigation of Current Driven Loudspeakers - DTU Orbit (20/10/2019)

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Current driven loudspeakers have previously been investigated but the literature is limited and the advantages and disadvantages are yet to be fully identified. This paper makes use of a non-linear loudspeaker model to analyse loudspeakers with distinct non-linear characteristics under voltage and current drive. A multi tone test signal is used in the evaluation of the driving schemes since it resembles audio signals to a higher degree than the signals used in total harmonic distortion and intermodulation distortion test methods. It is found that current drive is superior over voltage drive in a 5” woofer where a copper ring in the pole piece has not been implemented to compensate for eddy currents. However the drive method seems to be irrelevant for a 5” woofer where the compliance, force factor as well as the voice coil inductance has been optimized for linearity.

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