

## Efficiency Optimization in Class-D Audio Amplifiers - DTU Orbit (08/11/2017)

### Efficiency Optimization in Class-D Audio Amplifiers

This paper presents a new power efficiency optimization routine for designing Class-D audio amplifiers. The proposed optimization procedure finds design parameters for the power stage and the output filter, and the optimum switching frequency such that the weighted power losses are minimized under the given constraints. The optimization routine is applied to minimize the power losses in a 130 W class-D audio amplifier based on consumer behavior investigations, where the amplifier operates at idle and low power levels most of the time. Experimental results demonstrate that the optimization method can lead to around 30 % of efficiency improvement at 1.3 W output power without significant effects on both audio performance and the efficiency at high power levels.

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