

Simulation of the signal influence by different line configurations

Master's thesis

Context:

Audionet is one of the world's leading High End sound amplifier and HiFi gear manufacturer. Even with its over 30 year of experience the engineering team is continuously looking for the perfect sound. However, in largely optimized electronics the perfect sound depends in no small part on the interconnect lines between the components. Both the cable configuration and its material clearly contribute to audible differences. Classical methods of electrical engineering (e.g. quadripole analysis) have so far not produced any results; corresponding measurement technology is complex or close to impracticality

Task:

The aim of the student work is to find simulation methods/tools and to show the influence of different signal line configurations on the signal itself. Therefore 3-D models need to be developed, simulations of the EM fields to be carried out and the resulting waveform at the exit of the signal line to be shown (in time and frequency domain).

Prerequisites:

Holistic understanding of electrical engineering contexts. Basic knowledge of field simulation, experience with programming with scripting languages. Affinity and fun for optimal sound.

The thesis is supervised by audionet GmbH in cooperation with the TU Darmstadt.

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