Computer Simulation of the Electrical Circuit of the Wideband Power Amplifier for Transverse Damping System of LHC

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Abstract

Within the framework of the transverse damping system for the LHC, the wideband power amplifier and electrostatic deflector, which is the amplifier load, are being developed in JINR. Main parameters of the amplifier are:

Amplitude of signal between plates of the deflector: ±7.5 kV in a frequency range from 3 kHz up to 1 MHz.

Smooth slope of the frequency response with a -6 dB/octave rate up to 20 MHz.

Simulations of possible variants of the power amplifier electrical circuit were made using MicroSim© Pspice© software. This allowed minimising of system development time and optimising of the circuit characteristics.

This report presents a new method of modelling vacuum tubes for Microsim© PSpice©. Accuracy of the model was experimentally tested on the wideband amplifier based on Siemens RS2048-CJ tetrodes.