Abstracts

Traveling-wave tube amplifier performance evaluation and design optimization for applications in multi-level digital communications

J. Qiu, D. Abe, T.M. Antonsen, Jr., B.G. Danly and B. Levush. "Traveling-wave tube amplifier performance evaluation and design optimization for applications in multi-level digital communications." 2002 MTT-S International Microwave Symposium Digest 02.1 (2002 Vol. I [MWSYM]): 457-460 vol.1.

In this paper, we use power margin as a figure of merit for evaluating the performance of TWT amplifiers used in multi-level digital communications applications. Power margin is better at predicting the system level performance of TWT amplifiers than device-level measures like EVM. We compare the calculated power margin performances for helix TWT circuits optimized with different optimization goal functions in CHRISTINE. A digital goal function that provides enhanced power margin is constructed to demonstrate the approach of TWT circuit design optimization from a system perspective.

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