

Minimax approximation of a complex-valued function modulus by means of linear programming

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Abstract

© 2016 IEEE. The problem of approximating the complex-valued function modulus using a minimax criterion is of interest in many technical applications, such as standard process controlling systems with limiting the transient oscillations, low-side-lobe antenna arrays, or multiplexing devices having a deep channel isolation. The paper introduces approximate formulas to compute the absolute value of a complex number based on piecewise linear inequalities, thanks to which the approximation problem may be reduced to the minimax linear programming problem allowing the use of standard application packages. Computational experiments, the results of which are discussed, have proven the efficiency of the proposed computing algorithm combining high speed and good approximation accuracy.

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Keywords

approximation, minimax criterion, piecewise linear function

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