

论文

通带可调相位 FIR 数字滤波器及其设计

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摘要 常见的 FIR 数字滤波器大致可分为两类:一类是线性相位滤波器;另一类是极小相位滤波器,这两种类型的滤波器,其相位响应均不可调.第一种滤波器,其群延迟为 $((N-1)T)/2$,其中 N 为滤波器长度, T 为采样周期.以 $N=60, T=0.2$ 秒的线性相位滤波器为例,它的相位响应为...

关键词

分类号

THE FIR DIGITAL FILTER WITH MODULABLE PHASE IN THE PASSBAND

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Abstract This paper presents an approach to designing a FIR digital filter with preselectable phase in the passband which may meet desired specifications for the magnitude and phase responses, for selecting properly the phase in the passband may both reduce the group delay and mini-mize the nonlinear distortion of signal phase. But, for designing such a type of digital filters, the iterative method based on the Remez exchange algorithm proposed in [7], as we found in our computation, is hard to apply because of computational difficulties. This paper has introduced the two phase revised simplex algorithm of linear programming and the improved inverse matrix method so that the iterative errors will be within the prescribed tolerance. The method provided in this paper can be used for the design of all types of bandpass, low-pass and bandstop filters and linear phase FIR filters as well.

Key words

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