



THE OPTIMAL DIRECT DESIGN OF BANDPASS WAVE DIGITAL LADDER FILTERS FOR DISTINCTLY SPECIFIED AMPLITUDES IN THE TWO STOPBANDS (WedAmPO2)

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★ **Abstract :** The paper presents the optimal direct design method for ladder wave digital filter structures. This means that the approximation is carried out without applying frequency transformation techniques. The method is very useful especially when the two minimum losses in the two stopbands are distinct. The approximation process begins by the proper formulation of the transmission function such that it exhibits finite and infinite transmission zeros. Then, it is approximated in iterative procedure by applying interpolation methods combined with the Remez-exchange algorithm which guarantees equiripple characteristics in the three bands. Finally, the filter structure is obtained in the wave digital domain.