DESIGN OF INTEGER FILTERS FOR TRANSMULTIPLEXER PERFECT RECONSTRUCTION (MonPmOR8)

Author(s) :

Bartosz Ziolko (AGH University of Science & Technology, Poland)
Mariusz Ziolko (AGH University of Science & Technology, Poland)
Michal Nowak (AGH University of Science & Technology, Poland)

Abstract :

A new and efficient method of designing the transmultiplexer filters is presented. The bilinear equations posed for the FIR filters are solved to achieve perfect reconstruction. For a given combining filter bank a separation filter bank can be developed by solving a set of algebraic equations. Some examples of a two−channel and four−channel transmultiplexer system are provided to illustrate the method of filter bank designing. Due to the incorporation of integer filters a perfect reconstruction was realized and crosstalk was completely eliminated not only theoretically but also in practice. Such transmultiplexers can be applied to coded signals transmission. It is pointed that the orthogonal filters can be obtained as well.

Menu