

Abstracts

A Generalized Multiplexer Theory and Design of Manifold Multiplexers

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A general direct analytical design procedure is presented for multiplexer having any number of channels, with arbitrary channel complexity, bandwidths, and inter-channel spacings. Approximate formulas developed for directly-connected filters have limitations which can be improved by normal immittance compensation. However the approximations are greatly improved by spacing the filters along a manifold in a way which not only separates the filters physically but also utilizes the inter-channel phase shifters to provide the immittance compensation. Contiguous cases are designable by the theory, which is presently applicable to narrow bandwidth channels. The theory has been proven both by computer simulation and by a limited number of practical designs.

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