# Abstracts

## Computer Optimization of a Stabilizing Network for a Tunnel-Diode Amplifier

*J.W. Bandler. "Computer Optimization of a Stabilizing Network for a Tunnel-Diode Amplifier." 1968 Transactions on Microwave Theory and Techniques 16.6 (Jun. 1968 [T-MTT]): 326-333.*

Computer-aided direct search is a useful and flexible method of optimizing noncommensurate networks or networks for which exact synthesis theories culminating in some particular response are not available. It can accommodate network parameter constraints and unconventional performance specifications and is not accompanied by problems of component realizability. A simple form of direct search is applied in this paper to the design of a microwave network whose performance is optimized within certain specifications. The network is a stabilizing and biasing arrangement for a tunnel-diode amplifier operating in a reduced height S-band rectangular waveguide, and takes the form of a coaxial-line band-stop filter. Parameter constraints are inherent to the problem so they are taken into account. The requirements of stability and low noise broadband amplification in conjunction with the external circuitry impose nonsymmetrical response restrictions on the input resistance and reactance of the network. At the same time it is required to minimize the square of the input reactance at selected frequencies. No available exact synthesis of band-stop filters can solve this problem as presented here.

❑ Return to main document.