Abstracts

A Rigorous Technique for Measuring the Scattering Matrix of a Multiport Device with a 2-Port Network Analyzer

J.C. Tippet and R.A. Speciale. "A Rigorous Technique for Measuring the Scattering Matrix of a Multiport Device with a 2-Port Network Analyzer." 1982 Transactions on Microwave Theory and Techniques 30.5 (May 1982 [T-MTT]): 661-666.

A new measurement technique is described that eliminates the mismatched-induced errors that occur when the scattering matrix of a multiport device is measured with a 2-port network analyzer. These errors arise from neglecting the finite reflections from the imperfect auxiliary loads terminating the unused ports of the device under test in each of the required 2-port measurements. It is shown how a systematic application of the generalized scattering matrix renormalization transform completely eliminates these errors. This new method is completely general and can therefore be applied to measurements of the scattering matrix of an n-port device with an m-port network analyzer (m<n).

❑ Return to main document.