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Two-Variable Scattering Formulas to Describe Some Classes of Lossles Two-Ports with Mixed, Lumped Elements and Commensurate Stubs

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Abstract: Using the semi-analytic method based on the construction of two-variable scattering functions, which describe lossless two-ports with two kinds of elements, for some classes of ladder networks formed with lumped elements and commensurate stubs, the explicit descriptive formulas are produced up to six mixed-elements. To exhibit the efficiency of the explicit descriptive equations in the design of the broadband microwave circuits, a single matching design problem (UHF antenna matching) is solved by using the obtained two-variable scattering formulas.

Key Words: Scattering parameters, two-variable description, mixed element networks

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