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Nota di contenuto	Software VNA and Microwave Network Design and Characterisation; Contents; Foreword; Preface; 1 Introduction to Network Analysis of Microwave Circuits; 1.1 One-Port Network; 1.1.1 Total Voltage and Current Analyses; 1.1.2 Transmission-Reflection Analysis; 1.1.2.1 Voltage and current; 1.1.2.2 Reflection coefficient; 1.1.2.3 Power; 1.1.2.4 Introduction of a ₁ and b ₁ ; 1.1.2.5 Z in terms of; 1.1.3 Smith Chart; 1.1.3.1 Impedance chart; 1.1.3.2 Admittance chart; 1.1.4 Terminated Transmission Line; 1.2 Two-Port Network; 1.2.1 Total Quantity Network Parameters 1.2.2 Determination of Z, Y and ABCD Parameters1.2.3 Properties of Z, Y and ABCD Parameters; 1.2.4 Scattering Parameters; 1.2.5 Determination of S-Parameters; 1.2.6 Total Voltages and Currents in Terms of a and b Quantities; 1.2.7 Power in Terms of a and b Quantities; 1.2.8 Signal Flow Chart; 1.2.9 Properties of S-Parameters;

1.2.10 Power Flow in a Terminated Two-Port Network; 1.3 Conversions Between Z, Y and ABCD and S-Parameters; 1.4 Single Impedance Two-Port Network; 1.4.1 S-Parameters for Single Series Impedance; 1.4.2 S-Parameters for Single Shunt Impedance; 1.4.3 Two-Port Chart
1.4.3.1 Single series impedance network 1.4.3.2 Single shunt impedance network; 1.4.3.3 Scaling property; 1.4.4 Applications of Two-Port Chart; 1.4.4.1 Identification of pure resonance; 1.4.4.2 Q-factor measurements; 1.4.4.3 Resonance with power-dependent losses; 1.4.4.4 Impedance or admittance measurement using the two-port chart; 1.5 S-Parameters of Common One- and Two-Port Networks; 1.6 Connected Two-Port Networks; 1.6.1 T-Junction; 1.6.2 Cascaded Two-Port Networks; 1.6.3 Two-Port Networks in Series and Parallel Connections
1.7 Scattering Matrix of Microwave Circuits Composed of One-Port and Multi-Port Devices 1.7.1 S-Parameters of a Multi-Port Device; 1.7.2 S-Parameters of a Microwave Circuit; References; 2 Introduction to Software VNA; 2.1 How to Install; 2.2 The Software VNA; 2.3 Stimulus Functions; 2.4 Parameter Functions; 2.5 Format Functions; 2.6 Response Functions; 2.7 Menu Block; 2.7.1 Cal; 2.7.2 Display; 2.7.3 Marker; 2.7.4 DeltaM; 2.7.5 Setting; 2.7.6 Copy; 2.8 Summary of Unlabelled-Key Functions; 2.9 Preset; 2.10 Device Under Test; 2.10.1 Device; 2.10.2 Circuit; 2.11 Circuit Simulator
2.11.1 Circuit Menu 2.11.2 Device Menu; 2.11.3 Ports Menu; 2.11.4 Connection Menu; 2.12 Circuit Simulation Procedures and Example; 3 Device Builders and Models; 3.1 Lossless Transmission Line; 3.2 One- and Two-Port Standards; 3.3 Discrete RLC Components: One-Port Impedance Load; 3.4 Discrete RLC Components: Two-Port Series Impedance; 3.5 Discrete RLC Components: Two-Port Shunt Admittance; 3.6 General Transmission Line; 3.7 Transmission Line Components: Two-Port Serial Transmission Line Stub; 3.8 Transmission Line Components: Two-Port Parallel Transmission Line Stub
3.9 Ideal Two-Port Components: Attenuator/Gain Block

Sommario/riassunto

Advances in computer technology and in the development of modern microwave test instruments over the past decade have given electrical engineers, researchers and university students a number of new approaches to study microwave components, devices and circuits. Vector network analyser (VNA) is a valuable tool for providing fast and accurate characterisation of microwave components and devices for other circuits working at high frequencies. This book together with associated software serves as an introduction to microwave network analysis, microwave components and devices, and microwave circu

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