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Formulation; 2.3.2 Resonance and Radiation Characteristics; 2.4 Cylindrical Rectangular Microstrip Patch with an Air Gap; 2.4.1 Complex Resonant Frequency Results; 2.5 Cylindrical Rectangular Microstrip Patch with a Coupling Slot; 2.5.1 Theoretical Formulation; 2.5.2 Resonance Characteristics; 2.6 Cylindrical Triangular Microstrip Patch; 2.6.1 Theoretical Formulation; 2.6.2 Complex Resonant Frequency Results; 2.7 Cylindrical Wraparound Microstrip Patch 2.7.1 Theoretical Formulation 2.7.2 Complex Resonant Frequency Results; References; 3 Resonance Problem of Spherical Microstrip Patches; 3.1 Introduction; 3.2 Spherical Circular Microstrip Patch on a Uniaxial Substrate; 3.2.1 Fundamental Wave Equations in a Uniaxial Medium; 3.2.2 Spherical Wave Functions in a Uniaxial Medium; 3.2.3 Full-Wave Formulation for a Spherical Circular Microstrip Structure; 3.2.4 Galerkin's Moment-Method Formulation; 3.2.5 Basis Functions for Excited Patch Surface Current; 3.2.6 Resonance Characteristics; 3.2.7 Radiation Characteristics 3.2.8 Scattering Characteristics 3.3 Spherical Annular-Ring Microstrip Patch; 3.3.1 Theoretical Formulation; 3.3.2 Complex Resonant Frequency Results; 3.4 Spherical Microstrip Patch with a Superstrate; 3.4.1 Circular Microstrip Patch; 3.4.2 Annular-Ring Microstrip Patch; 3.5 Spherical Microstrip Patch with an Air Gap; 3.5.1 Circular Microstrip Patch; 3.5.2 Annular-Ring Microstrip Patch; References; 4 Characteristics of Cylindrical Microstrip Antennas; 4.1 Introduction; 4.2 Probe-Fed Case: Full-Wave Solution; 4.2.1 Rectangular Patch; 4.2.2 Triangular Patch 4.3 Probe-Fed Case: Cavity-Model Solution 4.3.1 Rectangular Patch; 4.3.2 Triangular Patch; 4.3.3 Circular Patch; 4.3.4 Annular-Ring Patch; 4.4 Probe-Fed Case: Generalized Transmission-Line Model Solution; 4.4.1 Rectangular Patch; 4.4.2 Circular Patch; 4.4.3 Annular-Ring Patch; 4.5 Slot-Coupled Case: Full-Wave Solution; 4.5.1 Printed Slot as a Radiator; 4.5.2 Rectangular Patch with a Coupling Slot; 4.6 Slot-Coupled Case: Cavity-Model Solution; 4.6.1 Rectangular Patch; 4.6.2 Circular Patch; 4.7 Slot-Coupled Case: GTLM Solution; 4.7.1 Rectangular Patch; 4.7.2 Circular Patch 4.8 Microstrip-Line-Fed Case

Sommario/riassunto

A one-stop reference to the design and analysis of nonplanar microstrip structures. Owing to their conformal capability, nonplanar microstrip antennas and transmission lines have been intensely investigated over the past decade. Yet most of the accumulated research has been too scattered across the literature to be useful to scientists and engineers working on these curved structures. Now, antenna expert Kin-Lu Wong compiles and organizes the latest research results and other cutting-edge developments into an extensive survey of the characteristics of microstrip antennas mounted on
