

CONTENTS

Chapter 1: Basic Antenna Concepts

- 1.1: Microwave Antennas
- 1.2: Antenna Performance
- 1.3: Antenna Parameters
 - 1.3.1: Radiation pattern
 - 1.3.2: Beamwidth
 - 1.3.3: Beam area
 - 1.3.4: Beam efficiency
 - 1.3.5: Directivity
 - 1.3.6: Gain
 - 1.3.7: Aperture

Chapter 2: Microstrip antennas

- 2.1: Microstrip patch antennas
- 2.2: Microstrip antenna analysis
 - 2.2.1: Transmission line model
 - 2.2.1: Cavity model
 - 2.2.2: Full wave model
- 2.3: Transmission line model theory

Chapter 3: Microstrip antenna design

- 3.1: Design of microstrip antenna
- 3.2: Design specifications

Chapter 4: Experimental setup

4.1: Microwave measurement setup

4.1.1: Klystron tube

4.1.2: Isolator

4.1.3: Frequency meter

4.1.4: Variable attenuator

4.2: Substrate fabrication

4.3 Microstrip patch fabrication

4.4: Experimental techniques for measurement of complex permittivity

4.5: Estimation of complex permittivity of the composite with TE₁₀₃ cavity resonator

Chapter 5: Experimental results

5.1: Characteristics of klystron tube

5.2: Calculation of the Q-factor of the cavity

5.3: Determination of ϵ' and ϵ'' of nylon-66 sample

Discussions and future plans

References