Contents

1.	MACROSCOPIC MAXWELL'S THEORY	1
1.1 1.2	Fundamental Equations Constitutive Relations	2
2.	ELECTROMAGNETIC THEORY AND SPECIAL	· ·
۷.	RELATIVITY	25
2.1	Space-Time Transformation	26
2.2	Transformation of Field Vectors	30
2.3	Transformation of Constitutive Relations	38
3.	PLANE WAVES IN HOMOGENEOUS MEDIA	53
3.1	Dispersion Relations	54
3.2	Wave Vector k	63
3.3	The kDB System and Characteristic Waves	73
4.	REFLECTION AND TRANSMISSION	93
4.1	Phase Matching	94
4.2	Reflection and Transmission Coefficients	101
4.3	Stratified Media	112
5.	GUIDANCE AND RESONANCE	131
5.1	Planar Waveguides	132
5.2		148
5.3	Cavity Resonators	165
хi		

6.	RADIATION AND SCATTERING	183
6.1	Radiation	184
6.2	Dipole Antennas and Stratified Media	201
6.3	Scattering	227
7.	THEOREMS OF WAVES AND MEDIA	249
7.1	Equivalence Principle	250
7.2	Reaction and Reciprocity	269
7.3	Quantization of Electromagnetic Waves	283
7.4	Four-Dimensional Notation	296
7.5	Lagrangian Formulation of Macroscopic Electromagnetic Theory	307
RE	FERENCES	320
IN	DEX	325