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Autore	Adams Arlon T.
Titolo	Principles of electromagnetics . 5 Wave applications // Arlon T. Adams, Jay K. Lee
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ISBN	1-60650-719-2
Descrizione fisica	1 online resource (109 p.)
Collana	Electrical power collection
Disciplina	537
Soggetti	Electromagnetism Electromagnetic waves Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	1. Introduction to reflection and transmission of electromagnetic waves -- 1.1 Introduction -- 1.2 Normal incidence at a dielectric boundary -- 1.3 Oblique incidence at a dielectric boundary -- 1.3.1 Perpendicular polarization -- 1.3.2 Parallel polarization -- 1.4 Total internal reflection -- 1.5 Brewster angle effect -- 1.6 Reflection from perfect conductor - standing wave -- 1.6.1 Standing waves -- 1.6.2 Normal incidence -- 2. Basics of waveguides, resonators and transmission lines -- 2.1 Introduction -- 2.2 Solution methods for uniform waveguides -- 2.3 Parallel-plate waveguide -- 2.3.1 TM mode solutions -- 2.3.2 TE mode solutions -- 2.3.3 Additional notes on solution method -- 2.4 Rectangular waveguide -- 2.4.1 General field solutions -- 2.4.2 TM mode solutions -- 2.4.3 TE mode solutions -- 2.5 Rectangular cavity resonator -- 2.5.1 TM mode solutions -- 2.5.2 TE mode solutions -- 2.5.3 Quality factor of the cavity resonator -- 2.6. Coaxial cable -- 2.6.1 TEM mode solution -- 2.7. Transmission lines -- 2.7.1 The transmission-line equations, lumped-circuit model -- 2.7.2 The transmission-line equations from field theory -- 2.7.3 Transmission-line circuit parameters -- 2.7.4 Finite transmission line with load.

Electromagnetics is not an easy subject for students. The subject presents a number of challenges, such as: new math, new physics, new geometry, new insights and difficult problems. As a result, every aspect needs to be presented to students carefully, with thorough mathematics and strong physical insights and even alternative ways of viewing and formulating the subject. The theoretician James Clerk Maxwell and the experimentalist Michael Faraday, both shown on the cover, had high respect for physical insights. This book is written primarily as a text for an undergraduate course in electromagnetics, taken by junior and senior engineering and physics students. The book can also serve as a text for beginning graduate courses by including advanced subjects and problems. The book has been thoroughly class-tested for many years for a two-semester Electromagnetics course at Syracuse University for electrical engineering and physics students. It could also be used for a one-semester course, covering up through Chapter 8 and perhaps skipping Chapter 4 and some other parts. For a one-semester course with more emphasis on waves, the instructor could briefly cover basic materials from statics (mainly Chapters 2 and 6) and then cover Chapters 8 through 12.

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