

1. Record Nr.	UNINA9911019743803321
Autore	Blaunstein Nathan
Titolo	Radio propagation and adaptive antennas for wireless communication links [[electronic resource]] : terrestrial, atmospheric and ionospheric / / Nathan Blaunstein and Christos Christodoulou
Pubbl/distr/stampa	Hoboken, N.J., : Wiley-Interscience, c2007
ISBN	1-280-72223-1 9786610722235 0-470-06999-6 0-470-06998-8
Descrizione fisica	1 online resource (637 p.)
Collana	Wiley series in microwave and optical engineering
Altri autori (Persone)	ChristodoulouChristos G
Disciplina	621.3824
Soggetti	Adaptive antennas Radio wave propagation Wireless communication systems - Equipment and supplies Cell phone systems - Equipment and supplies
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Radio Propagation and Adaptive Antennas for Wireless Communication Links; Contents; Preface; Chapter One: Fundamentals of Radio Communications; 1.1. Radio Communication Link; 1.2. Frequency Band for Radio Communications; 1.3. Noise in Radio Communication Links; 1.4. Main Propagation Characteristics; 1.4.1. Path Loss; 1.4.2. Characteristics of Multipath Propagation; 1.4.3. Signal Presentation in Wireless Communication Channels; 1.4.4. Parameters of the Multipath Communication Channel; 1.4.5. Types of Fading in Multipath Communication Channels; 1.5. Problems in Adaptive Antennas Application Bibliography Chapter Two: Antenna Fundamentals; 2.1. Radiation Pattern; 2.2. Field Regions of an Antenna; 2.3. Radiation Intensity; 2.4. Directivity and Gain; 2.5. Polarization; 2.5.1. Wave and Antenna Polarization; 2.5.2. Linear, Circular, and Elliptical Polarization; 2.6. Terminal Antennas in Free Space; 2.7. Antenna Types; Bibliography; Chapter Three: Fundamentals of Wave Propagation in Random Media;

3.1. Main Wave Equations and Random Functions; 3.1.1. Wave Equations; 3.1.2. Random Functions and Their Moments; 3.1.3. Random Equations; 3.2. The Perturbation Method for Multiple Scattering
The Mean Perturbed PropagatorThe Mean Double Propagator; Mass Operator and Dyson Equation; 3.3. An Exact Solution of 1D-Equation; 3.4. Approximations of the Perturbation Method; 3.4.1. Low Order Approximations; 3.4.2. Convergence of the Perturbation Expansion; 3.4.3. Bourret's Bilocal and Kraichnan's Random Coupling Models; 3.5. Random Taylor Expansion at Short Wavelengths; 3.6. An Exact Solution of the Scalar Wave Equation; Approximate Evaluations of the Functional Integral (3.137); 3.7. The Electromagnetic Wave Equation; 3.8. Propagation in Statistically Inhomogeneous Media
3.9. Propagation in Homogeneous Anisotropic Media3.9.1. Coupling Between Wave Modes; 3.9.2. Energy Transfer Between Wave Modes; Bibliography; Chapter Four: Electromagnetic Aspects of Wave Propagation over Terrain; 4.1. Waves Propagation in Free Space; 4.1.1. A Plane, Cylindrical and Spherical Wave Presentation; 4.1.2. Green's Function Presentation; 4.1.3. Huygen's Principle; 4.1.4. The Concept of Fresnel Zones for Free Space; 4.1.5. Polarization of Radio Waves; 4.2. Path Loss in Free Space; 4.3. Radio Propagation Above Flat Terrain 4.3.1. Boundary Conditions at the Perfectly Conductive Surface4.3.2. Areas Significant for Reflection; 4.3.3. Reflection Coefficients; 4.4. Propagation Above Rough Terrain Under LOS Conditions; 4.4.1. Scattering from a Rough Ground Surface; 4.4.2. The Perturbation Solution; 4.4.3. Kirchhoff's Approximation; 4.4.4. The Rayleigh Approximation; 4.5. Propagation Above a Smooth Curved Terrain; 4.6. Effect of a Single Obstacle Placed on a Flat Terrain; Bibliography; Chapter Five: Terrestrial Radio Communications; 5.1. Characterization of the Terrain
5.2. Propagation Scenarios in Terrestrial Communication Links

Sommario/riassunto

Antennas and Propagation for Wireless Communication covers the basics of wireless communication system design with emphasis on antennas and propagation. It contains information on antenna fundamentals and the latest developments in smart antennas, as well as the radiation effects of hand-held devices. Antennas and Propagation for Wireless Communication provides a complete discussion of all the topics important to the design of wireless communication systems. Written by acknowledged authorities in their respective fields, the book deals with practical applications and presents real world
