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   Nota di contenuto   Radio Wave Propagation Fundamentals; Contents; Preface; Chapter 1
                       Introduction; 1.1 Historical Overview; 1.2 Classification of Radio Waves
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                       Classification of Radio Waves by Its Propagation Mechanisms; 1.5
                       Interferences in RF Transmission Links; Problems; References; Chapter
                       2 Basics of Electromagnetic Waves Theory; 2.1 Electromagnetic Process;
                       2.1.1 Maxwell's Equations of Electrodynamics; 2.1.2 Boundary
                       Conditions of Electrodynamics; 2.1.3 Time-Harmonic Electromagnetic
                       Process-Classification of Medi aby Conductivity.
                       2.2 Free Propagation of Uniform Plane Radio Waves2.2.1 Uniform Plane
                       Wave in Lossless Medium; 2.2.2 Uniform Plane Wave in Lossy Medium;
                       2.3 Polarization of the Radio Waves; 2.4 Reflection and Refraction of
                       Plane Radio Wave from the Boundary of Two Media; 2.4.1 Normal
                       Incidence on a Plane Boundary; 2.4.2 Oblique Incidence of Vertically
                       Polarized Radio Wave; 2.4.3 Oblique Incidence of Horizontally Polarized
                       Radio Wave; 2.4.4 Reflection of the Radio Wave with Arbitrary
                       Polarization; 2.4.5 Power Reflection and Transmission.
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                       Dielectric Medium2.5 Radiation from Infinitesimal Electric Current
                       Source:Spherical Waves; 2.6 Spatial Area Significant for Radio Waves
                       Propagation; 2.6.1 Principle of Huygens-Kirchhoff; 2.6.2 Fresnel Zones;
                       2.6.3 Knife-Edge Diffraction; 2.6.4 Practical Applications of the Fresnel
                       Zones Concept; Problems; References; Appendix 2A Useful
                       Mathematical Relations; 2A.1 Trigonometric Equalities; 2A.2 Vector

Analysis; Appendix 2B Polarization of Radio Waves; 2B.1 General Approach.
Appendix 2C Basic Relations in Infinitesimal Electric Current Source Radiation Analysis2C.1 Helmholtz Equation for Vector Potential; 2C.2 Radiation from the Electric Current Point Source; Appendix 2D Fresnel's Integrals; Chapter 3 Basics of Antennas for RF Radio Links; 3.1 Basic Parameters of Antennas; 3.1.1 Radiation Pattern and Directivity; 3.1.2 Radiation Resistance and Loss Resistance; 3.1.3 Antenna Effective Length and Effective Area of the Aperture; 3.2 General Relations in Radio Wave Propagation Theory; Problems; References.
Chapter 4 Impact of the Earth Surface on Propagation of Ground Waves4.1 Propagation Between Antennas Elevated Above the Earth's Surface: Ray-Trace Approach; 4.1.1 Flat Earth Approximation Case Study; 4.1.2 Propagation over the Spherical Earth Surface; 4.1.3 Specifics of Propagation over a Rough and Hilly Terrain; 4.1.4 Optimal Path Clearance and Choice of the Antenna Elevations; 4.1.5 Propagation Prediction Models in Urban, Suburban, and Rural Areas; 4.2 Propagation Between Ground-Based Antennas over the Flat Earth; 4.2.1 Antennas over the Infinite, Perfect Ground Plane.

| Sommario/riassunto | Written for professional engineers and students who specialize in antenna, communication and radar systems, this authoritative book provides a thorough introduction to the basic principles of electromagnetic wave propagation of radio frequencies in real-world conditions. It serves as an invaluable daily reference for practitioners in the field and also as a complete, organized text on the subject. This comprehensive resource covers a wide range of essential topics, from the classification of radio waves, electromagnetic wave theory, and antennas for RF radio links ... to the impact of the earth. |