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Nota di contenuto	Cover; Ultra Wide Band Antennas; Title Page; Copyright Page; Table of Contents; Preface; Chapter 1. Applications of Ultra Wide Band Systems; 1.1. Introduction; 1.2. UWB regulation: a complex context; 1.2.1. UWB regulation in the USA; 1.2.2. UWB regulation in Europe; 1.2.3. UWB regulation in Japan; 1.2.4. Emission mask in the United States, Europe and Japan; 1.3. Formal Ultra Wide Band types; 1.3.1. Ultra Wide Band Impulse Radio (UWB-IR); 1.3.2. OFDM-ultra wide band (UWB-OFDM); 1.4. Non-formal ultra wide band types; 1.4.1. Ultra wide band frequency hopping (UWB-FH) 1.4.2. Chirp Ultra Wide Band (UWB-FM)1.5. Comparison between the different Ultra Wide Band techniques; 1.6. Typical UWB-OFDM applications; 1.6.1. Peripheral connection to a PC; 1.6.2. High speed applications in large structures with optical fiber backbone; 1.6.3. High speed UWB in a harsh indoor environment; 1.6.4. High speed UWB

combined with other technologies; 1.7. Specialized UWB-OFDM applications; 1.7.1. Last mile radio applications; 1.7.2. Information and video streaming applications; 1.8. Typical applications of the Impulse Radio UWB, UWB-FH and UWB-FM
1.8.1. Professional geo-localization1.8.2. Geolocalization for private individuals; 1.9. Impact on the antennas; Chapter 2. Radiation Characteristics of Antennas; 2.1. Introduction; 2.1.1. What is an antenna and how can we define it?; 2.1.2. Where does antenna radiation come from?; 2.2. How can we characterize an antenna?; 2.2.1. Plane wave and polarization; 2.3. Radiation fields and radiation power; 2.3.1. Radiation fields; 2.3.2. Radiation power; 2.3.3. The radiation pattern, the phase center; 2.3.4. Directive gain, directivity; 2.3.5. Radiation impedance and radiation resistance
2.4. Gain, efficiency and effective aperture2.4.1. Gain and efficiency; 2.4.2. Receive antenna effective aperture; 2.5. Budget link, transfer function; 2.6. Equivalent circuits of the antennas; 2.7. Bandwidth; 2.8. Example of characterization: the triangular probe antenna in F; 2.8.1. Description of the structure; 2.8.2. Impedance matching; 2.8.3. Radiation patterns; 2.8.4. Optimization of the antenna; Chapter 3. Representation, Characterization and Modeling of Ultra Wide Band Antennas; 3.1. Introduction; 3.2. Specificities of UWB antennas: stakes and representation
3.2.1. Context and requirements of an effective and complete representation3.2.2. Transfer function in transmission; 3.2.3. Transfer function in reception, reciprocity; 3.2.4. Transfer function and "conventional" quantities; 3.2.5. Elements on the measurement of transfer functions in the frequency domain; 3.3. Temporal behavior, distortion; 3.4. Distortion and ideality; 3.5. Performance characterization: synthetic indicators; 3.5.1. Energy gain and mean realized gain (MRG); 3.5.2. Synthetic indicators of distortion
3.6. Parsimonious representation by development of singularities and spherical modes

Sommario/riassunto

Ultra Wide Band Technology (UWB) has reached a level of maturity that allows us to offer wireless links with either high or low data rates. These wireless links are frequently associated with a location capability for which ultimate accuracy varies with the inverse of the frequency bandwidth. Using time or frequency domain waveforms, they are currently the subject of international standards facilitating their commercial implementation. Drawing up a complete state of the art, Ultra Wide Band Antennas is aimed at students, engineers and researchers and presents a summary of internationally recog

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Nota di contenuto	Introduction -- Dynamic Simulation Platform of the Studied Building Systems -- In-situ Diagnosis of The Low Delta-T Syndrome in The Chilled Water System: A Case study -- System-level Fault Detection and Diagnosis Method for Low Delta-T Syndrome in the Complex HVAC Systems -- Online adaptive Optimal Control Strategy for the Chilled Water System involving Intermediate Heat Exchangers -- Fault-Tolerant Control Strategy for primary-secondary Chilled Water System -- Simplified Online Robust Pump Speed Control Strategy for Practical Implementation -- Model-based Evaluation of The Energy Impact of Low Delta-T Syndrome Using Support Vector Regression.
Sommario/riassunto	This book discusses enhancing the overall energy performance of building central air-conditioning systems through fault diagnosis and

robust control strategies. Fault diagnosis strategies aim to determine the exact cause of problems and evaluate the energy impact on the system, while robust control strategies aim to manage chilled water systems to avoid the occurrence of low delta-T syndrome and deficit flow problems. Presenting the first academic study of the diagnostic method and control mechanism of “small temperature difference syndrome”, the book describes the highly robust and adaptive fault-tolerant control method developed to overcome the influences of external disturbance on the process control in practical applications. The diagnostic technology developed provides a predictive assessment of the energy dissipation effect of the fault. This book is a valuable reference resource for researchers and designers in the areas of building energy management and built environment control, as well as for senior undergraduate and graduate students.