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Systems; 4.4.3 MIMO Antenna System Examples; 4.5 Computer-Aided Antenna Design; 4.5.1 Printed Monopole Antenna Modeling Example Using HFSS; 4.5.2 Printed PIFA Antenna Modeling Example Using CST; 4.6 Conclusions; References; Chapter 5 Active Integrated Antennas. 5.1 Performance Metrics of AIA 5.1.1 Frequency Bandwidth; 5.1.2 Power Gain; 5.1.3 Total Efficiency; 5.1.4 Stability; 5.1.5 Noise Performance; 5.1.6 Example; 5.2 Oscillator-Based AIA; 5.2.1 Design Outline; 5.2.2 Examples; 5.3 Amplifier-Based AIA; 5.3.1 Design Outline; 5.3.2 Examples; 5.4 Mixer-Based AIA; 5.4.1 Design Outline; 5.4.2 Examples; 5.5 Transceiver-Based AIA; 5.5.1 Design Outline; 5.5.2 Examples; 5.6 Other Types of AIAs; 5.6.1 Frequency, Polarization, and Pattern Reconfigurable Antennas; 5.6.2 On-Chip/On-Package Antennas; 5.6.3 Non-Foster Antennas; 5.7 Conclusions; References.

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## Sommario/riassunto

This comprehensive new resource guides professionals in the latest methods used when designing active integrated antennas (AIA) for wireless communication devices for various standards. This book provides complete design procedures for the various elements of such active integrated antennas such as the matching network, the amplifier/active element as well as the antenna. This book offers insight into how active integration and co-design between the active components (amplifier, oscillator, mixer, diodes) and the antenna can provide better power transfer, higher gains, increased efficiencies, switched beam patterns and smaller design footprints. It introduces the co-design approach of active integrated antennas and its superior performance over conventional methods. Complete design examples are given of active integrated antenna systems for narrow and wideband applications as well as for multiple-input-multiple-output (MIMO) systems. Readers find the latest design methods for narrow and broadband RF matching networks. This book provides a complete listing of performance metrics for active integrated antennas. The book serves as a complete reference and design guide in the area of AIA.

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