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2.2.2.1. Fidelity factor; 2.2.2.2. Time spread; 2.2.3 Variability in the space domain; 2.2.3.1. Statistical values; 2.2.3.1.1. Uniformity; 2.2.3.1.2. Spatially averaged transfer function (SATF); 2.2.3.1.3. Spatially averaged group delay (SAGD); 2.2.3.2. Correlation-based averages: Angular range; 2.3 Simulation in the Time Domain; 3. Classification of UWB Antennas David Puente and Daniel Valderas; 3.1 Helical Antennas; 3.2 Frequency-independent Antennas; 3.2.1 Spiral antennas; 3.2.2 Biconical antennas; 3.2.2.1. 3D biconical antennas; 3.2.2.2. 2D biconical antennas; 3.3 Log-periodic Antennas; 3.4 Horn Antennas; 3.4.1 3D horn antennas; 3.4.2 2D horn antennas; 3.5 UWB Antennas Derived from Resonant Antennas; 3.5.1 3D monopoles; 3.5.1.1. Modifications to the geometry; 3.5.1.1.1. Euclidean shapes; 3.5.1.1.2. Computer optimisation; 3.5.1.1.3. Partial variation on a Euclidean shape; 3.5.1.2. Changes in current distribution; 3.5.1.2.1. Use of parasitic elements; 3.5.1.2.2. Use of a short-circuit pin; 3.5.1.2.3. Asymmetric feed; 3.5.1.2.4. Double feed; 3.5.2 2D resonant antennas; 3.5.2.1. Full 2D monopoles; 3.5.2.2. Slot antennas; 3.6 Conclusions

4. UWB Monopole Antenna Analysis Daniel Valderas and Juan I. Sancho; 4.1 Introduction; 4.2 Current-conductive Parts on Planar Monopole Antennas; 4.2.1 Currents parallel and perpendicular to the ground plane: A working hypothesis; 4.2.2 Non-radiating currents in a PMA; 4.3 Transmission Line Model for UWB Monopole Antennas; 4.3.1 General description; 4.3.2 Description of the model; 4.3.2.1. Transmission line; 4.3.2.2. Radiating structure; 4.3.3 Purpose of the analogy; 4.3.4 Graphical approach: The Smith Chart; 4.4 Design Based on TLM; 4.4.1 Design of an UWB-PMA antenna with a given bandwidth; 4.4.2 Design of an UWB-PMA antenna having a maximised bandwidth

Sommario/riassunto

Ultrawideband (UWB) technology, positioned as the cutting edge of research and development, paves the way to meet the emerging demands set by broadband wireless applications, such as high-speed data transmission, medical imaging, short-range radars, electromagnetic testing, etc. This breathtaking resource builds upon the basics of UWB technology to provide a complete compilation of figures of merit along with a vital state-of-the-art of the different antenna alternatives that are to be employed according to the specific application. Without excessive recourse to mathematics, this volume emphas
