Kumud Ranjan Jha · Ghanshyam Singh

Terahertz Planar Antennas for Next Generation Communication

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This book describes various methods to enhance the directivity of planar antennas, enabling the next generation of high frequency, wireless communication. The authors discuss various applications to the terahertz regime of the electromagnetic spectrum, with an emphasis on gain enhancement mechanisms. The numerical models of these antennas are presented and the analytical results are supported, using commercial simulators. The multilayer substrate microstrip transmission line at terahertz frequency is also explored and a method to obtain the various parameters of this interconnect at high frequency is described. This book will be a valuable resource for anyone needing to explore the terahertz band gap for future wireless communication, in an effort to solve the bandwidth (spectrum scarcity) problem.

- Enables development of terahertz communication systems in a license-free band of the electromagnetic spectrum;
- Describes methods to design a multi-layered substrate transmission line to reduce various losses in the terahertz band;
- Includes methods to enhance the directivity of planar antennas using electromagnetic bandgap material, double layered substrate material and frequency selective surface (FSS) in the terahertz band.

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