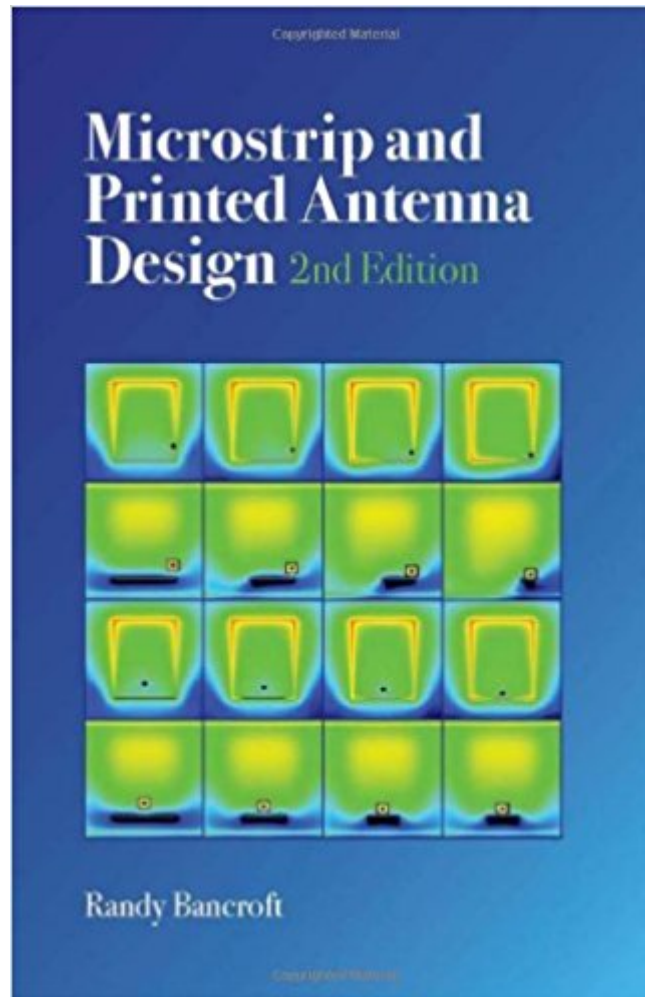


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# Microstrip And Printed Antenna Design (Electromagnetics And Radar)



## Synopsis

The approach in this book is historical and practical. It covers basic designs in more detail than other microstrip antenna books that tend to skip important electrical properties and implementation aspects of these types of antennas. Examples include: quarter-wave patch, quarter by quarter patch, detailed design method for rectangular circularly polarized patch, the use of the TM<sub>11</sub> (linear and broadside CP), TM<sub>21</sub> (monopole CP pattern) and TM<sub>02</sub> (monopole linear) circular patch modes in designs, dual-band antenna designs which allow for independent dual-band frequencies. Limits on broadband matching are discussed. The appendix contains useful simple matching approaches, design details (gain, matching, sidelobes) of the little-studied omnidirectional microstrip antenna (OMA), limits and properties of common single and dual band Planar Inverted F Antenna (PIFA) antenna designs. The second edition has numerous additions to the earlier text which will make the concepts presented clearer. New cavity model analysis equations of circular polarization bandwidth, axial ratio bandwidth and power fraction bandwidth have been included. The section on omnidirectional microstrip antennas is expanded with further design options and analysis. This is also true of the section on Planar Inverted F (PIFA) antennas. The discovery and description of the fictitious resonance mode of a microstrip slot antenna has been added to that section. Appendix A, on microstrip antenna substrates has been expanded to provide more detail on the types of substrate and their composition. This is often neglected in other texts. An appendix on elementary impedance matching techniques has been added as these methods have proven useful in my industrial work.

## Book Information

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## Customer Reviews

required the rating to be input so please forgive and ignore my five star rating. This book is meant for a person relatively new to microstrip antenna design. It should not be reviewed against books with which it was not meant to compete. Many other books present sketches of the moment method, finite element, finite difference time domain and other analysis methods, but very little useful detail on implementation. I only discuss the popular methods that exist in section 1.2 and do not pad the book with a lukewarm explanation of these methods. Such summaries are of little use to commercial wireless antenna designers without months to master and implement such methods. I'm not sure what the reviewer is discussing when he mentions meanderline antennas which are electrically small as "slow-wave structures." Electrically small antennas (ESA) meanderline antennas are more like RLC type circuits (like a PIFA and as discussed by Wheeler). Slow wave structures are electrically large. ESA meanderline antennas do not have reliable analysis equations thus far, and are therefore developed experimentally. The meanderline antenna was used to illustrate the Chu ESA Limits. The FL reviewer complains the Chu limits are not presented in enough depth. I must point out they are not even covered in other microstrip antenna monographs. Many engineers I've worked with are not even aware of fundamental limits of small antennas because so few textbooks have even included them. When the FL reviewer asserts that my book somehow essentially ends at 1995, he is simply not correct. A quick count reveals that about 44 references are after 1995. Section 2.

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