

Preface

Frequency selective surface (FSS) technology has been widely used for the design of high-performance radomes, antennas, radar absorbing structure, reflectors, etc., during the past four decades. In such applications, the FSS technology is mainly employed to enhance the performance of the candidate device/structure, and to reduce their radar signature.

High-performance low RCS (radar cross section) printed antennas are mostly preferred in stealth technology. Such printed antennas may be realized by incorporating FSS structures, either in its ground plane or as superstrate. In view of this, the design and analysis of microstrip patch antennas loaded with FSS-based (i) high impedance surface (HIS) ground plane and (ii) superstrate are presented in this book.

This brief is organized as follows: Section 1 deals with the introduction of FSS structure and Sect. 2 describes the characteristics of FSS structures. The design and analysis of microstrip antenna loaded with FSS-based HIS is discussed in Sect. 3; in this section, various types of band-stop FSS structures such as Jerusalem cross and single-square loop are designed to perform as perfect magnetic conductor (PMC), which is then used as ground plane of microstrip patch antenna (MPA). Further, the design and analysis of MPA loaded with the superstrate design, using double square loop-FSS, is studied for directivity enhancement in Sect. 4. Finally, Sect. 5 lists the conclusions of the work carried out in the book.

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