Analyze of Frequency Selective Surfaces By Hybrid MOM-PO-GTD Method

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Abstract
This article intends to analyze the Diffraction phenomena of the incoming wave and provide a new approach for analyzing the frequency selective surface (Fss) by using a hybrid method combining Moment Method (MoM), optical physics (PO) with General theory of Diffraction (GTD). The frequency selective surface (Fss) is a periodic surface with identical two-dimensional arrays of elements arranged on a substrate dielectric. An incoming plane wave will either be transmitted (bandwidth) or reflected (stopband), completely or partially, depending on the nature of the array element. Today, FSSs have been extensively studied and there is tremendous growth in its design and implementation for different applications at the microwave to optical frequency ranges. In this review article, we present a new hybrid method form on Moment method and GTD for analyzing different categories of FSS based on the design of the structure, the array elements used, and applications. We also focus on the effects of diffraction, methodology, experimental verifications of design examples, as well as on prospects and challenges, particularly in the microwave regime. We highlight their important performance metrics, especially about progress in this area could facilitate advanced electromagnetic innovation.

Full-text
Due to technical limitations, full-text HTML conversion of this manuscript could not be completed. However, the manuscript can be downloaded and accessed as a PDF.

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