BOOK REVIEW

Analysis and Design of Transmitarray Antennas

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Synthesis Lectures in Antennas

ISBN: 9781627058742
ISBN: 9781627057066
Morgan & Claypool Publishers
2017

Transmitarrays have many benefits, yet they have a narrow bandwidth. Many newer designs are now being proposed to increase the bandwidth. Hence, Transmitarray Antennas assume more significance in the recent years. Realizing the potential of Transmitarray Antennas, the authors have come up with a treatise on the design aspect of Transmitarray Antennas.

The authors in this book in a nutshell produced new methods, newer designs and analysis of the Transmitarray Antennas. In the introduction chapter, we can gain the classification of antennas and the concepts behind the Transmitarray Antennas. Besides, the design approaches are outlined briefly. The requirements of Transmitarray Antennas form the core of the discussions of the next chapter on Space-fed Array Design Method. The equilibrium behind the phase distribution of Transmitarray Antennas is nicely explained with a neat set of illustrations. The phase range variations in different angles are well illustrated.

The multilayer Transmitarray Antennas are important to ensure the 360º transmission phase range. As a noted departure from many earlier studies, the third chapter revealed the transmission limit of M-FSS structures. The numerical simulation of many representative FSS examples is presented in this chapter on Analysis of Multilayer Transmitarray Antennas.

Authors in the fourth chapter have used the cross-slot type element to design the quad-layer Transmitarray Antennas. The design is well explained as it has numerous benefits. This is followed by a discussion on the polarization effects. In order to cost of the production of Transmitarray Antennas, the authors in the next chapter presented three different methods to design triple layer Transmitarray Antennas. In this chapter, the authors provided the design of a spiral dipole element with the description of the triple-layer unit cell. The design of the triple-layer Transmitarray Antennas is evaluated in the experimental setting that provided with detailed analytical results.

The sixth chapter on Wideband Transmitarray Antennas described the design and bandwidth analysis primarily. Once the reader reads the description of the comparison of the Transmitarray Antennas can benefit for the selection of the correct Transmitarray Antenna among the available ones. It is possible as the Transmission Phase range is available with bandwidth results.

The seventh and ultimate chapter is Single-feed Multi-beam Transmitarrays which addressed the radiation characteristics of single feed Transmitarray Antennas through several case studies. This chapter provides a perfect platform to gain better understanding of Single-feed Multi-beam Transmitarrays with the help of several illustrations.

The book is supported with an appendix on “S-matrix of cascaded layers” and a comprehensive bibliography. This publication is unique in the domain, ‘Antennas’.

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