



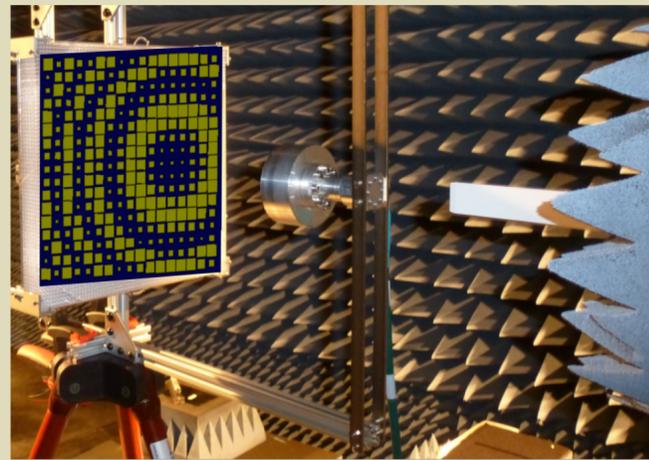
Reflectarray Antenna Design for X-Band Applications Using Flexible Substrates



ECEM KURTOĞLU , ECEM ÖZÇELİK
SUPERVISOR: PROF.DR.BIRSEN SAKA
HACETTEPE UNIVERSITY, ELECTRICAL AND ELECTRONICS
ENGINEERING

INTRODUCTION

Reflectarray antennas are one of the most emphasized antennas in recent years which has hybrid design that combines the advantageous aspects of reflector antennas and array antennas.

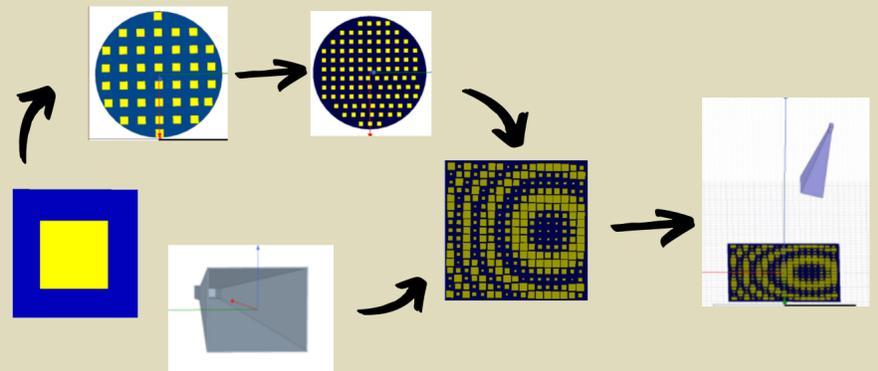


APPLICATION AREAS

For last ten years, there is a great interest in reflectarray antennas for several applications such as space exploration, satellite communication, remote sensing, radar systems and medical department.

METHODOLOGY

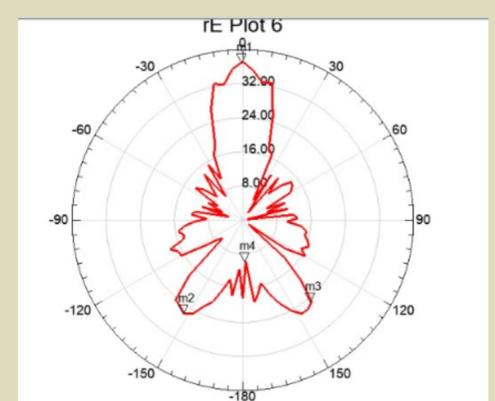
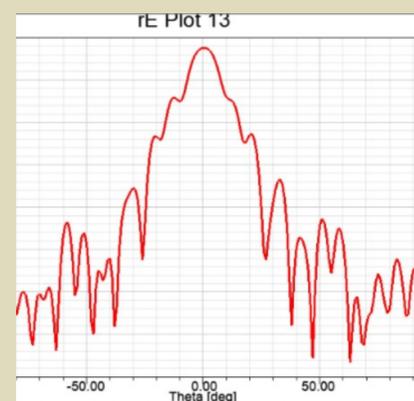
Reflectarray antenna consists of hundreds of elements which are illuminated by a feed antenna. Horn antenna placed with offset angle to avoid blockage effect. Reflectarray elements are needed to be phase tuned because antenna has complete full cycle phase range.



REFLECTARRAY ANTENNA DESIGN

Reflectarray antenna design consist of three groups that are element design, system design and radiation analysis. First a single patch antenna is designed and excited with floquet port.. After the horn antenna is design, it is located with offset and phase tuning is done.Design is simulated and radiation patterns are analyzed.

RESULTS



ACKNOWLEDGMENT

This project is prepared for ELE401-402 Graduation Project Courses at Hacettepe University, Department of Electrical and Electronics Engineering. Special thanks to Prof. Dr. Birsen Saka, Nauman Naseer, Ender Oztürk

REFERENCES

*Öztürk, Ender, Minkowski Reflectarray Analysis And Design At Xband, Phd. Thesis at Hacettepe University Electrical and Electronics Engineering, December 2018.