**KIT**
Karlsruher Institut für Technologie

IHE

Grating Lobe Suppression for Scalable Antenna Arrays Using Circular Subarrays

Motivation:

This thesis investigates a concept for suppressing grating lobes using a hierarchical/scalable antenna array architecture. Circular subarrays are arranged on a rectangular grid, and the grating lobe positions of the individual subarrays and the overall grid array are intentionally aligned such that they interfere destructively. The work includes analytical modeling, simulation-based evaluation of array factors, integration of measurement results of antennas and phase shifters at 28 GHz and 140 GHz and a systemic investigation of the array performance. The results provide insight into grating-lobe mitigation strategies for sparse and scalable antenna arrays.

Prerequisites:

Antenna fundamentals, CST Microwave Studio, strong mathematical background
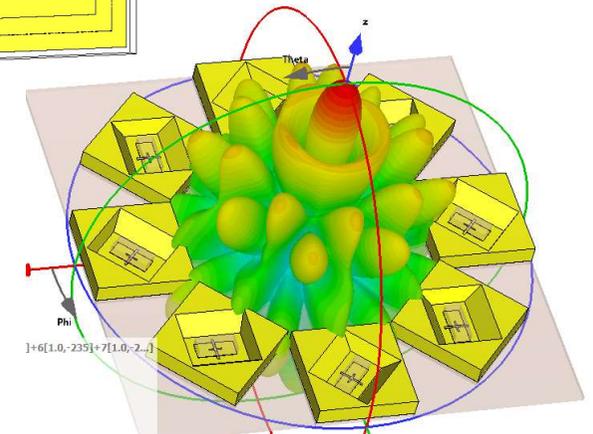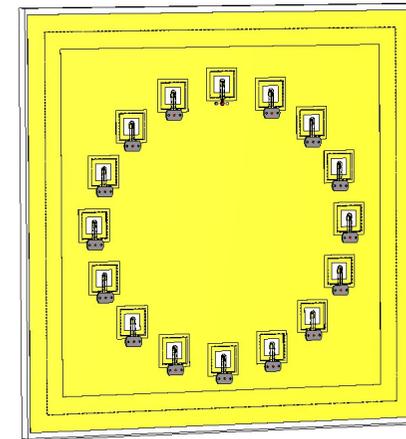
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