Abstract

An on-chip antenna designed for TSMC's 65-nanometer process and capable of transmitting a 60 GHz signal with 22.5% radiation efficiency is presented in this thesis. An artificial magnetic conductor design which further increases this radiation efficiency to 27.5% and increases the antenna's gain above unity is also presented. The antenna was designed, modeled, and simulated with Keysight's ADS and the artificial magnetic conductor with Ansys's HFSS.