

## A Ray-tracing Method to Analyzing Modulated Planar Fabry-Perot Antennas - DTU Orbit (08/11/2017)

### A Ray-tracing Method to Analyzing Modulated Planar Fabry-Perot Antennas

A new approach for fast modelling of Fabry-Perot antennas with modulated partially reflective surfaces (PRS) using ray-tracing is proposed. For validation of the method, a configuration is introduced which consists of a cavity with a modulated PRS, fed internally by a magnetic dipole. The PRS consists of  $18 \times 18$  square patches of varying size placed in a regular grid with a lattice constant of approximately  $\lambda_0/3$  at 20 GHz. The radiation pattern of the configuration is determined both by the presented model and by a full-wave solver which is used as a reference. The Directivity predicted by the model and the reference is 16.2 dB and 16.8 dB respectively which proves a good agreement.

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