

**Master 2012**

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**Differential Antenna Arrays in the mm-wave Band**

***ABSTRACT - Masterthesis***

The scope of this thesis work is the development of differentially-fed printed antennas in the 60 GHz and 76 GHz frequency band. At first, single patch antennas are developed, where the conventional single-ended feeding as well as differential feeding techniques have been investigated.

A lot of emphasis has been given to differential feeding technique, which is used in the most of the antennas. Interest has been shown also for antenna array concepts. Antenna arrays using corporate feeding and series feeding have been designed and simulated. The power balance for the corporate feeding network has been derived. All antenna designs have been optimized and simulation results such as: reflection coefficient, transmission coefficient, radiation pattern and antenna properties have been depicted.