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Study, Design, Simulation and Fabrication of Microwave Slot Antenna

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Abstract : Antenna perhaps is the most important part of any communication system, it determines the overall efficiency and the direction of radiation of the system. Antennas vary in shape and size on a very wide range. For fast moving vehicles, the antenna should offer as litter aerodynamic resistance as possible. Slot antenna is best suited for this purpose. It offers very little aerodynamic resistance, compact, easy to feed and fabricate. This work presented in this paper deals with the investigation of a half wave slot antenna. The antenna has been studied, analyzed, designed, simulated, fabrication, and tested at the X-band. The field of antenna study is an extremely vast one, and to grasp the fundamentals, two pronged approaches have been used, and the focus was on the fabrication and testing of a slot waveguide directional antenna. Focuses on the design and simulation of slot antennas with an emphasis on optimization of a 9.1 GHz a rectangular waveguide have been used to feed slot antenna. A microwave fed slot antenna used in the communication lab was also simulated. The results have been presented and compared with the expected values, where a good agreement was achieved between the simulation and experimental results.

Keywords : microwave, slot antenna, simulation, fabrication
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