

Sittikit Pechsuwan 2014: Single Layer Dual Mode Antenna for Passive UHF RFID Tag using Open Stubs. Master of Engineering (Electrical Engineering), Major Field: Electrical Engineering, Department of Electrical Engineering. Thesis Advisor: Assistant Professor Denchai Worasawate, Ph.D. 133 pages.

The purpose of this research is to find the design method of passive UHF RFID tag antenna for metallic and non metallic surfaces. Two types of antennas, microstrip and dipole antennas, must be simultaneously designed. The antenna acts like a microstrip antenna when attached on metallic surface and acts like a dipole antenna when attached on non metallic surface. This is called a dual mode antenna. The microstrip mode is designed from an impedance of a square patch antenna obtained by a simulation software, Sonnet. A transmission line and open stubs are used to match the antenna. The dipole mode is designed by adding an open stubs at the virtual ground of microstrip mode which gives the least effect impedance of microstrip mode. The optimum length of the stub is obtained by using Sonnet. This research is shown the made antenna to measure the reading range of RFID tag antenna. The measured results are compared with the simulated results. Finally, the antenna must be improved the reading range which is the nearest of purpose results.

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Thesis Advisor's signature