

ABSTRACT

The use of RFID for highway toll ticketing without tap is expected to have excellent accuracy in detecting every car that does ticketing. The reader should be able to precisely reads tags on cars queuing up on certain line, not reads car tags on other lines, or reading distance is not in range.

Therefore, we need a microstrip antenna with proper configuration. In this research, will be analyzed and designed an RFID antenna microstrip 915 MHz that is applied on highway toll gateway.

The parameters analyzed include beamwidth, polarization, gain, VSWR, and S-parameters. The antenna beamwidth can cover the width of one lane of the toll gate, without radiating to other lanes. Circular type polarization, so tilted RFID tag that is laying on the car will not affect the tag reading process. The resulting gain in 1.77 dB, this value will affect the amount of transmit power needed by the transmitter. However, there are working frequency inaccuracies in VSWR and S-parameters. This occurs due to differences material use between simulation and printed antenna.

Keywords: RFID, microstrip, radiation pattern, polarization, gain, VSWR, S-parameter