

## ***ABSTRACT***

Along with the times the human needs of the communications technology is also increasing. One technology that is the antenna. Antenna itself serves as the sender and receiver of information, namely as a transformer of electromagnetic waves in the air. Radio-frequency Identification (RFID) on millimeterwave has given rise to new applications such as high-speed data communication over short distances. This technology can be identified without the need for direct contact.

RFID itself has two components, namely the reader antenna and RFID tag antenna. In this final project will be simulated and realized the design of reader antennas for RFID applications that will work on the frequency 35G Hz. The beginning stage will start within the desired specifications. Then follows the simulation using CST Microwave Studio software, after it is done printing process on a substrate Rogers Duroid 5880. For the characteristics of the test and the results of the design and realization of RFID reader antenna in accordance with the specified.

Then in the final stage of the measurement was performed in order to get results that can be analyzed. From the measurement results, the antenna has been realized had VSWR  $\leq 1.2$  at a frequency of 34.9 - 35.1 GHz, also achieved wide bandwidth is 1150 MHz, at 3.22 dB gain, polarization ellipse, and directional radiation pattern approaching omnidirectional.

**Keywords : RFID, Rogers Duroid 5880**