ABSTRACT

Radar (Radio Detection and Ranging) is developed in the health. One of them is non-contact respiratory monitoring, which is an activity of monitoring respiration without direct contact to the human body, making it more practical and efficient. UWB technology has an important role in non-contact respiratory monitoring due to its wide bandwidth, high data transmission speed, and non-ionizing radiation that secure when it penetrates through the bilogical tissue.

Antenna is one of the important components in non-contact respiratory monitoring. It takes a small size antenna, so it is more practical if needed with other supporting devices. The UWB antenna at the frequency of 5.8 GHz with the standard UWB bandwidth and the radiation pattern from the antenna is unidirectional, according to its function, which can only detects the human chest. Antenna design is done by using software simulation and realized using FR-4 Epoxy as a substrate with dielectric constant εr = 4.6 and thickness h = 1.6 mm. The antenna simulation results work at the center frequency of 5.8 GHz, with a bandwidth of 1.2639 GHz so that this antenna can be categorized as ultra wide band, gain of 4.477 dB, and unidirectional polaradiation. In the antenna that is realized and carried out by measurement, both the return loss and VSWR value are below -10 dB and 2. Bandwidth is 572.3 MHz and the gain is 3.957 dB.

Keywords: Ultra Wide-Band, Non-Contact Respiratory Monitoring, Radar, Microstrip Antenna