

## ABSTRACT

The lungs are vital organs in the respiratory system that help carry oxygen into the body and transmit carbon dioxide. Based on data from the World Health Organization (WHO) in 2020, stated that lung disease, especially lung cancer is the third most common disease in the world, so it is necessary to check the condition of the lungs so it's possible for early mitigation if there is a problem with the lungs.

One of the early detection tools that can be an alternative is radar-based FMCW technology (*Frequency Modulated Continuous Wave*) which is a radar that emits low-power electro-magnetic radio waves, so it can express the degree of wetness of the lungs indicating whether the patient already has early, moderate or severe Covid-19 disease. Therefore, based on this, in this study will be made *Rektangular Microstrip* antenna on radar based FMCW technology.

Rectangular microstrip antenna was chosen because it has many advantages, among others relatively affordable, easy to fabricate, easy to paint, and easy to apply in a single configuration or stacking. Antenna design works at a frequency of 10 GHz with bandwidth above 60 MHz. Measurement results of 2 x 2 dual polarizing array antennas namely VSWR 1,139 and 1,079, Bandwidth 271 MHz and 314 MHz, Bidirectional Radiation Patterns, horizontal and vertical Polarization.

Keywords : Antenna array, mikrostrip rektangular, Array, radar FMCW.