

ABSTRACT

WiMax is the popular name of IEEE 802.16, also known as Air Interface for Fixed Broadband Wireless Access Systems, a standard wireless network technology (wireless) which is currently being developed. A WiMAX system consists of two parts, namely WiMAX transmitter and receiver antennas WiMAX. The transmitter antenna is a Coupler is realized on the working frequency of WiMAX.

Coupler is a passive multiport devices that each port can be a point of entry or exit point of the wave. Therefore, it can be concluded that the Coupler is an efficient tool because it can be used as a power divider or power combiner.

In this Final Project is designed and realized a Rat Race Coupler type Rat Race Ring Hybrid 180°-based microstrip. Coupler hybrid is a type of passive device consisting of four ports, namely port 1 is used as the incoming wave port (input port), port 2 as output (direct port), port 3 is as port isolation (isolation port), and port 4 is used to mengkopling (coupled port). In principle, the characteristics of the output signal between the port 2 and port 4 on the Coupler has a phase difference of 180 °. Working frequency range used in this device is the 5770 - 5830 MHz. In this Final Project is designed and realized a Coupler to the principle as a power divider. In designing software Ansoft Coupler is used as a simulator with the original specification is ≤ 1.5 VSWR, insertion loss ≤ 1 dB, coupling factor $\leq - 3$ dB, and isolation between ports of ≥ 20 dB.

Keyword : Coupler , Rat Race Ring Hybrid 180°