ABSTRACT

Campus TV IT Telkom has been officially launched in October 2010. It is modulated on the channel of 29 UHF at the frequency range of 534 MHz-542 MHz. Recently, Campus TV IT Telkom was broadcasted only on campus area by using coaxial cable media.

In this final project, a Power Divider will be used in a TV transmitter antenna system on the campus TV network of IT Telkom to divide the power portion of the transmitter antenna. The power divider it self is a Power Divider 1 to 3 by using rigid coaxial quarter wavelength transformer method. Previously known, antenna that is used as a transmitter antenna is sectoral antenna which is comprising three antenna having unidirectional radiation pattern. The specifications that must be filled are: frequency of 534 MHz-542 MHz with maximum VSWR is 1.5:1, return loss is less than equal to -20 dB, and insertion loss is less than equal to 1.0 dB. Power divider transmission line is made of brass (inner) and air as the dielectric (outer).

The Power Divider is designed and realized by calculating the power divider dimensions theoretically and then using Ansoft HFSS 11 software as a simulation tool prior to fabrication. Parameters measured on the Power Divider test is the return loss and the insertion loss. Results obtained from measurements at the frequency of 534 MHz-542 MHz is return loss of -21,171 dB so that the VSWR could be 1.191, with maximum insertion loss 0,17 dB. From the measurement results can be concluded that the power divider is able to work well on its frequency.

Keyword : power divider, TV transmitter antenna, rigid