

ABSTRACT

Application of telecommunications technology to meet the needs of the community is still constrained due to the condition of an area, not all communications can cover remote areas. To reach these areas can be anticipated using satellites, in satellite communication, there are sending and receiving sides. In this Final Project design on the receiver side is the simulation of low noise amplifier vsat c-band using the single stage amplifier method. This final project is limited to designing a low noise amplifier with the results of the parameters of reinforcement, noise figure and stability factor. Low noise amplifier is a device that serves to amplify the RF signal received, the goal is that the signal can be received well with a small noise value. In this design using ATF55143 IC as an active component of its reinforcement. The choice of a transistor is because IC ATF55143 has a high linearity value, and has a small noise figure value. Making low noise amplifier circuit using 2019 Advanced Design System (ADS) simulation software that can display the gain value, noise figure and stability factor. From the simulation results that use calculations have a value of reinforcement produced at 3.9 GHz working frequency of 18,440 dB, with noise figure values at 3.9 GHz working frequency of 0.715 dB, and K-factor value of 1,001, while the results of simultaneous conjugate match are able produces a gain at a working frequency of 3.9 of 18.474 dB with a noise figure of 0.715 dB and a K-factor value of 1.009. The highest gain value is at a frequency of 3.9 GHz because the minimum S11 value is at a frequency of 3.9 GHz, using the values of Zs and ZL obtained under simultaneous conjugate match conditions produce a gain value of greater than 0.034 dB than using the calculation method.

Keywords : Low noise amplifier, Gain, Noise fiugre, K-factor