

## **ABSTRACT**

*The development of telecommunications technology, especially cellular communications is increasing, cellular use shows more than 50% of voice calls and 70% of data usage is in the room. Increasing cellular users require operators to increase network capacity. One solution to increase network capacity is by applying Femtocell. Femtocell or Home eNodeB (HeNB) has high quality voice and data services. However, like other communication networks, femtocells have a disadvantage, namely the existence of so much interference that can affect the process of sending data.*

*One solution to overcome the interference problem is an interference management scenario using the Adaptive soft frequency reuse (ASFR) method. ASFR is a development of Soft frequency reuse (SFR) techniques, but in ASFR the channel distribution is adjusted to the user needs of each cell that dynamically optimizes subcarriers and power allocation to increase system capacity. ASFR aims to increase the system throughput of a cell by taking into account the environmental conditions of the cell. In this final project, comparative analysis of throughput and SINR value with two scenarios in femtocell. In the first scenario the femtocell is placed on the cell edge and in the second scenario the femtocell is placed on the cell edge and cell center.*

*After the simulation in scenario 1 and scenario 2, the highest SINR value and the highest throughput value were obtained on the ASFR method. In scenario 1, the average throughput value increases from 127.575Mbps for SFR and 159.501Mbps for ASFR. In scenario 2 there is an increase in the average throughput value of SFR 143,094 Mbps and the ASFR method gets 168,553Mbps.*

**Keyword :** *Interference Management, Adaptive soft frequency reuse, femtocell, Throughput*