

ABSTRACT

Intercell Interference (ICI) is always a Problem In Performance Degradation in LTE Technology. Overcoming ICI problems in LTE, it is used Interference management techniques that is the frequency of reuse. One type of reuse freuensi is SFR which divides the cell into 2 parts ie inner cells and outer cells with different power levels. Conventional SFR techniques have a weakness that is not dynamic to user density. With the Dynamic Soft Frequency Reuse (DSFR) technique, the DSFR system will dynamically adjust the cell load.

In this final project, we analyze the process of optimizing subcarrier on cell outer for LTE network with Dynamic Soft Frequency Reuse (DSFR) method. In addition, in this study wanted to prove that the DSFR technique can improve the performance of the system by adjusting the number of subcarriers. The DSFR technique is the development of the SFR technique because the SFR technique is poorly assessed in addressing uniform user deployment and the dynamics of user density on every cell outer in a cluster that results in a performance decline within a cluster. This technique is a development of the SFR technique because SFR improves the cell throughput capacity but not the Cluster throughput capacity.

The DSFR technique has better throughput quality and capacity compared to SFR techniques. The average SINR value on a system of 60 users on the DSFR is worth 9,372 dB while the SFR technique only gets an average of 1,1973 dB. For the average data rate per user of the DSFR technique get 1.0118 Mbps while for SFR only get the value 0.6493 Mbps. But in cell power consumption, in SFR technique the highest power consumption of cell is 17.6 W while in DSFR technique the highest cell power consumption is 23.66 W. with the technique of DSFR throughput capacity rose by 63.8268 Mbps, and power consumption increased by 74%.

Keywords: LTE, D-SFR, SFR, ICI, ISI, Edge Cells, Subcarier