## ABSTRACT

LTE uses Orthogonal Frequency Division Multiple Access (OFDMA) to support high data rate, however on the other hand it causes increase in Intercell Interference (ICI) as well. Thus, we need a technique to reduce ICI. Management of interference is the solution designing for LTE network to reduce intersymbol interference (ISI) and Intercell interference (ICI) using the frequency reuse schemes which has the objective to maximize the coverage area and provide more capacity in cells, especially in cell edge.

Based on those propositions, this final project analyzes the process of optimizing subcarrier and power allocation for wireless networks with multi-level soft frequency reuse (ML-SFR). In this case, LTE network planning has to maximize the coverage area of the Cimahi city, especially for maximizing the user in cell edge to obtain a good performance.

The result from this final project is that ML-SFR has BLER 0,01 which is smaller than SFR method that has BLER of 0,04. The result of C/(I+N) of each area using the ML-SFR is 6,46 dB while using SFR is 2,05 dB, throughput of ML-SFR is 15.970,14 kbps while throughput of SFR is 13.548,06 kbps. The result from signal level using ML-SFR is -52,63 dBm, on the other hand the signal level using the SFR is -65,14 dBm. Multi-level soft frequency reuse (ML-SFR) has a better performance because it was able to increase quality by coverage 0,03, increase throughput to 2.422,08 kbps, increase C/(I+N) to 4,41 dB and increase signal power level as well to 12,51 dBm. Based on the analysis that has been done in this final project, the ML-SFR method is more appropriate to be implemented in the city of Cimahi.

Keyword : LTE, ML-SFR, SFR, ICI, ISI, Cell Edge,