ABSTRACT

This study conducted LTE FDD network planning using the FFR scheme in the Kebumen area. To provide a high quality service to users, a design is needed. LTE FDD networks using the FFR scheme are a design that can overcome the interference problems that occur and the traffic requirements for network users. One characteristic of cellular networks is the ability to use frequency spectrum efficiently and increase coverage capacity. By using the FFR scheme it is expected that network quality and service coverage issues can be overcome. This study conducted several stages, namely the analysis of existing conditions, the planning stage based on coverage and capacity, the stage of using the FFR scheme, the simulation testing stage, and finally the analysis phase of the simulation test results. The results showed that simulations for LTE FDD network planning before FFR obtained an average value of DL RSRP = -77.8 dBm, CINR = 9.61 dB, throughput = 1,490.78 Mbps and user connected = 66.8%, whereas with FFR scheme obtained an average value of DL RSRP = -77.75 dBm, CINR = 24.16 dB, Throughput = 2,229.37 Mbps and User connected = 88.3%. Based on the standard key performance indicators (KPI). From the LTE network planning the FFR scheme reaches the KPI standard ie the average throughput reaches ≥ 12 Mbps and user connected = 90%. The FFR scheme LTE network can be implemented in the Kebumen region, because it can be a solution to the limitations of the spectrum of operators as well as network performance generated both in terms of coverage and capacity.

***Keywords**: LTE, FDD, Fractional Frequency Reuse.*