ABSTRACT

A high speed internet service is wanted by every user. The high mobility inside the building cause the decreasing of data communication's speed, because it is not covered well by BTS. Therefore, we need a system than can be used indoor to overcome the problems. Femtocell is the answer for the problems. In the making of femtocell, calculation of link budget take an important part, so that the result is optimum and efficient. Calculation of link budget in the indoor network concern in loss and gain from Femtoccel Access Point (base station) to user.

In designing the femtocell, we need to calculate the capacity and link budget, simulate the research by using RPS (Radiowave Propagation Simulation) software, and use an indoor propagation model, COST 231 Multiwall. COST 231 Multiwall propagation model is fit to use in the finishing of the research because it counts the loss that separated in room. The loss is consist of the barrier walls and the number of floors.

Using the calculation of capacity, there are 19 FAP that will be implemented in IM Telkom. Besides, by using the calculation of link budget there are 20 FAP that needed to cover IM Telkom building. The measuring shows that IM Telkom has a very poor signal quality for the internet service, -101, 05 dBm. Therefore, this research is feasible to be implemented, because it can produce a quality that accomplish the standard of KPI by using the best scenario (2nd scenario) and produce the average quality for each floors (57,708 dBm).

Keyword : femtocell, link budget, COST 231 Multiwall, indoor