

## **ABSTRACT**

*Buah Batu Apartment is densely populated buildings. Consists of 16 floors with a very high and thick wall layer causes the signal reception is not good for the user that is in the building. Indoor users who packed the large buildings are often received UMTS signal quality is poor. The need for good indoor design in order to be a solution for many Internet users whose access is done inside the building. One of those solutions is Femtocell that requires the link-budget calculation for the optimum and efficient result.*

*In performing design calculations carried through in terms of capacity and link budget, using software simulation RPS (Radiowave Propagation Simulator) and propagation models are suitable for the design of the COST 231 Multiwall loss scattered attention of the room. The loss in the form of wall and floor number. Allocation of primary scrambling code is also important because the primary scrambling code is the identity of a cell in WCDMA.*

*By using a transmit power of 13 dBm (according to the specifications FAP) MAPL calculation result is 121.16 dBm and 96.46 dBm after dimensioning, getting as far as 10.61 m transmit power and coverage area of 292.85 m<sup>2</sup>. Calculation of coverage in terms of generating 33 access points were in terms of the capacity of producing 34 access points. But that will be used in the design are 34 access points look of user capacity needs more densely on the 13th floor. Allocation of primary scrambling code itself amounted to 34 numbers, according to the number of access points, because there is no division of sectors in each cell.*

**Keywords : UMTS, femtocell, link budget, COST 231 Multiwall, primary scrambling code.**