

## ABSTRACT

Handover process happens when the quality/power level ratio decreases under the specification from BSC/RNC. Inter-system handover (ISHO) is one kind of handover, it happen between the cells that have 2 different Radio Access Technology (RAT) or Radio Access Mode (RAM). The most condition that happens for the first type is between GPRS and HSDPA system.

By system modeling using Matlab R2009a software, found out the output value such as the best combination of RSSmin and RSCPmin, Handover Margin (HOM), Time to Trigger (TTT), Dropping Probability, Bit Error Rate (BER) and Throughput. Speed movement, bit of data that being accessed, arrival direction, and RSSImin and RSCPmin combination affect the success rate of inter-system handover. In this paper, the parameters that being used are the user's speed movement variation from 20 km/hour until 200 km/hour, the combination of RSSImin -86 dBm until -91 dBm and RSCPmin -82 dBm until -87 dBm, TTI 0.1s and random angle between  $5^0$  and  $55^0$ .

In the analysis result shown that the best RSSImin and RSCPmin combination based on dropping probability is RSSImin= -91 dBm and RSCPmin= -87 dBm. Result shown that at low velocity (20 km/hour), HOM value is small (17,9 dB), TTT is big (110 second), dropping probability is small (0), BER is small (0.0003857421875), and throughput is big (10236.05 bps). At the high velocity (200 km/hour), HOM is big (19,4 dB), TTT is small (12 s), dropping probability is big (0,24), BER is big (0.0051708984375), and throughput is small (10187.05 bps). Result also shows that when the data being accessed by user is small (10240 bit), BER value is 0.002 and throughput value is smallest (10219.036 bps). When the data being accessed by user is big (40960 bit), BER value is 0.002 and throughput value is biggest (40877.49 bps). Found out also that higher user speed movement gain higher HOM value, lower TTT value, higher dropping probability, higher BER and lower throughput. Higher bit data rate that being accessed by user also gain higher throughput value and stable BER

**Keywords: GPRS, HSDPA, inter-system handover, RSSImin, RSCPmin, HOM, TTT, Dropping Probability, BER, throughput**