

ABSTRACT

Today, wireless and mobile communications technology is developed very rapidly. Various telecommunications technology has been developed not only for voice, but also for the image (and video) and data with a high mobility rate. Human need for communication demands the technology to develop communication systems that are flexible, can move freely and high technology, therefore, a new technology was developed; HSDPA and WIFI 802.11b. High Speed Downlink Packet Access (HSDPA) is a technology in mobile telecommunication systems issued by the 3GPP Release 5 and is a 3.5-generation technology (3.5 G). HSDPA has a data packet-based service. WIFI or Wifeless Fidelity, a variant of information and communication technology that works on the network and device WLANs. WIFI 802.11b is a technology that is able to support user mobility or displacement.

User's mobility demands service continuity in the telecommunication network to stay maintained, and therefore needed a reliable handover mechanism. Handover is an important aspect in cellular radio systems to ensure the current relations will continue to exist, even if the user moves the position, so there is no dropping in the system. Handover does not only happen on the same system or technology, but also possibly occurred on different systems known as vertical handover.

In this thesis, simulated vertical handover mechanism between HSDPA to WiFi 802.11b is based on user movement and analyzed the dropping probability, handover margin, and BER. From the simulation results obtained by a combination of the best threshold is $RSCP_{min} = -87$ dBm and $RSSI_{min} = -69$ dBm, with a probability value dropping on speed 10-100 Km / Hour = 0, Handover margin (HOM) 22.092 dBm at a speed of 10 km / hour and 23.457 dBm at a speed of 100 Km / Hour. As for the BER of the data used at a speed of 10 Km / Hour BER *voip* = 0,002125, *web browsing* = 0,003875, and *video streaming* = 0,0028594. For speed of 100 Km / Hour BER. *voip* = 0.021875, *web browsing* = 0.02, dan *video streaming* = 0.0190625

Keyword : HSDPA, WIFI, Vertical Handover