ABSTRACT

CAPACITY ANALYSIS OF SHORT MESSAGE SERVICE (SMS) AND THE PROBABILITY OF PACKET LOSS ON EARLY WARNING SYSTEM WIRELESS

By

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In this study designed a wireless early warning system and examine how to tackle the communication errors or delays in information received by the operator by analyzing traffic and Blocking Probability SMS (Short massege Service) on a wireless early warning system in the fluid tank. The early warning system is running well and working on the volume of water droplets of ± 0.5 ml.

Based on calculations of SMS Blocking Probability, and based on the number of SMS subscribers increases, Blocking Probability increase as well. At the number 8448 SMS subscribers SMS Blocking Probability its 0.0093% and current customer number 11520, SMS Blocking Probability its 0.1719%.

In the Probability Packet Loss affected BER Probability. BER Probability calculation using the modulation that is 16-QAM (with code rate ½ and ¾) and 64-QAM (with code rate 2/3 and ¾) is affected by distance UE to BTS. Distance is influential because the BER Probability calculation use Walfish-Ikegami propagation model to calculate Pathloss. At a distance of 0.2 km BTS UE and Packet Loss Probability using 16-QAM modulation ½ of 2.55×10^{-14}, 16-QAM ¾ modulation of 1.14×10^{-14}, 64-QAM 2/3 modulation of 3.05×10^{-9}, and 64-QAM ¾ of 2.94×10^{-9}. Packet Loss value of 16-QAM is smaller than the 64-QAM bits used due to different values, 16-QAM using 4 bits while the 64-QAM using 6 bits.

Keyword: Early warning system, Blocking probability SMS, Probability Packet loss, Probability BER.