Abstract

Poor GSM coverage area and dead spots are problems facing GSM engineers and users. This issue should be met during system design when path loss calculations are carried out. It is most informative that a model is required to improve signal strength, help in planning better mobile wireless network and to address the poor quality of mobile network services in metropolitan areas caused by propagation pathloss. In this study, a Fuzzy Logic Adaptive Min-Max Model (FLAMM) for pathloss prediction is developed. Experimental pathloss measurement was carried out in a Non urban region in Lagos Nigeria. The Received Signal Strength level obtained from the FLAMM model was subjected to adequacy check in order to ascertain the viability of the model. The results show that the fuzzy model is close in value to the original measured value. This suggests that the proposed fuzzy model produces an acceptable approximate value for pathloss measurement. The fuzzy-based method of this research is more efficient, faster and accurate than the physical and empirical methods. The evaluation of the pathloss criteria shows that the system can effectively model pathloss mobile network and the different measured input values and their respective output shows that the model is robust enough for the evaluation of
probable degree of variation of pathloss conditions in mobile communication.

References


Index Terms

Computer Science Fuzzy Systems

Keywords
Path Loss, Fuzzy Inference System, Min-Max, Mobile Network.