INDOOR PROPAGATION MEASUREMENT AND PREDICTION
FOR GSM 1800

ABD IDRIS B. ABDUL RAHIM

FACULTY OF ELECTRICAL ENGINEERING

UNIVERSITI TEKNOLOGI MARA

MALAYSIA

INDOOR PROPAGATION MEASUREMENT AND PREDICTION FOR GSM 1800

This Project Report is presented in partial of fulfillment for the award of Bachelor in Electrical Engineering (Honours)

UNIVERSITI TEKNOLOGI MARA

ADE KADRIS BIN ABDUL RAHMAN
Faculty of Electrical Engineering
UNIVERSITI TEKNOLOGI MARA
40450 SHAH ALAM
SELANGOR DARUL EHSAN

ACKNOWLEGMENT

ABSTRACT

Indoor wireless communications systems are becoming increasingly demanding in work environment. This will require improved in-building coverage and traffic capacity by the introduction of indoor microcells and dedicated wireless indoor system. To provide a good quality network, the role of predicting and simulating the network is crucial. Each of planning tool has its own propagation model reference. Therefore, to design the network, the propagation models need to be understood and the considerations on the propagation hazards need to be identified so that the system can overcome them. Since that the propagation model were developed based on the experimental measurements done at the building condition and environment different from the desired network condition, it is needed to be study either the model is compatible with the desired environment. From the analysis of the comparison between the predicted network coverage with the actual condition of the network, conclusion on the result either the propagation model applicable for the specified GSM 1800 network will be made and the accuracy of the prediction can be determined. To address the prediction and measurement of the indoor propagation model, three different situation and condition of in-building setting were chosen; conference or ballroom, shopping complex corridor, and college campus or office area. It has been found that the indoor propagation prediction based on the Ericsson Multiple Breakpoint Model has a standard deviation of $\sigma \pm 8.4$ dB as the average of all the three models, for the situation where one antenna transmitting in a one floor condition. With combination of a specific number of antennas placed at different location it has been found that it can serve coverage for more than 95% of the model site.

TABLE OF CONTENTS