COMPUTERIZATION OF SIGNAL STRENGTH MEASUREMENTS FOR MOBILE TELEPHONE SYSTEM

Thesis is presented to fulfill
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ABSTRACT

The computerisation of signal strength measuring equipment for mobile telephone system in a moving vehicle involves the design of hardware and development of software which will be the interface between the radio equipment and the personal computer. With this, the collected data during field measurements can be stored in a diskette and processed later. For signal strength measurement the main objective is to have two kind of results :-

- graph of signal strength versus distance
- graph of signal strength versus time

For Case 1, this is the condition where data is collected at the same time when the vehicle is moving. From this data the graph of signal strength versus distance is plotted.

For Case 2, this is the condition where data is collected when the vehicle is not moving especially at a junction or when standstill in a heavy traffic. The data collected will be plotted as signal strength versus time.

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1 INTRODUCTION

The use of computer system either to control or simulate a process of an automatic electronics system has been extensively applied in most areas of technology such as in bio-medical and telecommunication engineering .

For example, the electronics, digital and computer system technology have significant impact on the growth and expansion of the communication systems especially after the introduction of the mobile telephone into global communication market.

Currently, Telekom Malaysia carries out the measurement of the signal strength for mobile radio manually where the raw data are displayed on a liquid crystal display at the receiver (SR/SU Unit 9046M). The data are collected manually and then entered to the computer for future analysis purposes such as Cellular Planning. This type of measurement is unreliable due to inconsistency and human errors while measuring and reading the signal. So it gives limited information on the signal strength of the specific radio signal coverage area .

FIGURE 1.1 shows the block diagram of how the measurement is carried out at present by the operator.