EVALUATION OF KERETAPI TANAH MELAYU BERHAD (KTMB) TRAIN RADIO SYSTEM

Project ilmiah presented in partial fulfillment for the award of the
Bachelor of Electrical Engineering (Honours)
UNIVERSITI TEKNOLOGI MARA

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November 1999.

ACKNOWLEDGEMENT

Alhamdullilah, I wish to express my gratitude to the entire individual who have responded and also give valuable contribution to this research throughout the completion of this final year thesis.

I would like to express my highest appreciation to my supervisor, Associate Professor Dr. Deepak Kumar Ghodgaonkar for his guidance and willingness in sharing knowledge, ideas and advice in making this thesis a reality. My sincere thanks to all the KTMB communication and signalling staff, especially to En Rani and En Abdullah for their assistance and full co-operation towards the success of this thesis. Not to forget my advisor Mr Ole Vinther and Raja Azizi for the information on Radio Communication in KTMB.

Finally, I acknowledge with honour my parent Aziz bin Majid and
my brothers and friends for their immerse support and advice. Hope the experience and knowledge during the research that I gain will be useful in the future.

ABSTRACT

This project thesis presents the evaluation of the radio communication system applicable to the mobile UHF systems. This system will be based upon the KTMB Train Radio System. Basically KTMB uses both analogue and digital system to transmit the signal.

The main objective of this project is to study the operation of a train radio UHF mobile communication system and to evaluate the performance of the signal strength between base stations and to measure the reflected and forward power. This measurement will determine the voltage standing wave ratio (VSWR). The importance of the VSWR is that it gives a relative indication of just how much power is lost in the transmission line.

In mobile communications, the field strength is the most important parameter. It is important for design, appraising and inspections of mobile communication and also to provide sufficient coverage areas ensuring reliable and efficient communication.

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CHAPTER 1

INTRODUCTION

1.1 General

In comparison to the relative stability and modest technical developments, which are occurring in long haul wideband, microwave communications, there is rapid development and expanding deployment of mobile communication systems [1]. These range from wide coverage area, for simple data message transmission, through to sophisticated system, which employ common standards and hence achieve contiguous coverage over large geographical areas.

In mobile communication, the cover scope of the field strength is important technology target. For the complex nature of topography and the complex nature of the radio wave propagation, only using the theoretical calculation cannot meet the demands. So field strength measurement is absolutely necessary in the design, appraising and inspection of land mobile communication system. The field strength of mobile communication is a random quantity, which changes with time and place, it cannot be expressed by the measurement value of fixed place [2].

Terrestrial mobile radio works best around 250 MHz as lower frequencies than this suffer from noise and interference while higher frequencies 800 MHz experience multipath propagation from building etc. The main need for voice communications is hampered by the environment (multipath propagation, ignition noise, fading etc) and by the limited choice of signalling with radio frequency available.

There are various modes of operation for mobile radios networks, the simplest of which is single frequency simplex. In simplex communication, traffic is broadcast, or one way. For half duplex where, at the end of each transmission period, there is a handover of a single channel to the user previously receiving,