

FINAL YEAR PROJECT REPORT
ADVANCED DIPLOMA IN ELECTRICAL ENGINEERING (communication)
MARA INSTITUTE OF TECHNOLOGY
SHAH ALAM, SELANGOR DARUL EHSAN

PERSONAL EARTH STATION (PES)
USING VSAT TECHNOLOGY

BY

ADZMAN SHAHIDI ABD. WAHID
BARUDIN SULAIMAN

(At Wangsa Maju Earth Station)

November 1992

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ACKNOWLEDGEMENTS

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Acknowledgements

This project was done with the full support of VSAT engineer and technician at Wangsa Maju earth station. For the four months period from August to Nov.92 we were involved in installation, testing and commissioning of four PESS (personal earth station) and have been successfully operated. So, may Allah bless them for their invaluable help.

Special thanks to our advisor Mr. Alameddin Sari Kaddoura for his support and guidance throughout the project. We would like also to express appreciation to Telekom Malaysia Berhad and the Electrical Engineering Department in the School of Engineering, MARA Institute of Technology for giving us the opportunity to undertake this project.

Preface

The potential of Satellite Communication is so great that it can change the entire fabric of society. In the 1990's decade the development of Satellite Communication in Malaysia seems to be established to the up-to-date technology. Telekom Malaysia has taken this opportunity to enhance the utilisation of Satellite communication for local users.

With the (introduction of VSAT) technology which uses small antennas to receive mail, voice, data, television and computer communications via satellite, Malaysia will one of the advanced countries in providing telecommunication services.

The scope of our project is to install, test, and commission a PES system for voice and data communication.

1.0 SATELLITE COMMUNICATIONS

1.1 Introduction

Arthur C. Clarke, author of many books on exploration, wrote in *wireless world* in 1945 that a satellite with a circular equatorial orbit at a correct altitude of 35,786 Km would make one revolution every 24 hours, that is, it would rotate at the same angular velocity as the earth. An observer looking at such a geostationary satellite would see it hanging at a fixed spot in the sky. He showed that three geostationary satellites powered by solar energy could provide worldwide communications for all possible types of services.

Clarke's vision became a reality 20 years later when the International Telecommunications Satellite Organization (INTELSAT), established in 1964, launched the Early Bird (INTELSAT 1) in April 1965. INTELSAT satellites cover three regions, that is, Atlantic, Pacific and Indian Ocean.

In considering which is the best communication medium for any system, communication engineers have to consider many factors, the differences, advantages and disadvantages of using terrestrial or satellite communication. The following are the characteristics which makes satellite communication more attractive than terrestrial communication systems.