

UNIVERSITI TEKNOLOGI MARA

**UNDERWATER ANTENNA DESIGN CHARACTERIZATION
FOR TROPICAL SHALLOW WATER
OILFIELD APPLICATION**

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ABSTRACT

This project presents the design characterization of underwater antenna for oilfield applications. The design specification is focused on Tropical Shallow Water environment to suit with Malaysia's Oil and Gas industry where majority of the oilfields are located within this region (depth between water surface and seabed is less than 500 feet).

Antenna design plays an important role in underwater communication system to ensure for high efficiency of data transmission. However, only a few researches conducted the studies on basic seawater properties and in minimum water depth (few meters from water surface). Hence, these two significant elements will be analyzed and discussed further in this project.

Firstly, characteristics of sea water at this region were studied and related properties were taken into consideration in designing the desired underwater antenna. The antenna then was subsequently modelled, simulated and optimized in CST software and the results are presented in this thesis. Circular Bow-Tie type was selected as the antenna's final design due to its good performance in underwater environment.

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