**ANALYSIS OF ACOUSTIC CHANNEL MODEL CHARACTERISTICS IN DEEPSEA WATER**

A Mini Project Report submitted in partial fulfillment of the requirement for the award of the degree of

##### BACHELOR OF TECHNOLOGY

IN

ELECTRONICS AND COMMUNATION ENGINEERING

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### CERTIFICATE

This is to certify that the project entitled “***Analysis of Acoustic Channel Model Characteristics in Deepsea Water”*** is being submitted by **M. Mamatha** (19PA1A0494), **N. Sandeep** (19PA1A04B6), **K. Venkata Sai Vinay Kumar** (19PA1A0469), **N. Vinay Venkat** (19PA1A04B9) and **K. Mahima** (19PA1A0477) in partial fulfilment for the award of the degree of **Bachelor of Technology** in Electronics and Communication Engineering is a record of bonafide work carried out by them under my guidance and supervision during academic year 2022-2023 and it has been found worthy of acceptance according to the requirements of the university.

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**ANALYSIS OF ACOUSTIC CHANNEL MODEL CHARACTERISTICS IN DEEPSEA WATER**

**Abstract**

Undersea acoustic communications have drawn a lot of attention recently as their uses start to transition from military to commercial.The acoustic properties of the ocean are characterized by their tremendous complexity and dynamic nature. The parameters such as; depth, temperature, salinity, location, time of day, and season of the underwater medium influences the acoustic signal propagation. However, these medium parameters are varying arbitrarily depending upon shallow and deep-water divisions of the ocean. In addition to the medium parameters, the characteristics of the acoustic channel (transmission loss, absorption and multi-path) are affected by variation in the acoustic signal speed in underwater. The influence of the aforementioned parameters alters the velocity of acoustic transmission, which affects network connectivity. Because research in the undersea environment is expanding rapidly, proficient channel modelling is required to demonstrate the effect of sound speed variations with respect to medium parameters. As a result, an acoustic channel has been modelled in this work, which analyses the sound speed variation in deep water with respect to underwater medium parameters. In addition, the proposed model evaluates absorption and transmission losses in a deep-water scenario.

**Keywords:** Absorption, Acoustic Channel, Deepsea, Sound Speed, Temperature, Transmission Loss, Salinity.

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