**Underwater Source Separation Using Time-Frequency Independent Component Analysis in Semi-Anechoic Water Tank**

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***Abstrak*  - The experiment of source separation in sea water environment often faced difficulties especially for controlling certain variables. One of the upcoming solution to simplify sea water environment was to conduct the experiment in the anechoic water tank. To evaluate the effects of the experiment performed in the water tank, the comparison of source separation using linear mixture and in-tank mixture will be analyzed. The source separation was performed in three different methods, Time Domain Independent Component Analysis (TDICA), Frequency Domain Independent Component Analysis (FDICA), and Time-Frequency Domain Independent Component Analysis (TFICA). The experiment result showing that compared to the linear mixture source, the performance of source separation degrade significantly while performed on the water tank, indicated by the MSE value which increased from to . This result showing that the source mixture that occurred in water tank, much more complex compared to the linear mixture.**

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***Keyword – Underwater Acoustic, Semi-Anechoic Water Tank, Blind Source Separation, Independent Component Analysis.***