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A torpedo detection and 3-D tracking system

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Ship torpedo defence systems are ideally based on 3D information of incoming torpedoes. Therefore a Torpedo Detection and Location (TDL) sonar system has been designed based on a transmitting transducer, two receiving arrays and optimal signal processing with 3D-tracking capabilities with optimal estimation. The transmitted signal is a chirp. The signalprocessing with intrinsic beamforming is based on the phase of the signal and on optimal estimation (Kalman filtering). For testing the capabilities of such a design a test system on detection and tracking of a torpedo-like object in the atmosphere has been developed. Some figures about its capability, which can be extrapolated to underwater situations, will be given.