

## **RESEARCH INTO THE FEASIBILITY OF HIGH BANDWIDTH UNDERWATER DATA TRANSMISSION**

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Currently high bandwidth electronic data communication in a submarine environment is usually performed by means of cables. This poses practical problems for dynamic applications like video links with divers and Remotely Operated Vehicles (ROV's). Cables can get tangled or swept away by water currents.

As such research into fast wireless communications has great merit. This research focuses on novel techniques to achieve data rates sufficient to carry digital video data over a distance of about a kilometre.

The main research focus is on the application of Orthogonal Frequency Division Modulation (OFDM) on an acoustic underwater link and application of MPEG-4 or H.264 coding on this channel to achieve sufficient image quality.

The research is supported by empirical experiments with a mobile test rig and computer simulations. The final goal is to prove the feasibility of a video communication system for underwater applications at a reasonable technical price.

### References

- Pelekanakis C., M. Stojanovic and L. Freitag. 2003. High rate acoustic link for underwater video transmission. Proc. IEEE OCEANS'03 Conference, San Diego, CA, September 2003.
- Nissen I. 2005. Pilot-based OFDM-systems for underwater communication applications. Turkish International Conference on Acoustics.