Acoustic Emission and Reception Unit (AERU)

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Abstract: This document describes a data acquisition/data generation system, which consists of a portable waterproof case with all the integrated electronics. It features a high power battery, a precision DAQ board, a state-of-the-art GPS board and a complete computer system. Acquired data can be stored in the internal hard drive and download into another storage device or directly to another computer using the Ethernet connection. It is intended to be used with the Portable Acoustic Source Unit (PASU) for acoustic data transmission and with single or multiple hydrophones for acoustic data acquisition. The system also features a easy and ready-to-use graphical user interface that allows the user to use the system using the integrated LCD touch screen. A user manual is included as an installation, setup and maintenance guide for the system and its practical applications. The developed hardware and software is described in detail. Detailed schematics and designs can be found in the final section of this document, which can be used to further develop the system, perform maintenance, purchase spare parts or perform any type of modifications. A support equipment named OCU (Outdoor Communications Unit) is also described in this document. The OCU consists of a waterproof case that can be used to supply the AERU or the PASU and to add wireless connectivity to the AERU it can also provide a handy solution to charge the batteries of the AOB2 buoys in a wet deck environment.

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