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INTERNATIONAL STANDARD

colour inside

Internet of Things (IoT) – Underwater acoustic sensor network (UWASN) – Application profiles



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International Standard ISO/IEC 30143 was prepared by subcommittee 41: Internet of Things and related technologies, of ISO/IEC joint technical committee 1: Information technology.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
JTC1-SC41/150/FDIS	JTC1-SC41/161/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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INTRODUCTION

Water covers approximately 70 % of the surface of the Earth. Modern technologies introduce new methods to monitor the body of water such as pollution monitoring and detection. Underwater data gathering techniques require exploring the water environment, which can be most effectively performed by underwater acoustic sensor networks (UWASNs). Applications developed for the UWASNs can record underwater climate, detect and control water pollution, monitor marine biology, discover natural resources, detect pipeline leakages, monitor and find underwater intruders, perform strategic surveillance, and so on.

In order to build and apply the UWASN technology, the most suitable methods for managing the network have been developed based on the already proposed ISO/IEC 30140 series. This document describes the application profiles outline and requirements appropriate to the UWASN under the constraints of underwater physical environment.

The ISO/IEC 30140 series provides general requirements, reference architecture (RA) including the entity models and high-level interface guidelines supporting interoperability among UWASNs in order to provide the essential UWASN construction information to help and guide architects, developers and implementers of UWASNs.

This document provides the guidelines for designing and developing the UWASN application. It also provides other information such as the components required for developing UWASN application, modelling techniques for UWASN application and UWASN application profiles example.

Various technical standards derived from the R&D results of the technical areas under the UWASN and underwater communication fields not covered by the ISO/IEC 30140 series are continuously proposed and developed.

INTERNET OF THINGS (IoT) – UNDERWATER ACOUSTIC SENSOR NETWORK (UWASN) – APPLICATION PROFILES

1 Scope

This document provides the guidelines for designing and developing new applications in the underwater environment such as fish farming, environment monitoring, harbour security, etc. This document also:

- provides the components required for developing the application;
- provides instructions for modelling the application with examples;
- helps the user to understand the communication between the elements in the application for modelling the communication between elements;
- guides the user with the design process of underwater applications.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
application profile
set of documents which provides the effective guidance to develop a particular application

3.2
component
representation of an actor in a UWASN application profile

3.3
element
<of use case model> object used to connect the devices and networks in the underwater environment

EXAMPLE actors, use cases, relationships

3.4
element
<of sequence diagram model> essential part used to connect the devices and networks in the underwater environment

EXAMPLE class, execution place, lifeline