

INTERNATIONAL STANDARD



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



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CONTENTS

FOREWORD.....	5
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	7
3 Terms and definitions	7
4 Abbreviated terms	8
5 Overview of UWASN application profiles	8
5.1 Introduction to application profiles.....	8
5.2 Benefits of application profiles	8
6 Design process of UWASN application profiles	8
6.1 General.....	8
6.2 Criteria for the design process of UWASN application profiles	9
6.3 Design process steps for UWASN application profiles	9
7 Requirements for the design process of UWASN application profiles	9
7.1 General.....	9
7.2 User requirements of UWASN application profiles.....	10
7.3 General requirements of UWASN application profiles.....	10
7.4 Functional requirements of UWASN application profiles	11
7.5 Constrained requirements of UWASN application profiles	12
7.5.1 General	12
7.5.2 Connectivity.....	13
7.5.3 UWA-GW.....	13
7.5.4 UWA-DTN-GW.....	13
7.5.5 Housing case.....	13
7.5.6 Fouling cleaner.....	13
7.5.7 Node deployment.....	13
7.5.8 Battery.....	14
8 Modelling techniques for designing UWASN application profiles	14
8.1 General.....	14
8.2 Use case model	14
8.2.1 General	14
8.2.2 Elements of use case diagram	14
8.2.3 Relationships.....	15
8.3 Sequence diagram model.....	16
8.3.1 General	16
8.3.2 Elements of sequence diagram	16
8.4 Class diagram model	18
8.4.1 General	18
8.4.2 Elements of class diagram	18
9 Guidelines for the implementation of UWASN application profiles.....	19
9.1 Layered design approach for developing UWASN application profiles	19
9.2 Specific architecture for implementing UWASN application profiles	20
9.3 Framework for implementing UWASN application profiles	21
9.3.1 User interface	21
9.3.2 System calculation unit.....	22
9.3.3 Surface devices	22

9.3.4	Sensor node	22
9.4	Functional operations for implementing UWASN application profiles	23
10	Specialized maintenance for UWASN application profiles	24
Annex A (informative)	Application profile example.....	26
A.1	Fish farming.....	26
A.1.1	General	26
A.1.2	Guidelines for designing UWASN fish farming application.....	26
A.1.3	Requirements for the design process of UWASN fish farming application	27
A.1.4	Modelling techniques for designing UWASN fish farming application	30
A.1.5	Guidelines for the implementation process of UWASN fish farming application.....	32
Bibliography	38
Figure 1	– Actor representation examples	14
Figure 2	– Use case representation examples.....	15
Figure 3	– System boundary representation example	15
Figure 4	– Use case model for UWASN application profiles	16
Figure 5	– Object symbol in a sequence diagram	16
Figure 6	– Execution box symbol in a sequence diagram	17
Figure 7	– Lifeline representation in a sequence diagram	17
Figure 8	– Sequence diagram modelling for UWASN application profiles	17
Figure 9	– Representation of different sections in class diagram	18
Figure 10	– Class diagram modelling for UWASN application profiles	19
Figure 11	– Layer design approach	20
Figure 12	– UWASN specific architectural model	21
Figure 13	– Framework of UWASN application profiles	23
Figure 14	– Operation design approach	24
Figure A.1	– Use case model for fish farming application	31
Figure A.2	– Sequence diagram model for fish farming application	32
Figure A.3	– Layered design approach of fish farming application.....	33
Figure A.4	– Specific fish farming architecture	34
Figure A.5	– Framework for fish farming application.....	35
Figure A.6	– Operation design process for fish farming application	36
Table 1	– Steps for the design process of UWASN application profiles	9
Table 2	– User requirements of UWASN application profiles	10
Table 3	– General requirements for UWASN application profiles	10
Table 4	– Functional requirements for UWASN application profiles	11
Table 5	– Constrained requirements for UWASN application profiles	12
Table 6	– Relationship and symbols of use case diagram	15
Table 7	– Components for implementing UWASN application profiles	23
Table 8	– Operation process of UWASN application profiles	24
Table 9	– Key factors for monitoring UWASN application profiles.....	25
Table 10	– Components used for the maintenance of UWASN application profiles	25

Table A.1 – Steps for designing UWASN fish farming application.....	27
Table A.2 – User requirements for the design process of UWASN fish farming application	27
Table A.3 – General requirements for the design process of UWASN fish farming application	28
Table A.4 – Functional requirements for the design process of UWASN fish farming application	29
Table A.5 – Constrained requirements for the design process of UWASN fish farming application	30
Table A.6 – Operation design process of UWASN fish farming application	36
Table A.7 – Key components to monitor in fish farming application	37
Table A.8 – Components used for the maintenance of UWASN fish farming application	37

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

FOREWORD

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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