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INTERNATIONAL STANDARD

Internet of things (IoT) – Base-station based underwater wireless acoustic network (B-UWAN) – Part 1: Overview and requirements



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INTERNET OF THINGS (IoT) – BASE-STATION BASED UNDERWATER WIRELESS ACOUSTIC NETWORK (B-UWAN) –

Part 1: Overview and requirements

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ISO/IEC 30171-1 has been prepared by subcommittee 41: Internet of Things and Digital Twin, of ISO/IEC joint technical committee 1: Information technology. It is an International Standard.

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

Draft	Report on voting
JTC1-SC41/266/FDIS	JTC1-SC41/278/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1, available at www.iec.ch/members_experts/refdocs and www.iso.org/directives.

A list of all parts in the ISO/IEC 30171 series, published under the general title *Internet of Things (IoT) – Base-station based underwater wireless acoustic network (B-UWAN)*, can be found on the IEC website.

INTRODUCTION

Underwater network can play a major role in the underwater environment because approximately three quarters of the Earth is covered by water. Underwater network is important to deploy various underwater applications and services such as finding underwater pipeline leakage, detecting underwater climatic changes, monitoring water pollution levels, discovering underwater natural resources, monitoring and finding underwater intruders, performing strategic surveillance, and so on. Underwater network faces challenges due to constrained and time varying underwater environment, maintaining both stationary and mobile nodes, limited battery power, and managing a large number of sensors. Novel underwater communication methods are brought by emerging technologies to overcome these challenges. Base-station based underwater wireless acoustic networks (B-UWANs) can provide efficient communication and deployment in constrained underwater environment. B-UWAN follows centralized management to improve communication performance with a large number of sensors, stationary and mobile nodes, and to provide longer battery life.

This document describes the overview and requirements appropriate to the B-UWAN under the constrained underwater environment.

INTERNET OF THINGS (IoT) – BASE-STATION BASED UNDERWATER WIRELESS ACOUSTIC NETWORK (B-UWAN) –

Part 1: Overview and requirements

1 Scope

This document provides the general overview of base-station based underwater wireless acoustic networks (B-UWANs). It gives a detailed description of the main components of B-UWAN and also provides functions of B-UWAN components. It further specifies the requirements of B-UWAN.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 29182-2, *Information technology – Sensor networks: Sensor Network Reference Architecture (SNRA) – Part 2: Vocabulary and terminology*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 29182-2 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

4 Abbreviated terms

B-UWAN	base-station based underwater wireless acoustic network
CDMA	code division multiple access
CSS	chirp spread spectrum
OFDM	orthogonal frequency division multiplexing
UWA-BS	underwater wireless acoustic base-station
UWA-BSC	underwater wireless acoustic base-station controller
UWA-SNode	underwater wireless acoustic sensor node