



ISO/IEC 30171-1

Edition 1.0 2022-03

INTERNATIONAL STANDARD

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



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2022 ISO/IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about ISO/IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Secretariat
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 300 terminological entries in English and French, with equivalent terms in 19 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.



ISO/IEC 30171-1

Edition 1.0 2022-03

INTERNATIONAL STANDARD

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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 33.020

ISBN 978-2-8322-1096-1

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD.....	4
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references	6
3 Terms and definitions	6
4 Abbreviated terms	6
5 B-UWAN overview	7
5.1 General.....	7
5.2 Layered architecture of B-UWAN	8
5.3 Installation methods of B-UWAN	8
5.4 UWA-BSC communication system.....	10
5.5 UWA-BS communication system	11
5.6 UWA-SNode communication system	12
6 Requirements of B-UWAN	13
6.1 General requirements	13
6.1.1 General	13
6.1.2 Scalability.....	13
6.1.3 Device management	13
6.1.4 Low latency	13
6.1.5 Carrier frequency.....	14
6.1.6 Reliability.....	14
6.1.7 Availability	14
6.1.8 Safety	14
6.1.9 Security	14
6.1.10 Compatibility.....	14
6.1.11 Network monitoring and management	14
6.1.12 Support for other communication methods	14
6.2 Specific requirements of B-UWAN.....	14
6.2.1 General	14
6.2.2 Communication with terrestrial network.....	14
6.2.3 Centralized power management.....	14
6.2.4 Adaptive link management.....	15
6.2.5 Frequency and time resource management	15
6.2.6 Handover.....	15
6.2.7 Frequency reuse management.....	15
6.2.8 Multiple access.....	15
6.2.9 Inter-cell interference management.....	15
6.2.10 Sensor control and data management.....	15
Bibliography.....	16
Figure 1 – Overview of B-UWAN	7
Figure 2 – Layered architecture of B-UWAN.....	8
Figure 3 – B-UWAN installation with acoustic communication	9
Figure 4 – B-UWAN installation with wired and acoustic communication	9
Figure 5 – B-UWAN installation without UWA-BSC.....	10

Figure 6 – Overview of UWA-BSC communication system.....	11
Figure 7 – Overview of UWA-BS communication system	12
Figure 8 – Overview of UWA-SNode communication system	13