INTERNATIONAL STANDARD

ISO/IEEE 11073-10424

First edition
2016-06-15

Corrigendum 1
2018-01

Health informatics — Personal health device communication —

Part 10424:
Device specialization — Sleep apnoea breathing therapy equipment (SABTE)

TECHNICAL CORRIGENDUM 1

Informatique de la santé — Communication entre dispositifs de santé personnels —

Partie 10424: Spécialisation de dispositif — Équipement de thérapie respiratoire de l'apnée du sommeil (SABTE)

RECTIFICATIF TECHNIQUE 1

Reference number
ISO/IEEE 11073-10424:2016/Cor 1:2018(E)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Institute of Electrical and Electronics Engineers, Inc
3 Park Avenue, New York
NY 10016-5997, USA
stds.ipr@ieee.org
www.ieee.org

Published in Switzerland

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

IEEE Standards documents are developed within the IEEE Societies and the Standards Coordinating Committees of the IEEE Standards Association (IEEE-SA) Standards Board. The IEEE develops its standards through a consensus development process, approved by the American National Standards Institute, which brings together volunteers representing varied viewpoints and interests to achieve the final product. Volunteers are not necessarily members of the Institute and serve without compensation. While the IEEE administers the process and establishes rules to promote fairness in the consensus development process, the IEEE does not independently evaluate, test, or verify the accuracy of any of the information or the soundness of any judgments contained in its standards.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is called to the possibility that implementation of this standard may require the use of subject matter covered by patent rights. By publication of this standard, no position is taken with respect to the existence or validity of any patent rights in connection therewith. ISO/IEEE is not responsible for identifying essential patents or patent claims for which a license may be required, for conducting inquiries into the legal validity or scope of patents or patent claims or determining whether any licensing terms or conditions provided in connection with submission of a Letter of Assurance or a Patent Statement and Licensing Declaration Form, if any, or in any licensing agreements are reasonable or non-discriminatory. Users of this standard are expressly advised that determination of the validity of any patent rights, and the risk of infringement of such rights, is entirely their own responsibility. Further information may be obtained from ISO or the IEEE Standards Association.

ISO/IEEE 11073-10424 was prepared by the IEEE 11073 Standards Comittee of the IEEE Engineering in Medicine and Biology Society (as IEEE Std 11073-10427-2014/Cor 1-2017). It was adopted by Technical Committee ISO/TC 215, *Health informatics*, in parallel with its approval by the ISO member bodies, under the "fast-track procedure" defined in the Partner Standards Development Organization cooperation agreement between ISO and IEEE. IEEE is responsible for the maintenance of this document with participation and input from ISO member bodies.

IEEE Std 11073-10424™-2014/Cor 1-2017
(Corrigendum to
IEEE Std 11073-10424-2014)

Health informatics—Personal health device communication

Part 10424: Device Specialization—Sleep Apnoea Breathing Therapy Equipment (SABTE)

Corrigendum 1

Sponsor

IEEE 11073™ Standards Committee
of the
IEEE Engineering in Medicine and Biology Society

Approved 23 March 2017

IEEE-SA Standards Board

Abstract: Within the context of the ISO/IEEE 11073 family of standards for device communication, a normative definition of the communication between sleep apnoea breathing therapy equipment (SABTE) devices (agents) and managers (e.g., cell phones, personal computers, personal health appliances, set-top boxes), in a manner that enables plug-and-play interoperability, is established in IEEE Std 11073-10424-2014. It leverages appropriate portions of existing standards including ISO/IEEE 11073 terminology, information models, application profile standards, and transport standards. It specifies the use of specific term codes, formats, and behaviors in telehealth environments restricting optionality in base frameworks in favor of interoperability. IEEE Std 11073-10424-2014 defines a common core of communication functionality for SABTE. In this context, SABTE is defined as a device that is intended to alleviate the symptoms of a patient who suffers from sleep apnoea by delivering a therapeutic breathing pressure to the patient. SABTE is primarily used in the home health-care environment by a lay operator without direct professional supervision. This corrigendum corrects errors that have been identified in IEEE Std 11073-10424-2014 to make it easier to implement the standard in an interoperable fashion.

Keywords: IEEE 11073-10424™, medical device communication, personal health devices, SABTE, sleep apnoea breathing therapy equipment

The Institute of Electrical and Electronics Engineers, Inc.
3 Park Avenue, New York, NY 10016-5997, USA

PDF: ISBN 978-1-5044-4053-0 STD22607

Important Notices and Disclaimers Concerning IEEE Standards Documents

IEEE documents are made available for use subject to important notices and legal disclaimers. These notices and disclaimers, or a reference to this page, appear in all standards and may be found under the heading "Important Notices and Disclaimers Concerning IEEE Standards Documents." They can also be obtained on request from IEEE or viewed at http://standards.ieee.org/IPR/disclaimers.html.

Notice and Disclaimer of Liability Concerning the Use of IEEE Standards Documents

IEEE Standards documents (standards, recommended practices, and guides), both full-use and trial-use, are developed within IEEE Societies and the Standards Coordinating Committees of the IEEE Standards Association ("IEEE-SA") Standards Board. IEEE ("the Institute") develops its standards through a consensus development process, approved by the American National Standards Institute ("ANSI"), which brings together volunteers representing varied viewpoints and interests to achieve the final product. IEEE Standards are documents developed through scientific, academic, and industry-based technical working groups. Volunteers in IEEE working groups are not necessarily members of the Institute and participate without compensation from IEEE. While IEEE administers the process and establishes rules to promote fairness in the consensus development process, IEEE does not independently evaluate, test, or verify the accuracy of any of the information or the soundness of any judgments contained in its standards.

IEEE Standards do not guarantee or ensure safety, security, health, or environmental protection, or ensure against interference with or from other devices or networks. Implementers and users of IEEE Standards documents are responsible for determining and complying with all appropriate safety, security, environmental, health, and interference protection practices and all applicable laws and regulations.

IEEE does not warrant or represent the accuracy or content of the material contained in its standards, and expressly disclaims all warranties (express, implied and statutory) not included in this or any other document relating to the standard, including, but not limited to, the warranties of: merchantability; fitness for a particular purpose; non-infringement; and quality, accuracy, effectiveness, currency, or completeness of material. In addition, IEEE disclaims any and all conditions relating to: results; and workmanlike effort. IEEE standards documents are supplied "AS IS" and "WITH ALL FAULTS."

Use of an IEEE standard is wholly voluntary. The existence of an IEEE standard does not imply that there are no other ways to produce, test, measure, purchase, market, or provide other goods and services related to the scope of the IEEE standard. Furthermore, the viewpoint expressed at the time a standard is approved and issued is subject to change brought about through developments in the state of the art and comments received from users of the standard.

In publishing and making its standards available, IEEE is not suggesting or rendering professional or other services for, or on behalf of, any person or entity nor is IEEE undertaking to perform any duty owed by any other person or entity to another. Any person utilizing any IEEE Standards document, should rely upon his or her own independent judgment in the exercise of reasonable care in any given circumstances or, as appropriate, seek the advice of a competent professional in determining the appropriateness of a given IEEE standard.

IN NO EVENT SHALL IEEE BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO: PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE PUBLICATION, USE OF, OR RELIANCE UPON ANY STANDARD, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE AND REGARDLESS OF WHETHER SUCH DAMAGE WAS FORESEEABLE.

Translations

The IEEE consensus development process involves the review of documents in English only. In the event that an IEEE standard is translated, only the English version published by IEEE should be considered the approved IEEE standard.

Official statements

A statement, written or oral, that is not processed in accordance with the IEEE-SA Standards Board Operations Manual shall not be considered or inferred to be the official position of IEEE or any of its committees and shall not be considered to be, or be relied upon as, a formal position of IEEE. At lectures, symposia, seminars, or educational courses, an individual presenting information on IEEE standards shall make it clear that his or her views should be considered the personal views of that individual rather than the formal position of IEEE.

Comments on standards

Comments for revision of IEEE Standards documents are welcome from any interested party, regardless of membership affiliation with IEEE. However, IEEE does not provide consulting information or advice pertaining to IEEE Standards documents. Suggestions for changes in documents should be in the form of a proposed change of text, together with appropriate supporting comments. Since IEEE standards represent a consensus of concerned interests, it is important that any responses to comments and questions also receive the concurrence of a balance of interests. For this reason, IEEE and the members of its societies and Standards Coordinating Committees are not able to provide an instant response to comments or questions except in those cases where the matter has previously been addressed. For the same reason, IEEE does not respond to interpretation requests. Any person who would like to participate in revisions to an IEEE standard is welcome to join the relevant IEEE working group.

Comments on standards should be submitted to the following address:

Secretary, IEEE-SA Standards Board
445 Hoes Lane
Piscataway, NJ 08854 USA

Laws and regulations

Users of IEEE Standards documents should consult all applicable laws and regulations. Compliance with the provisions of any IEEE Standards document does not imply compliance to any applicable regulatory requirements. Implementers of the standard are responsible for observing or referring to the applicable regulatory requirements. IEEE does not, by the publication of its standards, intend to urge action that is not in compliance with applicable laws, and these documents may not be construed as doing so.

Copyrights

IEEE draft and approved standards are copyrighted by IEEE under U.S. and international copyright laws. They are made available by IEEE and are adopted for a wide variety of both public and private uses. These include both use, by reference, in laws and regulations, and use in private self-regulation, standardization, and the promotion of engineering practices and methods. By making these documents available for use and adoption by public authorities and private users, IEEE does not waive any rights in copyright to the documents.

Photocopies

Subject to payment of the appropriate fee, IEEE will grant users a limited, non-exclusive license to photocopy portions of any individual standard for company or organizational internal use or individual, non-commercial use only. To arrange for payment of licensing fees, please contact Copyright Clearance Center, Customer Service, 222 Rosewood Drive, Danvers, MA 01923 USA; +1 978 750 8400. Permission to photocopy portions of any individual standard for educational classroom use can also be obtained through the Copyright Clearance Center.

Updating of IEEE Standards documents

Users of IEEE Standards documents should be aware that these documents may be superseded at any time by the issuance of new editions or may be amended from time to time through the issuance of amendments, corrigenda, or errata. An official IEEE document at any point in time consists of the current edition of the document together with any amendments, corrigenda, or errata then in effect.

Every IEEE standard is subjected to review at least every ten years. When a document is more than ten years old and has not undergone a revision process, it is reasonable to conclude that its contents, although still of some value, do not wholly reflect the present state of the art. Users are cautioned to check to determine that they have the latest edition of any IEEE standard.

In order to determine whether a given document is the current edition and whether it has been amended through the issuance of amendments, corrigenda, or errata, visit the IEEE Xplore at http://ieeexplore.ieee.org/ or contact IEEE at the address listed previously. For more information about the IEEE-SA or IEEE's standards development process, visit the IEEE-SA Website at http://standards.ieee.org.

Errata

Errata, if any, for all IEEE standards can be accessed on the IEEE-SA Website at the following URL: http://standards.ieee.org/findstds/errata/index.html. Users are encouraged to check this URL for errata periodically.

Patents

Attention is called to the possibility that implementation of this standard may require use of subject matter covered by patent rights. By publication of this standard, no position is taken by the IEEE with respect to the existence or validity of any patent rights in connection therewith. If a patent holder or patent applicant has filed a statement of assurance via an Accepted Letter of Assurance, then the statement is listed on the IEEE-SA Website at http://standards.ieee.org/about/sasb/patcom/patents.html. Letters of Assurance may indicate whether the Submitter is willing or unwilling to grant licenses under patent rights without compensation or under reasonable rates, with reasonable terms and conditions that are demonstrably free of any unfair discrimination to applicants desiring to obtain such licenses.

Essential Patent Claims may exist for which a Letter of Assurance has not been received. The IEEE is not responsible for identifying Essential Patent Claims for which a license may be required, for conducting inquiries into the legal validity or scope of Patents Claims, or determining whether any licensing terms or conditions provided in connection with submission of a Letter of Assurance, if any, or in any licensing agreements are reasonable or non-discriminatory. Users of this standard are expressly advised that determination of the validity of any patent rights, and the risk of infringement of such rights, is entirely their own responsibility. Further information may be obtained from the IEEE Standards Association.

Participants

At the time this standard was submitted to the IEEE-SA Standards Board for approval, the 11073 Personal Health Device Working Group had the following membership:

Daidi Zhong, *Co-Chair*
Michael J. Kirwan, *Co-Chair*
Christoph Fischer, *Vice Chair*

Karsten Aalders
Charles R. Abbruscato
Nabil Abujbara
Maher Abuzaid
James Agnew
Haidar Ahmad
Manfred Aigner
Jorge Alberola
Murtaza Ali
Rolf Ambuehl
David Aparisi
Paolo Ariano
Lawrence Arne
Diego B. Arquillo
Serafin Arroyo
Muhammad Asim
Merat Bagha
Doug Baird
David Baker
Anindya Bakshi
Ananth Balasubramanian
Sunlee Bang
M. Jonathan Barkley
Gilberto Barrón
David Bean
John Bell
Rudy Belliardi
Kathryn M. Bennett
Daniel Bernstein
George A. Bertos
Chris Biernacki
Ola Björsne
Thomas Blackadar
Marc Blanchet
Thomas Bluethner
Douglas P. Bogia
Xavier Boniface
Shannon Boucousis
Julius Broma
Lyle G. Bullock, Jr.
Bernard Burg
Chris Burns
Anthony Butt
Jeremy Byford-Rew
Satya Calloji
Xiaoying Cao
Carole C. Carey
Craig Carlson
Santiago Carot-Nemesio
Randy W. Carroll
Simon Carter
Seungchul Chae
Rahul Chauhan
James Cheng
Peggy Chien
David Chiu
Jinyong Choi
Chia-Chin Chong
Saeed A. Choudhary
Jinhan Chung
Malcolm Clarke
John A. Cogan
John T. Collins
Cory Condek
Todd H. Cooper
David Cornejo
Douglas Coup
Nigel Cox
Hans Crommenacker
Tomio Crosley
Allen Curtis
Ndifor Cyril Fru
Jesús Daniel Trigo
Eyal Dassau
David Davenport
Russell Davis
Sushil K. Deka
Ciro de la Vega
Pedro de-las-Heras-Quiros
Jim Dello Stritto
Matthew d'Entremont
Kent Dicks
Hyoungho Do
Alistair Donaldson
Xiaolian Duan
Brian Dubreuil
Sourav Dutta
Jakob Ehrensvard
Fredrik Einberg
Michihiro Enokida
Javier Escayola Calvo
Mark Estes
Leonardo Estevez
Roger Feeley
Hailing Feng
Bosco T. Fernandes
Christoph Fischer
Morten Flintrup
Joseph W. Forler
Russell Foster
Eric Freudenthal
Matthias Frohner
Ken Fuchs
Jing Gao
Marcus Garbe
John Garguilo
Rick Geimer
Igor Gejdos
Ferenc Gerbovics
Nicolae Goga
Julian Goldman
Raul Gonzalez Gomez
Chris Gough
Channa Gowda
Charles M. Gropper
Amit Gupta
Jeff Guttmacher
Rasmus Haahr
Christian Habermann
Michael Hagerty
Jerry Hahn
Robert Hall
Shu Han
Nathaniel Hamming
Rickey L. Hampton
Sten Hanke
Aki Harma
Jordan Hartmann
Kai Hassing
Wolfgang Heck
Nathaniel Heintzman
Charles Henderson
Jun-Ho Her
Helen B. Hernandez
Takashi Hibino
Timothy L. Hirou
Allen Hobbs
Alex Holland
Arto Holopainen
Kris Holtzclaw
Robert Hoy
Frank Hsu
Anne Huang
Sen-Der Huang
Ron Huby
David Hughes
Robert D. Hughes
Jiyoung Huh
Hugh Hunter
Hitoshi Ikeda
Yutaka Ikeda
Philip O. Isaacson
Atsushi Ito

Michael Jaffe
Praduman Jain
Danny Jochelson
Phaneeth Junga
Akiyoshi Kabe
Steve Kahle
Tomio Kamioka
Kei Kariya
Andy Kaschl
Junzo Kashihara
Kohichi Kashiwagi
Ralph Kent
Laurie M. Kermes
Ikuo Keshi
Junhyung Kim
Minho Kim
Min-Joon Kim
Taekon Kim
Tetsuya Kimura
Michael J. Kirwan
Alfred Kloos
Jeongmee Koh
Jean-Marc Koller
John Koon
Patty Krantz
Raymond Krasinski
Alexander Kraus
Ramesh Krishna
Geoffrey Kruse
Falko Kuester
Rafael Lajara
Pierre Landau
Jaechul Lee
JongMuk Lee
Kyong Ho Lee
Rami Lee
Sungkee Lee
Woojae Lee
Yonghee Lee
Joe Lenart
Kathryn A. Lesh
Catherine Li
Qiong Li
Patrick Lichter
Jisoon Lim
Joon-Ho Lim
John Lin
Xiaoming Liu
Wei-Jung Lo
Charles Lowe
Don Ludolph
Christian Luszick
Bob MacWilliams
Srikkanth Madhurbootheswaran
Miriam L. Makhlouf
Romain Marmot
Sandra Martinez
Miguel Martínez
de Espronceda Cámara
Peter Mayhew
Jim McCain
László Meleg
Alexander Mense
Behnaz Minaei
Jinsei Miyazaki
Erik Moll
Darr Moore
Carsten Mueglitz
Piotr Murawski
Soundharya Nagasubramanian
Jae-Wook Nah
Alex Neefus
Trong-Nghia Nguyen-Dobinsky
Michael E. Nidd
Tetsu Nishimura
Jim Niswander
Hongliang Niu
Hiroaki Niwamoto
Thomas Norgall
Anand Noubade
Yoshiteru Nozoe
Abraham Ofek
Brett Olive
Begonya Otal
Marco Paleari
Charles Palmer
Bud Panjwani
Carl Pantiskas
Harry P. Pappas
Hanna Park
Jong-Tae Park
Myungeun Park
Soojun Park
Phillip E. Pash
TongBi Pei
Lucian Pestritu
Soren Petersen
James Petisce
Peter Piction
Michael Pliskin
Varshney Prabodh
Jeff Price
Harald Prinzhorn
Harry Qiu
Arif Rahman
Tanzilur Rahman
Steve Ray
Phillip Raymond
Terrie Reed
Tim Reilly
Barry Reinhold
Brian Reinhold
Melvin I. Reynolds
John G. Rhoads
Jeffrey S. Robbins
Chris Roberts
Moskowitz Robert
Timothy Robertson
David Rosales
Fatemeh Saki
Bill Saltzstein
Benedikt Salzbrunn
Giovanna Sannino
Jose A. Santos-Cadenas
Stefan Sauermann
John Sawyer
Guillaume Schatz
Alois Schloegl
Paul S. Schluter
Lars Schmitt
Mark G. Schnell
Richard A. Schrenker
Antonio Scorpiniti
Kwang Seok Seo
Riccardo Serafin
Sid Shaw
Frank Shen
Min Shih
Mazen Shihabi
Redmond Shouldice
Sternly K. Simon
Marjorie Skubic
Robert Smith
Ivan Soh
Motoki Sone
Emily Sopensky
Rajagopalan Srinivasan
Andreas Staubert
Nicholas Steblay
Lars Steubesand
John (Ivo) Stivoric
Raymond A. Strickland
Chandrasekaran Subramaniam
Hermanni Suominen
Lee Surprenant
Ravi Swami
Ray Sweidan
Jin Tan
Yi Tang
Haruyuyki Tatsumi
John W. Thomas
Jonas Tirén
Alexandra Todiruta
Janet Traub
Gary Tschautscher
Masato Tschuchid
Ken Tubman
Yoshihiro Uchida
Akib Uddin
Sunil Unadkat
Fabio Urbani
Philipp Urbauer
Laura Vanzago
Alpo Värri
Andrei Vasilateanu
Dalimar Velez
Martha Velezis
Rudi Voon
Barry Vornbrock
Isobel Walker
David Wang
Jerry P. Wang
Yao Wang
Yi Wang
Steve Warren
Fujio Watanabe

Toru Watsuji
Mike Weng
Kathleen Wible
Paul Williamson
Jan Wittenber
Jia-Rong Wu
Will Wykeham
Ariton Xhafa
Qifeng Yan
Ricky Yang
Melanie S. Yeung
Qiang Yin
Done-Sik Yoo
Jianchao Zeng
Jason Zhang
Zhiqiang Zhang
Thomas Zhao
Daidi Zhong
Miha Zoubek
Szymon Zyskoter

The following members of the individual balloting committee voted on this standard. Balloters may have voted for approval, disapproval, or abstention.

Keith Chow
Malcolm Clarke
Christoph Fischer
Randall Groves
Werner Hoelzl
Noriyuki Ikeuchi
Atsushi Ito
Piotr Karocki
H. Moll
Melvin Reynolds
Bartien Sayogo
Walter Struppler
Chandrasekaran Subramaniam
Jan Wittenber
Oren Yuen
Daidi Zhong

When the IEEE-SA Standards Board approved this standard on 23 March 2017, it had the following membership:

Jean-Philippe Faure, *Chair*
Gary Hoffman, *Vice Chair*
John D. Kulick, *Past Chair*
Konstantinos Karachalios, *Secretary*

Chuck Adams
Masayuki Ariyoshi
Ted Burse
Stephen Dukes
Doug Edwards
J. Travis Griffith
Michael Janezic
Thomas Koshy
Joseph L. Koepfinger*
Kevin Lu
Daleep Mohla
Damir Novosel
Ronald C. Petersen
Annette D. Reilly
Robby Robson
Dorothy Stanley
Adrian Stephens
Mehmet Ulema
Phil Wennblom
Howard Wolfman
Yu Yuan

*Member Emeritus

Introduction

This introduction is not part of IEEE Std 11073-10424-2014/Cor 1-2017, IEEE Standard for Part 10424: Device Specialization—Sleep Apnoea Breathing Therapy Equipment (SABTE)—Corrigendum 1.

ISO/IEEE 11073 standards enable communication between medical devices and external computer systems. Within the context of the ISO/IEEE 11073 family of standards for device communication, IEEE Std 11073-10424-2014 establishes a normative definition of the communication between sleep apnoea breathing therapy equipment (SABTE) devices (agents) and managers (e.g., cell phones, personal computers, personal health appliances, set top boxes) in a manner that enables plug-and-play interoperability. It leverages appropriate portions of existing standards including ISO/IEEE 11073 terminology, information models, application profile standards, and transport standards. It specifies the use of specific term codes, formats, and behaviors in telehealth environments restricting optionality in base frameworks in favor of interoperability. IEEE Std 11073-10424-2014 defines a common core of communication functionality for SABTE. In this context, SABTE is defined as a device that is intended to alleviate the symptoms of a patient who suffers from sleep apnoea by delivering a therapeutic breathing pressure to the patient. SABTE is primarily used in the home health-care environment by a lay operator without direct professional supervision.

This corrigendum corrects errors that have been identified in the IEEE Std 11073-10424-2014 to make it easier to implement the standard in an interoperable fashion.

Contents

Health informatics—Personal health device communication

Part 10424: Device Specialization—Sleep Apnoea Breathing Therapy Equipment (SABTE)

Corrigendum 1

NOTE—The editing instructions contained in this **corrigendum** define how to merge the material contained therein into the existing base standard and its amendments to form the comprehensive standard.

The editing instructions are shown in ***bold italic***. Four editing instructions are used: change, delete, insert, and replace. ***Change*** is used to make corrections in existing text or tables. The editing instruction specifies the location of the change and describes what is being changed by using ~~strikethrough~~ (to remove old material) and <u>underscore</u> (to add new material). ***Delete*** removes existing material. ***Insert*** adds new material without disturbing the existing material. Insertions may require renumbering. If so, renumbering instructions are given in the editing instruction. ***Replace*** is used to make changes in figures or equations by removing the existing figure or equation and replacing it with a new one. Editing instructions, change markings, and this NOTE will not be carried over into future editions because the changes will be incorporated into the base standard.

6. Sleep apnoea breathing therapy equipment domain information model

6.7 Numeric objects

6.7.3 Apnoea hypopnoea index (AHI)

Change the last word in the following sentence as shown:

The Type attribute is used to distinguish the modality of particular AHI between total AHI (i.e., MDC_SABTE_AHI_TOTAL), uAHI (i.e., MDC_SABTE_AHI_UNCLASS), oAHI (i.e., MDC_SABTE_AHI_OBSTRUC), or cAHI (i.e., MDC_SABTE_AHI_CENTRAL).

Change Table 7 as shown:

Table 7—AHI numeric object attributes

Attribute name	Extended configuration	
	Value	Qual.
Handle	See IEEE Std 11073-20601a-2010.	M
Type	{MDC_PART_PHD_DM, MDC_SABTE_AHI_TOTAL} or {MDC_PART_PHD_DM, MDC_SABTE_AHI_UNCLASS} or {MDC_PART_PHD_DM, MDC_SABTE_AHI_OBSTRUC} or {MDC_PART_PHD_DM, MDC_SABTE_AHI_CENTRAL}	M
Metric-Spec-Small	mss-avail-intermittent, mss-avail-stored-data, mss-upd-aperiodic, mss-acc-manager-initiated, mss-acc-agent-initiated, mss-cat-calculation.	M
Unit-Code	MDC_DIM_EVT_PER_HR	M
Attribute-Value-Map	See IEEE Std 11073-20601a-2010.	C
Basic-Nu-Observed-Value	See IEEE Std 11073-20601a-2010.	R

6.7.4 Therapy Pressure

Change Table 9 and the text immediately following it as shown:

Table 9—Therapy pressure numeric object attributes

Attribute name	Extended configuration	
	Value	Qual.
Handle	See IEEE Std 11073-20601a-2010.	M
Type	{MDC_PART_PHD_DM, MDC_SABTE_PRESS_INSTANT} or ~~{MDC_PART_PHD_DM, MDC_SABTE_PRESS_MIN}~~ ~~or~~ {MDC_PART_PHD_DM, MDC_SABTE_PRESS_MAX} or <u>{MDC_PART_PHD_DM, MDC_SABTE_PRESS_MIN}</u> <u>or</u> {MDC_PART_PHD_DM, MDC_SABTE_PRESS_MEAN} or {MDC_PART_PHD_DM, MDC_SABTE_PRESS_P50} or {MDC_PART_PHD_DM, MDC_SABTE_PRESS_P90} or {MDC_PART_PHD_DM, MDC_SABTE_PRESS_P95}	M
Metric-Spec-Small	mss-avail-intermittent, mss-avail-stored-data, mss-upd-aperiodic, mss-msmt-aperiodic, mss-acc-manager-initiated, mss-acc-agent-initiated.	M
Unit-Code	MDC_DIM_HECTO_PASCAL	M
Attribute-Value-Map	See IEEE Std 11073-20601a-2010.	C
Basic-Nu-Observed-Value	See IEEE Std 11073-20601a-2010.	R

NOTE—See IEEE Std 11073-20601a-2010 for information on whether an attribute is static or dynamic.

The Type attribute is used to distinguish the modality of particular therapy pressure between instantaneous value (i.e., MDC_SABTE_PRESS_INSTANT), ~~minimum of a usage session (i.e., MDC_SABTE_PRESS_MIN),~~ maximum of a usage session (i.e., MDC_SABTE_PRESS_MAX), <u>minimum of a usage session (i.e., MDC_SABTE_PRESS_MIN),</u> arithmetic mean of a usage session (i.e., MDC_SABTE_PRESS_MEAN), 50th percentile of a usage session (i.e., MDC_SABTE_PRESS_P50), 90th percentile of a usage session (i.e., MDC_SABTE_PRESS_P90), or 95th percentile of a usage session (i.e., MDC_SABTE_PRESS_P95).

6.7.5 Leakage

Change Table 10 and the text immediately following it as shown:

Table 10 —Leakage numeric object attributes

Attribute name	Extended configuration	
	Value	**Qual.**
Handle	See IEEE Std 11073-20601a-2010.	M
Type	{MDC_PART_PHD_DM MDC_SABTE_VOL_LEAK_INSTANT} or ~~{MDC_PART_PHD_DM, MDC_SABTE_VOL_LEAK_MIN}~~ ~~or~~ {MDC_PART_PHD_DM, MDC_SABTE_VOL_LEAK_MAX} or {MDC_PART_PHD_DM, MDC_SABTE_VOL_LEAK_MIN} or {MDC_PART_PHD_DM, MDC_SABTE_VOL_LEAK_MEAN} or {MDC_PART_PHD_DM, MDC_SABTE_VOL_LEAK_P50} or {MDC_PART_PHD_DM, MDC_SABTE_VOL_LEAK_P90} or {MDC_PART_PHD_DM, MDC_SABTE_VOL_LEAK_P95}	M
Metric-Spec-Small	mss-avail-intermittent, mss-avail-stored-data, mss-upd-aperiodic, mss-msmt-aperiodic, mss-acc-manager-initiated, mss-acc-agent-initiated.	M
Unit-Code	MDC_DIM_L_PER_MIN	M
Attribute-Value-Map	See IEEE Std 11073-20601a-2010.	C
Basic-Nu-Observed-Value	See IEEE Std 11073-20601a-2010.	R

NOTE—See IEEE Std 11073-20601a-2010 for information on whether an attribute is static or dynamic.

The Type attribute is used to distinguish the modality of particular leakage between instantaneous value (i.e., MDC_SABTE_VOL_LEAK_INSTANT), ~~minimum of a usage session (i.e., MDC_SABTE_VOL_LEAK_MIN),~~ maximum of a usage session (i.e., MDC_SABTE_VOL_LEAK_MAX), minimum of a usage session (i.e., MDC_SABTE_VOL_LEAK_MIN), arithmetic mean of a usage session (i.e., MDC_SABTE_VOL_LEAK_MEAN), 50th percentile of a usage session (i.e., MDC_SABTE_VOL_LEAK_P50), 90th percentile of a usage session (i.e., MDC_SABTE_VOL_LEAK_P90), or 95th percentile of a usage session (i.e., MDC_SABTE_VOL_LEAK_P95).

6.7.6 Respiratory rate

Change Table 11 and the text immediately following it as shown:

Table 11—Respiratory rate numeric object attributes

Attribute name	Extended configuration	
	Value	Qual.
Handle	See IEEE Std 11073-20601a-2010.	M
Type	{MDC_PART_PHD_DM, MDC_SABTE_RESP_RATE_INSTANT} or ~~{MDC_PART_PHD_DM,~~ ~~MDC_SABTE_RESP_RATE_MIN}~~ ~~or~~ {MDC_PART_PHD_DM, MDC_SABTE_RESP_RATE_MAX} or {MDC_PART_PHD_DM, MDC_SABTE_RESP_RATE_MIN} or {MDC_PART_PHD_DM, MDC_SABTE_RESP_RATE_MEAN} or {MDC_PART_PHD_DM, MDC_SABTE_RESP_RATE_P50} or {MDC_PART_PHD_DM, MDC_SABTE_RESP_RATE_P90} or {MDC_PART_PHD_DM, MDC_SABTE_RESP_RATE_P95}	M
Metric-Spec-Small	mss-avail-intermittent, mss-avail-stored-data, mss-upd-aperiodic, mss-msmt-aperiodic, mss-acc-manager-initiated, mss-acc-agent-initiated.	M
Unit-Code	MDC_DIM_RESP_PER_MIN	M
Attribute-Value-Map	See IEEE Std 11073-20601a-2010.	C
Basic-Nu-Observed-Value	See IEEE Std 11073-20601a-2010.	R

NOTE—See IEEE Std 11073-20601a-2010 for information on whether an attribute is static or dynamic.

The Type attribute is used to distinguish the modality of particular respiratory rate between instantaneous value (i.e., MDC_SABTE_RESP_RATE_INSTANT)~~, minimum of a usage session (i.e., MDC_SABTE_RESP_RATE_MIN)~~, maximum of a usage session (i.e., MDC_SABTE_RESP_RATE_MAX), minimum of a usage session (i.e., MDC_SABTE_RESP_RATE_MIN), arithmetic mean of a usage session (i.e., MDC_SABTE_RESP_RATE_MEAN), 50th percentile of a usage session (i.e., MDC_SABTE_RESP_RATE_P50), 90th percentile of a usage session (i.e., MDC_SABTE_RESP_RATE_P90), or 95th percentile of a usage session (i.e., MDC_SABTE_RESP_RATE_P95).

6.7.7 Tidal volume

Change the Table 12 and the text immediately following it as shown:

Table 12—Tidal volume numeric object attributes

Attribute name	Extended configuration	
	Value	**Qual.**
Handle	See IEEE Std 11073-20601a-2010.	M
Type	{MDC_PART_PHD_DM, MDC_SABTE_VOL_TIDAL_INSTANT} or ~~{MDC_PART_PHD_DM, MDC_SABTE_VOL_TIDAL_MIN} or~~ {MDC_PART_PHD_DM, MDC_SABTE_VOL_TIDAL_MAX} or {MDC_PART_PHD_DM, MDC_SABTE_VOL_TIDAL_MIN} or {MDC_PART_PHD_DM, MDC_SABTE_VOL_TIDAL_MEAN} or {MDC_PART_PHD_DM, MDC_SABTE_VOL_TIDAL_P50} or {MDC_PART_PHD_DM, MDC_SABTE_VOL_TIDAL_P90} or {MDC_PART_PHD_DM, MDC_SABTE_VOL_TIDAL_P95}	M
Metric-Spec-Small	mss-avail-intermittent, mss-avail-stored-data, mss-upd-aperiodic, mss-msmt-aperiodic, mss-acc-manager-initiated, mss-acc-agent-initiated.	M
Unit-Code	MDC_DIM_MILLI_L	M
Attribute-Value-Map	See IEEE Std 11073-20601a-2010.	C
Basic-Nu-Observed-Value	See IEEE Std 11073-20601a-2010.	R

NOTE—See IEEE Std 11073-20601a-2010 for information on whether an attribute is static or dynamic.

The Type attribute is used to distinguish the modality of particular tidal volume between instantaneous value (i.e., MDC_SABTE_VOL_TIDAL_INSTANT), ~~minimum of a usage session (i.e., MDC_SABTE_VOL_TIDAL_MIN),~~ maximum of a usage session (i.e., MDC_SABTE_VOL_TIDAL_MAX), minimum of a usage session (i.e., MDC_SABTE_VOL_TIDAL_MIN), arithmetic mean of a usage session (i.e., MDC_SABTE_VOL_TIDAL_MEAN), 50th percentile of a usage session (i.e., MDC_SABTE_VOL_TIDAL_P50), 90th percentile of a usage session (i.e., MDC_SABTE_VOL_TIDAL_P90), or 95th percentile of a usage session (i.e., MDC_SABTE_VOL_TIDAL_P95).

6.7.8 Respiratory minute volume

Change Table 13 and the text immediately following it as shown:

Table 13—Respiratory minute volume numeric object attributes

Attribute name	Extended configuration	
	Value	**Qual.**
Handle	See IEEE Std 11073-20601a-2010.	M
Type	{MDC_PART_PHD_DM, MDC_SABTE_VOL_MINUTE_INSTANT} or ~~{MDC_PART_PHD_DM, MDC_SABTE_VOL_MINUTE_MIN} or~~ {MDC_PART_PHD_DM, MDC_SABTE_VOL_MINUTE_MAX} or {MDC_PART_PHD_DM, MDC_SABTE_VOL_MINUTE_MIN} or {MDC_PART_PHD_DM, MDC_SABTE_VOL_MINUTE_MEAN} or {MDC_PART_PHD_DM, MDC_SABTE_VOL_MINUTE_P50} or {MDC_PART_PHD_DM, MDC_SABTE_VOL_MINUTE_P90} or {MDC_PART_PHD_DM, MDC_SABTE_VOL_MINUTE_P95}	M
Metric-Spec-Small	mss-avail-intermittent, mss-avail-stored-data, mss-upd-aperiodic, mss-msmt-aperiodic, mss-acc-manager-initiated, mss-acc-agent-initiated.	M
Unit-Code	MDC_DIM_L_PER_MIN	M
Attribute-Value-Map	See IEEE Std 11073-20601a-2010.	C
Basic-Nu-Observed-Value	See IEEE Std 11073-20601a-2010.	R

NOTE—See IEEE Std 11073-20601a-2010 for information on whether an attribute is static or dynamic.

The Type attribute is used to distinguish the modality of particular respiratory minute volume between instantaneous value (i.e., MDC_SABTE_VOL_MINUTE_INSTANT), ~~minimum of a usage session (i.e., MDC_SABTE_VOL_MINUTE_MIN),~~ maximum of a usage session (i.e., MDC_SABTE_VOL_MINUTE_MAX), minimum of a usage session (i.e., MDC_SABTE_VOL_MINUTE_MIN), arithmetic mean of a usage session (i.e., MDC_SABTE_VOL_MINUTE_MEAN), 50th percentile of a usage session (i.e., MDC_SABTE_VOL_MINUTE_P50), 90th percentile of a usage session (i.e., MDC_SABTE_VOL_MINUTE_P90), or 95th percentile of a usage session (i.e., MDC_SABTE_VOL_MINUTE_P95).

6.7.9 I:E ratio

Change Table 14 and the text immediately following it as shown:

Table 14—I:E ratio duration numeric object attributes

Attribute name	Extended configuration	
	Value	Qual.
Handle	See IEEE Std 11073-20601a-2010.	M
Type	{MDC_PART_PHD_DM, MDC_SABTE_RATIO_IE_INSTANT} or ~~{MDC_PART_PHD_DM,~~ ~~MDC_SABTE_RATIO_IE_MIN}~~ ~~or~~ {MDC_PART_PHD_DM, MDC_SABTE_RATIO_IE_MAX} or {MDC_PART_PHD_DM, MDC_SABTE_RATIO_IE_MIN} or {MDC_PART_PHD_DM, MDC_SABTE_RATIO_IE_MEAN} or {MDC_PART_PHD_DM, MDC_SABTE_RATIO_IE_P50} or {MDC_PART_PHD_DM, MDC_SABTE_RATIO_IE_P90} or {MDC_PART_PHD_DM, MDC_SABTE_RATIO_IE_P95}	M
Metric-Spec-Small	mss-avail-intermittent, mss-avail-stored-data, mss-upd-aperiodic, mss-acc-manager-initiated, mss-acc-agent-initiated, mss-cat-calculation.	M
Unit-Code	MDC_DIM_PERCENT	M
Attribute-Value-Map	See IEEE Std 11073-20601a-2010.	C
Basic-Nu-Observed-Value	See IEEE Std 11073-20601a-2010.	R

NOTE—See IEEE Std 11073-20601a-2010 for information on whether an attribute is static or dynamic.

The Type attribute is used to distinguish the modality of particular I:E ratio between instantaneous value (i.e., MDC_SABTE_RATIO_IE_INSTANT)~~, minimum of a usage session (i.e., MDC_SABTE_RATIO_IE_MIN)~~, maximum of a usage session (i.e., MDC_SABTE_RATIO_IE_MAX), minimum of a usage session (i.e., MDC_SABTE_RATIO_IE_MIN), arithmetic mean of a usage session (i.e., MDC_SABTE_RATIO_IE_MEAN), 50th percentile of a usage session (i.e., MDC_SABTE_RATIO_IE_P50), 90th percentile of a usage session (i.e., MDC_SABTE_RATIO_IE_P90), or 95th percentile of a usage session (i.e., MDC_SABTE_RATIO_IE_P95).

6.8 Real-time sample array objects

6.8.1 General

Change the first sentence in 6.8.1 as shown:

The SABTE DIM for metric objects (see Figure 5) contains ~~two~~ three RT-SA objects for therapy pressure, leakage, and airflow waveform data.

Annex C

(normative)

Allocation of identifiers

C.1 Definitions of terms and codes

Change the code value of MDC_DEV_SPEC_PROFILE_SABTE as shown:

#define MDC_DEV_SPEC_PROFILE_SABTE 412~~1~~0 /* */

Change the Reference ID of MDC_SABTE_AHI_CENT as shown:

#define MDC_SABTE_AHI_CENTRAL 22196 /* */

Change the definitions of multiple nomenclature codes, starting from MDC_SABTE_PRESS through MDC_SABTE_VOL_TIDAL_INSTANT, as shown:

#define MDC_SABTE_PRESS	22336	/*	*/
#define MDC_SABTE_PRESS_INSTANT	22336	/*	*/
#define MDC_SABTE_PRESS_MAX	22337	/*	*/
#define MDC_SABTE_PRESS_MIN	22338	/*	*/
#define MDC_SABTE_PRESS_MEAN	22339	/*	*/
#define MDC_SABTE_PRESS_P50	22343	/*	*/
#define MDC_SABTE_PRESS_P90	22345	/*	*/
#define MDC_SABTE_PRESS_P95	22346	/*	*/
#define MDC_SABTE_PRESS_TARGET	22352	/*	*/
#define MDC_SABTE_PRESS_CPAP_SET	22356	/*	*/
#define MDC_SABTE_PRESS_CPAP_AUTO_MAX_SET	22360	/*	*/
#define MDC_SABTE_PRESS_CPAP_AUTO_MIN_SET	22364	/*	*/
#define MDC_SABTE_PRESS_IPAP_SET	22368	/*	*/
#define MDC_SABTE_PRESS_EPAP_SET	22372	/*	*/
#define MDC_SABTE_PRESS_RAMP_START_SET	22376	/*	*/
#define MDC_SABTE_RESP_RATE_INSTANT	22384	/*	*/
#define MDC_SABTE_RESP_RATE_MAX	22385	/*	*/
#define MDC_SABTE_RESP_RATE_MIN	22386	/*	*/
#define MDC_SABTE_RESP_RATE_MEAN	22387	/*	*/
#define MDC_SABTE_RESP_RATE_P50	22391	/*	*/
#define MDC_SABTE_RESP_RATE_P90	22393	/*	*/
#define MDC_SABTE_RESP_RATE_P95	22394	/*	*/
#define MDC_SABTE_RESP_RATE_SET	22480	/*	*/
#define MDC_SABTE_RATIO_IE_INSTANT	22400	/*	*/
#define MDC_SABTE_RATIO_IE_MAX	22401	/*	*/
#define MDC_SABTE_RATIO_IE_MIN	22402	/*	*/
#define MDC_SABTE_RATIO_IE_MEAN	22403	/*	*/

#define MDC_SABTE_RATIO_IE_P50	22407	/*	*/
#define MDC_SABTE_RATIO_IE_P90	22409	/*	*/
#define MDC_SABTE_RATIO_IE_P95	22410	/*	*/
#define MDC_SABTE_RATIO_IE_SET	22484	/*	*/
#define MDC_SABTE_VOL_LEAK	22432	/*	*/
#define MDC_SABTE_VOL_LEAK_INSTANT	22432	/*	*/
#define MDC_SABTE_VOL_LEAK_MAX	22433	/*	*/
#define MDC_SABTE_VOL_LEAK_MIN	22434	/*	*/
#define MDC_SABTE_VOL_LEAK_MEAN	22435	/*	*/
#define MDC_SABTE_VOL_LEAK_P50	22439	/*	*/
#define MDC_SABTE_VOL_LEAK_P90	22441	/*	*/
#define MDC_SABTE_VOL_LEAK_P95	22442	/*	*/
#define MDC_SABTE_VOL_MINUTE_INSTANT	22448	/*	*/
#define MDC_SABTE_VOL_MINUTE_MAX	22449	/*	*/
#define MDC_SABTE_VOL_MINUTE_MIN	22450	/*	*/
#define MDC_SABTE_VOL_MINUTE_MEAN	22451	/*	*/
#define MDC_SABTE_VOL_MINUTE_P50	22455	/*	*/
#define MDC_SABTE_VOL_MINUTE_P90	22457	/*	*/
#define MDC_SABTE_VOL_MINUTE_P95	22458	/*	*/
#define MDC_SABTE_VOL_TIDAL_INSTANT	22464	/*	*/
#define MDC_SABTE_VOL_TIDAL_MAX	22465	/*	*/
#define MDC_SABTE_VOL_TIDAL_MIN	22466	/*	*/
#define MDC_SABTE_VOL_TIDAL_MEAN	22467	/*	*/
#define MDC_SABTE_VOL_TIDAL_P50	22471	/*	*/
#define MDC_SABTE_VOL_TIDAL_P90	22473	/*	*/
#define MDC_SABTE_VOL_TIDAL_P95	22474	/*	*/

Change the format of units to superscript, for the nomenclature codes MDC_DIM_L_PER_MIN and MDC_DIM_EVT_PER_HR, as shown:

/***
* From Dimensions (MDC_PART_DIM) (4)
***/

#define MDC_DIM_L_PER_MIN	3072	/* l min^{-1} ~~-1~~	*/
#define MDC_DIM_EVT_PER_HR	4732	/* event h^{-1} ~~-1~~	*/