ICS 11.040.55, 35.240.80 SLOVENSKÁ TECHNICKÁ NORMA August 2017

STN	**Zdravotnícka informatika Osobné komunikačné zdravotné zariadenie Časť 10441: Špecializácia zariadenia Kardiovaskulárne cvičenie a monitor činnosti (ISO/IEEE 11073-10441: 2015)**	**STN EN ISO 11073-10441** 84 8037

Health informatics - Personal health device communication - Part 10441: Device specialization - Cardiovascular fitness and activity monitor (ISO/IEEE 11073-10441:2015)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 07/17

Obsahuje: EN ISO 11073-10441:2017, ISO/IEEE 11073-10441:2015

124917

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 11073-10441

February 2017

ICS 11.040.55; 35.240.80

English Version

Health informatics - Personal health device communication - Part 10441: Device specialization - Cardiovascular fitness and activity monitor (ISO/IEEE 11073-10441:2015)

Informatique de santé - Communication entre dispositifs de santé personnels - Partie 10441: Spécialisation des dispositifs - Moniteur d'activité et de forme cardiovasculaire (ISO/IEEE 11073-10441:2015)

Medizinische Informatik - Kommunikation von Geräten für die persönliche Gesundheit - Teil 10441: Gerätespezifikation - Monitor für die Herz-Kreislauf-Fitness und -Aktivität (ISO/IEEE 11073-10441:2015)

This European Standard was approved by CEN on 16 January 2017.

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Ref. No. EN ISO 11073-10441:2017 E

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European foreword

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STN EN ISO 11073-10441: 2017

INTERNATIONAL STANDARD

ISO/IEEE 11073-10441

First edition
2015-03-01

Health informatics — Personal health device communication —

Part 10441: Device specialization — Cardiovascular fitness and activity monitor

Informatique de santé — Communication entre dispositifs de santé personnels —

Partie 10441: Spécialisation des dispositifs — Moniteur d'activité et de forme cardiovasculaire

Reference number
ISO/IEEE 11073-10441:2015(E)

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Published in Switzerland

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ISO/IEEE 11073-10441 was prepared by the 11073 Committee of the Engineering in Medicine and Biology Society of the IEEE (as IEEE 11073-10441-2013). 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.

ISO/IEEE 11073 consists of the following parts, under the general title *Health informatics — Personal health device communication* (text in parentheses gives a variant of subtitle):

— *Part 00103: Overview*

— *Part 10101: (Point-of-care medical device communication) Nomenclature*

— *Part 10102: (Point-of-care medical device communication) Nomenclature — Annotated ECG*

— *Part 10103: (Point-of-care medical device communication) — Nomenclature — Implantable device, cardiac*

— *Part 10201: (Point-of-care medical device communication) Domain information model*

— *Part 10404: Device specialization — Pulse oximeter*

— *Part 10406: Device specialization — Basic electrocardiograph (ECG) (1- to 3-lead ECG)*

— *Part 10407: Device specialization — Blood pressure monitor*

— *Part 10408: Device specialization — Thermometer*

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— *Part 10417: Device specialization — Glucose meter*

— *Part 10418: Device specialization — International Normalized Ratio (INR) monitor*

— *Part 10420: Device specialization — Body composition analyzer*

— *Part 10421: Device specialization — Peak expiratory flow monitor (peak flow)*

— *Part 10441: Device specialization — Cardiovascular fitness and activity monitor*

— *Part 10442: (Point-of-care medical device communication) Device specialization — Strength fitness equipment*

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— *Part 90101: (Point-of-care medical device communication) Analytical instruments — Point-of-care test*

— *Part 91064: (Standard communication protocol) Computer-assisted electrocardiography*

— *Part 92001: (Medical waveform format) — Encoding rules*

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Health Informatics—Personal health device communication

Part 10441: Device specialization—Cardiovascular fitness and activity monitor

IEEE Engineering in Medicine and Biology Society

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29 March 2013

IEEE Std 11073-10441™-2013
(Revision of
IEEE Std 11073-10441-2008)

IEEE Std 11073-10441™-2013
(Revision of
IEEE Std 11073-10441-2008)

Health informatics—Personal health device communication

Part 10441: Device specialization—Cardiovascular fitness and activity monitor

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Approved 6 February 2013

IEEE-SA Standards Board

Abstract: Within the context of the ISO/IEEE 11073 family of standards for device communication, a normative definition of communication between personal telehealth cardiovascular fitness and activity monitor devices and managers (e.g., cell phones, personal computers, personal health appliances, and set top boxes) is established in this standard in a manner that enables plug-and-play interoperability. Appropriate portions of existing standards are leveraged including ISO/IEEE 11073 terminology, information models, application profile standards, and transport standards. The use of specific term codes, formats, and behaviors in telehealth environments restricting optionality in base frameworks in favor of interoperability is specified. A common core of communication functionality for personal telehealth cardiovascular fitness and activity monitor devices is defined in this standard.
Keywords: activity monitor, cardiovascular fitness, IEEE 11073-10441™, medical device communication, personal health devices

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PDF: ISBN 978-0-7381-8267-4 STD98161
Print: ISBN 978-0-7381-8268-1 STDPD98161

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Introduction

This introduction is not part of IEEE Std 11073-10441-2013, IEEE Standard for Health informatics—Personal health device communication—Device specialization—Cardiovascular fitness and activity monitor.

ISO/IEEE 11073 standards enable communication between medical devices and external computer systems. This document uses the optimized framework created in IEEE Std 11073-20601a™-2010[a] and describes a specific, interoperable communication approach for cardiovascular fitness and activity monitors. These standards align with, and draw on, the existing clinically focused standards to provide easy management of data from either a clinical or a personal health device.

[a] Information on references can be found in Clause 2.

Contents

Health informatics—Personal health device communication

Part 10441: Device specialization—Cardiovascular fitness and activity monitor

1. Overview

1.1 Scope

Within the context of the ISO/IEEE 11073 family of standards for device communication, this standard establishes a normative definition of the communication between personal cardiovascular fitness and activity monitoring devices and managers (e.g., cell phones, personal computers, personal health appliances, and set top boxes) in a manner that enables plug-and-play interoperability. It leverages appropriate portions of existing standards including ISO/IEEE 11073 terminology and information models. It specifies the use of specific term codes, formats, and behaviors in telehealth environments restricting optionality in base frameworks in favor of interoperability. This standard defines a common core of communication functionality for personal telehealth cardiovascular fitness and activity monitor devices. In this context, cardiovascular fitness and activity monitor devices are being used broadly to cover cardiovascular fitness and activity monitor devices that measure physical actions and the body's various physiological responses to that activity.

1.2 Purpose

This standard addresses a need for an openly defined, independent standard for controlling information exchange to and from personal health devices and managers (e.g., cell phones, personal computers, personal health appliances, and set top boxes). Interoperability is the key to growing the potential market for these devices and to enabling people to be better informed participants in the management of their health.

1.3 Context

See IEEE Std 11073-20601a-2010[1] for an overview of the environment within which this standard is written.

This document defines the device specialization for the cardiovascular fitness and activity monitor being a specific agent type, and it provides a description of the device concepts, its capabilities, and its implementation according to this standard.

This standard is based on IEEE Std 11073-20601a-2010 and ISO/IEEE 11073-20601:2010(E), which in turn draw information from both ISO/IEEE 11073-10201:2004 [B7] and ISO/IEEE 11073-20101:2004 [B8].[2] The medical device encoding rules (MDERs) used within this standard are fully described in ISO/IEEE 11073-20601:2010(E).

This standard reproduces relevant portions of the nomenclature found in ISO/IEEE 11073-10101:2004 [B6] and adds new nomenclature codes for the purposes of this standard. Between this standard, ISO/IEEE 11073-20601:2010(E), and IEEE Std 11073-20601a-2010, all required nomenclature codes for implementation are documented.

NOTE 1—IEEE Std 11073-20601a-2010 is an amendment to ISO/IEEE 11073-20601:2010(E). It contains new material and corrections and does not copy the content of ISO/IEEE 11073-20601:2010(E). Throughout this standard, a reference to IEEE Std 11073-20601a-2010 refers to the document that is obtained after applying this new material and corrections to ISO/IEEE 11073-20601:2010(E).[3]

NOTE 2— In this standard, ISO/IEEE P11073-104zz is used to refer to the collection of device specialization standards that utilize IEEE Std 11073-20601a-2010, where zz can be any number from 01 to 99, inclusive.

2. Normative references

The following referenced documents are indispensable for the application of this document (i.e., they must be understood and used, so that each referenced document is cited in text and its relationship to this document is explained). For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies.

IEEE Std 11073-20601a™-2010, Health informatics—Personal health device communication—Application profile—Optimized Exchange Protocol—Amendment 1.[4,5]

ISO/IEEE 11073-20601:2010(E), Health informatics—Personal health device communication—Application profile—Optimized Exchange Protocol.[6]

[1] Information on references can be found in Clause 2.
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