IEEE Standards Activities in the eHealth Space

Overview

IEEE has many standards in the eHealth technology area, from body area networks to 3D modeling of medical data and personal health device communications. Another area is the IEEE 11073™ family of standards under Health Informatics/Personal Health Device Communication for data interoperability and architecture. IEEE 11073 standards are designed to help healthcare product vendors and integrators create devices and systems for disease management, health and fitness, and independent living that can help save lives and improve quality of life for people worldwide.

IEEE is part of a larger ecosystem and has active collaborative relationships with other global organizations such as:

- Health Level Seven International (HL7), with a focus on data exchange/delivery
- Integrating the Healthcare Enterprise (IHE), with a focus on development domain integration and content profiles
- Logical Observation Identifiers Names and Codes (LOINC), with a focus on medical laboratory observations
- ISO and CEN, both of which adopt many of the IEEE 11073 standards

This allows IEEE standards to be developed and used within a framework for interoperable medical device communications worldwide.

The growing IEEE 11073 family of standards is intended to support interoperable communications for personal health devices and convey far-ranging potential benefits, such as reducing clinical decision-making from days to minutes, reducing gaps and errors across the spectrum of healthcare delivery, and helping to expand the potential market for the medical devices themselves.

The other prong of the IEEE EMB standards development portfolio is the EMB Standards Committee. The EMB Standards Committee encourages, facilitates, promotes, and coordinates standards development activities that are useful and appropriate in the fields of medicine and biology. Current areas of interest include: Location Services for Healthcare, Audiometric Systems/Devices, Three-Dimensional Medical Modeling, Consumer Wearables, and Brain-Machine Interface Systems/Devices.
Relevant Standards Activities

Approved Standards

- IEEE 802 series on wired and wireless networking
- IEEE Std 802.15.6-2012 IEEE Standard for Wireless Body Area Networks
- IEEE Std 2010-2012 IEEE Recommended Practice for Neurofeedback Systems
- IEEE Std 3333.1.1-2015 IEEE Standard for Quality of Experience (QoE) and Visual-Comfort Assessments of Three-Dimensional (3D) Contents Based on Psychophysical Studies
- IEEE Std 3333.2.1-2015 IEEE Recommended Practice for Three-Dimensional (3D) Medical Modelling
- IEEE Std 11073-00103-2012 Health informatics--Personal health device communication--Part 00103: Overview
- IEEE Std 11073-10101-2004 Health informatics--Point-of-care medical device communication--Part 10101: Nomenclature
- IEEE Std 11073-10102-2012 Health informatics--Point-of-care medical device communication--Part 10102: Nomenclature--Annotated ECG
- IEEE Std 11073-10103-2012 Health informatics--Point-of-care medical device communication--Part 10103: Nomenclature--Implantable device, cardiac
- IEEE Std 11073-10201-2004 Health informatics--Point-of-care medical device communication--Part 10201: Domain information model
- IEEE Std 11073-10404-2010 Health informatics--Personal health device communication--Part 10404: Device specialization--Pulse oximeter
- IEEE Std 11073-10406-2011 Health informatics--Personal health device communication--Part 10406: Device specialization--Basic electrocardiograph (ECG) (1-to 3-lead ECG)
- IEEE Std 11073-10407-2010 Health informatics--Personal health device communication--Part 10407: Device specialization--Blood pressure monitor
- IEEE Std 11073-10408-2010 Health informatics--Personal health device communication--Part 10408: Device specialization--Thermometer
- IEEE Std 11073-10415-2010 Health informatics--Personal health device communication--Part 10415: Device specialization--Weighing scale
- IEEE Std 11073-10417-2015 Health informatics--Personal health device communication--Part 10417: Device specialization--Glucose meter
- IEEE Std 11073-10418-2011 Health informatics--Personal health device communication--Part 10418: Device specialization--International Normalized Ratio (INR) monitor
- IEEE Std 11073-10418-2011/Cor 1-2015 Health informatics--Personal health device communication--Part 10418: Device specialization--International Normalized Ratio (INR) monitor--Corrigendum 1
• IEEE Std 11073-10419-2015 Health informatics--Personal health device communication--Device specialization--Insulin pump
• IEEE Std 11073-10420-2010 Health informatics--Personal health device communication--Part 10420: Device specialization--Body composition analyzer
• IEEE Std 11073-10421-2010 Health informatics--Personal health device communication--Part 10421: Device specialization--Peak expiratory flow monitor (peak flow)
• IEEE Std 11073-10422-2016 Health informatics--Personal health device communication--Part 10422--Device specialization--Urine analyzer
• IEEE Std 11073-10424-2014 Health informatics--Personal health device communication--Part 10424: Device specialization--Sleep apnea breathing therapy equipment (SABTE)
• IEEE Std 11073-10425-2014 Health informatics--Personal health device communication--Part 10425: Device specialization--Continuous Glucose Monitor (CGM)
• IEEE Std 11073-10441-2013 Health Informatics--Personal health device communication--Part 10441: Device specialization--Cardiovascular fitness and activity monitor
• IEEE Std 11073-10442-2008 Health informatics--Personal health device communication--Part 10442: Device specialization--Strength fitness equipment
• IEEE Std 11073-10471-2008 Health informatics--Personal health device communication--Part 10471: Device specialization--Independent living activity hub
• IEEE Std 11073-10472-2010 Health informatics--Personal health device communication--Part 10472: Device specialization--Medication monitor
• IEEE Std 11073-20101-2004 Health informatics--Point-of-care medical device communication--Application profile--Base standard
• IEEE Std 11073-20601-2010 Health informatics--Personal health device communication--Part 20601: Application profile--Optimized exchange protocol
• IEEE Std 11073-30200-2000 Health informatics--Point-of-care medical device communication--Part 30200: Transport profile--Cable connected
• IEEE Std 11073-30200a-2011 Health informatics--Point-of-care medical device communication--Part 30200: Transport profile--Cable connected Amendment 1
• IEEE Std 11073-30400-2010 Health informatics--Point-of-care medical device communication--Part 30400: Interface profile--Cabled Ethernet

Current New or Revision Projects
• IEEE P1847 Draft Recommended Practice for Common Framework of Location Services (LS) for Healthcare
• IEEE P1859 Draft Standard for Relaxor-Based Single Crystals for Transducer and Actuator Applications
• IEEE P2650 Draft Standard For Enabling Mobile Device Platforms To Be Used As Pre-Screening Audiometric Systems
• IEEE P3333.1.2 Draft Standard for the Perceptual Quality Assessment of Three Dimensional (3D) and Ultra High Definition (UHD) Contents
• IEEE P3333.2.2 Draft Standard for Three-Dimensional (3D) Medical Visualization
• IEEE P3333.2.3 Draft Standard for Three-Dimensional (3D) Medical Data Management
• IEEE P3333.2.4 Draft Standard for Three-Dimensional (3D) Medical Simulation
• IEEE P3333.2.5 Draft Bio-CAD File Format for Medical Three-Dimensional (3D) Printing
• IEEE P11073-10101 Draft Standard for Health informatics--Point-of-care medical device communication--Part 10101: Nomenclature
• IEEE P11073-10101a Draft Standard for Health informatics--Point-of-care medical device communication--Part 10101: Nomenclature--Implantable device, cardiac Amendment 1: Additional definitions
• IEEE P11073-10207 Draft Standard for Domain Information & Service Model for Service-Oriented Point-of-Care Medical Device Communication
• IEEE P11073-10301-1 Draft Standard for Health informatics--Point-of-care medical device communication--Part 10301-1: Device specialization--Infusion pump, General
• IEEE P11073-10302-1 Draft Standard for Health informatics--Point-of-care medical device communication--Part 10302-1: Device specialization--Physiologic monitor, General
• IEEE P11073-10303-1 Draft Standard for Health informatics--Point-of-care medical device communication--Part 10303-1: Device specialization--Ventilator, General
• IEEE P11073-10316 Draft Trial-Use Health Informatics--Point-of-Care Medical Device Communication--Device Specialization--Dialysis device
• IEEE P11073-10404 Draft Standard for Health Informatics--Personal health device communication--Part 10404: Device Specializations--Pulse oximeter
• IEEE P11073-10406a Draft Standard for Health informatics--Personal health device communication--Part 10406: Device specialization--Basic electrocardiograph (ECG) (1- to 3-lead ECG) Amendment
• IEEE P11073-10407 Draft Standard for Health Informatics--Personal health device communication--Part 10407: Device specialization--Blood pressure monitor
• IEEE P11073-10408 Draft Standard for Health informatics--Personal health device communication--Part 10408: Device specialization--Thermometer
- IEEE P11073-10415 Draft Standard for Health informatics--Personal health device communication--Part 10415: Device specialization--Weighing scale
- IEEE P11073-10419-2015/Cor 1 Draft Standard for Health Informatics--Personal Health Device Communication - Part 10419: Device Specialization--Insulin Pump--Corrigendum 1
- IEEE P11073-10423 Draft Standard for Health informatics--Personal health device communication--Part 10423--Device specialization--Sleep monitor
- IEEE P11073-10424 Draft Standard for Health informatics--Personal health device communication--Part 10424: Device specialization--Sleep Apnoea Breathing Therapy Equipment (SABTE)
- IEEE P11073-10425-2014/Cor 1 Draft Standard for Health informatics--Personal health device communication--Part 10425: Device specialization--Continuous glucose monitoring (CGM)--Corrigendum 1
- IEEE P11073-10471a Draft Standard for Health informatics--Personal health device communication--Part 10471--Device specialization--Independent living activity hub Amendment
- IEEE P11073-20101 Draft Standard for Health informatics--Point-of-care medical device communication--Application profile--Base standard
- IEEE P11073-20301 Draft Standard for Health informatics--Point-of-care medical device communication--Part 20301: Application profile--Optional package, remote control
- IEEE P11073-20601 Draft Standard for Health informatics--Personal health device communication--Part 20601: Application profile--Optimized exchange protocol
- IEEE P11073-20702 Draft Standard for Medical Devices Communication Profile for Web Services