
Consumer Technology Association's (CTA)

Health and Fitness Technology Activities

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About CTA

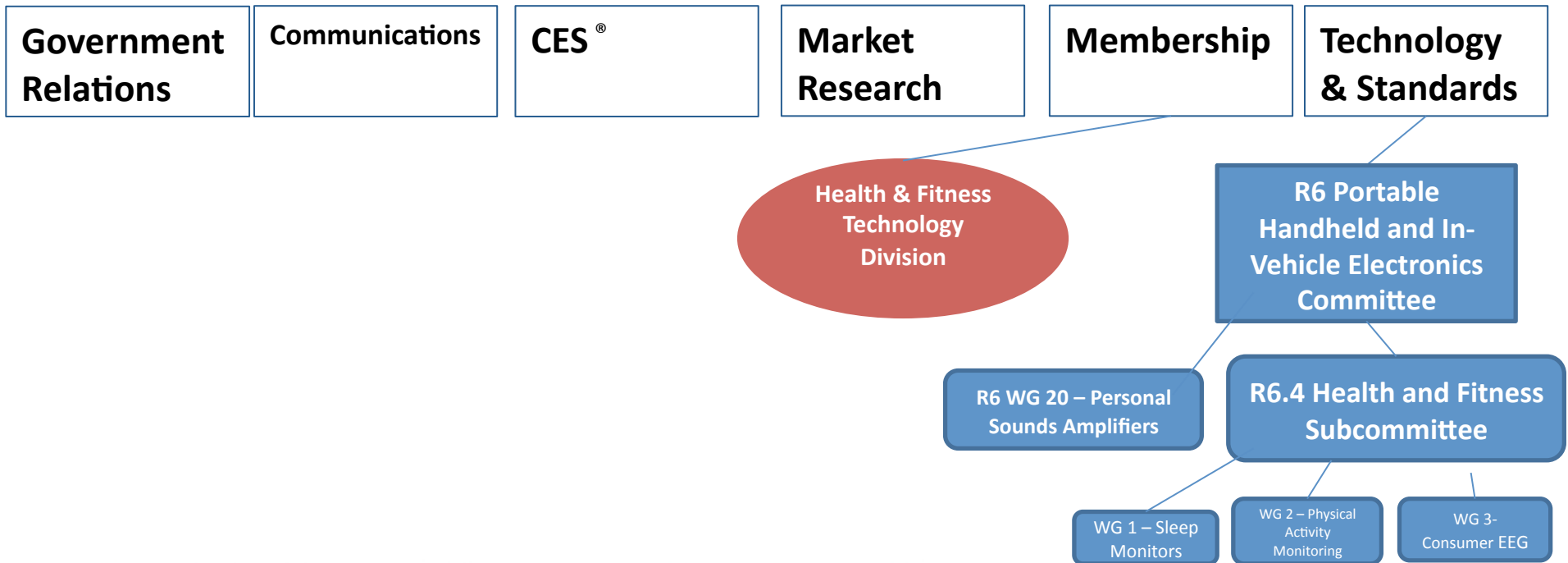
- Consumer Technology Association (CTA)TM, formerly the Consumer Electronics Association (CEA)[®], is the trade association representing the \$287 billion U.S. consumer technology industry. More than 2,200 companies - 80 percent are small businesses and startups; others are among the world's best known brands - enjoy the benefits of CTA membership including policy advocacy, market research, technical education, industry promotion, standards development and the fostering of business and strategic relationships. CTA also owns and produces CES[®] - the world's gathering place for all who thrive on the business of consumer technology.

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About Health and Fitness Technology Membership Division

- The Health and Fitness Technology Division of CTA strives to raise awareness of how consumer technologies can help improve health and fitness.
- Members:
 - AT&T
 - Fitbit
 - Fossil
 - Google
 - GreatCall
 - Humetrix
 - Jawbone
 - Lose It
 - MC10
 - Neurosky
 - Nortek Security and Control
 - Phillips
 - Qualcomm Life
 - Samsung
 - Sony Electronics
 - Under Armour
 - Valencell
 - Validic
 - Verizon
 - Walgreens

Health & Fitness Technology Membership Division: Key Accomplishments

- Created and published industry Guiding Principles for the Privacy and Security of Personal Health and Wellness Devices (available [here](#)).
- Created a dedicated program for health and wellness providers at CES.
- Published the following market research reports over the last few years:
 - Active Aging research report (available [here](#)).
 - Consumer Awareness and Perceptions of Sleep Technology (available [here](#)).
 - Wearable Health & Fitness Technology in U.S. Medical Care (soon to be published).
- Hosted a Medical Advisory Summit for the medical, exercise science, and technology communities to collaborate on increased adoption of digital health technologies.
- Hosted the Digital Health Tech Expo and Conference at the FDA attracting 450 FDA attendees.

About Health and Fitness Technology Standards Subcommittee

- CTA's Health and Fitness Technology Subcommittee (R6.4) develops standards, recommended practices, and related documentation for consumer health and fitness technology, including fixed, portable and wearable health and fitness devices.
- The subcommittee currently has 3 working groups:
 - Sleep Monitors (R6.4 WG 1)
 - Physical Activity Monitoring (R6.4 WG 2)
 - Consumer EEG (R6.4 WG 3)

Members [1/2]

- 2breathe Technologies
- AcousticSheep, LLC
- Adidas Digital Sports
- Ambulatory Monitoring, Inc.
- Analog Devices, Inc.
- Army Research Lab
- AT&T Inc
- Beddit
- CWLab International
- Dolby Laboratories Inc.
- Firstbeat Technologies Ltd
- Fitbit, Inc.
- Freescale Semiconductor
- Gibson Brands, Inc.
- Google Inc.
- GreatCall, Inc
- Hawley Montgomery-Downs
- Hillcrest Laboratories Inc.
- Huawei Device Co., Ltd
- Hyundai Motor Company
- Indie Health
- Invisionate
- Jawbone
- Koneksa Health
- Kryo LLC
- LG Electronics
- MC10
- Micron
- Misfit Inc./ Fossil Group
- National Sleep Foundation

Members [2/2]

- NeuroSky
- Ouraring Inc.
- Patient IO
- Philips Electronics N.A. Corp.
- Qualcomm Incorporated
- Quell/Neurometrix
- Qusp
- Responsive Surface Technology
- Samsung Electronics
- Skulpt
- Sleep Shepherd LLC
- Spire
- Spritely (Green Flamingo)
- Strap
- Tandemlaunch
- Timex Corporation
- Under Armour
- Underwriters Laboratories, Inc.
- Valencell Inc.
- Validic
- Variowell Development GmbH
- Veristride
- Virtual Inc.
- VOXX International
- Walgreens
- Wearable Sensing
- Withings
- Workout Cancer

Leadership

- Health and Fitness Subcommittee Co-Chairs
 - Dr. Matthew Diamond, M.D., Medical Director, Misfit Inc./Fossil Group
 - Dr. Chris Eschbach, Director Biometrics Laboratory, Valencell
- Sleep Monitors Working Group Leader
 - James Tranchina, VP of Engineering, VOXX International
- Physical Activity Monitoring Working Group Leader
 - Andrew Hooge, Senior Product Manager, Validic
- Consumer EEG Data Working Group Leader
 - Dr. Nima Bigdely-Shamlo, Co-Founder & Chief Data Officer, Qusp

Sleep Monitors Working Group

Scope: The Sleep Monitors Working Group will develop standards, bulletins and other documents addressing sleep monitoring technology.

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Sleep Monitors WG Status [1/2]

- The Sleep Monitors Working Group completed its work on ANSI/CTA/NSF-2052.1, *Glossary of Terms for Sleep Wearable Devices*.
 - Scope:
 - This voluntary standard defines terms used to describe sleep and indicates, where appropriate, the functionality necessary in a consumer sleep measuring device to measure those characteristics. This standard provides definitions of sleep features terminology recommended for wearable sleep monitoring consumer products.
- This standard has been published and is available for purchase [here](#).

Sleep Monitors WG Status [2/2]

- Work was initiated in October 2016 on ANSI/CTA-2052.2, *Methodology of Measurements for Features in Sleep Tracking Consumer Technology Devices and Applications*.
 - Scope: This voluntary standard defines the methodology of measuring elemental and derived parameters used in consumer technology devices and applications that evaluate sleep. The elemental and derived measures covered within this standard are contained within ANSI/CTA-2052.1, Definitions and Characteristics for Wearable Sleep Monitors.
- The WG is discussing/defining the description of measures (e.g., direct, inferred, sleep standard) for different methodologies (e.g., self-report, observation, sensors, actigraphy, PSG, ANS, Body Temp, and Endocrinology) that can be used to measure the terms.

Physical Activity Monitoring Working Group

Scope: The Physical Activity Monitoring Working Group will create definitions and performance standards for physical activity monitoring devices.

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Physical Activity Monitoring WG Status [1/2]

- The Physical Activity Monitoring Working Group completed its work on, ANSI/CTA-2056, *Physical Activity Monitoring for Fitness Wearables - Step Counting*.
 - Scope:
This standard creates definitions and performance criteria for measuring step counting on consumer wearable or app-based physical activity monitoring devices.
- This standard has been published and is available for purchase [here](#).

Physical Activity Monitoring WG Status [2/2]

- Work was initiated in August 2016 on ANSI/CTA-2065 *Physical Activity Monitoring for Heart Rate and Related Measures*
 - Scope: To create definitions and performance criteria for consumer technology that measures heart rate or related parameters.
 - The WG has is considering the following use cases for inclusion in the standard:
 - Heart Rate while Sedentary
 - Walking
 - Jogging/Running
 - Dynamic walking or Jogging/Running (Intervals)
 - Typical Activity/Lifestyle Activity (e.g., typing)
 - The WG is discussing the control devices (e.g., chest straps, EKG) and the identified accuracy thresholds (e.g., ANSI/AAMI/IEC 60601-2-27/Ed.4, Medical electrical equipment - Part 2-27: Particular requirements for the basic safety and essential performance of electrocardiographic monitoring equipment) to be used within the standard.

Consumer EEG Data Working Group

The Consumer EEG Data Working Group will create standards for local transmission, event description, user state description, file storage, and group-level meta-data encapsulation.

Consumer EEG WG Status [1/2]

- Work continues on the development of ANSI/CTA-2060, *Interoperability Standards Series for Consumer EEG Data - File Storage*.
 - Scope: This standard describes an extensible container file format for time-synchronized multi-channel time-series data of various types, with a focus on biosignal data such as EEG, EMG, EOG, ECG, GSR, MEG, nNIRS, fMRI and event markers. Other data types are addressed by vendor-specific or general-interest extensions (for instance, accelerometer, gyroscope, PCM/MP3 audio, raw/H.264 video).
 - The WG continues to discuss replacing XDF with “Orchestra container format” (“Orchestra” for short, “.orcc” for extension).
 - A main feature of XDF is the temporal synchronization of data streams produced from different instruments. The name Orchestra elicits desirable associations since temporal synchrony from streams of sound produced from different musical instruments is a prominent feature of an orchestra.
 - The WG recently moved the audio and gaze modalities to the normative Annex A, while retaining MoCap (Motion Capture), Video Compressed, and Video Raw in the informative Annex B. WG has additionally initiated discussions on how to allow for custom fields to avoid conflicts within the data set.
 - The WG is preparing outreach to industry SMEs to collect input on the standard.

Consumer EEG WG Status [2/2]

- Other open projects include:
 - ANSI/CTA-2057 – *Interoperability Standards Series for Consumer EEG Data – Local Transmission*
 - ANSI/CTA-2058 – *Interoperability Standards Series for Consumer EEG Data – Event Description*
 - ANSI/CTA-2059 – *Interoperability Standards Series for Consumer EEG Data – User State Description*
 - ANSI/CTA-2061 – *Interoperability Standards Series for Consumer EEG Data – Group-level Meta-data Encapsulation*

OTHER PROJECTS OF INTEREST

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CTA's Portable Handheld and In-Vehicle Electronics Committee (R06) Personal Sound Amplification Working Group (WG20)

Scope: The Personal Sound Amplification Working Group develops performance criteria, measurement protocols, and other technical guidance for products that provide personal sound amplification.

Members

- Andrea Electronics Corp.
- Apple Inc.
- AST Technology Labs
- Audio Authority Corp.
- Audio Precision, Inc
- Bose Corporation
- Dolby Laboratories Inc.
- Doppler Labs
- Etymotic Research, Inc.
- Fox Entertainment Group
- Gibson Brands, Inc.
- Hearing Loss Association of America
- Helen Keller National Center
- JVC Kenwood
- Panasonic Corporation
- Plantronics Inc.
- Qualcomm Incorporated
- Telecommunications Industry Association
- VOXX International
- VTech Communications Ltd. USA

Leadership

- Dr. Poppy Crum, Senior Scientist, Technology Strategy, Dolby Laboratories Inc.
- Dr. Mead Killion, Chief Technology Officer and Founder, Etymotic Research, Inc.

Personal Sound Amplification WG Status

- ANSI/CTA-2051 - *Personal Sound Amplification Performance Criteria*
 - Scope: This standard describes technical performance metrics and associated target values for consumer products that provide personal sound amplification and/or enhancement to a user and meet the baseline requirements for this standard. Personal sound amplification may be a single function within a larger set of device capabilities. Descriptions of feature specific device performance baselines and metrics of measurement are described. Device performance capabilities have been divided into feature specific sub-sections that identify: target and baseline performance values, metrics of measurement necessary to identify feature specific performance values, and methods of reporting prescribed to each feature specific value.
- This standard has entered the final approval stage within CTA and is anticipated to be completed and published in early January 2017.

Future Work Area Under Consideration

- Standards Projects:
 - Performance Criteria for Sleep Tracking Consumer Technology Devices and Applications
 - Additional Heart Rate Accuracy Use Cases [Biking/Cycling, Swimming, Circuit Training (e.g., weight lifting/cross training)]
 - Energy expenditure
 - Exercise Intensity
 - Accuracy of Activity (non-walking/running)
 - Walking/running velocity
 - Behavioral health
- Product Mark Programs: Self-certification programs that allow manufacturers to display via a logo their compliance with CTA standards.
 - ANSI/CTA-2051 - *Personal Sound Amplification Performance Criteria*
 - ANSI/CTA-2065 - *Physical Activity Monitoring for Heart Rate and Related Measures*

Save the Date for CTA Spring Technology & Standards Forum

May 9 – 11, 2017 – San Francisco, CA

- Health and Fitness Panels
- Meetings of CTA Health and Fitness Standards Committees

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Contact

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