

# American National Standard

for Cognitive Accessibility –

**Volume 1:**

**Universal Criteria for Reporting the  
Cognitive Accessibility of Products and  
Technologies**

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# RESNA

Rehabilitation Engineering and Assistive Technology Society of North America

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American National Standard  
for Cognitive Accessibility –

**Volume 1:  
Universal Criteria for Reporting the Cognitive  
Accessibility of Products and Technologies**

Secretary

**Rehabilitation Engineering and Assistive  
Technology Society of North America**

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## Foreword

This standard addresses the accessibility of technologies identified as priorities for people with cognitive impairments, which includes cell phones, microwave ovens, and fire extinguishers. The initial focus will be on the accessibility of devices, generally excluding software products, services, or web-page design. However, some software and interface design that is essential to the device's operation may be addressed. Future sections of this standard may be developed to address software, web-page design, or service delivery.

Because of the extraordinary nature of specifying appropriate technology for cognitive inclusion, this initial standard is limited to specifications and test method disclosure requirements only. At the time this standard was published, there was not enough research available in the area of increasing cognitive accessibility to add any pass/fail requirements. This initial set of specifications identified as important to cognitive accessibility may be used as a basis for more research to create guidelines or requirements to provide guidance for design of technologies for specific users and applications.

RESNA CA Volume 1 consists of the following sections under the general title Cognitive Accessibility:

### **Volume 1: Universal Criteria for Reporting the Cognitive Accessibility of Products and Technologies**

Section 1: **Universal Criteria for Reporting the Cognitive Accessibility of Products and Technologies – General**

Work in progress

Section 2: **Universal Criteria for Reporting the Cognitive Accessibility of Touchscreens**

Section 3: **Universal Criteria for Reporting the Cognitive Accessibility of Assistive Technology Products**

Section 4: **Universal Criteria for Reporting the Cognitive Accessibility of Fire Extinguisher**

Section 5: **Universal Criteria for Reporting the Cognitively Accessibility of Oven—Microwave**

Section 6: **Universal Criteria for Reporting the Cognitive Accessibility of Phone—Cell**

This standard had its inception in June of 2010 through the work of the Rehabilitation Engineering Research Center for Advancing Cognitive Technologies (RERC-ACT) to make technologies more accessible to people with cognitive impairment. Universal design for differing physical and sensory abilities had become increasingly sophisticated for web design, software, and hardware devices. However, manufacturers of technology devices and developers have had limited guidance for addressing the needs of the more than 23 million Americans with cognitive impairments.

Additionally, many of the guidelines for other impairments were generalized with no measurable outcome. These standards were initiated to fill those gaps.

Because many cognitive impairments coexist with a physical and/or sensory impairment, cognitive standards cannot be isolated for a product to be accessible. Therefore, these standards take a universal design approach. These standards are intended to give manufacturers requirements to meet the needs of the broadest possible market and significantly improve accessibility. There is no expectation that products will meet the needs of persons with severe cognitive impairment.

RESNA CA has been working closely with the work being developed under ISO/TC 173 Assistive Products for Persons with Disability / WG 10 Assistive products for cognitive disabilities. In this work ISO is developing an umbrella guideline called "Basic Principles and General Guidelines on Cognitive Accessibility" covering all product and all services. ISO is also developing specific standards on Assistive Technologies, with the first covering issues with Time Management.

RESNA is accredited as a standards organization and the Assistive Technology Standards Board oversees the work of the RESNA standards committees. RESNA is an interdisciplinary organization that promotes assistive technology for people with disabilities.

Suggestions for the improvement of this standard are welcome. They should be sent to the following address:

**RESNA Assistive Technology Standards Board  
1560 Wilson Blvd., Suite 850  
Arlington, VA 22209**

This standard was approved by the RESNA Standards Committee on Cognitive Accessibility and the RESNA Assistive Technology Standards Board for submittal to ANSI. Committee approval of the standard does not necessarily imply that all the committee members voted for its approval or the approval of every test method or requirement in the standard. At the time the standard was developed, the RESNA Standards Committee on Cognitive Accessibility<sup>1</sup> consisted of the following members:

<b><i>Organization Represented</i></b>	<b><i>Name of Representative</i></b>
Beneficial Designs, Inc.....	Chair, Seanna Kringen
Assistive Technology Partners.....	Vice-Chair, Greg McGrew
University of York, UK and BSI (British Standards Institution).....	Secretary, Stefan Carmien
Agency for Participation .....	Karl-Erik Westman
Assistive Technology Partners.....	Cathy Bodine
Beneficial Designs, Inc.....	Peter Axelson
Challenged Conquistadors, Inc. ....	Shaun Best
Ithaca College.....	Lynn Gitlow
Institute for Matching Person & Technology.....	Marcia Scherer
Medicaid Reference Desk .....	Nancy Ward
University of Colorado.....	Clayton Lewis
University of Maryland, College Park .....	Gregg Vanderheiden

University of Southern Queensland.....Emily Steel  
University of Waterloo..... Jennifer Boger, Alex Mihailidis  
US Access Board..... Timothy Creagan  
..... Nina Anderson  
.....Chris Field

Stephanie Schnorbus (Beneficial Designs, Inc.) assisted the RESNA Standards Committee on Cognitive Accessibility as Technical Standards Editor.

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## Scope of Volume 1

**Volume 1:** Universal Criteria for Reporting the Cognitive Accessibility of Products and Technologies

This RESNA standard does not apply to: (1) software or (2) web page design.

This standard specifies requirements for disclosing design and performance criteria related to cognition. At this time there are no pass/fail criteria associated with any of the specifications.

1.1 This standard establishes disclosure criteria for the universal design of products used by people with cognitive impairments in all conditions.

1.2 This standard is intended to increase access to a variety of products for people with cognitive impairments. This standard reports measurable and functional characteristics of products to assist users in determining if the product will meet their specific needs.

1.3 Using this standard does not preclude meeting other applicable standards and test methods for the product.

1.4 This standard is intended to help people with cognitive impairments select products for usability in order to reduce impairment and increase function for people with cognitive impairments.

**WARNING:** This RESNA Standard calls for the use of procedures that may be injurious to the testing technician if adequate precautions are not taken.

## **Section 1**

# **Universal Criteria for Reporting the Cognitive Accessibility of Products and Technologies – General**

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## Section 1 Introduction

This section of the RESNA CA-1 standard was drafted based in part on the work of the Rehabilitation Engineering Research Center for Advancing Cognitive Technologies (RERC-ACT), [www.rerc-act.org](http://www.rerc-act.org).

Funding is provided in part by the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR) Grant #: 90RE5019-01-00, the National Institute on Disability and Rehabilitation Research (NIDRR) under the US Department of Education, Grants #H133E090003 and H133E140054 and the Coleman Institute for Cognitive Disabilities.

# Section 1: Universal Criteria for Reporting the Cognitive Accessibility of Products and Technologies – General

## 1 Scope

This section of RESNA CA-1 specifies features, measurement methods, and documentation for reporting the universal design specifications that support inclusion of individuals with cognitive impairment.

NOTE RESNA CA-1, Section 1 does not apply to screens. Screens, including touchscreens will be addressed in a RESNA CA-1 dedicated section (Section 2) in the future.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ASTM F3021: Standard Specification for Universal Design of Fitness Equipment for Inclusive Use by Persons with Functional Limitations and Impairments

ASTM F3022: Standard Test Method for Evaluating the Universal Design of Fitness Equipment for Inclusive Use by Persons with Functional Limitations and Impairments

WHO 2001: International Classification of Functioning, Disability and Health (ICF)

## 3 Terms and definitions

For the purposes of this section of RESNA CA-1, the following terms and definitions apply:

### 3.1 color coding

the use of color to differentiate various input and output mechanisms

NOTE Color coding is sometimes used to match plugs with ports.

### 3.2 color value contrast

the difference in luminance between two or more surfaces seen simultaneously or successively.

NOTE There are three basic properties of color: Hue (the color), Saturation (or intensity), and Value (or Lightness) (See Fig. 1).