

WCAG

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Fundamental

- Code is well-formed
 - Adhere to syntactic rules
 - E.g. matching opening and closing tags
 - E.g. correct nesting
- Code is valid
 - Adhere to semantic rules
 - Correct use of elements
- <http://validator.w3.org/>

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Accessibility Validation

- WAVE
 - <http://wave.webaim.org/>
- Should be complemented with user testing

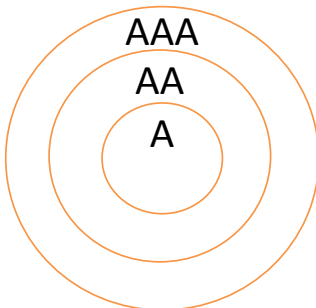
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WCAG

- Web Content Accessibility Guidelines
- Version 1.0
 - Basis for Section 508 Legislation in US
 - Easily assessed, automated
- Version 2.0
 - Based on principles of Universal Design
 - Requires user testing

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WCAG Conformance Levels



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WCAG Level A

- When you conform with Level A, it means that you eliminate the major accessibility barriers.
- This does not mean that your web site is very accessible, it only ensures that it is accessible for the most part for most scenarios.
- Unless you have a specific reason to use only Level A, it is not recommended.

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WCAG Level AA

- If you conform with Level AA, it means that your web site will be accessible for most people, under most circumstances, with most technologies they use.
- Level AA is what most accessible sites follow, and when WCAG conformance is required, Level AA is mostly specified.

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WCAG Level AAA

- This conformance level is very meticulous, ensures a very high level of accessibility, but it is also very difficult to maintain.
- Level AAA is relevant in very specific situations, mostly related to live material, or just to refine the requirements of Level AA.

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POUR Principles

- Principle 1: Perceivable
- Principle 2: Operable
- Principle 3: Understandable
- Principle 4: Robust

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POUR Principles

- Principle 1: Perceivable
 - 1.1: Text Alternatives
 - 1.2: Time-based Media
 - 1.3: Adaptable
 - 1.4: Distinguishable
- Explained in brief
 - For people who cannot use one or more of their senses there should still be an alternative way of obtaining the information you want to communicate to them

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POUR Principles

- Principle 2: Operable
 - 2.1: Keyboard Accessible
 - 2.2: Enough Time
 - 2.3: Seizures
 - 2.4: Navigable
- Explained in brief
 - Provide a way to achieve functionalities regardless of disabilities

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POUR Principles

- Principle 3: Understandable
 - 3.1: Readable
 - 3.2: Predictable
 - 3.3: Input Assistance
- Explained in brief
 - Allow the users to actually understand and make sense of the content

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POUR Principles

- Principle 4: Robust
 - 4.1: Compatible
- Explained in brief
 - Ensures that the content can be interpreted by different technologies such as browsers and assistive technologies

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Perceivable

- Guideline 1.1
 - Text Alternatives: Provide text alternatives for any non-text content
- Level A Success Criteria
 - 1.1.1 Non-text Content

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1.1.1 Non-text Content (A)

- All images, form image buttons, and image map hot spots have appropriate, equivalent alternative text.
- Images that do not convey content, are decorative, or contain content that is already conveyed in text are given null alt text (alt="") or implemented as CSS backgrounds. All linked images have descriptive alternative text.
- Equivalent alternatives to complex images are provided in context or on a separate (linked and/or referenced via longdesc) page.
- Form buttons have a descriptive value.
- Form inputs have associated text labels or, if labels cannot be used, a descriptive title attribute.
- Embedded multimedia is identified via accessible text.
- Frames are appropriately titled.

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Perceivable

- Guideline 1.2
 - Time-based Media: Provide alternatives for time-based media
- Level A Success Criteria
 - 1.2.1 Prerecorded Audio-only and Video-only
 - 1.2.2 Captions (Prerecorded)
 - 1.2.3 Audio Description or Media Alternative (Prerecorded)

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Perceivable

- Guideline 1.2
 - Time-based Media: Provide alternatives for time-based media
- Level AA Success Criteria
 - 1.2.4 Captions (Live)
 - 1.2.5 Audio Description (Prerecorded)

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Perceivable

- Guideline 1.2
 - Time-based Media: Provide alternatives for time-based media
- Level AAA Success Criteria
 - 1.2.6 Sign Language (Prerecorded)
 - 1.2.7 Extended Audio Description (Prerecorded)
 - 1.2.8 Media Alternative (Prerecorded)
 - 1.2.9 Audio-only (Live)

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Perceivable

- Guideline 1.3
 - Adaptable: Create content that can be presented in different ways (for example simpler layout) without losing information or structure
- Level A Success Criteria
 - 1.3.1 Info and Relationships
 - 1.3.2 Meaningful Sequence
 - 1.3.3 Sensory Characteristics

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1.3.1 Info and Relationships (A)

- Semantic markup is used to designate headings (<h1>), lists (, , and <dl>), emphasized or special text (, <code>, <abbr>, <blockquote>, for example), etc. Semantic markup is used appropriately.
- Tables are used for tabular data. Where necessary, data cells are associated with their headers. Data table captions and summaries are used where appropriate.
- Text labels are associated with form input elements. Related form elements are grouped with fieldset/legend.

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1.3.2 Meaningful Sequence (A)

- The reading and navigation order (determined by code order) is logical and intuitive

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1.3.3 Sensory Characteristics (A)

- Instructions do not rely upon shape, size, or visual location (e.g., "Click the square icon to continue" or "Instructions are in the right-hand column").
- Instructions do not rely upon sound (e.g., "A beeping sound indicates you may continue.").

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Perceivable

- Guideline 1.4
 - Distinguishable: Make it easier for users to see and hear content including separating foreground from background
- Level A Success Criteria
 - 1.4.1 Use of Color
 - 1.4.2 Audio Control

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Perceivable

- Guideline 1.4
 - Distinguishable: Make it easier for users to see and hear content including separating foreground from background
- Level AA Success Criteria
 - 1.4.3 Contrast (Minimum)
 - 1.4.4 Resize text
 - 1.4.5 Images of Text

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Perceivable

- Guideline 1.4
 - Distinguishable: Make it easier for users to see and hear content including separating foreground from background
- Level AAA Success Criteria
 - 1.4.6 Contrast (Enhanced)
 - 1.4.7 Low or No Background Audio
 - 1.4.8 Visual Presentation
 - 1.4.9 Images of Text (No Exception)

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1.4.1 Use of Color (A)

- Color is not used as the sole method of conveying content or distinguishing visual elements.
- Color alone is not used to distinguish links from surrounding text unless the luminance contrast between the link and the surrounding text is at least 3:1 and an additional differentiation (e.g., it becomes underlined) is provided when the link is hovered over or receives focus.

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1.4.3 Contrast (Minimum) (AA)

- Text and images of text have a contrast ratio of at least 4.5:1.
- Large text (over 18 point or 14 point bold) has a contrast ratio of at least 3:1
- <http://webaim.org/resources/contrastchecker>

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1.4.5 Images of Text (AA)

- If the same visual presentation can be made using text alone, an image is not used to present that text.

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1.4.8 Visual Presentation (AAA)

- Blocks of text over one sentence in length:
 - Are no more than 80 characters wide.
 - Are NOT fully justified (aligned to both the left and the right margins).
 - Have adequate line spacing (at least 1/2 the height of the text) and paragraph spacing (1.5 times line spacing).
 - Have a specified foreground and background color. These can be applied to specific elements or to the page as a whole using CSS (and thus inherited by all other elements).
 - Do NOT require horizontal scrolling when the text size is doubled.

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Operable

- Guideline 2.1
 - Keyboard Accessible: Make all functionality available from a keyboard
- Level A Success Criteria
 - 2.1.1 Keyboard
 - 2.1.2 No Keyboard Trap

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Operable

- Guideline 2.1
 - Keyboard Accessible: Make all functionality available from a keyboard
- Level AAA Success Criteria
 - 2.1.3 Keyboard (No Exception)

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2.1.1 Keyboard (A)

- All page functionality is available using the keyboard, unless the functionality cannot be accomplished in any known way using a keyboard (e.g. free hand drawing).
- Page-specified shortcut keys and accesskeys (accesskey should typically be avoided) do not conflict with existing browser and screen reader shortcuts.

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Operable

- Guideline 2.2
 - Enough Time: Provide users enough time to read and use content
- Level A Success Criteria
 - 2.2.1 Timing Adjustable
 - 2.2.2 Pause, Stop, Hide

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Operable

- Guideline 2.2
 - Enough Time: Provide users enough time to read and use content
- Level AAA Success Criteria
 - 2.2.3 No Timing
 - 2.2.4 Interruptions
 - 2.2.5 Re-authenticating

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2.2.1 Timing Adjustable (A)

- If a page or application has a time limit, the user is given options to turn off, adjust, or extend that time limit. This is not a requirement for real-time events (e.g., an auction), where the time limit is absolutely required, or if the time limit is longer than 20 hours.

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2.2.3 No Timing (AAA)

- The content and functionality has no time limits or constraints.

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Operable

- Guideline 2.3
 - Seizures: Do not design content in a way that is known to cause seizures
- Level A Success Criteria
 - 2.3.1 Three Flashes or Below Threshold
- Level AAA Success Criteria
 - 2.3.2 Three Flashes

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2.3.1 Three Flashes or Below Threshold (A)

- No page content flashes more than 3 times per second unless that flashing content is sufficiently small and the flashes are of low contrast and do not contain too much red.

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Operable

- Guideline 2.4
 - Navigable: Provide ways to help users navigate, find content, and determine where they are
- Level A Success Criteria
 - 2.4.1 Bypass Blocks
 - 2.4.2 Page Titled
 - 2.4.3 Focus Order
 - 2.4.4 Link Purpose (In Context)

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Operable

- Guideline 2.4
 - Navigable: Provide ways to help users navigate, find content, and determine where they are
- Level AA Success Criteria
 - 2.4.5 Multiple Ways
 - 2.4.6 Headings and Labels
 - 2.4.7 Focus Visible

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Operable

- Guideline 2.4
 - Navigable: Provide ways to help users navigate, find content, and determine where they are
- Level AAA Success Criteria
 - 2.4.8 Location
 - 2.4.9 Link Purpose (Link Only)
 - 2.4.10 Section Headings

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2.4.1 Bypass Blocks (A)

- A link is provided to skip navigation and other page elements that are repeated across web pages.
- If a page has a proper heading structure, this may be considered a sufficient technique instead of a "Skip to main content" link. Note that navigating by headings is not yet supported in all browsers.
- If a page uses frames and the frames are appropriately titled, this is a sufficient technique for bypassing individual frames.

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2.4.2 Page Titled (A)

- The web page has a descriptive and informative page title.

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2.4.3 Focus Order (A)

- The navigation order of links, form elements, etc. is logical and intuitive.

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2.4.4 Link Purpose (In Context) (A)

- The purpose of each link (or form image button or image map hotspot) can be determined from the link text alone, or from the link text and it's context (e.g., surrounding paragraph, list item, table cell, or table headers).
- Links (or form image buttons) with the same text that go to different locations are readily distinguishable.

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2.4.5 Multiple Ways (AA)

- Multiple ways are available to find other web pages on the site - at least two of:
 - a list of related pages
 - table of contents
 - site map
 - site search
 - list of all available web pages

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2.4.6 Headings and Labels (AA)

- Page headings and labels for form and interactive controls are informative.
- Avoid duplicating heading (e.g., "More Details") or label text (e.g., "First Name") unless the structure provides adequate differentiation between them.

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2.4.7 Focus Visible (AA)

- It is visually apparent which page element has the current keyboard focus (i.e., as you tab through the page, you can see where you are).

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2.4.8 Location (AAA)

- If a web page is part of a sequence of pages or within a complex site structure, an indication of the current page location is provided, for example, through breadcrumbs or specifying the current step in a sequence (e.g., "Step 2 of 5 - Shipping Address").

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2.4.9 Link Purpose (Link Only) (AAA)

- The purpose of each link (or form image button or image map hotspot) can be determined from the link text alone.
- There are no links (or form image buttons) with the same text that go to different locations.

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2.4.10 Section Headings (AAA)

- Beyond providing an overall document structure, individual sections of content are designated using headings, where appropriate.

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Understandable

- Guideline 3.1
 - Readable: Make text content readable and understandable
- Level A Success Criteria
 - 3.1.1 Language of Page
- Level AA Success Criteria
 - 3.1.2 Language of Parts

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Understandable

- Guideline 3.1
 - Readable: Make text content readable and understandable
- Level AAA Success Criteria
 - 3.1.3 Unusual Words
 - 3.1.4 Abbreviations
 - 3.1.5 Reading Level
 - 3.1.6 Pronunciation

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3.1.1 Language of Page (A)

- The language of the page is identified using the HTML lang attribute (<html lang="en">, for example).

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3.1.3 Unusual Words (AAA)

- Words that may be ambiguous, unknown, or used in a very specific way are defined through adjacent text, a definition list, a glossary, or other suitable method.

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3.1.4 Abbreviations (AAA)

- Expansions for abbreviations are provided by expanding or explaining the definition the first time it is used, using the <abbr> element, or linking to a definition or glossary.
- WCAG 2.0 gives no exception for regularly understood abbreviations (e.g., "HTML" on a web design site must always be expanded).

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3.1.5 Reading Level (AAA)

- A more understandable alternative is provided for content that is more advanced than can be reasonably read by a person with roughly 9 years of primary
- See <http://www.readabilityformulas.com/> (SMOG and FOG tests)

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Understandable

- Guideline 3.2
 - Predictable: Make Web pages appear and operate in predictable ways
- Level A Success Criteria
 - 3.2.1 On Focus
 - 3.2.2 On Input

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Understandable

- Guideline 3.2
 - Predictable: Make Web pages appear and operate in predictable ways
- Level AA Success Criteria
 - 3.2.3 Consistent Navigation
 - 3.2.4 Consistent Identification
- Level AAA Success Criteria
 - 3.2.5 Change on Request

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3.2.1 On Focus (A)

- When a page element receives focus, it does not result in a substantial change to the page, the spawning of a pop-up window, an additional change of keyboard focus, or any other change that could confuse or disorient the user.

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3.2.2 On Input (A)

- When a user inputs information or interacts with a control, it does not result in a substantial change to the page, the spawning of a pop-up window, an additional change of keyboard focus, or any other change that could confuse or disorient the user unless the user is informed of the change ahead of time.

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3.2.3 Consistent Navigation (AA)

- Navigation links that are repeated on web pages do not change order when navigating through the site.

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3.2.4 Consistent Identification (AA)

- Elements that have the same functionality across multiple web pages are consistently identified. For example, a search box at the top of the site should always be labeled the same way.

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Understandable

- Guideline 3.3
 - Input Assistance: Help users avoid and correct mistakes
- Level A Success Criteria
 - 3.3.1 Error Identification
 - 3.3.2 Labels or Instructions

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Understandable

- Guideline 3.3
 - Input Assistance: Help users avoid and correct mistakes
- Level AA Success Criteria
 - 3.3.3 Error Suggestion
 - 3.3.4 Error Prevention (Legal, Financial, Data)
- Level AAA Success Criteria
 - 3.3.5 Help
 - 3.3.6 Error Prevention (All)

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3.3.1 Error Identification (A)

- Required form elements or form elements that require a specific format, value, or length provide this information within the element's label (or if a label is not provided, within the element's title attribute).
- If utilized, form validation errors are presented in an efficient, intuitive, and accessible manner. The error is clearly identified, quick access to the problematic element is provided, and user is allowed to easily fix the error and resubmit the form.

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3.3.2 Labels or Instructions (A)

- Sufficient labels, cues, and instructions for required interactive elements are provided via instructions, examples, properly positioned form labels, and/or fieldsets/legends.

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3.3.3 Error Suggestion (AA)

- If an input error is detected (via client-side or server-side validation), provide suggestions for fixing the input in a timely and accessible manner.

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3.3.4 Error Prevention (Legal, Financial, Data) (AA)

- If the user can change or delete legal, financial, or test data, the changes/deletions can be reversed, verified, or confirmed.

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3.3.5 Help (AAA)

- Provide instructions and cues in context to help in form completion and submission.

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Robust

- Guideline 4.1
 - Compatible: Maximize compatibility with current and future user agents, including assistive technologies
- Level A Success Criteria
 - 4.1.1 Parsing
 - 4.1.2 Name, Role, Value

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4.1.1 Parsing (A)

- Significant HTML/XHTML validation/parsing errors are avoided.
- Check at <http://validator.w3.org/>

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4.1.2 Name, Role, Value (A)

- Markup is used in a way that facilitates accessibility.
- This includes following the HTML/XHTML specifications and using forms, form labels, frame titles, etc. appropriately.
- For example, see
 - <http://wave.webaim.org/>
 - <http://validator.w3.org/mobile/>

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Legislation

- Section 508
 - <http://www.section508.gov/>
 - <http://webaim.org/standards/508/checklist>
- EU Mandate 376
 - <http://www.mandate376.eu/>

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Section 508

- Amendment to Workforce Rehabilitation Act 1973
- The amendment was signed into law in 1998
- Binding, enforceable web standards (and others) that are incorporated into the Federal Procurement process (based on WCAG 1.0)
- Does not directly apply to private sector web sites or to public sites which are not U.S. Federal agency sites.

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Section 508 – In theory...

- Combined purchasing power of US Federal agencies is tremendous.
- If the US Federal agencies require accessible IT, then companies will respond by
 - Offering accessible IT to the government
 - Rather than have two sets of products, they would offer accessible IT for everybody

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European Response

- Riga Declaration
 - Ministers of 34 European countries signed a declaration on 'e-Inclusion' in Riga on 11 June 2006
 - To ensure compliance of 100% of public websites to common standard and practices for web accessibility by 2010

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European Response

- European Accessibility Requirements for Public Procurement of Products and Services in the ICT Domain
- May 2011
- Still in draft

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References

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- Colour Contrast Ratio
 - <http://webaim.org/resources/contrastchecker/>

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- Accessibility Analyser
 - <http://wave.webaim.org/>
- WCAG Tutorial
 - <http://www.evengrounds.com/wcag-tutorial/overview>

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References

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 - <http://www.section508.gov/>
- Section 508 Compliance (WCAG 1.0)
 - <http://webaim.org/standards/508/checklist>
- Mandate 376
 - <http://www.mandate376.eu/>

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