**Guidance notes on testing EPUB Reading Systems for accessibility**

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# Vocabulary to note:

* Reading Device: a standalone eReader like a Kindle Tablet or Victor Reader
* The term “Reading System” often refers to “Reading Apps”. However, some it is envisaged that this test protocol can be used for reading devices also.
* Sideload: a method of adding an EPUB file to a reading app or device. For example, on iOS it might be using the “Open in” feature.

# Summaries for the epubtest.org website

## Short summary (350 characters maximum)

## In this section describe key issues that affect test results and scores.

## Example one: Only tests able to be evaluated using screen reader are tested. Media Overlay is currently not supported in reader.

## Example two: Tested for low vision and learning disabilities. Non-visual tests not conducted.

## Long summary

In this section briefly describe your experiences testing the reading system. Provide descriptions on issues encountered, strengths of the reading system, quirks etc.

# Basic Functionality Tests

## File-010 Operating system/Platform accessibility

**Rationale:** If you are using a hardware device, then users should be able to start and stop the device or eReader without help from someone else. For reading apps that require a sign-up process, this should be accessible with the assistive technology/platform in the evaluation.

**Criteria to help testers determine if the feature is supported:** Mark as “supported” as long as the device can be started or an account is created and the app started without the assistance of another person.

## File-110 The reading system can be activated independently

**Rationale:** Users should be able to start and stop the reading app without assistance from another person. Note that this test will be similar if not identical to the above test, File-010.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” as long as accessing the system does not require intervention from a third party.

## File-210 Open content

**Rationale:** A user is likely to have several titles. User should be able to independently select from their library or bookshelf, and open the title for reading.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if the desired book can be successfully selected and opened. If there are multiple steps needed to do this, please list those steps in the notes sections. For example if the test book needs to be sideloaded in order to be accessed.

## File-310 Access list of available titles in the reading system

**Rationale:** A user is likely to have several titles. User should be able to independently select from their library or bookshelf, and open the title for reading.

**Criteria to help testers determine in the feature is supported:**  Mark as “supported” if the user can successfully navigate to and view available content in the reading system. It may be useful to note the experience in the comments. This can include whether the titles can be sorted in different orders, whether the last titles read are listed at the top, whether there is a search facility, etc. These experiences can have an impact of the usability, especially when the user has many titles.

# Navigation Tests

## Nav-005 The table of contents in the app presents the content hierarchy

**Rationale:** when implemented properly the table of contents feature is a powerful navigation aid that assists users with differing abilities.

**Criteria to help testers determine in the feature is supported:** detailed steps to evaluate this function are given in the test book. It is helpful if the steps taken (such as keystrokes or gestures) are noted in the comments.

## Nav-010 Navigate to chapters through the Table of Contents.

**Rationale:** Users should be able to select specific subsections within the content.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if the user can navigate to chapters in the book, either through a “table of contents” mechanism within the reading system, or through internal hyperlinks serving as a table of contents on a page within the content. Ideally user should be able to navigate to subsections within the chapters as well if they have been marked up within the content. The focus should ideally move to the selected section.

## Nav-110 Navigate content by pages.

**Rationale:** For research citations, class assignments referencing specific pages and more, users should be able to select and navigate to a specific page within the content.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if there is a mechanism in the reading system to enter and navigate to a specific page. This test also passes if page navigation is possible using the page list at the end of the table of contents in the test book, or any other page list feature in the app. In some cases, the process to navigate by pages is possible but not intuitive. For example, a user needing to left click with a mouse on the page of the book in order to bring up a navigation menu. In these instances, you will still mark the feature as supported, however, you’ll need to briefly describe what you did to access the feature in the notes section.

## Nav-210 Navigate forward and backward through reflowed content

**Rationale:** Users should be able to read content on devices with a variety of screen sizes without changing the reading order of the content. The users should be able to navigate by screens also considered reflowed pages.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if a user can navigate to the next page/screen by using any command, gesture or scrolling. Note that when text is resized, the number of page/screens will also change. The user should be able to move to the next and previous such page/screen.

## Nav-310 Read navigation information.

**Rationale:** Users should be, at the very least, able to determine which chapter or section their focus is and either the current page number or percentage of book read, without changing their focus within the content.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if the user can determine the name of the current section that is the immediate previous heading and page/screen number or reading percentage. After obtaining this information the user should preferably be able to resume reading from the last paragraph/line or at least from the top of current screen/page. For example, if a user is able to check the name of the current section by invoking the Heading list command, is able to read the status bar which contains the page number, and is then able to resume reading from almost the last read position, then this test passes. Note that to pass this test both current section name and current page or percentage read information should be available.

## Nav-410 Perform a search, review the search results and navigate to the selected search result in the content.

**Rationale:** A user should be able to look for a specific term, and then continue reading from that place in the title.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if the user can search the content, review and select a result, and focus is placed within the section containing the search term. Ideally, focus will be placed on the sentence or paragraph containing the term, but this is not necessary for the test to pass.

## Nav-510 Move across chapters without using TOC

**Rationale:** A user should be able to move smoothly between parts of the title in a continuous fashion.

**Criteria to help testers determine in the feature is supported:** An EPUB title is usually split into different files (often chapters), which the user should not have to care about. When one chapter finishes, they should be able to move on to the next. But some reading systems do not provide a way to easily move beyond the current file. The test title provides detailed notes on how to perform this test and evaluate the requirement. If keystrokes or gestures are required to perform this, please add details to the comments field.

# Highlights, Notes and Bookmarks

## anno-010 Add a Bookmark or Highlight.

**Rationale:** User may wish to mark their place in the content, or mark a section that is of specific importance, and should be able to do this using their assistive technology.

**Criteria to help testers determine in the feature is supported:** Mark this feature as “supported” if a bookmark or a highlight option is available. Some reading apps may support both, but if not, one or the other option will do.

## anno-110 Review and navigate Bookmarks or Highlights.

**Rationale:** User may wish to navigate to sections in the content previously marked by bookmarking or highlighting as being of specific importance.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if the user can access previously bookmarked or highlighted items, and navigate to the section in the content containing those items. If doing so is possible, but unintuitive, briefly describe your steps in the notes section.

## anno-210 Add a note.

**Rationale:** User may wish to expand on why a specific item is marked as important or expand on something in the text.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if a user can select a portion of text and activate the mechanism to add a note to that text in the reading system. This test is marked supported even when notes can be added without precise selection of text.

## anno-310 Review and navigate Notes.

**Rationale:** Users may wish to review previously added notes.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if the user can review the list of notes added in the book, activate them and reach the location where they were added.

# Non-Visual Reading Tests

## Reading-010 Initiate “read from here”

**Rationale:** User should be able to read from the currently focused position in the document, rather than beginning at the top of a chapter/section.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if you are able to read from the currently focused position in the book and reading does not stop at the end of current page/screen. This is often accomplished through an assistive technology hot key or gesture.

## Reading-110 Stop and resume reading at the same reading location.

**Rationale:** User should be able to pause and resume reading at the same location rather than changing focus to the top of a chapter/section.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if it is possible to pause and resume reading in the same location. This is often accomplished with an assistive technology hot key to stop reading, and can be resumed using a “read from here” command in the assistive technology.

## Reading-210 All text should be read in the proper order.

**Rationale:** While text may be presented visually with sidebars or images interspersed throughout, the main narrative should not be interrupted to display these out of logical order.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if the text is presented in logical order.

## Reading-310 Image alternate text reading

**Rationale:** Graphics often convey important information, and all users who cannot see the graphics themselves should have a text equivalent available.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if upon encountering images, the image description is read rather than “graphic” with no description.

## Reading-410 Change reading speed.

**Rationale:** Users have varying preferences and requirements regarding which speed is best for reading comprehension.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if reading speed can be successfully changed. This is most often adjustable via assistive technology.

## Reading-510 TTS allows pause for indicating headings, paragraphs, list items, etc.

**Rationale:** These pauses can convey semantic information in an efficient manner, representing text formatting in a nonvisual way.

**Criteria to help testers determine in the feature is supported:** This test relies on how the assistive technology parses the information. Mark as “supported” if a brief pause happens at a break in the text, be it after a list item, a paragraph break or a new heading. Sample text is provided in the test book.

## Reading-610 Navigate between the cells, rows and columns in the table.

**Rationale:** Tabular navigation is important for the user to take in the information as it is visually represented, rather than viewing the data as lines with no row or column delineation.

**Criteria to help testers determine in the feature is supported:** This is accomplished through table navigation commands within the assistive technology. Mark as “supported” if the data can be navigated by row and column, and ideally row/column headers are announced as the data is navigated. This test should be marked not-supported if the table content is read like normal text and can be navigated only by cells from left to right.

## Reading-710 Test navigation between internal hyperlinks.

**Rationale:** Links are present within content to allow for navigation within the document, and users should be able to use these links to move focus to the referenced content.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if focus is placed on the expected content when following an internal hyperlink.

## Reading-810 Move to the next block item

**Rationale:** User should be able to move through page elements, such as paragraph, table, etc.

**Criteria to help testers determine in the feature is supported:** This is accomplished using various assistive technology commands or gestures. Mark as “supported” if a user can choose a navigation option, such as paragraph, and successfully move to the next element of that type. This test should be marked as not supported when there is no way to skip to the next block from the current location. For example, the focus cannot be moved to different paragraphs.

## Reading-910 Navigate by characters

**Rationale:** User may wish to review the spelling of a word which is unclear when pronounced with text-to-speech.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if the user is able to read/navigate the text by characters. This is usually accomplished with a hot key/gesture within the assistive technology.

## Reading-1010 Navigate by words

**Rationale:** User may wish to review the text word by word if something is unclear.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if the user is able to read/navigate the text by words. This is usually accomplished with a hot key/gesture within the assistive technology.

## Reading-1110 Navigate by lines

**Rationale:** User should be able to move through text by line.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if the user is able to read/navigate the text by lines. This is usually accomplished with a hot key/gesture within the assistive technology.

## Reading-1210 Navigate the content by headings.

**Rationale:** User may wish to navigate through content using this type of semantic markup provided by the publisher to denote sections, subsections, etc.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if focus moves to the next heading when the hot key/gesture is used. This is usually accomplished with a hot key/gesture within the assistive technology. Note that navigation to the next or previous sub-section e.g. heading 2 is essential for passing this test. Navigation to the next or previous chapter alone i.e. heading 1 is not sufficient.

## Reading-1310 Select and copy text

**Rationale:** User may wish to to copy pieces of text that could be used for notes, in quotations, or to facilitate searching terms contained in the book. Persons with dexterity or memory issues will often rely on this feature.

**Criteria to help testers determine in the feature is supported:** Detailed instructions to conduct this test are provided in the test title.

# Visual Adjustment Tests

## Visual-010 Change font size.

**Rationale:** People with sight problems benefit from making the text larger.Some people with dyslexia find it easier to comprehend larger text.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if it is possible to increase the size of the characters on the page.

## Visual-110 Change background and foreground color

**Rationale:** Some people with sight problems, dyslexia or Irlen syndrome find it important to choose color combinations that suit their personal needs.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if there is a choice between provided options, so two or more themes such as night and sepia are sufficient to pass. The ability to customize should be recorded in the notes. Windows 10 does not provide the same ability to customize the system colors as earlier version of Windows. Support for the high contrast setting is captured separately.

## Visual-210 Change brightness.

**Rationale:** Some people find lower brightness levels aid reading comfort and comprehension. In contrast, some people with sight conditions need a high level of brightness.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if it is possible to change the brightness within the App or through the operating system.

## Visual-310 Apply high contrast system configuration.

**Rationale:** Some people with sight problems or learning differences will use a high contrast setting on their device, and will expect the apps to respect this provision if it is enabled.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if the book displays in high contrast when high contrast mode is engaged. See below for how to enable high contrast mode

* Windows - the high contrast setting is available through the settings or control panel dialogs.
* Android - the Color inversion option is in Accessibility/Display
* iOS – go to Settings/General/Accessibility/Increase contrast and Display accommodations/Invert colors.
* OS X- go to System preferences/Accessibility/Display/Invert colors and Increase contrast. FireOS- Settings/Accessibility/High-contrast text and Invert colors.

## Visual-410 Magnify the User Interface (UI).

**Rationale:** Some people with sight problems need magnification to use the app and will expect the apps to display and function with this feature enabled.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if it is possible to use a magnification feature within the reading app without a conflict. The magnification capability is provided through an OS or third-party feature. Windows- Magnifier. The test should be done with the OS feature, but may also look at third party products for additional insights. Android- Settings/Accessibility/Magnifier. iOS- Settings/General/Accessibility/Zoom. OS X- System preferences/Accessibility/Zoom. FireOS- Settings/Accessibility/Screen magnifier.

## Visual-510 Change Font

**Rationale:** Many people with reading disabilities and use sight have a strong preference for a typeface to aid legibility, comprehension and accuracy; many dyslexic people find a sans-serif font (such as Calibri) most helpful.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if it is possible to change the publisher specified font of the text within the reading app.

## Visual-610 Support for SVG

**Rationale:** SVG offers several features to make graphics on the Web more accessible than is currently possible, to a wider group of users. Users who benefit include users with low vision, color blind or blind users, and users of assistive technologies.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if the SVG graphic (a gray circle) is visible and displays correctly.

## Visual-710 Enlarge SVG image

**Rationale:** users with low vision will need to be able to increase the size of images to make them easier to see.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if you can use the magnification feature of the OS to enlarge the size of the image without distorting it. Also, record in the notes whether the SVG images changes size in proportion to the font and if there are other features for manipulating the SVG image. For example, in iBooks on iOS, double tapping the image displays it full screen.

## Additional comments

The following visual adjustment features have also been identified as beneficial. They are not formally included in the evaluation protocol, but may be noted in the comments:

**Feature:** Change the letter spacing. **Rationale:** Some people find that increasing letter spacing increases reading speed

**Feature:** Select ragged display of text (in left-to-right languages, should be flush left, ragged right). **Rationale:** Some people find it unhelpful to have the variable word spacing created by text aligned on both edges.

**Feature:** Change the size of the margins. **Rationale:** Some people with visual attention deficits find that shorter line length is helpful to their reading.

**Feature:** Disable hyphenation. **Rationale:** Some people find that hyphenated words formatted by the reading system disturb visual or audio reading. .

**Feature:** Disable side-by-side page view. **Rationale:** Some people have a preference for a simple layout of text on the screen

**Feature:** Set the user preferred colors of background and foreground. **Rationale:** Some people with dyslexia find specific color combinations greatly assist reading speed and comprehension.

**Feature:** Display only small amounts of text at a time, such as a word, line or paragraph. **Rationale:** Some people find that being able to focus on a small area of text aids their comprehension of the text.

# Read Aloud Tests

The tests given below are for evaluating the Read Aloud feature within the reading system. Do not perform these reading tests using a screen reader or an Operating System feature or a third-party tool.

## ReadAloud-010 The content can be read aloud.

**Rationale:** Reading through audio, or a combination of visual and audio, is the required access method for many people with low vision, dyslexia and other learning disabilities.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if the read aloud feature begins reading at the selected paragraph. If it starts at the top of the page it can be marked as supported, but this should be noted in the comments. If it starts at the beginning of the current document, then it is considered as not supported.

## ReadAloud-110 Stop and resume reading.

**Rationale:** It is a common requirement to pause the read aloud feature (for example to make a note or to process some information) and then resume from the last read position.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if the read aloud feature recommences reading mid-word, mid-sentence, or from the start of the current sentence. Starting from the beginning of the paragraph, page, or a random place would be “not supported”.

## ReadAloud-210 The Read Aloud feature should continue until interrupted by the user, keeping the text being spoken in view.

**Rationale:** Reading through audio, or a combination of visual and audio, is the required access method for many people with low vision, dyslexia and other learning disabilities.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if the read aloud stops at the end of the current document, it can be marked as supported, but with an appropriate note. If the document does not scroll to keep the text being read in view, it is considered as not supported.

## ReadAloud-310 All text should be read in the proper order.

**Rationale:** It will be confusing for the reader if the audio does not follow the sequence defined by the author.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if the text is read in the proper order and doesn’t skip around.

## ReadAloud-410 Change Read Aloud reading speed.

It should be possible to adjust (increase/decrease) the speed of reading.

**Rationale:** The user should be able to select a reading speed they are comfortable with, which may vary according to their experience with synthetic voice, familiarity with the text, displayed text size etc.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if you can change the speed of the reading voice within the reading system or via the operating system. The method can be noted in the comments.

## ReadAloud-510 Text to Speech handles punctuations and document structure appropriately.

**Rationale:** When reading through audio, pauses are used to convey meaning, and so their appropriate inclusion is important to comprehension of the text.

**Criteria to help testers determine in the feature is supported:** Mark as “supported” if there is a pause to indicate the presence of a comma and period and the pause between paragraphs is longer than that between sentences.

## ReadAloud-610 Text is emphasized as it is spoken by read aloud.

**Rationale:** Some people find that a visual emphasis such as a highlight focuses their attention and helps their understanding of the content and improves reading skills.

**Criteria to help testers determine in the feature is supported:** The visual emphasis of the read aloud text can be implemented in various ways. For example, reading systems have done this with a colored underline, a colored highlight, or by dimming the other text on the page. The visual emphasis can be on the word being read, or the current line, sentence or paragraph. Alternatively, the approach has been used to incrementally emphasize the sentence word by word as it is spoken. All these approached would be marked as ‘supported’.

## ReadAloud-710 The emphasis or highlight color can be changed.

**Rationale:** Some people find it important to have some control over the type of visual emphasis used, including the ability to disable it.

**Criteria to help testers determine in the feature is supported:** The visual emphasis presentation may be altered as part of the color theme.Check whether the reading system provides the ability to turn off the visual emphasis used for read aloud. This may be achieved in some apps by setting the highlight color to the same as the page background. Some apps provide for different styles of visual emphasis, which can be noted in the comments.

## Additional comments

The following read aloud features have also been identified as beneficial. They are not formally included in the evaluation protocol, but may be noted in the comments:

**Feature:** Read aloud uses a correct TTS voice for different languages. **Rationale:** Where the language of a phrase is indicated in the EPUB markup, then the pronunciation will be correct if the read aloud feature uses an appropriate voice for this part.