VPAT Accessibility Conformance Report

(Based on ITI VPAT©)

Name of Product	**Science Direct Reading Assistant**
Date Last Updated	20 May 2026
Completed by	**Jean Ducrot** (Elsevier Digital Accessibility Team)
Applicable Standards/Guidelines	This document rates the Science Direct Reading Assistant according to the W3C WCAG 2.1 A and AA requirements.
Contact for More Information	Elsevier Digital Accessibility Team accessibility@elsevier.com
Testing Tools and Methods	• Hands-on keyboard operation • Browser DevTools/Code inspection • Chrome v 148 on Windows 11 • NVDA screen reader 2025.2 • TPGi Color Contrast Analyzer v 3.5.5 • HeadingsMap browser extension v 4.10.7 • Taba11y browser extension v 2.0.14 • Web Developer browser extension v 3.0.1 • W3C Web Accessibility Initiative (WAI) Pages • Elsevier Accessibility Checklist
Document Sections	This review document includes all WCAG 2.1 A and AA checkpoints, organized into 7 logical sections: • Visuals • Keyboard • Headings and Structure • Labeling • Multimedia • Usability • Mobile User Experience
Pages Covered	• Reading Assistant on any Science Direct article page
Terms	• **Supports**: The functionality of the product has at least one method that meets the criteria without known defects or meets with equivalent facilitation. • **Partially supports**: Some functionality of the product does not meet the criteria. • **Does not support**: Majority of functionality of the product does not meet the criteria. • **Supports (N/A):** According to W3C on conformance, "If there is no content to which a success criterion applies, the success criterion is satisfied."
Notes/Terminology	• “AT” stands for Assistive Technology such as screen readers, voice input, etc.

Conformance Summary

WCAG 2.1 Success Criterion	Level	Evaluation
1.1.1: Non-text Content	A	Partially supports
1.2.1: Audio-only and Video-only (Prerecorded)	A	Supports (N/A)
1.2.2: Captions (Prerecorded)	A	Supports (N/A)
1.2.3: Audio Description or Full Text Alternative	A	Supports (N/A)
1.2.4: Captions (Live)	AA	Supports (N/A)
1.2.5: Audio Description	AA	Supports (N/A)
1.3.1: Info and Relationships	A	Partially supports
1.3.2: Meaningful Sequence	A	Supports
1.3.3: Sensory Characteristics	A	Supports
1.3.4: Orientation (2.1)	AA	Supports
1.3.5: Identify Input Purpose (2.1)	AA	Supports (N/A)
1.4.1: Use of Color	A	Partially supports
1.4.2: Audio Control	A	Supports (N/A)
1.4.3: Contrast (Minimum)	AA	Supports
1.4.4: Resize text	AA	Supports
1.4.5: Images of Text	AA	Supports
1.4.10: Reflow (2.1)	AA	Supports
1.4.11: Non-Text Contrast (2.1)	AA	Supports
1.4.12: Text Spacing (2.1)	AA	Supports
1.4.13: Content on Hover or Focus (2.1)	AA	Supports
2.1.1: Keyboard	A	Supports
2.1.2: No Keyboard Trap	A	Supports
2.1.4: Character Key Shortcuts (2.1)	A	Supports (N/A)
2.2.1: Timing Adjustable	A	Partially supports
2.2.2: Pause, Stop, Hide	A	Supports (N/A)
2.3.1: Three Flashes or Below Threshold	A	Supports (N/A)
2.4.1: Bypass Blocks	A	Supports
2.4.2: Page Titled	A	Supports (N/A)
2.4.3: Focus Order	A	Partially supports
2.4.4: Link Purpose (In Context)	A	Supports
2.4.5: Multiple Ways	AA	Supports (N/A)
2.4.6: Headings and Labels	AA	Supports
2.4.7: Focus Visible	AA	Supports
2.5.1: Pointer Gestures (2.1)	A	Supports (N/A)
2.5.2: Pointer Cancellation (2.1)	A	Supports
2.5.3: Label in Name (2.1)	A	Supports
2.5.4: Motion Actuation (2.1)	A	Supports (N/A)
3.1.1: Language of Page	A	Supports (N/A)
3.1.2: Language of Parts	AA	Supports

WCAG 2.1 Success Criterion	Level	Evaluation
3.2.1: On Focus	A	Supports
3.2.2: On Input	A	Supports
3.2.3: Consistent Navigation	AA	Supports (N/A)
3.2.4: Consistent Identification	AA	Supports
3.3.1: Error Identification	A	Supports
3.3.2: Labels or Instructions	A	Supports
3.3.3: Error Suggestion	AA	Supports
3.3.4: Error Prevention (Legal, Financial, Data)	AA	Supports (N/A)
4.1.1: Parsing	A	Supports
4.1.2: Name, Role, Value	A	Partially supports
4.1.3: Status Messages (2.1)	AA	Partially supports

WCAG 2.1 A and AA Success Criteria

Visuals

WCAG 2.1 Checkpoint	Conformance Level	Remarks
1.1.1: Non-Text Content (A) Provide text alternatives for non-text content (e.g. images)	Partially supports	All non-text content presented to users has a text alternative that serves the equivalent purpose. Meaningful images, including informational graphics, icons, and photographs, carry descriptive text alternatives that convey the same information a sighted user would receive from viewing the image. Decorative images that add no informational value are implemented in a way that allows assistive technologies to ignore them, preventing unnecessary noise for screen reader users. Exceptions: • A decorative image in the Reading Assistant is exposed to assistive technologies, meaning screen reader users will encounter content that adds no useful information.
1.3.3: Sensory Characteristics (A) Do not rely on sensory characteristics of components such as shape, size, visual location, orientation, or sound	Supports	Instructions provided for understanding and operating content do not rely solely on sensory characteristics such as shape, color, size, visual location, orientation, or sound. Where the product directs users to interact with or locate content, those instructions include references that do not depend on a user's ability to see, hear, or perceive content in a specific sensory way.
1.4.1: Use of Color (A) Color is not used as the only visual means of conveying info	Partially supports	Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element throughout the product. Where color is used to communicate meaning, such as in charts, alerts, form validation, or links within body text, a secondary visual indicator such as a label, pattern, icon, or text formatting is also present to convey the same information. Exceptions: • When a reference button is activated in the reading assistant, its selected state is only shown through a color change, with no equivalent indication available to users who cannot perceive that visual difference.
1.4.3: Color Contrast (Minimum) (AA) Text has enough contrast with the background (4.5:1 for small text and 3:1 for large text)	Supports	The visual presentation of text and images of text throughout the product maintains a contrast ratio of at least 4.5:1 against their background, with large-scale text meeting a minimum contrast ratio of 3:1. Color contrast has been verified across all states of interactive components, including default, hover, focus, and disabled states, to ensure that all users, including those with low vision, can read and understand content reliably.
1.4.4: Resize Text (AA)	Supports	Text throughout the product can be resized up to 200 percent without the use of assistive technology and without loss of content or

Text can be enlarged up to 200% without loss of functionality.		functionality, ensuring that users who need larger text can adjust their reading experience through standard browser controls. No technologies have been used that prevent text from scaling correctly when a user adjusts their browser or operating system text size settings.
1.4.5: Images of Text (AA) Text is used rather than images of text, except where the presentation of text is essential, such as logos	Supports	Where text is used to convey information, real text is used rather than images of text, ensuring that users can adjust text appearance such as font size, color, and spacing to meet their individual needs.
1.4.10: Reflow (AA) Content can be presented without loss of information or functionality, and without requiring scrolling in two dimensions for: • Vertical scrolling content at a width equivalent to 320 CSS pixels; • Horizontal scrolling content at a height equivalent to 256 CSS pixels..	Supports	Content throughout the product reflows to a single column when viewed at a width equivalent to 320 CSS pixels, allowing users who rely on zoom or larger display settings to read and interact with all content without scrolling in two dimensions. No loss of content or functionality occurs because of reflow, and content that requires two-dimensional layout to function correctly, such as data tables and certain map interfaces, is recognized as an accepted exception under this success criterion.
1.4.11: Non-Text Contrast (AA) User interface components and graphical objects have a contrast ratio of at least 3:1 against adjacent color(s).	Supports	The visual presentation of user interface components and graphical objects throughout the product maintains a contrast ratio of at least 3:1 against adjacent colors, ensuring that controls, input fields, focus indicators, and meaningful graphics are visually distinguishable for users with low vision.
1.4.12: Text Spacing (AA) In content implemented using markup languages that support the following text style properties, no loss of content or functionality occurs by setting all the following and by changing no other style property: • Line height (line spacing) to at least	Supports	No loss of content or functionality occurs when users override text spacing properties, including line height, letter spacing, word spacing, and spacing following paragraphs, to the values specified in the success criterion. All text-based content and interactive components accommodate user-defined text spacing adjustments without content becoming clipped, truncated, or overlapping in a way that prevents access.

1.5 times the font size; • Spacing following paragraphs to at least 2 times the font size; • Letter spacing (tracking) to at least 0.12 times the font size; • Word spacing to at least 0.16 times the font size.		
1.4.13: Content on Hover or Focus (AA) Where receiving and then removing pointer hover or keyboard focus triggers additional content to become visible and then hidden, the following are true: • Dismissible • Hoverable • Persistent	Supports	Additional content that appears on hover or focus is dismissible, hoverable, and persistent in line with Content on Hover or Focus.
2.3.1: Three Flashes or Below Threshold (A) No more than three flashes in a 1-second period, or the flashes are below the defined thresholds	Supports (N/A)	Visual content does not include anything that flashes more than three times in any one second period, and any incidental flashing remains below the general flash and red flash thresholds.

Keyboard

WCAG 2.1 Checkpoint	Conformance Level	Remarks
1.3.2: Meaningful Sequence (A) The correct reading sequence can be programmatically determined	Supports	Content that relies on sequence is presented in a meaningful sequence that can be programmatically determined, so the correct reading sequence is preserved for user agents and assistive technologies.
2.1.1: Keyboard (A) All functionality is available from a keyboard, except for tasks such as drawing	Supports	All functionality is operable through a keyboard interface without requiring specific timings for individual keystrokes. Users can reach and operate controls using Tab, Shift plus Tab, Enter, Space, and Arrow keys, including navigation menus, form fields, buttons, dialogs, and carousels, with a predictable tab order that matches the visual sequence. Exceptions:

		• The "Drag Reading Assistant" feature can only be moved by dragging with a mouse, with no alternative way to reposition it for keyboard or assistive technology users. • The resize control for the Reading Assistant cannot be used when a screen reader is active, and the feature is difficult to find regardless of how someone is navigating. • Keyboard users have no way to move efficiently between the Reading Assistant panel and the related content it references on the main page, leaving them unable to cross-reference the two without losing their place.
2.1.2: No Keyboard Trap (A) The user can use the keyboard to move through page elements and is not trapped on a particular element	Supports	Interactive components do not create a keyboard trap, and focus can be moved away using only a keyboard with standard keys such as Tab and Shift plus Tab in accordance with No Keyboard Trap. When modals, menus, side panels, and carousels open, focus moves to a logical starting point, users can close or exit with Escape or by tabbing to the next or previous focusable element, and focus returns to the triggering control when the component closes.
2.1.4: Character Key Shortcuts (A) If a keyboard shortcut is implemented in content using only letter (including upper- and lower-case letters), punctuation, number, or symbol characters, then at least one of the following is true: • Turn off • Remap • Active only on focus	Supports (N/A)	Character key shortcuts are not implemented in this product.

2.4.3: Focus Order (A) Users can tab through the elements of a page in a logical order	Partially supports	When pages can be navigated sequentially, focusable components receive focus in an order that preserves meaning and operability in alignment with Focus Order. The tab sequence follows the visual and reading order, focus moves to a logical starting point when modals, menus, and side panels open and returns to the triggering control on close, and off screen or disabled items are removed from the tab sequence, so users do not encounter dead ends. Exceptions: • Fully collapsed Reading Assistant (i.e. thumbnail view): The reading assistant can only be reached by keyboard after tabbing through every other element on the page. • When the "Learn More" button is activated, keyboard focus stays in the wrong place instead of moving to the newly revealed content, leaving screen reader users without a clear signal that anything has changed.
2.4.7: Focus Visible (AA) The page element with the current keyboard focus has a visible focus indicator	Supports	Any keyboard operable user interface presents a keyboard focus indicator that is visible so users can see which component has focus as they navigate in alignment with Focus Visible. We show a clear focus indicator on links, buttons, form fields, menus, and dialog controls, and while we sometimes customize the default focus ring for consistency with our design system, we ensure it remains highly visible, clearly positioned on the focused element, and does not rely on color alone.
3.2.1: On Focus (A) When a UI component receives focus, this does not trigger unexpected actions.	Supports	Interactive components do not cause a change of context on focus in alignment with On Focus. When a field, link, or control receives focus, it does not submit a form, navigate to a different page, open a new window, start media, or move focus to another component, those actions occur only after an explicit user action such as Enter, Space, or click.

Headings and Structure

WCAG 2.1 Checkpoint	Conformance Level	Remarks
1.3.1: Information and Relationships (A) Info, structure, and relationships can be programmatically determined	Partially supports	Information and relationships are conveyed through semantic structure, so they are programmatically determinable for user agents and assistive technologies. Exceptions: • The "Reading Assistant" heading is assigned to a level that does not match where it sits in the page's heading structure, which will cause screen reader users navigating by headings to experience a confusing or broken outline. • The thumbs up and thumbs down feedback buttons do not communicate to screen reader users that pressing them will expand or reveal additional content.
2.4.1: Bypass Blocks (A)	Supports	A mechanism is available to bypass blocks of content that are repeated on multiple pages. Keyboard users can use a visible Skip to main content link that appears on focus at the top of each page, and pages

Users can bypass repeated blocks of content.		include landmarks for navigation, search, main, and footer so assistive technologies can jump directly to the main content and other regions.
2.4.6: Headings and Labels (AA) Headings and labels are clear and consistent.	Supports	Headings and labels describe topic or purpose so users can understand content and controls.
3.1.1: Language of Page (A) The language of the page is specified	Supports (N/A)	Each page sets the default human language so it can be programmatically determined. The primary language is declared on the HTML element using the lang attribute based on the selected locale and the Reading Assistant inherits that property programmatically.
3.1.2: Language of Parts (AA) Specify the language of text passages that are in a different language than the default language of the page.	Supports	Passages or phrases that differ from the page language are identified so the human language of each part is programmatically determined.
4.1.1: Parsing (A) Use valid, error-free HTML	Supports	Markup conforms to HTML and ARIA specifications so content can be parsed reliably by user agents and assistive technologies.

Labeling

WCAG 2.1 Checkpoint	Conformance Level	Remarks
1.3.5: Identify Input Purpose (AA) The purpose of each input field collecting information about the user can be programmatically determined when: • The input field serves a purpose identified in the Input Purposes for User Interface Components section; and • The content is implemented using technologies with support for identifying the expected meaning for form input data.	Supports (N/A)	The Reading Assistant Input does not present input fields to users currently.
2.4.2: Page Titled (A)	Supports (N/A)	The Reading Assistant is not provided as single page but rather as an add-on to an existing page.

The page has a title describing its topic or purpose		
2.4.4: Link Purpose (In Context) (A) The purpose of each link can be determined from the link text or surrounding context.	Supports	The purpose of each link can be determined from the link text alone or from its programmatically determinable context.
2.5.3: Label in Name (A) For user interface components with labels that include text or images of text, the name contains the text that is presented visually.	Supports	Accessible names contain the text that is presented visually in corresponding labels so speech input users can activate controls using the same words they see. Buttons, links, and form fields use accessible names that match their visible labels, any added context such as type or scope is placed after the visible text.
3.2.4: Consistent Identification (AA) UI components used across the web site are identified consistently on every page.	Supports	Components that have the same functionality are identified consistently so users see the same names, labels, and icons for the same actions across answers from the Reading Assistant.
3.3.1: Error Identification (A) Input errors are clearly marked and described to the user.	Supports	When an input error is automatically detected, the item in error is identified and the error is described in text. Forms show clear inline messages next to the field and associate the text with the control through labels and programmatic descriptions.
3.3.2: Labels or Instructions (A) Items requiring user input are clearly labeled or have clear instructions.	Supports	When content requires user input, labels or instructions are provided so users understand what information is needed and how to provide it.
3.3.3: Error Suggestion (AA) When the user makes an input error, give suggestions for valid input.	Supports	When an input error is automatically detected and a suggestion for correction is known, we provide a text suggestion that helps the user fix the error.
4.1.2: Name, Role, Value (A) For all UI components, the name, value, and role can be programmatically determined.	Partially supports	User interface components have an accessible name and role that can be programmatically determined, and their states, properties, and values are available to user agents including assistive technologies, with changes announced when they occur. Exceptions: • The label describing the default view setting is connected to the wrong control, so assistive technology will announce the wrong information when a user interacts with it.

		• The "Related Papers" toggle is built using tab interface code, so assistive technology announces it as part of a tab group rather than as an expandable section. • The options panel has no close button, leaving users without a clear and standard way to dismiss it.
4.1.3: Status Messages (AA) In content implemented using markup languages, status messages can be programmatically determined through role or properties such that they can be presented to the user by assistive technologies without receiving focus.	Partially supports	Status messages are programmatically determined through roles and properties so they can be presented by assistive technologies without receiving focus. Exceptions: • When asking a question through the reading assistant, screen reader users receive unhelpful spoken notifications while the answer is being generated, and once the answer appears, it is announced automatically rather than presented in a way the user can navigate and read through directly. • When the "Export conversation to .md" button is activated, there is no announcement to let screen reader users know the export has happened.

Multimedia

WCAG 2.1 Checkpoint	Conformance Level	Remarks
1.2.1: Audio-only or Video-only (Prerecorded) (A) Provide alternatives for pre-recorded audio-only or video-only content.	Supports (N/A)	The Reading Assistant does not currently serve any audio or video content.
1.2.2: Captions (Prerecorded) (A) Provide captions for pre-recorded audio	Supports (N/A)	The Reading Assistant does not currently serve any audio or video content.
1.2.3: Audio Description or Media Alternative (Prerecorded) (A) Provide alternatives for pre-recorded synchronized audio/video	Supports (N/A)	The Reading Assistant does not currently serve any audio or video content.
1.2.4: Captions (Live) (AA) Provide captions for live audio in synchronized audio/video.	Supports (N/A)	The Reading Assistant does not currently serve any audio or video content.
1.2.5: Audio Description (Prerecorded) (AA)	Supports (N/A)	The Reading Assistant does not currently serve any audio or video content.

Provide an audio description of pre-recorded video.		
1.4.2: Audio Control (A) Audio can be paused and stopped, or the audio volume can be changed.	Supports (N/A)	The Reading Assistant does not currently serve any audio or video content.
2.2.2: Pause, Stop, Hide (A) Users can stop, pause, or hide moving, blinking, scrolling, or auto-updating information.	Supports (N/A)	The Reading Assistant does not currently serve any audio or video content.

Usability

WCAG 2.1 Checkpoint	Conformance Level	Remarks
2.2.1: Timing Adjustable (A) Users are warned of time limits shorter than 20 hours and time limits can be turned off or extended	Partially supports	Throughout this product, time limits are adjustable. Users can turn off a time limit, adjust its length, or extend the time before it expires after a warning of at least twenty seconds. Exceptions: • After pressing the copy button, the only confirmation that the action succeeded is a brief icon change, with no equivalent notification for users who cannot see or perceive that visual update.
2.4.5: Multiple Ways (AA) More than one way is available to navigate to other web pages.	Supports (N/A)	The Reading Assistant is not provided as single page but rather as an add-on to an existing page.
3.2.2: On Input (A) Changing the setting of a checkbox, radio button, or other UI component does not trigger unexpected changes in context.	Supports	Changing the setting of a user interface component does not automatically cause a change of context.
3.2.3: Consistent Navigation (AA) Navigation menus are in the same location and order on every web page.	Supports (N/A)	The Reading Assistant is not provided as single page but rather as an add-on to an existing page.
3.3.4: Error Prevention (Legal, Financial, Data) (AA)	Supports (N/A)	The Reading Assistant does not present legal or financial transactions to its users.

For web pages with legal or financial commitments, input can be reviewed and corrected before final submission, and submissions can be reverted.		

Mobile User Experience

WCAG 2.1 Checkpoint	Conformance Level	Remarks
1.3.4: Orientation (AA) Content does not restrict its view and operation to a single display orientation, such as portrait or landscape, unless a specific display orientation is essential.	Supports	Content within the Reading Assistant is not restricted to a single device orientation such as portrait or landscape.
2.5.1: Pointer Gestures (A) All functionality that uses multipoint or path-based gestures for operation can be operated with a single pointer without a path-based gesture, unless a multipoint or path-based gesture is essential.	Supports (N/A)	Any feature that might rely on multipoint or path-based gestures can be operated with a single pointer without a path-based gesture unless the complex gesture is essential.
2.5.2: Pointer Cancellation (A) For functionality that can be operated using a single pointer, at least one of the following is true: • No Down-Event • Abort or Undo • Up Reversal • Essential	Supports	Functionality that can be operated with a single pointer follows Pointer Cancellation by avoiding activation on the down event, completing actions on the up event, and allowing users to abort or undo before completion unless the down event is essential.
2.5.4: Motion Actuation (A) Functionality that can be operated by device motion or user motion can also be operated by user interface components and	Supports (N/A)	This product does not use motion actuation, and all functionality is available through user interface controls.

responding to the motion can be disabled to prevent accidental actuation, except when: • Supported Interface • Essential		