The Australian Government's study into the Accessibility of the Portable Document Format for people with a disability

November 2010

Supplementary Report

Creative Commons

Use of the Coat of Arms

The terms under which the Coat of Arms can be used are detailed on the It's an Honour website http://www.itsanhonour.gov.au/coat-arms/index.cfm.

Inquiries regarding the licence and any use of the report are welcome at:

Assistant Secretary
Online Services Branch
Australian Government Information Management Office
Department of Finance and Deregulation
John Gorton Building
King Edward Terrace Parkes ACT 2600
Email: WCAG2@finance.gov.au

Acknowledgement

Contents

one Supplementary Report

one

Supplementary Report

This supplementary report provides full testing results and additional information relating to *The Australian Government's study into the Accessibility of the Portable Document Format for people with a disability* (the Study). This report should be read in conjunction with the main report, which provides the context and key findings.

In order to address the debate about whether PDFs are accessible to people with a disability, Vision Australia was commissioned by the Australian Government to undertake a study to determine the accessibility of PDF files for people with a disability, with particular reference to people who are blind or have low vision. The Study was conducted in three phases:

- **Phase one** involved a series of *user consultations*, with people who are blind or have low vision, to establish the specific issues and experiences using PDF files. The Australian Government Information Management Office (AGIMO) also conducted a public online consultation inviting submissions on the accessibility of PDF files in parallel with this activity.

- **Phase two** focused on *technical evaluations* of the most common assistive technologies (ATs) used in Australia by people who are blind or have low vision. It identified the common ATs used and tested those identified against WCAG 2.0 Success Criteria. Its purpose was to establish whether the ATs have the technical capability to interact with the structural information provided by PDF files and to determine if PDF files can be classified as 'Accessibility Supported' under the WCAG 2.0 definition.

- **Phase three** focused on *user experience* and was designed to understand the experience of people with a disability when using PDF files, including representative files available on Government websites and a sample of PDF files optimised for accessibility.

Phase one – user consultations

Focus group questions

Three focus groups were held across Victoria, New South Wales and Queensland. Each group was asked a set of six questions relating to the use of PDF documents and forms:

1. Can you describe common circumstances of when and why you access PDF documents?

2. What are your current experiences when using PDF documents and forms?

3. Have you had any specific positive or negative experiences as a direct result of the assistive technology you have used to access PDF documents?

4. Are there any strategies or workarounds you have created to overcome these issues?

5. Do you have any examples of where you were able to read a PDF file successfully?

6. Assuming it is possible to create accessible PDF documents, what needs to happen for you to accept PDF as an 'accessible format'?

AGIMO Public Consultation guidelines

Published on the www.finance.gov.au website.

Australian Government consulting on PDF Accessibility

The Australian Government is seeking input to inform its policy about the use of the Portable Document Format (PDF) for the provision of government information online.

The Australian Human Rights Commission, responsible for administering the *Disability Discrimination Act 1992* (DDA) currently states on their DDA Advisory Notes:

> "The Commission's view is that organisations who distribute content only in PDF format, and who do not also make this content available in another format such as RTF, HTML, or plain text, are liable for complaints under the DDA[1]."

We are seeking feedback about the accessibility and ease of use of PDF files on the internet, especially via assistive technologies. We are seeking to understand common access issues or problems encountered when using PDF files on the internet.

The Australian Government is also interested in receiving feedback about creating tagged PDF files, including resource intensiveness and complexity. We also want to understand any related accessibility issues of tagged PDF files.

---

[1] Australian Human Rights Commission, 2009, *World Wide Web Access: Disability Discrimination Act Advisory Notes*, viewed September 2009, http://www.hreoc.gov.au/disability_rights/standards/www_3/www_3.html#s2_3.

Who is managing the consultation?

Three key policy development agencies are managing this consultation. The lead agency is the Australian Government Information Management Office (AGIMO) within the Department of Finance and Deregulation. The Department of Families, Housing, Community Services and Indigenous Affairs and the Australian Human Rights Commission are also assisting with the project.

Consultation questions

Please limit your feedback to accessibility issues around the PDF file format. Where appropriate you may like to discuss access to PDF documents in relation to other file formats such as HTML (web pages), Rich Text Format (RTF), or plain text.

Where possible, please include details about your personal circumstances/experiences. This information will help us understand common access issues among user groups.

Such information might include:
- whether you have a disability
- what, if any, assistive technologies you use
- your web experience (e.g. novice, intermediate, advanced)
- whether you have used or created tagged PDF documents

The following sample questions may help you to formulate your submission to the PDF Accessibility Consultation. You do not need to answer all or any of these questions in your response, however these suggestions are provided to help you understand what type of feedback we are seeking.
- What are the common access issues for you when using the internet?
- Is government information difficult to find and or access?
- Is non–government information difficult to find and or access?
- What kind of government information are you trying to access online?
- What kind of government information do you want or need to access online?
- What, if any, accessibility issues have you experienced using the PDF file format?
- Are there any common problems you experience when accessing PDF documents?
- What access issues, if any, do you experience trying to use other types of file formats (such as HTML or RTF files)?
- Do you avoid any file types due to the access issues you experience when using them?
- Do you find alternative file formats to PDF commonly?
- Do you expect to find alternative file formats to PDF?
- Have you accessed/attempted to access tagged PDFs?
- If so, did you find the content to be accessible to you? And to what degree?
- Do you have any other comments about PDF documents?

Consultation period

The consultation will begin on the 16 September and will be open until close of business on the 19 October 2009.

How will responses be used?

Your feedback will help the Australian Government review its policy on the use of the PDF file format in relation to the *Disability Discrimination Act 1992*.

Your feedback will be reviewed and used to inform accessibility policies. If you would like to be contacted about your submission, please include your contact details. Your response and any personal details you provide will be treated confidentially and will not be used for any other purpose.

Can I respond anonymously?

Yes. In fact, unless you give us permission to include your name, we will treat your response as anonymous.

Who will see my response?

Your responses will be shared amongst members of the PDF Accessibility Testing Consultation project from the Department of Finance and Deregulation, the Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) and the Australian Human Rights Commission (AHRC), including any contractors or consultants that may be contracted to this project.

Your response may be included in a final report to Australian Government agencies. Please let us know if you do not wish your comments to be included in the final report.

How do I make a submission?

Submissions will be accepted via email to: Webpublishing@finance.gov.au

Or via mail to:

> PDF Accessibility Testing Consultation
> Service Development and Strategy Team,
> Online Services Branch, AGIMO
> Department of Finance and Deregulation
> John Gorton Building
> King Edward Terrace
> Parkes ACT 2600
> AUSTRALIA

You can also call us on: (02) 6215 2048 to discuss the project or provide feedback.

Phase two – technical evaluation

Vendor and Australian AT reseller interview questions:

1. What is the number of users of this assistive technology in Australia?

2. When did you first introduce support for the Portable Document Format?

3. What were the motivators to providing support for the Portable Document Format?

4. What is the current level of support you provide for the Portable Document Format?

5. Is the functionality the same as with alternative formats?

6. Are the keyboard controls (shortcuts), when interacting with PDF documents, different to other formats?

7. Do you provide specific advice or documentation in relation to the use of PDF documents?

8. Are there any issues with the assistive technology interacting with the Portable Document Format or PDF Readers that you are aware of?

9. Are there any limitations in the support you provide for the PDF format?

10. Are there any future plans for further development and support for the PDF format?

Phase three – user evaluations

Interview questions

Pre–evaluation questions

1. How often do you engage with PDF documents?

2. How do you access PDF documents at work or home? Selecting to:
   a. Open in web browser (which browser?); or
   b. Read in a PDF Reader (which reader?)

3. What have been your general experiences when using PDF documents?

4. *Screen reader users only – How do you normally navigate a document in HTML, RTF or Word?*
   a. *Paragraph*
   b. *Headings*
   c. *Links*
   d. *Tabbing*
   e. *Arrow keys*
   f. *Read all*

Questions for participants after interacting with accessible PDF files (Collection A)

1. What do you think of the Portable Document Format now you have interacted with a selection of more accessible documents?

2. After interacting with Collection A, how would you rate the experience in completing the task?

3. Was there a learning curve involved when interacting with the documents? That is, did you find the process easier, or harder to complete as you undertook each task?

4. If yes: did this decrease (get easier) as the evaluation progressed?

5. Where there any issues that caused you difficulty when using these documents?

6. What did you like about the Portable Document Format?

7. How did the accessible PDF documents compare to other formats – HTML, RTF or Microsoft Office Word, that you have previously used?

8. On a scale of 1 to 7, with 1 being not at all comfortable, and 7 being very comfortable, how comfortable would you be in using similar accessible PDF documents again (using the same assistive technology)? Why?

9. On a scale of 1 to 7, with 1 being much worse and 7 being much better, how does this experience compare with your previous interactions with PDF documents (using the same assistive technology)? Why?

10. What are the 5 key things you would suggest need improving with the interaction of these more accessible PDF documents?

Questions for participants after interacting with representative PDF files (Collection B)

1. On a scale of 1 to 7, with 1 being not at all comfortable and 7 being very comfortable, how comfortable would you be in using representative PDF documents like these again (using the same assistive technology)? Why?

2. What are the 5 key things you would suggest need improving with PDF interaction?

Results of assistive technologies tested against Adobe Test Suite

Summary results for screen readers and screen magnifiers tested against the Adobe Test Suite (43 test cases) are reported in Table 1: Summary results for ATs tested against Adobe Test Suite.

Table 1: Summary results for ATs tested against Adobe Test Suite

Technology	AT and Version	Tests Supported	Tests Partially supported	Tests Not supported	Tests Not Applicable	Could not test
Screen Reader	JAWS 8	43	0	0	0	0
	JAWS 9	43	0	0	0	0
	NVDA 2009.1	41	0	2	0	0
	SATOGO 3.0	36	2	4	0	1
	VoiceOver 10.5	9	0	34	0	0
	VoiceOver 10.6	9	0	34	0	0
	Window-Eyes 7	36	1	6	0	0
Screen Magnifier	ZoomText 8	21	0	0	22	0
	ZoomText 9	21	0	0	22	0

Notes: Adobe reported one test that could not be completed for SATOGO 3.0. This affected the test related to detecting page numbers in the Adobe Reader user interface.

Table 2: Full test results for Adobe Test Suite against ATs commonly used in Australia

Test File	WCAG 2 Success Criteria	Reader 9/ JAWS 9	Reader 9/ Window-Eyes 7	Reader 9/ ZoomText 9	Preview/ Voice Over [OSX10.5]	Reader 9/ JAWS 8	Reader 9/ ZoomText 8.04	Reader 9/ NVDA 2009.1	Reader 9/ System Access 2 Go	Preview/ VoiceOver [OSX 10.6]	Desired Results
Test File 16 – Image Alt Text.pdf	1.1.1	Supported	Supported	N/A	Not Supported	Supported	N/A	Supported	Supported	Not Supported	Image alt must be read by speech AT
Test File 16b – Decorative Image Alt Text.pdf	1.1.1	Supported	Supported	N/A	Supported	Supported	N/A	Supported	Supported	Supported	No indication of the decorative image should be announced
Test File 33 – Acroforms Text Field.pdf	1.1.1	Supported	Supported	N/A	Not Supported	Supported	N/A	Supported	Supported	Not Supported	Label, value, and state of text field must be voiced when tabbed to
Test File 1 – Plain Paragraphs.pdf	1.3.1	Supported	Supported	N/A	Supported	Supported	N/A	Supported	Partially Supported	Supported	Paragraphs are read correctly
Test File 6 – PDF Headings.pdf	1.3.1	Supported	Not Supported	N/A	Not Supported [role is not announced]	Supported	N/A	Supported	Supported	Not supported [role is not announced]	Headings are identified by speech AT
Test File 33 – Acroforms Text Field.pdf	1.3.1	Supported	Supported	N/A	Not Supported	Supported	N/A	Supported	Supported	Not Supported	Text field controls are correctly identified by labels
Test File 4 – Multi–column.pdf	1.3.2	Supported	Supported	N/A	Supported	Supported	N/A	Supported	Supported	Supported	Content is read in correct sequence
Test File 56 – Reading Order.pdf	1.3.2	Supported	Supported	N/A	Supported	Supported	N/A	Supported	Supported	Supported	Content is read in correct sequence
Test File 57 – Table of Contents.pdf	2.4.1	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Supported	Not Supported	Bookmarks allow skipping around via keyboard

Test File	WCAG 2 Success Criteria	Reader 9/ JAWS 9	Reader 9/ Window-Eyes 7	Reader 9/ ZoomText 9	Preview/ Voice Over [OSX10.5]	Reader 9/ JAWS 8	Reader 9/ ZoomText 8.04	Reader 9/ NVDA 2009.1	Reader 9/ System Access 2 Go	Preview/ VoiceOver [OSX 10.6]	Desired Results
Test File 6 – PDF Headings.pdf	2.4.1	Supported	Not Supported [Does not identify and does not allow skipping to headers but do read the heading text]	N/A	Not Supported [Does not identify and does not allow skipping to headers but do read the heading text]	Supported	N/A	Supported	Partially Supported	Not Supported [Does not identify and does not allow skipping to headers but do read the heading text]	Headings allow skipping around within document
Test File 6 – PDF Headings.pdf	2.4.10	Supported	Not Supported [Does not identify headers but does read text]	N/A	Not Supported [Does not identify headers but does read text]	Supported	N/A	Supported	Supported	Not Supported [Does not identify headers but does read text]	Headings are identified
Test File 1 – Plain Text.pdf	2.4.2	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	PDF document is titled
Test File 33 – Acroforms Text Field.pdf	2.4.3	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Document text and control order is correct when tabbing in sequential document
Test File 33b – Acroforms Text Field_bad order.pdf	2.4.3	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Supported	Not Supported	Document text and control order full custom sequence when tabbing
Test File 80 – Sample form.pdf	2.4.7	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Supported	Not Supported	Focus is visible

Test File	WCAG 2 Success Criteria	Reader 9/ JAWS 9	Reader 9/ Window-Eyes 7	Reader 9/ ZoomText 9	Preview/ Voice Over [OSX10.5]	Reader 9/ JAWS 8	Reader 9/ ZoomText 8.04	Reader 9/ NVDA 2009.1	Reader 9/ System Access 2 Go	Preview/ VoiceOver [OSX 10.6]	Desired Results
Test File 48a – 100pp.pdf	2.4.8	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Could not test	Supported	Page number is detectable in Adobe Reader UI
Test File 23 – Non–English.pdf	3.1.1	Supported	Not Supported	N/A	Not Supported	Supported	N/A	Not Supported	Not Supported	Not Supported	French language content on the page is voiced with a French synthesizer
Test File 25 – Non–English Phrases.pdf	3.1.2	Supported	Not Supported	N/A	Not Supported	Supported	N/A	Not Supported	Not Supported	Not Supported	Spanish language content and English language content are voiced with the correct speech synthesizer
Test File 28 – Acroforms Button.pdf	3.2.1	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Supported	Not Supported	When controls are focused, the focus stays on the control until the user moves it away
Test File 29 – Acroforms Checkbox.pdf	3.2.1	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Supported	Not Supported	When controls are focused, the focus stays on the control until the user moves it away
Test File 30 – Acroforms Combobox.pdf	3.2.1	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Supported	Not Supported	When controls are focused, the focus stays on the control until the user moves it away
Test File 31 – Acroforms Listbox.pdf	3.2.1	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Supported	Not Supported	When controls are focused, the focus stays on the control until the user moves it away

Test File	WCAG 2 Success Criteria	Reader 9/ JAWS 9	Reader 9/ Window-Eyes 7	Reader 9/ ZoomText 9	Preview/ Voice Over [OSX10.5]	Reader 9/ JAWS 8	Reader 9/ ZoomText 8.04	Reader 9/ NVDA 2009.1	Reader 9/ System Access 2 Go	Preview/ VoiceOver [OSX 10.6]	Desired Results
Test File 32 – Acroforms Radio Button.pdf	3.2.1	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Supported	Not Supported	Focus doesn't move away when control is focused
Test File 33 – Acroforms Text Field.pdf	3.2.1	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Supported	Not Supported	Focus doesn't move away when control is focused
Test File 28 – Acroforms Button.pdf	3.2.2	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Supported	Not Supported	Focus doesn't move away when control setting is changed
Test File 29 – Acroforms Checkbox.pdf	3.2.2	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Supported	Not Supported	Focus doesn't move away when control setting is changed
Test File 30 – Acroforms Combobox.pdf	3.2.2	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Supported	Not Supported	Focus doesn't move away when control setting is changed
Test File 31 – Acroforms Listbox.pdf	3.2.2	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Supported	Not Supported	Focus doesn't move away when control setting is changed
Test File 32 – Acroforms Radio Button.pdf	3.2.2	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Supported	Not Supported	Focus doesn't move away when control setting is changed
Test File 33 – Acroforms Text Field.pdf	3.2.2	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Focus doesn't move away when control value is changed
Test File 80 – Sample form.pdf	3.3.1	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Supported	Not Supported	Input error is identified in text
Test File 80 – Sample form.pdf	3.3.2	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Supported	Form controls are labeled

Test File	WCAG 2 Success Criteria	Reader 9/ JAWS 9	Reader 9/ Window-Eyes 7	Reader 9/ ZoomText 9	Preview/ Voice Over [OSX10.5]	Reader 9/ JAWS 8	Reader 9/ ZoomText 8.04	Reader 9/ NVDA 2009.1	Reader 9/ System Access 2 Go	Preview/ VoiceOver [OSX 10.6]	Desired Results
Test File 13 – Table with Caption.pdf	4.1.2	Supported	Supported	N/A	Not Supported [role is not announced]	Supported	N/A	Supported	Supported	Not Supported [role is not announced]	Name, value, and role is available for table
Test File 28 – Acroforms Button.pdf	4.1.2	Supported	Supported	N/A	Not Supported [role is not announced]	Supported	N/A	Supported	Supported	Not Supported [role is not announced]	Name, value, and role is available for buttons
Test File 29 – Acroforms Checkbox.pdf	4.1.2	Supported	Supported	N/A	Not Supported [role and value are not announced]	Supported	N/A	Supported	Supported	Not Supported [role and value are not announced]	Name, value, and role is available for checkbox
Test File 30 – Acroforms Combobox.pdf	4.1.2	Supported	Supported	N/A	Not Supported [role is not announced]	Supported	N/A	Supported	Supported	Not Supported [role is not announced]	Name, value, and role is available for combobox
Test File 31 – Acroforms Listbox.pdf	4.1.2	Supported	Supported	N/A	Not Supported [role is not announced]	Supported	N/A	Supported	Supported	Not Supported [role is not announced]	Name, value, and role is available for listbox
Test File 32 – Acroforms Radio Button.pdf	4.1.2	Supported	Supported	N/A	Not Supported [role and name are not announced]	Supported	N/A	Supported	Supported	Not Supported [role and name are not announced]	Name, value, and role is available for radio buttons
Test File 33 – Acroforms Text Field.pdf	4.1.2	Supported	Supported	N/A	Not Supported [role is not announced]	Supported	N/A	Supported	Supported	Not Supported [role is not announced]	Name, value, and role is available for text fields

Test File	WCAG 2 Success Criteria	Reader 9/ JAWS 9	Reader 9/ Window-Eyes 7	Reader 9/ ZoomText 9	Preview/ Voice Over [OSX10.5]	Reader 9/ JAWS 8	Reader 9/ ZoomText 8.04	Reader 9/ NVDA 2009.1	Reader 9/ System Access 2 Go	Preview/ VoiceOver [OSX 10.6]	Desired Results
Test File 47 – Links.pdf	4.1.2	Supported	Supported	N/A	Not Supported [role is not announced]	Supported	N/A	Supported	Supported	Not Supported [role is not announced]	Name, value, and role is available for links
Test File 49a – Comments.pdf	4.1.2	Supported	Supported	Supported	Not Supported	Supported	Supported	Supported	Not Supported	Not Supported	Name, value, and role is available for comments
Test File 6 – PDF Headings.pdf	4.1.2	Supported	Not Supported [WE does not indicate role of heading].	N/A	Not Supported [role is not announced]	Supported	N/A	Supported	Supported	Not Supported [role is not announced]	Name, value, and role is available for headings
Test File 9 – Nested List.pdf	4.1.2	Supported	Partial Support [role is not indicated]	N/A	Not Supported [role is not announced]	Supported	N/A	Supported	Not Supported	Not Supported [role is not announced]	Name, value, and role is available for lists

Note: The results for Test File 57 – Table of Contents.pdf have been amended from the published version on the W3C website (http://www.w3.org/WAI/GL/WCAG20/implementation–report/ PDF_accessibility_support_appendixa.html) to reflect a correction with the test file. JAWS 9 is now categorized as 'Supported'.

User evaluation participant profiles

Table 3: Participant profiles by disability group

Participant Group	Adaptive Strategy	Assistive Technology	Version	Experience	Gender	Age group
Blind	Screen Reader	JAWS	10	High	F	31–54
	Screen Reader	JAWS	9	High	M	55–64
	Screen Reader	JAWS	9	Moderate	F	18–30
	Screen Reader & Braille display	JAWS	10	Moderate	F	31–54
	Screen Reader	JAWS	9	Low	M	31–54
	Screen Reader	JAWS	9	Low	F	31–54
	Screen Reader	NVDA	2009.1	Moderate	M	31–54
	Screen Reader	SATOGO	3.0	High	M	31–54
	Screen Reader	Window-Eyes	7	High	M	55–64
	Screen Reader	Window-Eyes	7	Moderate	F	31–54
Blind (Deafblind)	Screen Reader (visual inspection)	JAWS	9	Moderate	M	31–54
Low Vision	Screen Magnifier with speech	MAGic	10	Moderate	M	31–54
	Screen Magnifier	ZoomText (inverted colours)	9.14	High	F	18–30
	Screen Magnifier with speech	ZoomText	9.14	High	M	31–54
	Screen Magnifier	ZoomText	9.14	Moderate	F	55–64
	Screen Magnifier	ZoomText	9.14	Moderate	F	18–30
Mobility	Speech Recognition	Dragon Professional	10.1	High	F	31–54
	Keyboard Interaction	None	NA	NA	F	31–54
	Keyboard Interaction using Head–pointer	None	NA	NA	F	55–64
Cognitive	Configuration of Operating System & Adobe Reader	None	NA	NA	M	18–30
	Text–to–speech	Read Out Loud	Adobe 9	High	M	31–54
	Text–to–speech	Read & Write Gold	9	High	M	31–54
Hearing	None (Auslan first language)	None	NA	NA	M	31–54

Document collections

Table 4: Collection A Documents – Optimised for accessibility

Type	Description	Features
Long	University Research report	Multi page spread design, headings, images, lists, simple and complex tables, page numbers and footers
Short	Press release	Headings, page numbers, links and images
Brochure	Government fact sheet	Multi column, headings, foreground and background images, and headings
Form	One page invoice form	Combo boxes, single edit fields, multi line edit fields, radio buttons, and validation

Table 5: Collection B Documents – Representative of government publications

Type	Description	Features
Long	Government annual report	Single page design, headings, images, lists, simple and complex tables, page numbers and footers
Short	Education report	Headings, page numbers, tables links and images
Brochure	Government fact sheet	Headings, lists and images
Form	One page credit form	Single edit fields, multi line edit fields and validation

two User evaluation test results by
assistive technology

two

User evaluation test results by assistive technology

This section covers specific, detailed test results for each of the ATs used by participants in the user evaluations.

The discussion of issues that follow focuses on Collection A – the set of documents that were optimised for accessibility.

For Collection B – the set of representative documents – 74% of the issues experienced were the result of poor document design. In many cases, this prevented the participant from successfully completing the task. Therefore these individual issues are not discussed in detail as the document design issues overwhelmed the actual user experience. Full results of all 'unique' issues encountered for ATs against each task are reported in their individual section of this report.

For context, the issues encountered by the participants have been categorised into four groups:

1. **Document Design:** the design of the document (e.g. missing tags or elements, problems with reading order etc) created barriers for the user, requiring use of an adaptive strategy or prevented them from interacting with the document at all.

2. **AT Support:** the user's AT did not provide sufficient functionality to enable the user to interact with the PDF file. In some cases this matched the findings from the technical evaluation; in others it highlighted new areas of technical incompatibility.

3. **User Skill:** a lack of knowledge by the user about using their AT, Adobe Reader, or PDF files led to confusion and difficulty completing the task.

4. **Adobe Reader:** features provided by the Adobe Reader did not support the user to interact with the document using their chosen adaptive strategy.

Further, the relative impact of each issue was rated based on the effect it had upon the participant and whether they were able to successfully complete the task:

• **High:** Significant barrier making it impossible for user to achieve their goal.

• **Medium:** Difficulties requiring a change in approach for user to achieve their goal.

• **Low:** Irritation faced by user, but goal could be achieved.

Detailed test results by assistive technology

PAC Mate

The one PAC Mate participant was unable to undertake any of the twelve tasks due to technical problems using the PAC Mate and the Orneta PDF Reader Mobile – the PDF reader recommended by PAC Mate's Australian distributor, Quantum Technology.

The Orneta reader failed to open any of the PDF documents used for the evaluations. It did open a pre–installed PAC Mate user guide from Freedom Scientific available on the PAC Mate. However the efficiency of this interaction was very poor and the PDF reader crashed repeatedly. The best experience was when the participant managed to move through the first page using the keyboards up and down arrows. All other reading and navigation commands failed to work. Based on this experience, no evaluations were conducted and the level of technical capability provided by PAC Mate was deemed to be not sufficient for this Study.

JAWS 9 & 10

Seven participants attempted the tasks using this assistive technology.

Success rates

Table 6: JAWS versions 9 & 10 test results

Collection	Attempts	Successes	Failures
A	42	35	7
B	29	8	21

The JAWS (versions 9 and 10) users successfully completed 83% of the tasks they attempted with the documents in Collection A. Except in one case, all task failures were attributed to the task where users were asked to orientate by page number.

User Evaluation tests were conducted with users describing their experience with using their ATs as low, medium or high level skill. Participants of varying skill level were included – see Table 3: Participant profiles by disability group. There were no significant differences in the success rates (for tasks) between the different experience/skill levels of the participants using JAWS, nor in their acceptance of the time taken to complete the tasks.

However, there was an apparent variation across skill levels when users were asked to assign a level of ease to the task they had just completed. For Collection A, the participants with a high level of experience/skill found the tasks very easy overall. In contrast, the participants with moderate and low experience/skill levels acknowledged that there had been a learning curve as they worked their way through the tasks.

Specific issues encountered

Table 7: Issues encountered with Collection A using JAWS versions 9 & 10

Issue	Cause	Impact
Page number in document is not read aloud by JAWS	Document design	High
Page number of document does not correspond with Adobe Page Navigation toolbar	Document design	Moderate
Users expected table rows for 'item details' to be numbered	Document design	Low
'Page Down' does not act as user expects	AT support & Document design	Moderate
Cannot manually enter information into date field with 'auto forms mode' in JAWS 10 turned on	AT support	Moderate
Cannot jump between paragraphs using JAWS	AT support	Low
User does not know JAWS table navigation commands	User skill	Moderate
User does not know how to navigate via headings	User skill	Moderate
User does not know how to search for a page using Adobe Page Navigation toolbar	User skill	Moderate
User tries to use Word commands	User skill	Moderate
User found it hard to use the drop down calendar picker	User skill	Low

JAWS users encountered three issues caused by a lack of AT support that were not identified in the technical testing:

1. When JAWS 10 engaged with a PDF form with a drop down calendar picker in 'auto forms mode', the user was unable to input text into the field. To resolve the issue, the user had to exit out of 'auto forms mode', which they did successfully.

2. All versions of JAWS tested do not support the ability to move through PDF documents via paragraph navigation. One JAWS user stated in the pre–evaluation interview, and during the evaluation, that they use paragraph navigation, but the lack of support did not significantly hinder their interaction or ability to complete the task.

3. Users did not know what page they were on or where they had jumped to in a document after using the 'Page Down' feature (pressing the Page Down key on the keyboard). Participants expected this to move them to the next page of the document, however it only moves forward one 'screen' of information, which is often less than a full page. The document design and AT failed to work together in this instance to provide effective and consistent navigation.

Table 8: Full test result for user evaluation by task – JAWS 9 & 10

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
JAWS 9&10	A: Read a short document (general navigation)	Cannot jump between paragraphs using JAWS	Have to read all, sentence by sentence or navigate via headings	JAWS does not support paragraph navigation	AT support	Low
JAWS 9&10	A: Navigate information in a table structure	User does not know JAWS table navigation commands	User has to read through each cell and guess/ discover correct cell	Low experience of user meant they did not know JAWS table navigation commands	User skill	Moderate
JAWS 9&10	A: Access and understand information portrayed through an image/alt	No issue				
JAWS 9&10	A: Identify and move through a document using structure such as headings	User does not know how to navigate via headings	User believes tab key jumps between sections rather than links and controls	Low experience of user meant they did not know basic JAWS navigation commands	User skill	Moderate
JAWS 9&10	A: Navigate through a large document using page numbers	User does not know how to search for a page using Adobe Page Navigation toolbar	User relied on page number in document being announced until observer informed him about the Navigation toolbar	At least one participant from the Moderate and Low experience users did not know how to use the toolbar	User skill	Moderate
JAWS 9&10	A: Navigate through a large document using page numbers	User tries to use Word commands	User tried the Ctrl + G combination expecting it to activate the 'Go To' window but in PDF this is Ctrl + Shift + N	Moderate and Low experience users are not aware of specific command when using PDF files	User skill	Moderate
JAWS 9&10	A: Navigate through a large document using page numbers	Page number of document does not correspond with Adobe Page Navigation toolbar (Deafblind user)	User confused as to what page they are on or if page exists	Complexity of multi page (spread) print presentation	Document design	Moderate
JAWS 9&10	A: Navigate through a large document using page numbers	Page number in document is not read aloud by JAWS	User cannot establish what page they are on	Author of document has not tagged and included the page number in the reading order. Author has used a spread design meant for printing not online viewing	Document design	High

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
JAWS 9&10	*A: Navigate through a large document using page numbers*	'Page Down' does not act as user expects	Users do not know what page they are on, or where they have jumped to in document after using 'Page Down'. Shortcut does not take them to next screen or document page consistently	Document design and AT do not work together for effective and consistent navigation	AT support & Document design	Moderate
JAWS 9&10	*A: Interact and complete a form*	Cannot manually enter information into date field with 'auto forms mode' in JAWS 10 turned on	Users have to turn off 'auto forms mode' in JAWS 10 to enter data into field. They did not know this initially	This is a JAWS bug. When 'auto forms mode' is turned on the drop down calendar can be used but user has to arrow down to activate. Further, the field states' type in text', but provides no information regarding calendar widget	AT support	Moderate
JAWS 9&10	*A: Interact and complete a form*	User expected table rows for 'item details' to be numbered	Users are not sure how many rows are in the table	Author of document has not provided a column for the row numbers or table summary	Document design	Low
JAWS 9&10	*A: Interact and complete a form*	User found it hard to use the drop down calendar picker	User was confused about how to use and exit the calendar picker at first	Low experienced user did know how to use the calendar picker	User skill	Low
JAWS 9&10	*B: Read a short document (general navigation)*	None of the contents of the first page are contained in the structure tree	The text on the first page is not read by JAWS so users could not access information	Author of document has not tagged and included the first page in the structure	Document design	High
JAWS 9&10	*B: Read a short document (general navigation)*	Delay in loading of document	A delay was experienced in the loading time of the document. User was confused and frustrated as to what was happening	Author of document has not correctly tagged all of the document leading to conflicts with AT	Document design	Moderate
JAWS 9&10	*B: Read a short document (general navigation)*	User does not know if document has loaded	User not sure when or if document is loaded	Moderate and low experience users did not know that JAWS automatically reads document when loaded or that when you press any reading key JAWS will announce "processing document"	User skill	Low
JAWS 9&10	*B: Read a short document (general navigation)*	File freezes when moving between pages	User has to wait for JAWS and Adobe Reader to commence interacting with each other.	Author of document has not correctly tagged all of the document leading to conflicts with AT	Document design	Low

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
JAWS 9&10	B: Navigate information in a table structure	Table has not been marked-up	Header row of the table is read as one cell and users cannot navigate using JAWS table commands	Author of document has not marked–up the table to identify header and data cells (<TH> & <TD>)	Document design	High
JAWS 9&10	B: Navigate information in a table structure	Tables have not been identified so quick navigation is hindered	User selects 'T' to jump to tables but JAWS announces "no tables found" so user believes there are none	Author of document has not identified and marked up tables so JAWS short cut key cannot locate them	Document design	High
JAWS 9&10	B: Navigate information in a table structure	User does not know how to locate tables	User believes tab key will take them to the table on the page, but jumps to next link in document	User has a low experience level with JAWS	User skill	Moderate
JAWS 9&10	B: Navigate information in a table structure	Numerical data separated into 2 cells	User was confused as numerical data is read as 2(space) 380 instead of '2380'	Author of document has separated one number into 2 cells	Document design	Low
JAWS 9&10	B: Access and understand information portrayed through an image/alt	The image has no alternative text	The users cannot ascertain that an image is present	Author of document has not applied an alternative text description to the image	Document design	High
JAWS 9&10	B: Identify and move through a document using structure such as headings	Headings are not marked up correctly	Cannot jump to headings so users have to read through all of the document	Author of document not marked up headings consistently. <H2 Subhead> has been used instead of <H2>. JAWS does not recognise the <H2 Subhead> tag	Document design	Moderate
JAWS 9&10	B: Identify and move through a document using structure such as headings	Headings are not marked up consistently	Only one heading is marked–up correctly towards the end of the document, user jumps to that and reads to the end – confused as to where the information they are looking for is located	Incorrect heading mark–up has significant impacts on the readability of content	Document design	Moderate
JAWS 9&10	B: Identify and move through a document using structure such as headings	List items not grouped in document structure	List is marked–up but read as two separate lists instead of one	Author of document has separated the list in the reading order so the items are not associated	Document design	Low

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
JAWS 9&10	*B: Navigate through a large document using page numbers*	Page number is not read out or presented on braille display	Users cannot verify what page they are on – have to base judgement on the Adobe Page Navigation toolbar	Author of document has not tagged and included the page number in the reading order	Document design	High
JAWS 9&10	*B: Navigate through a large document using page numbers*	User not know if document has loaded	User not sure when or if document is loaded	Moderate and low experience users did not know that JAWS automatically reads document when loaded or when you press a reading key JAWS will announce "processing document"	User skill	Low
JAWS 9&10	*B: Interact and complete a form*	Focus automatically jumps to next form field without user control	Users confused as upon entering information the focus automatically moves to the next field without them tabbing	Author of document changes the focus to the next control without user operation	Document design & User skill	Low
JAWS 9&10	*B: Interact and complete a form*	Form fields and labels not associated	Users do not know what information to enter into a field	Author of document not associated labels and form fields correctly	Document design	High

NVDA 2009.1

One participant attempted the tasks using this assistive technology.

Success rates

Table 9: NVDA 2009.1 test results

Collection	Attempts	Success	Fail
A	6	4	2
B	6	2	4

The NVDA 2009.1 participant attempted all of the tasks in both document sets (twelve tasks), and succeeded in six (50% success rate). The time taken to complete the tasks was deemed acceptable on all tasks and the level of ease by which this was achieved was also very high.

The specific tasks from Collection A that the participant failed were orientating by page number and navigating information in a table structure. As with the moderate and low experienced JAWS users, the NVDA 2009.1 participant experienced a learning curve when interacting with the PDF documents that helped him become more efficient as the tasks progressed.

Specific issues encountered

Table 10: Issues encountered with Collection A using NVDA 2009.1

Issue	Cause	Impact
Page number in document is not read aloud by NVDA 2009.1	Document design	High
'Page Down' does not act as user expects	AT support & Document design	Moderate
NVDA 2009.1 does not provide a direct association between the header and data cells	AT support	High
Field name (postal code) is not read not out	AT support	Moderate
User does not know how to search for a page	User skill	Moderate

The NVDA 2009.1 participant experienced several issues caused by a lack of AT support that were not clearly identified in the technical testing:

1. NVDA 2009.1 does not announce table header cell information as the user navigates between row and columns. This is common across all document formats, not just PDF. As a result, the participant had to establish the column headers and then try and recall the order of this information while moving through the rows of data.

2. The user experienced an issue when trying to read out the 'postal code' field in the accessible form. In this case the file name of the document was read out instead of the label. The user had to move focus out of the field and then tab back into the field

to hear the correct label. The cause of this issue is related to the combo box on the preceding field – an issue NVDA 2009.1 is aware of and working to correct.

3. As with JAWS, the 'Page Down' functionality did not match the user's expectations. The user did not know what page he was on, or where he had jumped to in document after pressing the 'Page Down' key.

When interacting with the documents, the experience for the NVDA 2009.1 user was degraded by the lack of core functionality provided by NVDA 2009.1 for PDF files. As a result, the user had to implement alternative strategies on multiple occasions to compensate. However, the user did not find this particularly troublesome and considered the ease and time to accomplish the tasks acceptable.

Table 11: Full test results for user evaluation by task – NVDA 2009.1

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
NVDA 2009.1	*A: Read a short document (general navigation)*	No issues				
NVDA 2009.1	*A: Navigate information in a table structure*	NVDA 2009.1 does not provide a direct association between the header and data cells	User has to establish what each column header is then move through the rows and mentally recall the column header	NVDA 2009.1 does not provide commands to read tables effectively	AT support	High
NVDA 2009.1	*A: Access and understand information portrayed through an image/alt*	No issues				
NVDA 2009.1	*A: Identify and move through a document using structure such as headings*	No issues				
NVDA 2009.1	*A: Navigate through a large document using page numbers*	'Page Down' does not act as user expects	User did not know what page he was on, or where he had jumped to in document after using 'Page Down'. Does not take him to next screen or document page consistently	Document design and AT do not work together for effective and consistent navigation	AT support & Document design	Moderate
NVDA 2009.1	*A: Navigate through a large document using page numbers*	Page number in document is not read aloud by NVDA 2009.1	Cannot establish what page they are on	Author of document has not tagged and included the page number in the reading order. Author has used a spread design meant for printing not online viewing	Document design	High
NVDA 2009.1	*A: Navigate through a large document using page numbers*	User does not know how to search for a page	User relied on page number in document being announced until observer informed him about Adobe Page Navigation toolbar	Experience with using PDF files was high, but user did know about Page Navigation toolbar	User skill	Moderate

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
NVDA 2009.1	A: Interact and complete a form	Field name (postal code) is not read not out	File name of document is read out when entering postal field. User has to tab to next field and then shift tab back into the postal code field for field name to be read out	NVDA 2009.1 bug with combo boxes in PDF forms	AT support	Moderate
NVDA 2009.1	B: Read a short document (general navigation)	None of the contents of the first page are contained in the structure tree	The text on the first page is not read by NVDA 2009.1 so the users cannot access the information	Author of document has not tagged and included the first page in the structure	Document design	High
NVDA 2009.1	B: Read a short document (general navigation)	File freezes when moving between pages	User has to wait for NVDA 2009.1 and Adobe Reader to reengage with the document	Author of document has not correctly tagged all of the document leading to some conflicts with ATs	Document design	Low
NVDA 2009.1	B: Navigate information in a table structure	Tables have not been identified so does not allow quick navigation to them	The user could not jump to the next table using the shortcut ('T') as the table had not been tagged	Author of document has not tagged and identified tables in the structure	Document design	Moderate
NVDA 2009.1	B: Navigate information in a table structure	Table navigation not supported by document mark–up or by NVDA 2009.1	Users tab through each cells and has to mentally constructs table layout and association between cells	NVDA 2009.1 does not provide table navigation, and author of document has not marked up the table to identify header and data cells (<TH> & <TD>)	AT support & Document design	High
NVDA 2009.1	B: Navigate information in a table structure	Adobe Reader crashes when loading file	File and reader have to be reopened	Author of document has not tagged the document leading to conflicts with ATs	Document design	High
NVDA 2009.1	B: Access and understand information portrayed through an image/alt	The image has no alternative text	The users cannot ascertain that an image is present	Author of document has not applied an alternative text description to the image	Document design	High
NVDA 2009.1	B: Identify and move through a document using structure such as headings	Headings are not marked up correctly	Cannot jump via heading navigation so have to read through all of the document	Author of document not marked up headings consistently. <H2 Subhead> and <heading 2> have been used instead of <H2>. NVDA 2009.1 does not recognise either of these tags	Document design	Moderate

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
NVDA 2009.1	*B: Identify and move through a document using structure such as headings*	List items not grouped in document structure	Users confused by the appearance of the list as one list is read as two	Author of document has separated the list in the reading order so the items are not associated	Document design	Low
NVDA 2009.1	*B: Navigate through a large document using page numbers*	Adobe Reader crashes when loading reading order	File and reader have to be reopened	Author of document has not tagged the document leading to conflicts with ATs	Document design	High
NVDA 2009.1	*B: Navigate through a large document using page numbers*	Page number in document is not read aloud by NVDA 2009.1	User bases judgement of page number on Adobe Page Navigation toolbar	Author of document has not tagged and included the page number in the reading order	Document design	High
NVDA 2009.1	*B: Interact and complete a form*	Form fields and labels not associated	Users not know what information to enter into a field	Author of document not associated labels and form fields correctly	Document design	High

SATOGO 3.0

One participant attempted the tasks using this assistive technology.

Success rates

Table 12: SATOGO 3.0 test results

Collection	Attempts	Success	Fail
A	6	4	2
B	6	1	5

The SATOGO 3.0 participant completed four of the six tasks using Collection A with ease. However, as with the other screen reader participants, the SATOGO 3.0 user struggled to complete the tasks associated with Collection B.

Specific issues encountered

Table 13: Issues encountered with Collection A using SATOGO 3.0

Issue	Cause	Impact
User expected table rows for 'item details' to be numbered	Document design	Low
SATOGO 3.0 was unable to load document	AT support	High
Edit field name not read aloud when arrowed to	AT support	Moderate

For the two tasks in Collection A that were not successfully completed, the participant experienced problems with their AT providing sufficient support for the PDF files:

1. SATOGO 3.0 had an unresolvable conflict issue with the one document that failed to load. SATOGO 3.0 are aware of the issue and have replicated it in their lab in an attempt to resolve it.

2. The 'edit field names' in the form were not read aloud when selected. The user did not know what the fields related to, but repeated tabbing between the fields enabled the label to be read.

The user experience was hindered by SATOGO 3.0's conflict with two of the documents (similar conflict occurred for the Collection B documents as well). The user was unable to interact with these documents and therefore was unable to complete the associated tasks.

Table 14: Full test result for user evaluation by task – SATOGO 3.0

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
SATOGO 3.0	*A: Read a short document (general navigation)*	No issues				
SATOGO 3.0	*A: Navigate information in a table structure*	SATOGO 3.0 was unable to load document	User could not access the file	SATOGO 3.0 bug. SATOGO 3.0 have confirmed the issue and are looking to rectify it	AT support	High
SATOGO 3.0	*A: Access and understand information portrayed through an image/alt*	No issues				
SATOGO 3.0	*A: Identify and move through a document using structure such as headings*	No issues				
SATOGO 3.0	*A: Navigate through a large document using page numbers*	SATOGO 3.0 was unable to load document	User could not access the file	SATOGO 3.0 bug. SATOGO 3.0 have confirmed the issue and are looking to rectify it	AT support	High
SATOGO 3.0	*A: Interact and complete a form*	Edit field name not read aloud when arrowed to	User did not know what the field related to when arrowed to it, tabbed between the fields and then the label was read	SATOGO 3.0 development issue	AT support	Moderate
SATOGO 3.0	*A: Interact and complete a form*	User expected table rows for 'item details' to be numbered	Table rows are not numbered so users not sure how many rows they have to skip	Author of document has not provided a column for the row numbers or table summary	Document design	Low
SATOGO 3.0	*B: Read a short document (general navigation)*	SATOGO 3.0 was unable to load document	User could not access the file	Author of document has not tagged the document correctly leading to conflicts with ATs. SATOGO 3.0 have confirmed the issue and are looking to see if they need to rectify anything at their end	AT support & Document design	High

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
SATOGO 3.0	*B: Navigate information in a table structure*	Adobe Reader crashes when 'Read the entire document' is selected in 'Reading mode options'	User could not access the page	Author of document has not tagged the document correctly leading to conflicts with ATs. SATOGO 3.0 have confirmed the issue and investigating solutions	AT support & Document design	High
SATOGO 3.0	*B: Access and understand information portrayed through an image/alt*	SATOGO 3.0 was unable to load document	User could not access the file	Author of document has not tagged the document correctly leading to conflicts with ATs. SATOGO 3.0 have confirmed the issue and are investigating solutions	AT support & Document design	High
SATOGO 3.0	*B: Identify and move through a document using structure such as headings*	Headings are not marked up correctly	Cannot identify all headings and jump via heading navigation so have to read through all of the document	Author of document has not marked up headings consistently. <H2 Subhead> and <heading 2> tags have been used instead of <H2>. SATOGO 3.0 only recognises <H> specific tags.	Document design	Moderate
SATOGO 3.0	*B: Identify and move through a document using structure such as headings*	List items not identified	Users do not know how many items are in a proceeding list	SATOGO 3.0 does not recognise list structure	AT support	Low
SATOGO 3.0	*B: Navigate through a large document using page numbers*	Adobe Reader crashes when 'Read the entire document' is selected in 'Reading mode options'	User could not access the page	Author of document has not tagged the document correctly leading to conflicts with ATs. SATOGO 3.0 have confirmed the issue and are investigating solutions	AT support & Document design	High
SATOGO 3.0	*B: Interact and complete a form*	Form fields and labels not associated	Users not know what information to enter into a field	Author of document not associated labels and form fields correctly	Document design	High

Window-Eyes 7

Two participants attempted the tasks using this assistive technology.

Success rates

Table 15: Window-Eyes 7 test results

Collection	Attempts	Success	Fail
A	12	9	3
B	12	3	9

The two Window-Eyes 7 participants succeeded in 50% of the tasks they attempted (12/24) overall in both document collections, with Collection A fairing considerably better at a 66% success rate, compared to only 33% success for Collection B tasks.

The difference in experience/skill level between the two participants was highlighted by their individual success rates. The high experience participant succeeded in seven tasks and failed five. The moderate experience user succeeded in five tasks and failed seven. The participant with a moderate experience/skill level also noted a learning curve as the evaluation progressed.

Specific issues encountered

Table 16: Issues encountered with Collection A using Window-Eyes 7

Issue	Cause	Severity
Page number in document is not read aloud by Window-Eyes 7	Document design	High
Window-Eyes 7 does not accurately associate table containing 2 rows of headers	AT support	High
Headings not identified by Window-Eyes 7	AT support	Moderate
User has to exit 'Browse on' mode to read non editable fields	AT support	Moderate
User did not know that Window-Eyes 7 does not identify headings	AT support & User skill	Moderate
User did not know how to navigate table	User skill	Moderate
Not able to search by page number	User skill	Moderate

As with the other screen reader participants, the Window-Eyes 7 participants encountered several issues related to the support provided by Window-Eyes 7 for PDF files:

1. Window-Eyes 7 does not provide comprehensive support for table navigation in PDF files. The users had to tab through each cell and mentally construct the table layout and association between cells.

2. Headings are not identified in PDF documents. Users had to read all, navigate via paragraphs or 'arrow down' the page rather than jump between headings.

3. When interacting with form fields Window-Eyes 7 does not automatically read edit fields in 'Browse on' mode. The user has to jump between 'Browse on' and 'Browse off' modes.

The first of the three issues above resulted in the user with moderate experience/skill level failing the task, as they could not navigate the table effectively. The other two issues were overcome by both users applying alternative strategies. While the lack of heading navigation had little impact (according to the users) on the ease of task both users stated in the pre–evaluation interview that they navigate in HTML and Word using heading navigation, and this was not available in PDF. As a result, the user with moderate experience/skill level considered the time taken to complete the heading task unacceptable.

Table 17: Full test result for user evaluation by task – Window-Eyes 7

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
Window-Eyes 7	*A: Read a short document (general navigation)*	No issues				
Window-Eyes 7	*A: Navigate information in a table structure*	Window-Eyes 7 does not accurately associate table containing 2 rows of headers	Users has to tab through each cell and mentally construct table layout and association between cells and keep going back to verify	Window-Eyes 7 does not provide comprehensive support for tables	AT support	High
Window-Eyes 7	*A: Navigate information in a table structure*	User did not know how to navigate table	User did not know if Window-Eyes 7 had any table commands so tried to read the table a cell at a time	Moderate experience level of user meant they did not know if Window-Eyes 7 supported table navigation in PDF documents	User skill	Moderate
Window-Eyes 7	*A: Access and understand information portrayed through an image/alt*	No issues				
Window-Eyes 7	*A: Identify and move through a document using structure such as headings*	Headings not identified by Window-Eyes 7	Users have to read all or navigate via paragraphs, 'arrow down' rather than jump between headings	Window-Eyes 7 does not support heading navigation for PDF files	AT support	Moderate
Window-Eyes 7	*A: Identify and move through a document using structure such as headings*	User did not know that Window-Eyes 7 does not identify headings	User tried to find headings using Window-Eyes 7 heading commands for other applications	Moderate experience level of user meant they did not know that Window-Eyes 7 does not support heading navigation in PDF documents	AT support & User skill	Moderate
Window-Eyes 7	*A: Navigate through a large document using page numbers*	Participant not able to search by page number	The user did not know how to get to the required page using the Adobe Page Navigation toolbar	Moderate experience level meant they were unaware of the Adobe Page Navigation toolbar or how to use it	User skill	Moderate

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
Window-Eyes 7	*A: Navigate through a large document using page numbers*	Page number in document is not read aloud by Window-Eyes 7	User cannot establish what page they are on	Author of document has not tagged and included the page number in the reading order. Author has used a spread design meant for printing not online viewing	Document design	High
Window-Eyes 7	*A: Interact and complete a form*	User has to exit 'Browse on' mode to read non editable fields	User can access the information but has to jump between 'Browse on' and "Browse off' modes	Window-Eyes 7 does not automatically read edit fields in 'Browse on' mode	AT support	Moderate
Window-Eyes 7	*B: Read a short document (general navigation)*	None of the contents of the first page are contained in the structure tree	The text on the first page is not read by Window-Eyes 7 so the users cannot access the information	Author of document has not tagged and included the first page in the structure	Document design	High
Window-Eyes 7	*B: Read a short document (general navigation)*	File freezes when moving between pages	User has to wait for Window-Eyes 7 and Adobe Reader to reengage with the document	Author of document has not correctly tagged all of the document leading to conflicts with ATs	Document design	Low
Window-Eyes 7	*B: Navigate information in a table structure*	Table navigation not supported by document mark–up or by Window-Eyes 7	Users tab through each cells and has to mentally construct table layout and association between cells	Window-Eyes 7 does not provide comprehensive table navigation, and author of document has not marked up the table to identify header and data cells (<TH> & <TD>)	AT support & Document design	High
Window-Eyes 7	*B: Navigate information in a table structure*	Adobe Reader crashes when loading reading order	File and reader have to be reopened	Author of document has not tagged the document leading to some conflicts with ATs	Document design	High
Window-Eyes 7	*B: Access and understand information portrayed through an image/alt*	The image has no alternative text	The users cannot ascertain that an image is present	Author of document has not applied an alternative text description to the image	Document design	High

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
Window-Eyes 7	*B: Identify and move through a document using structure such as headings*	Headings not identified by Window-Eyes 7	Users have to read all or navigate via paragraphs, 'arrow down' rather than jump between headings	Window-Eyes 7 does not support heading navigation	AT support	Moderate
Window-Eyes 7	*B: Identify and move through a document using structure such as headings*	List items not identified	Users do not know how many items are in a proceeding list	Window-Eyes 7 does not recognise list structure in PDF documents	AT support	Low
Window-Eyes 7	*B: Navigate through a large document using page numbers*	Adobe Reader crashes when loading reading order	File and reader have to be reopened	Author of document has not tagged the document leading to some conflicts with ATs	Document design	High
Window-Eyes 7	*B: Navigate through a large document using page numbers*	Page number references in the Adobe Page Navigation toolbar are not consistent	The page number in the Adobe Page Navigation edit field read 26, but the text beside indicated it was page 32 of 194 confusing the user	Author of document has applied non standard page numbering. Adobe Reader reports total number of pages including non standard	Adobe Reader & Document design & User skill	Low
Window-Eyes 7	*B: Interact and complete a form*	Form fields and labels not associated	Users do not know what information to enter into a field	Author of document not associated labels and form fields correctly	Document design	High
Window-Eyes 7	*B: Interact and complete a form*	Users has to exit 'Browse on' to read non editable fields	Users can access the information but had to jump between 'Browse' modes (on and off), which caused confusions as to what information was needed	Window-Eyes 7 does not automatically read edit fields in 'Browse on' mode	AT support	Moderate

MAGic 10

One participant attempted the tasks using this assistive technology.

Success rates

Table 18: MAGic 10 test results

Collection	Attempts	Success	Fail
A	6	6	0
B	4	3	1

The MAGic 10 participant completed all six tasks using the documents in Collection A, but considered the time taken to complete the heading task to be unacceptable and found the task difficult to complete.

Specific issues encountered

Table 19: Issues encountered with Collection A using MAGic 10

Issue	Cause	Severity
Page number of document does not correspond with the Adobe Page Navigation toolbar	Document design	Moderate
Hover reading function does not work within content area of document	AT support	Moderate
Arrowing down functionally not efficient	AT support & Document design	Moderate
Field name is not read out for postal code field	AT support	Moderate

Three issues were uncovered that related to support provided by MAGic 10 for PDF files. These related to the speech component of MAGic 10 that was not included in the technical evaluations:

1. MAGic 10 provides a facility to read text by hovering over it with the mouse. The user was able to access text on the Adobe Reader toolbars and menus using this technique. However they were unable to access text within the document itself. The user had to arrow down through the document instead.

2. The arrow down functionally, used to read through the document, displayed irregular behaviour. While it read elements of the document, what is highlighted did not align with what is read and sections of text were often repeated.

3. The user could not get MAGic 10 to read out the field name for the 'postal code' field. As a result they had to rely on magnification and visual inspection to complete this task. This issue appears to be similar to that experiences by the NVDA 2009.1 participant and it seemed to be the result of a software bug when entering fields preceded by combo boxes in PDF forms.

The participant stated that MAGic 10 failed to provide the same functionality and efficiency for reading PDF documents that it does for other formats. This made the tasks harder for the user to complete as they had to continually use alternative reading approaches and rely heavily on visual inspection using the magnification component.

Table 20: Full test results for user evaluation by task – MAGic 10

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
MAGic 10	*A: Read a short document (general navigation)*	'Hover' reading function does not work with the document	User can access the Adobe toolbars and menus but none of the document text when hovering with the mouse. User had to arrow down through the document	MAGic 10 does not provide 'Hover' support for PDF files	AT support	Moderate
MAGic 10	*A: Read a short document (general navigation)*	Arrowing down functionally not efficient	While the AT read elements of the document when navigating via arrow keys, what was highlighted and what it read did not align, and the AT often repeated chunks of text	AT displays irregular behaviour when arrowing down. Document design may be conflict with AT support	AT support & Document design	Moderate
MAGic 10	*A: Navigate information in a table structure*	No issues				
MAGic 10	*A: Access and understand information portrayed through an image/alt*	No issues				
MAGic 10	*A: Identify and move through a document using structure such as headings*	'Hover' reading function does not work with the document	User can access the Adobe toolbars and menus but none of the document text when hovering with the mouse. User had to arrow down through the document	MAGic 10 does not provide 'Hover' support for PDF files	AT support	Moderate
MAGic 10	*A: Identify and move through a document using structure such as headings*	Arrowing down functionally not efficient	While the AT read elements of the document when navigating via arrow keys, what was highlighted and what it read did not align, and the AT often repeated chunks of text	AT displays irregular behaviour when arrowing down. Document design may be conflict with AT support	AT support & Document design	Moderate
MAGic 10	*A: Navigate through a large document using page numbers*	Page number of document does not correspond with the Adobe Page Navigation toolbar	User cannot establish what page they are on	Author of document has not tagged and included the page number in the reading order. Author has used a spread design meant for printing not online viewing	Document design	Moderate

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
MAGic 10	*A: Navigate through a large document using page numbers*	'Hover' reading function does not work with the document	User can access the Adobe toolbars and menus but none of the document text when hovering with the mouse. User had to arrow down through the document	MAGic 10 does not provide 'Hover' support for PDF files	AT support	Moderate
MAGic 10	*A: Interact and complete a form*	Field name is not read out for postal code field	User could not get MAGic 10 to read out the field name for the postal code field so relied on magnification	MAGic 10 bug with fields following combo boxes in PDF forms	AT support	Moderate
MAGic 10	*B: Read a short document (general navigation)*	'Hover' reading function does not work with the document	User can access the Adobe toolbars and menus but none of the document text. User had to arrow down through the document	MAGic 10 does not provide 'Hover' support for PDF files	AT support	Moderate
MAGic 10	*B: Read a short document (general navigation)*	Delay between commands and document response	When the document was read by MAGic 10 using the arrow keys it was very slow so user relied on magnification	Author of document has not correctly tagged all of the document leading to some conflict with ATs	Document design	Moderate
MAGic 10	*B: Read a short document (general navigation)*	Arrowing down functionally not efficient	While the AT read elements of the document when navigating via arrow keys, what was highlighted and what it read did not align, and the AT often repeated chunks of text	MAGic 10 does not provide efficient support for arrowing down and reading PDF files	AT support	Moderate
MAGic 10	*B: Navigate information in a table structure*	'Hover' reading function does not work with the document	User can access the Adobe toolbars and menus but none of the document text when hovering with the mouse. User had to arrow down through the document	MAGic 10 does not provide 'Hover' support for PDF files	AT support	Moderate
MAGic 10	*B: Access and understand information portrayed through an image/alt*	Not Evaluated				
MAGic 10	*B: Identify and move through a document using structure such as headings*	Not evaluated				

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
MAGic 10	*B: Navigate through a large document using page numbers*	Delay between commands and document response	When the document was read by MAGic 10 using the arrow keys was very slow, so user relied on magnification	Author of document has not tagged the document leading to some conflicts with ATs	Document design	Moderate
MAGic 10	*B: Navigate through a large document using page numbers*	Poor indication as to loading progress	User was not sure if document had loaded	MAGic 10 did not provide a clear indicator as to loading progress	AT support	Low
MAGic 10	*B: Interact and complete a form*	Click to announce field label inconsistent	User had to down arrow to read next label then use the mouse to enter field to input data. A mix of audio and visual feedback	Author of document not associated labels and form fields correctly	Document design	Moderate

ZoomText 9.14

Four participants attempted the tasks using this assistive technology.

Success rates

Table 21: Zoom Text 9.14 test results

Collection	Attempts	Success	Fail
A	24	24	0
B	17	17	0

The four ZoomText participants each attempted the tasks using different customisation and components of the software. as follows:

• User 1 – Inverted colours and magnification level x4

• User 2 – Magnification level x2

• User 3 – Magnification level x5 and speech

• User 4 – Magnification level x2

Even though the participants interacted with the documents in different ways, all four successfully completed all of the tasks that they attempted on both document collections (100% success rate). Overall, the users were satisfied with the time taken to complete the tasks.

Even though the user experience was very positive, the two participants with moderate experienced/skill level, and one with a high experience/skill level, noted a learning curve when working through the tasks. It is likely that this assisted them later in the evaluation when interacting with the representative documents.

Specific issues encountered

Table 22: Issues encountered with Collection A using ZoomText

Issue	Cause	Severity
Page number of document does not correspond with the Adobe Page Navigation toolbar	Document design	Moderate
'Doc Reader' reads all tables cells as one	AT support	Moderate
Quality of content poor when magnified	User skill	High
Background colours still do not provide sufficient contrast when inverted, making text hard to read	User skill	Moderate
Table header information not very clear when colour inverted by user	User skill	Moderate
Two column presentation requires horizontal scrolling to read	User skill	Low

In this case, a single issue was uncovered by the participants that related to ZoomText's support for PDF files. As with MAGic 10 this issue related to the speech component that was not tested in the technical evaluations.

1. The data cells in the table were not read individually so the user could not move through the table one cell at a time as desired with the ZoomText 'Doc Reader'.

Interestingly, this group of participants demonstrated the most significant effects of user skill, particularly in relation to their familiarity with using the Adobe Reader interface. Two issues in particular caused the participants some confusion:

1. When magnified with ZoomText the quality of the document (the Form) was too poor to read. ZoomText advises users to magnify documents in Adobe Reader to 100%, but the users did not know this.

2. On some documents when the foreground and background colours were inverted they provided insufficient contrast, so the user switched off the inversion and viewed the documents using standard colours. Even though the participant was a highly experienced user of ZoomText, they did not appear to know how to try different colour schemes in ZoomText to find one that provided sufficient contrast.

In both cases, once they had identified how to achieve the required customisation the users quickly adapted to apply these same changes to subsequent documents and tasks.

Table 23: Full test results for user evaluation by task – ZoomText

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
ZoomText 9.14	*A: Read a short document (general navigation)*	No issues				
ZoomText 9.14	*A: Navigate information in a table structure*	'Doc Reader' reads all tables cells as one	The data cells are not read individually so cannot move through the table one cell at a time as wished	ZoomText 'Doc Reader' does not provide full support for table structure in PDF	AT support	Moderate
ZoomText 9.14	*A: Navigate information in a table structure*	Table header information unclear when colour inverted by user	User did not find it easy to read table header (black text on grey) when colours inverted	Experienced ZoomText user but did not appear to know how to change the colours when the contrast still not sufficient when inverted	User skill	Moderate
ZoomText 9.14	*A: Access and understand information portrayed through an image/alt*	Two column presentation requires horizontal scrolling to read	Users gets a little disorientated after having to horizontal scroll	Experience with using PDF files was high but user did not know about the Reflow feature	User skill	Low
ZoomText 9.14	*A: Access and understand information portrayed through an image/alt*	Background colours still do not provide sufficient contrast when inverted making text hard to read	When colours inverted the text became hard to read as the background colour only slightly changed. User turned inverted off	The user has high experience, in using ZoomText, but did not appear to know how to change the colours when the contrast was still insufficient when inverted. The user only knew their default setting	User skill	Moderate
ZoomText 9.14	*A: Identify and move through a document using structure such as headings*	No issues				
ZoomText 9.14	*A: Navigate through a large document using page numbers*	Page number of document does not correspond with the Adobe Page Navigation toolbar	Initial confusion as to what page they are on or if page exists. Users search for the correct page using magnification and number in document	Complexity of multi page (spread) print presentation	Document design	Moderate
ZoomText 9.14	*A: Interact and complete a form*	Quality when magnified poor	Users magnify the document in ZoomText (x5, x2), but the quality is too poor to read	ZoomText advises users to magnify Adobe to 100%, but users did not know this	User skill	Moderate

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
ZoomText 9.14	B: Read a short document (general navigation)	Table header information in the document not very clear when colours inverted	User did not find it easy to read table header (black text on grey) when colours inverted	Experienced ZoomText user but did not appear to know how to change the colours when the contrast still not sufficient when inverted	User skill	Moderate
ZoomText 9.14	B: Read a short document (general navigation)	Text not very clear when colours inverted	When colours inverted the text became hard to read as the background remained the same – turned inverted off	Experienced ZoomText user but did not appear to know how to change the colours when the contrast still not sufficient when inverted	User skill	Moderate
ZoomText 9.14	B: Navigate information in a table structure	Row header read as 2 separate cells so disjointed	The row header was split between 2 cells, one read at the start of the row and the other at the start of the next row. User has to rely on magnification to read and understand the table	Author of document has placed the row header over 2 cells instead of one merged cell	Document design	Moderate
ZoomText 9.14	B: Navigate information in a table structure	Numerical data separated into 2 cells	User was confused as numerical data is read as "2 [space] 380" instead of "2380"	Author of document has separated one number into 2 cells	Document design	Low
ZoomText 9.14	B: Access and understand information portrayed through an image/alt	The image has no alternative text	Users cannot ascertain the meaning of the image using the 'Reader' so uses magnification	Author of document has not applied an alternative text description to the image	Document design	Moderate
ZoomText 9.14	B: Identify and move through a document using structure such as headings	No issues				
ZoomText 9.14	B: Navigate through a large document using page numbers	'Page Thumbnail' does not move with vertical scrollbar	User scrolls down the page but the 'Page Thumbnail' remains centre of the page and does not move inline with the position of the vertical scroll bar. The user could not see the thumbnail when scrolling to the top or towards the bottom of the document	Adobe centralises the 'Page Thumbnail' and does not allow for it to be fixed/aligned to the position of the scroll bar	Adobe Reader	Low

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
ZoomText 9.14	*B: Interact and complete a form*	Form fields and labels not associated	Relying on the 'Doc Reader' the user does not know what information to enter into a field. Uses magnification alone	Author of document not associated labels and form fields correctly	Document design	Moderate
ZoomText 9.14	*B: Interact and complete a form*	Print button at top of page	When magnified, users do not see whole of page at any one time. User did not notice Print button at top of page	Author of document has placed Print button at top of page not bottom – or top and bottom	Document design	Moderate

Read Out Loud (Adobe Reader 9)

One participant attempted the tasks using this assistive technology.

Success rates

Table 24: Read Out Loud test results

Collection	Attempts	Success	Fail
A	6	6	0
B	5	2	3

The Read Out Loud Adobe Reader 9 participant successfully completed all of the tasks in the accessible document collection, each in an acceptable amount of time and with ease.

Specific issues encountered

Table 25: Issues encountered with Collection A using Read Out Loud

Issue	Cause	Severity
Page number in document is not Read Out Loud	Document design	Moderate
Page number of document does not correspond with the Adobe Page Navigation toolbar	Document design	Moderate
All of first page is read as one block	Document design	Low
Text entered into form fields not automatically read out	AT support	Low

The Read Out Loud participant encountered the same issues relating to 'orientating by page number' task that the screen reader users faced. However, in contrast to screen reader users, the issue did not prevent the participant from completing the task as they were able to adapt and visually inspect the document.

Provided as part of the Adobe Reader program, Read Out Loud provides support for the PDF files as expected. Issues with the document design still present problems for this adaptive strategy. However, in the user evaluations they had no effect on the ease of this participant completing the tasks.

Table 26: Full test results for user evaluation by task – Read Out Loud

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
Adobe Read Out Loud	*A: Read a short document (general navigation)*	All of first page is read as one block	User has to listen to all of the page as the reading order has not been defined by paragraphs on the first page	Author of document grouped all of first page as one block, but separated second page using the headings on the page	Document design	Low
Adobe Read Out Loud	*A: Navigate information in a table structure*	No issues				
Adobe Read Out Loud	*A: Access and understand information portrayed through an image/alt*	No issues				
Adobe Read Out Loud	*A: Identify and move through a document using structure such as headings*	No issues				
Adobe Read Out Loud	*A: Navigate through a large document using page numbers*	Page number of document does not correspond with the Adobe Page Navigation toolbar	Initial confusion when page was not found, user visually searches for the correct page using the page number in the document	Complexity of multi page (spread) print presentation	Document design	Moderate
Adobe Read Out Loud	*A: Navigate through a large document using page numbers*	Page number in document is not read out by Read Out Loud	Page number is read as "blank" so user has to visually read number	Author of document has not tagged and included the page number in the reading order. Author has used a spread design meant for printing not online viewing	Document design	Moderate
Adobe Read Out Loud	*A: Interact and complete a form*	Text entered into form fields not automatically read out	User has to exit field and 'Shift + Tab' to get data read aloud	Read Out Loud does not recognise text as it is typed into edit fields	AT support	Low
Adobe Read Out Loud	*B: Read a short document (general navigation)*	Read Out Loud does not read first page	User tries to read first page but Read Out Loud reads "blank, blank"	Author of document has not tagged and included the first page in the structure	Document design	High

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
Adobe Read Out Loud	*B: Navigate information in a table structure*	Adobe Reader crashes when Read Out Load is opened with the document	User cannot access file with Read Out Loud	Author of document has not tagged the document leading to some conflicts with ATs	Document design	High
Adobe Read Out Loud	*B: Access and understand information portrayed through an image/alt*	The image has no alternative text	Users cannot ascertain the meaning of the image via Read Out Loud, has to visually ascertain meaning	Author of document has not applied an alternative text description to the image	Document design	Moderate
Adobe Read Out Loud	*B: Identify and move through a document using structure such as headings*	No issues				
Adobe Read Out Loud	*B: Navigate through a large document using page numbers*	Adobe Reader crashes when Read Out Load is opened with the document	User cannot access file with Read Out Loud	Author of document has not tagged the document leading to some conflicts with ATs	Document design	High
Adobe Read Out Loud	*B: Interact and complete a form*	Form fields and labels not associated	Users not know what information to enter into a field using Read Out Loud	Author of document not associated labels and form fields correctly	Document design	High

Read & Write Gold 9

One participant attempted the tasks using this assistive technology.

Success rates

Table 27: Read & Write Gold 9 test results

Collection	Attempts	Success	Fail
A	6	6	0
B	4	4	0

All of the tasks attempted were successfully completed, in an acceptable amount of time and very easily.

Specific issues encountered

Table 28: Issues encountered with Collection A using Read & Write Gold

Issue	Cause	Severity
Text entered into form fields not automatically read out	AT support	Low

The participant experienced one issue with the accessible document collection; text entered into the form field was not automatically read out, but required the user to select the 'Click and speak' feature.

Table 29: Full test results for user evaluation by task – Read & Write Gold

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
Read & Write Gold 9	*A: Read a short document (general navigation)*	No issues				
Read & Write Gold 9	*A: Navigate information in a table structure*	No issues				
Read & Write Gold 9	*A: Access and understand information portrayed through an image/alt*	No issues				
Read & Write Gold 9	*A: Identify and move through a document using structure such as headings*	No issues				
Read & Write Gold 9	*A: Navigate through a large document using page numbers*	No issues				
Read & Write Gold 9	*A: Interact and complete a form*	Text entered into form fields not automatically read out	User has to select 'Click and speak' feature to get information entered into edit fields read aloud	Read&Write 'Reader' does not support information entered into edit fields	AT support	Low
Read & Write Gold 9	*B: Read a short document (general navigation)*	No issues				
Read & Write Gold 9	*B: Navigate information in a table structure*	Table has not been marked up	Header row of the table is read as one cell so all items were read as one sentence	Author of document has not marked up the table to identify individual header cells	Document design	Moderate
Read & Write Gold 9	*B: Navigate information in a table structure*	Numerical data separated into 2 cells	User was confused as numerical data is read as "2 [space] 380" instead of "2380"	Author of document has separated one number into 2 cells	Document design	Low
Read & Write Gold 9	*B: Access and understand information portrayed through an image/alt*	No issues				

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
Read & Write Gold 9	*B: Identify and move through a document using structure such as headings*	Not evaluated				
Read & Write Gold 9	*B: Navigate through a large document using page numbers*	No issues				
Read & Write Gold 9	*B: Interact and complete a form*	Not evaluated				

Dragon Professional 10.1

One participant attempted the tasks using this assistive technology.

Success rates

Table 30: Dragon Professional 10.1 test results

Collection	Attempts	Success	Fail
A	6	6	0
B	4	4	0

The Dragon Professional 10.1 participant successfully completed all tasks attempted. The time taken was acceptable for all but the 'orientate by page number' task. The participant was initially confused about the difference between the page number provided in the Adobe Reader Page Navigation toolbar and the document itself. This confusion led the participant to regard the time as unacceptable.

Specific issues encountered

Table 31: Issues encountered with Collection A using Dragon Professional 10.1

Issue	Cause	Severity
General Dragon commands do not work	AT support	Moderate
Dragon does not apply form field numbering overlay for PDF forms	AT support	Low
Text input is not as accurately recorded in PDF documents as it is with other application	AT support	Low

The participant uncovered several AT support issues when using Dragon with PDF files. These issues were based on experiences and expectations the participant had for how Dragon interacts with other file formats such as HTML and Word.

Overall the participant experienced a sense of frustration that Dragon commands were not available or did not function as expected when using PDF files. This included dictated text input into fields on the PDF form where Dragon did not correctly recognise the spoken commands. A comparative test of input text into a Word document or HTML form confirmed that the experience in the PDF file was not equivalent.

Another example was the navigation of forms. In an HTML form, Dragon overlays and assigns a shortcut number to each form field to allow the user to quickly navigate to a particular field in the form. This functionality is not available in PDF forms, and there was no equivalent way for the user to move to a particular form field. This presented a problem when the participant wanted to review the form. To complete such a task, the participant had to exit from the form fields, and if wishing to re–enter form fields, needed to begin from the top of the form. As a result, the participant had to navigate through the form again via continual "press tab" statements to get back to the relevant field. This issue was not highly concerning, but created additional confusion and frustration for the participant, as the assistive technology did not operate in a familiar manner.

Table 32: Full test results for user evaluation by task – Dragon Professional 10.1

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
Dragon Professional 10.1	*A: Read a short document (general navigation)*	No issues				
Dragon Professional 10.1	*A: Navigate information in a table structure*	No issues				
Dragon Professional 10.1	*A: Access and understand information portrayed through an image/alt*	No issues				
Dragon Professional 10.1	*A: Identify and move through a document using structure such as headings*	No issues				
Dragon Professional 10.1	*A: Navigate through a large document using page numbers*	General Dragon commands not work	User tries to use common Dragon commands that work with Word (OK/Cancel) when using the Adobe Page Navigation toolbar dialog box. These did not work and user had to say 'Press Enter' instead of 'OK'	Dragon does not provide as much support for Adobe PDF as it does for other applications	AT support	Moderate
Dragon Professional 10.1	*A: Interact and complete a form*	Text input is not as accurately recorded as with other application	User had to repeatedly correct information she had entered via speech as mistakes were recorded	Dragon support for PDF and Adobe in particular is less than for other established applications	AT support	Low
Dragon Professional 10.1	*A: Interact and complete a form*	Dragon does not apply form field numbering overlay for PDF forms	In an HTML form Dragon overlays and assigns a shortcut (number) to each field. This does not apply to PDF forms so user has to navigate via continual "press tab" statements to move to the fields	Dragon support for PDF and Adobe in particular is less than for other established applications	AT support	Low
Dragon Professional 10.1	*B: Read a short document (general navigation)*	No issues				

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
Dragon Professional 10.1	*B: Navigate information in a table structure*	No issues				
Dragon Professional 10.1	*B: Access and understand information portrayed through an image/alt*	No issues				
Dragon Professional 10.1	*B: Identify and move through a document using structure such as headings*	No issues				
Dragon Professional 10.1	*B: Navigate through a large document using page numbers*	No issues				
Dragon Professional 10.1	*B: Interact and complete a form*	Text input is not as accurately recorded as with other application	User had to repeatedly correct information she had entered via speech as mistakes were recorded	Dragon support for PDF and Adobe in particular is less than for other established applications	AT support	Low
Dragon Professional 10.1	*B: Interact and complete a form*	Dragon does not apply form field numbering overlay for PDF forms	User wanted to scroll back to another place in the form, and was required to exit the field. When wishing to re–enter the form fields, Dragon placed user at beginning of form	Dragon support for PDF and Adobe in particular is less than for other established applications. Dragon does not apply a form overlay to enable efficient navigation	AT support	Low

Keyboard only

Two participants attempted the tasks using this adaptive strategy.

Success rates

Table 33: Keyboard only test results

Collection	Attempts	Success	Fail
A	11	11	0
B	9	9	0

The two participants who relied on the keyboard to navigate and interact with the document succeeded in all tasks they attempted. Users found the tasks easy to complete.

No specific issues were identified regarding the use of a head pointing device (which operates the keyboard) however, one participant did note that when using a head stick, they are touch typing and not always looking at the screen, therefore navigation between fields is difficult. It is likely that this affected the user's experience regardless of document type.

Specific issues encountered

Table 34: Issues encountered with Collection A using Keyboard only

Issue	Cause	Severity
Page number of document does not correspond with the Adobe Page Navigation toolbar	Document design	Moderate
User reads left column first but information starts on the right	Document design	Low
Table headers not visible when using the Reflow feature in Adobe Reader	Adobe Reader	Moderate
Page numbers not visible when using the Reflow feature in Adobe Reader	Adobe Reader	Moderate
User is not aware of the Reflow feature in Adobe Reader	User skill	Low

The participants did not experience any High severity issues, but they did encounter three Moderate issues – two of which related to the 'Reflow' feature in Adobe Reader 9.

1. The participant could not use the Reflow feature in Adobe Reader as the headers in the table were not displayed. Reflow removed the grey background so the white header text was not visible.

2. The participant had to find the page first via horizontal scrolling, then revert back to the Reflow feature as Reflow in Adobe Reader did not display information in the footer (page numbers) of the document.

3. The page numbers in the document and those displayed in the Adobe Page Navigation toolbar did not correspond causing confusion. For the user with the head pointing device, excessive movement was required to keep assessing what page they were actually on.

The keyboard only participants successfully interacted with the documents and managed to complete the form in both document collections. The Adobe Reader menu was operational using the keyboard and sticky keys. The Reflow feature, that might have helped one of the users who also increased text size to 200% due to a vision impairment, was not an effective alternative.

Table 35: Full test results for user evaluation by task – Keyboard only

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
Keyboard	*A: Read a short document (general navigation)*	No issue				
Keyboard	*A: Navigate information in a table structure*	Table headers not visible when using the Reflow feature in Adobe Reader	User had to revert back to horizontal scrolling (exit reflow) as headers not displayed	Reflow in Adobe Reader did not inherit background colours so any white text was not visible	Adobe Reader	Moderate
Keyboard	*A: Access and understand information portrayed through an image/alt*	User reads left column first but information starts on the right	The second column of text was only partially visible when page zoomed to 200%. User has to scroll horizontally to find start (right hand column) of page causing slight confusion	Author of document has designed it for print. Has used 2 column presentation with start of document on right hand side of page	Document design	Low
Keyboard	*A: Identify and move through a document using structure such as headings*	No issue				
Keyboard	*A: Navigate through a large document using page numbers*	Page number of document does not correspond with the Adobe Page Navigation toolbar	Confused when page was not found, user had to search for the correct page using the number on document	Complexity of multi page (spread) print presentation	Document design	Moderate
Keyboard	*A: Navigate through a large document using page numbers*	User is not aware of the Reflow feature in Adobe Reader	User had to keep moving to the bottom of the page and then horizontally scrolling to find page numbers	Experience with using PDF files was moderate and they did not know about the Reflow feature. Adobe does not make the feature obvious and intuitive to new users	User skill	Low
Keyboard	*A: Navigate through a large document using page numbers*	Page numbers not visible when using the Reflow feature in Adobe Reader	User had to find the page first via horizontal scrolling then revert back to the Reflow feature	Reflow in Adobe Reader did not display information in the footer	Adobe Reader	Moderate
Keyboard	*A: Interact and complete a form*	No issues				
Keyboard	*B: Read a short document (general navigation)*	No issues				

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
Keyboard	*B: Navigate information in a table structure*	No issues				
Keyboard	*B: Access and understand information portrayed through an image/alt*	No issues				
Keyboard	*B: Identify and move through a document using structure such as headings*	No issues				
Keyboard	*B: Navigate through a large document using page numbers*	No issues				
Keyboard	*B: Interact and complete a form*	Focus automatically jumps to next form field without user control	Users confused as upon entering information they moved automatically to the next field without tabbing. Has to keep going back to previous field as they instinctively tabbed after entering information	Author of document change the focus to the next control without user operation	Document design & User skill	Low

Operating System (OS) configuration

One participant attempted the tasks using this adaptive strategy.

Success rates

Table 36: Operating System Configuration test results

Collection	Attempts	Success	Fail
A	6	6	0
B	6	6	0

The participant with a cognitive disability (perceptual dyslexia) found the default colour scheme made the text hard to read. A change in the operating systems (Windows) background colour to blue/grey was required to provide sufficient contrast. After implementing the colour change the participant successfully completed all twelve tasks.

Specific issues encountered

Table 37: Issues encountered with Collection A using OS configuration

Issue	Cause	Severity
OS colours not inherited by form fields in document	Adobe Reader & Document design	Moderate
Colours specified in OS not inherited in document	Adobe Reader & Document design	Moderate
Adobe Reader customisation settings not intuitive	Adobe Reader & User skill	Moderate

All of the issues the participant encountered (outside those relating to comprehension of information and readability of the document content) related to the specified background colours. For some documents, the design of the document and/or functionality provided by the Adobe Reader meant that the document failed to inherit and render the foreground and background colours specified in the operating system. The participant managed to complete the task in these situations but the tasks were considered difficult.

Table 38: Full test results for user evaluations by task – OS Configuration & Adobe

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
OS & Adobe configuration	A: Read a short document (general navigation)	No issues				
OS & Adobe configuration	A: Navigate information in a table structure	No issues				
OS & Adobe configuration	A: Access and understand information portrayed through an image/alt	Colours specified in OS not inherited with this document	User finds it hard to read text on page due to coloured background, only option is to change background colour in Adobe Reader itself to black, but then black text not visible	Adobe Reader did not inherit OS colours	Adobe Reader & Document design	Moderate
OS & Adobe configuration	A: Identify and move through a document using structure such as headings	No issues				
OS & Adobe configuration	A: Navigate through a large document using page numbers	No issues				
OS & Adobe configuration	A: Interact and complete a form	OS colours not inherited by form fields in this document	The background colour of edit fields (inactive and active) do not inherit colours specified by the user so caused minor difficulties	Adobe Reader does not inherit/ render customised colours for form fields	Adobe Reader & Document design	Moderate
OS & Adobe configuration	A: Interact and complete a form	Adobe Reader customisation settings not intuitive	User did not know how to override colours in document – had to experiment with menu options	Experience level with PDF was high, but user was not aware how to override colour settings using Adobe Reader. Adobe does not make the feature obvious and intuitive to new users	Adobe Reader & User skill	Moderate
OS & Adobe configuration	B: Read a short document (general navigation)	No issues				

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
OS & Adobe configuration	B: Navigate information in a table structure	No issues				
OS & Adobe configuration	B: Access and understand information portrayed through an image/alt	No issues				
OS & Adobe configuration	B: Identify and move through a document using structure such as headings	No issues				
OS & Adobe configuration	B: Navigate through a large document using page numbers	No issues				
OS & Adobe configuration	B: Interact and complete a form	OS colours not inherited by form fields in this document	The background colour of edit fields (inactive and active) do not inherit colours specified by the user, so caused minor difficulties	Adobe Reader does not inherit/ render customised colours for form fields	Adobe Reader & Document design	Moderate

Auslan

One participant attempted the tasks.

Success rates

Table 39: Auslan test results

Collection	Attempts	Success	Fail
A	6	6	0
B	6	6	0

The participant with a hearing impairment, for whom Auslan was their first language, completed all of the tasks and considered the time acceptable on all occasions, except for the 'orientating by page number' task.

Specific issues encountered

Table 40: Issues encountered with Collection A using Auslan

Issue	Cause	Severity
Page number of document does not correspond with the Adobe Page Navigation toolbar	Document design	Moderate

This participant experienced one significant issue. Like many of the other participants, the Auslan participant was confused when the page numbers in the document did not match the page numbers displayed in the Adobe Reader Page Navigation toolbar. The participant was able to complete the task but deemed the time to be unacceptable.

Table 41: Full test result for user evaluations by task – Auslan

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
None (Auslan)	*A: Read a short document (general navigation)*	No issues				
None (Auslan)	*A: Navigate information in a table structure*	No issues				
None (Auslan)	*A: Access and understand information portrayed through an image/alt*	No issues				
None (Auslan)	*A: Identify and move through a document using structure such as headings*	No issues				
None (Auslan)	*A: Navigate through a large document using page numbers*	Page number of document does not correspond with the Adobe Page Navigation toolbar	Confused as to what page they are on, or if page exists. User searches for the correct page using the number in document	Complexity of multi page (spread) print presentation	Document design	Moderate
None (Auslan)	*A: Interact and complete a form*	No issues				
None (Auslan)	*B: Read a short document (general navigation)*	No issues				
None (Auslan)	*B: Navigate information in a table structure*	No issues				
None (Auslan)	*B: Access and understand information portrayed through an image/alt*	No issues				
None (Auslan)	*B: Identify and move through a document using structure such as headings*	No issues				

Adaptive Strategy	Collection & Task	Issues	Implications	Insights	Causes	Impact
None (Auslan)	*B: Navigate through a large document using page numbers*	No issues				
None (Auslan)	*B: Interact and complete a form*	Focus automatically jumps to next form field without user control	Users confused as upon entering information they are moved automatically to the next field without tabbing. Finds it useful once they realise how it operates	Author of document change the focus to the next control without user operation	Document design & User skill	Low