NIST Voting Project

Applying VVSG 2.0 requirements to electronic pollbooks

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Introduction

Electronic poll books (e-pollbooks) are used in voting centers by election workers to authenticate and check in voters before voters are given a ballot or access to a ballot marking device. Although the scope of the Voluntary Voting System Guidelines is equipment certified by the Elections Assistance Commission (EAC), the principles and requirements are consistent with the more expansive definition in the Help America Vote Act (HAVA) Section 301.

Many of the human factor requirements contained within the VVSG can improve the usability and accessibility of e-pollbooks and the efficacy of election workers in accurately identifying and directing voters.

This report looks specifically at the human factors and privacy requirements (principles 2.2 and 5 - 8) from the VVSG 2.0 and considers their applicability to e-pollbooks.

As with previous research on the usability of e-pollbooks in 2015, we started with the definition of an e-pollbook that was defined in the report "The American Voting Experience" from the Presidential Commission on Election Administration (PCEA):

> An e-pollbook is an electronic version of the paper pollbook. It is simply a list of eligible voters in the relevant jurisdiction, which traditionally has been organized alphabetically or by address of the voter.

And adapted it to account for our focus on human factors

> An e-pollbook is a computer-based system that allows poll workers to look up voters and either check them in to vote or identify the person as not in the list of voters permitted to vote at the polling location.

In addition to an analysis of the VVSG 2.0 requirements, we drew on previous work in 2015 on the usability of e-pollbooks. That report is in three parts:

- A landscape analysis of e-pollbooks that identified features needed for good usability and accessibility.

- A usability testing procedure for e-pollbooks (and a companion report on how the testing procedure was itself constructed and tested). The testing procedure parallels the testing required in Principle 8.3 (testing with voters) and could be expanded to include setting up and shutting down e-pollbooks along with the other devices for ballot marking, verification, and casting to meet Principle 8.4 (testing with election workers).
- A checklist of usability and accessibility best practices for e-pollbooks.

What this report covers

This analysis and report focus on the use of e-pollbooks at a voting location, during the voting period, and particularly on the check-in process where the election worker using the e-pollbook form a critical gateway — identifying eligible voters, provisional voters, and potentially voters who have already voted or are in the wrong location.

Usable e-pollbooks support election workers' ability to process voters accurately and efficiently. Difficult to read layout, small text, difficult to read fonts, confusing alerts, messages, and status indicators reduce the poll-workers ability to correctly identify the status of a voter and accurately handle the transaction with each voter. Mistakes during check in can affect the integrity of the election process, even if not the actual act of voting. Although e-pollbooks are not covered by HAVA, they are covered by section 508.

What this report is not

E-pollbooks also have administrative functions to prepare for an election and extract data and reports afterwards. These tasks are no less important, but are completed in the relatively less stressful context of the election office. This report does not focus on the administrative tasks performed before and after the voting period. The same usability and accessibility features important in the voting location will also support back-office workers

How we approached this analysis

When we considered the applicability of the VVSG to e-pollbooks we assumed that although there are differences in the check-in processes, the core task of an e-pollbook is the same as a paper pollbook — to provide the means for a poll worker to verify the voter's identity and eligibility to vote in this election. We also looked at the working conditions (long days, unpredictable lighting) and the typical demographics of election workers (retirees often make up a high percentage of election workers).

Independence, privacy, and accessibility

The ability to vote independently and privately is a key requirement in the Help America Vote Act, reflecting the importance of the secret ballot. The check-in process however is different.

- **Check-in is a public, not a private procedure**. The list of voters is a public record, and in most states, election observers are allowed to oversee the process of authenticating people to vote and even challenge individual voters.
- **Check-in is an assisted task, with no expectation that it is done independently**. The election worker and the voter interact to complete the check-in process. Election workers assist all voters, including those with language or accessibility needs. For example, they can help voters review their information on a screen before signing in, or explain how to use any authentication codes or devices.

This means that the requirements in VVSG Principle 6, which covers voter privacy, do not apply to e-pollbooks.

Who are election workers

In the 2018 Election Administration and Voting Survey (EAVS) jurisdictions said that less than one-fifth of election workers were younger than 41 years old, with more than two-thirds 61 years or older. That survey matches anecdotal observations from jurisdictions that the majority of their election workers are older, often retirees. Guidelines from the VVSG regarding readability and ease of use are important in supporting these workers in using e-pollbooks.

Election workers have many functions and roles in the voting center besides checking-in voters. Some, such as greeting voters, managing lines, providing instructions and directing traffic are critical to the orderly process of an election. Others — depending on the laws and procedures in each jurisdiction and the e-pollbook's capabilities — allow election workers to make updates to existing voter records, add voters through same day registration, and direct voters to the correct polling place if they mistakenly came to the wrong location.

Working conditions

Although the environmental conditions for e-pollbooks in voting locations are similar to those for voting stations, the patterns of use are different. Our analysis of usability and accessibility needs take this into consideration.

- Voting takes place in a variety of locations designed to accommodate the flow of voters rather than the best conditions for the election workers. As a result, check-in tables may be crowded, the area may have poor lighting, and the room itself may be noisy, particularly during peak voting times.
- Although checking in a single voter is short and relatively simple, this task is repeated over and over during a long election day, typically more than 12 hours. In contrast, voters spend a relatively short time in the space, completing a single iteration of the voting tasks.
- Election workers may rotate through different work positions, so that the e-pollbooks are operated by several different workers during the course of the day.

Requirements for doing the tasks supported by an e-pollbook

The actions required for checking-in voters includes a number of visual or physical tasks. Depending on the procedures in each jurisdiction, elections workers may have to be able to:

- Sign their name or initials on paper records
- Handle and read voter identification cards
- Remove slips of paper from printers
- Handle ballots, privacy sleeves, and tokens for ballot marking devices

Core tasks for e-pollbooks

The 2015 report defined core tasks as the ones that election workers perform while interacting with the voter during the check-in process as well as administrative tasks performed at the polling place such as setting up the e-pollbooks, running mid-day reports, and shutting down the e-pollbooks. Although the flow and requirements of the check-in process differ across jurisdictions there is still a common collection of tasks that e-pollbooks support.

Common e-pollbook tasks for election workers:

- Basic voter check-in
- Find a voter by scanning an ID
- Find a voter by searching
- Checking voter status
- Checking voter details
- Handling exception & updates
- Collecting signatures
- Helping voters waiting in line
- Entering text with an on-screen keyboard
- Supporting election workers
- Administrative tasks (such as running reports, set-up and shutdown of e-pollbooks)
- Adding a voter in a same-day registration procedure
- Updating a voter record

The list above is not necessarily exclusive, as e-pollbooks seek to distinguish themselves in the market, they may add additional features. And the list above is not definitive — some e-pollbooks for example might not support helping voters waiting in line or finding a voter by scanning an ID.

Report Organization

At the top-level of this report, we separate the VVSG guidelines according to the groupings below. In those groupings, support for audio and additional languages are separate sections because those are features that an e-pollbook might, or might not have. The last section lists guidelines that are not relevant to e-pollbooks.

- Requirements for core e-pollbook functionality - this section covers the core task of checking in voters. It includes most of the core usability and accessibility requirements from VVSG principles 5, 7, and 8.
- Requirements for user centered design and usability testing - this collects requirements from 2.2 and principle 8.3 and 8.4 and adds the usability testing protocol from the previous work done in 2015.
- Requirements for e-pollbooks that support audio - this section looks at requirements for reading and navigating the screens from principle 7.
- Requirements for e-pollbook that support languages other than English - this section looks at requirements for either the election worker interface or voter-facing sections of the interface stemming from principles 5 and 7
- Requirements not relevant to e-pollbooks - this section lists the VVSG requirements from Principles 2.2, 5 and 7-8 that do not apply to e-pollbooks at all. These requirements focus on specific details of ballot marking, how voting stations are set up, and the entire set of requirements in Principle 6: Voter Privacy.

Within each of those top-level areas we use the structure from the human factors and usability sections (principles 2.2 and 5 - 8) of the VVSG to aid those familiar with the VVSG. As part of our analysis we suggest:

- Guidelines that can be used directly and or apply with minor edits for context. Most of these are derived from the federal regulation "Section 508" and the international standard, the Web Content Accessibility Guidelines 2.0 (WCAG) that is incorporated into Section 508.
- Additional guidelines to be considered

Requirements for core e-pollbook functionality

This section looks at the applicability of the VVSG to e-pollbooks. Guidelines specific to supporting audio and other languages are in separate sections.

Principle 5: Equivalent and Consistent Voter Access

> All voters can access and use the voting system regardless of their abilities.

Principle 5.1 Requirements that apply to e-pollbooks

VVSG 2.0	Summary	E-pollbook applicability
5.1-C Vote Records	*Information for audits must be readable in English.*	Re-write for e-pollbook context: "All records produced by the e-pollbook must have the information required to support use by election workers and others who can read only English."

Principle 5.2 Requirements that apply to e-pollbooks

VVSG 2.0	Summary	E-pollbook applicability
5.2-E Sound cues	*Sound and visual cues must be coordinated*	Re-write for e-pollbook context: "Sound and visual cues must be coordinated so that sound cues are accompanied by visual cues unless the system is set to audio-only."

Principle 7: Marked, Verified, and Cast as intended

> Ballots and vote selections are presented in a perceivable, operable, and understandable way and can be marked, verified, and cast by all voters.

Many of the requirements in Principle 7 are derived from section 508 and the WCAG. But are adapted for elections and voting. In some cases, they exceed or are more specific than section 508 or the WCAG.

Principle 7.1 Requirements that apply to e-pollbooks

VVSG 2.0	Summary	E-pollbook applicability
7.1-A Reset to default settings	*Settings return to default when voter session is finished*	Re-write for e-pollbook context: "If the adjustable settings of an e-pollbook have been changed by the election worker, the system must automatically reset to the default setting when the election worker signs out."
7.1-B Reset by voter	*Default settings can be restored without loss of state.*	Re-write for e-pollbook context: "There must be a way for the election worker to restore the default settings while preserving the current state of any transaction or activity that the election worker is engaged in."
7.1-C Default contrast	*Contrast requirements for electronic screens and paper records.*	Apply as written with these adjustments: • Substitute e-pollbook for voting system
7.1-D Contrast options	*3 high contrast and 1 low contrast option*	Apply as written with these adjustments: • Substitute e-pollbook for voting system

VVSG 2.0	Summary	E-pollbook applicability
7.1-E Color conventions	*Follow common color conventions*	Applies as written with these adjustments: • Substitute e-pollbook for voting system
7.1-F Using color	*Can't differentiate just using color*	Applies as written with these adjustments: • Substitute election worker for voter
7.1-G Text size	*Provide a range of text sizes*	Applies as written with these adjustments: • Substitute e-pollbook for voting system • Substitute check-in screens for main ballot options
7.1-H Scaling and zooming (electronic display)	*Everything scales accordingly when text size is changed*	Re-write for e-pollbook context: "When the text size is changed, all other information in the interface, including informational icons, screen titles, buttons, and target areas, must change size to maintain a consistent relationship to the size of the text. Informational elements in the interface do not have to be scaled beyond the size of the text. 1. When the text is enlarged up to 200% (or 7.1 mm text size), the screen layout must adjust so that there is no horizontal scrolling or panning of the screen. 2. When the text is enlarged more than 200%, there may be horizontal scrolling or panning if needed to maintain the layout of the information ."

VVSG 2.0	Summary	E-pollbook applicability
7.1-I Text size (paper)	*font size of at least 3.5 mm (10 points) for printed artifacts (ballots, paper records).*	Apply as written with these adjustments: • Substitute e-pollbook for voting system
7.1-J Sans-serif font	*sans-serif font must be an option.*	Apply as written with these adjustments: • Substitute e-pollbook for voting system • Add "or election worker" after "for the voter"

Principle 7.2 Requirements that apply to e-pollbooks

VVSG 2.0	Summary	E-pollbook applicability
7.2-A Display and interaction options	*Provide visual & audio output, and tactile & limited dexterity controls*	Re-write for e-pollbook context: "The e-pollbook must provide at least a visual format with enhanced visual options, supporting full functionality under all visual options"

VVSG 2.0	Summary	E-pollbook applicability
7.2-D Scrolling	*Options for displaying a contest when it doesn't ft on single screen (paginate, scroll, indication there is more to view)*	Re-write for e-pollbook context: "If the amount of information that needs to be shown means that it does not fit on a single screen using the election worker's visual display preferences, the e-pollbook must provide a way to view all of the information. 1. The e-pollbook may display the information by: • Pagination - Dividing the list of voters or other information into "chunks," each filling one screen and providing ways for the election worker to navigate among the different chunks, or • Scrolling – Keeping all of the content on a single long display and providing controls that allow the election worker to scroll continuously through the content. 2. For either display method, the e-pollbook interface must: • have a fixed header or footer that does not disappear so election workers always have access to navigation elements. • include easily perceivable cues in every display format to indicate that there is more information available"
7.2-E Touch screen gestures	*Gestures can not be the only way to accomplish an action*	Applies as written with these adjustments: • Remove clause #3

VVSG 2.0	Summary	E-pollbook applicability
7.2-H Accidental activation	*Prevent accidental activation.*	Applies as written with these adjustments: • Substitute e-pollbook for voting system
7.2-I Touch area size	*Acceptable sizes for touch targets*	Applies as written with these adjustments: • Substitute e-pollbook for voting system
7.2-L Bodily contact	*Bodily contact not required*	Applies as written with these adjustments: • Substitute e-pollbook for voting station
7.2-M No repetitive action	*Repetitive action not allowed*	Applies as written with these adjustments: • Substitute e-pollbook for voting system
7.2-N System response time	*Visual and audio response time requirements*	Applies as written with these adjustments: • Substitute e-pollbook for voting system • Substitute election worker for voter • Remove clause #2
7.2-O Inactivity alerts	*Inactivity alerts (handling timeouts)*	Applies as written with these adjustments: • Substitute e-pollbook for voting system • Substitute election worker for voter • Substitute e-pollbook for electronic ballot

Principle 7.3 Requirements that apply to e-pollbooks

VVSG 2.0	Summary	E-pollbook applicability
7.3-A System-related errors	*System must help voters and not lead to errors*	Re-write for e-pollbook context "The e-pollbook must help election workers complete their duties accurately and effectively, ensuring that the features of the system do not lead to election workers making errors."
7.3-E Feedback	*System must give unambiguous feedback on voter actions*	Re-write for e-pollbook context "The e-pollbook must provide unambiguous feedback confirming each election worker action."
7.3-K Warnings, alerts, and instructions	*Warnings, alerts must be in plain language, not confusable.*	Applies as written with these adjustments • Substitute e-pollbook for voting system • Substitute election worker for voter
7.3-L Icons labels	*Icons must be accompanied by text (except for audio jack and PAT jack)*	Applies as written

VVSG 2.0	Summary	E-pollbook applicability
7.3-O Instructions for election workers	*Complete instructions for election workers*	Re-write for e-pollbook context "The e-pollbook must include clear, complete, and detailed instructions and messages for setup, check-in, shutdown, and how to use accessibility features. 1. The documentation required for normal e-pollbook operation must be: • presented at a level appropriate for election workers who are not experts in e-pollbooks and computer technology, and • in a format suitable for use in the polling place. 2. Printed procedural instructions, and on-screen instructions and messages must enable the election workers to verify that the e-pollbook • has been set up correctly (setup), • is in correct working order to check-in voters (polling), and • has been shut down correctly (shutdown)."
7.3-P Plain language	*Plain language*	Applies as written with these adjustments • Substitute e-pollbook for voting system

Principle 8: Robust, Safe, Usable, and Accessible

> The voting system and voting processes provide a robust, safe, usable, and accessible experience.

Principle 8.1 Requirements that apply to e-pollbooks

VVSG 2.0	Summary	E-pollbook applicability
8.1-A Electronic display screens	*Anti-glare, resolution, and size (diagonal) minimum*	Re-write for e-pollbook context "If the e-pollbook uses an electronic display screen, the display must have the following characteristics: 1. For all electronic display screens: • Antiglare screen surface that shows no distinct virtual image of a light source or a means of physically shielding the display from such reflections • Minimum uniform diffuse ambient contrast ratio for 500 lx illuminance: 10:1 • Minimum diagonal display size: 9.7 inches for the primary visual display. • Minimum display resolution: 1920 x 1080 pixels for the primary visual display".
8.1-B Flashing	*no more than three flashes in any one-second period.*	Applies as written with these adjustments • Substitute e-pollbook for voting system
8.1-D Secondary ID and biometrics	*Alternative to biometrics required*	Applies as written with these adjustments • Substitute e-pollbook for voting system

VVSG 2.0	Summary	E-pollbook applicability
8.1-K Eliminating hazards	*Certified in accordance with the requirements of UL 60950-1*	Applies as written with these adjustments • Substitute e-pollbook for voting system

Principle 8.2 Requirements that apply to e-pollbooks

VVSG 2.0	Summary	E-pollbook applicability
8.2-A Federal standards for accessibility	*WCAG 2.0*	Applies as written with these adjustments • Substitute e-pollbook for voting system

Suggestions for additional requirements

The suggestion below for a new requirement takes into account that election workers need to be able to assist voters.

Potential new requirements for core functionality

EPB #	Requirement
EPB-1 Physical manipulation	The check-in steps of the e-pollbook must allow for assistance from the election worker if the voter needs to manipulate or use any aspect of the e-pollbook, including attached devices.

Requirements for user centered design and usability testing

This section collects requirements about ensuring that e-pollbooks have good usability.

Principle 2.2 Requirements that apply to e-pollbooks

VVSG 2.0	Summary	E-pollbook applicability
2.2-A User-centered design process	*Incorporate UCD into the design process*	Applies as written

Principle 8.3 Requirements that apply to e-pollbooks

VVSG 2.0	Summary	E-pollbook applicability
8.3-A Usability testing with voters	*Test with a wide range of voters and submit report*	Re-write for e-pollbook context: "The manufacturer must conduct usability tests on the e-pollbook with election worker participants checking-in, including a wide range of voters with a wide range of characteristics. 1. The tests must include participants must include checking-in voters who represent the following: • General population • Voters who are native speakers of the language being tested for each language defined as supported in the Technical Data Package (TDP). • Blind voters • Voters with low vision • Voters with limited dexterity

VVSG 2.0	Summary	E-pollbook applicability
		2. The manufacturer must submit a report of the results of their usability tests, including effectiveness, efficiency, and satisfaction measures, as part of the Technical Data Package (TDP) using ISO/IEC 25062:2006: Common Industry Format (CIF) for voting systems Usability Test Reports [ISO06b]."

Principle 8.4 Requirements that apply to e-pollbooks

VVSG 2.0	Summary	E-pollbook applicability
8.4-A Usability testing with election workers	*Testing with election workers*	Re-write for e-pollbook context: "The manufacturer must conduct usability tests of the e-pollbook setup, operation during polling, and shutdown as documented by the manufacturer, with representative election workers, to demonstrate that election workers can learn, understand, and perform those tasks successfully. The test must include handling all variations in voter check-in conditions, and other tasks for election workers using the e-pollbook at a voting location including: • Setup and opening for polling • Operation during voting • Use of assistive technology or language options that are part of the e-pollbook • Shutdown at the end of a voting day during a multi-day early voting period, if supported by the e-pollbook

VVSG 2.0	Summary	E-pollbook applicability
		• Shutdown at the end of voting including running any reports • Providing ballots in different languages if supported by the e-pollbook • Setting up the e-pollbook to use different display formats and interaction modes The test participants must include election workers representing a range of experience The manufacturer must submit a report of the results of their usability tests, as part of the Technical Data Package (TDP) using ISO/IEC 25062:2006: Common Industry Format (CIF) for Usability Test Reports [ISO06b]

Suggestions for usability testing for election workers and e-pollbooks

The usability testing plan from the 2015 report on usability and accessibility of e-pollbooks outlines a method for having 2-3 people simulate a variety of voter scenarios for the participant (election worker) to check-in in order to cover all possible paths that election workers could perform. With the inclusion of voters with disabilities the plan shows a way to meet 8.3-A. With adjustment to the scenarios (removing ones that aren't applicable to the e-pollbook being tested and adding scenarios not listed in the plan) gives manufacturers a means for meeting 8.4-A (testing with election workers) as needed to conform for the features that plan provides a solid core of scenarios for meeting 8.3-A and 8.4-A.

Requirements for e-pollbooks supporting audio

Supplying and supporting audio is a requirement for voting systems however supporting audio is not a requirement for e-pollbooks. This section lists guidelines from the VVSG that are relevant to e-pollbooks that supply audio. Only guidelines that apply as written, or with modifications are listed.

Principle 5: Equivalent and Consistent Voter Access

> All voters can access and use the voting system regardless of their abilities.

Principle 5.2 Requirements for e-pollbooks supporting audio

VVSG 2.0	Summary	E-pollbook applicability
5.2-C information in all modes	*All information presented visually must be presented via audio*	Re-write for e-pollbook context: "All information including Instructions, warnings, messages, must be presented to election workers in the display formats and interaction modes required in 5.1-A – Interaction modes for all functions"
5.2-D Audio synchronized	*Output modes (visual, audio) must be synchronized*	Applies as written with these adjustments • Substitute election worker for voter

Principle 7: Marked, Verified, and Cast as intended

> Ballots and vote selections are presented in a perceivable, operable, and understandable way and can be marked, verified, and cast by all voters.

Principle 7.1 Requirements for e-pollbooks supporting audio

VVSG 2.0	Summary	E-pollbook applicability
7.1-K Audio settings	*Ranges & controls for volume and rate of speech*	Applies as written with these adjustments • Substitute e-pollbook for voting system • Substitute election worker for voter • #4 substitute "the election worker's login session" for "voting session" • #4 substitute "while preserving the current state" for "while preserving the current votes"
7.1-L Speech frequencies	*Frequencies for speech*	Applies as written with these adjustments • Substitute e-pollbook for voting system
7.1-M Audio comprehension	*Audio is understandable*	Applies as written with these adjustments • Substitute e-pollbook for voting system • Substitute election worker for voter • #1 Substitute "the capability to pronounce voter names as intended" for "the capability to pronounce candidate names as intended"

Requirements for e-pollbooks supporting additional languages

As with voting systems, support for languages other than English is not a requirement for e-pollbooks. However, e-pollbooks may support other languages. This section lists guidelines from the VVSG that are relevant to e-pollbooks that support languages other than English. It also provides additional considerations, beyond the VVSG, for supporting additional languages.

Principle 5: Equivalent and Consistent Voter Access

> All voters can access and use the voting system regardless of their abilities.

Principle 5.1 Requirements for e-pollbooks supporting additional languages

VVSG 2.0	Summary	E-pollbook applicability
5.1-B Languages	*Support for other languages must be complete, not partial*	Re-write for e-pollbook context: "The e-pollbook must be capable of displaying, printing, and storing all the information contained in the e-pollbook and e-pollbook instructions in all languages the manufacturer has declared the system supports, in ~~both~~ visual formats, and in audio formats for e-pollbooks that support audio formats."

Principle 5.2 Requirements for e-pollbooks supporting additional languages

VVSG 2.0	Summary	E-pollbook applicability
5.2-B Presenting content in all languages	*All information presented in English must be available in other supported languages*	Re-write for e-pollbook context: "All information that is presented to the election worker in English must also be capable of being presented in all other languages that are supported, whether the language is in visual or audio format (for e-pollbooks that supply audio). This includes instructions, warnings, and messages.

Principle 7: Marked, Verified, and Cast as intended

> Ballots and vote selections are presented in a perceivable, operable, and understandable way and can be marked, verified, and cast by all voters.

Principle 7.1 Requirements for e-pollbooks supporting additional languages

VVSG 2.0	Summary	E-pollbook applicability
7.1-L Speech frequencies	*Frequencies for speech*	Applies as written with these adjustments • Substitute e-pollbook for voting system

Principle 7.3 Requirements for e-pollbooks supporting additional languages

VVSG 2.0	Summary	E-pollbook applicability
7.3-M Identifying languages	*Language switch control must be not be hidden and options are in their native language*	Re-write for e-pollbook context: "An e-pollbook that offers language options to the election worker must Include the native version of each language name in the list of language options"

Suggestions for additional requirements

The suggestion below for a new requirement takes into account that an e-pollbook may have attached devices (such as a signature pad) with a voter-facing aspect. And that any language changes for the e-pollbook need to be independent of the language of attached devices and vice versa.

Potential new requirements for e-pollbooks supporting additional languages

EPB #	Requirement
EPB-2 Language independence	Changing the language for the election worker must not cause any language changes in the e-pollbook interface or attached devices that are viewed by voters. Changing the language used by attached devices or any voter-facing interface of the e-pollbook must not cause any language changes to the interface used by election workers.

Requirements not relevant for e-pollbooks

As outlined in the introduction some guidelines are not relevant to e-pollbooks because they are voting-specific or cover equipment and physicality requirements.

Principle 5: Equivalent and Consistent Voter Access

> All voters can access and use the voting system regardless of their abilities.

Guidelines that are not applicable to e-pollbooks:

- 5.1-A Interaction modes
- 5.1-D Accessibility features
- 5.1-E Reading paper ballots
- 5.1-F Accessibility documentation
- 5.2-A No bias
- 5.2-F Preserving votes

Principle 6 Voter Privacy

> Voters can mark, verify, and cast their ballot privately and independently. None of the guidelines in principle 6 apply to e-pollbooks

None of the guidelines in principle 6 apply to e-pollbooks

Principle 7: Marked, Verified, and Cast as intended

> Ballots and vote selections are presented in a perceivable, operable, and understandable way and can be marked, verified, and cast by all voters.

Guidelines that are not applicable to e-pollbooks:

- 7.1-N Tactile keys
- 7.1-O Toggle keys
- 7.1-P Identifying controls
- 7.2-B Navigation between contests
- 7.2-C Voter control
- 7.2-F Voter speech
- 7.2-G Voter control of audio
- 7.2-J Paper ballot target areas
- 7.2-K Key operability
- 7.2-Q Physical dimensions
- 7.2-R Control labels visible
- 7.3-B No split contests
- 7.3-C Contest information
- 7.3-D Consistent relationship
- 7.3-F Correcting the ballot
- 7.3-G Full ballot selections review
- 7.3-H Overvotes
- 7.3-I Undervotes
- 7.3-J Notification of casting
- 7.3-N Instructions for voters

Principle 8: Robust, Safe, Usable, and Accessible

> The voting system and voting processes provide a robust, safe, usable, and accessible experience

Guidelines that are not applicable to e-pollbooks:

- 8.1-C Personal assistive technology (PAT)
- 8.1-E Standard audio connectors
- 8.1-F Discernable audio jacks
- 8.1-G Telephone style handset
- 8.1-H Sanitized headphones
- 8.1-I Standard PAT jacks
- 8.1-J Hearing aids

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