



Accessible and Verifiable Voting Technology: All Charts

The latest version of this chart appears at <http://www.verifiedvotingfoundation.org/accesscharts>

Some people are concerned that requirements for voter-verified paper records may delay implementation of the Help America Vote Act's (HAVA) provisions for accessible voting systems. Nothing could be farther from the truth. Equipment exists today offering both accessible and auditable voting for all voters; it is not necessary to choose between the two.

Not all accessible equipment is created equal, however. Some systems offer a wider range of options. Some offer accessible features on all units, while others provide those features only when required. Demonstrations of auditable and accessible voting equipment have taken place from New Jersey to Oregon in recent months. Some vendors have worked with accessibility advocates to develop cross-disability access and broaden the range of available features and options.

The first chart below summarizes which accessibility and verifiability categories each voting technology model makes available. The accessibility categories on the first chart link to separate charts showing more specific accessibility features for each accessibility category.

Vendor	Model	Vision [chart]	Dexterity [chart]	Mobility [chart]	Hearing [chart]	Cognitive [chart]	All Units Accessible	VVPR on All?
AccuPoll	AVS 1000 ¹	partial	partial	minimal	complete	complete	yes	always
AutoMARK (ES&S)	ballot marking device ²	complete	complete	minimal	partial	partial	yes	always
Avante	Vote Trakker ³	partial	partial	partial	none	minimal	yes	always
Avante	Vote Trakker Full Face ⁴	partial	partial	minimal	none	minimal	yes	always
Diebold	AccuVote TS ⁵	minimal	minimal	complete	complete	minimal	no	optional
Diebold	AccuVote TSX ⁶	partial	minimal	partial	none	minimal	no	optional
ES&S	iVotronic ⁷	partial	minimal	partial	none	minimal	no	optional
ES&S	iVotronic LS ⁸	partial	minimal	none	partial	partial	no	optional
Hart Intercivic	eSlate ⁹	partial	partial	partial	complete	complete	no	optional
Populex	Digital Paper Ballot ¹⁰	partial	partial	none	partial	minimal	no	optional
Sequoia	AVC Edge ¹¹	partial	minimal	partial	minimal	partial	no	optional

Key to Overview Chart:

- A. "Vision" = The voting process shall be accessible to voters with visual disabilities, including partial vision, poor vision, color blindness, and blindness.¹²
- B. "Dexterity" = The voting process shall be accessible to voters who lack fine motor control or the use of their hands. All keys and controls should be operable with one hand and not require strong grasping, pinching, or twisting of the wrist.¹³
- C. "Mobility" = The voting process shall be accessible to voters who use mobility aids, including wheelchairs. All controls should be within reach of the voter.¹⁴
- D. "Hearing" = The voting process shall be accessible to voters with hearing disabilities, providing both audio and visual cues to the voter. Also no voting station will require speech for its operation.¹⁵
- E. "Cognitive" = The voting process shall be accessible to voters with cognitive disabilities. All voters should be able to negotiate the process effectively, efficiently, and comfortably.¹⁶
- F. "All Units Accessible" reflects whether the accessibility features are on each unit, or whether they are optional add-ons.
- G. "VVPR on All?" indicates whether the voter-verified paper record audit feature is available as part of every device, or whether it is an optional add-on.

Footnotes for Overview Chart:

1. <http://www.accupoll.com/TheAccuPollAdvantage/Brochures/accessibility.pdf>
2. <http://www.essvote.com/HTML/docs/AutoMark.pdf> (Note: Some people maintain that ballot-marking devices are not accessible to mobility-impaired individuals and dexterity-impaired individuals because many of them are not able to move the paper ballot from the ballot-marking device to a secure ballot box. However, the AutoMARK ballot-marking device can release the marked ballot into a [privacy sleeve \(mirror\)](#) to maintain the secrecy of the vote during handling by a poll worker. A voter may also request a "visually impaired ballot" which has no plain text on it (Lou Dedier of Automark, San Francisco mock election, August 10, 2005). Many dexterity-impaired individuals use a gripper jaw to move paper ballots. Volume 1, Section 2.2.7.2.2.5, of the Election Assistance Commission's draft Voluntary Voting System Guidelines, states that voting technology vendors should make provisions for voters who are blind to submit the ballot themselves without the help of an election administrator.)
3. <http://www.vote-trakker.com/White%20Papers/ACCESSIBLE%20VOTING%20with%20voter%20verifiable%20paper%20records%20in%20DRE%20Voting%20System.pdf> and http://www.vote-trakker.com/accessible_optical_voting.html

4. <http://www.vote-trakker.com/White%20Papers/fullfaceballottouchscreensystem.pdf> and http://www.vote-trakker.com/accessible_optical_voting.html
5. http://www6.diebold.com/dieboldes/accuvote_ts.htm
6. http://www6.diebold.com/dieboldes/accuvote_tsx.htm
7. <http://www.essvote.com/HTML/docs/iVotronic.pdf>
8. http://www.essvote.com/HTML/docs/ESS_iVotronic_LS.pdf
9. http://www.hartintercivic.com/files/accessible_DLA_12_rev.pdf
10. http://www.populex.com/DPB_Intro.htm
11. <http://www.sequoiavote.com/docs/AVCEdge.pdf>
12. <http://www.verifiedvotingfoundation.org/downloads/v1s2.pdf> pp.16-18
13. <http://www.verifiedvotingfoundation.org/downloads/v1s2.pdf> p.25
14. <http://www.verifiedvotingfoundation.org/downloads/v1s2.pdf> p.26
15. <http://www.verifiedvotingfoundation.org/downloads/v1s2.pdf> p.30
16. <http://www.verifiedvotingfoundation.org/downloads/v1s2.pdf> pp.30,34

Vision Chart:

<u>Vendor</u>	<u>Model</u>	<u>Display Font Size</u>	<u>Display Contrast</u>	<u>Display Color Shift</u>	<u>Audio Device</u>	<u>Audio Speed</u>	<u>Audio Volume</u>	<u>Voice Type</u>	<u>VVPR Readback</u>	<u>Tactile Keypad</u>	<u>Additional Features</u>	<u>All Units Accessible</u>	<u>VVPR on All?</u>
AccuPoll	AVS 1000 <u>1</u>	yes <u>2</u>	yes <u>1</u>	yes <u>1</u>	yes <u>1</u>	no <u>3</u>	yes <u>4</u>	human <u>4</u>	yes <u>1</u>	yes <u>1</u>	braille keypad, <u>1</u> navigable audio ballot <u>1</u>	yes	always
AutoMARK (ES&S)	ballot marking device <u>5</u>	yes <u>5</u>	yes <u>6</u>	yes <u>8</u>	yes <u>5</u>	yes <u>5</u>	yes <u>7</u>	synth <u>8</u>	yes <u>9</u>	yes <u>7</u>	instructions in braille, repeat key <u>6</u>	yes	always
Avante	Vote Trakker <u>10</u>	yes <u>11</u>	no <u>12</u>	yes <u>11</u>	yes <u>13</u>	yes <u>13</u>	no <u>12</u>	synth <u>12</u>	yes <u>14</u>	yes <u>11</u>	navigable audio ballot <u>15</u>	yes	always
Avante	Vote Trakker Full Face <u>16</u>	yes <u>17</u>	yes <u>16</u>	yes <u>16</u>	yes <u>16</u>	-	-	-	yes <u>16</u>	yes <u>16</u>	-	yes	always
Diebold	AccuVote TS <u>18</u>	yes <u>18</u>	no <u>19</u>	no <u>19</u>	optional <u>18</u>	no <u>12</u>	yes <u>20</u>	human <u>12</u>	-	no <u>21</u>	-	no	optional
Diebold	AccuVote TSX <u>22</u>	yes <u>22</u>	yes <u>23</u>	yes <u>23</u>	optional <u>22</u>	yes <u>24</u>	-	-	-	no <u>21</u>	-	no	optional
ES&S	iVotronic <u>25</u>	yes <u>2</u>	no <u>12</u>	-	yes <u>25</u>	no <u>26</u>	no <u>26</u>	human <u>12</u>	-	yes <u>27</u>	braille keypad <u>27</u>	no	optional
ES&S	iVotronic LS <u>28</u>	yes <u>28</u>	yes <u>28</u>	-	yes <u>28</u>	-	-	-	-	-	-	no	optional

<u>Vendor</u>	Model	<u>Display Font Size</u>	<u>Display Contrast</u>	<u>Display Color Shift</u>	<u>Audio Device</u>	<u>Audio Speed</u>	<u>Audio Volume</u>	<u>Voice Type</u>	<u>VVPR Readback</u>	<u>Tactile Keypad</u>	<u>Additional Features</u>	<u>All Units Accessible</u>	<u>VVPR on All?</u>
Hart Intercivic	eSlate ²⁹	yes ²	yes ³⁰	-	optional ³¹	no ¹²	yes ³²	human ¹²	-	yes ³⁰	-	no	optional
Populex	Digital Paper Ballot ³³	yes ³⁴	yes ³⁵	yes ³⁵	yes ³	no ³	yes ³⁵	synth ³	yes ³⁵	-	-	yes	optional
Sequoia	AVC Edge ³⁶	planned ³⁷	no ¹²	-	optional ³⁸	planned ³⁷	yes ³⁹	human ¹²	no ³⁹	optional ³⁸	braille keypad ⁴⁰ navigable audio ballot ³⁷	no	optional

Key to Vision Chart:

- A. "Display Font Size" = capability to enlarge font so that voters with limited vision can more easily read the text.
- B. "Display Contrast" = increase or change contrast so text stands out, for voters with color-blindness and/or limited vision.
- C. "Display Color Shift" varies the colors shown on the screen, for voters with color-blindness and/or limited vision.
- D. "Audio Device" refers to a feature which allows voters to hear the instructions and ballot choices read to them through headphones. Some systems use synthesized voice, while others use human voice.
- E. "Audio Speed" refers to a feature which allows voters to adjust the speed at which text is read to them through headphones.
- F. "Audio Volume" refers to a feature which allows voters to adjust the volume at which text is read to them through headphones.
- G. "Voice Type" refers to recorded human speech or synthesized computer speech.
- H. "VVPR Readback" is an audio readback of the voter-verified paper record (VVPR) enabling the visually impaired voters to verify that their votes are recorded as intended and to make changes as necessary. In order to provide this feature, audio readback must be from the paper record itself and not from the voting machine's internal memory.

I. "Tactile Keypad" refers to manual controls which may include Braille, specially raised or shaped buttons, etc., to facilitate the selection of choices as the voter goes through the ballot.

Footnotes for Vision Chart:

1. <http://www.accupoll.com/TheAccuPollAdvantage/Brochures/accessibility.pdf>
2. http://www.capc.umd.edu/rpts/md_evote_ContempVotingMach.pdf p.7
3. Missouri Assistive Technology Council (<http://www.at.mo.gov/>) accessibility comparison table created by Diane Cordry Golden, Spring 2005.
4. <http://www.accupoll.com/TheAccuPollAdvantage/WhitePapers/Accessible.pdf>
5. <http://www.essvote.com/HTML/docs/AutoMark.pdf> (Note: Some people maintain that ballot-marking devices are not accessible to mobility-impaired individuals and dexterity-impaired individuals because many of them are not able to move the paper ballot from the ballot-marking device to a secure ballot box. However, the AutoMARK ballot-marking device can release the marked ballot into a [privacy sleeve \(mirror\)](#) to maintain the secrecy of the vote during handling by a poll worker. A voter may also request a "visually impaired ballot" which has no plain text on it (Lou Dedier of Automark, San Francisco mock election, August 10, 2005). Many dexterity-impaired individuals use a gripper jaw to move paper ballots. Volume 1, Section 2.2.7.2.2.5, of the Election Assistance Commission's draft Voluntary Voting System Guidelines, states that voting technology vendors should make provisions for voters who are blind to submit the ballot themselves without the help of an election administrator.)
6. http://www.solidworks.com/pages/popups/viewrelease.html?prfile=11_01_2004.html
7. <http://www.automarkts.com/> under tutorial under navigation
8. <http://www.johnson-county.com/auditor/min/050502vote.htm>
9. <http://vote.nist.gov/NISTEACResaultest.pdf> under ?ensuring access to voting?
10. <http://www.vote-trakker.com/White%20Papers/ACCESSIBLE%20VOTING%20with%20voter%20verifiable%20paper%20records%20in%20DRE%20Voting%20System.pdf> and http://www.vote-trakker.com/accessible_optical_voting.html
11. http://www.uhavavote.org/vendorfair/survey_results/avante_4.5.doc
12. <http://www.cvfieldsmbp.org/Voting%20Technology%20for%20People%20With%20Disabilities.pdf> p.32 of the document and p.42 of the PDF file.

13. <http://www.afb.org/afbp/press/pub.asp?DocID=aw050404&select=1#1> under Voting Machines: Vote-Trakker
14. <http://www.votersunite.org/info/ElectronicVotingInBrief.pdf> p. 3
15. http://www.verifiedvoting.org/downloads/Avante_AccessibleVVPB.pdf p.4
16. <http://www.vote-trakker.com/White%20Papers/fullfaceballottouchscreensystem.pdf> and http://www.vote-trakker.com/accessible_optical_voting.html
17. <http://www.vote-trakker.com/evc308sprff.html>
18. http://www6.diebold.com/dieboldes/accuvote_ts.htm
19. [Email letter from Carrie Frank at Diebold Corporation](#), July 5, 2005 (with attached chart).
20. <http://www.cs.umd.edu/~bederson/voting/umd-dre-report.pdf>
21. Diebold claims that their machines have a tactile keyboard, but in their letters they describe it as a telephone keypad with a dotted five key, which is a regular telephone keypad.
22. http://www6.diebold.com/dieboldes/accuvote_tsx.htm
23. [Email letter from Buck Jones at Diebold Corporation](#), July 3, 2005.
24. http://www.tbpc.state.tx.us/cat_page/578-N1DieboldAccuVoteTSX.pdf p. 3
25. <http://www.essvote.com/HTML/docs/iVotronic.pdf>
26. <http://www.cvfieldsmbp.org/Voting%20Technology%20for%20People%20With%20Disabilities.pdf> p.12 of the document and p.22 of the PDF file
27. <http://www.essvote.com/HTML/products/ivotronic.html> right column
28. http://www.essvote.com/HTML/docs/ESS_iVotronic_LS.pdf
29. http://www.hartintercivic.com/files/accessible_DLA_12_rev.pdf
30. http://www.uhavavote.org/vendorfair/survey_results/hart_4.5.doc p.1

31. <http://www.hartintercivic.com/innerpage.php?pageid=26> DAU section
32. <http://www.cvfieldsmbp.org/Voting%20Technology%20for%20People%20With%20Disabilities.pdf> p.17 of the document and p.27 of the PDF file
33. http://www.populex.com/DPB_Intro.htm
34. <http://www.advocacyla.org/whatsnew.html>
35. http://www.populex.com/DPB_Features.htm in "Allows blind and visually impaired voting" section
36. <http://www.sequoiavote.com/docs/AVCEdge.pdf>
37. Sequoia presentation by Sheree Noell at a mock election sponsored by San Francisco Department of Elections, August 10, 2005.
38. http://www.dcboee.org/pdf_files/AVC_Edge_Web_Instructions.pdf p.5
39. <http://www.cvfieldsmbp.org/Voting%20Technology%20for%20People%20With%20Disabilities.pdf> p.33
40. http://www.capc.umd.edu/rpts/md_evote_ContempVotingMach.pdf

Dexterity Chart:

<u>Vendor</u>	Model	<u>Touchscreen</u>	<u>Dual Switch</u>	<u>Foot Pedal</u>	<u>Jelly Switch</u>	<u>Additional Features</u>	<u>All Units Accessible</u>	<u>VVPR on All?</u>
<u>AccuPoll</u>	<u>AVS 1000</u> ¹	yes ²	yes ¹	-	yes ³	-	yes	always
<u>AutoMARK (ES&S)</u>	<u>ballot marking device</u> ⁴	yes ⁴	yes ⁴	yes ⁵	-	write-in capability ⁶	yes	always
<u>Avante</u>	<u>Vote Trakker</u> ⁷	yes ⁸	yes ⁹	-	-	-	yes	always
<u>Avante</u>	<u>Vote Trakker Full Face</u> ¹⁰	yes ¹¹	yes ⁹	-	-	-	yes	always
<u>Diebold</u>	<u>AccuVote TS</u> ¹²	yes ¹²	no ⁵	no ⁵	no ⁵	-	no	optional
<u>Diebold</u>	<u>AccuVote TSX</u> ¹³	yes ¹³	planned ¹⁴	no ⁵	no ⁵	tethered telephone keypad ¹⁵	no	optional
<u>ES&S</u>	<u>iVotronic</u> ¹⁶	yes ²	no ¹⁷	-	-	-	no	optional
<u>ES&S</u>	<u>iVotronic LS</u> ¹⁸	yes ¹⁸	-	-	-	-	no	optional
<u>Hart Intercivic</u>	<u>eSlate</u> ¹⁹	no ²	optional ²⁰	-	optional ²⁰	optional blink device ²¹	no	optional
<u>Populex</u>	<u>Digital Paper Ballot</u> ²²	yes ²³	yes ²³	-	-	-	no	optional
<u>Sequoia</u>	<u>AVC Edge</u> ²⁴	yes ²	planned ²⁵	-	-	-	no	optional

Key to Dexterity Chart:

A. "Touchscreen" refers to a computer monitor screen which allows a voter to make selections by touching the screen. Example:
<http://www.emi-marine.com/products/dps/images/touchscreen%20to%20night%20mode.jpg>



Photo credit: Touchscreen from Engine Motor, Inc. (www.emi-marine.com)

B. A "Dual Switch" interface is a 3.5 mm "stereo jack" that dual switch devices plug into. These devices include joysticks and sip/puff devices.

C. "Foot Pedal" refers to device that permits a voter to make selections using his/her foot. Example:
<http://www.atpm.com/9.01/images/kinesis-foot-pedal.jpg>



D. "Jelly Switch" refers to a single input switch which has a large surface area and is very sensitive to the touch. Example:
<http://www.tecsol.com.au/images/JBx2-Holder.jpg>

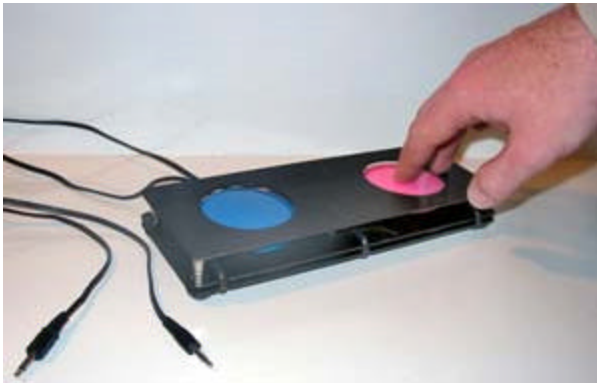


Photo credit: Disability Access Switch from Technical Solutions Australia (www.tecsol.com.au)

E. "Joystick" refers to a hand-controlled lever which enables a voter to make selections by pressing on it in different directions. Example:
<http://www.aerotech.com/products/accessories/pics/joystick.jpg>



F. "Sip/Puff" refers to a straw-like accessory which enables a voter to make selections by either sucking from or blowing into the device. Example:
http://www.orin.com/access/images/sip_pufED.jpg



Photo credit: Sip and puff device from Origin Instruments Corp. (<http://www.orin.com/index.htm>)

Footnotes for Dexterity Chart:

1. <http://www.accupoll.com/TheAccuPollAdvantage/Brochures/accessibility.pdf>
2. http://www.capc.umd.edu/rpts/md_evote_ContempVotingMach.pdf p.7
3. [Email letter from Frank Wiebe](#), AccuPoll Media Relations, July 7, 2005
4. <http://www.essvote.com/HTML/docs/AutoMark.pdf> (Note: Some people maintain that ballot-marking devices are not accessible to mobility-impaired individuals and dexterity-impaired individuals because many of them are not able to move the paper ballot from the ballot-marking device to a secure ballot box. However, the AutoMARK ballot-marking device can release the marked ballot into a [privacy sleeve \(mirror\)](#) to maintain the secrecy of the vote during handling by a poll worker. A voter may also request a "visually impaired ballot" which has no plain text on it (Lou Dedier of Automark, San Francisco mock election, August 10, 2005). Many dexterity-impaired individuals use a gripper jaw to move paper ballots. Volume 1, Section 2.2.7.2.2.5, of the Election Assistance Commission's draft Voluntary Voting System Guidelines, states that voting technology vendors should make provisions for voters who are blind to submit the ballot themselves without the help of an election administrator.)
5. http://electionarchive.net/doc_other/dopp/AdviceReDiebolds.pdf pp.8,9
6. <http://www.automarkts.com/> under tutorial under write-in screen
7. <http://www.vote-trakker.com/White%20Papers/ACCESSIBLE%20VOTING%20with%20voter%20verifiable%20paper%20records%20in%20DRE%20Voting%20System.pdf> and http://www.vote-trakker.com/accessible_optical_voting.html
8. <http://www.afb.org/afbpress/pub.asp?DocID=aw050404&select=1#1>
9. [Email letter from Cynthia Chu](#) of Avante, August 4, 2005, and attached "["DRE" & "ACCESSIBLE OPTICAL MARKSENSE" VOTE-TRAKKER? Provides Real and Full Accessibility](#)" chart from Avante.
10. <http://www.vote-trakker.com/White%20Papers/fullfaceballottouchscreensystem.pdf> and http://www.vote-trakker.com/accessible_optical_voting.html
11. <http://www.vote-trakker.com/evc308sprff.html>
12. http://www6.diebold.com/dieboldes/accuvote_ts.htm
13. http://www6.diebold.com/dieboldes/accuvote_tsx.htm
14. [Email letter from Carrie Frank at Diebold Corporation](#), July 5, 2005 (see also [attached chart](#)).

15. [Email letter from Buck Jones at Diebold Corporation](#), July 3, 2005.
16. <http://www.essvote.com/HTML/docs/iVotronic.pdf>
17. <http://www.sdsos.gov/3-20-03min.htm>
18. http://www.essvote.com/HTML/docs/ESS_iVotronic_LS.pdf
19. http://www.hartintercivic.com/files/accessible_DLA_12_rev.pdf
20. <http://www.hartintercivic.com/innerpage.php?pageid=26> DAU section
21. <http://www.cvfieldsmbp.org/Voting%20Technology%20for%20People%20With%20Disabilities.pdf> p.28 of the document and p.38 of the PDF file.
22. http://www.populex.com/DPB_Intro.htm
23. <http://www.advocacyla.org/whatsnew.html>
24. <http://www.sequoiavote.com/docs/AVCEdge.pdf>
25. Sequoia presentation by Sheree Noell at the mock election sponsored by the San Francisco Department of Elections, August 10, 2005

Mobility Chart:

<u>Vendor</u>	Model	<u>Height Adjustment</u>	<u>Tilt Adjustment</u>	<u>Booth Size</u>	<u>Lap Voting</u>	<u>Curbside Voting</u>	<u>Additional Features</u>	<u>All Units Accessible</u>	<u>VVPR on All?</u>
<u>AccuPoll</u>	<u>AVS 1000</u> ¹	no ²	-	-	keyboard only ²	yes ³	-	yes	always
<u>AutoMARK (ES&S)</u>	<u>ballot marking device</u> ⁴	no ⁵	yes ⁵	-	keyboard only ⁵	-	-	yes	always
<u>Avante</u>	<u>Vote Trakker</u> ⁶	yes ⁷	no ⁷	-	keyboard only ⁸	no ⁷	-	yes	always
<u>Avante</u>	<u>Vote Trakker Full Face</u> ⁹	yes ⁶	no ⁸	-	keyboard only ⁸	no ⁷	-	yes	always
<u>Diebold</u>	<u>AccuVote TS</u> ¹⁰	yes ⁷	yes ⁷	-	yes ⁷ 10 lbs. ¹¹	no ⁷	-	no	optional
<u>Diebold</u>	<u>AccuVote TSX</u> ¹²	-	yes ¹³	-	yes 10 lbs. ¹²	yes ¹²	-	no	optional
<u>ES&S</u>	<u>iVotronic</u> ¹⁴	yes ⁷	no ⁷	-	yes ⁷ 14 lbs. ¹⁴	yes ⁷	-	no	optional
<u>ES&S</u>	<u>iVotronic LS</u> ¹⁵	-	-	-	-	-	-	no	optional
<u>Hart Intercivic</u>	<u>eSlate</u> ¹⁶	yes ⁷	no ⁷	-	yes <8 lbs. ¹⁷	yes ⁷	-	no	optional
<u>Populex</u>	<u>Digital Paper Ballot</u> ¹⁸	-	-	-	-	-	-	no	optional
<u>Sequoia</u>	<u>AVC Edge</u> ¹⁹	yes ⁷	yes ⁷	28x28x60 ²⁰	audio only ²¹	yes ⁷	-	no	optional

Key to Mobility Chart:

- A. "Height Adjustment" = A mobility disabled voter can adjust the height of the booth.
- B. "Tilt Adjustment" = A mobility disabled voter can adjust the tilt of the screen.
- C. "Booth Size" = These measurements are the dimensions of the voting booth in inches.
- D. "Lap Voting" = Voters can place the entire machine in their laps to make the voting process easier. "Keyboard Only" = Voters can place the keyboard, but not the screen, in their laps. "Audio Only" = Voters can place the keyboard in their laps, but they can use the keyboard only with the audio ballot.
- E. "Curbside Voting" = Voters whose disability prevents them from entering the polling place or standing in line may vote outside the polling place, usually from a vehicle parked at the curb.

Footnotes for Mobility Chart:

1. <http://www.accupoll.com/TheAccuPollAdvantage/Brochures/accessibility.pdf>
2. [Email letter from Frank Wiebe of AccuPoll](#), July 25, 2005.
3. <http://www.johnson-county.com/auditor/min/050503vote.htm>
4. <http://www.essvote.com/HTML/docs/AutoMark.pdf> (Note: Some people maintain that ballot-marking devices are not accessible to mobility-impaired individuals and dexterity-impaired individuals because many of them are not able to move the paper ballot from the ballot-marking device to a secure ballot box. However, the AutoMARK ballot-marking device can release the marked ballot into a [privacy sleeve \(mirror\)](#) to maintain the secrecy of the vote during handling by a poll worker. A voter may also request a "visually impaired ballot" which has no plain text on it (Lou Dedier of Automark, San Francisco mock election, August 10, 2005). Many dexterity-impaired individuals use a gripper jaw to move paper ballots. Volume 1, Section 2.2.7.2.2.5, of the Election Assistance Commission's draft Voluntary Voting System Guidelines, states that voting technology vendors should make provisions for voters who are blind to submit the ballot themselves without the help of an election administrator.)
5. Demonstrated by Lou Dedier of ES&S at the mock election sponsored by San Francisco Department of Elections, August 10, 2005.
6. <http://www.vote-trakker.com/White%20Papers/ACCESSIBLE%20VOTING%20with%20voter%20verifiable%20paper%20records%20in%20DRE%20Voting%20System.pdf> and http://www.vote-trakker.com/accessible_optical_voting.html
7. <http://www.cvfieldsmbp.org/Voting%20Technology%20for%20People%20With%20Disabilities.pdf> p.27 of document and p.37 of PDF file

8. [Email letter from Rick Gleim of Avante](#), August 1, 2005.
9. <http://www.vote-trakker.com/White%20Papers/fullfaceballottouchscreensystem.pdf> and http://www.vote-trakker.com/accessible_optical_voting.html
10. http://www6.diebold.com/dieboldes/accuvote_ts.htm
11. http://www.ss.ca.gov/elections/vsp_min_111003.pdf
12. http://www6.diebold.com/dieboldes/accuvote_tsx.htm
13. http://www.tbpc.state.tx.us/cat_page/578-N1DieboldAccuVoteTSX.pdf under "accessibility"
14. <http://www.essvote.com/HTML/docs/iVotronic.pdf>
15. http://www.essvote.com/HTML/docs/ESS_iVotronic_LS.pdf
16. http://www.hartintercivic.com/files/accessible_DLA_12_rev.pdf
17. http://www.hartintercivic.com/files/accessible_DLA_12_rev.pdf under "lightweight and portable"
18. http://www.populex.com/DPB_Intro.htm
19. <http://www.sequoiavote.com/docs/AVCEdge.pdf>
20. <http://sequoiavote.com/productguide.php?product=AVC%20Edge&type=Specifications>
21. Demonstrated by Sheree Noell of Sequoia at the mock election sponsored by the San Francisco Department of Elections, August 10, 2005

Hearing Chart:

<u>Vendor</u>	Model	<u>Written Help and Instructions</u>	<u>Synched Audio & Video</u>	<u>Additional Features</u>	<u>All Units Accessible</u>	<u>VVPR on All?</u>
<u>AccuPoll</u>	<u>AVS 1000</u> ¹	yes ²	yes ¹	-	yes	always
<u>AutoMARK (ES&S)</u>	<u>ballot marking device</u> ³	instructions only ⁴	yes ⁵	-	yes	always
<u>Avante</u>	<u>Vote Trakker</u> ⁶	yes ⁷	no ⁸	-	yes	always
<u>Avante</u>	<u>Vote Trakker Full Face</u> ⁹	-	no ¹⁰	-	yes	always
<u>Diebold</u>	<u>AccuVote TS</u> ¹¹	yes ¹²	no ¹²	-	no	optional
<u>Diebold</u>	<u>AccuVote TSX</u> ¹³	-	-	-	no	optional
<u>ES&S</u>	<u>iVotronic</u> ¹⁴	no ²	no ¹⁸	-	no	optional
<u>ES&S</u>	<u>iVotronic LS</u> ¹⁵	yes ¹⁵	-	-	no	optional
<u>Hart Intercivic</u>	<u>eSlate</u> ¹⁶	yes ²	yes ⁸	-	no	optional
<u>Populex</u>	<u>Digital Paper Ballot</u> ¹⁷	-	yes ¹⁸	-	no	optional
<u>Sequoia</u>	<u>AVC Edge</u> ¹⁹	instructions only ²⁰	planned ²¹	-	no	optional

Key to Hearing Chart:

- A. "Written Help and Instructions" = The computer screen displays written help and instructions to aid the voter.
- B. "Synched Audio & Video" = When the voter uses the audio option, text will appear on the screen at the same time it is played through the audio.

Footnotes for Hearing Chart:

- <http://www.accupoll.com/TheAccuPollAdvantage/Brochures/accessibility.pdf>
- http://www.capc.umd.edu/rpts/md_evote_ContempVotingMach.pdf p.9

3. <http://www.essvote.com/HTML/docs/AutoMark.pdf> (Note: Although some maintain that ballot-marking devices are not accessible to mobility-impaired and dexterity-impaired individuals due to the need to move the paper ballot from the device to the secure ballot box, in most areas election workers insert the ballots into the ballot box for all voters, and since it is possible to use privacy sleeves to maintain ballot secrecy for all voters, the ballot-marking devices provide as much accessibility to mobility-impaired and dexterity-impaired voters as to all other voters. However, the Election Assistance commissions draft Voluntary Voting System Guidelines, Volume 1, Section 2.2.7.2.2.5, states that the vendor should make provisions for voters who are blind to submit the ballot themselves without the help of an election official.)
4. <http://www.automarkts.com> under tutorial
5. <http://vote.nist.gov/NISTEACResaultitest.pdf>
6. <http://www.vote-trakker.com/White%20Papers/ACCESSIBLE%20VOTING%20with%20voter%20verifiable%20paper%20records%20in%20DRE%20Voting%20System.pdf> and http://www.vote-trakker.com/accessible_optical_voting.html
7. [Email letter from Cynthia Chu](#) of Avante, August 4, 2005, and attached "["DRE" & "ACCESSIBLE OPTICAL MARKSENSE" VOTE-TRAKKER? Provides Real and Full Accessibility](#)" chart from Avante.
8. <http://www.cvfieldsmbp.org/Voting%20Technology%20for%20People%20With%20Disabilities.pdf> p.32 of the document and p.42 of the PDF file.
9. <http://www.vote-trakker.com/White%20Papers/fullfaceballottouchscreensystem.pdf> and http://www.vote-trakker.com/accessible_optical_voting.html
10. [Email letter from Rick Gleim of Avante](#), August 1, 2005.
11. http://www6.diebold.com/dieboldes/accuvote_ts.htm
12. <http://www.cs.umd.edu/~bederson/voting/umd-dre-report.pdf>
13. http://www6.diebold.com/dieboldes/accuvote_tsx.htm
14. <http://www.essvote.com/HTML/docs/iVotronic.pdf>
15. http://www.essvote.com/HTML/docs/ESS_iVotronic_LS.pdf
16. http://www.hartintercivic.com/files/accessible_DLA_12_rev.pdf
17. http://www.populex.com/DPB_Intro.htm

18. Missouri Assistive Technology Council (<http://www.at.mo.gov/>) accessibility comparison table created by Diane Cordry Golden, Spring 2005.
19. <http://www.sequoiavote.com/docs/AVCEdge.pdf>
20. <http://www.sequoiavote.com/bAVCEdge.php>
21. Sequoia presentation by Sheree Noell at the mock election sponsored by the San Francisco Department of Elections, August 10, 2005.

Cognitive Chart:

<u>Vendor</u>	Model	<u>Synched Audio & Video</u>	<u>Help Button</u>	<u>Language Translations</u>	<u>Additional Features</u>	<u>All Units Accessible</u>	<u>VVPR on All?</u>
<u>AccuPoll</u>	<u>AVS 1000</u> ¹	yes ¹	yes ²	yes ³	-	yes	always
<u>AutoMARK (ES&S)</u>	<u>ballot marking device</u> ⁴	yes ⁵	-	yes ⁶	-	yes	always
<u>Avante</u>	<u>Vote Trakker</u> ⁷	no ⁸	no ²	yes ⁷	-	yes	always
<u>Avante</u>	<u>Vote Trakker Full Face</u> ⁹	no ¹⁰	no ²	yes ⁹	-	yes	always
<u>Diebold</u>	<u>AccuVote TS</u> ¹¹	no ⁸	no ¹²	yes ¹¹	-	no	optional
<u>Diebold</u>	<u>AccuVote TSX</u> ¹³	-	-	yes ¹³	-	no	optional
<u>ES&S</u>	<u>iVotronic</u> ¹⁴	no ⁸	no ²	yes ¹⁵	-	no	optional
<u>ES&S</u>	<u>iVotronic LS</u> ¹⁶	-	yes ¹⁶	yes ¹⁶	full-face ballot	no	optional
<u>Hart Intercivic</u>	<u>eSlate</u> ¹⁷	yes ⁸	yes ²	yes ¹⁸	-	no	optional
<u>Populex</u>	<u>Digital Paper Ballot</u> ¹⁹	yes ²⁰	-	yes ¹⁹	-	no	optional
<u>Sequoia</u>	<u>AVC Edge</u> ²¹	planned ²²	yes ²	yes ²³	-	no	optional

Key to Cognitive Chart:

- A. "Synched Audio & Video" = When the voter uses the audio option, text will appear on the screen at the same time it is played through the audio.
- B. "Help Button" = A button on the voting machine, usually labeled help, that voters can press to call a poll worker for assistance.
- C. "Language Translations" = A language translation option for voters who speak languages other than english. Regardless of the language, candidate names shall be displayed or pronounced in English on all ballots. For written languages that do not use Roman characters, the ballot shall include transliteration of candidate names into the relevant language.

Footnotes for Cognitive Chart:

1. <http://www.accupoll.com/TheAccuPollAdvantage/Brochures/accessibility.pdf>
2. http://www.capc.umd.edu/rpts/md_evote_ContempVotingMach.pdf p.9
3. <http://www.accupoll.com/TheAccuPollAdvantage/Brochures/avs1000.pdf> p.2
4. <http://www.essvote.com/HTML/docs/AutoMark.pdf> (Note: Some people maintain that ballot-marking devices are not accessible to mobility-impaired individuals and dexterity-impaired individuals because many of them are not able to move the paper ballot from the ballot-marking device to a secure ballot box. However, the AutoMARK ballot-marking device can release the marked ballot into a [privacy sleeve \(mirror\)](#) to maintain the secrecy of the vote during handling by a poll worker. A voter may also request a "visually impaired ballot" which has no plain text on it (Lou Dedier of Automark, San Francisco mock election, August 10, 2005). Many dexterity-impaired individuals use a gripper jaw to move paper ballots. Volume 1, Section 2.2.7.2.2.5, of the Election Assistance Commission's draft Voluntary Voting System Guidelines, states that voting technology vendors should make provisions for voters who are blind to submit the ballot themselves without the help of an election administrator.)
5. <http://vote.nist.gov/NISTEACResaultest.pdf>
6. <http://www.essvote.com/HTML/products/automark.html>
7. <http://www.vote-trakker.com/White%20Papers/ACCESSIBLE%20VOTING%20with%20voter%20verifiable%20paper%20records%20in%20DRE%20Voting%20System.pdf> and http://www.vote-trakker.com/accessible_optical_voting.html
8. <http://www.cvfieldsmbp.org/Voting%20Technology%20for%20People%20With%20Disabilities.pdf> p.32 of the document and p.42 of the PDF file
9. <http://www.vote-trakker.com/White%20Papers/fullfaceballottouchscreensystem.pdf> and http://www.vote-trakker.com/accessible_optical_voting.html
10. [Email letter from Rick Gleim of Avante](#), August 1, 2005.
11. http://www6.diebold.com/dieboldes/accuvote_ts.htm
12. <http://www.cs.umd.edu/~bederson/voting/umd-dre-report.pdf>
13. http://www6.diebold.com/dieboldes/accuvote_tsx.htm
14. <http://www.essvote.com/HTML/docs/iVotronic.pdf>

15. http://www.srqelections.com/ivotronic/ivotronic_details.htm
16. http://www.essvote.com/HTML/docs/ESS_iVotronic_LS.pdf
17. http://www.hartintercivic.com/files/accessible_DLA_12_rev.pdf
18. http://www.uhavavote.org/vendorfair/survey_results/hart_4.5.doc p.1
19. http://www.populex.com/DPB_Intro.htm
20. Missouri Assistive Technology Council (<http://www.at.mo.gov/>) accessibility comparison table created by Diane Cordry Golden, Spring 2005.
21. <http://www.sequoiavote.com/docs/AVCEdge.pdf>
22. Sequoia presentation by Ross Travis at the mock election sponsored by the San Francisco Department of Elections, August 10, 2005.
23. <http://www.acb.org/resources/votingbook1.html#ar14> Sequoia AVC Edge factsheet

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