**DRAFT Test Assertions for VVSG 1.0 Section 3.1.4**

**April 18, 2014**

**Requirement 3.1.4a**

**VVSG 1.0 Requirement 3.1.4a:** In both visual and aural formats, contest choices shall be presented in an equivalent manner.

**Test Assertions**

**TA314a-1:**  FOR all contest choices on a visual ballot, the voting system SHALL present the same font properties – including but not limited to family, style (bold, italic, underline), and size – to the voter.

**TA314a-2:** FOR all contest choices on a visual ballot, there SHALL NOT be any discernible differences in visual presentation.

**TA314a-3:**  FOR all contest choices on a visual ballot, the voting system SHALL present no discernible difference in color to the voter.

**TA314a-4:** FOR all contest choices on a visual ballot, the voting system SHALL present no discernible difference in background to the voter.

**TA314a-5:** FOR all contest choices on a visual ballot, the voting system SHALL present the same text properties (including but not limited to word and letter spacing, vertical and horizontal alignment, indentation, line height, and white space handling) to the voter.

**TA314a-6:** FOR all contest choices on a visual ballot, the voting system SHALL present the same margins, borders, padding, and spacing to the voter.

**TA314a-7:** FOR all contest choices on a visual ballot involving lists, the voting system SHALL present the same list styles to the voter for all items within that contest choice.

**TA314a-8:** FOR all contest choices on an aural ballot, the voting system SHALL present the same human speaker or synthetic voice to the voter for all items within that contest.

**TA314a-9:** FOR all contest choices on an aural ballot, the voting system SHALL present an equivalent voice characteristics (including but not limited to speech rate, volume, pitch) to the voter for all items within that contest.

**TA314a-10:** There SHALL be no discernible differences in aural presentation in all items in a contest on an aural ballot.

**TA314a-11:**  FOR all ballot selections within a review screen on a visual ballot, the voting system SHALL present the same font properties (including but not limited to family, style, variant, weight, and size) to the voter.

**TA314a-12:** There SHALL be no differences in visual presentation in all ballot selections within a review screen on a visual ballot.

**TA314a-13:**  FOR all ballot selections within a review screen on a visual ballot, the voting system SHALL present no discernible difference in color to the voter.

**TA314a-14:** FOR all ballot selections within a review screen on a visual ballot, the voting system SHALL present no discernible difference in background to the voter.

**TA314a-15:** FOR all ballot selections within a review screen on a visual ballot, the voting system SHALL present the same text properties (including but not limited to word and letter spacing, text decoration, vertical align, text transform, text align, text indent, line height, and white space handling) to the voter.

**TA314a-16:** FOR all ballot selections within a review screen on a visual ballot, the voting system SHALL present the same margins, borders, padding and spacing to the voter.

**TA314a-17:** FOR all ballot selections involving lists within a review screen on a visual ballot, the voting system SHALL present the same list styles to the voter.

**TA314a-18:** FOR all ballot selections within a review screen on an aural ballot, the voting system SHALL present the same voice and voice characteristic properties (including but not limited to speech rate, voice family, volume, pitch, pitch range, stress, and richness) to the voter.

**TA314a-19:** There SHALL be no differences in aural presentation in all ballot selections within a review screen on an aural ballot.

**TA314a-20:**  FOR all visual voter verifiable audit records, the voting system SHALL present the same font properties (including but not limited to family, style, variant, weight, and size) to the voter.

**TA314a-21:** There SHALL be no differences in visual presentation for all visual voter verifiable audit records.

**TA314a-22:**  FOR all visual voter verifiable audit records, the voting system SHALL present the same color to the voter.

**TA314a-23:** FOR all visual voter verifiable audit records, the voting system SHALL present the same background to the voter.

**TA314a-24:** FOR all visual voter verifiable audit records, the voting system SHALL present the same text properties (including word and letter spacing, text decoration, vertical align, text transform, text align, text indent, line height, and white space handling) to the voter.

**TA314a-25:** FOR all visual voter verifiable audit records, the voting system SHALL present the same margins, borders, padding, and spacing to the voter.

**TA314a-26:** FOR all visual voter verifiable audit records involving lists, the voting system SHALL present the same list styles to the voter.

**TA314a-27:** FOR all aural voter verifiable audit records, IF there is capability to aurally present such a record, then the voting system SHALL present the same voice and voice characteristic properties (including but not limited to speech rate, voice family, volume, pitch, pitch range, stress, and richness) to the voter.

**TA314a-28:** IF there is capability to aurally present aural voter verifiable audit records, THEN there SHALL be no differences in aural presentation for all such records.

**Requirement 3.1.4b**

**VVSG 1.0 Requirement 3.1.4b:** The voting machine or related materials shall provide clear instructions and assistance to allow voters to successfully execute and cast their ballots independently.

**Requirement 3.1.4b-i**

**VVSG 1.0 Requirement 3.1.4b-i:** Voting machines or related materials shall provide a means for the voter to get help at any time during the voting session.

**Test Assertions**

**TA314bi-1:** The voter SHALL be able to access help prior to making a selection.

**TA314bi-2:** The voter SHALL be able to access help after making a selection.

**TA314bi-3:** The voter SHALL be able to access help when reviewing ballot selections on review screens.

**TA314bi-4:** The voter SHALL be able to access help when ballot casting is available.

**TA314bi-5:** A DRE machine MAY provide help via a distinctive “help” button.

**TA314bi-6:** ANY voting equipment type MAY provide written instructions that are separate from the ballot.

**Requirement 3.1.4b-ii**

**VVSG 1.0 Requirement 3.1.4b-ii:** The voting machine shall provide instructions for all its valid operations.

**Test Assertions**

**TA3.1.4bii-1:** FOR a voting machine, correct instructions SHALL exist for all valid operations available to the voter.

**TA3.1.4bii-2:** FOR a voting machine, correct instructions SHALL exist for system activation and/or session initiation, IF that functionality exists.

**TA3.1.4bii-3:** FOR a voting machine, correct instructions SHALL exist for changing a vote.

**TA3.1.4bii-4:** FOR a voting machine, correct instructions SHALL exist for adjustment of visual display characteristics, IF that functionality exists.

**TA3.1.4bii-5:** FOR a voting machine, correct instructions SHALL exist for navigating back and forth through multiple pages, IF that functionality exists.

**TA3.1.4bii-6:** FOR a voting machine, correct instructions SHALL exist for adjustment of audio characteristics, IF that functionality exists.

**TA3.1.4bii-7:** FOR a voting machine, correct instructions SHALL exist for casting a straight party vote, IF that functionality exists.

**TA3.1.4bii-8:** FOR a voting machine, correct instructions SHALL exist for writing in a candidate for office, IF that functionality exists.

**TA3.1.4bii-9:** FOR a voting machine, correct instructions SHALL exist for use of other auxiliary devices, such as a magnifier for paper records, IF that functionality exists.

**TA3.1.4bii-10:** FOR a voting machine, correct instructions SHALL exist for mechanisms for non-manual input, IF that functionality exists.

**TA3.1.4bii-11:** FOR a voting machine, correct instructions SHALL exist for review of the ballot.

**TA3.1.4bii-12:** FOR a voting machine, correct instructions SHALL exist for final casting of the ballot.

**TA3.1.4bii-13:** FOR a voting machine, correct instructions SHALL exist for making a ballot selection.

**Requirement 3.1.4c**

**VVSG1.0 Requirement 3.1.4c:** The voting system shall provide the capability to design a ballot for maximum clarity and comprehension.

**Requirement 3.1.4c-i**

**VVSG1.0 Requirement 3.1.4c-i:** The voting equipment should not visually present a single contest spread over two pages or two columns.

**Test Assertions**

**TA3.1.4ci-1:** FOR all contests on a visual ballot, unless prevented by physical limitations, the voting equipment SHALL keep the beginning of a contest and the end of a contest on the same page.

**TA3.1.4ci-2:** FOR all contests on a visual ballot, unless prevented by physical limitations, the voting equipment SHALL keep the beginning of a contest and the end of a contest on the same column.

**TA3.1.4ci-3:** FOR all contests on a visual ballot, IF it is prevented due to physical limitations from keeping the beginning of a contest and the end of a contest on the same page, THEN the voting equipment SHOULD enable the voter to detect the beginning, end, or in the midst of a given contest (for multi-page contests).

**TA3.1.4ci-4:** FOR all contests on a visual ballot, IF it is prevented due to physical limitations from keeping the beginning of a contest and the end of a contest on the same column, THEN the voting equipment SHOULD enable the voter to detect the beginning, end, or in the midst of a given contest (for multi-column contests).

**Requirement 3.1.4c-ii**

**VVSG1.0 Requirement 3.1.4c-ii:** The ballot shall clearly indicate the maximum number of candidates for which one can vote within a single contest.

**Test Assertions**

**TA3.1.4c-ii-1:** FOR all contests within a ballot, each contest SHALL indicate, in a manner explicitly associated with that particular contest, the maximum number of choices possible for that particular contest.

**Requirement 3.1.4c-iii**

**VVSG1.0 Requirement 3.1.4c-iii:** There shall be a consistent relationship between the name of a candidate and the mechanism used to vote for that candidate.

**Test Assertions**

**TA3.1.4ciii-1:** FOR all contests on a visual or audio ballot, an equivalent design SHALL be applied for all choices within that particular contest on that ballot.

**TA3.1.4ciii-2:** IF a selection mechanism for a choice (for a contest on a visual ballot) is located to the left of the name of that choice, THEN each selection mechanism for that contest SHALL be located to the left of the related name of each choice for that particular contest.

**TA3.1.4ciii-3:** IF a selection mechanism for a choice (for a contest on a visual ballot) is located to the right of the name of that choice, THEN each selection mechanism for that contest SHALL be located to the right of the related name of each choice for that particular contest.

**TA3.1.4ciii-4:** IF a selection mechanism for a choice (for a contest on a visual ballot) is located on the top of the name of that choice, THEN each selection mechanism for that contest SHALL be located on the top of the related name of each choice for that particular contest.

**TA3.1.4ciii-5:** IF a selection mechanism for a choice (for a contest on a visual ballot) is located on the bottom of the name of that choice, THEN each selection mechanism for that contest SHALL be located on the bottom of the related name of each choice for that particular contest.

**TA3.1.4ciii-6:** IF a selection mechanism for a choice (for a contest on an aural ballot) is located “after” the name of that choice, THEN each selection mechanism for that contest SHALL be located “after” the related name of each choice for that particular contest.

**Requirement 3.1.4d**

**VVSG1.0 Requirement 3.1.4d:** Warnings and alerts issued by the voting system should clearly state the nature of the problem and the set of responses available to the voter. The warning should clearly state whether the voter has performed or attempted an invalid operation or whether the voting equipment itself has malfunctioned in some way.

**Test Assertions**

**TA3.1.4d-1:** ALL alerts issued by the voting system SHOULD include the nature of the problem.

**TA3.1.4d-2:** ALL alerts issued by the voting system SHOULD include the responses available to the voter.

**TA3.1.4d-3:** ALL warnings issued by the voting system SHOULD include the nature of the problem.

**TA3.1.4d-4:** ALL warnings issued by the voting system SHOULD include the responses available to the voter.

**TA3.1.4d-5:** IF the voting equipment malfunctions, THEN a warning issued by the voting system related to this malfunction SHOULD include information pertaining to this malfunction.

**TA3.1.4d-6:** IF the voter attempts an invalid operation, THEN a warning issued by the voting system related to this attempt SHOULD include information pertaining to this attempt.

 **TA3.1.4d-7:** IF the voter performs an invalid operation, THEN a warning issued by the voting system related to this performance SHOULD include information pertaining to this performance.

**Requirement 3.1.4e**

**VVSG1.0 Requirement 3.1.4e:** The use of color by the voting system should agree with common conventions: a) green, blue or white is used for general information or as a normal status indicator; b) amber or yellow is used to indicate warnings or a marginal status; c) red is used to indicate error conditions or a problem requiring immediate attention.

**Test Assertions**

**TA3.1.4e-1:** The voting system SHOULD present all general information to the voter in either green, blue or white colors.

**TA3.1.4e-2:** The voting system SHOULD present all normal status indicators to the voter in either green, blue or white colors.

**TA3.1.4e-3:** The voting system SHOULD present all warnings to the voter in either amber or yellow colors.

**TA3.1.4e-4:** The voting system SHOULD present all marginal status information to the voter in either amber or yellow colors.

**TA3.1.4e-5:** The voting system SHOULD present all error conditions to the voter in a red color.

**TA3.1.4e-6:** The voting system SHOULD present all problems requiring immediate attention to the voter in a red color.