



Guidelines for Logic and Accuracy (L&A) Testing

DE Reference Guide 0019 (Updated 02/2020)

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OVERVIEW

- **100% Logic and Accuracy (L&A) Testing.** After completing maintenance and programming of voting equipment, the law requires a logic and accuracy (L&A) testing to be conducted on all of the voting equipment to be used in an election (100% L&A). This test:
 - Is done to ensure that the system is properly programmed, the election is accurately defined on the voting system, and the input, output, and communication devices are working correctly.¹
 - May be conducted before or after the public L&A test (details below). Best practice is before public L&A.
 - Involves testing:
 - ✓ All programmed precinct voting devices
 - ✓ All programmed ballot marking devices used for ADA and non-ADA voting
 - ✓ All tabulators that will be used for vote-by-mail ballots
- **Public L&A Testing.** A sample of the automatic tabulation equipment² to be used in an election must be publicly tested to ensure equipment will correctly count the votes cast for all candidates, in all offices, and on all measures.
 - Publish public notice at least 48 hours in advance of the event.³ See more details in the “**NOTICE REQUIREMENTS**” section.
 - Complete on any day within the 10-day period before early voting begins in the county.
 - Requires canvassing board to convene for public L&A testing, certify to the accuracy of the test, and witness resetting and sealing of each device that passed to a pre-election state of readiness in such a manner as to secure its state of readiness until the opening of the polls (Canvassing board may designate one member to be its representative).
 - Test within presence of attending political party representatives and candidates or their representatives.

NOTICE REQUIREMENTS

- The public L&A date, time, and place must be posted at least 48-hours in advance on the supervisor of elections website and once in the newspaper. If no newspaper is available, then notice may be posted in four conspicuous locations in the county.
- The applicable qualifying officer (supervisor of elections or the municipal elections official) may, at the time of qualifying, give written notice of the public L&A test’s date, time, and location to each candidate and obtain a signed receipt that the notice has been given.
- At least 15 days before early voting starts, the applicable qualifying officer must send via certified mail written notice of the test date, time, and location to the county party chair of each political party and to all candidates other than those for statewide office whose names appear on the ballot in the county and who did not receive written notification from the applicable qualifying officer at the time of qualifying.⁴

¹ § [101.5612](#)(1), Fla. Stat.

² “Automatic tabulation equipment” is defined as the apparatus necessary to automatically examine, count, and record votes.

³ § [101.5612](#)(2), Fla. Stat.

⁴ § [101.5612](#)(2), Fla. Stat.

TESTING REQUIREMENTS

- Public L&A testing may include all or a sample of the tabulation equipment. If the county chooses to publicly test only a sample, the requirements⁵ are:
 - A random selection of at least 5% or 10 precinct optical scan devices, whichever is greater
 - Ballot marking devices, the overall number of which is at the discretion of the supervisor, to ensure that they satisfy accessibility requirements as described in §§ 101.56062(1)(n) and (2), Fla. Stat.
 - Early voting device(s), the overall number of which is at the discretion of the supervisor
 - All central count (vote-by-mail) tabulators
- Testing requires producing/processing a set of pre-determined valid votes for each candidate and for each measure, as well as one or more overvoted ballots for each contest. This is commonly called a test deck. See additional test deck details in the “**TEST DECK REQUIREMENTS AND RECOMMENDATIONS**” section.
- After the test deck has been processed through the tabulation equipment, a comparison is made between the pre-determined test deck results and a printout of tabulator results to ensure that the “expected” vote counts matched the actual vote counts.
- If a tested tabulation device is found to have an error in tabulation, it is deemed unsatisfactory and the canvassing board must take, at least, the following steps⁶:
 - Determine the cause of the error
 - Identify and test other devices that could reasonably be assumed to have the same error
 - Test a sufficient number of devices to determine that all other devices are satisfactory
- If the canvassing board deems any device to be unsatisfactory, it may require all devices to be tested or may declare that all devices are unsatisfactory.
- If an error is found in the operation or output of a particular device, such as with spelling or the order of candidates on a report, the canvassing board must determine whether this is cause to deem a device to be unsatisfactory.⁷
- Mandatory additional step for public testing of ADA equipment - If any error is detected on ADA equipment, the statutes call for the error to be corrected, and for testing to be repeated until an errorless count is achieved immediately before the start of the official count of the ballots and again after the completion of the official count.⁸
- When the public L&A testing has been satisfactorily completed, the canvassing board or its representative, the representatives of the political parties, and the candidates or their representatives who attended the test shall witness the resetting to a pre-election state of readiness of each device that passed and the sealing of each device that passed to secure its state until the opening of the polls.⁹
- The canvassing board or its representative shall execute a written statement identifying the tabulation devices that were tested, the results of the testing, the device’s protective counter numbers (if applicable) the number of the

⁵ § [101.5612](#)(4)(a)1, Fla. Stat.

⁶ § [101.5612](#)(4)(a)2, Fla. Stat.

⁷ § [101.5612](#)(4)(a)3, Fla. Stat.

⁸ § [101.5612](#)(3), Fla. Stat.

⁹ § [101.5612](#)(4)(b), Fla. Stat.

seal securing each tabulation device at the conclusion of testing, any problems reported to the board as a result of the testing, and whether each device tested was deemed to be satisfactory or unsatisfactory.¹⁰

- If any tabulating device is deemed to be unsatisfactory, it must be recoded, repaired, or replaced and must then be made available for retesting. **Such device must be determined by the canvassing board or its representative to be satisfactory before it may be used in any election.** The canvassing board or its representative shall announce at the close of the first testing the date, place, and time that any unsatisfactory device will be retested or may, at the option of the board, notify by telephone each person who was present at the first testing as to the date, place, and time that the retesting will occur.¹¹
- Records must be kept of all pre-election testing of electronic or electromechanical tabulation devices used in any election. These records must be available for inspection and/or reference during public L&A testing. Records must include the name of the person who tested each device, along with the date, place, time, and results of each test.¹²
- Test records must be retained as part of the official records of the election.¹³

TEST DECK REQUIREMENTS AND RECOMMENDATIONS

- A test deck is a set of ballots with pre-audited results, meaning that they have a pre-determined number of valid votes for each candidate on each measure, with at least one or more overvoted ballots for each contest (to ensure that voting device will alert voter that overvoted races will not be counted)¹⁴.
- Pre-audited results are used to verify the accuracy of the public L&A test by comparing the pre-audited results to the public test results. The pre-audited results may be manually determined, electronically generated (i.e. using a spreadsheet), or produced during pre-public L&A testing.
- L&A tests must include actual ballots that will be used in the election; and if the county uses ballot-on-demand, these ballots, using the same paper stock as will be used for the election, must be included.¹⁵
- The test deck should include at least one blank ballot (to ensure that voting device will accept a blank ballot), hand marked ballots, and ballot marking device ballots. The test deck may also include electronically marked ballots.
- The creation of an “enhanced” test desk with non-traditional vote patterns and/or the addition of more test ballots to make up a unique number of votes for each candidate is strongly recommended. While a county may have used a 1-2-3 test deck pattern, it is not the most precise way to verify that votes are being tabulated correctly.

¹⁰ § [101.5612](#)(4)(c), Fla. Stat.

¹¹ § [101.5612](#)(4)(d), Fla. Stat.

¹² § [101.5612](#)(4)(e), Fla. Stat.

¹³ § [101.5612](#)(4)(e), Fla. Stat.

¹⁴ § [101.5612](#)(3), Fla. Stat.

¹⁵ § [101.5612](#)(5), Fla. Stat.

CHECKLIST FOR PUBLIC LOGIC AND ACCURACY TESTING

The L&A test ideally serves as a dress rehearsal for the actual election and should include the following key elements:

- A sample of available voting devices or 100%
- One or more early voting devices
- All vote-by-mail tabulators
- Examination of ballot marking devices, along with the audio ballot and ADA accessories that are paired with the device (e.g. tactile device, visual display ballot, display contrast, ballot magnification)
- A pre-audited group of ballots, with a predetermined number of valid votes for each candidate, on each measure, to include one or more ballots with an overvote
- The test deck should include as many ballots as needed to accommodate a unique number of marks for each of the candidates and yes/no votes to ensure that the correct number of votes are counted for each candidate and each issue. The supervisor of elections has discretion whether or not to examine every ballot style.
- Upload of the results into the election management system
- Modem upload, if applicable
- Creation of the election night reporting in the XML file format¹⁶
- Submission of the election night reporting in the XML file format to the Division, if a test file has not been previously submitted
- Submission (via certified mail) of a copy of the L&A database to BVSC within 24 hours¹⁷

¹⁶ §§ [98.081](#), [102.141\(4\)](#), Fla. Stat.; [Rule 1S-2.053](#), Florida Admin. Code

¹⁷ §[101.5607\(2\)](#)