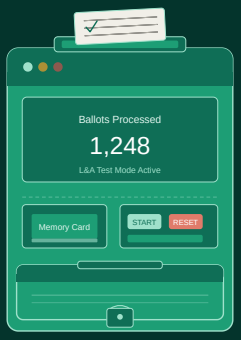
Municipal Security Assessment Report

Logic & Accuracy Testing of Vote Tabulators

A guide to how L&A testing works, why it matters, and best practices.



Logic & Accuracy (L&A) testing is a mock election run with the equipment election administrators intend to use. A variety of ballots are cast - including overvotes, undervotes, and valid votes - to confirm whether tabulators are functioning correctly.

ⓘ WHY IT MATTERS

The Importance of L&A Testing

L&A testing is a critical safeguard that can catch problems before they affect real votes. Testing can reveal:

- Broken or malfunctioning tabulators;
- Misconfigured election definitions;
- Problems with EMS software; and
- Incorrectly set overvote thresholds.

PUBLIC CONFIDENCE

Beyond catching errors, L&A testing builds public trust in election technology by demonstrating transparency and accountability in the process.

✓ BEST PRACTICES

Best Practices for L&A Testing of Tabulators

When using tabulators administrators want to ensure the following:

L&A procedures are publicly available

L&A procedures should be publicly posted on the government website. This can improve transparency of the electoral process and foster public trust.

The L&A process is open to scrutineers

L&A testing dates should be announced to candidates well in advance and they should be invited to observe testing.

All tabulators are tested

All tabulators, including reserve units, should be tested by administrators to ensure that every device functions correctly.

Overvoted ballots are tested

Overvoted ballots should be tested to verify that the tabulator rejects them.

Overvote testing covers multi-member contests

Test decks should include one ballot with the maximum allowable number of selections and one ballot exceeding the limit to detect misconfigurations.

Memory cards are loaded into EMS

If election night procedures include loading memory cards into an EMS system, this should be tested to identify issues with the EMS and configuration.

Testing is unpredictable

Officials should mark some ballots with a source of randomness (e.g., coin toss, dice roll) and some observers should arbitrarily cast ballots to help administrators detect misconfiguration.

All candidates recieve at least one valid vote

All possible ballot choices should recieve at least one valid vote during testing.

No two candidates receive the same vote count

To help administrators detect misconfiguration and promote accuracy, ensure that no two choices on a ballot receive the same number of votes.

Adapted from Goodman, Nicole, Noah Nickel, Carlie Pagliacci, Jared Boles, James Brunet, and Aleksander Essex. 2026. Municipal Security Assessment Report: Risks and Mitigations of Voting Technology Use in Ontario's Municipal Elections. St. Catharines: Brock University. by Morgan Bulitz and Nicole Goodman.