County of Los Angeles

Voting Solutions for All People (VSAP) 4.0 Volume and Reliability Test Report for California Secretary of State

CAF-25011-VRTR-01

Vendor Name	*County of Los Angeles*
Vendor System	*VSAP 4.0*

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Revision History

Date	Release	Author	Revision Summary
January 15th, 2026	1.0	*E. Bickley*	Initial Release

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INTRODUCTION

This Volume and Reliability Test Report details the work performed for the Volume and Reliability testing on the **County of Los Angeles's Voting Solutions for All People 4.0** (**VSAP 4.0)** voting system against the California Voting System Standards (CVSS).

The purpose of this test was to verify that voting equipment will operate reliably in conditions approximating normal use by voters in a polling place on Election Day.

Testing Responsibilities

All testing was conducted under the guidance of personnel verified by California Secretary of State (CASOS) to be qualified to perform the testing.

Responsibility Assignments

CASOS utilized third party testers during the performance of portions of the examination. Temporary contract personnel were utilized in the Volume testing. All testing was witnessed or executed by CASOS personnel, with assistance from SLI Compliance personnel.

Staffing

CASOS:

- Rodney Rodriguez
- Debra Ledsinger
- Jason Ando
- Temporary employees to vote test ballots

SLI:

- Evelyn Bickley
- Steve Ramage

Location

The test was conducted in Los Angeles, California, at the VSAP Operations Center, 12100 Rivera Road, Whittier, California. Los Angeles County was responsible for security of the site and equipment throughout the duration of the test.

Schedule

Testing was conducted January 5–7, 2026. Los Angeles County delivered and set up the equipment on January 4, 2026.

Facility:

Unless otherwise specified herein, examination and review were performed at the following standard ambient conditions and tolerances:

- Temperature: 68–75° F (±3.6°F)
- Relative Humidity: Local Site Humidity
- Atmospheric Pressure: Local Site Pressure
- Time Allowable Tolerance: ±5%

Equipment Tested

The equipment used included:

- 50 Ballot Marking Devices (BMDs)
- 1 Ballot Marking Device Manager (BMG) for logging data

Ballot Marking Device

The BMD is the primary touchpoint for the voter and hub of the voting system, guiding users with screen prompts and symbols. The BMD features a touchscreen, an audio-tactile interface (controller and headphones), paper handler (scanner and printer), QR code scanner, and dual-switch input which voters use to generate, verify, and cast paper ballots. Completed ballots are transferred to the integrated ballot box, which can be detached for unloading.

Test Preparations

The election definition utilized was the same 2024 Presidential Primary Election used for the **VSAP 4.0** Functional Test.

One hundred ballots were marked, printed, and cast on each BMD.

Each device was prepared as follows:

- Each device was assigned a unique test number.
- A label with the unique number was placed on the front of the device.
- Beginning with “1,” the numbers progressed sequentially and were at least three inches high.

An inventory of all devices was taken. The inventory included:

- The type of device
- Device serial number
- Hardware version
- Software and/or firmware versions
- The test number assigned to the machine

- A column to record the number of ballots processed on the machine during the test

The machines were arranged to allow sufficient space around the machines to provide operators with space to stack un-voted ballots, as well as personal space.

TEST ACTIVITIES

All testing was accomplished in three phases:

- Environment setup
- Logging of devices, hashing of devices, and election loading
- Voting of ballots on BMDs

On Monday, January 5, 2026, with Los Angeles County representatives present, CASOS and SLI Compliance representatives inventoried all devices as listed in the "Equipment Tested" section above.

All devices were verified to have the correct firmware by checking hash codes of the installed firmware against the hash codes of record for the validated firmware.

The election to be utilized was deployed to each device, and zero reports were run.

Temporary employees were utilized to perform the testing.

Temporary employees processed 100 ballots through each BMD. As temporary employees finished their ballot marking, they were transferred to new devices. All BMDs were exercised with 100 ballots being processed through each over the three-day schedule for Volume testing. A total of 5,000 ballots were voted during testing.

Test Schedules

All testing was accomplished according to the schedule provided in the Tables below.

Table 1 – ***VSAP 4.0*** *Preparation Activities*

Task #	Task
1	All machines were delivered to testing site.
2	Setup machines. LA County was responsible for security of the venue during testing.
3	Testing team kickoff meeting. Reviewed the test plan and rules.
5	Verified the machines. Checked machines to make sure no damage occurred in transit. Devices were delivered with **VSAP 4.0** Trusted Build already installed.
6	Each machine was labeled with test number.

Task #	Task
7	Each machine was validated against Trusted Build HASHes to be running Trusted Build **VSAP 4.0**.
8	A log of machine serial numbers information was captured.
9	Photograph each machine being tested with its serial number and test number.
10	Blank ballots were distributed for each machine.

Table 2 – ***VSAP 4.0*** *Ballot Marking and Reading Testing Activities*

Task #	Task
1	Checked-in temporary employees.
2	Briefed temporary employees on the test objectives for the day, their roles and responsibilities, and provided them with the instructions a voter would be given on how to mark ballots using a BMD.
3	The voters were instructed to signal any unexpected condition on a machine by stepping back from the machine and raising their hand.
4	A CASOS representative documented any errors on the error form and entered it in the error log
5	SLI staff interviewed the voter, analyzed the event, took any steps necessary to continue marking ballots, and completed an incident report.
6	Incidents were categorized either as one of the substantive failures described in the Protocol or as a non-substantive failure such as voter error or a defective ballot.
7	Opened polls on machines as needed.
8	Voters marked 100 ballots on each BMD.
9	Any unexpected results were resolved and then documented and categorized as either ballot defect or testing error.
10	Closed polls on machines as voting was completed.
11	Repeated this process for all machines.
12	Secured and retained all media and artifacts.
13	All media from all devices and all boxed ballots were brought to CASOS. Chain of custody for ballots and media was maintained by CASOS.
14	The logs from each ballot marking device were loaded into BMG and the logs were provided to CASOS.

EVALUATION OF TESTING

The following were noted during the Volume Test, and each was subsequently mitigated:

1. **Timing Feeds (Ballot not read)** – During testing, out of the 50 BMDs used and 5,000 ballots processed, there were eight instances where testers experienced timid feeds or Ballot Page Metadata (BPM) errors which required the ballot to be re-fed into the device.

   On units #8 and #9 there were two instances of voters on these devices having to re-insert the ballot multiple times before being accepted for each voting session.

   Units #16 and #17 reported one instance each of having to reinsert the ballots.

   The BMD device, by design, gently pulls the ballot into the device in a timid, push/pull manner.

   Testers would sometimes be too gentle in triggering the rollers, not allowing the ballot to catch.

   Testers would sometimes attempt to force feed the ballot.

   At other times, testers would pull the ballot back after the device began to gently pull the ballot into the device.

   When a tester would perform one of these three actions, the BMD would appear to pull the ballot in but immediately eject it and indicate to the voter the ballot would need to be re-inserted.

2. **Paper Jam** – Two devices experienced a paper jam during testing. Each device experienced only a single paper jam during testing as follows:
   - Unit #3 experienced a paper jam during the initial insertion of a blank ballot to begin the voting session. When removed from the scanner, the ballot was undamaged with no noticeable markings or bends. It was re-cast without further issues.
   - Unit #30 experienced a paper jam during the casting of the ballot. When removed from the scanner, the ballot was undamaged with no noticeable marking or bends. It was re-cast without further issues.

As directed by the California Secretary of State, this report does not include any recommendation as to whether or not the system should be approved.

End of Volume and Reliability Test Report