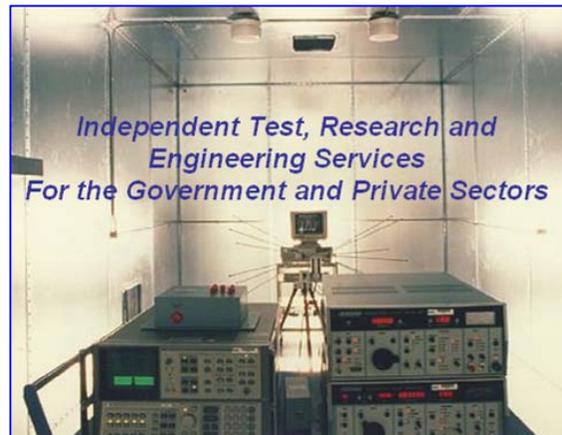


## **Wyle Laboratories, Inc. Overview and Statement for the Record**

**Submitted To**  
California Legislature  
Senate Elections, Reapportionment &  
Constitutional Amendments Committee

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**Wyle Laboratories, Inc.**  
128 Maryland Street  
El Segundo, CA 90245-4115

Phone: 310-322-1763  
Fax: 310-322-3603

E-Mail: [service@wylelabs.com](mailto:service@wylelabs.com)  
Web Site: [www.wylelabs.com](http://www.wylelabs.com)

## 1. Introduction

Wyle Laboratories was founded 57 years ago as the first independent testing laboratory for systems and components under harsh environments, including dynamic and climatic extremes. This includes simulating vibrations experienced in aircraft, railroad cars, and other vehicles; seismic (earthquake) tremors; and an array of climatic conditions such as temperature, humidity, and airborne salt, sand, and dust.

As critical civil, military and space programs progressed during the 1940s and 1950s, the demand for simulations in a laboratory setting increased. Today, Wyle is the world's leading environmental simulation laboratory, with nearly 3,000 employees. We are engaged in test and evaluation activities across the U.S. Products tested by Wyle include fuel valves for the Space Shuttle, most major aircraft components, and many consumer products.

Wyle provides testing services to the aircraft, military, space, communications, transportation and power industries. We maintain expertise in critical technical areas to ensure that we can always provide realistic simulation of the environment in which a product will function, and that we can take accurate and objective measurements of how the product operates in the specified environment.

## 2. Wyle's Involvement with Voting Systems

Wyle Laboratories became involved with the testing and certification of electronic voting systems in the early 1990's. Wyle was the first company to obtain accreditation by the National Association of State Election Directors (NASED). It must be noted that Wyle does not "certify" or "approve" the voting system for use. Our work is simply to test the product in accordance with the required standards and to document these results. We do not control the listing number for the product and are not the final authority on the acceptability of the system. It should also be noted that shortly after our accreditation as a Independent Testing Authority (ITA) by NASED, we limited our involvement to the precinct level voting system (the machine that a human would interface with during an election) and the firmware that would be resident in that system. Wyle does not perform software evaluations at the Central Count level and does not evaluate Election Management System software.

The standards we utilize include the "1990 Performance and Test Standards for Punchcard, Marksense and Direct Recording Electronic Voting Systems", "2002 Voting Systems Standards" and the "2005 Voluntary Voting Systems Guidelines (VVSG), Volumes I and II". The VVSG is in a grandfathering period and will become applicable in 2007.

Since the early 1990's, Wyle has tested over 140 separate voting systems.

The process that we follow in the performance of a certification program is as follows:

### **Phase 1: Pre-Test Activities**

Initial contact from potential customer is to request a quotation for testing services. Generally the following tests are required:

- Technical Data Package (TDP) Review
- Electrical Testing
  - Power Disturbance
  - Electromagnetic Radiation
  - Electrostatic Disruption
  - Electromagnetic Susceptibility
  - Electrical Fast Transient
  - Lightning Surge
  - Conducted RF Immunity
  - Magnetic Fields Immunity
- Environmental Testing
  - High Temperature
  - Low Temperature
  - Humidity
  - Vibration
  - Bench Handling
  - Temperature/Power Variation
- Product Safety
- Functional Testing
- Source Code Review
- Final Report

### **Phase 2: Qualification Testing**

#### **Hardware Testing**

Testing is typically performed on multiple units concurrently. Preferably, one unit will begin Humidity Testing (a 10-day test) and another will begin the remaining non-operating environmental tests (Low Temperature, High Temperature, Vibration, and Bench Handling). Prior to and immediately following each test, a functional test is performed on the equipment under test to verify operability.

For all Electrical Tests and the Temperature/Power Variation Test, the equipment is placed in an active mode in which ballots are continually processed. During test performance the equipment must remain operating.

Product Safety testing is usually performed in parallel with the required environmental/electrical tests.

During any part of Qualification Testing, interim reports are issued to the customer informing them of the test status, findings to date, and any other information deemed pertinent to the test program.

## TDP Review

- Customer documentation/technical data package is reviewed to evaluate the extent to which it conforms to the requirements for vendor configuration and quality assurance practices.
- Customer documentation/technical data package is reviewed to confirm that it corresponds to the actual configuration and operation of the system.

*Note: TDP Review is performed in parallel with hardware testing and functional testing.*

## Functional Testing

Voting System is functionally tested to address:

- Overall system capabilities
  - Security (evaluating the access control aspects of the system including locks, passwords and poll worker activities)
  - Accuracy (*recording the appropriate options for casting votes, recording the election contests as defined by elections officials, and recording each vote as indicated by the voter*)
  - Error recovery (ability to recover from non-catastrophic failure of a device)
  - Integrity (*ensure the physical stability and function of the vote recording and counting process*)
  - System auditability (preparation of activity logs)
  - Election management system (generation of ballots, pre and post election activities)
  - Accessibility (compliance with disability requirements)
  - Vote tabulating (system status reports and maintaining proper records)
  - Ballot counters (operation of device that counts ballots)
  - Data retention (preservation of counted votes)
- Pre-voting functions (*Software ITA must perform majority of tests to satisfy these requirements*)
- Voting functions (each supported election type is verified)
  - Opening Polls
  - Casting Ballots
  - Activating Ballots
  - Augmenting the election counter
- Post-voting functions
  - Closing polls
  - Consolidating vote data
  - Producing reports
- System maintenance
- Transportation and Storage

Functional testing is performed as the last step of the qualification testing. During functional testing, problems may be identified that need correcting before testing can resume. In that case, changes must be made by our customer and regression testing performed, by Wyle, if needed. The Functional Qualification Test Matrix (Attachment A in the Final Report) is also completed during this time.

The customer is normally on-site during functional testing.

Software and system end-to-end testing is performed by others.

### **Phase 3: Qualification Report Issuance and Post-test Activities**

- Prepare preliminary test report documenting tests performed, results of tests, any anomalies encountered during testing, and the resolution of all anomalies.
- Issue preliminary test report to the EAC committee and Software ITA for review.
- Upon approval (by EAC) of preliminary report, issue final report.
- Gather and archive all raw data.

## **3. Client Relationships**

Wyle has a varied customer base. For instance: we provide testing services for the original manufacturers of various components to ensure that the items meet the requirements that their customers demand; or, our client might be the buyer of a product who wants to ensure that his specifications have been met by the manufacturer; or, our client might be one of many government agencies that exist to ensure compliance with regulations at all levels.

Although most testing is performed in response to some type of regulation, there are many tests that are performed solely to support the manufacturer's reliability improvement goals or to significantly reduce the risk of product failures and associated costs.

It is important to note that while Wyle often participates in the development of testing specification or standards with government agencies or industry committees, *Wyle is not in the business of developing test requirements for its customers*. Our function is to test, analyze, and report the factual results of our testing as a trusted agent to our clients. Wyle takes great pride in the fact that its reports are universally accepted as sound, factual, reliable, and unbiased.

Wyle makes it a priority to avoid conflict of interest in its activities. We have no business or financial interest in any product that we test. As an example, startup companies have sometimes requested that we take a financial interest in their business in exchange for testing services, but we decline such offers as a matter of policy.

Wyle employees are required to meet strict Ethics and Conflict of Interest rules as a condition for their employment.

## **4. Confidentiality of Services**

The press has stated that Wyle works “in secrecy,” suggesting some sort of clandestine or inappropriate operation. The fact is that Wyle is bound by policy and ethics to respect the privacy of its clients. We view the relationship between an independent testing laboratory and its clients as similar to that between lawyer and client or between doctor and patient.

As a matter of policy, Wyle does not discuss any client by name, nor will we release any test information or data without written consent from the client. Simply stated, test data belong to the client and are not ours to share with third parties. This is standard practice for all of the independent testing laboratories in the United States which provide a critical infrastructure for our health care system, manufacturing sector, and the economy in general.

It is not uncommon, however, for test results from an independent source to be available to the ultimate buyer of a product. For example, in nearly all cases of environmental qualification testing for the military, the end customer requires evidence of qualification in the form of a report, which the equipment developer must provide along with his or her product.

## **5. Relationship with NASED and the EAC**

In the case of voting machines, Wyle is an Independent Testing Authority (ITA) operating under the auspices of National Association of State Election Directors (NASED) and the Election Assistance Commission (EAC), which sets the testing standards and requirements under which Wyle operates. Wyle’s role is to provide testing and evaluation services as set forth in the voting system standards. NASED and EAC’s role is to review our work and the work of the software evaluators and to approve or “certify” the system when it meets all requirements. Wyle is not involved in this process.

## **6. Conclusion**

Wyle Laboratories and its management and employees work diligently to provide a vital service to government and industry by providing the best possible range and quality of testing services, including protection of the rights to data that belong to our clients. Wyle also understands the importance of voting machines to our election process, which must always operate with complete transparency to foster confidence in the results.

Thank you for allowing us to present this testimony. We will do our best to respond to questions within the limits of protecting our clients’ rights to confidentiality.