CERTIFICATE OF APPROVAL

Election Systems & Software

Model DS850 Central Ballot Counter, EVS 5.0.0.0 certified configuration

Description	**Serial Numbers**	**Firmware Version**
DS850 1 Central Count Digital Scanner	DS8509420014	Firmware 2.4.0.0
DS850 2 Central Count Digital Scanner	DS8509420004	Firmware 2.4.0.0
DS850 3 Central Count Digital Scanner	DS8509420009	Firmware 2.4.0.0

Pursuant to ORS 246.550 representatives of Elections Systems and Software (ES&S), 11208 John Galt Boulevard, Omaha, Nebraska 68137-2364 requested that the Secretary of State publicly examine that company's Election Systems & Software (Model DS850 Central Ballot Counter, EVS 5.0.0.0 certified configuration and machine resident firmware, Release 2.4.0.0) for possible certification of same for sale, lease or use by county elections officials in the State of Oregon. ES&S Model DS850 was publicly an examined on January 7-9, 2014 in Portland, Oregon. The system presented for examination was identified as the Election Systems & Software, Model DS850 Central Ballot Counter, EVS 5.0.0.0 certified configuration and machine resident firmware, Release 2.4.0.0. Attached to this original certificate is the Certification test report and documents describing the programming and operating features of the subject system.

This report presents the witness results for the state of Oregon testing of the Election Systems & Software (ES&S) DS850 in the EVS 5.0.0.0 certified configuration. All testing was performed onsite at the Multnomah County Elections office in Portland, Oregon. The state of Oregon requested Wyle personnel witness and assist testing of the DS850 to the Oregon test plan, which included a number of specifically designed test requirements to analyze system performance. Wyle personnel converted the test plan and testing requirements into baseline test cases to utilize as guides for the testing effort. In addition, Oregon is accepting all EAC approved testing by Wyle which includes the EVS 5.0.0.0 certified system (ESSEVS5000).

FINDINGS: Based upon this examination and the written reports submitted by Wyle, I conclude that the Election Systems & Software DS850 Central Ballot Counter, firmware, firmware Release 2.4.0.0 does comply with the legal requirements set forth in ORS 246.560.

THEREFORE, I issue this Certificate of Approval for the sale, lease or use of the Election Systems & Software (Model Model DS850 Central Ballot Counter, EVS 5.0.0.0 certified configuration firmware, Release 2.4.0.0) for employment in any elections held in the State of Oregon. This approval is limited by the with the stipulation that the equipment and system must be used in compliance with the provisions of applicable Oregon statutes and all Secretary of State, Election's Division rules and directives concerning the testing and use of vote tally equipment.

This Certificate of Approval does not constitute a recommendation of the above described voting tally system over other voting or counting machines heretofore or hereafter approved for sale, lease or use in this state, but rather does set forth the fact that the Election Systems & Software (Model DS850 Central Ballot Counter, EVS 5.0.0.0 certified configuration firmware, Release 2.4.0.0) does comply with ORS 246.560.

Dated: February 5, 2014.

Jim Williams

Jim Williams, Director
Secretary of State, Elections Division

wyle laboratories

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TEST REPORT

WITNESS OF TESTING FOR THE ELECTION SYSTEMS & SOFTWARE DS850 CENTRAL COUNT IN THE EVS 5.0.0.0 CERTIFIED CONFIGURATION

RECEIVED
2014 FEB 5 PM 2 35
KATE BROWN
SECRETARY OF THE STATE

for

Oregon Secretary of State, Elections Division
255 Capitol St. NE, Suite 501
Salem, OR. 97310

STATE OF ALABAMA
COUNTY OF MADISON }

Robert D. Hardy, Department Manager, being duly sworn, deposes and says: The information contained in this report is the result of complete and carefully conducted testing and is to the best of his knowledge true and correct in all respects.

Robert Hardy

SUBSCRIBED and sworn to before me this 30 day of Jan 20 14

Sandra A Samuel
Notary Public in and for the State of Alabama at Large

My Commission expires June 2, 2015

SEAL

Wyle shall have no liability for damages of any kind to person or property, including special or consequential damages, resulting from Wyle's providing the services covered by this report.

PREPARED BY: Michael L Walker 1-30-14
Michael L. Walker, Senior Project Engineer — Date

APPROVED BY: Frank Padilla 1-30-14
Frank Padilla, Voting Systems Manager — Date

WYLE Q. A.: Brenda Mora 1/30/14
For Rick Davis, Q. A. Manager — Date

NVLAP LAB CODE 200771-0

EAC Lab Code 0702

Revisions

REVISION Original Release
REPORT NO. T71468.01-01
DATE January 30, 2014

REV	DATE	PAGE OR PARAGRAPH AFFECTED	DESCRIPTION OF CHANGES
---	1-30-14	Entire Document	Original Release

TABLE OF CONTENTS

APPENDICES

1.0 INTRODUCTION

1.1 Scope

This report presents the witness results for the state of Oregon testing of the Election Systems & Software (ES&S) DS850 in the EVS 5.0.0.0 certified configuration. All testing was performed onsite at the Multnomah County Elections office in Portland, Oregon, from January 7–9, 2014. The state of Oregon requested Wyle personnel witness and assist testing of the DS850 to the Oregon test plan, which included a number of specifically designed test requirements to analyze system performance. Wyle personnel converted the test plan and testing requirements into baseline test cases to utilize as guides for the testing effort. In addition, Oregon is accepting all EAC approved testing by Wyle which includes the EVS 5.0.0.0 certified system (ESSEVS5000).

The focus of this witness effort was to verify multiple scenarios requested by the state to analyze and receive informational data of the system performance. The DS850 units under test were setup and verified to be in the EVS 5.0.0.0 certified configuration. The tests are listed below and describe the actual testing required by the state. More detailed information regarding the tests and results are located in section 4 of this document. ES&S was responsible for setting up all equipment. Wyle personnel verified the DS850's hardware and firmware to validate it was compliant with the EAC approved certified configuration.

The baseline test cases were utilized as guidelines by the state of Oregon with all changes or alterations during testing annotated in engineering logbooks. Wyle personnel witnessed and assisted testing for the entirety of the campaign. Wyle personnel performed all election definition changes on the DS850 and printed all election testing results to verify accuracy of expected results or informational purposes only data.

Performance Testing

1. Test A – 11 inch ballots, 4 columns, speed
2. Test B – correct test deck with consistent results run throughout the test campaign
3. Test C – 14 inch ballots, 3 columns, primary election, undervotes, overvotes, PCP inclusion, speed, accuracy
4. Test D – hand folds with correct counts on candidate target ovals containing bisecting folds
5. Test E – horizontal and vertical marks, mark tolerance, consistency, accuracy
6. Test F – color test for informational purposes to determine ability to detect colors and thresholds
7. Test G – bleed test for informational purposes to determine ability to read marks and bleed through thresholds
8. Test H – 17 inch ballots, large number of candidates per contest, ballot styles, and precincts, splits, speed, accuracy
9. Test J – informational only test cases to determine threshold for marks within timing marks, photocopied ballots
10. Test L – 19 inch ballots, 3 columns, long ballots, n of m, alignment issues, speed, network results transmission
11. Test M – 14 inch ballots, large number of precincts, split styles, multiple sheet capability

1.2 Objective

Wyle personnel witnessed and assisted the testing of the DS850 in the EVS 5.0.0.0 EAC approved certified configuration. Testing included the above mentioned tests to provide system capabilities in addition to testing to provide data for informational purposes only to be utilized by the state.

1.3. Test Report Overview

This test report consists of four main sections and appendices:

- 1.0 Introduction – Provides the architecture of the National Certification Test Report (hereafter referred to as test report); a brief overview of the testing scope of the test report; a list of documentation, customer information, and references applicable to the voting system hardware, software, and this test report.
- 2.0 System Identification and Overview – Provides information about the equipment tested.

1.0 INTRODUCTION (Continued)

1.3 Test Report Overview (Continued)

- 3.0 Test Background – Contains information about the certification test process and a list of terms and nomenclature pertinent to the test report and system tested.
- 4.0 Test Procedures and Results – Provides a summary of the results of the testing process.
- Appendices – Information supporting reviews and testing of the voting system are included as appendices to this report.

1.4 Customer

Oregon Secretary of State, Elections Division
255 Capitol St. NE, Suite 501
Salem, OR 97310

2.0 SYSTEM IDENTIFICATION AND OVERVIEW

2.1 System Overview

The ES&S EVS 5.0.0.0 Voting System is a paper-based, digital scan voting system. The EVS 5.0.0.0 Voting System hardware consists of five major components:

1. Election Management System (EMS) Server
2. Election Management System (EMS) client (desktop and/or laptop) with Election Reporting Manager (ERM)
3. Polling Place Scanner – DS200
4. Polling Place American Disability Act (ADA) Devices – AutoMARK A100, AutoMARK A200, and AutoMARK A300
5. Central Count Digital Scanner – DS850

The scope of testing witnessed by Wyle Laboratories only included the DS850.

2.2 System Identification

The materials required for testing of the EVS 5.0.0.0 DS850 included software, hardware, test materials, and deliverable materials shipped directly to the state of Oregon by ES&S. The materials documented in the following sections were the materials used during the state of Oregon testing of only the DS850 and its interface with the EMS and are not a complete list of materials used in the previously-certified EVS 5.0.0.0 Voting System. The three DS850 units under test were labeled and identified by machine number which will be referenced for the remainder of this report. The table below lists the machine identification numbers:

Table 2-1 EVS 5.0.0.0 DS850 Component Description

Equipment	Machine ID	Description	Serial Numbers	Firmware Version
DS850	1	Central Count Digital Scanner	DS8509420014	Firmware 2.4.0.0
DS850	2	Central Count Digital Scanner	DS8509420004	Firmware 2.4.0.0
DS850	3	Central Count Digital Scanner	DS8509420009	Firmware 2.4.0.0

2.0 SYSTEM IDENTIFICATION AND OVERVIEW (Continued)

2.3 Test Support Materials

This subsection enumerates any and all test materials needed to perform voting system testing. The scope of testing determines the quantity of a specific material required. The transport media or USB flash drives were utilized to upload the election definitions and election qualification media from the EMS to each DS850 during testing.

The following test materials were required to support the EVS 5.0.0.0 DS850 test campaign:

Table 2-2 Test Support Equipment

Test Material	Quantity
Paper (Dot-Matrix)	5 Boxes
Pre Printed Ballots	35,000 total (all supported sizes were tested: 11", 14", 17", 19")
Transport Media (USB Flash Drives)	*25

(*This only identifies the total number of flash drives available and not the total utilized during testing)

3.0 TEST BACKGROUND

Wyle Laboratories is an independent testing laboratory for systems and components under harsh environments, including dynamic and climatic extremes as well as the testing of electronic voting systems. Wyle holds the following accreditations:

- ISO-9001:2000
- OSHA Accredited
- NVLAP Accredited ISO 17025:2005
- EAC Accredited VSTL, NIST 150,150-22
- A2LA Accredited (Certification No.'s 845.01, 845.02, and 845.03)
- FCC Approved Contractor Test Site (Part 15, 18, 68)

3.1 General Information about the Test Process

All testing performed as part of the witness effort was performed at the Multnomah County Elections Office Portland, Oregon, facility from January 7–9, 2014. Witness testing was limited to the ES&S EVS 5.0.0.0 DS850 component previously identified in this report.

3.2 Test Equipment and Instrumentation

All instrumentation, measuring, and test equipment used in the performance of this witness test program was calibrated in accordance with Wyle Laboratories' Quality Assurance Program, which complies with the requirements of ANSI/NCSL 2540-1, ISO 10012-1, and ISO/IEC 17025. Standards used in performing all calibrations are traceable to the National Institute of Standards and Technology (NIST) by report number and date. When no national standards exist, the standards are traceable to international standards, or the basis for calibration is otherwise documented.

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3.0 TEST BACKGROUND (Continued)

3.3 Terms and Abbreviations

Table 3-1 in this subsection defines all terms and abbreviations applicable to this Test Report.

Table 3-1 Terms and Abbreviations

Term	Abbreviation	Definition
United States Election Assistance Commission	EAC	Commission created per the Help America Vote Act of 2002, assigned the responsibility for setting voting system standards and providing for the voluntary testing and certification of voting systems.
Election Management System	EMS	---
Equipment Under Test	EUT	---
National Institute of Standards and Technology	NIST	Government organization created to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhances economic security and improves our quality of life.
Physical Configuration Audit	PCA	Review by accredited test laboratory to compare voting system components submitted for certification testing to the manufacturer's technical documentation, and confirmation the documentation meets national certification requirements.
Precinct Committee Person	PCP	Representative of a party within a precinct
Technical Data Package	TDP	Manufacturer documentation related to the voting system required to be submitted as a precondition of certification testing.
Voluntary Voting System Guidelines	2005 VVSG	Published by the EAC, the third iteration of national level voting system standards.

4.0 TEST PROCEDURES AND RESULTS

4.1 Summary Findings

The ES&S EVS 5.0.0.0 DS850 component, as listed in Section 2.0, was subjected and witnessed by Wyle personnel to the tests described in Section 1.1 of this report. The results of those tests are summarized in the sections below. All hard copy data generated by the performance of these tests is retained by Wyle as raw data. During the execution of the testing all test ballots were processed through each of the three DS850 units under test to verify consistent processing among the different units for results comparison. The only exception was during the execution of Test L in which the same ballots were processed, but the number of times processed was increased for selected units.

4.1.1 Physical Configuration Audit Results

A Physical Configuration Audit (PCA) of the EVS 5.0.0.0 DS850 was performed in accordance with Section 6.6 of Volume II of the VVSG. The PCA compares the voting system components submitted for certification with the vendor's technical documentation and confirms that the documentation submitted meets the requirements of the Guidelines.

The audit performed on the EVS 5.0.0.0 DS850 consisted of an inspection of the DS850 units under test, firmware/software verification, and TDP used.

Summary Findings: No discrepancies were noted during the PCA.

4.0 TEST PROCEDURES AND RESULTS (Continued)

4.1.2 Test A

Test A was executed utilizing an 11-inch, four columns, two-sided ballot which were marked and machine folded. 1036 ballots were cast on each of the DS850's under test utilizing the Lane County May 2012 Primary Election. The same test deck was processed on each unit under test and the results compared for verification. The parameters tested included ballot size, increased number of columns, accuracy, and speed of processing.

Summary Findings:

Results were verified as accurate after a comparison of the printed results was verified by Wyle personnel and Oregon officials to the expected results matrix.

4.1.3 Test B

Test B was executed utilizing an 11-inch, four columns, two-sided ballots which were a flat test deck. 2212 ballots were cast on each one of the DS850's under test utilizing the Lane County May 2012 Primary Election. The same test deck was processed on each unit under test and the results compared for verification. The parameters tested included ballot size, increased number of columns, accuracy, and speed of processing.

Summary Findings:

During the results review, machine 1 showed a discrepancy in the totals when compared with the expected results and the results from the two other DS850's under test. A mark was not detected by machine 1 when a portion of the red marking device slightly broke the plane of the target oval. The mark was intended to overvote the race, but did not. This created an additional vote for the write-in candidate. The ballot was identified by Wyle personnel and provided to Oregon officials for examination. The ballot was processed five additional times. Four attempts resulted in an unreadable mark and one attempt returned a vote for the write-in candidate and did not overvote the race. The mark was detected as an unreadable mark as it was below the vendor specified threshold. The mark was increased above the threshold by Oregon officials and the ballot was reprocessed without issue.

Verification was made by Wyle personnel that if the ballot was processed by the DS850 it was handled properly. If the mark was insufficient the DS850 handled the ballot properly by not processing the ballot and sending it to the output tray for manual review. After correction of the identified ballot results were verified as accurate after a comparison of the printed results was verified by Wyle personnel and Oregon officials to the expected results matrix. Oregon officials were satisfied with the handling of the ballot and the root cause analysis provided.

4.1.4 Test C

Test C was executed utilizing a 14-inch, three columns, two-sided ballot which were marked and machine folded. 1021 ballots were cast on each of the DS850's under test utilizing the Lane County May 2012 Primary Election but with the inclusion of PCP contests. The same test deck was processed on each unit under test and the results compared for verification. The parameters tested included ballot size, increased number of columns, accuracy, PCP inclusion, undervotes, overvotes, and speed of processing.

Summary Findings:

Results were verified as accurate after a comparison of the printed results was verified by Wyle personnel and Oregon officials to the expected results matrix.

4.0 TEST PROCEDURES AND RESULTS (Continued)

4.1.5 Test D

Test D was executed utilizing a 14-inch, three columns, two-sided ballot which were marked and hand folded with bisecting folds on the candidate target oval. Five ballots were cast on each of the DS850's under test utilizing the Lane County May 2012 Primary Election, but with inclusion of PCP contests. The same test deck was processed on each unit under test and the results compared for verification. The parameters tested included hand folded ballots and accuracy of bisecting folds on the candidate target oval.

Summary Findings:

Results were verified as accurate after a comparison of the printed results was verified by Wyle personnel and Oregon officials to the expected results matrix.

4.1.6 Test E

Test E was executed utilizing a 14-inch, three columns, two-sided ballot which were marked and machine folded. 18 ballots were cast on each of the DS850's under test utilizing the Lane County May 2012 Primary Election, but with inclusion of PCP contests. The same test deck was processed on each unit under test and the results verified for comparison. The parameters tested included horizontal and vertical position accuracy, consistency, and mark tolerance.

Summary Findings:

Results were verified as accurate after a comparison of the printed results was verified by Wyle personnel and Oregon officials for the ballots that were processed. This test was utilized for informational purposes to provide data of mark tolerance in addition to horizontal and vertical mark locations.

4.1.7 Test F

Test F was executed utilizing a 14-inch, three columns, two-sided ballot which were marked and machine folded. 30 ballots were cast on each of the DS850's under test utilizing the Lane County May 2012 Primary Election, but with inclusion of PCP contests. The same test deck was processed on each unit under test and the results compared for verification. The parameters tested included multiple colors (30), color thresholds, accuracy for processed ballots, and consistency. This test was for informational purposes only to provide data to the state of Oregon.

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4.0 TEST PROCEDURES AND RESULTS (Continued)

4.1.7 Test F (Continued)

Table 4-1 Color Test Results

Ballot Size	Item Number	Color/Type	Machine ID No. 1	Machine ID No. 2	Machine ID No. 3
14"	1	Green Gel	✓	✓	✓
14"	2	Red Gel	✓	✓	✓
14"	3	Purple Ballpoint	✓	✓	✓
14"	4	Blue Felt Tip	✓	✓	✓
14"	5	Red Pencil	X	X	X
14"	6	Black Ballpoint	✓	✓	✓
14"	7	#2 Pencil	✓	✓	✓
14"	8	Blue Pencil	X	X	X
14"	9	Green Felt Tip	✓	✓	✓
14"	10	Pink Ballpoint	✓	✓	✓
14"	11	Green Wet Erase	✓	✓	✓
14"	12	Blue Ballpoint	✓	✓	✓
14"	13	Red Felt Tip	✓	✓	✓
14"	14	Blue Highlighter	X	X	X
14"	15	Orange Highlighter	X	X	X
14"	16	Black Gel	✓	✓	✓
14"	17	Red Wet Erase	✓	✓	✓
14"	18	Pink Highlighter	X	X	X
14"	19	Gold Glitter	X	X	X
14"	20	Red Ballpoint	X	X	X
14"	21	Purple Felt Tip	✓	✓	✓
14"	22	Mechanical Pencil	✓	✓	✓
14"	23	Blue Wet Erase	✓	✓	✓
14"	24	Silver Glitter	B	B	B
14"	25	Black Wet Erase	✓	✓	✓
14"	26	Green Highlighter	✓	✓	✓
14"	27	Yellow Highlighter	B	B	B
14"	28	Green Crayon	X	X	X
14"	29	Blue Crayon	✓	✓	✓
14"	30	Red Crayon	X	X	X

***Accepted (✓) = Ballot was processed without issue**
Rejected (X) = Ballot was not processed due to unclear marks
Blank (B) = Ballot was not processed and no mark was detected

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4.0 TEST PROCEDURES AND RESULTS (Continued)

4.1.7 Test F (Continued)

Summary Findings:

Results were verified as accurate after a comparison of the printed results was verified by Wyle personnel and Oregon officials for the ballots that were processed. This test was utilized for informational purposes only to determine the colors that would or would not be consistently read on the DS850 units under test. The information provided in table 4-1 provides results of the execution of the provided test deck. 11 of the 30 ballots were consistently not processed and sent to the top output tray. Two ballots that were marked with yellow highlighter and silver glitter pen were consistently not processed as blank ballots. Nine of the ballots consistently reflected unreadable marks with some variation determined by the orientation in which the ballot was presented, but remained consistent with the nine ballots.

4.1.8 Test G

Test G was executed utilizing a 14-inch, three columns, two-sided ballot which were marked and machine folded with bleed through marks created on the back side of the ballot. Three ballots were cast on each of the DS850's under test utilizing the Lane County May 2012 Primary Election, but with inclusion of PCP contests. The same test deck was processed on each unit under test and the results verified for comparison. The parameters tested included varying exposure durations of the bleed through marks, accuracy, and consistency. This test was for informational purposes only to provide data to the state of Oregon.

Summary Findings:

Results were verified as accurate after a comparison of the printed results was verified by Wyle personnel and Oregon officials for the ballots that were processed. This test was utilized for informational purposes to provide data of bleed through marks from the back side of a valid ballot. There were no issues notated during this test execution as the ballot target ovals do not line up from front side to back side which prevents this type of occurrence.

4.1.9 Test H

Test H was executed utilizing a 17-inch, three columns, two-sided ballot which was marked and machine folded. 12 ballots were cast on each of the DS850's under test utilizing the Multnomah County 2012 Primary Election. The same test deck was processed on each unit under test and the results compared for verification. The parameters tested included ballot size, large number of candidates per contest, ballot styles and precincts, splits, undervotes, overvotes, speed of processing, accuracy, and damaged ballots.

Summary Findings:

Results were verified as accurate after a comparison of the printed results was verified by Wyle personnel and Oregon officials for the ballots that were processed. This test was utilized to verify a number of parameters and provide informational data to Oregon officials on the handling of damaged ballots. During the test a coffee stain that was placed on one of the ballots spread across and slightly crossed over into the above target oval creating an unreadable mark. The ballot image was reviewed by Wyle personnel along with Oregon officials determining this was a reading below the unit threshold setting. Oregon officials utilized correction tape to the affected area and the ballot was reprocessed without issue.

4.0 TEST PROCEDURES AND RESULTS (Continued)

4.1.9 Test H (Continued)

In addition there was a ballot with a tear created within the target oval creating a shadow image which the unit picked up and determined as an unreadable mark. This ballot was consistently not processed on all units under test. Oregon officials placed clear tape to seal up the tear and the ballot was processed without issue. The final run with all ballots after the correction tape and clear tape applied was processed with all ballots running without issue.

4.1.10 Test J

Test J was executed utilizing a 17-inch, three columns, two-sided ballots in which two of the ballots were photocopied with different print quality and the remainder of ballots were marked with extraneous marks within the timing marks. Eight ballots were cast on each of the DS850's under test utilizing the Multnomah County 2012 Primary Election. The same test deck was processed on each unit under test and the results compared for verification. The parameters tested included detection thresholds within the timing marks and photocopied ballots containing different print quality.

Summary Findings:

Results were verified as accurate after a comparison of the printed results was verified by Wyle personnel and Oregon officials for the ballots that were processed. This test was utilized for informational purposes to provide data of photocopied ballots and extraneous marks within the timing marks. The photocopied ballots were unable to process and were moved to the top output tray by the DS850. The extraneous marks ballots allowed two ballots to be read and the marks within the timing mark area were not large enough or outside of an effected area to make the ballot unreadable. The remaining extraneous marked ballots were not processed. This was consistent on all three DS850's under test with a determination that any mark outside of the ballot lines within the timing mark area could have an effect on the processing of the ballot. As a best practice, it is recommended that identified photocopied ballots or ballots with extraneous marks in the timing track should be duplicated.

4.1.11 Test L

Test L was executed utilizing a 19-inch, three columns, two-sided ballot which was marked and machine folded. Each of the three DS850's under test received a different number of ballots cast. Machine 3 received 8,255 ballots cast, machine 2 received 16,510 ballots cast, and machine 1 received 24,765 utilizing the Multnomah County 2012 General Election. The same test deck was processed multiple times on each of the units under test and the results compared for verification. The parameters tested included ballot size, long run length, increased ballot styles, n of m races, ballot feed alignment issues, undervotes, overvotes, speed of processing, and transmission time for results reporting via the network connection. The determination was made to run the machines under test at different ballot cast levels in order to time the transmission of results to the EMS via the network connection. The time was calculated and determined utilizing a calibrated stop watch provided by Wyle personnel.

Summary Findings:

Results were verified as accurate after a comparison of the printed results was verified by Wyle personnel and Oregon officials to the expected results matrix. The test decks were processed multiple times per unit with the expected results verified by using a multiplier of two and three for the number of times processed. The results were transferred to the ES&S EMS via a network connection. The information and results of this are located in the additional testing section located in section 4.1.14 of this report. During the scanning of ballots machine 1 encountered a ballot jam.

4.0 TEST PROCEDURES AND RESULTS (Continued)

4.1.12 Test L (Continued)

The ballots being processed became stuck on the felt in the output tray and the operator attempted to adjust these causing the incoming ballots to backup. The machine was halted for ES&S to clear the ballot jam and the test continued without issue.

4.1.12 Test M

Test M was executed utilizing a 14-inch, three columns, two-sided ballot which was a marked and machine folded. 1858 ballots were cast on each of the DS850's under test utilizing the OR200PRE election created by ES&S specifically for this test. The same test deck was processed on each unit under test and the results compared for verification. The parameters tested included increased number of precincts, split styles, speed of processing, accuracy, and three sided and four sided ballots to verify multiple sheet capability.

Summary Findings:

Results were verified as accurate after a comparison of the printed results was verified by Wyle personnel and Oregon officials to the expected results matrix.

4.1.13 Technical Data Package Review

The ES&S EVS 5.0.0.0 Voting System Technical Data Package (TDP) was reviewed to the 2005 VVSG during the EAC approved certification performed by Wyle. TDP documents were reviewed for accuracy, completeness, and compliance to the VVSG. The TDP documentation served as the basis for design and development of all functional test cases and system verification during the PCA process.

Summary Findings: The EVS 5.0.0.0 DS850's utilized during the witness test campaign conformed to the approved TDP and was referenced during the testing campaign as needed to provide additional information in support of the system functionality.

4.1.14 Additional Testing

The DS850 has the ability to perform network transmission of results only or results with images. If results only is selected the option remains to transmit images at a later time if needed or required. Wyle witnessed the network transmission of results only from the DS850 to the ES&S EMS after execution of the Test L which was called out within the state of Oregon test plan. The transmission of results was timed by Wyle utilizing a calibrated stop watch to measure the length of time differences between three DS850 units each holding a different result value. Below is a table showing the number of ballots processed for each DS850 unit and the time for results only to be transmitted via the network connection. There were no issues found during the execution of the test cases during this period. The test cases were performed by Oregon officials and witnessed by Wyle personnel.

Table 4-2 Election Results Network Transmission Data

Machine ID	No. of Ballots Processed	Results Only Transmission Time
Machine 3	8,255	:50
Machine 2	16,510	:64
Machine 1	24,765	:80

*all transmission times are calculated in seconds

4.0 TEST PROCEDURES AND RESULTS (Continued)

4.2 Test Summary and Conclusion

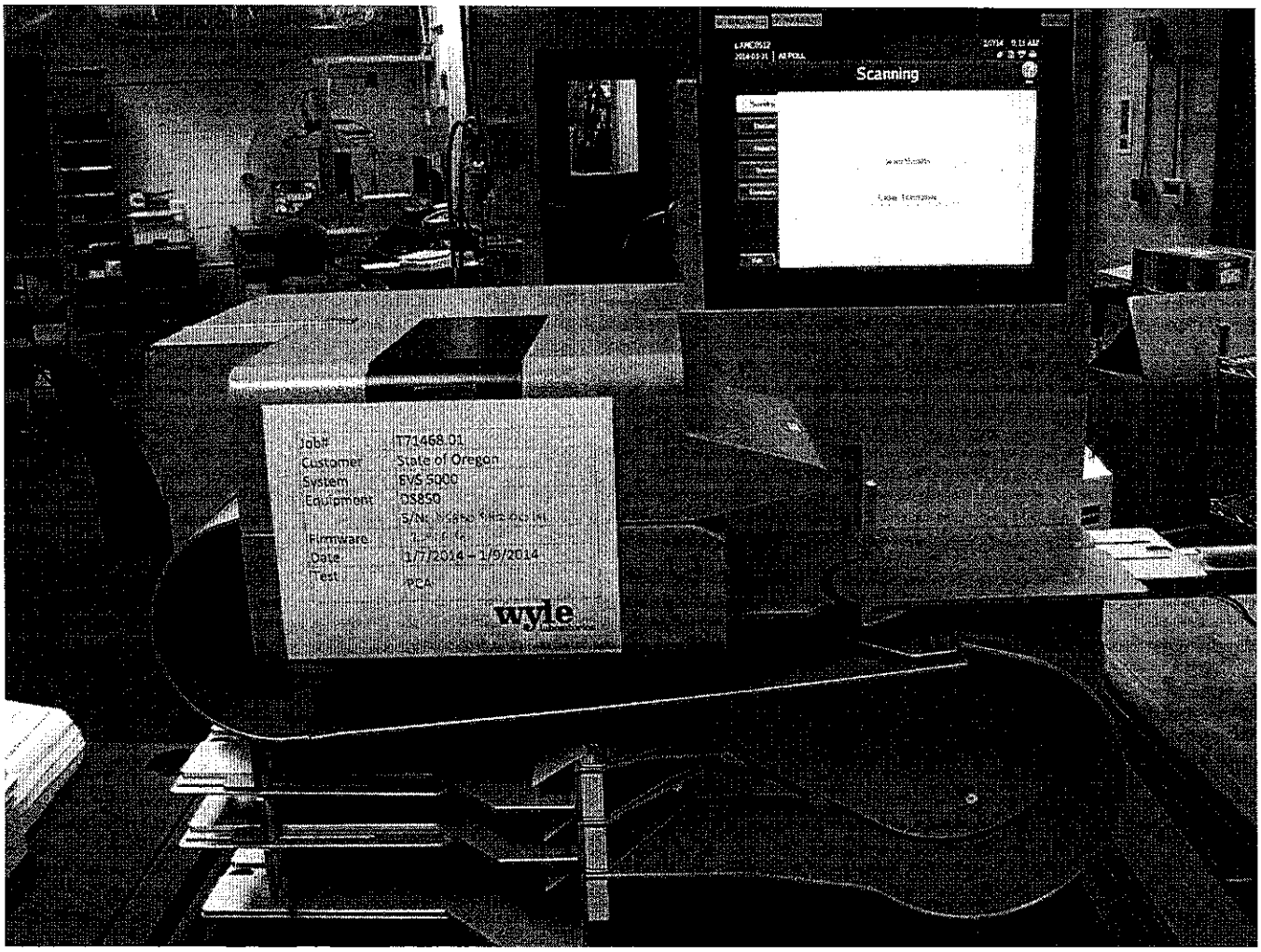
Wyle witnessed and assisted performance testing for the state of Oregon on the EVS 5.0.0.0 DS850. All testing was completed onsite in Portland, Oregon January 7–9, 2014 at the request of the state. While only the DS850 was under the scope of testing Wyle also witnessed and observed the transmission of election results via the local network connection to the ES&S EMS. Wyle personnel verified the transmission time for informational data provided to Oregon officials and is documented within this test report.

The test was concluded once Oregon officials completed the outlined test cases and verified they had enough informational data based on the results of the testing. Wyle has previously certified the DS850 both in state certification and through the EAC utilizing both the Unity and EVS systems. The EAC certified test reports and certification numbers can be accessed on the EAC website for additional information.

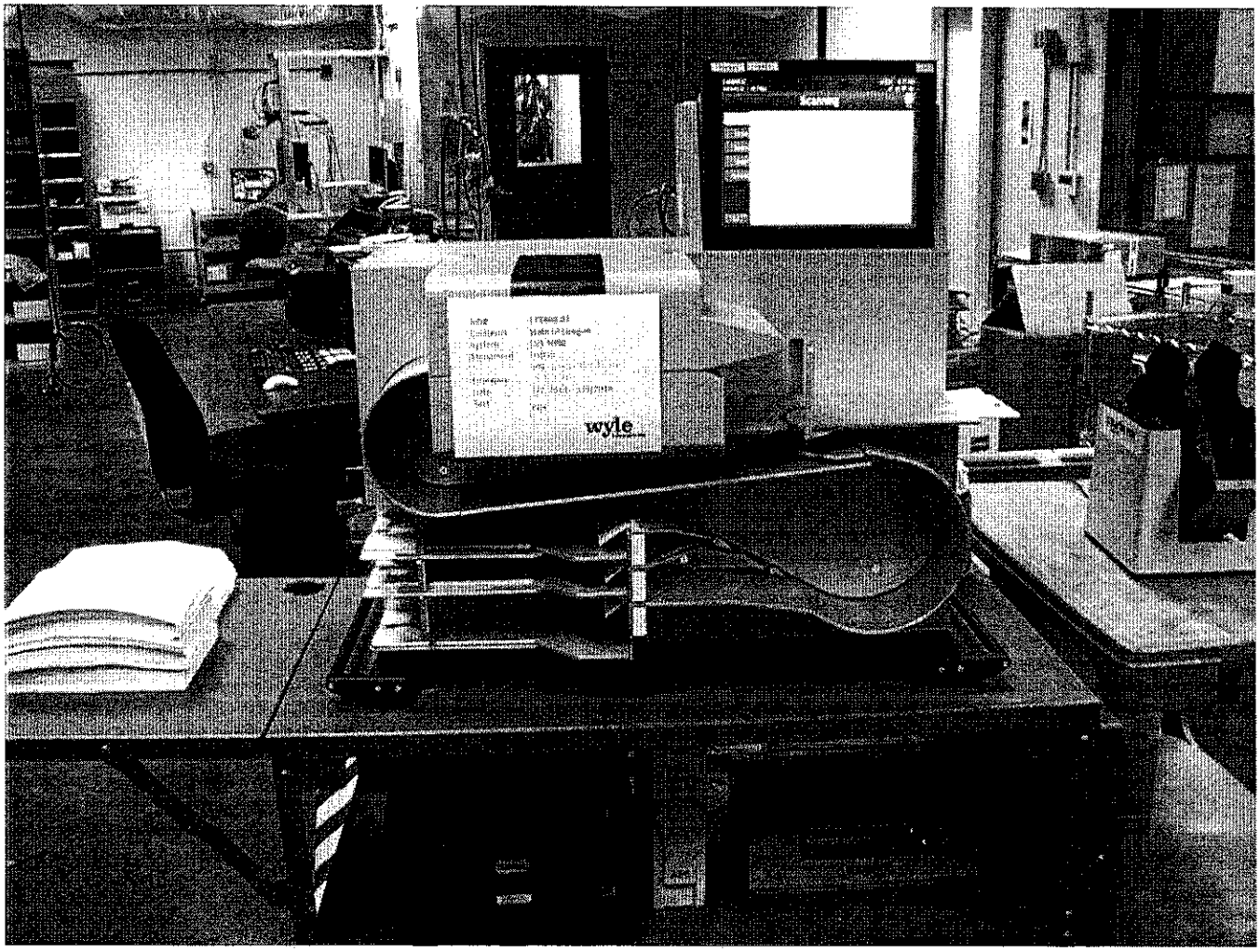
This report is valid only for the system identified in Section 2 of this report. Any changes, revisions, or corrections made to the system after this evaluation shall be submitted to Wyle to determine the scope of testing for the modified system. The scope of testing required will be determined based upon the degree of modification.

APPENDIX A

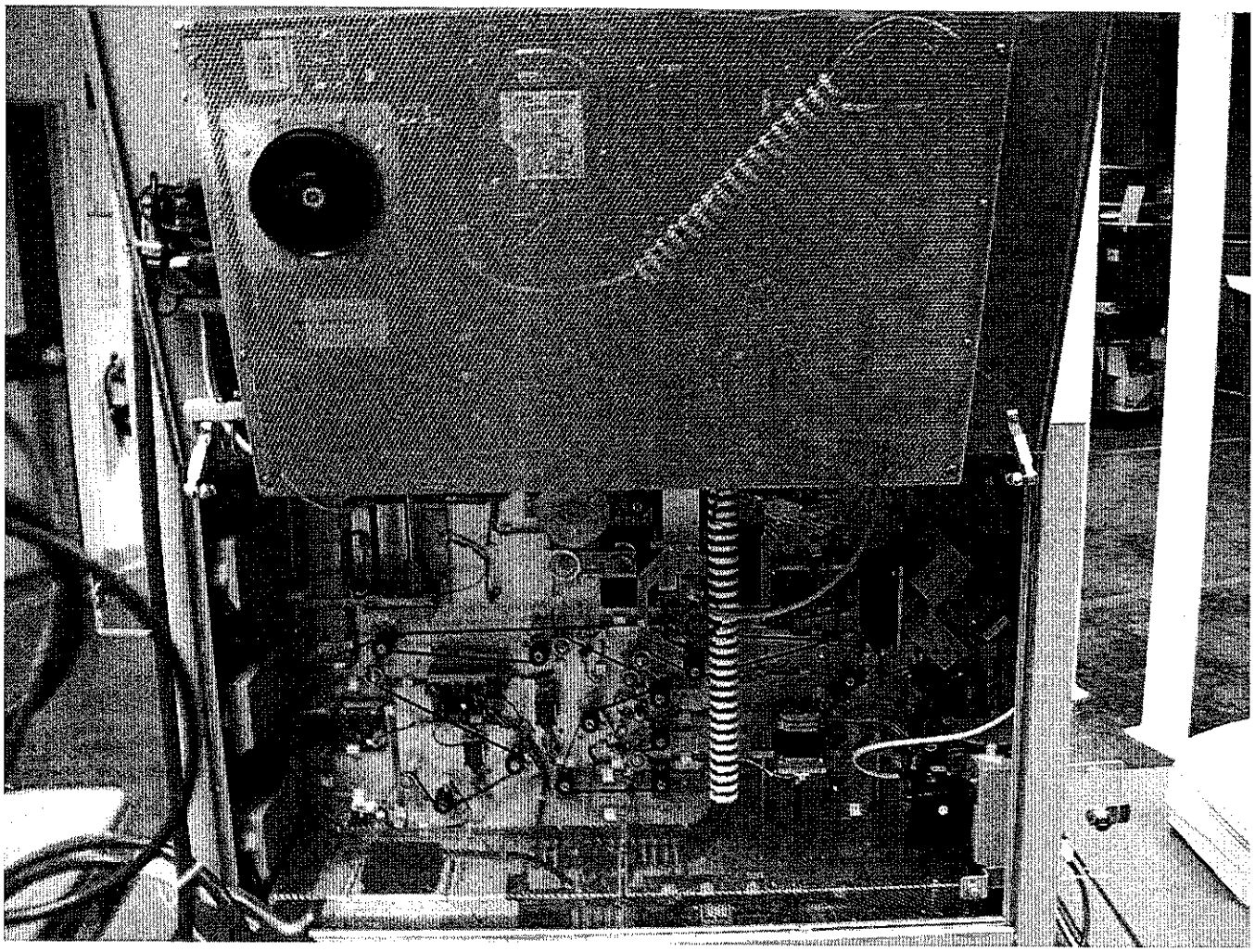
PHOTOGRAPHS



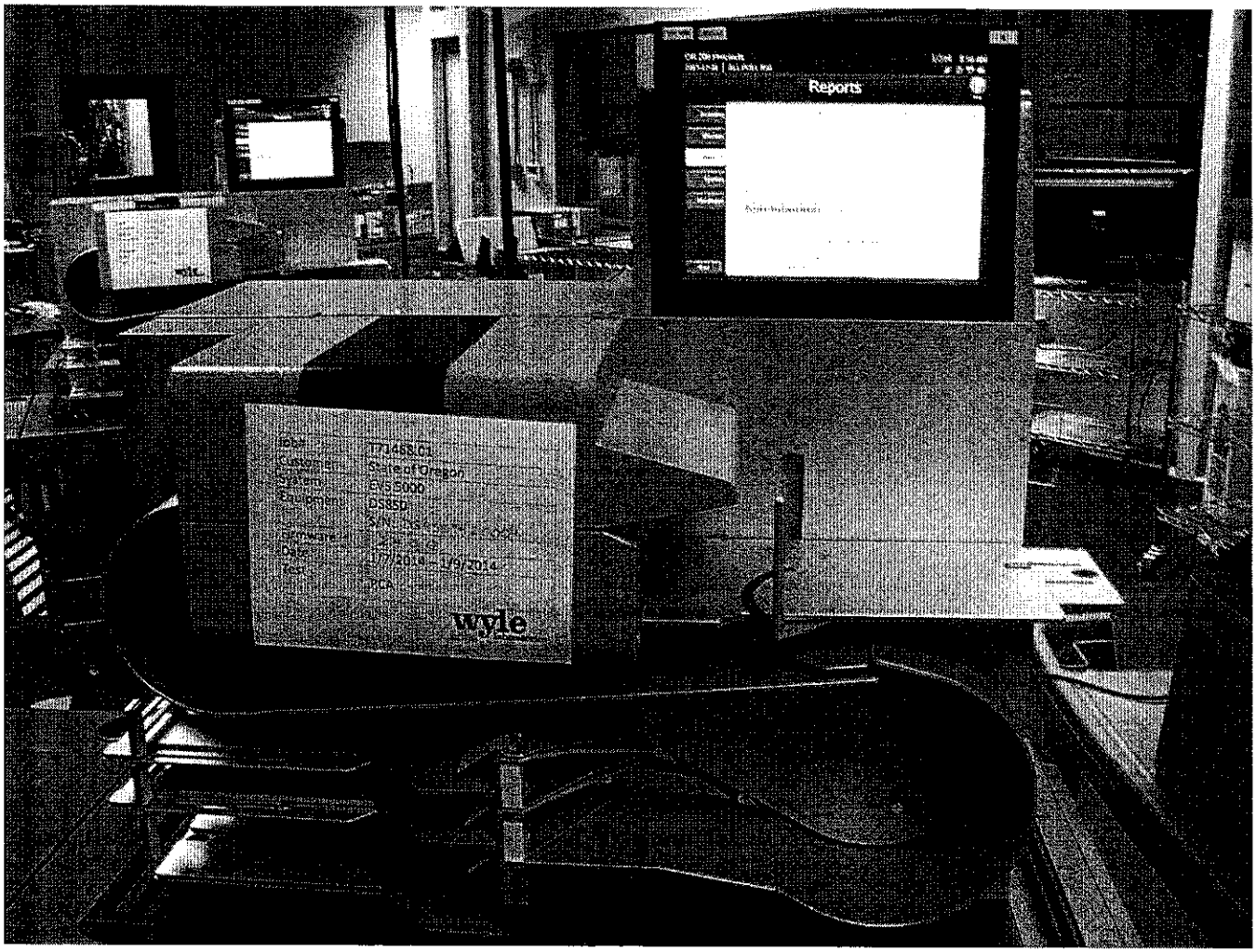
Photograph 1: DS8509420014-Machine 1



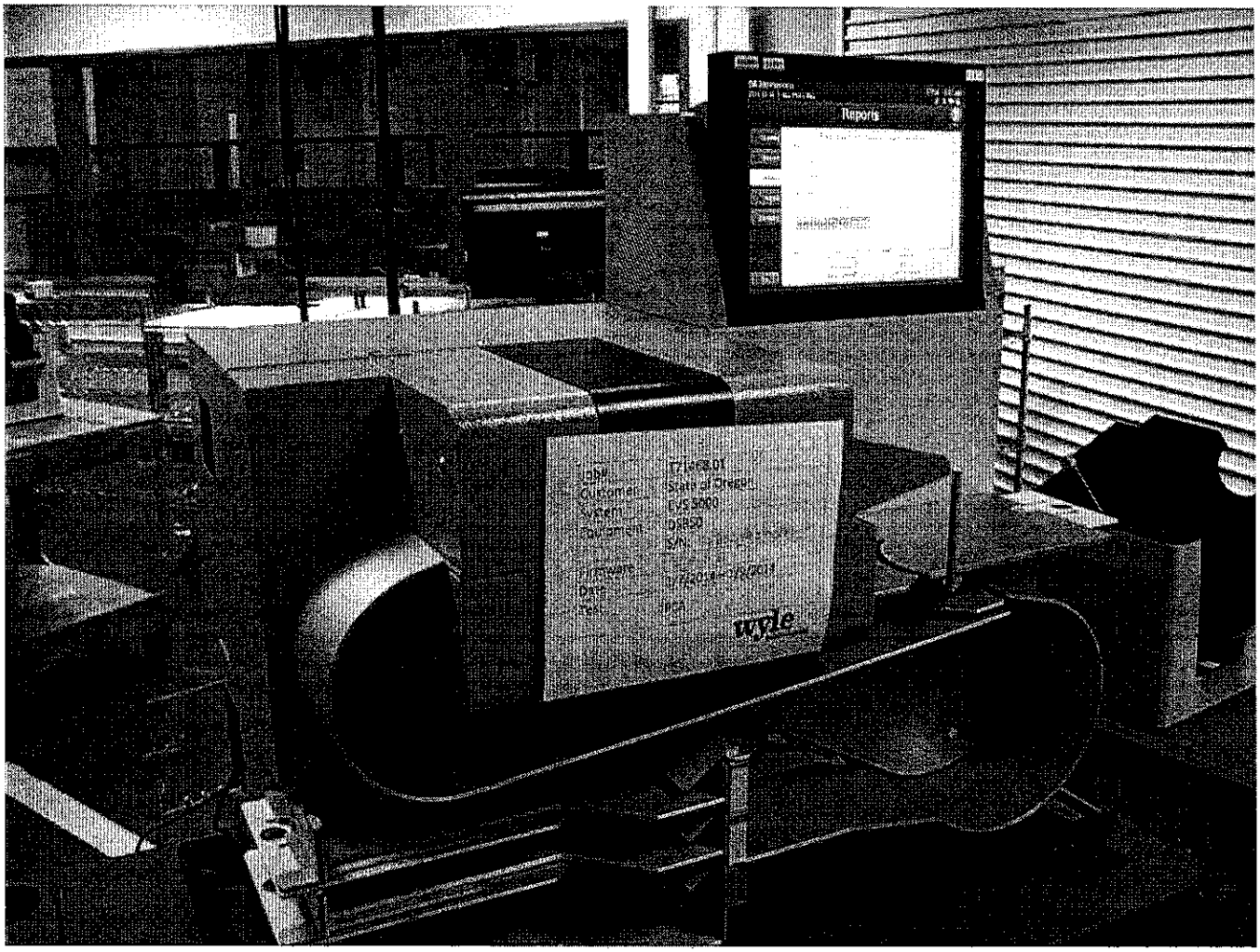
Photograph 2: DS8509420014-Machine 1



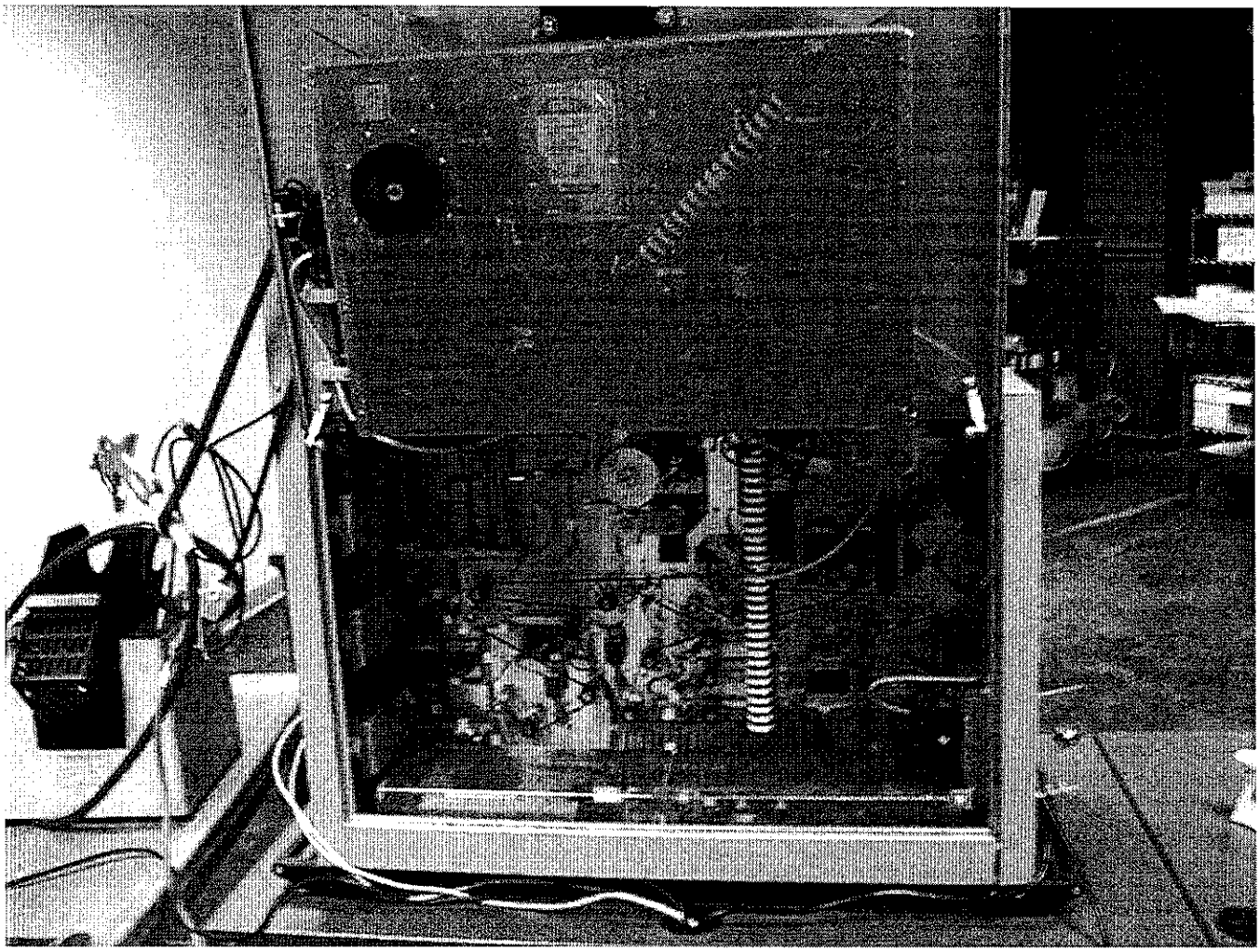
Photograph 3: DS8509420014-Machine 1



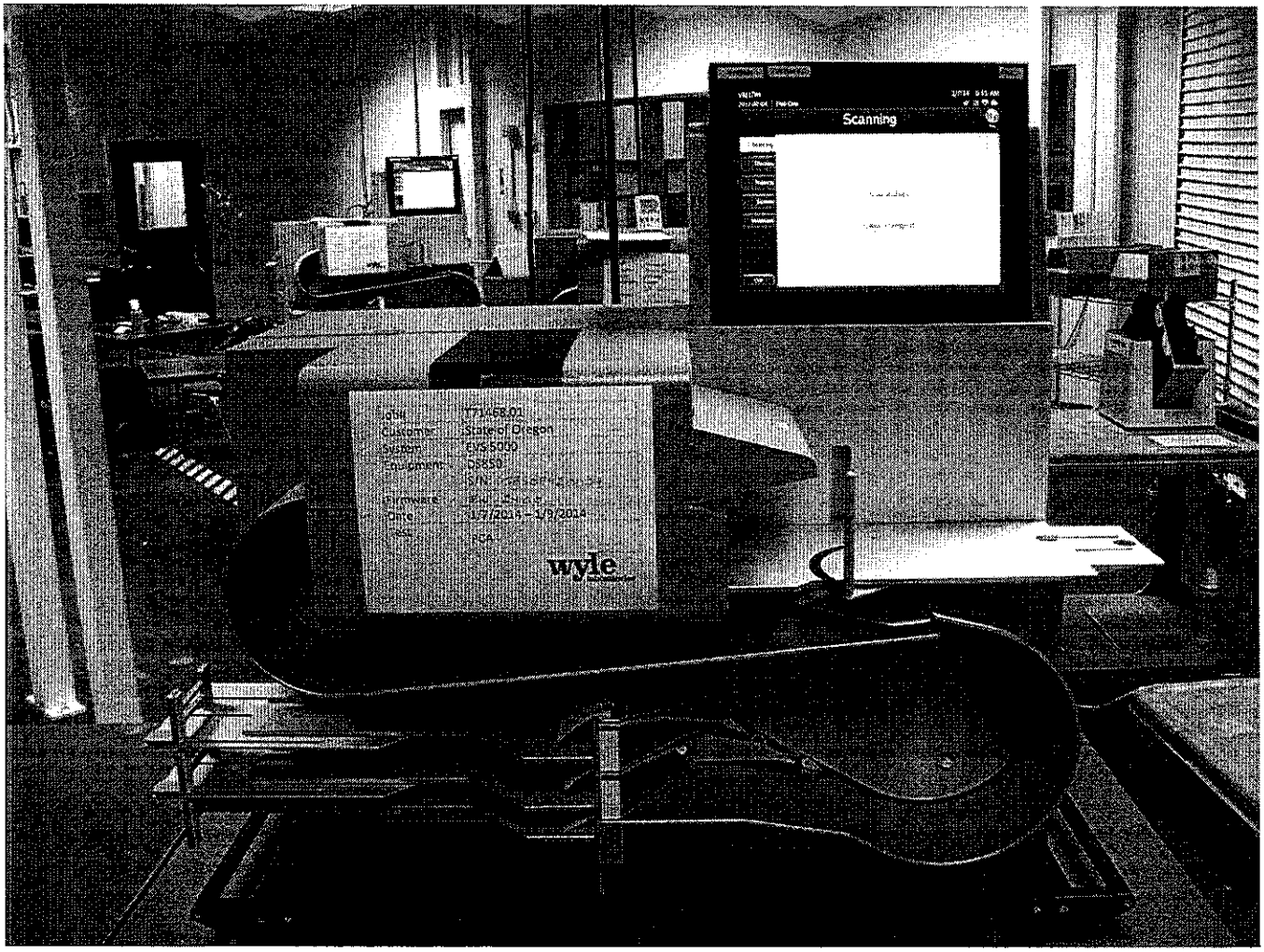
Photograph 4: DS8509420004-Machine 2



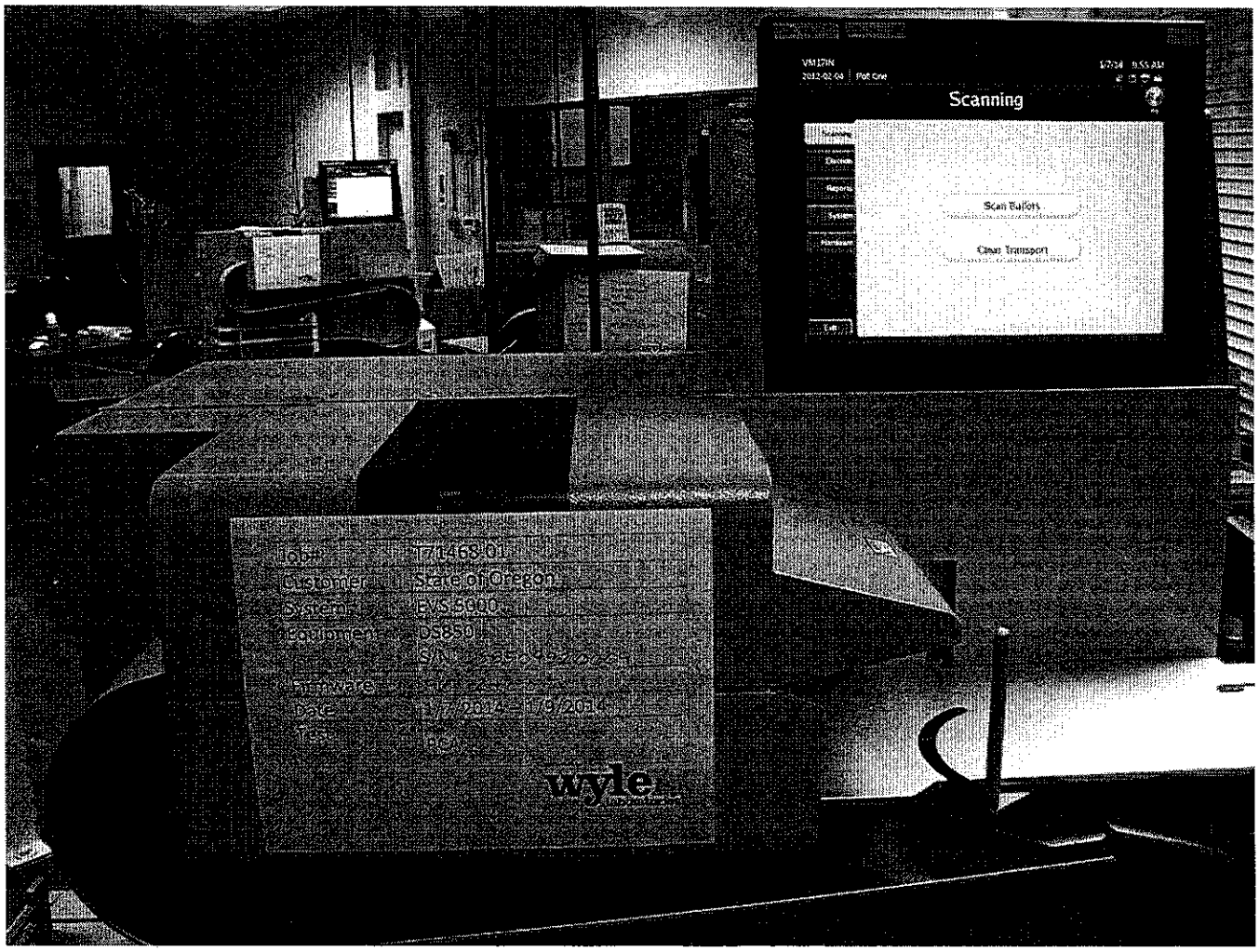
Photograph 5: DS8509420004-Machine 2



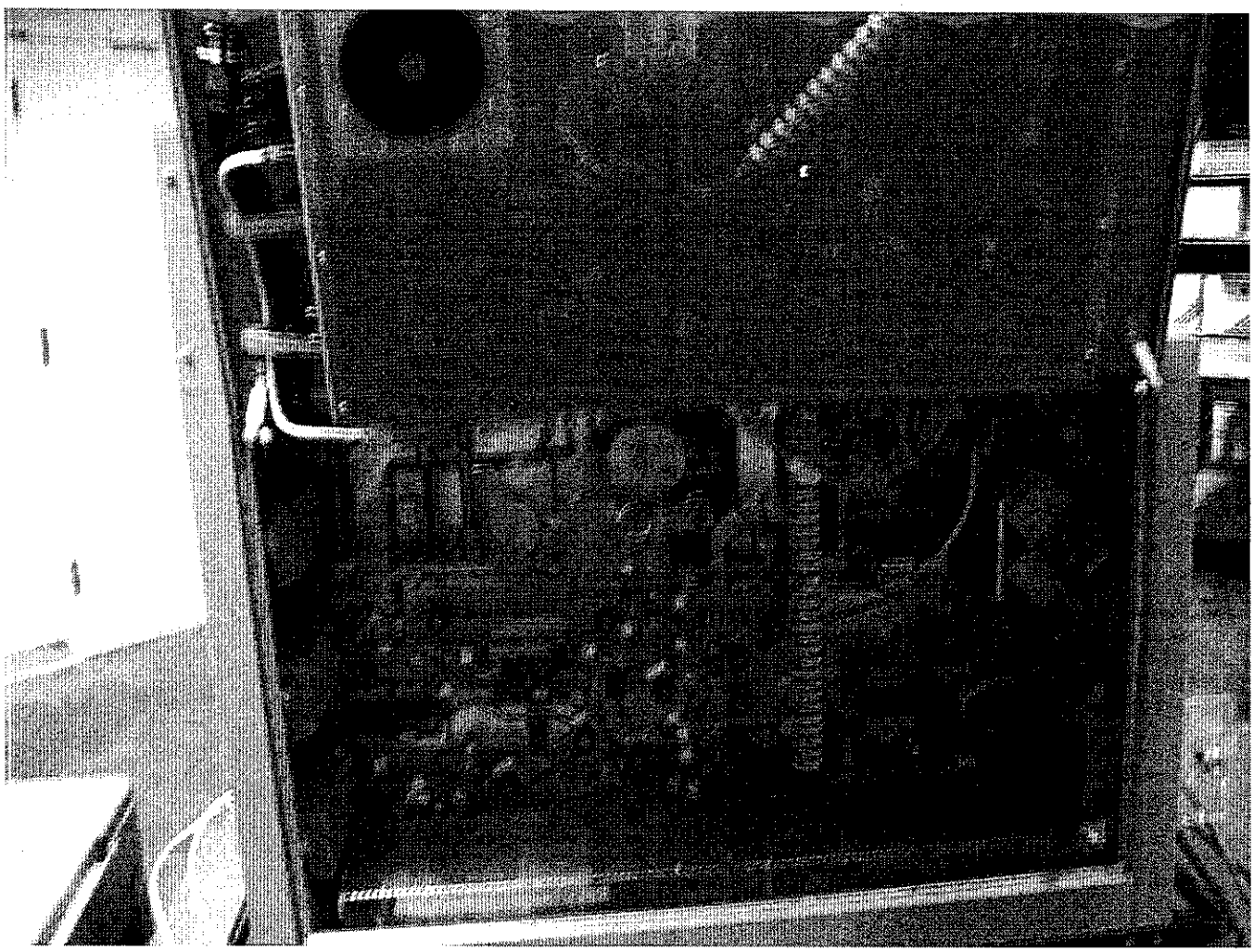
Photograph 6: DS8509420004-Machine 2



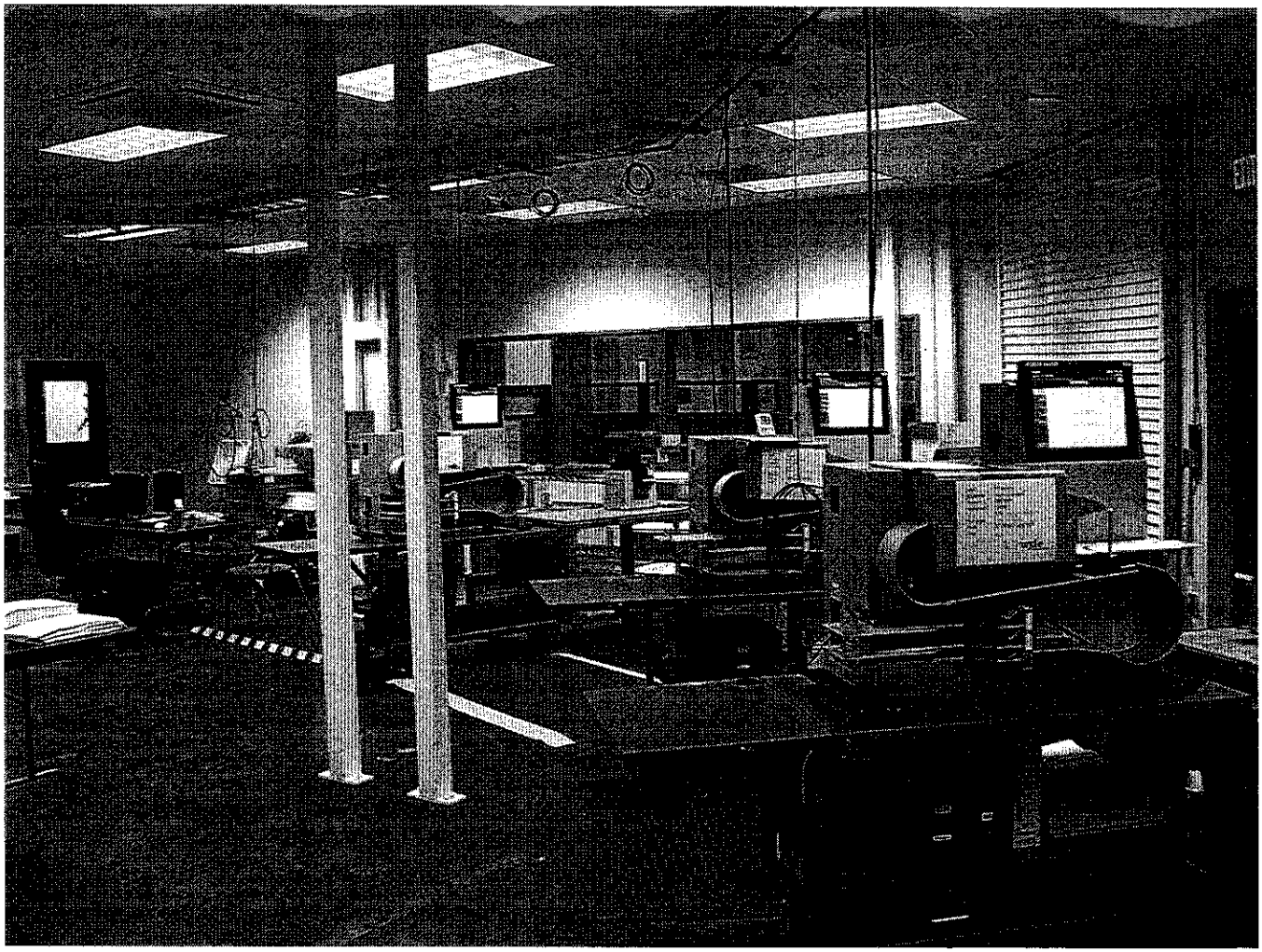
Photograph 7: DS8509420009-Machine 3



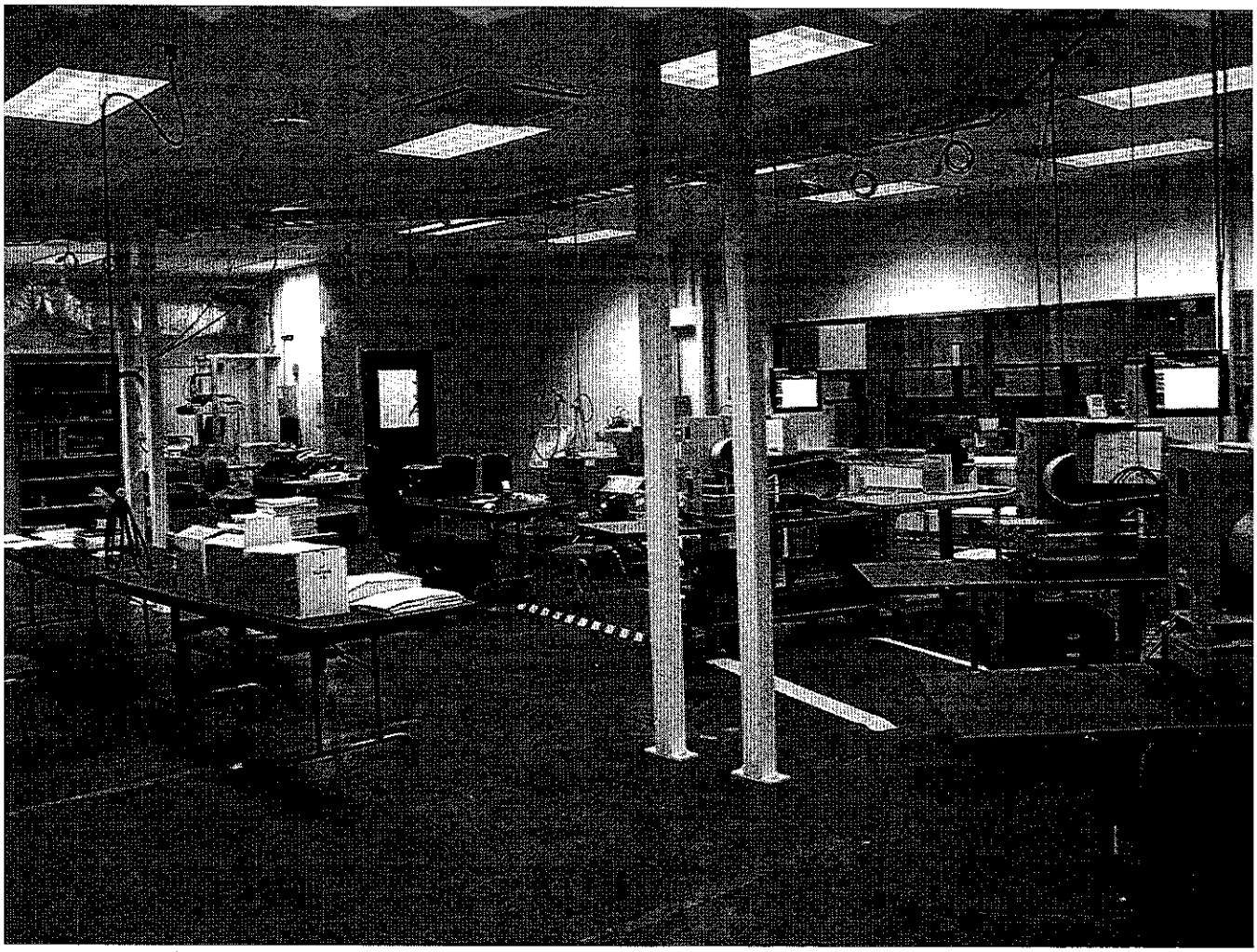
Photograph 8: DS8509420009-Machine 3



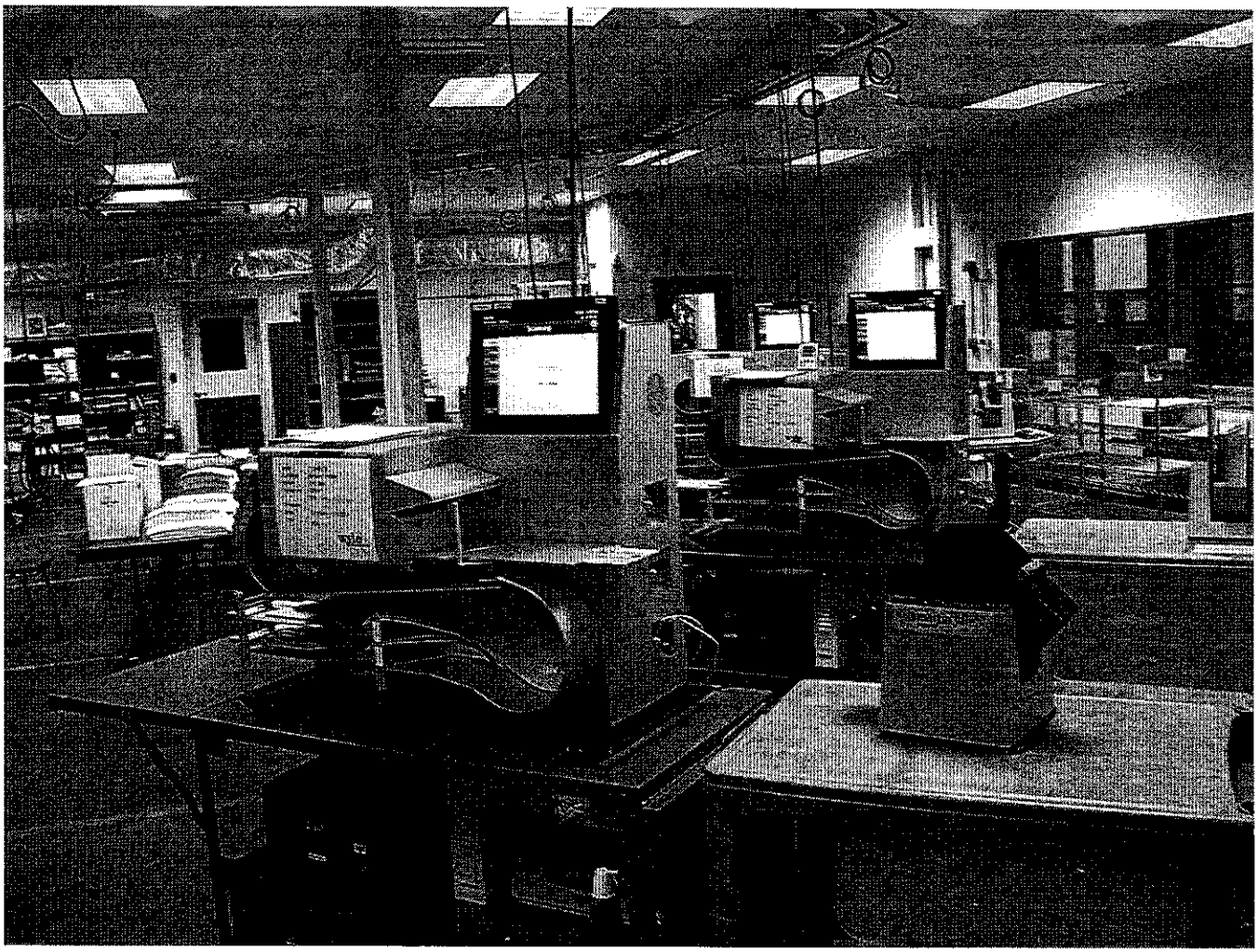
Photograph 9: DS8509420009-Machine 3



Photograph 10: DS850 Testing Setup



Photograph 11: DS850 Testing Setup



Photograph 12: DS850 Testing Setup