wyle laboratories

7800 Highway 20 West
Huntsville, Alabama 35806
Phone (256) 837-4411
Fax (256) 721-0144
www.wylelabs.com

UNISYN VOTING SOLUTIONS, INC.
OPEN ELECT VOTING SYSTEM, VERSION 1.0
PHYSICAL CONFIGURATION AUDIT

Reviewed by:

Wendy Owens 12/29/09
Wendy Owens, Senior Project Engineer

1.0 INTRODUCTION

1.1 Scope

A Physical Configuration Audit (PCA) of the Unisyn Voting Solutions OpenElect Voting System, Version 1.0, was performed by Wyle Laboratories qualified personnel as part of the certification test campaign. The PCA consisted of inspecting: The OpenElect Central Suite (OCS) software, the OpenElect Voting Optical Scan unit (OVO), the OpenElect Voting Interface (OVI), the OpenElect Voting Central Scan (OVCS), and all accessories, equipment and documentation used with the system. All initial hardware and software versions, of the OCS, OVCS, OVO, and OVI were identified during the baseline PCA (contained in Wyle Laboratories' Certification Test Plan No. T56285-01). Throughout the testing process, updates of the PCA were performed to reflect any hardware and software changes. This document represents the final hardware and software configurations of the Unisyn Voting Solutions OpenElect Voting System, Version 1.0.

1.2 References

The list below includes all documents cited in the PCA.

- EAC 2005 VVSG
- WoP 25 Physical Configuration Audit

1.3 Terms and Abbreviations

This subsection defines all terms and abbreviations applicable to the development of this PCA Review.

- EUT – Equipment Under Test
- OCS – OpenElect Central Suite
- OVO – OpenElect Voting Optical Scan
- OVI – OpenElect Voting Interface
- OVCS – OpenElect Voting Central Scan
- TM – Transport Media
- UPS – Uninterruptible Power Supply
- LCD – Liquid Crystal Display
- RAID – Redundant Array of Independent Drives
- ADA – Americans with Disabilities Act
- ECO – Engineering Change Order

1.4 Hardware Overview

The OVO is an optical scan voting machine used as a precinct count machine. The OVO accepts full size ballots that are hand marked by voters or paper ballots printed by the OVI unit. The OVO consists of a LCD touchscreen used for viewing directions given by the OVO as well as performing administrative functions, a ballot reader/scanner which reads hand marked ballots as well as those produced by the OVI, a ballot box which accepts the ballots read into the OVO as well as providing a storage compartment for the OVI, a printer used to print Election Reports, and an Uninterruptible Power Supply (UPS).

1.0 INTRODUCTION (continued)

1.4 Hardware Overview (continued)

The OVI is an ADA compliant accessible voting station for voters with disabilities, or for early voting purposes. The OVI accepts input from the voter via a touchscreen, an attached keypad, or a binary input such as a Sip and Puff device. The OVI has a Liquid Crystal Display (LCD) touchscreen that can be used for input or viewing of a ballot, a printer used to produce paper ballots for use in an OVO unit, a keypad used for input by the voter when listening to an audio ballot via headphones, a binary input port for use with a Sip and Puff device, and an Uninterruptible Power Supply (UPS).

The OVO and OVI units use standard 3-prong AC power cords. Different sets of keys are used to access the OVO and OVI units, as well as the ballot box. The Transport Media used is a 1 GB STEC brand USB flash drive.

The OVCS is a central count solution which consists of a Canon ImageFORMULA DR-X10C high speed scanner operated by an OVCS client application. The OVCS uses a standard 3-prong AC power cord. The OVCS high speed scanner will accept 14", 17" and OVI ballots.

1.5 OCS Software Overview

The OCS software suite consists of eight applications which fulfill all election management needs. The OCS software is installed on three computer workstations and one laptop computer running a Linux variant operating system called CentOS. A Witness Build was performed on the OCS Linux operating system to ensure that specific options and applications required by the hardware were included in the operating system. A Witness Build was performed to build the OCS software suite using source code reviewed by Wyle and MD5 hash values were obtained for all software built by Wyle. At the completion of the Certification Process, all software versions will be released as version 1.0

The OCS software consists of the following applications:

OCS Installer – Facilitates installation of OCS applications onto computers

Ballot Layout Manager – Provides tools for designing and developing elections and ballots

Election Manager – Sets election options, adds sounds to an election, exports completed elections, and uploads machine logs

Election Server – Application which loads elections onto OVO and OVI machines

Software Server – Application which loads and updates software on OVO and OVI machines

Tabulator Monitor – Application which aggregates election results tabulated by OVO and OVCS machines

Tabulator Report – Application which produces reports from tabulated election data

Tabulator Client – Application which imports tabulated election data from Transport Media

OpenElect Voting Central Scan – Application used for high speed scanning of ballots

1.0 INTRODUCTION (continued)

1.1 OVO and OVI Software Overview

The OVO and OVI run on an operating system named CentOS, which is a Linux variant. A Witness Build was performed on the OVO and OVI operating systems to ensure that specific options and applications required by the hardware were included in the operating system. The operating systems were loaded onto each OVO and OVI respectively. The OVO and OVI firmware were each built during a Witness Build, using source code reviewed by Wyle. Using the Software Server application built by Wyle and included in the OCS suite of tools, the OVO and OVI firmware was loaded onto each machine. During the performance of the Trusted Builds, all software versions will be set to 1.0.

1.2 OVCS Software Overview

The OVCS runs on an operating system named CentOS, a linux variant. The OVCS Linux was built during a Witness Build using code reviewed by Wyle. The OVCS client application is used for scanning ballots, producing reports of scanned ballots, and uploading tabulated vote data to the OCS Tabulator. At the completion of the Certification Process, the OVCS application will be released as version 1.0

1.8 Tools – Scripter and Validator

The Scipter and Validator tools are built during the OVO and OVI software build process. As a result, the Scripter and Validator tools have the same version number as the OVO or OVI software they are built with. These tools are loaded onto each OVO and OVI unit using the Software Server application built by Wyle during the installation of each unit's firmware. The Scripter and Validator tools are used during the loading of elections via the Election Server application built by Wyle, to install and verify the election on each OVO and OVI machine.

1.9 Technical Data Package Overview

As part of the Physical Configuration Audit of the Unisyn OpenElect Voting System, a review of the Technical Data Package (TDP) submitted by Unisyn Voting Solutions was performed to ensure that all documentation required by a user to install, validate, operate, and maintain the system was present.

2.0 HARDWARE

2.1 Hardware Components

The following is a list of all hardware components in testing, and the quantity of each:

- 5x OVO
- 5x OVI
- 1x OVCS
- 5x Ballot Box
- 8x UPS
- 3x Headphones
- 2x Sip-n-Puff

2.0 HARDWARE (continued)

2.1 Hardware Components (continued)

- 3x Workstation Computers
- 1x Laptop Computer
- 40x Transport Media (USB flash drive)

2.2 Equipment Under Test and Accessories

The OVO and OVI units submitted for testing were divided into five units, referred to as Equipment Under Test (EUT's), during test performance. Each EUT consisted of, at a minimum, one OVO with UPS, one OVI with UPS, and one Ballot Box. Each EUT was also paired with accessories such as headphones, or a Sip-n-Puff device, when required. The headphones used by the OVI are Sony brand Stereo Headphones Model MDR-210LP. The Sip-n-Puff device is an AirVoter voting system interface made by Origin Instruments. The battery backup capabilities for each OVO and OVI are provided by a Minuteman Entrust Series ETR1500 Uninterruptible Power Supply (UPS). The OVO and OVI units utilize STEC brand USB flash drives with a One Gigabyte (1GB) capacity. The Physical Configuration Audit of the hardware was primarily performed on EUT 3 using its individual components. Each EUT and its respective components (represented by serial number) are described in the table below:

Table 2-1 OVO and OVI Equipment Configurations

EUT	OVO	OVI	Ballot Box	Headphones	Sip-n-Puff
1	UNI000004	UNI150006	BB0001	56285-03	N/A
2	UNI000002	UNI150004	BB0004	56285-02	005954
3	UNI000003	UNI150005	BB0003	56285-01	N/A
4	UNI000001	UNI150003	BB0005	N/A	N/A
5	UNI000007	UNI150010	BB0002	N/A	N/A

All accessory components including those described in the table of EUT's above, are listed in the following table:

Table 2-2 OVS COTS Equipment Identification

COTS Equipment	Make	Model	Serial Number
Headphones	Sony	MDR-210LP	56285-01
Headphones	Sony	MDR-210LP	56285-02
Headphones	Sony	MDR-210LP	56285-03
Sip-n-Puff 1	Origin Instruments	AirVoter	005954
Sip-n-Puff 2	Origin Instruments	AirVoter	005953
UPS 1	Minuteman	Entrust Series ETR1500	AE58080900407
UPS 2	Minuteman	Entrust Series ETR1500	AE58080900268
UPS 3	Minuteman	Entrust Series ETR1500	AE58090600124

2.0 HARDWARE (continued)

2.2 Equipment Under Test and Accessories (continued)

Table 2-2 OVS COTS Equipment Identification (continued)

UPS 4	Minuteman	Entrust Series ETR1500	AE580906PA114
UPS 5	Minuteman	Entrust Series ETR1500	AE58090500284
UPS 6	Minuteman	Entrust Series ETR1500	AE58090500279
UPS 7	Minuteman	Entrust Series ETR1500	AE58090500280
UPS 8	Minuteman	Entrust Series ETR1500	AE58090500278
40x Transport Media	STEC	Thumb Drive (UFD) 1GB Capacity, P/N: SLUFD1GU1U-A	TM100009, TM100011-12, TM100014-35, TM100056, TM100061-65, TM100067-75
Network Switch	Linksys	SR2024 Business Series 24-Port 10/100/1000 Gigabit Switch	REM30H600558 GGR1807 JJ

2.3 OCS Hardware

The OpenElect Voting System OCS software was tested using three Dell Optiplex 755 Workstation PC's and one Dell Latitude E5500 Laptop PC. The Dell Optiplex 755 Workstation PC's utilize RAID Level 1 to mirror the Hard Drive for complete redundancy. The three Dell workstations are designated PC 1, PC 2, and PC 3. The Dell laptop is designated Laptop 1.

2.4 OVCS Hardware

The OVCS client application runs on the same Dell Optiplex 755 Workstation PC's used to run the OCS software suite. The OVCS was installed on PC3 during functional, volume and stress, and accuracy testing. The OVCS hardware is described in the table below:

Table 2-3 OVCS Equipment Identification

Equipment	Make	Model	Serial Number
OVCS	Canon	ImageFORMULA DR-X10C	ED300224

2.4 Voting Support Materials

The following materials were provided by Unisyn and used during Usability and System Integration Testing. These materials, a general description, and quantity received are listed in the table below:

Table 2-4 Voting Support Materials

Test Material	Description	Quantity
Privacy Sleeve	Sleeve used to protect a voters privacy during transportation of OVI Voter Assisted Ballots	4
Provisional Envelope	Envelope used for transporting a Provisional Ballot	7
Special Handling Envelope	Envelope used for special handling of Ballots that have been cast but require pollworker attention	7
Absentee Envelope	Envelope used for handling of Absentee Ballots	8

2.0 HARDWARE (continued)

2.4 Voting Support Materials (continued)

Table 2-4 Voting Support Materials (continued)

Magnifying Glass	Magnifying glass with integrated ruler and image distortion features that help to protect a voter's privacy	1
Locking Security Seals	Individually numbered security seals shaped like a pad lock used for locking ballot box doors.	1 Bag
Zip Tie Seals	Individually numbered zip ties seals.	1 Bag
Sanitary Headphone Covers	Sanitary headphone covers provided to each voter using the OVI.	2 Bags
Voting Booth	Standard voting booth used for marking paper ballots.	1
ADA Voting Booth	Accessible voting booth that has curved legs to provide clearance for voters with disabilities	1

To support the test program, Unisyn provided the additional supporting hardware:

Table 2-5 OpenElect Voting System Support Equipment Description

Test Material	Make	Model	Serial Number
COTS Printer	Dell	1720dn	632VXOD
COTS Printer Stand/550 Sheet Drawer	Dell	N/A	62B68NP
COTS External DVD-RW Drive	LG Electronics	GP08LU10	901HKDJ095530
COTS External DVD-RW Drive	Pioneer	DVR-X162Q	IDFW002121UC
COTS 500GB Portable Hard Drive	Western Digital	My Passport Elite	WXN409862461

3.0 SOFTWARE

3.1 OCS Software Configurations

Four Software Configurations were tested using the four computers hosting the OCS software suite. The configurations and their respective computers are listed in the tables below:

Table 2-6 OCS Software Configurations

Equipment	Manufacturer / Model	Hardware Specifications	Service Tag	COTS / Non-COTS	Software Configuration
PC 1	Dell Optiplex 755	Processor: Intel Core2Duo E7200 2.53Ghz Memory: 4x 1GB 800Mhz RAM Hard Drive Capacity: 250GB (Mirrored)	G5HW3J1	COTS	All OCS applications
PC 2	Dell Optiplex 755	Processor: Intel Core2Duo E7200 2.53Ghz Memory: 4x 1GB 800Mhz RAM Hard Drive Capacity: 250GB (Mirrored)	F5HW3J1	COTS	All OCS applications

3.0 SOFTWARE (continued)

3.1 OCS Software configurations (continued)

Table 2-6 OCS Software Configurations (continued)

PC 3	Dell Optiplex 755	Processor: Intel Core2Duo E7200 2.53Ghz Memory: 4x 1GB 800Mhz RAM Hard Drive Capacity: 250GB (Mirrored)	D5HW3J1	COTS	OVCS
Laptop	Dell Latitude E5500	Processor: Intel Core2Duo T7250 2.0Ghz Memory: 2x 1GB 800Mhz RAM Hard Drive Capacity: 120GB	C9448J1	COTS	All OCS applications

Table 2-6 Dell Service Tag Information (Desktop PC)

Service Tags: G5HW3J1, F5HW3J1, D5HW3J1		
System Type: OptiPlex 755		
Ship Date: 1/29/09		
Dell IBU: Americas		
Quantity	**Part #**	**Part Description**
1	F007F	Processor, E7200, 2.53, 3MB Wolfdale, 65W, M0
1	YT276	INSTRUCTION..., DEVIATE-TO-MSMT-L5.5, Pentium M Dothan, 2GHZ, 2 MEGB, 400FSB...
1	5120P	Cord, Power, 125V, 6Feet, SJT..., Unshielded
1	YK181	Guide, Product, Information Client, DAO/BCC
4	CM633	Dual In-line Memory Module 1GB, 800, 128X64, 8, 240, 1RX8
1	R034G	Display, Flat Panel Display 19W, E1909WC, Black, Dell Americas Organization
1	K017C	Hard Drive, 250GB, S2, 7.2K Western Digital, XL320
1	K017C	Hard Drive, 250GB, S2, 7.2K Western Digital, XL320
1	RH659	Keyboard, 104, UNIVERSAL SERIAL BUS..., UNITED STATES..., Black, DARFON ELECTRONICS, CORP...
1	H425H	Assembly, Dvd+/-rw, 16X, Half Height, Hitachi Lg Data StorageDvd-ram
1	M8865	Assembly, Cable, Serial ATA Primary, MATRIX,SMITH,MINI TOWER..., 2.0
0	702EX	INFORMATION..., PREPARATION MATERIAL..., DEVIATION..., PRECISION WORKSTATION..., INCREASE..., #1
1	XN967	Kit, Mouse, Universal Serial Bus, 2BTN, Optical, Primax Electronics Ltd
1	7W492	kit, Software, Free DOS CD/Document
1	JN738	Assembly, Heatsink, Shroud Matrix, Smith, Mini Tower
1	M461C	ASSEMBLY..., CHASSIS..., MATRIX,SMITH,MINI TOWER..., PWA INTEGRATED..., Pentium M Dothan, 2GHZ, 2 MEGB, 400FSB..., ESMT, V2
1	HJ478	Assembly, Panel, Filler, Black 3.5 Inch Form Factor, Matrix smith, mini Tower

3.0 SOFTWARE (continued)

3.1 OCS Software configurations (continued)

Table 2-6 Dell Service Tag Information (Laptop)

Service Tags: C9448J1		
System Type: Latitude E5500		
Ship Date: 2/25/2009		
Dell IBU: Americas		
Quantity	**Part #**	**Part Description**
1	MU697	Processor, T7250, 2.0, 2MB Core Merom , M0
0	01323	INFORMATION..., NO ITEM
2	PP102	Dual In-Line Memory Module, 1G 800, 128X64, 8, 200, 1GBIT
1	C158J	KIT..., DOCUMENTATION..., SERI/WSI, ENGLAND/ENGLISH..., DAO/BCC
1	FM753	Keyboard, 83, United States English, E-Series Notebook Mainstream Single Point
1	GN592	Assembly, Compact Disk Read Write/Digital Video Disk DriveCombo, 24, Serial ATA, HITACHI LG DATA STORAGE...
1	N032F	Hard Drive, 120GB, Free Fall Sensor, 7.2K, 9.5, HIT-FALC
1	DW634	ASSEMBLY..., BASE (ASSEMBLY OR GROUP)..., NOTEBOOK..., NFPRDR, S, THIRD PARTY MAINTENANCE..., FS5
1	CM889	Adapter, Alternating Current 90W, Flexible, 3P, World Wide M09
1	X397H	Liquid Crystal Display, 15.4 Wide Extended Graphics Array Cold Cathode Fluorescent Lamp AG, Lg Philips Lcd, V2
1	DW622	Assembly, Cable, Low Voltage Differential Signaling, Liquid Crystal Display, FS15
1	KW770	Card (circuit), Wireless, Half Mini-card, DW1397, 4312BG
1	RM551	Assembly, Inverter, Liquid Crystal Display, Cold Cathode Fluorescent Lamp, FS14/FS15
1	XR723	Bezel, Assembly, Plastic, Liquid Crystal Display, 15.4, FS15
4	2864D	Screw, M3X3, K SCREW HEAD..., MICROSOFT..., BLACK OXIDE...
1	7W492	kit, Software, Free DOS CD/Document
1	FX429	CORD..., Power, 125V, 2.5A, 1M, C5 E, United States
1	RM661	Battery, Primary, 56WHR, 6C Lithium, Samsung Power Division
1	DW636	Assembly, Cover, Hinge, Plastic E5500
1	RC382	Assembly, Cover, Back, Liquid Crystal Display, 15.4, Black FS15
1	F070C	Heatsink, Pin Grid Array Notebook, Unified Memory Architecture, E5500

3.0 SOFTWARE (continued)

3.2 OVO and OVI Software

Each OVO and OVI unit is loaded with software applications; the machine's firmware, the Scripter application, and the Validator application. This software runs on a Linux based operating system, called CentOS, which has been configured specifically for the needs of the OVO or OVI unit. All software and operating systems used on the OVO and OVI hardware was built at Wyle during a Witness Build, using code and scripts reviewed by Wyle.

3.3 Hash Values of Software Built by Wyle

All software built by Wyle during the witness build process has an MD5 hash made of the resulting software files or disc images. The software built by Wyle includes: OCS Linux, OVO Linux, OVI Linux, OVO Firmware, OVI Firmware, the XP Build Machine, and the OCS software. The XP Build Machine is required to build the OCS software, and as such the OCS software is in process as well. The following table lists the software built, the version number of the software, the name of the created files or disc image, the date the witness build was performed, and the hash value calculated for the software:

Table 2-6 OVS Software Components

Software	Version	Build Date	Filename	MD5 Hash Value
OCS Linux	1.0	12/16/09	CentOS-5.2-i386-bin-DVD.iso	5d2b5bf1c4de13fb3ec68a6ff59cdba8
OVCS Linux	1.0	12/17/09	CentOS-5.2-i386-bin-DVD.iso	18377e62db4587b439faf32ca28cd3e1
OVO Linux and Application	1.0	12/16/09	CentOS-5.0-i386-bin-1of6.iso	b139505ccee7a1372362a341c42e3bc3
OVI Linux and Application	1.0	12/17/09	CentOS-5.0-i386-bin-1of6.iso	a5211a95082472645122f56f90a37ff9
OVO Application	1.0	12/21/09	Release.zip TOC	b2e908509dc6c80fc50f3d3d99567cc9; 6a067054c5182c2f98b31f70c3e4d3e6
OVI Application	1.0	TBD	Release.zip TOC	23aeafaa9338d559e0838a473d345718; 4c30daebbca487ff1ea734eba940d395
OCS Applications	1.0	12/16/09	BallotLayout.zip ElectionManager.zip ElectionServer.zip SoftwareServer.zip TabulatorClient.zip TabulatorMonitor.zip TabulatorReports.zip TOC	98954e0d806adf2b6b5240db20f9cae9; 859d1887a805373567d83895747d7a41; c437f1fb8f29d1beaef73a262ac617d6; f1312cdcd0ed0db7bc1956e9bb28f9ac; 1fcdf3542e57cead4439b7c470baf34e; 6b44813f931c205cd6ff27b785b81c69; eeb57476494786ecd762abf3d7f40268; aa22d69b411905127de1ee03219a8011
OVCS Application	1.0	12/17/09	OVCS.zip TOC	63f6696416db6974ca43e6531dad7779; 7322eedb2ba1697e2a265192ff22e8e7
OCS Installer	1.0	12/18/09	OCSInstaller.jar lib\common.jar lib\jh.jar lib\mysql-connector-java-5.1.7-bin.jar	2d5db995923fc6392cceb4fa69f76069; b8d8c473181dd900bd6b1d12c177e934; 8f6df2af8466bb23a4bc20845fed3e25; d093f86f49782b46311c34f395ccf381

3.0 SOFTWARE (continued)

3.4 Software Build Machines

In order to perform the software witness and trusted builds, two Personal Computers were utilized as build machines. The build machines are described in the table below:

Table 2-7 OVS Software Components

Equipment and Operating System	Manufacturer	Version/Model	Serial Number	COTS /Non-COTS
Application Build Machine Windows XP	Dell Precision 340	Processor: Intel Pentium 4 1.8Ghz Memory: 768 Mb RAM Hard Drive Capacity: 203Gb Monitor: HP 7500 17" CRT	OVO309002	COTS
Operating System Build Machine CentOS 5.0	Dell Optiplex GX280	Processor: Intel Pentium 4 2.80Ghz Memory: 1Gb RAM Hard Drive Capacity: 80Gb	7HFWQ51	COTS

4.0 TECHNICAL DATA PACKAGE (TDP)

4.1 Initial Review

The initial review of the Unisyn OpenElect Voting System Technical Data Package yielded a number of inconsistencies in the documentation. The documents submitted to Wyle were found to reference other documents that were as yet undelivered. Many documents contained text that appeared to be pasted into the document and as a result some documents contained data that had been corrected while others were unchanged. The Functional Specification, the System Overview, and the Maintenance manual were not available when the TDP was first submitted to Wyle. Wyle worked with Unisyn to develop a System Overview document and to ensure that any inconsistencies or errors in the Technical Data Package were corrected or resolved.

4.2 Required Documents for PCA

The following documents are required during the performance of the Physical Configuration Audit to ensure that the manufacturer's TDP provides sufficient instruction for a user to install, validate, operate, and maintain the voting system. Documentation regarding the manufacturer's Configuration Management Plan and Software and Design Specifications was used during the Source Code review to ensure that the software conformed to the manufacturer's specifications. The following table lists the documents utilized during the Physical Configuration audit:

Table 4-1 OVS TDP Documents

Document	Release	Version	Document Number
System Functionality Specification	1.0	1.2	04-00444
System Hardware Specification	1.0	1.4	04-00458
System Maintenance Procedures	1.0	1.4	04-00459
Software and Design Specification	1.0	1.5	04-00464
Configuration Management Plan	1.0		04-00448

4.0 TECHNICAL DATA PACKAGE (TDP) (continued)

4.2 Required Documents for PCA (continued)

Table 4-1 OVS TDP Documents (continued)

Election Manager User Guide	1.0	1.7	04-00427
Ballot Layout Manager User Guide	1.0	1.10	04-00428
Election Server User Guide	1.0	1.6	04-00429
Software Server User Guide	1.0	1.5	04-00430
Tabulator User Guide	1.0	1.4	04-00432
Tabulator Client User Guide	1.0	1.4	04-00431
Tabulator Reports User Guide	1.0	1.2	04-00433
System Operations Procedures: Warehouse Technician's Guide	1.0	1.5	04-00460
OpenElect Voting Central Scan User Guide	1.0	1.4	04-00495
Election Day Troubleshooters Guide OVO and OVI	1.0	1.2	04-00462
Election Day Pollworker Guide OVO and OVI	1.0	1.5	04-00463
COTS Equipment Vendor Documents and Specifications	N/A	N/A	N/A

5.0 OPERATING SYSTEM BASELINE

Wyle reviewed Unisyn's SCAP Checklist for RedHat Linux 5 for completeness, clarity and consistency. Below are the inconsistencies that exist with the checklist that have not been mitigated at the release of this document:

2.2.2.2.4 Disable Booting from USB Devices - the checklist states the BIOS password is to be reset after installation, but the installation documentation does not include instructions to reset the BIOS password.

2.3.3.2 Set Lockouts for Failed Password Attempts – the checklist states there are no lockouts on the OCS and the OVO and OVI use auto login. Unisyn documented the OCS should be located in a secure location as the reasoning for the deviation.

2.6.1.2 Confirm Existence and Permissions of System Log Files – Unisyn provided the commands and services for turning off logging on the OVO and OVI without reasoning for the deviation.

6.0 CHANGES TO THE SYSTEM DURING CERTIFICATION

Throughout the test campaign a number of hardware changes were made to the Unisyn OVS. The list below describes these changes:

- A UPS with an increased surge rating was introduced
- A gate was installed on each OVO to prevent multifeeding of ballots
- A cover was placed over the status LED on the OVO
- A cover was placed over the IR Sensor on both the OVO and OVI screens
- Screws were removed from the OVO and OVI screens
- The OVO scanners were replaced by new versions

7.0 CONCLUSION

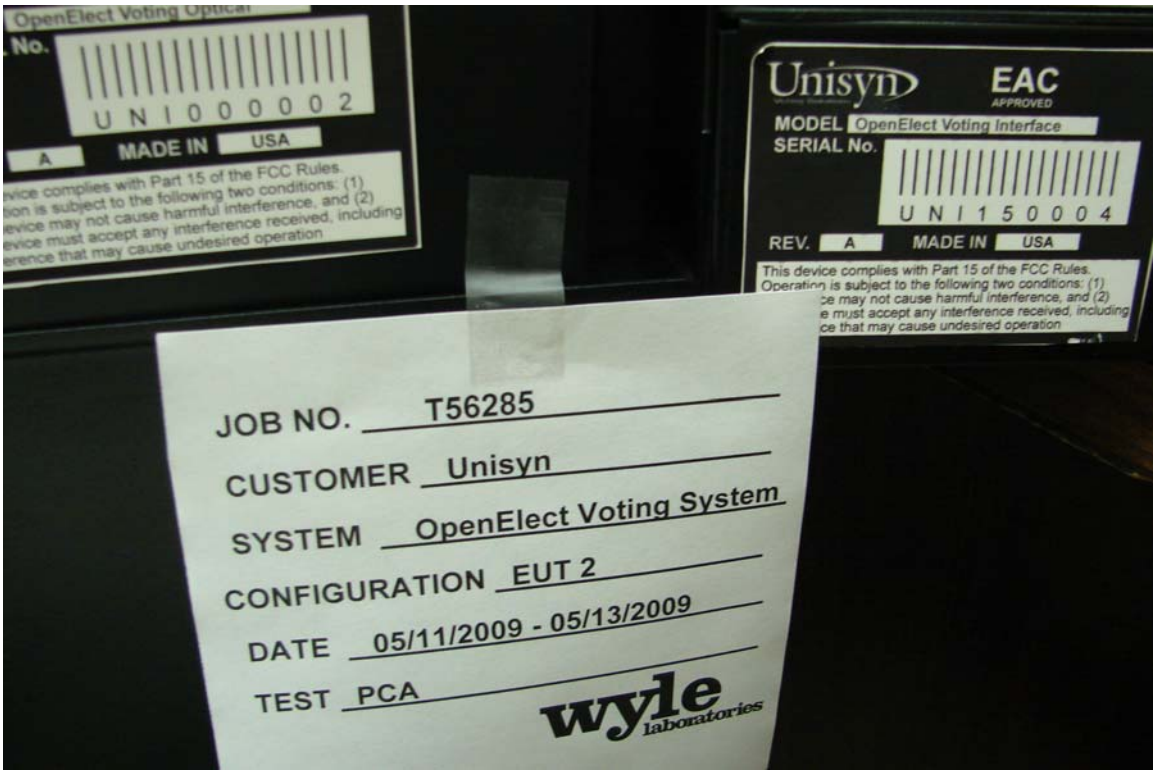
All Hardware and Software undergoing the Certification Process has been inspected. Photographs were taken of hardware components and are included in Appendix A of this document. Serial numbers of all hardware have been recorded as have version numbers for all software. Hardware and software changes that occur throughout the certification process will be recorded and tracked until testing is concluded, at which time a revised PCA report will be issued if necessary.

APPENDIX A

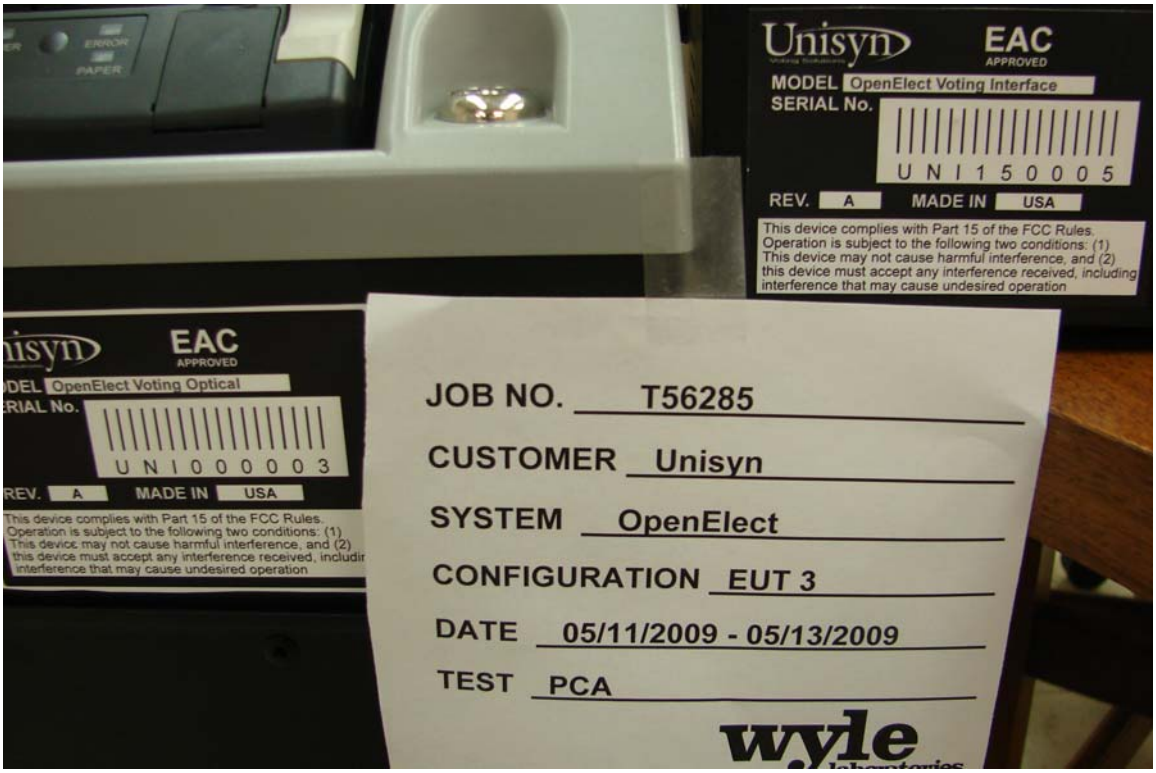
PHOTOGRAPHS

EUT 1 Serial Numbers

EUT 1 OVO and OVI

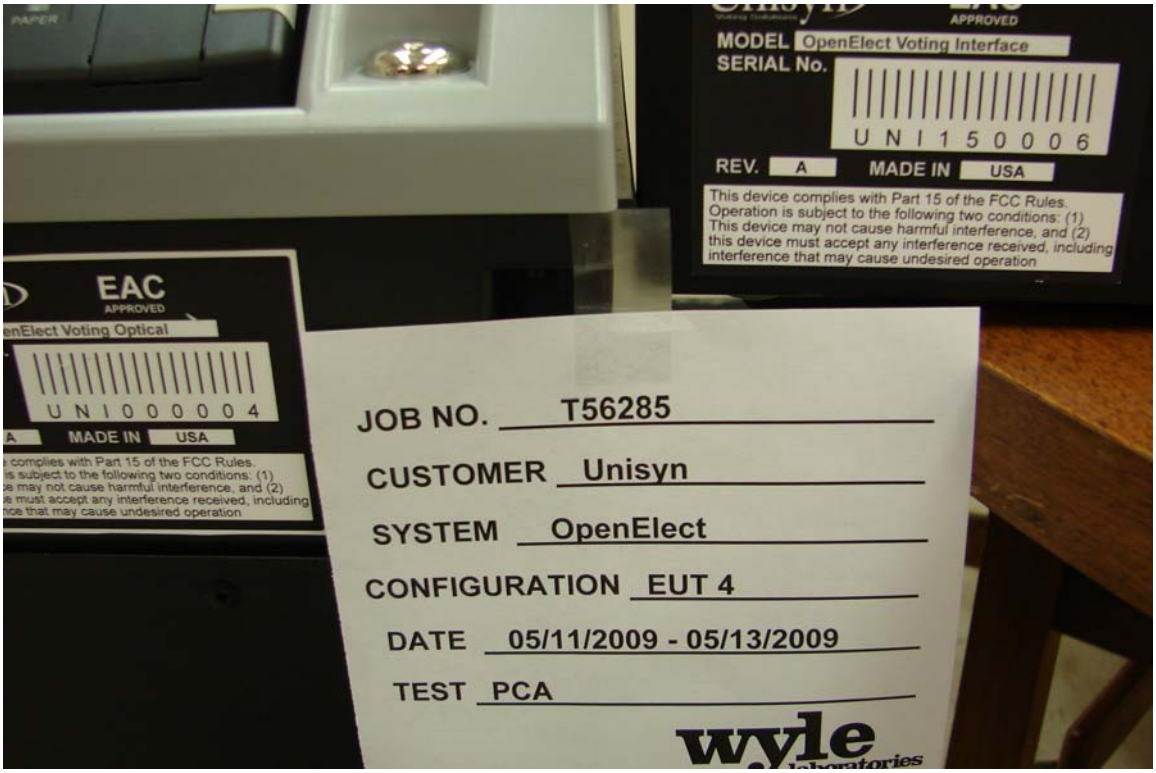


EUT 2 Serial Numbers

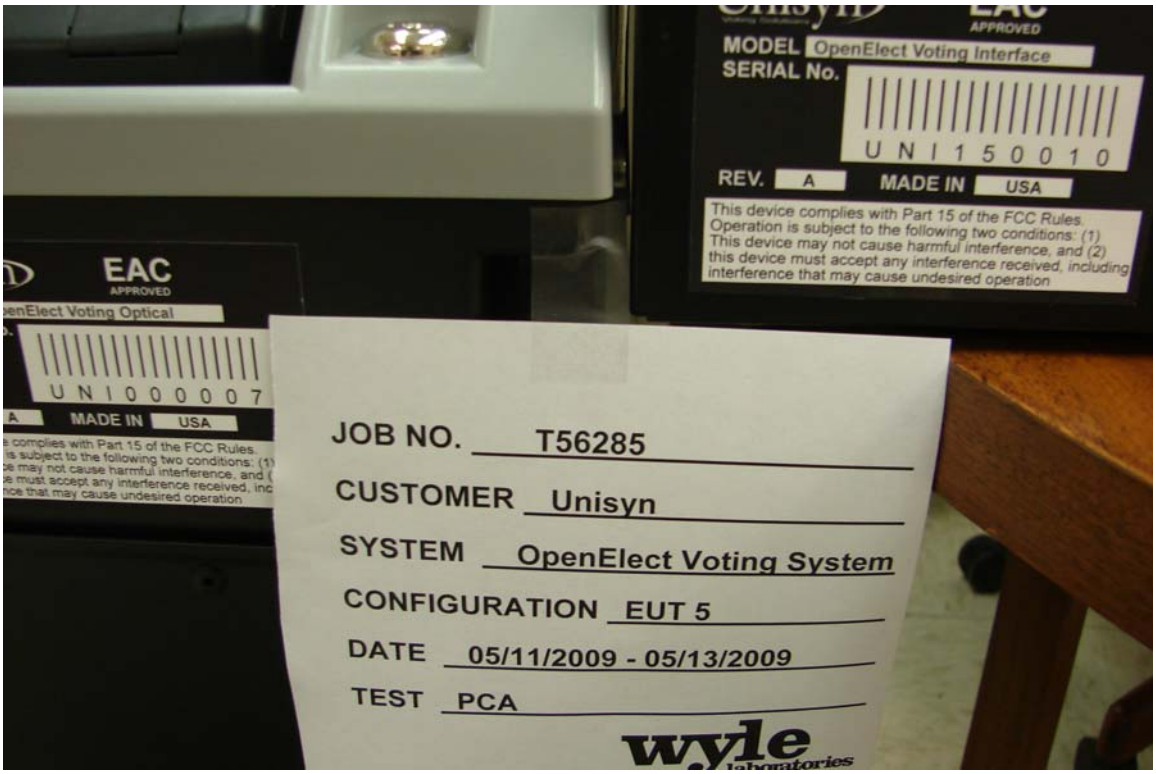


EUT 3 Serial Numbers

EUT 3 OVO and OVI



EUT 4 Serial Numbers

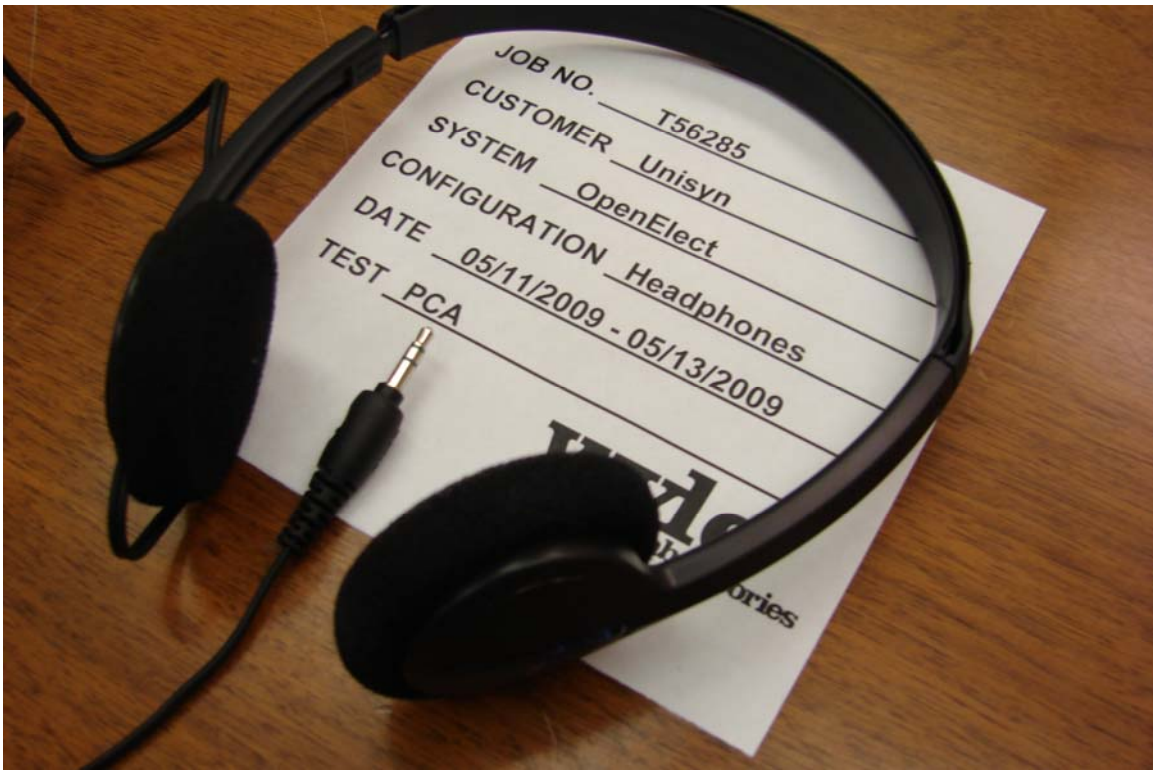


EUT 5 Serial Numbers

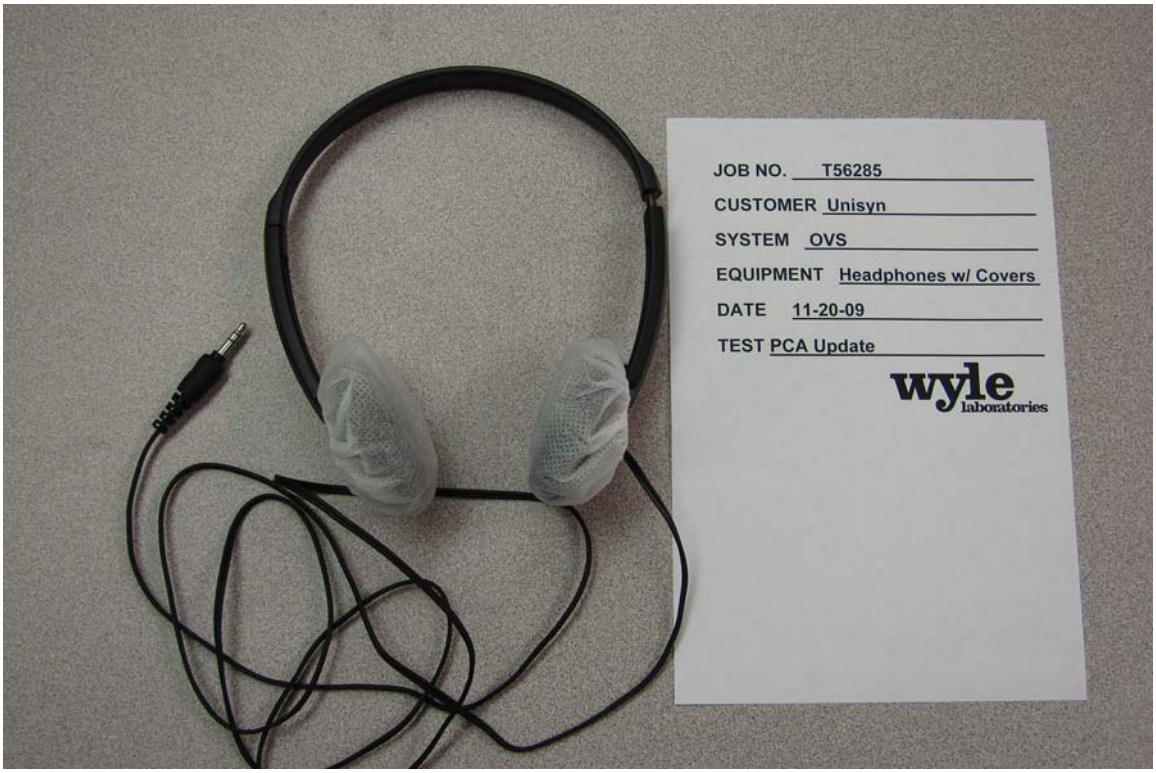
EUT 5: OVI being stored inside OVO

Keys used by OpenElect Voting System

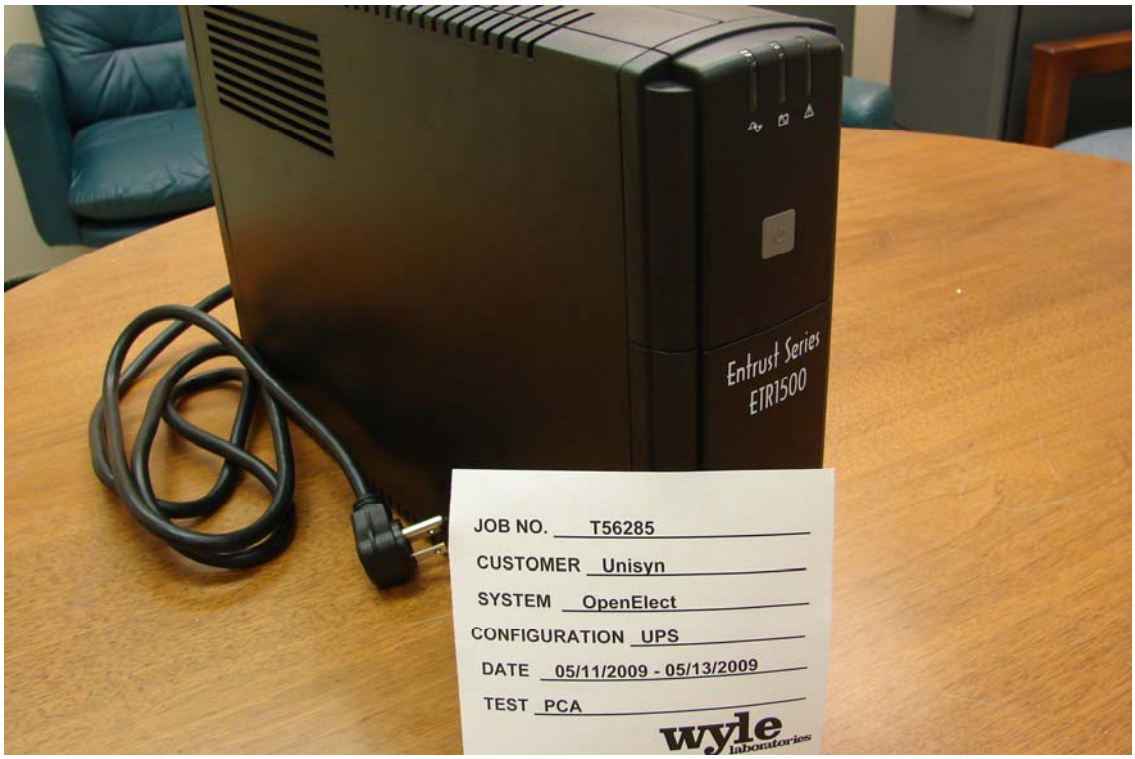
Sip and Puff Accessory



Sony Headphones used by OVI

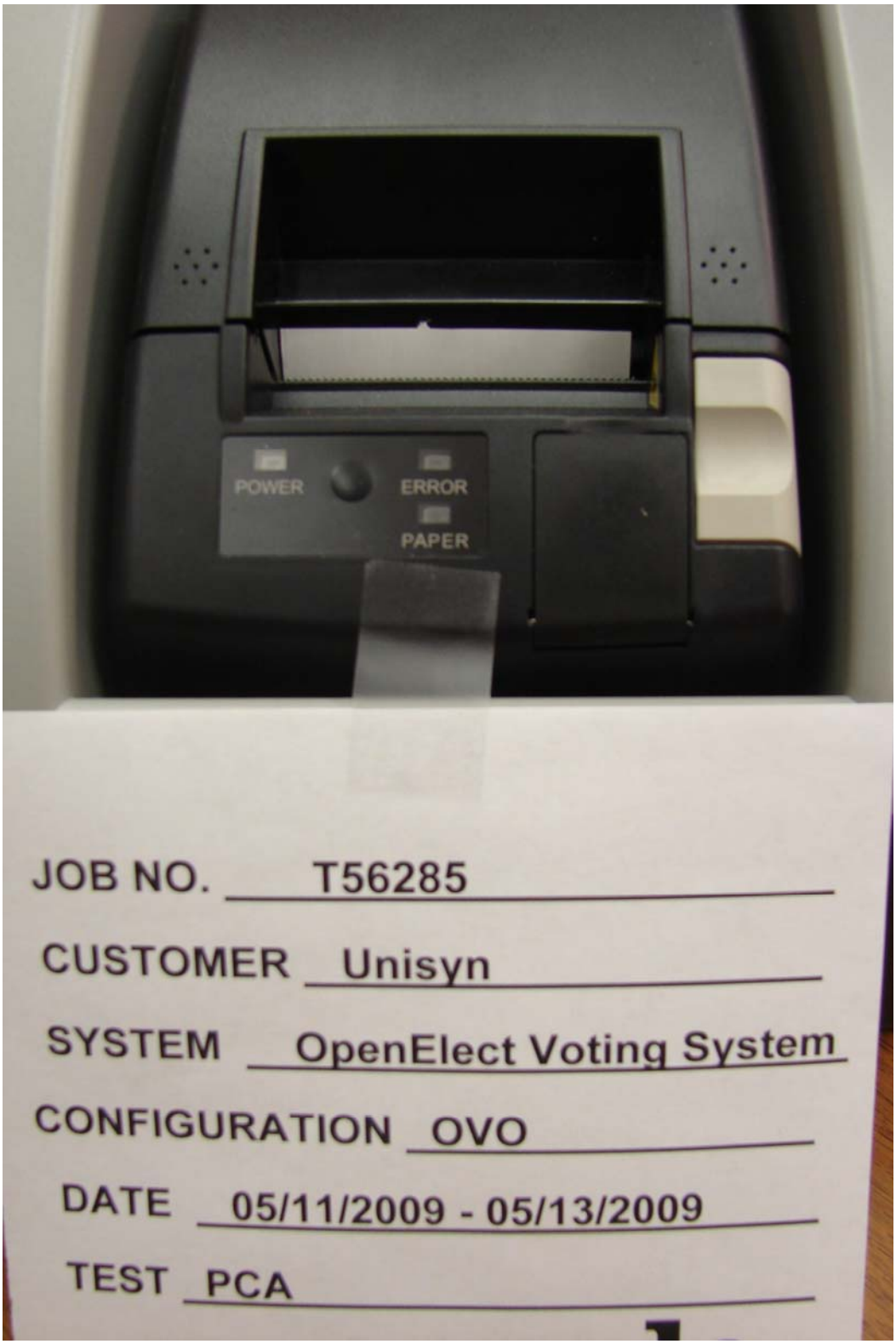


Sony Headphones with Sterile Covers

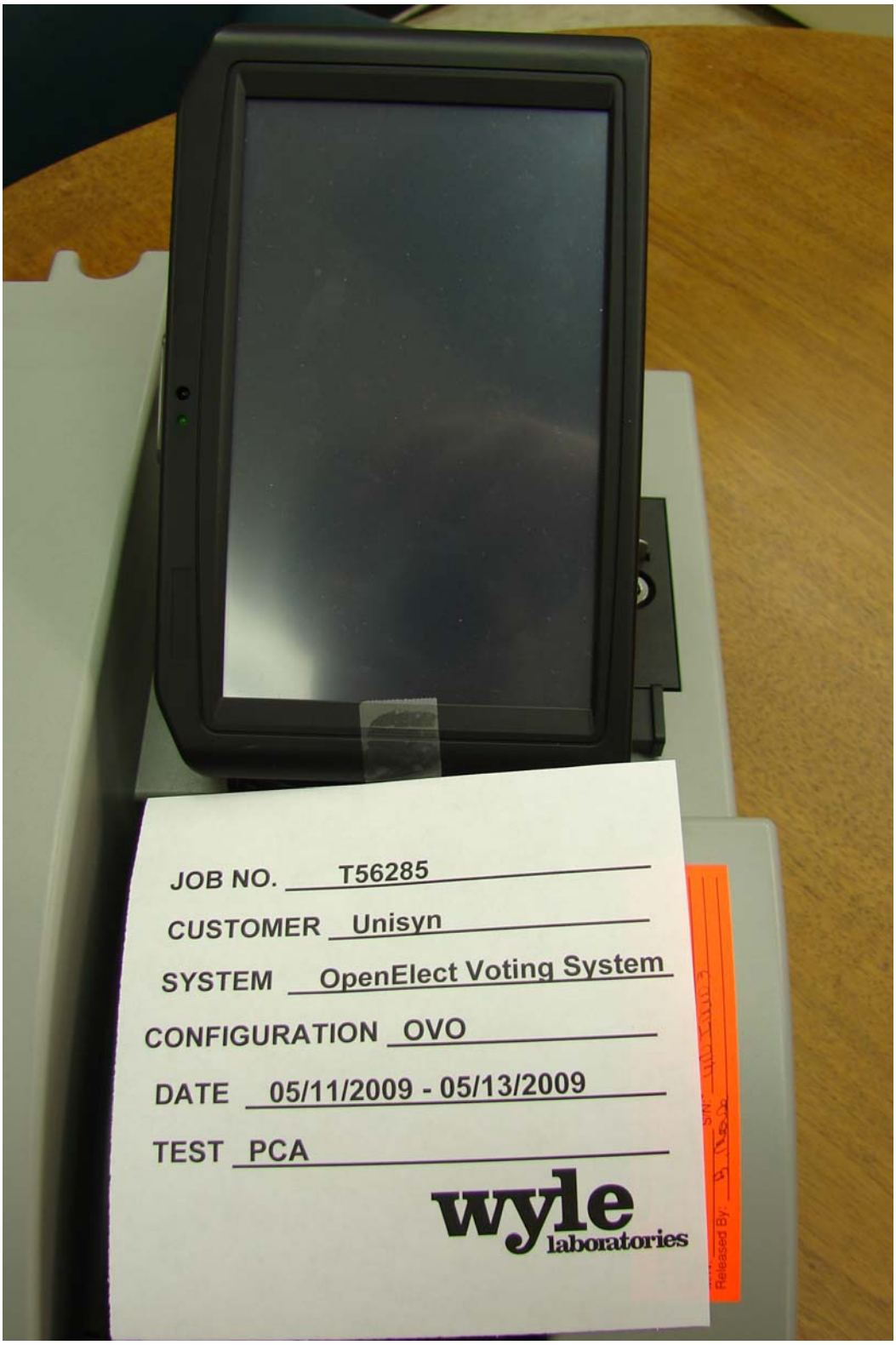


Minuteman Entrust Series ETR1500 Uninterruptible Power Supply (UPS)

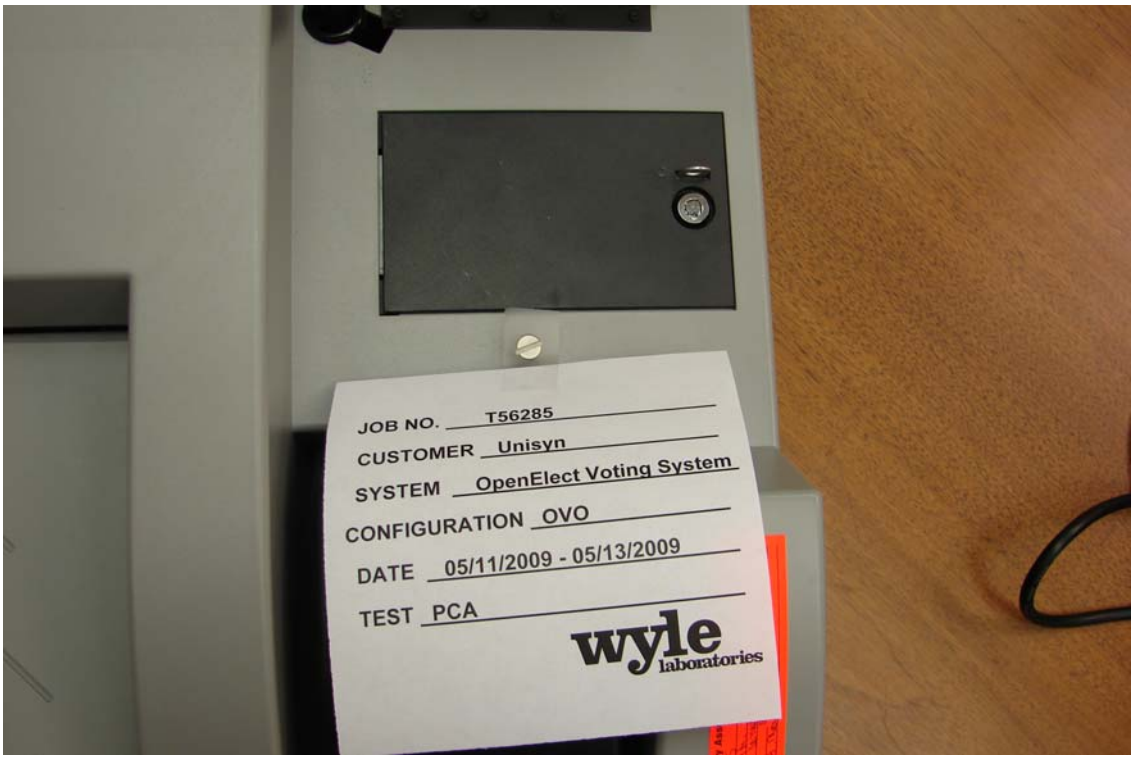
OVO Optical Scan Voting Machine



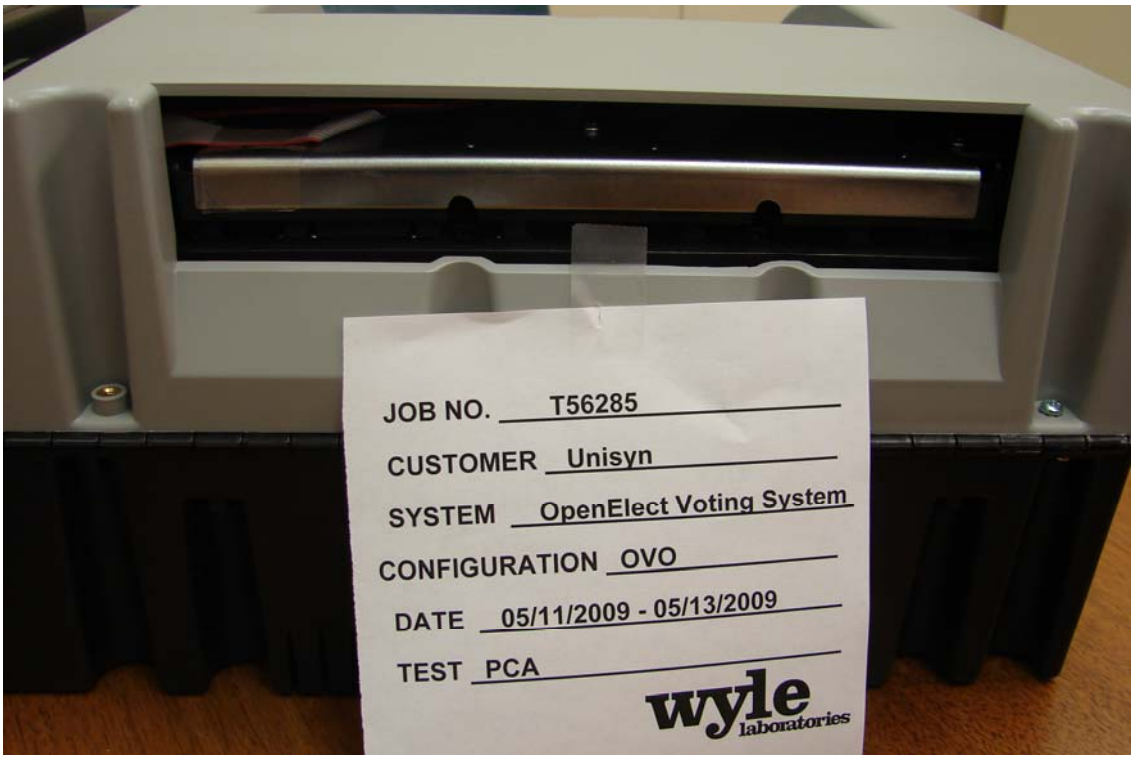
OVO Printer



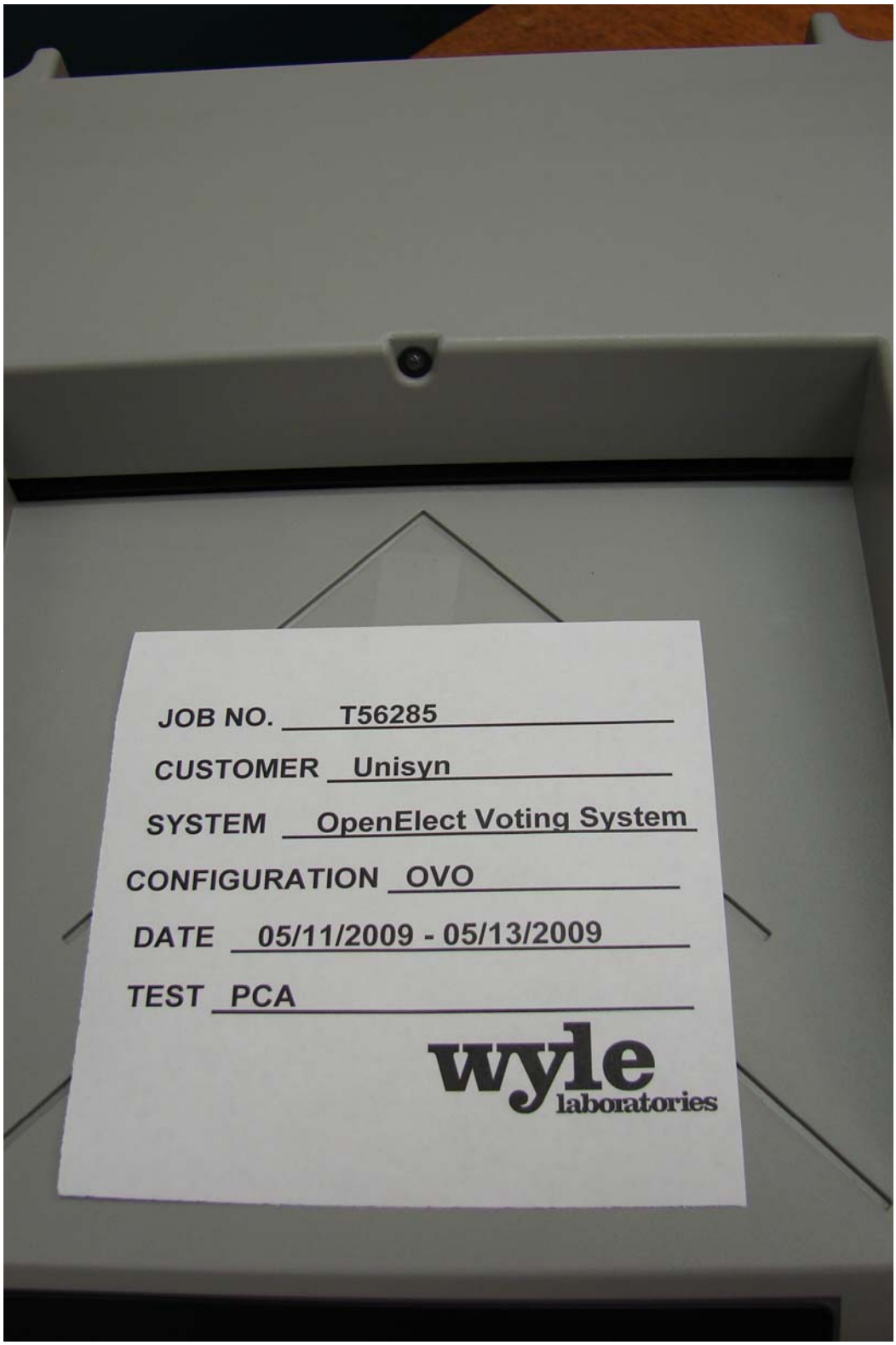
OVO Touchscreen



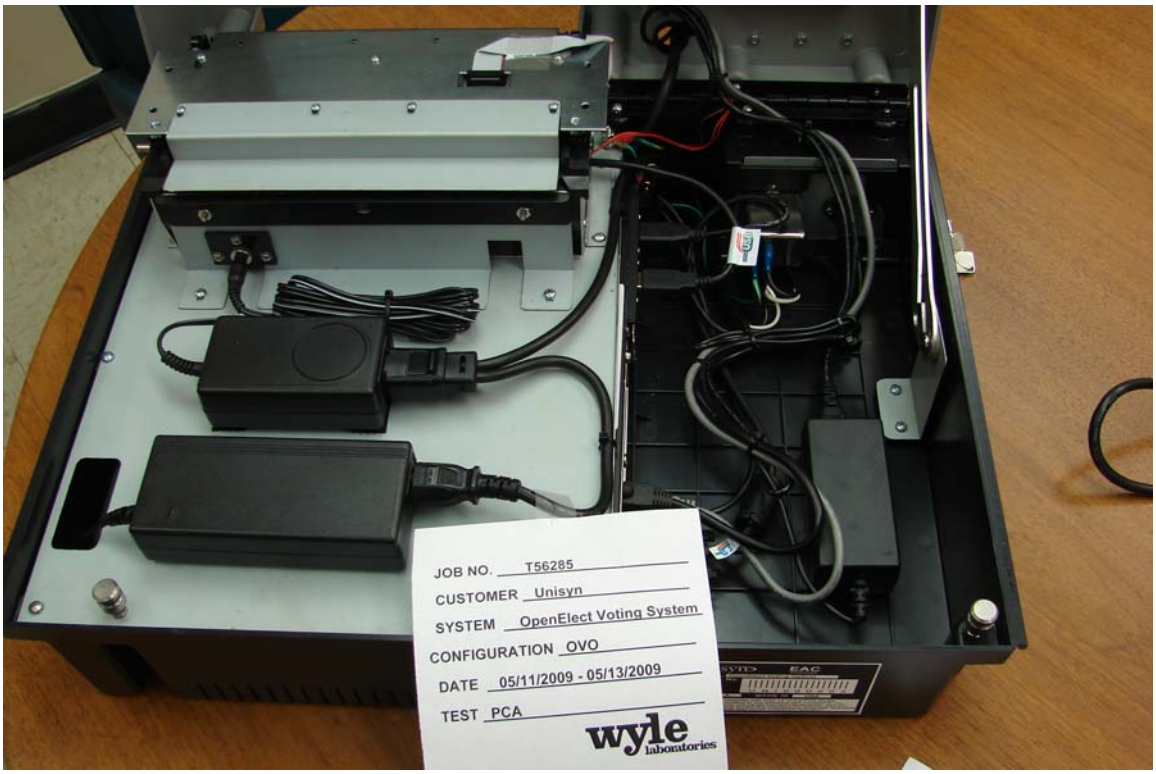
OVO Transport Media (USB flash drive) Access



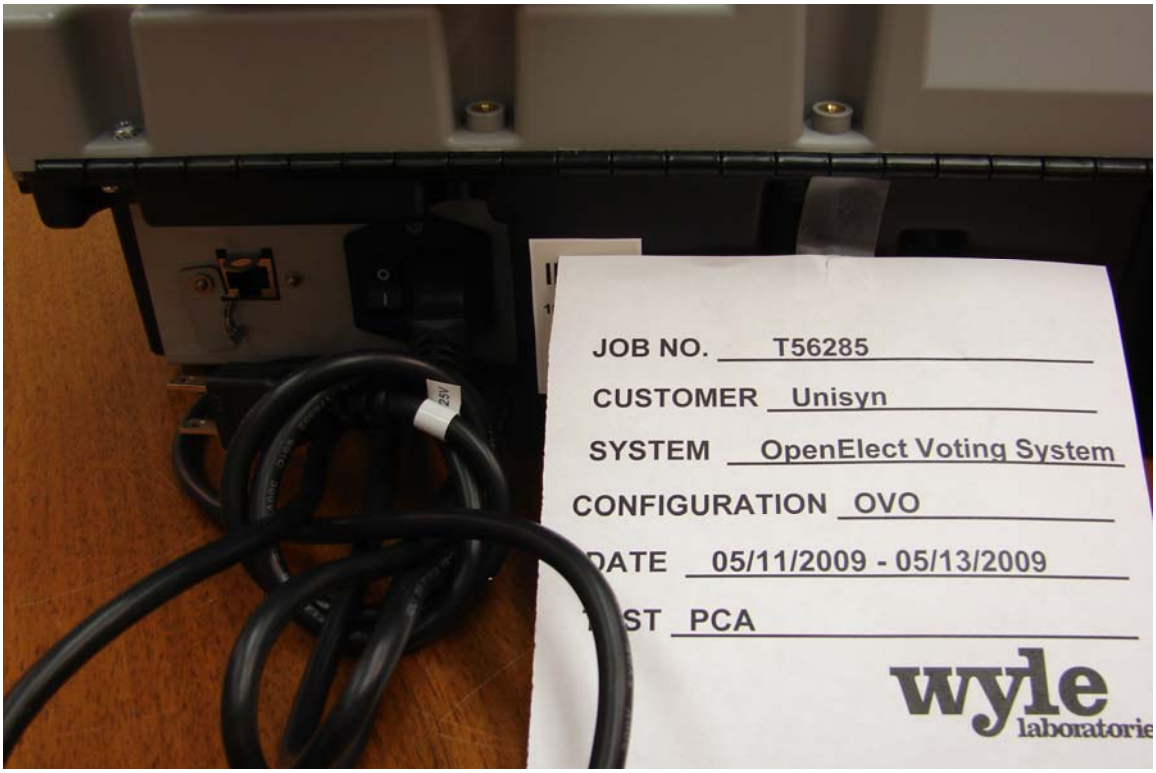
OVO from Rear showing Ballot Reader



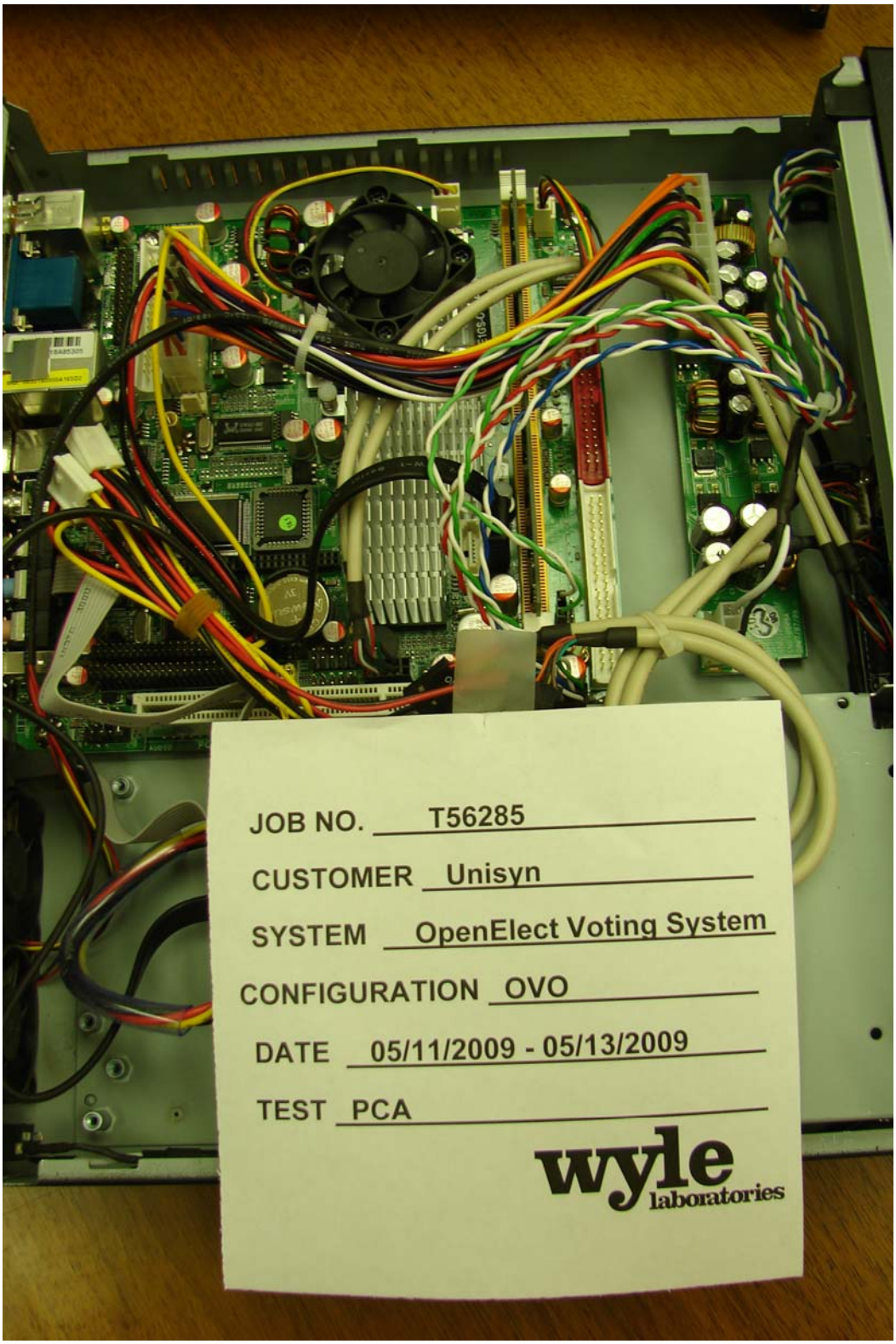
OVO Ballot Reader and LED Status Light



Inside of OVO Unit



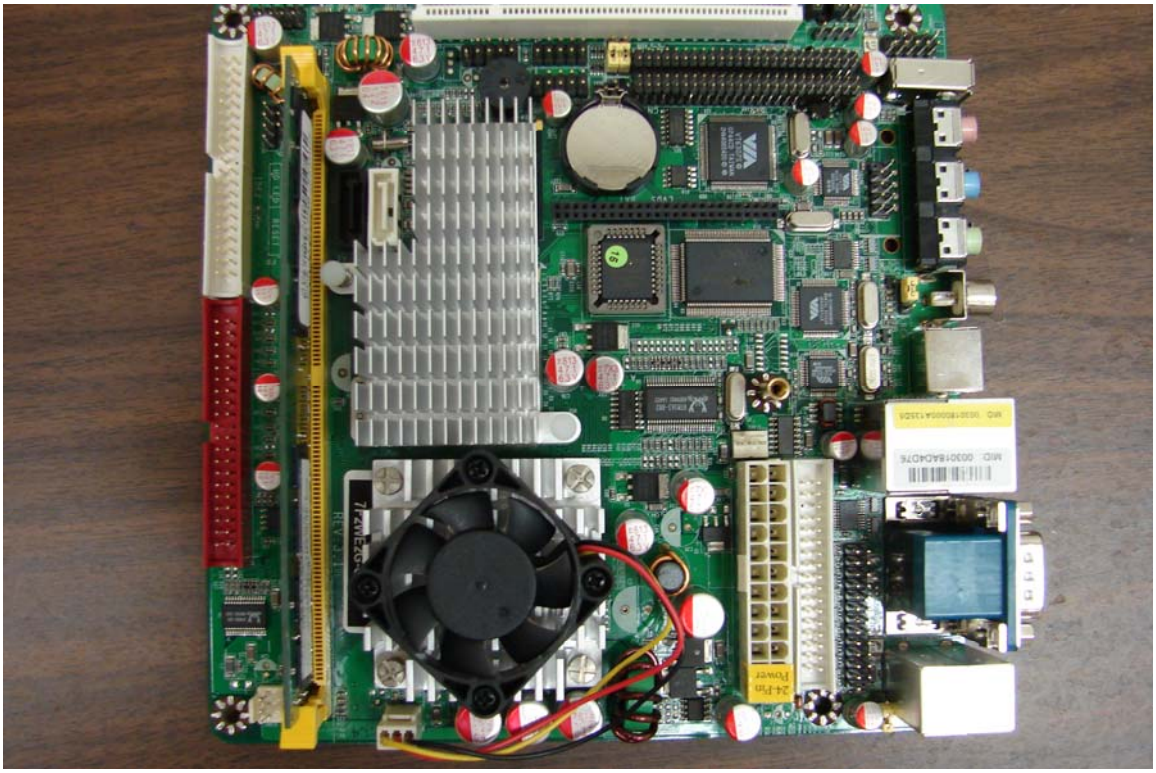
Rear of OVO Unit showing A/C Power Cord and Network Access Port



Computer Inside of OVO Unit

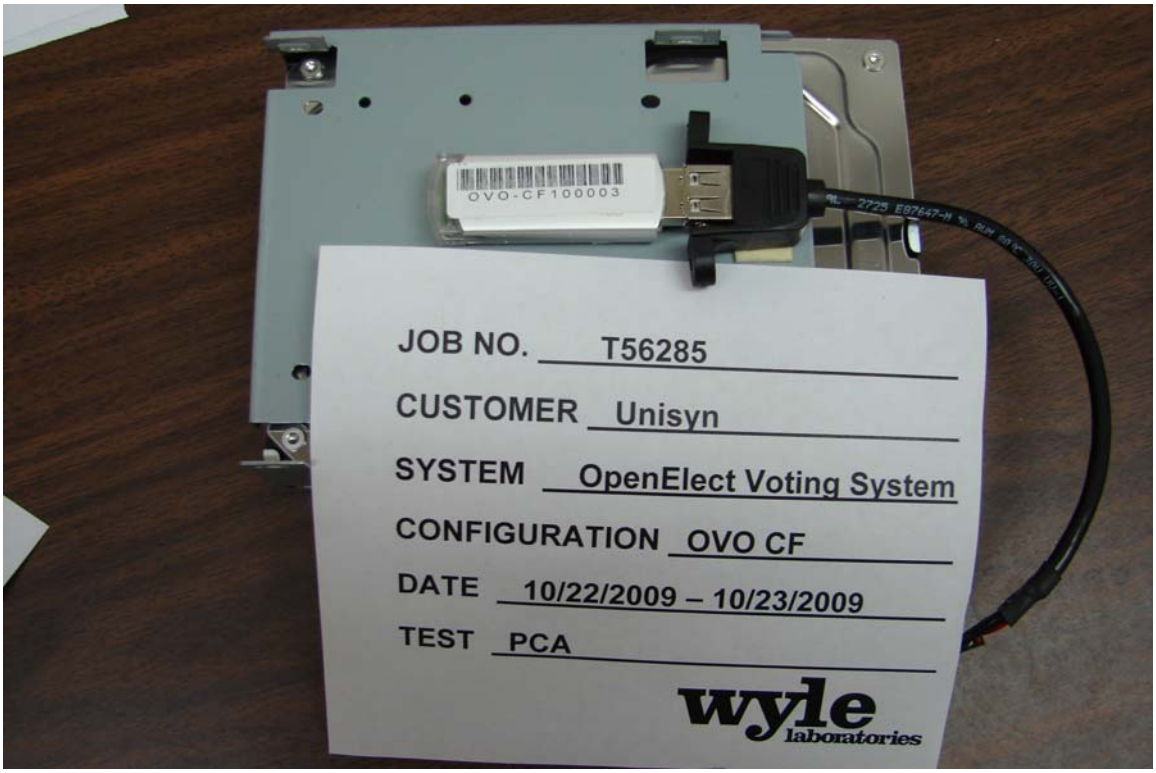
OVO Motherboard

Back of OVO Motherboard



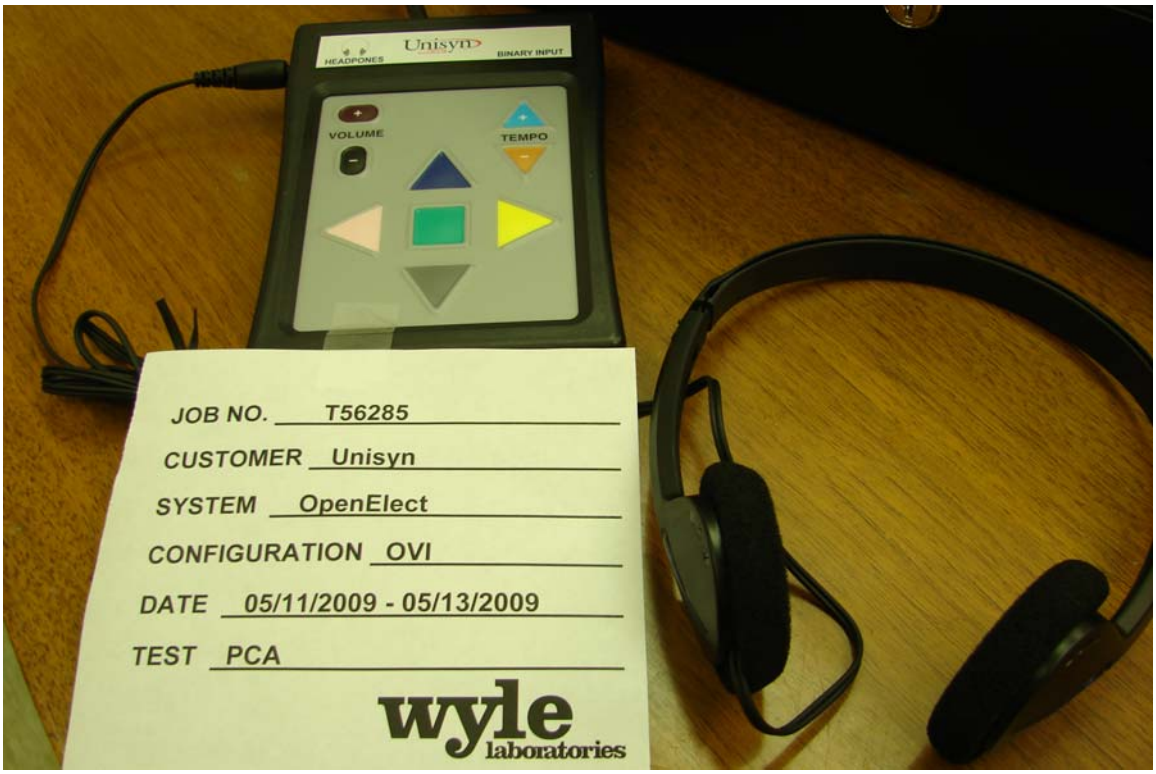
Front of Motherboard

Back of Motherboard

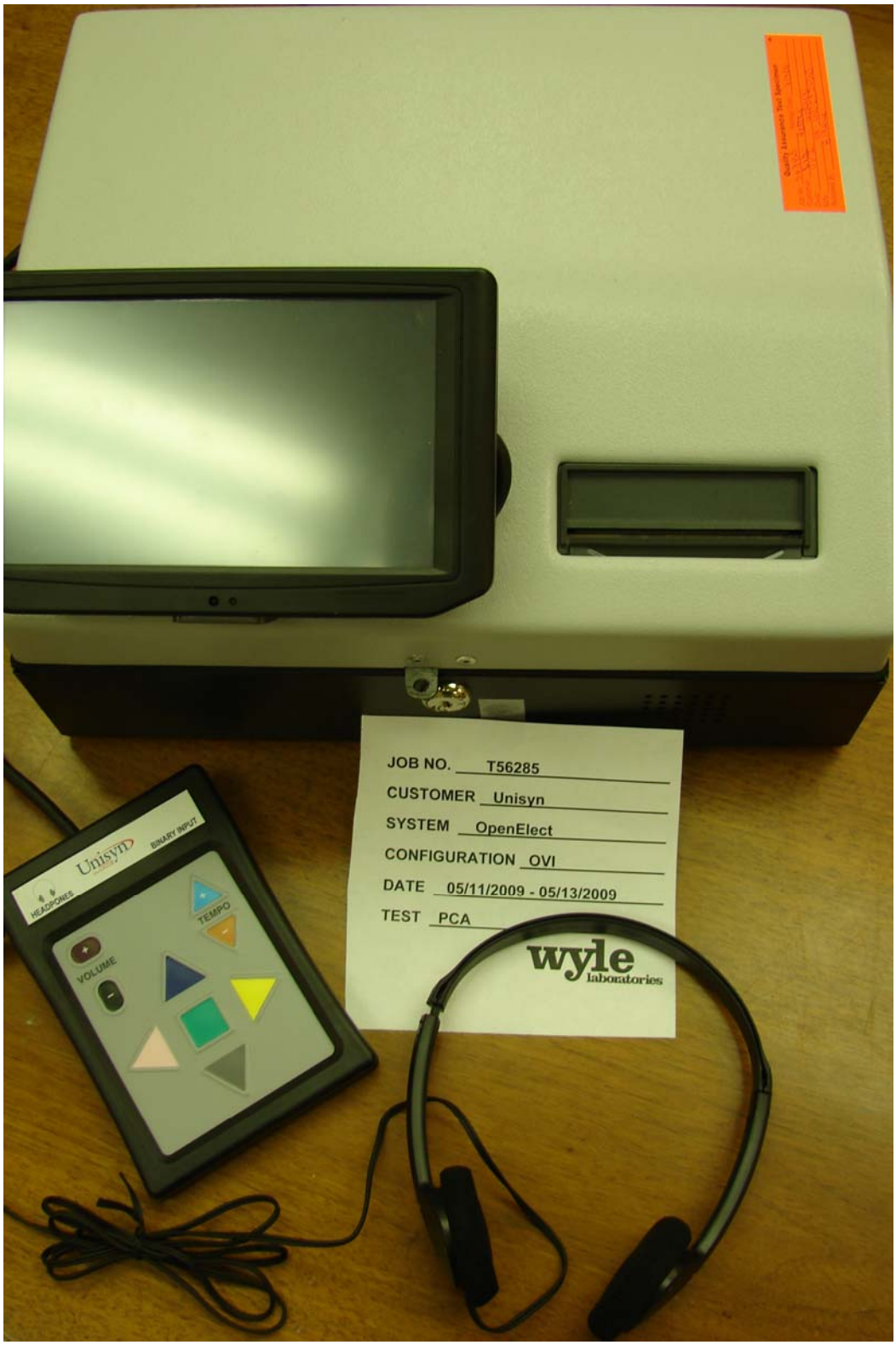


OVO CF

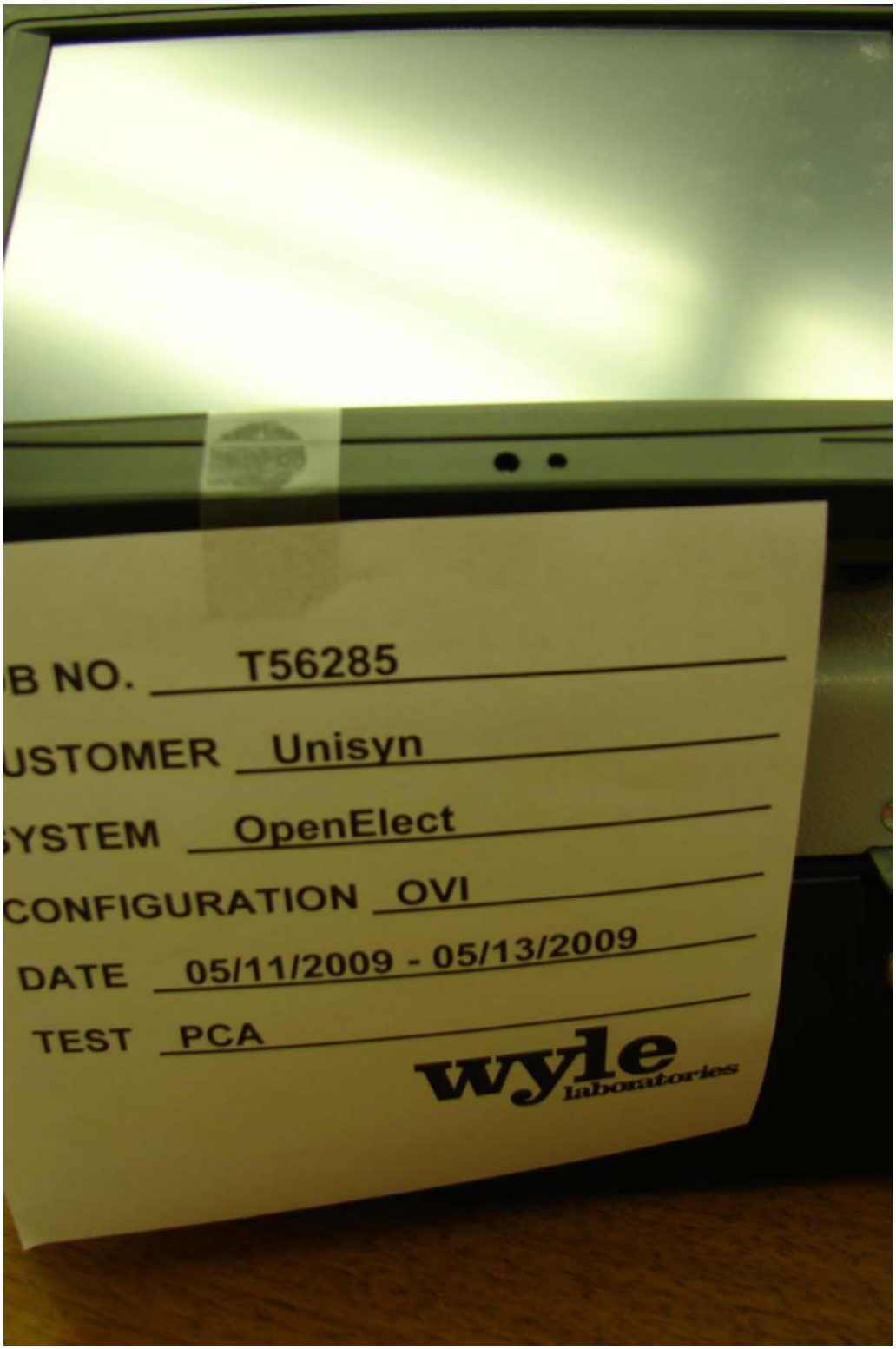
OVO Hard Drive



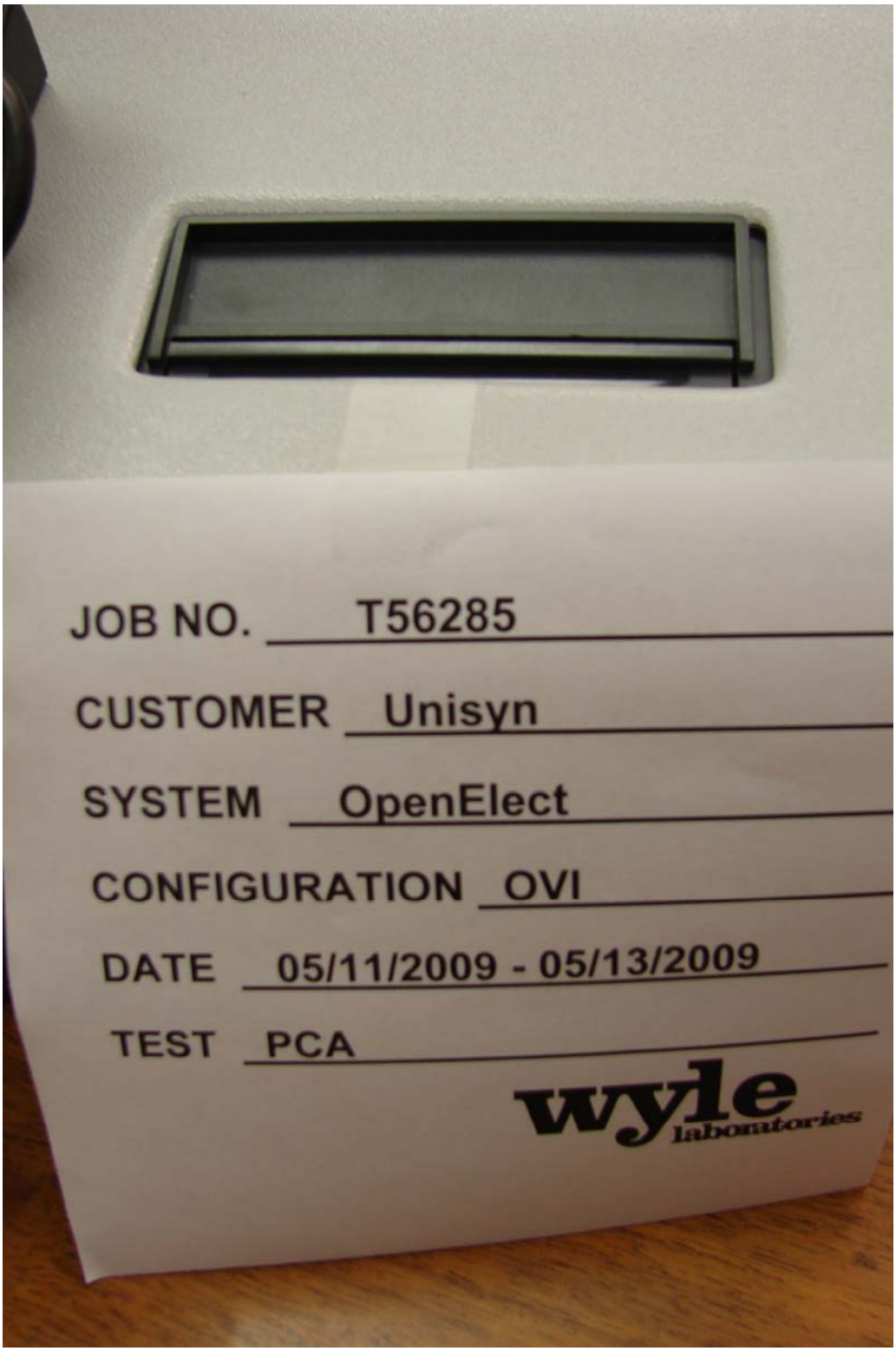
OVI Keypad and Headphones



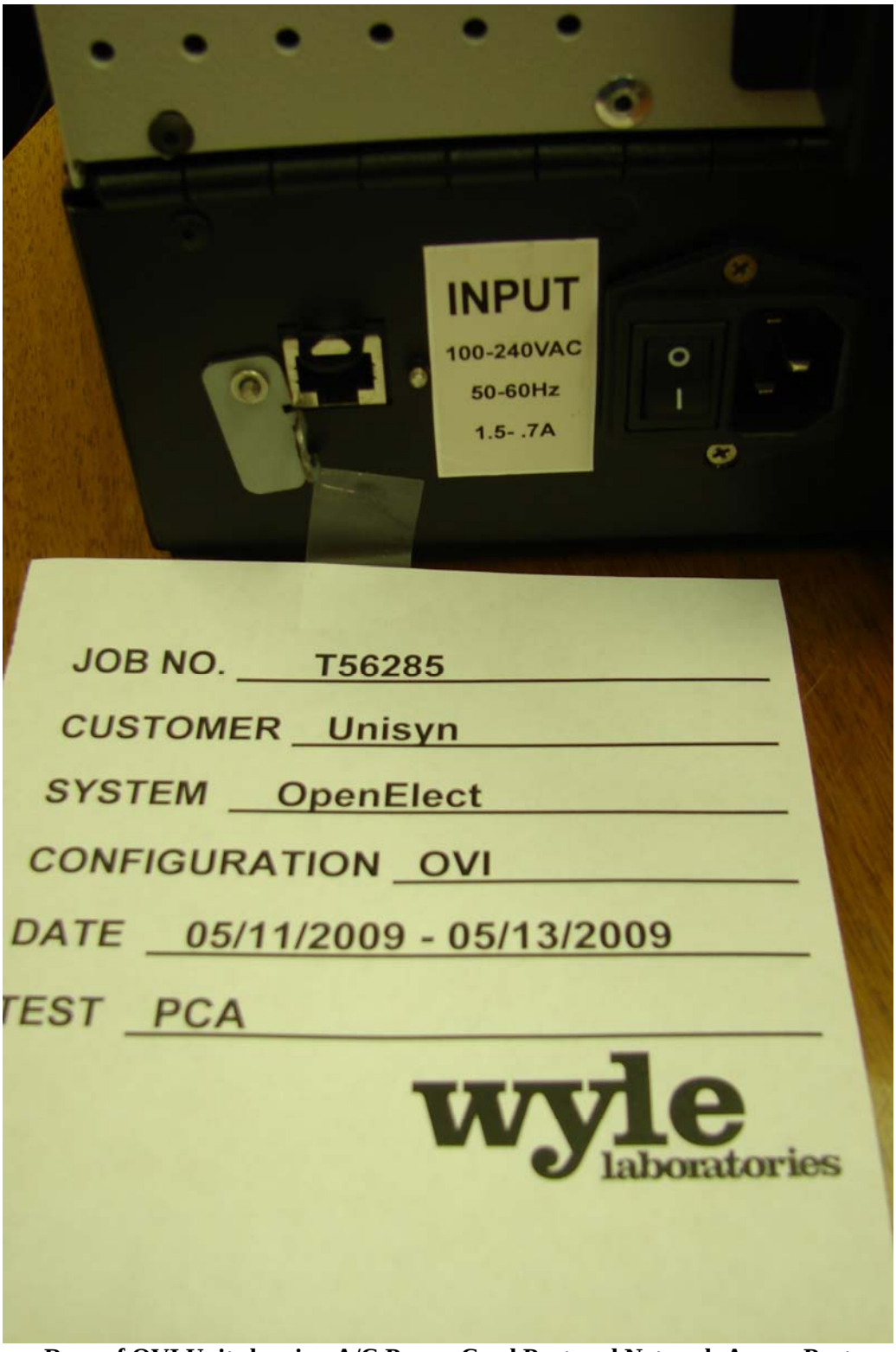
OVI Unit with Keypad and Headphones Displayed



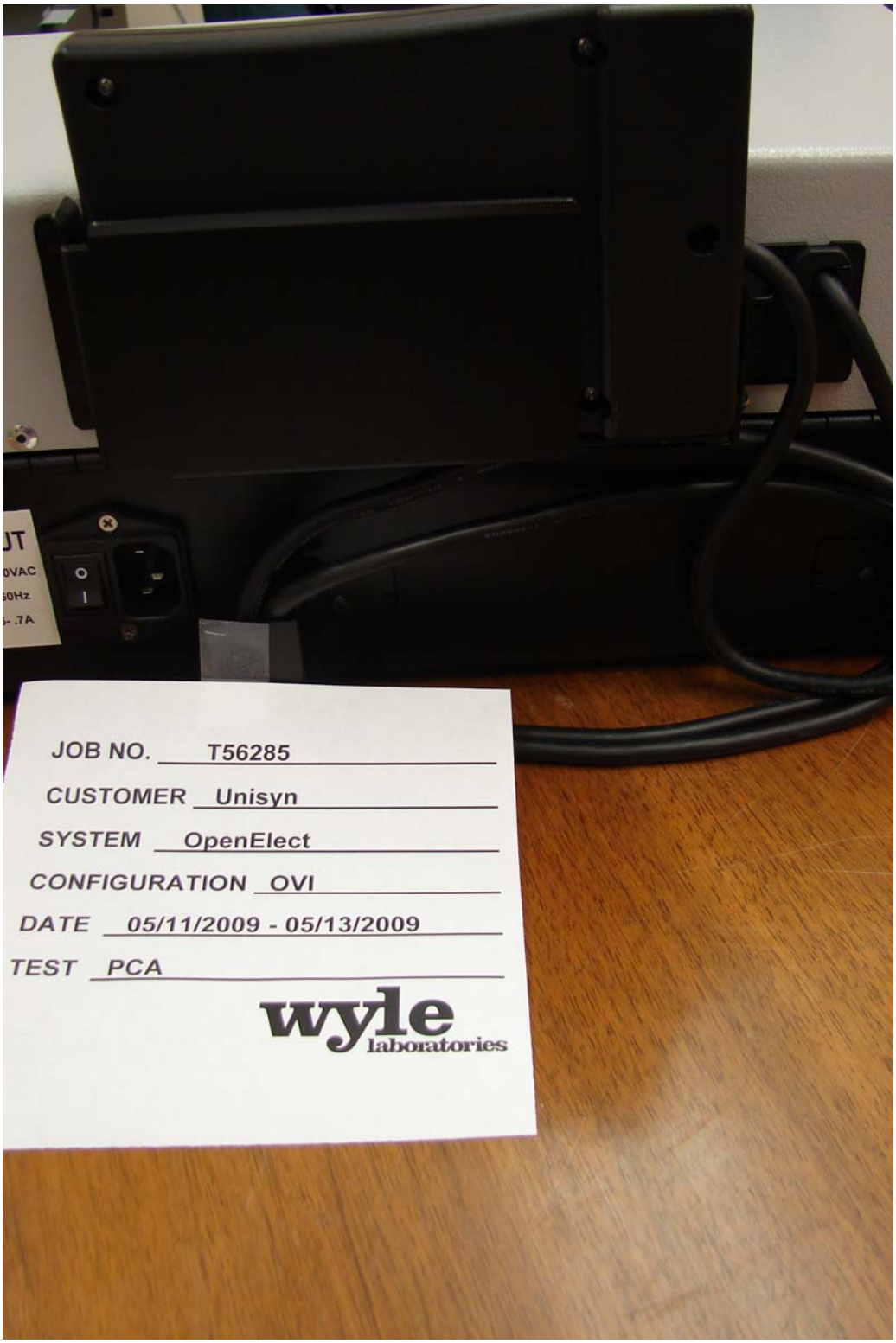
OVI Touchscreen



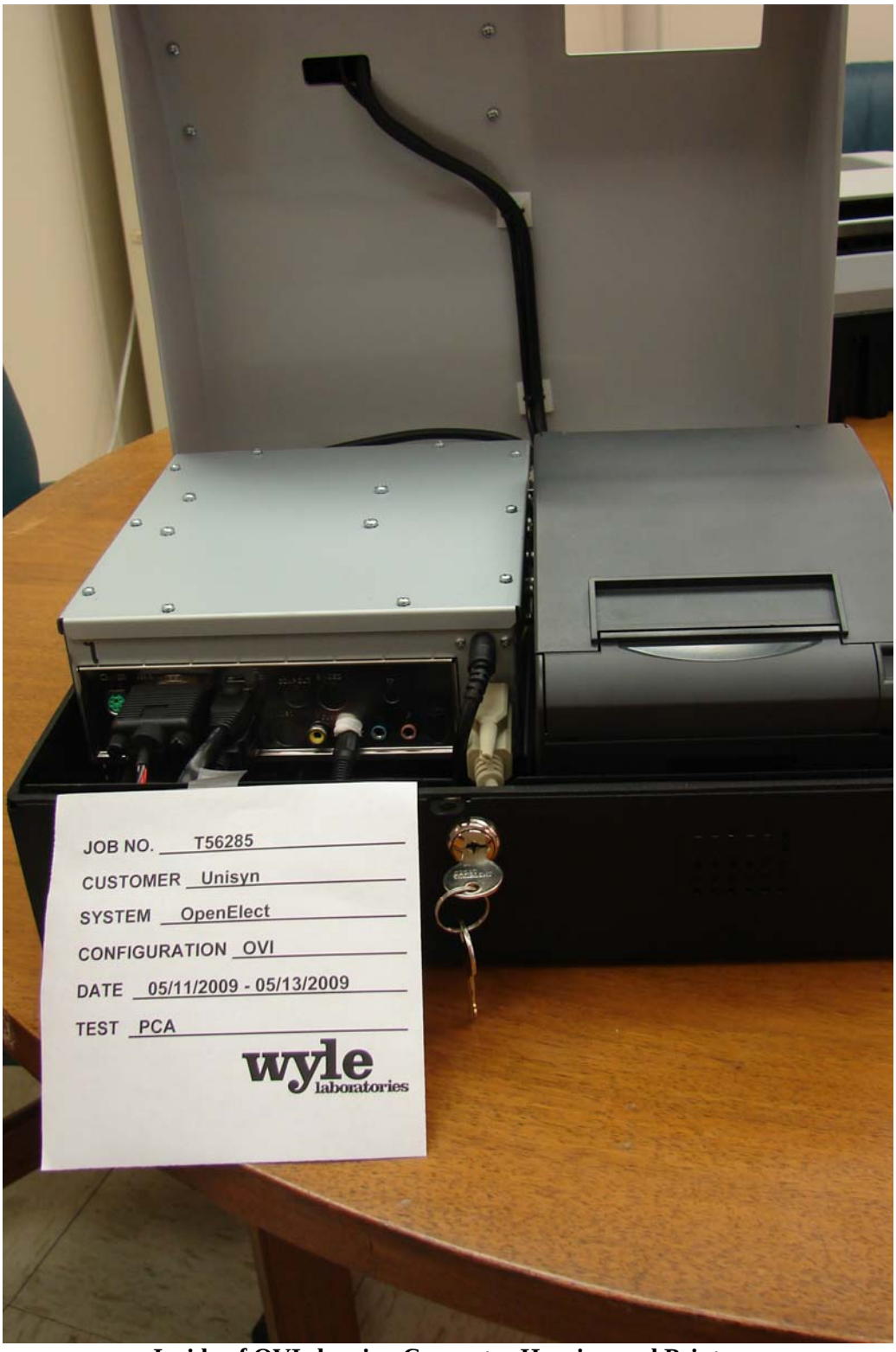
OVI Printer Slot from which ballots are produced



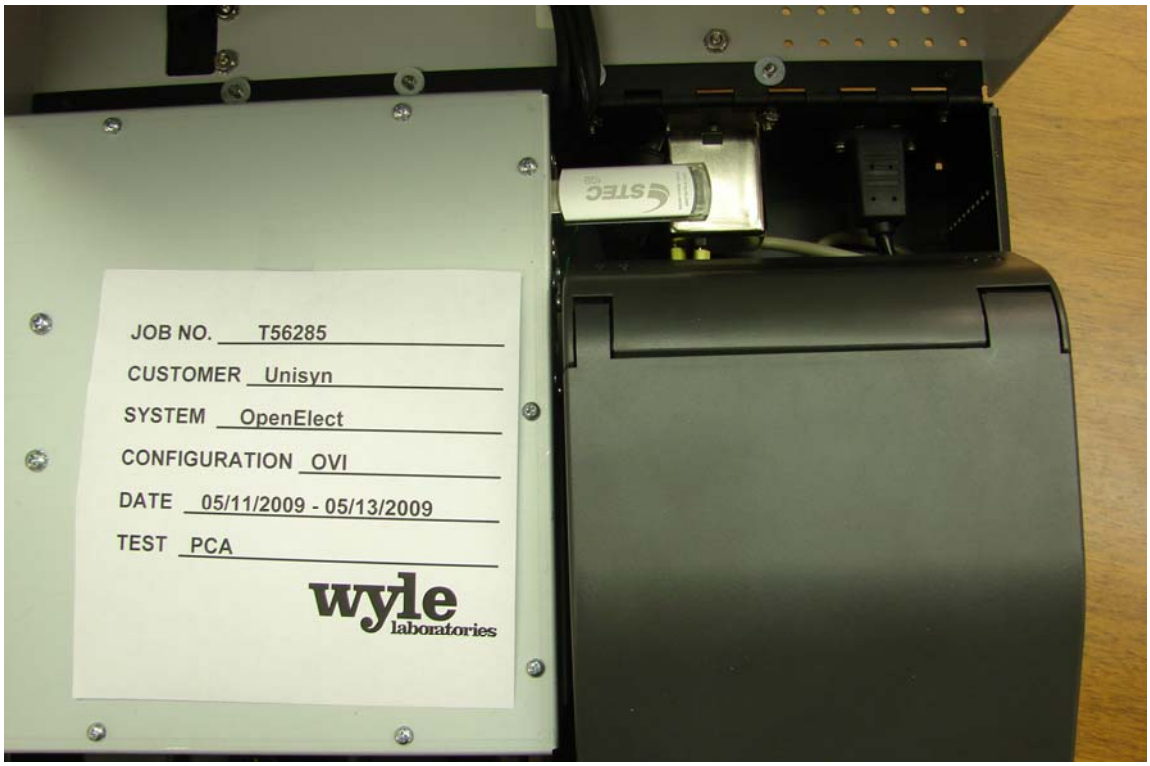
Rear of OVI Unit showing A/C Power Cord Port and Network Access Port



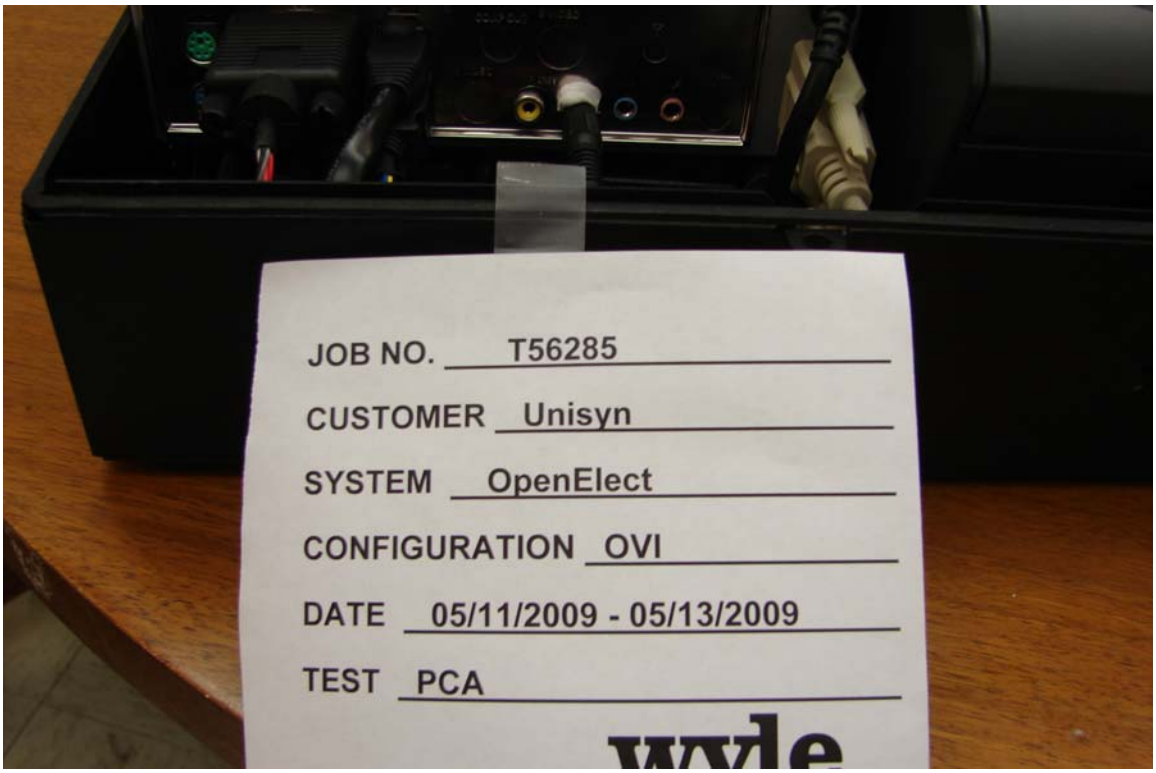
Rear of OVI Unit showing keypad in storage mode



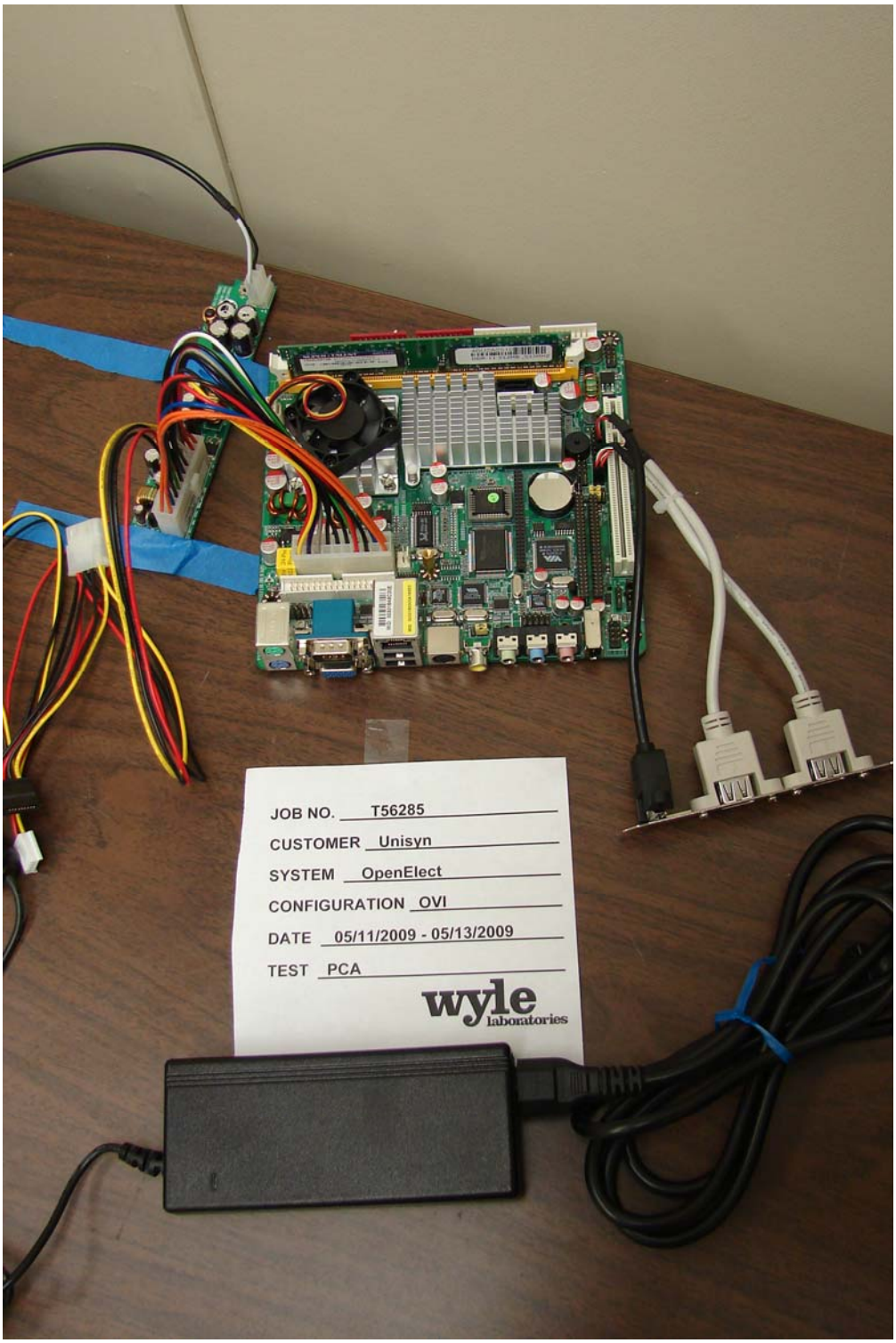
Inside of OVI showing Computer Housing and Printer



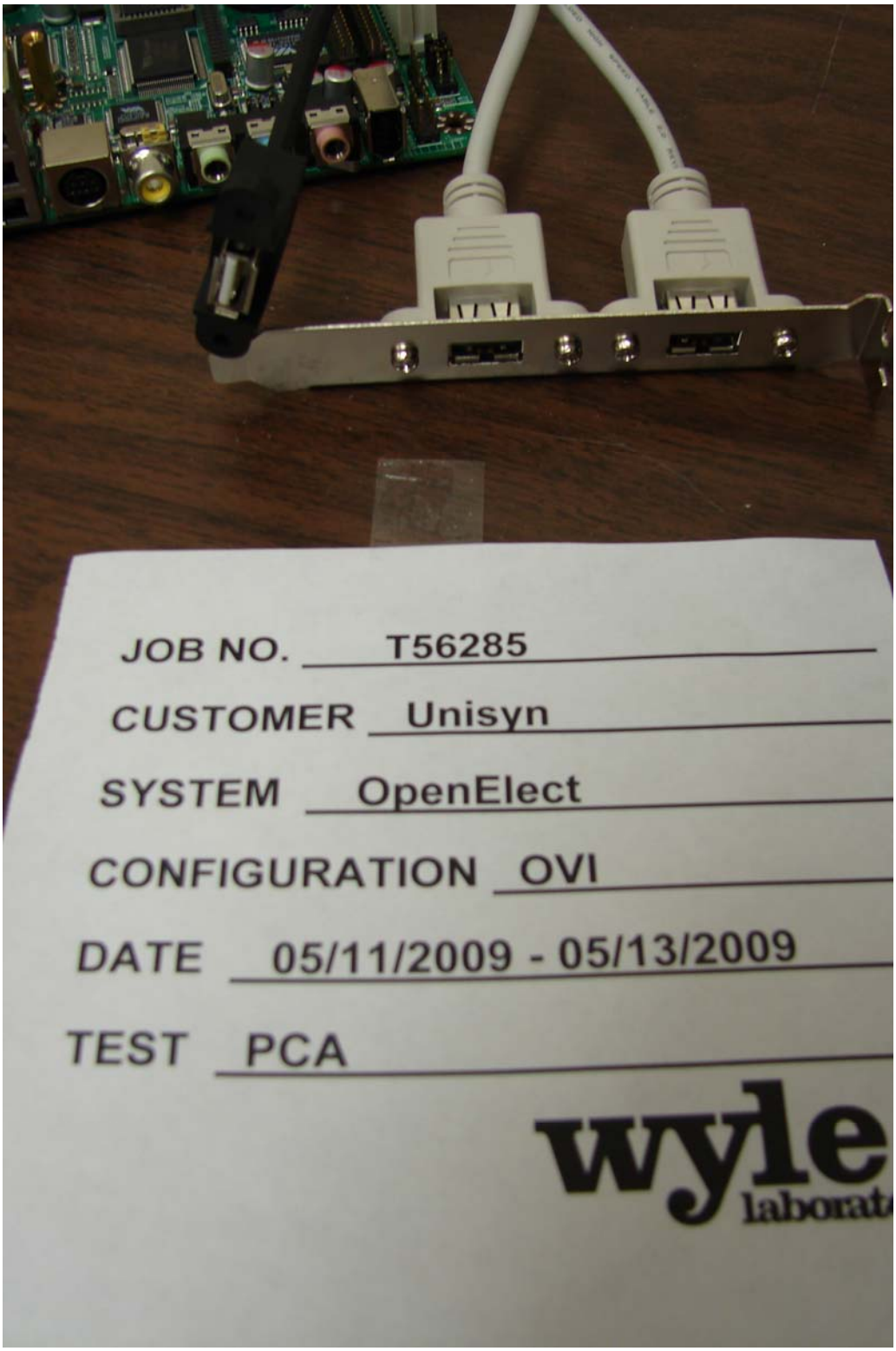
Inside of OVI Unit showing USB Flash Drive



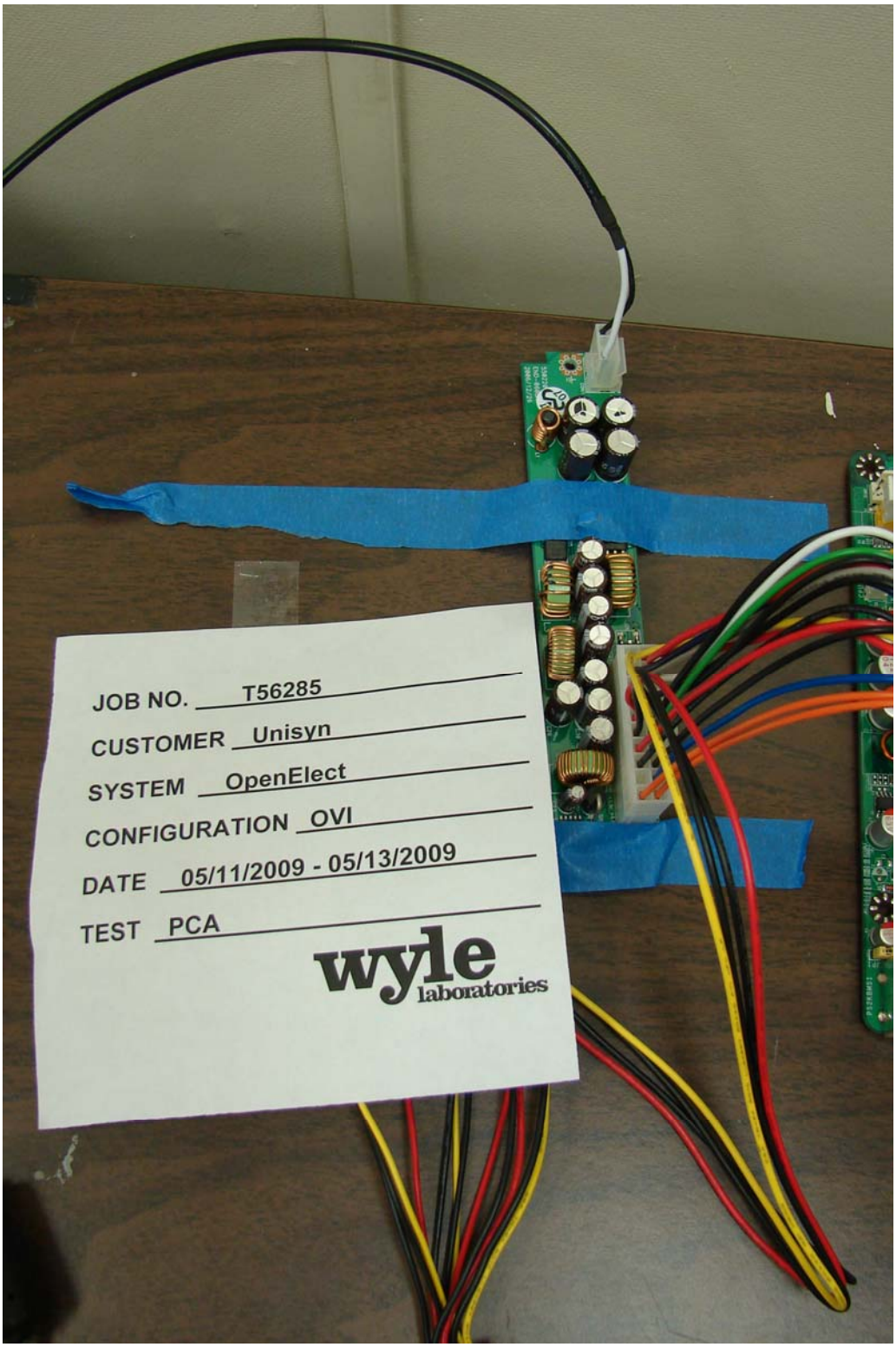
Inside of OVI Unit showing Cabling and Computer Ports



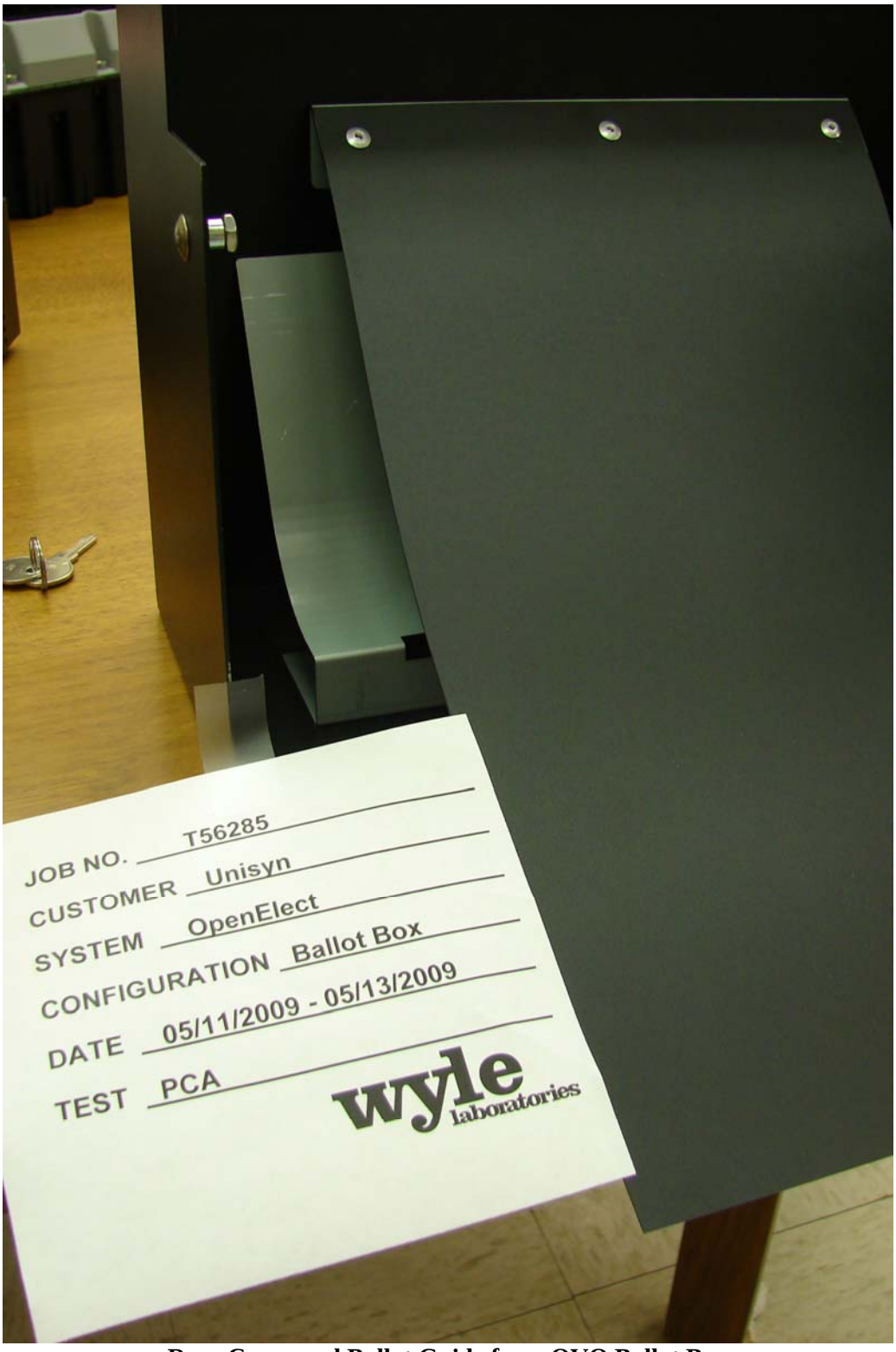
Computer from OVI Unit showing Motherboard, CPU, RAM, USB Ports, Power Supply and AC/DC Power Converter



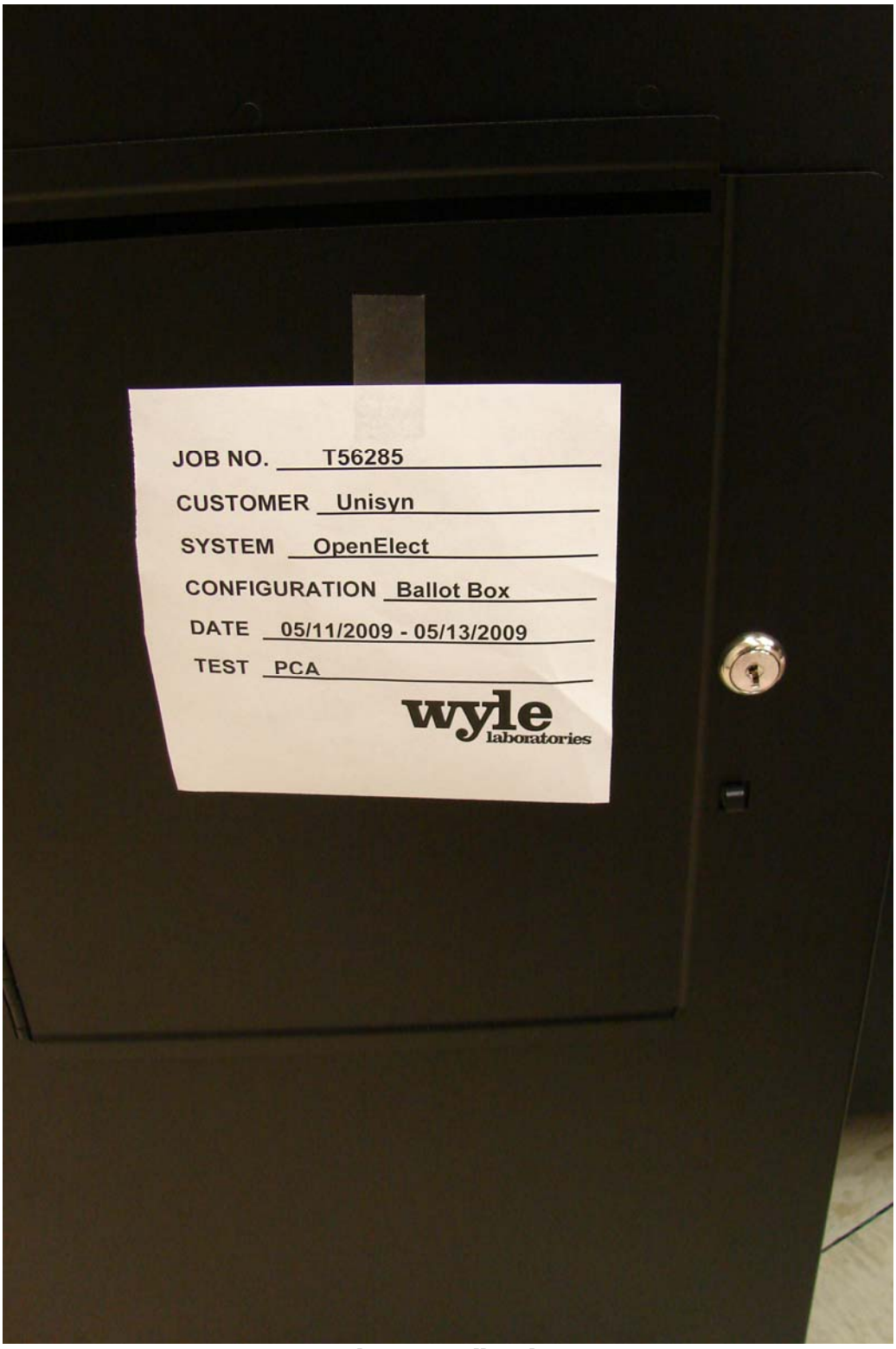
USB Ports from Computer inside OVI Unit



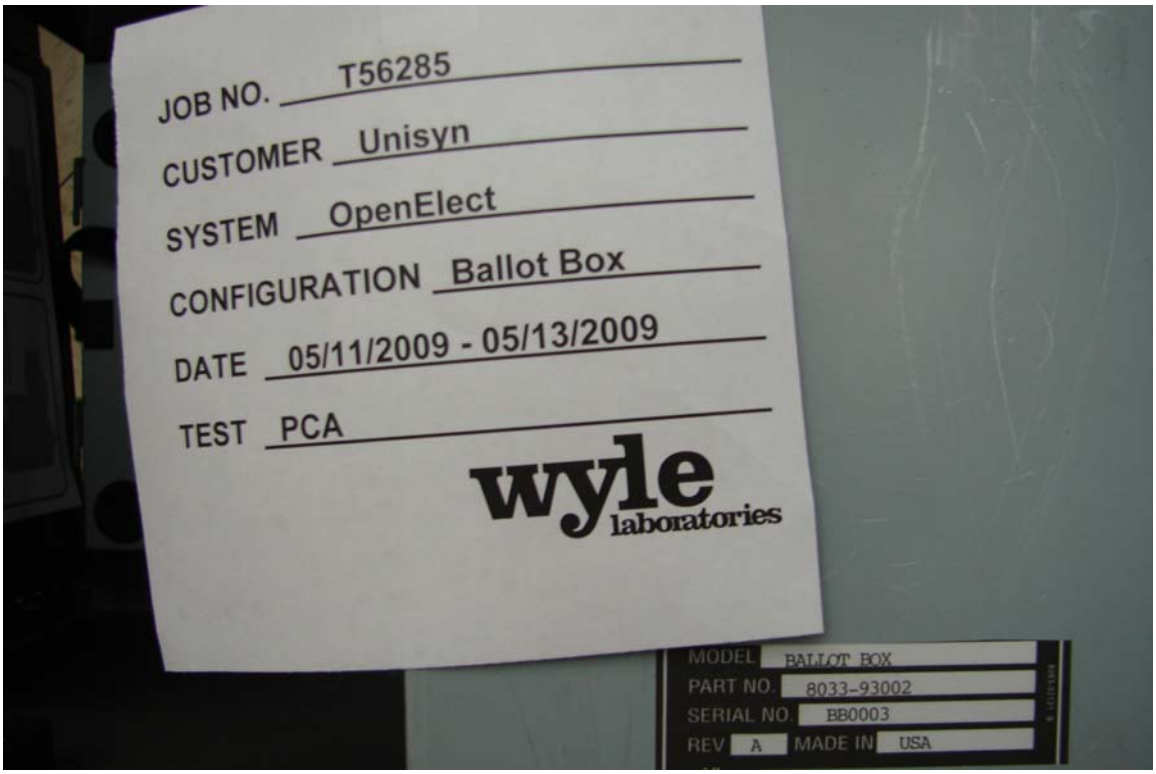
Power Converter from Computer inside OVI Unit



Rear Cover and Ballot Guide from OVO Ballot Box

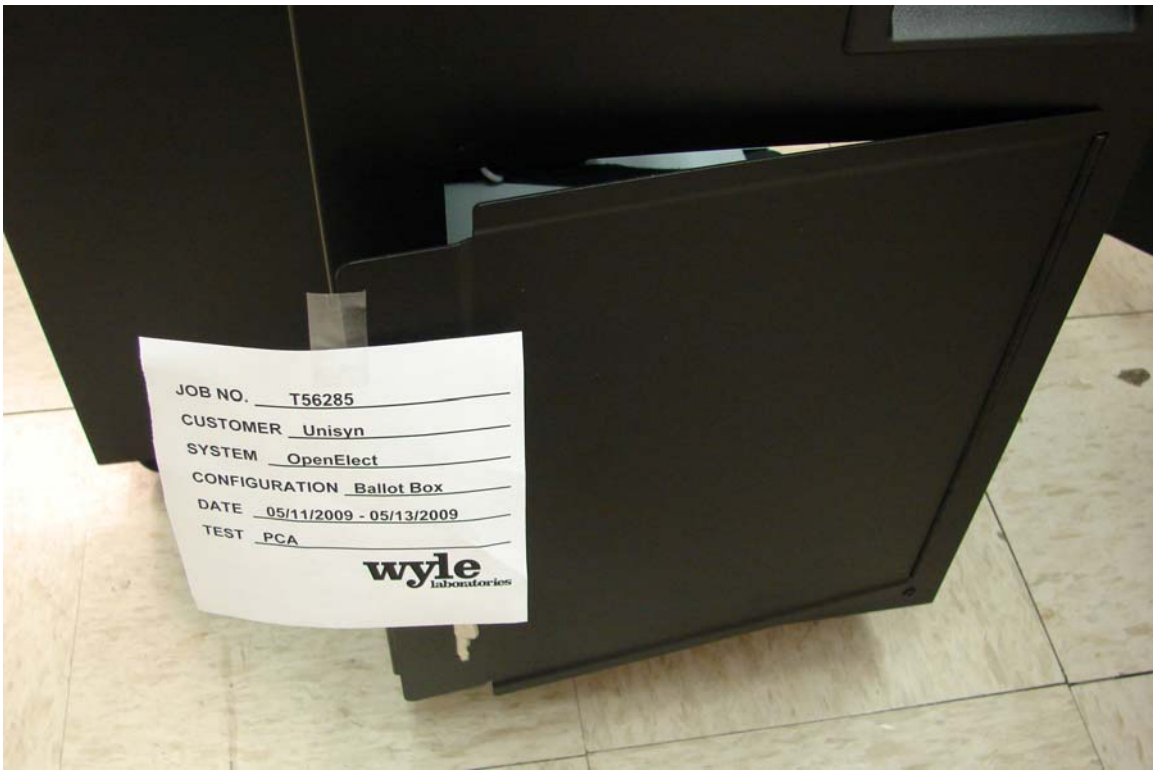


Absentee Ballot Slot



Ballot Box Identification Sticker

Inside View of Ballot Box from Overhead



Ballot Access Door

OVI Storage Door and Tray

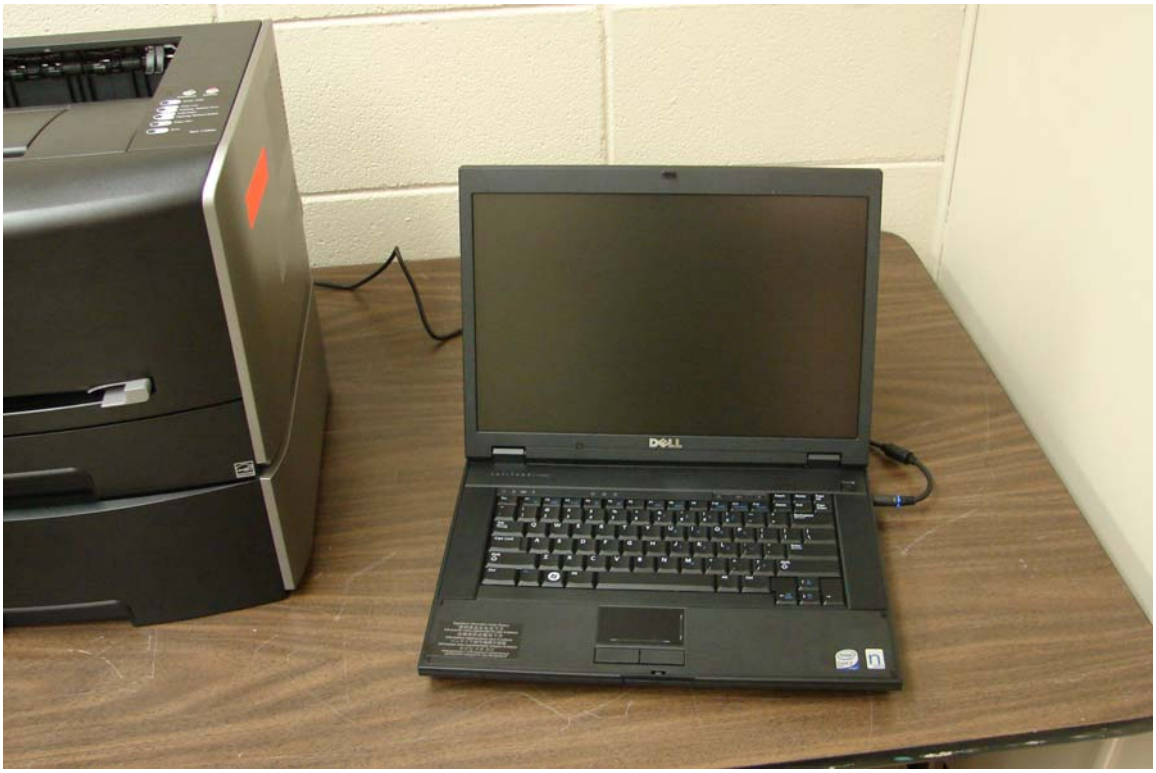
View of Ballot Box from Front

Rear View of Ballot Box Showing A/C Power Cord Area and Lifting Handle

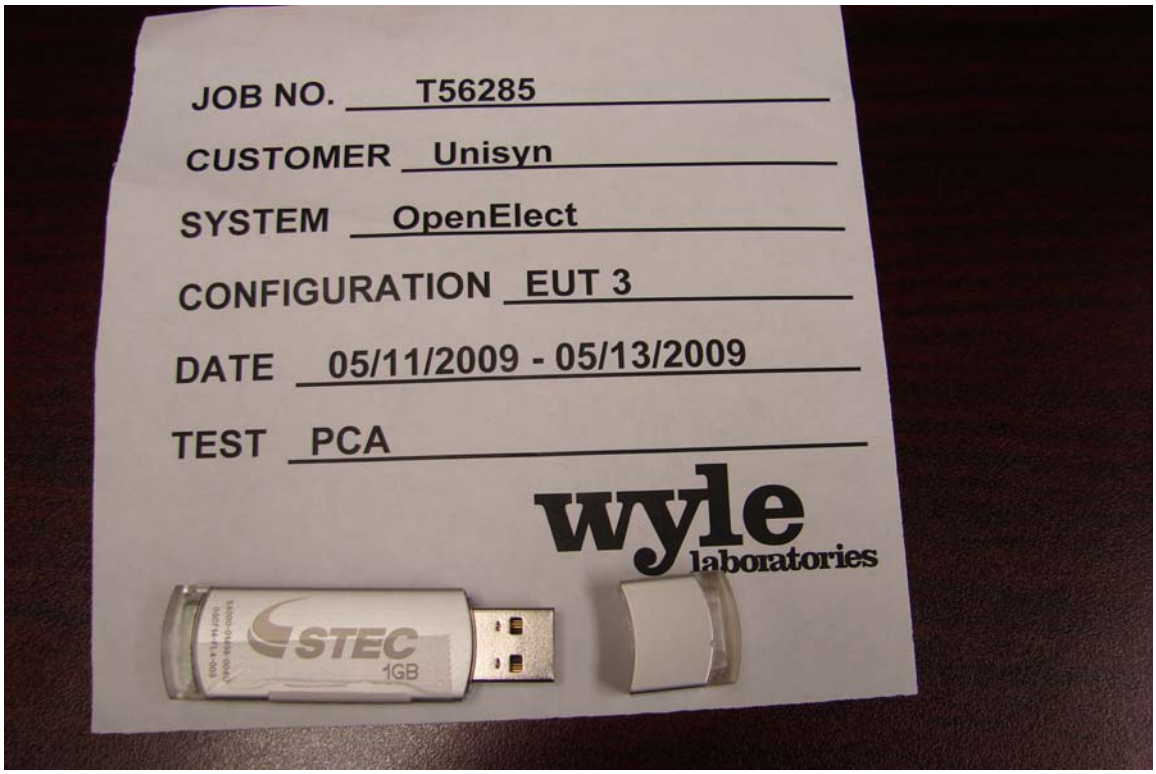
Lab with OCS Workstations and Laptop

PC 1 on Far Left, PC 2 in Middle, PC 3 (monitor not shown)

PC 3 and attached Printer for Ballot Production



Laptop PC for OCS

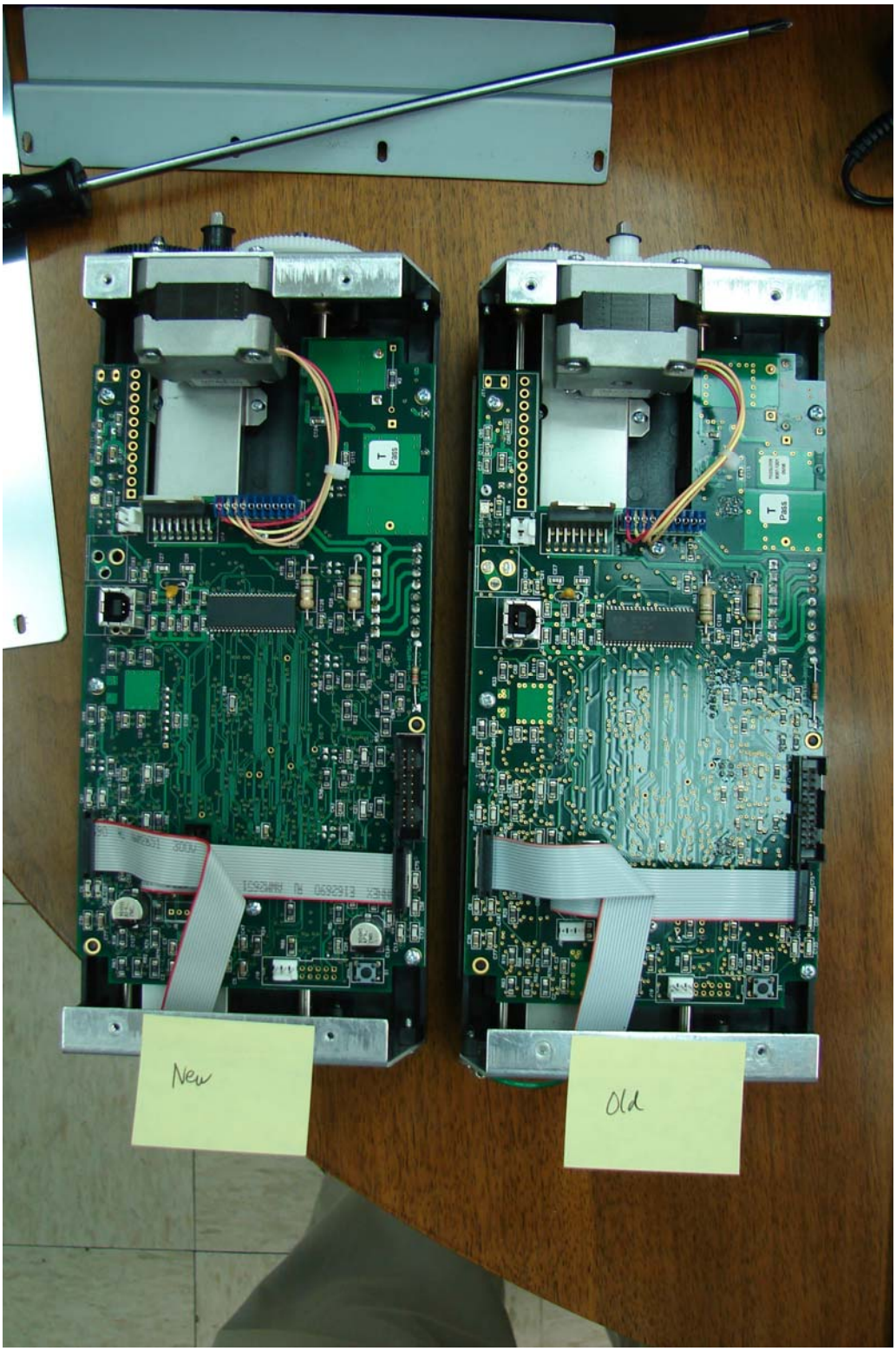


Transport Media

Network Switch

OVCS Scanner

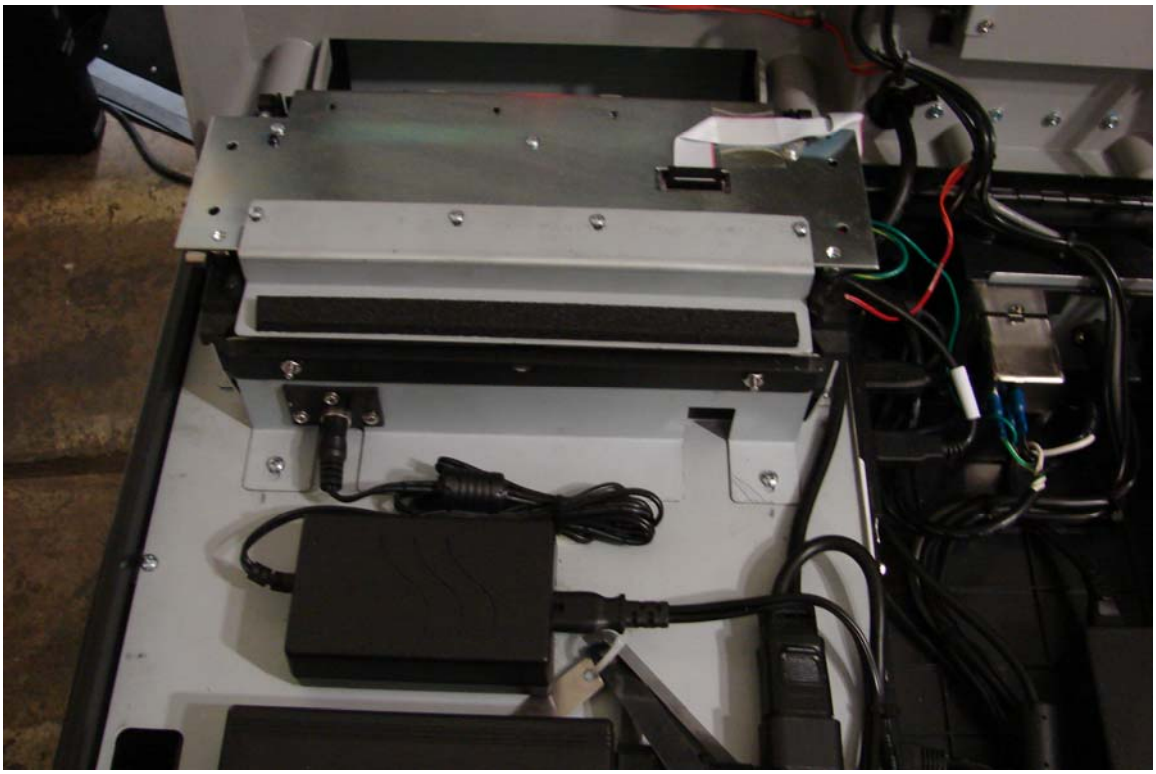
IR Sensor Covering



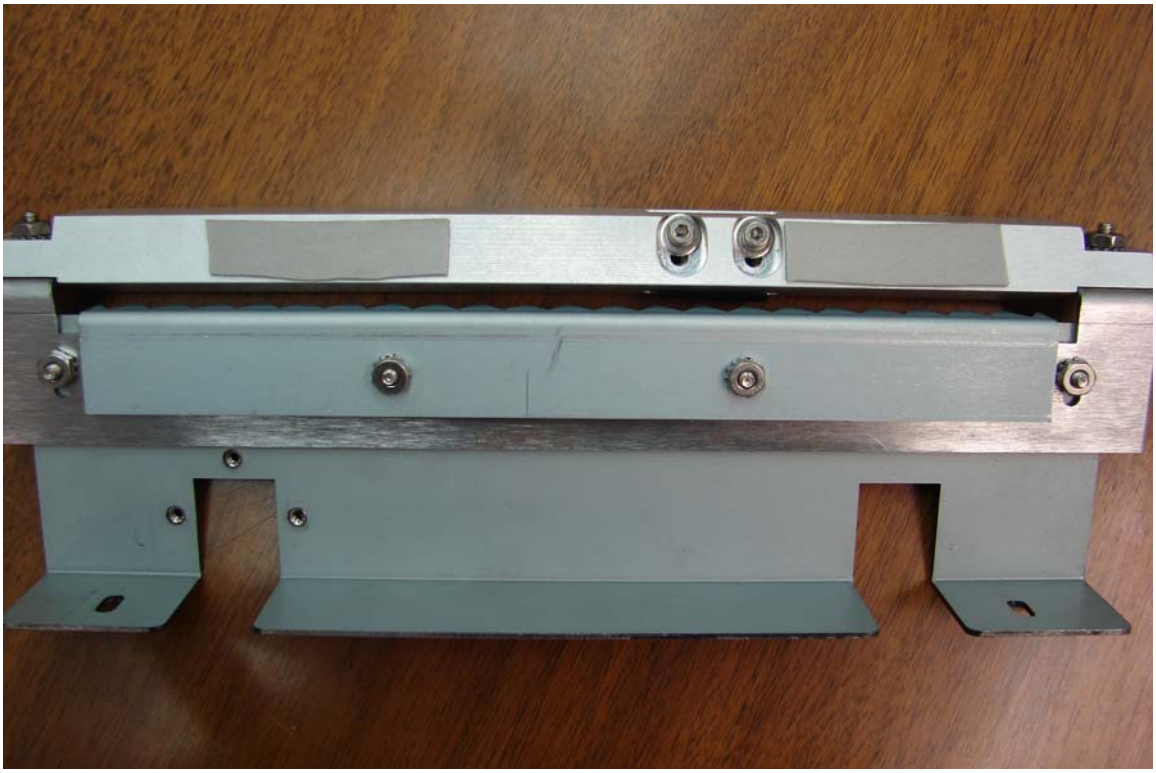
Comparison of New and Old OVO Scanner

Comparison of New and Old OVO Scanner Power Adapter

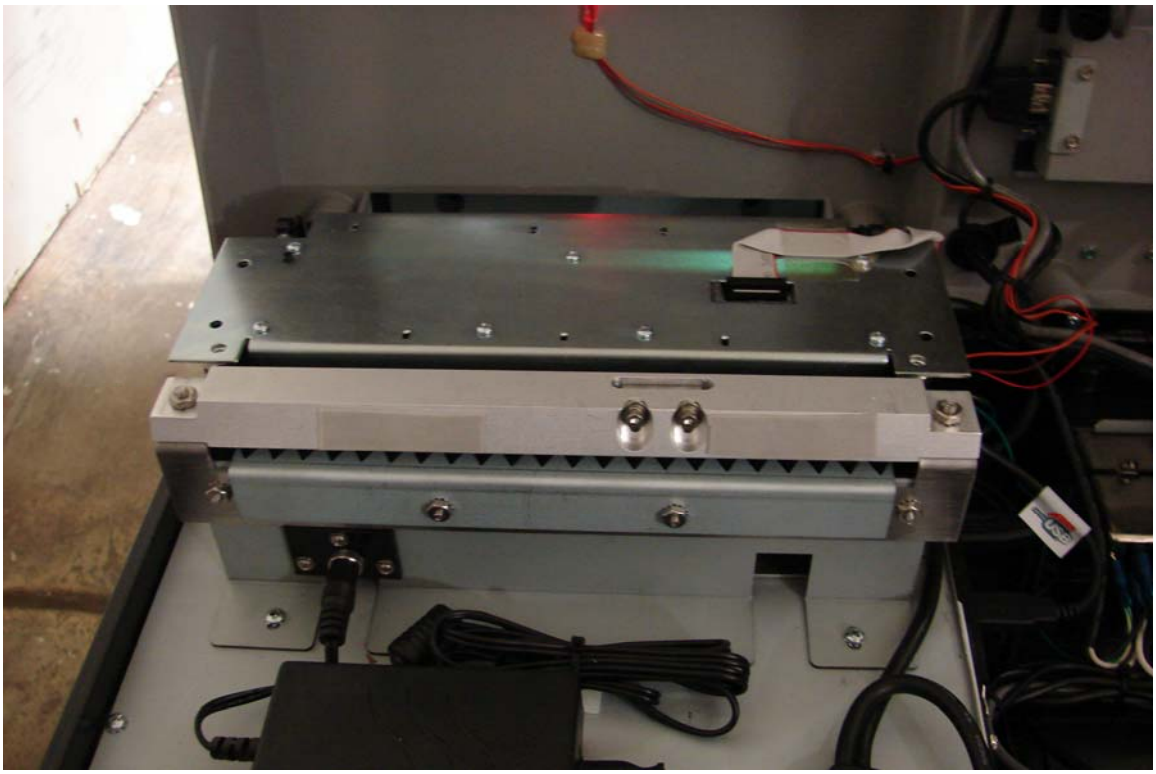
OVO LED Cover



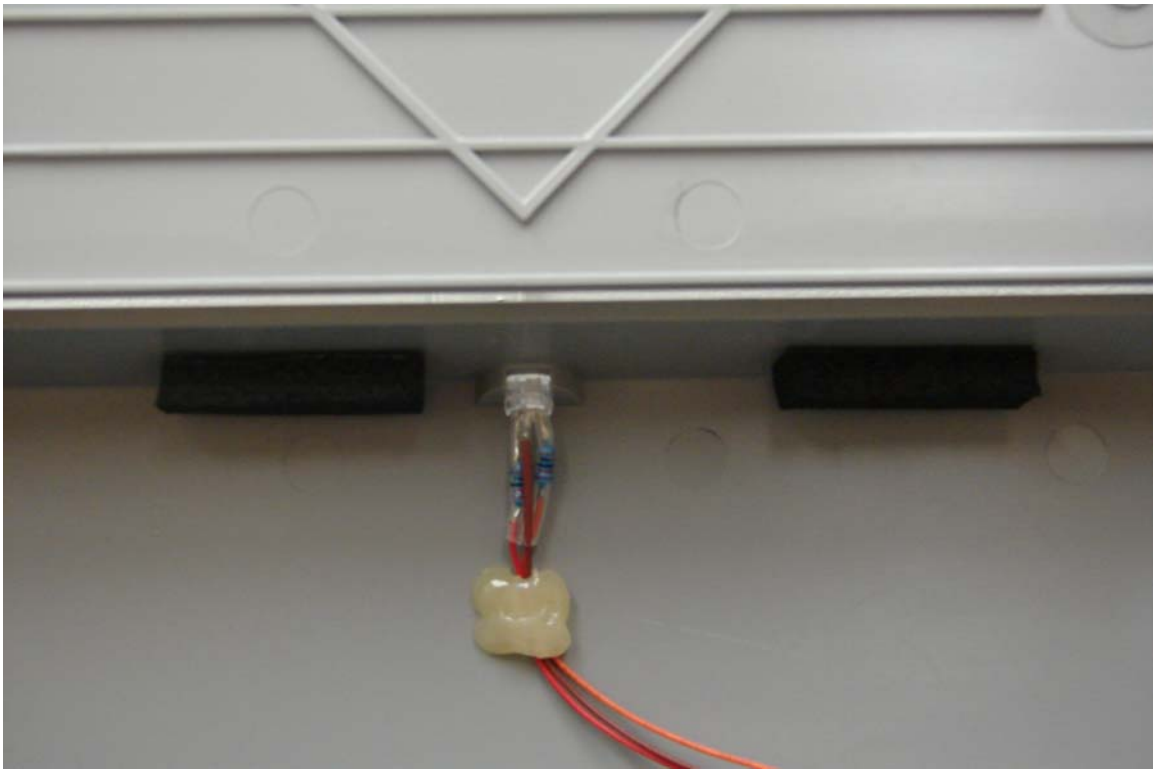
OVO Scanner Before Gate Installation



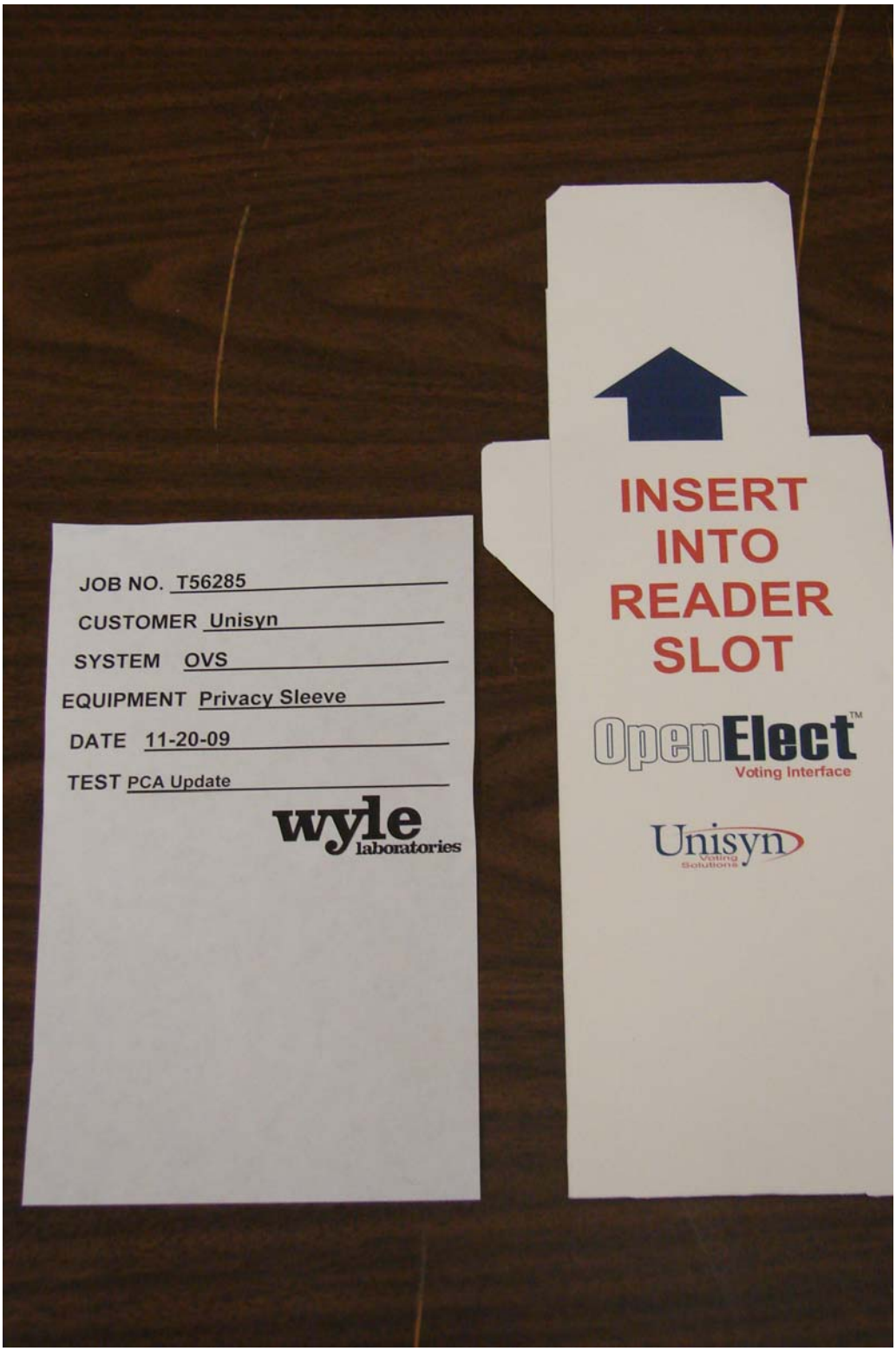
OVO Gate



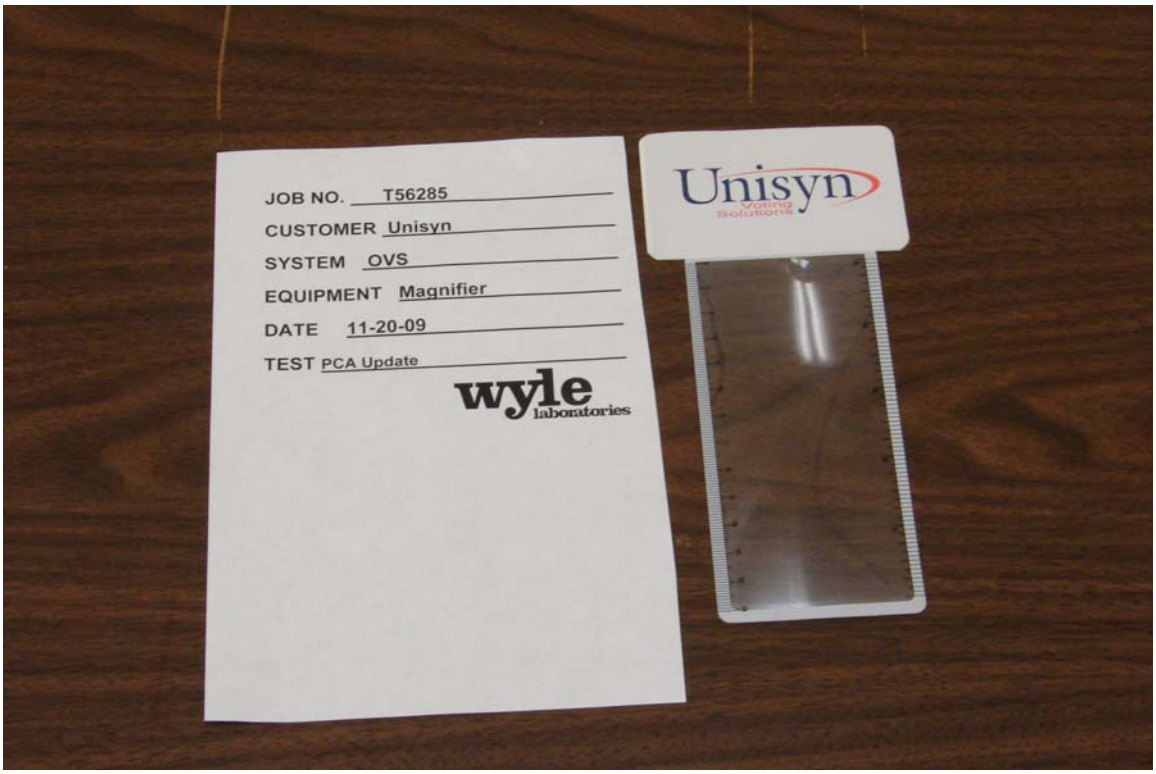
OVO w/ Installed Gate



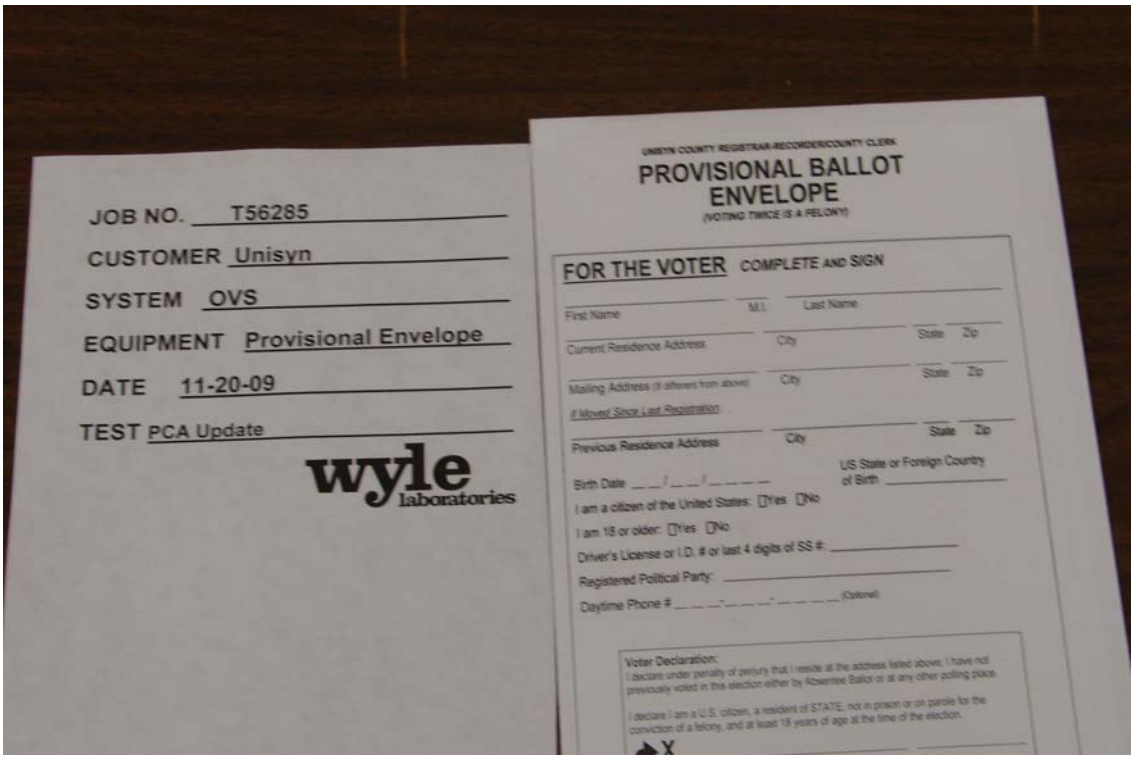
Foam Padding Installed Underneath OVO Cover



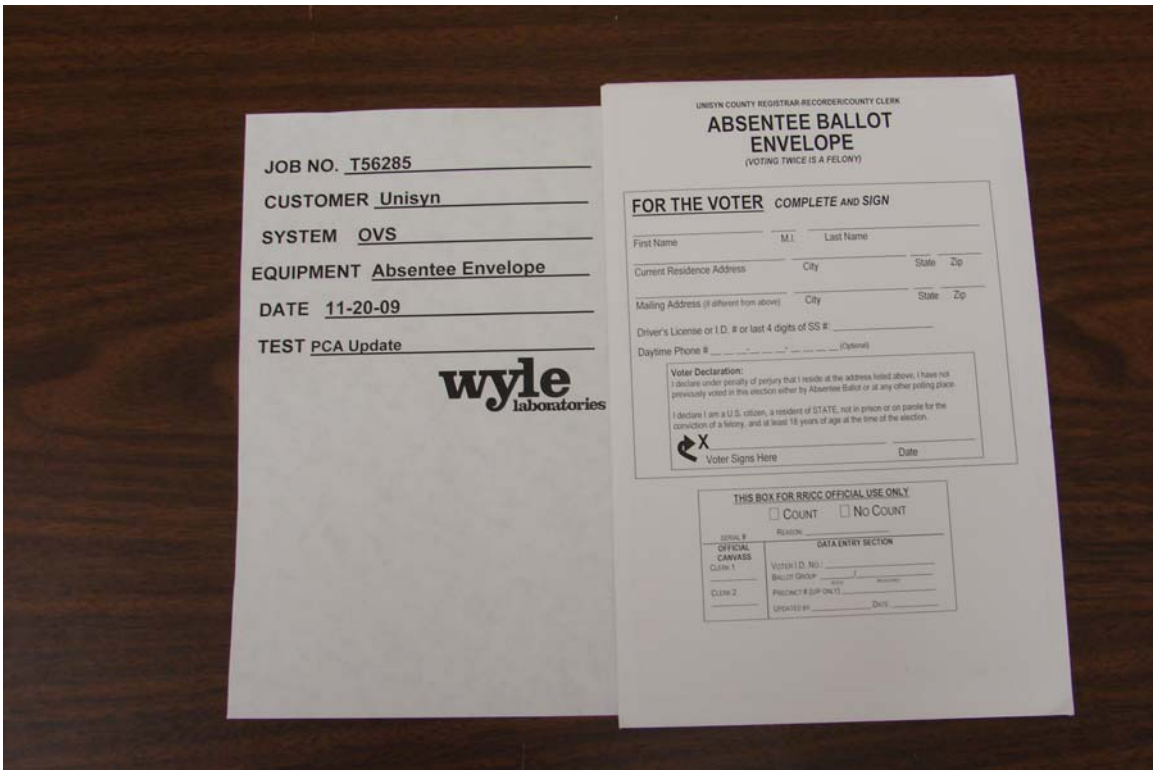
OVI Voter Assisted Ballot Privacy Sleeve



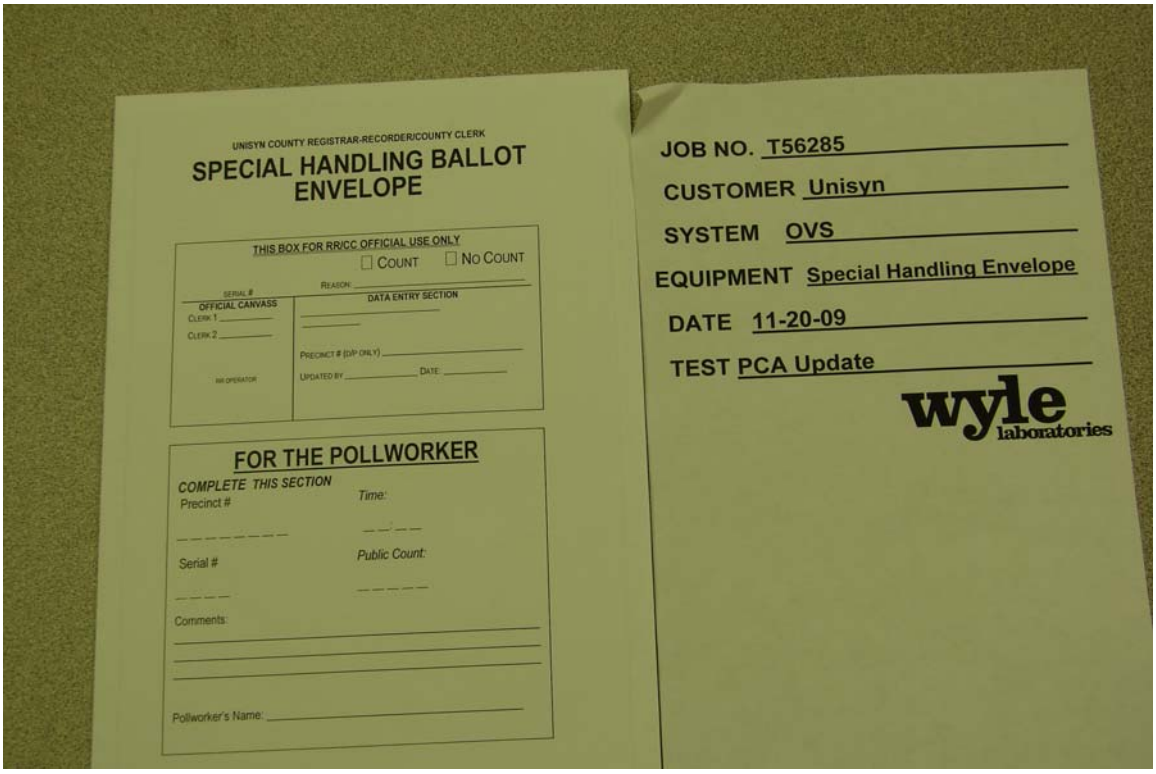
Magnifier



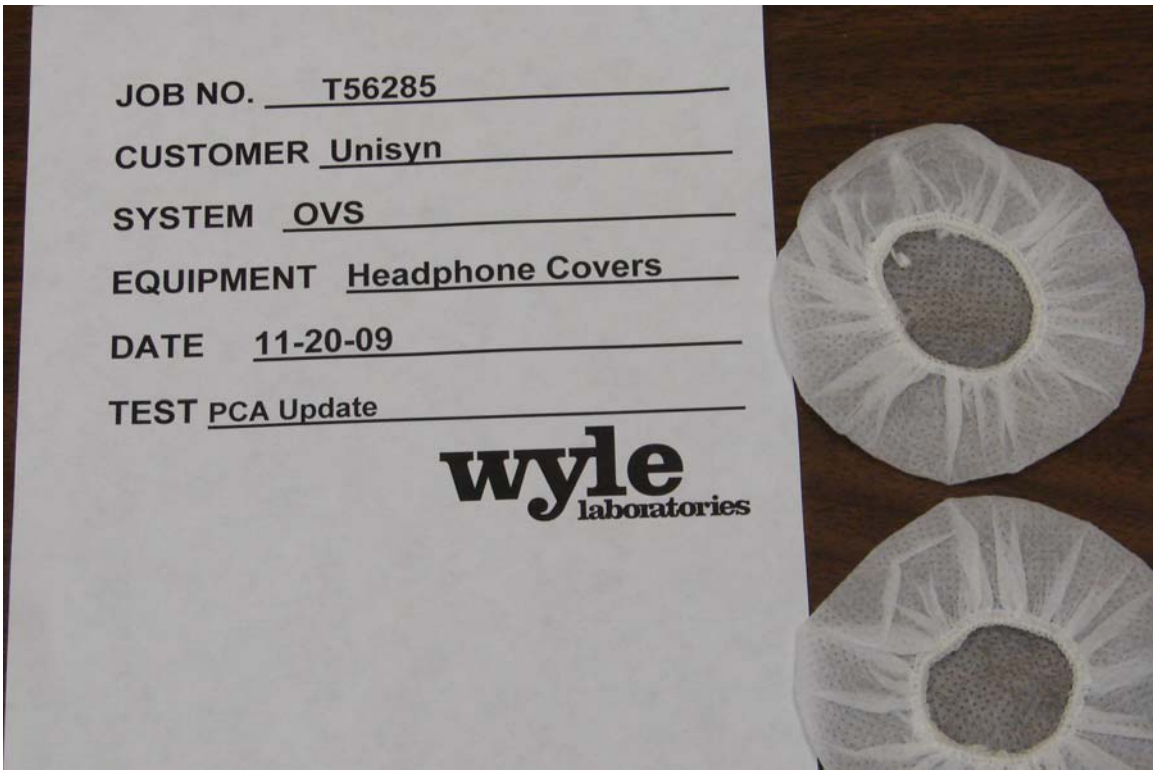
Provisional Ballot Envelope



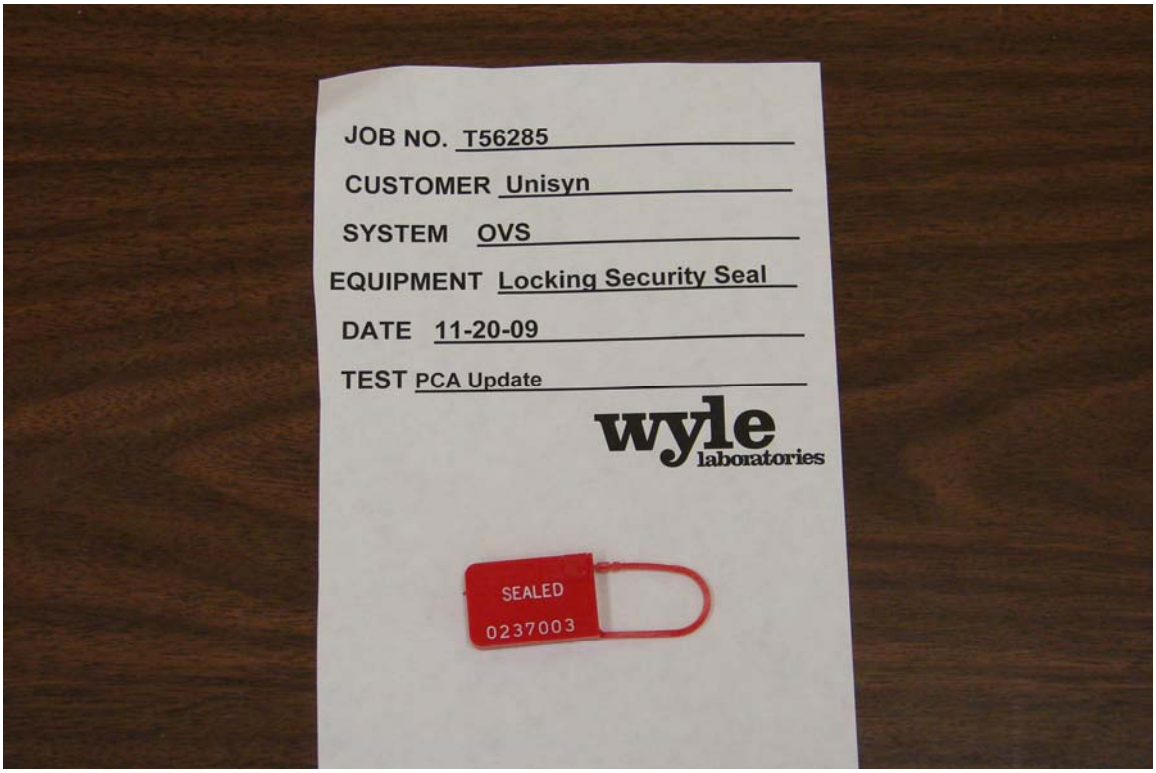
Absentee Ballot Envelope



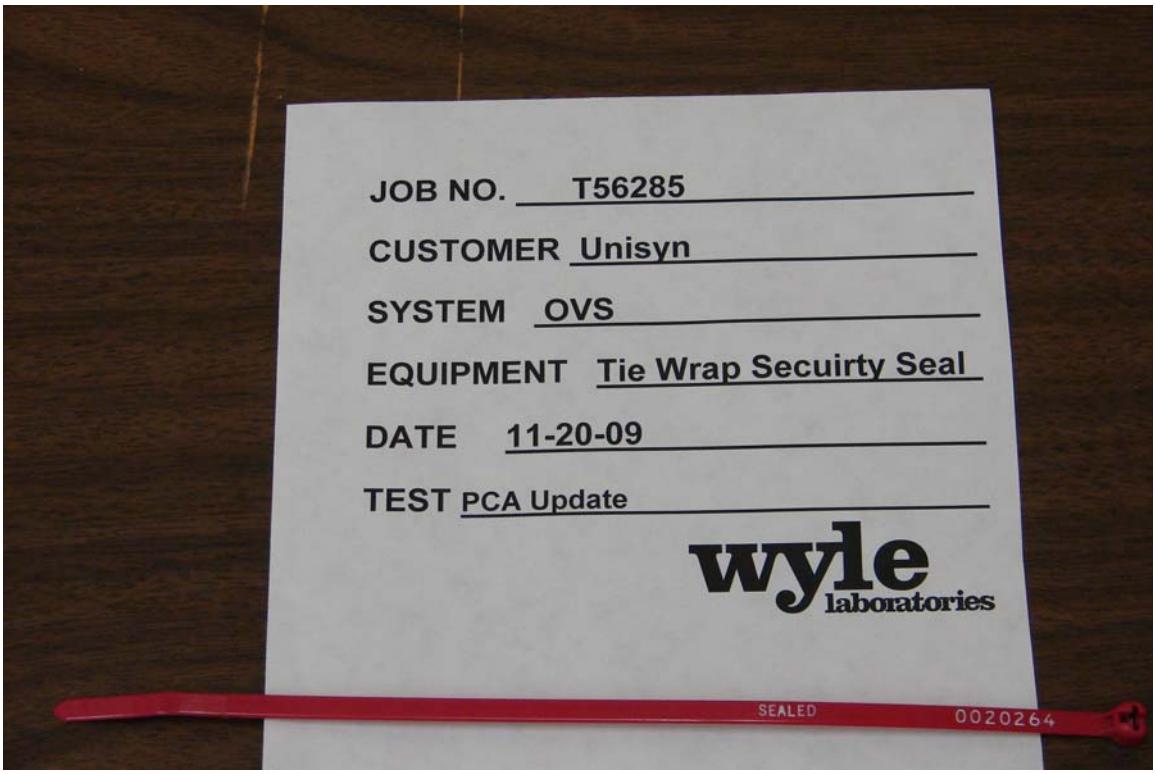
Special Handling Ballot Envelope



Sanitary Headphone Covers



Security Seal



Tie Wrap Seal

ADA Voting Booth

Voting Booth