



**Acceptance Re-Test Results of the M-100  
Computerized Optical Scan Voting System Units  
in Wake County**

*For*

**The Wake County, North Carolina, Board of Elections**

*By*

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## **User Acceptance Retest Summary**

Following failure of seven (7) M-100 computerized optical scan voting devices in the Wake County Board of Elections (BOE) user acceptance test, ES&S indicated that the failure stemmed from a batch of faulty PCMCIA cards. ES&S replaced the 10 faulty cards with new cards.

The Wake County Board of Elections conducted a retest of the faulty M-100s using the replacement PCMCIA cards. The retest used the same methodology as the original user acceptance test (UAT). Because one of the replacement PCMCIA cards is in current use successfully at the BOE, it was necessary to test only nine (9) of the replacement cards.

Four (4) of the seven (7) test units passed the UAT. Eight (8) out of nine (9) PCMCIA cards passed the test.

InfoSENTRY recommends returning the M-100s and the PCMCIA card that did not pass the test to ES&S for replacement units.

## Introduction

In March, 2006, the Wake County Board of Elections (BOE) received a shipment of M-100 computerized optical scan voting devices from ES&S, according to procurement rules promulgated by the North Carolina State Board of Elections (SBOE). Operating according to its standard practices and procedures for receiving new information system hardware and software, the BOE conducted user acceptance tests on those devices. The results of those tests are in the following documents: InfoSENTRY Services, Inc.

**Acceptance Test Results of the M-100 Computerized Optical Scan Voting System Units in Wake County.** Raleigh, NC. 20 March 2006.

Among other issues in that report, Wake County determined that the following M-100 voting devices failed the user acceptance test:

### **Serial Numbers of Devices Failing the Initial UAT**

**215784**

**215785**

**217773**

**217906**

**217991**

**218418**

**219071**

Wake County notified ES&S of the device failures as instructed by the SBOE. ES&S indicated that the problems were with the PCMCIA cards, which are standard external storage units used with numerous computer devices. ES&S recalled the PCMCIA cards and provided replacements to Wake County.

On 07 Apr 2006, Wake County asked InfoSENTRY Services to work with experienced Wake BOE staff members to retest these devices. We did so, using the same units that failed the previous test and the replacement PCMCIA cards.

## Test Methodology

InfoSENTRY structured the examination methodology in the same manner as in the original test. The document we referred to earlier, InfoSENTRY Services, Inc.

**Acceptance Test Results of the M-100 Computerized Optical Scan Voting System Units in Wake County.** Raleigh, NC. 20 March 2006, contains a detailed description of the examination methodology.

However, we included an additional precaution in this retest. We did not inform the testers during this test about the previous, specific problems with the machines they were retesting. We introduced this step to avoid any unintentional differences in the way the testers conducted the examinations or fed the ballots into the devices.

Because ES&S had provided 10 new PCMCIA cards and indicated they were the source of the initial failures for these seven devices, we also needed to test the new PCMCIA cards. Wake County BOE staff had already tested one of the cards repeated times by

using it in their efforts to prepare an operational manual for the M-100s. There was no need to test this PCMCIA card. Therefore, we focused only on the remaining nine replacement cards.

Throughout this retest, if we found that a new card worked in an M-100, we used it in a test of a second machine in order to verify it worked properly in more than one machine. If we found that a new card was in use in a machine that failed the test, we used that card again in a voting machine that had already passed the test. Similarly, if a voting machine failed the test, we replaced the PCMCIA card in that machine with a card that had already worked successfully with another voting machine. This cross-use of PCMCIA cards and M-100 computerized optical scanners allowed us to determine whether a failure was a result solely of a defective computerized scanners or a defective PCMCIA card.

We recorded the results on our standard test forms. If an M-100 computerized optical scanner failed, we noted that failure on the form and segregated the machine from other devices. If a PCMCIA card failed, we identified that failure on the card itself and segregated it from the cards that worked successfully.

For the specific tests themselves, we used the same operational scripts and same marked ballots as in the previous test.

## Test Results

Four (4) out of the seven (7) machines that had previously failed passed the re-test. Three (3) of the machines failed the re-test.

### Serial Number of Devices Failing the Retest

**215785**

**217991**

**219071**

Attachment 1 contains the detailed descriptions of the failures we encountered with these M-100 computerized optical scanners.

We recommend that Wake County return these devices to ES&S for replacement. They have consistently failed UAT, regardless of the PCMCIA cards in them. .

Eight (8) out of nine (9) replacement PCMCIA cards passed the test. One replacement PCMCIA card failed to work in at least two machines that had worked correctly with other cards. We recommend that Wake BOE return the failed PCMCIA card to ES&S for a replacement card.

## Attachment 1: Detailed Results for Each Failed Device



# Wake County Computerized Optical Scan Voting System: Acceptance Test Summary Report

## Wake County Computerized Optical Scan Voting System: Acceptance Test Summary Report

Checkmark = Pass	Serial_Number	Device_Type	Wake_Receipt_date
<input type="checkbox"/>	215785	M100	09-Mar-06

### Wake\_Receipt-Test\_Comments

This unit was one of the "replacement units" for the initial 11 not delivered. "No data found (102)" Repeated with 3 separate ballots; same error. Re-booted. Fed in 3 ballots; Same error on replication.

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07 April 2006

Tester: Holden-Steed

The tester noted the system. The system produced a zero zero tape. The tester fed in the first ballot and received an error message stating "no data found." the tester repeated the efforts with the same ballot and with other ballots. In each instance the device produced the same error. The tester rebooted the system with a new PCMCIA card enclosed. Repeated efforts to feed ballots into the device resulted in the same error message and the same results. The device failed.

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Wake County Computerized Optical Scan Voting System: Acceptance Test Summary Report

Checkmark = Pass	Serial_Number	Device_Type	Wake_Receipt_date
<input type="checkbox"/>	217991	M100	02-Mar-06

**Wake\_Receipt-Test\_Comments**

Missed timing mark (101). Turned the ballot over and tried again. Tried same ballot 4-5 times. Tried second ballot 2 times. Tried third ballot 2 times. Received same error message on all ballots. Would not accept ballots.

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07 April 2006  
Tester: Holden-Steed

The tester booted the machine and we immediately noticed that it printed very slowly. Upon attempting to insert a ballot, the device produced and "Missed timing mark (101)" error message. The device would not accept any ballot and produced the same error message each time. The tester rebooted the device, this time with another PCMCIA card that had been used with success on the previous machine. The device produced the same error and the same results. Multiple efforts to feed different ballots resulted in the same results in the same error messages. The device failed.

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Wake County Computerized Optical Scan Voting System: Acceptance Test Summary Report

Checkmark = Pass	Serial_Number	Device_Type	Wake_Receipt_date
<input type="checkbox"/>	219071	M100	09-Mar-06

**Wake\_Receipt-Test\_Comments**

This device was one of the "replacements" for one of the original 11 undelivered units. Device had no yellow sheet in the case. There was an initial problem printing the status and zero tape and getting the correct font. Swapped PCMCIA cards and received the same problem of incorrectly sized fonts on the thermal printer paper. Replicated error twice. The data of inspection on the Goldsboro sheet was 28 Feb 06, the same as dates on all other Goldsboro sheets.

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07 April 2006  
 Tester: Holden-Steed

When the tester booted the device, it did not prevent diagnostics on the thermal paper audit log. It did not prevent a zero tape. The information on the thermal paper log was in the wrong font. The tester replaced the PCMCIA card with another card from ES&S's set of replacement cards. Upon rebooting, if the device produced a zero tape. However all information on the thermal paper was in the wrong font size. The device failed the re-test.

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Checkmark = Pass	Serial_Number	Device_Type	Wake_Receipt_date
<input type="checkbox"/>	AM01064201		

**Wake\_Receipt-Test\_Comments**

Checkmark = Pass	Serial_Number	Device_Type	Wake_Receipt_date
<input type="checkbox"/>	AM01064212		

**Wake\_Receipt-Test\_Comments**

