

ATTACHMENT D
SOURCE CODE REVIEW SUMMARY REPORTS

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Global Election System AVTS 4.0.11 Review Summary

This review covers the AVTS 4.0.11 Software. The review involved evaluation of its compliance with the FEC guidelines for software quality and reliability. This evaluation included, but was not limited to, the following considerations:

Readability	How straightforward and apparent was the design?
Understandability	How complicated was the code to implement it?
Modularity	How well was the code divided into logical, functional units?
Robustness	How well does the code handle error conditions or unexpected inputs?
Security	Does the code protect the integrity of voting data at all times?
Maintainability	How easy would it be to extend, fix, or modify this code in the future?
Consistency	Was the design of the code coherent throughout?
Documentation	Does the code contain useful and frequent comments?
Usability	Does the code inform the user about progress or errors?
Flow control	Are control constructs and entry/exit points logical and controlled?

The review report detailed specific instances where it was felt that the code fell short in some area being reviewed, and gave file names and line numbers where applicable to guide the maintainers in making needed corrections. A general synopsis section is included where recurring problems were explained and solutions suggested. Also identified are some areas where improvement is needed in non-critical areas, and those changes should be addressed in future versions of this software.

A recommendation is given at the end of this document.

Evaluation

have reviewed the code on the disk and described in the software specification. Our evaluation of the code is given on the subsequent pages. This document is arranged as follows:

- 1) Source File Specific Notes
- 2) General Observations
- 3) Final Assessment Statements

1. Source Code Specific Observations

The AVTS 4030 review covered the following files:

/Devel/AVTSCE/Accumulator

AccumulatorDlg.cpp

Line 63 - DoDataExchange() - multiple exit points.

Line 192,212 - OnLoad() - multiple exit points.

AccumulatorDlg.h

StdAfx.cpp

StdAfx.h

Lines 6,7 - AFX_STDAFX_H_4665E8C7_1362_11D5_A960_00C04F396559__INCLUDED_ - not obvious what these numbers mean.

Line 18 - naked constant 211.

/Devel/AVTSCE/Ballot

BallotCell.cpp

Line 181 - SetRect() - multiple exit points.

Line 299 - Layout() - multiple exit points.

Line 469 - Construct() - multiple exit points.

Line 517 - SetRect() - multiple exit points.

Lines 568-577 - SetRect() - section of code commented out but left in. Is this coming back later?

Line 610 - OnPaint() - multiple exit points.

Line 646 - SetVote() - multiple exit points.

Line 705 - Construct() - multiple exit points.

Lines 867,884,918,926,936 - SetRect() - multiple exit points, lines 884,936 only if OPTIMIZE_LAYOUT is defined.

Line 1038 - CandFromPoint() - multiple exit points.

Lines 1062,1066,1074 - OnSelect() - multiple exit points.

Line 1186 - IsAnyExplicit() - multiple exit points.

Line 1205 - GetEndorsementVote() - multiple exit points.

Line 1221 - UpdateEndorsement() - multiple exit points.

BallotCell.h

BallotWnd.cpp

Line 54 - LoadBallot() - naked constant 0xffff/64. Needs comments explaining this scale factor

Line 131 - FindPageForRace() - multiple exit points.

BallotWnd.h

Layout.cpp

Line 74 - NextCol() - multiple exit points.

Line 121 - NextPage() - multiple exit points.

Line 157 - Add() - not immediately obvious how it is guaranteed that m_PageRect.Width() is greater than m_NumCols. In the event that m_NumCols is larger, there will be catastrophic divide-by-zero errors because of a zero denominator in lines 158,159.

Line 180 - UpdateCurRect() - not immediately obvious how it is guaranteed that m_PageRect.Width() is greater than m_NumCols. In the event that m_NumCols is larger, there will be catastrophic divide-by-zero errors because of a zero denominator in line 180.

Line 221 - FindHeader() - multiple exit points.

Line 516 - TryLayoutRaceAndHeader() - multiple exit points if OPTIMIZE_LAYOUT is defined.

Line 553 - LayoutRaceAndHeader() - multiple exit points.

Layout.h
StdAfx.cpp
StdAfx.h
Writeln.cpp
Writeln.h

/Devel/AVTSCE/BallotStation

AdminDlg.cpp

Line 251 - OnDelete() - multiple exit points.

AdminDlg.h
AutoTest.cpp
AutoTest.h
BallotDlg.cpp

Lines 90,100 - OnInitDialog() - multiple exit points.

Line 202 - UpdatePageNum() - naked constant 64. Needs comments to explain this value.

Line 218 - OnNext() - multiple exit points.

Line 296 - OnPrev() - multiple exit points.

BallotDlg.h
BallotSelDlg.cpp

Line 103 - OnView() - multiple exit points.

BallotSelDlg.h
BallotStation.cpp

Lines 550,563,582 - PlayNext() - multiple exit points.

Lines 629,651,669,691,694 - PreTranslateMessage() - multiple exit points.

BallotStation.h
BallotStationDlg.cpp
BallotStationDlg.h
ExitPollDlg.cpp
ExitPollDlg.h
InstructionDlg.cpp
InstructionDlg.h
LanguageSelDlg.cpp

Line 186 - OnCommand() - multiple exit points.

LanguageSelDlg.h
PinDlg.cpp
PinDlg.h
PreElectDlg.cpp

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Lines 70,79 – DoDataExchange() – multiple exit points.
Line 328 – OnSupervisor() – multiple exit points.

PreElectDlg.h
RecordVoteDlg.cpp

Line 473 – OnCast() – multiple exit points.

RecordVoteDlg.h
StdAfx.cpp
StdAfx.h
TestBallotDlg.cpp
TestBallotDlg.h
TestPctSelDlg.cpp

Line 142 – LoadVGroups() – multiple exit points.
Line 228 – OnVote() – multiple exit points.

TestPctSelDlg.h
TransferElecDlg.cpp

Lines 60,67 – DoModal() – multiple exit points.
Line 200 – PrintLabel() – multiple exit points.

TransferElecDlg.h
VgroupSelDlg.cpp

Line 193 – OnCommand() – multiple exit points.

VgroupSelDlg.h
Vote.cpp
Vote.h
VoteDlg.cpp

Lines 179-209 – DoVote() – large section commented out but left in. Is this coming back in later?

VoteDlg.h
WriteInDlg.cpp

/Devel/AVTSCE/DES

Des.cpp

Lines 72-117 – DesCBCEncrypt() – function has no comments.
Lines 131,132,145 – DesSetKey() – naked constants 8,7,32. Need comments explaining the significance of each constant.
Lines 135-142 – DesSetKey() – multiple executable statements on one line.
Lines 158-259 – DesEBCEncrypt() – function has no comments.
Lines 192,195,199,208-223 – DesEBCEncrypt() – two local variables both named 'i'. While scope context separates them, it raises a reability issue. One should be changed to another name.
Lines 283-358 – des_do_iperm() – function has no comments.
Lines 360-432 – des_do_fperm() – function has no comments.
Lines 364,431 – des_do_fperm() – multiple executable statements on one line.
Lines 434-506 – des_do_iperm_rev() – function has no comments.

Lines 438,505 - des_do_iperm_rev() - multiple executable statements on one line.
Lines 508-581 - des_do_fperm_rev() - function has no comments.
Lines 513,580 - des_do_fperm_rev() - multiple executable statements on one line.
Lines 583-622 - des_expand() - function has no comments.
Lines 592-594,596-599,602,607-613,616 - des_expand() - multiple executable statements on one line.
Lines 618, 619 - des_expand() - naked constant 0x3f3f3f. Need comment explaining the significance of the value.

Des.h
Eight.h

It is assumed that this file is machine generated. If not, it needs comments.

Ksched.h

It is assumed that this file is machine generated. If not, it needs comments.

Spetable.h

It is assumed that this file is machine generated. If not, it needs comments.

StdAfx.cpp
StdAfx.h

/Devel/AVTSCE/DiagMode

DiagnosticsDlg.cpp
DiagnosticsDlg.h
newres.h
StdAfx.cpp
StdAfx.h
TestCardReader.cpp

Line 47 - DoModal() - multiple exit points.
Lines 92,95 - Thread() - function needs comments, especially to explain why SetProgress() is given a number that is a multiple of 2x the card size.

TestCardReader.h
TestPrinter.cpp

Lines 48-51,56,57 - Thread() - naked constants 32,96,64. Need comments explaining the significance of these values.

TestPrinter.h
TestSerial.cpp
TestSerial.h

/Devel/AVTSCE/PollBook

newres.h
PollBook.cpp

Line 49 - InitInstance() - multiple exit points.

PollBook.h

PollBookDlg.cpp
PollBookDlg.h
StdAfx.cpp
StdAfx.h
VoterInfoDlg.cpp
VoterInfoDlg.h

/Devel/AVTSCE/Shared

Accumulator.cpp

Line 66 - Caccumulator() - naked constant 293. Need comments explaining the significance of this value.
Line 138 - DoLoadResults() - multiple exit points.
Line 158 - DoLoadResultsFromFile() - multiple exit points.
Line 246 - TallyResultsFromRecord() - multiple exit points.
Line 383 - TallyNext() - multiple exit points.

Accumulator.h

Line 35 - Curious that "public:" appears twice in such close proximity in this class.

AccumulatorDlg.cpp

Line 61 - DoDataExchange() - multiple exit points.
Lines 193,204,221 - OnLoad() - multiple exit points.

AccumulatorDlg.h
ActionDlg.cpp
ActionDlg.h
AuditDlg.cpp

Line 152 - OnPrint() - multiple exit points.

AuditDlg.h
BackgroundDlg.cpp

Line 157 - PreTranslateMessage() - multiple exit points.

BackgroundDlg.h
BallotRstDlg.cpp

Lines 156-158,160,162,165 - CompareFunc() - multiple exit points.

BallotRstDlg.h
ChallengeDlg.cpp
ChallengeDlg.h
CreateCardDlg.cpp

Line 72 - DoDataExchange() - multiple exit points.
Line 178 - LoadVGroups() - multiple exit points.
Line 286 - OnCreate() - multiple exit points.
Line 435 - OnChangeBaseunitEdit() - multiple exit points.
Line 482 - OnChangeVGroupEdit() - multiple exit points.

CreateCardDlg.h

ElectionArchives.cpp

Line 251 - LoadResults() - multiple exit points.
Lines 403,411 - OnPurgeElection() - multiple exit points.
Lines 429,434 - OnRestoreElection() - multiple exit points.
Line 471 - OnPurgeResult() - multiple exit points.
Line 480 - OnPurgeResult() - curious semicolon after { in while(). Was this intentional?
Lines 504,509 - OnRestoreResult() - multiple exit points.

ElectionArchives.h
Keyboard.cpp

Line 102 - Create() - multiple exit points.
Lines 105,106 - Create() - given an illegal KBStyle, zero rows, and zero cols being passed in, local variables m_Rows and m_Cols could be zero by the time these lines are reached, causing catastrophic divide-by-zero errors. Some preventative checks are needed to assure nonzero denominators.
Lines 134,153 - DrawButton() - multiple exit points.
Line 174 - DrawButton() - naked constants 140,80. Need comments explaining the significance of these values.

Keyboard.h
MouseRecorder.cpp
MouseRecorder.h
Printer.cpp

Lines 72,92 - Open() - multiple exit points.

Printer.h
ReportingDlg.cpp

Line 68 - Thread() - multiple exit points.
Line 504 - OnPrintReport() - multiple exit points.

ReportingDlg.h
StdAfx.cpp
StdAfx.h
TransferDlg.cpp

Line 239 - OnWndMsg() - multiple exit points.
Line 518 - OnAdvanced() - multiple exit points if _WIN32_WCE is defined.
Line 773 - StartTransfer() - multiple exit points.
Line 786 - RASStart() - multiple exit points.
Lines 812-819 - RASStart() - section of code ifdef'd out but left in. Is it coming back later? If it comes back in, line 811 will be a multiple exit point.
Lines 851-856 - OpenConnection() - section of code ifdef'd out but left in. Is it coming back later?

TransferDlg.h
TransferResultsDlg.cpp

Lines 300,301 - EncodeBallotResults() - naked constants 8, 4. Need comments explaining the significance of these values.
Lines 347,348 - EncodeBallotResults() - naked constants 7, 4. Need comments explaining the significance of these values.
Lines 391,392 - EncodeCandidateResults() - naked constant 4. Need comments explaining the significance of this value.

TransferResultsDlg.h
TSDialog.cpp

Line 121 - OnCmdMsg() - multiple exit points.
Line 132 - DoOnCmdMsg() - multiple exit points.
Line 178 - ScaleToRect() - multiple exit points.

TSDialog.h
TSRegistryDlg.cpp
TSRegistryDlg.h

/Devel/AVTSCE/TSElection

Audit.cpp
Audit.h
BallotResults.cpp

Lines 70-102 - CheckHealth() - entire function commented out but left in. Is this coming back later?

BallotResults.h
DL2Archive.cpp
DL2Archive.h
ElectionKeys.cpp

Lines 24,25,27,28 - multiple executable statements on one line.

ElectionKeys.h
ExByteArray.cpp
ExByteArray.h
RecordFile.cpp

Line 104 - ReadRecord() - multiple exit points.

RecordFile.h
Result.cpp

Line 306 - AddVote() - this calculation needs some comments. It is not immediately obvious WHY it is constructed as it is.
Line 312 - GetVote() - this calculation needs some comments. It is not immediately obvious WHY it is constructed as it is.

Result.h
ResultFile.cpp

Line 166 - SeekRecord() - multiple exit points.
Line 318 - Restore() - multiple exit points.

ResultFile.h
StdAfx.cpp
Stdafx.h
TSElectionDB.cpp
TSElectionDB.h
TSElectionDoc.cpp

Lines 188,194 - OpenSecOnly() - multiple exit points.
Lines 591,604 - RestoreResults() - multiple exit points.
Line 772 - WaitMemCardIn() - multiple exit points.
Lines 806-859 - OnDeviceChange() - section of code ifdef'd out but left in. Is this coming back later?

TSElectionDoc.h
TSElectionObj.cpp
TSElectionObj.h

Line 160 - operator>>() - multiple executable statements on one line.
Line 224 - operator>>() - multiple executable statements on one line.
Line 241 - Find() - multiple exit points.
Line 267 - FindNext() - multiple exit points.
Line 311 - operator>>() - multiple executable statements on one line.
Line 324 - operator>>() - multiple executable statements on one line.
Line 371 - operator>>() - multiple executable statements on one line.
Line 400 - operator>>() - multiple executable statements on one line.
Line 413 - operator>>() - multiple executable statements on one line.
Line 429 - Find() - multiple exit points.
Line 453 - operator>>() - multiple executable statements on one line.
Line 469 - operator>>() - multiple executable statements on one line.
Line 487 - operator>>() - multiple executable statements on one line.
Line 503 - operator>>() - multiple executable statements on one line.
Line 518 - operator>>() - multiple executable statements on one line.
Line 534 - operator>>() - multiple executable statements on one line.
Line 552 - operator>>() - multiple executable statements on one line.
Line 619 - operator>>() - multiple executable statements on one line.
Line 641 - operator>>() - multiple executable statements on one line.
Line 690 - operator>>() - multiple executable statements on one line.
Line 707 - operator>>() - multiple executable statements on one line.
Line 725 - GetIndex() - multiple exit points.
Line 742 - operator>>() - multiple executable statements on one line.
Line 760 - operator>>() - multiple executable statements on one line.
Line 776 - operator>>() - multiple executable statements on one line.
Line 804 - operator>>() - multiple executable statements on one line.

TSElectionSet.cpp
TSElectionSet.h

Lines 40-46 - multiple executable statements on one line.

/Devel/AVTSCE/Utilities

APPEXception.cpp

Line 126 - GetWSError() - multiple exit points.

APPEXception.h
BufferedSocket.cpp
BufferedSocket.h
Crc.cpp
Crc.h
Debug.cpp
Debug.h
FileArchiver.cpp

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Lines 236,239 - AddDirectory() - multiple exit points.

FileArchiver.h
FileUtil.cpp

Line 207 - CompareFiles() - curious that boolean variable 'exists' is assigned, but first value is overwritten before it is used. Need comments to explain why first value is vestigial.

Line 245 - memsrc() - multiple exit points.

Line 315 - CversionInfo() - naked constant 0xFEEF04BD. Need comments explaining the significance of this value.

Lines 349,353,365,387 - ReadDrive() - multiple exit points if _WIN32_WCE is defined.

FileUtil.h
Machine.cpp
Machine.h
Messages.h
MyArchive.cpp
MyArchive.h
RegKey.cpp
RegKey.h
RichEditCtrl.cpp
RichEditCtrl.h
RTFCell.cpp

Line 88 - HashKey() - naked constants 15,8. Why shift 15 bits? Why 8 bits?

Line 106 - Lookup() - multiple exit points.

Line 142 - SetAt() - naked constant 12345. Need comments explaining the significance of this value.

Line 193 - GetRichEditCtrl() - naked constant 12345. Need comments explaining the significance of this value.

Line 239 - DP2Twips() - naked constant 1440. Need comments explaining the significance of this value.

Line 244 - Twips2DP() - naked constant 1440. Need comments explaining the significance of this value.

RTFCell.h
StdAfx.cpp
StdAfx.h
StringEncoding.cpp

Line 41 - GetNextToken() - multiple exit points.

StringEncoding.h
tcu.cpp
tcu.h
TraceWin.h

Lines 48-141 - large section of code "if 0'd" out but left in. Is this coming back later?

Util.cpp
Util.h

Line 49 - HashKey() - multiple exit points.

Lines 156,160 - CMyArray() - multiple exit points.

WaitLock.cpp

Line 10 - comment says module is WaitLock.h while filename is WaitLock.cpp.

WaitLock.h

dLine 21 - CwaitLock() constructor - naked constant 20000. Need comments explaining the significance of this value.

/Devel/AVTSCE/VoterCard

AMReader.cpp

Lines 113,115,117 - SendCmd() - multiple exit points.
Line 192 - Reset() - multiple exit points.
Line 256-276 - code "if 0'd" out but left in. Is this coming back later?

AMReader.h
CardReader.cpp

Lines 57,77,90,93,97 - OpenPort() - multiple exit points.

CardReader.h
CLXMemCard.cpp

Line 30 - Open() - multiple exit points.
Line 31 - Open() - unreachable statement.

CLXMemCard.h
CLXSmartCard.cpp
CLXSmartCard.h
ISO7816Card.cpp
ISO7816Card.h
SCMonitor.cpp
SCMonitor.h
SCWinApi.cpp

Lines 37-70 - SendData() - most of function "if 0'd" out but left in. Is this coming back later?
Lines 90,97 - Open() - multiple exit points.
Line 152 - IsCardPresent() - multiple exit points.
Lines 181,188 - OpenCard() - multiple exit points.
Line 209 - CloseCard() - multiple exit points.
Lines 221,235,241 - ISOCCommand() - multiple exit points.

SCWinApi.h
SmartCard.cpp
SmartCard.h
SmartCardEmuDlg.cpp
SmartCardEmuDlg.h
StdAfx.cpp
StdAfx.h
STRReader.cpp

Line 56 - SendDataT0() - multiple exit points.
Line 76 - RecvDataT0() - multiple exit points.

Lines 260,261 - GetCardStatus() - naked constants 5,4. Need comments explaining the significance of these values.

STReader.h
VoterCard.cpp

Line 231 - OpenCard() - multiple exit points.
Line 386 - OnCardChanged() - multiple exit points.

VoterCard.h

Line 66 + IsCardPresent() - multiple executable statements on one line.

VoterInfo.cpp
VoterInfo.h

2. General Observations

The code is well-written, with mnemonic variable names and function names. Though in-line comments are sparse, the verbose naming convention usually makes the code easily readable. There are NO issues of excessive length. All methods and functions were concise and compact.

3. Final Assessment Statement

While the code was clean and robust for the most part, there many instances of multiple exit points and multiple executable statements on a single line, both specifically prohibited by the FEC guidelines.

Some code was not as immediately intuitive upon a first and second reading, and as such was noted, with requests for more informative comments. Naked constants contributed to this problem.

Some areas need improving in the area of robustness, specifically regarding the possibility of zero denominators. It may be true that conditions necessary to create a zero denominator are logically impossible in the environment that the code would be executed in, but that investigation was beyond the scope of this review. The customer is requested to either make zero denominators logically impossible, or show the reviewer that such is already the case.

After the issues raised above have been fixed it will be asserted that this release substantially complies with the FEC guidelines for coding practices as set forth within the FEC Performance and Test Standards for Punchcard, Marksense, and Direct Recording Electronic Voting Systems.

4. Revision 4.0.7 Assessment Statements

Release 4.0.7 was received on August 7th, 2001. Files were compared with their 4.0.3.0 counterparts and any differences investigated. Attention was also given to how suggestions regarding FEC compliance from the previous review were implemented. The following is a list of reviewed files and comments, if necessary.

5. Revision 4.0.7 Source File Specific Notes

/Accumulator

AccumulatorDlg.cpp

Line 63 – DoDataExchange() – multiple exit points – unaddressed from previous review.
Line 192,212 – OnLoad() – multiple exit points – unaddressed from previous review.

/Ballot

BallotCell.cpp

Lines 575-584 – SetRect() – section of code commented out but left in. Is this coming back later?

Line 616 – OnPaint() – fix of previous multiple exit point has different behavior from previous version. Previous version if(A=B && C) would execute subsequent code (not return) if either A=B OR IC. New version if(A=B && !C) will execute subsequent code (not return) if A=B AND IC. While this new behavior is logically different, it is possible that it is intentional. If the vendor deems this new behavior acceptable, this is not an issue.

Line 1241 – GetEndorsementVote() – fix from previous multiple exit point implementation has possibly different behavior than previous version, which could only return the first qualifying candCell.GetVGroup(). This version returns the last qualifying candCell.GetVGroup(). If it can be guaranteed that they are one in the same, this is not an issue.

BallotCell.h

BallotWnd.cpp

Lines 221-225 - OnLButtonDown() - curious that new code has been introduced and #if 0'd out. If the #if 0 is removed, there will be an unacceptable instance of a multiple exit point on line 224.

BallotWnd.h
Layout.cpp

Line 522 - TryLayoutRaceAndHeader() - multiple exit points if OPTIMIZE_LAYOUT is defined. Other multiple exit points within OPTIMIZE_LAYOUT #defines (BallotCell.cpp) have been fixed.

WriteIn.cpp

/BallotStation

AdminDlg.cpp
AdminDlg.h
BallotDlg.cpp

Lines 95-107 - OnInitDialog() - while fixing multiple exit points, new code manifests different behavior than previous version. These lines would not have been executed in the event of a return() in the previous version. They will be executed regardless in this version. If the vendor deems this behavior acceptable, it is not an issue.

BallotSelDlg.cpp
BallotStation.cpp

Line 365 - Election() - new code introduces multiple exit points.

Lines 564-578 - PlayNext() - while fixing multiple exit points, new code manifests different behavior than previous version. These lines would not have been executed in the event of a return() in the previous version. They will be executed regardless in this version. If the vendor deems this behavior acceptable, it is not an issue.

Lines 691,737 - PreTranslateMessage() - while fixing multiple exit points, new code manifests different behavior than previous version. These if()s would not have been executed in the event of a return() in the previous version. They will be executed regardless in this version. If the vendor deems this behavior acceptable, it is not an issue.

BallotStation.h
BallotStationDlg.cpp
ExitPollDlg.cpp
InstructionDlg.cpp
LanguageSelDlg.cpp
PinDlg.cpp
PinDlg.h
PreElectDlg.cpp

Lines 73-146 - DoDataExchange() - while fixing multiple exit points, new code manifests different behavior than previous version. These lines would not have been executed in the event of a return() in the previous version. They will be executed regardless in this version. If the vendor deems this behavior acceptable, it is not an issue.

PreElectDlg.h
RecordVoteDlg.cpp
RecordVoteDlg.h
TestPctSelDlg.cpp
TransferElecDlg.cpp

VgroupSelDlg.cpp
Vote.cpp
VoteDlg.cpp
VoteDlg.h

/DiagMode

StdAfx.h
TestCardReader.cpp
TestPrinter.cpp
TestSerial.cpp
TestSerial.h

/PollBook

PollBook.cpp
PollBookDlg.cpp

/Shared

Accumulator.cpp

Line 141 – DoLoadResults() – multiple exit points – unaddressed from previous review.

Accumulator.h
AccumulatorDlg.cpp
ActionDlg.cpp
ActionDlg.h
AuditDlg.cpp
BackgroundDlg.cpp
BallotRstDlg.cpp
ChallengeDlg.cpp
CreateCardDlg.cpp
CreateCardDlg.h
ElectionArchives.cpp
ElectionArchives.h
Keyboard.cpp
MouseRecorder.cpp
MouseRecorder.h
Printer.cpp

Line 105 – Open() – can it be guaranteed that tm.tmHeight and tm.tmExternalLeading are nonzero? If not, there will be a zero denominator in line 106. Some preventative code needs to be inserted.

Printer.h
ReportingDlg.cpp
resource.h
TransferDlg.cpp
TransferResultsDlg.cpp

Lines 137-143 – OnTransfer() – section #if'd out this version but left in. Is it coming back later?
Lines 224-273 – large section #if'd out this version but left in. Is it coming back later?

TransferResultsDlg.h

Lines 32-37 - section #if'd out this version but left in. Is it coming back later?

TSDialog.cpp

Line 125 - OnCmdMsg() - multiple exit points - unaddressed from previous review.
Line 136 - DoOnCmdMsg() - multiple exit points - unaddressed from previous review.

TSDialog.h

/TSElection

DL2Archive.cpp
ElectionKeys.cpp
ElectionKeys.h
ExByteArray.cpp
RecordFile.cpp
Result.cpp
ResultFile.cpp
TSElectionDB.cpp
TSElectionDB.h
TSElectionDoc.cpp
TSElectionObj.cpp
TSElectionObj.h

Line 251 - Find() - multiple exit points - unaddressed from previous review.
Line 277 - FindNext() - multiple exit points - unaddressed from previous review.
Line 459 - Find() - multiple exit points - unaddressed from previous review.
Line 799 - GetIndex() - multiple exit points - unaddressed from previous review.

TSElectionSet.cpp

TSElectionSet.h

/Utilities

APPEXception.cpp
Crc.cpp
Crc.h
FileArchiver.cpp
FileUtil.cpp

Lines 213-232 - code #if'd out but left in. Is it coming back later?

Line 247 - memsrc() - rewrite of previous version's multiple exit point may have different behavior than previous version. It is not immediately obvious how the assignment "st=s2" guarantees an exit from the while().

Line 318 - CversionInfo() - naked constant 0xFEEF04BD. Need comments explaining the significance of this value.

Line 353 - ReadDrive() - rewrite of previous version's multiple exit point has different behavior than previous version. If the if() in line 352 is true the while() is not exited immediately as it was in the previous version. If the vendor deems this behavior acceptable this is not an issue.

Lines 369 - ReadDrive() - multiple exit points if _WIN32_WCE is defined.

Line 392 - ReadDrive() - rewrite of previous version's multiple exit point has different behavior than previous version. If the if() in line 391 is true the while() is not exited immediately as it was in the previous version. If the vendor deems this behavior acceptable this is not an issue.

MyArchive.h

RichEditCtrl.cpp
RTFCell.cpp
RTFCell.h
StringEncoding.cpp
Util.cpp
Util.h

Line 166 – CMyArray() – rewrite of multiple exit points has different behavior (and probably erroneous) from the previous version. The break statement is executed after the FIRST iteration of the for() loop REGARDLESS of the truth of the if() condition. This anomaly may have been overlooked in other multiple exit point rewrites.

WaitLock.cpp
WaitLock.h

/VoterCard

AMReader.cpp
AMReader.h
CardReader.cpp
CardReader.h
CLXMemCard.cpp

Line 30 – Open() – multiple exit points – unaddressed from previous review.
Line 31 – Open() – unreachable statement – unaddressed from previous review.

SCMonitor.cpp
SCMonitor.h
SCWinApi.cpp

Lines 94,95 – Open() – while fixing multiple exit points, new code manifests different behavior than previous version. These lines would not have been executed in the event of a return() in the previous version. They will be executed regardless in this version. If the vendor deems this behavior acceptable, it is not an issue.

Lines 191,192 – OpenCard() – while fixing multiple exit points, new code manifests different behavior than previous version. These lines would not have been executed in the event of a return() in the previous version. They will be executed regardless in this version. If the vendor deems this behavior acceptable, it is not an issue.

Lines 249-252 – ISOCommand() – while fixing multiple exit points, new code manifests different behavior than previous version. These lines would not have been executed in the event of a return() in the previous version. They will be executed regardless in this version. If the vendor deems this behavior acceptable, it is not an issue.

Line 258 – ISOCommand() – syntax error. Did the vendor compile and run this code before giving it to Wyle for review?

SmartCardEmuDlg.cpp
SmartCardEmuDlg.h
STReader.cpp
STReader.h
VoterCard.cpp

Line 191 - GetCardState() - multiple exit points.
Line 192 - GetCardState() - unreachable code.
Line 294 - Write() - removal of free(p) in this version raises the question of memory leakage as memory assigned to a pointer on the stack is never freed, and upon returning from the function, the pointer is lost forever.

VoterCard.h

Lines 68,69 - IsCardPresent() - multiple executable statements on one line - issue unaddressed from previous review.

VoterInfo.cpp
VoterInfo.h

6. Revision 4.0.7 Final Assessment Statements

The code continues to be well-commented and innately mnemonic and readable for the most part. The vendor has expended a great deal of effort addressing most of the issues raised by the previous review. Many naked constants were replaced with mnemonic symbolic constants and/or commented satisfactorily. Many of the multiple exit points have been addressed and rewritten as single exit points. Many preventative statements were inserted to guarantee nonzero denominators. This effort is appreciated, as it brings the code closer to FEC compliance.

However, in some rewrites of multiple exit points, the new code manifested different behaviors than their predecessors. Some new behaviors may be intentional and were considered, though remarkable, left to the vendor's discretion. Others, however, are very likely mistakes (see /Utilities/Util.h).

Some new multiple exit points were introduced, some code that could be vulnerable to divide-by-zero errors was introduced, a free() was removed which raises the question of a memory leak, and one place had a syntax error that would never have compiled, leading the reviewer to wonder if the code was even tested before being delivered to Wyle for review.

Until the new and remaining issues above have been fixed it is recommended that this code not be considered compliant with the FEC guidelines for coding practices as set forth within the FEC Performance and Test Standards for Punchcard, Marksense, and Direct Recording Electronic Voting Systems.

7. Revision 4.0.8.0 Assessment Statements

Release 4.0.8.0 was received on August 27th, 2001. Files were compared with their 4.0.7 counterparts and any differences investigated. Attention was also given to how suggestions regarding FEC compliance from the previous review were implemented. The following is a list of reviewed files and comments, if necessary.

8. Revision 4.0.8.0 Source File Specific Notes

/Ballot

BallotCell.cpp
BallotWnd.cpp
Layout.cpp

/BallotStation

BallotDlg.cpp
BallotStation.cpp
PreElectDlg.cpp

/Shared

Accumulator.cpp
Printer.cpp
ReportingDlg.cpp
TransferResultsDlg.cpp
TransferResultsDlg.h
TSDialog.cpp

/TSElection

TSElectionObj.h

/Utilities

FileUtil.cpp
Util.h

/VoterCard

CLXMemCard.cpp
VoterCard.cpp
VoterCard.h

9. Revision 4.0.8.0 Final Assessment Statements

The changes in Revision 4.0.8.0 were minor, and singlemindedly addressed every single issue raised by the previous review. Even some parts of the code that were not flagged but manifested similar construction have also been addressed. This effort is appreciated.

It is recommended that this code be considered compliant with the FEC guidelines for coding practices as set forth within the FEC Performance and Test Standards for Punchcard, Marksense, and Direct Recording Electronic Voting Systems.

12. Revision 4.0.10 Final Assessment Statements

Revision 4.0.10 was a minor revision. The changes, which included the addition of some logging diagnostics and symbolic constants and other miscellaneous sections of code, were well documented and all made with a view of compliance with the FEC guidelines. Some steps were taken to improve readability that were above and beyond those requested in previous reviews. This effort is appreciated.

It is recommended that this code be considered compliant with the FEC guidelines for coding practices as set forth within the FEC Performance and Test Standards for Punchcard, Marksense, and Direct Recording Electronic Voting Systems.

13. Revision 4.0.11 Assessment Statements

Release 4.0.11 was received on October 4th, 2001. Files were compared with their 4.0.10.0 counterparts and any differences investigated. The following is a list of reviewed files and comments, if necessary.

14. Revision 4.0.11 Source File Specific Notes

/BallotStation

AutoTest.cpp
BallotStation.cpp
BallotStationDlg.cpp
Vote.cpp
VoteDlg.cpp
VoteDlg.h

/Shared

Accumulator.cpp
AuditDlg.cpp
BackgroundDlg.cpp
BallotRstDlg.cpp
ChallengeDlg.cpp
Resource.h
TSRegistryDlg.cpp
TSRegistryDlg.h

/TSElection

TSElectionDoc.cpp
TSElectionDoc.h

/VoterCard

SCMonitor.cpp
SmartCardEmuDlg.cpp

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Name	Type	Modified	Size	CRC	Path
RecordVoteDlg.h	H File	9/28/01 09:08	2,580	a53084be	AV...\BallotStation\
BallotStation.ico	Icon	9/28/01 09:08	1,078	73e93074	AVTSCE\Bal...res\
BallotStation.rc2	RC2 File	9/28/01 09:08	405	b7032006	AVTSCE\Bal...res\
InsertCard.bmp	Bitmap Image	9/28/01 09:08	148,078	7378a202	AVTSCE\Bal...res\
splash.bmp	Bitmap Image	9/28/01 09:08	174,058	96a59fc1	AVTSCE\Bal...res\
Spish16.bmp	Bitmap Image	9/28/01 09:08	82,278	939439cb	AVTSCE\Bal...res\
resource.h	H File	9/28/01 09:08	4,722	e41fe63e	AV...\BallotStation\
StdAfx.cpp	CPP File	9/28/01 09:08	211	38e3a0cb	AV...\BallotStation\
StdAfx.h	H File	9/28/01 09:08	1,159	8f355e3e	AV...\BallotStation\
TestBallotDlg.cpp	CPP File	9/28/01 09:08	3,219	b0d2f3cc	AV...\BallotStation\
TestBallotDlg.h	H File	9/28/01 09:08	1,506	1df769ce	AV...\BallotStation\
TestPctSelDlg.cpp	CPP File	9/28/01 09:08	8,620	9476d7b9	AV...\BallotStation\
TestPctSelDlg.h	H File	9/28/01 09:08	2,233	d8dae19a	AV...\BallotStation\
TransferElecDlg.cpp	CPP File	9/28/01 09:08	7,231	652c73c4	AV...\BallotStation\
TransferElecDlg.h	H File	9/28/01 09:08	1,715	2eb077c2	AV...\BallotStation\
VGroupSelDlg.cpp	CPP File	9/28/01 09:08	5,905	612adde3	AV...\BallotStation\
VGroupSelDlg.h	H File	9/28/01 09:08	1,748	e5c43bb0	AV...\BallotStation\
Vote.cpp	CPP File	9/28/01 09:08	3,878	352ea0a5	AV...\BallotStation\
Vote.h	H File	9/28/01 09:08	831	921ceb23	AV...\BallotStation\
VoteDlg.cpp	CPP File	9/28/01 09:08	9,071	3ab0fd2c	AV...\BallotStation\
VoteDlg.h	H File	9/28/01 09:08	1,703	be347b83	AV...\BallotStation\
WriteInDlg.cpp	CPP File	9/28/01 09:08	2,303	8abde5d5	AV...\BallotStation\
Des.cpp	CPP File	9/28/01 09:08	23,125	d2029dbb	avtsce\des\
Des.dsp	DSP File	9/28/01 09:08	3,164	223c4bfc	avtsce\des\
Des.h	H File	9/28/01 09:08	1,452	e1e66acf	avtsce\des\
Des.vcp	VCP File	9/28/01 09:08	16,918	181c6c7	avtsce\des\
eight.h	H File	9/28/01 09:08	1,792	2c79ad28	avtsce\des\
ksched.h	H File	9/28/01 09:08	23,296	d2752eca	avtsce\des\
Spetable.h	H File	9/28/01 09:08	13,312	f688c5f4	avtsce\des\
StdAfx.cpp	CPP File	9/28/01 09:08	204	30c312c7	avtsce\des\
StdAfx.h	H File	9/28/01 09:08	1,037	cac53072	avtsce\des\
DiagMode.dsp	DSP File	9/28/01 09:08	3,893	69410589	AVT...DiagModel\
DiagMode.rc	RC File	9/28/01 09:08	5,917	422dbb3d	AVT...DiagModel\
DiagMode.vcp	VCP File	9/28/01 09:08	28,893	76084ce9	AVT...DiagModel\
DiagnosticsDlg.cpp	CPP File	9/28/01 09:08	2,224	731d1c52	AVT...DiagModel\
DiagnosticsDlg.h	H File	9/28/01 09:08	1,314	f29d3369	AVT...DiagModel\
newres.h	H File	9/28/01 09:08	768	b5748009	AVT...DiagModel\
resource.h	H File	9/28/01 09:08	1,008	207ea8e	AVT...DiagModel\
StdAfx.cpp	CPP File	9/28/01 09:08	209	6c9cd813	AVT...DiagModel\
StdAfx.h	H File	9/28/01 09:08	1,137	c97d8d3a	AVT...DiagModel\
TestCardReader.cpp	CPP File	9/28/01 09:08	3,105	aa697fbe	AVT...DiagModel\
TestCardReader.h	H File	9/28/01 09:08	951	946e6b0d	AVT...DiagModel\
TestPrinter.cpp	CPP File	9/28/01 09:08	2,272	95e948ff	AVT...DiagModel\
TestPrinter.h	H File	9/28/01 09:08	881	939b3825	AVT...DiagModel\
TestSerial.cpp	CPP File	9/28/01 09:08	7,323	56b72928	AVT...DiagModel\
TestSerial.h	H File	9/28/01 09:08	2,149	ec01b199	AVT...DiagModel\
newres.h	H File	9/28/01 09:08	768	b5748009	AVTSCE\PollBook\
PollBook.cpp	CPP File	9/28/01 09:08	5,256	b4799954	AVTSCE\PollBook\
PollBook.dsp	DSP File	9/28/01 09:08	4,475	80bcff16	AVTSCE\PollBook\
PollBook.h	H File	9/28/01 09:08	1,659	a6f27505	AVTSCE\PollBook\

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Name	Type	Modified	Size	CRC	Path
PollBook.rc	RC File	9/28/01 09:08	11,245	6e15482a	AVTSCE\PollBook\
PollBook.vcp	VCP File	9/28/01 09:08	37,921	a6269343	AVTSCE\PollBook\
PollBookDlg.cpp	CPP File	9/28/01 09:08	4,970	699ba328	AVTSCE\PollBook\
PollBookDlg.h	H File	9/28/01 09:08	1,425	337a093d	AVTSCE\PollBook\
PollBook.ico	Icon	9/28/01 09:08	1,078	120de4e4	AVTSCE\Pol...res\
PollBook.rc2	RC2 File	9/28/01 09:08	400	d9f96a90	AVTSCE\Pol...res\
resource.h	H File	9/28/01 09:08	3,575	da648caf	AVTSCE\PollBook\
StdAfx.cpp	CPP File	9/28/01 09:08	206	c3166930	AVTSCE\PollBook\
StdAfx.h	H File	9/28/01 09:08	1,415	2654266d	AVTSCE\PollBook\
VoterInfoDlg.cpp	CPP File	9/28/01 09:08	2,451	d441e485	AVTSCE\PollBook\
VoterInfoDlg.h	H File	9/28/01 09:08	1,482	ccc5131b	AVTSCE\PollBook\
Accumulator.cpp	CPP File	9/28/01 09:08	13,685	e523acea	AVTSCE\Shared\
Accumulator.h	H File	9/28/01 09:08	6,241	fb3b31c4	AVTSCE\Shared\
AccumulatorDlg.cpp	CPP File	9/28/01 09:08	9,094	87a50aa7	AVTSCE\Shared\
AccumulatorDlg.h	H File	9/28/01 09:08	1,800	678c9c3b	AVTSCE\Shared\
ActionDlg.cpp	CPP File	9/28/01 09:08	5,315	da83cf19	AVTSCE\Shared\
ActionDlg.h	H File	9/28/01 09:08	2,024	46f21783	AVTSCE\Shared\
AuditDlg.cpp	CPP File	9/28/01 09:08	6,882	b67de37e	AVTSCE\Shared\
AuditDlg.h	H File	9/28/01 09:08	833	e7c2000e	AVTSCE\Shared\
BackgroundDlg.cpp	CPP File	9/28/01 09:08	6,593	c711e5ed	AVTSCE\Shared\
BackgroundDlg.h	H File	9/28/01 09:08	2,354	cb3ebbbe	AVTSCE\Shared\
BallotRstDlg.cpp	CPP File	9/28/01 09:08	12,559	1ca8f8a	AVTSCE\Shared\
BallotRstDlg.h	H File	9/28/01 09:08	2,247	de2d4ed4	AVTSCE\Shared\
ChallengeDlg.cpp	CPP File	9/28/01 09:08	5,918	5d297e9a	AVTSCE\Shared\
ChallengeDlg.h	H File	9/28/01 09:08	1,705	d8290f3b	AVTSCE\Shared\
Common.apx	APS File	9/28/01 09:08	2,829	43591e76	AVTSCE\Shared\
CreateCardDlg.cpp	CPP File	9/28/01 09:08	15,333	6def4796	AVTSCE\Shared\
CreateCardDlg.h	H File	9/28/01 09:08	2,431	f03905ac	AVTSCE\Shared\
ElectionArchives.cpp	CPP File	9/28/01 09:08	20,321	622a887b	AVTSCE\Shared\
ElectionArchives.h	H File	9/28/01 09:08	2,155	eb3ce2e2	AVTSCE\Shared\
Keyboard.cpp	CPP File	9/28/01 09:08	6,925	5ff6f22	AVTSCE\Shared\
Keyboard.h	H File	9/28/01 09:08	2,173	2d802689	AVTSCE\Shared\
MouseRecorder.cpp	CPP File	9/28/01 09:08	1,337	27a53fca	AVTSCE\Shared\
MouseRecorder.h	H File	9/28/01 09:08	1,370	60196a7e	AVTSCE\Shared\
Printer.cpp	CPP File	9/28/01 09:08	7,563	6ce116d6	AVTSCE\Shared\
Printer.h	H File	9/28/01 09:08	1,627	4b664eef	AVTSCE\Shared\
Readme.txt	Readme Docu...	9/28/01 09:08	1,455	6ede7b61	AVTSCE\Shared\
ReportingDlg.cpp	CPP File	9/28/01 09:08	17,077	45d0c060	AVTSCE\Shared\
ReportingDlg.h	H File	9/28/01 09:08	2,549	15009ab8	AVTSCE\Shared\
filecopy.avi	Movie Clip (AVI)	9/28/01 09:08	491	8b0839a	AVTSCE\Sh...res\
resource.h	H File	9/28/01 09:08	7,107	9045be4a	AVTSCE\Shared\
Shared.dsp	DSP File	9/28/01 09:08	5,631	ad2d5bb	AVTSCE\Shared\
Shared.rc	RC File	9/28/01 09:08	18,375	fa04d9bf	AVTSCE\Shared\
Shared.vcp	VCP File	9/28/01 09:08	129,079	e0e2e30c	AVTSCE\Shared\
StdAfx.cpp	CPP File	9/28/01 09:08	204	30c312c7	AVTSCE\Shared\
StdAfx.h	H File	9/28/01 09:08	1,009	50badaea	AVTSCE\Shared\
TransferDlg.cpp	CPP File	9/28/01 09:08	32,978	f58abb07	AVTSCE\Shared\
TransferDlg.h	H File	9/28/01 09:08	5,155	324af147	AVTSCE\Shared\
TransferResultsDlg.cpp	CPP File	9/28/01 09:08	10,128	4efadfb2	AVTSCE\Shared\
TransferResultsDlg.h	H File	9/28/01 09:08	1,461	563f2203	AVTSCE\Shared\

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Name	Type	Modified	Size	CRC	Path
TSDialog.cpp	CPP File	9/28/01 09:08	7,564	5fc99626	AVTSCE\Shared\
TSDialog.h	H File	9/28/01 09:08	3,526	10bdab94	AVTSCE\Shared\
TSRegistryDlg.cpp	CPP File	9/28/01 09:08	5,606	91d07925	AVTSCE\Shared\
TSRegistryDlg.h	H File	9/28/01 09:08	1,377	8d0ba920	AVTSCE\Shared\
Audit.cpp	CPP File	9/28/01 09:08	2,315	287d65fb	AVT...ITSElection\
Audit.h	H File	9/28/01 09:08	1,128	7c00bc68	AVT...ITSElection\
BallotResults.cpp	CPP File	9/28/01 09:08	3,710	6a675f62	AVT...ITSElection\
BallotResults.h	H File	9/28/01 09:08	1,458	444e7631	AVT...ITSElection\
DL2Archive.cpp	CPP File	9/28/01 09:08	1,771	28ceac8a	AVT...ITSElection\
DL2Archive.h	H File	9/28/01 09:08	4,729	8454baf3	AVT...ITSElection\
ElectionKeys.cpp	CPP File	9/28/01 09:08	1,403	feca4c8d	AVT...ITSElection\
ElectionKeys.h	H File	9/28/01 09:08	6,905	1e6e4362	AVT...ITSElection\
ExByteArray.cpp	CPP File	9/28/01 09:08	4,060	dd49871a	AVT...ITSElection\
ExByteArray.h	H File	9/28/01 09:08	2,128	9e72718d	AVT...ITSElection\
RecordFile.cpp	CPP File	9/28/01 09:08	4,786	3e52d909	AVT...ITSElection\
RecordFile.h	H File	9/28/01 09:08	1,245	e7bbec71	AVT...ITSElection\
Result.cpp	CPP File	9/28/01 09:08	8,356	8938548f	AVT...ITSElection\
Result.h	H File	9/28/01 09:08	5,263	96309649	AVT...ITSElection\
ResultFile.cpp	CPP File	9/28/01 09:08	19,069	725d5366	AVT...ITSElection\
ResultFile.h	H File	9/28/01 09:08	4,325	37251180	AVT...ITSElection\
Stdafx.cpp	CPP File	9/28/01 09:08	204	30c312c7	AVT...ITSElection\
Stdafx.h	H File	9/28/01 09:08	847	9abf95ee	AVT...ITSElection\
TSElection.dsp	DSP File	9/28/01 09:08	5,043	412b6fdf	AVT...ITSElection\
TSElection.vcp	VCP File	9/28/01 09:08	61,633	e0b9da1a	AVT...ITSElection\
TSElectionDB.cpp	CPP File	9/28/01 09:08	3,927	1c0e743d	AVT...ITSElection\
TSElectionDB.h	H File	9/28/01 09:08	3,935	1bcc6930	AVT...ITSElection\
TSElectionDoc.cpp	CPP File	9/28/01 09:08	26,255	1eb11f5	AVT...ITSElection\
TSElectionDoc.h	H File	9/28/01 09:08	4,449	dc75a230	AVT...ITSElection\
TSElectionObj.cpp	CPP File	9/28/01 09:08	9,986	d03a4153	AVT...ITSElection\
TSElectionObj.h	H File	9/28/01 09:08	22,316	e3e23516	AVT...ITSElection\
TSElectionSet.cpp	CPP File	9/28/01 09:08	10,974	48cab98c	AVT...ITSElection\
TSElectionSet.h	H File	9/28/01 09:08	5,563	ea69653	AVT...ITSElection\
APPEXception.cpp	CPP File	9/28/01 09:08	6,191	83f102ed	AVTSCE\Utilities\
APPEXception.h	H File	9/28/01 09:08	1,615	89f67f3a	AVTSCE\Utilities\
BufferedSocket.cpp	CPP File	9/28/01 09:08	7,646	e2f57f68	AVTSCE\Utilities\
BufferedSocket.h	H File	9/28/01 09:08	2,297	32a51ff3	AVTSCE\Utilities\
Crc.cpp	CPP File	9/28/01 09:08	7,429	732da993	AVTSCE\Utilities\
Crc.h	H File	9/28/01 09:08	950	12da312c	AVTSCE\Utilities\
Debug.cpp	CPP File	9/28/01 09:08	1,891	7d8f6eb8	AVTSCE\Utilities\
Debug.h	H File	9/28/01 09:08	1,664	4ba14e7a	AVTSCE\Utilities\
FileArchiver.cpp	CPP File	9/28/01 09:08	9,991	66560c74	AVTSCE\Utilities\
FileArchiver.h	H File	9/28/01 09:08	3,022	5b728b52	AVTSCE\Utilities\
FileUtil.cpp	CPP File	9/28/01 09:08	10,717	3542de35	AVTSCE\Utilities\
FileUtil.h	H File	9/28/01 09:08	2,067	d2f055b5	AVTSCE\Utilities\
Machine.cpp	CPP File	9/28/01 09:08	3,713	c2b30cec	AVTSCE\Utilities\
Machine.h	H File	9/28/01 09:08	2,823	b774a9bf	AVTSCE\Utilities\
Messages.h	H File	9/28/01 09:08	2,141	cc4fe440	AVTSCE\Utilities\
MyArchive.cpp	CPP File	9/28/01 09:08	74	7eb1cf83	AVTSCE\Utilities\
MyArchive.h	H File	9/28/01 09:08	1,415	edcba73e	AVTSCE\Utilities\
Readme.txt	Readme Docu...	9/28/01 09:08	1,473	a429ac9	AVTSCE\Utilities\

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Name	Type	Modified	Size	CRC	Path
RegKey.cpp	CPP File	9/28/01 09:08	3,695	f6e40a94	AVTSCEUtilities\
RegKey.h	H File	9/28/01 09:08	1,325	d43ca7be	AVTSCEUtilities\
RichEdit.h	H File	9/28/01 09:08	32,523	80026533	AVTSCEUtilities\
RichEditCtrl.cpp	CPP File	9/28/01 08:08	5,480	e0aca53d	AVTSCEUtilities\
RichEditCtrl.h	H File	9/28/01 09:08	2,058	b3325f46	AVTSCEUtilities\
RTFCell.cpp	CPP File	9/28/01 09:08	20,096	c54d47d3	AVTSCEUtilities\
RTFCell.h	H File	9/28/01 09:08	5,734	52e694a4	AVTSCEUtilities\
StdAfx.cpp	CPP File	9/28/01 09:08	207	2034f245	AVTSCEUtilities\
StdAfx.h	H File	9/28/01 09:08	813	e0800657	AVTSCEUtilities\
StringEncoder.cpp	CPP File	9/28/01 09:08	4,708	66d39128	AVTSCEUtilities\
StringEncoder.h	H File	9/28/01 09:08	1,654	d7e2d348	AVTSCEUtilities\
tcu.cpp	CPP File	9/28/01 09:08	4,310	597dad94	AVTSCEUtilities\
tcu.h	H File	9/28/01 09:08	4,671	58ca4e4d	AVTSCEUtilities\
TraceWin.h	H File	9/28/01 09:08	5,741	1169aa8	AVTSCEUtilities\
Util.cpp	CPP File	9/28/01 09:08	857	98b96d5	AVTSCEUtilities\
Util.h	H File	9/28/01 09:08	31,413	77d08dfe	AVTSCEUtilities\
Utilities.dsp	DSP File	9/28/01 09:08	5,289	f714ecd4	AVTSCEUtilities\
Utilities.vcp	VCP File	9/26/01 09:08	45,641	aae75f67	AVTSCEUtilities\
WaitLock.cpp	CPP File	9/28/01 09:08	1,231	7ab53b54	AVTSCEUtilities\
WaitLock.h	H File	9/28/01 09:08	971	ca29cec1	AVTSCEUtilities\
AMReader.cpp	CPP File	9/28/01 09:08	9,234	dbbd50af	AVT...\VoterCard\
AMReader.h	H File	9/28/01 09:08	1,158	f1456a1f	AVT...\VoterCard\
CardReader.cpp	CPP File	9/28/01 09:08	3,423	514c6599	AVT...\VoterCard\
CardReader.h	H File	9/28/01 09:08	2,477	26d499ce	AVT...\VoterCard\
CLXMemCard.cpp	CPP File	9/28/01 09:08	1,530	98e71548	AVT...\VoterCard\
CLXMemCard.h	H File	9/28/01 09:08	913	b4f8c2e	AVT...\VoterCard\
CLXSmartCard.cpp	CPP File	9/28/01 08:08	2,867	d19ef11a	AVT...\VoterCard\
CLXSmartCard.h	H File	9/28/01 09:08	1,187	5e4482c1	AVT...\VoterCard\
ISO7816Card.cpp	CPP File	9/28/01 09:08	5,702	95d30a9d	AVT...\VoterCard\
ISO7816Card.h	H File	9/28/01 09:08	1,885	719f1629	AVT...\VoterCard\
Readme.txt	Readme Docu...	9/28/01 09:08	1,473	6e1af149	AVT...\VoterCard\
resource.h	H File	9/28/01 09:08	1,424	9fe137f	AVT...\VoterCard\
SCMonitor.cpp	CPP File	9/28/01 09:08	4,230	3e05280	AVT...\VoterCard\
SCMonitor.h	H File	9/28/01 09:08	1,342	f973f8d5	AVT...\VoterCard\
SmartCard.cpp	CPP File	9/28/01 09:08	1,070	6c569855	AVT...\VoterCard\
SmartCard.h	H File	9/28/01 09:08	1,000	c3528b4f	AVT...\VoterCard\
SmartCardEmuDlg.cpp	CPP File	9/28/01 09:08	6,402	e61a6dc9	AVT...\VoterCard\
SmartCardEmuDlg.h	H File	9/28/01 09:08	2,303	97e38948	AVT...\VoterCard\
StdAfx.cpp	CPP File	9/28/01 09:08	207	b3ec8735	AVT...\VoterCard\
StdAfx.h	H File	9/28/01 09:08	804	a22312dd	AVT...\VoterCard\
STReader.cpp	CPP File	9/28/01 09:08	9,416	f09398c1	AVT...\VoterCard\
STReader.h	H File	9/28/01 09:08	946	cc7b9e28	AVT...\VoterCard\
VoterCard.cpp	CPP File	9/28/01 09:08	10,412	5cb6a8b6	AVT...\VoterCard\
VoterCard.dsp	DSP File	9/28/01 09:08	4,754	3cc4153a	AVT...\VoterCard\
VoterCard.h	H File	9/28/01 09:08	2,266	ac789b88	AVT...\VoterCard\
VoterCard.rc	RC File	9/28/01 09:08	3,512	d0ca7d52	AVT...\VoterCard\
VoterCard.vcp	VCP File	9/28/01 09:08	53,042	be5b4dbc	AVT...\VoterCard\
VoterInfo.cpp	CPP File	9/28/01 09:08	3,246	2432477d	AVT...\VoterCard\
VoterInfo.h	H File	9/28/01 09:08	2,667	4185723	AVT...\VoterCard\
249 file(s)			3,226,782		

Page No. D-33
Test Report No. 46058-01

11/30/01 08:29

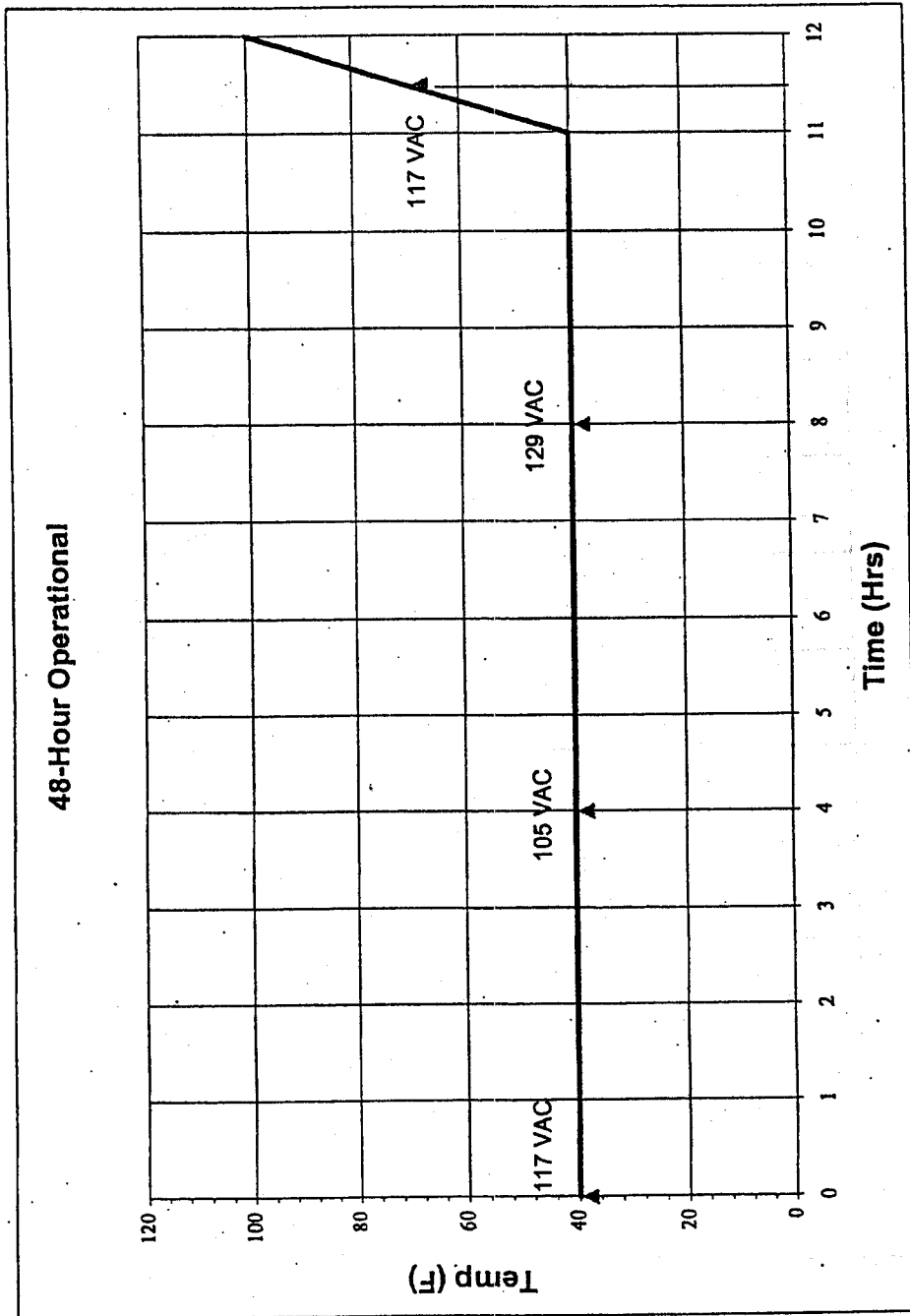
Page 5

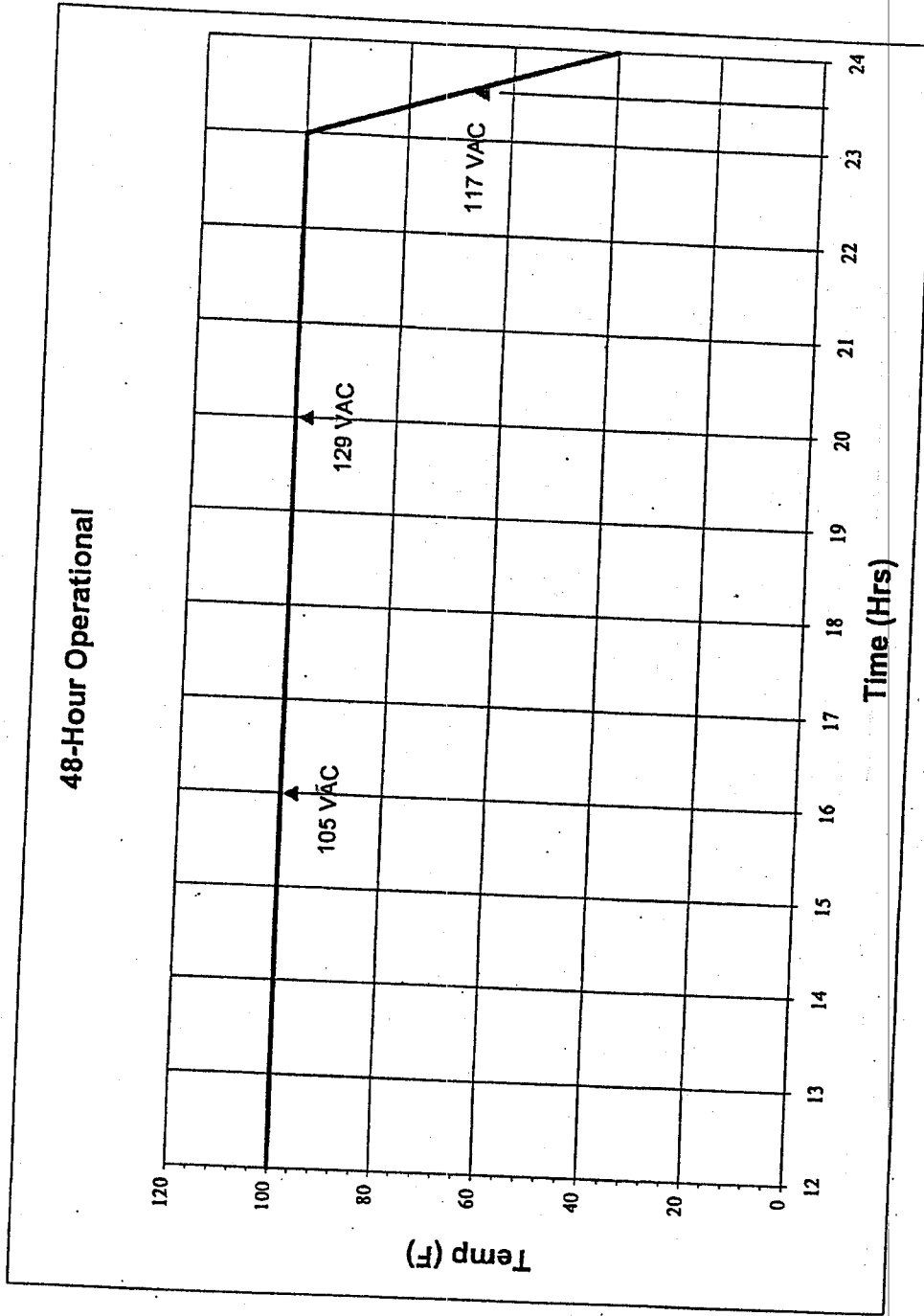
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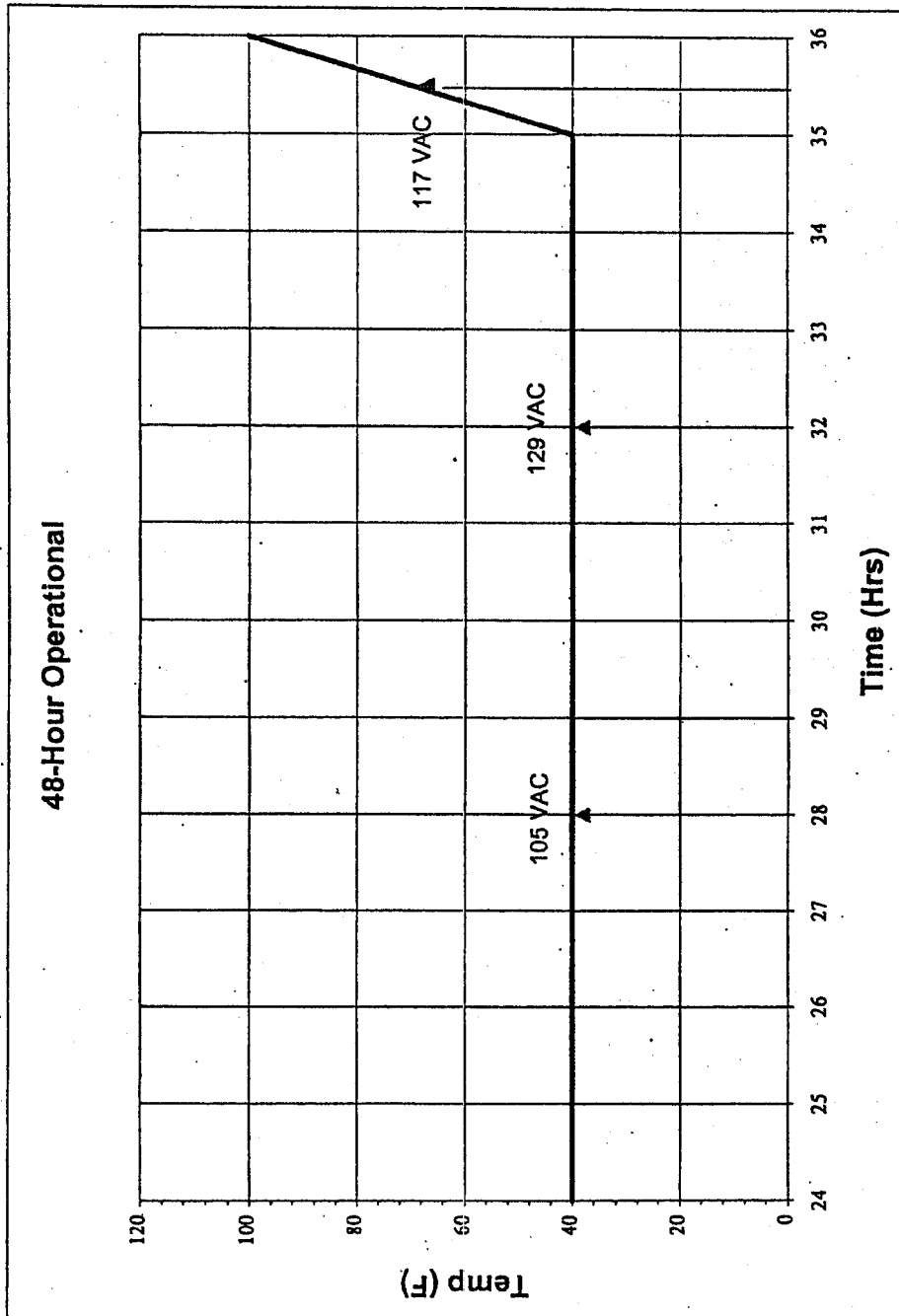
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RegKey.h	H File	9/28/01 09:08	1,325	d43ca7be	AVTSCEUtilities\
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RichEditCtrl.cpp	CPP File	9/28/01 09:08	5,480	e0aca53d	AVTSCEUtilities\
RichEditCtrl.h	H File	9/28/01 09:08	2,058	b3325f46	AVTSCEUtilities\
RTFCell.cpp	CPP File	9/28/01 09:08	20,096	c54d47d3	AVTSCEUtilities\
RTFCell.h	H File	9/28/01 09:08	5,734	52e694a4	AVTSCEUtilities\
StdAfx.cpp	CPP File	9/28/01 09:08	207	2034f245	AVTSCEUtilities\
StdAfx.h	H File	9/28/01 09:08	813	e0800657	AVTSCEUtilities\
StringEncoder.cpp	CPP File	9/28/01 09:08	4,708	66d39128	AVTSCEUtilities\
StringEncoder.h	H File	9/28/01 09:08	1,654	d7e2d348	AVTSCEUtilities\
tcu.cpp	CPP File	9/28/01 09:08	4,310	597dad94	AVTSCEUtilities\
tcu.h	H File	9/28/01 09:08	4,671	58ca4e4d	AVTSCEUtilities\
TraceWin.h	H File	9/28/01 09:08	5,741	1169aa8	AVTSCEUtilities\
Util.cpp	CPP File	9/28/01 09:08	857	98b96d5	AVTSCEUtilities\
Util.h	H File	9/28/01 09:08	31,413	77d08dfe	AVTSCEUtilities\
Utilities.dsp	DSP File	9/28/01 09:08	5,289	f714ecd4	AVTSCEUtilities\
Utilities.vcp	VCP File	9/28/01 09:08	45,641	aae75f67	AVTSCEUtilities\
WaitLock.cpp	CPP File	9/28/01 09:08	1,231	7ab53b54	AVTSCEUtilities\
WaitLock.h	H File	9/28/01 09:08	971	ca29cec1	AVTSCEUtilities\
AMReader.cpp	CPP File	9/28/01 09:08	9,234	dbbd50af	AVT...\VoterCard\
AMReader.h	H File	9/28/01 09:08	1,158	f1456a1f	AVT...\VoterCard\
CardReader.cpp	CPP File	9/28/01 09:08	3,423	514c6599	AVT...\VoterCard\
CardReader.h	H File	9/28/01 09:08	2,477	26d499ce	AVT...\VoterCard\
CLXMemCard.cpp	CPP File	9/28/01 09:08	1,530	98e71548	AVT...\VoterCard\
CLXMemCard.h	H File	9/28/01 09:08	913	b4f8c2e	AVT...\VoterCard\
CLXSmartCard.cpp	CPP File	9/28/01 09:08	2,867	d19ef11a	AVT...\VoterCard\
CLXSmartCard.h	H File	9/28/01 09:08	1,187	5e4482c1	AVT...\VoterCard\
ISO7816Card.cpp	CPP File	9/28/01 09:08	5,702	95d30a9d	AVT...\VoterCard\
ISO7816Card.h	H File	9/28/01 09:08	1,885	719f1629	AVT...\VoterCard\
Readme.txt	Readme Docu...	9/28/01 09:08	1,473	6e1af149	AVT...\VoterCard\
resource.h	H File	9/28/01 09:08	1,424	9fe137f	AVT...\VoterCard\
SCMonitor.cpp	CPP File	9/28/01 09:08	4,230	3e05280	AVT...\VoterCard\
SCMonitor.h	H File	9/28/01 09:08	1,342	f973f8d5	AVT...\VoterCard\
SmartCard.cpp	CPP File	9/28/01 09:08	1,070	6c569855	AVT...\VoterCard\
SmartCard.h	H File	9/28/01 09:08	1,000	c3528b4f	AVT...\VoterCard\
SmartCardEmuDlg.cpp	CPP File	9/28/01 09:08	6,402	e61a6dc9	AVT...\VoterCard\
SmartCardEmuDlg.h	H File	9/28/01 09:08	2,303	97e38948	AVT...\VoterCard\
StdAfx.cpp	CPP File	9/28/01 09:08	207	b3ec8735	AVT...\VoterCard\
StdAfx.h	H File	9/28/01 09:08	804	a22312dd	AVT...\VoterCard\
STReader.cpp	CPP File	9/28/01 09:08	9,416	f09398c1	AVT...\VoterCard\
STReader.h	H File	9/28/01 09:08	946	cc7b9e28	AVT...\VoterCard\
VoterCard.cpp	CPP File	9/28/01 09:08	10,412	5cb6a8b6	AVT...\VoterCard\
VoterCard.dsp	DSP File	9/28/01 09:08	4,754	3cc4153a	AVT...\VoterCard\
VoterCard.h	H File	9/28/01 09:08	2,266	ac789b88	AVT...\VoterCard\
VoterCard.rc	RC File	9/28/01 09:08	3,512	d0ca7d52	AVT...\VoterCard\
VoterCard.vcp	VCP File	9/28/01 09:08	53,042	be5b4dbc	AVT...\VoterCard\
VoterInfo.cpp	CPP File	9/28/01 09:08	3,246	2432477d	AVT...\VoterCard\
VoterInfo.h	H File	9/28/01 09:08	2,667	4185723	AVT...\VoterCard\
249 file(s)			3,226,782		

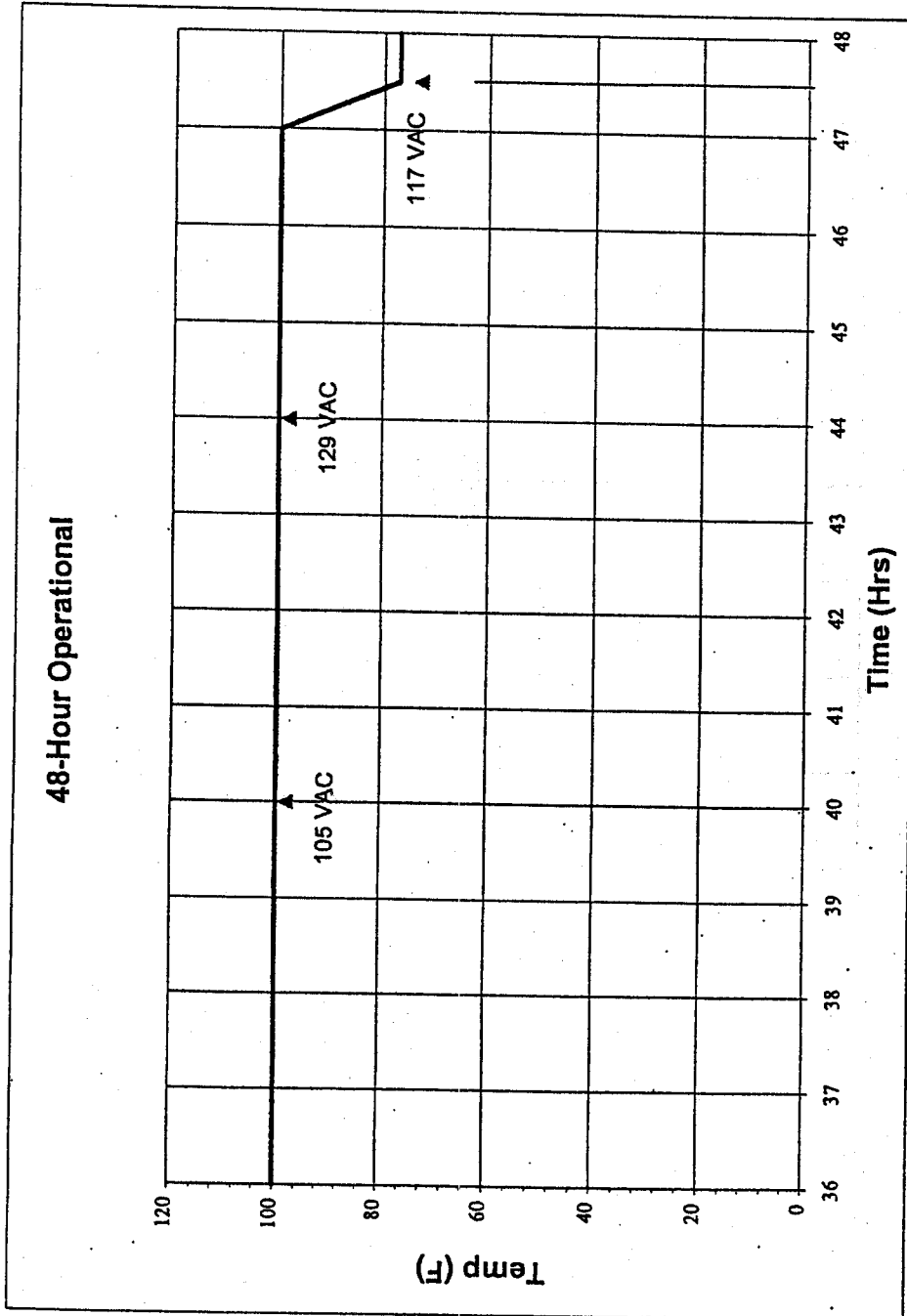
ATTACHMENT E
**48-HOUR ENVIRONMENTAL OPERATING
PROFILE AND THERMAL CIRCULAR CHARTS**

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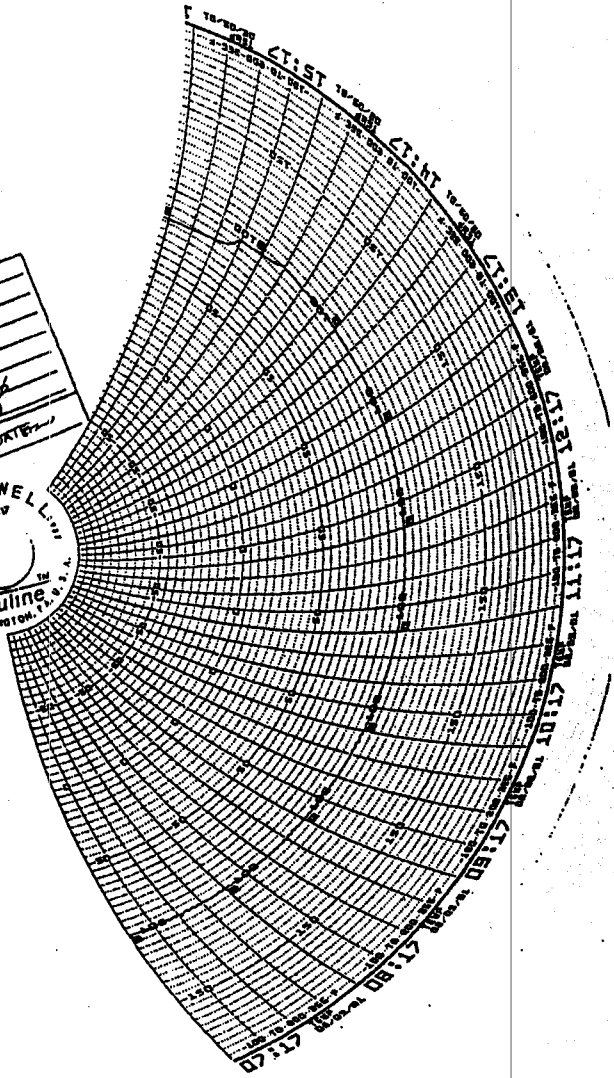


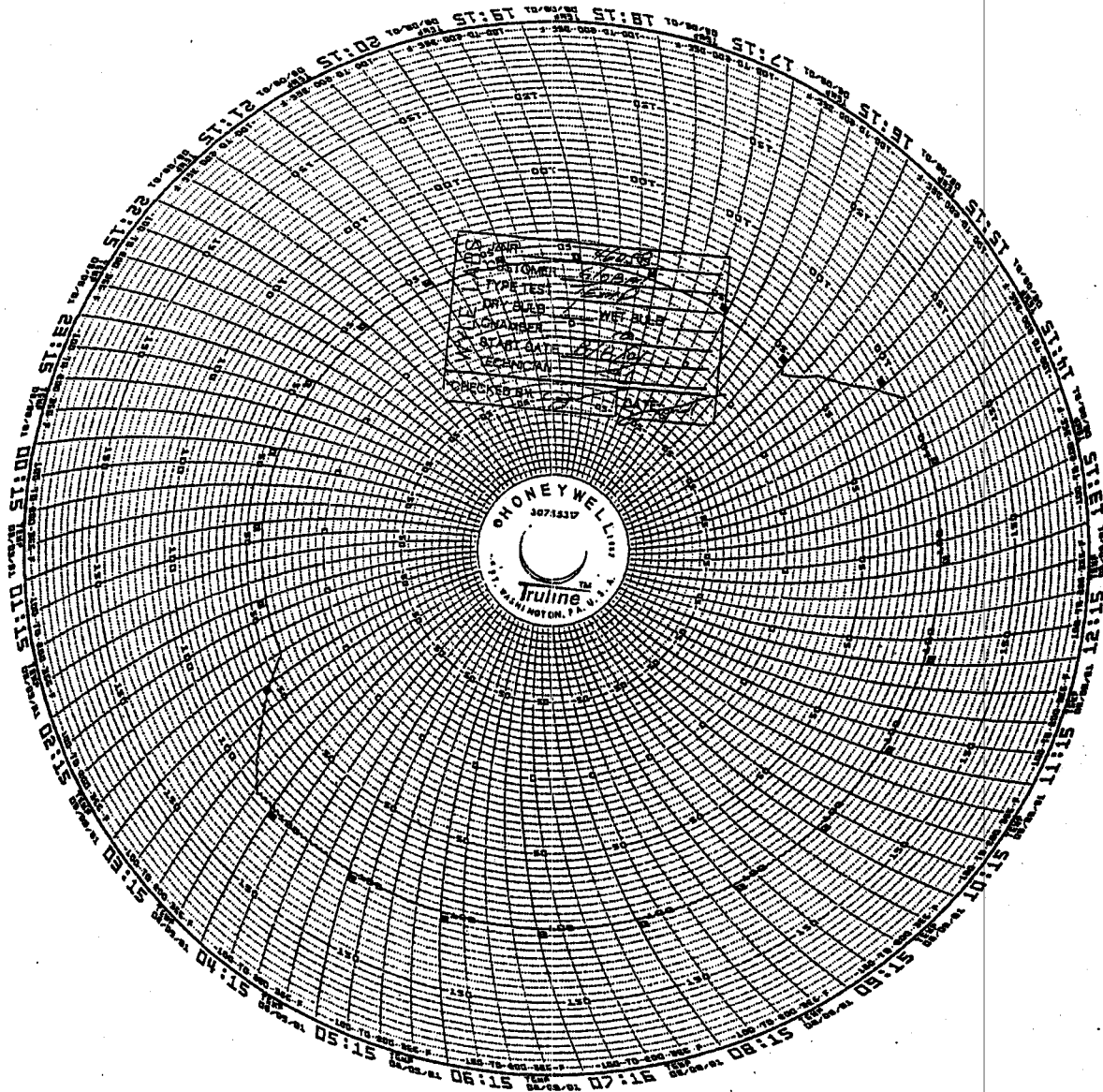


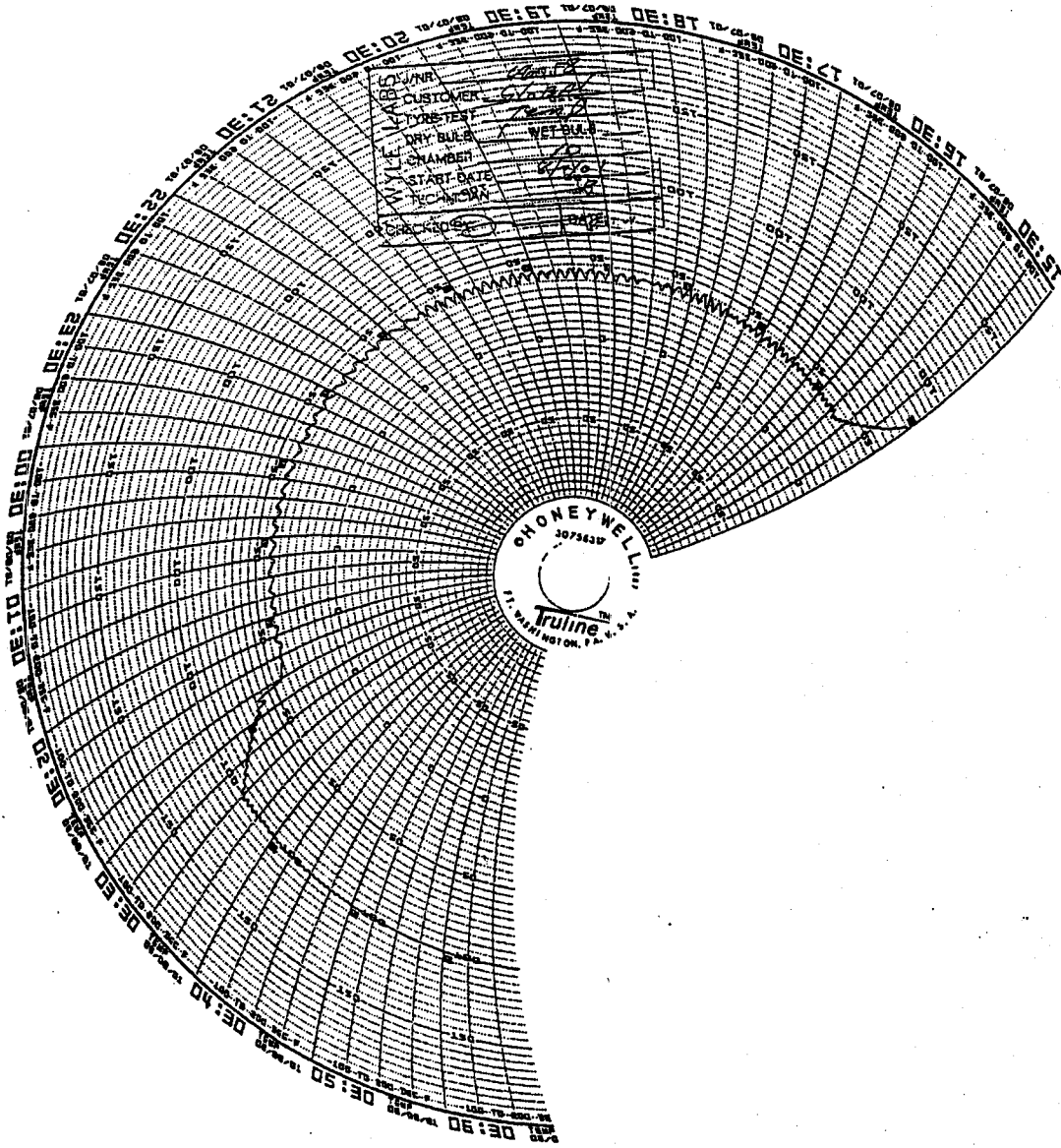




46058
JUN 1936
CUSTOMER *Global*
TYPE TEST *Temp*
DRY BULB *10* WET BULB
CHAMBER *10*
START DATE *8/9/36*
TECHNICIAN *...*
CHECKED BY: *...* DATE: *...*







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10. Revision 4.0.10 Assessment Statements

Release 4.0.10 was received on September 21st, 2001. Files were compared with their 4.0.8.0 counterparts and any differences investigated. The following is a list of reviewed files and comments, if necessary.

11. Revision 4.0.10 Source File Specific Notes

/Ballot

BallotCell.cpp
BallotCell.h

/BallotStation

AdminDlg.cpp
AutoTest.cpp
BallotStation.cpp
BallotStation.h
BallotStationDlg.cpp
BallotStationDlg.h
ExitPollDlg.cpp
PinDlg.cpp
PreElectDlg.cpp
RecordVoteDlg.cpp
TestBallotDlg.cpp
TestPctSelDlg.cpp
VoteDlg.cpp

/Shared

Accumulator.cpp
AccumulatorDlg.cpp
AccumulatorDlg.h
ActionDlg.cpp
AuditDlg.cpp
AuditDlg.h
BallotRstDlg.cpp
CreateCardDlg.cpp
ElectionArchives.cpp
Printer.cpp
ReportingDlg.cpp
resource.h
TSDialog.h

/TSElection

ResultFile.cpp
ResultFile.h
TSElectionDoc.cpp
TSElectionDoc.h
TSElectionObj.h

/Utilities

FileArchiver.cpp
FileArchiver.h
RTFCell.cpp
Util.h

/VoterCard

SCMonitor.cpp

15. Revision 4.0.11 Final Assessment Statements

Revision 4.0.11 contained a few minor changes including some defensive space-verifying code, some keystroke/menu behavior modifications, closing handles, and adding some logging features. Additions and changes were made in full compliance with the FEC guidelines. This code continues to manifest exemplary practices regarding robustness, maintainability, and readability.

It is recommended that this code be considered compliant with the FEC guidelines for coding practices as set forth within the FEC Performance and Test Standards for Punchcard, Marksense, and Direct Recording Electronic Voting Systems.

Kevan L. Moore
Contract Engineer

11/30/01 08:29

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Page 1

Name	Type	Modified	Size	CRC	Path
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avts32.ncb	NCB File	9/28/01 09:10	500,736	b391b8ed	avtsce\
avts32.opt	OPT File	9/28/01 09:10	91,136	d08260d7	avtsce\
avtsce.opt	OPT File	9/28/01 09:08	6	82842c6e	avtsce\
avtsce.vcb	VCB File	9/28/01 09:08	39	aab3de86	avtsce\
avtsce.vco	VCO File	9/28/01 09:08	6	82842c6e	avtsce\
avtsce.vcw	VCW File	9/28/01 09:08	3,661	6e034e05	avtsce\
Ballot.dsp	DSP File	9/28/01 09:08	3,778	32d2ecc0	AVTSCE\Ballot\
Ballot.rc	RC File	9/28/01 09:08	2,725	d31eb326	AVTSCE\Ballot\
Ballot.vcp	VCP File	9/28/01 09:08	44,359	6b7b8d48	AVTSCE\Ballot\
BallotCell.cpp	CPP File	9/28/01 09:08	38,697	909cf809	AVTSCE\Ballot\
BallotCell.h	H File	9/28/01 09:08	9,007	66b130a3	AVTSCE\Ballot\
BallotWnd.cpp	CPP File	9/28/01 09:08	7,478	79537677	AVTSCE\Ballot\
BallotWnd.h	H File	9/28/01 09:08	1,984	5663d865	AVTSCE\Ballot\
Layout.cpp	CPP File	9/28/01 09:08	18,293	b8228edd	AVTSCE\Ballot\
Layout.h	H File	9/28/01 09:08	6,728	73b1e398	AVTSCE\Ballot\
resource.h	H File	9/28/01 09:08	729	92ea27ff	AVTSCE\Ballot\
StdAfx.cpp	CPP File	9/28/01 09:08	211	38e3a0cb	AVTSCE\Ballot\
StdAfx.h	H File	9/28/01 09:08	1,013	2a9e98d7	AVTSCE\Ballot\
Writeln.cpp	CPP File	9/28/01 09:08	3,905	4e378b8f	AVTSCE\Ballot\
Writeln.h	H File	9/28/01 09:08	1,371	6cf4fb45	AVTSCE\Ballot\
AdminDlg.cpp	CPP File	9/28/01 09:08	10,145	1e78e3ee	AV...BallotStation\
AdminDlg.h	H File	9/28/01 09:08	1,672	615f351	AV...BallotStation\
AutoTest.cpp	CPP File	9/28/01 09:08	6,981	e6a17061	AV...BallotStation\
AutoTest.h	H File	9/28/01 09:08	1,551	87141fe9	AV...BallotStation\
BallotDlg.cpp	CPP File	9/28/01 09:08	7,905	bb4f9eeb	AV...BallotStation\
BallotDlg.h	H File	9/28/01 09:08	1,762	e1170ee2	AV...BallotStation\
BallotSelDlg.cpp	CPP File	9/28/01 09:08	4,016	daba4eb9	AV...BallotStation\
BallotSelDlg.h	H File	9/28/01 09:08	1,382	7451a3fa	AV...BallotStation\
BallotStation.apr	APS File	9/28/01 09:10	364,344	592e51dd	AV...BallotStation\
BallotStation.cpp	CPP File	9/28/01 09:08	22,987	6b2beddf	AV...BallotStation\
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BallotStation.h	H File	9/28/01 09:08	2,365	f328a775	AV...BallotStation\
BallotStation.rc	RC File	9/28/01 09:08	23,562	5d7d6a87	AV...BallotStation\
BallotStation.vcp	VCP File	9/28/01 09:08	225,369	a6039ea9	AV...BallotStation\
BallotStationDlg.cpp	CPP File	9/28/01 09:08	6,578	53655763	AV...BallotStation\
BallotStationDlg.h	H File	9/28/01 09:08	915	b418f113	AV...BallotStation\
ExitPollDlg.cpp	CPP File	9/28/01 09:08	5,912	12984d7d	AV...BallotStation\
ExitPollDlg.h	H File	9/28/01 09:08	1,955	86f3b5a5	AV...BallotStation\
InstructionDlg.cpp	CPP File	9/28/01 09:08	6,206	9e59c2f9	AV...BallotStation\
InstructionDlg.h	H File	9/28/01 09:08	1,987	c33ccc35	AV...BallotStation\
LanguageSelDlg.cpp	CPP File	9/28/01 09:08	6,041	ada6c142	AV...BallotStation\
LanguageSelDlg.h	H File	9/28/01 09:08	1,753	9ea29f17	AV...BallotStation\
PinDlg.cpp	CPP File	9/28/01 09:08	2,072	b550359	AV...BallotStation\
PinDlg.h	H File	9/28/01 09:08	708	ca11911a	AV...BallotStation\
PreElectDlg.cpp	CPP File	9/28/01 09:08	11,799	6cf45956	AV...BallotStation\
PreElectDlg.h	H File	9/28/01 09:08	1,849	3661b300	AV...BallotStation\
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readme.htm	Readme Docu...	9/28/01 09:08	24,005	450f55f2	AV...BallotStation\
RecordVoteDlg.cpp	CPP File	9/28/01 09:08	16,251	37729754	AV...BallotStation\