STATE OF NEW JERSEY
OFFICE OF THE ATTORNEY GENERAL
DEPARTMENT OF LAW AND PUBLIC SAFETY

Public Hearing Re:
Criteria for Voter-Verified Paper Record for
Direct Recording Electronic Voting Machines

Stenographic Report of Public Hearing Held
The National Guard Armory
155 Eggerts Crossing Road
Lawrenceville, NJ

Wednesday, October 10, 2007
9:00 a.m.

BEFORE: RICHARD C. WOODBRIDGE, ESQUIRE
MEMBERS OF THE COMMITTEE

Daryl P. Mahoney
John Flemming

APPEARANCES:
Donna Kelly, Esquire
Gary Greenhalgh, PhD, ES&S
Jane Greenhalgh, ES&S
Willie Wesley, Jr., ES&S
Kevin Kerrigan, ES&S
Steve Pearson, ES&S
Margaret L. McCabe
Abbey Kluska
Karen Dumars, Deputy Attorney General
Jason Bistone, Deputy Attorney General
Mitchell Darer
Nirwan Ansari
Ari Jain
Pitipatana Sakarindr, PhD
Chunhua Chen
Chao Zhang
MS. KELLY: Can I have your attention, please. I think we are going to start this hearing. My name is Donna Kelly. I've been doing elections for the state for about 28 years maybe, I'm not really sure. But this is like the fourth voting machine hearing we're attending. The way it works is that the voting machine committee which is Mr. Woodbridge, he has been Daryl Mahoney who is assistant supervisor for the assistant. Mr. John Flemming who is the officer of the training, what is your title.

MR. FLEMMING: Managing specialist.

MS. KELLY: But today what is going to happen is the ES&S voting machine is only used in Sussex county, it's going be brought before the committee for examination. We're only here for purposes of examining the machine for voter verified paper trail. That is an issue, that is the sole reason we're having the committee. State legislature has passed a law that says by January 1, 2008 we're supposed to have paper trail, so we will not likely meet that deadline, however, we're
moving forward with our process. The committee has already looked at two other machines, the one machine is used in both of our counties. And also the iVotronic machine but the procedure today will be the committee will address the vendor, we will demonstrate the machine, we certainly will allow public comment. In fact, I’m very happy to see the members of the Sussex County Board is here because it’s critical to listen to the administrators who actually run the machines. The way Mr. Woodbridge operates is very informal. He is very good. He is very patient. Even though initially when we decided to have this hearing we thought it was five minutes per speaker, that’s not how it turned out the last time. Where is our public advocate representative. But anyway and then also the NJIT representative New Jersey Institute of Technology in our state graciously accepted the state’s challenge to do the testing of the machine vis-a-vis the state criteria, so they will also be here for the benefit of the committee. Just
procedurally the way it works after the conclusion of today's hearing, the committee will write a report recommendation about whether or not the machine should or should not be accepted in terms of this paper trail. The machine itself is already accepted by the state. The attorney general will take it under advisement and she will make the final decision. The prior machines looked at by the committee were not acceptable. The attorney general accepted that determination, so those machines are very likely going to go back for a second amount of testing. It's the first round on these. So without any further delay, Mr. Woodbridge.

MR. WOODBRIDGE: Thank you very much, Donna. It's good to be here. My name is Dick Woodbridge. Just a little bit of additional background. Title 19 of the New Jersey statute has a requirement for committee to review new types of voting machines in the State of New Jersey, proposed State of New Jersey and recommend through the attorney general's office whether or not in our opinion
it meets the criteria. The criteria are established by the Attorney General’s Office and what we’ll do at some point in the proceeding is to walk through each and every part of this and then we’ll write a report. It’s not going to be an instant data exercise, it will take probable a week or so to get the report together and then of course we don’t really approve or disapprove. We make the recommendation and the attorney general with the assistance of Donna and the rest of the staff decide what to do with it.

We entered a new phase last July when we started taking over paper trail devices and this is a continuation of that. We didn’t have specific paper trial criteria until this year, so we’re using criteria that are different from those applied to typical DREs and to scan devices. So it’s a bit of a new world for us. I would like to thank the Attorney General’s Office for setting this up and for Donna for a nice introduction. Karen Dumas I think is with the AG’s office. Hello Karen and Jason. You’re new, is that right.
MR. JASON: Yes.

MR. WOODBRIDGE: Good to have you here. Anyone else from the AG's office? You've been introduced to Darren Mahoney on my right your left and John Flemming on my left your right with our parts committee. The statute oddly enough requires that one of the participants in the committee be a half attorney, I don't know any state in the nation that does that but I was asked and my committee wanted to sit on a committee and so I don't know how many hearings it's been through, I do know I've been through about 34 since 1998 and probably another three prior to that. So I've seen just about everything I've seen maybe twice. We've had the pleasure of ESS come before us prior five or six times the last ten years for a variety of different items and I would say on the record that we all were provided John and Darrell two, two large boxes of documentation probably. The most thorough documentation you see to date for the machines.

Couple of ground rules. We try to
keep the format clearly tight because we have
a lot of ground to cover. We make sure we
give all the vendors an opportunity to provide
input. These proceedings are recorded by Kim
Horsley over here who patiently tries to take
down every word. I try to remember to talk in
the microphone and speak fairly slowly and so
if you do have comments, make sure that Kim
can hear them. I’ve asked Kim to interrupt if
at any time she can’t understand what’s going
on. So, that may happen.

The procedure is that we’ll go
through the same procedure as we did last
time. Well after the initial introductions
I’m going to give members of the audience to
just introduce themselves for the record. We
don’t have a large audience today, then we’ll
ask the vendor to make a presentation just a
general summary presentation of their device
then we’ll ask NJIT to give their presentation
specifically three part presentation with
Mitch giving an overview and Dr. Jan, I guess
providing the general procedure for the
testing and Dr. Amar isn’t here, Asari, I will
be giving specifics after that's done we will probably ask if the representative from the state with regard to disabilities is here, are you here, very good. Make his presentation and with some luck by eleven o'clock we'll start marching through the specific criteria. I ask your indulgence in the outset not to ask any questions until we get the public comment section, the public comment section portion. There will be an opportunity for anybody with comments or questions to do that. All questions should be addressed to the chair, so that we have some organization to it. One other question, yes. We ask you to, remind you to turn off your cell phones. I would also so I'm going to start off by you've met everybody from the AG's office. I ask the people in the audience some of who are familiar faces but since we have a fairly small audience to introduce themselves for the record and why don't you start off in the front row.

MR. GREENHALGH: Gary Greenhalgh,
Election Systems and Software.
MS. GREENHALGH: Jane Greenhalgh,
Election Systems and Software.

MR. WESLEY: Willie Westley,
Election Systems and Software.

MR. KNOUES: Flavio, F-L-A-V-I-O
Knoues, K-N-O-U-E-S, Assistant Deputy Public
Advocate.

MR. GLADNEY: Alexander Gladney,
G-L-A-D-N-E-Y, Assistant Deputy Public
Advocate.

MS. KLUSKA: Abbey Kluska,
K-L-U-S-K-A, manager of elections technology
for Sussex county.

MS. McCABE: Marge McCabe,
administrator Sussex county board of
elections.

MS. DUMARS: Karen Dumars, Deputy
Attorney General.

MR. BISTONE: Jason Bistone, Deputy
Attorney General.

MS. MULDER: Michelle Mulder.

MR. R. WOODBRIDGE: Then we have
Donna.

MR. MILLSTEIN: David Millstein,
state ADA administrator with the Department of Treasury.

MR. R. WOODBRIDGE: I'm going to ask Mitch to introduce his group when we get to that part of the program if that's okay. And David, good to have you back by the way. So with no further ado, Gary, are you going to be the master of ceremony. Steve, why don't you introduce your team and if you don't mind walking us through, give a summary of the advisory.

MR. PEARSON: Thank you. I would be happy to do so. My name is Steve Pearson. I am the vice president of certification for Election Systems and Software. Joining me on my right is Kevin Kerrigan. He is part of our certification team and has been involved in at least the initial kick off of the NJIT review of our system and overview for them has been involved in this process for initial review.

Before we get into a demonstration or presentation of the system, I just wanted to give you a little bit of background of what we're presenting today and what we're offering
is that the electronic, electronic DRE
equipped with the real time audit log referred
to as the RTAL system. The version that is
operating on the system today is version
92.0.0 which is currently in the final steps
of testing with the election assisted
commission new testing and certification
procedures. We have completed all of the
function testing successfully. We're just in
the final stages. We believe we'll be
complete with the final testing and all
documentation, discrepancy clean up, hopefully
within the next two weeks, two to three weeks
and should have a final testing at least a
completion letter from the ESTL which is
assistant lab as to performing the testing on
this system.

THE COURT: We will go back to Donna
Kelly about that.

MR. PEARSON: Sure. As soon as we
have a full text report from the ESTL we will
offer that at the same time.

MR. WOODBRIDGE: Probably easier to
go up there. You might be separated from the
microphone a bit.

MR. KERRIGAN: My name is Kevin Kerrigan. I am the state certification manager. I’ve been working with NJIT through the review responding to any of their requests or information or issues that arose during the testing. Again what we have here today is the iVotronic DRE solution and then we have our real time audit log referred to as RTAL. We’ll go through kind of how the system would be implemented chronologically in an election and kind of talk about some of the security systems along that path. So initially from our software we’re able to create a PEB that’s called the election PEB. This contains a 16 bit encryption algorithm that is specific for every election. At the warehouse personnel will go through each iVotronic and load this key onto the terminals. Now these terminals contain that key specific for that election and what we’ve immediately implemented at that stage is any person the PEB is not specifically for will not be able to activate that terminal. That key has to match up that
key that is put on for every PEB has to match up to the election. So if that would happen at the warehouse level the assistant would be transported to the polling location and this election key never enters into the field.

It’s just a warehouse security level PEB for applying that.

MR. WESLEY: Let me add to what he said that’s very important because one of the concerns a lot of folks have there are a lot of these PEBs out there. How do we know someone isn’t going to come and tamper with this key. The encryption and the PEB code is loaded is specific for this election is used one time and one time only. So the one that the poll worker has is the only one that’s legitimate. If you put another PEB for another election in it will reject it right away.

MR. KERRIGAN: Just to clarify this poll worker would never have the terminal that is never implemented to the field. What they then would have at the polling election is what we have is the supervisor PEB. This
contains a code as well. It's called our EEC-3 code, our motion polling location. It's terminal has a key on it. All the terminals has been cleared and tested before it's sent out to the field to make sure it is out at the field, then you would open the election with the supervisor PEB. How we track these we implement these in two ways; they are administered with the use of labels, one we label as a master, say this is our typical polling location set up, we have four machines the polling supervisor an hour before would go that terminal serial number is noted on the PEB we label that PEB as master. It's only function is to be used for the opening and closing of the terminals. You open your terminals, secure that master key until the end of election day and then the PEB would be administered to the pole workers. We call I think that's supervisor PEB or advocates PEB activator. So that PEB would be held by the poll workers. They would greet the voter at the registration desk, see which ballot they are supposed to vote, escort them physically
to the machine and the poll worker themselves
would activate the ballot in our system which
is required to as poll worker. The voter
never comes in contact with any media so they
would activate the ballot by inserting the PEB
into the system.

MS. McCabe: Marge McCabe, Sussex
County board of Election. When we issue the
PEB to the poll worker and we experience them
and use it, they hold it like a pacemaker.
They don't let it go. It's not on the table
where somebody could pick it up. They hold it
so tight that's how seriously our poll workers
take the job.

MR. Kerrigan: I ask any procedural
comments you make are very welcome as with any
election whether it's tape or PEB a lot are
wrapped around the procedure and how you
implement, so it's very important.

MR. Wesley: The comment I want to
make sure, that there would be a signal that
says, please remove supervisor PEB the that is
so that we help the poll worker remember to
keep it in their possession.
MR. KERRIGAN: So at this point as indicated the poll worker with the PEB would go back to the registration desk leaving the voter to vote for privacy. If there was a gymnasium for the voting location these would be oriented 180 degrees the other way. In other words, your back would be to the wall preventing any access or any loitering which again that is a procedural thing to administer by the poll worker they need to follow a standard set up and logic for how to set up their voting machine, but at this point I remove the PEB, the voter is now left to vote the indication says do you want to vote initially on the screen or do you want to use the audio ballot. The audio ballot could be used by plugging in headphones, there's a jack here on the right side toward the bottom then they would interact with our four key panel here, this is the model by electronic it's what we refer to as the four key id, an electronic navigation bullet we have an up and down arrow for we have select button for making RED and this circular purple button is
a level of volumes. So first off pull up a visual by touching the screen there is going to be a ballot level voter first given a one two three voting instruction screen and I now brought up the first page of contest. We have several different templates for how we could initially lay this out what you see here is a one column template it's in color that means the voter candidate field takes up the entire width of the screen you can touch anywhere in that screen to activate that it's visually shown with a check mark in that field and what our real time monolog every time I make a selection on the screen whether that is a vote for or cancellation for an initial election it's noted in real time on the screen.

MR. PEARSON: Can I ask you when you started the voter sessions what transactions were printed on the real time printer.

MR. KERRIGAN: In real time it's probably 12 lines here at the beginning of every voting session what's printed on the real time monolog the terminal is activated and the time is activated the serial terminal
as well as the serial number of the PEB that
was used to activate it. We have the battery
voltage and we have the mode of the terminal
which during election day it's referred to as
open, open for voting. Then we also have some
voting session identification numbers there
are three sets of numbers which will probably
adjusted for the NJIT system and then the
final line after that initial opening session
my first election president selected Peter B.
Randall. So that those initial lines are
printed at the beginning of every voting
session. Now in this vote for one the way it
works if I make a different selection than
what is initially, two actions are going to
happen. It first deselected my first and then
it is applies my action to the second
candidate so simply put on the real time it
says president canceled Peter B. Randall and
then it says president selected it noted both
actions and the selection vote, vote what
happens if you hit the line.

MS. MULDER: Which line.

MR. KERRIGAN: Any line between any
line between. It will probably go one way or
the other I don't know, there is actually dead
space so you are going to get one or the
other.

MS. MULDER: Does it assume you want
a write in.

MR. KERRIGAN: I was in between the
write in and the last candidate.

MR. WESLEY: The important thing is
it gets you immediate feedback of what did
occur.

MR. KERRIGAN: You not only have the
additional feedback but you have the paper
identification trail of any action made. So
to proceed through here we have a six page
ballot indicated at any point I could hit the
question mark and bring up the initial voting
instructions back to the ballot. This is the
vote for one. You want to vote for two I kind
of supply how the logic works on this if I
make my first two selections now we can't have
an auto deselect feature because there is no
way for the logic to know which is
automatically deselected. So if someone were
to make too many selections or an overvote
they will be provided a warning that you have
already made the maximum number of selections
in this contest. You must first deselect one
of your candidates to make a further
selection. So if I come back to my original
two selections I would first have to deselect
them and select the other one and as we keep
saying everything is noted in our real time
audit log as well as I was prompted that is
also noted exact words it says overvote
attempt on this contest colon and when it
gives the contest name of freeholders. We
proceed I will leave a couple blank here.
Here is a vote for five. I will vote a write
in my write in selection is to select here and
we have seven propositions on this election
and just for note these are the same elections
that we use for the selection by NJIT. They
did require two different elections to be
coded and these first three machines closest
to me have the I believe this is the general
and the one on the end is a primary and it has
a different visual layout that uses two
columns for the contest, so you will see two
columns for information.

MR. PEARSON: When you select a
write in it chose a write in. What was the
transaction that took place on the printer
itself.

MR. KERRIGAN: On the printer
there’s no law that you enter the write in.
It just notes your selection. It treats it as
that name was originally. The contest the
exact, so it says character commission
selected it says I selected see a request it
proceeds that with the star. That is the only
indication that was a write in selection and
not one that was originally on the ballot but
it doesn’t note that I entered write in
because we’re noting all voter choices or
deselections, so it notes the selection and
writes the name proceeded with a star.

So I am now at page six of six for
voting mode. The next button the button
that’s now been stopped out rather than saying
next it says review. When I hit review, I’m
showing all my choices not all the candidates
selection but just the choices that were made for every contest as well as any contest that I undervoted it is written in red. No selection made, I can enter that contest or reenter contest and I'm brought up the candidates for that contest and make a reselection. When I did first enter the summary mode it did make a note enter summary page so now I have pressed cancelled, you're able to audit that change or that alteration of choice was made after I entered the summary ballot. When I hit review, I'm taken back to the review screen and my alteration is shown here. We have a couple undervotes and this is three pages and just note right now this is our vote button this is how we cast a ballot it's paper equivalent of dropping your paper ballot into a ballot box which is a point of no return for the voter and right now it is did he activated the second page.

MR. WESLEY: Actually what was I was going to show I was going to show what it would do if you try to cast your vote prematurely, so if a voter before giving all
that it would give instructions go on the page
they must first view all of the pages of the
ballot and all the pages of the summary
portion before they can cast their ballot.

MR. KERRIGAN: I believe I showed
some of that at the nine o’clock demo. So now
that I have entered the third page this little
button it is a little button and even if I go
back it can make changes as I like before you
you end the end of that summary screen we now
allow to you vote. At that point a voter can
press the red vote button just kind of some
logical interfacing of why we did it this way
the voter is sitting here touching the screen
for the entire voter section we make to press
the hardware button as opposed to an on screen
test. Just so that there’s no confusion of
well I was voting and then I hit voter
something like that it’s a separate item
located on alternate location. I’m going to
hit vote. At this point my vote summary is
printed and as Steve mentioned this prints all
of your selections that were made including a
barcode and that’s readable by any RTS barcode
and the selection scrolls up nine inches right now as programmed to leave the paper blank for the next voter that comes. So that vote summary is not a rejectable form or anything. It's use for audit purposes so a poll worker during an audit wouldn't have to go through any added audit here and wouldn't have to do pluses and minuses you can have a very easily reviewable audit trail.

MS. MULDER: If you saw something on the paper that didn't match what you did what would your remedy be?

MR. KERRIGAN: That doesn't have -- it's fully accurate whatever selection you made is.

MS. MULDER: If you're using the head set is there a way for the blind voter to verify from the paper or are they verifying from the digital feed.

MR. KERRIGAN: They are given an audio feedback for every selection made just like a visual voter as well as the review screen they are too forced to go through the
their ballots and they will be read all their previous ballots.

MR. WESLEY: What he said you have to determine locally how you’re going to handle covering this screen in the event that visual impaired person was voting it does record their choices on here as well.

MS. MULDER: To protect the privacy.

MR. KERRIGAN: Another feature that I would like to note I think this is pretty important for some of the issues we’ll be discussing later. Right now we have this machine programmed for a nine inch window. So what it has to at the end of every voting session in order to leave this nine inches of wasted paper, not wasted because you’re ensuring the privacy of the vote. This software contains four point five window cutting it in half and what we do we attach a steel plate that matches this material with adhesive and that would be on the top portion and then the machine will ask for the four point five section that leaves a blank section, so essentially you are saving four
point five inches of paper per vote cast so
it's pretty significant amount of paper
savings in this firm ware version compared to
some of the previous ones in the state. NJIT
testing the machines are already programmed
for nine inches. So, there will be some
discussions about how many votes can you get
per roll. There are a lot of issues when
trying to come to that number, but that is a
very significant fact in terms of how many
votes or sessions you can get on a roll.
Continuing the roll its a 300 feet of thermo
paper it is the only consumable in this
because it is a thermo printer you're not
dealing with ink on election day or anything
you just have a roll of paper.

MR. WESLEY: There are some things
about this paper also there's sensors inside
the printer that will alert you when you have
leveled the amount of paper gets low there is
a rooster tail that is at the very end a red
strip to give you a visual indication your
getting closer.

MR. WOODBRIDGE: How hard is that to
change a roll. You got 300 feet if the takes
18 inches per voter do the math but 200 voters
so if you get to that level, how do you how
hard is it to change rolls there.

MR. KERRIGAN: I will take that
question and kind of wrap it into a lot of
different security issues. First of all with
the printer it is behind a lock and key
mechanism which unlocked the door flips up and
anybody is welcome to walk back here right now
it will be a little crowded, there are cords
to contend with. So here is a printer along
the right side from the back we do have a lock
and key to security it. This is the door that
will clip up on the hinge, you will apply a
tamper area sticker seal over that door. So
when a paper roll needs to be changed or there
are any issues you can unlock the printer and
its a reel-to-reel our feed reel what is the
first one referred to as paper roll the paper
roll goes on this top portion and here is your
pick up reel all your results are being
accumulated onto. There is instruction how to
load as well as on the printer and what that
entail is when your roll gets low you would
take out your take up reel which is on a spool
you would administer the transportation of
that whatever local procedure calls for that
can mean putting it in I believe Gary said is
how they handle it in West Virginia and then
you would take your new paper roll, slide it
on here it gets fed through a little gap once
the paper hits that recognizes it grabs the
paper and brings it up to a length about here
enough you can then attach that in onto your
tape up spool, you get it wound up and started
put the spool in and you're good to go.
You're up and running with a new roll.

I think we're kind of esteemed in
the field. A person that has done this
several times can probably change a roll from
anywhere from 30 seconds to a minute. A first
time user the only trick is getting it started
on the take up reel so it may take him a
minute and a half to two minutes to change the
reel. It's fairly quick. The other
procedural thing aside from changing the reel
you would have to break that seal following
any procedures you would have to do for
applying a new seal document all your security
systems there.

MR. PEARSON: What have some of the
other states done with that the reel of the
votes that have been cast.

MR. WESLEY: There's usually some
sort of chain of custody established as far as
how you secure that, but once that's removed
you put it in an envelope or some sort of
ziplock bag where you can put a seal on it a
numbered seal so you can ensure the chain of
the custody is not broken for that because
that is the official ballot in some states so
would you treat it the same way you would
treat a paper ballot. You would drop through
an optical scan read error through a ballot
box.

MR. KERRIGAN: Continuing on with
some of the abilities to seal and such of
course your primary focus is your election
results our your stored onto a remove panel
flash media at the top of the screen we store
our votes internally throughout voting day
they are stored on three internal chips which
are two of them are sodered flash chips the
other one is removable at the start of voting
sessions those three internal memories check
each other on our system and they make sure
they are all reading and writing the
information before it allows any votes to
proceed. We have the internal memory source
when you close polls all that data is written
to your master PEB that you open and close
with as well as to the compact flash. Vote
totals are stored on the EPD on the compact
flash where compact as well as the audit log
from all actions performed on this system. So
those two pieces of media would then be
transported to central for tabulation. So,
that compact flash card or we’ve already
talked about the maintenance of the PEB in
Sussex Count, kind of explained how dearly
they protect that. With the compact flash
themselves it’s protected through a sliding
door which has some loops here you could apply
a wire seal to or sticker seal over that as
well. This gray cord that you see here which
is kind of sticking out that could be tucked under the top portion would be visible to the voter we apply seals over that tamper evidence seals as well as the power connection is located on the top. These are battery powered and we plugged them in. The battery is powdered by the AC/DC. If I were to disconnect the power during a voting there’s no distinction or anything you’re still running on battery powered it’s just now the battery is not charged.

MR. WOODBRIDGE: How long is the battery life on that.

MR. KERRIGAN: An active use for federal use we have to pass at three hours.

MR. PEARSON: I was thinking it was two hours that we had.

MR. KERRIGAN: Two hours active use and I think ten hours inactive use. I honestly can’t say the exact number.

MR. WESLEY: I can add this he is correct it does run off batteries when it is plugged in it does two things, one it does a triple charge to the battery as well as power
the flash screen when you disconnect at end of
the session you don’t see this screen the
screen that’s up here now that goes away to
prolong the battery life. My experience in
working with these depending on the amount of
activity you have whether you’re using an
audio you get a little more than three hours
on active use on the terminal.

MS. MULDER: If the battery ran out
before the election was over what would be the
result.

MR. WESLEY: You wouldn’t vote on
the machine.

MS. KLUSKA: Abbey Kluska from
Sussex County. Since we do already use the
machine but not with the paper trial we can
answer that question pretty well. If the
battery were to run out and voter were in mid
vote it would tell you battery is too low to
continue. The poll worker would be alerted,
the voter would then plug it back in and then
it works. It’s as simple as that.

MR. PEARSON: Once power was
restored. And and once powdered was restored.
MS. MULDER: All the cast vote ending for that voter. And and every vote that is cast is recorded to.

MR. PEARSON: They are security.

MR. KERRIGAN: Another note about that at any time visually confirm that there is a public count at the end of the electronic that tells your number of votes count.

MS. McCABE: Marge McCabe Sussex County because of the size, it's the size of a laptop and there's no information in the machine when it goes out it is an empty machine. We verify zero total before it goes out, we have technicians on the road who can actually have them in their car and if there is an issue with a machine, if there is an issue with a battery we have between two and five machines in every district so they can be switched off and technician can like go to a district with another machine and replace it out because they are so easy to transport.

MR. WOODBRIDGE: If the public counter is there, is there a private counter functional somewhere in there.
MR. KERRIGAN: There is a lifetime counter as well called protective counter. But all that’s displayed on the screen right now is the opening flat screen is we have the name of the election the polling location so you can always verify that make sure the machine is in the right way public count and then on the right side we have the time and date as well as the status of the power which is right now plugged in, so you can also verify, okay, I am on DC power. I need to check maybe flip a light switch to get that socket whatever the case may be.

MR. WESLEY: Let me backtrack a little bit. I don’t know if he is going to get into it I’m going to jump in. He talked about the TRC the triple redundancy check one of the issues I face a lot of places we’re installing how do we know our vote how do we know the machine is working. It is very important because it is a bit of functionality that’s performed at the beginning you activate a ballot where it actually does a comparison of the records that is on each one of the
chips those three internal memory chips and it
ensures that they are equal at the start of a
ballot when a ballot is after the voter
completes it and push the vote button it goes
through that TRC again it does that is
sequentially before you see a screen on here
and it says thank you for voting. If before
that screen comes up it detects it did not
report the votes accurately to all three of
those memory locations it will shut down that
machine the importance of that is before the
voter leaves the precinct would notify him
that threes a problem were there machine,
notify poll worker and at that point it will
actually tell you on the screen it will close
down this machine and tell you which one of
the chips contains the total record and you
can actually take that voter to another
machine before they leave the precinct which
is very important feature on this electronic
it assures you would never lose a vote.

MS. MULDER: I'm sorry, it tells if
you the chip didn't record your vote.

MR. WESLEY: Yes, it will tell them
that they need to contact the poll worker or
election official because there is a
malfunction on this machine. So it gets their
attention poll worker looks a the screen, he
can then take them to another terminal so they
could cast their ballot prior to leaving the
precinct.

MS. MULDER: This is after the test
that said they each were making duplicate
records.

MR. PEARSON: Yes, it is. A
hardware failure can occur at any time with
any electronic equipment it's got the test
before the session starts during the session
as the votes are being written it also
validates they were written successfully and
that they are all functioning properly. So at
any point if it detects a hardware failure it
will notify and protect.

MR. WESLEY: And the importance of
that is it's important for us that we notify
the voter and the poll official before that
voter leaves that precinct because we’re
protecting the vote for that individual.
MS. MULDER: Let's pretend it is some other vendor machine and they have a software glitch you guys don't have. If the software had that glitch and it recorded the wrong person but it did so accurately in three places, does this machine tell you that, does it is there any way for it to know that.

MR. WESLEY: I can let Sussex respond to this as well, local procedure you always perform what's called a logic and accuracy report. The purpose for that pre-election prior to you casting any votes on this machine if I vote for John Doe, that vote is recorded for John Doe and you perform that that is a requirement and good procedure. And and I think a good example of this would be the way we explain it and I think this may address your question. If someone were to try to hack it and they were to somehow write one of the chips the other two chips would say I have 50 votes, I have 50 votes, I have 51 votes I have a problem, I need to should down.

MS. MULDER: I was assuming the hacker would hack the software and then the
identical information would go everywhere but it would be wrong and and I don't know how you do that.

MR. WESLEY: You would have to gain access to the machine. You would have to have the encrypted election key.

MS. KLUSKA: The people that sign in the box in their roster books and their voting authority slips that total would be the right total.

MS. MULDER: It would be the right total the only way to do it would have to be in-house some other vendor.

MR. WESLEY: That's the reason we do the program. Its critical that you perform a logic and accuracy test to ensure those type of scenarios aren't taking place. I've attempted with individuals that say how do we know it got it, it doesn't kick in I will change the time on the machine and let's run this logic and accuracy again just to show you that's the purpose for a public logic and accuracy test to enhance the competency of the voter to ensure they are all being recorded.
properly.

MS. McCABE: We set our machines ahead to election day to make sure there are no easter eggs.

MR. PEARSON: And then you seal once you complete, then everything is sealed.

MS. McCABE: And and may interject this as well. One of the things we kind of do unique to Sussex county after we do our logic and accuracy test, we do manually by hand to prove votes aren't being switched up or down or all around we print a zero total from each machine and that zero total is proof not just visually but also from the machine it’s completely empty before the poll workers and when they open it they also verify everything that we’ve said with ballot control logs.

MS. MULDER: So the only recording issue that comes up on this is the one where there's a hardware failure to that that you described.

MR. WESLEY: If it were to occur.

MR. KERRIGAN: That's if we check in the CRC.
MS. McCabe: That is a VVPAT system correct the triple redundant.

The Court: We may want to move this along.

Mr. Kerrigan: I think we've covered everything. Why don't we go back.

Mr. Woodbridge: This is a little bit different than our usual procedure and I am trying to do something slightly out of order but I think it's going to be for the benefit and I'm going to ask Mitchell Darer if he wouldn't mind hearing from the New Jersey Department of Disabled -- I can't remember the exact name, it's easy to take him on first because he is out of state for the rest of the time. David, if you wouldn't mind giving us your thoughts on this machine?

Mr. Millstein: Good morning. My name is David Millstein. I am the state ADA administrator with the Department of Treasury. The purpose for this discussion is on the accessibility of the iVotronic voting machine. This system is a stand alone, sits on a tripod with a viewing screen that is touch sensitive.
with the ability to allow a person who is
blind or visually impaired to follow
instructions using a four button system to
make a selection for voting purposes. For the
purpose of my evaluation, accessibility is for
under Title Two of the American for
Disabilities Act. The opening of the machine
is wheelchair accessible and has an opening of
45 inches which then goes down to a 36-inch
opening which allows the user to pull directly
in front of the machine. The forward reach
gives the user the ability to utilize a touch
sensitive screen with the final button to
tabulate the user's vote at 51 inches in
height. The machine has the ability to both
visual users and persons with visual
impairments utilizing the audio input for a
person who is blind or visually impaired. The
voter uses a headset. Each of the
instructions as well as the ballot itself is
done in real time voice prerecorded. The
machine does not use any type of voice
synthesizer. Each selection is then repeated
to the user along with the paper trail that is
printed out and based upon my recommendations,
the machine also has the ability for font
size, color contrast, black and white
background, can be utilized by all users and I
would accept this machine as a usable machine
for a person with a disability.

MR. WOODBRIDGE: Thank you, David.

Last time you were here you also indicated you
that you had at the facilities another test
machine. Did you bring that here at this
time?

MR. MILLSTEIN: No, I did not with
Marilyn Rosenthal who I brought with me who
was visually impaired and blind, she showed me
what she was actually looking for. I did the
process and the test this morning as a person
who was visually impaired. So I did do the
machine, voted on the machine as a visually
blind person utilizing the audio input.

MR. WOODBRIDGE: And you are
satisfied it meets the requirements with
regard to disability?

MR. MILLSTEIN: That is correct, I
am.
MR. WOODBRIDGE: Thank you.

Mr. Millstein is kind enough to do this during a busy day. I don't usually do this, if anyone has any questions on the disability issue perhaps you may want to phrase them now.

If not, David, thank you very much.

MS. McCABE: If I may.

Mr. Millstein, the comments that you just made about the usability of the machine applies to the iVotronic itself?

MR. MILLSTEIN: That is correct.

MS. McCABE: And not the paper trail.

MR. MILLSTEIN: I'm simply going by the iVotronic, the hardware and the software part of the machine.

MS. McCABE: Thank you.

MR. WOODBRIDGE: Any other questions? Thank you again, David. Good to see you.

MR. MILLSTEIN: Thank you.

MR. WOODBRIDGE: Mitch, would you please be so kind to introduce your crew and give us your report. Mitch Darer from New
Jersey Institute of Technology.

MR. DARER: Thank you. Good morning, thank you for this opportunity to discuss our project and report. I’m Mitchell, M-I-T-C-H-E-L-L Darer, D-A-R-E-R, executive director of NJIT Center for Informational Technology. I’ll provide an overview, professor Ari Jain will provide the test, the sample sizes and balance scenarios and Nirwan Ansari will discuss the specific findings for this machine under examination today.

After the criteria was issued in May, the Attorney General’s Office asked NJIT to develop and conduct testing to evaluate certain machines against the criteria. The requirements addressed design, procedures usability security, reliability and these formed the performance criteria used in our test. Some are qualitative and subjective such as "allow the voter to easily review his or her paper record" and others are quantitative matters of fact such as shall not externally communicate with any system. Each of almost 70 individual requirements in the
criteria was subjected of up to four different types of tests. Twelve exceptions defined as a situation where in testing against the criteria did not completely or did not clearly near the requirement expected results were reported. The project team included senior faculty and staff with extensive experience and information technology cyber securities and statistical analysis. The secure lab was established to design and perform the testing and to house all vendor items. The vendors supplied machines, documentation and other peripheral equipment such as barcode reader and audio components, vendor staff was very level in explaining machine operations and procedures and answering technical questions although they were not present at or involved in the actual testing, nor did the attorney general's office influence or participate in the testing. The team spent thousands of hours over two months on this project scientifically and objectively evaluating and documenting the machines performance against the criteria. We also documented the
configurations and versions of the NJIT tested
machines versus the ITA tested machines. To
support the testing sample ballot scenarios
were developed, four different test procedures
as I mentioned were designed and used to
evaluate different elements of the performed
criteria and for different reasons. The four
tests on the single test and three volume
tests, the 1200 vote test, the 14 hour test
and the 52 vote test.

Now I would like to introduce
Professor Ari Jain to discuss the test balance
scenarios and tallies.

MR. WOODBRIDGE: Thank you, Mr.
Darer. Welcome back Dr. Jain, good to have
you here.

MR. JAIN: Good morning and thank
you. I’m professor Ari Jain, a senior
University lecturer in NJIT division of
mathematical sciences. As Mitch mentioned
I’ll describe the tests, the sample sizes, the
ballots, the scenarios and four types of
tallies.

We developed four test procedures;
the single test, the 1200 vote test, the 14 hour test and the 52 vote test. The single test is a one time examination, inspection or review of equipment, operations and random documentation. It includes a physical inspection of various components of the DRE and the VVPR voting system as well as an examination and comparison of paper records, electronic records and barcodes. There are three volume tests a 1200 vote test, a 14 hour test and a 52 vote test. We use two ballots a long ballot with 19 items and a short ballot with nine items. Both of these ballots are displayed in the ESS machines here, Kevin gave his demonstration by using the long ballot. We used 12 voting scenarios for each ballot. Eight scenarios are completely balanced with respect to the two parties for various positions and the yes no votes for several questions. These 12 scenarios are representative of over a million possible scenarios that you can have. In addition, we had four scenarios that focused on testing, writings and undervotes. The 14 hour emulates
actual physical voting situations over a total
time period of 14 hours representing entire
election day in any of our counties. Mark
voters were recruited to cast various
scenarios, this test resulted in about 300
votes for the ESS machine. Immediately
afterwards we asked these marked voters to
answer some questions about their experience
with the reviewing, changing and accepting
their votes. The 1200 votes simulated test
generates votes continuously based on a short
ballot. The ballot that is on the other
machine in a scripted program which is set up
electronically. However, since the ESS
machine did not have the script capability, we
ran this test by doing a manual test. A
number of votes, the 1200 votes is chosen to
exceed the guideline limit of one machine for
750 registered voters resulting in paper
records, electronic records, closed poll
reports and the barcodes we examined and
compared them. The 52 vote test is designed
to check the multiple page ballot which is not
applicable to the ESS machine because it has a
roll of paper. We obtained four sets of
tallies derived from the counts of paper
records, scanned paper records, closed poll
reports and the electronic records. In case
of the 14 hour test and the 1200 vote test, a
few paper ballots were not printed because of
paper jams. Therefore, we could not compare
all four counts, all four tallies. We were
able to compare the paper records with the
scanned paper records and they match
perfectly. Similarly, we were able to tally
the closed poll reports with the electronic
records and they matched perfectly. Thank
you.

MR. WOODBRIDGE: Thank you. Can I
ask you one question. The procedures that you
used with this machine ES&S were the
procedures the same as procedures used just
last July to with the Cusakoia and the Deboney
machines?

MR. JAIN: Yes, they were identical
machines.

MR. WOODBRIDGE: Thank you.

Dr. Ansari, I think you're up next.
MR. ANSARI: Good morning and thank you. I am Nirwan, N-I-R-W-A-N, Ansari, A-N-S-A-R-I. I am a professor of electrical and computer engineering at NJIT. And since the ES&S an electronic and retail machine that is quite different from the previous machines we have tested. So let me first describe the characteristics of these machine. Actually Kevin described it pretty nicely. So this uses a design we refer to as real time audit log system. In which each voter selection is printed as the voter makes each selection on the DRE routed and after the voter makes all his selections in all contacts on the DRE each transaction selected, deselected or changed is printed immediately after the choice is made. It was demonstrated I think by Kevin earlier so undervotes are not indicated at this point on the paper record. A change or deselection of any prior choice can be made at any time before the vote button as you can see on the machine is pressed. So the voter has unlimited opportunities to change a vote, selection and review the printout one by one
of an individual selection before the vote
button is pressed. However, the ballot with
all the contact selections including
undervotes is printed only after the vote
button is pressed. So at that point the voter
does not have an opportunity to reject the
final print up of the ballot. So, according
to the criteria and the voter verified paper
record called the VVPR or the paper record is
defined in section one as follows. It is
physical piece of paper on which the voter's
ballot choices are recorded cast and preserved
for later use in any recount manual audit. So
for testing purposes this definition is
integrated as referring to the entirety of the
print out of the paper vote on the voting
session of a voter. The cast ballot point on
the paper route which cannot be rejected is
referred to as the vote summary. This vote
summary is electronically saved in the text
format referred to as the voter image which is
essentially referred to in the criteria the
New Jersey criteria as the electronic record
or the electronic voter ballot and official
ballot of the voter. So, having integrated
had the paper record, let me briefly go over
the 12 exceptions in which the machine fails
to comply with the test criteria and each
exception refers to every criteria cited in
the report. So briefly for exception once
it's related to the facilitation of reviewing
accepting and rejecting paper records. So for
this exception one there's only one paper
record printed per voter. The vote does not
have opportunities to recast the ballot up to
two additional times as required by the
criteria. And the voter has unlimited
opportunities to review each individual line
as it is printed immediately after each
selection, deselection or change. However,
the undervotes are not printed in that line by
line printing following individual selection,
deselection or changes and therefore the voter
cannot see or review the undervotes at that
time on the print out. The voter can then
completely review the completed ballot on the
screen on the DRE screen. If acceptable,
press the vote button on top of the DRE screen
that cause the ballot to be cast then the vote
summary showing the entire ballots, entire
ballot cast is then printed on the paper
record but it's not reviewable by the voter
since it rapidly advances to the print out
spindle. Even if the voter were able to read
the vote summary in that short period of time
there is no mechanism for the voter to reject
the voter record at that time and recast the
ballot. Exception number two is essentially
related to the secrecy of all votes cast. As
you can see from the machine there are two
side panels, but by themselves they do not
provide privacy. An observer may be able to
read the screen or by standing behind or next
to the voter. Exception number three is
related to voter privacy. Once the voter
presses the vote button to cast the ballot,
the printer prints out the vote summary with
the exact date and time of the voting session
on the paper record. So if hypothetically if
this time stamped information is compared to
the poll log which records the time when the
voter checks in, it is possible that the
record could be matched to the voter therefore compromising the voter privacy. Exception four is related to the provision of 750 voters per machine. The paper replacement is expected for an election with more than 120 votes. In our experience it ranges from 117 votes to 135 votes in all the tests that we did. Each selection, deselection or change generates one or two lines of prints plus blank space approximately four lines and also there are about four by nine inch blank space to run for the privacy purpose. Exception four is related to security of various components of VVPRS. The roll of printer paper is accessible upon unlocking the printer cover but at that time the paper records accessible. The cable connecting the VVPRS to the DRE is exposed and can be easily disconnected from the printer port on top of the DRE. Exception four is related --

MR. WOODBRIDGE: May I interrupt you one moment. The cable on the top, is that a power cable or is that a printer cable?

MR. ANSARI: That is a printer
MR. WOODBRIDGE: There are two cables, okay, I got you.

MR. ANSARI: Exception number six is related to this low paper indicator. So if the amount of paper reaches the amount of limited limit during the voter session the DRE does not give the voter opportunity to finish the voting and the DRE automatically voids that vote; that is the system cancels the selections and lock the system and the voter has to restart the voter session. And one of the criteria require that you need to allow the voter to finish the vote in the middle of the voting. Exception number four, number seven concerns about the font size. We tried and we demonstrate the VPRs cannot show the font rate 6.3 to 9 millimeter. The maximum size we tried that we can see using the magnification device supplied by the vender is in the range to three to five millimeter range. Exception eight pertains to the linkage between the electronic image records and paper records. While the documents
doesn't provide us the procedure how to reconcile the electronic ballot records with the paper record, however we find out that the electronic ballot image records are saved in ascending order of the election identification number. This is a memory address pointer referred by the vendor that the EIN is printed on the paper record and contained on the back of the record, therefore the EIN is the linkage of the electronic ballot image record to the corresponding paper record. However, matching it the to the corresponding paper records is quite difficult if you have a large volume of votes and we can elaborate on that later on and it is possible only if no paper records are lost. If there is a paper record is lost there could be a mismatch. Exception number nine is related to printer malfunction such as paper jams, so neither the DRE nor the VVPRS can detect a paper jam. When the paper jam occurs, the voter can still make or change selection on the DRE and cast the ballot as normal. However, the printer keeps printing on the same area on the paper roll making it
illegible. No audio or visual warning system is given to either the voter or the poll official when there is a paper jam. The vote is electronically recorded and counted. The paper jams with respect observed in both single test and two voting test. One paper jam during the 14 hour test even resulted in paper torn apart in which selections are backwards or not printed. Exception number ten concerns the cable disconnection. If the printer cable is connected after the voter presses the vote button, the ballot is electronically recorded and counted in the closing poll report. Because the cable is disconnected so there’s no printing. No back up is printed on the and the cancellation is indicated on the DRE screen and even lock report. Exception eleven and 12 are some miscellaneous exceptions not really associated with any of the particular criteria. These are just our observations. Exception 11 stated that a person who possesses a supervisor PEB can activate a ballot in a few seconds without any cross-checking with the
poll log so using a supervisor PEB any person

can cast as many ballots as he or she wants.

Exception 12 I think is related to the

operations. I think during the volunteers

after approximately 250 votes has been casted

the DRE produces a warning message. When the

same supervisor PEB was once again instructed

to activate the subsequent ballots. This

warning message continued for subsequent

votes. While this warning does not preclude

the voter from voting, the even lock shows a

warning message that was not understandable.

We can elaborate on that a little more.

That's all I have to report at this point.

Thank you very much. Very, very good detailed

report. For the record I should indicate that

this report was furnished to the vendor. The

vendor has supplied to the committee its

response to these issues that were raised by

NJIT and the easiest way to address, to deal

with it is address each of these concerns or

exceptions raised by NJIT raised to a specific

portion of the statute, we walk through the

statute that's the best opportunity for the
vendor to respond and people to elaborate as case may be.

Just a matter of housekeeping, in addition to that response from the vendor to the NJIT report, the committee was furnished with a comprehensive collection of documents that were included in a seven, or summarized in a seven page fax to me from the Attorney General's Office. I'm going to Karen Dumars if she wouldn't perhaps be kind enough to provide an extra copy to the court reporter of this document. I'd give her mine, but my is too well annotated and too well covered to give an official record so that pretty much summarizes it. We have two large boxes of materials that have changed the characteristic of my SUV. I'm not saying they weren't interesting material. As a matter of fact I would probably go on to say this is one of the most comprehensive thoroughly documented hearings that we've had the pleasure of presiding over. So if that could go in the record and you get that from Karen.

I've also asked Mitch if he would
kindly give us a list of the people who are attending so that we could put that in the record too. With no further ado we’re going to try to take a break around 12 for a one hour lunch period and then come back and finish our job. Since we are moving along pretty smoothly, I’m to go to start with the going through the statute, not the statute, but the criteria. What we do is we literally take each section, each relevant section of the criteria and read it out loud and then where necessary ask for responses from the vendor. The statute we’re reading from is keyed into NJIT exception, so we could deal with the exceptions and go through the criteria. So the committee is ready, we’ll do that for the next few minutes and then around 12:00 o’clock we will take an one hour break for lunch.

There are portions of the criteria that really aren’t relevant to the machine, I will point those out as we go along. So, if the committee -- and what we’re working from by the way is the material from last July it’s
entitled, State of New Jersey Criteria for
Voter-Verified Paper Record for Direct
Recording Electronic Voting Machines and it’s
I guess about 13 pages long. The first page
is definitions and beginning at the top of the
second page is more definitions and then the
part that we start in the substantive elements
related to the machines in question begin on
page two, Section B operation. So we’re going
to begin with that. And the operation -- and
I’ll provide a copy to you, Kim of what I’m
reading so you can duplicate the corrections
on it. And what is also convenient for us is
NJIT’s report keys in not only to the sections
by a number of the text, so you can follow
along exactly what we’re dealing with.

B. Operation. Paragraph number
one. The VVPRS are designed in various
configurations. In all configurations, prior
to casting the ballot, the voter shall have
the ability to verify his or her selections on
a paper record and in a private and
independent manner. This was noted as one of
the exceptions, exception number two in the
NJIT report and the comment there and
exception number two comes up in three other
locations, the relevant comment there is
quote, "Two side panels exist, but by
themselves they do not provide privacy. An
observer may be able to read the screen or
Paper Record Display Unit by standing behind
or next to the voter." And I ask the vendor
if they have any response to that.

MR. KERRIGANIGAN: This is Kevin
Kerrigan. As we noted in our responses and in
our briefs that I provided earlier, we do have
the doors of the booth itself which provide
protection from the side, and there are some
administrative procedures in polling places
set up that would ensure voter privacy as well
as the standard practice which prevents
loitering around the voting station whether
that's paper or DRE solution being
implemented. So the combination of the booth
set up itself which would protect a voter from
the site as well as how you set up the section
itself. I believe I mentioned it would be
rotated 180 degrees the way we have it set up
here today, so the voter's back is to the wall
preventing anybody who come from behind. As
far as the voters using an audio ballot, when
the audio ballot is enabled, the screen does
go blank as well Wesley mentioned there will
be local procedures of how to protect the
privacy of the real time audit log when an
audio ballot is being used.

MR. PEARSON: This is Steve Pearson.
One thing we did not demonstrate is the
flexibility of the wings. They are intended
and by design to provide privacy. They pull
in right up to surround the voter if they
choose to. So when you're standing in front
of the terminal, you bring the wings in tight
and it's also if the systems are set up in a
manner that they are protected so people
aren't walking or loitering and there is
traffic behind them, we believe it provides
sufficient privacy.

MR. WESLEY: Steve, could I also add
this has been an issue that has been kind of
ongoing and we've been doing some additional
research to try to find ways in spite of the
things they said we recommend you do, some
colors still are looking for additional
security. So this is actually a device if
you want to try this on the touch screen
we're doing the research on that will polarize
and only allow you to look in one direction if
you get a voter that is concerned about
privacy or someone loitering around the area
you can lay this on the screen and if you want
to try it, you're more than welcome. It will
only allow you to view what's on the ballot if
you're directly standing over it so that is an
option.

MR. WOODBRIDGE: I'm going to ask
Marge McCabe, what's your experience with
this?

MS. MCCABE: I have a few issues
that pertain primarily to handicap voters.
The way that our machines are now designed the
booths that they sit in, the machines
themselves the iVotronic as you can see are
about the size and weight of a laptop
computer. If a handicapped voter comes in in
a wheelchair or a voter is unable to lift his
or her arms to reach the screen, that unit can be unplugged and brought to a table and the voter can sit at the table with a privacy screen and can vote. There are no issues of anyone seeing how they voted at this point. I have a major concern about visually impaired voters and their privacy being compromised with any kind of printer not just in one, but any of the VVPATs that are proposed. I really think that this for a security reason so, and one other big issue if a paper jams and a voter has to call a poll worker over for assistance, the voter's choices are readily viewable on the paper not just were this but with any paper trail that compromises their privacy as well.

MR. WOODBRIDGE: That's not peculiar to this machine.

MS. McCABE: That's all of them.

MR. WOODBRIDGE: Is it possible to add curtains if anyone wanted to?

MR. PEARSON: Yes.

MS. KLUSKA: If someone were to walk up and help as a poll worker would, those
voter selections would be visible.

    MR. KERRIGANIGAN: It's an error
that occurs. The screen would not be showing,
they would be prompting something with regard
to the error whether there's a printing
malfunction or whatever the case may be, the
voter privacy wouldn't be prohibited by it or
compromised by the terminal but she is correct
with our real time audit log you're going to
have that line of any selection made the
ballot is an impasse, somebody viewing those
selections, those current selections have no
way of knowing whether it is the final intent.

    MR. WOODBRIDGE: Even with the
mechanical sheet someone needs some assistance
with the CLC.

    MS. MCCABE: That's what's stated if
there is a mechanical problem the machine goes
blank.

    MR. WOODBRIDGE: If somebody had a
problem with the old fashion machine, they
came and they would be able to see.

    MS. MCCABE: We don't deal with
those. That's why we went to this.
MR. KERRIGANIGAN: Another
distinction with her current system they are
able to remove the unit and you can have
what’s referred to as curbside voting or in
the lab voting with this unit and with it
requiring a decast solution that is no longer
possible with this solution because as we
mentioned if you disconnect the printer the
machine shuts down for security purposes. We
don’t allow any voting to occur without an
audit trail, a paper audit trial being
produced. So by this legislation being
adopted you’ve eliminated the possibility of
disconnecting the unit from the printer.

MR. GREENHALGH: Gary Greenhalgh
ES&S. In the approximate six elections that
you’ve run in the iVotronic, have there been
any real concern with the privacy of the
iVotronic?

MS. McCABE: Never.

MR. GREENHALGH: Good.

MR. WOODBRIDGE: Any other
questions, thank you. Do you have any
comments or opinions, okay. B. 2. The VVPRS
shall be designed to allow the voter to easily
review, accept, or reject his or her paper
record. Section a. The DRE shall not record
the electronic record until the paper record
has been approved by the voter. This was
noted both of these were noted under section
number one on the NJIT report. Comment for
the record, Only one paper record (vote
summary) is printed per voter. The voter does
not have the opportunities to recast ballot up
to two additional times as required by the
Criteria. The voter has unlimited
opportunities to review each individual line
as it is printed immediately after each
selection, deselection of change. However,
undervotes are not printed in that
line-by-line printing following the individual
selections, deselections or changes, and
therefore the voter cannot see or review
undervotes at that point on the printout. And
last part, the voter can then completely
review the completed ballot on the screen and,
if acceptable, press the "VOTE" button on top
of the DRE screen, causing the ballot to be
cast. The vote summary showing the entire ballot cast is then printed on the paper record, but is not reviewable by the voter, since it rapidly advances to the "take-up" spindle. Even if the voter were able to read the voter summary in that short period of time, there's no mechanism for the voter to reject the paper record and to recast the ballot.

MR. KERRIGANIGAN: I think at this point it would be appropriate to make a note or an issue I have with the formality of this test report and I noted this in my exceptions and I'm not trying to be difficult or anything, but it's kind of specific here. I did note an exception, there are eight criteria references and we have three bullet points speaking to them and I would argue and I believe everybody would agree that not all of these listed in the exceptions these criteria points do they truly have exceptions with our system and I'm not sure as to why all eight are listed when it seems the three bullet points that are noting what the
exception is seems specific to three
particular criteria points. So I'm just
worried about the interpretation if someone
wants to look at this report and they see
eight criteria references and if they add up
and the exceptions it would maybe exaggerate
the number of criteria that they have
exception to. But what I can do is respond --

MR. WOODBRIDGE: Comments.

MR. KERRIGANIGAN: What I can do is
respond to each of the bullets in the first
one which is in reference to the RTAL
accepting or rejecting the ballots. You've
actually explained this the first time, with
this type of system there's no need for the
recast the ballot. You have unlimited
opportunities to change or make selections or
deselections. I guess I can just read
verbatim what I've previously submitted that
the voter does have the opportunity to review,
accept or reject each of their selections
throughout the entire voting session. Once a
voter has made all their selections, they do
enter into a review screen that is noted on
the printing log as well and they are then
also in that session able to make a number of
selections and deselections and all random
choices they have made and all these actions
are noted on the real time audit log. There
is a vote summary at the end which is used for
auditing purposes, not necessarily for voting
review. We feel that with the way we design
our system being a real time audit log we have
a designed which provides verification to the
voter, provides immediate feedback with
immediate action. They are given an
opportunity at the end, well actually not an
opportunity, its a requirement, our system
requires them to review all their selections
at end before we allow them to cast the
ballot.

MR. WOODBRIDGE: The selection goes
on the paper or selection goes on the screen.

MR. KERRIGANIGAN: Both.

Verification of any action and the action is
recorded on the paper trail.

MR. WOODBRIDGE: How much time do
they have to review the summary.
MR. KERRIGANIGAN: We do not have a
time out. We do not limit the time to a
voting session for a voter.

MR. WOODBRIDGE: So the voter gets
to the end of the vote and is satisfied with
the vote, how long do they have to read the
summary that the paper trail represents.

MR. KERRIGANIGAN: Our machine will
not itself discontinue the voting session due
to voter inactivity, but what we do have in
place we do have a voter I believe it’s
preprogrammed for three minutes of voter
inactivity the machine will begin to chirp
audible enough for a voter to hear, the voter
will notify that interaction is required by
that machine. This could be the case if the
machine is abandoned, so at that point the
machine would be blank and it would be
chirping. The poll worker would insert their
PEB and that will take them to a vote cast or
cancel. If they select cancel, they will be
prompted why they are cancelling the ballot
and the ballot would be cancelled and that
will be noted to the real time audit log. So
it would be up to legislation on how to handle abandoned ballots whether they are to be cast or cancelled. I'm actually not familiar with New Jersey law, with the procedures.

MR. FLEMMING: John Flemming. I think I can answer your question. The printer, you are not able to review at all I think that's what he is asking, the actual summary of the print out, how long does the voter have to review that, the answer to that would be none because it's just scrolling, right?

MR. KERRIGANIGAN: The vote screen they only have the time for it to go by. It's not for voter registration purposes.

MR. WOODBRIDGE: You press a red button and it scrolls up and disappears.

MR. PEARSON: The opportunity to review your ballot before it is cast is on the summary screen as well as any selection or action you've taken on the real time basis with the printer itself.

MR. WOODBRIDGE: Could you adjust, for the record, could you adjust the well
behind the data summary system to look at that.

MR. PEARSON: The system was designed to emulate someone voting with paper or any other device. There is no time limitation. Everybody votes at different speeds and different capabilities with that, so we did not want to put on any restrictions to restrict any type of voter. This would be using the system just like you would with a paper system.

MR. MAHONEY: If the attorney general says that the voter has to be able to see the votes in its entirety before it cast any votes, would it be possible for you guys to alter your machines to do that and if it is possible, how long would it take to do that?

MR. PEARSON: If I could rephrase your question. What you're asking, we do provide that capability on the summary screen and on the screen itself. What you're asking for us to do then would be to print the summary and allow them the opportunity to review the printed summary as well as what's
on the visual summary.

MR. MAHONEY: And then cast their
vote if they are satisfied.

MR. PEARSON: And then cast their
vote. That is a feature that could be
implemented. It would require modification of
the system if that were the case.

MR. GREENHALGH: Gary Greenhalgh of
ES&S. The real problem we have there is the
length of the ballot because if the ballot is
beyond the size of that screen, you won't be
able to see the entire ballot beyond it. It's
all the function of the ballot that the voter
is voting on. Some of the states, I know West
Virginia has a very, very long ballot.
There's no way you could get the summary on
any printer because the thing would be about
eight feet long. That's the problem.

MS. McCABE: Marge McCabe, Sussex
County. I think the problem we have is not so
much with the machine as the legislation. At
least 18 of our counties have full faced
screens without a summary opportunity on the
DRE itself and the legislation I believe was
designed based on that criteria. No one came

to me and said, how does your machine work

before this legislation was passed.

MR. WOODBRIDGE: Keeping in mind

it's not the purpose of this committee to have

anything to do with criteria. As a matter of

fact, we really should try to keep our

distance from those issues.

MS. McCABE: I understand that, but

we do have a summary --


MR. WOODBRIDGE: Okay.

MS. McCABE: -- that others do not

have.

MR. WOODBRIDGE: To address your

comment, Kevin, which was I think the number

of exceptions, we will cover 11 exceptions

here, so I think that's what people should key

on, not just on what NJIT has acquired, I

think that's how the committee looks at it

more than anything else. Mr. Darer, you have

a comment.

MR. DARER: When everybody else has

a chance I will try to conclude.

We're just specific specifically to
voter I'm specific to one and certainly
apologies if anything we've written isn't
exactly clear. First comment applies to all
the exceptions, every criteria section,
subsection cited has been not met by the
bullets below. It may not be a one-to-one
match in this case there are eight criteria
sections that have not been met by three of
the observations and findings that we have
below and here is why we feel why. There are
criteria in all these different places refers
to the voter has to have the opportunity to
review the paper record and to say, yup, it
reflects my vote should it or it doesn't, let
me try again. The paper record in the
criteria is defined as the piece of paper
where the choices are recorded cast and
preserved, so that's the summary. It's not
the ins and out or chicken scratches or the
pluses or minus that came before it and that
under that definition and our interpretation
of it the voter having to have the opportunity
to review the paper record, none of these
criteria sections are met and even if the
voter had three minutes to look at that last
summary there's no mechanism for rejecting and
voting again.

MR. WOODBRIDGE: Right.

MR. DARER: And the last, someone
mentioned what if it doesn't fit and that's
addressed in the criteria too, that capability
has to be there to handle if it takes multiple
windows or some mechanism to do that.

MR. WOODBRIDGE: While we have you
on the stand here, do you have any idea how
long a typical voter record is to a voter on a
machine like this?

MR. DARER: That's probably how we
got to the 120 votes off the length of the
roll. I'd have to do some math.

MR. WOODBRIDGE: We don't need the
answer right now.

MR. DARER: I do know and it's later
on --

MR. WOODBRIDGE: Two feet per order,
does that?

MR. DARER: Each selection,
deselection or change generates one line or
two lines of print, plus a blank space equal
to a few lines in there and then there is the
summary and we saw three barcodes come out. I
don't know what that comes to.

MR. WOODBRIDGE: Perhaps we will do
the math afterwards. This is a 300-foot roll,
you have 120 votes.

MR. DARER: 3600 inches.

MR. KERRIGANIGAN: The distinction
made here while on trying to determine that
number which is discussed, one you can't
determine voter activity. It's difficult to
determine that. We don't have a standard
receipt, it's a real time audit log. The
election sites can vary per election obviously
and that is going to alter your number when
trying to come up with the magic number per
voter as well as our programmable window
versus a nine inch window.

MR. WOODBRIDGE: You have a 300-foot
roll and help me out, you have 120 votes
average so you're talking over two feet of
paper per voter.

MR. DARER: I would agree with you,
but in theory and in our testing but it really
depends on the size of the ballot, if the
voter gets in and out, if there’s lots of
changes, but it seems the impression one can
discuss what the number is but the impression
is it takes a lot of paper.

MR. WOODBRIDGE: Fair enough.

MR. PEARSON: This is Steve Pearson
and I do want to address the criteria of Title
3.0.9 which is III B. 2 where it states, If
the paper record cannot be viewed entirely in
the Display Unit at one time, referring to the
paper record display unit, the voter shall
have the opportunity to verify the entire
paper record prior to the electronic or paper
ballot being stored and recorded. NJIT has
cited this as a non compliant issue. We
interpret that as we are absolutely compliant
to that. Their interpretation, you have to
provide a summary and view the entire summary
but the language does not state that you have
to provide a summary. It states that if the
paper record cannot be viewed entirely and
Display Unit in this case with this device at
one time the voter shall have the opportunity
to verify the entire paper record prior to the
electronic or paper ballot being stored and
recorded.

MR. WOODBRIDGE: Absolutely. You're
ahead of where we are. We're actually going
through the statute rather than the NJIT
comments. We will get to that.

MR. PEARSON: That is kind of a
rebuttal. It lapses.

MR. DARER: I have some additional
information. Let's continue with this. The
first ballot, the printed ballot on this roll
is the short ballot with no changes or
deselections and it's 27 inches and it is
something to be looked at. The last point I
don't think got mentioned in the discussion of
the exception one was the fact about
undervotes. I don't think undervotes got
mentioned here.

MR. KERRIGANIGAN: That was the next
bullet point.

MR. DARER: We're not completely
done with one.
MR. WOODBRIDGE: We have two more bullet points to deal with in regard to this. It’s a little bit complicated the way the we will read the statute and each part of the criteria and so these things may come up again and your comments vis-a-vis the III B. 2. will come up again at that stage. You want to continue with your comments?

MR. KERRIGANIGAN: In my bullet point two I believe is a later criteria. We’re not at the undervote section of the criteria if I’m correct, are we on B.2.A.

THE COURT: We’re on B.2 and B.2.A.

MR. KERRIGANIGAN: Which this does not mention the undervotes, so I believe we will address that later.

MR. WOODBRIDGE: Okay. And also there’s an issue on the third bullet too. You want to take that up, discuss that? We talked a little bit about the ability or inability perhaps to read the summary.

MR. KERRIGANIGAN: It’s kind of back to what Steve was just mentioning. We feel we’re compliant to the language on the ability
for voter to review because we provide that immediate verification as opposed to a design and some of the legislation may seem a little bit like it’s worded toward the design of the printers which is in reference to it being viewed at the end which is allowed in the verbiage of the criteria contract for reel to reel. It doesn’t work like that it’s real time verification of any selection. So, in other words with the verbiage as written they must be able to view everything before casting. We are compliant because they have been showing everything prior to being casted plus multiple opportunity to change any selections and again be provided paper verification of that change.

MR. WOODBRIDGE: One point of clarification. Do I understand correctly that there are nine states that use this paper trail system; is that correct?

MR. KERRIGANIGAN: Yes.

MR. PEARSON: We’re certified in nine states with real time audit log system.

MR. WOODBRIDGE: You say eight of
them had previously used --

MR. PEARSON: That's conjecture. I believe there's eight. I don't recall. I have to go back and see. Some of the states have been implemented and used in election of those nine.

MR. KERRIGANIGAN: This is the first state level. It's certainly in federal testing but this version of it is not implemented anywhere.

MR. WOODBRIDGE: It's just about, actually a little bit after twelve. Why don't we take a break for an hour, reconvene here let's make it five minutes after one and take a break for lunch. Then we'll start up from where we left off. We'll start up with section B3.

MS. MCCABE: If I may, we have a handout that we would like to give everyone that just reviews our testing and validation.

MR. WOODBRIDGE: You can do that now or if you wanted to give it out, you could place it on the back table.

(At which time a luncheon recess was
taken.)

(Time noted: 12:05 p.m.)

AFTERNOON SESSION

(Time noted: 1:12 p.m.)

MR. WOODBRIDGE: We're going to go back on the record. We have a special request from an individual who wants to make a comment. When she comes back, we'll take her. Why don't we start where we had left off and I believe, John, you had some comments on section 2A before we get to section three.

MR. FLEMMING: I just want to make sure I understand your position with 2 and 2A. As it states that the VVPRS is designed to easily review, reject his or her paper record and I'm trying to understand where you see that the voter does that?

MR. PEARSON: Let me catch up.

MR. WOODBRIDGE: We'll take you in a minute.

MR. PEARSON: Could you repeat your question.

MR. FLEMMING: Go to Criteria Two.
Based on what it states is the VVPRS shall be
designed to allow the voter to easily review,
accept or reject his or her paper record. And
I'm trying to find out where you believe that
that is accomplished in your implementation in
this. I can understand how it is
electronically, that makes all the sense. I'm
not sure, I want to make sure I'm not missing
something.

MR. PEARSON: There was specifically
with the real time audit log system the voters
provided to me.

MR. FLEMMING: For each vote never
or ever it will accept or reject, you don't
vote on, correct.

MR. PEARSON: Yes, they are. As
they go through and when they get to the
summary portion that is when they are given
the opportunity to ensure first of all we
ensure that they have seen all the races and
that's where they would have opportunity to
either choose to go back in and modify or
elect to not vote.

MR. FLEMMING: Electronically I
could see that you do a good job in that, but the way it's written I want to know, you could do that paper, think of it as two separate --

MR. PEARSON: Which specific criteria are you referring to. 2.09 is that the criteria sheet that we're working, through or.

MR. WOODBRIDGE: I think Mr. Flemming is going back to section B.2.A.

MR. PEARSON: 2.B.2.

MR. FLEMMING: 2.B.2, yes. Actually I was reading two.

MR. PEARSON: Are we working from this sheet?

MR. FLEMMING: I'm working from the criteria sheet. My argument was on that, is there a provision in this statute and that's where I was kind of jumping ahead. You cautioned me to not jump ahead, that's where I read point 09 where it was 3B3 where it states, if the paper record cannot be viewed entirely in the Display Unit at one time --

MR. PEARSON: The voter shall have the opportunity to verify the entire paper.
record prior to the electronic or the paper
ballot being stored or recorded. We comply
with that because they have been given that
opportunity to review the entire paper record
up to that point to where they’re ready they
have had that opportunity at every juncture
right before they push the vote button.

MR. FLEMMING: If they made a
selection on anything they left out, they have
not verified that they have left it out on
paper.

MR. PEARSON: The system notifies
you of undervotes, that’s the undervote
protection. Anything you have not voted on it
shows you that. It tells you that.

MR. FLEMMING: Electronically, not
on paper.

MR. KERRIGANIGAN: The lack of any
selection in that contest indicates a number
of voters, that’s for the real time portion.
Then of course there’s a vote portion for
auditing services.

MR. FLEMMING: I understand that’s
where you would see that, but the voter would
not see that.

MR. PEARSON: So you’re asking that
a system tell the voter, tell the voter every
opportunity they didn’t select.

MR. FLEMING: On paper not as
opposed to in addition to.

MR. PEARSON: So every undervote
situation scenario you’re asking for on paper
that that system could tell the voter.

MR. FLEMING: The way I interpret
this piece of it is that your summary as it is
printed out is what the voter needs to be able
to verify before the vote gets cast.

MR. PEARSON: Yes.

MR. FLEMING: The one that slides
through, the voter cannot see needs to be able
to see and not cast until they could see that
and have a chance to change it.

MR. PEARSON: That’s what I was
pointing to the criteria 3.09 it allows for a
system that don’t display the entire.

MR. FLEMING: So they would have a
multi-page in other words if it’s three pages
long, would you come up the first nine inches
to be able to verify your votes.

MR. PEARSON: But it doesn't say

that in language that it's summary. It says

they have the opportunity to review prior to

casting the electronic vote. That's what that

says. It doesn't assume that it's a summary.

MR. KERRIGANIGAN: I suppose if

we're speaking correctly to B2 in question

here. First of all, it is qualified by the

subset A which does say, the DRE shall not

record the electronic record until the paper

record has been approved by the voter. Our

approval process is a constant process because

it's a real time verification. So that's, I

believe we are not in argument on the ability

to review our system or accept. I think your

direct controversy here is how could you deny

that record and our opportunity for the voter

to deny before casting their vote is that they

are given paper verification of any actually

made and if they don't like what they saw

verified on the paper, they could make an

alteration on the touch. So that's the

exception when reviewing and rejecting the
statement.

MR. FLEMMING: My concern is that it is not a full set of their votes.

MR. KERRIGAN: That would be a receipt.

MR. FLEMMING: I'm just thinking as it is written trying to fit it into where you have it.

MR. ANSARI: Which we fully meet the criteria what we're speaking specifically to right now even subset A qualifying that voter should either accept or reject, they have an opportunity to do all of those things.

MR. FLEMMING: You're missing the last two words accept and reject.

MR. KERRIGAN: They disagree.

MR. FLEMMING: But you're basing it on the electronic side of it.

MR. KERRIGAN: On the paper record. If I select Randall as one of the candidates for president, I see it on paper record. If I don't want that, I wish to reject that option on the paper, I deselect it. When you saw I changed selections it will show a negation of
Randall's selection as well as the new selection that I've made because it's a real time audit log, we track every action. There's an audit trail of every action made.

MR. FLEMMING: How does a voter surely by paper, not electronic, notify that they did not vote for either a question or a contest.

MR. KERRIGAN: Undervote in my eye would be defined as lack of action and our printer is recording action. If there's no action recorded on a contest, you have undervote. An undervote technically can't be committed until you cast a ballot because until that point it's a contest that hasn't been interacted with. We would agree an undervote cannot be committed until a vote is cast. It's equivocal you can't alter your choices. So, I personally have trouble with the wording of being able to verify your undervotes and make an alteration after that because an undervote cannot be committed until it is actually cast and at that point it can
be altered, but I still stick to the point we
monitor all actions. An undervote could be
recognized on a paper trail by a lack of
action recorded in that contest.

MR. WOODBRIDGE: If I could make a
point. Some of the things we're talking about
here and particularly seeing a paper record
and how many times it comes up, comes up more
particularly later on in criteria and these
are sort of more general comments. So you
might want to move along to get to those
specific issues. Undervotes always come up as
being specific too, just on the thought that
would be more appropriate trying to deal with
what you're dealing with, I think. We
normally don't do this. We do have a special
request from an individual due to other
obligations only have a short period of time
and promises is going to be a five minute
presentation. So I'm going to ask Stephanie
Harris to make your presentation.

MS. HARRIS: Thank you and thank you
for making this exception for me. We only
found out about this hearing yesterday, so I
was unable to rearrange my schedule so thank you. While we are pleased by the more thorough certification process for the printers, we at the Coalition for Peace Action continue to protest attaching a certified printer to an electronic voting machine which has not been certified to 2005 standards. We further object to privatizing the vote by the not having an open source code. We do not understand why this committee has not been empowered to review other technologies such as presynced based optical scan simultaneously to the certification of the DRE printers. Having tried the ES&S DRE and printer, I would concur that the real time audit log as configured here does not truly meet the requirements of being a VVPAT. The voter must be able to see a printed summary of the ballot decisions for more than ten seconds and have an opportunity to change the paper ballot which will ultimately become the paper ballot of record.

Furthermore, because of voting privacy issues, the reel-to-reel printer is not acceptable in New Jersey. Moreover, the
paper roll is very short just allowing 70
votes and would have to be continuously
changed during the course of election day. It
does not only require enough poll workers to
perform this task, but also raises the
question of the added security steps necessary
in the chain of custody. The universal key to
open the printer is another source of
insecurity. Finally, the lack of notification
of a paper jam is unacceptable. If voters are
inattentive and a paper jam occurs, their
votes would become illegible and would be lost
in a recount or audit.

In conclusion, we have not yet seen
any VVPAT technology presented to this
committee which has been acceptable. And we
request that alternative technologies be
sought out for certification in the State of
New Jersey in order to give counties a real
choice of how to meet the mandate of the law
and provide a VVPAT by 2008. And once again
thank you so much for hearing my words.

MR. WOODBRIDGE: Thank you
Stephanie. We appreciate your input. Just
one question. We have provided a log
documentation including machine code and
Miss Harris brought up the question of open
source. Did we see all the coded machines.
What did we see, do you know?

MR. KERRIGAN: I don’t believe we
released any source code in our documentation.
We would have provided our standard TDP which
includes user manual, maintenance, manufacture
software specifics but I don’t believe the
source code was required.

MR. WOODBRIDGE: It looked a little
bit like a code to me but I couldn’t tell
precisely what the purpose was.

MR. KERRIGAN: And NJIT reviewed and
was given all the same documentation and they
probably can verify they did not receive
source code.

MR. WOODBRIDGE: Other states
require code escrow of some sort.

MR. PEARSON: Correct.

MR. WOODBRIDGE: Is that the case of
ES&S.

MR. GREENHALGH: That’s correct. A
number of states require the source code to be escrowed in an escrow account approved of by the state.

MR. WOODBRIDGE: Okay. Slow down a little bit. We need to pick up the pace a little bit. We’re onto Section B3A. This is not a count, but section B3B says, Continuous Spool. Method: The voter views the paper record on a spool-to-spool paper roll. This method shall be used in a manner that fully protects the secrecy of all votes cast. This is also subject to exception number two that we read before and the exception number five raised by NJIT. In regards to the criteria.

MR. KERRIGAN: This doesn’t meet criteria which were cited in the exceptions that I don’t think are applicable in the exceptions itself. For instance, this is simply stating the spool will be used we have continuous spools. The only qualification in this criteria is it has to be used in a manner that fully protects us of all modes and I think in the overview it showed the physical security around the system.
MR. WOODBRIDGE: With regard to Exception Number Five, the two bullet points reads, first one, the roll of printed paper records is accessible upon unlocking the printer cover. Second part, the cable connecting the VVPRS to the DRE is exposed and can be easily disconnected from the printer port on the top of DRE. I think this was one of the issues with regard to security. And would you care to address that, Mr. Kerrigan?

MR. KERRIGAN: Yes. One of the comments we made in the exception in our response to the exception as pointed out during the demo, they did mention that it is behind a lock and key mechanism. I do have a bit of trouble with the wording. That first bullet could have been worded, the roll of printed records is not acceptable without a lock and key. That change of verbiage kind of shows that someone cannot have access to the printer without the key which is to be maintained by the authorized personnel. I believe the first one is stating how we are compliant to the standard which is requiring
physical restriction to the system. We do
have a lock and key mechanism and we do
encourage the use of security tamper emphasis.

MR. WOODBRIDGE: Now we may address,
we're jumping ahead and maybe Mr. Darer may
want to amplify things but I think one of the
concerns may be you actually have poll workers
physically touching the ballot results. We've
seen in other vendors where for example, the
rolls are protected in a cartridge where you
don't see it change the cartridge. I see your
head nodding in an up and down direction there
I think that's probably the issues they may be
addressing.

MR. KERRIGAN: Again there is a
manual procedure. The most common reason you
would even open up the printer if you did have
to replace the reel, all the results are
backwards facing onto the reel so they are not
facing outward, they are facing inward on the
reel so you are able to remove that used
portion or that take up reel without ever
viewing the results so that would be a manual
procedure for them, for you to be able to
trust they are not then going to unravel the
take up reel and begin looking at the results.
I believe Wesley with the help of the Sussex
County people that are here spoke a bit about
the procedures without the system being
implemented here it's not really a New Jersey
example, but in west Virginia they would be
taking that take up reel place it in an
envelope for any sort of oddity that may be
done on that reel. In other words I've spoken
to the physical restriction of the system and
there are manual procedures on securing that
reel.

MS. McCABE: Marge McCabe from
Sussex County. I think those procedures need
to be dealt with on a local basis as far as
security issues on the poll. Anything that
happens with our voting machine is done by a
republican and democratic worker together. If
those roles have to be changed it would be
part of our criteria that two poll workers go
together and would put a tampered evidence
seal at the end of the roll before it is
stored away in a sealed packet.
MR. WOODBRIDGE: I think you would want to try to keep the audience question until at the end if that's okay. Would you care to address the issue of printer cables at the top of the machine; one is a power cable, one is a printer cable.

MR. KERRIGAN: Both of which can be secured down with the use of tamper evidence seals that would just enable you to be able to verify if anybody does tamper with your cords. If someone does break a seal and removes either one of those accessible cords, at that point there's no loss taken to the votes. The votes are secured behind a separate sliding door which a wire seal can be placed over. What the result of disconnecting the printer would lock down the machine. The machine when programmed for use with an RTAL printer does not operate when the printer if that communication line is broken the machine cease as a function. So somebody who would tamper with that cord would not have any vote casting ability, nor have access to the votes that are stored internally. It's like a power cord. I
mentioned during the demo it does run on
battery power. It's able to transition
seamlessly from AC to DC power. So if you
lost power that doesn't tamper your voting
session. There's no integrity to the voting
session.

MR. WOODBRIDGE: How come they are
on the back of the machine, not on the front.

MR. KERRIGAN: Design choice made.
I can't speak to that.

MR. WOODBRIDGE: Seems to be a lot
cleaner if they weren't toward the audience
like that, but.

MR. KERRIGAN: Also in the original
booth configuration it wasn't necessarily ADA
compliant but the machine was more of you look
down at it and those cords would have been
towards the back of an enclosed in booth that
have walls on both sides and those cords would
have been toward the back of that set up, so,
this is kind of evolution of a new move to
incorporate real time audit log so this design
wasn't necessarily for this just the evolution
that goes with the legislation.
MR. MAHONEY: If the power cord has been moved or loose, does it give a warning so they know this before the battery goes?

MR. KERRIGAN: That's one nice thing about our implementation of the system being a forward graph dated. We have constant polling official interaction with the machine and it is indicated on the machine at all times during that open screen machine whether it's on AC or on batteries and there also is a low battery indicator. If the battery does get low it's not recognized it's on battery if the machine determines there's not enough power to complete a voting session, it doesn't allow one to begin. There are warning messages leading up to that saying you're on low but we are going to allow you to vote. Then there's that one final critical one because it's at a risk of not being over finished.

MR. WOODBRIDGE: Section B 4 and 5 together it's sort of the same exception. B4, No electronic paper record shall indicate the identity of the voter or be maintained in a way that allows a voter to be identified. B5.
The electronic and paper records shall be created and stored in ways that preserve the privacy of the record. We have Exception Number Three in both cases here which reads, Once the voter presses the quote "VOTE" unquote button to cast the ballot, the printer prints out the vote summary with the exact date and time of the voting session on the paper record. If this timestamp information is compared to the Poll Log which records the time when the voter checks in, the paper ballot record could be matched to the specific voter, therefore compromising voter privacy. I see what this means is that when the voter comes in sequence A through Z or one through 200, that the audit trail keeps the record in that same sequence; is that a correct statement?

MR. KERRIGAN: I didn't completely follow your scenario there.

MR. WOODBRIDGE: I'm just saying the issue that they are getting to in regard to Exception Number Three if I understand it correctly is that the audit, the paper audit
trail is kept at the exact same sequence as
the voter that comes in. It's possible to
reverse engineer if you have the Poll Log, you
have the ballot what you can do and what you
can't do.

MR. KERRIGAN: I believe that's what
they are proposing but in reference to this
exception, in the version that's going through
federal testing the version we spoke to
implement in the State of New Jersey the
version of 9200 the time date stamp has been
taken off the printer.

MR. WOODBRIDGE: Okay.

MR. KERRIGAN: I did have one
question I never got to address was whether it
was legally allowed to record the time that
the voter checks in at the registration. I
never found out. I don't know if Sussex
County could say whether that's a common
practice to record the actual the time.

MR. WOODBRIDGE: The problem is what
happens and I can't speak for Sussex County
but you come and you vote if you're the 30th
voter, you have a piece of paper that has a
30. The person runs the machine that puts it on a spindle so they know where you are in sequence.

MR. PEARSON: That would be you have one device and also there was no interaction of the poll workers or voters used for multiple machines, theoretically you can run it randomly and not trace it back, but rather than belabor this issue we chose to go ahead and move that from the firmware.

MR. WOODBRIDGE: Taking the date stamp off was part of the problem. Part of the other issue was the broken sequence that shows up in a log that way. You have to have more than one machine, it helps.

MS. McCABE: We have between two and five.

THE COURT: We have two sets of machines depending on the district it could be two machine.

MR. PEARSON: I think that perceived problem is more pronounced in low turnouts. elections. In electronic voting, we have the same challenge as well as your traditional
paper optical scanning systems where you have
turn outs too. You have that same issue
really with any voting system so you need to
implement procedures that help protect the
voter.

MR. WOODBRIDGE: Any other comments
on those.

MR. DARER: No.

MR. WOODBRIDGE: B6. The VVPRS
components shall conform to federal and state
accessibility requirements. They have all
seen and testified this morning with regard to
that issue. Six A. These requirements shall
include, but not be limited to, an audio
component that shall accurately relay the
information printed on the paper ballot to the
voter. And we seen the demonstration of that
too. Seven: The VVPRS device shall draw its
power from the DRE or the same electrical
circuit from which the DRE draws its power.

MR. KERRIGAN: They both are plugged
into the same surge protection. It's viewable
from the back. The way we have these set up
right now or at least originally I don't know
if they stayed that way, you're able to daisy
chain them and they are all technically able
to run off surge protector. We can have up to
12 units being plugged into a line. They can
all run on the same line.

MR. WOODBRIDGE: If that's the case,
if the machines go down, does it go on the
same battery.

MR. KERRIGAN: If you lose AC power
they would all be run independently on a
battery. This is not a network system use of
a daisy chain. This is independent of the
hardware itself. You're just literally
plugging into each other's surge protector.

MR. WOODBRIDGE: Eight, The voting
machine shall provide a standard, publicly
documented printer port, or the equivalent,
using a standard communication protocol.

MR. KERRIGAN: And we have a serial
port that is standard I believe NJIT noted the
exact cord number RS32 that is our cord for
the printer.

MR. WOODBRIDGE: Nine is, The VVPRS
shall mark the paper record precisely as
indicated by the voter on the DRE and produce
an accurate paper record and corresponding
electronic record of all votes.

MR. KERRIGAN: Compliant.

MR. WOODBRIDGE: Ten, The DRE
electronic ballot image records shall include
all votes cast by the voter, including
write-ins and undervotes.

A. Write in votes are votes cast by
a voter for an individual not listed on the
ballot as a formal candidate.

B. Undervotes are elective
officials and/or public questions on the
ballot for which the voter has not cast a
vote.

MR. KERRIGAN: All of our ballot
images are recorded to the audit file
which is on a flash.

MR. WOODBRIDGE: Just a question on
the voter image. What kind of image is it?
Is it a PDF which is it?

MR. KERRIGAN: It is not an image
where it’s a snapshot. It’s simply
unformatted text laid out and it highlights
the selections. It just notes the selections
made by the voter.

MR. WOODBRIDGE: So it's an image in
the sense it's a duplicate of the record of
what's printed. John, I think you have some
questions on undervotes. I don't know if you
want to deal with that issue.

MR. FLEMMING: On ten, not yet.

MR. WOODBRIDGE: Let's go to eleven.
An electronic ballot image record shall have a
corresponding paper record. The paper record
shall be printed and the voter shall have the
opportunity to verify the paper record in its
totality prior to the final electronic record
being recorded.

B. The DRE electronic ballot image
record shall correspond to the paper record in
a manner that does not reveal the voter's
identity.

C. The paper record shall contain
all voter selection information stored in the
electronic ballot image record. And just to
come back for a second, I think you just
tested they are planning on moving the date
stamped on the record.

MR. PEARSON: It is removed.

MR. FLEMMING: Going to Eleven A basically what it's saying, the paper record in its totality prior to the final election recorded which would for me mean that it would be the whole selection on the paper before you actually hit the last portion to get the vote to the record.

MR. KERRIGAN: I think you're assuming it all has to occur at the same time. You're saying you have to be able to paper record it in its totality all at the same time. We do not take that interpretation, we do allow the voter to verify the entire record, the entire paper record when they get cast and their vote is cast they have viewed everything that is printed to the log, they have the opportunity to view.

MR. FLEMMING: On paper prior to getting the vote they are not given the opportunity to show them on paper that they have any votes that they have not voted on.

MR. PEARSON: This language does not
address undervotes.

MR. FLEMMING: Let's take the undervotes out of there. How is your paper showing the voter every candidate that they voted for and I want to take undervote word out of here having a non vote for a candidate. How does your paper show exactly because really if you think about it if a person votes or decides not to vote for a candidate or an election, that's the same as voting and that's your decision to either vote or not vote and what I'm trying to figure out is the whole thing here is voter verifiable paper trail which is the intention of the voter for every contest along the line so that they could see that prior to that last vote actually once you go on here it will actually ask you, you have three chances at that. So not only do we have the first one but we have that multiple time until you hit that last final vote and it's really to make sure this whole thing in my mind is to make sure the voter is comfortable that who they voted for electronically and electronically I whole heartedly understand
everything is shown to them, but this hearing
is more on the paper side. How are we showing
them all their intentions.

MR. PEARSON: I think this would be
a good time to show you the iVotronic. Go
ahead, Kevin. I would like to bring it back
to the language and not make any other broader
interpretation of what the language
requirement states. I think it is an
interpretation issue and obviously we believe
we comply with this language in Eleven A.

MR. KERRIGAN: I would mention the
real time audit log provides comfort that
everything they are doing is being captured
electronically that they have a paper
verification of that and the usability studies
that were conducted at the birth of this type
of technology it was found that with the real
time audit log we have a far less need to have
to educate voters on adding another system or
a receipt at the end, for instance, that would
alter the use of DRE as it is today. For
instance, for Sussex County if they
implemented the RTAL printer, they would not
have to change anything. They are currently
using that system, all it is now you have
verification immediately on the side of the
paper of everything that you’ve already been
doing for years in that county. So there’s no
learning curve for the voter. There’s no
extra process and there’s no casting or
proceeding. They are providing a real time
record of every action so that I would like to
go onto the other issue, but we will address
undervote when it comes up.

To this language we are compliant
that we allow them to review everything
printed on paper.

MR. PEARSON: In its totality prior
to electronic record being recorded.

MR. KERRIGAN: And therefore to
offer selections and see that on paper and
verify it again.

MR. WOODBRIDGE: I think John
mentioned before this issue of how many
ballots you get actually comes up later on. I
think on page eight, so we’re getting into the
nitty-gritty a little more when we get at that
stage. Any other comments on section eleven?

If not, we’re going to start getting into some heavier water. The design requirement for VVPRS. The printer shall be designed to have a sufficient amount of paper, ink, toner, ribbon or like supply for use in an election, taking into account an election district should have at least one voting machine per 750 registered voters. I stop there. That relates to Section Number Four and that states as follows. Paper replacement is expected for an election with more than 120 votes. Each selection, deselection or change generates one or two lines of print plus blank space equal to approximately four lines. I should say this issue came up in July when we spoke to other vendors and the first question was, did your machine have to be able to accommodate 750 voters before you changed its paper and I think subject to committee’s improving my memory on this, I think we ultimately decided it didn’t state specifically that we had to go through 750 votes before you changed paper. That is one interpretation of it. And I think
maybe part of what they are getting at here
and Mitch, feel free to jump in if you wanted,
I think that's primarily what you were talking
about in this particular exception simply what
we have seen in a couple of those machines.

MR. DARER: Yes, but I would say 140
votes can go by pretty quickly. It does seem
to me what the average machine, maybe it isn't
750 registered voters which may be on a high
side, it still looks to me you are going to
change that machine six times during a 12, 14
session voting period I would think.

MR. KERRIGAN: If I may, two
comments on this. First I would just like to
read our response to this exception where we
do feel the NJIT assertion that the paper will
last for 120 voters is subjective and
misleading. We spoke about why that number
can toggle, but the amount of paper used will
vary on voter activity which includes number
of voters, length of the ballot therefore the
amount of voters per roll of paper varies from
election to election and from voter to voter.
As you've already mentioned, we do also feel
that the regulation do not state the paper
roll must accommodate 750 votes, but in terms
of how many voters can vote on a machine, I
will disagree it’s 120 and we have numerous
options, several of which weren’t employed for
the testing that could significantly alter the
paper receipt.

MR. WOODBRIDGE: Can you get a
larger roll than some of the vendors have.

MR. KERRIGAN: No because of the
physical constraints of where that roll fits
in. As of now we do employ the 350 foot roll
but one other option is change it from a nine
inch window to 4.5, another one percent before
you go on so they know what that means so per
100 voters you are saving 4.5 inches of paper
per voter, so that’s a significant amount of
saving right there if you choose to use that
option.

MR. MAHONEY: Would that be a change
in the software machine also.

MR. PEARSON: It’s actually a
programmer setting and that’s done originally
in the coding. You either have the nine inch
or four and a half inch window.

MR. MAHONEY: So the ability is already there that's in the system.

MR. KERRIGAN: Some other options that were available in this version and have been brought forward, you have the ability to turn on and off whether a summary is printed at the end of each session that isn't for the voter, so it could be the county's option to not have it and then they did have the audit, the paper trail they would have to go through and look at all the accepted and rejected options and figure out what the final vote was or scan the hardware so that vote we have tested that probably took up about 12 inches of what Mitch stated was 27 inches per voter. Also a portion of that 27 inches I believe, was part of an initial take up spool. It was at the end of the roll you were showing us so I would disagree with the 27 inch and almost have of it could probably be cut off by toggling some of the options so you can turn on and off the vote summary, you can turn on and off whether it does an entire election.

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summary at the end and you could also change
it from a nine inch to 4.5 inch.

MR. MAHONEY: I notice when it
printed out, you made a new selection there
was a large space. Is it possible to bring
the lines closer together?

MR. KERRIGAN: We have made
significant reduction in between lines in this
version. Previously there was probably ten
lines of space in between each selection, with
this we did reduce it down to what we feel is
a good amount of space to clearly have each
selection or deselection spaced out.

MR. FLEMMING: How much space for a
person does it usually take for a voter to
have their whole election changed and so
forth, how much is that?

MR. KERRIGAN: That's back to all
those different variables keyed into that.

MR. FLEMMING: If you're at nine
inches of viewable space, going back to the
other question. The totality, could it have
all those changes in front of them in that
nine inches.
MR. KERRIGAN: Depends on the size of the selection. If the election was small I suppose the quantitative way to answer that we should measure the number of lines that fit on a nine inch window and then you could figure out what maximum number of contests would be in an election that would fit a nine inch window of just making the selection of each contest. That would be the scientific way to answer that, I don't know.

MR. PEARSON: There is also an option not to print the barcodes after each session. That wouldn't be an option.

MR. WOODBRIDGE: You have to make sure that the paper trail can recreate your whole election.

MR. PEARSON: And not all states is that required for each voter session to have that barcode.

MR. KERRIGAN: So when we first kicked this off, we were giving them a probability something I know we together with NJIT struggled with how should we test these machines given the amount of parameters
because it's implemented across the city and
we have a lot of customer demands which
parameters to enable or disable and the
testing proceeded.

MR. WOODBRIDGE: National standards
to deal with, is that what you're talking
about, the national requirement.

MR. KERRIGAN: There could be some
that affect the system, but there are some
that are state mandated. We as a national
vendor actually international, we have to come
to a lot of different demands and state
mandates have to determined how to turn on and
off restrictions.

MR. PEARSON: I will say there was
significant amount of discussion and
investigation on this performed by this PPC in
this development of the newest and latest
standard not only released in the review,
there was an effort to look at ways, better
ways technology to look at this and there was
nothing that really significantly came out of
their evaluation. So the standard going
forward they are not going to see a whole lot
of changes as far as the printer technology
other than the end review.

MR. WOODBRIDGE: My recollection is,
I don't want to digress, my recollection is
the standards have been voluntary to date; is
that correct? Is there going to be national
standards?

MR. PEARSON: They are all
voluntary.

MR. WOODBRIDGE: There's no one size
fits all standards.

MR. GREENHALGH: If the passed
legislation requires mandating 30 states out.
In other words, even though they are
voluntary. They apply in West Virginia.
That's the state that Jane deals with. You've
got to conform with the standards as it is
written up.

MR. WOODBRIDGE: They have to meet
federal standards.

MR. GREENHALGH: Correct. West
Virginia code says you've got to meet the
federal standards. The most recent federal
standards or they cannot be used in West
Virginia. As written in the code they've made
the voluntary standards mandatory.

MR. WOODBRIDGE: For purposes of
edification of the next step, could you adopt
the federal standards and in addition to that
adopt additional standards above and beyond
the federal standards; is that possible?

MR. GREENHALGH: Yes.

MR. WOODBRIDGE: Going onto 3(A)2.

If any addition or replacement of paper, ink,
toner, ribbon or other like supply is
required, it shall be done with minimal
disruption to voting and without circumvention
of the security features of the Printer and
Storage Unit which protect cast ballots and
the secrecy of the vote. This is also noted
with the exception of the four and I think the
part that was relevant there was to comment
the roll paper record is accessible on
unlocking the printer cover I think it's an
issue. Do we have any comments on that?

Okay.

Roman numeral III A 2. The VVPRS
shall have a low-paper indicator that will
allow for the timely addition of paper so that
each voter can fully verify, without
disruption, all of his or her ballot
selections. And there is an exception of
number six noted by NJIT and that reads: If
the amount of paper reaches the minimum limit
during a voting session, the DRE does not give
the voter the opportunity to finish voting and
the DRE automatically voids the vote. That
is, the system cancels the selections and
locks the screen, and the voter has to restart
the voting session.

MR. KERRIGAN: I would say that we
are compliant because we do know if it's low
paper, low paper or low power it is true that
that voting session is canceled. The problem
would need to be rectified replacing the paper
or reestablishing AC power to the unit and
then the voter would be able to conduct their
voting session in its entirety and place all
of its voting selections on the system. In a
sense because of this hardware issue that
session, due to the hardware issue no longer
in progress, the voting session is suspended
and then a new voting session is activated for them.

MR. WOODBRIDGE: The voting they've done to that point is basically voided and they revote again; is that correct?

MR. KERRIGAN: The intention of our paper trail is to have it with a reel-to-reel system. You want to have it concurrent, not pasted together, two separate pieces of paper concurrent and a trail made by the voter. The paper runs out, you got to start back over deal with the paper issue, give them the opportunity to have an entire fully uninterrupted voting session.

MR. WOODBRIDGE: I think I understand that. I think what I'm a little confused about is the low paper indicator rather than out of paper. You've got ten feet of paper, that should be enough for someone to then vote. And so it seems to me the whole idea, there should be enough of a warning indication to give the voter an opportunity to vote before you got to change the paper.

MR. KERRIGAN: And Wesley was
speaking about this during our demo. There is a paper indicator which would indicate the problem the paper should be dealt with at that point. If voting resumes which it will allow you to resume up to a certain point, in other words it's kind of saying low paper but it is not a fine line. There's a point where it's going to begin notifying you and notify voting and then it's going to notify you the voting session to end because there is risk that you might not be able to finish.

MR. WOODBRIDGE: You have a two light mode voting symbol.

MR. KERRIGAN: Visual to contact the poll worker.

MR. WOODBRIDGE: Visual to?

MR. KERRIGAN: Visual on the screen as well as if someone was marking a ballot there would be a warning method associated audio file and also Will spoke to physically we can have paper that has a rooster tail that would begin to note receipt printed. You can see the beginning.

MR. WOODBRIDGE: That will notify
the voter. How does that tell the poll worker
that you’re getting --

MR. GREENHALGH: The precinct could
see that when you’re activating a ballot.

MR. WOODBRIDGE: If they came in the
booth after someone has voted and they are in
the rooster tail, how much paper do you have
on the rooster tail?

MR. WESLEY: I don’t know the exact,
I can’t recall. We could get that for you. I
think about eight feet.

MR. WOODBRIDGE: What I’m still not
terily clear about, so how do you detect
other than the rooster tail when your paper is
locked.

MR. PEARSON: A sensor on the paper.
It’s a low paper sensor.

MR. WOODBRIDGE: Across the paper.
When you sense that, at that low point can the
voter continue voting at that point?

MR. PEARSON: I don’t know that.
Kevin, do you know if it would be possible
when we hit the low paper stage? I don’t
specifically have the answer. We can get you
the answer but I know that it was a design
feature in the system and we always default to
ensure the protection and integrity of that
voter, that vote session so we always kind of
err on the side of caution and precaution.

MR. WOODBRIDGE: I understand that
but I think the criteria appears to be very
clear if you get the low paper indicator, it
appears to me that there should be enough
paper so the voter could continue and complete
the vote before you change it. That's sort of
my reading of it. I don't know what others
say.

MR. PEARSON: I would believe that
that would be the case and that is something
that you could test in certification testing
examination to see if you're comfortable with
the way the system operates and if it meets
your criteria there.

MR. WOODBRIDGE: Mitch, you want to
comment on that? I guess there's an
exception. I think what I understand the
exception, it says, if the amount of paper
reaches the minimum limit during a voting
session, the DRE does not give the voter the opportunity to finish voting and the DRE automatically voids the vote; is that correct?

MR. DARER: That's what we found.

MR. WOODBRIDGE: If that's correct that does not seem to meet the letter of the criteria here.

MR. KERRIGAN: Perhaps I could speak to voting allowed.

MR. FLEMMING: What indication did you have that paperwork was getting low.

MR. WOODBRIDGE: How do you know when the paper got low.

MR. DARER: There was a display message on the DRE.

MR. WOODBRIDGE: So if you were inside the booth, it would say paper low, something like that.

MR. DARER: Yes, something like that.

MR. WOODBRIDGE: If something like that came up, did it say you can't vote any further? What did it tell the voter, do you know?
MR. ANSARI: Nirwan Ansari from NJIT. The error message stated like the printer is not working correctly place in supervisor PEB and the paper ballot printer has malfunctioned, your ballot will be canceled, please ask your poll worker for assistance. But then afterwards we go to check the electronic records, the votes there are voided the votes whatever the votes have been done in the middle of the session are not recorded so you start a whole new session begin.

MR. WOODBRIDGE: So the voter may come in, start voting, get this message in the middle of voting it says come out of the voting booth.

MR. ANSARI: Right.

MR. WOODBRIDGE: If that is not a proper interpretation, let us know but that appears to be difficulty in using this to the criteria.

MR. PEARSON: We are seeking the precise rules that we apply, so I should have an answer for you today.
MR. WOODBRIDGE: We have some other materials to catch up.

Roman numeral 3(A)3 still on the printer section. The printer shall be secured by security seals or locking mechanisms to prevent tampering. The printer shall be accessed only by those election officials authorized by the county commissioner of registration. And that also relates to the Exception Number Five. NJIT indicated that problem with those sections relating to the unlocking of the printer covering and also the exposed cables. And I know you testified and you did a demonstration.

MR. KERRIGAN: I think we’ve addressed this issue. As required, we have a locking mechanism and the ability to apply security to it.

MR. WOODBRIDGE: And I think you also indicated if you remove either the power or the printer cable that the machine would stop; is that correct?

MR. KERRIGAN: Not the power.

MR. WOODBRIDGE: The printer.
MR. KERRIGAN: But in an election program you use the RTAL printer it does not allow functioning without the printer.

MR. WOODBRIDGE: 3(A)4. The printer, last section. The VVPRS shall be capable of showing the information on the paper record in the font size of at least 3.0 millimeters and should be capable of showing the information in at least two font ranges 3.0 to 4.0 millimeters and 6.3 to 9.0 millimeters under the control of the voter or poll worker. This criteria can be met by providing a magnification device with the VVPRS. And there was no other exception. Under seven, it says, The VVPRS cannot show the information in font range of 6.3 to 9.0. The maximum size with the vendor supplied magnification device is in the 3.0 to 5.0 millimeter range.

MR. KERRIGAN: We feel that observation is inaccurate. You can achieve various lengths from the printout by guiding the magnification by the window. So, the range we feel is within required range in
criteria and we would be interested to see the
test method for how they acquired the range,
the view of those characters through the
magnification device.

MR. WOODBRIDGE: It talks about
supplying a magnification device. Do you
supply magnification devices.

MR. KERRIGAN: NJIT had it
available.

MR. WOODBRIDGE: What is it.

MR. KERRIGAN: A piece of plastic.

MR. PEARSON: Portable overlay.

MR. KERRIGAN: It holds that bearing
length to get the desired magnification.

MR. WOODBRIDGE: Is it like a glass
lens?

MR. KERRIGAN: It's a plastic
transparent sheet.

MR. PEARSON: Rigid magnification
sheet.

MR. WOODBRIDGE: Mitch, you want to
comment on how you determined that it didn't
meet the larger size font?

MR. ANSARI: Nirwan Ansari from
NJIT. With the use of ruler put on the
magnifying devices varying the distance, we
tried to get as thick as possible without
ambiguity, the letter may be blurred, when do
you different systems the range we could get
is what we actually documented. We did it
quite a few times, many times.

MR. WOODBRIDGE: So much that's the
methodology. How do you measure?

MR. KERRIGAN: I guess my answer to
it is the font size used are standard with
current technology and with the magnifying
glass held up at varying ranges it will
enlarge.

MR. WOODBRIDGE: When they tested it
they still didn’t get it in that range of
being readable to paraphrase it correctly.

MR. KERRIGAN: I think that's where
we cease to be in the quantitative of when it
cease to be illegible. In my use I could get
the letters to be very large. I haven’t
measured with the ruler.

MR. WOODBRIDGE: Quantifiable, it
says NJIT is quantifying.
MR. KERRIGAN: Since it's never been
an issue before. I'm sure there are
magnifications that could be used.

MR. WOODBRIDGE: If there are make
sure it is in your supplemental piece. Any
questions? Moving onto section Roman Numeral
3(B). Paper Roll Display Unit. Paragraph
one, The paper record shall be displayed in a
way that allows the voter to privately and
independently inspect it. And that was
assuming to section number two of your report
which has a number of sections. Do you have
any comments about III (B)1. Page four.

MR. KERRIGAN: Yes. Our response is
that we are complying with the RTAL can be
viewed throughout through the window on the
left-hand side of the electronic, the privacy
shield. So it knows to be adjusted so you
could contain yourself within the voting area
which both of those help voter privacy.

MR. WOODBRIDGE: John, any comments?

Roman numeral III(B)2. If the paper record
cannot be viewed entirely in the Display Unit
at one time, the voter shall have the
opportunity to verify the entire paper record
prior to the electronic or paper ballot being
stored and recorded. I think John you had
touched upon this before.

MR. KERRIGAN: I think this is where
Steve was speaking to the language in
particular.

MR. WOODBRIDGE: Daryl, you have any
additional comments? Okay.

Roman numeral III(B)3. The display
unit shall have a protective covering which
shall be transparent and shall not obscure the
voter's view of the paper record. This
covering shall be in such a condition that it
can be made transparent by ordinary cleaning
of its exposed surface.

MR. KERRIGAN: Made of durable
transparent plastic.

MR. WOODBRIDGE: Top of page five.

Roman numeral III(C). This relates to paper.
One, Any paper record produced by a VVPRS
shall be readable by voters and election
officials.

Two. All paper records shall be
stored in accordance with vendor
specifications. I believe the documentation
you gave us provided some indication of how
the paper is to be stored; am I correct?

MR. KERRIGAN: Yes.

MR. WOODBRIDGE: C.3. If stored in
accordance with vendor specifications, the
paper used produce to produce a paper record
shall be readable for a period of at least two
years after the election in which it is used.
Do you have any comments with regard to
section C you want to highlight?

MR. KERRIGAN: Just quickly, the
printout is legible computer generated font.
We've spoken about the variance of that font
size. They are listed in your iVotronic guide
which have been given to customers and lastly
we did provide documentation specs from the
paper user which states that the paper can
last anywhere from five to seven years which
we list in our documentation.

MR. WOODBRIDGE: The last part of
section Roman numeral III, Paragraph Three.
Paper Record Storage Unit. Subparagraph one.
Security protections including, but not
limited to, security seals or locking
mechanisms, shall be built into the storage
Unit to prevent tampering at all times,
including pre-election, election day, and post
election. The Attorney General, through the
Department of Law and Public Safety, will
issue chain of custody guidelines regarding
the storage unit. And this is noted with
regard to exception number five.

The second part there, the roll of
printed paper records is accessible upon
unlocking the printer cover.

MR. KERRIGAN: Unlocking the printer
cover, you would have to have access to the
key as well as seals may be administered by
the counties as legally or deemed necessary.

MR. WOODBRIDGE: By storage unit I
assume you’re talking about the entire printer
mechanism. Is that the case here you don’t
have a second storage unit, integrated
printer.

MR. KERRIGAN: Integrated with the
booth itself from the booth set up, yes, the
printer is maintained within the booth set up, so procedures would have to be established for how to maintain that booth, but we’ve already spoken about the chain of custody for the take up wheel and I don’t know if you can interpret the signs pertaining to the maintenance of that as well, but the unit itself is secured.

MR. MAHONEY: I have a question about the paper roll. Since the paper roll holds as many as 700, you’re going to have to replace it several times throughout the day. Let’s assume we do. Is there any way that the roll is determined to be one of two, two of two, three of three so if one is missing is there any way that it’s said, okay, this paper roll is replaced, this is the second paper roll going into the machine or this is the third.

MR. KERRIGAN: We’ve mentioned some of the administrative ways that could be handled. One, first I should mention in all my real world elections I’ve never had to replace a paper roll. That’s my experience with the system. As we mentioned, if you were
to put a sealseal over that, there are certain
guidelines that go with that and maybe that's
where the procedure could be documented, but
in the end it comes down to local
administration so the decision could be made
by them.

MR. MAHONEY: What you're saying
there's no way for the machine to put like one
of one, two of two on this whole roll. You're
saying it's procedural roll has nothing to do
with that.

MR. PEARSON: Yeah, the machine
standpoint does not mark a roll or know when
one roll, how many rolls have been used
throughout the election. It tells you when a
roll is low. It won't allow you to continue
voting, but it's not going to mark okay this
is the second one. But the roll does have the
serial number of the machine.

MR. WOODBRIDGE: But you can match
the roll of the machine but you can't tell
what the sequence is.

MR. KERRIGAN: You could with the
time date stamp.
MR. WOODBRIDGE: The next section Roman numeral IV on pages five and this section don’t include any exceptions from NJIT, so I’m going to read them quickly and see if we have any responses or concerns.

A. Paper Records. The paper record shall include identification of the particular election, the election district, and the voting machine. We have compliance on that.

MR. PEARSON: Yes, we’re compliant.

MR. WOODBRIDGE: Paper cord. The paper record shall include a barcode that contains the human-readable contents, shorthand is acceptable, of the paper record. I’m not sure what that means, of the paper record. We did see a barcode on the machine for this print out.

MR. KERRIGAN: It is a standard PDF format.

MR. PEARSON: Regular.

MR. WOODBRIDGE: What is the information on the barcode.

MR. KERRIGAN: It’s identical to the ballot image.
MR. WOODBRIDGE: You can read the barcode and it tells you what was the information in the ballot cast, right.

MR. KERRIGAN: The ballot cast, the voter's final selection. It's not a print out of all the voter activity.

MR. WOODBRIDGE: It's a print out of the summary there.

Two A. The barcode shall use industry standard format and shall be able to be read using readily available commercial technology, correct?

MR. PEARSON: Yes.

MR. WOODBRIDGE: B. If the corresponding electronic record contains digital signature, the digital signature shall be included in the barcode on the paper record.

One. A digital signature is extra data appended to an electronic document which identifies and authenticates the sender and message data using public key encryption, or other means approved by LPS. I want to digress here a second. I think Kevin
indicated that he used a low bit, 16 bit
encryption. I'm a little confused on what you
used.

MR. KERRIGAN: Maybe I misspoke so
eight bites to a bit and two, 56 divided by
eight. It is 256 bit low fiche.

MR. WOODBRIDGE: I believe that is
the gold standard.

MR. KERRIGAN: This encryption is
standard.

MR. WOODBRIDGE: Any comments? C.
The top of six. The barcode shall not contain
any information other than an accurate
reflection of the paper record's
human-readable content, error correcting
codes, and digital signature information.

MR. KERRIGAN: Yes.

MR. WOODBRIDGE: Three. For the Cut
and Drop Method, if the paper cannot be
displayed in its entirety on a single page,
each page of the record shall be numbered and
shall include the total count for that ballot.

Four. The image created on the
paper record shall include every contest that
is displayed to the voter on the DRE,
including write-ins and undervotes.

MR. KERRIGAN: Right.

MR. WOODBRIDGE: Five. The paper
record shall be created such that its contents
are machine readable.

MR. KERRIGAN: Compliant.

MR. WOODBRIDGE: Six. The paper
record shall contain error correcting codes
for the purpose of detecting read errors and
for preventing other markings on the paper
record from being misinterpreted when the
paper record is machine read.

A. A read error is a separate piece
of data that can be used to indicate whether
the data printed on the paper record is
different from the data created on the
electronic record.

What is the data error record code.

MR. KERRIGAN: I'm not able, I'm not
really able to speak to that.

MR. WOODBRIDGE: What are they?

MR. KERRIGAN: What is it in
reference to process, it is kind of a learning
process as we worked with NJIT. It's in reference to the machine's ability when printing the barcode to detect if any sort of alterations have been made. If somebody tried to mark it with ink over the barcode, the threshold or ability of whatever barcode standard you're using instability to determine that data and see whether it's been manipulated in any way. So our answer to this was because we are implying barcode dated would be dated by a COTS system that's outside of our control to allow for a vendor independent auditing of this, so that you're correct the code would come from barcode standard itself. I think I've accurately explained that.

MR. WOODBRIDGE: We haven't gotten any exceptions from NJIT. This was sort of a sprint on the assumption the statements are accurate. But so I don't want to beat a dead horse on that issue, why don't we take a quick five minute break and then we could read and see if we can't finish the rest of the sections here.
(Whereupon a brief recess was taken.)

MR. WOODBRIDGE: We are going to go back on the record again and pick up from where we left off which was section Roman Numeral Number III, I believe Four. DRE Electronic Records. The electronic ballot image record and paper records shall be linked by including unique identifiers so that an individual paper record can be identified with its corresponding electronic record. Unique identifiers are tools that will allow LPS to measure the reliability and accuracy of the voting system, as necessary. The electronic ballot image and the paper record shall not reveal the identity of the voter.

A. Unique identifiers shall not be displayed in a way that could be easily memorized. This is related to Section Eight in the NJIT report. Says, The vendor documentation does not provide the procedure to reconcile the electronic ballot image records within the paper record. However, the project team determined that the electronic
ballot image records are saved in the ascending order of the electronic Identification Number (EIN) a memory address pointer referred by the vendor); the EIN is printed on the paper record and contained in the barcode corresponding paper record. Thus, the EIN is the linkage of electronic ballot image record. However, matching the electronic ballot image records to the corresponding paper records is difficult for a large volume of votes, and is possible only if no paper records are lost. Comments.

MR. KERRIGAN: I think the majority of that NJIT response is accurate. That is how our system works, the linkage EIN and how that unique identifying record for every voting session is linked to paper record to the ballot. So I think a majority of what they are stating is how we are complying. The only contention would be the last sentence. However, matching the electronic ballot image records to the corresponding paper records is difficult for large volume of votes, and is possible only if no paper records are lost.
Yes, it is just inherently going to be that way if you're trying to identify every single paper record to every single vote there's going to be. Each paper record would have the EIN on it. So the real issue is if you had a thousand votes on paper and a thousand EINs printed on paper, you have to link those one at a time with what's in the memory. It's internally going to be a difficult process if you get to that stage where you have to audit. We're not talking about the procedure that is standard protocol, this would be -- actually I don't know when this would be implemented. I guess it would be a last case scenario if you were doing an audit and first you would have your electronic record, you would verify results that could be, compare those records to your print out or your election summary reports from the paper and then I suppose if there was some sort of adjudication that needed to happen where you have to identify particular ballots then you would go through this arduous process of linking the paper to the ballot images.
THE COURT: So if I understand you correctly, it is technically not so much a defect so much as it is something that makes the process a little harder to verify; is that correct, Mitch?

MR. ANSARI: Nirwan Ansari from NJIT. I'm attempting to respond to ES&Es. I would like to point out that in the document with respect to exception eight, you mentioned that the EIN number is the link but if it's not an ascending order sequential index that is not correct. We found out that the EIN number when they print the paper record stored in the electronic record, they store it in the ascending order of the EIN number. Here is a test we did for 31 votes so we know exactly which voting scenario and then when we print it from the paper record, not the paper record from the electronic record and then match it to the paper records. Each paper records of each voting session has an EIN number and the record that is stored in the electronic record when they print it up, it printed in an ascending order even though the EIN number is
rendered EIN is randomly generated but when it
start, it start in ascending order so that you
can match if you have enough time, manpower if
you have 31 votes are easy to match. You
place the -- since you print up the record
from the electronic record and then you got a
paper record, you arrange the paperwork
according to in EIN ascending order then you
can match them all exactly. Thirty-one is no
problem. The problem is if one of the records
is lost that means this match will be upset
then that could be a problem, that's what we
are trying to say in this exception.

MR. WOODBRIDGE: Only if no paper
records are lost. If paper records should be
lost physically, it would mean one of those
rolls would have to disappear; is that
correct?

MR. ANSARI: One of the rolls or
even one vote is gone, one of the papers is
gone then they will be upset in attempting to
match them.

MR. WOODBRIDGE: It is not easy to
match them.
MR. ANSARI: At that time they may not be able to match. Perhaps when no paper is loss, we have all the records on hand electronic you have no problem matching it up.

MR. WOODBRIDGE: Thank you.

MR. FLEMMING: The last ballot if you have a paper jam or paper rip during a printing of a record when it gets fixed does that have to be reprinted.

MR. PEARSON: No.

MR. FLEMMING: Then with this criteria when you have a contention in election it's paper that is going to be used as your official election, so how do you vote it to make sure all the electronic votes also have paper records available. Because thinking it from the state, paper being your gold standard. You could have more electronic versus paper votes.

MR. PEARSON: In the -- what is the official?

MR. FLEMMING: It is not at this point, we don't have it. The way that I'll address this as best I can, the way the system
operates is electronic is always looking and sensing the operation of the printer as best it can. So in the event that it can detect from a printer a malfunction standpoint as soon as it detects any kind of malfunction it stops the voting process at that point, okay, and then that voting session would virtually end and that voter would need to restart or revote on it on a different machine. What happens if it fails, that after you fail to cast your vote and it's during the summary which the summary is your electronic ballot summary is your paper ballot.

MR. PEARSON: Each one of the votes the transaction the person would have made would be recorded sequentially up to that last -- until that vote is cast so the person would have had the opportunity to verify their vote before they ever cast their vote, each selection would be verified. So at that point if the printer is still operational, you could still go back and recreate that ballot. I'm just saying worse case scenario, you still have the ability just like you went on a paper
ballot, go back and recreate that, that ballot
so if you do lose after the vote is cast and
there is a printer jam and you lose the
barcode for that record, if it jammed or
didn't print or got worn, whatever, destroyed,
you could go back in at least manually count
the vote selection there so you wouldn't lost
any of those for your verification process.

MR. FLEMING: I guess that would be
verification of where it is the vote is not
until you hit that cast button which is when
the barcode and summary get contacts in.

MR. KERRIGAN: You do have a status
indication summary screen that's noted, so
when you first hit cast before it does the
vote summary there is a last voter press cast.
You would at that point say you hit cast and
disconnect, you're still going to have that
line that let's you know the voter cast.

MR. WOODBRIDGE: B2. The DRE should
generate and store a digital signature for
each electronic record. I believe that's the
case. B3. The electronic ballot image
records shall be able to be exported for
auditing or analysis on standards-based and/or
COTS (commercial off the shelf) information
technology computing.

A. The exported electronic ballot
image records shall be in a publicly
available, non-proprietary format.

Steve, you testified I think we’re
talking about the barcode status commercial
off the shelf material, correct?

MR. PEARSON: Yes.

MR. KERRIGAN: That data can only be
interpreted by our software. Once it is
interpreted it will stay with the file and
then it then be read.

MR. WOODBRIDGE: B. The records
should be exported with a digital signature
which shall be calculated on the entire set of
electronic records and their associated
digital signatures.

MR. KERRIGAN: We use low fiche for
our encryption of the data.

MR. WOODBRIDGE: Which doesn’t
constitute a digital signature.

MR. KERRIGAN: That’s correct.
MR. WOODBRIDGE: It says, the record shall be exported with a digital signature, nothing about the encryption part of it.

MR. PEARSON: We don't -- the system does not individually digitalize the signature. It doesn't have a digital signature for each record, but it creates, it uses encryptional algorithms to encrypt all the data.

MR. WOODBRIDGE: The records shall be exported with the encryption on the entire set of associated digital signatures.

MR. PEARSON: If it's encrypted, yes it's encrypted data. That's the answer.

MR. WOODBRIDGE: The voting system vendor shall provide documentation about the structure of the exported ballot image records and how they shall be read and processed by the software.

MR. PEARSON: We provide that as we note in Chapter 61 of our electronic reporting manual.

MR. WOODBRIDGE: D. The voting system vendor shall provide a software program
that will display the exported ballot image
records and that may include other
capabilities such as providing vote tallies
and indications of undervotes.

MR. KERRIGAN: Same answer. As
mentioned, electronic encrypts all the voting
data from the EIN then you are able to
generate tallies for displaced undervotes and
statistic counter.

MR. WOODBRIDGE: The voting system
vendor shall provide full documentation of
procedures for exporting electronic ballot
image and records and reconciling those
records within the paper records. And we note
this is also the subject of exception number
eight.

MR. KERRIGAN: Yes, that is correct
in that we do not right now have that in our
current documentation, but will implement it as
a result of this review. As I mentioned
before and as Professor Ansari said, this is a
lengthy and difficult process. It is a great
understanding of system and it is not a
standard operation. It's something we never
included. Even where we do include it in our
documentation, this probably would not likely
be included in standard. This is probably
anyone that's demonstrating the ERL has to be
a special case operation.

MR. WOODBRIDGE: Let me go back and
make sure I understand. Are you telling us
with regard to exception number eight that
NJIT cited with exception with regard to
exception R(4)B(1) that you expect you will be
able to provide that criteria?

MR. KERRIGAN: We note two and I
would argue that we are currently in the
document we provided at the on start of this
we were not compliant with 4(B)7(E) which is
standard document. No, we did not for the
initial review and we're going to add that.
But 4(B)1 is a separate issue we addressed at
the time the exception came up.

MR. WOODBRIDGE: So we're talking
about the documentation, you'll provide that.

MR. KERRIGAN: Right. There are two
points. General practice has been I don't
know if it's relevant on something that would
be a rare case like this and it will be
providing information, the inner workings of
how we store data on a flash card. That
information has to be very protected, so we
probably will release this in a technical
bullet that will be a bullet only. It would
be provided for certification with the
understanding this is not our standard
operating procedures not given as part of the
same users guide for this.

MR. WOODBRIDGE: You use that for
security purposes.

MR. KERRIGAN: Right.

MR. WOODBRIDGE: Next Section C,
Voting with a VVPRS. LPS shall promulgate for
voters instructions to use the VVPRS.

A. The VVPRS vendors shall provide,
in plain language, any reference material
requested by LPS to aid in the preparation of
the VVPRS instructions. These instructions
shall be issued to each county board. I do
know in the two boxes of material there were
instructions in there for board workers. I
don’t know if they were contained for New
MR. KERRIGAN: We do have standard operating procedures that’s a preelection checklist security protocols and it’s noted we have numerous amounts of documentation and we do tailor that to county needs, location or states, state specific requirements.

MR. WOODBRIDGE: B. Instructions for use of a VVPRS shall be made available prior to an election on the Division of Elections’ website and shall be available to the voter at the polling place on election day. You provide any charts or posters on how to use the machine.

MR. KERRIGAN: The one, two, three vote sequence instruction screen that you saw on the DRE. We do have a post certificate of that. I’ve seen counties go as far as to make their own documentation. It’s specific to that polling location as far as giving them information on where to key and where to interact. Sometimes it gets localized.

MR. WOODBRIDGE: You have some machines set up so you can vote on a dummy...
election and know how to.

MR. GREENHALGH: Yes. Just a couple things on the website. ES&Svote.com is actually a visual image of the voting machine itself so anybody can get on, actually do it, do a demo of the election right on their computer which is kind of nice. What we found, though, what is very affective working with the counties on a specific election because primaries are different from general elections, voting instructions may be different for a primary versus general, so what we do with our counties is say, okay, what kind of election do we have coming up, what kind of demonstration ballot do you want for general election or primary election and what names do you want on it. We do it recommend customized depending on what the state wants. Certain states you can’t use what we call the dead presidents because George Washington may actually be on the ballot. So you have to come up with Mickey Mouse or Donald Duck, so it depends on a state.
MR. WOODBRIDGE: The question I have, some of these bullets take set up machines actually intended voting machines.

MR. KERRIGAN: I think having a separate election of what we call BMW asking what's your favorite car, are you in favor with three day weekends in that set aside location to allow the vote.

MR. WESLEY: Some of the things that we've done in some of the implementations we've actually, for example, in the state of Indiana they required us to assemble a team with the county that did voter education events around the counties where they would go to malls, they would go to schools. One thing that I saw that was excellent they did in Powell County, they took them to places like a Lighthouse of the Blind, places like that where people were visually impaired with a demo ballot so they do use it prior to election. The effect of that was people show up at the poll and they would tell the poll workers get out of the way, I know how to do it. They would go right in and it was very
very easy.

MR. WOODBRIDGE: C. Prior to an
election, the county commissioners of
registration will provide demonstration
machines at convenient locations throughout
the county for voter education purposes.

D. The instructions for performing
the verification process shall be made
available to the voter on a location inside
the voting machine. Where feasible, the
instructions shall also be on the machine
ballot face. Tell me if I'm wrong, but can
you tell me how that machine gives you
instruction on how to vote.

MR. KERRIGAN: That was the first
screen you selected, how you wanted to
interaction through visually or audio then
next screen is one, two, three those could be
brought back up by the answer and the
questions at the bottom.

MR. WOODBRIDGE: So can you do that
in each set of instructions?

MR. KERRIGAN: This is procedural,
people have attached that sequence and take it
to the inside of the building.

MR. WOODBRIDGE: Two(C)2. Voter privacy shall be preserved during the process of recording, verifying and auditing ballot selections. This includes a voter who uses an audio voting device. Voters using an audio voting device shall also be able to verify votes privately and independently. I know this was subject of exception number two and three from the NJIT report.

MR. KERRIGAN: And I think we’ve talked about both from physical privacy of voting as well as the digital privacy of voting.

MR. WOODBRIDGE: I guess to the individual we talked about the voting machine being collapsable and some of the procedures of setting up your location, taking into consideration your security and privacy for the voter. Voters using audio verified votes privately and independently so when you vote and you finish, how do you know what you’re voting for.

MR. KERRIGAN: Similar to the visual
interface where you cast your vote, you scroll
using the four key panel when you get to the
end you are required to completely go through
the review screen, if you accept you have the
wait file telling your selections. It would
identify the contents and your current
selection and then if you were to press down
you would go to the next contest and it would
call out the contest and your selection and as
soon as you got to the bottom of that summary
which is being read to you, then that vote
button becomes enabled and when you reach the
bottom that's when the voter receives
instruction on how to when you reach the
bottom it's prompted, I can't remember the
exact wording tells them that the vote button
is located at the top of the machine and it
tells them the shapes of the button they are
interacting with so they could find the
buttons, press and as far as privacy that
screen is blank, we talked about that before.

MR. WOODBRIDGE: Paragraph Three at
the top of page eight, that section C(3). In
any election where the ballot contains a
language in addition to English, the paper shall be produced in all such languages.

    A. To assist with manual auditing, candidate names on the paper record shall be presented in the same language as used on the DRE summary screen.

    B. Information on the paper record not needed by the voter to performance verification shall be in English. You don't have any comments from NJIT on this issue, but the assistant manual shall be presented in the same language on the DRE summary, so that was compliant.

    4. The privacy of voters whose paper records contain an alternative language shall be maintained.

    MR. KERRIGAN: No voter identification on the RTAL.

    MR. WOODBRIDGE: I will read portions of this next session because all related to exception number one by NJIT.

    C (5). The paper records shall distinguish between accepted and non-accepted ballots.
A. The voter shall have the
opportunity to accept or reject the contents
of his or her paper record. Exception number
one.

1. If the voter rejects the
contents of the paper record, he or she may
recast the ballot up to two additional times.
This procedure is consistent with current
State law, which limits the amount of time a
voter has to cast a ballot.

Next section Two. Before the voter
causes a third and final paper record to be
printed, the voter shall be presented with a
warning notice on the machine that the
selections on the DRE will be final. The
voter will see and verify a printout of the
votes, but will not be given additional
opportunities to change any vote. The third
ballot cast shall constitute the final and
official ballot of such a voter.

And then same section one 5(a)3.

Upon rejecting a paper record, the voter shall
be able to modify and verify the selections on
the DRE without having to reselect all choices
in all contests on the ballot. And these all relate to exception number one and of course the issue we're struggling with here is the issue of how many paper ballots you get and you have any comments.

MR. KERRIGAN: I think in order to properly talk about this issue we'd have to come to the agreement of what the word cast means. Our interpretation, generally the term cast means that your ballot has been submitted and at that point you're not allowed to make any alterations. Now, I think true potential of this criteria itself to allow the voter to see their selections on paper and if they don't like what they're seeing on paper, they have an opportunity to alter votes, those selections or lack therefore and I would feel that our system is compliant in that interpretation of the criteria.

As far as the number being three, we have an unlimited opportunity or the voter has an unlimited opportunity to make a selection and all of those alterations or initial selections will be noted onto the printer. So
the process with our system the real time
monolog, the process of accepting or rejecting
at the end of the ballot is not required
because the voter has immediately had the
opportunity upon making a selection to verify
it was recorded properly to the paper. We
also provide the summary screen at the end and
any alterations made there to the paper are
distinct indefinitely. The machine itself
does not restrict a voter to how many choices
or changes they wish to make.

MR. WOODBRIDGE: So there's no
warning, no risk once you get to it the final
paper outlet.

MR. PEARSON: You never reach that
point because you only queue once with this
system.

MR. WOODBRIDGE: I don't want to put
words in your mouth. I take it what you're
arguing, you might not meet the letter of this
but the spirit or intention of what the
content is.

MR. PEARSON: I think the language,
there was language that attempted to allow for
all types of systems reel-to-reel and not in all cases did they think through when the legislation was drafted how the reel-to-reel systems performed, so I think they need to look at what the intent of the law was versus the let alone interpretation because with this system with the reel-to-reel system like ours you'll never reach the second opportunity to cast or the third. You only cast once.

MR. KERRIGAN: The term cast means action by the voter. If you read the laws to interpret cast means submitting your ballot then I would argue this would not be legal to have more than one cast because once you submit your ballot the same paperwork you drop it into the ballot, you are not able to retrieve that ballot. So with our interpretation of the word cast meaning making a selection or nominating a candidate by highlighting his name, we meet the letter of the law.

MR. FLEMMING: If you take your interpretation, before you put it in the ballot box you could go get a second paper and
throw it away before it goes into the box.

MR. KERRIGAN: You do have to score ballots with DRE it's not as necessary as it is with paper where they could false mark and they are unable to unmark that selection. DRE gives you the ability to make and unmake selections. So you don't spoil the traditional paper you have the ability to say here is more than one ballot presented on the machine, a coworker could pull up the ballot, they may have to cancel the voter, the ballot that would be recorded a vote is cancelled but there's no need DRE that's the intent with DRE is to increase voter awareness of properly voting, preventing overflow, things like that and most other things go away with DREs existed with paper.

MR. WOODBRIDGE: Some of these issues will crop up again and we will talk about them. Any other comments.

MR. MAHONEY: No.


If a mechanical error in recording or printing a paper record occurs, the record shall be
counted as a spoiled paper record. It will
not be counted as one of the voter’s three
attempted votes. And this represents two
exceptions both nine and ten which I’ll read
to you.

This is exception nine. Neither the
DRE nor the VVPRS can detected a paper jam.
When paper jam occurs, the voter can still
make or change selections on the DRE and cast
the ballot as normal. However, the printer
keeps printing over the same area on the paper
roll making it illegible. No audio or visual
warning signal is given to either the voter or
the poll official. The vote is electronically
recorded and counted. The paper jams were
observed in both single tests and the two
volume tests. One paper jam during the 14
hour test even resulted in paper torn apart,
in which case selections and barcodes were not
printed. And it also led to exception ten.
If the printer cable is disconnected after the
voter presses the VOTE button, the ballot is
electronically recorded and counted in the
close-poll report. Yet, no barcode is printed
on the paper record, and the cancellation of
the ballot is indicated on the DRE screen and
the Event Log report. So there are a couple
of issues here first of all, is there such a
thing as a spoiled paper record in your
system.

MR. KERRIGAN: Yeah in the sense it
cancels the ballot at the DRE, then that paper
record the actions made on the paper record
previously were not recorded to the
electronic.

MR. WOODBRIDGE: But the voter
cannot spoil a ballot, the machine can because
of malfunction.

MR. PEARSON: Or withholding or
intervention insert the PEB, the opportunity
to cancel.

MR. WOODBRIDGE: I think they are
talking about here, one, two and three
different paper ballots and the machine may be
one or two of that selection.

MR. KERRIGAN: I would say that
criteria is written for a receipt printer.
You're talking about verification at the end.
We have a method, it is not a final verification at the end where you submit paper record, but if I may talk to some of the other points that you brought up.

Exception nine I believe is erroneous that neither the DRE nor the VVPRS can detect paper jams. We've already spoken to the system that we do have in place. There is on board technology that attempts to protect any malfunctioning of the printer. There's also an addition to those systems. There is a tension arm on the reel-to-reel. If that tension doesn't exist anymore for instance, if you were to tear the ballot and that arm no longer has the tension on the paper, then that would be a failure in the hardware and that would be detected by the printer and subsequently by the poll worker, so there are things in place and that is inaccurate to say across the board that they are not able to detect the paper jam.

MR. WOODBRIDGE: You have any idea why NJIT had some opposition to this issue.

MR. KERRIGAN: None without being a
part to the testing, nor knowing how the paper
jam was produced we have no way of knowing.

MR. PEARSON: Before you have
someone come up, as I mentioned we ARE
accepting inoperability on any condition on
the printer to be able to stop that voting
session and notify the voter that the voter
needs to be notified. There are cases where
the voter is selecting and verifying. If the
paper is not advancing, they would also
visually could actually visually detect that
the printer is not advancing and their
selection is not being printed prior to the
system knowing that the paper is hung up for
whatever reason. So that would be another
opportunity for the voter verified paper
system to say, hey, my vote's not coming up
here, there's something wrong.

MR. WOODBRIDGE: I know Kevin you're
going to have to leave in a few moments. You
have any comments on the paper jam?

MR. DARER: It's hard for us to
reconcile in your experience is it possible
the jams you had.
MR. ANSARI: My name is Nirwan Ansari from NJIT. The paper jams are not unique. It happened quite often during our test and we have some of the pictures we took about the paper jams and there wasn't any signal and I have a picture about when it is stuck then the machine freeze up and no action whatsoever afterwards.

MR. WOODBRIDGE: Is it possible the tension arm broke and gave a signal if there is a problem with the paper.

MR. KERRIGAN: Yes. As he just explained, if there is an error detected there is a visual warning on the screen as well as audio associated warning. It explains there is a printer malfunction, contact the poll worker and as we discussed before, the subsequent procedure would be a problem which would have to be rectified. You have to get the printer back on line and you have to start a new voting session.

MR. WOODBRIDGE: It sounds to me, you said no audio visual warning signal was given; is that correct?
MR. ANSARI: In one location the paper was torn, only one location happened during the test in which case --

MR. KERRIGAN: Was the paper completely torn?

MR. ANSARI: It's jammed and then torn apart and at that time it all froze.

MR. KERRIGAN: The reason I make that distinction, as soon as that paper becomes completely torn up it's going to have tension on the reel-to-reel and it will have to be shut down. If it's jammed and successfully printing albeit over and over again the same area, then there's no printer error. The printer is working, but the paper isn't incoming and that's where Steve was explaining in a voter verified system you have to allow them to vote on their own. It is up to them to recognize my voter verifiable paper is not in coming.

MR. WOODBRIDGE: You also used the word paper jams. How many times have you had jams.

MR. ANSARI: Altogether five times.
 Twice in the 14 hour test, three times 1200 vote test.

MR. KERRIGAN: Another unknown to us is how it was loaded, whether it’s loaded properly.

MR. WESLEY: If I could interject.

MR. KERRIGAN: We weren’t party to the testing.

MR. WESLEY: I’m sorry. During our installation in West Virginia we kind of ran into that same issue during the training session when we were training where some of the folks were loading the paper incorrectly and I addressed that issue with the state as well as with their trainers and showed them the correct way to load the paper and we’ve done multiple elections where that have not been an issue. So without being a part of it it’s kind of difficult to know the circumstances surrounding that, but I suspect that the paper was not input properly.

MR. ANSARI: I would like to contest about it. I think we did place the paper very properly. I instructed all my students make
sure the paper, we want to minimize our error
we don’t want to create any error. We even
have some pictures of how this is, the torn
paper and we also have some pictures in which
the printer keep printing on the same area and
I believe we did our very best to load this.
I don’t think this needs any genius to load
any paper. I told my students to load them
very carefully.

MR. MAHONEY: Before the training
before NJIT started were they shown by ES&S
how to install the paper so they were
correctly informed about that.

MR. PEARSON: By myself.

MR. WOODBRIDGE: We have exception
ten. It says: If the printer cable is
disconnected after the voter presses the VOTE
button, the ballot is electronically recorded
and counted in the close-poll report. Yet, no
barcode is printed on the paper record, and
the cancellation of the ballot is indicated on
the DRE screen and in the Event Log report.

MR. KERRIGAN: I think we spoke
about this before in the sense I did identify,
we do indicate the sessions that you're at on
your vote when you're in voting modemode all
your actions are recorded when you enter the
summary modemode that line is printed on the
printer and then when your vote when you hit
that print button, you immediately your vote
is cast so if the printer becomes disconnected
after that point and you lose your vote
summary as well as your barcode as Steve
Pearson mentioned you're still able to
recreate that ballot from that audit trail
from the real time audit.

MR. WOODBRIDGE: But you're
saying --

MR. KERRIGAN: Yeah, essentially if
the printer becomes disconnected to even go
further if it becomes disconnected prior to
your voting or if you're going to try to
ensure that's one reason we should have done
the machine if that printer becomes
disconnected during that audit trail, during
the voter session itself and we don't allow
you to vote without that printer being
connected because we do need that to reconnect
the ballot on the ballot record.

MR. WOODBRIDGE: VVPRS shall be designed to indicate the paper record which the voter has identified and cast as his or her official ballot.

We have the next section which we don’t appear to have any exceptions to. I’m going to read them quickly.

Paragraph Five, Security and Liability. The VVPRS shall not be permitted to externally communicate with any system or machine other than the voting system to which it is connected.

B. The VVPRS shall be able to function as a printer; it shall not contain any other services for example, copier or fax functions or network capability. I think that is correct.

MR. KERRIGAN: Correct.

MR. WOODBRIDGE: The printer shall not contain any component with an external communication feature. That’s correct too.

MR. PEARSON: Yes, that’s correct.

MR. WOODBRIDGE: C. The paper path
between the printing, viewing and storage of
the paper record shall be protected and sealed
from access, except by election officials
authorized by each county commissioner of
registration.

MR. PEARSON: That's correct.

MR. WOODBRIDGE: All cryptographic
software in the voting system shall be
approved by the U.S. Government's
Cryptographic Module Validation Program, if
applicable, prior to being certified in New
Jersey.

One. As stated in the discussion
portion of Section 7.9.3 of the United States
Election Assistance Commission draft criteria
for Voter Verifiable Paper Audit Trail
REquirement, There may be cryptographic voting
schemes where the cryptographic algorithms
used are necessarily different from any
algorithms that have approved CMVP,
Cryptographic Module Validation Program
implementations, thus CMVP approved software
should be used when feasible but is not
required. The CMVP website is

    The vendor shall provide a
certification of CMVP approval, if applicable.
If not applicable, the vendor shall provided a
certification setting forth the reason why
CMVP approval does not apply.

    MR. KERRIGAN: It is certified by
CMVP.

    MR. WOODBRIDGE: The printer under
Exception Number Five is noted here. The
printer shall be connected to the voting
machine either by concealing the printer
connection or via a security tag to prevent
tampering; is that right?

    The roll of printed paper records is
accessible upon unlocking the printer cover.

    The cable connecting for the VVPRS
to the DRE is exposed and can be easily
disconnected from the printer port on the top
of the DRE.

    MR. KERRIGAN: We are compliant as
required. It says you have to secure it
either or with a security tag and we are able
to provide a security tag over the connection.
MR. WOODBRIDGE: Comments on that section?

Section F. The DRE shall detect and notify the election officials at the polling place of any errors and malfunctions, such as paper jams or low supplies of consumables, for example, paper, that may prevent paper records from being correctly displayed, printed, or stored. I think we talked about paper jams.

MR. FLEMMING: Yes.

MR. WOODBRIDGE: Quite a bit. Any other comments on this? Nothing.

MR. FLEMMING: I want to make sure the notification is to the voter not the elected official.

MR. KERRIGAN: If the printer error appeared while the supervisor was printing the ballot, yes, they would be present up to that point when they then leave the voter in privacy to vote.

MR. FLEMMING: Let's say the voter decides not to tell anybody there's a problem and the next one comes in, will the voting then see a problem now.
MR. KERRIGAN: That would be on the screen and voters don’t activate our screens, supervisors do. We constantly have that interaction between machines and pollers and another session could be started without the supervisor maintaining the paper error.

MR. WOODBRIDGE: Any other comments?

MR. MAHONEY: No.

MR. WOODBRIDGE: If a mechanical error or malfunction occurs, such as, but not limited to, a paper jam or running out of paper, the DRE and VVPRS shall suspend voting operations, not record votes, and present a clear indication of the malfunction to the voter and election officials.

This goes to exception number nine but what’s interesting about this, I’m reading it but it appears to me if you do have a jam it stops the voting, doesn’t record the votes. What do you think, no?

MR. FLEMMING: About the voting machine, if it detects the error it will suspend it so the voter has to go in another session.
MR. WOODBRIDGE: I don't think that
was consistent with the other section.

MR. FLEMMING: The question I really
have is that the clarification to the voters,
that's clear, but the clarification to the
elected official is not.

MR. KERRIGAN: Because the voter
cannot proceed any further and no voter would
be able to use that machine. The only next
interaction would be the poller. So that the
same message is presented to both the voter
and the poller. Obviously a poller can't
linger around the machine and they have to
lead the voter to privacy. Every error
message is initiated with an audible feature.

MR. WOODBRIDGE: I see that, by one
indication of someone away from the machine.
I should have brought that up earlier. I'm
just noting with some interest that there's a
conflict between the sections.

Roman numeral III(A)2 and this
section being B, to the section if there's a
malfunction the paper jam suspends operation,
so it makes you wonder whether or not they
kept repeating criteria there.

MR. KERRIGAN: I'm sorry, I have to excuse myself.

MR. WOODBRIDGE: I appreciate you coming. Here have a good trip to Paris. Any comments with regard to section G.

Section H. This relates to an exception from NJIT. It says, If the connection between the voting machine and the printer has been broken, the voting machine shall detect and provide notice of this event and record it in the DRE's internal audit log. Voting operations shall be suspended and no votes shall be recorded. I guess the question I should ask is if the connection is broken, is it recorded in the DRE audit log.

MR. PEARSON: Yes, between the iVotronic and the printer, yes.

MR. WOODBRIDGE: So it's something that's printed.

MR. PEARSON: Yes.

MR. WOODBRIDGE: And we talked about Exception Ten. It relates to the issue of the voting and employment, so we won't -- we've
gone over that already.

The next section goes to -- we don't have any exceptions to that, so I'm going to go through them as quickly as I can.

I. If the voter's selections on the DRE do not match the paper record, then the DRE shall immediately be withdrawn from service.

1. The affected voter shall be able to vote on another voting machine, if available, or by emergency ballot.

J. The vendor shall provide to LPS documentation for the DRE and the VVPRS that includes procedures for the recovery of votes in case of a malfunction. And I believe I've seen some of that in the documentation if I remember correctly. LPS shall be responsible for disseminating this information to the county commissioners of registration. That information has been provided.

MR. PEARSON: We provided.

MR. WOODBRIDGE: The vendor shall proved to LPS documentation for the DRE and the VVPRS that includes recommended procedures
to enable the election officials to return a
voting machine to workable status after the
machine has malfunctioned, the printer needs
to be replaced or a voter used it incompletely
or incorrectly.

1. These procedures shall not cause
discrepancies between the tallies of the
electronic paper records.

2. LPS shall be responsible for
disseminating this information to the
commissioners of registration.

So tell us a little bit about your
job with regard to paper records.

MR. PEARSON: Sorry, I can't go into
detail on this. I know we have, our answer is
we provided it's included in our standard
operating procedure for poll workers. So I
don't have any detail on the specifics of
what's in those procedures.

MR. GREENHALGH: It depends on what
the state law is, depends on what the official
ballot is, we gauge our recommendation based
on that. If the official ballot is something
like the internal audio records that's the
flash cards or machine, then procedure would
be different. Second, it depends when this
happens a lot of this occurs during the
official canvas which is after the election
and we’re very, very careful to go over
precisely how to do an audit on a receipt
printer base versus what’s the receipt record,
so it depends on state law.

MR. WOODBRIDGE: You provide
documentation in those scenarios.

MR. GREENHALGH: Yes, we do.

MR. WOODBRIDGE: Vendor
documentation shall include procedures for
investigating and resolving printer
malfunctions including, but not limited to,
printer operations, misreporting of votes,
underreadable paper records and process
failures.

MR. PEARSON: We provided that
documentation.

MR. WOODBRIDGE: M. If a machine
malfunctions or becomes inoperable, voters
will be entitled to vote by emergency ballots.
You provided emergency ballots. I probably
should be addressing this to Marge and Abbey.

MS. McCabe: Yes, we do. We have a
box attached to the back of the machine
currently.

MR. Woodbridge: And pencils and
clipboards and stuff.

MS. McCabe: We have to tell you
with DRE, we never once in the history used it
once.

MR. Pearson: Of course if there's
other machines, the voter would be directed to
the machine.

MR. Woodbridge: I'm not going to
read Roman Number VI, Certification A through
C because it's not really relevant to this
particular to the vendor, but I am going to
read section C 1 and 2 subsection.

The vendor shall provide to the
State, electronically and in hard copy, all
use and technical specifications and
documentation relating to the function of the
VVPRS.

2. The vendor shall submit a
certification that VVPRS satisfies the State's
criteria. I believe I saw in a letter indicating --

MR. PEARSON: Yes, we'll get those.

MR. WOODBRIDGE: Certification

Section VI D. A VVPRS shall not, at any time, contain or use undisclosed hardware or software. The only components that may be used in a system are components that have been tested and certified for the use in the state.

MR. PEARSON: We follow all state and federal regulations.

MR. WOODBRIDGE: Up indicated there is some hardware you're now having certified; is that correct?

MR. PEARSON: Actually hardware and firmware and software, our entire 40 suite, that includes the 9.2 that was examined here that is going to be certified and also includes the addition of the setting up capability for the ADA capability, so there's change to the software suite, all of the Calculator firmware as well as some hardware modification such as adding the set up to the electronic.
MR. WOODBRIDGE: The vendor shall be required -- Roman Number VI, Section E. The vendor shall be required to provide the source code for the DRE and the VVPRS to the State, a/or to place such source code in escrow, to allow for independent testing by the State, at its discretion. Upon request, the State will enter into non-disclosure agreement with the vendor. Did I see that agreement in your pack of material.

MR. PEARSON: I don't recall. I believe we would have executed that. We're usually pretty careful and cautious about that.

MR. WOODBRIDGE: Everything is deposited with the state or third party agents.

MR. PEARSON: In the past we have in the current state that it's their hands right now until testing one is completed then that will then be deposited to the NSRL, not the source code but the executable put on deposit there and then the source would be put on deposit with an independent escrow agent. We
use Iron Mountain, so all of our code is in
escrow. That's standard practice.

MR. WOODBRIDGE: You always test
with NTIS too.

MR. PEARSON: The new requirements
by the EAC that's what the new bill says that
they have is once the trusted bills are
complete before you get into the testing then
we basically lose custody of that object code
and then that code gets about by order of the
EAC for EAC then the VSTL will then deposit
that at NSCRL software by reference and it's
held there and then that would be used
downstream for any software validation
confirmation. You can confirm the source code
from any system to what's been certified.
That's the process today.

MR. GREENHALGH: Now the states may
require their own escrow procedure and when
that occurs, then we spell out the
circumstances under which the source vote
could be accessed and that's where the company
goes in bankruptcy. A lot of states do that
they require separate source codes with their
assigned escrow agents.

MR. PEARSON: We're prepared to provide the escrow source for New Jersey as required.

MR. WOODBRIDGE: Six F. The vendor shall be responsible for the cost of any testing of the VVPRS that the state deems necessary to achieve certification.

MR. PEARSON: We're used to that.

MR. WOODBRIDGE: Six G. Vendor documentation shall include printer reliability specifications including Mean Time Between Failure estimates, and shall include recommendations for appropriate quantities of back up printer and supplies. It may have been there in all the papers. I didn't see them.

MR. PEARSON: We are, the system is certified to the 2002 federal standard PPS and that one is the measurement that is used.

MR. WOODBRIDGE: That includes the Mean Time.

MR. PEARSON: That is specifically we've listed ten volumes, it's in one of the
volumes the 2002 standard. We can provide you that Roman Numeral VI 1. Mean Time Between Failures, which measures the reliability of a voting system device, is the average time that a component works without failure. It is the value of the ratio operating time to the number of failures which have occurred in the specific time interval.

    Seven. Pre-Election Procedures. A VVPRS’s component shall be integrated into the existing local logic testing procedure performed by county election officials, which are performed in preparation for an election. I believe there are some documentation of that in the two big boxes we got, but you’re not going to explain what to do. We provide pre-election procedures in the technical data package that’s submitted and there’s a pre-election checklist and I’m sure that Sussex County probably has their own set of instructions as well that they would incorporate into their procedures. We learn from our vendors too to incorporate their procedure, but we have provided those
MR. WOODBRIDGE: Section Roman numeral Eight A through C relate to items that aren't relevant to this and primarily relate to procedures at state level, so I'm going to jump down to Roman numeral D as in David.

In case the machine cartridge becomes unreadable or is damaged for an audit or recount, the county commissioner of registration shall produce the ballot image audit log from the machine. The vendor shall provide LPS documentation the protection of such audit log. Now, we understand you don't have, you have a cartridge, but you have a changeable spool so I guess the remainder of the question, you obviously keep an image in the machine, a cartridge that tests, as Kevin said before, not a PDF type of image.

MR. PEARSON: All that information is stored on a compact flash card and when it's pulled, it's retained as another means of auditing.

MR. WOODBRIDGE: Roman numeral Eight, Section E. The paper record shall be
created such that its contents are machine readable for purposes of any recount, audit or initial tallying of an election in the event that the machine cartridge containing the electronic record is not usable.

1. The paper record shall contain error correcting codes for the purpose of detecting read errors. This may be done by barcode. This is redundant for what we have already talked about if I'm not missing something.

F. If a county employs a "Continuous Spool" VVPRS, it shall conduct any audit or recount in accordance with the procedures established audit by LPS to fully protect the secrecy of all votes cast. Such procedures include, but not be limited to, cutting the spool-to-spool paper roll into individual paper records, and restricting public access to uncut paper roll. I guess this really doesn't apply to a machine as such.

MR. PEARSON: Other than provide adequate space between voting sessions to
provide cutage.

MR. WOODBRIDGE: G. The vendor shall proved LPS written procedure to identify and resolve any discrepancy between an electronic record and its corresponding paper record. LPS shall be responsible for disseminating this information to the county commissioners of registration.

H. The vendor shall provide written procedure for determining what constitutes clear evidence that a paper record is inaccurate, incomplete, or unreadable. LPS shall be responsible for disseminating this information to the county commissioner of registration. So there are two issues here. One is written procedure identifying discrepancies between electronic records and paper records. I've just had a similar criteria for this earlier and also provide written procedure clear evidence and the paper record is inaccurate or unreadable. I'm especially interested in your response to that section H. in regards to paper records to inaccurate or unreadable and unwritten
procedures. You have to assist the county
with those problems.

MR. PEARSON: First of all, we’ve
never had a discrepancy. We’ve been 100%
accurate with the electronic and the RTAL as
evidence of our latest testing as well as the
extensive use in the elections to date, but
the documentation that would determine if
there was any inaccuracies or discrepancies
would be the documentation for your logic and
accuracy procedure prior to an election and
then any of the auditing procedures at the
conclusion of the election, post election to
be able to identify. So there’s a multitude
or multiple methods to determine if there are
discrepancies of which would provide
documentation for all those procedures.

MR. WOODBRIDGE: And with regard to
the state’s views of systems like this, are
they provided with this kind of documentation?

MR. PEARSON: Standard procedure.
It was required by May 6th. It’s required by
the 2002 standard to have that level of
documentation.
MR. GREENHALGH: To clarify, some of the states we deal with do a mandatory recount of x number of precincts which require you to take the paper record from the printer and compare it to the electronic. I think it varies between two and five percent. What we do is prepare instructions for the county on how to do that and normally there's lots of manual work involved because you're basically taking paper records, trying to read all the valid images and compare them to the electronic records. We're very careful because that's where mistakes could be made because people are in our system, we say make sure you look at the bottom of the vote record, that voters choice can change at the end. The way Jane has done it in West Virginia is read from the bottom up and compare it manually and compare it with the machine records and they have to sign off if they agree on every office total number of votes they sign off on it and then they meet.

MR. WOODBRIDGE: The summary at the bottom of each and every trail cast should be
what's totaled in the machine, right?

MR. GREENHALGH: Yes, exactly.

MR. FLEMMING: The states that you
are in right now, what are they using for the
gold standard, which one wins?

MR. GREENHALGH: It depends on the
state, what the official ballot, the gold
standard is the paper the RTAL printer that is
the official ballot. Now, there's some data
about whether that's going to be retained.
They are not quite sure whether it's going to
be retained. It takes a lot of manual effort.
That's where you run into, do a lot of work
where you manually are counting those
individual ballots, the electronic records.
So there is some discussion about changes.

MR. FLEMMING: How are the states
using the paper as dealing with paper jams and
ballots that are not quite complete.

MR. GREENHALGH: We're fortunate
with the precinct we selected.

MR. PEARSON: They would perform
them in the same manner we discussed.

MR. FLEMMING: Paper is your gold
standard, and it has three less votes and your
electronic has three more votes. If that’s
your standard paper, you go with both.

MR. GREENHALGH: Right.

MR. FLEMMING: The document says.
When you look at a system with a printer I
foresee, I’m not arguing with you, but you say
you never had it, all printers have issues
could be a rainy day outside and the paper
rose or shrinks however it is out there,
that’s my concern.

MS. GREENHALGH: The state of West
Virginia has now decided to go back to the
gold standard which will be the DRE. They
were paper, they’ve gone back. Now we’ve
never had where we didn’t have them match but
they don’t like the idea of yes, the printer
is a printer.

MR. FLEMMING: In New Jersey it will
be printer.

MS. GREENHALGH: They were and now
they’ve gone back.

MR. WOODBRIDGE: The good news is
we’ve finished walking through the criteria.
The bad news is we still have some more business to do. In particular, there are two exceptions that NJIT raised that we want to address and then we have some new business. Some of this, incidentally, it might benefit from the experience of Sussex County so I think the timing couldn't be better.

Exception Number 11, A person who possesses the supervisor Personalized Electronic Ballot, PEB, can activate a ballot in a few seconds without any cross-checking with the Poll Log. Using a supervisor PEB, any person can cast as many ballots as he or she wants.

MR. PEARSON: We prepared a lengthy response to you that I could go through.

MR. WOODBRIDGE: Give us a short version of that.

MR. WESLEY: Our demo I think we actually showed on the machine that before that ballot when the poller puts it in before that ballot would come on the screen he's got to remove that PEB, that's functionality, that's very important that we put on the machine, wheeled into the machine so it forces
them to take possession of that PEB and I think and I and Sussex county can attest they've just drilled that into the importance of that board keeping that PEB in their possession.

MR. PEARSON: That was our first point and PEBs are only distributed to authorized elected officials, so they are not to leave their possession. The second thing is only PEBs programmed for the election is loaded on the machine will grant access so we have security measures in place to prevent anybody else from putting in a PEB for instance. We've talked about those and I don't think we need to get into those scenarios.

MR. WOODBRIDGE: The real scenario is seen in this piece of paper pad, you go the election board worker, go in the thing, you push a button, pull a curtain, do your vote and walk out. I guess the concern here, I assume, tell me if I'm wrong that can be used to activate a machine as many times as you stick it in the hole.
MR. PEARSON: That is correct.

MR. WOODBRIDGE: And my assumption is just to be ridiculous that you can keep doing this and they will keep doing this and you can add 5,000 votes on the machine in theory, but that might not match the number of people.

MR. PEARSON: You have the totals in your vote plus you have counters. No different than paper ballots today actually it is a little easier for someone I would guess a poll worker that would be I guess fraudulent to take a stack of ballots and mark a bunch of ballots. It's probably easier to detect a discrepancy in this system than it would be paper ballots until after the fact.

MR. WOODBRIDGE: Just taking a look further, I'm not sure what we described is not true to almost anybody, activate almost any machine of course the machine does it keep voting on that machine, but you got 25,000 votes and five voting.

MR. PEARSON: We've tried to implement security but check and balances and
a couple good procedures that Marge could
probably address better than anybody in this
room to protect against that. That is a
reality that can happen.

MR. WOODBRIDGE: Let me go into the
last exception here unless NJIT has any other
comments on this issue, yes.

MR. ANSARI: Actually this issue is
does not really go to any criteria, doesn’t
affect the end result, but I got a response
from ES&S that we did not follow the correct
operating procedure. Let me just try to
respond that we did follow what’s given, the
procedure given by Kevin and when we have this
problem occur to us, we sent an email to
Kevin. Kevin also give a couple solutions.
one of the solutions solved it temporarily.
That means we can continue to vote but for
another five to 75 votes depending on it’s
quite random, we don’t know what the reason
why and the problem come again. It just give
you all this warning message that we don’t
understand.

MR. WOODBRIDGE: That’s the next
exception we haven’t gotten into is what we’re really dealing with we’ll put you on the record on this and maybe it’s a good way to sedway into that section.

MR. ANSARI: I thought you were talking about --

MR. WOODBRIDGE: Section Eleven that you can activate the machine as many times as you want, but then you can activate almost any machine as many times. The issue I am interested in is the next one and I think this is where it might be useful to have someone speak on this. Exception 12, During the volume test, after approximately 250 votes had been cast, the DRE machine produced a warning message when the same supervisor PEB was once again inserted to activate the subsequent ballots. This warning message continued for subsequent votes. While this warning did not preclude the voter from voting, the event log showed a warning message that was not understandable. I would ask the vendor exactly what are we looking at.

MR. PEARSON: I would like to
address this. First of all, we have looked at this condition and we've never seen it before, we've never and that is true. We took it to our engineering lab and our developers the condition that was stated in Exception 12 has never been witnessed by ES&S. So, the comments that we have that were provided by NJIT are not specific enough and we really would like to have more information so we could try to research this. It's never happened in any of the testing that that systems has gone through seven years of qualifications they've been certified by dozens probably two dozen times. They've been run through thousands of tests and analysis do occur and we are certainly interested in those and we would like to be able to try to recreate that and address it, but at this point without further, more information it's difficult for us to assess.

MR. WOODBRIDGE: Any remarks on why this have occurred and what exactly did you get on the screen.

MR. PEARSON: We need all the test
cases and steps that led up to this event.

MR. ANSARI: One question I would like to ask you also. In your experience does the machine go up to 250 votes. That’s why you never got to that experience, we experienced it when we got up to that.

MR. GREENHALGH: Oh, yes we did. I had as many as 4,000 votes and we never had, we don’t have any limits.

MS. KLUSKA: If I may interject, I don’t know what the description was of what they saw.

MR. ANSARI: The error message you can see this, these are the error messages on the PEB which we don’t understand either. Well, maybe you want to take this. This is probably for the vendor to improve.

MR. WOODBRIDGE: I think we’ve pretty much run through this section and I know that you had some responses to some of the issues raised earlier. What I pose to do if it’s okay with you, I would like to go into the public section and then maybe have you wrap up after that so you want to respond to
it. Given the fact there are some outstanding things we’re going to be needing from you and some other time frame issues and I know we had one or two people that wanted to provide comments to the committee which tentatively had a due date of this Friday, so we don’t have to necessarily get that stuff in writing today, but I would like to give the public a chance to speak and particularly I would like to hear from Essex county, Sussex, because you heard some of the things that have just come up which is relevant to real life use and so Marge and Abbey, if you would like to make a presentation and if you perhaps want to respond.

MS. KLUSKA: Abbey Kluska from Sussex County. One thing I want to mention quickly and I just looked over the shoulder to see the error message that NJIT was discussing and in my experience and I have an older version of the firmware, we’ve seen a similar issue. If you put the PEB in and pull it out too quickly because the PEB communication with the machine it’s interrupting the
communication and in my experience that's
typically what the message is. So it's not a
machine error, it's just you've got to give it
a couple seconds before you rip it out and
stick it back in.

MR. MAHONEY: I agree with that.

MS. McCABE: Thank you,
Mr. Woodbridge. Thank you committee.

MR. WOODBRIDGE: Thank you for
coming down, someone to come down who's
familiar with the equipment.

MS. McCABE: I guess we're the
first, well iVotronic. As I was stating
earlier, we are the first county in the
country who used DRE is county wide and since
day one they have been HAVA compliant even
before HAVA came out.

MR. WOODBRIDGE: How long has that
been.

MS. McCABE: 2001 and Abbey has been
on the job since that day since we did the
transition from paper to DREs. We do have one
of the printer booths as a demo in our office
and we've been playing with it and I have to
tell you the first day we had it it jammed and it jammed badly. It took Abbey and one of my other technicians two hours to unjam it and as a result we had little shredded pieces of ballot all over the floor. So that's a huge concern of ours if the paper is going to be ripped and you have shreds of it all over the floor, how on earth do you have a recount and if a candidate losses by one vote as does happen in our little county, how do you know what the true votes were in that instance, a huge problem. I have to tell you that since 2001 Abbey has developed a testing and validation criteria which was handed out to you which we believe is beyond reproach and we are willing to take that to any court. I think that a big issue in New Jersey is that there has been no testing and validation issue set into place that standard and I think if there was five years ago we wouldn't be standing here today.

I also have an issue with the handicap accessibility. Mr. Millstein testified that the IVotronic is very
handicapped accessible. We can actually
because it's a computer a laptop, computer
sized machine we can literally take it out of
its plastic booth that it's housed in
currently, put it on the lap of a voter, give
them a security screen and they can vote
unassisted. And also in compliance with HAVA
people who are visually impaired can also vote
unassisted. We feel that the inability to
move, take it out of the booth because it is
attached would really be a detriment to our
voters particularly our handicapped voters and
the ability for someone to see how they voted
would be a detriment as well. We believe
legislation and adjudication has been
completed without election official input and
without alternative methods of voters. We
handed you a brochure today about and all
three voting companies in New Jersey has said
its a possibility. We believe the printer
setback voting effects technology ten years it
doesn't move it forward as it should. The
Sussex County freeholders have passed a
resolution in opposition to implementation of
the VVPAT as has 12 of our municipalities
because of the additional difficulty for
handicapped voters the problem with the paper
jams, the long lines it is sure to cause
incorrect recounts and lack of voter privacy.
We believe that VVPAT is a detriment to the
voting process and that the money that would
be spent to implement such a system statewide
would be better spent on improving voter
invalidation criteria and making our polling
places more handicapped accessible. And I
would like to quote Ted Cesar who is from the
MIT and who in 2004 suggested that audio was a
viable option to voter valid verification and
he IS quoted in that pamphlet. He said, we
need to make sure the addition of the printer
is an improvement before legislating them as
an improvement. We believe they are not an
improvement. And if I could end with a quote
from Dud Schaffer from election line dot org.
You can build a fence around the edge of a
cliff or you can put a ambulance in the
valley. The paper trail is an ambulance in
the valley, certification and testing of the
machines is the fence around the cliff. Thank you.

MR. WOODBRIDGE: May I ask you a question while I got you here, Marge. One of the subjects of discussion is the possibility of moving to a way kind of looking at and toward a stand ballot. Do you have any input on that.

MS. McCabe: I believe that paper ballots are the worse case scenario and if you talk to Mayor Lynn from Warren County she had paper ballots with scanners and she can tell you all the nightmares associated went to an Ivante. They had numerous problems. Any time that you add paper to the mix I mean the nice thing about the DRE that we have it will tell you when you’ve undervoted or overvoted. Paper you don’t have that opportunity. If you mark a ballot and then change your mind in a race and remark it, that scanner cannot look at voter intent. It will either mark it as probably mark it as an overvote and the voter doesn’t get to make that choice at all. I can tell you a story about paper ballots that I’m
reluctant to do, but when we switched over in
the paper ballots to the DREs and Abbey was
going through poll worker training, she had a
poll worker who approached her and said, I
really, I don't like these machines. And
Abbey said, don't worry they are very usable
once you get used to them you will love them.
He said, no, I won't. I really don't like
these machines. She said, what do you not
like about them. The gentleman said, I have
no control over the election, and when she
said what do you mean by that, he said, I
happen to know that there are some people in
my town that are not capable of voting and I
throw their ballots in the garbage. Now you
tell me you want humans back in the mix with
paper ballots, I don't think so.

MR. WOODBRIDGE: Thank you, Marge.
That ambulance does sound pretty useful. You
have been waiting a long time Flavio.

MR. KNOUVES: Just a couple of
housekeeping things before I go into some of
the comments and questions that I have. First
of all, as to the concern I raised during the
round of hearings in July 2007 which is that
this report and ES&S response were published
on a report about October third not really an
adequate amount of time consistent with due
process to allow people to fully evaluate
these lengthy reports. So, again it's just
unfortunate that the time frames are as narrow
as they were last time.

The other thing, the next thing I
wanted to mention also if you recall during
the last round of hearings again in July the
public advocates submitted a list of documents
a book of documents exhibits 1 through 67.
We're going to submit now some additional in
addition I should say in addition to relying
on exhibit 1 through 67 from the last round of
hearings, I'm going to hand up a book exhibit
68 through 79. It's got a few other things.
Mr. Woodbridge, during the last round of
hearings I had posed a question to NJIT and I
would again ask leave to pose that question to
them to find out if their answer has changed
at all. And the question that I asked last
time page 169 of July 25th transcript was
whether NJIT takes any position about whether
the criteria that they were given by the state
represents to a reasonable degree of
scientific certainty a valid means for testing
the voting machines and Mr. Darer answered no
we have no position that was within the scope
of our project in what we were engaged into.
I want to know if the answer is any different
today than what was asked.

MR. WOODBRIDGE: You're asking NJIT
to respond.

MR. KNOUVES: Yes.

MR. DARER: We have no opinion. The
answer remains the same.

MR. KNOUVES: Thank you.

Mr. Chairman, one of the things that I noted
in the NJIT report was an issue about the ITA
documentation that was provided to NJIT page
15 of the report indicates that NJIT did
receive ITA testing for DRE firm revision
9.1.6.4 and in footnote four of that report
they indicate that the source of that was ITA
submitted for the Attorney General. I guess
one of the questions I have is were there any
other ITA reports that were submitted to NJIT other than the one that's mentioned in the report.

MR. DARER: I'm not sure. There was a lot of document of ES&Es we concentrated on the ones that gave us the information on configuration version that we were required to put in.

MR. KNOUVES: The machine you tested if I recall correctly was version 9.2.00 and that you didn't receive any ITA reports for that version.

MR. DARER: You're asking if what's in the table is correct?

MR. KNOUVES: Yes.

MR. DARER: What's in the table is what we reflect what we saw.

MR. KNOUVES: You didn't see the ITA report for 9.2.00.

MR. DARER: No.

MR. KNOUVES: Now, Mr. Woodbridge one of the ongoing debates that's been happening today I do want to weigh in on this is the question of what is the ballot what has
to be verified and the sense that I got from
the testimony today and from my operation of
the machine is that obviously as you're voting
each selection you make is immediately
recorded to the real time audit log.
Once the voting is over and you press the cast
vote button, a ballot summary is printed of
the choices you have made or what purports to
be the choices you have made that immediately
scribbles into the machine without the
opportunity for voter verification of the
ballot summary portion. Now, one of the
things that I was trying to understand is in
NJIT's report there was a discussion of
matching the electronic records of the
machines versus the paper ballots and when the
paper ballots were being counted were being
tallied was that the ballot summary or was
that the RTAL that was being looked at and
tallied.

MR. DARER: Flavio, who are you
directing that question to.

MR. KNOUES: I think NJIT would
probably be best to answer that and the
question is: When you counted the ballots the
paper ballots was it the ballot summaries or
is it the RTALS that they looked at.

MR. DARER: I assume the ballot
summary or the line by line printing.
Correct, it was the ballot summary.

MR. KNOUVES: So you have no
information about whether the ballot summary
matches the line by line entries on the RTAL
because that's not something you looked at.

MR. DARER: Yes, we did. We
compared the line by line selections
deselections changes to the summary in the
single test not in the volume test, but the
single test.

MR. KNOUVES: The single test.

MR. DARER: I don't know what your
question is.

MR. KNOUVES: The single question
involves how many ballots.

MR. DARER: We did 130 votes, 130
ballots.

MR. KNOUVES: In those 130 ballots
you found a match between the line by line.
MR. DARER: There were no errors.

MR. KNOUVES: There were errors.

MR. DARER: They were consistent.

No errors.

MR. KNOUVES: They were consistent.

Again this gets back to the debate that I think we were having before notwithstanding that there was a match of 130 of the different ballots that were cast in NJIT's test I'm trying to conceive in my mind of what is a VVPAT. The thing that I think about when I conceive of a VVPAT, I conceive of something that the voter has verified being the same thing that is used in the audit and when you look at the criteria, when you look at the definitions when you look at the statute of what is by definition what is a voter verified paper audit trail what is being audited here in the ballot summaries isn't the same thing the voter verified. The voter did not verify the summary that's what's being used for the summary. The voter verified the RTAL logs and that isn't necessarily being used as part of the audit. So, I'm not even sure the
system before you today is a VVPAT by
definition of what that is and the way this is
used.
So, another question that I had also
I'll allow whoever wants to answer this. We
talked a little bit about multi link and
functionality before, obviously in Sussex
County at least as far as section 203 of the
voting rights act there is no requirement for
multi link functionality how exactly would
multi link functionality work on these
machines.

MR. WOODBRIDGE: I think the vendors
could answer that. How do you handle the
multi functionality.

MR. PEARSON: The way the system
works is it could support multiple languages
and the system is coded so the initial screens
that come up are bilingual to support
whichever languages are required. At that
point in the audio there's audio files that
are all communicated to say for instance it
might be english, spanish and creole for
instance it would give that initial those
initial instructions would all be given in all
three languages and then the voter would have
the opportunity to select which language they
want to see the race as presented as well as
which audio files they would hear at the
voting session.

MR. KNOUVES: Just so I understand
there would be an option presented at the
voting session when you would choose what
language you wanted and the ballot would then
appear in that language. Now, on the printer,
would it, would the title of the office be the
same as the screen language.

MR. PEARSON: I'm going to go ask
Will if he knows the answer to that question.

MR. KNOUVES: The printer they
select an alternative language raises in the
alternative language or is that preprinted.

MR. WESLEY: Those are printed in
other languages. I have not had any
experience using it anything other than
english so I can't answer that.

MR. PEARSON: I don't know the
answer. We would have to get the answer for
you. We don't have any requirement for multiple language.

MR. WOODBRIDGE: I see we did go through that in one of the sessions. I think it was section C. It says any language, so it shall produce in all such languages. I guess based on assumption you're going to have a ballot in creole, I assume you probably want creole to identify the office so the information on the paper record not needed by the voter's personal verification shall be in english which I think suggests that if you need another language conveyed it's got to be in that language.

MR. KNOUVES: No doubt. I have no doubt about that at all. The question in my mind is whether the printed ballots that are produced end up producing the titles of the office and that other information in both english and such other language or in that other language alone and the reason for this is a question of privacy because if you have a voter who chooses that alternate language that also identifies their ballot in that case.
MR. WOODBRIDGE: You raised that last time.

MR. KNOUVES: I did. So that's just what I wanted to ask.

MR. PEARSON: Let us look into it for you just point of clarification not only the audio ballot but the visual ballot is presented in the language that the voter chooses. That's not critical for some of the offices although the offices are pronouncing quite a few issues that have to be alternate it's not the audio, but the visual ballot the voter selection in their language but we have to check what the are the actual print out.

MR. KNOUVES: Very briefly. Now I'll give you sort of a shortened comment. I made a comment last time although I certainly rely on what I said last time which is that the question before this committee again is whether the ES&S has shown that the electronic meets the criteria of NJSA 19:41(a) is it reliable, is it accurate, has it been thoroughly tested and is the VVPAT and I touched on this a little bit before. I just
have some doubt in my mind knowing that what the voter verifies isn't necessarily what's being audited. I don't know that this is a VVPAT. But let me talk a little bit about some of those other criteria. First, the question of thorough testing in the exhibit book that I've handed up before, there's three expert reports that we've submitted to the Attorney General not to this committee because of this committee's deadlines but submitted to the Attorney General for review of the other three machines it's from professor Wayne from Princeton Mr. Hallerman, Mr. Crew and Mr. Schavaslovic. These reports are all therein and these reports explain why the amount of testing that's been done on these machines did not include an examination of source code, did not include a sufficient number of test ballots to determine whether these printers are going to jam in the setting to determine whether the software code is robust enough and those three reports that are in that exhibit book we submitted explain these concepts, so I urge you to take a look
at them. That goes to the question of are
these machines thoroughly tested and again we
would suggest the answer to that is no. The
question on whether the machines are private
we explained this last time, we stand by the
position we took then which is basically that
any continuous spool system when used in
combination of the New Jersey practices of
voting authorities steps and the presence of
challenges is inherently compromising the
privacy. It’s highlight again why that is.
You go into the polls in New Jersey, sign in
in the log, you sign in a voting authority
slip voting authority slip is then put on a
string that exists for each of the machines
the voters may go to. So there are records
permanent paper records in the order which
people voted under state law even if there
weren’t state records there’s challengers,
nothing in the law that prohibits them from
recording the order in which other people
voted and when you combine that with a
continuous spool system that will compromise
their privacy I’m really gratified to hear
that the eight time stamps are coming off
because that to me was just that was another
example of an issue of privacy.

As far as what was discussed before
about the screens I think that the idea of
turning the machine around to face the wall as
a matter of local practice makes a lot of
sense and is going to solve a lot of the
privacy problems. The privacy problems exist
because the continuous spool and I don’t mean
to deny those exists, but as far as the
ability to peer over for someone to catch a
glance of what’s going on.

One other thing I urge you to
consider is whether certification machines
should be contingent on local practices that
turn the machine around to face the wall. I
think you have to look at everything including
how the panels are set up and that’s something
that makes a lot of sense. We talked a little
bit about the reliability of the machines and
really reliability and accuracy are kind of go
hand and glove here. There was evidence based
on NJIT’s test we didn’t cast a lot of ballots
they cast 298 ballots, 302 ballots in the 14
hour test and there were three paper jams. It
resulted in the lack of complete printing of
four ballots that's one in 100 is the jam rate
for this printer. You think about how many
jams would result in the real world election.
Miss McCabe testified about a jam that
occurred and taking two hours to solve this.
The question is, are these printers reliable
in the sense that the statute of 1948 dash one
requires that these machines be reliable. Are
these reliable when you have ballots one in
100 failing in a 14 hour test. Even when you
go the 1200 vote test, I think there was
testimony there were two jams there was page
19 of the report paper jam resulted in lack of
printing of barcode for three paper jams, so
it was incomplete but there was another jam
and it's I understand and I accept the jams
will happen in the real world but one in 100
or at one in 600 based on the 1200 volume
test. That's just an awfully high I think for
anyone to comfortably say that these machines
are reliable and this gets into accuracy
because the result of these jams was that
there was a discrepancy between the paper
ballots and the electronic records. It is
ture the barcodes match the paper and the
tally matched the electronic ballot images,
but as between the paper side and the
electronic side there was a discrepancy and in
this election in this mock election I don’t
tink there was enough discrepancies to change
the outcome of the election, but what happens
when it is one vote, what happens when it is
two votes and there are four ballots lost or
three ballots lost as happened in the lab this
isn’t real world, this is in a lab. So, one
of the things we’ve always asked this
committee to look at is that thorough testing
of voting machines and the setting of rigorous
standards is what can make the difference
between a fair election and unfair one and
when you look at the criteria that the state
has promulgated and I am talking about both
the statute and the non regulatory criteria
guidelines, the document promulgated last
April I’m not sure what to call them, but the
criteria the guidelines they've been referred
to in a lot of different ways. So, I think
criteria is a good way to look at it whether
they satisfy both of these things I don't
think that right now we've got enough before
us to say that this is a VVPAT. I don't think
when have enough to say this is reliable. I
have serious questions about reliability and
accuracy and privacy. I don't know if that's
been made on the record that exists today. I
just want to confer with my co-counsel.

That's all I have. Thank you for
your time.

MR. WOODBRIDGE: I'm going to at the
risk you heard Ms. McCabe talk, do you have
any comments on her experience with the DRE
and the paper trails and stuff like that.

MR. KNOUVES: We believe that the
addition of paper trails, the addition of
verification makes sense because number one it
provides an additional level of actual
security, it gives voters justifiable
confidence not just hypothetical confidence
but justifiable confidence in the results.
But, because the printers are vulnerable to failures, vulnerable to jams are vulnerable to inexperience the people trying to load paper in the printers it's something that's got to be rigorously tested and it's got to have failure rates that are very low and it's got to be user friendly. I would say we've seen a lot of the four hearing I've attended we've seen a whole spectrum I think of usability in terms of refilling paper ranking from one machine that in essence the pollers shouldn't even try to do with another one you stick a ream of paper in there and this particular machine I would say is somewhere in the middle but what concerns me is seeing that these dislevel of paper jams resulting in the loss of real balance the official ballot of record so I think it makes sense to have paper to have paper printers. I part a little bit with Miss McCabe on that point but they've got to be rigorously tested printers that are going to work in the lab and real world conditions. I just on the record that's been presented with the number of failures here I'm not
seeing it.

MR. WOODBRIDGE: Thank you very much. Alexander, you have any comments. Any other member of the public have any other comments to add while we’re here today.

MS. KLUSKA: Could I jump up. Abbey Kluska. One of the things I’d like to preface before we continue, I know there have been some concerns about the reel-to-reel and one of the things I think have been brought up repeatedly is that the machines can do a lot of things, but the election officials have to do a lot of other things and one of the things we’ve talked about is if the reel-to-reel were to come into affect we intend to cut the individual records apart so that the issues that the public advocate did bring up about being able to link the record to an individual would be a moot point and our plan for that would be very similar to the same procedures that we currently use for our paper records when you take the identifying information off the outer envelope, we would do the same steps. We would have one team of people that
would cut the records apart and then the
commissioners would count those records in the
case of a recount, so that would be our plan
in those procedures. I hope that addresses
some concerns at least on privacy about
identifying voters on the paper trail.

MR. WOODBRIDGE: All right.

MS. KLUSKA: I'm not going to rehash
what Marge has already said. I believe she
put it a little more eloquently than I can,
but what I would like to say Sussex County has
in some way set the standard. We were the
first people in the country to use the ES&S
iVotronic county wide and in that way we set
some standards that we thought would be a
benchmark and in many cases we over the years
improved upon them. Those standards are set
through the paper that I've already handed
out. Some of the different testing procedures
that we do although we try our best to make
sure they are public knowledge, a lot of
people in the general public aren't familiar
with them and of course we do open our offices
at all times, but especially at the public
test before each election. Every single
person that has come up to me and actually
witnessed demonstration of the voter verified
paper trail has often said that they had
concerns about the security of electronic
machine. When they understood what our
testing practices are currently, they’ve all
walked away saying that they feel confident in
our electronic system, confident in our
speaking standards but not confident in the
addition of the voter verified paper trail as
been seen and I don’t mean in any way to
criticize ES&S paper trail in the limited
understanding that I’ve seen it’s very
adequate, but what my criticisms are a paper
trail being enacted in the standard of the
Attorney General’s office has put forth to
your group as well as the rest of the state.

MR. WOODBRIDGE: Is there any other
comments thank you very much. Thank you very
much. Before we wrap up ES&S, do you have any
further comments? You also indicated you
might have some clarification you want to put
it in writing or you want to respond to some
of the open questions.

MR. PEARSON: I think quickly we would like, there's about three open items we would like to verify. First of all, quickly on the ITA reports there are no reports 409.2 released yet and they won't be available until the testing is completed, so we provided them the last set of reports which was the 3011 version which included the 901 of the DRE with the RTAL printer that was the last set of reports that was tested under May 15th in 2006 so as soon as the new reports are available you will receive those. That's to clarify that issue. The other question regarding reliability and accuracy questions, the system as a system has passed and exceeded all of the 2002 voting system standards that were established by the federal election commission. So, for all the reliability tests which is an accelerated test for the system operating as a system where they are conducted in a continuous modemode with Virginia but I think anybody wants to go check and see what that testing system you will see the system
passed that criteria and it will be in the final report.

Regarding the accuracy tested it also passed all the data accuracy test as defined by the 2002 VFSs and completed the 1.5 million mark accuracy test so as far as accuracy and reliability we passed the test for the standard.

MR. WOODBRIDGE: Are you talking about the paper ballot.

MR. PEARSON: The whole system. They are tested as system by the ITA and now you’ll have those reports shortly, so and then the last topic we wanted to just clarify was just the confusion and I apologize for not having all the answers regarding the paper. The red strike on the paper and I still don’t have the definitive answer neither will arise how much red is on the paper, but the folks at the office said there are a lot like 20 or 30 feet. Somewhere in that neighborhood. So there’s a significant amount of warning before you hit the red line which is the individual indicator related to the print ear the
iVotronic when it hits a low paper, a low
paper level condition there's two scenarios
and I'm going to let Will address them. The
first is a low paper level is reached during
the voting session and then it will talk about
low paper conditions reached prior to voting
session, so Will why don't you the first one
would be if you're in the middle of the voting
session and the printer detects a low paper
condition.

MR. WESLEY: If it detects that
condition which is about a quarter inch of
paper left on that roll which we're estimating
to be somewhere about 20 to 30 feet of paper
left on the roll, that's quite a bit and it
happens it trips that threshold while the
voter is voting it will allow that voter to
continue voter until the end. The next time a
poll worker goes there to activate a ballot,
that threshold being tripped would then put an
error message on the screen indicating to the
poll worker that that roll needs to be
changed. And the next voting session would
not be allowed.
MR. WOODBRIDGE: So what you're saying something contradictory what NJIT has told us. Once you do get that vote set you produce an audible signal when that happens or does it just simply let that voter continue and then when you put the PEB in it you can't vote on it; is that right.

MR. WESLEY: That's correct no audibles are signaled. It's visual on a screen.

MR. PEARSON: It is a visual warning.

MR. WOODBRIDGE: The voter is voting and reached that level in the machine does the voter voting that knows that.

MR. WESLEY: No.

MR. WOODBRIDGE: The voter continues voting the next voter can't vote.

MR. PEARSON: If that voter were to stay there and run all 20 or 30 feet of paper out when it runs out of paper it will then throw the warning up for that person and they would not be able to complete their voting session.
MR. WOODBRIDGE: Time session I think they have said there is a warning that would prevent somebody from voting is that right?

MR. ANSARI: There is a warning signal that the paper is low but does not allowed the voter to continue finishing to vote that’s the issue.

MR. WOODBRIDGE: That’s the disconnect what I understand that there is, there is some sort of signal that goes onto the machine let them continue to vote, but the next voter can’t vote; is that correct?

MR. PEARSON: The next voter can’t vote.

MR. WOODBRIDGE: I’m getting a little bit of confused at this point.

MR. PEARSON: I agree there is confusion on that.

MR. WOODBRIDGE: Something you people have to work out. So when the voter is finished, and it gives them an error message saying it is low and it will not let them vote.

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MR. PEARSON: That's my understanding.

MR. WOODBRIDGE: The record shows two different ends here. West, one more thing I wanted to clarify. I think Steve talked about the rooster tail lab. I asked him how long did the rooster tail go.

MR. WESLEY: I'm not sure.

THE COURT: It's the red thing when you see it.

MR. WESLEY: It is a visual queue.

MR. FLEMMING: I did have one question. You said you had the version 92 that's in testing right now and when that comes out we're going to get the reports. Is that machine going to go to NJIT when it gets done.

MR. PEARSON: That has not been determined. In the discussions I've had with the Attorney General's Office they understood we were so close to certification with the significant enhancements they did not want to evaluate the old system because we were planning to bring the new system in for
certification in December, so she said there
might be some retesting that might be
required. That hasn’t been determined at this
point.

MR. FLEMMING: What we have here.

MR. PEARSON: The latest.

MR. FLEMMING: What’s demonstrated
is the 92.

MR. PEARSON: It is the 92.

MR. FLEMMING: That’s not what the

NJIT.

MR. PEARSON: That was what was
NJIT. They tested the 92.

MR. WOODBRIDGE: Any other comments.

MR. PEARSON: No.

MR. WESLEY: I would like to clarify
this while he is here. I stepped out to talk
to our developers again about the error
message we saw, they did confirm that what
NJIT said is correct it simply means that the
right operation between the PEB the
communication between the PEB was interrupted
prematurely and that’s a pretty elaborate
message but that’s exactly what it means.
MR. WOODBRIDGE: It means you pulled it out too fast.

MR. ANSARI: Can I respond to that. Kevin did send us the email about that and we did make sure very slowly not to pull out so quick. Kevin sent a solution but it doesn't solve the problem. I'm not, we are not going to haggle what's wrong. The problem is for you to solve it. I just told you this is something happening.

MR. PEARSON: We can speculate until we can try to recreate all the facts that's all that is.

MR. KOUNVES: I'm sorry I just wanted to get a clarification on what's before the ITA. What is before the ITA versus what is before what was before NJIT.

MR. PEARSON: The system is in test with the VSTL.

MR. KOUNVES: Very good.

MR. PEARSON: It was what was submitted it was off was when they completed the bills so the system that had the functional testing would have some minor
perhaps some minor changes to it from what was
delivered it may be during functional testing
it may be covered we would have made that to
start the testing over again so it could be
slightly revised.

MR. KNOUVES: One of the revisions
you're taking off.

MR. PEARSON: That is one of the
things that we learned in this we said let's
take it out because other states asked that we
have it in we said let's just take it out.
Yes, that is one of the changes.

MR. WOODBRIDGE: Any other comments
from the committee, no. NJIT, I would like to
thank you gentlemen. As usual, you've been
great and very, very helpful. I appreciate
what you've done for us. And I appreciate the
audience and especially those from Sussex
County. I assume the vendors are not going to
Paris after this. And as usual, Donna and
Karen and everybody else, thank you for
setting this up and Kim thank you for keeping
the record in back of us. Sound person, thank
you very much. Again we'll be doing a report.
We'll be waiting for you to provide the additional documentation and anything else you want. Anybody else has comments, please get them to the Attorney General's Office. I can't tell you when the report's going to come out because we've got to do a draft and circulate it. Thank you very much. I appreciate you coming here and have a safe trip back.

(Whereupon the Hearing was concluded.)

(Time noted 4:51 p.m.)
CERTIFICATION

I, KIMBERLY HORSLLEY, a Certified Shorthand Reporter and Notary Public in and for the State of New Jersey, do hereby certify that the foregoing transcript of the hearing, taken on Wednesday, October 10, 2007 is true and accurate to the best of my knowledge, skill and ability.

[Signature]
Kimberly Horsley, CSR

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