

Technical Guidelines Development Committee
Plenary Meeting 3/22-23/2007
Captioning Text: Day Two

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I will get the five minute warning. We will start right at 8:30 a.m. So five minutes.

Good morning. It is Allan Eustis. We will start shortly. I just wanted to let you know. It sounds like you can all hear.

Good morning, everybody. If we could take our seats I have a few administrative issues I would like to go over. For the public members who have not been here, welcome. We are in the employees' lounge which is in the left-hand side of the screen. The green arrows are the exits. If you are in a lecture room C which is the overflow room, it is circled as well, and you take a right out of back room and then down to the corridor and out the main entrance. Welcome to all the TGDC members. You have before you all the slides for today's presentations. For the public the power point presentations are on the Web. I have also handed out, as I usually do do two possible alternatives for a meeting which we expect to be a two day meeting as well. If you get other hand those in to me or e-mail them to me, that would be great. For the TGDC members not in attendance you can get as the e-mail. I would request a fairly quick response. Everybody seems to think this room work out well. And if that is the case it has all of a sudden gotten very popular since we decided to use it. And we actually don't have a green auditorium. There has been construction done. If you could get me your response next week we will look at which members give us the highest attendance and we will work that way. With that, but are all the comments I have and Dr. Jeffrey, the meeting is yours.

Thank you, good morning. Welcome back. Good to see you again this morning. I hereby call this meeting back into session. I would like to begin by asking everyone wrong to please stand for the pledge of allegiance.

I pledge allegiance to the flag of the United States of America and to the republic for which it stands one nation, under God, indivisible with liberty and justice for all.

At this time I would like to ask our new parliamentarian to please do the roll-call.

Thank you very much. William? William is not responding. Burger? Berger not responding. Wagner? Paul is here. Paul Miller? Paul Miller is here. Gail? Gail is here. Mason? Mason is here. Ken? Ken is here. Paris? Alice? Alice is here.

[indiscernible] >> Shuster? Shuster is not responding. We have 12. That is a quorum.

Thank you very much. Today we will be concentrating primarily on the cross cutting issues. Yesterday we had briefings and discussions on each of the subcommittees and there are a number of issues that cross the subcommittee's. And to ensure that there are no gaps in what we are trying to do you will be spending most up-to-date discussing that. But first I would like to invite Mary Saunders up to get an informational brief on the laboratory accreditation Program. Mary?

Thanks very much, Dr. Jeffrey. And it is my very great pleasure to be here this morning to give you this briefing. I appreciate the opportunity. I am Mary Saunders, as Bill mentioned. I am chief of standard services division and Technology unit. And might it -- unit is the home to the [indiscernible]. Section 221 says let's that NIST conduct an evaluation of independent non federal laboratories. [indiscernible] first about the voting system guidelines and then submits a list of qualified Laboratories for accreditation I will keep the board of the status of that. We have currently completed evaluation of two laboratories and recommended those laboratories to the you see for accreditation. You heard a little bit yesterday about the -- and Bryan's response to a question about the you see portion of that accreditation. The review of conflict of interest. In a few other critical attributes. I will talk to you about the NIST portion of the technical of valuation and I will also not in the interest of transparency and up the mess we have posted on the Web site information on the on site assessment of each of the laboratories that have the evaluation and their responses to that assessment as well as our final determination on the technical portion. We have four additional laboratories which are listed in alphabetical order and not in order -- actually this has already had an on-site assessment. They have various positions with sure to where they are in the application process. All right. I want to tell you it a bit about how to treat all five laboratories. It is through the NVLAP, a 30 year-old laboratory accreditation Program which operates in about 17 areas of testing and we also accredit calibration not returned. So testing areas in which the credit testing laboratories range from electromagnetic compatibility and telecommunications to construction to body armor. There is a wide range of technical activity. The accreditation criteria for the overall program our quad the but in the gut of federal regulations. I want to call your attention to the last point which is the condition is a specific finding. We got into this little bit yesterday in one of the question and answer periods. The finding of laboratory, but it is not a finding that the specific voting system that is assessed -- it is not a finding that the track to about respect to the particular voting system but the confidence of the laboratory to test these standards and requirements. These are the accreditation criteria. There is a general handbook 150 and also is the subject handbook for the voting system testing laboratory 150-22. Both of these are up in this website. And I lay out the requirements of the standard 1725, the two voting standards that help America vote. As well as the building system expanded up 2002 and currently the bonds shared voting system that line. When the EAC about the next version the requirement will be updated to take the ads to talk that the to cut those new standards into account. The program also credits to any other criteria that it deems necessary by the election assistance commission. Today --

to date have not received any additional criteria but we do meet regularly with the to program manager to talk about how the program is going. Very briefly the accreditation procedures and this is a supporter program. Although I don't have it listed the laboratory to submit fees. They submit an application for condition along with the required fees. With that application the Quality manual and quite a bit of additional documentation. The lab undergoes an on-site assessment response to any nonconformities out in that assessment and if possible -- [indiscernible]. They test the system and compile and compare the results. At this point we don't have that ability in place. But we do plan to put that in place whenever feasible. The responsibility for NVLAP is to review the assessed affirmation and make the condition decision and make the announcement of the NVLAP accreditation which is different from the EAC accreditation. But that we recess. The operation of the [indiscernible] the system. I mention that but the early to not leverage first met a Quality manual, that is a paper representation at the Met the system. NVLAP assesses the [indiscernible] an action in particularly [indiscernible]. Both hardware and software to a core set of voting system requirements that you can see up there on the slide. There are many other non-core tests that are covered in the 2005 standard and also in the earlier documents. Non-core tests can be subcontracted to other accredited laboratory. We have a chain of a laboratories, but only those core set up voting system requirements must be connected and out. Examples of non-core are electromagnetic compatibility, telecommunications, what testing ads, testing. The perfect models can also be subcontracted. Overall security testing must be done in house, but components [indiscernible]. How do we convince the assessment? Contract with the team of experts. We have the NVLAP Program Manager here today and he is here. Two are responsible for product yet the assessors and has gone on each of the reassessment and assessments today on this particular laboratory in this program. And a voting system expert. Those assessments take anywhere to, usually to experts, as I mentioned, for about four days. The laboratory as I mentioned earlier submits the procedures and the test methods and bulk of the [indiscernible]. That is important to trace back to stand it directly. So experts look at that the documentation and also perform an on-site review of laboratory operations. I noticed there are close to 1,000 requirements in the VVSG 2005. So it is obviously not feasible to look at every requirement during the on-site assessment. The assessors, the team will select a sampling of the laboratory procedures that are actually looked at in depth on the on-site assessment and boat that generally pick the more complicated procedures. If he can do the delicate procedures it is likely the lab has a system in place that can connect the similar -- simpler aspect. [speaker unclear]. I talked quite a bit about the on-site assessment. Prior to initial accreditation. In condition is an ongoing process of assuring continued confidence. So an on site is connected during the first renewal year and typically will happen is an assessment team will go on and look at areas where the laboratory had nonconformities with the corrected the first time around. Or if there are new requirements that have evolved or have been identified within the first year, those will be looked at. Every two years thereafter to evaluate ongoing with is the condition criteria. As I got on the slide reassessments are also conducted when the requirements change and that the -- requires went back out and looking at how the laboratory can conduct tests. It is important to remember that we connect all of these activities on behalf of EAC and it makes recommendations to the commission based on NVLAP technical

finding. I thought it might be useful -- and this is my next to last thought, to look at where NVLAP fits in the testing picture. There is testing -- there should be and I believe that there is testing by the vendors dream design and development of systems. We touched on this a little bit yesterday and the vendor can use any laboratory, in house, external. It could use the voting system yesterday it is logical and good business to testing and design so that when you bring a system and for final testing you're pretty sure that is going to pass. The use of the NVLAP EAC acquired. And the EAC is required for overseeing the program. Once NVLAP inaugurated laboratory is listed by the EAC the vendor can choose any of the call by laboratories and then also as you know from the certification program must admit a specific test plan to the EAC which is evaluated which is another layer of scrutiny. And then there is state scrutiny testing. So you have many different cuts at a particular voting system depending upon the state requirement. From the NIST perspective we say all can benefit from use of but credited testing the facilities which had a loss of confidence. I just want to give you a feel for exactly where we fit in the overall system. Finally contact information. Feel free with any questions to contact me. Sally Bruce is the chief of the accreditation program and I mentioned John is here today. He is the program manager for this particular program and I also have to Web sites. I mentioned I have all the information about the labs that have been evaluated and a list of can that laboratories.

Are there any questions on the NVLAP process? David?

One of the things --

Sorry, everyone could the - - identify themselves.

This is Bill Jeffrey asking everyone to get it by themselves.

Dave Wagner. One of the things we have seen the past have -- test labs is that independent reviews and experience in the field has turned up the facts are one abilities. But at least appear to violate the prior standards. It was not caught by the prior test labs. During your assessments are during your renewal assessments do you -- is that something that you look at to determine the because of why those defects were not detected by the test labs and use that as an on going feedback loop and assessment cycle to determine whether the test lab are able to adequately evaluate for performance?

The short answer is, yes. The complicated answer to that is that we -- we were great closely with EAC who has the oversight responsibility. Testing is a component of certification. The test lab has a staff that actually conduct tests to the bill that standards and requirements and then it should, in effect, the other stuff that connects the -- makes the engineering and judgment calls make the call that that system actually is the requirement. They're -- there is a testing which is a component of the overall decision to pass the product. So we would go back then. If we discover issues in the field that are reported by a state or otherwise with a particular voting systems that have been tested by a qualified voting system testing laboratory that works under the EAC assessment program we would take that information into account in future [indiscernible]. As it would be EAC.

Of the Metis said -- as feedback you may want to broaden your net beyond [indiscernible] because many of these defects have been discovered not by the EAC but by other independent reviews.

And are they not reported to be EAC?

Many of these are reported publicly.

Well, to buy from a technical perspective I may be splitting hairs. I am not from a technical perspective. The EAC has oversight so they would take responsibility for looking at the overall issues in the field of voting systems and then consulting with NVLAP to determine how we can tighten up our technical reduce. We look at the general confidence of the that to conduct tests to the requirements VVSG 2005. They would take at a [indiscernible] and I'm telling you the path by which you would come back to us. It is now [indiscernible] to go out and never see problems in the field because NVLAP is a crediting the NVLAP to go out and do a test of a particular system.

I will follow up and leave it.

To the extent that those [indiscernible]. The technical competence which is where you are evaluating does seem would be relevant.

It is. I am talking about the path by which you would obtain that information in partnership with the EAC and program support. So we would not need to -- NVLAP would not go out independently and obtain information without consulting with kaynine as to whether [indiscernible]. I am saying yes to you but just talk about the path by which -- and Mike confusing you?

Now, I think that is right. At but the key is there was an issue where one or both of us saw that something that the test lab did, the testing was inadequate, and correct and then it would obviously go back through the NVLAP process. Otherwise it would be under the certification program.

We are saying we would look at it. Rich I have a different question. I understand from Doctor Jeffries is today that as the start of had into the end game of this standard you will be working with the subcommittee's to help crack the requirements. Can you talk it a bit about issues that to cut me try to phrase this as an openly as possible. I try not to get the part wrong. Obviously if we read a requirement that is not easy to test that has ambiguity in the that would reflect on the test that comes out of it, how does that impact lab accreditation in charge of things like knowing whether their coffins us to assess the requirement for choosing the expert in making sure there corporate expertise?

Thanks for that question. First, yes. I repeat that we are potholes certainly Benbow were possible the technical assessment of got out along with the ancestors and have met with the to the subcommittee's to talk about field experience and were it has been easier to assess the confidence in particular parts of the VVSG to that by and/or more difficult in the field feedback for the subcommittees as they drafted the next version of the VVSG. I will only speak generally about some of the issues. It is true some of the chapters are easier to assess to.

They can demonstrate they conducted the test which traces back to the requirements of the Standard and others. That is what they will be discussing specifically.

Gail, Secretary of State in Nebraska. I just have some simple questions. In terms of the initial certification how long a period of time is that good for?

The initial conditions. The NVLAP technical accreditation, it is renewable every year. At the end of the first year, the your upper to condition there is another on-site assessment, another on-site assessment every two years, but the last page C been reduced its [indiscernible] every year. And then every two years the team is out and looks in doubt that the laboratory facilities and they have there conducting tests.

The only reason I ask is in government we run into situations of the pay contractors with the government who as that approach the date up until renewal will kind of pump up their staffing and pump their operations so that they look good, but upon renewal of contract you see the top people then get reassigned someplace else and finances shift to other priorities of the home company and suddenly you don't have what you thought you had when you renewed the operation. That is what I am talking about.

Any time the laboratory the ability to conduct the testing and the particular program for which there are credited the have to notify NVLAP. So it bit by a need to give him a piece of equipment or sell a piece of equipment, if the lab manager leaves, if the Quality manager leaves, that all has to be notified because that can affect the condition.

Thank you. That is exactly what I want to know. But that these me to the other informational question. I assume that applies to subcontractors during testing?

The --

And how does the quality flow stopped flow down to them?

I mentioned in one of the slide that non-core testing can be subcontracted to others accredited laboratorwhy. So certainly it a voting system subcontracted to another accredited laboratory and that the return is covered by the same requirements that the voting system test, to antipersonnel. Accreditation 217205 these the same general program across the accreditors and there are other accreditors in the United States that are internationally recognized and are in arrangements with not let that happen again. So we will put up a list of accredited laboratory and all those areas, electrical, could acoustical except. And we can pick from any of those covered for it. Now this is also responsible for having something in place for ensuring that the subject of metric is doing everything it's as simple do which is part of the management system.

This is Whitney again. Does that mean that a map that performs just one test or that would be testing just one second a could be in the and the

accredited as the Quality Lab as a way of putting up their flag to say I am interested the part of this direct.

They are the type of tests that allow testing on lots of different types. The contest their party system. As well, they might test to top well, they will test PCS and other types of equipment. So the noncore testers, those that are not unique -- and yes, but in testing testing laboratories have either take that voting system and take it down the road to an accredited EAC Laboratory and have that aspect of the tested.

I have to ask the follow-up follow up question given my community it is what about the kinds of tests that may not have existing NVLAP the conditions.

We are certainly looking at -- is not restricted to NVLAP a crime laboratories but other accredited are charged that me the same requirements.

I am also.

Well, that is the core test. They cannot subcontract that. They must do the usability and [indiscernible] testing. Now, if we want to discuss, but that is not something they can subcontract at the current point. Thank you. That was great. Thank you. On the next section we will talk about the crosscutting issues. I think Mark will be the emcee for this part. You were not planning to be? Okay.

At least I had recruited him as the emcee.

As emcee I would like to introduce Bill Burke to talk about the innovations. Give him a round of applause please.

Actually, you don't have to be the emcee if all you are going to do is introduce somebody.

This is an interesting subject. There is, I think, one thing that security people and administrators are you truly interested in, it is the 07 version or the be a person of the VVSG as not final game or last act of the story here. We have, I think costly different motivations. Which is to say that security people tend to think that they have in their minds some new approach to security at is better from a security point of view. From a transparency point of view. In the election officials, it seems to me, as a group don't like to rely on [indiscernible]. We were tasked at the last meeting to investigate high level requirements for the finding of path toward certification. And reproaches for testing and certifying systems. Let me use my predictive and that -- as emcee. I am speaking with some of the members of what about this. We have some problems when we talk about in our work certification that is close to performance. And Bill is really words that came into the resolution. I believe our job here is to put requirements in the VVSG. And they should be requirements that allowed us to have a path toward performance to the records. Certification is the next level up. It is a separate procedure above and beyond what we are doing. I believe we have resolutions that talk about working toward achieving certification. We need focus. My suggestion would be to talk about conformance other identification. I can easily come up with new

words. But I do believe we are losing the focus and scope of we talk about certification. It is an important issue those coming up. The fact that I believe that resolution talked about certification rather than conformance.

This is Bill Jeffrey. I will backup. It is very clear under our Charter that we do not do certification. Again, we have guidelines and ability to do the conformance to that. So I agree. I apologize that we are probably it will but sloppy in the wording of some of the resolutions, but it is definitely out of the TGDC to be doing. I agree. Is there any disagreement? I think those just a poor choice of wording on the resolution. And also if you could also introduced yourself?

Mark. Emcee. All right. Well let's just continue briefly here where what we think the general goals or at least in our thinking think they out to be. This is kind of a motherhood. I cannot imagine anyone objecting to this first goal. We want to be fair and accurate, secure, timely, verifiable. And we would like to do systems that make election administration easier rather than harder. So the -- we spent some time thinking about why you would be doing this process rather than going to the process that we are finishing now. And so the first rule ought to be that this is not a back door. What you're doing here is somehow different and is not apply. The other sort of -- there ought to be a prima facia case that whenever this new innovative thing is, it is not excessively difficult to deploy or complex. It ought to at least pass the last test. There we go. And the same thing is, it should be extremely hard for election administration to deal with. And from a security point of view would you are always worried about is people trying to exploit them the process to sneak something in that could not get by in the first place. It is a weaker version up whatever you had.

Just one thing, to publish the discussion, did you try to concentrate on specific issues?

Okay. I think we talked about [indiscernible].

I know.

The introduction, but I wanted to make sure we are focused on specific things that we want feedback on.

Well, I have a spot coming up here that I hope well lead this to particular feedback. We want to talk we have -- I guess that is it again, pretty much motherhood. One thing everyone will agree on is that the people of we have a lot of stuff in the current VVSG that ought to be applicable to most election system which should automatically carry over. A lot of the usability testing should be pretty similar. This is another way of saying the back door requirement. So we have talked about an evaluation process that ought to have a couple of stages at least. There is the possibility of using labs for certification or other types of testing that can make it easier. We need and ability to do this because it will be a big enough burden to launch a fundamentally new kind of voting system. This is where -- I don't know if feedback is the right word, but I certainly want to have it the discussion on a couple of things here. They seem to generate some controversy. I think it is just a misunderstanding really. Which is, they transparency to process. The first bullet is basically this is

matter of religion in the community. Register says if you put to reporters in a round you have at least three opinions on this subject. But if you filled this room up with cryptographers the one thing you could be guaranteed that they would agree on is that there is room little if any place or undisclosed algorithms. An ex [indiscernible]. And so long we are talking about cryptography, at least, we want fully disclosed, fully revealed, universally examined it algorithms.

You can almost go a step further because out only to the opera bombs have to be published, but even the implementation depends pass to have been around for awhile and tested because otherwise the algorithm might be okay and the implementation might be faulty. So they are very conservative before we adopt a new implementation for that reason.

Fair enough and I'm sure that is probably a good thing. It may be hard to do that in a new innovative system.

No, you could adopt a standard graphic package implementation of some algorithm and the implementation of the more than the application logic and process flow and that kind of thing.

Fair enough. The other corollary is that then there may be stuff that in any kind of actual proposed product people might not want to publish on the Web for anybody to look at or steal their car or whatever the issue is here. And then when that is appropriate we have some argument about this internally. But we can then resort to expert review subject to nondisclosure. And this is an area where people seem to have a lot of angst.

The question is in the innervation class, the thinking is that the proposals in general for the innovation class is for people to get a chance to bang out the matter. [indiscernible] comfortable with that?

As a complete non expert I don't understand how we could not require that it be published and disclosed of algorithms of we are talking about transparency.

Not in the [indiscernible] are rhythms, but you might find that the vendor will have [indiscernible] or supply like that and may wish to keep that in nondisclosure. So we would have to be prepared to hear the not under that nondisclosure and, of course, and we were to adopt it for the lack of consistent they would have to provide some kind of waiver or opening of it for that purpose.

Given the experience you have with other systems, cryptographic algorithms can you make a very concrete examples of where a non disclosure agreement with even pertain to that the rest of us who are about cryptographic experts --

I don't think it attains in the case of cryptography itself. I suppose you can imagine that the average number be fully disclosed and carefully tested, but that somebody had a really clever way to implement it that he wanted to regard as a proprietary secrets possibly.

Let me give you an example. Supposing we have had people in the past talk about people like to ideas like that, smart cards with

cryptography in it and prepare the fee would be some standard average of, but the whole package of a smart, card and how it would be used in such a way that's become and do some voting booth and do their stuff in an anonymous way. That whole wrap of how that word might very well be patentable, trade secret, except for.

What I think, actually is not with the cryptography. The innovation class might rest very heavily on some cryptographic concept. But in reality the security of most systems is one or 2 percent cryptography and 98 percent of everything else. It is in everything else that you're worried about -- more worried about making code public. There is one school of thought -- thought that they did you're going to have a voting system you should publish all your source code.

Before we start by too far, let's get focused on this if you.

We are deep in the weeds and I would like to pull us back up a bit. In a way of thinking about this, the whole concept of innovation class that is not entirely about security. I understand there is a lot of interest and security and very specific areas but I don't think that is actually the beast - - biggest issue facing us. It seems to me one of the things we struggled with is that will be really want to do is say, make a system that makes good elections and here are some aspects of the elections. The you can only write a standard. You cannot test be good. You can only test support requirements. So what has kept us here for a couple of years has been tried to get down from to get elections which consists of 1,000 specific requirements. One of the ways to think about the innovation class, it seems to me, is as an equivalent weight of meeting the high level requirements. In Section 508 is the federal accessibility per current requirement for electronic and a fresh technology there is a concept called the "what [indiscernible]. There are specific guidelines of what makes the piece of technology conforming -- share a call by the vendor could say I believe I have met the goal of enabling the goals of Pfizer a call the high level things which shall be accessible to people with a list of facilities in a different and the way. There are ways of evaluating that, and in a way that is what we are saying here. If you look at the beginning of certainly in our section but in all the sections I think they all start with, and ordered to do this we have written these requirements. I think we are saying that somebody could come back to us and say, I have a different way of meeting this. And so there to questions before us, one of which is not believe our problem which is how to evaluate whether they have met it which is not our problem. But the thing that is our problem is how to we write a piece of this standard. All the caveat is listed for good one. There has to be good reason for going down an alternate path, but if you can prove there is a good reason for considering your the solution in an alternate way, we'll be interested in hearing it. I have no idea how to draft that requirement. That must be what you are here for, but that is the goal of this to be able to say, we but not all be sitting here, I think, for so many years if there were not some intractable problems in making good requirements for election equipment. It is -- the questions that the community has been wrestling with are inevitably going to be turning up new and innovative ideas and the want to be able to make sure that they are not precluded simply because we did not think of it and read requirements this before that.

Mark, moderator. I think it is a great point because did you read the resolution it does not specifically say what the purpose of the invasion class is. At think we should at least because of this that clearly it is to meet high the requirements in the VVSG through new and innovative technology. Do we all agree with that? I think that is fair.

At it very much the sense of discussion.

Correct. And one of the high level requirements I presume this software independents and this could be used as a way to have space invaded since that are set -- systems that are software independent.

If you are going to say innovative I think you need to take back -- to think about whether stop for independence is truly a high level requirement or whether that is a way to get there. So I am -- I think this may actually be one level above software independents. The high level requirements of security -- software independence as a way to guarantee security. So a high level requirements is [indiscernible]. There is high level requirement that says excess will that may have nothing to do with security. The phone voting systems are an example of something that was bought on the table of the start working on punched cards but is perhaps an innovative way of doing it. One of the ways we were challenged with was when the systems can now were there any new requirements that were needed to meet in? Well, in a situation where we are not sitting in session making anything how does someone not with the years for the next regulatory cycle?

Are enough. Let me suggest that a group of security people tasked with this thing is going to see it in security terms. Surgeons will look for something to take out. We our security people. We are going to see this insecurity terms and it is really a higher level problem. So maybe we need to elevate this above the security committee somehow.

That me remind people we are in a cost-cutting issues section of the agenda. Long burst and then Dan and then Patrick.

I think we are agreed that the innovation class is there to allow vendors to come up with other ways of meeting the high level requirements about a voting system to be about to get the system tested individually certified. I commend this on the work they put into thinking on this issue. They're is a white paper posted on the TGDC web site which outlines the proposed testing procedure and as guidance gives us we are talking about performance. There is good about it to that as a multistage procedure. In my mind the two main points are agreeing that the investor class is about allowing matters to propose other ways of meeting the high level requirements and having a testing framework for evaluating that. In a multistate procedure is this white paper which outlines starting at the prototype stage and then a final testing stage as a conformance testing procedure. It seems to be the right framework. That is something that we did not discuss, but with the more complex procedures we are trying to meet the public standards because we don't know exactly what issues will come up. So having a staged approach to me is the point of what we are doing here with the development of the procedure.

Let me ask you a question. We had a discussion about what these high-level requirements are. Are you in agreement that one of these high

level requirements -- I guess my issue is, can you have a proposal for innovation that conforms to various high level requirements but does not conform to sell for independence.

That is a great question. I think the issue that we need to address there is the issue of independent verification. That is the one system we have talked about which is outside of the software independents. We may have to systems produced by different vendors which check on each other's work. That is an interesting class and I think work in that area would be interesting to see. I don't know us that is this committee's role to look at that. They're is a lot of hard issues try to make that work from a business viewpoint, from an election officials point of view. You have to suppliers. There is not obvious to me that this is -- with that is the one place where I personally would be interested in seeing some exploration of possible invasion.

So you may have a system that conforms to innovation class description that is in fact not so clear.

Adding that is not inconceivable. Other members may disagree.

I think the general idea is, not to be too repetitive. This is not a security issue. Right now we have written these guidelines based upon equipment that we are familiar with that is out there. So necessity, a lot of our guidelines are very specific to those types of devices and we would like to encourage people to think of the box. They did better for disabled individuals. Some aspects of it are all of the above. We do that they want to back up a little bit in terms of saying, the guidelines -- would really care about in the guidelines this something really probably indicative. It is those top-level requirements. Somehow or other we would encourage those ideas and the guidelines would say for get up to the sand and the arteries and let's take the top level objectives of which want to have when you conduct an election. It is because for put a better idea we are open to see it in butter and then tested and they fall under the guidelines at this high level if indeed the past all those test. So they would not be precluded because it does not look like an optical scanner.

Patrick?

The concern I would like to address this the balancing of issues here. One of how do we encourage innovation and how do we make sure we have a transparent process that leads to fair elections. Observing over the last few years introduction of new technologies such as the DR Us, the fact that it appeared to the public and others that there was code and things that were hidden and you could not tell. A lot of deer came about in terms of whether or not the system's really work cockpit -- well I am here -- well I am aware of the need to protect proprietary code of the slide that the with the addition I'm not sure that having that will lead to that transparency. One thing I would like to understand is if this is viewed as an alternate path to the current process are there places and the current process where nondisclosure is inappropriate or that is not at all about and therefore should not be allowed. Can anybody address whether or not those are a part of the normal certification process?

Again, I think we can stop thing about certification. I guess this is still an issue because we are talking about conforming to innovation class. This would still be a requirement for conformance. So I guess we really need closure of this.

This is Bill. Can you try to articulate very clearly what it is that you need closure on?

That we try phasing it and you can correct me. The goal of the innovation class is to put some sort of requirement in -- this is the hypothesis, that would, in effect, make the submissions of billable to the public to review. They would figure out the details, but we need to get closure on whether in fact that this a subject to various IP and other legal considerations. Do we all agree that is something we want to accomplish? Make the class submissions available to the public other than just the test labs and maybe reviewing it on the EAC?

This is Bill Jeffrey. What innovation class submission be? I am sorry for asking. I'm not quite sure -- I think in the sense of what I am hearing, first of all, I think the entire TGDC as discussed at the last meeting and this one that the vision for the existence of an innovation class is something that encourage as opposed to discourage from looking at all to the solutions that we were not privy to. We are trying to make the user system or acceptable and usable. Is the real issue really then how does the vendor make those aware? Rather than slashing it and say, step one is this, step two is this. Step three is this, I am not sure we will result that in a form like this. The white paper is a start. So you are just looking for, do we agree that there should be this [indiscernible].

I think our job over the next month is to develop requirements for this invasion class which would include substantive requirements as well as procedural requirements, templates that you will. And that is something we need to do and have taken a spat at a spot as draft paper. The question is -- the answer to your question is we hopefully will not attack the what it looks like by the time we go in and deliver. We don't know it now. The question is, this submission into but we will produce, shall it be publicly available. That is the only question on the table.

I think to a certain extent the issue is a bit of a red herring because it you look at the equipment have today, abetted in the of the equipment up proprietary operating systems and other systems that protect the intellectual property. And now I want to come forth and offer this as a solution to voting. So you might want to make me promise that you first of all have to evaluate it. You may need to sign a non disclosure because you may choose not to like this technology may want to use it in other domains. I would have to promise that in the area of sales for the government certain aspects will have to be freely available to people. And it might be perfectly willing to do that. Christens it freely for that purpose and not for another purpose. So I think at the moment you can cross that bridge when you come to that, but like everything else good ideas are in intellectual property. But that this Bill Jeffrey. I'm sorry. I will try one more time. Suggests the wording of a resolution or requirement as specifically as possible.

Innovation class submissions shall be made available to the public. That is a prototype. That is a requirement.

Under the current certification process or the normal path source code is repeated by the testing authority, but that source code is not made public the available to anybody who wants to review it. Are we talking about a different path for the innovation costs that their source code would be made public?

Dave Whiteman. I think the discussion of some other banks have taken aspect a weird path here. In the white paper my understanding of what I think we could use feedback on is the white paper outlines a multistate process, and one of those stages would involve the younger Kennedy for public review on some aspects of the submission. For instance the approach. So for instance if a vendor comes up with an innovative new approach that does not look like anything that we have been thinking about at the time now will be are drafting the standards in one of the things their submission should include a description of how their approach meets those high levels in some other route. So I think if I understand correctly one of the things that -- one of the stages that would involve an option the for public review is that approach.

But isn't that to but I'm sorry, I am really not very confused about where the boundaries between the requirement and that the end test method. It seems to me what you just described is a testing approach rather than a set of requirements for the system to conform to.

It is a requirement. It is a requirement that something shop to talk.

Said does this mean we can write a requirement that says the full results of the conformities ability test shall be made public?

All this requirement says if the Senator has to agree to make it available. Does not talk to the quality of this mission. Obviously there will be further requirements talk about how well.

No, I just take this out of this. Does this mean that we could write a requirement that says that the full data of -- I should write a required for usability test in that we could also require the full day of the usability test -- that we shall agree to make that public because that is what that sounds like to me. And I thought that that was completely out of scope. I am not suggesting we do that. Just as an example of an existing requirement where there is data contained in the test of that requirement.

If I may for a second, this is Bill Jeffrey. I don't think this issue has been teed up. Maybe it is just me. I am going to suggest that we call -- that we stop discussion on this issue now and suggest that the relevant people who want to put together -- to need further guidance to make progress go off in a corner and then perhaps come back in an hour or two with more specific discussion on this concept. Let's move to the accessibility and stop for independence and I will ask you to come back after lunch and be very specific and make it clear as to what guidance be really need and what you're talking about.

Dr. Jeffrey, Mary Cale. I did have a question. Maybe it would be for March 0. It is not particularly on point, but in looking at some of the

things that have emerged like the of the mark. Suddenly there was. And on the market it was available in a totally innovative approach that allowed states like Nebraska to keep the paper about that we want to have the ability to have equipment that met all the requirements for the disabled handicapped and visually impaired. So the combination the paper ballots, of the mark and optical scanners made a beautiful combination of the voting system for us which five years ago nobody even dream about. So I am thinking we talked in a middle-class something really totally new. Two concerns I have, one is what I am reading about here south like it is still trying to strap a new innovative idea to the next iteration of standards. And it is like a round hole in a square peg. It seems like it must be a bit more flexible and imaginary than saying you have to meet all of these things. As Dan mentioned, certain equipment was familiar with and you have a totally [indiscernible]. I am struck by what that in terms of the issue. The other thing is, this is in the narrative class under the next generation which may not become effective until 2010. Do we have this in the 2005? What happens between now and 2010 or 2011. Is there no ability for a system to merge?

Let me address that on a few different levels. Remember call we are doing is writing a standard on other ways to rally in the sense that it has recurrence. What are the requirements and the Standard and how one conforms to that standard. Everything else, meaning how things progress on the marketplace, how they get certified by how thick it faced an is out of the scope of we are doing. Part of the issue is certainly been want to encourage innovation. By the way we have also allowed standard extensions and additions to functionality in the standard. It has always been there. So in a way people have always had the ability to work on this. As far as what happens in the meantime, there will be hopefully tremendously innovative solutions that come across. We are only concerned with requirements in this standard when it gets adopted. Will then allow those innovative solutions if they conform to say we conform to your standard and allow them to be judged to see whether in fact they can be certified by the EAC. So we have to skip the issue. We are talking about what is allowed in the Standard and what people can claim when they claim conformance to the standard. We have an innovative solution that meets our requirements. They can claim conformance to our standard, nothing more, nothing less. It builds upon that certification marketplace development. There are ancillary issues that are related to this but not dependent upon. This --

This Bill Jeffrey. We will get back to the innovation class at the end.

I would like to ask the accessibility and sought - - software independence.

I will be doing that.

And we our quad to do it from here. Ellen will for the slots from us. While he is pulling the slides up, There is a bit of want to say as an opening which is to remind us that we are talking about is the future systems. We are not talking about this was a look forward to where we want systems to get to meet Social Security and accessibility requirements. So if we could put that as a subliminal slide. If we get down in the weeds to be really talking about direction of motion and not currently passed state.

So this this -- go back to the title slide. We have a discussion here upshot for independence and accessibility. This is joined with the human factors piece. And these two committees have had a number of teleconferences together to review this issue as directed by the TGDC. We have identified stock for independence which I had used as the term for our ability. Sought for independence is one of the main techniques to achieve security in verifiable elections. Accessibility is relevant as well and these relate in and out to cover all the way. I will reduce some of the notions of definitions that are relevant and been with me will go through a number -- be for different approaches we have identified as trying to reconcile or relate super independence and accessibility and evaluating them so that they have a level of accomplishment of the schools and others as well. And then people could to some proposed requirements language that we can discuss. So I have about nine slides here to talk about definitions and the motivation.

The first two spots are just why we are here which is the resolution we are working response to. And we have some language covering disability.

Slide number two is the resolution that motivates this work. It is the one that talks about stuff for independence as one of the key requirements for the VVSG and direct the states a place to ensure that all voters can in a teapot [indiscernible]. And the next slide here is the [indiscernible] regulation that talks about accessibility, the voting system and the excess will for individuals with disabilities including non visual this village with the blind and visually impaired in a manner that brought the same opportunity for participation including privacy. So those are the primer within which we are trying to do this. So we have the first half, the definition of terms. Definitions are important. Several of these are new. It is important that we all use the same vocabulary. We have found places where we differ in the use of terminology between the two subcommittees. But is important we have the same again beg to talk all we try to accomplish the move type of purchase. Next slide please. Stop for independence we have been through a number of times. The key-in here is that of of stability. You don't want a software bug or piece of software to be able to change the result of the election outcome. The voting system this offer independent. It cannot cause an undetected change in election outcome. Britain so some human necessary for stock for independence. Water purification is the term which probably has the most variation. The ability of individual orders to verify their ballots, that is better verification. We have to issues. Which record you are verified because we have electronic and paper records. So it is important to distinguish what you are talking about. The electronic record typically has a verification process that is mediated by some technology, and the security and technology subcommittee calls that in nitrification. NMB verify the paper records which is typically call director vacation. It would be indirect if there was some media technology. So butterbur vacation as to rules. One is for achieving sought for independence and another is to build confidence of individual voters that their votes are there. So IDD is somewhat more general or general in the sense that you may have two independent pieces of technology which are their checking each other. So it is a somewhat different notion. We will be talking a little bit less about that. The system as such where you have a system to create the got another were you verify that the bout was correct the captured and that

the systems are and then they produced. Yet some companies that are working okay. Observation of testing is something mentioned by =John Kelcey yesterday under a different term which is not protesting. The idea that a voter can check the operation of the system during it's operation. So and excited voter can check that the ballot being produced is corresponding and the choices being made aware that the audio transcript and printed respond to each other which would be a more relevant notion port this discussion of observational testing. Another example would be when electronic ballot printer, the fact that the sighted voter can check that is printing the right record. That is something an election official can do as well as a voter. It is bit [indiscernible]. We have a notion up review versus verification. The way this slide works this terminology that is more consistent with the way HSP uses it. As long as we are clear here. We call this indirect ratification of your electronic record. We can call it review. You see your [indiscernible] have the ability to confront the electronic record is correct. Some software and in the medium. That is the main thing we are talking about today, how do we made a verification excess of. Then I will turn this over to Whitney.

Of having had our way through the definitions I just want to add one point that took me at what point to buy time to understand. As I is a property of the system and verification as we are using in this discussion is an action or property of the voter. So we added the verification. And because we are talking about accessibility specifically you have to be able to say that anybody that can ease in the system can verify in order to have a yes in that column. So we have tried to get back down off of the abstract definitions and into looking at some architectures that either exist or have been proposed. Not all of these are real system. I will attempt to avoid using names that refer to anything that is actually used today and we have four of them which I will go through. We looked in terms of steps to voters will go through it to complete the process and the first one is a system that produces a paper bought a record of some kind and that uses the body of reviews cream. So in Step one for all voters would mark a ballot using some sort of electronic system and go through the review process, that is look at or this into their reduce grain in piece that they were ready to move forward. At that point these systems would typically create the permanent record. In the paper audit trail or wherever that Carol edge. And at that point the voter has the opportunity to verify that record. A decided voters would leave the paper trail and a blind, the vision and other types of voters would take no action if that paper trail was not accessible to them. The Senate-passed that step they would then Pat -- cast their ballots and then auditing could rely on paper ballots only or the resolution between the two. So that this paper plus audio review with ulceration of testing to ensure that the audio matches the paper. So the next one is a paper with an audio recording. The first step is the same. You walk your ballot using the electronic system. The second older can verify the record, but someone who is using the audio record, we make a recording of that revocations step so that -- and we preserve that recording in some way. And that about the casting and the audit could then use the audio record as well as the paper records to perform the audits. The next one is a paper ballot -- paper with a read back to Vice which would have of some additional testing. In this case you could mark your ballot with an electronic system, but it could also be hand marked ballot in it but other produce a paper ballot or it would produce an audit trail. Other

one is except will. The second ballot, as always, would simply be read the paper trail, but another daughter, a blind [indiscernible] would use an assistant vice to be back the ballot. That, it is still technology mediated, but because at that point you can check it you have a clear ballot. He could perform normal accuracy tests in the way you would with any scanner. So you can take any ballot and put it through that assisted technology to be able to be the back and see our or a bar code or any sort of way of reading that thing back. It does not preclude any of those methods. You then cast the ballot. We are pursuing [indiscernible] it does not have to be. Yet the paper and Carol had a mechanical transport that was somehow transported through and external balance art being simply cast but is an electronic type ballot. And the haunting and still has a paper audit trail -- a durable paper record or a durable record of some kind but it can rely on. That is number three. Member for is the system that was barred briefly described involving to electronic systems. The ballot be marked on what through the magic of one of our communication particles. It is transported to a second system where it is read back and verified on the second and presumably test its system and the ballot is cast in the auditing is the relationship between the two systems. So you have to systems being used to verify each other. And those of the four systems. Before we dive into the next -- and just go to the next screen which is a debt this did not reduce marvelously but we try to line them up to see the steps led -- side by side because we kept getting into the beach and we talked about each independent the. The next thing we ought cord to do is talk about which of these systems weakened are appropriate to pursue writing requirements for.

And again, just to put is the discussion you are looking for feedback on your conclusions and picking one of perhaps more than one of these.

We actually have slides of real honest to goodness questions for us to discuss. If we put -- hang on. If we footboard to go through with the questions are with not want to come back to the slide and have this resting of the screen. But we talk but it. In the paper for anybody, this is not accessible draft. But in the paper the was the shipping materials there is the text version of this chart as well. So the questions we have before us -- I'm sorry, one or slide which is to cut back where you were. It is slide 16. The last then that we did, and this caused a lot of debate and there are many footnotes which are in this paper. We looked at these systems and said, are they assign? Are they boater verifiable connect are they accessible and of the hon.? What is the visibility of audits because that was the fourth at the port step.

I would like to say that the audio recording could very well be considered honorable the biggest con practice to brokers industry because a lot of trading just based on verbal discussions to actually record those and to actually be able to play those back and use speech recognition and other kinds of technology to be on that tape to verify. That is oftentimes -- that is the auditing method of verifying that a trade was done and done per the customers request. There is technology out there that could be used for our ability.

Our concern and the reason why there is a melody of a double and it is used the hon. is because the this point you know how up to three records of the book that must be reconciled. It was not clear whether

you were handling individual cents for each voter which we thought was a nightmare, and it was not clear to the passage of the U.S. But the heat after, but as we talked about it -- Helen, you are shaking your head. Do you want to jump into back it just seems like --

My only comment would be that individual cassettes for each voter is just a her the problem that I see. Trying to get the poll worker to accomplish that task. What do you do with those concerns in the voting process. There are just enormous questions that we had. This baby a future renovation costs idea but it did not seem as to be practical.

And not try to sell it but they got used individual consents. The importer traders are more are missing belt system.

Are now you have another non SI because now you're back to technology.

This will.

It was analogue originally. The police all of it is moving to dazzle but analog.

At any rate let me just go over -- I'm sorry.

I don't know if we are opening the discussion. Of what to say we discuss this at length and there are really some major challenges here to make about audible. If you want to make it optimal without relying solely on technology that is privily very burdensome because there are many records and it would take a long time to list. You want to imagine a room full of [indiscernible] were every cable is plain that and you're trying to hear what is going on a your own table and not the other seven tables. Is I think of ability can be a problem. Rather than going over these because it will come up the discussion is I will just post the to get to the discussions. Back. We had two questions. One was but if any of these four approaches should be considered or not considered for another for discussion? So discussion of the conclusions we have reached the putting all the footnotes, are there systems we should simply not be considering are worrying about at this point? There was a fairly long sidebar discussion about the use of assisted technology in the verification process and whether how that should be incorporated and -- how that fits into the whole picture. You guys may have many other things to talk about. We have segued very nicely into the discussion. If you put forward one. No, the other way. So one recommendation we have as a drug committee was that the system is IDB and not as I and therefore under the current beginning of this community it should simply not be considered except it is a possible invasion class, and the other was that as we talk up the audio recording, although it seems technologically feasible there were some big challenges that we thought this one was not a starter.

Just a quick question. You say it is not as I. Is that because we cannot ensure the independence of the two systems? Is there any way could be made supper independent?

Produce a paper record.

Beyond that.

By definition to buy the notion of suffer independence means in the been of any software. Does that mean the two pieces of soccer are independent of each other. So even if you had two teams that were totally isolated producing the two parts of the system you would have an interesting system ended my group will be secured but does not fall on did the umbrella of software independents.

I would say the simplest and most straightforward way to do it is the paper plus [indiscernible]. There is no doubt about that. Print out a well, the piece of paper. When it realized that does nothing and does renders audience.

That was our conclusion as well, but not entirely.

I second that.

The resolution I should say that Dan is going to propose has been seconded. Let me open it up for discussion.

Can someone read the resolution for the record?

Yes. >> It seems to me that the -- based on the analysis I have seen here, the most straightforward and easiest way to accommodate somebody who is disabled and cannot read the paper trail as verifiable would be a device that could take in that paper device and render it into audio said the person can hear it. And that, indeed, would be a device that would not have software that could be monkeyed with in the same way as easily. It could -- some supper --

This is actually part of the resolution.

The recommendation would be to deal with the verified paper trail with a device that could read the paper audio.

Before we vote out will ask to craft English.

Let me raise the other complexity because it is not fair not to. There is accessible the glitch which you will hear about from somebody if you don't hear about it for me. It is that some of the systems that match number three, that is paper plus rebec device require transport of the paper. That is admissibility issue and is also an issue with respect to the current VVSG. We are looking forward but I want to raise that because it is an issue. The current track says if the no procedures for borders to submit their own balance than the excess of voting stations should enable voters to have fine motor control use of their have to perform the submission. If we are looking for and not worrying about current systems which we are, and it is conceivable that you can have a system that did that. That what will the paper out of the be has to actually touch the paper and we get a feedback for it. We are calling to hear about that. We actually have a requirement. He fled to slide to, we asked the committee to draft a possible requirement that would accommodate both of these which is to say if the excess will [indiscernible]. [indiscernible] the use of this mechanism should be accessible to users with dexterity this abilities. Palm -- from conundrum to draft the language that could help guide future development. The work was with the that the that should be shared or shop.

This resolution is essentially Dans resolution which is assumed within this one. Any objections to this?

Okay.

There are two things we need to talk about and should this be shared or should this be shall and the other is do we like this? And icy Hot Line on.

Yes. Ron here. I am happy with this wording and I would like to speak a little bit about this is as I see that. I am concerned about making it a shall. The ability of every voter to verify their vote is not essential for election integrity. We have statistical audits. We need to know that the system is recording the ballots properly, but if you have a fraction of voters during it, that is okay. The observational testing gives the integrity I am comfortable with. So in charge of the categories of systems we have I comfortable with one and three. One is the one where ideal was read back and there is the process for verifying the idea record as but back to the voter actually corresponded to the printed record even though there is the direct ability for a a sighted voter to verify the ballot. From a security viewpoint that is okay. My personal feeling is that the language like this with a shed which allows you to teach what you want to support the individual verification of all voters up about in terms of cost. I am concerned about cost it this is shall. But election officials to the officials and vendors call me and say they're worried about with this will mandate a system because of the cost and complexity. So while I'm not an expert on what continent what Tisch would be an obsessive there are concerns out there.

The first should should be shared. The second should assumes that the mechanism which provided to but if the mechanisms provided shouldn't it be then required to be in accessible to voters with the sturdy shoes? So if the mechanism is present it shall. That is the whole purpose. It is optional under the shed.

Trisha Nathan. This causes a quandary with myself try to figure out how this is going to work. Obviously the law says that it should be in accessible for all voters. So when we look at paper rolls and cut paper and the challenges that they provide to populations I am in paper of this requirement that does say that it encompasses every one. So for that reason I would like to see it's a shall. It is difficult to say to somebody who has the 30 issues, the jury. We say that we want all but maybe not a few. I would be in favor of seeing it say shall in both places.

I will give another version of that. The problem I see with if you make the first a shall and the should. And they shall we guarantee is the first will never happen. Why would you ever adopt a neck to the magazine that can read and generate the report if it to always have to be accessible for voters with dexterity disabilities. Am I looking at that incorrect? Is that the way people are going to handle that?

Thank you. I don't know that I want to address that issue that the Administrator and the use of the of the mark, that is a piece of equipment that would provide one at each polling site and not every

piece of equipment at a polling site needs to be handicapped accessible. I assume the we are talking about is that one piece of equipment that not every piece of equipment. So it is really a specialized class of the equipment in which case it makes a lot of sense because you are focusing on a very specific category of people who need the additional facilitation allowed by the greed that the less I thought we were talking about every piece of equipment package that would have all these qualifications but then I realized we are not. If this addresses that class of equipment and I am not sure if that is the specific.

A discernible.

Okay.

I might add that, you know, it is not necessarily just for the totally disabled. If you had a station like that it could very well be that ugly people or people that have trouble focusing and seeing some of them might find they prefer to go to the station. So it might be tested next thing to have handy for those people who have tried to experience the dual verification and had difficulty and would rather go to the station.

In agreeing with Dan I don't see it should not say shall and the spots.

The, they would make here is that there are, I know, several, if not a north, of jurisdictions of the countywide in statewide that have gone with just one system. They don't have the combination of an UPS can Andy Hardy but have gone two straight the army. So that create a different scenario I believe. I think we need to keep that in mind because some states have gone completely with that.

Alice Miller. I agree that it has to be a shall if in fact this is a system that is being placed in the voting place and there is not any other system there. It must be a shall. On the other hand if you have as we do it in the District of Columbia a dual process where you have accessible equipment and you have [indiscernible] us all. So the board to select which system they want to vote on. The accessible unit obviously is there for individuals with disabilities and other kinds of limitations. The need to be a shall if that is what we are looking at in terms of the one system.

I want to clarify this is the slogan they will voting system. So you are absolutely right. This requirement would only apply to machines that were submitted for use as an excess will insist. If we are talking about what vendors are going to build it is entirely possible that builders who are going to build the PRD -- DRE they decide they're going to build one product and submit it for use as an accessible what system or Ford used court jurisdictions to want to use that for all their voters. It is possible that when this might do that rather than saying they will build to separate the DRE. I will put them both for your verification separately. So pragmatically for folks who are worried about costs that he and the impact -- impact of these on the machines that they will be using for all voters, I think it is likely that this would have a follow on the fact more broadly on this class of machines even the that requirement does not specifically -- is specifically crafted to apply.

Mine is a question. First of all it would be my understanding that there is no system currently available that meets this requirement. That includes the auto mark. That is precisely where it places us in a quandary as to whether should be a shall or a should. On the one hand if it is a shall it is not clear that they can be developed. In what timeframe it can be developed in and be a product that usable, reliable and durable.

Not necessarily voting systems, but if I am not mistaken there are some systems for blind people where it does one have two things. It added generates -- which we did not discussed here, a perforated Braille print out but that they can read it in some cases a system that actually plays back and things like that for the -- them to hear. I am not sure of that but I believe that is the case.

If I could?

Sure.

So this is the dilemma which is, here is how I have been the about it. We know that the current equipment out there want me to this. But we also know that there are technologies out there that could meet it if we wanted to, and this is supposed to be a forward looking version. That if we want to talk about putting forward I think that to shalls is the way to point forward. The other thing that I want to just stress what David said is that we would likely start to see vendors merging their machines and have a system which is accessible. I would like to applaud that as a direction because if you go back to the very first resolutions from the human factors and privacy committee which have really been valuable in getting our work one of them was the concept of universal usability which is to the extent that we can make systems accessible. One of the things we know is that while there are people with an acknowledged -- specific disabilities with an aging population there are many people who have I known, declared disabilities or recently would benefit from the features of an accessible sub to the system. One of the issues that has come up before our subcommittee this carnage of disabilities. While the adults that is hard to write specific requirements for the broad range of car disabilities, but we also know that making systems more usable for everyone at more accessible for everybody also helps people with chronic disabilities by simply raising the barriers. So I would ask with up to see a world in which we ended up with a voting system that did not have to be multi Channel. I don't think this is this next version. That would be cut to me, the real and will, have a system that everyone can use that we could afford that was audible -- so this begins to point us toward that, and adopting it is inconceivable. The last point I want to make is that very often in my world of General Technology product development we develop a product and then we say, how are we to make it accessible? Had to be pulled on some stuff. And in the case of [indiscernible] if we start from the beginning with the goal of making it verifiable than you think about the design problem differently. And this helps frame the discussion as the core required.

David Wagner. I want to address the claim I heard that no existing machine would meet this? That is not my understanding. My understanding is that or insisted you want to mix the six systems on the market the

of the work with me this because it has the ability to take a March ballot, insert it and read the March ballot and generate an on the representation of the content. If you want to talk about [indiscernible] systems my understanding is that none of the major systems would meet this. So we take the existing systems they need to be redesigned or richer for it to me this. If we want to talk about optical scanning systems my understanding is that most of the major existing optical precinct optical scanning systems do not meet this but there may be one or two systems out there were the scanner produces an audio output as it is getting them.

Just got a note from the committee that says the vote by phone system also has a mechanism by which the paper ballot can be read back which also beat the steady requirements. Indeed we are not as far away as we think and finance something that has -- that four to 6-year when there is feasible.

I would like to respond to David's comment. The automark were not considered to be software for independent what you have is if somehow the candidates were in a different order on the ballot than what the feedback was being given it would both mark it and verify the ballot differently than the way the ballots would actually be counted. So I don't believe that would meet this definition.

Philip Pierce. The other thing I would like to kind of direct us toward is not looking at this solution as something that makes access available for what we narrowly described as persons with disabilities because the other group of people or class of people that this really will provide a systems for is people with language barriers AB English is not their primary language and the printed ballot they not be something they are able to look at.

I wanted to respond to Paul's point. The definition of assault for independence is something like the electronic teleprinter being sought for independence in the sense of the paper is there is a record independent of what suffer produces. The fact that the supper be shared introduces a row concern in that the we have to ask. But it does not divide the definition because you cut off by other mechanisms. But the think you are raising a great point which is what is the point of this auditing staff? And as I want to emphasize there is no security point here really for this. It gives a one point. Is the ballot there and does it cover what you intend? This it express your intentions as a vote. If you are there -- wary of software problems and technological box verified the ballot with the same spot for is answer the you grade the bell with as you correctly suggested not add any additional comments to the fact of the ballots correctly expresses your dad. So I don't feel that the that the whole lot. The fact of the ballot is there can be read you can probably do by other means as well. So the body of this mechanism for read back from IT security view what is really marginal and gives you some warm feeling that the ballot is there and maybe it is correct. That the operational testing of the ballot creation procedure is producing the right cast ballots, in my mind, adequately satisfies the needs. We must be clear about what you're trying to accomplish and you raise valid question. Why are we doing this? Is a good guess the [indiscernible].

I think the question also, at least as I have understood the question, is what means can we provide people with disabilities you can't read the ballot the opportunity to verify their own ballot. That is my understanding of where we are going. I will continue to assert that the auto mark does not provide that ability to anyone. I take that back. Right that ability to someone who can manipulate the ballots and you can see the ballot.

Mr. Chairman, I would like to move an amendment to this said that both shalls will be should. -- both should show the shalls.

I will second that. But there is a resolution on the table that in a second I will say is what is up on the screen.

ID this denied a paper record or some other durable human readable record for the purpose of allowing brokers to verify their ballot choices in the system shall provide a mechanism that can read that record and generate an ideal representation but content. The use of this content shall be accessible to mentors with exit to cut dexterity this bill this. The resolution is on the table and it has been seconded. Any further discussion?

On the resolution and not the amendment.

No, the way I have it in my record, if I am wrong this was introduced by Dan and was seconded and was open for discussion and has now been amended.

There will probably be two votes and one right after the other. The first vote is an amendment to the resolution on the table that both of the should on the shelf and that has been seconded. Any discussion on the amendment?

It is really a question. I truly am in a quandary because I definitely believe that these should should be shalls. It is being able to give the vendors the time to engineer, test, and develop and so forth. So I am not sure that I understand the framework in which this requirement would be implemented.

I actually think some of the arguments in terms of the shippers' this [indiscernible] compelling. I remind people as well that this is an area where we believe this is the -- they I think we would be sending a very strong message as to what our intent is. Any other comment?

The only other comment I had, with reference to Paul Miller's comment on the of the mark. I think that it's looking at equipment that is deployed now at not looking at equipment that is deployed into does intend to as well. This is a higher mark for vendors to T but the accessible equipment and it makes good sense to me and presumably there will be another generation that would address that.

Thank you.

Mark. What we have always said is that this is a complete rewrite into the put the next generation of voting systems and not necessarily the put the watch right now. We will be a few years before they are in place and even in the 2000 high standard not what is available now but

what can be available in terms of technology. Just wanted to remind everyone.

Yes, I think that that is exactly the point. If we want banks to remain the same and to use what was available now than not of us would really be here talking about this.

Maybe this is too detailed. David Vladeck. I want to continue discussion on electronic that about markers. So did the senses that this will solution should be interpreted said that something like the auto market which reads back and uses the election that mission to provide rebec is not acceptable. I just want to mention what I think the consequences of that would be. That would me that presumably the machine would have these zero T R and DSER with the map be followed by text-to-speech conversion which would have to use synthesized speech and not recorded human speech provided as part of the definition. So that would have consequences for your DR East because that if the feedback to be using said the says computer voices which be about some people might like less. There are systems on the market that take up to the scanners and use the market sensed ability to produce an idea rebec said that somebody can plug in headphones as they are scanning their ballot in here with these scanners are crying to be there. Then that would also be prohibited in a sense of that this we are using the sun struck by the that OCR.

Let's stay focused on the amendment. Then we can broaden the debate back. Is there any additional discussion on should persist shall in these two locations? Is there any objection to unanimous consent of the two should be coming shall to Mecca would like to call for a roll-call vote?

Chair, before we do this I need clarification. The first sentence should be, should we -- it is the recommendation of the human bacteria produce insecurity and transparency subcommittee to accept this requirement as it reads.

Yes. This is actually a draft and what you are saying is --

This accept this language?

Now you have confused the chair. Are we still voting on the amendment to change they should to shall?

Yes.

If I could ask for a roll-call vote.

William? Berger? Wagner? Paul Miller? Gail? Mason? [indiscernible]? Gannon? Pierce? Alice? Purcell? Larry? [indiscernible]?

Nine yes, one no and two abstain. We have a quorum to pass this resolution.

Thank you. So now that we have passed that the me ask you before we get to discussion I believe there is a resolution on the table with this as it stands.

Yes.

No, you voted on the amendment. With this the resolution this on the table.

It is the recommendation that they except this when which -- language as a requirement? If this is the resolution that they originally may should we not refer back to it as the audio plus get a paper record? We should accept that from the four as the one that we are going to recommend?

We might want to clarify this. I don't think that having -- you said maybe they would be able to read it back. I don't think that precludes. To me the read back device is a piece of a system technology the knowledge of the fact that there are people who cannot directly use their eyes to read the paper or pull whatever other reason and we allow assisted technology. The reason I think it is susceptible is it pushes the boundaries of it. The purpose is to make sure that electronic memory which no one else can see the boaters and we don't know what is going on inside the machine can be transferred to a piece of paper that can be directly verified. When you are talking about reading back the ballot was that goes and you can plug any ballot completely out of the box and double check it against that assisted technology.

In if light of the comment that paul miller raised about this potential pitfall. Rather than trying to hash out the second question about how to ininterpret the language why don't we not try to do that as a group as a whole in this forum. To restrict the discussions here to this resolution without trying to settle that interpretation question now.

That's constructive .

I'm not sure i understand david your point, this is going to what i thought we were doing is adopting this then go to eac. It will edit with public comment input from vendors election officials a lot of isn't that a better way to vet this and make it more precise than to send it back to this and come back. It's a process that is still is going to require all of the betting they are going to do. Why all this redundancy. It makes sense to us. Let's adopt it and let it go to eac.

My comment was this resolution is providing as i understand the sense intended to help in this draft their standards that we should rather than trying to make a decision now about whether finish should draft additional requirements to further support about exactly which kinds of mechanisms are acceptable in light of paul miller's comments, let's take that off the table and separate that question of whether they support the resolution or not .

I'll note which i should have done, this is always a call for the question is there a second for the call? Call for a second was second hearing that, i guess we have to vote on whether should we call the question is that right? .

We have to call the question is there any objection to unanimous consent? .

Withdrawal it.

Never mind. Why don't we take a 15 minute break and come back at 10:50 scwoo every one please take their seats while every one is assembling, let me first catch up on a couple of quick legistics. One is i need to reread roberts's rule of order. I did not ask dan if he was willing to withdrawal the second so this discussion could continue are you withdrawaling? .

Even though you withdrew.

I wonder whether we would be in general as a committee ready for the vote .

Let me step back in time, there was a motion to call the question. A sec, is there any objection to --

First discussion on closing the question which seems odd but i guess i have to do that .

Any disagreement to unanimous consent to the closing the question? Hearing none. Question is closed govment to the vote. Proposal on the table that may and seconded that is up there for all to see i will read it as it is stated for the people on the te leconference if the acc generates a paper reconsidered or some other human readable record for the purpose of allowing voters to verify their valid choices then system shall provide a mechanism that can read that record and generate a audio representation of its content t use of this mechanism shall be accessible to voters with decks derty disabilities .

Please do role call vote.

Resolution 01 -- 017.

Williams,.

Burger.

Wagner .

Paul miller.

Yes.

Gail.

Yes.

Mason.

Yes.

Gay non.

Pierce.

Yes.

Alice miller.

Yes.

Per sell.

Yes.

Quizen berry.

Yes.

Rai jest.

No.

Shooter is.

Yes.

Turner.

Yes.

Jeffrey nine yes, one no, two ob stained .

Thank you very much whitney was there anymore on the excess billing and software .

Can we have a break now?

You can have a round of applause but not a break .

You may step out at any time .

Then let's move onto the next subject which is the paper rolls dan, are you reading that?

I'm talking from here if that's okay .

Well, we know the paper rolls they use in the verifiable paper order trail. We heard of course it has various problems with it it's more narrow and difficult to read in many cases. Could violate the privacy by stirring the ballots sequencely. Difficult to handle when used in audits many problems with the printers. That much we know. Go to the next one we had voted against them in the vvsg1 -- the fact that you could count and see the people go in. Vvsg2005 allows them at least provides the sought for independence factor that's about all we got right now next, now, banning them out right not necessarily a good idea because if by going and ask for where is the voting equipment that you can go out and buy is not there. However if you sit there and look at the bits and pieces of components that are out there that could create such a system, we see desktop printers, we see copy machines that have some very sophisticated things in terms of sorting papers and colating them things that actually could even help the problem we were just talking about in that you could see a system of where individual sheets

of paper could be by voice command or by pressing something that could render the audio. This could overcome the limitations we're seeing in the paper roll, the paper rolls could be upgraded to overcome some limitations but might be able to help in some of the disabled kinds of cases like the one we just voted on so it's a quandary here in that you can't say shall because systems out there that people are using is serving a function but on the other hand technology is like almost there if it was directed towards overcoming some of the limitations so because of that i have the following proposed resolution. That the tgdc recognizes that paper rolls can be a challenge. Difficult to handle and recount. Danger to a secrecy if good management processes are not followed. Difficult to disabled motives no alternative currently available so loose exists that meets the need. They determined that the current situation is acceptable until and an alternative new technology becomes available. Directing this to develop more demanding rerequirements for future paper order trails so we're not requiring it but we are directing this to help develop the requirements and to encourage vendors that somewhere down the line we could have a better system .

I have to make this amendment technical instead of directing this you should be directing the core requirements .

I'll second for purposes of discussion .

C r t.

Should be directing sub committee's work .

Are there comments, questions? .

First of all i support the direction of this resolution is going. I'm confused about the last bullet point. Not sure what requirements we need current paper rolls will pass or won't pass. We're not .

I guess the intent is that they help prototype work with vendors to develop paper trail solutions that could overcome limitations of the current paper trail. Be those solutions individual sheets paper rolls that could protect the privacy sheets that are easier to handle. Some system of sorting and mechanical .

In terms of requirements, .

Could these be should requirements. Could it be what c r t -- that point towards things we would like to see but not willing to make absolutely mandatory .

That's a better way of phrasing it. Would you like to attempt to amend it ?

More demanding should requirements .

I think also -- john here, tell you the sec bullet is wrong that there is or there was a vv pat system that did use 8.5 by 11 sheets of paper. Printer sort of connected with the d r e mechanism on one housing. I'm not positive that vendor is still in business but it was out .

Technicalities.

I'm not saying that that had anything to do with the way their mechanism. Could be they were a new vendor and had obstacles, the voter had to handle the paper so i would suspect that the second bullet you know perhaps could be modified to say if you're looking for a solution that doesn't require the voter to handle the paper record. Any way just thought i would mention that.

One other point i would like to bring up. I do not believe the last bullet should be only directing c r t. Sts, should be the 3 separate .

Okay .

Point of order, i assume these are what we call friendly amendments.

Absolutely.

Thank you i'm i thought the resolution was the last portion of that. Where as clauseness a sense which aren't part of the resolution. Don't those constitute argument and not part of the resolution? .

Let me clarify and make sure dan the resolution you proposed is the last bullet.

That's a good point.

Everything else is the preamble motivation. Make sure you capture the resolution. Put title of resolution in front of the directs .

Last bullet thank you those who are on the phone let me clarify the actual resolution would be the last bullet that says to develop more commanding requirements for future paper audit trails that can cause the problems solved by today's paper rolls is there any further discussion or questions on this? There is resolution is there a sec? .

Second .

There is a resolution and a second .

Secretary gail.

Unclear looking at what i see on the screen. We incorporate the first three bullets. We are not, are we?

The resolution would be the tgdc, the sub committee, everything else is the preamble. Previous resolutions often included a bit of this why we're doing it and what the constraints are. .

May want to consider no alternative may exist .

I wonder if we could strike the sec bullet. We recognize they're difficult -- then maybe we take out that paragraph entirely.

Fine with me .

It's preamble. Not part of the resolution .

I don't remember who the sec one. Second needs to concede that as well .

I believe you seconded.

Yes.

Okay.

Again, resolution on the table any further discussion? .

Hearing do we need a title? .

Title improving paper rolls for future systems improving paper records, resolution unaffected by the title. With no further discussion is there any objection to unanimous consent? Hearing no objection, resolution 2707 passes thank you very much let me make an announcement that the discussion on the innovation clause we had earlier during the break checked with the folks who were making the presentation. Felt the discussion we had this morning though pain. Was useful and got the direction they believe they need to move forward and do not require coming back with additional guidance to today's meeting. The last topic of the cross cutting issues is the books and the ecsg. With that, john, are you taking lead? Are .

Lost the presentation i guess we can't do this fy was frankly thinking that i wouldn't get time to bring this up or and i did want to modify one of the slides prior to the discussion because i wanted to make sure we didn't go off in to kind of a boundaryless discussion.

Some of people would benefit from a break. If you would like a couple of minutes. I'm willing to make that trade and let you verify your view graphs .

I would appreciate that. 3 or 4 minutes.

We will give you five minutesto make round this part of the discussion for the mc if i could ask the mc, john, you're on .

Okay, good morning again as always it's a pleasure and honor to be up here the purpose of this discussion here it's genesis was a request from the eac that we dress issues with e poll books. It got in to perhaps a more broad or broader question which is what are the boundaries of that we're dealing with. And it goes in to the privacy area. I was happy to get the extra five minutes to make my questions more specific because i think we could go in many different directions. Should the e poll books be allowed if the invasion class. That was supposed to be a joke. I threw that out .

We will work on your humor later .

I try don't get any respect voting system definition is what i will start with i will just say a few things about e poll books. Issues and some discussion that will be fairly focused we have a voting system definition in the bbsg. I wouldn't read the whole thing it's up there on the screen. In the glossary. I under lined and highlightedthe ballot

activation i know that at least one state i think pennsylvania when they encountered e poll books said, yes, they do activate the ballots and they fall under our definition of what we need to take a look at for a voting system as written, that would be the same for the bbsg okay. So just wanted to get that fact clear then that kinds of leads in to why there are issues we need to discuss t first bullet says what i just said. E poll book ifs you don't know already, are laptop computers. They can be basically used to vastly improve the rate of checking in voters, make things more accurate f the voter is in the wrong precinct, you can printout a map. It's true they are a help at the polling site. We don't want to do things that would take away some of those great increases in productivity but are they covered under the bbsg? And certainly valid activation is something that is covered under the bbsg e poll books also deal with inn a sense voter registration administration they can be used actually to network externally outside of the polling site let's say a state want to have precinct lists super polling sites basically where you can go regardless of where you live, what jurisdiction and precinct and vote. All these different sites actually need to all know at the same time who showed up to vote and who hasn't so they're all networked in a sense together so we kind of run in to a boundary position here with the bbsg and how far do we want to take things up to now, we have stayed away from this area. For a number of reasons. I personally think that the best reason right now is we have roughly four months left in our schedule. And actually going in this area would be impossible right now. So i got two more collides left. Options and then questions for you what should we do about this? Here are some options. One is we have a philosophy in a sense with the bbsg with some requirements and in that they are big strong universal requirements f they have to be changed a little bit for certain reasons then we do that otherwise that applies. We have a big requirement for privacy testers and voting systems are going to observe that. If we are to allow paper rolls for example, then that would probably require a specific exception to that one option here getting back to this issue is perhaps we need some additional rerequirements to ensure privacy is protected it is done on another laptop, could be networked another option is require some sort of air gap between the e poll book and the voting station itself so in other words i mean in a sense that e poll book itself not activate the ballot. Some other way of doing that. This are smart card encoder that is can be used separately from the poll book that would perhaps not be as convenient but has this air gap there in some sense it could solve some of the issues we have with the boundary because under the draft te lecommunications requirements we have, we don't allow the voting system to be networked to external networks we currently would not allow externally linked e poll books under that te lecommunications requirement to activate the ballot. I listed option three but it's not an option. We do not have time to do this. I have two questions i adjusted the font for a second question because i was asked to bring this up but i tried to make it tiny and didn't make it tiny enough because you can still read i will. The first question is what we need direction on f we can get direction from you if it takes the remainder of the day but get direction on the first question then success if we have time go onto the sec question. You may disagree with me in that approach but that's what i wanted to do. I will end my slides here and i put those up as possible options you may have others but what i'm saying is for the first question, we could essentially not put any e poll book requirements in the bbsg but via the existing requirements adress some of the issues one option is you

know allow e poll books to activate the ballot. Another option is allow them only if they're not externally networked i was a poll worker in maryland last election, we had 3e poll books at my desk. Networked together with either net tables. But they used a static copy of the voter registration data base. Seemed to me that that one an external network connection another option is beef up privacy requirements. These are not exclusively -- beef up the requirements regarding valid activation. Another issue came up that is subtle but that is yesterday john had a presentation on the sorts of audits that we want to ensure voting systems are capable of can't think of the right word, capable of supporting, good word, so in a sense if you had a situation with you got an e poll book and pits activating the ballots but doesn't printout anything t only thing you get is a prison out or the shot that says i activated these many ballots. Then you are trusting that computer to basically recorded everything correctly and that trust in the computer is what you then have to use when you went to find out if the number of voter whose checked match it is number of electronic records you have so maryland saw that issue when i was at the polls by every time someone checked in you got a piece of paper printed out. Those were used at the oafnld the day to count -- end of the day to count up the number of people who showed up versus the number of records. If you don't do that you would be trusting the e poll book. I'm not sure how to formulate a requirement for that but it seems that if valid activation is done in some way that there could be or must be some sort of simultaneous or contemporaneous record recreated that can't be later changed by some computer. So any way those are some of the options for the first question and at this point we need direction i will rely on my mc to guide the discussion. We need answers here i would like to open it up .

Questions, comments .

I think many of what you're suggests is a good idea. They introduce privacy concerns i think requiring paper slips that provide a record to support the canvassing and reconciliation process, that's a good thing and important thing to do i am agnostic about whether or not external net works, there are risks of external networking and reasons why some places may want to use they will. Vote centers. I'm not going to take a position on that. Might propose adding one more volume um tests intended to test the system as a whole if e poll books are part of that system, they should be part of what you use during the volume test.

1, 2, 3, 4, which ones are you in favor of.

Supporting 3 and 4 and agnostic on 1 verse 2.

3 and 4 .

I'm confused on what number 4 means.

The difference between two situations. Ful the e poll book prints out on a piece of paper this voter checked in and they're authorized to vote then you got to same situation as if a voter is using a real poll book and writing down such and such a voter showed up. You can use that when you do your canvassing and reconciliation of the poll book versus the number of records recorded. If the e poll book is used in another mode so it does not prison out the contemporaneous record, and at the

end of the day perhaps you print out that record you don't have a situation where you have been keeping track of the number of people that showed up to vote. Risk being a security, could be that the e poll book could add more people could subtract more people it's you're relying on software there to make sure that you're trusting software at that point .

Poll book system should produce as a record of who voted and how many people voted so you get a printout at the end of the day if it were not keeping the record contemporaneously.

If i could ask every one to say which options take are in favor of say what they like, thank you .

I will try. I'm not sure about number one because i'm not sure i understood what that one meant i probably tend toward being against number two. As i understood the privacy precautions is making sure there is no way to link to identity of the voter with what their vote was, that process, i agree that we need to ensure that doesn't happen then require simultaneous paper record. Are we assuming a e poll book system that uses a signature pad that capture it is signature electronically or assuming a situation that doesn't require a voter sign in when they come in to the polling place.

If i remember i will try to address them in the order you raised them. The first option there is essentially ignore the draft telecommunications requirements we have now that do not allow voting systems to be networked external outside of the polling site in other words, don't place a restriction on this we could have an e poll book linked up to the voter registration data base and activate ballots. That's one option. Another option is allow them to activate the ballot but not allowing them to be linked up to an external network. Do not allow them to be updating an external network i will add a little editorial there you could think of a situation that would be perfectly permissible under the requirements which would be use an e poll book to access the voter registration data base as you normally would that. Way all the different polling stations would be synchronized with each other. Don't have it activate the ballot. Use some other mechanism for activating the ballot. There are other mechanisms for activating the ballot. Smart cards for example that's option two option four, this gets back to kinds of a software inspection and what john kelsi was getting across yesterday for in that he was basically saying what is necessary for software independence are the possibility of certain types of audits. One of those is some way of making sure that you are able to positively track the number of people who have shown up and compare that with the number of people who have voted as indicated by the number of electronic records on the d r e for example the e poll book could do that tracking for you. At the end of the day, it could issue a report do you want to trust that that report is accurate or not? You could. Probably is accurate but it's the human is out of the loop there. The human is not actually really doing much that report could add more people. Subtract people change their names whatever or it could change their party affiliation one way around that is to have the e poll book printout a piece on a piece of paper i activated the ballot for so and so and those pieces of paper the are the things that get reconciled just in a sense manually -- signatures are used in some places .

If you just let us know which one you're in favor of .

Well, i do not understand -- i don't have an understanding a reason to be concerned about having the e poll books networked. There are benefits to have them networked and opposed to them not being externally networked. The requiring simultaneous paper record again, in our state we would require signature from anyone who comes to the polling place so that would create an independent record of the e poll book unless the e poll book is also using a pad, that's the source of my question.

If i can clarify. First of all i'm not wishing to levee rerequisites on e poll books. These are for ballot activation so i have nothing in there that would limit the networking of e poll books all on valid activation. Doesn't that mean four should be off the table? .

Four is something on ballot activation and the procedure paul miller uses satisfies that i want to stay away from adding a procedure i want to stay away from that as much as possible this issue does arise when you have an e poll book and have the capability to not have that procedure at all so then you do have to have some sort of requirement on valid activation that some how or other says there has to be some human involved doing some sort of contemporaneous record keeping of who showed up. I don't know how to write it yet.

Question about number one when you say activate the ballot, are you talking about creating the smart -- activation device for the ballot or reaching out electronically to touch the d r a.

I'm talking you know in the case of those voting station that is use smart cards .

This is just that instead of you're signing a poll book and go to a machine and put the smart card in, that is gatt erred up together and you transport the smart card. So it seems like the privacyish slew is the worry because we know people tend to put too much information in to things and not just the information they need. That information is accessible. That seems reasonable. To me if the air gas is the smart card .

I think there is -- i think there is changes we need to think about. Obviously we are always concerned about the privacy of the ballot. There is other things if you're always writing either there has got to be some type of a protection for pro visional ballots with a piece of paper given a number. Maybe the system gave a number so you have that closed off where you don't know the voter it's a number wise, that could be figured out some how or another. You always have privacy of the ballot but if they can't if figure out how oh to work them out it makes them not always utilize the activation card for the e elector because you may have to give them a paper pro visional ballot. It's difficult. We can write guidelines to state once if you put in there that it's got to be private. We can write to that and make sure that is done the network, there is a great advantage to have having them network to the county. Changing adress and making sure you give the person the right ballot at the right time. It's always important that they are flagging that vote their they voted. Anything they can do to

update that voter's record immediately then your election results are much -- they're more correct in the end. Because people are voting on the right person some people vote outside the precinct the problem i see is in pro visional if we got to know enough about that individual, not to know their name but to know in some counties and states, they require you vote part of the -- you can't part of that ballot but not all of it if they weren't qualified to vote on everything. You have them voting on president, congress, if they're in the congress district, house or i mean senate and their own maybe state wide up so anything below that if they weren't qualified or there was things on that ballot, they have to duplicate that or pull it out, pull that ballot back out before it's counted. Pro visionals have to be held at bay in the d r e until after the election those can be worked .

Follow i up question, you're -- this is an area where i don't know enough about it do smart card activated devices have the ability to handle that? Is there a dins between the smart card activating it now and activating it activated by the e poll book? .

I was just at a conference and i went to 3 vendors they're all working on putting the wall there so the privacy is kept. I believe they have it where it's private if they're only voting a regular ballot. They know they can vote today and it should be counted privacy issue is taken care of. Pro visional, it's not they may not even have it where it's completely private now. You might be able to track it back, but they are working on it. They know that is an issue .

The last question, we already have a requirement that the voting systems can't be networked outside of the precinct during voting. I'm not as worried about the networking of the e poll book, seems there are huge advantages, has to be able to connect, a central precinct voting place -- has to be networked to its real value.

That is fine. I don't have any intention of limiting that actually the question is, do you still want that system to activate the ballot? .

If it's activating the smart card and it's not privacy protections, i don't see why not whether you could have it network from the book to the d r e. That would give me cause. It is creating a smart card just as smart cards are creating now i don't see the issue on the other side of the fire wall as long as there is privacy .

I agree between the e poll book -- from the -- i think the e poll book networked together is fine. It's the information channel from the e poll to the voting machine that's the critical one for privacy. Should be one way of flow of information. No information flowing back from if you recycle the cards. I would be happy to see them destroyed or something victim regulation on the privacy of that if i don't care about the paper one way or the other and the issue that i think you're touching on is that if you're using a smart card then you have a larger amount of band width there to transmit information and a security person might say okay if you're going to allow network to e poll books, externally poll books to activate the ballot perhaps it should be done in a way that such it's only possible to activate the billion lot -- ballot .

Turn off the activation capability pro visional id number.

If i may ask that we continue this discussion for another five or ten minutes and someone suggest a resolution that might give some clear guidance to issues.

There are several people who want to make comments may take more than five minutes.

Six.

I'll continue around david and paul .

Adressed privacy, take them in to account the special needs for pro visionals. I wanted to comment on point four about paper records. It is a technical issue and fairly complicated. Maybe this isn't the point to discuss it and maybe we don't need to resolve this now. Addresses a risk of a particular kind of fraud that was first brought to my attention, and going on here is in today's systems, while we all understand the security of your system -- this proceeders for sign ins involve human signing paper poll books. If we equipment that is intended to replace that proceeder in to automated with a machine so that there is no human who is signing something on a paper poll book we have to ask about the reliability of the records if reliability of the records and if number of voters in an e poll book is tricky t rise that can mike mentioned is you could imagine the code and in your voting machine that at the end of the day, create the whole bunch of fake ballots that weren't casts by voters -- stuck the ballot box that. Is the kind of threat that today is addressed by proceeders. If we move to e pole books would become a new threat that would not be addressed so one potential direction to adress that might be to require to consider requiring that e poll books must have the capability to provide little paper slips so that its possible for proceeders in place to adress that risk maybe this is too detailed and technical for the discussion.

Instead of little paper slips, but i mean you could imagine something where ifer time someone with a pad sign i had it it printed that. Printed the signature voted you just want a hard record. We're making requirements on e poll books which are out of our scope.

I think, i would like to try to take a stab of making the requirement on valid activation and not have to make a requirement and say if there is no a proceeder to enable accurate canvassing there be tech any logical solution .

Paul.

I think my point was fairly simple. In terms of the networking one of the that i think so that may things that may not be done on the east coast. We are move k -- to where anybody can vote at any of the centers and clearly you would have to be able to have a net work system that would allow you to prevent a person from going to one center and voting and then going to another center and voting. .

Secretary gail .

I'll see if i can ask this question in a way that we can communicate on it in listening to this discussion of course it's beyond my i t ability

to resolve but one issue you're raising is the computer that is being used by the poll workers at the end of the day those computers are they crash or they fail or somebody makes a mistake and deletes you then don't have a record of who has voted on that day at that polling site the votes got cast so have a record of votes cast and an outcome and tally. But you can't reconcile that. Dealing with one type of software requirement and that's the computers if they're networked in some way externally, we get back to this question of can someone penetrate that system so that it can impact the chip or the smart card that is going to be given to the voter to vote and alter that smart card so that it's going to affect the outcome of the vote differently than the voter intended it's a mysterious fog out there that i struggled with when we were on the other issue of radio frequency versus infrared that was a struggle for me at the time. Is this what we're concerned about if it's network, irregardless if the computers are at the desk where the poll workers are functioning -- someone penetrate the wireless communication. Smart card, if that's what we call them if it's activated independent of that network, there is is a software independence. Is that what we're saying or at least a bearier .

From a security perspective. People love to network things together if you're going to allow external net works the question really is how do you know you're not externally networking up to the internet. Would be wise to find out what are the requirements for the external net works i would like to have a better idea of them before i allow that to happen. Another way of handling it is sang aloud and activate the ballot but make real sure that all you can do is activate the ballot that would probably force some changes in the smart card rewrites we do right now but it would allow you to have e poll books activating the ballot what i believe i have been hearing -- you had a questions.

In terms of the piece of paper that we were talking about, that would resolve the potential of computer errors by the poll workers in the leading mistakenly or having the equipment crash for some particular reason those pieces of paper would solve that problem in terms of being able to reconcile the number of voters. But that doesn't resolve the networking issue either the ballot has to be activated independent of the poll book, that is networked, or we're potentially taking a risk of ballot manipulation .

This is really a fine distinction in some ways sort of adressing the second bullet in a sense we just as a committee don't have time to fully research e poll books it would take a lot of time because it touches so many areas that i don't think we could get in to that. That's my opinion so i would think if you take that off the table then your option is let's make sure that e poll books can activate the ballot and that's it can't do anything else. Can't leak other information they can't have enough memory to contain a virus can't put personal information on there that would mean not using a general purpose smart card with at lot of memory require using one with perhaps only enough capability to write over what the ballot style ought to be so on and so forth so those are in a sense picky questions but i guess the bigger question i'm asking you is what does the tgdc want to do a allow poll books to activate the ballot or not? .

Hellen, i have a question since i'm not familiar with e poll books, supposed to have a demonstration in a month. We're trying to automate a

process if you're automating a process and add to that something paper behind that, sounds to me like you're defeating that process of trying to automate by doing that because now you created something else for not only got this automation but then you got fopoll worker doing something else to create to keep create and keep a paper record of something, it is difficult enough to get them to keep what they're supposed to now but i also think if we had something of this nature we would definitely as david mentioned we would definitely have proceeders in place to do that i think all of the states have certain proceeders. Aren't we talking about automating a process?

We are talking about automating a process. But the issue here is when it's not automated there are proceeders in place that help with the security of the over all process those proceeders are writing signatures to an e poll book and then you can read those and compare with a number of electronic records. So you have a proceeder there. If you replace that proceeder you lost that aspect of the security so you got to make sure your replacement still affords you the same level of security you had with the manual proceeder in this case whitney and david, that's your name, were basically saying would an approach such e poll book printing out a signature, would that be good enough. At the of the day you would have the signature that is would constitute a list of all the people who showed up to vote. Seems like the problem is solved by doing that .

Because if you have that you have the same thing at the own of day that you have now because you have a poll book now that has all the signatures in it. If you produce something that has a list of all the people that signed in on the e poll book i assume you have the same thing you have now. With as much accuracy .

But you are then trusting the software on e poll book to get it all right.

Trusting the poll worker to goat it all right now which doesn't always happen.

That is true that is true. Security person by nature .

Let me -- john, discussion initially started off i think ron captured it really well, the issue doesn't seem like it's one of security issue per se the security issues are the one that is are handled independent .

If you have a smart card that the physically touching the machine that you're voting on to ensure that is a one way transfer of information and not a two way. The reason tathat is important is if we do not have guidelines today that would forbid the two way communication -- so we need to essentially address that to ensure it's testable and that a machine will not have a two way communication. Is that a fair way? .

Well, you're my boss for i do have to disagree slightly. Option four is an issue but i think it's a pretty simple issue you are right though that primarily we are talking about a privacy issue that's the real important thing i want them to direct us on. Comes to this question if we have poll books in polling sites that are networked to external net works. Registration data base net works and activate the ballot,

provided we incorporate privacy requirements and security requirements on the smart card or whatever that is used is that okay? Is that okay? Or other restrictions on that that's what we want to know .

John, i got a question for you when you take about only a one way and not a two way, if you -- i think about you're activating the machine to allow the voter the cast a ballot. Then i think about when it comes time to deal with the pro visional ballots you got to pull that back out if it can't be counted. Does a two way -- did you just cut off that capability of pulling out a pro visional .

No, i think i'm going to presume that when woman ever brought up two way might be thinking of a situation where let's say the voting station then records on the e poll how the voter voted i'm sorry records on the smart card how the voter voted. That gets pulled out and stuck in to get reactivated again. Something reads the information off some sort of read back .

Handling pro visional votes would, that -- i'm not proposing anything that would limit that.

I think you're to the devil until the details part. We were clear consensus that the privacy issue is important. If what you're looking for is direction, i wonder if you have it. In tend we're going to have to see the requirements. How you write them is going to make a big difference .

Let's walk down this as i sense general consensus that e poll books should be allowed to activate ballots if you disagree -- i sense general consensus there is not a huge, that people shouldn't be allowed to network them because that the e poll books should be allowed to externally networked and activate the ballot i sense general consensus that privacy needs to be assured. Most of the people are in favor of simultaneous paper records for activation if my question is for john. With the summary, nicely said, are you comfortable with direction or do you have more specific question you need to have answered?

What i hear then is there is general i agreement that let's say option number one up there is what we will do and option number three is what we will do, agnostic on four. Number two thrown out .

Follow continue discussion would have to occur at the sub committee level .

If you're going to do research in terms of talking to election officials -- that would be the place i would focus my attention my biggest i don't know question is i know what election proceders are in a couple of states write voted i have no idea across the 55 jurisdictions .

If you could concentrate on is anything else you need guidance on, state it .

Okay it sounds to me like we don't need to adress bullet number two is that the case? .

Yes.

Sounds like the case well, thank you okay .

Thank you very much at this point i actually like to break for lunch be back at 1:00 and the afternoon session is to basically finishd with the four cross cutting issues additional discussion again, please be back promptly at 1:00. There is cafeteria across the hall way there enjoy we will see you at 1:00

We'll get started in just two minutes. .

I have just one or two lodgist call issues at the request of lucy. All tgdc members send your receipts to her. If you changed your agenda and travel plans, we'll need to know that as well. I have gotten sheets from most everybody on their availability, but if i could get them by next week, that would be helpful. That's all i have at this point.

I'd like to welcome you all back . We're going to do roll call. Afternoon roll call. Williams. Williams, williams not responding. Burger not responding. Wagner. Wagner is present. Paul miller. Paul miller not responding. Gail.

We'll get to paul and gail in just a minute.

Mason. Mason is here. Began non. Pierce. Pierce is here. Miller is here. Purr sill is here. Quesenbery. Rivest is here. Gail. Gail is here. Jeffrey. Jeffrey is here. We have 11. There's enough for a quorum.

Thanks very much. We did the cross cutting issues. The time now is for the introduction of any additional resolutions or discussion slides so i will open it up to any tgdc members .

Mr. Chairman, john gail, secretary of state nebraska. I have several resolutions not knowing if i would have them as resolutions or points of discussion. I would prefer to use them as points of discussion rather than resolutions. I'm sure that's out of the ordinary. Without objection, it would be my preference on how to proceed. However, there may be other members that have resolutions that would like to do that before i address my issues of concern. I defer to any other resolutions that might be ready to be presented.

Thank you, sir. Any resolutions before we go to points of discussion? Hearing none, secretary gail.

Thank you, mr. Chairman. As secretary of state, i serve as chief election officer and have done so for seven years during the entire period of where we worked our way through hava and the funding and training issues that, of course, every state had to address and have served on tgdc and standards board. There are some broad issues of concern. I would certainly appreciate anyone's thoughts on. One of them is this. The first one, because of the great despairity in america between small states and large states and states with large population and dense population, the urbanization, small towns in america. Nebraska has 500 communities of 300 or less. Many, many of those area's of america had no choice except a hand count. The counties didn't have

the ability to buy any equipment at all. They had to rely on election administration to provide the security and provide the public confidence in the voting process. To a very, very large degree, it was successfully done. I think most of the controversy contrived to have worked through demographics. I am complimentary for their hard work and ability and skills to bring us to this point. But, in many ways, I think of it as setting standards for fairly complex equipment. And there doesn't, in my mind, seem to be much compartment -- for those that are smaller and more sparsely populated, we'll allow these segments to be optional as long as they are replaced by administration practices or election management guidelines so that there would be a digression of the most complex and expensive equipment. It is not as dependant on election administration, but they can develop certain kinds of equipment that can opt out of certain features as long as they are replaced with best practices to bring the cost down and the equipment down to the level of what issues are most likely being met in those more rural areas, so as we move from dgdc to standards board, how can they interface with the standards we've set and say this makes sense for new york city or los angeles, but for nebraska, we would like to opt out of some of these things.

Whitney.

I don't know if this directly applies, but as a nonofficial of the committee, this has been about learning enough to be able to make good judgement. I have to thank everybody on the committee. It's been great in helping us understand the impact of what we're saying. What are the consequences. One of the things I might hear you say or might be hearing you say is when we consider a requirement, we need to think not just about what the requirement says, but unintended requirements might be or how it might impact election practices. I know that's in their wisdom why congress wanted this committee with different specialties. What you might be looking for is ways we should get the input in a more effective way. We're served down to the wire on the hardest ones. Those are the ones that always get left for last. How do we know we're framing them enough to get good input.

If I may respond, in looking at the innovative class we're talking about for the next invasion, what I find interesting is in a sense it's saying in the innovative class you can kind of pick and choose the standards you're going to follow with the innovative equipment and if your equipment falls into these classes of standards, you have to meet them. These other standards, they are optional and you can opt out. We haven't figured out, I don't think, who's going to make the decision of what you can opt out of. There is discretion of what's relevant and what's not relevant to that piece of equipment. If it's a simpler piece of equipment that's designed for the less populated states, a simpler need, it seems like there's a certain parallel there.

I think one thing worth noting about is it might be possible to talk about different classes of voting centers and depending on the class, one might have varying senses in the guidelines. In the extreme sense to talk about it to illustrate a point posing you have an area with 50 people voting. You might think of a purely innovative process which is paper ballots in a box. It would make sense in that context. I'm using that as an illustration to say it's perhaps possible to think about it in terms of class.

I know it's late in the day, the 11th hour to bring the subject up, but if the innovative class is an area where it can be considered, it's just an area of concern of lying in terms of the ability to really fairly address the needs of all of america and not just the most complex demographics of america. So, i'll move on unless anybody has anything further.

To that point, mr. Secretary, just as we have in our state law the ability to handle certain size precincts that are smaller than 200, we can deal with those precinctings in all mail category rather than going to the expense of polling and so forth when there might be one or possibly fewer going to the polls.

I appreciate you bringing that point up because we do that in nebraska. We have the option to be mail only ballots and it saves from putting expensive equipment in those precincts. Sometimes it's not ada compliant. That's the kind of flexibility i hope america will continue to have in the future. Even for counties that want to have some form of technology, but not what the an ex generation is building.

I might include in that in addition to a garage on a farm or something like that, there's also indian villages that don't have the amenities that they need to be compliant.

Absolutely. With regard to my next issue, and i think it was addressed in december, but i'll reemphasize it. There's such an incredible sensitivity in america today, not only a sensitivity to performance of government at all levels, it seems we've had a systemic -- there's little public trust or public officials of representative government. So, because of that heightened sensitivity with elections, that unfortunate leak of information that made the news, that the tgdc found that all forms of the equipment were too vulnerable, too unreliable, too subject to attack to be usable. The media jumped to the conclusion if they were using that equipment, it was not a system that could be relied upon. And, i'm hoping that as this next it ration goes to final press, in a sense, that we avoid any language that so implies that any such current equipment that is hava compliant and met the 2002 standards is not fundmently flawed that the public will lose confidence in it. We need 10 years to make it cost effective and all it's going to do is one slap at that equipment and we're going to be facing a whole new public confidence issue. I hope we can avoid any language we're all sensitive to so we don't cast that over existing equipment. So that's basically, a statement. I think we did address that in december of 2006 and i want us all to continue to be alert to that. As a third point, considering at least in my own mind, we're talking standards we're drafting now and drawing thoughts and ideas and scientific input on issues that are arising from current equipment. We're looking at an it ration that probably won't be effective until 2010 and with design and technology, we probably won't see the equipment until 2012 or so. There's going to be a lot of ideas, new technology and science particularly in the it area that may take us far away from the standards we're developing. I think the innovation class we needed. What i also was concerned about was whether tgdc will continue to be able to approach 2012 by upgrading the standards as new technologies evolved. I guess that's a question for the eac to decide how flexible the standards will be between now and then or whether the innovation

class is the only place to address evolution as we approach 2010 or 2012. So, that was another one of my concerns. How do we express a broader vision, broader inclusiveness and flexibility for the genius that's going to create innovations in source code and some of the more software related features of this equipment. I don't know the answer to that. Just express that as a concern as well how they will address that constant evolution in the future and part of that probably is also a concern that with the equipment we all now have, virtually brand new, installed january 2006, for most of us, you're not going to get 10 years of life if you don't have upgrades, updated in firmware to address these little evolutions that are going to occur. You don't want to replace the whole equipment, but if there's something to make it better and preserve the life, that would be, of course, economic call and tremendously efficient without having to send the entire system through the new standards. Hard question. I don't know how it's going to be resolved. They have this equipment and there's a new piece of firmware that's going to enhance its performance and security and they can't add it without having to send everything back through certification and testing whether it's the 2005 or the next iteration, so that's another area of concern that somehow needs to be addressed as we move into this area of testing and certifying.

Thank you, are there any comments.

Comments or questions?

Id does give one thought that you might want some sort of architectural frame work where the components are broken out to phase in and phase out without disrupting the whole system. It might be worth looking into. There might be clear points with messages and interfaces.

He has an excellent idea. I don't know if it's possible for it to have much of an extended life, but with this submission to vac, if it could have at least another honeymoon to address the issues, it certainly would be helpful to the administrators of america.

And the last issue, i promise to keep it short. As a member of the standards board, i'm concerned with the approaching submission and review of the board. That is where election administrators will have an opportunity to address this. I frankly and concerned whether they are ready to address it. As the standards board representative, along with alicia miller, and i don't know if she would concur with this, but at the board meeting, we need a day or two with them and tgdc to come and watch us and walk us through the final draft and get this clearer understanding that i've certainly gotten and i appreciate your patients with me over the last two days. We immensely need that help if we're going to be helpful in making recommendations.

I would support that, john. Also, the last time before the first tgdc was submitted, we did have that kind of interaction with the board and i thought it was very helpful, i think it was over two days and broken down so everyone got to go to a subcommittee and get a report from the subcommittee. I think it's an excellent suggestion that we need to do that again.

From this perspective, i think i would have trouble keeping that from happening. There's been so much passion they have on issues, they want

to see it go all the way. I don't think it will be any problem. Most of the tgdc members would support it.

I think it also might apply to the board of advisories as well.

Thank you, that's all i have to submit. Thank you.

Thank you very much. Several thoughtful pieces we have to bear in mind as we continue to move forward. Are there any other comments or discussion points?

Maybe i can ease some minds for exactly what you suggested. I don't know if we'll bring the two groups together, and we may have to separate. We haven't decided yet. We will have support from nist there.

We do intend to follow the same process as we did last time. We're not sure how many days it will be, it will depend on how big the rewrite is. Last time, we didn't have a rewrite. This time, once we see what we have and what we're dealing with, we'll make the plans.

I would add, i was one of the members that went to the board. We not only listens, but made changes. We didn't not only hear you, we heard you.

Any other questions? I'd like to put it into perspective. Whitney said she's new to some of the election things. Not nearly as new as i am. Let's take a step back and look at where we are. We're a few months away from july. They have little count down clocks, i think. When you look at what we have, we have an over 500 page standards dockment that's almost readable which is amazing in itself. It's a complete rewrite of the previous version and -- reliability, transparency in the system. So someone from the outside, this is really phenomenal. I would really like to thank each and every one of the tgdc members for the time invested in this. Obviously, the best is yet to come over the next four months. Thank the eac for their time. So, with that, i officially declare this meeting ended and very much appreciate your time and effort. [applause]