

# EXHIBIT 4

**Declaration of** [REDACTED]

Pursuant to 28 U.S.C Section 1746, I, [REDACTED], make the following declaration.

1. I am over the age of 21 years and am a resident of Monroe County, Florida.
2. I am under no legal disability that would prevent me from giving this declaration.
3. I hold a Bachelor of Science degree in Mathematics and a Master of Science degree in Statistics.
4. For thirty years, I have conducted statistical data analysis for companies in various industries, including aerospace, consumer packaged goods, disease detection and tracking, and fraud detection.
5. From November 13<sup>th</sup>, 2020 through November 28<sup>th</sup>, 2020, I conducted in-depth statistical analysis of publicly available data on the 2020 U.S. Presidential Election. This data included vote counts for each county in the United States, U.S. Census data, and type of voting machine data provided by the U.S. Election Assistance Committee.
6. The analysis yielded several “red flags” concerning the percentage of votes won by candidate Biden in counties using voting machines provided by Dominion Voting Systems. These red flags occurred in several States in the country, including possible red flag in Maricopa County, Arizona.
7. I began by using Chi-Squared Automatic Interaction Detection (CHAID), which treats the data in an agnostic way—that is, it imposes no parametric assumptions that could otherwise introduce

bias. Here, I posed the following question: “Do any voting machine types appear to have unusual results?” The answer provided by the statistical technique/algorithm was that machines from Dominion Voting Systems (Dominion) produced abnormal results.

8. Subsequent graphical and statistical analysis shows the unusual pattern involving machines from Dominion occurs in at least 100 counties and multiple States. Since machines from Dominion were used in Maricopa County, it is possible the unusual pattern continues there.
9. The results from most, if not all counties using the Dominion machines is three to five point six percentage points higher in favor of candidate Biden than the results should be. This pattern is seen easily in graphical form when the results from “Dominion” counties are overlaid against results from “non-Dominion” counties. The results from “Dominion” counties do not match the results from the rest of the counties in the United States. The results are certainly statistically significant, with a p-value of  $< 0.00004$ . This translates into a statistical impossibility that something unusual involving Dominion machines is *not* occurring. This pattern appears in multiple States and the margin of votes implied by the unusual activity would easily sway the election results in those States. The margin of votes implied by the unusual pattern would certainly sway the election results in Arizona.
10. The following graph shows the pattern. The x-axis is our predicted percentage candidate Biden should win. The y-axis is the actual percentage Biden won. The green dots are counties in the

United States that use Dominion voting machines. Almost all of them are above an imaginary blue center prediction line, when in normal situations approximately half of them would be below the prediction line (as evidence by approximately half the counties in the U.S. (blue dots) that are below the blue centerline). More easily put, the green dots (counties with Dominion machines) are simply “too high”. The p-value of statistical analysis regarding the centerline for the green dots (Counties with Dominion machines) is 0.000000049, pointing to a statistical impossibility that this is a “random” statistical anomaly. Some external force caused this anomaly.






11. To confirm that Dominion machines were the source of the pattern/anomaly, I conducted further analysis using propensity scoring using U.S. census variables (Including ethnicities, income, professions, population density and other social/economic data) , which was used to place counties into paired groups. Such an analysis is important because one concern could be that counties with Dominion systems are systematically different from their counterparts, so abnormalities in the margin for Biden are driven by other characteristics unrelated to the election.
12. After matching counties using propensity score analysis, the only difference between the groups was the presence of Dominion machines. This approach again showed a highly statistically significant difference between the two groups, with candidate Biden again averaging three percentage points higher in Dominion counties than in the associated paired county. The associated p-value is  $< 0.00005$ , against indicating a statistical impossibility that something unusual is not occurring involving Dominion machines.
13. The results of the analysis and the pattern seen in the included graph strongly suggest a systemic, system-wide algorithm was enacted by an outside agent. Our estimate of the possible impact in Maricopa County is 3 percentage points, causing the results of Arizona's vote tallies to be inflated accordingly.
14. This is based on the residual between Biden's actual vote percentage in Maricopa County and the predicted vote percentage,

which is obtained from a national model using county level data on demographic Census characteristics (e.g., percent white, black, asian, etc, percent self employed, and the industrial composition).

15. The best estimate of impact in Maricopa (only county with Dominion in AZ) is 3%. The national analysis yielded 5.6% as the estimate of impacted votes, which would imply a larger number of votes impacted in AZ. To be more conservative, I defer to 3%.
16. Statistical estimating yields that in Arizona, the best estimate of the number of impacted votes is 62,282. However, calculating a 95% confidence interval from national data yields that as many as 97,576 votes may have been impacted in Arizona.

I declare under penalty of perjury that the forgoing is true and correct.  
Executed this November 28<sup>th</sup>, 2020.

,  


 11/28/20

# **EXHIBIT 5**

**DECLARATION**

I make this Declaration of my own personal knowledge, and I am competent to testify to the matters contained herein.

1. I served as an official legal observer of the 2020 general election. I observed at the following location(s): Maricopa County Tabulation and Election Center (MCTEC) and five polling locations in Maricopa County.

2. While serving as an observer, I personally witnessed the following:

**MCTEC Signature Verification Rooms 1 and 2 —  
10/25/20 Room 2 and 10/28/20 Room 1**

I worked in both of the Signature Verification rooms as a Republican volunteer observer. We could perform NO EFFECTIVE oversight as we were seated in a small designated area from which we could not move, the majority of the computer monitors were faced away from us, and we could not read the few screens that were turned our way due to distance.

Another observation I noted is at each monitor this task is accomplished by an individual, not by a two-person team of one Republican and one Democrat (as in Adjudication). This also lends itself to LESS THAN DESIRABLE oversight.

I had requested to volunteer in Signature Verification as I felt — and still do — it is such an important area. (I was concerned about ballot harvesting.) But there is NO WAY to provide any oversight.

**MCTEC Envelope Separation Room —  
10/25/20**

# **EXHIBIT 5 A**

## Republican Volunteer Poll Observer —

The envelope separation room is a huge, long room containing dozens of tables of two-person teams (one Republican and one Democrat) opening ballot envelopes and separating the items. We were escorted to the designated observation area on the left end of the room. The area was a "taped off on the floor", small rectangle containing two chairs, one for a Republican and one for a Democrat observer. We were not allowed to move from this area. The distance was such that NO MEANINGFUL oversight could occur.

10/07/20 McDowell Square, 5114 W McDowell Rd, Phoenix, AZ 85035  
All day we Republican and Democrat observers stood along a wall, unable to walk around to observe most of the functions. The Inspector was Bob.

10/23/20 9201 S Avenida Del Yaqui, Guadalupe, AZ 85283

We Republican and Democrat observers (one each) were seated and not allowed to walk around to observe most of the functions. Additionally, the Inspector Francis brought over a page of the polling locations' rules to two poll workers and then me because we had conversed. She told us we were not allowed to talk AT ALL. The two workers had been discussing dancing and music and I had answered "Big Band music" to a question, "What kind of music was Glenn Miller?" This polling location had a very repressive atmosphere. I felt very uncomfortable all day.

10/24/20 & 10/27/20 & 10/31/20 845 West Southern Ave., Phoenix, AZ 85041

We Republican and Democrat observers (one each) were seated and not allowed to walk around to observe most of the functions. However, we were allowed to converse with staff as long as nothing political was said. We all knew that. And we could freely walk around outside. The Inspector Joe fostered a friendly atmosphere and addressed questions.

10/29/20 Fowler School, 6707 W Van Buren<sup>1555</sup> St, Phoenix, AZ 85043

We Republican and Democrat observers (one each) were seated to the left in the front of the cafeteria/gym. We were allowed to walk down to observe from afar the ballot printing function. We did not try to walk around to observe the other functions.

11/03/20 Election Day, Horizon Church, 1401 E Liberty Lane, Phoenix, AZ 85048

The Inspector was James. The space was very small — long and narrow. I sat in a designated chair on one wall. I could freely walk around and observe the functions. What I witnessed throughout the day that concerned me was this: a voter would insert their ballot into one of the two on-site tabulators, then the ballot would kick out due

# **EXHIBIT 5 B**

Printed Name: Diane L. Serra

Signature: 

Dated November 25, 2020.

true and correct of my own personal knowledge.

have read the above Declaration, am familiar with its contents, and know the same to be

I declare under penalty of perjury under the laws of the State of Arizona that I

While working in Tabulation, alongside the Democratic volunteer observers Jeff and Robin Greeson, I helped select randomly two sample trays for the Hand Count. The trays consisted of 200 ballots each, being run through two different machines: one of the large HPRC tabulators and one of the Canons. This was part of the plan to pull 52 trays/make up 52 sealed boxes, from which 26 boxes would be randomly chosen for the Hand Count. The other 26 would be available if a new set was needed for some reason. What I feel is important is I know the pulling of the 52 trays was completed before Election Day. No Election Day ballots were included in the Hand Count. Jeff Greeson would know the date the last boxes were created and sealed. They say the Hand Count was 100% on the money. Perhaps someone could freely manipulate the tabulation of the votes on Election Day if they knew none would be looked at in the Hand Count?

## MCTEC Tabulation and Adjudication Room —

to an over-vote. A poll worker (various) would correctly advise the person they could do a whole new ballot or agree to having this race skipped and the rest of the ballot processed. I only saw one voter ask to do a new ballot. I felt the poll workers were verbally steering people/encouraging people to agree to skip the over-vote race, process the rest of the ballot, and leave. I did observe the poll worker press a button on the tabulator. I was not close enough to see what it was.



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**MCTEC Envelope Separation Room —  
10/25/20**

# EXHIBIT 6

STATE OF COLORADO     )  
County of Douglas     )ss.

COMES NOW, Affiant Joseph T. Oltmann, being first duly sworn, under oath, and states under penalty of perjury that the following information is true and accurate within his personal knowledge and belief:

My name Joseph Oltmann. I am over eighteen years of age. I am not suffering under any mental disability and am competent to give this sworn affidavit. I am able to read and write and to give this affidavit voluntarily and on my own free will and accord. No one has used any threats, force, pressure, or intimidation to make me sign this affidavit. I make this affidavit in support of the truth.

I am the CEO of a tech company based just outside of Denver, Colorado. I am also the founder of an organization called FEC United. [[Fecunited.com](https://fecunited.com)] The goal of this organization is to restore constitutional integrity to our community and empower those in our community to stand up to state and national leadership that intends to suppress the rights of individuals holistically.

Through this organization "FEC" I became a target of journalists who began to slander both me and my organization. I became the topic of Antifa and extremists through my involvement in a movement to resist the narrative that police are bad and our society represented the rhetoric shared by these extremists. As a result of these attacks, I started researching Antifa, BLM, Inc. and their connection to violence and unrest inside of our communities. As a result, I set out to infiltrate Antifa meetings and de-mask those Antifa members who are journalists in the mainstream media in Colorado specifically.

On or about the week of September 27, 2020, I was able to attend an Antifa meeting which appeared to be between Antifa members in Colorado Springs and in Denver Colorado. I cannot verify the connection between the two or the leadership as they were disorganized. Discussions of Our Revolution and Antifa were discussed. Rhetoric of "eliminating fascists" and frustration as to the dwindling of support to rally in the street was evident.

Then I honed in among other conversations key actors in the organization who work for local and state news publications. One such person of interest was Heidi Beedle, identified leader of Our Revolution in El Paso County (Southern Colorado) and Antifa leader of the same area.

Heidi's name is actually Sean Beedle. She is a journalist at Colorado Springs Independent, Colorado Springs Business Journal and a freelance writer for several online publications. Others to remain unnamed in this were present.

The conversation went like this:

Someone identified as "Eric" began to speak. Someone asked who Eric was, and someone else replied "he is the Dominion guy" [paraphrased].

Eric then began to speak after being told to continue, but was interrupted and asked by someone, "What are we going to do if Trump wins this fucking election?"

Eric responded, "Don't worry about the election. Trump is not going to win. I made fucking sure of that.. Hahaha"

Someone responded, "Fucking right."

Eric continued with fortifying the groups and recruiting. I would describe his tone as eccentric and boisterous. I wrote down his name and started to do some research into him.

At the time, I thought that they were so disconnected with reality that they think they can "make sure Trump is not elected."

I started with a simple google search: Keywords: "Eric," "Dominion," "Denver Colorado." The fifth result in organic search returned:

[Dominion Voting Systems | Employee Profiles, Emails, Mutual ...](#)

www.leadcandy.io › company › Dominion-Voting-Syst...

Find people working at Dominion Voting Systems. LeadCandy provides Full ... Denver, Colorado. VIEW FULL PROFILE ... FULL PROFILE. Eric Coomer's photo ...

Above that were results for Eric Schussler- Old Dominion University and Eric E Johnson, Attorney - Sherman & Howard. The first two on organic search however was as follows:

[Dominion - Colorado Secretary of State](#)

www.sos.state.co.us › elections › files › projectPlans  
PDF



Sep 9, 2016 — our most recent pilots in the City and County of Denver and Mesa County.  
... 1 Democracy Suite is a registered trademark of Dominion Voting Systems. ... Eric  
Coomer graduated from the University of California, Berkeley in ...

And

[Eric Coomer's email & phone | Dominion Voting Systems's ...](#)

rocketreach.co › eric-coomer-email\_7112825

Location, **Denver, Colorado**, United States. Work, Director, Market Strategy @ **Dominion**  
Voting Systems Member, Board of Directors @ Friends of Levitt Pavilion ...

I began doing research on Eric Coomer and discovered that Colorado Secretary of state  
link the following about Dr. Eric Coomer on page 26:

*“Eric Coomer graduated from the University of California, Berkeley in 1997 with a Ph.D. in Nuclear Physics. After working in IT consulting for several years, Eric entered the elections industry in 2005 with Sequoia Voting Systems as Chief Software Architect. After three years with the company, Eric took over all development operations as Vice President of Engineering. When Sequoia was acquired by Dominion Voting Systems in 2010, Eric joined the DVS team as Vice President of US Engineering overseeing development in the Denver, Colorado office.*

*Recently, Eric has taken over as the Director of Product Strategy driving the creation of next generation products through close collaboration with customers, combined with a deep understanding of technology and the needs of Elections departments throughout the United States and abroad. Eric has been an active participant in the development of the IEEE common data format for Elections systems, as well as the working group for developing standards for Risk-Limiting Audits for elections results. When not designing new products, Eric supports large and small scale customers during Election season.”*

I did some cursory research on Eric, but my conclusion was that he was either a part of the government or not relevant to the conversation. In other words, this was not a target I would

identify as being influential in Antifa. My conclusion was based on his credentials of having a PhD in Nuclear Physics. Did not add up for someone with that intelligence. I set it aside and concentrated my focus on the activist journalist who were actually Antifa members.

On October 15, 2020 I spoke at an FEC meeting in Bandimere Speedway. It was a rally around the unconstitutional actions of Jefferson County, Colorado government leadership to hurt Bandimere Speedway. I spoke and before the event started they escorted a suspected Antifa Journalist Erik Maulbetsch [Colorado Recorder] off the premises. In that meeting I talked about outing activist journalists who were Antifa and holding them accountable in our community for attacking organizations like FEC United that serve the community.

These activist journalists frequently slander people of faith, conservatives and call them names that defame them in the community. I had enough and warned that we would call them out by name. Maulbetsch wrote an article reflecting this as he was listening in online and decided to omit details about the meeting, causing the entire journalistic community to wonder if they were on the list. It had a positive effect contrary to their intentions.

On Friday November 6th, I received a forwarded article about Georgia irregularities on the election day. I normally do not read many of these articles because I am inundated with information both from FEC, and my company. I started reading it and noticed Eric Coomer was the spokesperson for a company called Dominion Voting Systems. I immediately stopped and started to go back through my notes to find the info on Eric Coomer. I then started research Dominion Voting Systems. The information became rather scary as everywhere I looked I found Eric's name. Some listing him as VP of Security and others calling him Director of Strategy and Security. I began my search for everything Eric Coomer, Dr. Eric Coomer and any information related to legal filings, RFPs, states using Dominion, Colorado uses and even areas in Colorado that do not use Dominion.

I then turned my attention to Eric Coomer's Facebook profile and page while I gathered information on correlating email addresses, profiles, screen names, etc. Searching Twitter, Reddit, Facebook, 4Chan, etc etc.

I was able to get screenshots of Eric Coomer's Facebook posts going back to 2016. What I discovered was disturbing. Anti-Trump rhetoric, posts referring to: Fuck USA, Fuck the Police, A.C.A.B., posts that were anti Conservative, and even posts being happy someone died. Then the bigger shocker. He reposted the Antifa "Manifesto" letter to Donald Trump. I knew that I had the right guy and someone that was clearly mentally unstable and radical. I started digging into the



code irregularities and tying all of the pieces together with the irregularities and the Dominion uses in the disputed states. The correlation was astonishing. I then found the information related to justifying voting machines being online and his justification that they had "hardware and IP address protection". This statement by itself is FALSE.

I then attempted to reach out to all sources to bring this information to light. Calling major news stations and attempting to connect with the DOJ.

I took the information to the listeners of an organization that I also own called Conservative Daily. We have a podcast that we do on weekdays. I felt I had enough information and was confident that the Eric on the conference call was the same Eric Coomer that worked for Dominion. I was also confident that given the Facebook and other information I was able to collect that Eric Coomer was interfering with the election and as he admits in one of his posts that people at his company think and feel the same way he does. I began to research his patents, who owns them, the pattern of states they acquired as clients.

I began to research the connection to Diane Feinstein, her husband, campaign manager, Clinton Foundation and became worried that the finger of radicals had taken away the voice of the American people in deciding the election. I used ARIMA analysis to show me trends on data and probability models to prove that they were in fact using code and technology to ghost votes, switch votes or even remove probable ballots completely. Code is random unless it is not. Since we are a data company and understand artificial intelligence and use of neural networks, we understand the capabilities of creating chaos in outcome based on weighted density of probable voters.

These statements are true and accurate to the best of my knowledge.

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Joseph Oltmann

STATE OF COLORADO  
COUNTY OF Douglas

Personally appeared before me, LYNN KIEFFER, a Notary Public in and for the aforesaid State and County, JOSEPH T OLTMANN, the within named bargainer, with whom I am personally acquainted and who, after being duly sworn, acknowledged that she executed the foregoing Agreement for the purposes contained therein.

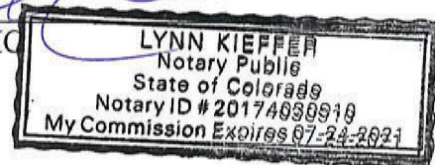
  
\_\_\_\_\_  
JOSEPH T OLTMANN

Sworn to and subscribed before me this 13<sup>th</sup> day of November, 2020.

My Commission Expires:

07-24-2021

  
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NOTARY PUBLIC





# EXHIBIT 7

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**IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF GEORGIA  
ATLANTA DIVISION**

<b>DONNA CURLING, ET AL.,</b>	)	
	)	
<b>Plaintiffs,</b>	)	
	)	<b>CIVIL ACTION</b>
<b>vs.</b>	)	
	)	<b>FILE NO. 1:17-cv-2989-AT</b>
<b>BRAD RAFFENSPERGER,</b>	)	
<b>ET AL.,</b>	)	
	)	
<b>Defendants.</b>	)	

**DECLARATION OF HARRI HURSTI**

Pursuant to 28 U.S.C. § 1746, I declare under penalty of perjury that the foregoing is true and correct.

1. My name is Harri Hursti. I am over the age of 21 and competent to give this testimony. The facts stated in this declaration are based on my personal knowledge, unless stated otherwise.

2. My background and qualifications in voting system cybersecurity are set forth in my December 16, 2019 declaration. (Doc. 680-1, pages 37 *et seq*). I stand by everything in that declaration and in my August 21, 2020 declaration. (Doc. 800-2).

3. I am also an expert in ballot scanning because of extensive background in digital imaging prior by work researching election systems. In addition, in 2005 I started an open source project for scanning and auditing paper ballots from images. As a result, I am familiar with different scanner types, how scanner settings and image processing features change the images, and how file format choices affect the quality and accuracy of the ballots.

4. I am engaged as an expert in this case by Coalition for Good Governance.

5. In developing this declaration and opinion, I visited Atlanta to observe certain operations of the June 9, 2020 statewide primary, and the August 11 runoff. During the June 9 election, I was an authorized poll watcher in some locations and was a public observer in others. On August 11, I was authorized as an expert inspecting and observing under the Coalition for Good Governance's Rule 34 Inspection request in certain polling places and the Fulton County Election Preparation Center. As I will explain below in this declaration, my extensive experience in the area of voting system security and my observations of these elections lead to additional conclusions beyond those in my December 16, 2019 declaration. Specifically:

- a) the scanner and tabulation software settings being employed to determine which votes to count on hand marked paper ballots are likely causing clearly intentioned votes not to be counted;
- b) the voting system is being operated in Fulton County in a manner that escalates the security risk to an extreme level; and
- c) voters are not reviewing their BMD printed ballots, which causes BMD generated results to be un-auditable due to the untrustworthy audit trail.

### **Polling Place Observations**

6. Election observation on Peachtree Christian Church. The ballot marking devices were installed so that 4 out of 8 touchscreen devices were clearly visible from the pollbook check in desk. Voter's selections could be effortlessly seen from over 50 ft away.

7. Over period of about 45 minutes, I only observed one voter who appeared to be studying the ballot after picking it up from the printer before casting it in the scanner. When voters do not fully verify their ballot prior to casting, the ballots cannot be considered a reliable auditable record.

8. The scanner would reject some ballots and then accept them after they were rotated to a different orientation. I noted that the scanner would vary in the amount of time that it took to accept or reject a ballot. The delay varied between 3

and 5 seconds from the moment the scanner takes the ballot until the scanner either accepts the ballot or rejects it. This kind of behavior is normal on general purpose operating systems multitasking between multiple applications, but a voting system component should be running only a single application without outside dependencies causing variable execution times.

9. Further research is necessary to determine the cause of the unexpected scanning delays. A system that is dedicated to performing one task repeatedly should not have unexplained variation in processing time. As security researcher, we are always suspicious about any unexpected variable delays, as those are common telltale signs of many issues, including a possibility of unauthorized code being executed. So, in my opinion changes of behaviors between supposedly identical machines performing identical tasks should always be investigated.

When ballots are the same and are produced by a ballot marking device, there should be no time difference whatsoever in processing the bar codes. Variations in time can be the result of many things - one of them is that the scanner encounters an error reading the bar code and needs to utilize error correcting algorithms to recover from that error. Further investigation is

necessary to determine the root cause of these delays, the potential impact of the error correcting algorithms if those are found to be the cause, and whether the delay has any impact upon the vote.

10. Election observation in Central Park Recreation Center. The Poll place manager told me that no Dominion trained technician had reported on location to help them that morning.

11. The ballot marking devices were originally installed in a way that voter privacy was not protected, as anyone could observe across the room how people are voting on about 2/3 devices.

12. The ballot scanner took between 4 and 6 seconds to accept the ballot. I observed only one ballot being rejected.

13. Generally, voters did not inspect the ballots after taking it from the printer and casting it into the scanner.

14. Election observation in Fanplex location. Samantha Whitley and Harrison Thweatt were poll watchers at the Fanplex polling location. They contacted me at approximately 9:10am about problems they were observing with the operation of the BMDs and Poll Pads and asked me to come to help them

understand the anomalies they were observing. I arrived at FanPlex at approximately 9:30am.

15. I observed that the ballot scanner located by a glass wall whereby standing outside of the building observe the scanning, would take between 6 and 7 seconds to either accept or reject the ballot.

16. For reasons unknown, on multiple machines, while voters were attempting to vote, the ballot marking devices sometimes printed “test” ballots. I was not able to take a picture of the ballot from the designated observation area, but I overheard the poll worker by the scanner explaining the issue to a voter which was sent back to the Ballot-Marking Device to pick up another ballot from the printer tray. Test ballots are intended to be used to test the system but without being counted by the system during an election. The ballot scanner in election settings rejects test ballots, as the scanners at FanPlex did. This caused confusion as the voters needed to return to the ballot-marking device to retrieve the actual ballot. Some voters returned the test ballot into the printer tray, potentially confusing the next voter. Had voters been reviewing the ballots at all before taking them to the scanner, they would have noticed the “Test Ballot” text on the ballot. I observed no voter really questioning a poll worker why a “Test” ballot was printed in the first place.



17. Obviously, during the election day, the ballot marking device should not be processing or printing any ballot other than the one the voter is voting. While the cause of the improper printing of ballots should be examined, the fact that this was happening at all is likely indicative of a wrong configuration given to the BMD, which in my professional opinion raises another question: Why didn't the device print only test ballots? And how can the device change its behavior in the middle of the election day? Is the incorrect configuration originating from the Electronic Pollbook System? What are the implications for the reliability of the printed ballot and the QR code being counted?

18. Election observation Park Tavern. The scanner acceptance delay did not vary as it had in previous locations and was consistently about 5 seconds from the moment the scanner takes the ballot, to the moment the scanner either accepts the ballot or rejects it. The variation between scanners at different locations is concerning because these are identical physical devices and should not behave differently while performing the identical task of scanning a ballot.

19. The vast majority of voters at Park Tavern did not inspect the ballots after taking them from the printer and before casting them in the scanner.

### **Fulton Tabulation Center Operation-Election Night, August 11, 2020**

20. In Fulton County Election Preparation Center (“EPC”) on election night I reviewed certain operations as authorized by Rule 34 inspection.

21. I was permitted to view the operations of the upload of the memory devices coming in from the precincts to the Dominion Election Management System (“EMS”) server. The agreement with Fulton County was that I could review only for a limited period of time; therefore, I did not review the entire evening’s process. Also, Dominion employees asked me to move away from the monitors containing the information and messages from the upload process and error messages, limiting my ability to give a more detailed report with documentation and photographs of the screens. However, my vantage point was more than adequate to observe that system problems were recurring and the Dominion technicians operating the system were struggling with the upload process.

22. It is my understanding the same EMS equipment and software had been used in Fulton County’s June 9, 2020 primary election.

23. It is my understanding that the Dominion technician (“Dominic”) charged with operating the EMS server for Fulton County had been performing

these duties at Fulton County for several months, including during the June 9 primary.

24. During my August 11 visit, and a follow-up visit on August 17, I observed that the EMS server was operated almost exclusively by Dominion personnel, with little interaction with EPC management, even when problems were encountered. In my conversations with Derrick Gilstrap and other Fulton County Elections Department EPC personnel, they professed to have limited knowledge of or control over the EMS server and its operations.

25. Outsourcing the operation of the voting system components directly to the voting system vendors' personnel is highly unusual in my experience and of grave concern from a security and conflict of interest perspective. Voting system vendors' personnel have a conflict of interest because they are not inclined to report on, or address, defects in the voting systems. The dangers this poses is aggravated by the absence of any trained County personnel to oversee and supervise the process.

26. In my professional opinion, the role played by Dominion personnel in Fulton County, and other counties with similar arrangements, should be considered an elevated risk factor when evaluating the security risks of Georgia's voting system.

27. Based on my observations on August 11 and August 17, Dell computers running the EMS that is used to process Fulton county votes appeared not to have been hardened.

28. In essence, hardening is the process of securing a system by reducing its surface of vulnerability, which is larger when a system performs more functions; in principle it is to the reduce the general purpose system into a single-function system which is more secure than a multipurpose one. Reducing available ways of attack typically includes changing default passwords, the removal of unnecessary software, unnecessary usernames or logins, grant accounts and programs with the minimum level of privileges needed for the tasks and create separate accounts for privileged operations as needed, and the disabling or removal of unnecessary services.

29. Computers performing any sensitive and mission critical tasks such as elections should unquestionably be hardened. Voting system are designated by the Department of Homeland Security as part of the critical infrastructure and certainly fall into the category of devices which should be hardened as the most fundamental security measure. In my experience, it is unusual, and I find it unacceptable for an EMS server not to have been hardened prior to installation.

30. The Operating System version in the Dominion Election Management computer, which is positioned into the rack and by usage pattern appears to be the main computer, is Windows 10 Pro 10.0.14393. This version is also known as the Anniversary Update version 1607 and it was released August 2, 2016. Exhibit A is a true and correct copy of a photograph that I took of this computer.

31. When a voting system is certified by the EAC, the Operating System is specifically defined, as Windows 10 Pro was for the Dominion 5.5-A system. Unlike consumer computers, voting systems do not and should not receive automatic “upgrades” to newer versions of the Operating System. without undergoing tests for conflicts with the new operating system software.

32. That computer and other computers used in Georgia’s system for vote processing appear to have home/small business companion software packages included. Exhibits B and C are true and correct copies of photographs that I took of the computer located in the rack and the computer located closest to the rack on the table to the right. The Start Menu shows a large number of game and entertainment software icons. As stated before, one of the first procedures of hardening is removal of all unwanted software, and removal of those game icons and the associated games and installers alongside with all other software which is not absolutely needed in the computer for election processing purposes would be

one of the first and most basic steps in the hardening process. In my professional opinion, independent inquiry should be promptly made of all 159 counties to determine if the Dominion systems statewide share this major deficiency.

33. Furthermore, when I asked the Dominion employee Dominic assigned to the Fulton County election server operation about the origin of the Windows operating system, he answered that he believed that “it has been provided by the State.”

34. Since Georgia’s Dominion system is new, it is a reasonable assumption that all machines in the Fulton County election network had the same version of Windows installed. However, not only the two computers displayed different entertainment software icons, but additionally one of the machines in Fulton’s group of election servers had an icon of computer game called “*Homescapes*” which is made by Playrix Holding Ltd., founded by Dmitry and Igor Bukham in Vologda, Russia. Attached as Exhibit C is a true and correct copy of a photograph that I took of the Fulton voting system computer” Client 02”. The icon for *Homescapes* is shown by the arrow on Exhibit C.

35. The *Homescapes* game was released in August 2017, one year after Fulton County’s operating system release. If the *Homescapes* game came with the operating system it would be unusual, because at the time of the release of

Homescaping, Microsoft had already released 3 major Microsoft Windows 10 update releases after build 14393 and before the release of that game. This calls into question whether all Georgia Dominion system computers have the same operating system version, or how the game has come to be having a presence in Fulton's Dominion voting system.

36. Although this Dominion voting system is new to Georgia, the Windows 10 operating system of at least the 'main' computer in the rack has not been updated for 4 years and carries a wide range of well-known and publicly disclosed vulnerabilities. At the time of this writing, The National Vulnerability Database maintained by National Institute of Standards and Technology lists 3,177 vulnerabilities mentioning "Windows 10 Pro" and 203 vulnerabilities are specifically mentioning "Windows 10 Pro 1607" which is the specific version number of the build 14393 that Dominion uses.

37. Even without internet connectivity, unhardened computers are at risk when those are used to process removable media. It was clear that when Compact Flash storage media containing the ballot images, audit logs and results from the precinct scanners were connected to the server, the media was automounted by the operating system. When the operating system is automounting a storage media, the operating system starts automatically to interact with the device. The zero-day

vulnerabilities exploiting this process has been recurrently discovered from all operating systems, including Windows. Presence of automount calls also into question presence of another setting which is always disabled in hardening process. It is autorun, which automatically executes some content on the removable media. While this is convenient for consumers, it poses extreme security risk.

38. Based on my experience and mental impression observing the Dominion technician's activities, Fulton County's EMS server management seems to be an *ad hoc* operation with no formalized process. This was especially clear on the manual processing of the memory cards storage devices coming in from the precincts on election night and the repeated access of the operating system to directly access filesystem, format USB devices, etc. This kind of operation is naturally prone to human errors. I observed personnel calling on the floor asking if all vote carrying compact flash cards had been delivered from the early voting machines for processing, followed by later finding additional cards which had been overlooked in apparent human error. Later, I heard again one technician calling on the floor asking if all vote carrying compact flashes had been delivered. This clearly demonstrates lack of inventory management which should be in place to ensure, among other things, that no rogue storage devices would be inserted into the computer. In response, 3 more compact flash cards were hand-delivered. Less



than 5 minutes later, I heard one of the county workers say that additional card was found and was delivered for processing. All these devices were trusted by printed label only and no comparison to an inventory list of any kind was performed.

39. In addition, operations were repeatedly performed directly on the operating system. Election software has no visibility into the operations performed directly on the operating system, and therefore those are not included in election system event logging. Those activities can only be partially reconstructed from operating system logs – and as these activities included copying election data files, election software log may create false impression that the software is accessing the same file over a period of time, while in reality the file could had been replaced with another file with the same name by activities commanded to the operating system. Therefore, any attempt to audit the election system operated in this manner must include through analysis of all operating system logs, which complicates the auditing process. Unless the system is configured properly to collect file system auditing data is not complete. As the system appears not to be hardened, it is unlikely that the operating system has been configured to collect auditing data.

40. A human error when operating live election system from the operating system can result in a catastrophic event destroying election data or even rendering the system unusable. Human error is likely given the time pressure involved and,

at least in Fulton County, no formal check lists or operating procedures were followed to mitigate the human error risk. The best practice is to automate trivial tasks to reduce risk of human error, increase the quality assurance of overall operations and provide auditability and transparency by logging.

41. Uploading of memory cards had already started before I arrived at EPC. While one person was operating the upload process, the two other Dominion employees were troubleshooting issues which seemed to be related to ballot images uploads. I repeatedly observed error messages appearing on the screen of the EMS server. I was not able to get picture of the errors on August 11<sup>th</sup>, I believe the error was the same or similar that errors recurring August 17<sup>th</sup> as shown on Exhibit D and discussed later in this declaration. Dominion employees were troubleshooting the issue with ‘trial-and-error’ approach. As part of this effort they accessed “Computer Management” application of Windows 10 and experimented with trouble shooting the user account management feature. This demonstrates that they had complete access to the computer. This means there are no meaningful access separation and privileges and roles controls protecting the county’s primary election servers. This also greatly amplifies the risk of catastrophic human error and malicious program execution.

42. I overheard the Dominion technician's conversation that they had issues with file system structure and "need 5 files out of EMS server and paste. Delete everything out of there and put it there." To communicate the gravity of the situation to each other they added "Troubleshooting in the live environment". These conversations increased the mental image that they were not familiar the issue they were troubleshooting.

43. After about 45 minutes of trying to solve the issue by instructions received over the phone, the two Dominion employees' (who had been troubleshooting) behavior changed. The Dominion staff member walked behind the server rack and made manual manipulations which could not be observed from my vantage point. After that they moved with their personal laptops to a table physically farther away from the election system and stopped trying different ways to work around the issue in front of the server, and no longer talked continuously with their remote help over phone.

44. In the follow-up-calls I overheard them ask people on the other end of the call to check different things, and they only went to a computer and appeared to test something and subsequently take a picture of the computer screen with a mobile phone and apparently send it to a remote location.

45. Based on my extensive experience, this all created a strong mental impression that the troubleshooting effort was being done remotely over remote access to key parts of the system. Additionally, new wireless access point with a hidden SSID access point name appeared in the active Wi-Fi stations list that I was monitoring, but it may have been co-incidental. Hidden SSIDs are used to obscure presence of wireless networking from casual observers, although they do not provide any real additional security.

46. If in fact remote access was arranged and granted to the server, this has gravely serious implications for the security of the new Dominion system. Remote access, regardless how it is protected and organized is always a security risk, but furthermore it is transfer of control out of the physical perimeters and deny any ability to observe the activities.

47. I also observed USB drives marked with the Centon DataStick Pro Logo with no visible inventory control numbering system being taken repeatedly from the EMS server rack to the Fulton managers' offices and back. The Dominion employee told me that the USB drives were being taken to the Election Night Reporting Computer in another office. This action was repeated several times during the time of my observation. Carrying generic unmarked and therefore unidentifiable media out-of-view and back is a security risk – especially when the

exact same type of devices was piled on the desk near the computer. During the election night, the Dominion employees reached to storage box and introduced more unmarked storage devices into the ongoing election process. I saw no effort made to maintain a memory card inventory control document or chain of custody accounting for memory cards from the precincts.

48. I also visited the EPC on August 17. During that visit, the staff working on uploading ballots for adjudication experienced an error which appeared similar to the one on election night. This error was repeated with multitude of ballots and at the time we left the location, the error appeared to be ignored, rather than resolved. (EXHIBIT D - the error message and partial explanation of the error being read by the operator.).

49. The security risks outlined above – operating system risks, the failure to harden the computers, performing operations directly on the operating systems, lax control of memory cards, lack of procedures, and potential remote access, are extreme and destroy the credibility of the tabulations and output of the reports coming from a voting system.

50. Such a risk could be overcome if the election were conducted using hand marked paper ballots, with proper chain of custody controls. For elections conducted with hand marked paper ballots, any malware or human error involved

in the server security deficiencies or malfunctions could be overcome with a robust audit of the hand marked paper ballots and in case of irregularities detected, remedied by a recount. However, given that BMD ballots are computer marked, and the ballots therefore unauditable for determining the result, no recovery from system security lapses is possible for providing any confidence in the reported outcomes.

### **Ballot Scanning and Tabulation of Vote Marks**

51. I have been asked to evaluate the performance and reliability of Georgia's Dominion precinct and central count scanners in the counting of votes on hand marked paper ballots.

52. On or about June 10th, Jeanne Dufort and Marilyn Marks called me to seek my perspective on what Ms. Dufort said she observed while serving as a Vote Review Panel member in Morgan County. Ms. Dufort told me that she observed votes that were not counted as votes nor flagged by the Dominion adjudication software.

53. Because of the ongoing questions this raised related to the reliability of the Dominion system tabulation of hand marked ballots, I was asked by Coalition Plaintiffs to conduct technical analysis of the scanner and tabulation accuracy. That analysis is still in its early stages.

54. Before addressing the particulars of my findings and research into the accuracy of Dominion's scanning and tabulation, I will address the basic process by which an image on a voted hand marked paper ballot is processed by scanner and tabulation software generally. It is important to understand that the Dominion scanners are Canon off the shelf scanners and their embedded software were designed for different applications than ballot scanning which is best conducted with scanners specifically designed for detecting hand markings on paper ballots.

55. Contrary of public belief, the scanner is not taking a picture of the paper. The scanner is illuminating the paper with a number of narrow spectrum color lights, typically 3, and then using software to produce an approximation what the human eye would be likely to see if there would had been a single white wide-spectrum light source. This process takes place in partially within the scanner and embedded software in the (commercial off the shelf) scanner and partially in the driver software in the host computer. It is guided by number of settings and configurations, some of which are stored in the scanner and some in the driver software. The scanner sensors gather more information than will be saved into the resulting file and another set of settings and configurations are used to drive that part of the process. The scanners also produce anomalies which are automatically removed from the images by the software. All these activities are performed

outside of the Dominion election software, which is relying on the end product of this process as the input.

56. I began reviewing Dominion user manuals in the public domain to further investigate the Dominion process.

57. On August 14, I received 2 sample Fulton County August 11 ballots of high-speed scanned ballot from Rhonda Martin, who stated that she obtained them from Fulton County during Coalition Plaintiff's discovery. The image characteristics matched the file details I had seen on the screen in EPC. The image is TIFF format, about 1700 by 2200 pixels with 1-bit color depth (= strictly black or white pixels only) with 200 by 200 dots per square inch ("dpi") resolution resulting in files that are typically about 64 or 73 kilo bytes in size for August 11 ballots. With this resolution, the outer dimension of the oval voting target is about 30 by 25 pixels. The oval itself (that is, the oval line that encircles the voting target) is about 2 pixels wide. The target area is about 450 pixels; the area of the target a tight bounding box would be 750 pixels and the oval line encircling the target is 165 pixels. In these images, the oval itself represented about 22% value in the bounding box around the vote target oval.

58. Important image processing decisions are done in scanner software and before election software threshold values are applied to the image. These



scanner settings are discussed in an excerpt Dominion's manual for ICC operations. My understanding is that the excerpt of the Manual was received from Marilyn Marks who stated that she obtained it from a Georgia election official in response to an Open Records request. Attached as Exhibit E is page 9 of the manual. Box number 2 on Exhibit E shows that the settings used are not neutral factory default settings.

59. Each pixel of the voters' marks on a hand marked paper ballot will be either in color or gray when the scanner originally measures the markings. The scanner settings affect how image processing turns each pixel from color or gray to either black or white in the image the voting software will later process. This processing step is responsible for major image manipulation and information reduction before the election software threshold values are calculated. This process has a high risk of having an impact upon how a voter mark is interpreted by the tabulation software when the information reduction erases markings from the scanned image before the election software processes it.

60. In my professional opinion, any decision by Georgia's election officials about adopting or changing election software threshold values is premature before the scanner settings are thoroughly tested, optimized and locked.

61. The impact of the scanner settings is minimal for markings made with a black felt pen but can be great for markings made with any color ballpoint pens. To illustrate this, I have used standard color scanning settings and applied then standard conversion from a scanned ballot vote target with widely used free and open source image processing software “GNU Image Manipulation Program version 2.10.18” EXHIBIT G shows the color image being converted with the software’s default settings from color image to Black-and-White only. The red color does not meet the internal conversion algorithm criteria for black, therefore it gets erased to white instead.

62. Dominion manual for ICC operations clearly show that the scanner settings are changed from neutral factory default settings. EXHIBIT H shows how these settings applied different ways alter how a blue marking is converted into Black-and-White only image.

63. The optimal scanner settings are different for each model of scanner and each type of paper used to print ballots. Furthermore, because scanners are inherently different, the manufacturers use hidden settings and algorithms to cause neutral factory settings to produce similar baseline results across different makes and models. This is well-studied topic; academic and image processing studies published as early as 1979 discuss the brittleness of black-or-white images in

conversion. Subsequently, significance for ballot counting has been discussed in academic USENIX conference peer-reviewed papers.

64. On the August 17<sup>th</sup> at Fulton County Election Preparation Center Professor Richard DeMillo and I participated in a scan test of August 11 test ballots using a Fulton County owned Dominion precinct scanner. Two different ballot styles were tested, one with 4 races and one with 5 races. Attached as Exhibits I and J show a sample ballots with test marks.

65. A batch of 50 test ballots had been marked by Rhonda Martin with varying types of marks and varying types of writing instruments that a voter might use at home to mark an absentee ballot. Professor DeMillo and I participated in marking a handful of ballots.

66. Everything said here concerning the August 17 test is based on a very preliminary analysis. The scanner took about 6 seconds to reject the ballots, and one ballot was only acceptable “headfirst” while another ballot only “tail first.” Ballot scanners are designed to read ballots “headfirst” or “tail first,” and front side and backside and therefore there should not be ballots which are accepted only in one orientation. I observed the ballots to make sure that both ballots had been cleanly separated from the stub and I could not identify any defects of any kind on the ballots.

67. There was a 15 second cycle from the time the precinct scanner accepted a ballot to the time it was ready for the next ballot. Therefore, the maximum theoretical capacity with the simple 5 race ballot is about 4 ballots per minute if the next ballot is ready to be fed into the scanner as soon as the scanner was ready to take it. In a real-world voting environment, it takes considerably longer because voters move away from the scanner, the next voter must move in and subsequently figure where to insert the ballot. The Dominion precinct scanner that I observed was considerably slower than the ballot scanners I have tested over the last 15 years. This was done with a simple ballot, and we did not test how increase of the number of races or vote targets on the ballot would affect the scanning speed and performance.

68. Though my analysis is preliminary, this test reveals that a significant percentage of filled ovals that would to a human clearly show voter's intent failed to register as a vote on the precinct count scanner.

69. The necessary testing effort has barely begun at the time of this writing, as only limited access to equipment has been made available. I have not had access to the high-volume mail ballot scanner that is expected to process millions of mail ballots in Georgia's upcoming elections. However, initial results suggest that significant revisions must be made in the scanning settings to avoid a

widespread failure to count certain valid votes that are not marked as filled in ovals. Without testing, it is impossible to know, if setting changes alone are sufficient to cure the issue.

### **Scanned Ballot Tabulation Software Threshold Settings**

70. Georgia is employing a Dominion tabulation software tool called “Dual Threshold Technology” for “marginal marks.” (See Exhibit M) The intent of the tool is to detect voter marks that could be misinterpreted by the software and flag them for review. While the goal is admirable, the method of achieving this goal is quite flawed.

71. While it is compelling from development cost point of view to use commercial off the shelf COTS scanners and software, it requires additional steps to ensure that the integration of the information flow is flawless. In this case, the software provided by the scanner manufacturer and with settings and configurations have great impact in how the images are created and what information is removed from the images before the election software processes it. In recent years, many defective scanner software packages have been found. These software flaws include ‘image enhancement’ features which have remained enabled even when the feature has been chosen to be disabled from the scanner software provided by the manufacturer. An example of dangerous feature to keep

enabled is ‘Punch Hole Removal’, intended to make images of documents removed from notebook binders to look more aesthetically pleasing. The software can and in many cases will misinterpret a voted oval as a punch hole and erase the vote from the image file and to make this worse, the punch holes are expected to be found only in certain places near the edge of the paper, and therefore it will erase only votes from candidates whose targets are in those target zones.

72. Decades ago, when computing and storage capacity were expensive black-and-white image commonly meant 1-bit black-or-white pixel images like used by Dominion system. As computer got faster and storage space cheaper during the last 2-3 decades black-and-white image has become by default meaning 255 shades of gray grayscale images. For the purposes of reliable digitalization of physical documents, grayscale image carries more information from the original document for reliable processing and especially when colored markings are being processed. With today’s technology, the difference in processing time and storage prices between grayscale and 1-bit images has become completely meaningless, and the benefits gained in accuracy are undeniable.

73. I am aware that the Georgia Secretary of State’s office has stated that Georgia threshold settings are national industry standards for ballot scanners (Exhibit K). This is simply untrue. If, there were an industry standard for that, it

would be part of EAC certification. There is no EAC standard for such threshold settings. As mentioned before, the optimal settings are products of many elements. The type of the scanner used, the scanner settings and configuration, the type of the paper used, the type of the ink printer has used in printing the ballots, color dropout settings, just to name few. Older scanner models, which were optical mark recognitions scanners, used to be calibrated using calibration sheet – similar process is needed to be established for digital imaging scanners used this way as the ballot scanners.

74. Furthermore, the software settings in Exhibit E box 2 show that the software is instructed to ignore all markings in red color (“Color drop-out: Red”), This clearly indicates that the software was expecting the oval to be printed in Red and therefore it will be automatically removed from the calculation. The software does not anticipate printed black ovals as used in Fulton County. Voters have likely not been properly warned that any pen they use which ink contains high concentration of red pigment particles is at risk of not counting, even if to the human eye the ink looks very dark.

75. I listened to the August 10 meeting of the State Board of Elections as they approved a draft rule related to what constitutes a vote, incorporating the following language:

*Ballot scanners that are used to tabulate optical scan ballots marked by hand shall be set so that:*

- 1. Detection of 20% or more fill-in of the target area surrounded by the oval shall be considered a vote for the selection;*
- 2. Detection of less than 10% fill-in of the target area surrounded by the oval shall not be considered a vote for that selection;*
- 3. Detection of at least 10% but less than 20% fill-in of the target area surrounded by the oval shall flag the ballot for adjudication by a vote review panel as set forth in O.C.G.A. 21-2-483(g). In reviewing any ballot flagged for adjudication, the votes shall be counted if, in the opinion of the vote review panel, the voter has clearly and without question indicated the candidate or candidates and answers to questions for which such voter desires to vote.*

76. The settings discussed in the rule are completely subject to the scanner settings. How the physical marking is translated into the digital image is determined by those values and therefore setting the threshold values without at the same time setting the scanner settings carries no value or meaning. If the ballots will be continuing to be printed with black only, there is no logic in having any drop-out colors.

77. Before the State sets threshold standards for the Dominion system, extensive testing is needed to establish optimal configuration and settings for each step of the process. Also, the scanners are likely to have settings additional configuration and settings which are not visible menus shown in the manual excerpt. All those should be evaluated and tested for all types of scanners approved for use in Georgia, including the precinct scanners



78. As temporary solution, after initial testing, the scanner settings and configuration should be locked and then a low threshold values should be chosen. All drop-out colors should be disabled. This will increase the number of ballots chosen for human review and reduce the number of valid votes not being counted as cast.

### **Logic and Accuracy Testing**

79. Ballot-Marking Device systems inherits the same well-documented systemic security issues embedded in direct-recording electronic (DRE) voting machine design. Such design flaws eventually are causing the demise of DRE voting system across the country as it did in Georgia. In essence the Ballot Marking Device is a general-purpose computer running a general-purpose operating system with touchscreen that is utilized as a platform to run a software, very similar to DRE by displaying a ballot to the voter and recording the voter's intents. The main difference is that instead of recording those internally digitally, it prints out a ballot summary card of voter's choices.

80. Security properties of this approach would be positively different from DREs if the ballot contained only human-readable information and all voters are required to and were capable of verifying their choices from the paper ballot summary. That of course is unrealistic.

81. When voter fails to inspect the paper ballot and significant portion of the information is not in human readable form as a QR barcode, Ballot-Marking Device based voting effectively inherits most of the negative and undesirable security and reliability properties directly from DRE paradigm, and therefore should be subject to the same testing requirements and mitigation strategies as DREs.

82. In response to repeating myriad of issues with DREs, which have been attributed to causes from screen calibration issues to failures in ballot definition configuration distribution, a robust Logic & Accuracy testing regulation have been established. These root causes are present in BMDs and therefore should be evaluated in the same way as DREs have been.

I received the Georgia Secretary of State's manual "Logic and Accuracy Procedures" "Version 1.0 January 2020 from Rhonda Martin. Procedure described in section D "Testing the BMD and Printer" is taking significant shortcuts, presumably to cut the labor work required. (Section D is attached as Exhibit L) These shortcuts significantly weaken the security and reliability posture of the system and protections against already known systemic pitfalls, usability predicaments and security inadequacies.

## CONCLUSIONS

83. The scanner software and tabulation software settings and configurations being employed to determine which votes to count on hand marked paper ballots are likely causing clearly intentioned votes not to be counted as cast.

84. The method of using 1-bit images and calculated relative darkness values from such pre-reduced information to determine voter marks on ballots is severely outdated and obsolete. It artificially and unnecessarily increases the failure rates to recognize votes on hand-marked paper ballots. As a temporary mitigation, optimal configurations and settings for all steps of the process should be established after robust independent testing to mitigate the design flaw and augment it with human assisted processes, but that will not cure the root cause of the software deficiency which needs to be addressed.

85. The voting system is being deployed, configured and operated in Fulton County in a manner that escalates the security risk to an extreme level and calls into question the accuracy of the election results. The lack of well-defined process and compliance testing should be addressed immediately using independent experts. The use and the supervision of the Dominion personnel operating Fulton County's Dominion Voting System should be evaluated.

86. Voters are not reviewing their BMD printed ballots before scanning and casting them, which causes BMD-generated results to be un-auditable due to the untrustworthy audit trail. Furthermore, because BMDs are inheriting known fundamental architectural deficiencies from DREs, no mitigation and assurance measures can be weakened, including but not limited to Logic and Accuracy Testing procedures.

This 24<sup>th</sup> day of August 2020.

  
Harri Hursti

## EXHIBIT A:

System Information	Item	Value
File View Help	OS Name	Microsoft Windows 10 Pro
Summary	Version	10.0.14393 Build 14393
Hardware Resources	Other OS Description	Not Available
Components	OS Manufacturer	Microsoft Corporation
Software Environment	System Name	EMSCIENT01
	System Manufacturer	Dell Inc.
	System Model	Precision Tower 3431
	System Type	x64-based PC
	System SKU	0942
	Processor	Intel(R) Core(TM) i5-9500 CPU @ 3.00GHz, 3000 Mhz, 6 Core(s), 6 Logical Pro...
	BIOS Version/Date	Dell Inc. 1.1.6, 8/29/2019
	SMBIOS Version	3.1
	Embedded Controller Version	255.255
	BIOS Mode	UEFI
	BaseBoard Manufacturer	Dell Inc.
	BaseBoard Model	Not Available
	BaseBoard Name	Base Board
	Platform Role	Desktop
	Secure Boot State	On
	PCR7 Configuration	Elevation Required to View
	Windows Directory	C:\Windows
	System Directory	C:\Windows\system32
	Boot Device	\Device\HarddiskVolume3
	Locale	United States
	Hardware Abstraction Layer	Version = "10.0.14393.0"
	User Name	EMSCIENT01\emsadmin
	Time Zone	Eastern Daylight Time
	Installed Physical Memory (RAM)	16.0 GB
	Total Physical Memory	15.8 GB
	Available Physical Memory	11.6 GB
	Total Virtual Memory	18.2 GB
	Available Virtual Memory	13.2 GB

EXHIBIT B:

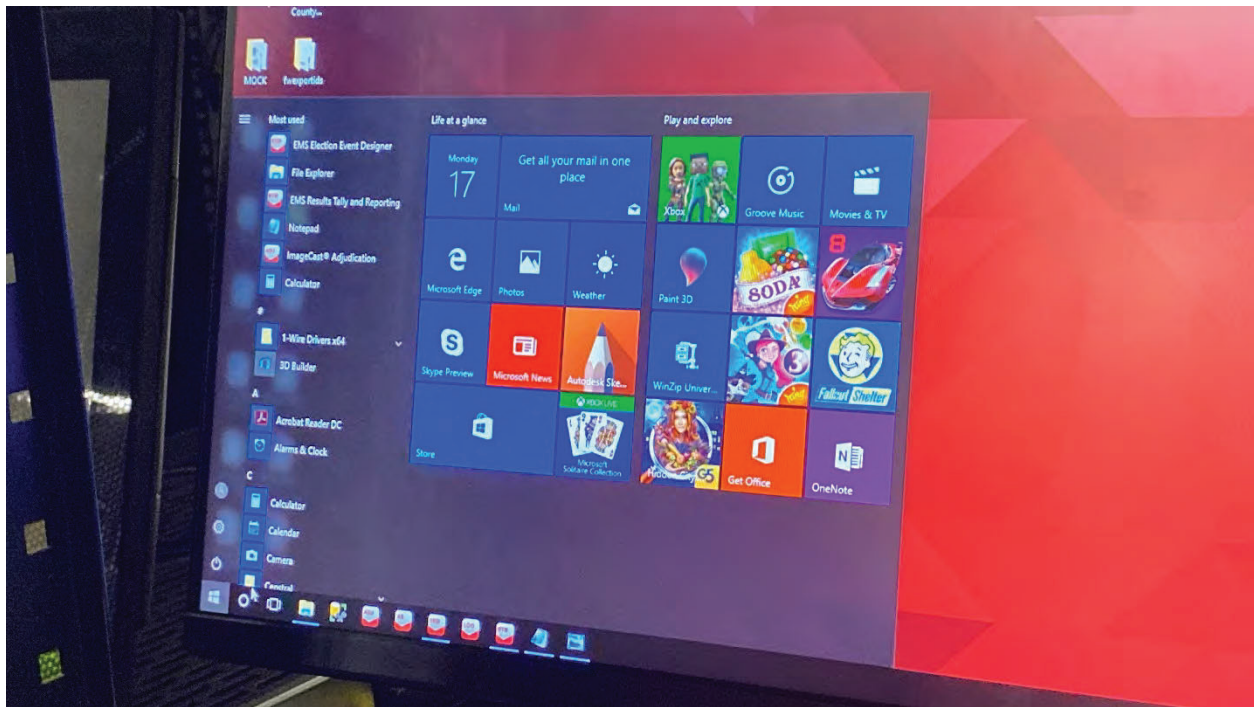




EXHIBIT C:

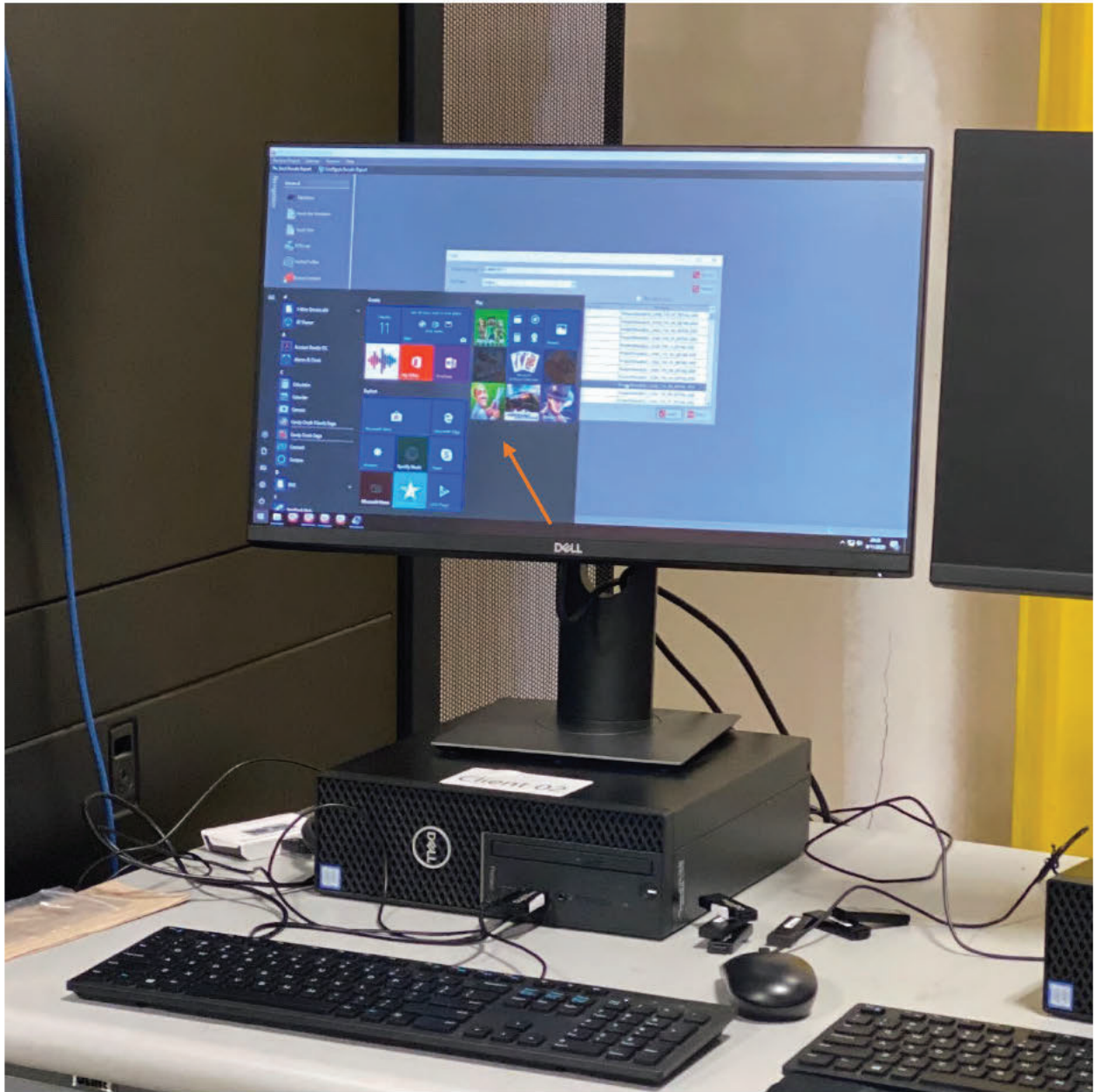
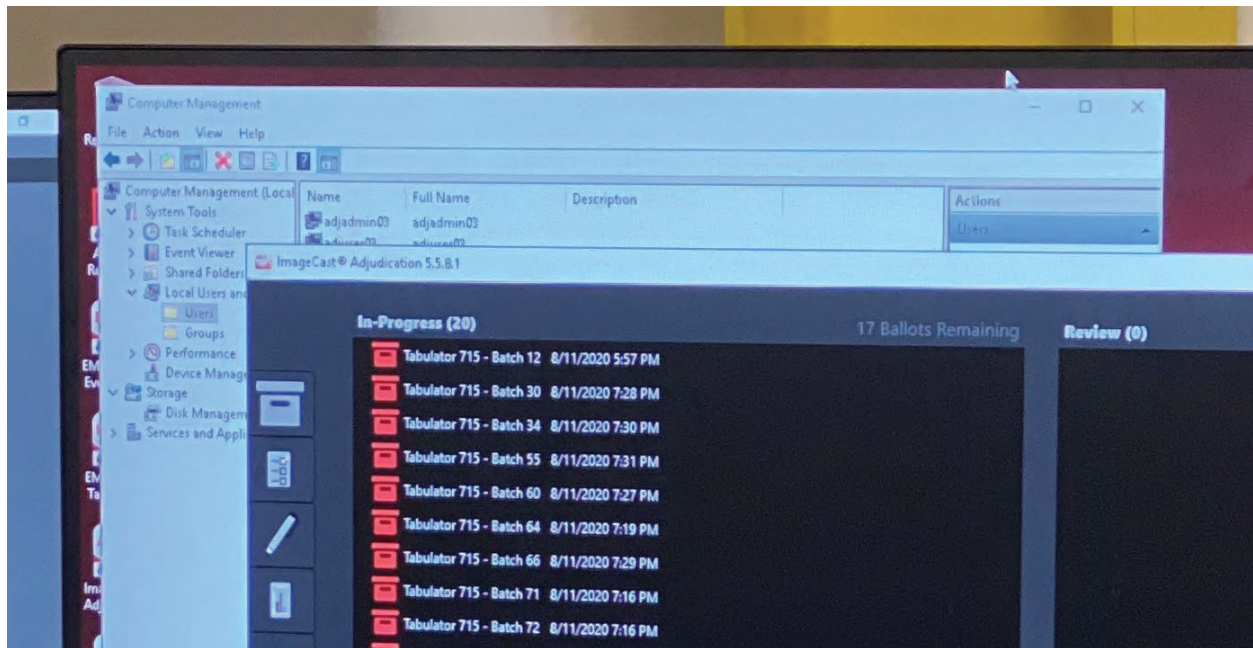


EXHIBIT D:





## EXHIBIT E:

**ICC SCANNER DRIVER SETTINGS**
**DOMINION VOTING**

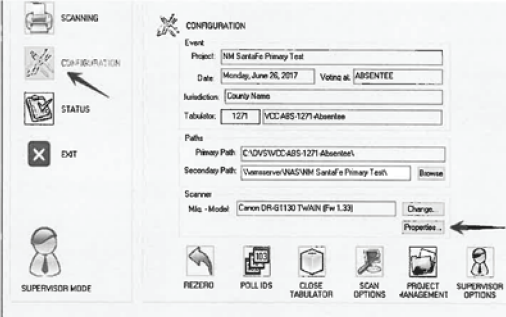
**1**

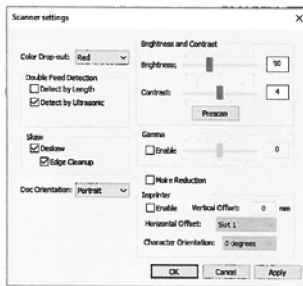
- Click on the **ADMINISTRATOR MODE** icon in the lower left corner of the window. Enter the Supervisor password.
- Click the **CONFIGURATION** button option on the left side of the window then click the **Properties** button located in the lower **Scanner** section.

**2** Verify/select the following settings:

- Color Drop-out:** Red
- Detect by Length:** Not selected
- Detect by Ultrasonic:** Selected
- Deskew:** Selected
- Edge Cleanup:** Selected
- Doc Orientation:** Portrait
- Brightness:** Set to 90
- Contrast:** 4
- Gamma:** Not selected
- Moire Reduction:** Not selected
- Imprinter:** Not selected

Click the **Apply** button then click the **OK** button.





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EXHIBIT F:

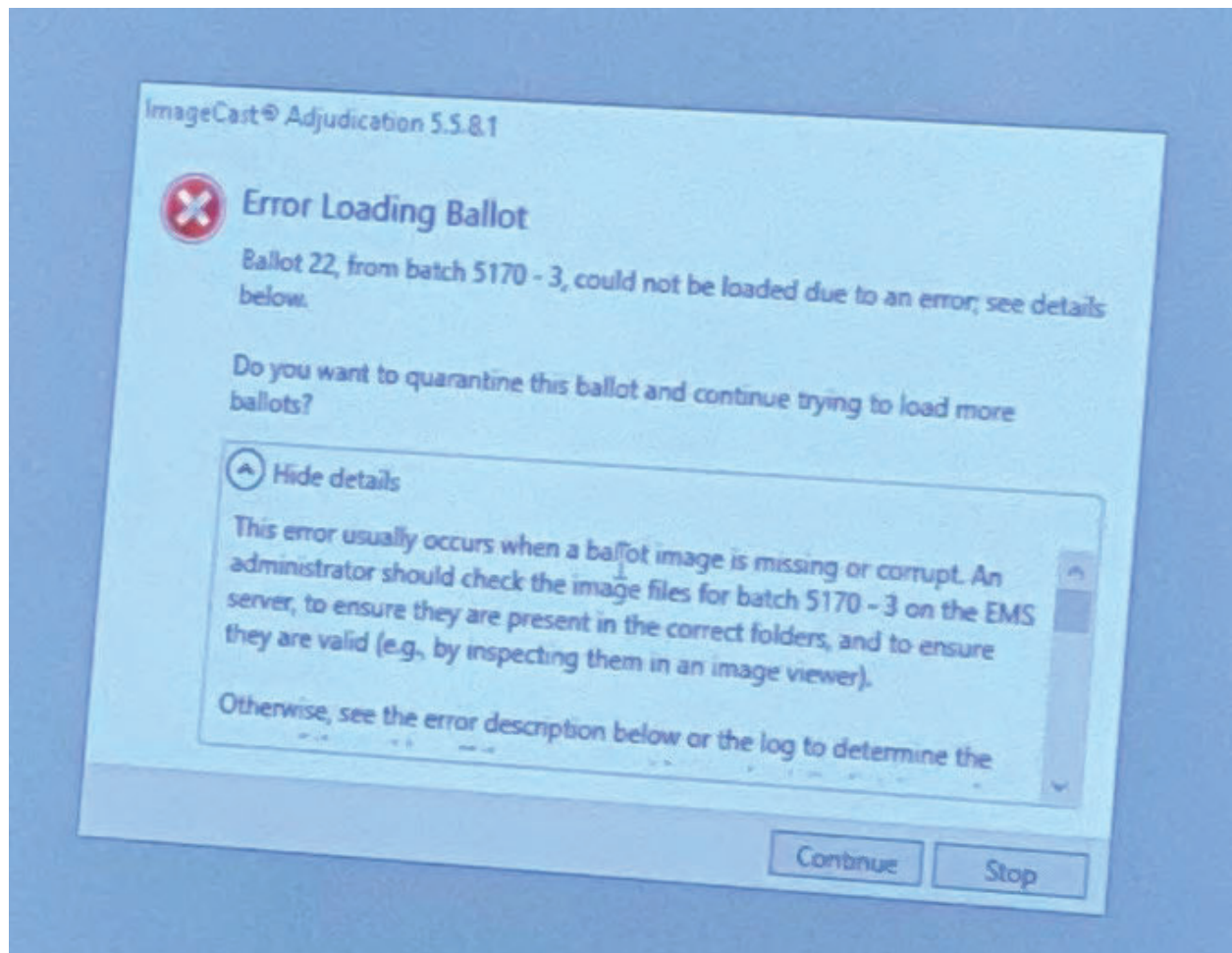


EXHIBIT G:



EXHIBIT H:



## EXHIBIT I:

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**FULTON COUNTY**  
993-SC13

**OFFICIAL ABSENTEE/PROVISIONAL/EMERGENCY BALLOT**

**OFFICIAL DEMOCRATIC PARTY PRIMARY AND  
NONPARTISAN GENERAL ELECTION RUNOFF BALLOT  
OF THE STATE OF GEORGIA  
AUGUST 11, 2020**

To vote, blacken the Oval (●) next to the candidate of your choice. To vote for a person whose name is not on the ballot, manually WRITE his or her name in the write-in section and blacken the Oval (●) next to the write-in section. If you desire to vote YES or NO for a PROPOSED QUESTION, blacken the corresponding Oval (●). Use only blue or black pen or pencil.

Do not vote for more candidates than the number allowed for each specific office. Do not cross out or erase. If you erase or make other marks on the ballot or tear the ballot, your vote may not count.

If you change your mind or make a mistake, you may return the ballot by writing "Spoiled" across the face of the ballot and return envelope. You may then mail the spoiled ballot back to your county board of registrars, and you will be issued another official absentee ballot. Alternatively, you may surrender the ballot to the poll manager of an early voting site within your county or the precinct to which you are assigned. You will then be permitted to vote a regular ballot.

*"I understand that the offer or acceptance of money or any other object of value to vote for any particular candidate, list of candidates, issue, or list of issues included in this election constitutes an act of voter fraud and is a felony under Georgia law." [O.C.G.A. 21-2-284(e) and 21-2-383(a)]*

<b>For State Representative In the General Assembly From 65th District (Vote for One)</b>  <input type="radio"/> Sharon Beasley-Teague (Incumbent)  <input checked="" type="radio"/> Mandisha A. Thomas	<b>NONPARTISAN GENERAL ELECTION RUNOFF</b>  <b>For Judge, Superior Court of the Atlanta Judicial Circuit (To Succeed Constance C. Russell) (Vote for One)</b>  <input checked="" type="radio"/> Melynee Leftridge Harris  <input type="radio"/> Tamika Hrobowski-Houston
<b>For District Attorney of the Atlanta Judicial Circuit (Vote for One)</b>  <input type="radio"/> Paul Howard (Incumbent)  <input checked="" type="radio"/> Fani Willis	<b>For Member, Fulton County School Board District 4 (Vote for One)</b>  <input checked="" type="radio"/> Franchesca Warren  <input type="radio"/> Sandra C. Wright
<b>For Sheriff (Vote for One)</b>  <input checked="" type="radio"/> Theodore "Ted" Jackson (Incumbent)  <input type="radio"/> Patrick "Pat" Labat	

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EXHIBIT J:

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**FULTON COUNTY**  
802-UC01A

**OFFICIAL ABSENTEE/PROVISIONAL/EMERGENCY BALLOT**

**OFFICIAL DEMOCRATIC PARTY PRIMARY AND  
NONPARTISAN GENERAL ELECTION RUNOFF BALLOT  
OF THE STATE OF GEORGIA  
AUGUST 11, 2020**

To vote, blacken the Oval (●) next to the candidate of your choice. To vote for a person whose name is not on the ballot, manually WRITE his or her name in the write-in section and blacken the Oval (●) next to the write-in section. If you desire to vote YES or NO for a PROPOSED QUESTION, blacken the corresponding Oval (●). Use only blue or black pen or pencil.

Do not vote for more candidates than the number allowed for each specific office. Do not cross out or erase. If you erase or make other marks on the ballot or tear the ballot, your vote may not count.

If you change your mind or make a mistake, you may return the ballot by writing "Spoiled" across the face of the ballot and return envelope. You may then mail the spoiled ballot back to your county board of registrars, and you will be issued another official absentee ballot. Alternatively, you may surrender the ballot to the poll manager of an early voting site within your county or the precinct to which you are assigned. You will then be permitted to vote a regular ballot.

*"I understand that the offer or acceptance of money or any other object of value to vote for any particular candidate, list of candidates, issue, or list of issues included in this election constitutes an act of voter fraud and is a felony under Georgia law." (O.C.G.A. 21-2-284(e) and 21-2-383(a))*

<p><b>For State Representative In the General Assembly From 65th District (Vote for One)</b></p> <p><input checked="" type="radio"/> Sharon Beasley-Teague (Incumbent)</p> <p><input type="radio"/> Mandisha A. Thomas</p>	<p><b>NONPARTISAN GENERAL ELECTION RUNOFF</b></p> <p><b>For Judge, Superior Court of the Atlanta Judicial Circuit (To Succeed Constance C. Russell) (Vote for One)</b></p> <p><input type="radio"/> Melynee Leftridge Harris</p> <p><input checked="" type="radio"/> Tamika Hrobowski-Houston</p>	<p><i>Outstaked on 2nd pass concluded rely Sarah Couldn't first pass</i></p>
<p><b>For District Attorney of the Atlanta Judicial Circuit (Vote for One)</b></p> <p><input type="radio"/> Paul Howard (Incumbent)</p> <p><input checked="" type="radio"/> Fani Willis</p>		
<p><b>For Sheriff (Vote for One)</b></p> <p><input type="radio"/> Theodore "Ted" Jackson (Incumbent)</p> <p><input checked="" type="radio"/> Patrick "Pat" Labat</p>		

EXHIBIT K:



**Gabriel Sterling**  
@GabrielSterling



Replying to [@MarilynRMarks1](#) [@raahulbali](#) and 9 others

Again, all Central scanners were set at the industry standard 0-13% is not a mark (the oval is 5%) 14-28% is the ambiguous level to be checked by review panels, 29%+ is a mark. You ar pointing out the inherent issues with HMPBs that we don't see with BMD marked ballots.

8:02 PM · Jun 13, 2020 from [Georgia, USA](#) · [Twitter for iPhone](#)





## EXHIBIT L:



- Create a voter card from Poll Pad for each unique ballot style within the designated Polling Location
  - Recommend labels be placed on card identifying what ballot style will be displayed by BMD once card is inserted
  - BMD removes the activation code from the Voter Card once used, therefore create the card again from Poll Pad after each use by a BMD

**D. Testing the BMD and Printer**

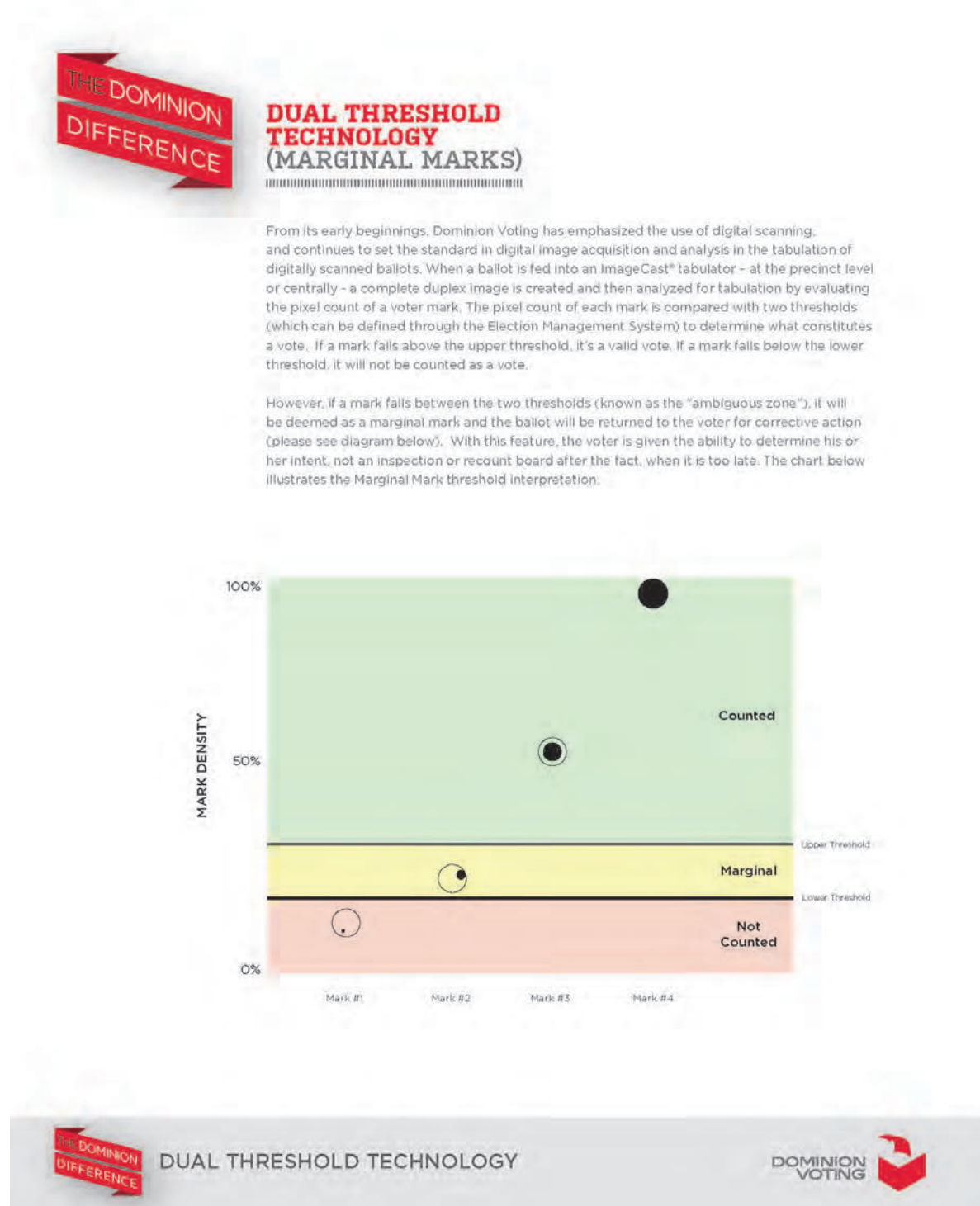
Use a combination of Poll Worker Card with Ballot Activation Codes for the polling location, and Voter Cards created from a Poll Pad loaded with the LA/Advance Voting dataset to bring up ballots on the BMD

- Produce at least one printed ballot from each BMD assigned to the polling location
- Produce a test deck from the BMDs assigned to the polling location for each unique ballot style within the polling location. The test deck must contain at least one vote for each candidate listed in each race within the unique ballot style
  - **Example:** Ballot from BMD 1 contains a vote for only the first candidate in each race listed on Ballot Style 1, Ballot from BMD 2 contains a vote only for the second candidate in each race on Ballot Style 1, and continue through the line of devices until all candidates in all races within the unique ballot style have received a single vote
  - **If Number of BMDs outnumber the number of vote positions on the unique ballot style,** start the vote pattern over until all BMDs have produced one printed ballot
  - **If Number of unique ballot styles in the polling place is greater than 1,** once the vote pattern is complete for a unique ballot style, proceed to the next BMD in line to start the review of the next unique Ballot Style
  - **All unique ballot styles do not have to be tested on each BMD**
- Review BMD-generated Test Deck and confirm the vote content before placing in the designated Polling Place Scanner

**E. Testing the Polling Place Scanner**

- Scan the BMD-generated Test Deck into the Polling Place Scanner
- Scan one blank optical scan ballot style(s) associated to the Polling Place to verify the Polling Place Scanner will recognize the ballot style in case of emergency
- Verify Scanner(s) shows a number of Ballot Cast equal to the number of ballots in the BMD-generated test deck plus the scanned blank Optical Scan ballot styles
- Firmly place the Security Key Tab in the Security Key Slot
- Touch Close Polls
- Enter the passcode
- Touch Enter
- Touch Yes
- Touch No for additional tapes (Scanner will automatically produce 3 copies of the closing tape)

## EXHIBIT M:



# EXHIBIT 8



**STATEMENT BY ANA MERCEDES DÍAZ CARDOZO**

I, Ana Mercedes Díaz Cardozo, hereby declare the following:

1. My name is Ana Mercedes Díaz Cardozo. I'm known as Ana Diaz by many. I am an adult of the sound mind and was born in Caracas, Venezuela on March 24, 1960. I'm a naturalized American citizen. I reside at 923 Gulf Stream Court, Weston, Florida 33327.

2. I make this statement voluntarily and on my own initiative. I have not been promised, nor do I expect to receive anything in exchange for my testimony and give this statement. I have no expectation of any benefit or reward and understand that there are those who can try to hurt me for what I say in this statement.

3. I moved from Venezuela to the United States in 2004 due to political corruption and rapid decline in my home country of Venezuela. I want to alert the public and let the world know the truth about corruption, manipulation, and lies committed through a conspiracy of individuals and businesses with the intention of betraying the honest people of the United States and its legally constituted institutions and fundamental rights as citizens. This conspiracy began more than a decade ago in Venezuela and has spread to countries around the world. It is a conspiracy to unjustly gain and maintain power and wealth. These are political leaders, powerful companies, and others whose purpose is to gain and maintain power by changing people's free will and subverting the proper course of governing.

4. After graduating from high school, I attended the University of Santa Maria in Caracas, Venezuela and graduated as a lawyer in 1987. Then I studied a postgraduate degree in administrative law at the University of Central Venezuela. Before I could submit my thesis for a Master's degree in Administrative Law, I moved to the United States. I'm certified as an arbiter of international trade.

5. I was a career official for 25 years at the Supreme Electoral Council of Venezuela, which is the name that it was called in the 1970's. It is currently called the National Electoral Council. This is the highest electoral administrative agency in Venezuela and oversees all elections in Venezuela. In 1979, at the age of 19, I began my career at the Supreme Electoral Council of Venezuela as secretary in the regional delegation of the federal district. When I graduated from the university as a lawyer, my position on the Supreme Electoral Council changes to the position as an adviser to the Judicial Council of the Supreme Council Electoral. In 1991, I was appointed Assistant Director General of Political Parties, where I served until Hugo Chavez came to power in 1998. Also during this time, I served for seven years as a member of the Legislative Commission of the Venezuelan Electoral Council. It was the role of the Legislative Commission to review and identify any issues related to candidates

for elected positions. The Legislative Commission and my office had access to many resources within the various departments of the Electoral Council, including an information technology section that had experts in computers, computer programming, computer systems and telecommunications features such as modems, telephone lines. I was regularly in communication with the various departments of the Electoral Body for my daily duties. In the last years of my work for the Electoral Counsel, a little of my activities and duties were to learn about electronic voting systems and their functioning by Council experts.

6. As Deputy Director General of Political Parties in the Supreme Electoral Council, it was my duty to oversee everything related to political parties in Venezuela, particularly the participation of political parties in elections and the selection and qualifications of candidates for political office. My office reviewed everything to do with the ability of political parties to participate in the electoral process. Before a political party could be formed, it had to undergo a process for approval. This included legal approval of the party name, its colors and a list of its members. The proposed party had to have a certain percentage of Venezuela's population depending on whether it wanted to be a regional or national party. It could not be constituted as a political party until it was approved by the Supreme Electoral Council. My office also oversaw the creation of ballots that bore the name of the candidates and any party symbol or color that the candidate would like to use. When our office approved these matters, we sent the ballot for printing and circulation. Any conflict over which group could be a political party, which would be a candidate for elected office, how that candidate would be included in the vote, were decided by my office. I was a signatory to all decisions taken by the Political Parties office at the Supreme Electoral Council.

7. After Hugo Chavez was elected, he changed the Venezuelan Constitution. One such change was in the Supreme Electoral Council, now the Electoral Power. In February 2009, a national referendum was passed to change Venezuela's Constitution to end mandate limits for elected officials, including the President of Venezuela. This change allowed Hugo Chavez to be re-elected an unlimited number of times.

8. In 2003, I was appointed Director General of Political Parties at the National Electoral Council. At the end of that year there was a national effort to hold a referendum to remove Hugo Chavez from the post of President. In 2004 I was appointed to the Validation Committee that was responsible for reviewing petitions, the requirements of the signatories were their name, their signature, their fingerprint and their identification number. I discovered many ways that the party in power was trying to override requests. One was the change of forms to reflect that the petition was a referendum on the removal of members of the Venezuelan Congress



rather than the removal of the Venezuelan president. The purpose of manipulating petitions was to prevent a referendum to remove President Chavez from office. I investigated the allegations of fraud with the referendum petitions and lobbied for the fraudulent changes to be rectified. Because of my resistance and protests to this voter fraud, I received a letter in March 2004 stating that my position was trusted and trust had been lost in me and I was fired from the service.

9. After my dismissal, I decided to commit to the study of electoral processes both within Venezuela and in other countries, particularly in South American countries that were experiencing electoral unrest and government manipulation of constitutions, laws and elections. I joined a small group of highly educated and informed people who had access to information about the Venezuelan government and its activities. This group and I conduct interviews with Venezuelan citizens, read news publications and specialized treaties, and write evaluating the political, economic, legal and electoral changes taking place in Venezuela, South American countries, and other parts of the world controlled by socialist dictators and oligarchies. I read these treatises, studies, and publications to educate myself on how elections were manipulated and the use of empirical analysis to detect and identify the manipulation of elections and their results. In addition, I have collected copies of official Venezuelan government documents.

10. Official documents of the Venezuelan government include documents showing the bidding process for the implementation of a new electronic voting system in March 2004 and the award of the contract for that new system to Smartmatic. A true and authentic copy of the venezuelan National Electoral Council's tender documents, internal memorandums and contract signed between the Venezuelan government and the SBC Consortium (Smartmatic) are labeled Exhibit 1 and this statement is attached. I received the documents that constitute Exhibit 1 from a reliable person who had taken some notes on the documents and highlighted some parts for my attention. I have not made any alterations to what I have received, and the substantive content of the documents is authentic. For convenience, I've had the Bates document tagged at the bottom right of each page.

11. I have studied the documents contained in Exhibit 1 and have several observations. Exhibit 1 says that it is a contract between the National Electoral Council and the SBC Consortium (Smartmatic) and is dated 15 March 2004. It has a stamp that says Bolivarian Republic of Venezuela, Secretary General of the National Electoral Council. That is the official seal of the Secretary of the National Electoral Council. The initials at the bottom right side confirm the document's authenticity.

12. You would notice that page DIAZ 00002 is important because it shows that the contract is being made on February 16, 2004. Page DIAZ 00027, reflects that on February 14, 2004 at 11:50 a.m., in the Council's session room, Francisco Carrasquero López, Ezequiel Zamora Presilla, Jorge Rodríguez Gómez (Jorge Rodríguez), Sobella Mejías, and William Pacheco Medina, Vice President, the directors of the Secretary General of Electoral Voters respectively, in order to proceed with the delivery to the technical commissions, designated at the meeting dated 13 February 2004, they opened the tender envelopes containing the tenders of the companies that wanted to be awarded a contract for the automation of Venezuela's voting system and the processes used to carry out the 2004 referendum on the revocation of Hugo Chavez's election. Below you can read the amounts of offers made by Smartmatic SBC, Diebold and other bidders.

13. Then, on page DIAZ 000031, there is an internal note from the Director General of Administration, Mr. Medina. It was dated 14 February 2004 and said that a report on the research and evaluation of companies bidding for the automation of the voting system needed to be prepared.

14. It would then draw attention to the page marked DIAZ 000029. It is a document made on February 13, 2004. While this page is out of sequence, it shows the speed at which the decision was made to award the electoral system contract. The tender began on February 13 and had ended on February 16<sup>th</sup> -- a three-day period to review contracts and evaluate the specifications and performance of bidders' systems, including software, hardware, security, performance and bidding costs for the procurement, installation, training and operation of the systems. By February 16<sup>th</sup>, a decision to choose Smartmatic was made. This is convincing evidence that there was no genuine competition for the electoral system contract or serious consideration for alternative contracts. There was no due diligence and the bidding was rigged. It is not possible that within three or four days to do the formal investigation to evaluate the bids and award a contract of this size and important. The impropriety of this action is confirmed by the fact that the contract with Smartmatic was signed a month later, on 15 March 2004.

15. After the contract was awarded to Smartmatic, it was learned that Smartmatic had no previous experience in conducting elections and electoral tabulations. More importantly, it was discovered that the Smartmatic voting system contained two-way communication functions that allowed voting data not only to be sent to a central system of operation and voting, but the central voting system in operation and tabulation to send operational instructions and data to voting machines. It is not mentioned in the contract documents and specifications that the system would be bidirectional and would allow the transmission of data and instructions from the central operating system directly to voting machines. One




simply has to examine the system diagram on page DIAZ 000057 of Exhibit 1. If this feature of the Smartmatic system had been disclosed to the Electoral Council, it could not have adequately accepted Smartmatic's offer because it would allow the Smartmatic voting system to be handled in a way that manipulated votes and interfered with the legitimate voting and electoral process by impersonating the will to govern officials with the will of the electorate: the citizens of Venezuela. It was not surprising that Hugo Chávez and his successors then constantly won the election through the use and manipulation of the Smartmatic voting system.

16. In the 16 years since I left my post as Director General of Political Parties at the National Electoral Council of Venezuela, I have studied the electoral systems of Bolivia, Colombia, Ecuador, Guatemala, Honduras and Nicaragua and have observed elections and participated in pro-democratic forums in Colombia, Ecuador, Honduras and Nicaragua. I have also studied and researched electoral processes in Europe, participating in public academic conferences in Spain and Italy on the subject of democratic electoral processes.

17. Based on my specialized experiences with electoral systems, I have a firm view that no legitimate electronic voting system should be allowed to have the ability of two-way communications to send data and instructions between central tabulation operations and voting machines over telephone lines or the Internet. Having such characteristics compromise the integrity of the entire voting process by allowing injection of data and instructions to manipulate voting before, during and after an election and to avoid detection of processes and mechanisms designed to prevent voting manipulation and fraud.

I declare under penalty of perjury that the above is true and correct and that this Statement was prepared in Dallas County, Texas, and executed on November 20, 2020.

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Ana Mercedes Díaz Cardozo