label	Requirement Category	Requirement	Source of requirement	Acceptance criteria (qualitative description)	Metrics	Acceptable metrics	Unacceptable failure modes	Source of metrics? (Default is Vx ERD)	Followup if failures are seen?	Destructive?	Subsystems to test	Order of Testing on 4/29/24, roughly	Estimated time to test (min)
1	Paper path, valid ballot	System scans valid ballots in standard conditions, for a variety of documented paper types	VVSG 1.2-G, 2.7-A, 2.7-B, 3.1.6-M, 1.1.6-F, TA2. 1.1-C 1	Scans a variety of paper types	1. **Misfeed rate** when MCM-BR system scans under normal conditions, in any scan orientation, with these ballots: a. short ballot (8.5x11"), 28 bond, 50+ sheets b. short ballot (8.5x11"), 40-47 bond / 65 cover, 50+ sheets c. long ballot (8.5x22"), 28 bond, 50+ sheets d. long ballot (8.5x22"), 40-47 bond / 65 cover, 50+ sheets Include regular ballots, undervotes, and write-in votes. 2. Were any actual or potential **hazards or system damage** observed? 3. Can we **verify valid CVR files** were saved on the USB stick?	1a. 0 misfeeds, or <=1/500 misfeed rate 1b. 0 misfeeds, or <=1/500 misfeed rate 1c. 0 misfeeds, or <=1/500 misfeed rate 1d. 0 misfeeds, or <=1/500 misfeed rate 2. no 3. yes	1a. 1+ misfeeds, or >1/500 misfeed rate 1b. 1+ misfeeds, or >1/500 misfeed rate 1c. 1+ misfeeds, or >1/500 misfeed rate 1d. 1+ misfeeds, or >1/500 misfeed rate 2. yes (e.g. injury to person, overheated electronics, etc) 3. no	VVSG: 1/500 misfeed rate Vx ERD Vx Test Plan P1, F1, F2	Identify how to reproduce misfeeds or other relevant error. Discuss design improvements. Note the worst-case paper condition for future tests.	no	MCM, BR	1	40
2	Paper path, rejected ballot	System appropriately handles multiple sheets inserted at the same time (MSD)	VVSG 2.7-A, 2.7-B, 1.1.6-F, 1.2-E	Rejects multiple ballots appropriately. Accepts single ballots appropriately.	1. Calibrate the MSD. Insert the following types of multiple sheet cases, using valid ballots, in any scan orientation. Try each case at least 3x. **Are the multiple sheets all rejected without jamming?** a. double sheet, no offset, inserted straight b. double sheet, offset by half the length, inserted straight c. double sheet, offset by 3/4 the length, inserted straight d. double sheet, no offset, inserted skew or corner-first e. triple sheet, no offset, inserted straight 2. Were the **rejected ballots resting stable** in the system for retrieval? 3. Confirm results from Test #1 using heavy paper. Recalibrate the MSD. **Does a single sheet of the heaviest paper correctly get accepted**, and not rejected as multiple sheets?	1. yes 2. yes 3. yes	1. no 2. no (falling down) 3. no	VVSG requirement to prevent misfeeds and mistallies Vx ERD Vx Test Plan P3, F1	Identify how to reproduce errors. Discuss design improvements.	no	MCM, BR	2	10
3	Paper path, rejected ballot	System rejects invalid ballots in standard conditions, for a variety of documented paper types	VVSG 2.7-A, 2.7-B, 1.1.6-F, 1.2-E	Rejects invalid ballots	1. Insert the following types of invalid ballots, in any scan orientation: a. overvote (if applicable as invalid) b. wrong election c. blank sheet Try these invalid ballots on the following paper types. a. short ballot (8.5x11"), 28 bond b. short ballot (8.5x11"), 40-47 bond / 65 cover c. long ballot (8.5x22"), 28 bond d. long ballot (8.5x22"), 40-47 bond / 65 cover Try each case at least 3x. **Are the invalid ballots all rejected without jamming**, and with alerts**?** 2. Were the **rejected ballots resting stable** in the system for retrieval? 3. Were any actual or potential **hazards or system damage** observed?	1. yes 2. yes 3. no	1. no 2. no (falling down) 3. yes	VVSG requirement to prevent misfeeds and mistallies Vx ERD Vx Test Plan P3 (simplified), F1	Identify how to reproduce errors. Discuss design improvements.	no	MCM, BR	3	10
4	Paper path, valid ballot	System scans valid ballots in standard conditions with low misfeed rates	VVSG 1.2-G, 2.7-A, 2.7-B, 1.1.6-F	Scans with reliably low misfeed rate	1. **Misfeed rate** when MCM-BR system scans under normal conditions, in any scan orientation, with these ballots: a. worst-case paper type from Test #1, 3000+ sheets 2. Were any actual or potential **hazards or system damage** observed?	1a. <=6 misfeeds, or <=1/500 misfeed rate 2. no	1a. >6 misfeeds, or <=1/500 misfeed rate 2. yes	VVSG: 1/500 misfeed rate Vx ERD Vx Test Plan P2, F2	Identify how to reproduce misfeeds or other relevant error. Discuss design improvements.	possibly	MCM, BR		

label	Requirement Category	Requirement	Source of requirement	Acceptance criteria (qualitative description)	Metrics	Acceptable metrics	Unacceptable failure modes	Source of metrics? (Default is Vx ERD)	Followup if failures are seen?	Destructive?	Subsystems to test	Order of Testing on 4/29/24, roughly	Estimated time to test (min)
5	Paper path, valid ballot	System scans valid ballots with realistic paper disruptions	VVSG 2.7-A, 2.7-B, 1.1.6-F, 1.2-E	Scans reasonably mildly disrupted paper ballots	Scan each the following types of "mildly disrupted paper ballot" ballots, using the worst-case paper type from Test #1. Try each case at least 3x, in either scan orientation: a. folded 1x (middle) b. folded 2x (trifold) c. curled leading edge d. torn (at corners, sides) e. wet (droplets of water or alcohol) f. dirty (juicy marker write-in smudges; paper dust, etc) g. stored in >60% humidity for 24+ hours h. any other disruptions of interest For each "mildly disrupted paper ballot" type, answer this question (y/n): **Does the system accept the ballot appropriately without causing failures?** **OR** **If the disruption is excessive, does the system reject/misfeed the ballot appropriately, while alerting the user?**	For all cases: yes	For any case: no - System jams with difficulty removing the ballot. - Damages system. - Damages ballot more. - Leaves significant debris in system. - Rejects ballot without alerts. - Rejects ballot that only has a mild disruption. - System freezes for several seconds, or requiring restart.	VVSG requirement to "fail gracefully" Vx ERD Vx Test Plan P3	Discuss the difference between an "excessive" vs. "mild" paper disruption, and what should be accepted or not. Discuss if design improvements are needed.	possibly	MCM, BR	4	30
6	Paper path, rejected ballot	System handles jams appropriately, or fails gracefully	VVSG 1.2-E, 2.6-A	Paper jams can be removed. Paper jams do not cause system damage of failure.	Intentionally try to cause jams using validly completed ballots of both light and heavy paper types: a. short ballot (8.5x11"), 28 bond b. short ballot (8.5x11"), 40-47 bond / 65 cover Try to cause the following types of jams, at least 3x each: a. hold the ballot as it scans b. let the ballot go to scan, then try to pull it out mid-scan c. push the ballot into the scan as it scans d. insert badly crumpled ballot e. insert badly curled ballot f. insert badly torn ballot g. insert very wet ballot (water, alcohol) h. insert folded ballot that was never unfolded i. insert out-of-spec lightweight paper (<28 bond) j. insert out-of-spec heavyweight paper (>47 bond) For each "mildly disrupted paper ballot" type, answer these questions (y/n): 1. If the system jams, can the **jam can be removed** easily? 2. Does the **system continue to work normally** after clearing the jam?	For all cases: yes Any accepted/rejected ballots must not damage the system or other ballots. The ballots themselves can get damaged/spoiled further.	For any case: no - System jams with difficulty removing the ballot. - Damages system. - Leaves significant debris in system. - Rejects ballot without alerts. - System freezes for several seconds, or requiring restart.	VVSG requirement to "fail gracefully" Vx ERD Vx Test Plan P5	Identify how to reproduce errors. Discuss design improvements.	possibly	MCM, BR	5	30
7	Paper path, cleanability	System can be cleaned appropriately.	ERD	Resists any damage or change in function from cleaning.	Open the scanner, and wipe down with microfiber cloth and lens spray, and microfiber cloth and isopropyl alcohol. Inspect the scanner and close it up. 1. Does the scanner and system resist any damage from cleaning? 2. Does the scanner still scan appropriately?	1. yes (resists functional and cosmetic damage) 2. yes	1. no 2. no (e.g. MSD doesn't work)	ERD	Identify how to reproduce errors. Discuss design improvements.	possibly	MCM	6	5
8	Paper path, unexpected inputs	System handles unexpected inputs appropriately.	ERD	Rejects unexpected inputs into the infeed. Fails gracefully at unexpected inputs into the infeed.	Attempt to insert the following into the scanner infeed, and observe the system. a. plastic sheet b. fabric / clothing d. paper with tape on it e. cleaning sheets for a scanner f. smart card g. USB stick h. pliers / snake tool i. other items that might unintentionally go in by users j. other items that might go in by bad actors For each case, **does the system avoid catastrophic damage?**	yes to all The system can error out, jam, etc, as long as it does not cause any hazards od permanently destructive damage.	no to any Hazards, permanent damage	VVSG requirement to "fail gracefully" Vx ERD Vx Test Plan P3	Identify how to reproduce errors. Discuss design improvements.	possibly	MCM, BR	7	10

label	Requirement Category	Requirement	Source of requirement	Acceptance criteria (qualitative description)	Metrics	Acceptable metrics	Unacceptable failure modes	Source of metrics? (Default is Vx ERD)	Followup if failures are seen?	Destructive?	Subsystems to test	Order of Testing on 4/29/24, roughly	Estimated time to test (min)
9	Paper path, valid ballot	System scans valid ballots in hotter environmental conditions	VVSG 1.2-G, 2.7-A, 2.7-B, 1.1.6-F	Scans a variety of paper types in a hotter environment	1. **Misfeed rate** when MCM-BR system scans under hotter conditions (95 degrees F ambient temp), in any scan orientation, with these ballots: a. short ballot (8.5x11"), 28 bond, 50+ sheets b. short ballot (8.5x11"), 40-47 bond / 65 cover, 50+ sheets c. long ballot (8.5x22"), 28 bond, 50+ sheets d. long ballot (8.5x22"), 40-47 bond / 65 cover, 50+ sheets The "hotter conditions" is an ambient temperature arround the MCM of at least 95 degrees F. This can come from a space heater, sunlight, or some other means. Include regular ballots, undervotes, and write-in votes. 2. Were any actual or potential **hazards or system damage** observed? 3. Can we **verify valid CVR files** were saved on the USB stick?	1a. <=6 misfeeds, or <=1/500 misfeed rate 2. no 3. yes	1a. >6 misfeeds, or <=1/500 misfeed rate 2. yes 3. no	VVSG: 1/500 misfeed rate Vx ERD Vx Test Plan P4 (simplified)	Identify how to reproduce misfeeds or other relevant error. Discuss design improvements.	possibly	MCM, BR		40
10	Shock testing, transit testing	Paper path subsystems and parts are robust.	ERD, VVSG 2.7-D	Paper path parts resist damage to benchtop drops during assembly and maintenance.	Take the major components of the paper path (infeed, outfeed, etc). Drop them according to benchtop drop tests standards for all sides/edges (lifting one edge 4", or 45 degrees, or perfect balance point), and examine the damage. **Does it resist catastrophic damage from the drop?**	yes	no broken parts, lost debris, deformation, etc	Vx Test Plan S2	Identify how to reproduce errors. Discuss design improvements.	possibly	MCM, BR		20
11	Transit testing	Paper path subsystems and parts are robust.	VVSG 2.7-E, 3.1.5-K, TA2.7-E 1	Paper path parts resist damage from vibrations during travel.	Examine the MCM paper path parts following air travel and travel in car. 1. Are there any **loose parts**, fasteners, or wires? 2. Is there any **evidence of damage due to vibration** or repeated high-frequency wear motion?	no to all	yes to any	This is a precursor to a more stringent vibration test Vx Test Plan T1	Identify how to reproduce errors. Discuss design improvements.	possibly	MCM	8	30

label	Requirement Category	Requirement	Source of requirement	Acceptance criteria (qualitative description)	Metrics	Test Results, VxAustin, 7/3/24, w/ MCM only	Test Results, VxAustin, w/ MCM & BB	Test Results, VxBellingham	Test Results, other	Summary results	Notes	Followup plan	Order of Testing, roughly	Estimated time to test (min)	Actual time (min)
1	Paper path, valid ballot	System scans valid ballots in standard conditions, for a variety of documented paper types	VVSG 1.2-G, 2.7-A, 2.7-B, 3.1.6-M, 1.1.6-F, TA2. 1.1-C 1	Scans a variety of paper types	1. **Misfeed rate** when MCM-BR system scans under normal conditions, in any scan orientation, with these ballots: a. short ballot (8.5x11"), 28 bond, 50+ sheets b. short ballot (8.5x11"), 40-47 bond / 65 cover, 50+ sheets c. long ballot (8.5x22"), 28 bond, 50+ sheets d. long ballot (8.5x22"), 40-47 bond / 65 cover, 50+ sheets Include regular ballots, undervotes, and write-in votes. 2. Were any actual or potential **hazards or system damage** observed? 3. Can we **verify valid CVR files** were saved on the USB stick?	full results here - more tested than listed. 1. a. 0% b. 0% c. 28#: 0% out of 285 d. 38#: 0% out of 240 2. no 3. yes				PASS (but can retest 40-47# later if needed)	Long ballots heaviest paper only up to 38# (140gsm) due to availability in time frame; can test heavier later if needed		1		1 day
2	Paper path, rejected ballot	System appropriately handles multiple sheets inserted at the same time (MSD)	VVSG 2.7-A, 2.7-B, 1.1.6-F, 1.2-E	Rejects multiple ballots appropriately. Accepts single ballots appropriately.	1. Insert the following types of multiple sheet cases, using valid ballots, in any scan orientation. Try each case at least 3x. **Are the multiple sheets all rejected without jamming?** a. double sheet, no offset, inserted straight b. double sheet, offset by half the length, inserted straight c. double sheet, offset by 3/4 the length, inserted straight d. double sheet, no offset, inserted skew or corner-first e. triple sheet, no offset, inserted straight 2. Were the **rejected ballots resting stable** in the system for retrieval? 3. Confirm results from Test #1 using heavy paper. **Does a single sheet of the heaviest paper correctly get accepted**, and not rejected as multiple sheets?	1. a. yes b. yes c. yes d. yes e. yes 2. yes 3. yes				PASS (but can retest 40-47# later if needed)		try again with long ballots	2		
3	Paper path, rejected ballot	System rejects invalid ballots in standard conditions, for a variety of documented paper types	VVSG 2.7-A, 2.7-B, 1.1.6-F, 1.2-E	Rejects invalid ballots	1. Insert the following types of invalid ballots, in any scan orientation: a. overvote (if applicable as invalid) b. wrong election c. blank sheet Try these invalid ballots on the following paper types. a. short ballot (8.5x11"), 28 bond b. short ballot (8.5x11"), 40-47 bond / 65 cover c. long ballot (8.5x22"), 28 bond d. long ballot (8.5x22"), 40-47 bond / 65 cover Try each case at least 3x. **Are the invalid ballots all rejected without jamming**, and with alerts**?** 2. Were the **rejected ballots resting stable** in the system for retrieval? 3. Were any actual or potential **hazards or system damage** observed?	1. short ballot, 28#: yes short ballot, 40-47#: yes long ballot, 28 lb: yes long ballot, 40-47#: (closest available was 38#) yes 2. yes 3. no				PASS (but can retest 40-47# later if needed)		try again with long ballots	3		
4	Paper path, valid ballot	System scans valid ballots in standard conditions with low misfeed rates	VVSG 1.2-G, 2.7-A, 2.7-B, 1.1.6-F	Scans with reliably low misfeed rate	1. **Misfeed rate** when MCM-BR system scans under normal conditions, in any scan orientation, with these ballots: a. worst-case paper type from Test #1, 3000+ sheets 2. Were any actual or potential **hazards or system damage** observed?	1. 0% misfeed at ~1600 ballots 8.5x11 as of 7/5/24				PARTIAL PASS (0 out of 1600)			5		
5	Paper path, valid ballot	System scans valid ballots with realistic paper disruptions	VVSG 2.7-A, 2.7-B, 1.1.6-F, 1.2-E	Scans reasonably mildly disrupted paper ballots	Scan each the following types of "mildly disrupted paper ballot" ballots, using the worst-case paper type from Test #1. Try each case at least 3x, in either scan orientation: a. folded 1x (middle) b. folded 2x (trifold) c. curled leading edge d. torn (at corners, sides) e. wet (droplets of water or alcohol) f. dirty (juicy marker write-in smudges; paper dust, etc) g. stored in >60% humidity for 24+ hours h. any other disruptions of interest For each "mildly disrupted paper ballot" type, answer this question (y/n): **Does the system accept the ballot appropriately without causing failures?** **OR** **If the disruption is excessive, does the system reject/misfeed the ballot appropriately, while alerting the user?**	a. yes b. yes c. yes - but audible clipping/rubbing heard internally d. yes e. yes f. yes g. yes - but slightly harder to get in infeed, stickier/more friction h. yes to the following: - extra colored marks - crumpled paper				PASS			4		

label	Requirement Category	Requirement	Source of requirement	Acceptance criteria (qualitative description)	Metrics	Test Results, VxAustin, 7/3/24, w/ MCM only	Test Results, VxAustin, w/ MCM & BB	Test Results, VxBellingham	Test Results, other	Summary results	Notes	Followup plan	Order of Testing, roughly	Estimated time to test (min)	Actual time (min)
8	Paper path, rejected ballot	System handles jams appropriately, or fails gracefully	VVSG 1.2-E, 2.6-A	Paper jams can be removed. Paper jams do not cause system damage of failure.	Intentionally try to cause jams using validly completed ballots of both light and heavy paper types: a. short ballot (8.5x11"), 28 bond b. short ballot (8.5x11"), 40-47 bond / 65 cover Try to cause the following types of jams, at least 3x each: a. hold the ballot as it scans b. let the ballot go to scan, then try to pull it out mid-scan c. push the ballot into the scan as it scans d. insert badly crumpled ballot e. insert badly curled ballot f. insert badly torn ballot g. insert very wet ballot (water, alcohol) h. insert folded ballot that was never unfolded i. insert out-of-spec lightweight paper (<28 bond) j. insert out-of-spec heavyweight paper (>47 bond) For each "mildly disrupted paper ballot" type, answer these questions (y/n): 1. If the system jams, can the **jam can be removed** easily? 2. Does the **system continue to work normally** after clearing the jam?	28#: a. yes b. yes c. yes d. yes e. yes f. yes g. SKIPPING FOR NOW h. Corner fold sometimes accepted, up to 4x4"				FAIL on one condition: folded ballot never unfolded, if it's a corner foled <4x4"			6		
9	Paper path, valid ballot	System scans valid ballots in hotter environmental conditions	VVSG 1.2-G, 2.7-A, 2.7-B, 1.1.6-F	Scans a variety of paper types in a hotter environment	1. **Misfeed rate** when MCM-BR system scans under hotter conditions (95 degrees F ambient temp), in any scan orientation, with these ballots: a. short ballot (8.5x11"), 28 bond, 50+ sheets b. short ballot (8.5x11"), 40-47 bond / 65 cover, 50+ sheets c. long ballot (8.5x22"), 28 bond, 50+ sheets d. long ballot (8.5x22"), 40-47 bond / 65 cover, 50+ sheets The "hotter conditions" is an ambient temperature arround the MCM of at least 95 degrees F. This can come from a space heater, sunlight, or some other means. Include regular ballots, undervotes, and write-in votes. 2. Were any actual or potential **hazards or system damage** observed? 3. Can we **verify valid CVR files** were saved on the USB stick?	1. a. 0% b. 0% c. NOT TESTED YET d. NOT TESTED YET				PARTIAL PASS (short ballots) Temperatures are of concern	Temp of surface above SBC: 52C (125F) while ambient 34C (94F) Temp at base of USB (samsung) 61C (141F)		7		

label	Requirement Category	Requirement	Source of requirement	Acceptance criteria (qualitative description)	Metrics	Test Results (week of 5/6)	Test Results (by Chris/WA, May 2024)	Summary results	Notes	Followup plan	Test Results, Vx (Bellingham)	Order of Testing on 4/29/24, roughly	Estimated time to test (min)	Actual time (min)
1	Paper path, valid ballot	System scans valid ballots in standard conditions, for a variety of documented paper types	VVSG 1.2-G, 2.7-A, 2.7-B, 3.1.6-M, 1.1.6-F, TA2. 1.1-C 1	Scans a variety of paper types	1. **Misfeed rate** when MCM-BR system scans under normal conditions, in any scan orientation, with these ballots: a. short ballot (8.5x11"), 28 bond, 50+ sheets b. short ballot (8.5x11"), 40-47 bond / 65 cover, 50+ sheets c. long ballot (8.5x22"), 28 bond, 50+ sheets d. long ballot (8.5x22"), 40-47 bond / 65 cover, 50+ sheets Include regular ballots, undervotes, and write-in votes. 2. Were any actual or potential **hazards or system damage** observed? 3. Can we **verify valid CVR files** were saved on the USB stick?	1b -- 8.5x11 heavier paper -- test normal conditions, 111 ballots (no abnormal misfeeds) 1c. ~30 ballots	1a. fail 1b. fail 1c. pass 1d. not tested 2. no 3. not tested	PARTIAL PASS	Error seen saying "ballot not counted" wrongly when scanning too quickly back to back (but it is counting) -- can fix this in software. Froze when scanning long ballot.			1	30	
2	Paper path, rejected ballot	System appropriately handles multiple sheets inserted at the same time (MSD)	VVSG 2.7-A, 2.7-B, 1.1.6-F, 1.2-E	Rejects multiple ballots appropriately. Accepts single ballots appropriately.	1. Insert the following types of multiple sheet cases, using valid ballots, in any scan orientation. Try each case at least 3x. **Are the multiple sheets all rejected without jamming?** a. double sheet, no offset, inserted straight b. double sheet, offset by half the length, inserted straight c. double sheet, offset by 3/4 the length, inserted straight d. double sheet, no offset, inserted skew or corner-first e. triple sheet, no offset, inserted straight 2. Were the **rejected ballots resting stable** in the system for retrieval? 3. Confirm results from Test #1 using heavy paper. **Does a single sheet of the heaviest paper correctly get accepted**, and not rejected as multiple sheets?	1a. yes 1b. no 1c. no 1d. yes 1e. ? 2. yes (long ballot) 3. yes	With PDIScanDemo Calibrating following Jonah's guid made this successful. The sheets aren't "rejected" with this software. I detects a multi sheet feed then stops. You can pull the paper out easily. 1a. pass 1b. pass 1c. pass 1d. not tested - infeed path makes this very hard to do. 1e. pass 2. yes 3. If the PDIScanDemo is calibrated with lower # paper, then the heavier paper is detecetd as a multi sheet feed. If calibrated with heavy paper, 2 pages of lower weight paper can be pushed through undetected.	MSD worked fine w/ calibration - check w/ Jonah		add to tests scanning with MCM twisted out of alignment to extreme to see if there are jams, at least 500 sheets. Can make slot in BB a little wider to get more safety to prevent jamming between MCM and BB		2	10	
3	Paper path, rejected ballot	System rejects invalid ballots in standard conditions, for a variety of documented paper types	VVSG 2.7-A, 2.7-B, 1.1.6-F, 1.2-E	Rejects invalid ballots	1. Insert the following types of invalid ballots, in any scan orientation: a. overvote b. wrong election c. blank sheet d. invalid markings Try these invalid ballots on the following paper types. a. short ballot (8.5x11"), 28 bond b. short ballot (8.5x11"), 40-47 bond / 65 cover c. long ballot (8.5x22"), 28 bond d. long ballot (8.5x22"), 40-47 bond / 65 cover Try each case at least 3x. **Are the invalid ballots all rejected without jamming**, and with alerts**?** 2. Were the **rejected ballots resting stable** in the system for retrieval? 3. Were any actual or potential **hazards or system damage** observed?	1a. yes (only 28#) 1b. 1c. 1d.	not tested	we need to test this!				3	10	
4	Paper path, valid ballot	System scans valid ballots in standard conditions with low misfeed rates	VVSG 1.2-G, 2.7-A, 2.7-B, 1.1.6-F	Scans with reliably low misfeed rate	1. **Misfeed rate** when MCM-BR system scans under normal conditions, in any scan orientation, with these ballots: a. worst-case paper type from Test #1, 3000+ sheets 2. Were any actual or potential **hazards or system damage** observed?		1. fail. 5100+ pages fed - 13x sheets "hung" at the back of scanner. Average of 1/392 "hangs" 1. Pass on long paper 21"+ 2. No	to do				4	30	

label	Requirement Category	Requirement	Source of requirement	Acceptance criteria (qualitative description)	Metrics	Test Results (week of 5/6)	Test Results (by Chris/WA, May 2024)	Summary results	Notes	Followup plan	Test Results, Vx (Bellingham)	Order of Testing on 4/29/24, roughly	Estimated time to test (min)	Actual time (min)
5	Paper path, valid ballot	System scans valid ballots with realistic paper disruptions	VVSG 2.7-A, 2.7-B, 1.1.6-F, 1.2-E	Scans reasonably mildly disrupted paper ballot ballots	Scan each the following types of "mildly disrupted paper ballot" ballots, using the worst-case paper type from Test #1. Try each case at least 3x, in either scan orientation: a. folded 1x (middle) --- OPTIONAL b. folded 2x (trifold) c. curled leading edge d. torn (at corners, sides) e. wet (droplets of water or alcohol) f. dirty (juicy marker write-in smudges; paper dust, etc) g. stored in >60% humidity for 24+ hours h. any other disruptions of interest For each "mildly disrupted paper ballot" type, answer this question (y/n): **Does the system accept the ballot appropriately without causing failures?** **OR** **If the disruption is excessive, does the system reject/misfeed the ballot appropriately, while alerting the user?**		Using PDIScanDemo 1a. pass 1b. pass 1c. pass 1d. pass 1e. not tested 1f. not tested 1g. not tested 1h. no Yes. No. Still need to test with Vx Software	some testing of curled and torn ballots, accepted/rejected without problems				5	30	
6	Paper path, rejected ballot	System handles jams appropriately, or fails gracefully	VVSG 1.2-E, 2.6-A	Paper jams can be removed. Paper jams do not cause system damage of failure.	Intentionally try to cause jams using validly completed ballots of both light and heavy paper types: a. short ballot (8.5x11"), 28 bond b. short ballot (8.5x11"), 40-47 bond / 65 cover Try to cause the following types of jams, at least 3x each: a. hold the ballot as it scans b. let the ballot go to scan, then try to pull it out mid-scan c. push the ballot into the scan as it scans d. insert badly crumpled ballot e. insert badly curled ballot f. insert badly torn ballot g. insert very wet ballot (water, alcohol) h. insert folded ballot that was never unfolded i. insert out-of-spec lightweight paper (<28 bond) j. insert out-of-spec heavyweight paper (>47 bond) For each "mildly disrupted paper ballot" type, answer these questions (y/n): 1. If the system jams, can the **jam can be removed** easily? 2. Does the **system continue to work normally** after clearing the jam?		Using PDIScanDemo a. jam detected b. jam detected c. no jam d. no jam e. no jam f. no jam g. not tested h. MSD would signal unless it was not over all the sensors. (vertical folds more than 1" away from right edge would go through. Horizontal folds would signal MSD and stop.) i. no jam j. no jam 1. Yes 2. Yes	to do				6	5	
7	Paper path, cleanability	System accepts scanner cleaning sheets appropriately.	ERD	Handles cleaning sheets appropriately.	Insert scanner cleaning sheets into the system, both dry, and lightly sprayed with alcohol. Test at least 3x. 1. Does the cleaning sheet r**etract without jams**? Note if the cleaning sheet shows evidence of actually cleaning.	no testing of cleaning sheets, but procedurally won't be necessary, have to specifiy will leave it open	not tested	to do	much more access			7	10	
8	Paper path, unexpected inputs	System handles unexpected inputs appropriately.	ERD	Rejects unexpected inputs into the infeed. Fails gracefully at unexpected inputs into the infeed.	Attempt to insert the following into the scanner infeed, and observe the system. a. plastic sheet b. fabric / clothing d. paper with tape on it e. cleaning sheet for a printer f. smart card g. USB stick h. pliers / snake tool i. other items that might unintentionally go in by users j. other items that might go in by bad actors For each case, **does the system avoid catastrophic damage?**		not tested	to do				8	30	

label	Requirement Category	Requirement	Source of requirement	Acceptance criteria (qualitative description)	Metrics	Test Results (week of 5/6)	Test Results (by Chris/WA, May 2024)	Summary results	Notes	Followup plan	Test Results, Vx (Bellingham)	Order of Testing on 4/29/24, roughly	Estimated time to test (min)	Actual time (min)
9	Paper path, valid ballot	System scans valid ballots in hotter environmental conditions	VVSG 1.2-G, 2.7-A, 2.7-B, 1.1.6-F	Scans a variety of paper types in a hotter environment	1. **Misfeed rate** when MCM-BR system scans under hotter conditions (95 degrees F ambient temp), in any scan orientation, with these ballots: a. short ballot (8.5x11"), 28 bond, 50+ sheets b. short ballot (8.5x11"), 40-47 bond / 65 cover, 50+ sheets c. long ballot (8.5x22"), 28 bond, 50+ sheets d. long ballot (8.5x22"), 40-47 bond / 65 cover, 50+ sheets The "hotter conditions" is an ambient temperature arround the MCM of at least 95 degrees F. This can come from a space heater, sunlight, or some other means. Include regular ballots, undervotes, and write-in votes. 2. Were any actual or potential **hazards or system damage** observed? 3. Can we **verify valid CVR files** were saved on the USB stick?		not tested						40	
10	Shock testing, transit testing	Paper path subsystems and parts are robust.	ERD, VVSG 2.7-D	Paper path parts resist damage to benchtop drops during assembly and maintenance.	Take the major components of the paper path (infeed, outfeed, etc). Drop them according to benchtop drop tests standards for all sides/edges (lifting one edge 4", or 45 degrees, or perfect balance point), and examine the damage. **Does it resist catastrophic damage from the drop?**		not tested						20	
11	Transit testing	Paper path subsystems and parts are robust.	VVSG 2.7-E, 3.1.5-K, TA2.7-E 1	Paper path parts resist damage from vibrations during travel.	Examine the MCM paper path parts following air travel and travel in car. 1. Are there any **loose parts**, fasteners, or wires? 2. Is there any **evidence of damage due to vibration** or repeated high-frequency wear motion?		not tested	1. no 2. no					60	