



<b>Manufacturer:</b>	Election Systems & Software (ES&S)
<b>System:</b>	EVS 6.0.4.0
<b>ECO Number:</b>	1045
<b>ECO Description:</b>	Firmware Modification (EV 1.0-1.5.2.1, EV 2.1-2.4.5.1)

**Overview:**

This ECO documents the following updates per request of the State of Arizona:

System Update	Reason for Update
Update "NO SELECTION" text printed on an ExpressVote card to include Spanish. Text will change from "NO SELECTION" to "NO SELECTION/SIN SELECCION"	Changed text to meet Arizona's Spanish Language ballot text requirement
Updated Verification Procedures for ExpressVote 1.0 and ExpressVote 2.1 for newer firmware	Updated ExpressVote 1.0 (fmw. 1.5.2.1) and ExpressVote 2.1 (fmw. 2.4.5.1) Verification Procedures

Affected Systems:

EVS 6.0.4.0

**Supporting Documentation:**

- ECO 1045 ORIGINAL.pdf (ES&S ECO)
- ECO 1045 \_ GEN03 - ExpressVote 1.0 & 2.1 - TestRail.pdf
- ECO 1045 Test Pattern.docx
- ESSSYS\_6'0'4'0\_AZ\_D\_VerProc\_EVOTE\_HW1'0.pd
- ESSSYS\_6'0'4'0\_AZ\_D\_VerProc\_EVOTE\_HW2'1.pdf
- ESSSYS\_6'0'4'0\_BP\_ExpressVoteUVS-v1TrustedBuild1.1.pdf
- ESSSYS\_6'0'4'0\_BP\_ExpressVoteUVS-v2TrustedBuild1.1.pdf
- ESSSYS\_6'0'4'0\_AZ\_D\_VerificationPack.zip

**Engineering Recommendation:**

Source code review, technical documentation review, and functional testing performed to approve change. Testing performed on-site at the ES&S facility by Pro V&V. Testing consisted of functional regression testing and system integration testing executing a general election (GEN03). It was demonstrated that the updates did not adversely impact the system's reliability, overall functionality, accuracy, performance, accessibility, usability, safety, security or system operation. Trusted builds generated during on-site testing. Testing was deemed adequate to verify successful implementation. No additional testing required.

The validated hashes, trusted builds, and version listing for all software modules changed are listed below:

System Component	Version	Validated Hash
ExpressVote UVS v1	1.5.2.1	SHA256: e4bcc58d228a42f2851ff77561aaab4304f9baf9821c4bd6c6398d9be3de8e78
ExpressVote UVS v2	2.4.5.1	SHA256: 7586bd09fc76d5efd381618c7bc3ec042f8fa84e1d63fb81854270447baeed8a

**Engineering Analysis: De Minimis**

**Reviewer:**

Wendy Owens  
Printed Name

Wendy Owens  
Signature

11/21/19  
Date

**Approver:**

Michael L. Walker  
Printed Name

Michael L. Walker  
Signature

11/21/19  
Date