PRO V&V	**ENGINEER CHANGE ORDER (ECO) ANALYSIS FORM**
Manufacturer:	Unisyn Voting Solutions
System:	OpenElect 2.2 (Voting Optical (OVO) component)
ECO Number:	17050
ECO Description:	Prevent Concurrent Close processes

Overview:
This OVO modification addresses the following field issue detected on the OVO module of the OpenElect version 2.2: It was observed that when "Close" cards are used to initiate the close session process on the OVO that when the "Close" card was returned to the operator, the scanner was not disabled. This opened the possibility for the "Close" card to be entered a second time and the potential of starting a second close process. Depending on the timing of these processes, if they occur concurrently (as opposed to sequentially) the close session process will generate a report which shows doubled vote counts and produces a tally.xml file that cannot be uploaded into the central tabulation system. This change will disable the scanner after the "Close" card is returned, preventing the opportunity of creating a secondary close session process. To address the issue, Unisyn is recommending two changes in ReaderClient.java in a single method: processData(). The first change is the addition of a single line of code that sets an existing system flag that tells the OVO to leave the scanner disabled after the current document is ejected. The second change is the addition of a single line of code that re-enables the scanner in the event that the operator does not confirm the start of the close process, so that the voting session can continue.

Products Affected: OpenElect Voting Optical (OVO) 2.2

Per Unisyn, the new Software version for the OVO will be 2.2.1.

Supporting Documentation:
2.2.1 ECO_17050.pdf *(Unisyn ECO)*
Anomaly_Report_Unisyn Voting_04_11_2022.pdf *(Unisyn Anomaly Report)*
OE2.2_OVO_RCA_CONCURRENT_CLOSE_4.19.22.pdf *(Root Cause Analysis)*
OVO Close poll worker_2.2.pdf *(OVO Quick Reference Guide)*
2.2.1_Close_Voting_Di-Minimus Test Cases ECO_17050.xls *(QA Test Cases)*
04-00460 OVS System Operations Guide Warehouse.pdf *(updated TDP document)*
04-00469 OVS_Final_QA_Report.pdf *(Final QA Report)*
04-00594 OpenElect 2.2.1 Release Notes.pdf *(Submitted Release Notes)*
2.2.1_Close_Voting_Di-Minimus Test Cases ECO_17050 - AS RUN.xls *(As-run test cases)*

Engineering Recommendation:
Source Code Review, Technical Documentation Review, Functional Testing and Accuracy Test performed by Pro V&V for final recommendation. Pro V&V reviewed and sampled Unisyn-submitted test cases for functional testing. Pro V&V modified the submitted test cases as needed to efficiently analyze the changes to the system. The modifications to the test cases included adapting the test cases to utilize pre-printed ballots available in sufficient quantity to test the change and removing redundant steps for functionality which was tested in multiple test cases and the Accuracy Test.

Based on testing performed, Pro V&V determined the change did not adversely affect the system functionality, performance, accessibility, usability, safety, or security of the system. The system tested was verified to be accurate during testing with the actual results matching the expected results. No issues were encountered during testing.

The Source Code Review was performed by doing a manual comparison review using ExamDiffPro software. The previously certified source code (version 2.2) was used as the baseline for the comparison against the newly updated source code with the fix incorporated (version 2.2.1). Pro V&V verified the only changes that were made to the newly submitted source code were the two single line code additions and updating the version number.

Pro V&V determined the modification was successfully implemented and no additional testing is required. Pro V&V determined the modification successfully addressed the issue.

This recommendation is based on the software change having the following general characteristics: (1) Update a discrete component of the system and do not impact overall system functionality; (2) Do not modify the counting or tally logic of a component or the system (formatting changes to reports are allowable); (3) Do not affect the accuracy of the component or system; (4) Do not negatively impact the functionality, performance, accessibility, usability, safety, or security of a component or system; (5) Do not alter the overall configuration of the certified system; and (6) Can be reviewed and/or tested by VSTL personnel in a short amount of time (approximately less than 100 hours).

Engineering Analysis: De Minimis – No Additional Testing Required

Reviewer:	**Approver:**
Wendy Owens	Michael L. Walker
Printed Name	Printed Name
Wendy Owens	Michael L. Walker
Signature	Signature
05/13/2022	05/13/2022
Date	Date