NOVO ENGINEERING®

CLIENT:	VotingWorks
PROJECT:	VXScan
DOCUMENT NUMBER:	VWX-002-D009
DOCUMENT TITLE:	ESD Test Report
REVISION:	X01
DATE:	8/2/2024

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1.0 PURPOSE AND SCOPE

The purpose of this test is to verify that the VXScan is resistant to electrostatic discharges. Resistance means either the discharge has no effect, or it induces a soft error that causes no permanent damage. This document covers the 3.1 and 4.0 devices.

2.0 REFERENCES

2.1 Internal References

Document Number	Document Title
N/A	VxScan Electromagnetic Compatibility (EMC), Environmental, and Vibration Testing RFP, 5/1/2024 Version
N/A	VxScan v3.1 and v4.0 Tests of Normal Function, 5/20/2024 Version

2.2 External References

Document Number	Document Title
IEC 6100-4-2	Testing and measurement techniques – Electrostatic discharge immunity test

3.0 ACRONYMS AND TERMS DEFINED

Acronym	Definition
EUT	Equipment Under Test
ESD	Electrostatic Discharge

4.0 ITEMS UNDER TEST, MATERIALS, EQUIPMENT, AND CONDITIONS

4.1 Items Under Test

Item	Item #	Rev	Lot #	Sample Size
EUT	VXScan	3.1	n/a	1
EUT	VXScan	4.0	n/a	1

4.2 Conditions

The VXScan device is placed on a tabletop ground plane, configured as specified by IEC-61000-4-2.

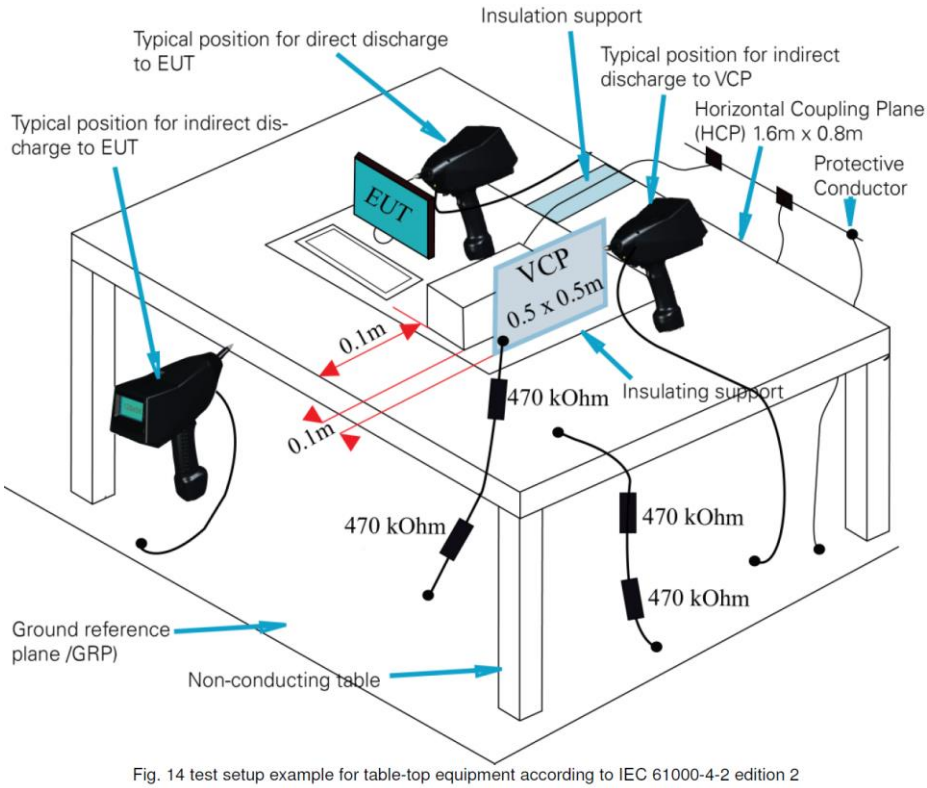

Fig. 14 test setup example for table-top equipment according to IEC 61000-4-2 edition 2

5.0 PROCEDURE

The EUT is placed in the center of the ground plane and powered up. 16KV contact discharges were applied to many points on the EUT, especially the display, screw heads and any places likely to be touched by the user. A Haefely ONYX 30 ESD gun was used for the testing.

6.0 ACCEPTANCE CRITERIA

The EUT is either unaffected by the discharge or it recovers without permanent damage.

7.0 RESULTS

The 3.1 unit had no effects from any of the discharges.

The 4.0 unit had no permanent damage, but discharges to the corners of the display caused the display to go black for a fraction of a second but returned to normal operation without operator intervention. No other discharges caused any problems.

8.0 CONCLUSION & RECOMMENDATIONS

Both units meet the pass criteria. However, blanking the display after a discharge on the 4.0 unit is undesirable. A repeat of the test with the final configuration should be performed and mitigation of the soft errors, if still present, should be considered.

REVISION HISTORY AND APPROVALS

Rev	Description	CR#	Date	Submitted By
X01	Submitted to Client	N/A	8/2/2024	D. Dull