Washington State
Department of Transportation

WSDOT Test Method T 422

Test Method for Traffic Controller Transient Voltage Test (Spike Test) Procedure

1. SCOPE

   This test method is intended to evaluate traffic signal controllers for the transient voltage test defined in NEMA TS-1 2.2.3.2, as modified. This test is to be performed with the surge protector or line filter properly connected in the cabinet.

2. REFERENCE DOCUMENTS

   NEMA Publication TS-1

3. SAFETY

   Use proper equipment to reduce the risk of electrical shock.

4. APPARATUS

   Transient voltage generator capable of placing a 300 V spike on the power supplied to the controller cabinet.

5. PROCEDURE

   a. Program the controller unit to cycle on minimum recall.

   b. Connect the controller cabinet to the transient voltage generator as outlined by the manufacturer.

   c. With the spike generator set to minimum, apply power to the system. Ensure the controller unit is operating normally.

   d. Adjust the generator output so that a 300 V ± 5% positive or negative pulse with a 1 microsecond rise and a 10 microsecond width pulse (spike) is placed on the input power, for 10 minutes.

   e. Reverse the polarity from step 5d, reapply the pulse for 10 minutes.

   f. Reduce the spike to minimum, then disconnect the power.

   g. Restore normal power supply to the cabinet.

   h. During the preceding transient test the controller unit must continue its programmed functions. During phase cycling, the controller unit shall not skip intervals; shall not place false calls or produce false indications while in dwell; shall not disrupt normal sequences in any manner; or shall not change timings.

6. REPORT

   Record any response found to be in disagreement with the published standards, report pass or fail and any corrective actions taken on the test report.

Performance Exam Checklist

Test Method for Traffic Controller Transient Voltage Test (Spike Test) Procedure Method T 422 Checklist

Participant Name _____ Exam Date _____

Procedure Element		Yes	No
1.	Program controller for minimum recall	❒	❒
2.	Connect line noise generator to controller per manufactures recommendations.	❒	❒
3.	With the noise generator set to minimum verify controller is operating normally.	❒	❒
4.	Adjust noise generator for 300V spike.	❒	❒
5.	Reverse polarity and repeat 4	❒	❒
6.	Reduce spike to minimum and restore normal power.	❒	❒
7.	Document test results on report.	❒	❒

First attempt: Pass ❒ Fail ❒ Second attempt: Pass ❒ Fail ❒

Signature of Examiner _____

Comments: