



WSDOT SOP 429

Methods for Determining the Acceptance of Traffic Signal Controller Assemblies

1. Scope

The purpose of this procedure is to provide a documented method for the steps involved with inspection and testing of the completed traffic controller cabinets.

2. Reference Documents

- WSDOT Standard Specifications 9-29.13
- WSDOT Test Method T428, Traffic Controller Compliance Inspection and Test Procedure
- WSDOT Test Method T421, Traffic Controller Cabinet Inspection Procedure
- WSDOT Test Method T425, Environmental Chamber Test Procedure
- WSDOT Test Method T422, Transient Voltage Test (Spike Test) Procedure (optional)
- WSDOT Test Method T423, Conflict Monitor Test Procedure
- WSDOT Test Method T427, Loop Amplifier Test Procedure
- WSDOT Test Method T424, Power Interruption Test Procedure

3. Process

WSDOT Test Method T428 Traffic Controller Compliance Inspection and Test Procedure

When the Traffic Controller Cabinet assembly arrives for testing, the Contractor Representative (typically the Vendor) should have an appointment scheduled. Within seven (7) calendar days of arrival, the Contractor Representative shall assemble and demonstrate the Traffic Controller Cabinet assembly. Test Method T428 is the root test procedure for complete testing of Traffic Controller Cabinet assemblies. T428 provides the sequence in which testing shall be completed for a Traffic Controller Cabinet assembly unless otherwise specified in the Contract Document(s) and/or Special Provision(s), or as scheduling demands allow. All other test methods in this document are a subset of T428, and are outlined below.

WSDOT Test Method T421 Traffic Controller Cabinet Inspection Procedure

Test Method T421 shall be completed in the presence of the Contractor Representative (typically the Vendor). After acceptance for testing, a letter or an e-mail is to be sent to the Project Engineer and/or the local agency identifying the assembly as ready for testing. If the assembly of the Traffic Controller Cabinet and acceptance for testing is not complete within seven (7) calendar days of delivery, disposition of the Traffic Controller Cabinet is at the discretion of the Electrical Materials Laboratory personnel. The Electrical Materials Laboratory personnel may authorize the return of the assembly to the Contractor, with collect freight charges to the Contractor. This test method may also be performed standalone, if requested by a Project Office.

WSDOT Test Method T425 Environmental Chamber Test Procedure

Immediately after completion of T421, the Traffic Controller Cabinet assembly shall undergo Environmental Testing as described as T425. This test method will determine the ability of the Traffic Controller Cabinet assembly to withstand various environmental and line input conditions as outlined in Caltrans TEES (Transportation Electrical Equipment Specifications), FHWA-IP-78-16 (Federal Highway Administration Type 170 Signal Controller System Hardware Specification), AASHTO/ITE/NEMA ATC 5301 (Advanced Transportation Controller Cabinet Standard), NEMA TS-1 (Traffic Control Systems), and NEMA TS-2 (Traffic Controller Assemblies with NTCIP Requirements). This test method may also be performed standalone, if requested by a Project Office.

WSDOT Test Method T422 Transient Voltage Test (Spike Test) Procedure (optional)

T422 is an optional test, and is only to be performed on random samples or if specified in the Contract Document(s) or Special Provision(s). This test will determine the ability of the Traffic Controller Cabinet assembly to withstand transient line input Voltages. T422 shall only be performed on NEMA Type Traffic Controller Cabinet assemblies and 300 Series (Type 170/2070) Traffic Controller Cabinet assemblies. This test method may also be performed standalone, if requested by a Project Office.

WSDOT Test Method T423 Conflict Monitor Test Procedure

T423 will evaluate the operation of the Conflict Monitor Unit (CMU), also known as a Malfunction Management Unit (MMU). This test method may also be performed standalone, if requested by a Project Office.

WSDOT Test Method T427 Loop Amplifier Test Procedure

T427 will evaluate the operation of the individual Loop Amplifiers which are supplied with each Traffic Controller Cabinet assembly. If a Traffic Controller Cabinet assembly is not equipped with any Loop Amplifiers (i.e., when configured for video or radar detection), this test method may be skipped. This test method may also be performed standalone, if requested by a Project Office.

WSDOT Test Method T424 Power Interruption Test Procedure

T424 will evaluate the operation of the Traffic Controller Cabinet assembly when subjected to power interruptions of 450 milliseconds, and power interruptions greater than 500 milliseconds. This test only applies to NEMA Type Traffic Controller Cabinet assemblies and Advanced Transportation Controller (ATC) Cabinet assemblies, and shall be skipped on 300 series (Type 170/2070) Traffic Controller Cabinet assemblies. This test method may also be performed standalone, if requested by a project office.

Upon completion of all testing, the test report shall be archived in MATS for any interested parties to obtain. If there are three (3) or more failures after the Traffic Controller Cabinet assembly has passed T421 and T425, the Traffic Controller Cabinet assembly shall be rejected. Otherwise, the Contractor Representative (typically the Vendor) may address the deficiencies and the process may be re-started at the beginning of the failed test, or at the beginning of the highest level failed test.

Upon successful completion of all tests, custody of the Traffic Controller Cabinet assembly shall be transferred to the designated Regional Signal Shop for further testing if specified in the Contract Document(s) or Special Provision(s), or if specified by the Project Office. Otherwise, custody of the Traffic Controller Cabinet assembly shall be transferred to the Contractor.

WSDOT SOP 429 PROCESS FLOWCHART

