

Portable Traffic Signal Worksheet;
Section 00225.15

August 30, 2011

Product: _____ Date: _____

Manufacturer: _____

I, _____, officially represent the manufacturer, and hereby certify that the listed product meets the following requirements, and that I have submitted sufficient documentation to prove this.

- Applicable sections of
 - American National Standards Institute (ANSI)
 - International Municipal Signal Association (IMSA)
 - Underwriter's Laboratories (UL)
 - National Electrical Manufacturer Association (NEMA)
 - National Electrical Safety Code (NESC)
 - National Electrical Code, Oregon Amended (NEC)
 - Standards of the American Society for Testing and Materials (ASTM)
 - Manual of Uniform Traffic Control Devices (MUTCD)
 - Institute of Transportation Engineers (ITE)
 - Local Laws
- At least one vehicle signal located over the traveled way with a minimum vertical clearance of 5.2 m (17 feet).
- Use 300 mm (12 inch) vehicle signal lenses with backplates and visors.
- Use vertically arranged vehicle signal sections.
- Provide conflict monitoring of green and yellow field indications.
- Provide operational monitoring of the controller operation, interval sequences, and signal indication outputs or lack thereof.
- In the event of conflicting indications or operational failure, failed state shall be red flash.
- Hardwire Interconnect the two units for timing and conflict monitoring.
- Provide cellular or other immediate methods of failure notification.
- Operational units must withstand a design wind speed of 129 km/h (80 mph).
- Signal system capable of providing vehicle detection and actuated operation.
- Provide an engraved, metallic ID Plate in a conspicuous position on or near the cabinet that includes the manufacturer's name, address, model number, and serial number of all major components.

I understand that if there are any modifications made to this model, I will notify ODOT as soon as possible, for possible re-evaluation. Failure to do so will result in Rejection of the product from the Qualified Products List (QPL).

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ODOT Testing - I understand that I will have to submit the equipment to ODOT for review prior to approval for additional testing and evaluation. I will not submit product for testing until I have received written approval to do so.

(A) Control Equipment Testing - The following traffic signal control equipment will be delivered to ODOT for testing. ODOT will require six weeks for completion and evaluation of the testing.

- Controller cabinet
- Power supplies
- Input devices
- Output devices
- Conflict monitors
- Flasher units
- Relays
- Preemption devices
- Auxiliary equipment in the cabinet
- Other equipment required for the operation of the installation

The control equipment will be tested in three categories: physical, functional and environmental.

(1) Physical Testing – This will consist of an inspection for quality of work and conformance to Contract Documents. The inspection will include:

- All specified equipment, wiring diagrams, operation manuals and documentation supplied
- The overall quality of the equipment and cabinet wiring

(2) Functional Testing – This will include checking:

- All specified input and output control functions for proper operation
- For proper operation of all non-control devices, such as switches, circuit breakers, outlets, fans and ground fault interrupts (GFIs)

Functional testing will be done at normal temperature and supply voltage, with the control devices set up and connected to a display panel and input simulator.

The controller unit timing and control functions will be programmed, and the inputs adjusted to simulate actual traffic control conditions. The control devices will be visually observed during the test for proper input, output and control operation.

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(3) Environmental Testing – This will include checking the ability of devices to operate as specified, under conditions of variable temperature and power supply voltage.

The control equipment will be set up in an environmental chamber. Testing, monitoring and simulation apparatus will be connected and adjusted. Controller unit timing and control functions will be programmed. The control equipment will be turned on and the operation allowed to stabilize at least 30 minutes before testing.

The initial testing is performed at normal temperature and power supply voltage, and includes the spike test and timing test.

The spike test introduces 300 V AC positive and negative spikes onto the power supply. The equipment is observed for any disruption to normal operation.

The timing test monitors and records the accuracy of controller timing functions, such as minimum green, maximum green, walk, and yellow.

The control equipment will be cycled through temperatures from -34 °C to +73 °C (-30 °F to +165 °F). The control equipment will be required to operate for a maximum of 12 hours at both the high and low temperatures. During operation of the high and low temperature limits the accuracy of the controller unit timing functions will again be monitored and recorded.

The power supply voltage will be varied between 95 V AC and 130 V AC during the temperature test. Standard procedure is to use 95 V AC during the low temperature cycle and 130 V AC during the high temperature cycle.

Following completion of the temperature testing, the control equipment is removed from the environmental chamber, set up and connected to a display panel and input simulator. The control equipment will be required to operate for a maximum of 72 hours at normal temperature and power supply voltage under simulated traffic control conditions. Operation will be visually observed on a random basis during the test.

(B) Control Equipment Failure - A traffic signal control equipment failure is any occurrence that results in non-specified operation of the equipment.

The Manufacturer will be notified of all control equipment failures, and shall be allowed to make on-site repairs within five days of receiving the notification.

Following repair of the control equipment, the testing will be resumed at the beginning of the test category in which the failure occurred.

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(C) Control Equipment Rejection - The traffic signal control equipment will be rejected under either of the following conditions:

(1) Twice Fail - The control equipment fails twice in the same testing category.

(2) Failure to Repair - The Manufacturer fails to repair the control equipment within five days of receiving notification of the failure.

Pick up rejected traffic signal control equipment within 10 days of receiving the rejection notice, or it will be returned, at Manufacturer's expense, to the Manufacturer.

Replace with control equipment having a different serial number.

Rejected control equipment will not be accepted for testing or installation on any subsequent traffic signal project within the State of Oregon.

(D) Control Equipment Acceptance - Traffic signal control equipment that successfully passes the testing procedure will be certified by the Agency as acceptable for placement on the QPL and installation. Acceptability for installation does not guaranty final acceptance of the completed installation.

The successful completion of the testing does not relieve the Contractor of the responsibility to furnish a complete working signal installation at the time the equipment is placed in operation.

The Manufacturer will be notified when the testing has been completed. The Manufacturer may pick up the controller cabinet at the test facility.

(E) Field Testing - Field testing of traffic signal installations will be performed by Agency electrical crews at the time of Contract use. Failure could result in Rejection of the product from the QPL.

Submit the items shown on the [Product Review Guideline](#) to:

Oregon DOT – New Products Coordinator

800 Airport Road SE

Salem OR 97301-4792

503-986-3059

<http://www.oregon.gov/ODOT/HWY/CONSTRUCTION/QPL/QPIndex.shtml>

After written request from ODOT, deliver the traffic signal control equipment and information to:

Oregon Department of Transportation

Traffic Signal Services Unit

2445 Liberty St. NE

Salem, Oregon 97303-6738