

**STATE OF NEW JERSEY
DEPARTMENT OF TRANSPORTATION
TRENTON, NEW JERSEY 08625**

**METRIC SPECIFICATIONS FOR OPTICALLY CONTROLLED
EMERGENCY VEHICLE DETECTION SYSTEM**

N.J. Specification No. EBM-EOVD

Effective Date: July 1, 2001

New Jersey Department of Transportation Specifications for an Optically Controlled Emergency Vehicle Detection System.

The purpose of these specifications is to describe minimum acceptable design and operating requirements for an Optically Controlled Emergency Vehicle Detection System.

GENERAL - I

- 1-1 The system shall consist of an optical emitter, optical detectors, phase selector or interface card and rack and other miscellaneous equipment.
- 1-2 The manufacturer must supply certification by an independent technical laboratory as to equipment compliance with the current NEMA Environmental Standard in accordance with NEMA testing procedures.
- 1-3 The local controllers to be utilized with the system shall meet current New Jersey Specification.

OPTICAL EMITTER - II

- 2-1 The optical emitter assembly shall consist of an emitter with hardware for mounting on a vehicle, an emitter control switch with hardware for mounting in a vehicle and wiring to connect to the vehicle battery.
- 2-2 The assembly shall operate from a supply voltage of 12.5 to 17.5 volts DC utilizing approximately 2 amps.
- 2-3 The emitter shall produce precise pulses of light utilizing a xenon gas- filled tube in the lamp assembly when activated by the driver. The light pulses shall then activate the optical receiver system.
- 2-4 The emitter shall deliver sufficient optical energy to activate the optical detector from a distance of 550 meters.
- 2-5 The preemption call shall terminate upon clearing the intersection.

- 3-6 The emitter shall be directional, only preempting the signal which the vehicle is approaching. If a signal on an adjacent road is preempted, the installation shall be considered unacceptable.

OPTICAL DETECTOR - III

- 3-1 The optical detectors shall be a light weight, weather proof device capable of detecting light pulses generated by optical emitters and convert the light pulses into appropriate electrical pulses necessary to place a pre-emption call to the intersection controller.
- 3-2 The unit shall be designed for easy mounting at or near an intersection on a mast arm or pedestal.
- 3-3 The unit shall accept optical signals from two directions and provide a single electrical output signal.
- 3-4 The unit must be responsive to the optical emitter at a distance of 550 meters.
- 3-5 A five second fixed time delay may be utilized to compensate for lost or intermittent signal transmission from the emergency vehicles.

PHASE SELECTOR OR INTERFACE CARD AND RACK - IV

- 4-1 The phase selector or interface card and rack supplies power to and receives electronic impulses from the optical detector. When the detector signals are recognized as valid the phase selector shall send a signal to the traffic signal controller.
- 4-2 Each channel of the unit shall be capable of placing a call input to the local traffic signal controller during detection, utilizing the external relay logic in the traffic signal control cabinet.

INSTRUCTIONS AND GUARANTEES - V

- 5-1 One set of complete schematics and maintenance manual of the equipment shall be supplied with each assembly furnished.
- 5-2 No changes or substitutions in these requirements will be acceptable unless authorized in writing. Inquiries regarding this specification shall be addressed to the Manager, Office of Traffic Signal and Safety Engineering, New Jersey Department of Transportation, P.O. Box 613, 1035 Parkway Avenue, Trenton, New Jersey 08625.
- 5-3 The complete control and auxiliary equipment shall carry a two (2) year guarantee from the date of delivery against any imperfections in workmanship or materials.
- 5-4 The company agrees upon the request of the Manager, Office of Traffic Signal and Safety Engineering to deliver to the Office, a sample of the control equipment to be

supplied in compliance with these specifications for inspection and test before acceptance. After completion of the test, the sample shall be returned.

- 5-5 The company shall furnish any and all equipment which they deem necessary for safe and reliable field operation of the control equipment.