



**Emergency Vehicle Optical Emitter  
Procurement Guideline  
03/09/2012**

**SCOPE**

This procurement guideline covers optical Emergency Vehicle Preemption (EVP) Emitters mounted on Emergency Vehicles. This document is intended to aid local agencies with the purchase of optical emitters that will be compatible with MNDOT traffic signals which have optical emergency vehicle preemption.

**Mechanical requirements**

1. Shall be directional
2. Shall weigh  $\leq 2.5$  LBS
3. Shall mount directly on top of a vehicle.
4. May be incorporated into rooftop light bars.

**Electrical requirements**

5. Shall operate with an input voltage in the range of 10 - 32VDC.
6. Shall draw an average of 2.8 amps at 12.8 VDC.
7. Shall draw a maximum of 5 amps at 12.8 VDC.
8. Shall be solid-state with the exception of the light source.

9. Shall have a infrared LED light or visible light strobe lamp source with center frequency and tolerance as follows:
  - a. High Priority Preemption: 14.035 Hz. +/-0.003 Hz.
  - b. Low Priority Preemption: 9.639 Hz. +/-0.003 Hz.
  - c. Shall emit a minimum total energy flash of 0.75 - 1.8 joules.
  - d. Shall have a rise time less than one microsecond.
  - e. Shall have a half power point pulse width of between 0.3 and 30 microseconds.
10. Shall meet FCC part 15 subpart J Class A specifications

### **Environmental Requirements**

1. Operate over an ambient temperature range of from -34° C to +60° C (-30° F to +140 ° F).
2. Shall have encapsulated electronics.
3. Shall operate over a range of 5% to 95% relative humidity.
4. Shall have waterproof electrical connectors where they will be exposed to the outside environment.
5. Shall have a housing that is weatherproof.

## **Operational Requirements**

1. Shall be capable of emitting enough optical energy to place a preemption call at a minimum of 762m (2500 feet) with all Emergency Vehicle Preemption systems listed on the MNDOT APL for Signals.
  - a. The effective range adjustment of the preemption system using optical emitters is made at the traffic signal cabinet. When geometrics of the intersection are good, emergency vehicle preemption can easily be adjusted to detect an approaching emergency vehicle with a properly mounted emitter at (762m) 2500 feet.
2. Shall have a feature that when the vehicle is in park or neutral, the emitter is automatically shut off preventing intersection lockup.
3. Shall have a built in self-diagnostic capability.
4. Shall be able to generate and transmit unique optical codes.

## **Vehicle Mounting Requirements**

The unit must be mounted in accordance with the manufactures instructions and guidance regarding the best solution for your system and vehicle configuration. Failure to comply with the published mounting and configuration requirements may reduce the effective range of the emitter and cause the intersection being preempted to respond slowly due to diminished light levels reaching the optical detector at the intersection.

## **Warranty**

1. Shall have a minimum 5 year warranty.
2. Shall cover both parts and labor to repair failed units.
  - a. Units must be removed and returned to the manufacturer for repair or replacement.
3. Emitter strobe lamps if used shall have a 1 year warranty.

## **Models Known To Meet the Requirements of This Procurement Guideline**

1. Global Traffic Technologies Model 492, 792, 794.
2. Tomar Electronics Inc. Model 3065 & 3065-R.