

(1) Trains, locomotives or other railroad equipment standing within the system's approach circuit, other than normal train movements or switching operations, where the warning system is not designed to accommodate those activities.

(2) Not providing alternative methods of maintaining safety for the highway user while testing or performing work on the warning systems or on track and other railroad systems or structures which may affect the integrity of the warning system.

**§ 234.211 Security of warning system apparatus.**

Highway-rail grade crossing warning system apparatus shall be secured against unauthorized entry.

**§ 234.213 Grounds.**

Each circuit that affects the proper functioning of a highway-rail grade crossing warning system shall be kept free of any ground or combination of grounds that will permit a current flow of 75 percent or more of the release value of any relay or electromagnetic device in the circuit. This requirement does not apply to: circuits that include track rail; alternating current power distribution circuits that are grounded in the interest of safety; and common return wires of grounded common return single break circuits.

EFFECTIVE DATE NOTE: At 79 FR 49715, Aug. 22, 2014, § 234.213 was revised, effective Oct. 21, 2014. For the convenience of the user, the revised text is set forth as follows:

**§ 234.213 Grounds.**

(a) *General.* Except as provided in paragraph (b) of this section, each circuit that affects the proper functioning of a highway-rail grade crossing warning system shall be kept free of any ground or combination of grounds that will permit a current flow of 75 percent or more of the value necessary to retain a permissive state of a safety appliance.

(b) *Exception.* Paragraph (a) of this section does not apply to the following:

- (1) Circuits that include track rail;
- (2) Alternating current power distribution circuits that are grounded in the interest of safety;
- (3) Circuitry internal to microprocessor-based appliances;
- (4) Circuitry internal to semiconductor-based memory; and
- (5) Common return wires of grounded common return single break circuits.

**§ 234.215 Standby power system.**

A standby source of power shall be provided with sufficient capacity to operate the warning system for a reasonable length of time during a period of primary power interruption. The designated capacity shall be specified on the plans required by § 234.201 of this part.

[66 FR 49560, Sept. 28, 2001]

**§ 234.217 Flashing light units.**

(a) Each flashing light unit shall be properly positioned and aligned and shall be visible to a highway user approaching the crossing.

(b) Each flashing light unit shall be maintained to prevent dust and moisture from entering the interior of the unit. Roundels and reflectors shall be clean and in good condition.

(c) All light units shall flash alternately. The number of flashes per minute for each light unit shall be 35 minimum and 65 maximum.

**§ 234.219 Gate arm lights and light cable.**

Each gate arm light shall be maintained in such condition to be properly visible to approaching highway users. Lights and light wire shall be secured to the gate arm.

**§ 234.221 Lamp voltage.**

The voltage at each lamp shall be maintained at not less than 85 percent of the prescribed rating for the lamp.

**§ 234.223 Gate arm.**

Each gate arm, when in the downward position, shall extend across each lane of approaching highway traffic and shall be maintained in a condition sufficient to be clearly viewed by approaching highway users. Each gate arm shall start its downward motion not less than three seconds after flashing lights begin to operate and shall assume the horizontal position at least five seconds before the arrival of any normal train movement through the crossing. At those crossings equipped with four quadrant gates, the timing requirements of this section apply to entrance gates only.