



Traffic Infraction Detector Equipment and Testing Specifications

December 16, 2010

1.0 General

1.1 Purpose

The "Mark Wandall Traffic Safety Act" was signed into law with an effective date of July 1, 2010. The law authorizes the use of Traffic Infraction Detectors, commonly known as red light running cameras, on state, county, and municipal roads, streets, and highways in the State of Florida.

Section 316.07456, Florida Statutes, was created and requires that any Traffic Infraction Detector (TID) in Florida meet equipment and testing specifications developed by the Florida Department of Transportation (FDOT). The specifications described below establish such requirements as the minimum acceptable standard.

1.2 Scope

The scope of these specifications is limited to the operational and technical requirements of TID field equipment and technology used for red light running enforcement. Installation and placement specifications are described in the separate FDOT document, *Traffic Infraction Detector Installation and Placement Specifications*.

1.3 Definitions

1.3.1 Compliant Vehicle

A motor vehicle that stops behind the stop bar or clearly marked stop line when facing a traffic control signal steady red indication or traveling over the stop bar or clearly marked stop line when facing traffic control signal steady green or steady yellow indications.

1.3.2 Event

When a motor vehicle fails to stop behind the stop bar or clearly marked stop line when facing a traffic control signal steady red indication.

1.3.3 Traffic Signal Maintaining Agency

The County, City, or other authorized governmental agency in Florida that has operational and/or maintenance responsibility for the traffic control signal equipment at a given intersection. If the traffic control signal equipment is on a State Road, this is the agency that has an executed maintenance agreement with the Florida Department of Transportation.

1.3.4 Traffic Infraction Detector

Section 316.003(87), Florida Statutes defines a *Traffic Infraction Detector* (TID) as a vehicle sensor installed to work in conjunction with a traffic control signal and a camera or cameras synchronized to automatically record two or more sequenced photographic or electronic images or streaming video of only the rear of a motor vehicle at the time the vehicle fails to stop behind the stop bar or clearly marked stop line when facing a traffic control signal steady red light.

2.0 Event Scenarios

2.1 Event with Single Vehicle in Single Lane

The TID shall capture an Event with a single vehicle in a single through lane.

2.2 Event with Single Vehicle with Multiple Compliant Vehicles in Single Lane

The TID shall capture an Event with a single vehicle in a single through lane with the presence of multiple compliant vehicles in the same lane.

2.3 Event with Single Vehicle with Multiple Compliant Vehicles in Multiple Lanes

The TID shall capture an Event with a single vehicle in a single through lane with the presence of multiple compliant vehicles in the same and adjacent through lanes.

2.4 Event with Multiple Vehicles in Single Lane

The TID shall capture multiple Events with multiple vehicles in a single through lane.

2.5 Event with Multiple Vehicles in Multiple Lanes

The TID shall capture multiple Events with multiple vehicles in the same and adjacent through lanes.

2.6 Left Turn Lane Events

The TID shall meet the requirements of Sections 2.1 – 2.5 for left turn lane Events.

2.7 Right Turn on Red

The TID shall be capable of identifying Events where the speed of a single vehicle or multiple vehicles making a right turn on red is more than a configurable threshold speed. Speed shall be in miles per hour.

3.0 Event Information

3.1 Images and Video

The TID shall capture and store the following Event information:

1. Photographic or electronic image of the intersection that includes the rear of the vehicle and license tag at a time the vehicle is in advance of the stop bar or clearly marked stop line with the corresponding traffic control signal steady red light visible in the image;
2. Photographic or electronic image of the intersection that includes the rear of the vehicle and license tag at a time the vehicle is beyond the stop bar or clearly marked stop line with the corresponding traffic control signal steady red light visible in the image; and
3. If Right Turn on Red events are enforced, a minimum of 5 seconds of streaming video of the intersection that includes the rear of the vehicle and license tag beginning at a time the vehicle is in advance of the stop bar or clearly marked stop line with the corresponding traffic control signal steady red light and ending at a time after the vehicle is beyond the stop bar or clearly marked stop line with the corresponding traffic control signal steady red light.

At least one of the two photographic or electronic images of the license tag, including license tag state, number and specialty logo (if applicable), shall be clearly legible. The viewable images shall have a minimum pixel resolution of 640 by 480.

The video shall have a minimum pixel resolution of 320 by 200 with a minimum frame rate of 5 frames per second.

The TID shall include protective measures to prevent modification or unauthorized manipulation of captured and stored photographic or electronic images and video.

The TID shall not capture nor store any front photographic or electronic images or videos of vehicle occupants.

3.2 Alpha-numeric Data

The TID shall capture and store the following Event information in English text and/or Arabic numerals:

1. Names of intersecting Street and Highways;
2. A unique identifier of the intersection;
3. Lane number;
4. Direction of travel;
5. Month, day and year of the Event;
6. Hour, minute, and second of the photographic or electronic images in the local time; and
7. The difference in time from the beginning of the traffic control signal steady red light to the associated photographic or electronic images in tenths of a second.

The time of the photographic or electronic images or video shall be synchronized to an external source such that it is always within +/- one minute of Coordinated Universal Time (UTC).

The alpha-numeric data and corresponding photographic or electronic image(s) shall be automatically captured at the same time. The data shall be associated with the photographic or electronic image without human intervention.

4.0 TID Equipment

4.1 Electromagnetic Interference

The TID equipment shall not interfere with any traffic control signal or other FDOT or Traffic Signal Maintaining Agency equipment. TID equipment that requires regulation by the Federal Communications Commission (FCC) shall meet the requirements in the 2005 Code of Federal Regulation (CFR), Title 47, Part 15, and be FCC certified. The FCC identification number shall be externally displayed on the TID equipment.

4.2 Illumination

If visible illumination is used, the power of an illuminator (flash) device shall not exceed 350 watts/second. The illuminator device shall have the capability of being filtered and/or positioned to limit effects on the drivers' field of vision.

4.3 Vandalism

TID cabinets and camera housings shall have protective measures against vandalism.

5.0 Traffic Signal Equipment

If the Traffic Signal Maintaining Agency allows access to the traffic control signal cabinet, the TID shall not impact operations or maintenance of the traffic control signals, pedestrian signals, or any other traffic control devices.

5.1 Traffic Control Signal Cabinet

Any attachment to traffic control signal cabinet wiring shall be electrically isolated from the traffic control signal cabinet. Electrical sensing devices shall be "donut" current transformers or Hall-effect devices. All other physical or electrical connections to traffic signal control circuits shall not be allowed, including load switch driver control circuits, load switch signal circuits and detection circuits.

5.2 Surge Protection

All TID equipment shall be electrically isolated from traffic signal equipment. If the Traffic Signal Maintaining Agency allows access to the traffic control signal cabinet, a surge protective device(s)

shall be installed on any conductive bonds between the traffic control signal cabinet equipment and the TID equipment to protect the traffic signal equipment. If electric power is obtained from an FDOT or Traffic Signal Maintaining Agency power service, a surge protective device(s) shall be installed between the TID equipment or circuit breaker and the power service. All surge protective devices and grounding systems installed shall meet the current FDOT Standard Specifications for Road and Bridge Construction.

6.0 Testing

Testing shall be conducted in accordance with the manufacturer's recommendations or in accordance with the County or City testing requirements, whichever is more stringent. Testing shall be conducted at regular intervals in accordance with the manufacturer's recommendations or in accordance with the County or City testing requirements, whichever is more frequent.

At a minimum, testing shall include:

6.1 System Test Function

The TID shall activate and create Event information consistent with an Event, when artificially activated by a system test function.

6.2 Self Test Function

The TID shall perform and record the results of a daily internal self test sequence that confirms proper operation of each critical system component. If the system fails on one or more portions of the internal self test, the system will render itself inoperable until a successful internal self test is recorded.

7.0 Documentation

The TID manufacturer shall provide the following documentation:

- Installation and/or users manual(s) required to install and calibrate all TID equipment;
- Operations, maintenance and/or service manual(s) required to operate and maintain all TID equipment;
- Testing results in accordance with Section 6.0; and
- A certification statement signed by an authorized official of the manufacturer indicating that the manufacturer's TID conforms to these specifications.